

BIPT

Ter attentie van de **sector van de elektronische communicatie**

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Betreft : Voorafgaandelijke raadpleging betreffende het voorstel tot wijziging van de referentieaanbiedingen van Belgacom van 17 februari 2012

Op 17 februari 2012 heeft het BIPT van Belgacom **aanzienlijke wijzigingen aan de referentieaanbiedingen BRxx en WBA** ontvangen, waarmee Belgacom ingaat op de verplichtingen voortkomende uit de beslissing van de CRC van 1 juli 2011 betreffende de analyse van de breedbandmarkten en de beslissing van de Raad van het BIPT van 11 augustus 2011 betreffende de referentieaanbiedingen BRUO/BROBA/WBA VDSL2/BROTSoLL 2010. Belgacom heeft eveneens van de gelegenheid gebruik gemaakt om op vrijwillige basis nieuwe wijzigingen voor te stellen. Een lijst met al deze wijzigingen alsook een copie van de gewijzigde referentieaanbiedingen zijn als bijlage bij deze brief gevoegd.

Met deze brief, **nodigen wij u uit om te reageren op het voorstel** van Belgacom aangaande de wijziging van de referentieaanbiedingen **op volgende wijze** :

- via e-mail op het volgende adres : axel.palmaers@ibpt.be
- tot vrijdag **16 maart 2012 ten laatste 12u**
- omwille van technische redenen zijn de voorgestelde wijzigingen aan het BRUO, BROBA et WBA VDSL2 referentieaanbod afzonderlijk gepubliceerd op de website van het BIPT. Wij vragen u echter om uw reacties op de voorstellen te consolideren in één enkel document
- wij vragen u om in dit stadium nog geen opmerkingen te voorzien aangaande de bijzonderheden van de operationele processen zoals deze verduidelijkt worden via de *process flows* die voorzien worden in de bijlagen van de referentieaanbiedingen.

Axel Palmaers (+32 2 226 88 46) zal met plezier antwoorden op eventuele vragen die u hierover zou hebben.

Bijlage(s) :
1. Lijst met aanpassingen aan de referentieaanbiedingen
2. Lijst met documenten betreffende de referentieaanbiedingen in bijlage
3. Referentieaanbiedingen BRUO, BROBA et WBA VDSL2 aangepast op 17 februari 2012

Pagina 1 van 7

BIJLAGE 1 – LIJST MET AANPASSINGEN AAN DE REFERENTIEAANBIEDINGEN

Voornaamste wijzigingen

1. Het invoegen van een duidelijk **onderscheid** tussen de « **Ordering** » en de « **Provisioning** » processen.
2. **Gedetailleerde omschrijving van de operationele processen** op basis van « process flows » zoals voorgesteld in OWG/1106
3. De invoeging van een nieuwe **procedure voor verandering van de Tie cable** in het geval er een defect op een DSLAM poort van de OLO aanwezig is (enkel **BRUO**)
4. De invoeging van een **nieuwe procedure om met de meetresultaten van de alternatieve operatoren rekening te houden** in het geval van een vraag tot herstel en het opzetten van een gestandiseerde template (BRUO)
5. **De herintroductie van notificatietermijnen betreffende IT wijzigingen** gezien dit per ongeluk afgeschaft is geweest tijdens de vorige herziening van de referentieaanbiedingen
6. De invoeging van een **Backhaul GE aanbod** in de BROBA en WBA aanbiedingen
7. De invoeging van een **vergoeding** van het type « **pending order due to useless end-user visit** »
8. De invoeging van een **clausule** waardoor Belgacom een **niet redelijke vraag tot toegang** kan weigeren
9. Verbetering van de coherentie tussen een **Basic SLA en een Improved SLA voor wat betreft repair** in overeenstemming met de inhoud van de « ISLA Repair Information Session » zoals voorgesteld door Belgacom tijdens OWG/1105
10. **Verduidelijking van de aanbiedingen betreffende de berekening van de SLA's**, de geïndividualiseerde KPI verslagen en de mogelijke **compensaties** die daaruit kunnen voortvloeien
11. Verfijning van de SLA's aangaande de IT tools

Kleinere aanpassingen

12. Uniformisering van de termen « end-user » en « user » tussen de verschillende aanbiedingen

13. De beperking « if no further delay because of public domain obligations » zoals vermeld in het BRUO aanbod wordt uitgebreid naar de BROBA et WBA referentieaanbiedingen
14. De termijnen verbonden aan een aanvraag met betrekking Dedicated VLAN profielen in het BROBA aanbod zijn vanaf nu ook opgenomen in het WBA aanbod
15. De invoeging van een beschrijving van de bijlagen bij de referentieaanboden onder de titel « General Information » in de bijlage GT&C
16. De bijlagen bij het WBA aanbod zijn hernummerd
17. De bijlagen Pricing and Billing bevatten vanaf nu een samenvattende tabel met de prijzen
18. De verwijzingen naar de escalatieprocedures zijn verbeterd
19. ...

Compléments d'information

Voor wat betreft de afzonderlijke facturering van de activeringskosten, de desactiveringskosten en de kosten aangaande de configuratie zoals gevraagd door Belgacom in het kader van het BROBA Ethernet aanbod goedgekeurd door de beslissing van de Raad van het BIPT op 11 augustus 2011, heeft Belgacom aangegeven dat ze de oorspronkelijke situatie opnieuw ingevoerd heeft ondanks deze beslissing omwille van materiële redenen.

BIJLAGE 2 - LIJST MET DOCUMENTEN BETREFFENDE DE REFERENTIEAANBIEDINGEN

De documenten betreffende de referentieaanbiedingen die men terug kan vinden in bijlage 3 worden opgedeeld in de volgorde zoals hieronder weergegeven.

Voor technische redenen werden de voorstellen van wijzingen aan de referentieaanbiedingen BRUO, BROBA en WBA VDSL2 in 4 onafhankelijke delen gepubliceerd op de website van het BIPT. De URL's van deze 4 delen worden hieronder meegedeeld.

Deel 1A - BRUO

Deze documenten zijn op het volgende adres beschikbaar :

<http://ibpt.be/ShowDoc.aspx?objectID=3707>

Type	Document	Description
BRUO	Main Body	
BRUO	Annex A	General Terms and Conditions
BRUO	Annex C	Technical ecifications
BRUO RC	Annex D1	Billing and Accounting
BRUO SP	Annex D2	Billing and Accounting
BRUO	Annex D3	Billing and Accounting
BRUO	Annex E	Planning and Operations
BRUO	Annex F	OSS
BRUO	Annex G1	Basic SLA
BRUO	Annex G2	ISLA Repair
BRUO	Annex G3	ISLA Provisioning
BRUO	Annex H	Price List

Deel 1B - BRUO

Deze documenten zijn op het volgende adres beschikbaar :

<http://ibpt.be/ShowDoc.aspx?objectID=3708>

Type	Document	Description
BRUO RC	Annex B1.1	SD2010
BRUO RC	Annex B1.2	SD2030
BRUO RC	Annex B1.3	SD2035
BRUO	Annex B1.4 B2.4 Appendix A	
BRUO	Annex B1.4 B2.4 Appendix B	
BRUO RC	Annex B1.4	SD2040
BRUO RC	Annex B1.5	SD2015
BRUO RC	Annex B1.6	SD2045
BRUO RC	Annex B1.7	SD2050
BRUO	Annex B1.8	Multiple pairs ordering
BRUO SP	Annex B2.1	SD3010

BRUO SP	Annex B2.2	SD3030
BRUO SP	Annex B2.3	SD3035
BRUO SP	Annex B2.4	SD3040
BRUO SP	Annex B2.5	SD3015
BRUO SP	Annex B2.6	SD3045
BRUO	Annex Ja	Intro
BRUO	Annex Jb	NDA
BRUO	Annex Jc	Technical Spec Tie Cable
BRUO	Annex Jd	Type 1 Pair Selection
BRUO	Annex Je	Type 2 Pair Selection
BRUO	Annex Jf	Shared Pair Pair Selection
BRUO	Annex Jg	Technical Spec Cables
BRUO	Annex Jh	KVD streets
BRUO	Annex K	Migrations to BRUO/BROBA/WBA

Deel 2 - BROBA

Deze documenten zijn op het volgende adres beschikbaar :

<http://ibpt.be/ShowDoc.aspx?objectID=3709>

Type	Document	Description
BROBA ADSL	Main Body	
BROBA ADSL	Annex 2	Technical Spec
BROBA ADSL	Annex 6	Pricing and Billing
BROBA ADSL-SDSL	Annex 1	General Terms and Conditions
BROBA ADSL-SDSL	Annex 2	Technical Spec
BROBA ADSL-SDSL	Annex 3	Exchange of information
BROBA ADSL-SDSL	Annex 4	Planning and Operations
BROBA ADSL-SDSL	Annex 5	Basic SLA
BROBA ADSL-SDSL	Annex 5A	ISLA Repair
BROBA ADSL-SDSL	Annex 5B	ISLA Provisioning
BROBA ADSL-SDSL	Annex 8	Prepayment Terms Conditions
BROBA SDSL	Main Body	
BROBA SDSL	Annex 2	Technical Spec
BROBA SDSL	Annex 6	Pricing and Billing

Deel 3 - WBA VDSL2

Deze documenten zijn op het volgende adres beschikbaar :

<http://ibpt.be/ShowDoc.aspx?objectID=3710>

Type	Document	Description
WBA VDSL2	Main Body	
WBA VDSL2	Annex 1	General terms and conditions
WBA VDSL2	Annex 2	Technical Spec
WBA VDSL2	Annex 3	Planning and Operations
WBA VDSL2	Annex 4	Basic SLA
WBA VDSL2	Annex 4	ISLA Repair
WBA VDSL2	Annex 4	ISLA Provisioning

WBA VDSL2	Annex 5	Pricing and Billing
WBA VDSL2	Annex 6	Prepayment Terms Conditions
WBA VDSL2	Annex 7	OLO CPE (public version)

BIJLAGE 3 – REFERENTIEAANBIEDINGEN AANGEPAST OP 17 FEBRUARI

BRUO

(part 1)

Belgacom's Reference Ull Offer

For Telecommunications Operators

Created on: 16 February 2012

belgacom

together with





together
with



1 Table of contents

1	Table of contents.....	2
2	Introduction	4
2.1	Scope of the Reference Offer for ULL	4
2.2	General Principles and Limits of the Reference Offer for ULL	5
2.3	Definitions	5
2.4	Terminology, Structure and Concepts of the Belgacom copper Local Access Networks.....	11
2.5	Practical information	12
3	Technical Implementation of ULL Services	14
3.1	Raw Copper	14
3.1.1	Access to a Raw Copper Loop	14
3.1.2	Types of Raw Copper Loops	17
3.1.3	Network Termination Point related to Raw Copper Loops or (Sub-)Loops.....	18
3.2	Shared Pair	19
3.2.1	Access to the Shared Pair Service.....	19
3.2.2	Termination of the voice subscription with Shared Pair.....	20
3.2.3	Types of Shared Pair Service	21
3.2.4	Network Termination Point.....	21
3.3	Spectrum Management and equipment aspects	22
3.4	Beneficiary delivered Tie Cabling, Demarcation point and access to the MDF	22
4	Ordering of Raw Copper Services.....	23
4.1	Ordering of Raw Copper (Sub-)Loops	23
4.1.1	Type 1 and Type 2 Raw Copper orders and related orders.....	23
4.1.2	Rejection of Requests for Raw Copper	27
4.2	Ordering of equipment for pre-provisioning	28
4.2.1	Blocks, Tie Cabling and Cable Tray	28
4.2.2	Billing and Accounting in ordering Blocks, associated Cables, Cable Trays	29
5	Conditions with respect to Raw Copper Services.....	30

6	The ordering of Shared Pair Services	30
6.1	Ordering of Shared Pair Services	31
6.1.1	Standard Shared Pair Services and related orders	31
6.1.2	Reject of Requests for Shared Pair Services.....	33
6.2	Ordering Blocks, associated Cables, Cable Trays and Splitters	35
6.2.1	Blocks, associated Cables, Cable Trays and Splitter	35
6.2.2	Billing and Accounting in ordering Blocks, associated Cables, Cable Trays and Splitter	35
7	Conditions with respect to Shared Pair Services	36
8	Usage of a unique reference for migrations of without PSTN or ISDN Belgacom services.....	36
9	Operation of ULL Services	37
10	Colocation Services.....	37
11	Migration.....	38
12	Pricing and Billing of Belgacom ULL Services	38
13	Evolution of the ULL offer.....	38
	Annexes to the Reference offer.....	39

Belgacom's Reference Offer for ULL

2 Introduction

2.1 Scope of the Reference Offer for ULL

1. The present Reference Offer for ULL deals with the ULL Services that Belgacom offers to a Telecommunications Operator¹, hereafter called "Beneficiary".
2. The ULL Services included in this Reference Offer for ULL encompass the following services, as defined and described below:
 - Raw Copper Services
 - Shared Pair Services
 - Colocation Services
3. For the provision of Colocation Services reference is made to the Colocation Agreement in annex to this offer. Subscriptions to this agreement is a pre-requisite to install equipment in a Belgacom building. The conclusion of a Colocation Agreement constitutes a prerequisite for the provision of Colocation Services to any Beneficiary who wishes to install its equipment in a Belgacom building. For the sake of clarity, Colocation Services are to be used in the regulatory framework of the Belgacom reference services allowing the right to obtain Colocation (BRIO, BRUO, BROBA).

¹ "Telecommunications Operator" under the present Reference Offer is to be understood as entitled to provide telecommunications services under national legislation, and which is eligible for unbundled access to a local loop.

2.2 General Principles and Limits of the Reference Offer for ULL

4. The prices and conditions contained in the present Reference Offer for ULL are applicable for the period from January 1 to December 31, 2006. Any modification or extension that may be made by Belgacom or by BIPT to the present Reference Offer will be included in this Reference Offer for ULL, through the publication of specific addenda that will be approved preliminary by BIPT.
5. The provision of ULL services is subject to the conclusion of a Raw Copper or a Shared Pair agreement between Beneficiary and Belgacom according to the General Terms and Conditions
6. Belgacom will keep the full ownership of the equipment and network elements that belong to it and that have been installed by Belgacom or on behalf of Belgacom and that are used to provide ULL Services to the Beneficiary.
7. Without prejudice to what is stated in this Reference Offer, the Beneficiary can only obtain ULL Services with a view in accordance with the conditions set forth in the articles 12 and 22 of the General Terms and Conditions of the present reference offer.
8. Belgacom is not responsible for the content of the communications conveyed using ULL Services.

2.3 Definitions

9. The capitalized terms in the present Reference Offer for ULL have the meaning as defined below:

Active (Sub-)Loop	A (Sub-)Loop that is actively used by Belgacom to provide Voice Telephony Service to a specific User before the unbundling of the (sub-)loop is asked.
Active Equipment	Equipment which has to be electrically fedded (pair gain system, concentrators,...)
ADSL	Asymmetric Digital Subscriber Line
BIPT	Belgian Institute for postal services and telecommunications



Block	The 100 pair or 48 pair connecting block dedicated to one Beneficiary on which Belgacom will connect the ULL Services as ordered by the Beneficiary
Cable Tray	Cable Tray is used to lead Tie Cabling from the Beneficiary's equipment to the Belgacom Main Distribution Frame
Certified Technician	Any technician employed either by a Beneficiary or by one of Beneficiary's subcontractors, trained and certified by Belgacom in order to perform, in place of a Belgacom technician, the installation of the BRUO Raw Copper lines.
Colocation Agreement	An agreement concluded between Belgacom and a Beneficiary which covers, in particular, the technical, operational, billing, planning and financial conditions for the Colocation Services provided by Belgacom to the Beneficiary
Colocation Area	Part of a Colocation Room allocated to a single Beneficiary.
Colocation Room	Dedicated room in a Belgacom building, designated by Belgacom, where Beneficiaries can install their equipment.
Co-mingling	<p>Physical Colocation Service whereby the Beneficiary installs their authorized equipment next to or near equipment of Belgacom in a Belgacom building. The Beneficiary has an accompanied access based on a contract concluded between Beneficiary and a Security Firm agreed by Belgacom.</p> <p>Pursuant the original advice regarding co-mingling, Belgacom reserves the right for its free choice regarding the location of the co-mingling area within the Belgacom building.</p>
Co-mingling Area	Part of a Co-mingling Zone allocated to a single Beneficiary



Co-mingling Zone	The spaces selected by Belgacom within the Belgacom technical building where Co-mingling can be offered
Colocation Services	Colocation Services as described in the Colocation Agreement in annex to the present Reference Offer
Connection Cable	The cable from the dedicated Beneficiary Blocks to the Belgacom Splitter rack
Connectors	Physical points of connection on which the Extended Tie Cables are terminated in case of Distant Colocation
Cross Connection Cabinet	Cabinet used in conjunction with Distant Colocation Services at which the Beneficiary Cable is connected to a Belgacom Extended Tie Cable
Demarcation Point (DP)	The point marking the boundary between the Belgacom's and the Beneficiaries domains of responsibility
Distant Colocation	Colocation Service in a Cross Connection Cabinet in the immediate vicinity of a Belgacom building
Extended Tie Cable	The cable from the dedicated Beneficiary Blocks to a Cross Connection Cabinet located in the immediate vicinity of the Belgacom building
gShDSL	Symmetric High bit rate Digital Subscriber Line
HDSL	High bit rate Digital Subscriber Line
Introduction Cable	Cable between the Introduction Splice on the Distribution



	Network and the Network Termination Point at the User premises
KVD	KabelVerDeler (streetcabinet)
LDC Building Colocation	Colocation Service whereby the Beneficiary installs authorized equipment in Belgacom LDC building. This form of Colocation is realized pursuant Annex I 4, Case 1.
LDC Container Colocation	Colocation Service whereby the Beneficiary installs authorized equipment in Belgacom LDC Container. This form of Colocation is realized pursuant Annex I 4, Case 2.
LDC Cabinet Colocation	Colocation Service in a Cabinet in the immediate vicinity of a Belgacom LDC building or container; pursuant Annex I 4, Case 3
LDC Distant Colocation	Colocation Service in a Cross Connection Cabinet in the immediate vicinity of a Belgacom LDC building or container; pursuant Annex I 4, Case 4
Local Loop	A pair of fully metallic continuous unequipped copper wires on the section between Belgacom's Main Distribution Frame at the Belgacom Local Exchange and the User site connected on a Network Termination Point, in some cases realized by means of small network adaptations as defined in § 2.1.1.4 of the present Reference Offer. The Loop can be a Non-active Loop or an Active Loop.
Local Sub-loop (Sub-loop)	A part of a Local Loop connecting the Network Termination Point at the User's premises to a Concentration Point (like LDC, KVD, ...) or equivalent facility in the Network
LDC	Local Distribution Center
Migration	Specific type of Request for an active Raw Copper (Sub-) Loop as described in §4.1.1



Non-active (Sub-)Loop	A (Sub-)Loop that is not actively used by Belgacom to provide Voice Telephony Service to a specific User before the unbundling of the (sub-)loop is asked
Party	Depending on the context, Belgacom and/or the Beneficiary entering into an ULL or Colocation Agreement
Physical Colocation	Colocation Service whereby the Beneficiary installs authorized equipment in Belgacom building
Reference Offer (for ULL)	The present offer for ULL Services
Request	The Beneficiary's demand concerning the delivery of a Raw Copper (Sub-)Loop or Shared Pair Service as described in this Reference Offer
SDSL	Symmetric Digital Subscriber Line (an acronym for g.Shdsl)
Services of Electronic Communications	Services as defined in the law on electronic communications of 13/06/2005, art. 2, 5° ("service de communications électroniques" / "elektronische communicatiedienst")
Splitter	Passive element that separates the low frequency part (used for voice) of the loop from the high frequency part of the loop
Tie Cable	The cable from the dedicated Beneficiary Blocks to the Physical Colocated equipments of the Beneficiary for Raw Copper Services or from the



Splitter rack to the Colocation / Co-mingling Area for Shared Pair Services

Type	Qualification of the loop, determined by spectrum management rules and rules of usage
ULL Services	ULL Services described in the present Reference Offer for ULL
Unequipped	Without any type of Active Equipment or specific passive elements like load coils, repeaters or other equipment causing non-continuity in the Raw Copper (Sub-)Loop
Virtual Colocation	Colocation Service whereby Belgacom installs Beneficiary's authorized equipment in a Belgacom building. In this case, the Beneficiary has no access to the Belgacom building. Belgacom will ensure the maintenance and the Beneficiary will manage remotely it's equipment.
Working Day	Each day from: 8h00 - 16h30 except Saturday, Sunday, national legal holidays in Belgium and 26 December of each calendar year
XDSL	General term used to cover the various DSL applications (ADSL, HDSL, SDSL, gShDSL, VDSL, ADSL 2, ADSL2+, enhanced SDSL, ...)

2.4 Terminology, Structure and Concepts of the Belgacom copper Local Access Networks

10. A good understanding of the structure, terminology and concepts that Belgacom currently uses in its copper Local Networks may help the Beneficiary to develop its services based on ULL. A concise overview of the structure and elements used in the Belgacom Network is therefore given hereafter. Network information listings are published on the Belgacom secured website.
11. Belgium is divided in 594 Local Networks. As a rule the number of and boundaries of a Local Network are rigid and only exceptionally changed, e.g. to take into account changes in the physical structure of the environment; to correct anomalies; etc.
12. Each Local Network is served by a Local Exchange Building (LEX), which is the interconnection point of that Local Network to the Belgacom Backbone Network. Each LEX will include the Main Distribution Frame (MDF) of that Local Network, local loop line access equipment and transmission equipment for the connection to the Backbone Network.
13. To facilitate and optimise the management and development of a Local Network, following Concentration Points are used in the Belgacom Local Networks:
 - Local Distribution Centre (LDC): an active Concentration Point installed typically in a small (prefab) building, containing a distribution frame, local loop line equipment and transmission equipment for relay with the LEX, two types of LDC's can be distinguished: LDC's that do have copper pairs available from the LDC to the LEX and LDC's that do not have this.
 - Cross Connectable Street Cabinet (KVD – 'Kabelverdeler' or 'Borne'): A Concentration Point, containing a cross connect distribution frame. At the level of some KVD's active equipment, e.g. pair gain systems or line access equipment, may be installed.
14. The number of and area served by an LDC or KVD is flexible to allow an optimised development of the Local Network.
15. Above Concentration Points will divide the Local Network into following network levels:
 - Local junction: The copper cables between the LDC and LEX. These cables may be used:
 - To connect Users in or out of the serving area of an LDC to the LEX. These Users will be cross connected on the Distribution Frame of the LDC directly towards the LEX, i.e. without using (active) line equipment installed in the LDC.
(Remark: The number of Users, that can be directly connected to the LEX, will depend on the capacity of the local junction cable). In some cases, there is no facility to connect such users. Those LDC's are explicitly indicated by Belgacom.
 - As bearer of a transmission system to connect the LDC line equipment with the LEX.

- Feeder Network: The copper ‘feeder’ cables between the LEX or LDC and the KVD.
 - Distribution network: The copper ‘distribution’ cables in the street, between the KVD or LDC and the Introduction Cable at User premises. The KVD or LDC is thus the connection point between the Feeder Network and the Distribution Network.
16. As there is no Concentration Point in the Belgacom network ‘after’ the KVD, the buildings of the Users are connected via an Introduction Cable², which is directly spliced on the distribution cables. This splice is referred to as Introduction Splice or Distribution Point.
 17. The access line will be terminated at the User premises in the Network Termination Point (NTP). Inside a multi-tenant building it may use the so-called ‘vertical cabling’, i.e. the common cable network, which makes the distribution to the different apartments to reach the NTP in the relevant apartment.
 18. Depending of the location of the User premises, his access line may be composed out of one or more of the above levels.
 19. Occasionally active or passive equipment may be installed on some loops in the Local Networks, mainly:
 - Load coils
 - Pair gain systems
 - Repeaters

2.5 Practical information

20. Basic information and data regarding the Belgacom local network, relevant to ULL Services, are included in Annex J.
21. Further requests for information concerning the present Reference Offer for ULL can be made in writing by interested parties at the following Belgacom contact point. In particular, in the event of doubt as to the interpretation of the provisions of this Reference Offer, Belgacom should be contacted. In the event of doubt, contacting Belgacom is without prejudice to any clarification of the reference offer given by the BIPT.
22. In case of disagreement about the interpretation, one of the parties can request the institute for a decision on the specific case. This decision will be taken within a reasonable term and will take into account the legal

² In some (big) buildings the Distribution or Feeder Cable is directly introduced in the building, without Introduction Splice.

framework and the valid advice. The possibility for the parties to present the institute a problem in interpretation, will not influence the legal means that remain at the parties' disposal in case of a conflict.

Belgacom

Wholesale & Carrier Services Business Unit

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23. The transmission by Belgacom of some type of information (e.g. the addresses of Belgacom buildings) is subject to the prior signing of a Non Disclosure Agreement (included in Annex J) by the requesting party. Furthermore, after prior approval by BIPT, a payment may be due for obtaining certain documents.
24. It is also a right for everyone who has signed a Non Disclosure Agreement to obtain information via a Belgacom website through a secured access. Information on how to access the mentioned website can be obtained at the Belgacom contact point mentioned above.

3 Technical Implementation of ULL Services

3.1 Raw Copper

3.1.1 Access to a Raw Copper Loop

3.1.1.1 Access to the existing Raw Copper Loops at LEX level

25. Beneficiaries have the right to gain access to an end-to-end Raw Copper Loop at Belgacom Local Exchange buildings (see list of Belgacom Local Exchange buildings in Annex J), on the condition that the requested copper pair is unequipped. A pair is equipped when load coils or Active Equipment (coupling, repeaters, correctors, etc.) are present in the relevant circuit/s. Belgacom will make an equipped pair unequipped when possible. In case that the equipped pair cannot be made unequipped, this will be proved to the Beneficiary. For the sake of clarity, pairs can not be made unequipped in case this equipment is dedicated to multiple users or in case this removal does impact in any possible way other services or Users. It is further required that the Raw Copper Loop exists and can be used without the need of severe network modification works, which have to be proved to the Beneficiary. In this respect, the small network adaptations performed by Belgacom are described in §3.1.1.4 as defined below.
26. The Beneficiary will have access to a Raw Copper Loop at the Belgacom Main Distribution Frame (MDF) on which the Raw Copper Loop is terminated. The access will be realised (see fig.1) by using dedicated Horizontal Blocks per Beneficiary (hereafter called “Blocks”) on the MDF concerned. The Beneficiary’s access to the Raw Copper Loop will be established by connecting Tie Cables, installed on Cable Trays, from the Beneficiary’s dedicated Blocks at the MDF to the Beneficiary’s Colocated equipment in case of Physical or Virtual Colocation, or by connecting Extended Tie Cabling to a Cross Connection Cabinet in the immediate vicinity of the Belgacom building, in case of Distant Colocation.
27. The installation and maintenance of the (Extended) Tie Cables and Blocks will be handled by Belgacom.
28. The Demarcation Point will be
 - in case of Physical or Virtual Colocation: the point on the Tie Cable just before it is connected to the colocated equipment of the Beneficiary.
 - in case of Distant Colocation: the Connectors in a Cross Connection Cabinet in the immediate vicinity of the Belgacom Local building.
29. The access to the Raw Copper Loop at the User site will be at the Belgacom Network Termination Point (NTP) as described in §3.1.3 below.

30. Except with respect to the Belgacom interventions for small network adaptations and subject to what is stated below, the installation of a Network Termination Point, where relevant, and the establishment of cross connections in the local access network between the Distribution Cable and the Feeder Cable are part of the provisioning and installation of a Raw Copper Loop under the present Reference Offer. If decided by the Beneficiary, part of the installation can be executed by a certified technician chosen by the Beneficiary.

3.1.1.2 Access to Sub-loops at LDC level

31. Raw Copper Sub-loop at LDC level means a pair of fully metallic continuous unequipped copper wires on the section between Belgacom's Distribution Frame at the Belgacom Local Distribution Center (LDC) and the User's address connected on a Network Termination Point if it is existing. The Raw Copper Sub-loop can be delivered on a Non-active Sub-loop or an Active Sub-loop.
32. Beneficiary has the right to gain access to an end-to-end Raw Copper Sub-loop in the Belgacom access network, on condition that the requested copper pair is unequipped. A pair is equipped when load coils or Active Equipment (coupling, repeaters, correctors, etc.) are present in the relevant circuit/s. Belgacom will make an equipped pair unequipped when possible. In case that the equipped pair cannot be made unequipped, this will be proved to the Beneficiary. It is further required that the Raw Copper Sub-loop exists and can be used without the need of severe network modification works, which have to be proved to the Beneficiary. In this respect, the small network adaptations performed by Belgacom are described in §3.1.1.4 as defined below.
33. The access to the Raw Copper Sub-loop at the Belgacom network side will be realized at the LDC on the Belgacom Distribution Frame by using dedicated Blocks per Beneficiary.
34. The Demarcation Point will be
- in case of LDC Building or Container Colocation: the point on the Tie Cable just before it is connected to the Beneficiary's equipment colocated equipment of the Beneficiary.
 - in case of LDC Cabinet Colocation: the Connectors in a Cross Connection Cabinet in the immediate vicinity of the Belgacom Local building.
 - in case of LDC Distant Colocation: the place where the Belgacom and Beneficiary cabling is joined together
35. Except with respect to the Belgacom interventions for small network adaptations and subject to what is stated below, the installation of a Network Termination Point, where relevant, and the establishment of cross connections in the local access network between the Distribution Cable and the Feeder Cable are part of the provisioning and installation of a Raw Copper Sub-loop under the present Reference Offer.

36. The Beneficiary has the right of access to the Sub-loop at LDC level. However he may ask for unbundling of the loop starting from the LEX, even if the user is (if it is an active loop) in Service from the LDC, except where no direct connection to the LEX from the LDC is possible, which has to be proved to the Beneficiary.

3.1.1.3 Access to Sub-loops at Street Cabinet level

37. Access to Raw Copper Sub-loop at Street Cabinet Level means a pair of fully metallic continuous unequipped copper wires exists on the section between Connectors in the Belgacom Street Cabinet and the User's address connected on a Network Termination Point if it is existing. The raw copper Sub-loop can be delivered on a non-active Sub-loop or an active Sub-loop.
38. Beneficiary has the right to gain access to an end-to-end Raw Copper Sub-loop in the Belgacom access network, on condition that the requested copper pair is unequipped. A pair is equipped when load coils or Active Equipment (coupling, repeaters, correctors, etc.) are present in the relevant circuit/s. Belgacom will make an equipped pair unequipped when possible. It is further required that the Raw Copper Sub-loop exists and can be used without the need of severe network modification works, which have to be proved to the Beneficiary. In this respect, the small network adaptations performed by Belgacom are described in §3.1.1.4 as defined below.
39. The access to the Raw Copper Sub-loop at the Belgacom network side will be realized in the Street Cabinet by using dedicated Blocks per Beneficiary, if it is technically possible (the impossibility has to be proven to the Beneficiary) and provided that Belgacom and the Beneficiary have agreed on the specific terms and conditions of this Sub-loop access. Belgacom provides the BIPT a copy of the said agreement 5 working days after the finalization of the agreement with the Beneficiary. Without prejudice to the feasibility or non-feasibility, an access to a Raw Copper Sub-loop at the Street Cabinet level will always be subject to a dedicated study performed on a case by case basis.
40. The Demarcation Point will be the point where the Belgacom Cable (coming from the dedicated Beneficiary Blocks) and the Beneficiary's Cable are joined together.
41. Except with respect to the Belgacom interventions for small network adaptations and subject to what is stated below, the installation of a Network Termination Point, where relevant is part of the provisioning and installation of a Raw Copper Sub-loop at Street Cabinet Level under the present Reference Offer.
42. Specific pricing for access to the Sub-Loop at the Street Cabinet level will be determined on a case-by-case basis after preliminary approval of BIPT.

3.1.1.4 Small network adaptations

43. In some cases, the pair of fully metallic continuous unequipped copper wires exists from the Belgacom Main Distribution Frame at the Belgacom LEX, LDC or KVD up to the Distribution Cable in the street in front of the User premises.
44. In case no Introduction Cable is available for the provisioning of a Raw Copper Loop, the following solutions will be applicable:
- Realization of a new introduction in the building of the Beneficiaries User
 - Renewal of the introduction in the building of the Beneficiaries User
 - Splicing additional pairs in the existing introduction splice of the building of the Beneficiaries User
 - Moving existing introduction from an existing Distribution Cable to another existing Distribution Cable.
45. These solutions will only be available upon specific request of the Beneficiary and providing that the Belgacom standard conditions for access are fulfilled. This requires that a free duct or an open trench is available on the private domain. If a free duct or an open trench is not available on the private domain, Belgacom can be asked to also perform this part of the work on condition that the Beneficiary agrees to pay the non-discriminatory commercial price for that part of the work performed by Belgacom. This price will be determined on a case by case basis.
46. The certified technicians will never perform Small Network Adaptations.
47. Belgacom will only perform the Small Network Adaptations if the splicing is done in front of the premises of that specific User. Belgacom will provide an Introduction Cable with a standard length of 20 meters to provide connection between the Distribution cable and the Network Termination Point. In case an introduction with a length of more than 20 meters has to be provided, Belgacom will charge the Beneficiary the relevant price for the extra work. On the private domain, duct and trench must be provided by the Beneficiary.
48. In case no more free pairs are available in the Distribution Cable or the Feeder Cable, the request for Raw Copper Loops will be rejected. The construction or trenching of new distribution cabling, new street cabinets or new feeder cabling is outside the scope of the present offer.

3.1.2 Types of Raw Copper Loops

49. The following types of Raw Copper Loops are offered under the present Reference Offer for ULL (for technical details concerning the nature of the signals to be used on each type of Raw Copper Loops, see the Technical Specifications Document that can be found in Annex C):

- **Raw Copper Loops of Type 1:** Basic Raw Copper Loop only to be used for the transmission of signals (including and starting from direct current) within the voice frequency band, being PSTN or Raw Copper Loop only to be used for the transmission of signals for which the binary rate is smaller or equal to 64 kbit/s or for the transmission of signals using ISDN basic access line code.
- **Raw Copper Loops of Type 2:** Raw Copper Loop to be used According to the rules of the technical specifications document (annex c). The Beneficiary can also use the Raw Copper Loop like Type 1, obviously.

50. In ordering, Beneficiary indicates the type of loop per qualification as described above. Belgacom will handle requests for Type 1 loops as PSTN and Type 2 loops as ADSL over PSTN with respect to matters of repair and the quality of service related to the repair requests. Belgacom will not bear any liability relating to the absence of qualification of the loop when the loop qualification (e.g. Type 1 PSTN, Type 1 ISDN, Type 2 ADSL, Type 2 SDSL) was not included with the repair request. If this qualification is different from the default documented qualification as above, Beneficiary is invited to specify the service residing on the loop if this is necessary to facilitate the repair process. Repair and maintenance occur with the preservation of the technical characteristics of the line, unless impossible. In the later case Belgacom will inform the Beneficiary of the reasons of this impossibility.
51. The use of a totally unbundled (Sub-)Loop is free, provided that the Beneficiary complies with the “Spectrum Management” rules. The “Spectrum Management” rules regarding Unbundled Loops are described in Annex C to the present Reference Offer. Rules for “Spectrum Management” can be proposed by the Task Force Spectrum Management or by BIPT and can be added to the Annex C of the present Reference Offer by decision of BIPT.
52. Depending on the type of equipment that is directly connected to the unbundled Local (Sub-)Loop, different rules for the bringing into service and for the service level can be applicable after preliminary approval of BIPT.
53. Other types of loops (loop type x, with x = 3,4,...) could be defined in the future by proposal of the Task Force Spectrum Management or BIPT, and added to the annex c of the present Reference Offer, by decision of the BIPT. No party (either Belgacom or a Beneficiary) is allowed to use other type of loops or another technology until this type or technology is added to the Annex C, unless exception allowed by BIPT.

3.1.3 Network Termination Point related to Raw Copper Loops or (Sub-)Loops

54. If documentation shows that no Network Termination Point is present on the Raw Copper Loop or (Sub-)Loop, such Network Termination Point will be installed will be installed by Belgacom, or – if decided by the Beneficiary – by a certified technician chosen by the Beneficiary. This intervention is referred to as Telecom Installation for Raw Copper. The process to define whether this type of intervention is required is described in the appendix A of this document: “NTP Process for Provide New Raw Copper orders”.

This is automatically the case for small network adaptations (see § 2.1.1.4. above), and the installation cost of the NTP is therefore included in the SNA fee. New internal cabling must always, except when specified otherwise, be provided by Belgacom, or under his responsibility, if existing internal cabling is insufficient in capacity of free pairs or of poor quality.

55. The attention is drawn to the fact that Belgacom reserves the right to propose to the BIPT on a non-discriminatory basis various scenarios to provide an adequate answer to the situation in which a cable (sometimes referred to as internal cabling) is placed between the Network Termination Point and the Introduction Cable. Such an answer is to be developed on a case-by-case basis and would need to take into account, in particular and where relevant, the presence of an introduction box, the way of introducing the loop in the building of the User, the specific status of the cabling, the nature of the building and/or the work to be accomplished to offer the service.
56. The current way of working will be evaluated after the necessary experience has been obtained by all parties in the installation of raw copper loops and circuits. Belgacom will re-evaluate the offer and reserves the right to propose the necessary modifications on this item to BIPT for approval.

3.2 Shared Pair

3.2.1 Access to the Shared Pair Service

57. Beneficiaries have the right to gain access to the Shared Pair Service at a Belgacom Local Exchange Building or at Belgacom Local Distribution Center.
58. The Shared Pair Service requires that the User has a subscription for a single line PSTN or ISDN BA Belgacom service. Any modification or a cancellation of the single line PSTN or ISDN BA Belgacom service requested by the User, will affect the access to or the price of the Shared Pair Service by the Beneficiary. The specific procedures that are applicable in those circumstances are described in the Planning and Operations Document (Annex E).
59. A Shared Pair Service can therefore only be offered on a single, non-loaded and active pair. No load coils or other active equipment can be present in the circuit.
60. In case load coils or other active equipment are present in the circuit, Belgacom will provide a process for proceeding with a new pair choice if technically feasible, where infeasible has to be justified to the Beneficiary. For these services by Belgacom, the Beneficiary will be charged the related fee that will be included in “Annex H”: Pricing.
61. The Beneficiary will have access to the Shared Pair Service at the level of the Main Distribution Frame of the Local Exchange, or at the level of the Distribution Frame of the Local Distribution Center, where Belgacom will install and maintain the necessary splitters to split the high frequency that is delivered to the Beneficiary and the low frequency that is used by Belgacom.
62. The access to the high bandwidth at the Belgacom Network side will be realized on the Belgacom Main Distribution Frame (MDF) or Distribution Frame by using dedicated Blocks per Beneficiary.

From there, a pair of physical wires will be connected to the Splitter rack (Connection Cables). From the Splitter rack, connections will be made to the Colocation / Co-mingling Area of the Beneficiary or to the Cross Connection Cabinet in the immediate vicinity of the Belgacom building by use of Tie Cables or Extended Tie Cables. In addition, another pair of physical wires will be connected from the Splitter rack to the Blocks dedicated to the Beneficiary to connect the low frequency bandwidth to the Belgacom Blocks (see fig.3).

63. The Demarcation Point will be
- in case of Physical or Virtual Colocation: the point on the Tie Cable just before it is connected to the collocated equipment of the Beneficiary.
 - in case of Distant Colocation: the Connectors in a Cross Connection Cabinet in the immediate vicinity of the Belgacom Local building.

3.2.2 Termination of the voice subscription with Shared Pair

64. In case of a Shared Pair Service where both Belgacom and the Beneficiary provide services to an User, it can occur that the User cancels his voice subscription for that Shared Pair Loop. In that case, independent of the reason for termination of the voice subscription, Belgacom will ensure that the service on the high bandwidth remains into service.
65. Belgacom will inform the Beneficiary that the Shared pair with Belgacom voice service has been converted to Raw Copper +, and vice versa. This change does not affect the Beneficiary, except a change of rental fee. For the change to Raw Copper +, or to shared pair with voice, no conversion fee is applicable. The Beneficiary has, at any time, the possibility to ask for a conversion from its Raw Copper + to a Raw Copper, and this will free up a dedicated splitter. In this case a conversion fee is applicable.
66. A change to Raw Copper is only possible if positions are free on dedicated horizontal Beneficiary blocks for Raw Copper.
67. If the Beneficiary decides to convert the Raw Copper + Splitter into Raw Copper, Beneficiary is notified of the fact that an interruption of its service during a limited timeframe (defined in hours) will take place in order to do the re-jumpering.
68. For the sake of clarity, this process can only take place if the necessary infrastructure is in place according to the Beneficiary request of pre-provisioning to do the re-jumpering.

3.2.3 Types of Shared Pair Service

69. The following types of Shared Pair Services are offered under the present Reference Offer for ULL (for technical details concerning the nature of the signals to be used for each type of Shared Pair Service, see the relevant Technical Specifications document in Annex C):

SPP (Shared Pair Service over PSTN)	The high frequency part on the loop concerned is to be used by the Beneficiary to connect DSL equipment providing DSL service capable of co-existing on the same pair as voice-band services (DSL over PSTN).
SPI (Shared Pair Service over ISDN)	The high frequency part on the loop concerned is to be used by the Beneficiary to connect DSL equipment providing DSL service capable of co-existing on the same pair as ISDN Basic Access services (DSL over ISDN).

70. The use of a Shared Pair is free, provided that the Beneficiary complies with the “Spectrum Management” rules described in the Annex C. Depending on the type of equipment that is directly connected to the unbundled Local (Sub-)Loop, different rules for the bringing into service and for the service level can be applicable.
71. Beneficiary has to indicate on the order form the type of Shared Pair Service per qualification as described above.

3.2.4 Network Termination Point

72. The access to the high bandwidth at the User site will be at the Belgacom Network Termination Point (NTP).
73. For single line PSTN Service, the Beneficiary will install the equipment on the Belgacom Network Termination Point at the User site.
74. For single line ISDN service, an intervention on the User site will be required in case the User site does not have an AETHRA NT1-2ab as Belgacom Network Termination Point. This intervention is justified for safety reasons. At the time of installation, this intervention will relate to the fact that, in these cases, a Splitter will be installed between the Belgacom Network and the Network Termination Point at the User site.

3.3 Spectrum Management and equipment aspects

75. The rules mentioned in Annex C will apply. These rules may be modified or completed on basis of the proposals of the Task Group Spectrum Management or by decision of BIPT.

3.4 Beneficiary delivered Tie Cabling, Demarcation point and access to the MDF

76. Notwithstanding what is mentioned above, the demarcation point in case of Beneficiary delivered Tie cabling will be the Beneficiary dedicated Blocks on the MDF in case of Raw Copper and the Splitter rack in case of Shared pair.
77. In case of tie cabling delivered by the Beneficiary, the area where the Demarcation Point is situated (MDF area in case of Raw Copper or the area where the Splitter Rack is situated in case of Shared Pair) at the Belgacom Local Exchange or Local Distribution Center is in principle accessible to the Beneficiary for maintenance and test purposes. Beneficiary will have to justify the necessity of the planned maintenance and/or tests.
78. Beneficiary will have to substantially indicate the purpose of this access (to be mentioned with the application for guided access).
79. The access will be always with a security escort, at the expenses of the Beneficiary, and pursuant the conditions for guided access as described in the framework of co-mingling (physical colocation with escort access).

4 Ordering of Raw Copper Services

80. Belgacom shall deliver access to Raw Copper (Sub-)Loops at the MDF according to the Beneficiary's orders transmitted to Belgacom in accordance with the rules set out in this Reference Offer.
81. The Beneficiary will order the Tie Cables and Blocks prior to the request of Raw Copper (Sub-) Loops at a particular Belgacom Local Exchange building or LDC. If at a certain moment, no more free wires are available in the Tie Cables ordered by the Beneficiary or no more free space is available on the Blocks, the Raw Copper (Sub-)Loop Requests issued by the Beneficiary with respect to the Belgacom Local Exchange building concerned, will be rejected, since the provisioning of these Raw Copper (Sub-)Loops cannot be implemented.

4.1 Ordering of Raw Copper (Sub-)Loops

4.1.1 Type 1 and Type 2 Raw Copper orders and related orders

The Beneficiary can obtain the following Standard Raw Copper Services:

<i>Service in respect of Raw Copper</i>	<i>Description</i>	<i>Fee</i>
1. <i>Inquiry</i>	<i>Examination of whether a Raw Copper (Sub-)Loop can be provided end to end</i>	<i>Inquiry fee</i>
2. <i>Request for a Raw Copper (Sub-)Loop</i>	<i>Physical cross connection of the Raw Copper (Sub-)Loop to the Beneficiary's Tie Cable at the Main Distribution Frame of the Belgacom Local Exchange, as well as - if necessary - related work at the User's site</i>	<i>Activation fee</i>
3. <i>Cancellation of a Request for a Raw Copper (Sub-)Loop</i>	<i>Orders that have been placed by the Beneficiary but that are cancelled prior to implementation</i>	<i>Cancellation fee</i>
4. <i>Installation of an NTP if necessary</i>	<i>Belgacom installs a Network Termination Point at the User's premises side</i>	<i>Telecom installation fee, invoiced on top of the activation fee</i>
5. <i>Deactivation of a Raw Copper (Sub-)Loop</i>	<i>Belgacom disconnects the related copper wires from the Beneficiary's dedicated Blocks</i>	<i>Deactivation fee</i>

<i>Service in respect of Raw Copper</i>	<i>Description</i>	<i>Fee</i>
6. <i>Change date</i>	<i>The Beneficiary requests a change in due date for the provisioning of a Raw Copper loop</i>	<i>Change date fee</i>
7. <i>Transfer³</i>	<i>Transfer of a Raw Copper (Sub-)Loop from Beneficiary 1 to Beneficiary 2</i>	<i>Physical migration fee, billed to Beneficiary 2</i>

Further comments:

(1) Inquiry

82. The purpose of an inquiry is to investigate the availability of an end-to-end Raw Copper (Sub-) Loop at a particular User site. For Type 2 loops, Belgacom will additionally perform a pair selection test to verify that the service can coexist with the surrounding pairs. An inquiry gives only the status of a Raw Copper (Sub-)Loop in relation to a specific User at one specific moment in time. Belgacom guarantees the accuracy of the information provided at the moment of the inquiry, without prejudice to any subsequent change in the technical situation.

(2) Request for a Raw Copper (Sub-)Loop:

83. There are three possible situations, depending on the impact of the provision of Raw Copper (Sub-)Loops to the Beneficiary on the contractual relation between the User and Belgacom:
- The Raw Copper (Sub-)Loop Request concerns a (Non)-active (Sub-)Loop and therefore does not affect the existing relation between Belgacom and the User. This is only possible if there is a (Non)-active (Sub-)Loop available at the User's premises.
 - The Raw Copper (Sub-)Loop Request concerns an Active (Sub-)Loop and therefore affects the existing relation between Belgacom and the User. This Request is also called a *Migration*.
 - The Raw Copper (Sub-)loop Request implies a small network adaptation (see 2.1.1.4).

Inquiry

84. In case the Beneficiary places a firm order for a Type 1 Raw Copper (Sub-)Loop as defined above, Belgacom will carry out an inquiry to determine whether a (Non)-active (Sub) Loop exists between the User and the Belgacom Local Exchange (as indicated by the Beneficiary). For the firm order of a Type 2 Raw Copper (Sub-)Loop as defined above, Belgacom will perform additionally a pair selection test to verify whether the service, as indicated by the Beneficiary, can coexist with the surrounding pairs.

³ See chapter 9: Migrations

Rejection for technical reasons

85. In case the order cannot be implemented because of technical reasons, which has to be detailed and proved in written form to the Beneficiary, the Beneficiary's Request will be rejected. In this case, the Beneficiary will be billed for the work done by Belgacom on validation of that order. If the firm order can be implemented, Belgacom will proceed with the implementation of that order according to the applicable process, which can be obtained at the Belgacom contact point mentioned above. Belgacom will publish a list of the said technical reasons and will keep this list up to date.

NTP

86. Belgacom will install an NTP, as termination point on the Raw Copper (Sub-)Loop, if such an NTP is not existing (see 2.1.3).

In case of Migration

87. In the case of a Migration, the User has the right to cancel an existing service that is currently made available to the User by Belgacom according to his contractual relationship with Belgacom to permit the activation by the Beneficiary of a new raw copper service (conversion of shared pair to raw copper is defined in Sec 2.2.2 above).. The services that can be terminated are the following: a single line PSTN service, a single line ISDN service or any other service (including a leased line or half links). In case the Raw Copper (Sub-)Loop between the User and Belgacom exists less than one year, the User may be billed by Belgacom an extra charge for the Migration of that specific loop. Reference is made to the migrations Annex K of this offer.

In case of Number Portability

88. In case of a request for Migration from simple PSTN or ISDN to Raw Copper, the Beneficiary has also the possibility to request Belgacom to provide the porting of the User numbers in case the User formerly had a single line PSTN or ISDN service with Belgacom. In this case, there is an interaction with the Number Portability (NP) process, for which the Beneficiary will need to comply with the relevant procedures. The Beneficiary needs to introduce first an order for NP and later one for Raw Copper. In ordering Raw Copper, the Beneficiary Requested Date that is always provided by Beneficiary, need to match the requested execution date for Number Portability. Beneficiary will respect the rules for a Migration of Raw Copper and the procedures for number portability. In case there is a number portability request, the Beneficiary will indicate the numbers currently used by the User, which have to be ported to the Beneficiary on the Raw Copper (Sub-)Loop concerned.
89. In case NP is involved in the Migration from simple PSTN or ISDN to Raw Copper, the Beneficiary will indicate that on the request form. If the User has a single line PSTN service with Belgacom, the Beneficiary is required to use the existing NTP that will not be removed by Belgacom. If the User has a single line ISDN service with Belgacom, the existing NTP will be removed by Belgacom and replaced with a TF2001 or other device. These rules are not applicable in case the NTP is a cross-connectable distribution box where multiple pairs are connectable for that User.

In case of Small Network Adaptations

90. With every request for a Raw Copper loop, Beneficiary has the possibility to indicate whether executions of small network adaptations are allowed if required. If small network adaptations are needed to provide the requested service and Beneficiary included its approval in the request, small network adaptations will be executed automatically. If the Beneficiary's approval is not included, the

request will be put on hold, with information given to Beneficiary about the effective need, and with a delay of ten working days given to the Beneficiary to confirm its order, and notify by that its acceptance of the needed Small Network Adaptations.

91. Belgacom will charge the Beneficiary the relevant fees for this specific Network Adaptations, according to the different elements set out in "Annex H: Price List" after having given to the Beneficiary the proof of the effective need and execution (with number of pairs introduced) of the Small Network Adaptations. This has to be done in written form. If no proof is given, the relevant fees are not due by the Beneficiary. Only the number of pairs related to the request are due, on a proportional base.

(3) Cancellation of a Request for a Raw Copper (Sub-)Loop

92. The Beneficiary has the right to cancel an order that the Beneficiary has submitted to Belgacom for the implementation of a Raw Copper (Sub-)Loop. However, Belgacom will bill the Beneficiary for the work done in the process.

(4) Installation of an NTP if necessary

93. The circumstances under which an NTP is to be installed by Belgacom are described in point 2.1.3.

(5) Deactivation of a Raw Copper (Sub-)Loop

94. The Beneficiary can request the Deactivation of the Raw Copper (Sub-)Loop at a particular User site.

(6) Changed Use of a Raw Copper (Sub-)Loop

95. When the Beneficiary intends to use the Raw Copper (Sub-)Loop for other purposes than intended at the time of the first order, the Beneficiary will communicate the change of types to Belgacom (from Type 1 to Type 2 or vice versa). Belgacom then can take the necessary measurements for the changed use of that Raw Copper (Sub-)Loop. In addition, Belgacom reserves the right to reject the request of changed use for technical reasons in case the Raw Copper (Sub-)Loop cannot be provisioned in accordance with the request for changed use of the Beneficiary.

(7) Change Date

96. The Beneficiary will indicate on the order form the date at which the Beneficiary wishes Belgacom to provide the Raw Copper (Sub-)Loop (referred to as "Requested Installation Date" or "RID"). The

Beneficiary has the right to change that date. In the latter case, the Beneficiary will be billed a Change Date fee.

(8) Transfer

97. When there is a transfer from Raw Copper Loops from Beneficiary 1 to Beneficiary 2, It is presumed that two Beneficiaries, according to agreement with the User, handle the removal of the User's services and co-ordinate the hand over of the Raw Copper.
98. It is acknowledged that Belgacom will transfer the Raw Copper Loop from Beneficiary 1 to Beneficiary 2 upon request of Beneficiary 2 solely. Belgacom will terminate the contract for that specific Raw Copper Loop by informing Beneficiary 1 of the request from Beneficiary 2, without revealing the identity of Beneficiary 2.
99. Belgacom handles the request of the Beneficiary 2, taking over the Raw Copper. Belgacom does not in any case handle complaints between Beneficiary 1 and Beneficiary 2.
100. The above services (listed under (1) to (8)) are settled according to the prices indicated in Annex H. For the installation fee, different price setting can apply to different types of Raw Copper (Sub-)Loops and different types of installations based on the work performed by Belgacom after approval by BIPT.

4.1.2 Rejection of Requests for Raw Copper

101. Belgacom will reject a Request for Raw Copper Loop, in particular:
 - if no (Non)-active Loops are available (in case of a Request for a (Non)-active Loop); without prejudice of the right of the Beneficiary to request in that case a small network adaptation by Belgacom, according to the conditions as set out in Section 2.1.1.4.
 - if no Migration is possible due to technical constraints which must be detailed and proved to the Beneficiary in the implementation of the existing User connection;
 - if no loop, compatible with the applicable pair selection rules as defined in annex C: Technical Specifications document, is available;
 - if no positions and/or pairs are available on the Type 1 or Type 2 Beneficiary Blocks, Tie Cables and/or Connectors or Extended Tie Cables, depending on the type of colocation.

When a reject is given, all known reasons of this reject are given to the Beneficiary (also valid for XML).

102. In case a Migration⁴ cannot be executed, the Beneficiary Request will be rejected. However, in that case the Beneficiary has the possibility to send to Belgacom a Non-active Loop Request. In the event that the latter Request can also not be executed, this Request will also be rejected.

⁴ See chapter 9: Migrations

4.2 Ordering of equipment for pre-provisioning

4.2.1 Blocks, Tie Cabling and Cable Tray

4.2.1.1 Blocks, Tie Cabling and Cable Tray delivered by Belgacom

103. The equipment that can be ordered by the Beneficiary is described in the relevant service descriptions in Annex B, which contain the standard and non-standard ordering increments.
104. The prices for the Blocks and the Tie Cables are mentioned in Annex H.
105. The Beneficiary will be responsible for all planning and dimensioning of the Blocks and Tie Cables and for the assignment of the positions on the Blocks.
106. The Beneficiary can order its dedicated Blocks through a firm order that is to be placed in accordance with the rules set out below. A firm order contains the requested number of Blocks, per type of Blocks and this for each Local Exchange. For every Block ordered, the associated number and type of Tie Cables and Cable Tray usage is automatically included. The Beneficiary indicates in its firm order the date at which it wants the Blocks and associated Tie Cabling to be available. This date will be at least 15 days later than the date of the notification of the firm order concerned in case the Beneficiary submitted a forecast, subject to the condition that cable trays are present and sufficient place is available on the MDF. If the Beneficiary concerned did not submit a forecast, the delivery date will be 25 days later than the date of the notification of the firm order. In all other cases which must be proved to the Beneficiary, special construction works will be needed and the Beneficiary will need to take into account an delivery time of maximum 40 working days. Belgacom will confirm the receipt of every firm order immediately and inform the Beneficiary immediately when the installation of the Blocks and Tie Cabling is completed.
107. In the cases of Distant Colocation, the Tie cables will be ordered as Extended Tie cables. The Beneficiary will order additionally Connectors according the terms and conditions of the relevant services descriptions in Annex B.

4.2.1.2 Tie Cabling delivered by Beneficiary

108. For each firm order, the Beneficiary can indicate to provide Belgacom with Tie Cabling himself. The terms and conditions, including the pricing in case the Beneficiary delivers the Tie Cabling can be found in the Annexes B and H. In each individual site, all Tie Cabling of a Beneficiary has to be under the same provisioning regime.

4.2.2 **Billing and Accounting in ordering Blocks, associated Cables, Cable Trays**

109. For Blocks, associated Cables and Cable Trays, the Beneficiary will be requested to pay an upfront fee with the ordering of the equipment and the remaining part of the related cost after the delivery of this equipment. Belgacom will include the detailed conditions in the Pricing Annex for BRUO. In the meantime, all orders submitted will be handled in line with the present conditions determined in Pricing and Billing and Accounting Annexes.

5 Conditions with respect to Raw Copper Services

110. The Beneficiary is only allowed to use the indicated type of Raw Copper (Sub-Loop) for the purpose described in §3.1.2.
111. All equipment used by the Beneficiary will comply with the R&TTE Directive.
112. For the sake of clarity, it is noted that Belgacom will not undertake customer care handling of Users of the Beneficiary. If Belgacom receives requests from Users of the Beneficiary due to the inadequate handling of such requests by the Beneficiary, Belgacom will not deal with them.

6 The ordering of Shared Pair Services

113. Belgacom shall deliver access to the high bandwidth according to Beneficiary's orders transmitted to Belgacom in accordance with the rules set out in this Reference Offer.
114. The Beneficiary will order the Tie Cables, the Connection Cables and the Blocks prior to the request of Shared Pair Service at a particular Belgacom Local Exchange Building. If at a certain moment, no more free positions on blocks or in the cabling are available, the Shared Pair Service ordered by the Beneficiary with respect to the Belgacom LEX, LDC or KVD (currently not applicable - feasibility subject to case by case study) concerned, will be rejected, since the provisioning of the Shared Pair Service cannot be implemented.

6.1 Ordering of Shared Pair Services

6.1.1 Standard Shared Pair Services and related orders

The Beneficiary can obtain the following standard Shared Pair Services:

<i>Service</i>	<i>Contents</i>	<i>Fee</i>
<i>1. Inquiry</i>	<i>Examination whether Shared Pair Service can be provided</i>	<i>Inquiry Fee</i>
<i>2. Request for Shared Pair Service</i>	<i>Physical connection of Tie Cables and Connection Cables to Colocation / Co-mingling Area and Splitter Rack</i>	<i>Activation fee</i>
<i>3. Cancellation of Requests</i>	<i>Orders that have been placed by the Beneficiary but that are cancelled prior to implementation</i>	<i>Cancellation fee</i>
<i>4. Deactivation of Shared Pair Service</i>	<i>Belgacom disconnects the Shared Pair Service from the Beneficiary dedicated Blocks</i>	<i>Deactivation fee</i>
<i>5. Change Date</i>	<i>The Beneficiary requests a change in due date for the provisioning of the Shared Pair Service</i>	<i>Change date fee</i>
<i>6. NTP Intervention</i>	<i>If Belgacom needs to intervene at User site for the installation of a full-rate splitter</i>	<i>Telecom Installation fee, invoiced on top of the Activation fee</i>
<i>7. Transfer</i>	<i>Transfer of a Shared Pair Service from Beneficiary 1 or Belgacom to Beneficiary 2</i>	<i>Physical migration fee, billed to Beneficiary 2</i>

Further comments:

(1) Inquiry

115. The purpose of an Inquiry is to investigate the availability of the Shared Pair Service at a particular User site. This inquiry consists of verifying whether an existing end to end single line PSTN or ISDN Belgacom service is available and of carrying out a pair selection test to verify that the Shared Pair Service, as indicated by the Beneficiary, can coexist with the surrounding pairs. An inquiry gives only the status of the User line at one specific moment in time. Belgacom guarantees the accuracy of the information provided at the moment of the inquiry, without prejudice to any subsequent change in the technical situation.

(2) Request for Shared Pair Service

116. The Beneficiary will indicate on his order form the date the Beneficiary wishes Belgacom to provision the Shared Pair Service.

Inquiry

117. When the Beneficiary places a firm order for the Shared Pair Service, Belgacom will also carry out a check whether the current existing single line ISDN or PSTN service is capable of supporting the high bandwidth signal requested by the Beneficiary. Belgacom will perform additionally a pair selection test to verify that the service, as ordered by the Beneficiary, can coexist with the surrounding pairs.

Rejection for Technical Reasons

118. In case the order cannot be implemented because of reasons, which has to be detailed and proved in written form to the Beneficiary, the Beneficiary's Request will be rejected. If the Request for Shared Pair Service can be implemented, Belgacom will proceed with the implementation of that firm order. Belgacom will publish a list of the said technical reasons and will keep this up to date.

Regarding the new pair selection

119. In case the order can not be implemented on the ISDN BA or PSTN service due to the presence of load coils or other active equipment on the existing single pairs, Belgacom will inform the Beneficiary of this fact according to the process described in "Annex E: Planning and Operations manual"
120. When the Beneficiary does not cancel his Request at that time (due date-1, 12PM), the Request for the Shared Pair Service will, if technically possible, be implemented over another pair, and the Beneficiary will be billed for the implementation of the Shared Pair Service according to the different elements as set out in "Annex H: Price List". If the implementation over another pair is technically not possible, the Beneficiary will receive a reject for the Request for the Shared Pair Service, according to the process described in "Annex E: Planning and Operations manual".
121. Belgacom will inform the Beneficiary in good faith, as soon as possible, of possible modifications of the current ordering procedures by means of an Appendix to "Annex E: Planning and Operations Manual".

(3) Cancellation of orders

122. The Beneficiary has the right to cancel an order that it has submitted to Belgacom for the implementation of a Shared Pair Service. However, Belgacom will bill the Beneficiary for the work done in the process.

(4) Deactivation of Shared Pair Service

123. The Beneficiary can request the Deactivation of the Shared Pair Service at a particular User site.

(5) Change Date

124. The Beneficiary has the right to change the date it indicated at the time of transmitting the Request for the Shared Pair Service. In such a case, the Beneficiary will be billed a change date fee.

(6) NTP Intervention

125. The circumstances under which an NTP intervention will take place are described above (point 2.1.3).
126. The above services (listed under (1) to (7)) are settled according to the prices indicated in Annex H. For the installation fee, different price setting can apply to different types of installations based on the work performed by Belgacom.

6.1.2 Reject of Requests for Shared Pair Services

127. In case the request for implementation of Shared Pair Service can not be executed, Beneficiary request will be rejected.
128. Belgacom will reject the requests if:
129. No single line PSTN or ISDN BA Belgacom Service is provided to the User concerned;
130. The line is incompatible with the Belgacom pair selection rules.
131. Belgacom will also reject requests if no positions and/or pairs are available on the Beneficiary Blocks, (Extended) Tie Cables and Connection Cables
132. Belgacom also will reject the requests if a new pair selection choice is reasonably and/or technically not possible over the existing infrastructure which must be detailed and proved in written form to the Beneficiary.



133. Belgacom further reserves the right to reject requests for implementation of a Shared Pair Service for a Beneficiary based on wrong format data. The rejection list can be found in “Annex E: Planning and Operations manual”. When a reject is given, all reasons of this reject are given to the Beneficiary (also valid for XML).

6.2 Ordering Blocks, associated Cables, Cable Trays and Splitters

6.2.1 Blocks, associated Cables, Cable Trays and Splitter

6.2.1.1 Blocks, associated Cables, Cable Trays and Splitters delivered by Belgacom

134. The increments of Blocks, Cables and Splitters are to be ordered by the Beneficiary and will be installed by Belgacom according the terms and conditions of the relevant services descriptions in Annex B.
135. The Beneficiary will be responsible for all planning and dimensioning of the Blocks, Tie Cables, Connection Cables and Splitters, and for the assignment of the positions on the Blocks. The Beneficiary can order the indicated equipment through a firm order. A firm order contains the requested number of Blocks and Splitters for each Local Exchange. For every Block ordered, the associated number and type of Tie Cables, Connection Cables and Cable Tray usage is automatically included. The Beneficiary indicates in its firm order the date at which it wants the Blocks, associated Cables and Splitters to be available. This date will be at least 15 days later than the date of the notification of the firm order concerned in case the Beneficiary submitted a forecast, subject to the condition that cable trays are present and sufficient place is available on the MDF. If the Beneficiary concerned did not submit a forecast, the delivery date will be 25 days. In all other cases which must be proved to the Beneficiary, special construction works will be needed and the Beneficiary will need to take into account a delivery time of maximum 40 working days. Belgacom will confirm the receipt of every firm order and inform the Beneficiary when the installation of the Blocks, the associated Cables and Splitters is completed.
136. In respect of the Splitters, it is to be noted that the Splitters have to be defined per number of 24 Splitters as being Splitters for PSTN lines or Splitters for ISDN lines.

6.2.1.2 Tie Cabling delivered by Beneficiary

137. For each firm order, the Beneficiary can indicate to provide Belgacom with Tie Cabling himself. The terms and conditions, including the pricing in case the Beneficiary delivers the Tie Cabling can be found in the Annexes B and H. In a particular site, all Tie cabling of a Beneficiary has to be under the same provisioning regime.

6.2.2 Billing and Accounting in ordering Blocks, associated Cables, Cable Trays and Splitter

138. For Blocks, associated Cables, Cable Trays and Splitters, the Beneficiary will be requested to pay an upfront fee with the ordering of the equipment and the remaining part of the related cost after the delivery of this equipment. After discussion with and approval by BIPT, Belgacom will include the detailed conditions in the Billing and Accounting Annex for BRUO. In the meantime, all orders submitted will be handled in line with the present conditions determined in Billing and Accounting.

7 Conditions with respect to Shared Pair Services

139. The Beneficiary is only allowed to use the indicated type of Shared Pair service for the purpose described in §2.2.3.
140. All equipment used by the Beneficiary will comply with the R&TTE Directive.
141. For the sake of clarity, it is noted that Belgacom will not undertake customer care handling of Users of the Beneficiary. If Belgacom receives requests from Users of the Beneficiary due to the inadequate handling of such requests by the Beneficiary, Belgacom will not deal with them. If these Users are using the PSTN / ISDN Belgacom Service, under a contractual relationship with Belgacom, requests about that service will be handled by Belgacom.

8 Usage of a unique reference for migrations of without PSTN or ISDN Belgacom services

142. In scope of migration requests that a Beneficiary sends to take over a BRUO/BROBA service “without PSTN or ISDN Belgacom services” from another Beneficiary, there will be an issue in the identification of the copper pair on addresses with for example more than one pair in service.
143. For a migration request from a BROBA/BRUO without PSTN or ISDN Belgacom service, the Beneficiary may include the circuit ID of the service communicated to the prior Beneficiary as identification of the service to be migrated.
144. The circuit ID that has been communicated by Belgacom at the provisioning of a new BRUO/BROBA service is a unique reference that will identify both the service and the copper pair.
145. The service provider, be it Belgacom or the Beneficiary will communicate for all without Belgacom PSTN/ISDN services the circuit ID provided by Belgacom to the User. This should be done by including this reference on the bills and contracts that is sent to the End User for the service based on BRUO/BROBA. By that, in case of migration, the circuit ID can be exchanged between a Beneficiary and the End User, just like is done today with the dial number. As a consequence the Circuit ID can be included systematically in the migration orders and this will avoid further problems in this case.
146. As soon as Belgacom deploys without voice xDSL services, Belgacom will indicate what reference on the End User bill can be used by the Beneficiaries to include in the migration order for BRUO/BROBA services on that pair.
147. The identification to use for migrations from retail xDSL without voice services (covered in Annex K) will be communicated by Belgacom.

9 Operation of ULL Services

148. The Beneficiary is given access to Belgacom OSS for the ordering of ULL Services / Installation and repair. Information concerning the way to access Belgacom OSS is included in Annex F. In case of failure of the XML application, a back-up procedure will be applicable according to the terms and conditions as described in Appendix G of the Annex E.
149. In this respect the Beneficiary will be charged for the access to the OSS and the information retrievals itself according to the principles as set out in Annex H.
150. The rules to be followed when planning and ordering ULL Services are described in Annex E. The quality targets pursued by Belgacom in the provisioning of ULL Services and the conditions needed to achieve these quality targets are described in a Service Level Agreement (SLA) to be concluded between Belgacom and the Beneficiary. Reference is made to Annexes G (SLA's).

10 Colocation Services

151. Belgacom offers the following types of Colocation Services at Belgacom Local Exchange buildings: Physical Colocation, Distant Colocation, Co-mingling and Virtual Colocation. Depending on the specific situation, Belgacom offers either one or all types of Colocation Services.
152. Virtual Colocation is only offered on a project bases in case neither Physical Colocation, neither Distant Colocation, is possible. Both process and implementation will be done on a case by case basis. Virtual Colocation implies that the equipment to be collocated is purchased by the Beneficiary from the same vendor as the one from which Belgacom purchases a similar type of equipment for a similar use within Belgacom. The equipment to be collocated will be installed by Belgacom or by staff working under Belgacom's responsibility. The Beneficiary will also make available to Belgacom the spare parts, test equipment and the documentation needed to allow Belgacom staff to perform the requested maintenance activities.
153. As far as Physical colocation (with separate room or co-mingling) is concerned, the Beneficiary may receive access to the Belgacom premises in two different ways: by badge access (Physical co-location with separate room) or by escorted access (physical co-location under the form of co-mingling). The choice is his.
154. Belgacom offers the following types of Colocation Services at Belgacom Local Distribution Centers: LDC Building Colocation, LDC Container Colocation, LDC Cabinet Colocation and LDC Distant Colocation. Depending on the specific situation, which has to be proved to the Beneficiary, Belgacom offers either one or all types of Colocation Services. The relevant types of colocation are described in the relevant Colocation Agreements included in Annex I 4.

11 Migration

155. Reference is made to Annex B3

12 Pricing and Billing of Belgacom ULL Services

156. The pricing of ULL services covered by the present Reference Offer for ULL can be found in Annex H. Information concerning Billing and Accounting for ULL Services is included in Annex D.

13 Evolution of the ULL offer

157. As most of the European beneficiaries, Belgacom is in the process of adapting and upgrading its telecommunication infrastructure. In particular, Belgacom will implement where necessary the modifications resulting from the evolution of international standards (ITU-T and ETSI). This may have an impact on the ULL Services offered. Belgacom will inform 12 months in advance the Beneficiaries about the changes in its infrastructure that have an effect on the ULL Services Belgacom offers. Before any change, the approval of the BIPT will have to be obtained, and amendments, if any, to Annex C “Technical Specifications, relating to Spectrum Management” have to be published with a prior approval from the BIPT. Belgacom may start the said delay of 12 months only after obtaining this approval and after publishing on its website the said changes in its infrastructure.

158. At the same time Belgacom is in the process of reducing the number of exchanges switching equipment which are operated in its Network. Consequently, certain Belgacom Local Exchange Buildings in which ULL Services are offered may cease to be operational in the future.

159. Belgacom has the right to close a Local Exchange Building and stop the provision of LLU services at that locality. The closing process will respect following rules:

158.1. Belgacom will notify BIPT and the Beneficiaries of the closure of the Local Exchange Building. The Local Exchange Building will in any case be open for a period of minimum 5 years after the announcement of the closure to BIPT and Beneficiaries.

158.2. When no ULL Services are provided in the building, the Local Exchange Building will in any case be open for a period of minimum 1 year after the announcement of the closure to BIPT. During this transition period of 1 year, no new demand for colocation will be accepted by Belgacom.

158.3. If Belgacom wants to close the Local Exchange Building before the end of the 5 years period foreseen in point 158.1., an alternative agreement in good faith discussion will be concluded with the concerned Beneficiaries.

Annexes to the Reference offer

160. The following annexes have been attached to the present Reference Offer:

Annex A NIHIL (Has been replaced by General Terms and Conditions)

Annex B Service Descriptions

Annex B1.1: Service Descriptions 2010 – Belgacom access to the Raw Copper loop – Existing single pair & Small Network Adaptations

Annex B1.2: Service Descriptions 2030 – Belgacom access to the Raw Copper loop – Connection to the colocation area – Physical colocation

Annex B1.3: Service Descriptions 2035 – Belgacom access to the Raw Copper loop – Connection to the colocation area – Distant colocation

Annex B1.4: Service Descriptions 2040 – Belgacom access to the Raw Copper Services – Delivering of Tie Cable by Beneficiary

Annex B1.5: Service Descriptions 2015 - Belgacom access to the Raw Copper Services - At Local Distribution Centers

Annex B1.6: Service Descriptions 2045 - Connection to the collocation - Local Distribution Center (LDC)

Annex B1.7: Service Descriptions 2050 - Connection to the collocation - Street Cabinet (KVD)

Annex B1.8: Service Descriptions 2011 – Belgacom access to the Raw Copper Loop Multiple Pairs and Multiple Single Pair Orders

Annex B2.1: Service Descriptions 3010 – Belgacom access to the Shared Pair Service

Annex B2.2: Service Descriptions 3030 – Belgacom access to the Shared Pair Service

Connection to the colocation area – Physical colocation

Annex B2.3: Service Descriptions 3035 – Belgacom access to the Shared Pair Service - Connection to the colocation area – Distant colocation

Annex B2.4: Service Descriptions 3040 - Belgacom access to the Shared Pair Service – Delivering of Tie Cable by Beneficiary

Annex B2.5: Service Descriptions 3015 - Belgacom access to the Shared Pair Service – At the Local Distribution Centers

Annex B2.6: Service Descriptions 3045 - Connection to the colocation - Local Distribution Center (LDC)

Annex C Technical Specifications

Annex D Billing and Accounting Document

Annex D1: Billing and Accounting document Raw Copper

Annex D2: Billing and Accounting document Shared Pair

Annex D3: Prepayment Terms and Conditions

Annex E Planning & Operations

Annex E1: Planning and Operations Raw Copper

Annex E2: Planning and Operations Shared Pair

Annex F Operational Software Systems (OSS)

Annex G Service Level Agreement (SLA)

Annex G1 Service Level Agreement Raw Copper and Shared Pair

Annex G2 Improved Service Level Agreement Repair

Annex G3 Improved Service Level Agreement Provisioning

Annex H Price Lists

Annex H: Price List

Annex I Colocation Agreement

Annex I1 Physical Colocation

Annex I2 Distant Colocation

Annex I3 Co-mingling

Annex I4 LDC Colocation

Annex I5 Powering and HVAC for all types of colocation

Annex J: Initial Information to the Beneficiaries

Annex K: Migrations for BRUO and BROBA

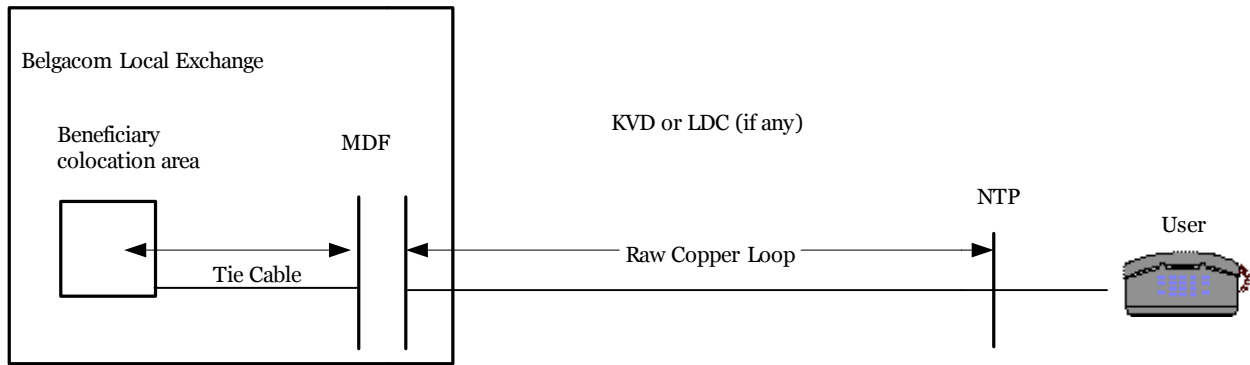
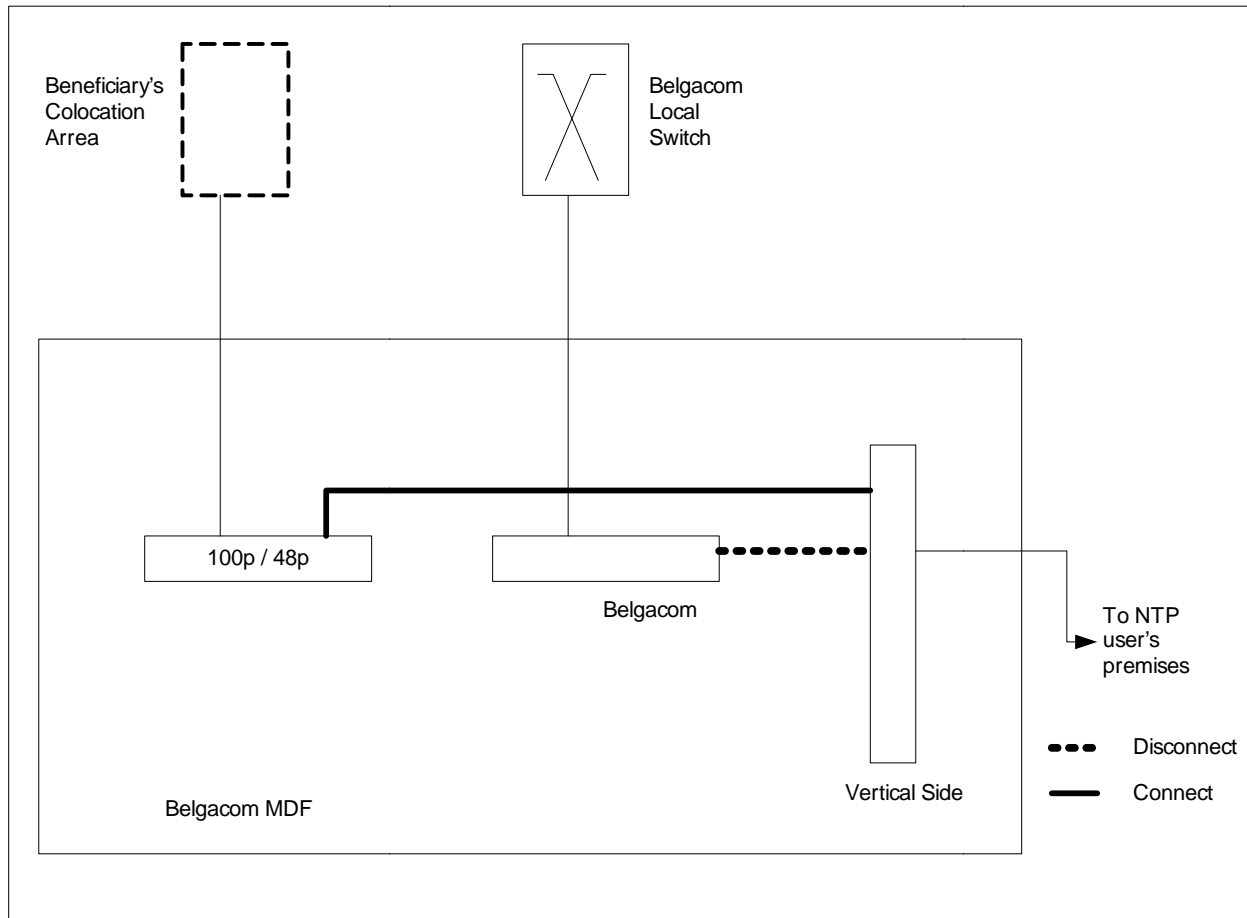


Fig. 1: Access to a Raw Copper (Sub-)Loop



Belgacom Local Exchange Building

Fig. 2 : Example of access to the physical collocation at Belgacom MDF

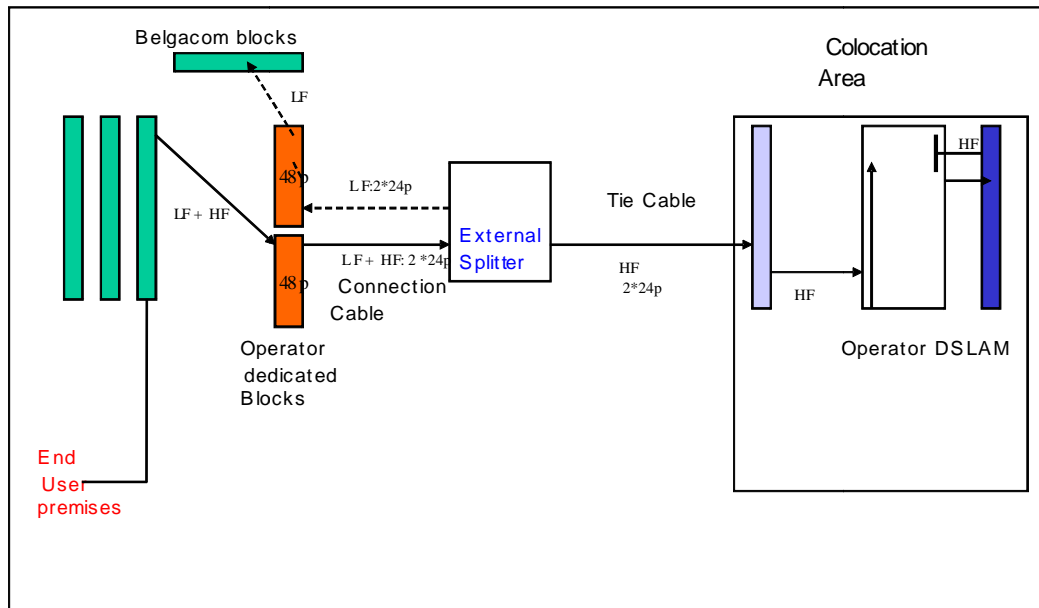
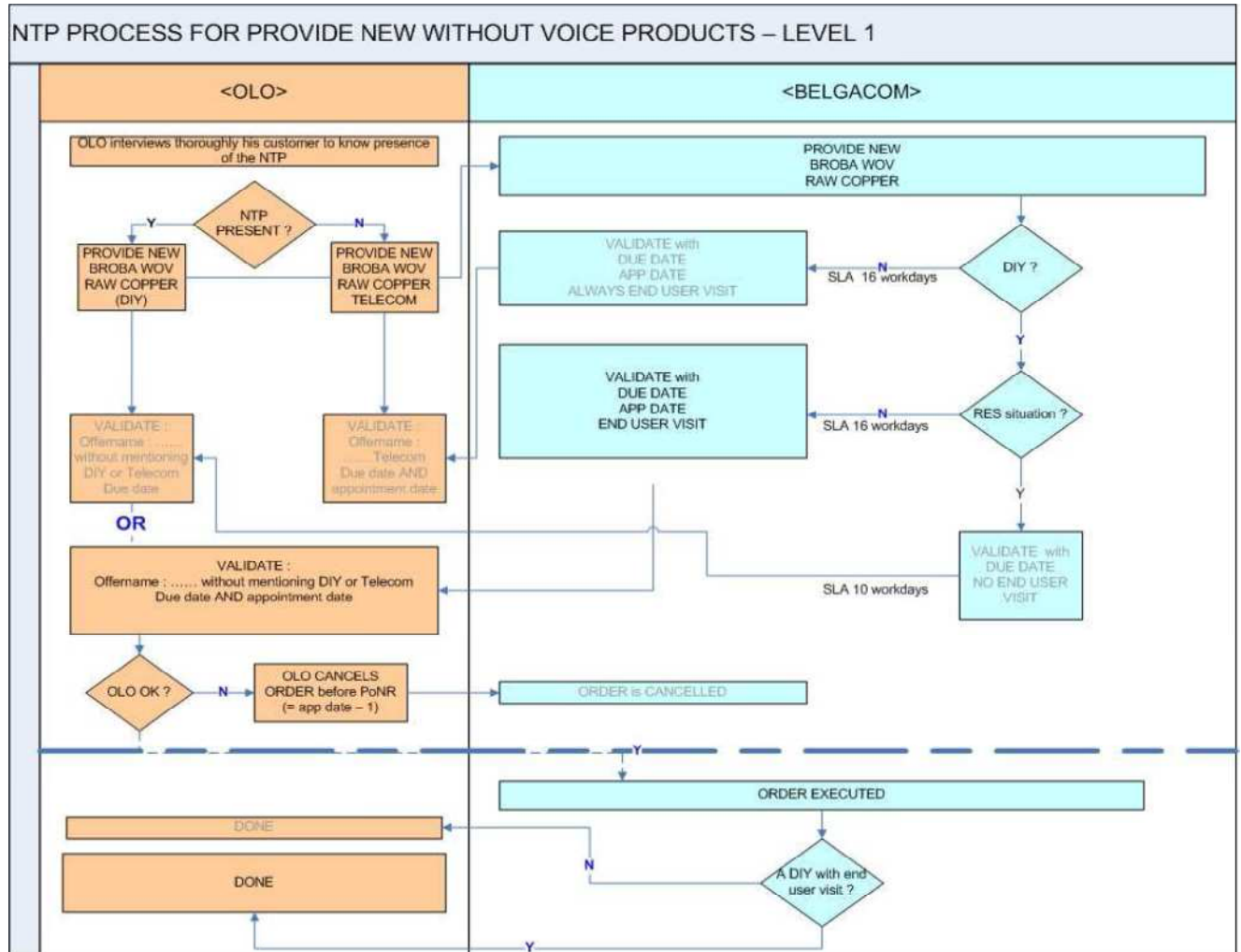


Fig. 3 : Example of access to the Shared Pair Service (Splitters provided by Belgacom)

Appendix A: NTP process for Provide New Raw Copper orders



Belgacom's Reference ULL Offer

For Telecommunications Operators

General Terms and Conditions

Created on: 16 February 2012

belgacom

together with





General information

This document constitutes an integral part of the Belgacom Offer for ULL Services approved by the Belgian Institute for Post and Telecom (here-after the BIPT). It includes the general terms and conditions applicable to the provision of ULL services that encompasses Raw Copper Services, Shared Pair Services and Colocation Services. These ULL services are provided in conformity with the relevant laws and decrees in effect.

A distinction should be made between the following:

The Main Body

The Belgacom Reference ULL Offer that describes in broad terms the conditions of the ULL services offered by Belgacom as it has been approved by the BIPT for the relevant period.

The Order Form

The order form lists the information requested by Belgacom to enable it to provide the Raw Copper or Shared Pair Services. It is signed by the Beneficiary or by his authorized agent. An order request sent by the Beneficiary via electronic format according to the rules described in the Planning & Operations Manual will be considered as a valid order form signed by the Beneficiary.

The General Terms and Conditions

The General Terms and Conditions comprehensively list the rights and obligations of Belgacom and the Beneficiary with regard to the provision of the ULL services.

The Service Descriptions

The Service Descriptions may depart from the general terms and conditions after approval by BIPT.

These apply to the optional services offered by Belgacom.

The Technical Conditions

The technical conditions define the technical specifications and the quality standards..

The Planning & Operations Manual

The Planning & Operations Manual describes the conditions of delivery of the Raw Copper and/or Shared Pair Services.

The Operational Software Systems (OSS)

Description of the Tools to be used for operational purposes

The Belgacom price list

The price lists indicate the rates for the Belgacom Raw Copper, Shared Pair and Colocation Services.

* * *

The Order Form, General Terms and Conditions, Main Body, relevant Service Descriptions, the relevant sections of the Planning and Operations Manual, Price List, Technical Requirements and, if any, the specific terms and conditions agreed upon by the Parties constitute the complete contract concluded by the Beneficiary and Belgacom relating to each single Raw Copper or Shared Pair loop.

* * *

[Anyone may examine the Main Body and Annexes of the ULL Offer, as they are approved by BIPT and applicable at the time of consultation. These are available on Belgacom's Internet site. The other Annexes are available on the Secured website of Belgacom and may be consulted further to the signature of a non-disclosure Agreement. Other documents which are referenced in the Main Body or Annexes are available on the Secured website of Belgacom \(Personal Page of Belgacom Wholesale\) and may be consulted further to the signature of a non-disclosure Agreement.](#)

~~Anyone may examine the General Terms and Conditions relating to the ULL Services, and the updated price lists as they are applicable at the time of consultation. These may be obtained either from Belgacom's Internet site or from Belgacom's Customer service department. The other Annexes are available on the Secured website of Belgacom and may be consulted further to the signature of a non-disclosure Agreement.~~

1 Glossary

The capitalized terms in the present General Terms and Conditions for ULL Services have the meaning as defined below:

Raw Copper Contract: An agreement concluded between Belgacom and a Beneficiary in accordance with the present General Terms and Conditions, technical, operational, billing, planning and financial conditions for the Raw Copper (Sub-)Loop as described in the Reference Offer and relevant Service Descriptions of Belgacom. The Raw Copper Contract is concluded as mentioned in the first chapter of the present General Terms and Conditions and the Annex “Planning and Operations”.

BRUO Reference Offer (for ULL): The Belgacom Reference Offer for ULL Services as it is approved by the BIPT

Request: The Beneficiary’s demand concerning the delivery of a Raw Copper (Sub-)Loop or Shared Pair Service as described in this Reference Offer

Shared Pair Contract: The agreement concluded between Belgacom and an Beneficiary in accordance with the General Terms and Conditions, the technical, operational, billing, planning and financial conditions for the Shared Pair (Sub-)Loop as described in the Belgacom Reference Offer and the relevant Service Descriptions. The Shared Pair Contract is concluded as mentioned in the first Chapter of the present General Terms and Conditions.

Contract: As the case may be, a contract for a Raw Copper (Sub-)Loop or Shared Pair (Sub-)Loop.

ULL All the Services described in the Belgacom Reference Offer for ULL

Services: that are ordered by the Beneficiary

Colocation Agreement An agreement concluded between Belgacom and a Beneficiary which covers, in particular, the technical, operational, billing, planning and financial conditions for the Colocation Services provided by Belgacom to the Beneficiary

Certified Technician Any technician employed either by a Beneficiary or by one of Beneficiary’s subcontractors, trained and certified by Belgacom in order to perform, in place of a Belgacom technician, the installation of the Local Loop lines.

Party: Either Belgacom or Beneficiary

Parties: Collectively, Belgacom and Beneficiary

Contract procedure

Request by the Beneficiary

1. The Beneficiary must submit his request for a Service to the Customer Service department of Belgacom by completing and signing the appropriate order form. When submitting an order request in electronic format, the Beneficiary will comply with the rules described in the Planning & Operations Manual. The terms and conditions for delivering the Services are described here-after.
2. The Beneficiary shall consult the Belgacom Reference Offer for ULL services as approved by the BIPT. These can be obtained from Belgacom’s Internet site or by requesting them from Belgacom’s Customer Service department. This does not exclude that Belgacom shall answer questions raised by the Beneficiary.



together
with



3. Belgacom may not refuse to comply with the Beneficiary's request, except on one of the following grounds:
 - a) the Beneficiary or his authorized agent refuses to provide Belgacom with official documents to identify himself;
 - b) in an emergency situation (i.e., exceptional cases of *force majeure*), for the purpose of ensuring the safe operation of the network, after all necessary measures taken by Belgacom to ensure access to the service are without effect;
 - c) following the Beneficiary's failure to observe obligations arising from the present General Terms and Conditions for the use of the service, subject to the prior consent of the BIPT.
 - d) for the purpose of maintaining network integrity or the interoperability of the services or for any other technical reasons that must be specified that make the delivery of unbundled access impossible.
 - e) the Beneficiary has refused to provide proof of the existence of the unconditional financial guarantee as specified in the provision Financial Guarantees here-under.
 - f) the Customer's request for access to the BRUO Service is unreasonable (as stipulated in the CRC decision of July 1st, 2011 regarding the analysis of the broadband markets) on the basis of other grounds than the ones listed hereabove.

4. In the event of a refusal on one of the grounds listed in article 3 above, Belgacom shall notify within 3 working days the Beneficiary of its decision and the grounds for the decision by ordinary mail. A copy will be sent to the BIPT in the same delay.
5. The Beneficiary may lodge an appeal against this decision by following the procedure provided under the Dispute Resolution Procedure and in accordance with these General Terms and Conditions.

Conclusion, entry into force and duration of the contract

6. The provision of the ULL Services is subject to the conclusion of a Contract between the Beneficiary and Belgacom according to the present General Terms and Conditions and the negotiations between the Parties. The Contract is concluded when Belgacom has accepted in writing or via electronic way ("Validate" XML) the Order Form submitted by the Beneficiary.
7. Unless otherwise stipulated, the contract takes effect on the day after the date on which the Raw Copper or Shared Pair Service (as described here-after) is made available to the Beneficiary. Belgacom shall confirm this date to the Beneficiary in writing, or via electronic way ("Done" XML).
8. The Service is made available to the Beneficiary for an indefinite term.

Services covered by these General Terms and Conditions

Raw Copper Service

9. Belgacom shall grant to Beneficiary, without prejudice to the rights granted by the regulatory framework to Beneficiary, the right to use unequipped pair of copper wires without active network components, which in the Belgacom access network connects a NTP (network termination point) at a User site to the main distribution frame at the Belgacom local exchange or for a sub-Loop a NTP at an User site to a Distribution Frame at the Local Distribution Center (LDC) or the Street Cabinet (KVD) (hereafter referred as Raw Copper Service) according to Beneficiary's orders to be transmitted to Belgacom. The specific terms and conditions for delivering the raw copper loops are defined in Annex E1, "Planning and Operations manual for the provisioning of raw copper loops".

10. Beneficiary shall have access to purchase Raw Copper / Shared pair Services on base of User's request for telecommunications service or any right of user based on property right, rental / lease contract or contract for co-location at third party premises (contract between a third party and a Beneficiary, not to be confused with the Colocation Services as defined in the present reference offer). As a consequence, the cancellation of such service or contract shall imply that Beneficiary will ask for the deactivation of the relevant Service.
11. The Raw Copper Services shall be implemented in accordance with the Service Description provided in Annexes B1. For the sake of clarity the Parties acknowledge that the Bringing Into Service date is without prejudice to the bringing into service of the User by the Beneficiary. The Bringing into Service Date is agreed upon between Parties. However, when Beneficiary chooses to have the line installed by one of his Certified Technicians, the Beneficiary alone decides upon the Bringing into Service Date and informs Belgacom of this date.
12. The Services shall be implemented in accordance with the technical conditions set out in Annex C. If the Beneficiary chooses to install a specific Raw Copper Loop with a Certified Technician, Belgacom will provide to the Beneficiary the exhaustive list of tasks to be performed in relation to the physical installation of this specific loop, which tasks will all be executed by the Certified Technician chosen by the Beneficiary.
13. Within the limits of what is permitted under the applicable regulatory framework, both Parties shall exchange appropriate operational information as provided in Annexes (including, in particular, maintenance contact numbers, network information, information required to comply with law enforcement and other security agencies of the government and such other information as the Parties shall mutually agree).
14. Belgacom shall grant to Beneficiary, without prejudice to the rights granted by the regulatory framework to Beneficiary, access to an User by means of a part of the frequency of a loop, whereby the entire frequency of the loop concerned is shared by Belgacom and the Beneficiary as follows:
- Belgacom provides PSTN or ISDN services to the User (for which an Ordinary Subscription Fee is paid by the User concerned) on the voice frequency part (also referred to in the present document as the low bandwidth) of that Raw Copper Loop;
 - Beneficiary provides services to the same User on the non-voice frequency part (also referred to in the present document as the high bandwidth) of that same Raw Copper Loop.
15. In case the User cancels its PSTN-ISDN subscription, Beneficiary is entitled to continue the provision of its services under the conditions defined in the then applicable BRUO and in the relevant Annexes.
16. The access to the high bandwidth at the Belgacom network side will be realized (I) on the Belgacom Main Distribution Frame (MDF) by using dedicated Blocks per Beneficiary or for the Sub-Loop (ii) on the Belgacom Distribution Frame. From there, a pair of physical wires will be connected to the splitter rack (Connection Cables) and brought back from the Splitter rack to Beneficiary dedicated blocks for the low frequency. From the Splitter rack, connections will be made to the collocation area of the Beneficiary by use of Tie Cables.
17. The general terms and conditions for delivering the Shared Pair Services are defined in Annex E2, "Planning and Operations manual for the provisioning of Shared Pair Service in the Local Loops of Belgacom".
18. Beneficiary shall have access to purchase Raw Copper / Shared pair Services on base of User's request for telecommunications service or any right of user based on property right, rental / lease contract or contract for co-location at third party premises (contract between a third party and a Beneficiary, not to be confused with the Colocation Services as defined in the

Shared Pair Service

present reference offer). As a consequence, the cancellation of such service or contract shall imply that Beneficiary will ask for the deactivation of the relevant Service.

19. The Shared Pair Services shall be implemented in accordance with the Service Description provided in Annexes B. For the sake of clarity the Parties acknowledge that the Bringing Into Service (BIS) date is without prejudice to the bringing into service of the User by the Beneficiary.
20. The Services shall be implemented in accordance with the technical conditions set out in Annex C.
21. Within the limits of what is permitted under the applicable regulatory framework, both Parties shall exchange appropriate operational information as provided in Annexes (including, in particular, maintenance contact numbers, network information, information required to comply with law enforcement and other security agencies of the government and such other information as the Parties shall mutually agree).

Obligations of the Parties

Obligations of Beneficiary

22. Beneficiary shall, independently of Belgacom, manage all aspects of the relationship with its own Users unless otherwise explicitly agreed upon between the Parties. Beneficiary shall therefore be fully responsible for all User inquiries, including but not limited to inquiries concerning product information, service, fault reports, technical issues and settlement.
23. Beneficiary shall take all necessary measures to ensure that the use of the local loop of Belgacom by the User of a Beneficiary will not cause any disturbance, interruptions or the like to the traffic in the public telecommunications network.

24. Beneficiary shall be liable to Belgacom for ensuring that the equipment connected to Belgacom's local loop by Beneficiary's Users comply with the requirement of the R&TTE Directive.
25. Except for the PSTN-ISDN aspects in case of Shared Pair Service, Beneficiary shall be liable to Belgacom for ensuring that Beneficiary's Users do not in any way dispose of, sell, rent out, pledge, Belgacom's equipment and installations and Beneficiary shall ensure that Beneficiary's Users do not in any way interfere with the installations. Beneficiary further guarantees that his Users will at all times maintain the marking of equipment or installations indicating that they belong to Belgacom.
26. Beneficiary shall furthermore, independently of Belgacom, undertake all other customer service towards its own Users.
27. Except for the PSTN-ISDN Users aspects in case of Shared Pair Services for which Belgacom remains fully responsible, Beneficiary shall be liable for contact with the police in matters of, e.g., telephone harassment or criminal investigations involving Beneficiary's Users. Beneficiary shall involve Belgacom as technical contractor in police matters involving the network of Belgacom. Beneficiary shall appoint a person to be responsible for police contact with whom Belgacom can cooperate on such matters.
28. The Beneficiary shall be responsible for:
 - Communicating to Belgacom via the "Open Calendar" interface, as described in the Planning & Operations Manual, if the installation of the Local Loop must be performed by a Belgacom technician or by a Certified Technician;
 - In case of installation performed by a Certified Technican, dispatching to the Certified Technican chosen by the Beneficiary all the operational informations needed to perform the installation of the Local Loop;

- In case installation by Certified Technician is chosen by the Beneficiary, being responsible for the installation of the Service;
- Not modifying Belgacom infrastructure and equipment at End User premises, except in case of installation by Certified Technician and to the extent necessary to perform the installation tasks as explicitly foreseen in the tasks list communicated by Belgacom to the Beneficiary.

Obligations of Belgacom

29. Belgacom shall provide to Beneficiary Raw Copper and/or Shared Pair Services according to Beneficiary's order to be transmitted from time to time to Belgacom under the terms and conditions set forth in the present General Terms and Conditions and/or its Annexes.
30. Belgacom shall use all reasonable endeavours to correct any trouble affecting the quality of the service of Belgacom. In this respect in case of urgency and acting in good faith, Belgacom shall be entitled to:
- disconnect a Raw Copper and/or a Shared Pair connection immediately and without prior consultation with Beneficiary, provided that Belgacom can identify (without prejudice to Annex C) that the traffic on the Raw Copper and/or Shared Pair has caused a breakdown of networks or services, or if there is imminent risk of such breakdown. Belgacom will inform the BIPT, and Beneficiary, about the disconnection, at the latest 24 hours after the disconnection.
 - contact the Users directly with a view to maintaining or ensuring Belgacom's ownership of equipment and installations.

Only Belgacom may carry out service works on equipment belonging to Belgacom. In case of application of this provision, Belgacom will immediately inform Beneficiary about the operation before its execution.

31. Belgacom will not undertake customer handling of the Users of Beneficiary.

32. In case of installation performed by a Certified Technician, Belgacom will provide to the Beneficiary all operational informations needed to perform the installation of the Local Loop.

Certified Technician

33. Belgacom allows the Beneficiary to perform the installation of the Local Loop itself, via Certified Technicians, i.e. its own employees or employees of its subcontractor who are trained and certified by Belgacom. When the Beneficiary chooses to work with Certified Technician, the installation works will not be performed under instruction of Belgacom, but on behalf of Beneficiary itself, and at its own expenses.
34. Employees of Beneficiary and employees of Beneficiary's subcontractor may qualify as Certified Technician, if they fulfil the conditions described in the Specific Terms and Conditions relating to Certified Technician, available on the Personal Page of Belgacom Wholesale. In order to be certified, they will successfully follow training by Belgacom and sign the necessary confidentiality agreements.
35. Employees of Beneficiary's subcontractor will only be certified, if Beneficiary's subcontractor accepts the right of Belgacom to bring a direct claim against him for any damage caused by his employees to Belgacom, its employees, or third parties when installing the Local Loop. The Beneficiary's subcontractor must also provide to Belgacom a "liability insurance" certificate of EUR 2.500.000 per claim and per year to cover his liability for any damages caused by his employees, acting as Certified Technician (see also art. 72).
36. Except for this right of direct claim of Belgacom against Beneficiary's subcontractor and a confidentiality agreement, no contractual relationship exists between Belgacom and Beneficiary's subcontractor.
37. The Beneficiary shall allow Belgacom access to its Certified Technicians (both its own



together
with



employees as well as its subcontractor's employees) for technical discussions. Such direct contact shall, in no cases, be considered as creating a direct contractual link between Belgacom and these Certified Technicians, nor shall it create any responsibility of Belgacom for the acts of the Certified Technicians.

38. When the Beneficiary chooses to work with Certified Technician, he agrees to be responsible for all tasks related to the physical installation of the Local Loop (which are foreseen in the list of tasks provided by Belgacom to the Beneficiary for each particular loop), and releases Belgacom of any responsibility in this respect. Also, Belgacom cannot be held responsible for incidents during delivery of the ULL Service after installation of the loop, nor for any non compliance of the Local Loop with Technical Specifications, to the extent that these incidents/non compliance are caused by a wrongful installation by Certified Technician.

39. The Beneficiary guarantees that the Certified Technician will respect the rights and obligations applicable on the Beneficiary under the Belgacom Reference Offer for ULL Services (e.g. confidentiality obligation, liability).

40. The Beneficiary may only appeal upon Certified Technician for installation of the Local Loop, not for repair or maintenance. The exact scope of activities which may be performed by Certified Technicians is described in the Specific Terms and Conditions relating to Certified Technician, available on the Personal Page of Belgacom Wholesale.

41. The Certified Technician may lose its certification in any of the following events:

- he no longer fulfills the conditions for certification as described in the Specific Terms and Conditions relating to Certified Technician, available on the Personal Page of Belgacom Wholesale;
- he repeatedly or seriously breaches the obligations applicable upon the Beneficiary under the Belgacom Reference Offer for ULL Services;
- his work does not meet the quality standards, and repeatedly needs correction by Belgacom technician.

42. In case the installation of the Local Loop is not correctly performed by Beneficiary's Certified Technician, Belgacom will perform the necessary repair actions, at the expense of Beneficiary, without prejudice to Belgacom's right to claim compensation for any other damages.

Financial Conditions

Billing and Payments

43. In consideration for Raw Copper Services provided by Belgacom under these Terms and Conditions, Beneficiary shall pay the charges and fees provided in Annex H1.

44. In consideration for Shared Pair Services provided by Belgacom under these Terms and Conditions, Beneficiary shall pay the charges and fees provided in Annex H2.

Financial Guarantees

General Principle - Pre-payment

45. Notwithstanding anything to the contrary in the present General Terms and Conditions, in order to guarantee the payment by Beneficiary of the prices due for the ULL Services provided by Belgacom that are invoiced on a monthly basis, Beneficiary will provide Belgacom with a monthly (1) pre-payment based on the average of the monthly amount due by Beneficiary. The amount of the pre-payment shall be based on the average of the invoices for ULL Services, ordered in accordance with the present General Terms and Conditions, issued by Belgacom during three (3) months. The amount of the pre-payment shall be reviewed every three (3) months. The terms and conditions of this pre-payment are described in Annex D.

46. Without prejudice to any other legal or contractual remedies and notwithstanding anything to the contrary in the present General Terms and Conditions, in the event Beneficiary fails to pay in due time any undisputed amount due under the pre-payment conditions as defined in the present section and in Annex D3, Belgacom shall be entitled to execute the following alternatives until full payment is made:

- suspension of any SLA obligations that are not foreseen in the Basic SLA;
- refusal in writing of any new Services, including Migration Services.

Sufficient Creditworthiness

47. This monthly prepayment will not be required in the following circumstances:

48. The Beneficiary has sufficient creditworthiness as evidenced by either of the following alternatives:

- the Beneficiary has obtained a “Ba2” rating or above for its debt (Moody’s);
- the Beneficiary has obtained a rating similar to Moody’s “Ba2” rating, provided that (i) such rating is generally accepted by the market as giving similar reliability as Moody’s, (ii) such rating is reviewed and updated on a regular basis.

Other Financial Guarantees

49. In the event that, in the course of the contract, Beneficiary would lose the above described creditworthiness (either through the loss of “Ba2” credit rating or similar, or upon the occurrence of any default or delay of payment), Beneficiary will have to provide Belgacom with a pre-payment or with another financial guarantee as defined in the present chapter within ten (10) working days of Belgacom’s request thereto.

50. The Beneficiary obtains an irrevocable and unconditional parent corporation guarantee for the debts incurred by Beneficiary in the application of the Contract, provided that such

parent company is issued by a company that has sufficient creditworthiness as defined above. In the event that, in the course of the Contract, the Parent Company would lose the above described creditworthiness (either through the loss of “Ba2” credit rating or similar or upon the occurrence of any default or delay of payment), the Beneficiary will provide Belgacom with a pre-payment or with another financial guarantee as described in the present chapter within ten (10) working days of the request of Belgacom;

51. The Beneficiary has constituted a Deposit on an escrow account with a reputable bank or financial institution established in the EU. The amount of that deposit will be equal to an estimate of three (3) months of net amount due by Beneficiary for the Services ordered in accordance with the present Terms and Conditions, provided. The amount of the deposit will be equal to an estimate of three (3) months of Belgacom’s invoices for the Services. Based on the actual evolution of the amounts due for the Services; the Beneficiary and Belgacom will have the right to require an adaptation of the amount of the deposit every three (3) months. Upon the request for adaptation of the amount or deposit, necessary steps will be taken to ensure adaptation within ten (10) working days. In case of default by Beneficiary to pay sums due under the contract, the sums deposited on the escrow account will accrue to Belgacom. The interests accrued on the escrow account will be payable to Beneficiary. In the event the sums deposited are accrued to Belgacom, or if the amount of the deposit is not adapted despite Belgacom’s request thereto, Beneficiary will provide Belgacom with a pre-payment or with another financial guarantee as defined in the present chapter within ten (10) working days of the request of Belgacom.

52. Beneficiary has provided Belgacom with an irrevocable and unconditional bank guarantee on first demand issued by a reputable bank or financial institution established in the EU. That bank guarantee will be issued for a minimum period of three (3) years and for an amount equal to an estimate of three (3) months of net amount due by Beneficiary for the Services ordered in accordance with the present General Terms & Conditions. The amount of the bank guarantee will be equal to an estimate of three (3) months of ULL invoices. Based on the actual evolution of the

amounts due for the Services, Beneficiary and Belgacom will have the right to require an adaptation of the amount of the bank guarantee every three (3) months. Upon the request for adaptation of the amount of bank guarantee, necessary steps will be taken to ensure adaptation within ten (10) working days. Upon the expiration of the bank guarantee or after Belgacom has called upon the bank guarantee, or if the amount of the bank guarantee is not adapted despite Belgacom's request thereto, Beneficiary shall provide Belgacom with a pre-payment or with another financial guarantee as defined in the present chapter, within ten (10) working days of the request thereto from Belgacom.

Principles

Retail Pricing & Billing

53. Unless otherwise provided in the present General Terms and Conditions or in its Annexes and without prejudice to the applicable regulatory framework, Beneficiary shall be responsible for the setting of the tariffs that Beneficiary will apply to the Users to whom Beneficiary will sell telecom service using the Raw Copper and/or Shared Pair Services and for the billing and invoicing of such Users.
54. Except as provided otherwise in the present General Terms and Conditions or its Annexes, no deductions or reductions shall be made from the payment of any charges or fees due for the Services for any bad or unpaid debts or any unrecoverable claims (including, in particular, claims arising from fraud cases) that Beneficiary may have against Users or any other third parties in relation with these Services.

Branding

55. The Parties agree not to offer any service under any brand, including any trademark, trade name or company name, of the other Party unless the use of the brand(s) of the other

Party is explicitly provided under the present General Terms and Conditions. Such use of the brand will then be strictly limited to the service at stake.

56. Beneficiary shall offer telecom services to Users under its own brand without any use of, or reference to Belgacom's brands.
57. Notwithstanding the foregoing, Parties acknowledge that, as provided in Annexes B1 and/or 2, the installation of equipment on the site of the relevant Users who have subscribed to an offering of Beneficiary, may, when relevant under the terms and conditions of Annex E 1 and/or 2, be realized by Belgacom personnel. Both Parties agree that Belgacom shall have no obligation to unbrand or rebrand its service technicians or trucks. Belgacom will act in accordance with its general standard of integrity that it has internally developed and enforced. In any case, Belgacom will not make any publicity or remarks to the detriment of the Beneficiary or its image. Belgacom must in all circumstances stay neutral, in accordance with the technical nature of its intervention. Where Belgacom makes use of standard documents vis-à-vis users, it will submit these for prior approval by BIPT.
58. When Beneficiary chooses to have installation of the Local Loop performed by Certified Technician, Beneficiary will see to it that the Certified Technician acts with integrity and makes no publicity or remarks to the detriment of Belgacom or its image.

User Terms and Conditions

59. Beneficiary shall cause the terms and conditions governing Beneficiary's contractual relationships with Users to be compliant with the rules and principles set out in this contract and the appendices. Notwithstanding the above, nothing in the present Reference Offer can be construed as creating or evidencing a contractual relationship of any kind between Belgacom and Beneficiary's Users, nor a right for Belgacom to supervise the contractual terms of the relation between Beneficiary and its Users.

60. Without prejudice to what is set out under Article 69, Beneficiary shall bear all the consequences of the breach of the above obligation.

Coordination between the Parties

Single Points of Contact

61. Beneficiary and Belgacom will both appoint an individual as their respective single point of contact (“SPOC”) who will act, within its organization, as the other Party’s contact person.
62. The SPOC of either Party will have full authority to act and decide on behalf of the respective Party on all technical and operational matters regarding the day-to-day management of the performance of their contracts. All the decisions taken by any working group constituted by the Parties during the performance of this agreement will need to be expressly and formally validated by the SPOC of either Party to be binding on such Party. This validation (or refusal of validation) has to be given at the latest within three working days. The absence of response in this delay will be considered as a tacit validation. Except as otherwise expressly provided by the relevant Party, each Party’s SPOC will have no authority to modify the conditions described in the present General Terms and Conditions, or to act outside the day-to-day management of the performance of the Services.
63. Each Party will be authorized to replace its SPOC by notice sent to the other Party. Such notice will have immediate effect.

1.1 Working Group

64. The Parties will be free to set up any other working group in charge of discussing and agree on any technical or operational issue as the Parties may deem fit in the performance of the Services.

Liability

General rules

65. Taking into account the nature of the respective activities of the parties, the risks and potential profits associated with these activities and the consideration obtained by each Party from the present Terms and Conditions, Parties expressly agree that their respective liability shall be limited as follows.
66. If either Party is held liable to the other Party (including such other Party’s employee(s) and contractor(s)) under the present General Terms and Conditions, that liability shall be limited to the following:
- if such liability results from any personal injury or death incurred as a direct result of the non-performance of the relevant Party’s obligations under these Terms and Conditions, then such liability shall be only subject to the limitation provided in article 67;
 - if such liability results from any conduct attributable to the relevant Party, which is, under Belgian law, characterized as being gross negligence (*faute lourde – zware fout*) or intentional negligence (*dol – bedrog*), then such liability shall be subject to no limitation, except as ~~permitted~~provided by law;
 - if such liability results from any material damage, other than those referred to above, arising out of or in any way connected with the performance by the relevant Party of the Services or the breach of such Party’s obligations under these Terms and Conditions, then the total amount which can be recovered from such Party for all acts or omissions shall, in no event, exceed an aggregate amount equal to EUR 1,250,000 (one million two hundred fifty thousand euro), subject to the limitation provided in article 67.
67. Neither Party shall be liable for indirect damages (pure and consequential), including

without limitation loss of profit, loss of revenue, loss of data, loss of use, loss of savings, loss of goodwill, interruption of business or claim by third parties.

68. In the event of a complaint by a Beneficiary's User, the liability of Belgacom may only be questioned by the Beneficiary if Belgacom, or a person Belgacom is responsible for, is at fault or has committed a gross negligence (faute lourde - zware fout).
69. In addition, and notwithstanding the above, Beneficiary will indemnify Belgacom against any claim or loss related to the illegal use, or the use for illegal purpose of Raw Copper and/or Shared Pair Services by Beneficiary or Beneficiary's Users. As far as the Shared Pair Service is concerned, Belgacom remains fully responsible for the PSTN-ISDN Users aspects.

Certified Technician

70. In addition, and notwithstanding the above, the Beneficiary will be held liable to Belgacom, its employees or third parties for damages caused by one of its Certified Technicians (Beneficiary's own employees, as well as Beneficiary's subcontractor employees), when performing the installation of the Local Loop. The Beneficiary shall indemnify and hold Belgacom harmless from any and all damage, costs or third party claims incurred as a result of any act or omission of Beneficiary's Certified Technician, including claims against Belgacom based upon art. 544 Civil Code ("burenhinder / troubles de voisinage").
71. If a Beneficiary chooses to install some or all of his Local Loop lines by one or several Certified Technician(s), he will have to provide to Belgacom, prior to his first request to have installation done by Certified Technician, a "liability insurance" certificate of EUR 5,000,000 per claim and per year to cover his liability for any damages caused by his employees or his subcontractors to Belgacom, its employees or third parties when provisioning the lines.

The insurance policy has to be contracted with a first class insurance company in an E.U. country and must be maintained during the

total duration of the agreement between parties. The policy must contain the following provision : the suspension, cancellation or the end of the insurance policy will be opposable to Belgacom, 15 calendar days after the reception of a registered letter from the insurance company informing Belgacom of the end of the policy. At the expiry of the insurance certificate, the Beneficiary will be diligent in providing Belgacom an updated certificate, confirming the prolongation of the insurance policy.

72. The Beneficiary will also procure that its subcontractors, who wish to qualify certain of its employees as Certified Technician, accept the right of Belgacom to bring a direct claim against Beneficiary's subcontractor as to hold Belgacom harmless from any and all damage, costs or third party claims incurred as a result of any act or omission of the Certified Technicians employed by Beneficiary's subcontractor, including claims against Belgacom based upon art. 544 Civil Code ("burenhinder / troubles de voisinage"). In the event that damage is caused by Beneficiary's subcontractor, Belgacom can choose to bring a claim towards the Beneficiary, or to Beneficiary's subcontractor, or to both. For the sake of clarity, in case of parallel claims against the Beneficiary and Beneficiary's subcontractor, Belgacom can only once recover indemnification of its total damage.

The Beneficiary's subcontractor will provide to Belgacom a "liability insurance" certificate of EUR 2.500.000 per claim and per year to cover its liability for any damages caused by its employees, acting as Certified Technician, to Belgacom, its employees or third parties when provisioning the lines. The insurance policy has to be contracted with a first class insurance company in an E.U. country and must be maintained for the total duration of certification of any of Beneficiary's subcontractor employees. The policy must contain the following provision : the suspension, cancellation or the end of the insurance policy will be opposable to Belgacom, 15 calendar days after the reception of a registered letter from the insurance company informing Belgacom of the end of the

policy. At the expiry of the insurance certificate, the Beneficiary's subcontractor will be diligent in providing Belgacom an updated certificate, confirming the prolongation of the insurance policy.

Force Majeure

73. Neither Party will be liable for any delay or failure to fulfil its obligations under these General Terms and Conditions arising from any event beyond its reasonable control (all such events being hereafter referred to as "Force Majeure").
74. The Party claiming Force Majeure shall as soon as possible send to the other Party a Notice of the Force Majeure. Such Notice shall contain adequate evidence of the occurrence and extent of the Force Majeure, as well as an estimate of the expected duration of the Force Majeure. As soon as practicable after receipt of such Notice, the Parties shall consult with each other in order to find an equitable solution to the problems and difficulties caused by the Force Majeure.
75. The Party claiming Force Majeure shall use all reasonable endeavours to minimise the consequences of such Force Majeure, and to ensure, in as far as reasonably possible, the continuity of the services provided under these Terms and Conditions, and shall perform those of its obligations not affected by a Force Majeure. To the extent that a Party is prevented as a result of Force Majeure from providing one or several of the services or facilities to be provided under these Terms and Conditions, the other Party shall be released to the equivalent extent from its obligations to make payment for such services or facilities or complying with its obligations in relation thereto.
76. Upon cessation of the effects of the Force Majeure, the Party initially affected by such Force Majeure shall promptly notify the other Party of such cessation.

Accidents at work and Safety Rules

77. Each Party hereby undertakes to provide insurance cover against accidents at work for its own employees in conformity with the applicable legal requirements. Beneficiary also procures that its subcontractors provide insurance cover against accidents at work for their employees in conformity with the legal requirements. Each Party hereby renounces any possible claim against the other Party, and undertakes to procure that its insurer shall not pursue against the other Party, or against any third party for whose acts or omissions the other Party may be responsible, any claim relating to accidents at work. Beneficiary undertakes to procure that its subcontractors and subcontractor's insurer renounce any possible claim against Belgacom relating to accidents at work.
78. Each Party shall comply with safety practices and procedures reasonably applicable when entering the premises and installations of the other Party in order to carry out work (see, for Belgacom, safety rules and procedures in Specific Terms and Conditions relating to Certified Technician, available on the Personal Page of Belgacom Wholesale). Each Party undertakes to ensure that its personnel or its subcontractor personnel, while upon the premises and installations of the other Party, will respect any internal rules and codes of conduct therein applicable, provided that such rules and/or codes shall have been made available to them in advance. Without prejudice to the provisions of the chapter relating to Liability General rules or the chapter relating to Liability Certified Technician, depending on the situation, each Party shall indemnify and hold harmless the other Party for any and all damage, costs or expenses incurred as a result of any act or omission of a Party's personnel or a Party's subcontractor personnel while upon the premises and installations of the other Party.

Operational Matters

Operational Matters and Network Management

79. The Raw Copper and/or Shared Pair Services provided under these Terms and Conditions shall be implemented and provided by the Parties in accordance with the technical specifications set forth in Annex C “Technical Specifications” and the operational rules and procedures contained in Annex E 1 and/or 2 “Planning and Operations”.
80. Both Parties shall cooperate to install and maintain reliable services. Both Parties shall exchange appropriate information as provided in Annex E 1 and/or 2 (including, in particular, maintenance contact numbers, network information, information required to comply with law enforcement and other security agencies of the government and such other information as the Parties shall mutually agree) to achieve this desired reliability.
81. Each Party shall apply sound network management principles by invoking network management controls to ease the operation of their respective systems and to alleviate or to prevent congestion. Each Party shall ensure that the network management controls are applied in such a way as to ensure that there is no discrimination in favour of that Party’s own traffic.
84. It is a condition for the provision by Belgacom of Raw Copper and/or Shared Pair Service under this Document that Beneficiary’s request under the provisions of Annex C is not detrimental to the operation of the telecommunications networks and telecommunications services in question or to their integrity or interoperability, and that the protection of service and internal data, network equipment, software and stored data, including personal data, confidential information and privacy can be sustained.
85. The conditions for and restrictions on use applying at any time appear from Annex C to the present General Terms and Conditions, “Technical specifications Document”.
86. Belgacom shall further be entitled to cause interruptions, disturbances or modifications of Belgacom’s public network and services to the detriment of the supply of the services under these Terms and Conditions in connection with measures that are deemed necessary for technical, maintenance and operating reasons taking into account the balance of the interests of both Parties or that are ordered by the regulatory authorities. Belgacom shall give in good faith Beneficiary the longest possible notice of interruptions, disturbances and modifications by any means it deems appropriate (e.g. via electronic communication) and state the reason for them. In these cases, Belgacom shall, in writing, immediately inform the User of Belgacom’s intentions.

Essential Requirements

82. The Parties shall ensure that the Essential Requirements, as defined and applicable under the regulatory framework, are adequately and sufficiently protected, in as far as the establishment, maintenance and operation of the services offered under the present General Terms and Conditions are concerned.
83. It is acknowledged that the present General Terms and Conditions and its Annexes (in particular, Annexes B “Service Descriptions” and Annex E 1 and/or 2 “Planning and Operations”) contain a number of specific principles and rules that have been developed to ensure the protection of the Essential Requirements. Furthermore, the Parties shall consult with each other in order to ensure that the Essential Requirements are protected in an adequate and sufficient manner.

Amendments and Revisions

General Principles

87. Except as otherwise provided in these General Terms and Conditions or its Annexes, any agreement departing from the present Terms and Conditions or its Annexes shall only be valid if duly agreed upon in writing by the respective representatives of the Parties after BIPT has been informed by both parties in writing.

Revisions in Technical Terms and Conditions

88. If required by operational, technical, legal or regulatory constraints, Belgacom will be allowed, with prior authorization of BIPT about all the details of the changes, to modify the terms and conditions applicable to Services provided under these Terms and Conditions, by sending a change Notice to Beneficiary via letter or via electronic communication describing the said constraints. Belgacom will, together, with such a Notice send to Beneficiary as well as to the BIPT a new coordinated version labeled "BIPT approved" of these Terms and Conditions and/or its Annexes as the case may be.

Termination and Suspension

89. Beneficiary has the right to terminate one or more Raw Copper and/or Shared Pair contract as provided in the Annexes B, i.e. in the relevant Service Descriptions annexed to these General Terms and Conditions.

90. A Raw Copper and/or Shared Pair contract shall automatically be terminated without prior notice to Beneficiary 1 upon the activation by Belgacom of another ULL service on the same loop based on the valid migration request of another Beneficiary 2 (see Annex K Migrations). Belgacom will further inform Beneficiary 1 of the request of Beneficiary 2 without revealing the identity of the latter.

91. In the event Beneficiary uses or allows the use of Services provided under these Terms and Conditions in an illegal manner or for illegal purposes, or if Beneficiary by its action or omission causes, or could reasonably be expected to cause a damage to the working or the security of the telecommunication network of Belgacom, and Beneficiary fails to take appropriate measures in order to remedy to the situation within a period of fifteen (15) days from the receipt of a Notice sent by Belgacom, Belgacom will have the right to suspend the provision of some Raw Copper and/or Shared Pair contracts or of the whole Raw Copper or Shared Pair Services. Notwithstanding the foregoing, Belgacom will have the right to suspend Raw Copper and/or

Shared Pair Services prior to sending the above mentioned Notice in urgent cases where such suspension will be reasonably required under the circumstances. In that case, Belgacom will inform the BIPT and the parties involved about the suspension of the Services at the latest 24 hours after the suspension.

92. If Beneficiary uses or allows the use of Services provided under these Terms and Conditions for a purpose different from the purpose declared pursuant to Annexes B 1 and/or 2 "Service Description" and Beneficiary fails to take appropriate measures in order to remedy to the situation pursuant to the terms and conditions provided by the Service Description, Belgacom will have the right to suspend all or some of the services in the conditions of article 91.

93. Belgacom will have the right to suspend Raw Copper and/or Shared Pair Services in the event that it is requested to do so by an order of a court or a competent authority. Belgacom will inform Beneficiary as soon as possible of the cause of such suspension.

1. Without prejudice to article 46, in the event that Beneficiary fails to pay outstanding invoice (invoice, preinvoice or final invoice) for any amount due under the Belgacom reference offer for ULL services, Belgacom shall be entitled, after having duly informed the BIPT,
- to suspend all Belgacom reference offer for ULL Services without further notice if the total amount due has not been paid within a period of fifteen (15) days following written Notice;
 - to terminate all Belgacom reference offer for ULL Services without further notice if the default is not cured within a period of 30 days following the same Notice.

94. Article 93 does not apply to amounts duly disputed by the Beneficiary in writing, before the Due Date, including a clear summary of the grounds for the Dispute and the position of the Beneficiary as to this dispute.

95. In the event that Beneficiary fails to provide, renew, adapt or reconstitute the financial guarantee as provided in the chapter on Financial Guarantee here above, Belgacom shall be entitled, after having duly informed the BIPT,

- to suspend all the Raw Copper and Shared Pair Services without further notice if the default is not cured within a period of 15 days following written Notice;
- to terminate all the Raw Copper and Shared Pair Services without further notice if the default is not cured within a period of 30 days following the same Notice.

96. The provisions of this chapter on Suspension of the Services are without prejudice to any other right or claim for compensation to which the non-defaulting Party may be entitled to in the event of suspension of the services.

97. In the event that either Party is declared bankrupt or enters into liquidation, then the other Party may terminate all the Raw Copper and Shared Pair Services, without any further legal or other procedures, by sending Notice of termination with immediate effect to the other Party.

98. The provisions in this chapter on Termination of the Services are without prejudice to any other right or claim for compensation to which the non defaulting Party may be entitled to in the event of termination of the Services.

99. In the case of termination of the Services for any reason, Belgacom shall be entitled to payment for all Services performed prior to such termination in accordance with the conditions that were applicable between the parties at the time of termination.

100. The provisions of the present General Terms and Conditions which by their nature are determined to survive the termination of the Services (including, in particular but without limitation, the provisions on Confidentiality and Applicable Law and Jurisdiction), shall remain in full force and effect after the termination.

101. In the event of termination of the Services, Beneficiary will be responsible to inform the relevant User of the consequences of the termination of these Services.

Confidentiality

Confidential Information

102. For the purpose of this Chapter, the term "Confidential Information" shall mean:

- information communicated by one Party (or from any of its Associated Companies) (the "Disclosing Party") to the other Party (or to its employees and advisors) (the "Receiving Party"), or obtained by the Receiving Party in connection with the performance of the Services, provided that such information is, at the time of its disclosure, reasonably designated "confidential" or with an equivalent term. If such information was disclosed orally, it shall constitute Confidential Information provided that the Disclosing Party informs the other Party at the time of such disclosure, that such information is confidential and that (i) a written notice containing a summary of the information disclosed orally and mentioning that such information is confidential, is issued by the Disclosing Party to the other within five Working Days from the date of disclosure, or (ii) such disclosure is recorded in minutes of a meeting that are designated, labelled or marked "confidential" or designated, labelled or marked with an equivalent term;
- Shall in any event be considered as Confidential Information, any information or data obtained regarding customers of the other Party, regarding customers of other licensed operators, or any other information or data which the Beneficiary or his subcontractor obtain via access to the tools which Belgacom puts at the disposal of the Certified Technician.

103. For purposes of these General Terms and Conditions, "Confidential Information" does not include:

- a. information that is properly and lawfully in the public domain otherwise than by breach of these Terms and Conditions or any other obligation of confidence;
- b. information that was disclosed by a third party to the Receiving Party without restriction on disclosure or use, unless the Receiving Party knew or should reasonably have known that this information was acquired unlawfully or by a breach of contract or fiduciary relationship.

104. Except as specified in writing, by the Disclosing Party at the time of disclosure, Confidential Information shall continue to be deemed as such until the end of a period of three (3) years after its initial communication under the present General Terms and Conditions.

Non-Disclosure

105. The Receiving Party shall refrain from disclosing the Confidential Information to any third party and shall use the Confidential Information only for the performance of the Services offered in accordance with the present General Terms and Conditions. In addition, the Receiving Party shall take any reasonable measures to ensure the confidentiality of this information. In any event, the Receiving Party shall use efforts at least commensurate with those that such Party uses for protecting the confidentiality of its own Confidential Information.

106. Notwithstanding the foregoing and without prejudice to the provisions regarding the Disclosure to Personnel, Advisors or Suppliers here-under, either Party shall be allowed to disclose the Confidential Information to third parties provided it has obtained the prior written consent of the other Party. Such written consent will be given case-by-case upon a discretionary basis. Such written consent shall only be valid and enforceable for the specific information listed therein. The written consent to disclose Confidential

Information shall identify the third party or parties to which the information can be disclosed and shall set forth the terms and conditions to which such disclosure is subject.

107. The Disclosing Party shall remain free to disclose to any third party Confidential Information disclosed to the Receiving Party.

Disclosure to Personnel, Advisors or Suppliers

108. A Receiving Party shall disclose the Confidential Information received from the other only to its directors, employees, suppliers, agents, advisors, resellers or contractors who have a need to know such information. Such Party shall ensure that such directors, employees, suppliers, agents, advisors, contractors or subcontractors are bound by the obligations of confidentiality in respect of the Confidential Information that are set forth in these General Terms and Conditions. For this purpose, the Beneficiary shall conclude a similar Non Disclosure Agreement with the above authorized parties not on his payroll that contains at least the same provisions as the NDA the Beneficiary concluded with Belgacom.

109. Notwithstanding anything to the contrary in the foregoing provisions, the Receiving Party shall not disclose or use the Confidential Information, with the aim of providing commercial advantage to business divisions of the Receiving Party, or business divisions of the Receiving Party's Associated Companies, which are engaged in activities competing with the other Party.

110. The Beneficiary guarantees that the Certified Technicians, whom he uses for the installation of the Local Loop lines, comply with the confidentiality obligations described herein, and he will see to it that his Certified Technicians do not divulge or use Confidential Information belonging to Belgacom or to other licensed operators, when performing installation services on behalf of the Beneficiary. The Certified Technicians will

also conclude a confidentiality agreement with Belgacom directly before starting their training by Belgacom in order to obtain certification.

111. Each Party shall be liable under the limitations provided in the Chapter relating to Liability here-above, for any unauthorized disclosure or use of the Confidential Information by its directors, employees, suppliers, agents, advisors, contractors or subcontractors. The Party responsible for an unauthorized disclosure or use of the Confidential Information shall, in any event, take any reasonable measures (including but not limited to court proceedings) to mitigate the damage resulting there-from.

Disclosure Required by Law

112. If the disclosure of Confidential Information to third parties is required by reason of legal, accounting or regulatory requirements beyond the control of the Receiving Party, the Receiving Party may disclose such information to the extent necessary to comply with such requirements. Without prejudice to the application of the foregoing, the Parties shall endeavour to ensure the confidential treatment of the Confidential Information by the third parties receiving such information as a result of such requirement.
113. Without limitation to the generality of the foregoing, either Party will have the right to disclose Confidential Information to the BIPT, whenever required by law, or deemed reasonably necessary in the context of any proceedings or discussions held in front or with the BIPT. If any such disclosure of Confidential Information is made, the Party communicating the information will ensure that the attention of the BIPT is properly drawn to the fact that the information is confidential and that the information needs to be kept confidential.

Dispute Resolution and Applicable Resolution

Dispute resolution procedure

114. The SPOC shall, on an ongoing basis, attempt to solve any dispute, controversy or claim between the Parties concerning the interpretation, application and implementation of the present General Terms and Conditions and its Annexes (a "Dispute") through discussions held in good faith.
115. In the event that the Parties have been unable to solve any Dispute, then upon Notice of either Party, each of the Parties will appoint a designated senior business executive (other than their respective SPOC) whose task it will be to meet for the purpose of endeavouring to resolve the Dispute. Each Party shall ensure that their respective designated executive has sufficient authority or decision-making power concerning the matter at stake. The designated executives will meet as often as the Parties reasonably deem necessary in order to gather and furnish to the other all information with respect to the matter in issue which the Parties believe to be appropriate in connection with its resolution. Such executives will discuss the Dispute and will negotiate in good faith in an effort to resolve the Dispute without the necessity of any formal proceeding relating thereto.
116. In the event the Parties fail to reach such a solution and/or settlement within fifteen (15) Working Days as from the receipt of the above Notice, they shall escalate the matter to a higher level within their respective organizations. Discussions at that level will be conducted as described in article 115. The Parties may, at any given escalation level, agree to extend the time limits described in this article and in article 115 when they consider it necessary in order to facilitate that an agreement be concluded on the subject-matter of the dispute.
117. Except in the cases of urgency, as determined in good faith by the Party calling the Dispute, no formal proceedings for the resolution of a Dispute may be started until the earlier to occur of (a) a good faith conclusion by the designated executives that amicable resolution through continued negotiation of the matter in issue does not appear likely or (b) the Parties have failed to reach an agreement on the Dispute within 15 Working Days of the

escalation of the Dispute as described in article 116.

118. Without prejudice to the above and without prejudice to the rights of each Party in case of Dispute, each Party shall be entitled to call on the BIPT for a decision for disputes regarding the interpretation of the present General Terms and Conditions and/or its Annexes. In consideration of the legal framework, the then relevant BRUO and the then relevant decision of the BIPT on the BRUO, BIPT will take decision within a reasonable term that shall not exceed one (1) month.

Applicable Law and Jurisdiction

119. This Document shall be governed by Belgian law.

120. Without prejudice to article 117, any dispute concerning the validity, the interpretation, or the performance of the Raw Copper and Shared Pair Services, or of subsequent contracts derived here-from shall be finally submitted to the Courts of Brussels, Belgium. The above is without prejudice to the right of each of the Parties to submit the Dispute to the BIPT with a view to reach conciliation or to submit the Dispute to the Competition Council.

Miscellaneous

No Assignment

121. Neither of the Parties is entitled to assign the contracts concluded under the present General Terms and Conditions, in part or in its entirety, to any third party or to any other entity unless with the prior written approval of the other Party.

122. No approval will be required for an assignment of the Contracts in the event a Party assigns all the Raw Copper/Shared Pair Contracts concluded under the present General Terms and Conditions in their entirety

to a successor, to which a transfer has taken place of, at least, the Assigning Party's activities covered by the present General Terms and Conditions. In such a case, the assigning Party shall immediately give Notice to the other Party of any such assignment permitted to be made under the present General Terms and Conditions without requesting the other Party's consent.

123. Without prejudice to the foregoing, no assignment shall be valid under the present Terms and Conditions unless the assignee agrees in writing to be bound by the provisions of the present General Terms and Conditions and its Annexes.

Fraud

124. The Parties accept to cooperate to the best of their respective abilities in order to prevent and eliminate any kind of fraud which involves Services provided under these General Terms and Conditions. If any of the Parties suspects such kind of fraud, the Parties shall co-operate in order to identify the origin of the fraud and to use any appropriate means in order to eliminate and prevent such fraud as soon as possible. For the purposes of the application of the present provision, fraud shall mean any manipulation of a communications network, including by Beneficiary connected to the network of one of the Parties, in order to obtain one or more telecommunication services without paying the proper charge for it, or to support other criminal activities (including, in particular, wiretapping, eavesdropping and gathering secret numbers).

125. It is explicitly acknowledged by the Parties that any cooperation in the context of the present provision will need to be in due compliance with the entire regulatory framework.

Independent Parties - Approvals

126. Each Party shall be responsible for obtaining and keeping in effect all approvals from, and rights granted by, competent authorities, other operators, and any other persons that may be

required in connection with the performance of its obligations under the present General Terms and Conditions. Each Party shall reasonably cooperate with the other Party in obtaining and maintaining any required approvals and rights for which other Party is responsible.

127. Each of the Parties is and shall remain at all times an independent contractor. Neither Party is authorized and neither of the Parties nor their employees, agents, representatives or subcontractors shall at any time attempt to act or act on behalf of the other Party to bind the other Party in any manner whatsoever to any obligations. Neither Party nor its employees, agents, representatives or subcontractors shall engage in any acts which may lead any person to believe that such Party is an employee, agent or representative of the other Party. Nothing in the present General Terms and Conditions shall be deemed to constitute a partnership between the Parties.

128. In the framework of the applicable Belgacom Reference Offer for ULL Services, should a conflict arise between the Main Body, and any or several Annexes, attachment or appendix to an Annex, the Main Body shall prevail, except for (a) the General Terms and Conditions, which will prevail over the Main Body unless otherwise specifically stated, (b) when otherwise agreed by the Parties, in writing or (c) when otherwise specifically stated in the Main Body or Annex, Attachment or Appendix. Should a conflict arise between the General Terms and Conditions and an Annex, attachment or an appendix to said Annex, the General Terms and Conditions shall prevail unless otherwise specifically stated. Should a conflict arise between an Annex and an attachment or an appendix to this Annex, the Annex shall prevail unless otherwise agreed by the Parties, in writing or otherwise specifically stated.

129. If any part of this Offer shall be held to be illegal, invalid or unenforceable for any reason, each Party agrees that such provision shall be enforced to the maximum extent permissible so as to effect the intent of the Parties, and the validity, legality and

enforceability of the remaining provisions of this Offer shall not in any way be affected or impaired thereby. If necessary to effect the intent of the Parties, the Parties shall forthwith negotiate in good faith to amend this Offer and the Parties' practices hereunder in such manner and with such language as will fully reflect as closely as possible the intent of the Parties and render further performance lawful.

Belgacom Raw Copper and Shared Pair Products

Annex C Technical Specifications

Created on: 16 February 2012

belgacom





together
with



1 Table of contents

1	Table of contents.....	2
2	Preliminary remark.....	5
3	Transmission properties of the access network.....	6
3.1	Generalities.....	6
3.2	Physical characteristics of the cables	7
3.3	Electrical characteristics of the cables	7
3.4	Insulation resistance	8
3.5	Measurements.....	8
4	Pair selection rules	9
5	References	10
5.1	General	10
5.2	PSTN	10
5.3	ISDN	11
5.4	ADSL.....	11
5.5	SHDSL.....	11
5.6	ADSL2	12
5.7	ADSL2plus	12
5.8	VDSL.....	12
5.9	VDSL2	12
6	Common technical specifications for the equipment to be connected to the loop or sub-loop	14
6.1	VDSL2	14
7	Technical specifications for the equipment to be connected to the raw copper loop	17
7.1	General requirements.....	17
7.2	Requirements for PSTN equipment to be connected to the Raw Copper Loop.....	17



together
with



7.3	Requirements for equipment delivering signals for which the binary rate is smaller or equal to 64 kbit/s	19
7.4	Requirements for equipment for the transmission of signals using ISDN basic access line code.....	21
7.4.1	ISDN 2B1Q signals	21
7.4.2	ISDN MMS43 signals.....	21
7.5	Requirements for equipment using ADSL over POTS to be connected to the Raw Copper Loop	22
7.6	Requirements for ADSL over ISDN equipment to be connected to Raw Copper Loop	23
7.7	Specific requirements for spectral compatibility between ADSL over POTS and ADSL over ISDN.....	25
7.8	Specific requirements for SHDSL equipment to be connected to Raw Copper Loop	25
7.9	Specific requirements for ADSL2	25
7.10	Specific requirements for ADSL2plus	26
7.11	Specific requirements for extended SDSL	27
7.12	VDSL	28
7.13	VDSL2	29
8	Technical specifications for the equipment to be connected to the Shared Pair Loop	30
8.1	General requirements.....	30
8.2	Requirements for ADSL over POTS equipment to be connected to Shared Pair Loop.....	30
8.3	Requirements for ADSL over ISDN equipment to be connected to Shared Pair Loop.....	30
8.4	Specific requirements for spectral compatibility between ADSL over POTS and ADSL over ISDN.....	30
8.5	Requirements for ADSL2 over POTS equipment to be connected to Shared Pair Loop.....	31
8.6	Requirements for ADSL2 over ISDN equipment to be connected to Shared Pair Loop.....	31
8.7	Specific requirements for special compatibility between ADSL2 over POTS and ADSL2 over ISDN.....	31
8.8	Requirements for ADSL2plus over POTS equipment to be connected to Shared Pair Loop.....	31
8.9	Requirements for ADSL2plus over ISDN equipment to be connected to Shared Pair Loop.....	31
8.10	Specific requirements for spectral compatibility between ADSL2plus over POTS and ADSL over ISDN	32
9	Technical specifications of the splitter interface used by Belgacom in order to provide the Shared Pair.....	33



together
with



9.1	General	33
9.2	Splitter specifications	33
10	g.ShDSL deployment rules	34
11	Sub-loop unbundling	35
11.1	Sub-loop unbundling applications	35
11.1.1	LDC	35
11.1.2	KVD	36
11.2	Spectrum management issues.....	37
11.2.1	Introduction	37
11.2.2	Impact of remote ADSL on ADSL-LEX.....	37
11.2.3	Impact of remote ADSL on SDSL-LEX	38
11.2.4	Impact of a remote SDSL on ADSL-LEX	38
11.2.5	Impact of a remote SDSL on SDSL-LEX.....	38
11.3	How to reduce the effect of remote ADSL ?	39
11.3.1	Sub-loop at the LDC.....	39
11.3.2	Sub-loop at the KVD	40
11.4	How to reduce the effect of remote injected SDSL at LDC?	40
11.5	Summary.....	41
11.6	Remote VDSL2 from LDC	41
11.7	Remote VDSL2 from KVD	41

2 Preliminary remark

1. In order to safeguard the integrity of local access lines and maintain an acceptable performance of higher bandwidth services, Beneficiaries must notify their acceptance of and willingness to comply with the Belgacom technical requirements before they can be supplied with the raw copper and shared pair products.
2. Conformity with the Belgacom technical requirements is essential for all if the performance and reach of higher bandwidth services is to be maximised, and failure to comply is a serious matter.
3. Each equipment connected to the Access Network pairs has to comply with the principles of the RTTE guideline.
4. In addition equipment has to conform to other relevant standards, such as those governing product safety and EMC [ETSI EN 300 386 V1.2.1].
5. This document contains a detailed description of the requirements that equipment must meet to be suitable for use on unbundled local loops, without any guarantee of speed and/or quality of data transmission. References are made to international standards.
6. Note that the Spectrum Management issues are discussed in the Task Group Spectrum Management set up by the BIPT; evolution in the requirements and rules are always possible by decision of BIPT.
7. Belgacom has also to comply with these requirements without limitations nor exceptions pursuant to the regulatory framework.

3 Transmission properties of the access network

3.1 Generalities

8. A subscriber loop consists of sections of twisted pairs cables of different gauges. All the sections are buried and connected together by means of electrical joints, called splices, directly placed in the ground or sometimes in a manhole.

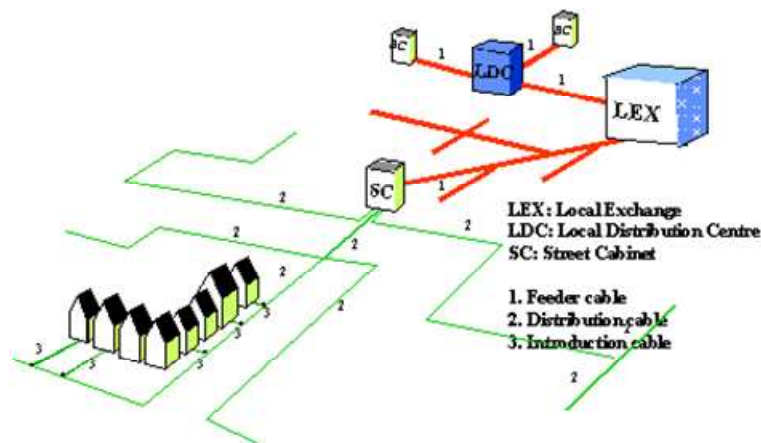


Fig. 1

9. In the ideal situation, the Access Network has a star configuration with the feeder cable bundles going from the main distribution frame to the street cabinet. From the street cabinet, via distribution cables and drop wires, the wire pairs are terminated in the individual customer sites. The reality shows that cable arrangements leads sometimes to a meshed structure in the feeding network. No bridged taps are present in the outside local network.
10. Each telecom cable consists of a number of copper conductors generally grouped in quads; these quads can be arranged in bundles or in layers, depending on the type of cable.
11. Definition:
We will consider 2-wire circuits realized by using unloaded twisted copper pairs. These will bind the two ends via infrastructure telephony cables. These circuits don't contain any separating, coupling, correcting, amplifying ... elements. They are usually made of different conductor sections with different characteristics.

3.2 Physical characteristics of the cables

12. A conductor can be isolated by a layer of paper (in the old generation cables) or synthetic material, usually polyethylene.
13. Most of the conductors have a 0.5 mm or 0.6 mm diameter; distant customers however need to be connected via conductors of 0.8 and 1.0 mm; 2000 pairs cables going out of the central office are sometimes made of 0.4 mm conductors.
14. In paper insulated cables, the conductors are surrounded by a lead sheath, generally protected by armouring and polyethylene sheath.
15. In plastic insulated cables used in the distribution network, the conductors are surrounded by a polyethylene sheath.
16. In plastic insulated cables used in the feeding network, the conductors are surrounded by an aluminium screen, a polyethylene internal sheath, an armouring and a polyethylene external sheath.
17. The plastic cables are in the majority of the cases longitudinally waterproof.

3.3 Electrical characteristics of the cables

18. The table below gives some typical characteristics of the access network cables [figures given by the cable manufacturers or by measurements in the field]

Diameter	LR	KC	A800	A40.000	A150.000	A300.000
0.4 mm	275	55	2.0	7.5	12.5	14.5
0.5 mm	180	50-55	1.3	6	9	11
0.6 mm	123	38.5-46	1.0	4	6.5	9
0.8 mm	69	38.5	0.7	2.5	5	6

LR = Loop Resistance in Ohm/km

KC = average Kilometric Capacity in nF/km (it depends on the type of cable)

A800 = Attenuation measured at 800 Hz in dB/km

A40.000 = Attenuation measured at 40.000 Hz in dB/km

A150.000 = Attenuation measured at 150.000 Hz in dB/km

A300.000 = Attenuation measured at 300.000 Hz in dB/km

19. NB: the attenuation values are conditional. A loop is made of several pieces of cables and then additional attenuation and reflections due to the splices and the different cable gauges will occur.

3.4 Insulation resistance

20. The insulation resistance between the 'a' and 'b' wires of a pair (without terminal equipment) or between wire and earth is supposed to be at least 750 kOhms. Values measured less than this may as far as the provisioning and repair is concerned, be reported as a fault. For the lines of type 2, a value lower than 1 MOhm may be reported as a fault if the Beneficiary establishes in good faith the relation between a resistance lower than 1 MOhm and the problem observed.

3.5 Measurements

21. BGC line parameters measurements are performed with measurement systems of Teradyne. This system uses many concepts and techniques that are covered by one or more patents.
22. In summary the general principles of these methods are the following:
To measure the insulation resistances between wires "a" and "b", "a" and earth and "b" and earth, the system uses a complex measurement bridge and a specific algorithm which allow to determine the real values of these resistances and not a combination of their values like obtained by measurements performed with a single insulation measurement bridge. The accuracy of the measurements is equal to 1.5 % in the range 10 Kohms-20 Mohms.
23. The same measurement bridge allows to measure the alternative currents induced in each wire, which gives an idea of the noise between "a" and earth and "b" and earth: typical acceptable values range from 0 to 59 μ A. This measurement takes only into account frequencies below 20 KHz.
24. This will be studied further in the Task Group Spectrum Management.

4 Pair selection rules

25. The number of broadband systems that can be deployed within an access cable is not limited. Adding a lot of broadband systems within a cable nevertheless leads to a general decrease of the performance, compared with the situation where only a few high frequency systems are deployed.
26. In order to maintain a good performance level for the xDSL services, Belgacom is applying some pair selection rules. The purpose is to keep the new xDSL technologies at a distance of the existing and disturbing technologies, namely HDB3 and HDSL (2 Mbits systems). In some cases, if HDSL or HDB3 equipment presently used by Belgacom are the source of the problem or the source of the impossibility to find a solution, Belgacom will replace this equipment using an acceptable technology.
27. The only rules to be considered are the following: a line type 2 will not be located in the same quad than or in the adjacent quad of an existing 2 Mbits system.
28. The pair selection rules do not offer any guarantees as to the potential bitrate in any access cable or on any specific copper pair.
29. The principle of “pair selection rules” is presently applicable, but non necessary applicable in the long term.

5 References

30. In case a new version of the references below is published, the reader must always refer to the most recent version.
31. When a reference is made to an international standard document and ETSI document and when a list of values is given (if the country particularities are foreseen), the Belgian value must always be taken.
32. This list is given for information purpose only, unless otherwise explicitly mentioned.

5.1 General

ETSI TR 101 830-1 V1.2.1 (2001-08):	Transmission and Multiplexing (TM); Spectral Management on Metallic Access Networks; Part 1: Definitions and Signal Library
EN 60950 (CENELEC):	Safety of information technology equipment including electrical business equipment
ITU-T Rec. 0.153:	Norme de l'ITU-T. Basic parameters for the measurement of error performance at bit rates below the primary rate.
CCITT Rec. 0.9:	Measuring arrangements to assess the degree of unbalance about earth. (Blue book vol IV)
Directive 1999/5/CE:	Directive du Parlement Européen et du Conseil, du 09 mars 1999, concernant les équipements hertziens et les équipements terminaux de télécommunications et la reconnaissance mutuelle de leur conformité (1999/5/CE) publiée au journal officiel des Communautés européennes du 07.04.1999.
ITU-T Recommendation G.997.1	Physical layer management for digital subscriber line (DSL) transceivers ITU-T

5.2 PSTN

ETS 300 001: an Telecommunication Standard. Attachments to the Public Switched telephone Network (PSTN); General requirements for equipment connected to an analogue subscriber interface in the Public Switched Telephone Network (Edition 3 1996-03) (Belgian part)

ETSI-specification “EG 201 188 V1.1.1”: Switched Network (PSTN); Network Termination Point (NTP) analog interface; Definition of physical and electrical characteristics at a 2-wire analog presented NTP for short length loop applications (1999-06)

Belgacom – User to Network Interface (UNI) Specification: “Analog Subscriber Line Signalling (Basic Call)” (ref.: BGC_D_48_9807_30_02_E.DOC) <http://www.belgacom.be>

5.3 ISDN

ETSI TS 102 080 V1.3.2. (2000-05) : Transmission and Multiplexing (TM); Integrated Services Digital Network (ISDN) basic rate access, transmission system on metallic local lines”.

5.4 ADSL

ETR 328: Transmission and Multiplexing (TM) ; Asymmetric Digital Subscriber Line (ADSL) ; Requirements and performance

ITU-T Recommendation G.992.1: “Asymmetrical Digital Subscriber Line (ADSL) Transceivers”.

ANSI Standard T1.413-1998: “Network and Customer Installation Interfaces – Asymmetrical Digital Subscriber Line (ADSL) Metallic Interface”.

ETSI Technical specification TS 101 388 (V1.3.1.): “Transmission and Multiplexing ; Access transmission systems on metallic access cables ; Asymmetric Digital Subscriber Line (ADSL) – Coexistence of ADSL and ISDN-BA on the same pair “.

5.5 SHDSL

ETSI TS 101 524: Transmission and Multiplexing (TM) ; Access transmission system on metallic access cables; Symmetrical single pair high bitrate Digital Subscriber Line (SDSL)

ITU G.991.2: Single pair High Speed Digital Subscriber Line (SHDSL) Transceivers.

5.6 ADSL2

ITU-T Recommendation ITU G.992.3 : « (Asymmetrical Digital Subscriber Line Transceivers 2 (ADSL2) »

5.7 ADSL2plus

ITU-T Recommendation ITU G.992.5 : « Asymmetric Digital Subscriber Line (ADSL) transceivers – Extended bandwidth ADSL2 (ADSL2plus)

5.8 VDSL

ITU-T Recommendation G.993.1	Very high speed digital subscriber line transceivers (VDSL)
ETSI TS 101 270-1	Very high speed digital subscriber line transceivers (VDSL); Part 1: Functional requirements

5.9 VDSL2



together
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ITU-T Recommendation G.993.2

Very high speed digital subscriber line
transceivers 2 (VDSL2)

6 Common technical specifications for the equipment to be connected to the loop or sub-loop

6.1 VDSL2

VDSL2 as defined in sections 6.13 (VDSL2 from LEX), 10.6 (VDSL2 from LDC) or 10.7 (VDSL2 from KVD) shall respect following deployment rules:

Upstream bands U1 and U2 may not be used in situations where UPBO mechanism may fail to protect upstream transmission of other VDSL2 lines.

Stubs into customer premises internal cabling (i.e. star configuration or pairs connected in parallel to connect the different rooms of a household) may make Upstream Power Back Off mechanism fail to perform correctly. In such conditions one VDSL2 line could disturb the other VDSL2 lines by sending too high upstream power. Therefore upstream bands U1 and U2 are not allowed if at customer premises there is not one direct path without any stub between the introduction point and the VDSL2 NT (modem). As illustrated in figure below, in case of POTS or ISDN overlay, this condition requires that a centralized splitter shall be used (= no distributed splitters for full spectrum VDSL2).

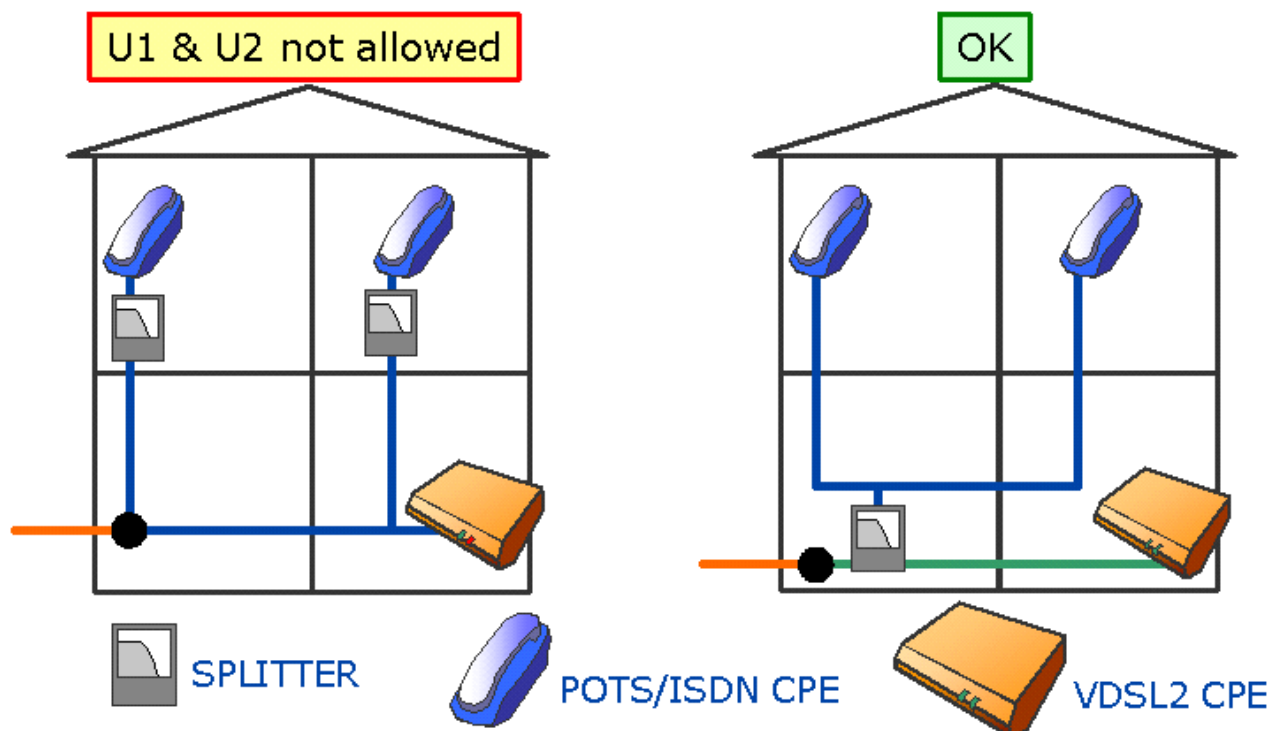


Figure 2: "Customer premises internal cabling"

Figure below depicts a distribution cable where direct and return pairs are present.

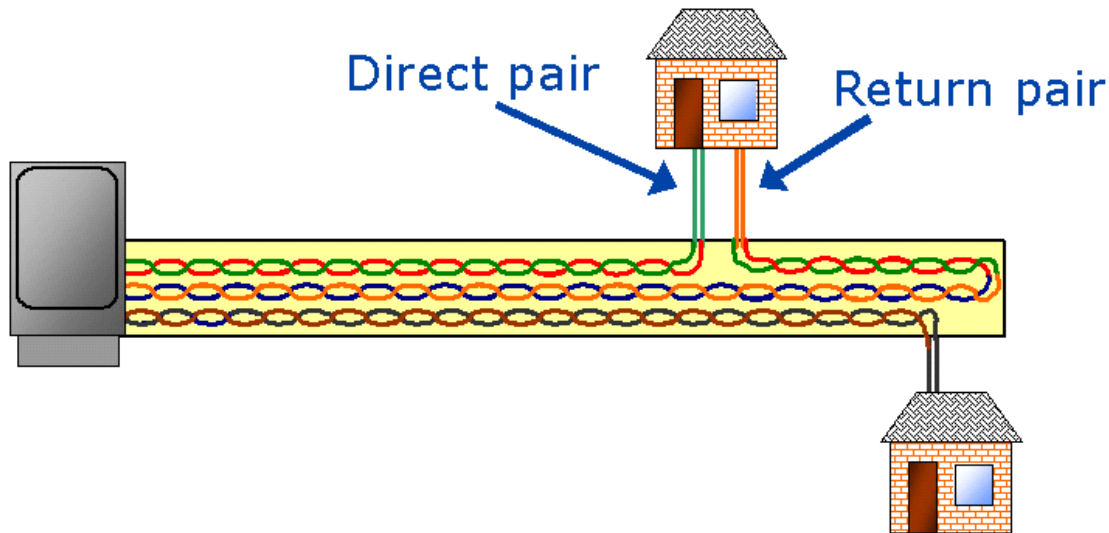


Figure 3: "return pair"

Pairs that have a section over the return, as depicted in Figure 3, are not compatible with the Upstream Power Back Off mechanism. A VDSL2 system that would be connected over such pair will transmit at higher upstream level in the bands U1 and U2, if they were enabled, compared to lines situated over the direct path. This will result in the fact that a VDSL2 line may be seriously disturbed in the upstream bands U1 and U2, if this line is situated further from the DSLAM than another VDSL2 line that goes over the return in the same cable. Therefore upstream bands U1 and U2 are not allowed over pairs that go over the return.

Figure below depicts a ring topology in distribution network

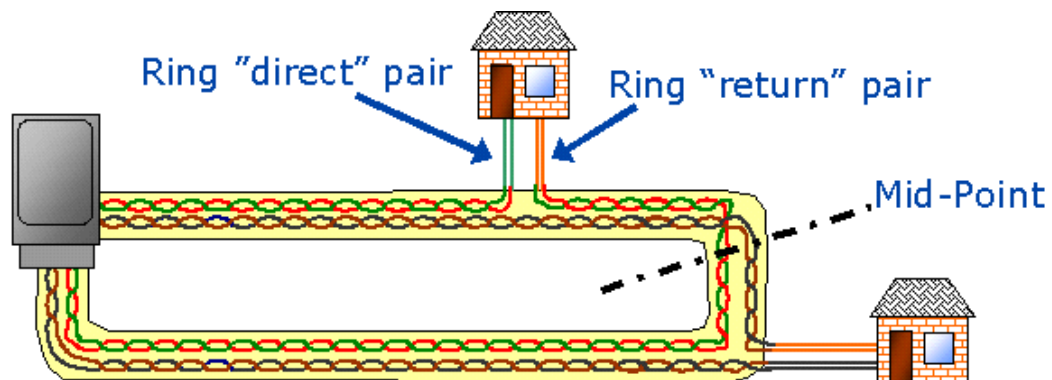


Figure 4: "ring topology"



In case of ring topologies, as depicted in Figure 4 , the presence of opposite streams may seriously impact downstream and upstream performances of all VDSL2 lines in the cable. Therefore Belgacom shall define an optimum mid-point of the ring and the use of frequencies above f_{max} , where f_{max} is to be set in the range between 2208kHz and 3750kHz, shall not be allowed for VDSL2 lines over pairs that cross over the ring mid-point.

7 Technical specifications for the equipment to be connected to the raw copper loop

7.1 General requirements

33. The attention of the reader is drawn to the following points:

- The systems must be insensitive to the crossing of the wires in a pair.
- The direct current must be always limited to 120 mA.
- If a ringing voltage is to be used, when generating the signal, it must be assured that the signal is a sine and that zero – detection of the signal is applied.

Insulation

34. Different lines will always be isolated from each other. The insulation resistance will be greater than 10 MOhm under 200 VDC. This also applies for the insulation between the emission and reception circuits. This requirement is withdrawn when considering multi-line equipments using a centralised feeding for the disposal of direct current on the line. In this case, the line interfaces of this equipment must be symmetrical towards the earth.

Signalisation and Remote feeding

35. The conformity towards the "connection to telecommunication networks" (EN 60950) aspect will be established by the delivery of a document testifying the conformity of the equipments for the considered application.

36. When a numbering signaling by loop opening is used, this one will have a rhythm of maximum 10 ± 1 Hz.

37. The internal impedance of the ringing current generator must be 400 Ohm minimum.

7.2 Requirements for PSTN equipment to be connected to the Raw Copper Loop

38. The document ETSI TR 101 830-1 V1.1.1 and the Belgacom User to Network Interface (UNI) specifications have to be considered as references. When both are mentioned, the Belgacom UNI is **the** document where the specifications have to be found, due to the Belgacom network specificity, whereas the ETSI document will give a general overview and eventually some additional pieces of information.



together
with



Requirements	Requirements or reference to requirements
Total signal voltage	ETSI TR 101 830-1 Subclause 7.1.1.
Peak amplitude	ETSI TR 101 830-1 Subclause 7.1.2.
Narrow-band signal power	ETSI TR 101 830-1 Subclause 7.1.3.
Unbalance about earth	ETSI TR 101 830-1 Subclause 7.1.4. Belgacom – User to Network Interface (UNI) Specification: “Analog Subscriber Line Signalling (Basic Call)” Subclause 5.4
Feeding power (from the LT-port)	ETSI TR 101 830-1 Subclause 7.1.5. Belgacom – User to Network Interface (UNI) Specification: “Analog Subscriber Line Signalling (Basic Call)” Subclause 5.1 and Subclause 5.2
Reference impedance Z_r	ETSI TR 101 830-1 Subclause 7.1.6.
Ringling signal	ETSI TR 101 830-1 Subclause 7.1.7. Belgacom – User to Network Interface (UNI) Specification: “Analog Subscriber Line Signalling (Basic Call)” Subclause 8.1.1, Subclause 8.1.2, Subclause 8.1.4 Frequency – The nominal frequency must be between 20 Hz and 55 Hz with a tolerance of +/- 5% Parasitic signals – The total power of the parasitic signals (harmonic included) created by the generator shall be 26 dB lower than the power of the nominal frequency wave
Metering signals	ETSI TR 101 830-1 Subclause 7.1.8.

Except for voice band, the paragraph 4.4.3. of ETS 300 001 (Belgian values) applies.

7.3 Requirements for equipment delivering signals for which the binary rate is smaller or equal to 64 kbit/s

39. The major points are the following:

40. Impedance

The line interface impedance, at the different transmission rates and/or with the different coding types or transmitted signals types, will preferably be adapted to the line characteristic impedance at the central frequency of the modem usable spectrum.

41. Line impedance typical values:

Frequency (kHz)	Impedance (Ohms)
1.6	600
6	300
32	150
64	120
200 and more	100

42. The impedance of the transceivers and the receivers will be the same, with a tolerance of $\pm 20\%$, as measured at the central frequency of the usable spectrum. The measurement needs to be done for each of the impedances as different options are foreseen.

43. Symmetry

The symmetry of the input and output interface with the earth will be in accordance with the following values:

- From 10 Hz to F (Hz): ≥ 48 dB
- From F (Hz) to F₁ (Hz) : 48 dB – 10 dB/decade

44. where:

- F = the highest frequency of the spectrum, measured at the -10 dB point below the level of the spectrum usable component of the spectrum with the highest level.
- F₁ = the highest frequency of the measured spectrum, including the harmonics; the components below -60 dBm/600 Ohm will be ignored.

45. Spectrum of the transmitted frequencies

The spectrum will be limited to 130 kHz (point -30 dBm/600 Ohm) in all the cases.

46. Emission level

The emission level is maximum 0 dBm/ref 600 Ohm in the 300Hz-3400 Hz frequency range.

47. The signal emitted out of the voice band (300Hz-3400Hz) must be limited to 3 Vpp.

7.4 Requirements for equipment for the transmission of signals using ISDN basic access line code

7.4.1 ISDN 2B1Q signals

48. This category covers signals, generated by ISDN transmission equipment on a single pair, based on 2B1Q line coding. This subclause is based on the ETSI reports on ISDN equipment. A signal can be classified as an ISDN 2B1Q signal if it is compliant with all subclauses below.
49. The equipment must in particular be compliant to the ETS 102 080 (V1.3.2.). In order to be compliant to the spectral management rules, the paragraph 8.1. of the recommendation ETSI ETR 101 830-1 V1.1.1 needs to be matched.

Requirements	Reference to requirements
Total signal power	TS102 080 Subclause A.12.3
Peak amplitude	TS102 080 Subclause A.12.1
Narrow-band signal power	ETSI TR 101 830-1 Subclause 8.1.3 TS102 080 Subclause A.12.4
Unbalance about earth	ETSI TR 101 830-1 Subclause 8.1.4 TS102 080 Subclause A.13.3.1
Feeding power (from the LT-port)	ETSI TR 101 830-1 Subclause 8.1.5 EN60950

7.4.2 ISDN MMS43 signals

50. This category covers signals, generated by ISDN transmission equipment on a single pair, based on MMS43 (also called 4B3T) line coding. This subclause is based on the ETSI reports on ISDN equipment. A signal can be classified as an ISDN MMS43 signal if it is compliant with all subclauses below.
51. The equipment must in particular be compliant to the ETS 102 080 (V1.3.2.). In order to be compliant to the spectral management rules, the paragraph 8.2. of the recommendation ETSI ETR 101 830-1 V1.1.1 needs to be matched.

Requirements	Reference to requirements
Total signal power	ETSI TR 101 830-1 Subclause 8.2.1
Peak amplitude	TS102 080 Subclause B.12.1
Narrow-band signal power	ETSI TR 101 830-1 Subclause 8.2.3 TS102 080 Subclause B.12.4
Unbalance about earth	ETSI TR 101 830-1 Subclause 8.2.4 TS102 080 Subclause B.13.3
Feeding power (from the LT-port)	ETSI TR 101 830-1 Subclause 8.2.5 EN 60950

7.5 Requirements for equipment using ADSL over POTS to be connected to the Raw Copper Loop

52. This clause summarizes asymmetrical signals that are generated by digital transmission equipment up to 8 Mbit/s, including ADSL. Asymmetrical means a bitrate in the downstream direction and a significantly lower bitrate in the upstream direction.
53. Generally, the applied technology must comply with the following recommendations:
- ITU-T 992.1
 - ANSI T1.413 Issue 2
54. Further, in order to comply with the spectral management rules, the equipment shall match the following requirements:
- No ADSL – systems with spectral overlap of upstream and downstream (Echo Cancelling systems) are allowed on the loops. Only ATU-C 's with a PSD – mask for reduced NEXT (FDD) are allowed on the loops.
 - The power cutback mechanism for the upstream transmission, as described in ITU-T 992.1, needs to be applied.
 - It is **STRICTLY FORBIDDEN** to reverse the transmission direction. ADSL systems are designed to maximize self – compatibility when all 'downstream' signals in one cable flow into the same direction. This for the reasons explained in ETSI TR 101 830-1 V1.1.1 clause 5.2 / Note 1.
55. In this case, the following naming convention is used in the present document:
- **Downstream** signal limits are mandatory for signals that are injected into an LT- port of the Local Loop Wiring. LT- ports are located at the central office side of the local loop wiring.
 - **Upstream** signal limits are mandatory for signals that are injected into an NT-port of the local loop wiring. NT – ports are located at the customer side.

56. These ADSL–signals may share the same wire pair with POTS -signals.

57. The following clauses are based on ANSI and ITU-reports on ADSL-equipment. A signal can be classified as an ADSL over PSTN – signal if it is compliant with all subclauses below:

General Requirements	Reference to requirements
Total signal power (downstream only) < 100 mW = 20 dBm	ANSI T1.413 Issue 2, subclauses 6.15.1 and 6.15.3 ITU-T Recommendation G.992.1 subclause A.1.2.3.1
Total signal power (upstream only) < 18 mW = 12.5 dBm	ANSI T1.413 Issue 2, subclauses 7.15.1 and 7.15.3 ITU-T Recommendation G.992.1 subclause A.2.4.3.1
Narrow-band signal power (downstream only) For ADSL with DMT with carriers spaced at 4.3125 kHz the carriers 33 –255	ANSI-T1.413 Issue 2 ANNEX F (ATU-C Transmitter PSD mask for reduced NEXT) ITU-T Recommendation G.992.1 subclause A.1.3 (PSD – mask for Reduced NEXT)
Narrow-band signal power (upstream only) For ADSL with DMT with carriers spaced at 4.3125 kHz the carriers < 32	ANSI-T1.413 Issue 2 Subclause 7.14 ITU-T Recommendation G.992.1 subclause A.2.4
Unbalance about earth (upstream AND downstream)	ANSI T1.413 Issue 2 Subclause 12.3.1 ITU –T Recommendation G.992.1 subclause A.4.3.1
Feeding power (from the LT-port)	Not applicable

58. The requirements for any PSTN equipment operating in the frequency band below ADSL on the same wire pair appear from the PSTN requirements.

7.6 Requirements for ADSL over ISDN equipment to be connected to Raw Copper Loop

59. This category covers signals, generated by ADSL transmission equipment. These signals share the same wire pair with ISDN-signals.

60. Generally, the applied technology must comply with the following recommendations:

- ITU-T 992.1
- ETSI TS 101 388

61. Further, in order to comply with the spectral management rules, the equipment shall match the following requirements:

- No ADSL – systems with spectral overlap of upstream and downstream (Echo Canceling systems) are allowed on the loops. Only ATU-C 's with a PSD – mask for reduced NEXT (FDD) are allowed on the loops.
- In accordance with ETSI TS 101 388 §4.2.2.1 , tones above 254kHz are used for downstream transmission, and thus shall not be used for upstream transmission.
- The power cutback mechanism for the upstream transmission, as described in ITU-T 992.1, needs to be applied.
- It is **STRICTLY FORBIDDEN** to reverse the transmission direction. ADSL systems are designed to maximize self – compatibility when all 'downstream' signals in one cable flow into the same direction. This for the reasons explained in ETSI TR 101 830-1 V1.1.1 clause 5.2 / Note 1.
- Note that the ISDN – lines in Belgium are operating with 4B3T line coding.

62. In this case, the following naming convention is used in the present document:

- **Downstream** signal limits are mandatory for signals that are injected into an LT- port of the Local Loop Wiring. LT- ports are located at the central office side of the local loop wiring.
- **Upstream** signal limits are mandatory for signals that are injected into an NT-port of the local loop wiring. NT – ports are located at the customer side.

63. The following clauses are based on ETSI and ITU-reports on ADSL-equipment. A signal can be classified as an ADSL over ISDN – signal if it is compliant with all subclauses below:

Requirements	Reference to requirements
Total signal power (downstream only) < 90 mW = 19.3 dBm	ETSI TS 101 388
Total signal power (upstream only) < 22.5 mW = 13.3 dBm	ETSI TS 101 388
Narrow-band signal power (downstream only) For ADSL with DMT with carriers spaced at 4.3125 kHz the carriers 56–255	Only FDD (Frequency Division Duplexed) systems allowed
Narrow-band signal power (upstream only) For ADSL with DMT with carriers spaced at 4.3125 kHz the carriers below 64	ETSI TS 101 388 Subclause 6.10 ITU-G992.1 Subclause B.2.2
Unbalance about earth (upstream AND downstream)	ITU –T Recommendation G.992.1 subclause A.4.3.1
Feeding power (from the LT-port)	Not applicable

64. The requirements for any ISDN basic access equipment operating in the frequency band below ADSL on the same wire pair appear from the ISDN requirements.

7.7 Specific requirements for spectral compatibility between ADSL over POTS and ADSL over ISDN

65. Additionally, the ATU-C ADSL above POTS must be capable to apply 'tone suppression' in the downstream part, in order to have the possibility to reduce additional NEXT (Near End Cross Talk) from a part of the downstream tones on a part of the upstream tones of an adjacent ADSL over ISDN transmission system.
66. Example: the ADSL above POTS downstream could be forced to start above carrier 40, to allow ADSL above ISDN upstream to be able to use all carriers below 40 without ADSL downstream NEXT.
67. The location of the masking frequency for ADSL over POTS downstream will be in the range of carrier 32 to 56.
68. A new PSD mask applies here, which is generated by applying the wider mask of the relevant PSDs defined under section 4.5 and 4.6 above, and by additionally masking the carriers of the DMT transmission in the passband.

7.8 Specific requirements for SHDSL equipment to be connected to Raw Copper Loop

69. The equipment must be conforming to the relevant ITU G.991.2 and ETSI Technical specifications.
70. Only SHDSL equipment with Line code PAM16 and Symmetrical PSD – ANNEX B (European version) is allowed to be connected to the Raw Copper Loop.

7.9 Specific requirements for ADSL2

71. ADSL2 systems complying with recommendation ITU G.992.3 (Asymmetrical Digital Subscriber Line Transceivers 2 (ADSL2)), and to one of the annex A (ADSL2 over POTS), annex B (ADSL2 over ISDN), annex L (Reach Extended ADSL2 – READSL2) or M (ADSL2 extended upstream) of the recommendation ITU G.992.3 are authorized for use from the Central Office (LEX) on local loops (raw copper or shared pair).
72. The systems shall comply with the following rules:
- It is strictly forbidden to reverse the transmission direction.
 - In this case, the following naming convention is used:
 - Downstream signal limits are mandatory for signals that are injected into an LT-port of the local loop wiring. LT- ports are located at the central office side of the local loop wiring.
 - Upstream signal limits are mandatory for signals that are injected into an NT-port of the local loop wiring. NT- ports are located at the customer side.
 - These ADSL2 signals may share, accordingly, the same wire pair with POTS or ISDN BA signals.

- ADSL2 over POTS Downstream passband PSD shall respect PSD mask defined by ITU-T G.992.3 §A.1.3 ATU-C transmitter PSD mask for non-overlapped spectrum operation (supplements 8.10)
- ADSL2 over POTS Upstream PSD shall respect PSD mask defined by ITU-T G.992.3 §A2.2 ATU-R upstream transmit special mask (supplements 8.10)
- ADSL2 over ISDN Downstream passband PSD shall respect PSD mask defined by ITU-T G.992.3 §B.1.3 ATU-C transmitter PSD mask for non-overlapped spectrum operation (supplements 8.10)
- ADSL2 over ISDN Upstream PSD shall respect PSD mask defined by ITU-T G.992.3 §B.1.3 ATU-C transmitter PSD mask for non-overlapped spectrum operation (supplements 8.10). In accordance with ITU-T G.992.3 §B.1.3, tones above 254kHz are used for downstream transmission, and thus shall not be used for upstream transmission.
- ADSL2 annex L Downstream pass band PSD shall respect PSD mask defined by ITU-T G.992.3 §L.1.3 ATU-C downstream transmit spectral mask for non-overlapped spectrum reach-extended operation (supplements clause 8)
- ADSL2 annex L Upstream Masks shall respect one of the PSD mask defined into ITU-T G.992.3 §L2.2 (known as mode 1) or ITU-T G.992.3 §L2.3 (known as mode 2)
- ADSL2 annex M Downstream pass band PSD shall respect PSD mask defined by ITU-T G.992.3 §M.1.3 ATU-C transmitter PSD mask for non-overlapped spectrum operation (supplements 8.10)
- ADSL2 annex M Upstream PSD shall respect PSD mask defined by ITU-T G.992.3 §M.2.2 ATU-R upstream transmit special mask (supplements 8.10).
- The spectral masks EU-64 defined by ITU-T G.992.3 table M.3 is not allowed.
- ADSL2 annex M is not allowed for local loops with attenuation at 800Hz exceeding 3,5dB.
- ADSL2 annex L is not allowed for local loops with attenuation at 800Hz less than 5,8dB.

73. Further, ADSL2 systems shall also comply with the same restrictions as outlined for ADSL in § 5.7.

7.10 Specific requirements for ADSL2plus

74. ADSL2+ systems complying with recommendation ITU G.992.5 (Asymmetric Digital Subscriber Line (ADSL) transceivers – Extended bandwidth ADSL2 (ADSL2+)) and to one of the annex A (ADSL2+ over POTS), B (ADSL2+ over ISDN) or M (ADSL2+ extended upstream) of the recommendation ITU G.992.5 are authorized for use from the Central Office (LEX) on local loops (raw copper or shared pair).

75. The systems shall comply with the following rules:

- It is strictly forbidden to reverse the transmission direction.
- In this case, the following naming convention is used:
 - Downstream signal limits are mandatory for signals that are injected into an LT-port of the local loop wiring. LT- ports are located at the central office side of the local loop wiring.
 - Upstream signal limits are mandatory for signals that are injected into an NT-port of the local loop wiring. NT- ports are located at the customer side.
- These ADSL2plus signals may share, accordingly, the same wire pair with POTS or ISDN BA signals

- ADSL2plus over POTS Downstream passband PSD shall respect PSD mask defined by ITU-T G.992.5 §A.1.3 ATU-C transmitter PSD mask for non-overlapped spectrum operation (supplements 8.10)
- ADSL2PLUS over POTS Upstream PSD shall respect PSD mask defined by ITU-T G.992.5 §A.2.2 ATU-R upstream transmit spectral mask (supplements 8.10)
- ADSL2PLUS over ISDN Upstream PSD shall respect PSD mask defined by ITU-T G.992.5 §B.1.3 ATU-C transmitter PSD mask for non-overlapped spectrum operation (supplements 8.10). In accordance with ITU-T G.992.5 §B.1.3, tones above 254kHz are used for downstream transmission, and thus shall not be used for upstream transmission.
- ADSL2+ annex M Downstream pass band PSD shall respect PSD mask defined by ITU-T G.992.5 §M.1.3 ATU-C transmitter PSD mask for non-overlapped spectrum operation (supplements 8.10)
- ADSL2+ annex M Upstream PSD shall respect PSD mask defined by ITU-T G.992.5 §M.2.2 ATU-R upstream transmit special mask (supplements 8.10).
- The spectral masks EU-64 defined by ITU-T G.992.5 table M.3 is not allowed.
- ADSL2+ annex M is not allowed for local loops with attenuation at 800Hz exceeding 3,5dB.

76. Further, ADSL2PLUS systems shall also comply with the same restrictions as outlined for ADSL in § 5.7.

7.11 Specific requirements for extended SDSL

77. Extended SDSL (ETSI TS 101 524 annex E and ITU-T G991.2 Annex G) is allowed for deployment in the loop on type 2 raw copper loops (i.e. from a LEX or a LDC). (it is not allowed for deployment in the subloop).

78. Only TC-PAM32 is allowed above 2312 kbps.

79. Following table defines extended SDSL deployment rules. In order to protect other xDSL systems performances, the rules define the maximum allowed line rate as function of the loop attenuation at 800Hz, linear interpolation is to be used for line rates that are not listed in the table:

Att @ 800Hz	Line Rate (kbps)
1,7	5696
2,2	4640
2,6	4000
3,2	2312
3,4	2056
3,7	1800

3,8	1672
3,9	1552
4	1480
4,4	1300
4,8	1224
5,1	1160
5,9	1033
No Limit	<1033

7.12 VDSL1

80. VDSL is only allowed for deployment by Belgacom in some subloops (not in the loop from a LEX) with the frequency plan 998 and the modulation code DMT (discrete multitone). The subloops where this is allowed are defined to be from a KVD where the attenuation of the feeding cable pairs at 800 Hz between the LEX and the concerned KVD is above 2.0 db. A list of all KVD with the attenuation of the feeding cable pairs at 800 Hz between the LEX and the concerned KVD is published by Belgacom on the personal page of the BRUO part in the Belgacom web site. In case of multiple feeding cables, the minimum attenuation is to be given, and this minimum attenuation is the one which is to taken into consideration for applying the 2.0 db rule.

Installed VDSL which shouldn't be allowed in this framework, but which were installed before the date of 15.11.2005 are allowed the stay in service.

¹ Reference is made to the relevant ETSI and ITU standards:

- ETSI TS 101 270-1 V1.3.1 "Very High Speed Digital Subscriber Line (VDSL); Part 1: Functional requirements"
- ETSI TS 101 270-2 V1.2.1 "Very High Speed Digital Subscriber Line (VDSL); Part 2: Transceiver specification"
- ITU-T G.993.1 Recommendation "Very high speed digital subscriber line foundation"

7.13 VDSL2

81. VDSL2 systems complying with recommendation ITU-T G.993.2 main body and annex B shall be allowed for use on local loop from LEX in any of the following situations

Loops are directly connected to the LEX without any KVD.

Loops are connected to a specific KVD wherefore it has been estimated that over 90% of the end-users behind it are located at less than one 1 km from LEX.

When allowed, VDSL2 systems for use on local loop from LEX shall respect following rules:

- Respect of the deployment rules as defined in section 5.1.
- Spectrum usage below 12MHz shall respect at least one of the 998 Limit PSD Masks listed in Table B-3 of G.993.2 (all limit mask in table B-3 with maximum used frequency = 12MHz are allowed, spectrum usage above 12MHz is for later study).
- Upstream Power Back Off shall be applied for upstream bands U1 and U2.
- Noise D reference PSD described in table 13 of ETSI TS 101 270-1 shall be used for Upstream Power Back Off (ETSI TS 101 270-1 reference PSD is used because the reference UPBO PSD is for further study in ITU-T G.993.2 version of 2006/02).
- When spectral compatibility with VDSL systems in the same cables is needed, it shall be possible to limit downstream transmit PSD level in order not to exceed -61dBm/Hz in template value (or -57.5 in peak values as defined in G.993.2)

8 Technical specifications for the equipment to be connected to the Shared Pair Loop

8.1 General requirements

82. For all applications the following general requirements are made for user equipment.

- The systems must be insensitive to the crossing of the wires in a pair.

8.2 Requirements for ADSL over POTS equipment to be connected to Shared Pair Loop

83. The requirements are identical to the requirements given in 5.5.

84. Note that the only equipment that can be connected is ADSL equipment; no PSTN equipment can be connected to the Shared Pair Loop.

8.3 Requirements for ADSL over ISDN equipment to be connected to Shared Pair Loop

85. The requirements are identical to the requirements given in 5.6.

86. Note that the only equipment that can be connected is ADSL equipment, no ISDN equipment can be connected to the Shared Pair Loop.

8.4 Specific requirements for spectral compatibility between ADSL over POTS and ADSL over ISDN

87. The requirements are identical to the requirements given in 5.7.

8.5 Requirements for ADSL2 over POTS equipment to be connected to Shared Pair Loop

88. The requirements are identical to the requirements given in 5.9.

89. Note that the only equipment that can be connected is ADSL2 equipment; no PSTN equipment can be connected to the Shared Pair Loop.

8.6 Requirements for ADSL2 over ISDN equipment to be connected to Shared Pair Loop

90. The requirements are identical to the requirements given in 5.9.

91. Note that the only equipment that can be connected is ADSL2 equipment, no ISDN equipment can be connected to the Shared Pair Loop.

8.7 Specific requirements for special compatibility between ADSL2 over POTS and ADSL2 over ISDN

92. The requirements are identical to the requirements given in 5.9.

8.8 Requirements for ADSL2plus over POTS equipment to be connected to Shared Pair Loop

93. The requirements are identical to the requirements given in 5.10.

94. Note that the only equipment that can be connected is ADSL2plus equipment; no PSTN equipment can be connected to the Shared Pair Loop.

8.9 Requirements for ADSL2plus over ISDN equipment to be connected to Shared Pair Loop

95. The requirements are identical to the requirements given in 5.10.

96. Note that the only equipment that can be connected is ADSL2plus equipment, no ISDN equipment can be connected to the Shared Pair Loop.

8.10 Specific requirements for spectral compatibility between ADSL2plus over POTS and ADSL over ISDN

97. The requirements are identical to the requirements given in 5.10.

9 Technical specifications of the splitter interface used by Belgacom in order to provide the Shared Pair

9.1 General

98. The interface that will be described is the interface between the splitter and the ADSL equipment from the Beneficiary as depicted in the figure below:

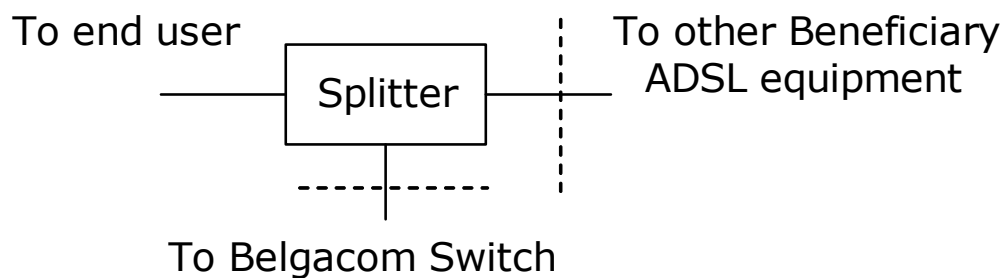


Fig. 2

99. Two types of splitters will be used: the splitters to be used for ADSL over POTS and the splitters to be used for ADSL over ISDN.

9.2 Splitter specifications

100. The POTS splitter is fully compliant with the Recommendation found in ITU-T 992.1 Annex E Type 1 European.

101. The ISDN (4B3T) splitter is fully compliant with the Recommendation found into ETSI TS 101 952-1 sub-part 3.

102. Both splitters (POTS and ISDN) include a DC-blocking functionality.

103. The splitter does not include any High Pass Filter (HPF) Functionality.

10 g.ShDSL deployment rules

104. Following table defines g.SHDSL deployment rules. In order to protect other xDSL systems performances, the rules define the maximum allowed line rate as function of the loop attenuation at 800Hz, linear interpolation is to be used for line rates that are not listed in the table:

Att @ 800Hz	Line Rate (kbps)
3,2	2312
3,4	2056
3,7	1800
3,8	1672
3,9	1552
4	1480
4,4	1300
4,8	1224
5,1	1160
5,9	1033
No Limit	<1033

Note: this table is subject to evolution, and has to be considered as starting point for the deployment of the first g.SHDSL systems.

11 Sub-loop unbundling

11.1 Sub-loop unbundling applications

11.1.1 LDC

105. A Local Distribution Center (LDC) is a concentration point, created essentially in order to de-saturate feeding cables and to avoid expensive works of laying new cables.

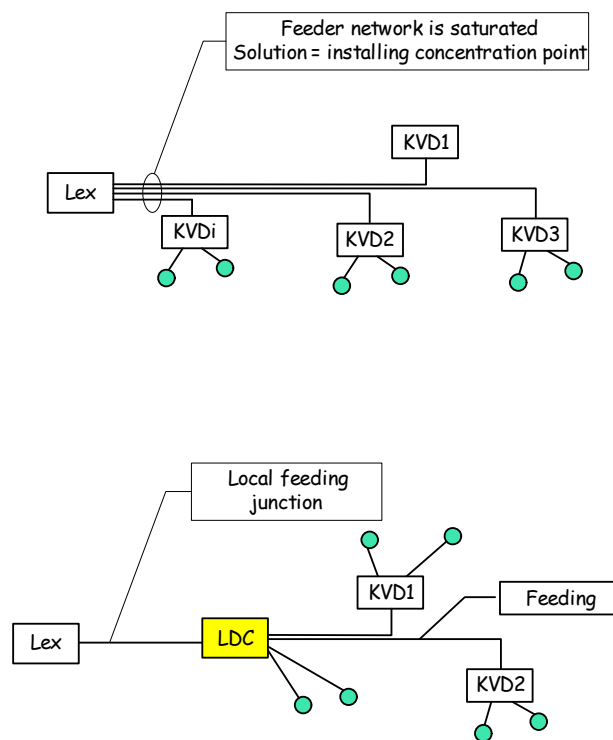


Fig. 4

106. The customers located behind the LDC are normally connected to this LDC; nevertheless, optimization of the switching resources in the LEX and in the LDC may lead to still connect a certain percentage of these customers to the LEX. It is however impossible to connect all the customers located behind the LDC to the LEX, due to the fact that the local junction - cables between the LEX and the LDC - does not have a sufficient capacity.

107. Sub-loop at the LDC offers the possibility to install DSLAM equipment in the LDC or close to it.

108. The distance between the LEX and the LDC varies between about 800 meters and several kilometers; the majority of the LDC are located at less than 5 km from the LEX. A complete list of LDCs with the real distance (measured in effective cable length) between LEX and LDC is published on the secured part of the Belgacom web site.

109. The distance between the LDC and the customers may also reach several kilometers.

11.1.2 KVD

110. The KVD (“KabelVerDeler”, = street cabinet) is a passive installation; its role is to distribute the feeding pairs on a flexible way between the customers connected to this KVD.

111. Sub-loop at the KVD means the installation of DSLAM equipment in the proximity of the KVD in order to offer xDSL services to the customers connected to this KVD. (Note: The KVD being of limited size, it is physically not possible to install a DSLAM in a KVD)



Fig. 6

112. The distances between the KVD and the customers are generally low (some hundreds of meters).

11.2 Spectrum management issues

11.2.1 Introduction

113. A remote signal may have negative impact on a signal generated in the LEX. The impact depends on different factors, i.e.:

- the technologies present,
- the bitrate (in case of SDSL),
- the distance between the LEX and the remote injection point,
- the distance to the user,
- the number of systems deployed from the remote point,
- the spectral proximity of the systems (disturbers – victims)

114. The following table summarizes the effect between ADSL and SDSL. The relevant combinations are treated more in detail further on.

“Disturber”	“Victim”		
	ADSL-LEX downstream	ADSL-LEX upstream	SHDSL-LEX
Remote ADSL	Interference	No problem	No problem
Remote SHDSL 2 Mbps	Interference	No problem	No problem
Remote SHDSL 1 Mbps	No problem	No problem	No problem

115. The intensity of the “interference” can be different according to the fact that the remote injection is at LDC or at KVD level.

11.2.2 Impact of remote ADSL on ADSL-LEX

11.2.2.1 Generalities

116. Remote ADSL does not interfere with ADSL-LEX upstream.

117. ADSL-LDC may have impact on ADSL-LEX downstream due to FEXT coupling. This impact mainly depends on the following parameters:

- the spectral proximity of the disturber and the victim in the cable: spectral pollution generally occurs between pairs located in the same cable binder
- distance between the LEX and the LDC
 - ADSL-LEX will maintain acceptable performance (> 1 Mbps) when the distance between the LEX and the LDC is short (about 1 to 1,5 km)
 - ADSL injected in LDC located at large distance (about 4,5 km) from the LEX do not cross ADSL-LEX, because the distance to the customer (from the LEX) is too high to offer ADSL service from the LEX

- the number of disturbers.
118. ADSL-KVD may have important impact on ADSL-LEX downstream due to FEXT coupling. This impact mainly depends on the following parameters:
- the spectral proximity of the disturber and the victim in the cable: this proximity can be rather important, because of the cables with small capacity used in the distribution network
 - distance between the LEX and the KVD
 - ADSL-LEX will maintain acceptable performance (> 1 Mbps) when the distance between the LEX and the KVD is short (about 1 to 1,5 km)
 - the majority of the KVD are located at less than 5 km from the LEX; important spectral problem may be expected for most of them
 - the number of disturbers.

11.2.2.2 *Probability of disturbance*

119. Subloop at the LDC: due to the fact that the cables between LDC and KVD's are composed with layers or with binders; that the percentage of pairs in service between LDC and KVD is relatively low; and that the splicing in this part of the network is not homogeneous, a random separation occurs between the circuits coming from the LEX and the circuits coming from the LDC; and therefore the probability of experiencing disturbance is expected to be low.
120. Subloop at the KVD: in the distribution network, the cables have smaller composition, and in this case the different circuits are less separated; the probability that the remote ADSL disturbs the ADSL-LEX is therefore expected to be higher.

11.2.3 *Impact of remote ADSL on SDSL-LEX*

121. Remote ADSL has no impact on the performance of SDSL-LEX.

11.2.4 *Impact of a remote SDSL on ADSL-LEX*

122. The impact of remote SDSL essentially depends on the bitrate of the SDSL:

- SDSL at bitrate higher than 1 Mbps has an important impact on the performance of the ADSL-LEX
- SDSL at max 1 Mbps has a low impact on ADSL-LEX

11.2.5 *Impact of a remote SDSL on SDSL-LEX*

123. Remote SDSL has no impact on the performance of SDSL-LEX.

11.3 How to reduce the effect of remote ADSL ?

124. Because of the differences between LDC and KVD in terms of distances to the customer and disturbance probability, different solutions have to be considered.

11.3.1 Sub-loop at the LDC

125. LDC's have been created due to the saturation of the cables feeding some directions in a local network. Offering ADSL to the customers located behind the LDC is mainly possible by installing DSLAM in the LDC.

11.3.1.1 Migration to the LDC

126. Descending to the LDC to generate ADSL is a logical and efficient way to connect the customers located behind the LDC and to avoid spectral problems. It is moreover the only way, to address and connect the entirety or nearly entirety of customers behind the LDC.

127. Therefore, when one Beneficiary begins to deploy from a LDC, Belgacom advises that it is preferable – but not mandatory – that all other operators also offer their ADSL services from this LDC.

11.3.1.2 Power Back Off

128. 111. Power back off consists in reducing up to 12 dB the power level of the remote ADSL.

129. Thanks to PBO, the distance between LEX and LDC for which the impact on ADSL-LEX remains acceptable is about 2,5 km. It is therefore mandatory that any DSLAM installed in an LDC is able to deliver at least PBO up to 12 dB..

130. PBO may not be considered as an universal solution. Moreover, applying PBO to the ADSL-LDC will reduce the performance of this circuit (reducing the reach or bitrate).

11.3.1.3 Application of the solution

131. LDC has to be considered a good injection point for ADSL, and migration of the DSLAM to the LDC is a possible solution in the long term perspective with the present available technology.

132. Because of the low risk of disturbance (see before), other solution like PBO will only be applied in case of ADSL-LEX problem due to the presence of DSLAM in the LDC and after examination of the benefits and impacts of the chosen solution.

11.3.2 Sub-loop at the KVD

- 133. The logical injection point to offer ADSL to the customers located behind a KVD is the LEX. Offering ADSL from the KVD could present some advantages in terms of architecture, but may not imply a migration of ADSL to the KVD.
- 134. Below some means to reduce the effect of the ADSL-KVD are listed. It should be noted however that all these means require further analysis.
- 135. A case by case analysis of concrete demand will be done at the relevant moment.

11.3.2.1 *Power Back Off – Attenuation*

- 136. Power Back Off (attenuation up to 12 dB) or higher attenuation (by means of attenuators integrated in the ADSL-KVD line) may be envisaged.

11.3.2.2 *ADSL variants*

- 137. Technologies like ADSL Plus or techniques like shaped ADSL adapted PSD (Mask shaping) used for the ADSL KVD lead to better compatibility with ADSL LEX signals.
- 138. As well as PBO/Attenuation, the use of these ADSL variants has the consequence of decreasing the performance of the ADSL KVD, but due to the generally small distance between the KVD and the customer, this consequence would be expected to be acceptable.
- 139. Note that these variants are not yet mature and need further study (example: spectral compatibility between VDSL and ADSL variants).
- 140. It should be noted that the concepts developed in sections 9.2. and 9.3. above are in principle also applicable to ADSL2 and ADSL2plus. The concepts for Annex L and M are for further study.

11.4 How to reduce the effect of remote injected SDSL at LDC?

- 141. As explained before, SDSL injected at a remote point leads to ADSL-LEX important degradation when the bitrate exceeds 1 Mbps.
- 142. A solution is to limit the bitrate of remote injected SDSL at 1 Mbps on one pair (services at 2 Mbps are possible by using 2 pairs). Remote injection is also permitted at another bitrate on condition the remote injection respects the deployment rules for SDSL from LEX as depicted in point 10. Therefore the distance on the X-axis has to be considered as the sum of the distance LEX-LDC and the loop length.

11.5 Summary

143. Although migration of all the ADSL to the LDC seems to be a solution (with the present available technology) to avoid any spectral pollution between ADSL-LEX and ADSL-LDC when the distance LEX-LDC is comprised between 1,5 and 4,5 km, other solutions like PBO and pair changes will be used in the short term when a problem occurs. In some cases, if HDSL or HDB3 equipment presently used by Belgacom are the source of the problem or the source of the impossibility to find a solution, Belgacom has the obligation to replace this equipment by equipment using an allowed technology. Solutions for the subloop in the KVD need further study. ADSL from the KVD could cause a lot of problems. A case by case analysis of specific requests/requested solutions will be performed and discussed in meetings of Task group spectrum management if relevant to meet the actual demand, including the demand by Belgacom.²

11.6 Remote VDSL2 from LDC

144. VDSL2 systems complying with recommendation ITU-T G.993.2 main body and annex B shall be allowed for use on local loop from LDC in any of the following situations
- Loops are directly connected to the LDC without any KVD.
 - located at less than one 1 km from LDC
 - Loops are connected to a specific KVD wherefore it has been estimated that over 90% of the end-users behind it are
145. When allowed, VDSL2 systems for use on local loop from LDC shall respect following rules:
- Respect of the deployment rules as defined in section 5.1.
 - Spectrum usage below 12MHz shall respect at least one of the 998 Limit PSD Masks listed in Table B-3 of G.993.2 (all limit mask in table B-3 with maximum used frequency = 12MHz are allowed, spectrum usage above 12MHz is for later study).
 - Upstream Power Back Off shall be applied for upstream bands U1 and U2.
 - Noise D reference PSD described in table 13 of ETSI TS 101 270-1 shall be used for Upstream Power Back Off (ETSI TS 101 270-1 reference PSD is used because the reference UPBO PSD is for further study in ITU-T G.993.2 version of 2006/02).
 - When spectral compatibility with VDSL systems in the same cables is needed, it shall be possible to limit downstream transmit PSD level in order not to exceed -61dBm/Hz in template value (or -57.5 in peak values as defined in G.993.2)

11.7 Remote VDSL2 from KVD

146. VDSL2 systems complying with recommendation ITU-T G.993.2 main body and annex B shall be allowed for use on local loop from KVD when KVD is present and the KVD is does not qualify for VDSL2 delivery from LEX or LDC.

² Text inserted by BIPT by advice of 09.01.2003 and reinserted by Decision of 09.11.2005

147. VDSL2 systems complying with recommendation ITU-T G.993.2 main body and annex B shall be allowed for use on local loop from KVD (as defined in §9.3.2) under the condition it respects following rules:
- Respect of the deployment rules as defined in section 5.1.
 - Spectrum usage below 12MHz shall respect at least one of the 998 Limit PSD Masks listed in Table B-3 of G.993.2 (all limit mask in table B-3 with maximum used frequency = 12MHz are allowed, spectrum usage above 12MHz is for later study).
 - Upstream Power Back Off shall be applied for upstream bands U1 and U2.
 - Noise D reference PSD described in table 13 of ETSI TS 101 270-1 shall be used for Upstream Power Back Off (ETSI TS 101 270-1 reference PSD is used because the reference UPBO PSD is for further study in ITU-T G.993.2 version of 2006/02).
 - When spectral compatibility with ADSL or ADSL2+ systems in the same cables is needed, it shall be possible to apply Downstream Power Back Off (DPBO) as defined into ITU-T G.997.1 §7.3.1.2.13 and described further is this document.
 - When spectral compatibility with VDSL systems in the same cables is needed, it shall be possible to limit downstream transmit PSD level in order not to exceed -61dBm/Hz in template value (or -57.5 in peak values as defined in G.993.2).
148. To perform Downstream Power Back Off, the VDSL2 systems shall limit the downstream power spectral density below the RESULTMASKds PSD mask defined in ITU-T G.997.1 §7.3.1.2.13 and Appendix II.
149. The parameters of the method described in ITU-T G.997.1 to compute RESULTDMASKds shall be as follows:
- Assumed VDSL2 PSD mask (DPBOPSDMASKds) shall fit under at least one of the 998 LIMIT Masks listed in Table B-3 of G.993.2
 - Assumed exchange PSD mask (DPBOEPSD) shall fit under the ADSL2+ Limit PSD mask defined in G.992.5 annex A.1.3.
 - E-side electrical length (DPBOESEL) shall be set to the attenuation value at 300 kHz of the path with minimal attenuation between the LEX, or LDC when present, and the KVD, or it shall be selected out of a set of discrete values depending of that attenuation. Below a table is provided defining discrete DPBOESEL values in function of KVD attenuation at 300kHz The KVD attenuation shall be provided by Belgacom when necessary.
 - E-side cable model (DPBOESCM) shall use following values
 - DPBOESCMA = 0,109375
 - DPBOESCMB = 1,48828125
 - DPBOESCMC = 0,24609375
 - Minimum usable signal (DPBOMUS) shall not exceed -95dBm/Hz.
 - It shall be possible to limit the Minimum Usable Frequency (MUF) to not go below 552 kHz.
 - DPBO span minimum frequency (DPBOFMIN) is set to 138kHz
 - DPBO span maximum frequency (DPBOFMAX) is set to 1104 kHz when spectral compatibility with ADSL or ADSL2 is needed or to 2208 kHz when spectral compatibility with ADSL2+ is needed.

Following table defines DPBOSEL in function of KVD attenuation at 300kHz:

KVD Attenuation @ 300kHz	DPBOSEL
[0..1[	no DPBO
[1 .. 3[	2
[3 .. 5[	4
[5 .. 7[	6
[7 .. 9[	8
[9 .. 11[	10
[11 .. 13[	12
[13 .. 16[	14
[16 .. 20[	18
[20 .. 24[	22
[24 .. 28[	26
[28 .. 32[	30
[32 .. 36[	34
[36 .. 40[	38
[40 .. 45[	42
[45 .. 51[	48
[51 .. 57[	54
[57 .. 63[	60
[63 .. Inf[	66

Table: DPBOSEL discrete values

Annex D 1 Billing and Accounting document

Created on: 16 February 2012

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1 Table of contents

1	Table of contents.....	2
2	Preliminary	3
3	Recording and storage of billing data.....	4
4	Confirmation of charging principles	5
5	Invoices	6
6	Payment.....	7
7	Disputes.....	8
	Appendix A: Contact Persons	9

2 Preliminary

- 1.1 Parties are defined in the present document as Belgacom a telecommunication operator in Belgium and Beneficiary.
- 1.2 The Belgacom billing process is based on a number of steps in which the two Parties have specific responsibilities. In order to implement this process, both Parties need to put in place (a) system(s) that will be used for the purposes of accounting and billing.
- 1.3 For each ULL product, Belgacom will invoice Beneficiary accordingly
- 1.4 Belgacom shall record, store and process the Billing Data in accordance with Section 2 of this Document.
- 1.5 The “Billing Data” is the data that is necessary to ascertain the charges payable by Beneficiary under the General Terms and Conditions. The Billing Data is recorded via the Billing System as described in Section 2 of this Document.
- 1.6 All information related to the Billing procedures between Belgacom and Beneficiary is covered by the obligation of confidentiality set out in the General Terms and Conditions. Specifically, such information will be kept strictly confidential by the Parties and will only be used for the purposes of accounting, and invoicing between the Parties and will only be disclosed between the Parties, or as legally required or in the framework of formal dispute procedures. Belgacom will be under no obligation to provide to Beneficiary direct access to its Billing system nor to any other system or facility generating the Billing Data.
- 1.7 Belgacom reserves the right to modify the layout and the presentation of the invoice to Beneficiaries.

3 Recording and storage of billing data

3.1 For each service chargeable under the General Terms and Conditions, Belgacom shall record via its Billing System at least the following Billing Data:

- Product/service ID;
- Type of request
- Subscription date;
- End of month of Subscription date;
- Beneficiary ID;
- Account ID.

The general list of billing data indicated above is not exhaustive. Pricing is set in the Annexes H of this offer.

3.2 Billing Data shall be stored for 60 days after the due date of the related invoice. In case of a dispute on the Billing Data, Belgacom will use all reasonable effort to keep the storage of the concerned Billing Data. The storage of these detailed Billing Data shall be limited to the disputed amount of Billing Data.

4 Confirmation of charging principles

- 4.1 All charges payable under the General Terms and Conditions shall be calculated in accordance with the rules set out in the relevant provisions of the General Terms and Conditions and its Annexes.
- 4.2 For internal purpose, Belgacom will use 6 decimals in Euro. The use of decimals is set as follows:
- Per line items up to 4 decimals can be used in Euro.
- The revenues, VAT and the totals use decimals in Euro.
- 4.3 All the non-recurring charges will be mentioned in the Invoice of the Billing Period covering the Bringing Into Service Date.
- 4.4 The recurring charges for the product fees will be mentioned in the Invoice of the Billing Period which the Bringing In Service Date encompasses. The Charges will be calculated on the proportion of the Billing Period in which the product and service fee were operational
- 4.5 Beneficiary amount of charges will be divided in the groups of one-time fees and recurring fees for the services described in the pricelist of this offer (Annexes H)
- 4.6 For Blocks, associated Cables, Cable Trays and Splitters, the Beneficiary will be requested to pay an upfront fee with the ordering of the equipment and the remaining part of the related cost after the delivery of this equipment. After discussion with and approval by BIPT, Belgacom will include the detailed conditions in this document. In the meantime, all orders submitted will be handled in line with the present conditions determined in Billing and Accounting.

5 Invoices

- 5.1 Subject to the specific rules applying to specific types of Services as set out in Annex B of this offer, Belgacom shall submit to the Beneficiary, invoice(s) for the charges under the General Terms and Conditions during the applicable Billing Period.
- 5.2 For each Billing Period, Belgacom shall provide to Beneficiary the Invoice described hereafter. The Invoice will be established in accordance with the following rules:
- 5.2.1 Invoice Details: the Invoice will list all the services by product that are provided by Belgacom to the Beneficiary, including, but not limited to the services as described in the ULL price list of the concerned ULL products
- 5.2.2 The above-mentioned Invoice will be transmitted via ordinary mail to the representatives or departments of Beneficiary as listed in appendix A Contact persons.
- 5.3 Any invoice or credit note transmitted by Belgacom will contain the following information, in addition to any legally required mentions and information:
- (i) relevant Billing Period;
 - (ii) total net amount in Euro;
 - (iii) due VAT amount;
 - (iv) total amount due in Euro (including VAT);
 - (v) Due Date.
- 5.4 Belgacom shall use its best endeavors to issue invoices as of the start of the applicable Billing Period. Though, in respect of the development of billing systems by both Parties and the sending of invoices, Belgacom cannot ensure that the invoicing for the products and services provided will be performed within specific delays. Delays in the production of invoices can occur under these circumstances following notification by the Billing Party. Neither party may construe any late billing by the other party as a renunciation to its right to payment of the said bills.
- 5.5 Notwithstanding the foregoing, if an adjustment is required following a change in the referred Local Loop Unbundling Price List, a pending Dispute (for which the appropriate Dispute resolution mechanisms have been timely activated in accordance with the General Terms and Conditions) or the outcome of commercial negotiations having a retroactive effect, the amount of such adjustment shall be established and Belgacom shall issue an invoice or a credit note as the case may be, within 30 days from the date of the relevant adjustment.
- 5.6 All changes to amounts invoiced in accordance with this Section 4 will be effected through credit notes or additional invoices.

6 Payment

- 6.1 All charges due by Beneficiary to Belgacom under the General Terms and Conditions shall be paid within 30 Calendar Days after issuance of the invoice (the “Due Date”).
- 6.2 If Beneficiary has sent to Belgacom a Notice of Dispute relate to an amount invoiced by Belgacom and if such Dispute has not been resolved by the Due Date the disputed amount may be withheld until the dispute is resolved provided that the remaining balance is payable on the Due Date.
- 6.3 Credit notes will be set off against any payments due of the next invoice and are refundable when there are no outstanding invoices.
- 6.4 If payment is not received by Belgacom on or before the Due Date, Belgacom will be entitled to an interest calculated on the basis of the legal interest rate + 2 percent points on the unpaid balance for late payment interests, administrative and recovery costs For disputed amounts, this interest is only due if the dispute has been resolved in favour of Belgacom
- 6.5 Value Added Tax as well as any other applicable taxes, if any, shall be added to all or any part of the charges due under the General Terms and Conditions and shall be paid by the Beneficiary responsible for making such payment.
- 6.6 Any payments under the General Terms and Conditions will be made in Euro and will be made by bank transfer on the bank accounts mentioned in the Invoice. Payment costs are born by the Beneficiary, costs of credit notes are born by Belgacom.

7 Disputes

- 7.1 The Parties shall use their reasonable endeavors to resolve, pursuant to this Section 6 disputes related to the calculation and settlement of the charges invoiced or to be invoiced pursuant to this Document. Notwithstanding the foregoing, either Party will be allowed to trigger at any time the dispute resolution procedure provided under the main body of the General Terms and Conditions provided that such Party reasonably believes that the Dispute at stake involves aspects of the Parties' rights and obligations broader than the mere calculation and settlement of charges pursuant to this Document. The fact that a Dispute involves aspects broader than the mere calculation and settlement of charges pursuant to this Document will not release the Disputing Party from its obligation to pay any undisputed amount pursuant to Section 5.2.
- 7.2 Any Dispute under this Section 6 will be triggered by a Notice of Dispute sent by registered letter by the Beneficiary to Belgacom before the Due Date. Such Notice of Dispute will indicate the disputed amounts, as well as a summary of the grounds for the Dispute and the position of the Disputing Party. Any amount invoiced under the General Terms and Conditions will be deemed accepted unless a Notice of Dispute has been sent in accordance with above.
- 7.3 Upon receipt of the Notice of Dispute, the Parties shall exchange by ordinary mail any information necessary or useful for solving the Dispute.
- 7.4 Within 15 Working Days from the date of the Notice of Dispute, Belgacom will provide, by registered mail, an answer ("Notice of Reply") to the Beneficiary. If Belgacom does not accept some or all the arguments of the Beneficiary, the Notice of Reply will contain a justified reply to the arguments of the Beneficiary. If Belgacom accepts all or some arguments of the Beneficiary, Belgacom will, together with the Notice of Reply, issue a credit note for the relevant amount.
- 7.5 If, within 15 Working Days from the receipt of the Notice of Reply, the Beneficiary confirms its position in writing by registered letter, the Parties will escalate the Dispute within their respective organization as provided under Section 6.6. If the Beneficiary fails to confirm its position within 15 Working Days, from the date of the Notice of Reply, any outstanding amounts will be paid promptly and without delay and the Dispute will be deemed settled.
- 7.6 If the Parties have been unable to settle the Dispute as provided under the foregoing provisions, they will refer the matter to Implementation Committee, which, if deemed necessary by either Party, will be organized for this specific purpose. If after such meeting, the Dispute remains, the Parties will follow such additional steps in the escalation procedure as provided in the main body of the General Terms and Conditions, or, if requested by either Party, the Dispute will be submitted to a certified accountant to be either jointly appointed by the Parties, or, failing agreement between the Parties in this respect, to be appointed by "Belgisch Instituut voor Bedrijfsrevisoren"/"Institut Belge des Réviseurs d'Enterprise". This certified accountant will investigate and determine a solution for the Dispute, acting as an expert and not as an arbitrator. Unless there is evidence of a manifest error, decision of the certified accountant will be final in respect of those elements covered by the Dispute referred to him/her and will be binding on the Parties. The Parties will co-operate with this investigation. The costs of the certified accountant will be borne as determined by him/her in proportion to the outcome of the Dispute. Prior to undertaking his/her mission, the certified accountant will provide the Parties with an estimate of the relevant fees and costs. Upon final settlement of the Dispute, any necessary credit note will be issued and any outstanding amount will be paid promptly and without delay.



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Appendix A: Contact Persons

The Invoices will be sent to the under mentioned contact persons:

Contact person in Belgacom:

Name	
Division	National Wholesale
Address	Koning Albert II-laan 27, 1030 Brussels
Tel	+32 2 202
Fax	+32 2 202
Bank Account	

Contact persons Beneficiary

Name	
Division	
Room	
Address	
Tel	+32
Fax	+32
Bank Account	



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Billing address Beneficiary

Name	
Division	
Room	
Address	
Tel	+32
Fax	+32

Annex D 2 Billing and Accounting document

Created on: 16 February 2012

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1 Table of contents

1	Table of contents.....	2
2	Preliminary	3
3	Recording and storage of billing data.....	4
4	Confirmation of charging principles	5
5	Invoices	6
6	Payment.....	7
7	Disputes.....	8
	Appendix A: Contact Persons	9

2 Preliminary

- 2.1 Parties are defined in the present document as Belgacom a telecommunication operator in Belgium and Beneficiary.
- 2.2 The Belgacom billing process is based on a number of steps in which the two Parties have specific responsibilities. In order to implement this process, both Parties need to put in place (a) system(s) that will be used for the purposes of accounting and billing.
- 2.3 For each ULL product, Belgacom will invoice Beneficiary accordingly
- 2.4 Belgacom shall record, store and process the Billing Data in accordance with Section 2 of this Document.
- 2.5 The “Billing Data” is the data that is necessary to ascertain the charges payable by Beneficiary under the General Terms and Conditions. The Billing Data is recorded via the Billing System as described in Section 2 of this Document.
- 2.6 All information related to the Billing procedures between Belgacom and Beneficiary is covered by the obligation of confidentiality set out in the General Terms and Conditions. Specifically, such information will be kept strictly confidential by the Parties and will only be used for the purposes of accounting, and invoicing between the Parties and will only be disclosed between the Parties, or as legally required or in the framework of formal dispute procedures. Belgacom will be under no obligation to provide to Beneficiary direct access to its Billing system nor to any other system or facility generating the Billing Data.
- 2.7 Belgacom reserves the right to modify the layout and the presentation of the invoice to Beneficiaries.

3 Recording and storage of billing data

3.1 For each service chargeable under the General Terms and Conditions, Belgacom shall record via its Billing System at least the following Billing Data:

Product/service ID;

Type of request

Subscription date;

End of month of Subscription date;

Beneficiary ID;

Account ID.

The general list of billing data indicated above is not exhaustive. Pricing is set in the Annexes H of this offer.

3.2 Billing Data shall be stored for 60 days after the due date of the related invoice. In case of a dispute on the Billing Data, Belgacom will use all reasonable effort to keep the storage of the concerned Billing Data. The storage of these detailed Billing Data shall be limited to the disputed amount of Billing Data.

4 Confirmation of charging principles

- 4.1 All charges payable under the General Terms and Conditions shall be calculated in accordance with the rules set out in the relevant provisions of the General Terms and Conditions and its Annexes.

For internal purpose, Belgacom will use 6 decimals in Euro. The use of decimals is set as follows:

Per line items up to 4 decimals can be used in Euro.

The revenues, VAT and the totals use 2 decimals in EURO.

- 4.2 All the non-recurring charges will be mentioned in the Invoice of the Billing Period covering the Bringing Into Service Date.
- 4.3 The recurring charges for the product fees will be mentioned in the Invoice of the Billing Period, which the Bringing In Service Date encompasses. The Charges will be calculated on the proportion of the Billing Period in which the product and service fee were operational
- 4.4 Beneficiary amount of charges will be divided in the groups of one-time fees and recurring fees for the services described in the pricelist of this offer (Annexes H)
- 4.5 For Blocks, associated Cables, Cable Trays and Splitters, the Beneficiary will be requested to pay an upfront fee with the ordering of the equipment and the remaining part of the related cost after the delivery of this equipment. After discussion with and approval by BIPT, Belgacom will include the detailed conditions in this document. In the meantime, all orders submitted will be handled in line with the present conditions determined in Billing and Accounting.

5 Invoices

- 5.1 Subject to the specific rules applying to specific types of Services as set out in Annex B of this offer, Belgacom shall submit to the Beneficiary, invoice(s) for the charges under the General Terms and Conditions during the applicable Billing Period.
- 5.2 For each Billing Period, Belgacom shall provide to Beneficiary the Invoice described hereafter. The Invoice will be established in accordance with the following rules:
- 5.2.1. Invoice Details: the Invoice will list all the services by product that are provided by Belgacom to the Beneficiary, including, but not limited to the services as described in the ULL price list of the concerned ULL products
 - 5.2.2. The above mentioned Invoice will be transmitted via ordinary mail to the representatives or departments of Beneficiary as listed in appendix A Contact persons.
- 5.3 Any invoice or credit note transmitted by Belgacom will contain the following information, in addition to any legally required mentions and information:
- (i) relevant Billing Period;
 - (ii) total net amount in Euro;
 - (iii) due VAT amount;
 - (iv) total amount due in Euro (including VAT);
 - (v) Due Date.
- 5.4 Belgacom shall use its best endeavors to issue invoices as of the start of the applicable Billing Period. Though, in respect of the development of billing systems by both Parties and the sending of invoices, Belgacom cannot ensure that the invoicing for the products and services provided will be performed within specific delays. Delays in the production of invoices can occur under these circumstances following notification by the Billing Party. Neither party may construe any late billing by the other party as a renunciation to its right to payment of the said bills.
- 5.5 Notwithstanding the foregoing, if an adjustment is required following a change in the referred Local Loop Unbundling Price List, a pending Dispute (for which the appropriate Dispute resolution mechanisms have been timely activated in accordance with the General Terms and Conditions) or the outcome of commercial negotiations having a retroactive effect, the amount of such adjustment shall be established and Belgacom shall issue an invoice or a credit note as the case may be, within 30 days from the date of the relevant adjustment.
- 5.6 All changes to amounts invoiced in accordance with this Section 4 will be effected through credit notes or additional invoices.

6 Payment

- 6.1 All charges due by Beneficiary to Belgacom under the General Terms and Conditions shall be paid within 30 Calendar Days after issuance of the invoice (the “Due Date”).
- 6.2 If Beneficiary has sent to Belgacom a Notice of Dispute relate to an amount invoiced by Belgacom and if such Dispute has not been resolved by the Due Date the disputed amount may be withheld until the dispute is resolved provided that the remaining balance is payable on the Due Date. Credit notes will be set off against any payments due of the next invoice and are refundable when there are no outstanding invoices.
- 6.3 If payment is not received by Belgacom on or before the Due Date, Belgacom will be entitled to an interest calculated on the basis of the legal interest rate + 2 percent points on the unpaid balance for late payment interests, administrative and recovery costs. This interest is only due if the dispute has been resolved in favour of Belgacom.
- 6.4 Value Added Tax as well as any other applicable taxes, if any, shall be added to all or any part of the charges due under the General Terms and Conditions and shall be paid by the Beneficiary responsible for making such payment.
- 6.5 Any payments under the General Terms and Conditions will be made in Euro and will be made by bank transfer on the bank accounts mentioned in the Invoice. Payment costs are born by the Beneficiary, costs of credit notes are born by Belgacom.

7 Disputes

- 7.1 The Parties shall use their reasonable endeavors to resolve, pursuant to this Section 6 disputes related to the calculation and settlement of the charges invoiced or to be invoiced pursuant to this Document. Notwithstanding the foregoing, either Party will be allowed to trigger at any time the dispute resolution procedure provided under the main body of the General Terms and Conditions provided that such Party reasonably believes that the Dispute at stake involves aspects of the Parties' rights and obligations broader than the mere calculation and settlement of charges pursuant to this Document. The fact that a Dispute involves aspects broader than the mere calculation and settlement of charges pursuant to this Document will not release the Disputing Party from its obligation to pay any undisputed amount pursuant to Section 0.
- 7.2 Any Dispute under this Section 6 will be triggered by a Notice of Dispute sent by registered letter by the Beneficiary to Belgacom before the Due Date. Such Notice of Dispute will indicate the disputed amounts, as well as a summary of the grounds for the Dispute and the position of the Disputing Party. Any amount invoiced under the General Terms and Conditions will be deemed accepted unless a Notice of Dispute has been sent in accordance with above.
- 7.3 Upon receipt of the Notice of Dispute, the Parties shall exchange by ordinary mail any information necessary or useful for solving the Dispute.
- 7.4 Within 15 Working Days from the date of the Notice of Dispute, Belgacom will provide, by registered mail, an answer ("Notice of Reply") to the Beneficiary. If Belgacom does not accept some or all the arguments of the Beneficiary, the Notice of Reply will contain a justified reply to the arguments of the Beneficiary. If Belgacom accepts all or some arguments of the Beneficiary, Belgacom will, together with the Notice of Reply, issue a credit note for the relevant amount.
- 7.5 If, within 15 Working Days from the receipt of the Notice of Reply, the Beneficiary confirms its position in writing by registered letter, the Parties will escalate the Dispute within their respective organization as provided under Section 0. If the Beneficiary fails to confirm its position within 15 Working Days, from the date of the Notice of Reply, any outstanding amounts will be paid promptly and without delay and the Dispute will be deemed settled.
- 7.6 If the Parties have been unable to settle the Dispute as provided under the foregoing provisions, they will refer the matter to Implementation Committee, which, if deemed necessary by either Party, will be organized for this specific purpose. If after such meeting, the Dispute remains, the Parties will follow such additional steps in the escalation procedure as provided in the main body of the General Terms and Conditions, or, if requested by either Party, the Dispute will be submitted to a certified accountant to be either jointly appointed by the Parties, or, failing agreement between the Parties in this respect, to be appointed by "Belgisch Instituut voor Bedrijfsrevisoren"/"Institut Belge des Réviseurs d'Enterprise". This certified accountant will investigate and determine a solution for the Dispute, acting as an expert and not as an arbitrator. Unless there is evidence of a manifest error, decision of the certified accountant will be final in respect of those elements covered by the Dispute referred to him/her and will be binding on the Parties. The Parties will co-operate with this investigation. The costs of the certified accountant will be borne as determined by him/her in proportion to the outcome of the Dispute. Prior to undertaking his/her mission, the certified accountant will provide the Parties with an estimate of the relevant fees and costs. Upon final settlement of the Dispute, any necessary credit note will be issued and any outstanding amount will be paid promptly and without delay.



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Appendix A: Contact Persons

The invoices will be sent to the under mentioned contact persons:

Contact person in Belgacom:

Name	
Division	National Wholesale
Address	Koning Albert II-laan 27, 1030 Brussels
Tel	+32 2 202
Fax	+32 2 202
Bank Account	

Contact persons Beneficiary

Name	
Division	
Room	
Address	
Tel	+32
Fax	+32
Bank Account	



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Billing address Beneficiary

Name	
Division	
Room	
Address	
Tel	+32
Fax	+32

Raw Copper & Shared Pair Service

Annex D 3 Prepayment Terms and Conditions

Created on: 16 February 2012

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1 Table of contents

1 Table of contents.....	2
Prepayment Terms and Conditions	3

Prepayment Terms and Conditions

1. Belgacom will send on a monthly basis a pre-invoice at least on the 2nd working day after the starting of the month preceding the considered billing month. For Beneficiaries that are in service, the first pre-invoice shall be based on the average of the invoices for Services issued by Belgacom during the last three months. For Beneficiaries not yet in service and concluding a new Agreement, the first pre-invoice shall be based on the valuation of the average of the invoices for Services to be issued by Belgacom within the first three months of services.
2. The amount of the pre-invoice shall be adapted on a quarterly basis, i.e. increased or lowered as the case may be, based on the amounts due by the Beneficiary for the Services provided under the Agreement during the previous quarter.
3. The Beneficiary agrees to pay the amount of the pre-invoice at the latest the 10th calendar day from the date of the pre-invoice.
4. The amount of the pre-invoice shall be paid on a specific account number to be communicated. The interests generated by the amount of the pre-invoice paid on this account during the period starting from the date the pre-invoice is paid until the date the final invoice is paid shall be accrued to the Operator.
5. Within 15 calendar days after the end of the considered month, Belgacom will send a credit note regarding the pre-invoice together with the final invoices due for the considered month.
6. If for the same month the amount of the pre-invoice is higher than the amount of the final invoices, the balance shall be reimbursed by Belgacom.
7. If for the same month the amount of the pre-invoice is lower than the amount of the final invoices, the Beneficiary will pay the surplus.
8. Within 15 calendar days following the final invoice, the Beneficiary will make the payment by wire transfer. If payment is not received on this due date, Belgacom is entitled to the interest on the unpaid balance for late payment, and administrative and recovery costs as defined in the Agreement.
9. If the Beneficiary disagrees with an invoice received from Belgacom, it must notify in writing Belgacom thereof before the due date of such invoice in accordance with the relevant provisions of the Agreement.
10. Without prejudice to other legal or contractual remedies and notwithstanding anything to the contrary in the Agreement, in the event the Beneficiary fails to pay on due time any undisputed amount due under the present Prepayment terms and conditions, Belgacom shall be entitled to:
 - suspension of any SLA obligations that are not foreseen in the Basic SLA;
 - refusal in writing of any new Services, including Migration Services.

Raw Copper and Shared Pair

Annex E Planning and Operations Manual

Created on: 16 February 2012

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1 Table of contents

1	Table of contents.....	2
2	Scope	5
3	Acronyms	6
4	Exchange of information.....	8
4.1	Single Point Of contact.....	8
4.2	Preliminary Exchange of Information for the initial setting up (optional).....	8
4.3	Implementation Committee	8
5	Pre-Provisioning of infrastructure.....	9
5.1	Ordering	9
5.2	Prerequisites.....	9
5.3	Forecasting of orders for pre-provisioning of infrastructure	10
6	Ordering of End-user connections - Raw Copper or Shared Pair.....	12
6.1	Introduction	12
6.2	Ordering via the Open Calendar Interface.....	12
6.3	Ordering via xml.....	13
6.3.1	Generals.....	13
6.3.2	Definitions.....	13
7	Provisioning of Raw Copper or Shared Pair	18
7.1	Introduction	18
7.2	General	18
7.3	End-User Appointment fixing and rebooking.....	18
7.4	Small Network Adaptations (detected during the order provisioning).....	18
8	Ordering and Provisioning Process flows.....	21
9	Forecasting of orders	25



Together
with



10	Fault Reporting and Repair.....	26
10.1	Fault Reporting and repair for Raw Copper Services.....	26
10.1.1	Point of Entry for Complaint.....	26
10.1.2	Fault reporting on Raw Copper.....	26
10.1.3	Beneficiary’s liabilities in connection with fault reporting.....	26
10.1.4	Belgacom’s liability in connection with fault reporting.....	27
10.1.5	Special conditions in connection with Repair.....	27
10.1.6	Repair Request and Feedback.....	28
10.1.7	Change Tie Cable - repair process (process applicable as from 25 June 2012*).....	28
10.2	Fault Reporting and repair for Shared Pair Services.....	28
10.2.1	Fault reporting to Belgacom by the Beneficiary.....	29
10.2.2	Fault Reporting to Belgacom by User.....	29
10.2.3	Repair Request.....	30
10.2.4	Repair Feedback.....	30
10.2.5	Special conditions in connection with Repair.....	30
10.3	Wrongful repair request.....	31
10.4	Repair Process flows.....	31
11	Friendly User Test	33
11.1	General.....	33
11.2	Procedure.....	33
12	Contact list.....	34
13	Information on IT projects.....	35
Appendix A: Statement of Requirements, template for the Beneficiary		36
1	General.....	36
2	Basic information.....	36
2.1	Registered name and address of Beneficiary.....	36
2.2	Confidentiality agreement.....	37
2.3	Key Contacts list.....	37
3	Key project dates.....	37
4	ULL Products and Services Beneficiary wishes to obtain from Belgacom.....	37
Appendix B: Description of the Forecasting Process.....		39



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1	General Principles	39
2	Processing of Forecasts	40
3	Deviations between successive forecasts.....	40
4	Deviations between forecasted volumes and actual volumes	40
5.1	Underrun.....	40
5.2	Overrun	41

Appendix C: Forecasting templates for BRXX End User Line orders42

1	“Customer Operations” Forecast.....	42
---	-------------------------------------	----

Appendix D: Forecasting and Firm Order template for pre-provisioning of infrastructure43

1	Pre-requisite equipment forecasting template.....	43
2	Ordering templates.....	43

Appendix E: Overview of sub-area/area’s44

Appendix F: Back-up plan for ordering through XML.....45

1	General	45
2	Phase 1: Assignment of Beneficiary and Belgacom SPOC for back-up procedure	45
3	Phase 2: Fault detection.....	45
4	Phase 3: problem solving.....	46
5	Phase 4: message exchange by e-mail with non encrypted order in XML format	46
6	Phase 5: message exchange by fax in XML format.....	47
7	Phase 6: test and resume normal operation	47

2 Scope

1. This Annex describes the Planning and Operations principles, related to the provisioning and repair of Raw Copper and Shared Pair.



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3 Acronyms

ACK	Acknowledged
ADSL	Asymmetric Digital Subscriber Line
AP	Access Point
ATLI	ADSL Transmission Loop over ISDN
ATLP	ADSL Transmission Loop over PSTN
BGC	Belgacom
CA	Certification Authority
CRD	Customer Requested Date
CSD	Customer Support Desk
DES	Data Encryption Standard
DN	Directory Number (Telephone Number)
FUT	Friendly User Testing
IPCE	Inter-Process Communication Environment
ISDN	Integrated Service Digital Network
LAP	Local Access Point
LEX	Local Exchange
LS	Loop Service
LSD	Loop Service Deactivation
LSI	Loop Service Inquiry
LSR	Loop Service Request
LSV	Loop Service reverse Migration
MDF	Main Distribution Frame
MIME	Multipurpose Internet Mail Extensions

MTM	Belgacom Multimedia Department
NACK	Not Acknowledged
NTP	Network Termination Point
OLO	Other Licensed Beneficiary
PSTN	Public Switched Telecommunications Network
RFS	Ready For Service
SOR	Statement Of Requirements
SPOC	Single Point Of Contact
ULL	Unbundling Local Loop

4 Exchange of information

2. This chapter includes some communication guidelines in order to ensure a good interchange of information and to define an effective communication channel that focuses on both improving the comprehension and execution of the processes.

4.1 Single Point Of contact

3. Both Parties will appoint a member of its staff as Single Point of Contact. This person, referred to as "SPOC", will be in charge of all matters regarding the day-to-day management of the performance of this offer. In particular, all forecasts (if any) and firm orders must be submitted by registered mail to the SPOC of Belgacom, unless noticed otherwise.

4.2 Preliminary Exchange of Information for the initial setting up (optional)

4. Without prejudice to what is stated above, it is recommended that Beneficiary provides a Statement of Requirements (SOR) to Belgacom as early as possible in any discussions between Beneficiary and Belgacom. The SOR is sent by registered mail to the SPOC of Belgacom. After the receipt of the SOR, Belgacom shall notify to Beneficiary its observations, if any, concerning the SOR. In particular, when appropriate, Belgacom may request additional information to complete the information contained in the SOR. Beneficiary may ask BIPT permission not to communicate the information requested by Belgacom. BIPT will decide on a case by case basis if this information is e.g. not useful or confidential.

4.3 Implementation Committee

5. The Implementation Committee is a meeting between both parties to supervise, discuss and examine at a general level technical and operational application of this offer, in particular, the implementation of the respective obligations of the Parties, as described in this offer.
6. The Implementation Committee will meet at least on a quarterly basis. Each Party will be entitled to call additional meetings within reasonable notice, as may be necessary. Each Party will be represented at the Implementation Committee by its SPOC accompanied by any staff as deemed necessary by the relevant Party.
7. In addition to the Implementation Committee, the Parties will be allowed to request for the set-up of any other bilateral working group in charge of discussing and agreeing on any technical or operational issues, including more specialised members on the specific topic.

5 Pre-Provisioning of infrastructure

5.1 Ordering

8. Orders are related to Beneficiary dedicated equipment at the Belgacom's LEX's, LDC's and KVD's. This equipment consists in Beneficiary Horizontal Blocks and associated Tie Cabling and Splitter Cards. The technical specifications of the ordered infrastructure are described in Annex C. All installations are done by the technicians of Belgacom or by the subcontractors of Belgacom. Forecasts and Ordering are done based on the order units as defined in Annex H.
9. The Beneficiary is recommended to provide Belgacom with reasonable and accurate forecasts on Beneficiary Blocks, Tie Cables and splitter cards in order to ensure that planning of resources can be done in the best interest of the Beneficiary. The submission of forecasts by the Beneficiary determines the conditions of delivery time: In case no forecasts are provided, Belgacom will deliver services on a best effort basis. Note that in case Colocation can not be delivered and therefore forecasting and implementation can not be implemented, the forecast system described below will not be applicable.
10. Forecasts if any and firm orders shall be done through the use of the specific templates provided in Appendix E of this document and on the Belgacom NWS secured website. Templates will be considered as valid only when they are properly completed. In case data is missing or is not correct, the forecast or order will be rejected. In the latter case, Belgacom will indicate the reasons of rejection on the template.
11. For the sake of clarity, it is confirmed that for all matters related to the forecasting process, an agreement between the Parties is only binding for Belgacom if it is confirmed in writing by the SPOC of Belgacom within 5 working days. If there is no reply of the SPOC within this period, the confirmation is considered given.
12. Irrespective of the terms and conditions stated below, Belgacom reserves the right to reject forecasts if the volumes requested by the Beneficiary are not in line with reasonable market demands, this is for example a nation wide ordering spread over several months instead of a one-shot ordering once a year. In the event of such a rejection, Belgacom will provide the Beneficiary with the reasons for the rejection and the Parties will need to enter into a good faith discussion for finding a solution to deal with the difficulty that has arisen.

5.2 Prerequisites

13. The Beneficiary can order its blocks through a firm order. A firm order for infrastructure is done for each LEX. The order form can be downloaded at the Belgacom National Wholesale secured website.
14. As long as a Beneficiary does not have approved Colocation facilities, no Beneficiary Horizontal Blocks orders and or Splitter cards can be submitted. A Colocation facility is approved according to the terms and conditions of the Colocation documents in Annex I of the present document Offer.

15. The Beneficiary can order its blocks through a firm order. A firm order consists of the requested number of order units (see Appendix E) and this for each LEX. Together with the firm order, the Beneficiary includes the date when he wants the Blocks and associated Tie Cabling to be ready.
16. The delivery delay of forecasted firm orders for Blocks and Tie Cabling and/or Splitter Cards is 15 working days in cases where sufficient place in the cable trays at the ordered site is available. When construction works are needed the delivery time is 40 working days. The Beneficiary indicates the date he wants the infrastructure to be ready.
17. The Beneficiary is notified that in very exceptional situations, the theoretic delays above may be escalated. Depending of the situation at the Local Exchange of Belgacom, an extension of the MDF may be of an enormous extent. This is in case of periods of large demands at once that could not be foreseen, in situations of lightning and any other natural disasters that cause damage to the Belgacom network.
18. In case of conflict between the Beneficiary's documentation and the Belgacom documentation regarding the position numbers on the Blocks, Beneficiary can request a reconciliation of his information with the actual situation on the Belgacom MDF. For this purpose Beneficiary can take contact with its SPOC. All costs incurred by Belgacom to answer to such request will be charged to the Beneficiary. The costs are only due by the Beneficiary if its documentation was incorrect, whereas the faults are not related to a prior incorrect communication of information by Belgacom.
19. Belgacom will confirm the receipt of every firm order within 4 working days, within 2 weeks after receiving the firm order Belgacom will communicate by email the planned installation date of the ordered Blocks and Tie Cables. When the installation of the Blocks and Tie Cabling is complete, the Beneficiary will receive documentation on the position of his blocks on the MDF and on the references of the positions on the blocks. This information is mandatory to communicate together with each order for a specific loop.

5.3 Forecasting of orders for pre-provisioning of infrastructure

20. If Beneficiary subscribed to the forecasting procedure, forecasting of orders shall be done as described in Appendix B §5 General Principles and §6 Submission of Forecasts by Beneficiary. The table below includes the specific variables described in this procedure applicable to forecasting of equipment for pre-provisioning.

Forecasting Specifications	
Forecasted period	6 months
Submission Recurrence	Monthly
Submission Content	Total order units per type (see order form)
Granularity of unit	1
Forecasted unit	Order units as further defined in Appendix E
Installation fee "I"	Average activation fee for Raw Copper/Shared Pair



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Effective % charged "E"		100 %	
Deviations	Lower deviation limit	Upper deviation limit	Level of requested detail
$\delta_{\max} =$	-20%	20%	Sub area/Area

6 Ordering of End-user connections - Raw Copper or Shared Pair

6.1 Introduction

21. The Ordering process of a specific BRUO End User line covers the activities of The Beneficiary and of Belgacom, between the submission of an Order to Belgacom by The Beneficiary until validation or rejection of this Order to The Beneficiary by Belgacom.

6.1.2 Ordering via the Open Calendar Interface

21-22. The ordering process can be decomposed into 2 phases:

Phase 1: Negotiation phase

Negotiation is only possible by use of the Open Calendar interface. It allows the Beneficiary to introduce all parameters for the requested ordered product to

- get an overview of the workorders needed to provision the line
- get the available time slot
- indicate whether the installation is to be executed by a Certified Technician or not
- select the suitable timeslot according to the requirement of the enduser and start the ordering process. The Beneficiary should not to send an additional order via the classical XML way (No BGCIN). The order is automatically generated in the Belgacom ordering systems by the Open Calendar interface.

Phase 2: Order confirmation

This phase starts by the sending by Belgacom of a validate XML message via the classical xml way (“validate” or “reject” xml). This XML contains the final confirmation of the information exchanged via the Open Calendar interface. If the information exchanged during phase 1 should be modified, this is notified to the OLO by this “Validate” or “Reject” XML.

22-23. The follow-up of the order is performed by use of the Hold , Cancel , Amend , Reject and Done messages exchanged via the classical XML interface as described in the chapter Ordering via XML, Amend messages can also be performed by the Open Calendar interface for orders exclusively introduced through the Open Calendar Interface..

23-24. Reference is also made to the Belgacom Wholesale secured website – Regulatory information – BRUO - Information on ordering, for more detailed information on the ordering process via the Open Calendar interface in the following documents:

- a. Process documentation on Open Calendar interface
- b. technical documentation on Open Calendar interface

6.26.3 Ordering via xml

6.2.16.3.1 Generals

- ~~24~~25. All exchange of information between Belgacom and the Beneficiary will be done through an electronic system. In case of problems of the electronic system, reference is made to steps as described in the backup plan for ordering included in Appendix F.
- ~~25~~26. Orders can be placed through the use of an electronic ordering system via xml directly or through the use of the Open Calendar interface as described above.
- ~~26~~27. Reference is also made to the Belgacom Wholesale secured website – Regulatory information – BRUO - Information on ordering, for more detailed information on the ordering process via XML.
- ~~27~~28. The communication process between Beneficiary and Belgacom is based on SMTP Mail for the transfer, an ACK/NACK protocol and a message file in attachment with a predefined format.
- ~~28~~29. The messages that are exchanged between the Beneficiary and Belgacom are encrypted and signed by the sender. Each message contains one order form in attachment that is coded in XML. Technical Info and the order forms for XML ordering are included on the secured website.
- ~~29~~30. The Beneficiary prepares the file in the predefined XML format, signs it, encrypts it, attaches it to a mail and sends it to the mailbox of Belgacom. The e-mail address for ULL is LSR@belgacom.be.
- ~~30~~31. In the framework of Shared Pair an existing end-to-end PSTN or ISDN line with Belgacom is a prerequisite.

6.2.26.3.2 Definitions

6.2.2.16.3.2.1 Type of Messages

1. Acknowledge Message
2. Order Message: message to initiate the creation of a new order
3. Action Message: message to ask for a precise action on an existing order
4. Answer Message: message sent to give an answer to an Order Message or Action Message

All possible messages are explained below and described in detail (on xml level) in the Content Description Manual, which can be found on the Belgacom secured website - Regulatory Information – BRUO – Documentation on ordering.

6.2.2.26.3.2.2 **Message acknowledgment**

31-32. For any message exchanged between Belgacom and Beneficiary, an acknowledge message (ACK/NACK) is sent to confirm

1. the message has been received
2. the message has been decrypted
3. the signature has been successfully validated.

32-33. NACK is sent if decryption or signature check does fail. NACK will contain the reason of rejection and signifies that the message is NOT processed on the side of the sender of the NACK.

33-34. If no ACK is received by the sender, the sender is supposed to send again the message. The order is not further processed by Belgacom.

34-35. If an ACK is received by the Beneficiary, this does not automatically mean that the order will be provisioned. The order could still be rejected

6.2.2.36.3.2.3 **Order Messages**

35-36. An Order can be:

INITIATED BY THE BENEFICIARY

- a) PROVIDE NEW : the activation of a complete new RAW COPPER or SHARED PAIR service
- b) PROVIDE MIGRATE : the activation of a RAW COPPER in combination with a NP order
- c) CEASE : the deactivation of a RAW COPPER or SHARED PAIR or SHARED PAIR WITHOUT VOICE service
- d) CONVERT – cease part and provide part : conversion of his own existing BRUO product towards another BRUO product, or another type of product and vice versa
- e) PROVIDE CHANGE OWNER : Transfer of an existing xDSL belonging to another Beneficiary (Belgacom end-user customer included) with or without conversion of the existing product
- f) CHANGE : Modification of the existing BRUO product e.g. change MDF position (on horizontal block for RC, splitter card position for SP)

INITIATED BY BELGACOM DUE TO AN ACTION OF ANOTHER BENEFICIARY OR FROM THE END-USER CUSTOMER ON HIS VOICE SERVICE

- 1) CEASE CHANGE OWNER : launched as a consequence of a validated PROVIDE CHANGE OWNER of another Beneficiary, or an action of the end-user-customer of Belgacom
- 2) MOVE – cease part and provide part: launched as a consequence of a MOVE of the voice of the end-user-customer; the BRUO Shared pair product will be moved along if technical possible.
- 3) CONVERT – cease part and provide part : launched as a consequence of
 - (a) Change of technology of the voice of the end-user-customer from PSTN to ISDN and vice versa
 - (b) A cease or an export of the voice; the BRUO shared pair with voice will be converted into a BRUO shared pair without voice
 - (c) A new connection or an import of the voice; the BRUO shared pair without voice will be converted into a BRUO shared pair with voice
- 4) CEASE (for technical reasons) : launched as a consequence of an action on the voice part - e.g. move/conversion of the voice – while the BRUO product can not be re-established in the new situation due to technical reasons

6.2.2.46.3.2.4 **Action Messages**

36.37. An Action Message can be:

INITIATED BY THE BENEFICIARY

- 1) AMEND : this message can be sent by the Beneficiary to change the Due Date of an existing order
- 2) CANCEL: this message can be sent by The Beneficiary to cancel an existing order.

INITIATED BY BELGACOM

37-38. **HOLD**: this message can be sent by Belgacom to inform The Beneficiary that Belgacom will not perform the service at Due Date. due to technical reasons; due to absence of the end-user-customer; a new Due Date is communicated to The Beneficiary in this message

38-39. These action messages apply only on pending orders sent by the Beneficiary to Belgacom.

6.2.2.56.3.2.5 Answer Messages

39-40. An Answer Message can be:

- **REJECT** :after the ACK was sent by Belgacom for a certain message, this message may however show some problems that will prevent Belgacom to treat the request correctly:
 - The message contents (file attachment) does not respect predefined format
 - The message does not contain predefined values
 - The message does not respect precedence rules
 - The message refers to a non existing order
 - The new order does not pass through administrative validations: pending order, unknown or non activated Directory Number, non PSTN/ISDN-BA installation, PSTN/ISDN bad payer, ...
 - The new order does not pass through technical validations: no pair available, distribution pairs absent, wrong MDF position, MDF position not free ...

The rejection message contains at least one, if possible more, rejection codes to inform the Beneficiary of all reasons for rejection so that sender can send again the message and minimise the retry cycle. If rejected, the order does not exist anymore. If The Beneficiary wants to retry, he will have to issue again the same demand, but through a new order.

The list of pending orders which cause a reject is available and documented on the Belgacom secured Personal Page website.

- **VALIDATE**: this message confirms that the order will be executed on the given due date; the message includes the circuit-id.
- **DONE**: this message confirms the execution of the order, the field intervention for service activation is completed.
- **FAIL**: this message is sent when it is not possible for Belgacom to succeed in providing the service with existing infrastructure; the order has not been executed. The message contains the appropriate codes to inform The Beneficiary about the reason(s) for failing. After this message the order is considered as not existent and is removed out of the ordering system.
- **CANCELLED – AMENDED** : those messages confirm the action messages, CANCEL and AMEND

6.2.2.66.3.2.6 Description of specific ordering procedures



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~~40-41.~~ A working day for order purposes is considered as being from: 8h00 - 16h30, excluding Saturday, Sunday, Belgian and Belgacom holidays.

~~41.~~ The timers mentioned in the other parts of the agreement and used in the order provisioning process are expressed in working days at the first working day after an acknowledgement has been sent. The number of days of delay starts at the first day after the day the timer limit was passed.

~~42.~~

~~6.2.2.7~~ ~~6.3.2.7~~ **Small Network Adaptations (detected during order validation)**

~~42-43.~~ Beneficiary has the possibility to indicate 'SNA not allowed' when ordering. If 'SNA not allowed' is flagged when ordering, Belgacom will send a reject of the order should the need for a SNA be established at any point in the ordering or provisioning phase.

~~43-44.~~ In case the order is not flagged 'SNA not allowed', and that a Small Network Adaptation need is detected during the order validation, the process is as follows:

~~1.~~ If a Small Network Adaptation need is detected during the order validation,

Belgacom will notify this into the XML VALIDATE message by communication in the remark type SmallNetworkAdaptations the word "NEEDED".

~~2.~~ If a SNA need is detected during provisioning,

Belgacom will create a HOLD message where a new appointment date will be proposed and with in the remark type SmallNetworkAdaptations the word "NEEDED".

~~In both cases,~~ the Beneficiary can then contact its End User for further negotiations.

The Beneficiary will be enabled till the day before the Due Date (DD-1) to cancel its request. If there is no cancellation, the SNA will be considered as accepted by the Beneficiary and realized as such.



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7 Provisioning of Raw Copper or Shared Pair

7.1 Introduction

45. The Provisioning process of a specific Raw Copper or Shared Pair line covers the activities of Belgacom, between notification of the validation of an Order by Belgacom to The Beneficiary until the moment the Order completion has been communicated by Belgacom to The Beneficiary.

7.2 General

46. After validation of an order by Belgacom ("Validate" message), the field interventions will be performed by a Belgacom Technician or, when allowed and requested via the Open Calendar interface, by a Certified Technician, including:

- The performance of the necessary preparatory works in the LEX, LDC or KVD for connecting an individual End User line to the DSLAM or the KVD.
- The installation at End-User location.
- The testing of the End-User line.

Belgacom will perform the remote intervention tasks, including:

- The realization of the necessary documentation to track that the BRUO line was provisioned.
- The remote configuration of the End-User line.
- After order completion, once all remote and fields activities have been performed, the sending of a delivery message ("Done" message) to The Beneficiary.

7.3 End-User Appointment fixing and rebooking

47. In case a visit at End-User premises is needed for installation of the BRUO line and in order to reduce the absence of the End-Users, Belgacom will contact directly the End-User to ensure that the appointment date fits him well. In case the appointment date does not fit the End-User, Belgacom gives him the opportunity to reschedule it at his best convenience. Belgacom will contact the End-User according to following timing:

- Belgacom calls the End-User 2 days before appointment date.
- Belgacom calls the End-User approximately 30 min before intervention.
- Belgacom calls the End-User after the appointment, if the End-User was absent when the technician wanted to intervene.

The procedure used by Belgacom in these cases, and the information sent by Belgacom to The Beneficiary, in function of the different possible situations, is available on the Customer Personal Page on the Belgacom Wholesale secured website.

7.4 Small Network Adaptations (detected during the order provisioning)

48. The Beneficiary has the possibility to indicate 'SNA not allowed' when ordering. If 'SNA not allowed' is flagged when ordering, Belgacom will send a reject of the order should the need for a SNA be established at any point in the (ordering or) provisioning phase.
49. In case the order is not flagged 'SNA not allowed', and that a SNA need is detected during provisioning, Belgacom will create a HOLD message where a new appointment date will be proposed and in the remark type SmallNetworkAdaptations the word "NEEDED" will be indicated.
50. The Beneficiary can then contact its End User for further negotiations.
51. The Beneficiary will be enabled till the day before the Due Date (DD-1) to cancel its request. If there is no cancellation, the SNA will be considered as accepted by the Beneficiary and realized as such.

6.2.2.87.4.1.1 Raw Copper and the synchronisation with Number Portability

44-52. In the case where the User of the Beneficiary wants to retain his dial number, a number portability request will be needed in addition to the Raw Copper order. It needs to be taken into account that the two separate orders are coherent. And no step in this synchronization has an impact on Number Portability principles and rules.

45-53. By following the steps described below, Belgacom can help to synchronize the execution of both orders so that the out-of-service period of the User of the Beneficiary is minimized.

- a) The Beneficiary sends a NP order with a LLU indicator in the coded id field and a reasonable due date; the coded id indicates that possible related DSL products towards the voice service, from the Beneficiary or from another owner will be ceased in stead of to be converted towards their without voice variants.
- b) After the NP-Accept, the Beneficiary sends a PROVIDE MIGRATE Raw Copper order. This LLU order includes
 - i) the NPR-ID to link the LLU order to the NP order
 - ii) the coherent due-date of the NP as the service requested date and
 - iii) the concerned directory number.

46-54. Belgacom will send the usual VALIDATE message on this LLU order with the due date of the raw copper order

47-55. Note that when one order is cancelled or the due-date is changed, the Beneficiary will need to maintain the LLU and NP coherence.

48-56. At the due date of the LLU order, Belgacom will execute the LLU order and inform the Beneficiary immediately afterwards by a structured mail – later on with an intermediate DONE XML (i.e. max delay of 1 hour).

- The Beneficiary sends the NP-Exec right after the Belgacom DONE message and the normal NP process continues up till the NP RFS-Broadcast.
- In case the LLU execution must be postponed by Belgacom, Belgacom will send a Hold request with a new due-date.

6.2.2.97.4.1.2 Rush provisioning



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~~49-57.~~ Rush Provisioning is the delivery of the implementation of a new line in minimum 3 working days and maximum 5 working days (subject to the conditions of the point below).

~~50-58.~~ The rush provisioning is subject to all conditions of regular provisioning, including the presence of the required connectivity to the Belgacom network before ordering. An order is considered as a Rush Provisioning Service when the Beneficiary asks this explicitly to Belgacom.

~~51-59.~~ Rush Provisioning will be always during working hours.

~~52-60.~~ Rush Provisioning is offered as a service when resources can be found to perform the necessary tasks. In case Belgacom cannot perform the works in the delay requested, Belgacom will continue the provisioning as a default order. Belgacom will inform in that case the Beneficiary

~~53-61.~~ Any delay for a Rush Provisioning Process put in place by Belgacom, for instance absence of User on the Customer Requested date, will entitle Belgacom to charge the Beneficiary with 50% of the Rush Provisioning Fee. In any case the process will continue and a new Customer requested Date will be settled following default procedures (Hold & Change Date)

~~54-62.~~ The standard order will be submitted by XML, possibly by the means of the Open Calendar interface. The Beneficiary will in a first phase call (phone) Belgacom to prioritize this order and confirm by e-mail to Car_LLJ. The Beneficiary is requested to specify the exact date requested for the provisioning: the Service Required Date (SRD). If the rush order has been accepted, Belgacom will provide the Beneficiary with the committed RFS date and the data service identifier (Circuit ID), by using the default validation service through XML.

Specific remark on the use of the circuit ID: whenever there is a modification on the installation of a line, the circuit id identifying the line could change. The BRUO XML Content Description, available on the Customer's personal page on the CWS secured site, summarises the cases where the circuit id change or remain unchanged.

~~55-63.~~ Per line for which rush provisioning is requested, the installation fee is doubled.

~~6.2.2.107.4.1.3~~ Escalations

~~56-64.~~ An escalation can be requested in case of Belgacom Fault (e.g. Missed Appointment)

~~57-65.~~ The Beneficiary will in a first phase call (phone) Belgacom to prioritize the order and confirm by e-mail to Car_LLJ (llu.car@belgacom.be). Belgacom will verify this request, and handle it in a manual escalation mode if the request for escalation is justified.

~~66.~~ An escalation order has no additional cost.

~~58-67.~~ [All information on escalations can be found in the BRUO Annex "Basic SLA"](#)

8 Ordering and Provisioning Process flows

68. The Process Flows describing the Ordering and Provisioning Business Process of the BRUO offer at level 1, 2 and 3 can be found on the OLO Personal Page of the Belgacom Wholesale website. In case of conflict between the Process Flows and the BRUO Offer, the Offer prevails.

69. The following table summarizes the parts of the Ordering and Provisioning Business Process described in these flows, and their level of description:

<u>Process Flows</u>	<u>Level of description</u>	<u>Level of ordering or provisioning</u>
<u>I. Provide new</u>	<u>Level 1</u>	<u>End-User, Colocation</u>
<u>Order Intake at OLO</u>	<u>Level 2 & 3</u>	<u>End-User, Colocation</u>
<u>Order Consistency Check</u>	<u>Level 2 & 3</u>	<u>End-User</u>
<u>Order Intake at Belgacom</u>	<u>Level 2 & 3</u>	<u>End-User, Colocation</u>
<u>Design</u>	<u>Level 2 & 3</u>	<u>End-User</u>
<u>PEC</u>	<u>Level 3</u>	<u>End-User</u>
<u>Configuration</u>	<u>Level 2 & 3</u>	<u>End-User</u>
<u>Plan Installation</u>	<u>Level 2 & 3</u>	<u>End-User, Colocation</u>
<u>End-User Installation</u>	<u>Level 2 & 3</u>	<u>End-User</u>
<u>SNA</u>	<u>Level 3</u>	<u>End-User</u>
<u>II. Amend Due Date</u>	<u>Level 2 & 3</u>	<u>End-User</u>
<u>III. Auto-Convert</u>	<u>Level 1</u>	<u>End-User</u>
<u>Order Intake end-user & Consistency Check</u>	<u>Level 2 & 3</u>	<u>End-User</u>
<u>Order Handling</u>	<u>Level 2 & 3</u>	<u>End-User</u>



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Design & De-Design	Level 2 & 3	End-User
Configuration	Level 2 & 3	End-User
Plan Installation	Level 2 & 3	End-User
Installation	Level 2 & 3	End-User
IV. Auto-Move	Level 1	End-User
Order Intake end-user & Consistency Check	Level 2 & 3	End-User
Order Intake at Belgacom	Level 2 & 3	End-User
Design & De-Design	Level 2 & 3	End-User
Configuration	Level 2 & 3	End-User
Plan Installation	Level 2 & 3	End-User
Installation	Level 2 & 3	End-User
V. Cancel	Level 1	End-User
Order Intake at OLO	Level 2 & 3	End-User
Order Consistency Check	Level 2 & 3	End-User
Order Intake at Belgacom	Level 2 & 3	End-User
VI. Cease	Level 1	End-User
Order Intake at OLO	Level 2 & 3	End-User
Order Consistency Check	Level 2 & 3	End-User
Order Intake at Belgacom	Level 2 & 3	End-User
De-Design	Level 2 & 3	End-User
De-Configuration	Level 2 & 3	End-User
Position to re-use	Level 2 & 3	End-User
VII. Change	Level 1	End-User



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Order Intake at OLO	Level 2 & 3	End-User
Order Consistency Check	Level 2 & 3	End-User
Order Intake at Belgacom	Level 2 & 3	End-User
Configuration	Level 2 & 3	End-User
VIII. Provide Change Owner	Level 1	End-User
Order Intake at OLO	Level 2 & 3	End-User
Order Consistency Check	Level 2 & 3	End-User
Order Intake at Belgacom	Level 2 & 3	End-User
Design & De-Design	Level 2 & 3	End-User
De-Configuration & Configuration	Level 2 & 3	End-User
Plan Installation	Level 2 & 3	End-User
Position to re-use	Level 2 & 3	End-User
Installation	Level 2 & 3	End-User
IX. Escalation OLO	Level 3	End-User, colocation
X. Rush Provisioning	Level 3	End-User
XI. Provide Convert	Level 1	End-User
Order Intake at OLO	Level 2 & 3	End-User
Order Consistency Check	Level 2 & 3	End-User
Order Intake at Belgacom	Level 2 & 3	End-User
Design & De-Design	Level 2 & 3	End-User
De-Configuration & Configuration	Level 2 & 3	End-User
Plan Installation	Level 2 & 3	End-User
Position to re-use	Level 2 & 3	End-User



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[Installation](#)

[Level 2 & 3](#)

[End-User](#)

6.39 Forecasting of orders

59-70. Forecasting of orders shall be done by the procedure as described in Appendix B.



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7.10 Fault Reporting and Repair

7.10.1 Fault Reporting and repair for Raw Copper Services

7.10.1.1 Point of Entry for Complaint

60-71. In case of repair, the ULL Customer Support Desk (also referred to as ULL CSD) will be the sole contact between the Beneficiary and Belgacom.

7.10.1.2 Fault reporting on Raw Copper

61-72. It is always the Beneficiary that

- 1) reports faults in the raw copper loop, including Tie Cabling;
- 2) receives own Users' fault reports before reporting faults to Belgacom. Belgacom will not take calls directly coming from Users of the Beneficiary raw copper loops;
- 3) handles own Users' fault reports before reporting faults to Belgacom.

7.10.1.3 Beneficiary's liabilities in connection with fault reporting

62-73. For fault reporting, Beneficiary will contact the ULL CSD by phone, [e-mail](#) or via [the e-tool for repair tickets/web tool](#). ~~A confirmation of this request must be sent by fax to the ULL CSD (not relevant if web tool is used). The e-mail address to be used by the Beneficiary is 080093122@belgacom.be. The Beneficiary will send an excel file with the description of the problem to this address.~~

63-74. The Beneficiary is responsible for transmitting all necessary information requested by Belgacom. The Beneficiary will therefore transmit to Belgacom the following data:

- a) Contact point and phone number of the User
- b) Contact point and phone number of the Beneficiary

64-75. The Beneficiary is required to perform first its own measurements on the line. The measurement parameters from tests the Beneficiary has performed on that raw copper loop may be included in the repair request. These measurement reports may include:

- a) Resistance measurements
- b) Capacity measurements
- c) If the Beneficiary has more elaborate measurement equipment (e.g. Teradyne) a full reporting of the type of fault and localization given by that equipment

65-76. ~~If necessary, the Beneficiary is required to disconnect the terminal equipment at the User site upon Belgacom's request to do its proper measurements. Belgacom can also request to the Beneficiary a timeframe for disconnecting the raw copper pair at the MDF to the Beneficiary Colocation facilities to do the necessary measurements. Refusal~~

~~from the Beneficiary to do so will not allow Belgacom to verify the lines and can be considered as wrongful repair request.~~

~~66-77.~~ A wrongful repair request is where Belgacom has done all necessary and relevant measurements on the line and test results prove that the quality of the raw copper loop is not the cause of the service interruption or service degradation.

~~7.1.4~~10.1.4 **Belgacom's liability in connection with fault reporting**

~~67-78.~~ Belgacom starts the fault localization and continues Repair continuously during working hours.

~~79.~~ If The Beneficiary has communicated to Belgacom measurements from equipment on the Beneficiary's side that could help in solving the fault, Belgacom will analyze and verify them, and integrate them in its diagnostic process. In this event, Belgacom will only be entitled to close the repair request, possibly qualifying it as "Wrongful Repair", after analysis and verification of those measurements. The results of these will be made available to The Beneficiary through the E-tool for repair tickets.

~~80.~~ The Beneficiary recognizes that:

- If necessary, the Beneficiary is required to disconnect the terminal equipment at the User site upon Belgacom's request to do its proper measurements.
- Belgacom can also request to the Beneficiary a timeframe for disconnecting the raw copper pair at the MDF to the Beneficiary Colocation facilities to do the necessary measurements. Refusal from the Beneficiary to do so will not allow Belgacom to verify the lines and can be considered as wrongful repair request.

~~68-81.~~ Belgacom reports the result of the Repair to the Beneficiary immediately upon Repair.

~~69-82.~~ Belgacom reserves the right to contact and make in urgent occurrences only an appointment with the User of the Beneficiary for repair of the raw copper loop.

~~70-83.~~ In any case of planned maintenance and repair, Belgacom shall inform the Beneficiary.

~~71-84.~~ In case the Beneficiary contacts Belgacom by phone about an ongoing repair action, Belgacom will inform the Beneficiary of the current repair status.

~~7.1.5~~10.1.5 **Special conditions in connection with Repair**

~~72-85.~~ When the Beneficiary connects equipment that is not compliant with the requirements given in Annex C or equipment that causes disturbances for other Beneficiaries in the cables, Belgacom will first request the Beneficiary to disconnect this equipment. In case of no action taken by the Beneficiary, Belgacom will disconnect the connection to the cable network, after informing the Beneficiary SPOC to this action and confirm the completion of this action to the same contact.

~~73-86.~~ In fault situations where the responsibility for the fault cannot immediately be placed, and where Belgacom makes co-ordinated efforts with one or more Beneficiaries, settlement is made or arranged after conclusion of the Repair. Service interruptions due to modifications and maintenance are not included in the SLA on service availability, at the condition that it is done on a non-discriminatory basis and for the normal management of the network and at the condition that the Beneficiary has been informed about a possible interruption of service at least 5 working days beforehand in case the maintenance has a precautionary character.



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7.1.6 10.1.6 **Repair Request and Feedback**

74:87. The Beneficiary's requests for Repair will be answered by the ULL Customer Support Desk. The Beneficiary is informed that all calls should be directed to CSD. Communication in repair will be through phone. The ULL Customer Support Desk representatives will however not accept direct calls from the User.

75:88. In the same line, any follow-up feedback given to the Beneficiary, either during the repair period, after additional tests and rejection or acceptance of the repair action, or once the trouble is fixed, will be through CSD, again insuring continuity and consistency.

76:89. The Beneficiary needs to provide the circuit ID that was provided in the Raw Copper provisioning process. The Beneficiary repair request must relate to the type of service for which this loop has been ordered. If the reported problem does not match the service ordered by the Beneficiary as documented, the repair request will be rejected after the Beneficiary has properly been informed by the CSD. During the repair process the Beneficiary may also submit additional information for a specific complaint, cancel a complaint or change a complaint.

Specific remark on the use of the circuit ID: whenever there is a modification on the installation of a line, the circuit id identifying the line could change. The BRUO XML Content Description, available on the Customer's personal page on the CWS secured site, summarises the cases where the circuit id change or remain unchanged.

77:90. It may during repair appear necessary for the Belgacom representative (ULL Customer Support Desk, technician) to contact the User of the raw copper loop (e.g. to access his premises, switch of his equipment during testing, ...). The Beneficiary will therefore transmit to Belgacom the contact point of the User and his phone number together with the repair request. In case contact with the User is necessary for repair and the Beneficiary failed to give this information Belgacom will ask the Beneficiary for the correct information.

10.1.7 **Change Tie Cable - repair process (process applicable as from 25 June 2012*)**

The Beneficiary has the possibility to request a Change Tie Cable via repair in case of, for example, a defected DSL port on his side.

The process is as follows:

The Beneficiary creates a request 'Change Tie Cable' via the e-Troubleshooting application and indicates the old and new LEX position in the remark field. Belgacom creates a field intervention and sends a technician to the LEX to change the position. He validates the change by executing a test.

The intervention is closed, databases are updated with the new positions, and the request is closed immediately, indicating the executed works.

This type of intervention will be billed. Reference is made to the Pricing and Billing Annex of the BRUO offer.

**This date is subject to re-evaluation, evolution and changes. This date does not constitute any binding offer from Belgacom and does not contain any commitment from Belgacom. Belgacom reserves the right to postpone this date in order to guarantee the quality of the delivered service*

7.2 10.2 **Fault Reporting and repair for Shared Pair Services**

78:91. This chapter describes the responsibilities of Belgacom and the Beneficiary in fault reporting and repair. Belgacom will be responsible for the repair of the low bandwidth services offered to the User. The Beneficiary is responsible for the repair of the high bandwidth services. Belgacom's responsibility with respect to the repair of the high bandwidth service is limited to the equipment on the side of Belgacom's facilities, i.e. splitters and cabling and to the good working of the low bandwidth services.



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7.2.1 10.2.1 **Fault reporting to Belgacom by the Beneficiary**

7.2.1.1 10.2.1.1 **Point of Entry for fault reports:**

~~79.92.~~ For fault reporting, the Beneficiary will contact the ULL CSD (Customer Support Desk) by e-mail, phone or via the e-tool for repair tickets~~web-tool~~. ~~A confirmation of this request must be sent by fax to the ULL CSD (not relevant if web-tool is used).~~ The e-mail address to be used by the Beneficiary is 080093122@belgacom.be. The Beneficiary will send an excel file with the description of the problem to this address.

7.2.1.2 10.2.1.2 **The Beneficiary reports:**

~~80.93.~~ High bandwidth fault reporting: it is the Beneficiary's responsibility to demonstrate that the fault in the high bandwidth service can be allocated to Belgacom. It is always the Beneficiary that receives own users' fault reports regarding the high bandwidth services before reporting faults to Belgacom.

~~81.94.~~ In case the problem cannot be univocally allocated to one of the parties, Belgacom and Beneficiary will proceed to an escalation of the problem whereby both parties delegate a technical representative who will use all reasonable endeavours to solve the problem.

~~82.95.~~ The Beneficiary is required to perform first its own measurements on the line. The measurement parameters from tests the Beneficiary has performed on that raw copper loop may be included in the repair request. These measurement reports may include:

- fault reporting information that includes the problem description and all relevant technical details;
- if available, measurements from equipment on the Beneficiary's side that can help in solving the fault;
- Circuit ID that was provided in the Shared Pair provisioning process;
- contact point and phone number of the User;
- contact point and phone number of the Beneficiary.

7.2.2 10.2.2 **Fault Reporting to Belgacom by User**

~~83.96.~~ Point of Entry for fault report:

For fault reporting, Belgacom will receive direct calls from the User of the Beneficiary through the same channels as readily existing for User support in Belgacom's PSTN/ISDN fault reporting.



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84.97. According to the content of the user's fault report, the following scenarios will occur:

- a. Low bandwidth problem: Belgacom will start the repair process for PSTN/ISDN.
- b. High bandwidth problem: Belgacom will refer the User to the Beneficiary.

7.2.310.2.3 Repair Request

98. Belgacom starts the fault localization and performs repair activities during working hours.

99. If The Beneficiary has communicated to Belgacom measurements from equipment on the Beneficiary's side that could help in solving the fault, Belgacom will analyze and verify them, and integrate them in its diagnostic process. In this event, Belgacom will only be entitled to close the repair request, possibly qualifying it as "Wrongful Repair", after analysis and verification of those measurements. The results of these will be made available to The Beneficiary through the E-tool for repair tickets.

85.100. The Beneficiary recognises that:

- a. if necessary, the Beneficiary is required to disconnect the terminal equipment at the User site upon Belgacom's request to carry out its proper measurements;
- b. Belgacom can request to the Beneficiary a timeframe for disconnecting the Shared Pair Service at the MDF to the Beneficiary Colocation facilities so as to be able to carry out the necessary measurements. Refusal from the Beneficiary to do so will imply that Belgacom is not in a position to verify the lines and can be considered as wrongful repair request;
- c. the Beneficiary's repair request must relate to the type of service for which the Shared Pair Service has been ordered;
- d. during the repair process the Beneficiary may submit additional information in respect of a specific repair request, cancel a repair request or change a repair request.

7.2.410.2.4 Repair Feedback

86.101. During or after the repair process, the communication regarding a repair request includes the following elements:

- a. Belgacom reports the result of the repair activities to the Beneficiary immediately upon repair;
- b. any follow-up feedback requested by the Beneficiary, either during the repair period, after additional tests and rejection or acceptance of the repair action, or once the fault is fixed, will be taken care of through the CSD;
- c. in case the Beneficiary contacts Belgacom by phone about an ongoing repair action, Belgacom will inform the Beneficiary of the current repair status.

7.2.510.2.5 Special conditions in connection with Repair

87.102. When the repair activity establishes that the Beneficiary connects equipment that is not compliant with the requirements set out in the Technical Specifications or equipment that causes disturbances for Belgacom and/or for

other Beneficiaries in the cables, Belgacom is entitled to disconnect the Shared Pair Service after prior notification of the Beneficiary.

- 88-103. In any case of planned maintenance and repair that can affect the Shared Pair Services, Belgacom shall inform the Beneficiary. Service interruptions due to modifications and maintenance are not included in the SLA on service availability, at the condition that it is done on a non-discriminatory basis and for the normal management of the network, and at the condition that the Beneficiary has been informed about a possible interruption of service
 - a. at least 5 working days beforehand in case the maintenance has a precautionary character.
 - b. as soon as possible in case of repair.

- 89-104. If the Beneficiary requests repair and Belgacom concludes that equipment of the Beneficiary has caused the fault, the Beneficiary will be billed for the work done by Belgacom.

7-310.3 Wrongful repair request

- 105. In case of a repair request where the fault was not caused by Belgacom and Belgacom has performed work for that repair request, useless costs are made by Belgacom. To encourage the Beneficiary to perform a check first on the loop and on the connected equipment, Belgacom reserves the right to charge the Beneficiary a fee in case of a wrongful repair request (according to the pricing set in Annex H) and after approval of BIPT. Belgacom will provide for these cases the relevant observations done by the technicians.

10.4 Repair Process flows

- 106. [The Process Flows describing the Repair Business Processes of the BRUO offer at level 1, 2 and 3 can be found on the OLO Personal Page of the Belgacom Wholesale website. In case of conflict between the Process Flows and the BRUO Offer, the Offer prevails.](#)

- 107. [The following table summarizes the parts of the Repair Business Process described in these flows, and their level of description:](#)

Process Flow	Level of description	Level of repair
Trouble to resolution	Level 0, 1 & 2	End-User
OLO trouble intake & analysis	Level 3	End-User
BGC ticket intake	Level 3	End-User
Ticket update and dispatch	Level 3	End-User
Remote intervention	Level 3	End-User
Field intervention	Level 3	End-User
BGC ticket closure	Level 3	End-User
OLO trouble closure	Level 3	End-User



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Billing	Level 3	End-User
Escalation	Level 3	End-User

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8.11 Friendly User Test

8.11.1 General

91.108. The Friendly user test is a phase that Belgacom strongly recommends the Beneficiary to follow, in order to let the Beneficiary get acquainted with the processes and systems used for ordering the services in this offer. Belgacom advises to follow the procedure below, as it is a professional and effective way for both parties and as only this method allows Belgacom to deliver support to the Beneficiary in the inter-working between the Belgacom network and the Beneficiary equipment.

92.109. If Beneficiary chooses to do a FUT test, Belgacom provides support by a special trained FUT manager that will guide Beneficiary through the electronic ordering process with its first orders.

93.110. The Friendly User Test is not mandatory.

8.11.2 Procedure

94.111. After contract signature a FUT handbook will be submitted to the Beneficiary, describing the FUT modalities (possible tests, special Belgacom helpdesk and support,...). Together with the FUT handbook, detailed information will be provided on the electronic messaging system, a list of rejection codes and the Raw Copper order templates. This test phase will start with the interchange of electronic messages for ordering. By the end of the phase both parties need to feel confident that all processes and systems for order provisioning are guaranteeing full service satisfaction. The FUT will take at least two months.

95.112. In the FUT each OLO can connect to exactly one LEX out of a list of possible LEX's, provided in the table below or another, at motivated choice made by Beneficiary. At this LEX he can obtain a maximum of 1 incremental unit of each type of Beneficiary Blocks. The number of 'friendly user' Users (to be provided by the Beneficiary) is limited to 25 per Beneficiary.

96.113. LEX's for the FUT phase are in the table below:

LEX	Area	SubArea	Citycode	City	Address
56KORo	1	1	8500	KORTRIJK	Doorniksestraat 61/63/65 - Tuinstraat 6 - Spoorweglaan 5
02MARo	3	N	1000	BRUXELLES/ BRUSSEL	Rue du Marais 72-74 - Broekstraat 72-74
41LGEo	4	E	4000	LIEGE (centre)	Rue de l'Université, 30

912 Contact list

97-114. The contact list will be filled out by parties signing the contract. The contacts to be specified should include at both sides at least:

- a) Overall Single Point of Contact: for high level problems, questions about the offer, etc.
- b) Technical Single Point of Contact: for specific problems related to the provisioning in the field
- c) Customer Service Point of Contact: contact for issues in the day to day provisioning of loops



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13 Information on IT projects

115. For any changes initiated by Belgacom which may have a **significant impact** on the IT systems of the Beneficiaries (new types of messages or new exchange process), Beneficiaries shall be notified at least **6 months** in advance with a high level description of the impact and with a structure of the documentation. Belgacom will provide detailed impact and documentation **3 months** prior start of the modifications.

116. For **smaller changes** (additional values in existing fields), Beneficiaries shall be notified at least **3 months** in advance with a high level description of the impact and with a structure of the documentation. Belgacom will provide detailed impact and documentation **1 month** prior start of the modifications.

117. The BIPT will be informed in any case.

118. Concerning the periods of notice, the BIPT can allow exceptions.

e)

Appendix A: Statement of Requirements, template for the Beneficiary

1 General

| ~~98~~119. This appendix includes a non-exhaustive list of items that should be included in the Statements of Requirements (SOR). This template is only a non-mandatory guideline. It is the freedom of both parties to discuss the content of the SOR.

2 Basic information

2.1 Registered name and address of Beneficiary

Beneficiary name :
Address :

Postal code and city :

Country :

Telephone number :

Fax number :

VAT registration number :

Trade register (*) :



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2.2 Confidentiality agreement

~~99-120.~~ The Parties can choose to sign a confidentiality agreement as part of the SOR. The statements included in this agreement are to be determined by the parties

2.3 Key Contacts list

3 Key project dates

	Date required by Beneficiary	Indicative dates from Belgacom
Requested date to start Friendly User Test		
Requested bringing into service date of ULL ordering		

4 ULL Products and Services Beneficiary wishes to obtain from Belgacom

~~100-121.~~ Please indicate what services you wish to obtain from Belgacom in scope of Raw Copper. Note that some services mentioned below are still under development and will be available soon.

~~101-122.~~ (SD = Service Description)

SD	Name	Interest
SD2010	Raw copper, existing single pair	Yes/no
SD2020	Small Network adaptations	Yes/no
SD2030	Connection to physical collocation	Yes/no
SD2035	Connection to distant collocation	Yes/no
SD2040	Existing single pairs at LDC, subloop	Yes/no
SD2050	Small network adaptations at LDC, subloop	Yes/no
SD2060	Existing single pairs at street cabinet	Yes/no
SD2070	Small network adaptations at street cabinet	Yes/no



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SD	Name	Interest
SD3010	Shared Pair over existing single pairs	Yes/no
SD3030	Connection to physical Colocation	Yes/no
SD3035	Connection to distant Colocation	Yes/no

Appendix B: Description of the Forecasting Process

1 General Principles

- | ~~102-123.~~ This chapter describes the forecast process. The forecasts are prerequisites for the respect of SLA on Slot Availability by Belgacom. Forecasts are needed to help Belgacom to plan a reasonable capacity to fulfil customer's demand.
- | ~~103-124.~~ Beneficiaries are guaranteed that Belgacom will set-up the necessary resources for the period concerned to meet its market needs, independent.
- | ~~104-125.~~ The forecasted volumes (new lines, change owner and convert included) are established by sub-area/area and ventilated per installation type (with or without customer visit) , all products BRUO, BROBA and WBA combined. Orders for which the installation will be executed by a Certified Technician or a subcontractor (only for Beneficiaries using the quickwin process) are not taken into account in the forecast.

	Geographic name	Telephone zone
Sub-area 1.1	“West” Vlaanderen	050, 051, 056, 057, 058, 059
Sub-area 1.2	“Oost” Vlaanderen	09, 052, 053, 054, 055
Sub-area 2.1	“Antwerpen”	03, 015
Sub-area 2.2	“Vlaams-Brabant” & Limburg	011, 012, 013, 014, 016, 089
Area 3	Brussels	02
Area 4	Hainaut & Brabant wallon	010, 060, 064, 065, 067, 068, 069, 071, 081
Area 5	Liège, Namur & Luxembourg	04, 019, 061, 063, 080, 082, 083, 084, 085, 086, 087

- | ~~105-126.~~ For the three first series of forecasts of a new Beneficiary, both Parties will enter into good faith discussions about the submitted forecasts and the feasibility to implement the forecasts concerned.

2 Processing of Forecasts

- | ~~106-127~~. Belgacom will propose an individual forecast to each Beneficiary, based on the mathematical average of the actual ordered volumes of the Beneficiary over the last 6 months. By the 10th of each month at the latest, Belgacom will download on the dedicated e-libraries of each Beneficiary the individual forecast proposal. This forecast will be elaborated per month, per customer visit / no customer visit (all products BRUO, BROBA and WBA combined) and per subarea.
- | ~~107-128~~. The Beneficiary is responsible for the accuracy of the forecast. Therefore, the Beneficiary is requested to confirm or modify this forecast by e-mail (to cws.forecasting@belgacom.be), at the latest one month prior to the first forecasted period in time. Forecast modifications or confirmation shall be done through the use of the templates provided by Belgacom. These templates will only be considered as valid when they are properly completed. In case data is missing or is not correct, the forecast will be rejected (within 5 working days following its reception). In the latter case, the reasons of rejection will be indicated on the template by Belgacom.
- | ~~108-129~~. If no confirmation or modification is received by that time, Belgacom will consider the proposed forecasted volumes as confirmed. Once confirmed, the forecasted volumes are globalized by Belgacom into one basket. Capacity reservation, and calendar dimensioning, is done accordingly to fit the needs of the entire market.

E.g.:

By 10th September, Belgacom downloads the OLO X forecast of November 2011 to January 2012 on its dedicated e-library (forecasted volume=mathematical average of the monthly volumes ordered by OLO X between March and August 2011);

OLO X may send a modified forecast by e-mail to Belgacom (cws.forecasting@belgacom.be) until 30 september 2011.

Belgacom will implement the OLO X modified forecast (or by default the Belgacom proposal) in its systems, and use it to determine global overrun and monthly deviations.

3 Deviations between successive forecasts

- | ~~109-130~~. The globalized volumes forecasted by the entire market at month M will be compared with the volumes forecasted at month M-1. For each forecasted month common to the 2 successive forecasts, the maximum deviation between the successive forecasts of this month at month M and at month M-1 will be - 30 % to + 30 %.

4 Deviations between forecasted volumes and actual volumes

5.1 Underrun

- | ~~110-131~~. Underrun occurs when actual ordered volumes are below forecasted volumes. Any underrun mechanism applies to the entire globalized volume of orders of the entire market.
- | ~~111-132~~. A reasonable underrun of the forecasted volumes can be absorbed by Belgacom and has no direct consequences for the Beneficiary. A reasonable underrun is considered to be no more than a 20% deviation of the forecasted volume, considered on a monthly basis. In case of severe underrun (i.e. more than 20%) and in case this underrun was caused by a single Beneficiary who excessively increased the volume proposed by Belgacom, Belgacom reserves

the right to limit the allowed modification for the forecast of the following 3 months for that Beneficiary to a level deemed necessary by Belgacom.

E.g.: The proposed volume for all OLO's for month X is 1000 (=average of the actual ordered volumes of the last 6 months.). Some OLO's send a modification of their forecasted volume via CWS.forecasting@belgacom.be and the forecasted volume for all OLO's is confirmed at 1500. The realised volume for month X is finally lower than 1200 (1500-20%=underrun). If among the OLO's that had sent a modification, the realised volumes are more than 20 % under the modified volumes, they will be identified as responsible of the underrun and won't have the possibility to modify the proposed forecasting during the following 3 months.

5.2 Overrun

- | ~~112-133.~~ Overrun occurs when actual ordered volumes are above forecasted volumes. Any overrun mechanism applies to the entire globalized volume of orders of the entire market.
- | ~~113-134.~~ As from the first order exceeding the globalized forecasted volume, independently of which Beneficiary might be the cause of this overrun, all orders of all Beneficiaries for the remainder of the month will be considered 'in overrun'. For any order in 'overrun', no guarantee on Slot Availability will be offered and they will be carried out by Belgacom as soon as possible, according to the remaining capacity available.

Appendix C: Forecasting templates for BRXX End User Line orders

1. Remarks:
 - M_i refers to the month in which the forecasting templates are submitted.
 - All quantities (M_1 to M_{12}) are incremental values.

1 “Customer Operations” Forecast

Forecasting Template for BRXX Orders

Customer reference:
Edition:
Split: With or Without customer visit
Reception date:

Telephone Zone	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	...	M_{12}
Sub-area 1.1										
Sub-area 1.2										
Sub-area 2.1										
Sub-area 2.2										
Area 3										
Area 4										
Area 5										



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Appendix D: Forecasting and Firm Order template for pre-provisioning of infrastructure

1 Pre-requisite equipment forecasting template

Reference is made to the order templates put available on the secured website for LLU.

Forecast Form for Pre-Provisioning of Infrastructure Orders								
FROM Customer references	Firm Name	mandatory						
	Address	mandatory						
	City	mandatory						
	Commercial Contact	mandatory			Technical Contact		mandatory	
	Phone	mandatory			Phone :		mandatory	
	Fax	mandatory			Fax :		mandatory	
	Mobile	mandatory			Mobile:		mandatory	
e-mail	mandatory			e-mail		mandatory		
Signature	mandatory							
TO Belgacom Contacts	Account Manager Belgacom NWS/NSC	mandatory			Technical Contact Belgacom NWS/SDI		mandatory	
	Phone	mandatory			Phone :		mandatory	
	Fax	mandatory			Fax :		mandatory	
	Mobile	mandatory			Mobile:		mandatory	
	e-mail	mandatory			e-mail		technical.support.cbu.nws@belgacom.be	
Area Reference	Area/Sub-Area Name	FC Month:		mmm/yyyy				
NET	product	type	colo type	# users	m cables 100p	m cables 96p	m cables 24p	# splitters (*)
AGE	Raw Copper	1	Physical/Co-mingling	400	360			0
AGE	Raw Copper	1	Physical/Co-mingling	300	270			0
AGE	Raw Copper	1	Physical/Co-mingling	200	180			0
AGE	Raw Copper	1	Physical/Co-mingling	100	90			0
AGE	Raw Copper	2	Physical/Co-mingling	384		360		0
AGE	Raw Copper	2	Physical/Co-mingling	288		270		0
AGE	Raw Copper	2	Physical/Co-mingling	192		180		0
AGE	Raw Copper	2	Physical/Co-mingling	96		90		0
AGE	Raw Copper	2	Physical/Co-mingling	48			180	0
AGE	Raw Copper	2	Physical/Co-mingling	24			90	0
LEX	Raw Copper	1	Physical/Co-mingling	400	200			0
LEX	Raw Copper	1	Physical/Co-mingling	300	150			0
LEX	Raw Copper	1	Physical/Co-mingling	200	100			0
LEX	Raw Copper	1	Physical/Co-mingling	100	50			0
LEX	Raw Copper	2	Physical/Co-mingling	384		200		0
LEX	Raw Copper	2	Physical/Co-mingling	288		150		0
LEX	Raw Copper	2	Physical/Co-mingling	192		100		0
LEX	Raw Copper	2	Physical/Co-mingling	96		50		0
LEX	Raw Copper	2	Physical/Co-mingling	48			100	0
LEX	Raw Copper	2	Physical/Co-mingling	24			50	0
LDC	Raw Copper	2	Physical/Co-mingling	48			30	0
AGE	Shared Pair	PSTN	Physical/Co-mingling	384		520		384
AGE	Shared Pair	PSTN	Physical/Co-mingling	288		390		288
AGE	Shared Pair	PSTN	Physical/Co-mingling	192		260		192
AGE	Shared Pair	PSTN	Physical/Co-mingling	96		130		96
AGE	Shared Pair	PSTN	Physical/Co-mingling	48			260	48
AGE	Shared Pair	PSTN	Physical/Co-mingling	24			130	24
AGE	Shared Pair	ISDN	Physical/Co-mingling	384		520		384
AGE	Shared Pair	ISDN	Physical/Co-mingling	288		390		288
AGE	Shared Pair	ISDN	Physical/Co-mingling	192		260		192
AGE	Shared Pair	ISDN	Physical/Co-mingling	96		130		96
AGE	Shared Pair	ISDN	Physical/Co-mingling	48			260	48
AGE	Shared Pair	ISDN	Physical/Co-mingling	24			130	24
LEX	Shared Pair	PSTN	Physical/Co-mingling	384		320		384
LEX	Shared Pair	PSTN	Physical/Co-mingling	288		240		288
LEX	Shared Pair	PSTN	Physical/Co-mingling	192		160		192
LEX	Shared Pair	PSTN	Physical/Co-mingling	96		80		96
LEX	Shared Pair	PSTN	Physical/Co-mingling	48			160	48
LEX	Shared Pair	PSTN	Physical/Co-mingling	24			80	24
LEX	Shared Pair	ISDN	Physical/Co-mingling	384		320		384
LEX	Shared Pair	ISDN	Physical/Co-mingling	288		240		288
LEX	Shared Pair	ISDN	Physical/Co-mingling	192		160		192
LEX	Shared Pair	ISDN	Physical/Co-mingling	96		80		96
LEX	Shared Pair	ISDN	Physical/Co-mingling	48			160	48
LEX	Shared Pair	ISDN	Physical/Co-mingling	24			80	24
LDC	Shared Pair	PSTN	Physical/Co-mingling	24			35	24
LDC	Shared Pair	ISDN	Physical/Co-mingling	24			35	24
AGE	Raw Copper	1	Distant	400	360			0
AGE	Raw Copper	1	Distant	300	270			0
AGE	Raw Copper	1	Distant	200	180			0
AGE	Raw Copper	1	Distant	100	90			0
AGE	Raw Copper	2	Distant	384		360		0
AGE	Raw Copper	2	Distant	288		270		0
AGE	Raw Copper	2	Distant	192		180		0
AGE	Raw Copper	2	Distant	96		90		0
AGE	Raw Copper	2	Distant	48			180	0
AGE	Raw Copper	2	Distant	24			90	0
LEX	Raw Copper	1	Distant	400	200			0
LEX	Raw Copper	1	Distant	300	150			0

2 Ordering templates

Reference is made to the order templates available on the Belgacom secured website - Regulatory Information – BRUO.

Adapted to the decision of 11 august 2011 and submitted to the Belgian Institute for Postal Services and Telecommunications on 16/02/2012

Appendix E: Overview of sub-area/area's

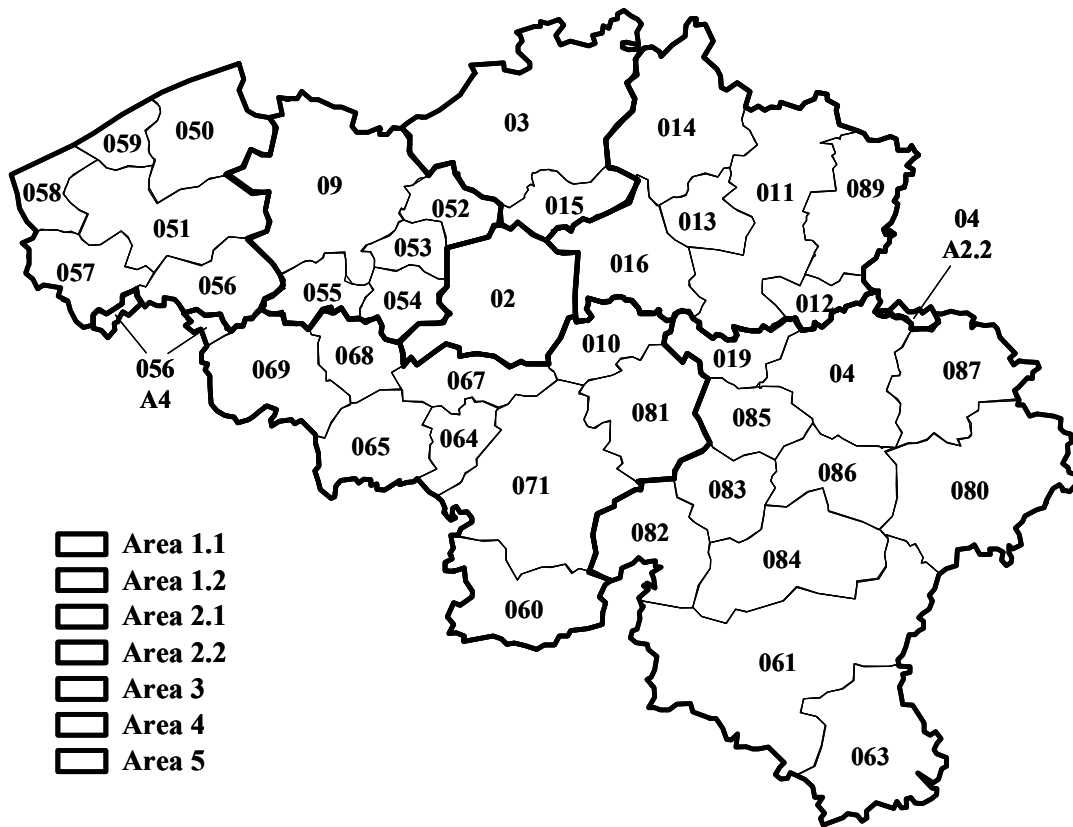


Fig. 8

Appendix F: Back-up plan for ordering through XML

1 General

1. The back-up plan should be seen as an a-normal operational mode, which will cause extra costs, resources and processes for order handling, both at Belgacom and Beneficiary side.
2. In the interest of both parties, back-up operational mode will always be an exception and should be as short as possible. If unavoidable and in a spirit of good partnership:
 - First focus of both parties will be to solve the problem and return ASAP to the normal operational mode (standard encrypted XML procedure). Both parties will closely co-operate together to achieve this goal. SPOC's will be assigned at Beneficiary and Belgacom side to this purpose and facilitate the communication during the back-up procedure.
 - Both parties to continue service will do best effort. However volumes and lead times of the 'normal operational mode' can't be guaranteed.
 - The back-up operations mode won't be subject to any cost recuperation by one party from another, but focus will be instead on 'make things work'.

61. The back-up procedure consist out of different steps:

2 Phase 1: Assignment of Beneficiary and Belgacom SPOC for back-up procedure

3. Together with the signing of a contract, parties will exchange the names and co-ordinates of their SPOC for this back-up procedure.

3 Phase 2: Fault detection

4. A 'general system error' is detected in the normal operational mode by at least one of the parties. This can be:
 - **At the level of the XML transfer:**
 - One of the parties is unable to create/send/receive/decrypt/... XML files
 - **At the level of the message transfer:**
 - One of the parties doesn't receive Ack/Nack messages, which leads to the suspicion that the other party receives none of his messages.
5. An Ack/Nack message should be received within 4 hours after sending of a message to the other party. However accidentally an Ack/Nack message may be lost, e.g. on the Internet or in the IT-systems of the receiving party. Care should therefore be taken to jump to the conclusion the Message Transfer System is not working properly because of a 'general system error', based on the loss of only one or a limited number of Ack/Nack message.

6. General remark: Problems, which don't assume a general system error, will always be solved on a case-by-case basis, without triggering a back-up procedure. An example of such problem, which doesn't assume a general system error, may e.g. be the sporadic loss of Ack/Nack messages by one Beneficiary, while the system is working properly for all other Beneficiary's.
7. The SPOC's will commonly assess the nature of the problem (general system error or not). In either case, the communication channel between the assigned SPOC's will also be used to solve 'non general system' kind of problems on a case-by-case.

4 Phase 3: problem solving

8. The SPOC's will get in contact in order to inform each other of the problem. They will assess the impact of the problem and set up an action plan to solve it. In this phase they will try to get a solution without proceeding to the a-normal back-up operational mode. They will agree on timing, within which the fault should be resolved and normal operational mode can be resumed. Standard this timing will be 4 hours to give the (IT) teams the chance to solve the problem. Another timing may be convened between the SPOC's, depending on the nature of the fault and the impact.
9. During trouble resolution both SPOC's will closely stay in contact with each other to follow up progress of solution.
10. If the fault is resolved within the agreed timing, normal operational mode will be resumed after the needed testing (see point 6.).
11. If the fault is not solved within the agreed timing, SPOCS will get in contact in order to start up the next phase (see point 4.) or will agree to stay in phase 3 for an additional timing.

5 Phase 4: message exchange by e-mail with non encrypted order in XML format

12. After expiration of the agreed time during phase 3 without trouble resolution, SPOC's will get in contact to start up phase 4, i.e.:
13. Start-up the a-normal 'back-up' operational mode for message exchange, based on e-mail with non encrypted order in XML format.
14. SPOC's will agree previously on:
 - The nature of the e-mail exchange: bi-directional or uni-directional. Although bi-directional will be the most commonly mode, uni-directional e-mail exchange may be a pragmatic (temporarily) solution.
 - e-mail addresses to be used to exchange message
 - the number of messages (per day) that will be transmitted in this mode. This operational mode will limit the volumes, capable to be treated by the existing resources. To assure a minimum service and smooth return to normal mode (with minimal 'manual' orders left) this is an essential part of the procedure.
15. SPOC's will closely stay in contact during this phase in order to follow up operational performance, action plan and trouble solving.
16. As soon the problem is solved, normal operational mode will be resumed after the needed testing (see point 6.).

6 Phase 5: message exchange by fax in XML format

17. This phase is to be avoided as much as possible, as it will demand re-typing of all data (with the need of extra resources, fully manual processes and the generation of data quality issues). It will only be accepted in case the e-mail procedure does not work (e.g. public Internet network down) and return to phase 2 will be done as soon as possible.
18. This phase will therefore be exceptional and previous agreement between SPOC's is needed. The fax, exchanged between the parties, will be the non encrypted XML, that otherwise would be sent by e-mail.
19. The fax number is +32 2 202 70 28.

7 Phase 6: test and resume normal operation

20. As soon as the problem is solved some test will be done, i.e.:
 - When the problem is solved, the concerned party will firstly test his systems. E.g. If the fault was at Belgacom side, Belgacom will perform an end to end test with test messages of a dummy Beneficiary (or the real Beneficiary if agreed upon).
 - A first message will be processed between the two parties and proper transfer will be checked. After confirmation by both parties everything is up and running properly again, no e-mail or fax messages will be accepted and return to the standard encrypted XML procedure will be done at once.

Important note:

21. As the Beneficiary may not yet have his XML system in place immediately at the start of the contract, Belgacom can accept to start the service based on the back-up transfer system of phase 4 (e-mail with non encrypted order in XML format). This starting phase is however limited in time (max. 1 month) and volume, unless otherwise agreed upon between parties. Intention will always be to go ASAP to the normal operational mode, i.e. the standard encrypted XML procedure.

Annex F OPERATIONAL SOFTWARE SYSTEMS (OSS)

Created on: 16 February 2012

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1 Table of contents

1	Table of contents.....	2
2	Introduction	3
3	Order provisioning	3
4	Fault Reporting request and follow up	3
	4.1 <i>General</i>	3
	4.2 <i>Procedure</i>	3
5	LLU Inquiry Tool	4
	5.1 <i>General</i>	4
	5.2 <i>Terms of usage</i>	4
	5.3 <i>Access to the Web version</i>	5
	5.4 <i>XML version</i>	5
	5.5 <i>Platform specifications</i>	5
6	Street information	6

2 Introduction

- 1 This document describes in what way access to Operational Software Systems, later referred to as OSS, are put available for Customers in scope of Local Loop Unbundling. The prices charged if any related to these OSS's are set out in Annex H. The manual to this tool is available on the secured web site.

3 Order provisioning

- 2 All exchange of information between Belgacom and the Customer will be done through an electronic ordering system.
- 3 Orders can be placed through the use of an electronic ordering system via xml directly or through the use of the Open Calendar interface which offers the Beneficiary the possibility to negotiate and book an appointment.
- 4 For elements where no electronic procedure is available, exchange will be done by e-mail, fax or mail. In case of failure of the XML application, a back-up procedure will be applicable according to the terms and conditions as described in Appendix G of the Annex Planning & Operations.
- 5 The communication process between Customer and Belgacom is based on SMTP Mail for the transfer, a ACK/NACK protocol and a message file in attachment with a predefined format.
- 6 Reference is made to the Belgacom Wholesale secured website - Regulatory offers – BRUO – documentation on ordering for detailed information on ordering via xml or via the Open Calendar interface.

4 Fault Reporting request and follow up

4.1 General

- 7 Belgacom has developed a web site that enables the Customer to enter data and to access status information on a repair request. This webtool uses the same repair tracking system as for Belgacom Users. Beneficiary has the possibility to give data and receive status on a repair request via fax or phone (which may be used when web tool is out of service or badly functioning).

4.2 Procedure

- 8 The main functionalities of this webtool are:
 - Creating a new repair request on a circuit id
 - Consult repair request status: rejected, open, dispatched, cleared, closed
 - Add comments on an existing repair request that will be taken directly to the BackOffice
 - Consult the textual result of the repair request

5 LLU Inquiry Tool

5.1 General

9 Belgacom provides a direct access to its cabling inventory via the LLU Inquiry Tool. This tool is available in a web version and in a full direct access via XML.

10 Belgacom's LLU Inquiry Tool (web and XML) which will provide the following information:

- Pair availability
- Attenuation value and distance of loop
- Pair qualification
- Net code, LDC, KVD
- Pair measurement results (only Shared Pair)

Deployment Rules:

Deployment rules based on attenuation are set out in Section 8 of Annex C (Technical Specifications – Belgacom Raw Copper and Shared Pair Products)

11 The LLU Inquiry Tool consists of 3 modules:

- **Active Technical Situation:** This module checks for a given dial number the technical situation of this dial number. Information on network codes, Attenuation values, distance and qualification are given.
- **Non Active Technical Situation:** This module checks for a given address the technical situation of this address. Information on network codes, Attenuation values, distance and free pair status are returned. The search can be started by giving in a dial number or a National Registry Street Code that looks up the address and checks on free pair(s) on that address. The number of end to end free and qualified pairs or the shortest free pair is provided.
- **Circuit Measurement:** With this module a line measurement for shared pair lines in BRUO can be done. This measurement returns technical values of the Teradyne measurement system.

5.2 Terms of usage

12 One or more contact persons in the Beneficiary organization should always be available on a 8/5 basis. One or more contact persons within the Beneficiary organization must be available on a 24/7 basis if the implementation of the Beneficiary application on the Inquiry Tool is connected 24/7.

13 The LLU Inquiry Tool is a real-time service. Therefore buffering of inquiries should be avoided to ensure optimal service availability for all parties.

14 The standard Internet Security Policy is accepted when using the LLU Inquiry Tool

This policy can be found at: http://www.belgacom.be/web/cor/e_services/en/isp.pdf

- 15 An appropriate network segregation must be implemented by the Beneficiary to shield off servers hosting Belgacom data from other systems and networks. The systems and software will be patched with all available security patches. Workarounds or other mitigating measures have to be implemented for moderately critical or higher vulnerabilities, for which no patch is available yet.
- 16 All cryptographic modules must be based on Industry Standards (e.g. SSL, IPSEC, WSSE, S/MIME ...).

5.3 Access to the Web version

- 17 The web version can be accessed via the Belgacom National Wholesale Personal website. An access to these personal pages can be obtained via car.channel@belgacom.be after signing a Non Disclosure Agreement (Annex Jb).

In your personal page, go to Regulatory Information > BRUO > Inquiry Tools

The manual to the inquiry Tool can be downloaded at the bottom of every page of this tool.

5.4 XML version

- 18 The XML interface incorporates all functions of the web version of the LLU Inquiry Tool. The access is done via an e-certificate that allows the direct connection for the tools of the Beneficiary. For XML access, one certificate link will be provided per Beneficiary.
- 19 The XML LLU Inquiry Tool supports full XML in/out for:
 - Active Technical Situation
 - Non Active Technical Situation
 - Circuit Measurement
- 20 On the Personal pages, the XML Starter Package can be downloaded, including:
 - XML Specifications
 - Detailed Setup Procedure
 - A fully operational XML in/out test script developed by Belgacom
- 21 Belgacom provides a test script. This is one example out of many possible technologies of how an end to end implementation of automation can be done. Belgacom will deliver no further support on this test script. The Beneficiary is however allowed to use this script in its own application.

5.5 Platform specifications

- 22 The Inquiry tool is 24/7 available with an 8/5 support. Note that since the Inquiry Tool depends on several of Belgacom OSS, outages during maintenance or system backup slots. For the sake of clarity: these maintenance slots are usually scheduled outside extended business hours, basically during the night.
- 23 The response time of the (XML) LLU Inquiry Tool is less than 1 minute. The hardware is configured to perform 600 inquiries per hour.
- 24 The (XML) LLU Inquiry Tool is automatically monitored every hour. A hardware failover solution has been implemented.

6 Street information

- 25 On request the streets that depend on a KVD can be obtained per KVD reference. A report will be delivered including the relationship KVD – streets. This information will be charged an operational fee and a fee for the information itself, this per KVD.
- 26 The Beneficiary can buy the Network Street Relation Database that contains all streets with the related LEX, LDC, KVD. The contract for the Network Street Relation Database can be requested to your account manager.
- 27 The Network Street Relation Database and the LLU Inquiry Tool support as an input method the street code. This street code is the official code of the National Registry.

1 Table of contents

1	Table of contents	1
2	Object	3
3	Scope	4
4	Prerequisites	5
5	Timers	6
5.1	Pre-provisioning: Ordering of Tie Cabling, Splitters and Blocks	6
5.2	Provisioning	6
5.2.1	Validation xml Timer	7
5.2.2	Done xml Timer	8
5.2.3	Slot Availability	8
5.2.4	Total Provisioning Timer	9
5.2.5	Appointment Kept	11 10
5.2.6	Due Date Respected	12 11
5.3	Repair - Trouble Ticket Resolution Timer	12 11
5.4	IT SLA's	13 12
5.4.1	Open Calendar response time	14 12
5.4.2	E-tools availability	15 13
6	Wrongful Repair Requests	13 12
7	Documented reports	18 16
8	Terms and Conditions for Compensations	18 16
8.1	General	19 17
8.2	Pre-provisioning timer escalations	21 18
8.3	Provisioning Escalations	21 18
8.3.1	Compensation Total Provisioning Timer	21 18
8.3.2	Compensations Appointment Kept	21 18
8.3.3	Compensations Due Date Respected	22 19
8.4	Repair Timer Escalations	22 19
9	ESCALATION PROCEDURE	24 20

2 Object

- 1 The present document defines the Terms and Conditions upon which Belgacom will deliver installation and maintenance of basic services for the Local Loop Unbundling: Raw Copper & Shared Pair. For the sake of clarity, Multiple Pairs of Raw Copper Loops Type 2 are also in scope of this document. For all operational aspects, reference is made to the Annex E - Planning and Operations Manual for Raw Copper & Shared Pair.
- 2 The terms and conditions of the SLA on Slot Availability [for orders submitted via the Open Calendar ordering interface and of the SLA on Total Provisioning Timer for orders submitted via the XML ordering interface](#) are applicable within the limits of the forecasted volumes submitted by Belgacom to the Beneficiary and confirmed/corrected by the latter in line with the forecasting mechanism and deviations described in the Annex E (Planning and Operations).

3 Scope

- 3 The scope of this document is to set a framework for operational collaboration between Belgacom and Beneficiary that ensures the respect of the fixed deadlines and an acceptable quality of the provided services.
- 4 The intention is to minimize the risk of shortcomings and to motivate all parties to respect the thresholds set in this SLA and to provide an incentive to enhance the performance of both parties.
- 5 Both parties agree that the objective of this document is to optimize operational collaboration and all efforts should be taken to avoid compensations or penalty fees.
- 6 A detailed explanation on the exact calculation of all SLA measurements mentioned in this document is available on the Belgacom Wholesale website – Regulatory offers.
- 7 This document is an evolving document that may be adapted and revised regularly after approval of the BIPT.
- 8 In the scope of the present Service Level Agreement, specific timers and actions related to number portability are handled as described in the terms and conditions of number portability. In scope of the present reference offer, reference is made to the terms and conditions in the Main Body and Annex E.

4 Prerequisites

- 9 Both parties agree to respect the content of this document and to offer services as described in this document.
- 10 This Service Level agreement is signed between two parties being Belgacom and Beneficiary concerned.
- 11 When specific follow up or support needs to be performed, both parties are obliged to provide a SPOC with its respective name, telephone number or e-mail. An escalation procedure is foreseen and details are described in the escalation procedure document published on the Belgacom Wholesale website – Regulatory information. The version on the web site is to be considered as the most up-to-date version of the procedure and any modification in the escalation procedure will be notified to the BRUO Beneficiaries and the BIPT and will be subject to the approval of the BIPT. Escalation is only relevant after the defined timer has been passed.
- 12 The document reflects only the service indicated. Any future interference due to synchronization with any other product could lead to a revision as indicated in paragraph 8.
- 13 Timers in this document expressed in days are always working days unless specified otherwise. For a timer of x days, the action must be completed before end of working day x after reception of the order or other Beneficiary message, unless specified otherwise. Timers expressed in months consist of 21 working days. They are applicable as Belgacom receives order requests on a uniform distributed basis, meaning that in specific circumstances that cannot be qualified as reasonably normal the timers are not applicable. Under the present document, a working day for order purposes is considered as being from 8h00 to 16h30 excluding Saturday, Sunday, Belgian and Belgacom holidays. Belgacom holidays are 2 January and 26 December.
- 14 In case of massive ordering or a sudden significant increase of orders occur while this has not been forecasted, Beneficiary must immediately inform Belgacom. In that case, although SLA will not apply, Belgacom will manage, as far as possible, this increase of orders according to its best effort.
- 15 In order to ensure reasonable operational work load, the Beneficiary should see to a reasonable spread of his orders during the month. For the execution of the present Contract a reasonable spread, the maximum daily volume intake for the concerned month is defined as 10% of the volumes projected in the forecast for this month (such maximum daily volume does not allow the Beneficiary to exceed the total forecasted volume for the concerned month). The orders exceeding on a daily basis the maximum daily volume intake are exempted from the SLA conditions. Belgacom will execute these orders on a best effort basis.
- 16 Timer violations outside the working hours are not logged as such and shall not be used to claim service shortage.
- 17 The Service Level Agreement is not valid in situations of “Force Majeure” as defined in the ”General Terms of Conditions”.
- 18 The Basic Service Level Agreement is not applicable for timers that are delayed due to the Beneficiary’s responsibility.

5 Timers

19 This paragraph includes the most relevant timers in the operational processes framework. The purpose is that these timers will be reviewed periodically based on experience.

~~19~~

20 The Timers included below are binding and may be reviewed periodically based on experience after approval of BIPT.

5.1 Pre-provisioning: Ordering of Tie Cabling, Splitters and Blocks

21 Individual firm orders are to be submitted by Beneficiary to Belgacom in respect of the following infrastructure elements: Tie Cabling, Splitters, Vertical and Horizontal OLO Blocks , based on the order units defined in Annex H.

22 Orders are accepted for as long as space is available at the LEX concerned, being floor space, cable trays and sufficient place available on the MDF. In all other cases, special construction works will be needed and the installation delay will be done on a case-by-case basis. Depending of the situation at the Local Exchange of Belgacom, an extension of the MDF may be of an enormous extent. In case of periods of large demands at once that could not be foreseen. In situations of lightning and any other natural disasters that causes damage to the Belgacom network.

23 Subject to the condition that no building adaptations are needed in the considered Belgacom Local Exchange; the installation delay for equipment starts as from the date of submission by Beneficiary of the firm order; following the site survey feedback provided by Belgacom.

	Default Timer
Implementation timer equipment (to be respected by Belgacom)	<ul style="list-style-type: none">• 15 working days (all conditions fulfilled, i.e. availability floor space, cable trays and sufficient place at MDF)• 40 working days (in case no cable trays or place available at MDF)• Construction work for building adaptations: on quotation (e.g. in case of saturation of the MDF, extensive extension works may be needed)

5.2 Provisioning

24 The provisioning is the activation of the Local Loop Unbundling for ~~a~~ User.

25 All needed infrastructure (Blocks & Tie Cables) needs to be in place before ordering enduser lines.

26 In scope of provisioning, 5 indicators to measure the Belgacom performance are identified:

- Validation xml Timer
- Done xml Timer

- ~~Total Provisioning Timer (XML ordering interface) or Slot Availability (Open Calendar ordering interface)~~
- ~~Slot Availability~~
- Appointment Kept
- Due Date Respected

27 Vocabulary

- a. Order : assembly of all workorders needed to deliver an ordered product .
- b. Work order : one of the different actions assigned to a technician to perform the delivery of an ordered product.
- c. Ordered product : the line ordered by the Beneficiary

5.2.1 Validation xml Timer

28 As soon as an order to activate the Local Loop Unbundling for an End-User is submitted to Belgacom through the secured electronic e-mail system (XML), via the Open Calendar ordering interface or by fax as a backup procedure as described in the Annex E, the order will be processed for validation. The validation xml timer will start on the receipt of the order. This receipt is the automated acknowledge message that is sent to the Beneficiary.

29 The validation or rejection process consists of an administrative and technical validation. The validation will be sent as soon as all validations have passed successfully. In case of not acceptance of the order, a reject message will be sent to the Beneficiary and the rejection reasons will be communicated with the respective message.

~~29~~

30 Belgacom will publish globalized measures of Validation XML timer, applicable to the entire market as a whole, aligned with the globalized system of Forecasting (see Annex E – Planning & Operations). Beneficiaries are entitled to request individual reports in order to monitor Belgacom’s performance towards them. Each individual report requested will be charged at a fix fee (see Annex H: Price list).

~~30~~31 Based on the current experience on similar data products, the validation timer is set at:

Validation/<u>Rejection</u> Timer	Percentage of orders validated <u>or rejected</u> within the corresponding validation timer
30 minutes	50%
2 working days	95%
5 working days	99%

~~31~~32 Bi-monthly computation is as follows:

Number of orders for which the Validate (or reject) XML is sent within timer^j (1)

% XML Validate^j= -----

Total Number of orders (2)

Within j= {30 minutes;2 working days;5 working days}

(1) Total number of orders, for the considered bi-monthly period, having the validate or reject XML sent within the i timer.

(2) Total number of orders confirmed or rejected during the considered bi-monthly period.

~~33~~ For every order submitted to Belgacom via the Open Calendar ordering interface, and validated by Belgacom, the Due Date of the order may only be adapted by Belgacom when, during the installation, the end-user was directly the cause of the change (e.g.: Customer Absent) or after payment by Belgacom to the OLO of the Change Date Fee mentioned in the Annex ~~6-H~~ Price listing and Billing.

5.2.2 Done xml Timer

~~34~~ As soon as the implementation is done, Belgacom will notify Beneficiary of the completion of the order. This confirmation is done by sending a message through the secured electronic e-mail system or by fax as a backup procedure as described in the Annex E. Each closure of an order triggers computation of the done timer. Done timer per order is computed as the elapsed time between actual completion date and Ready for Service Date passed to the Customer via Done XML. .

~~35~~ Belgacom will publish globalized measures of Done XML Timer, applicable to the entire market as a whole, aligned with the globalized system of Forecasting (see Annex E– Planning & Operations). Beneficiaries are entitled to request individual reports in order to monitor Belgacom’s performance towards them. Each individual report requested will be charged at a fix fee (see Annex H: Price list).

~~36~~ The Done xml timer is set at **1 working day for 98% of the orders.**

~~37~~ Bi-monthly computation is as follows:

Number of orders for which the Done (reject) XML is sent within timer

% XML Done = -----
Total Number orders

5.2.3 Slot Availability

~~38~~ Slot Availability is only available for ordered products introduced via the Open Calendar interface.

~~39~~ Belgacom will publish globalized measures of Slot Availability, applicable to the entire market as a whole, aligned with the globalized system of Forecasting (see Annex E – Planning & Operations). Beneficiaries are entitled to request individual reports in order to monitor Belgacom’s performance towards them. Each individual report requested will be charged at a fix fee (see Annex H: Price list).

~~36~~ Slot availability is a globalized measure, applicable to the entire market as a whole, aligned with the globalized system of Forecasting (see Annex E – Planning & Operations)

~~40~~ If a SNA is required, then it will be planned between Belgacom and Beneficiary within 20 working days as from receipt of the BRUO end-user line order if no further delay because of public domain obligations. These cases fall out of the application of SLAs.

~~41~~ This indicator will not apply for all lines installed by a certified technician.

- 3942 Slot availability will be measured in two (2) parts:
- for ordered products not exceeding volume forecast.
 - ordered products exceeding the volume forecast.

Only the ordered products not exceeding the forecasted volumes are subject to SLA.

4043 For each work order of an ordered product not exceeding the volume forecast, the first timeslot proposed must be within the following timer:

Type %	Slot Availability Without Visit In Working days	Slot Availability With Visit In Working days
95%	9	11
99 %	19	22
100 %	45	45

If a due date outside the above-mentioned timer is requested, the first proposed timeslot must be at the latest on the requested SRD date.

4144 Bi-monthly computation is as follows:

Number of confirmed ordered products for which the first timeslot proposed is within timer (or at latest on SRD if SRD>timer) for all work orders

% Slot availability = -----

Total Number of confirmed ordered products

The timers are defined in table of § 4344

4245 For every order submitted to Belgacom via the Open Calendar ordering interface, and validated by Belgacom, the Due Date of the order must fulfil the SLA slot availability. If the SRD is outside the above-mentioned timers, the Due Date of the order must be at the latest on the requested SRD date.

5.2.4 Total Provisioning Timer

4346 Total Provisioning Timer is only available for ordered products introduced directly via the XML.

47 Belgacom will publish globalized measures of Total Provisioning Timer, applicable to the entire market as a whole, aligned with the globalized system of Forecasting (see Annex E – Planning & Operations). Beneficiaries are entitled to request individual reports in order to monitor Belgacom’s performance towards them. Each individual report requested will be charged at a fix fee (see Annex H: Price list).

~~44~~48 The total provisioning timer is the elapsed time between reception of order XML from and ready for service date passed to the Customer through a XML Done message. The “Total Provisioning Timer” is the minimum time frame to be respected from the order date of the Beneficiary to the of the “Done” message. The “Total Provisioning Timer” includes the validation of an order, the implementation and the “Done” notification. The “Total Provisioning Timer” consists of a timer range wherein the Beneficiary can determine its “Ready for Service Date”. Beneficiary provides the implementation day (also referred to as “CRD - Customer Requested Date”, “Due Date” or “Ready for Service Date”) taken into account the minimum and maximum total provisioning timer. The minimum implementation timer is indicated below. The maximum implementation timer is set at 42 working days (corresponding to the maximum “CRD”).

~~45~~49 The timers are valid in case all needed infrastructure is in place (Ordering of Tie Cabling, Splitters and Blocks). If it is not the case, timers of Ordering of Tie Cabling, Splitters and Blocks as defined in section 4.1 have to be added to this timer. If a SNA is required, then it will be planned between Belgacom and Beneficiary within 20 working days as from receipt of the BRUO end-user line order if no further delay because of public domain obligations. These cases fall out of the application of SLAs.

4650 Total provisioning timers to be respected by Belgacom:

	Timers
Shared Pair or Raw Copper Without customer visit	8wd 95% incl "done"
Shared Pair or Raw Copper With customer visit	10wd 95% incl "done"

	Timers
Shared Pair or Raw Copper Without customer visit	18wd 99% incl "done"
Shared Pair or Raw Copper With customer visit	20wd 99% incl "done"

4751 The total provisioning timer will be the basis for the calculation of compensations. Compensations are only due in case orders are within the limits of the forecasted volumes that have been submitted according to the rules described in Annex E Planning & Operations of the present offer and in case deviations on these forecast respect the deviation rules.

5.2.5 Appointment Kept

4852 This indicator will not apply for all lines installed by a certified technician.

53 Appointment Kept will be measured and published at market level. Individual reports per Beneficiary will be developed. Customers can request to receive individual reports in order to monitor Belgacom's performance towards them. For each individual report requested by the Beneficiary Belgacom will charge a fix fee (see Annex H: Price list).

Appointment Kept measures the number of orders with Customer Visit that have respected all their Customer Visit appointments. In case of an order with multiple customer visits, if one Customer Visit appointment has not been respected, the full order is considered as out of SLA.

~~49 Appointment Kept is measured per Beneficiary. It measures the number of orders with Customer Visit that have respected all their Customer Visit appointments.~~

~~If one Customer Visit appointment has not been respected, the full order is considered out of SLA.~~

~~5054~~ Bi-monthly computation is as follows:

Number of orders for which all Customer Visit appointments are kept

% Appointment kept = -----
Number of orders having at least one Customer Visit

~~5155~~ The bi-monthly percentage is set at 95 %.

~~5256~~ Belgacom reserves the right to adapt this value at the level of the performance reached by its own retail broadband services.

5.2.6 Due Date Respected

~~5357~~ This indicator will not apply for all lines installed by a certified technician.

~~58~~ Due Date Respected will be measured and published at market level. Individual reports per Beneficiary will be developed. Beneficiaries can request to receive individual reports in order to monitor Belgacom's performance towards them. For each individual report requested by the Customer Belgacom will charge a fix fee (see Annex H: Price list).

~~Due Date Respected measures the number of orders for which the last Due Date was respected by Belgacom.~~

~~54~~ Due Date Respected is measured per Beneficiary. It measures the number of orders for which the last Due Date was respected by Belgacom.

~~5559~~ An order has respected the Due Date if the closure date (xml actual completion date) is on the same day as the last Due Date communicated to the Beneficiary for this order.

~~5660~~ Bi-monthly computation is as follows:

Number of orders for which the last due date was respected

% Due date respected = -----
Total Number of orders

~~5761~~ The bi-monthly percentage is set at 95 %.

~~5862~~ Belgacom reserves the right to adapt this value at the level of the performance reached by its own retail broadband services.

5.3 Repair - Trouble Ticket Resolution Timer

~~5963~~ The "Trouble Ticket Resolution Timer" starts when Belgacom receives a trouble mention based on the issue description communicated by Beneficiary and ends at the closure of this Trouble Ticket. If an appointment is needed at the End-User address and the problem resides at the high bandwidth part, it is Beneficiary that arranges an appointment at the End-User premises.

- ~~66~~64 a. This timer is frozen by a stop clock not subject to this Service Level Agreement in the following cases:
- An appointment (if absolutely needed) is not accepted at the proposed date, in case of absence of the End-User at appointment date, in any case of incomplete¹ or incorrect information to be provided by the Beneficiary with relevance for the repair process.
 - Limitation/degradation of service due to spectrum management if Belgacom applied the correct rules all cases listed below in point b

b. When the provisioning process – as described in Appendix A: “NTP process for Provide New Raw Copper orders” of the BRUO Main Body - allowed to determine that the installation of a NTP by a Belgacom technician was not required, in case the trouble covered by the Trouble Ticket was due to the absence of the Network Termination Point, the repair timer for a newly installed Raw Copper line will be equal to the difference between the slot availability timers for orders with and without customer visit as defined in the section 4.2.3. “Slot Availability” of this document.

c. If an appointment is needed at the end-user address, the repair timers will only apply if the Beneficiary specifies in the Trouble Ticket its end-user availability.

~~66~~65 For a newly installed Raw Copper line installed by certified technician, in case the trouble covered by the Trouble Ticket was due to an incorrect installation performed by the certified technician, the repair timer will be equal to the slot availability timer relevant to the needed installation method (with or without customer visit) as defined in the section “Slot Availability” of this document.

66 Note that the application of the “Trouble Ticket Resolution Timer” is deferred in case appointment is requested by Customer later than the second half working day following opening of the trouble ticket. For such cases Belgacom will apply the stop clock principle and will resume the counting of repair timer as of the beginning of the chosen slot. For a detailed definition of the stop clock principle, reference is made to the annex 4a “Improved SLA”.

~~62 Note that the “Trouble Ticket Resolution Timer” is not applicable in case appointment is scheduled with client on day later than d+1 or d+2. In this case, the timers will be applicable as from that date.~~

	Timer
Trouble Ticket Resolution timer (to be respected by Belgacom)	Day of trouble ticket opening + 1 (before end of the following second <u>half</u> working day)

5.4 IT SLA's

~~63~~67 This section includes the SLA's relating to the IT applications that Belgacom puts at disposal of the Beneficiary for ~~pre provisioning eligibility, or~~ ordering or repair of its BRUO lines.

¹ Belgacom refers to Annex G2 Raw Copper and Shared Pair “Improved Service Level Agreement”, section 4.2, for the complete set of information

5.4.1 Open Calendar response time

6468 The response time of the Open Calendar ordering interface used by the Beneficiary for ordering of its BRUO lines is subject to SLA.

6569 This response time relates to the 2 following steps of ordering a WBA VDSL2, BROBA or BRUO line through the Open Calendar interface, i.e.:

- I. get an overview of the work orders needed to provision the line,
- II. get the available time slot per work order.

6670 For each individual order, the response time of the Open Calendar interface is the sum of the response times for the first iteration of each of the ordering steps defined in §62 of this document. The incomplete orders where the beneficiary did not perform the second step of the ordering steps defined in §62 – although needed for submitting the order – are excluded from the SLA calculation.

6771 The response time of the Open Calendar interface will be measured by Belgacom from Monday to Saturday (excluding Belgian and Belgacom holidays), between 08:00 AM and 08:00 PM. Following cases will be excluded from the calculation:

- “Force majeure”,
- Maintenance works that are announced by Belgacom via the communication channel FLASH or any equivalent mean,
- Unavailability of the Open Calendar announced to the Beneficiary by Belgacom Service Impact Flash,
- Unavailability/~~in~~stability of the Open Calendar interface due to misuse (*) performed by a Beneficiary or overload (**) caused by one or several Beneficiary.

(*) Misuse: Beneficiaries should use a GUI interface to access the Open calendar interface, should not call the interface via robotic or similar simulations (massive calls to the interface via a batch mechanism), and the access via certificates should not be used to send potential malicious malware into Belgacom systems.

(**) Overload: Open Calendar is able to support a maximum of 35 requests per minute, for all Beneficiaries together. This limit will be reconsidered once the interface will be used in production by all Beneficiaries.

6872 Belgacom will endeavour to reach the response times mentioned in the following table, in function of the order action type (“Provide new”, or “Change Owner & Convert”), for the orders entered through Open Calendar:

	Provide New	Change Owner / Convert
SLA Maximum Response Time Open Calendar	2 minutes :20 minutes seconds	2 minutes :50 minutes seconds

Initially, an SLA of 75% will apply, subject however to a minimum volume of 1500 orders:
 - If the ordering level exceeds 1500 orders per month, the SLA will be calculated on a bi-monthly basis.
 - If the ordering level does not reach 1500 orders per month but exceeds 1500 orders per year, the SLA will be calculated on a yearly basis.

As from the moment that 50% of the orders are placed via the Open Calendar interface, the SLA will then be applicable according to the following transition period:
First 1-3 months: 75 %
Following 3-6 months: 85 %

At the end of the transition period, Belgacom will guarantee an SLA respect of 95%.

~~6973~~The SLA “Open Calendar response time” will be calculated as follows for WBA VDSL2, BROBA and BRUO together , and for the whole market, but separately for orders with action type “Provide New” and for orders with action type “Change Owner / Convert”:

Number of orders within Maximum Response time

% Response Time respected = -----

Total number of orders entered through Open Calendar

The cases defined in ~~§6966~~ and ~~7067~~ of this document will be excluded from the calculation.

5.4.2 E-tools availability

~~7074~~The following e-tools used by the Beneficiary for eligibility, ordering or repair of its BRUO lines are subject to an Availability SLA:

- LLU Inquiry tool,
- XDSL availability tool,
- Ordering XML (ordering through MTS interface),
- E-troubleshooting tool,
- Open Calendar (ordering through AHS interface).

The Availability SLA will be measured individually by Belgacom for each of these e-tools and - when relevant- separately for access by the Beneficiary through CWS portal and through XML .

~~7175~~Belgacom will endeavour to reach a maximum of ~~4-12~~ hours of unavailability per month, per e-tool and per type of access, excepted in the following cases, which will be excluded from the calculation:

- “Force majeure”, or maintenance works that are announced by Belgacom at least 3 working days in advance via the communication channel FLASH or any equivalent mean,
- Unavailability of the e-tool due to misuse (*) performed by a Beneficiary.

(*) Misuse: Beneficiaries should use the correct standards to access the e-tools, should not access the tools by method other than the interfaces defined in function of each e-tools (web, MTS, AHS), should not call the interfaces via robotic or similar simulations (massive calls to the e-tools via a batch

mechanism), and the access via certificates should not be used to send potential malicious malware into Belgacom systems.

| ~~7276~~ The Availability of each e-tool and of each access type will be measured by Belgacom from Monday to Saturday (excluding Belgian and Belgacom holidays), between 08:00 AM and 20:00.

| ~~7377~~ The Availability SLA will be calculated by Belgacom at the level of access to each e-tool, separately for each access type, using robotic simulation of user transactions.

6 Wrongful Repair Requests

⁷⁴⁷⁸ Belgacom will charge the Beneficiary with the fee related to SLA Wrongful Repair Requests (see Annex H- Price List) if the fault is not attributable to Belgacom or if the fault results from the abnormal use of the line or any other Beneficiary - or end user of the Beneficiary - fault.

⁷⁵⁷⁹ In case during the repair process, Belgacom performed useless actions further to Beneficiary's request, i.e. in case of absence of end-user at the appointment, incorrect information provided, Belgacom ~~will~~ reserves the right to charge the Beneficiary with the costs of those actions.

7 Documented reports

~~80~~ Belgacom will publish, on a bi-monthly basis, reports with performance at market level. Performance will be reported per product: BRUO (with visit/without visit), BROBA (with visit/without visit), and WBA (with visit/without visit).

~~76~~ Belgacom will provide every two months the BIPT and each Beneficiary with documented reports on the lines ordered by this Beneficiary during these two months, containing all information needed to calculate the provisioning KPI's described in this document.

~~81~~ Beneficiaries will be entitled to request bi-monthly individual reports on the lines ordered during the two previous months, containing all information needed to calculate the provisioning KPI's and monitor Belgacom's performance towards them. For each individual report requested by the Beneficiary Belgacom will charge a fix fee (see Annex H: Price list).

Results in individual reports will be aggregated at BRXX level in order to have statistically relevant volumes.

While these results will be delivered on a bi-monthly basis, they do not trigger the application of SLA/penalties on a bi-monthly basis. The application of SLA/penalties at individual level is set out in the point 8 "Terms and Conditions for Compensations".

~~82~~ For Beneficiaries having requested individual reports, the transmission of reports will be done on a confidential basis.

~~77~~ This information will be transmitted to each Operator individually, on a confidential basis.

~~78~~~~83~~ This information will be provided under the form of a structured file (Excel or CSV format), and will include at least the following data's:

- For each order: Beneficiary, CID, Order ID, product, date of order, end-user visit needed (y/n), Service Requested Date (SRD), Validate XML date, Done XML date.
- For each workorder part of an order: with/without visit (y/n), work order description, first proposed timeslot, chosen timeslot (if with visit), confirmed date, date of execution of work order. In case of workorder adaptation without new workorder, new proposed date, new chosen timeslot and reason of modification.

8 Terms and Conditions for Compensations

8.1 General

~~79~~84 Compensations are applicable in the cases that Belgacom has not respected ~~its commitment the delay(s)~~ or the ~~delivery~~ date(s) agreed with Beneficiary, excluding the cases in which Beneficiary or its User is responsible for the delay or in the case of “Force Majeure”.

~~80~~85 This SLA guarantees 100 % of timers. However all troubles can not be solved within these timeframes.
Compensation request will never be applicable in :

- 5 % of worst cases for the provisioning;
- 10 % of worst cases for the repair.

~~○ For repair, the percentage of non-wrongful repair tickets for which a Beneficiary may request compensations for a specific month varies in function of the percentage of wrongful repair of the same Beneficiary and of the same month, according to the following table:~~

% wrongful repair	% repair for which compensations are applicable
X ≤ 10%	99%
10% < x ≤ 20%	95%
X > 20%	90%

~~○ For provisioning, compensations will never be applicable to the 1% of the orders representing the worst cases.~~

These percentages are identified on basis of the cases over one calendar month.

~~81~~86 Compensations will be settled through a Beneficiary’s invoice without VAT.

~~87~~ Compensations are only applicable if the volumes per month are below the defined limits in the forecasting process as described in the Annex E.

~~88~~ Compensations are only applicable if the yearly ordered volumes of the Beneficiary exceed 200 orders. This threshold is necessary in order to minimize statistical risks due to a too low ordering level.

~~89~~ Compensations will be computed based on performance aggregated at BRXX level. This aggregation is necessary in order to have volumes that are statistically relevant.

~~90~~ Even though reports will be transmitted on a bi-monthly basis, the computation of compensations will be done on a yearly basis, except for Beneficiaries with a volume of above 1500 orders per month for whom the computation of the compensation will be done on a bi-monthly basis.

~~82~~91 The Beneficiary needs to provide Belgacom with the necessary information in case of a delayed repair or any shortage of Belgacom that give cause for the compensations described in this Service Level Agreement. Belgacom will upon receipt verify this information. When this verification appears that the

information of the Beneficiary shows a shortcoming of Belgacom that gives cause for paying compensation, this payment will be done immediately and automatically.

92 The Beneficiary will submit a detailed request for compensation to Belgacom including for every repair requested at least date and hour notified/resolved, circuit id, problem on line and product type. The validity of each request for compensation will be examined by Belgacom and motivated in case of rejection for one or more repair records of this compensation request.

93 Quarterly quality meetings will be organized between Belgacom and the Beneficiary in order to compare the amounts of compensation that have been assessed by both parties.

~~94~~ In case of timer escalations, the consequences as described further in this paragraph shall be applicable to Belgacom.

8.2 Pre-provisioning timer escalations

<p>Pre-provisioning Timer Escalations (to be respected by Belgacom)</p>	<ul style="list-style-type: none"> • In case of 15 working days to be respected by Belgacom: compensation of 200 € per working day delay. • In case of 40 working days to be respected by Belgacom : compensation of: 300 € per working day delay • In case of quotation to be respected by Belgacom : compensation of: 400 € per working day delay

8.3 Provisioning Escalations

8.3.1 Compensation Total Provisioning Timer

~~84~~⁹⁵ These compensations are only applicable for ordered products introduced via the MTS interface (by XML).

~~88~~ Compensations are only applicable if the yearly ordered volumes of the Beneficiary exceed 200 orders. This threshold is necessary in order to minimize statistical risks due to a too low ordering level.

~~89~~ Compensation will be computed based on performance aggregated at BRXX level. This aggregation is necessary in order to have volumes that are statistically relevant.

~~90~~ Even though reports will be transmitted on a bi-monthly basis, the computation of compensations will be done on a yearly basis, except for Beneficiaries with a volume of above 1500 orders per month for whom the computation of the compensation will be done on a bi-monthly basis.

~~91~~ In case where provisioning of the ordered product Timer escalations occur when provisioning was not completed on the agreed Due Date, Except in the event of other deadlines being agreed with Beneficiary, Belgacom undertakes to take all steps to establish a new connection, based on timers as described above. If this deadline communicated to the Beneficiary cannot be respected, Belgacom will undertake to inform the Beneficiary of the reasons for the delay and also to communicate the new deadline to meet Beneficiary's request.

~~88~~⁹² In cases that Belgacom has not respected its commitment to provision the Beneficiary within the ~~agreed delay lead time or on the date agreed with the Beneficiary~~, the Beneficiary will be entitled to a compensation per end-user line and per ~~calendar working~~ day, according to the rules presented in the following table.

	<u>Compensation</u>
<u>Provisioning Timer Escalation</u>	<u>10 € per working day with a maximum of 120 €</u>
<u>Type of provisioning timer</u>	<u>Compensation</u>
<u>95% timer</u>	<u>10 € per calendar day (until the 10 working day timer has been reached)</u>
<u>99% timer</u>	<u>5 € per calendar day (after the 10 working day</u>

	timer)
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8.3.2 Compensations Appointment Kept

~~99~~93 These compensations are only applicable for ordered products introduced via the Open Calendar interface.

94 Compensations are only applicable if the yearly ordered volumes of the Beneficiary exceed 200 orders. This threshold is necessary in order to minimize statistical risks due to a too low ordering level.

95 Compensation will be computed based on performance aggregated at BRXX level. This aggregation is necessary in order to have volumes that are statistically relevant.

96 Even though reports will be transmitted on a bi-monthly basis, the computation of compensations will be done on a yearly basis, except for Beneficiaries with a volume of above 1500 orders per month for whom the computation of the compensation will be done on a bi-monthly basis.

~~97~~97 In cases that Belgacom has not respected the committed percentage as indicated in the definition of the SLA, the Beneficiary will be entitled to a compensation per Appointment not kept in the relating month.

Compensation due by Belgacom per Appointment not kept = 20€

8.3.3 Compensations Due Date Respected

98 These compensations are only applicable for ordered products introduced via the Open Calendar interface.

99 Compensations are only applicable if the yearly ordered volumes of the Beneficiary exceed 200 orders. This threshold is necessary in order to minimize statistical risks due to a too low ordering level.

100 Compensation will be computed based on performance aggregated at BRXX level. This aggregation is necessary in order to have volumes that are statistically relevant.

101 Even though reports will be transmitted on a bi-monthly basis, the computation of compensations will be done on a yearly basis, except for Beneficiaries with a volume of above 1500 orders per month for whom the computation of the compensation will be done on a bi-monthly basis.

~~99~~102 In cases that Belgacom has not respected the committed percentage as indicated in the definition of the SLA, the Beneficiary will be entitled to a compensation per Due Date not respected in the relating month.

Compensation due by Belgacom per Due Date not Respected = 5€

8.4 Repair Timer Escalations

~~99~~103 Interruptions of service which last longer than the timers described above and are not the fault of Beneficiary shall entitle Beneficiary to a reimbursement of the rental fee corresponding to the duration of the interruption, provided he cannot claim compensation due to a case of "force majeure" where Belgacom is unable to establish the connection or repair the breakdown within the agreed timeframe. In these cases, Belgacom shall notify Beneficiary of the timeframe in which his request will probably be carried out. The timeframe taken into consideration for calculating the reimbursement amount goes from the day that the interruption is reported up to and including the day that service is restored.

104 The Beneficiary will be entitled to a compensation that corresponds to a percentage of the daily recurring fee per end-user line.

	Default Compensation
Repair Timer Escalations (to be respected by Belgacom)	150% of daily rental fee per calendar day

9 ESCALATION PROCEDURE

- | ~~94~~105 By default Internal Escalations are performed automatically. The target of departments is to limit the number of external escalations by launching pro-actively internal escalations as soon as timers are exceeded.
- | ~~95~~106 For repair, escalation is possible when a trouble ticket has been created.
- | ~~96~~107 External Escalation is done to level 1 after the defined timer has been passed. Further escalation can be requested to level 2 at day of first external escalation submitted +1 day. Escalation to level 3 can be requested at day of first external escalation submitted + 2 days.
- | ~~97~~108 Immediately External Escalation to Level 2 and Level 3 is accepted from persons at the same level in the Beneficiaries Organization in case the Level 1 escalation is done before and the level 1 escalation shows structural problems or unavailability. Level 2 and 3 will first check whether lower escalation steps have been taken, before proceeding.
- | ~~98~~109 The escalation matrix is available on the Belgacom Wholesale website, on the Beneficiary's personal Page.

Annex G2 Raw copper and shared pair

Improved service level agreement

Created on: 16 February 2012

belgacom



1. Table of contents

1. Table of contents	1
2. Object	2
3. Prerequisites	2
4. Conditions	2
4.1. Terminology	32
4.2. Introduction	43
4.3. Set-up of service	76
4.4. Nature of the service disruption.....	76
4.5. Stop-Clock or freeze rules	87
5. Timers	87
5.1. Repair	97
6. Availability	109
7. Beneficiary 's obligations	109
7.1. Contact persons	109
7.2. Site access.....	119
7.3. Required Information	1140
8. Prices	1110
8.1. Repair	1140
9. Compensations.....	1211
9.1. General.....	1211
9.2. Repair Timer Escalations	1311
9.3. Availability	1312
10. Between.....	1513

2. Object

- 1 The present document defines the Terms and Conditions upon which Belgacom will deliver repair services in the framework of Raw Copper and Shared Pair. The elements included in this document replace those in the basic service level agreement, unless stated otherwise. These repair services are limited to a number of 3.000 unbundled lines per Beneficiary and to a number of 12.000 unbundled lines in total. When these numbers (minus 20%) are reached, Belgacom will inform BIPT. In case of absence of this information given to BIPT by Belgacom, these numbers are not valid anymore and cease to exist.

3. Prerequisites

- 2 This Improved Service Level agreement is signed between two parties being Belgacom and Beneficiary concerned.
- ~~3~~ Belgacom will provide a SPOC with its respective name, telephone number or e-mail. for the purpose of follow up or support. An escalation procedure is foreseen as described in the escalation procedure document ~~that Belgacom has published and kept up to date~~ on its secured website, ~~as an annex to the basic SLA's.~~
- ~~4~~3 The document reflects only the service indicated. Any future interference due to synchronization with any other product is out of scope.
- ~~4~~ The Service Level Agreement is not valid in situations of ~~"Force Majeure"~~ "Force Majeure" as defined in the "General Terms and Conditions". The term "Force Majeure" as used in this SLA shall include, without limitation, earthquake, fire, flood, epidemic, act of war, strikes, whether declared or undeclared, blockade, insurrection, riot or other cause(s) beyond the reasonable control of either of the parties, these other causes being duly agreed as such by the other party.
- ~~5~~ In case of incomplete information in ticket creation (see point 4.2) by Beneficiary, the timer of the ticket concerned will be frozen by a stop clock. The timer will be unfrozen after Beneficiary has provided the necessary information.
- ~~6~~ If an appointment is needed at end user address, access is authorized without negotiation. It is the responsibility of the Beneficiary to inform its end user about it. This timer will be frozen by a stop clock in case an appointment is not accepted by the Beneficiary or its end user at the proposed date and/or hour, in case of absence of the end user at the appointment date and time, and in any case of incomplete or incorrect information provided by the Beneficiary with relevance for the repair process.
- ~~7~~ The principle of stop clocks penalises Belgacom in the sense that less effective repair time is available for its technicians (e.g. due to useless transport time). In case of repetitive situations (*) where the Belgacom's technician loses repair time or is forced to redo some activities due to failures of the Beneficiary or its end-user, Belgacom reserves the right to not take into account the ticket concerned for the timers respect and compensations as further specified in this document.

(*) repetitive situations: when Belgacom's technician goes on site for the second time but cannot perform its work for the following reasons: end-user absent, site inaccessible or not ready, Beneficiary's technician absent,... while one of these negative situations had already occurred the first time for the same ticket.

4. Conditions

58 The services offered in virtue of this Improved SLA are to be described as follows:

- Improved timers for repair
- Improved availability level
- Higher compensations in case of default (compared to basic SLA)

9 Belgacom is committed to achieve for the Raw Copper and Shared Pair services the best possible quality standards, as such the timers indicated in this document are maximum time intervals.;

6

10 This SLA is valid if for every trouble tickets the following conditions are fulfilled:

- Delivery of forecasts on a range of active lines subject to improved SLA is desirable but not mandatory. This delivery of forecasts will never prevent the putting into effect of the signed Improved Service Level Agreement as from date of signature. In any case, at the latest at the signing of the Improved Service Level Agreement, Beneficiary will provide Belgacom with list of lines to start the improved Service Level Agreement. In case forecasts are given by Beneficiary for new lines (or change SLA type), the forecasting method must be agreed upon by Beneficiary and Belgacom. In case no forecast is given by Beneficiary for new lines (or change SLA type), the maximum increase per month of the number of active lines in the improved Service Level agreement is fixed by BIPT at 30% per month, calculated on the number of active lines in the improved Service Level agreement in the preceding month.
- The Beneficiary reports by phone (0800 93 122), e-mail (080093122@belgacom.be) or via the e-tool for repair tickets to a unique point of entry: the BRUO ISLA Desk.
- Overall authorization from Beneficiary to access User premises without negotiation if needed for repair. A prior notification is to be given for any particular case. The overall authorization is considered to be not applicable if there is no prior notification. This is needed to give the Beneficiary the opportunity to inform the user prior to the access by Belgacom. Belgacom has to be informed when the user will be available on site.
- Test and repair are actions authorized without negotiation or warning.
- The repair timer will start after the validation of the information provided. Validation will consist of a check of the completeness of the Trouble Ticket which will be considered complete when the information according to administrative info and diagnosis is given. A complete ticket is a valid ticket.

4.1. Terminology

- **Trouble Ticket:** The file created in Belgacom's computer system by a front-end helpdesk officer or an e-tool when a Beneficiary reports a problem. This file contains the information already available in the computer systems, the information provided by the Beneficiary and the information added by technicians during the repair process.
- **Trouble Intake:** The creation of the Trouble Ticket in the computer systems for the repair of Belgacom services.
- **Gross Repair Time:** Time needed to restore the service to the Beneficiary. This runs from the Trouble Intake to the close of the Trouble Ticket - i.e., the time when the service is reestablished after feedback (including detailed description of the issue or the issue intervention) has been given by Belgacom to the Beneficiary and after Beneficiary has agreed on the closure of the ticket.
- **Stop-Clock Time:** Time during which the timer is stopped during repair activities for reasons not attributable to Belgacom or one of its subcontractors or suppliers, e.g., inability to access certain sites, delay by third parties in carrying out work to be performed before Belgacom can act.
- **Net Repair Time:** Difference between the Gross Repair Time and the Stop-Clock Time.
- **Time to First Intervention:** Interval between the trouble being reported by the Beneficiary and the first action taken by a Belgacom technician to repair the service via either a remote operation or on-site intervention.
- **Clock Hours:** Target Repair Time, expressed in Clock Hours, i.e. where the service is available 24 hours per day, 7 days a week.
- **Working Hours:** Target Repair Time expressed in Working Hours, i.e., where the service is available during Working Days from 8 a.m. to 5:30 p.m., excluding Saturday, Sunday, Belgian holidays and

Belgacom holidays. Belgacom holidays are 2 January and 26 December, 26 December of each calendar year.

4.2. Introduction Information and test results

~~711 This SLA is valid if for every trouble tickets the following conditions are fulfilled:~~

~~12 It is mandatory that the Beneficiary performs tests before opening a Trouble Ticket. The applicable test methods are proposed by Belgacom and are mandatory.~~

~~13 Every Trouble Ticket submitted by the beneficiary will provide Belgacom with information (not necessarily test results) that shows that beneficiary has taken the necessary steps to ensure that this trouble ticket is submitted in good faith to Belgacom.~~

~~14 The following information has to be included in the ticket:~~

- ~~• Circuit identity number~~
- ~~• Is service fully interrupted or degraded?~~

~~The Circuit identity number will allow Belgacom to perform an automatic check on the administrative information.~~

~~•15 In opening a trouble ticket, test results may be included by the Beneficiary. If test results are provided the timer mentioned in point 4. of present document is valid without limitation. If no test results, or invalid or incomplete ones, are provided the timer mentioned in point 4. of present document is increased by one hour. The increasing time of one hour, if any, is only valid for Raw Copper lines, as for Shared Pair, Belgacom has its own measurements available.~~

~~• The Beneficiary reports by phone (0800 93 122), fax (02 540 46 69) or e-mail (080093122@belgacom.be) to a unique point of entry: the BRUO ISLA Desk.~~

~~• The repair timer will start after the validation of the information provided. Validation will consist of a check of the completeness of the Trouble Ticket which will be considered complete when the information according to administrative info and diagnosis is given. A complete ticket is a valid ticket.~~

~~• If beneficiary intends to give test results when opening a Trouble Ticket a form of standardization of these test results must be obtained bilaterally between Belgacom and beneficiary. For this purpose, a review of the repair process of Beneficiary and Belgacom must be done so both parties agree on the relevance of the test results the beneficiary intends to provide. This consists of a high level informative description of steps taken by beneficiary before forwarding a trouble ticket to Belgacom, and a description of the effective usage, or impossibility of usage, of these test results by Belgacom in the repair process. These reviews and these standardizations will never prevent the signing of the Raw copper improved Service level agreement and the putting it into effect as from date of signature. In any case, every Trouble Ticket submitted by the beneficiary will provide Belgacom with information (not necessarily test results) that shows that beneficiary has taken the necessary steps to ensure that this trouble ticket is submitted in good faith to Belgacom.~~

~~Delivery of forecasts on a range of active lines subject to improved SLA is desirable but not mandatory. This delivery of forecasts will never prevent the putting into effect of the signed Improved Service Level Agreement as from date of signature. In any case, at the latest at the signing of the Improved Service Level Agreement, Beneficiary will provide Belgacom with list of lines to start the improved Service Level Agreement. In case forecasts are given by Beneficiary for new lines (or change SLA type), the forecasting method must be agreed upon by Beneficiary and Belgacom. In case no forecast is given by Beneficiary for new lines (or change SLA type), the maximum increase per month of the number of active lines in the improved Service Level agreement is fixed by BIPT at 30% per month, calculated on the number of active lines in the improved Service Level agreement in the preceding month.~~

~~• Overall authorization from Beneficiary to access User premises without negotiation if needed for repair. A prior notification is to be given for any particular case. The overall authorization is considered to be not applicable if there is no prior notification. This is needed to give the Beneficiary~~

the opportunity to inform the user prior to the access by Belgacom. Belgacom has to be informed when the user will be available on site.

- Test and repair are actions authorized without negotiation or warning.

16 Process applicable as from the release of October 2012ⁱ: if the Beneficiary would like to provide Belgacom with some results/conclusions of their own tests, he can provide the following information (communication of point a is mandatory, other points are not mandatory):

a) Conclusion : (structured field, providing the Beneficiary's conclusion of their own test ; drop list with only one choice possible):

- Line opened up to NTP
- Line opened up to main intro*
- Line opened up to Lex
- Line in short circuit up to NTP
- Line in short circuit up to main intro*
- Line in short circuit up to Lex
- Stub up to NTP
- Stub up to main intro
- Stub up to Lex

*** only in case of apartment**

b) Length* of line opened/short circuit/stub (location) : "xxx" m
*** in meters**

c) Parameters

- Resistance : "value" + "unity" + "between"*
- Capacity : "value" + "unity" + "between"*
- Stub length "value" meters

*** (A/B ? B/A ? A/E ? ...)**

8— In case Beneficiary intends to give test results when opening a Trouble Ticket, a form of standardization of these test results must be obtained bilaterally between Belgacom and beneficiary. The applicable test methods are proposed by Belgacom but are not mandatory as Beneficiary may provide alternative test methods which Belgacom may prove to be inadequate to identify the probable nature of the trouble:

- for line "down" or "open":
 - Measurement of the length of the line (as from the colocation).
 - Cable capacitance.
 - Mutual capacitance.
 - Margin of susceptance between a and b wires.
- for "bad line quality suspicion":
 - Measurement of the length of the line (as from the colocation).
 - Cable capacitance.
 - Mutual capacitance.
 - Measurement of the insulation between wires (a/b & b/a) and wire/earth (a/c & b/c).
 - Margin of susceptance between a and b wires.
- for "transmission faults":

ⁱ This date is subject to re-evaluation, evolution and changes. This date does not constitute any binding offer from Belgacom and does not contain any commitment from Belgacom. Belgacom reserves the right to postpone this date in order to guarantee the quality of the delivered service

- Measurement of the length of the line (as from the colocation);
- Cable capacitance;
- Mutual capacitance;
- Measurement of the insulation between wires (a/b & b/a) and wire/earth (a/e & b/e);
- Margin of susceptance between (a/e & b/e)
- Margin of conductance between (a/e & b/e) and between (a/b & b/a)
- Noise : a/e , b/e

9—Nomenclature :

x/e: Wire a or wire b compared to the earth;

a/b, b/a: Wire a measured in comparison with wire b, wire b measured in comparison with wire a

x/e: Wire a or wire b measured in comparison with the battery;

Noise: Noise level measured on wire a and wire b (measured with a Micro Ammeter in comparison with the earth;

Capacitance: Capacitance measured on the wire of the line;

Cable Capacitance: Capacitance of the cable (without termination point) calculated between a and b;

Mutual Capacitance: Total capacitance calculated between wire a and wire b (User CPE connected to the line);

Susceptance: the ease with which alternating current (AC) passes through a capacitance or inductance

Conductance: the ease with which electric current flows through a substance

10—To summarise, the Beneficiary is given the choice:

(a) no test results are provided: connection trouble timers are increased with 1 hour;

(b) correct and complete test results are provided in a standardized formatⁱⁱ: connection trouble timers remain as determined in point;

(c) test results are provided but are obviously not complete or not correctⁱⁱⁱ or have not been submitted in a standardized form although this had been agreed with Belgacom: connection trouble timers are increased with 1 hour;

(d) correct and complete test results are provided but have not been submitted in a standardized form although this had been agreed with Belgacom: connection trouble timers are increased with 1 hour;

117 **The following administrative info has to be included in the complaint template:**

- Circuit identity number
- Installation address of the line (optional)
- Dial number (if Shared Pair) (optional)
- User contact person and contact phone number in case of field intervention
- Single user affected or several users affected (optional)

18 The transmission of test results by the Beneficiary is optional but in case the latter provides such information to Belgacom, reference is made to the diagnose information below.

Diagnose info to be included by the Beneficiary for Shared Pair lines:

ⁱⁱTo be agreed bilaterally between Belgacom and Beneficiary

ⁱⁱⁱat the moment the Beneficiary performed these measurement(s), as measurement results can vary depending on the point in time or the type of measuring device used

◆ ~~Is service fully interrupted or degraded~~

- Is User ADSL line synchro present or not
- Confirm if ADSL modem or router is powered on
- Confirm if splitter(s) is(are) connected and checked
- Confirm if User internal cabling is checked

Diagnose info to be included by the Beneficiary for Raw Copper lines:

◆ ~~Is service fully interrupted or degraded~~

- Is User xDSL line synchro present or not
- Confirm if xDSL modem or router is powered on
- Confirm if User internal cabling is checked

4.3. Set-up of service

~~4.2.19~~ Activation of the improved SLA per line can be done at ordering, the process to activate the SLA will start immediately after the implementation of the Raw Copper or Shared Pair service. The request will be included in the remarks field of the XML when ordering. At first, no change is possible through XML. Changing users already connected will be treated on a case by case basis within maximum two working days. In any case, every request can also be sent by fax if XML is not available including changing users already connected. Beneficiary will provide Belgacom with a list of lines at the latest two working days before the bringing into service of the Improved Service Level Agreement.

4.4. Nature of the service disruption

When reporting a disruption, it is essential that the Beneficiary clearly identifies the nature of the problem, i.e., to distinguish disruptions that have an impact on traffic from those that do not.

- Impact on traffic: A problem is presumed to have an impact on the traffic when it requires immediate action by Belgacom to effect a repair, i.e., in case of a complete line disruption.
- No impact on traffic: A problem is not considered to impact on traffic when it does not require immediate action by Belgacom to effect a repair, e.g., recurrent temporary disruption, quality problems, etc.

Service disruptions that do not impact on traffic are reported in the same manner as those that do. However, since long-term analysis is generally required to resolve such problems, Belgacom shall not be able to guarantee the Repair Time as for problems resulting in full line disruption.

In the case of quality problems and recurrent temporary disruption, the decision as to whether it has an impact on traffic lies with the Beneficiary. Where such a decision is taken, the Beneficiary shall authorize Belgacom to cut the troubled line where necessary to effect immediate repairs within the requisite deadline.

In case of quality problems and recurrent temporary disruption, when Beneficiary mention, for the time that mention is still confirmed by Beneficiary there is no impact on traffic, Belgacom shall in good faith cooperate with Beneficiary to find the cause of the problem. Every day, at least, a report of the findings and results of research about the causes are to be given by Belgacom. The Beneficiary mentions, in good faith, to Belgacom if

a particular problem is related to “impact on traffic” or “no impact on traffic”. Belgacom acts in accordance with that mention, with respect to the timers in case of “impact on traffic”.

4.5. Stop-Clock or freeze rules

The clock for repair starts when the complaint ticket is valid, i.e. in line with the conditions described in chapter 4 above.

There are ~~three~~^{four} scenarios in which Belgacom may use the stop-clock procedure:

- Cooperation with the Beneficiary is impossible due to the absence of staff on the local site, there is no possibility of accessing the site or, despite several attempts, the Beneficiary contact point has proved impossible to contact by telephone, provided that those cases can be proved by e-mail evidence;
- ~~1.~~• The Beneficiary asks for the repair to be postponed or an appointment if applicable to be rescheduled;
- ~~2.~~• A Trouble Ticket is opened; The Beneficiary does not want Belgacom to cut the line in order to perform tests.
- ~~3.~~• Awaiting feedback, input or confirmation of the Beneficiary that prevents Belgacom to proceed the repair process

If the stop-clock procedure is used, this shall be fully documented in the System, which will set out the:

- Reason for stop-clock
- Action to be undertaken;
- Timing;
- Name of contact person in the Beneficiary's organization who agrees to the stop-clock
- Every stop-clock has to be mentioned to and agreed in good faith by Beneficiary, ex ante or ex post. Every stop-clock may be checked by the Beneficiary; in this respect he may require the documentation he needs from Belgacom.
-

5. Wrongful Repair Requests

20 Belgacom will charge the Beneficiary with the fee related to Wrongful Repair Requests (see Annex H – Price list) if the fault is not attributable to Belgacom or if the fault results from the abnormal use of the line or any other Beneficiary - or end user of the Beneficiary - fault.

21 In case during the repair process, Belgacom performed useless actions further to Beneficiary's request, i.e. in case of absence of end-user at the appointment, incorrect information provided, Belgacom reserves the right to charge the Beneficiary with the costs of those actions.

5.6. Timers

~~13~~²²Timers: All repair timers in present document are net repair timers. Delays due to Beneficiary are not taken into account and lead to stop clock. Net time is gross time minus stop clock times.

~~14~~²³General Feedback Timer: Belgacom will give feedback on the nature of the problem and on the estimated delay of repair to the Beneficiary within one hour after trouble ticket validation. In any case, a trouble is only to be considered

as being closed after feedback (including detailed description of the issue or the issue intervention) has been given by Belgacom to the Beneficiary and after Beneficiary has agreed in good faith about the closure of the ticket.

5.1.6.1. Repair

Trouble Ticket Resolution timer

~~1524~~ The Trouble Ticket Resolution timer starts when Belgacom receives a trouble mention based on the issue description communicated by Beneficiary and ends at the closure of this Trouble Ticket. If an appointment is needed at the User address access is authorized without negotiation. It is the responsibility of the Beneficiary to inform its User in those cases. This timer will be frozen in case an appointment ~~is~~ needed and is not accepted by Beneficiary at the proposed date, in case of absence of the User at appointment date, and in any case of incomplete or manifest incorrect information as indicated in point 3 provided by Beneficiary with relevance for the repair process. The timer will be unfrozen after Beneficiary has provided the necessary information. In all cases, Belgacom undertakes to do its best efforts to resolve all issues within the fixed resolution timer.

	Repair Timer
Repair timer for end user line	4 hours (60% of the trouble tickets resolved)
(to be respected by Belgacom)	6 hours (80% of the trouble tickets resolved)
	8 hours (95% of the trouble tickets resolved)

These percentage relate to the total number of trouble tickets opened by the Beneficiary per month for Raw Copper and Shared Pair lines, which Belgacom guarantees to resolve within the specified timers when the fault is under its responsibility, wrongful repair requests excluded.

	Trouble Ticket Creation
Trouble Ticket Handling	24/24 hours, 7/7 days
(to be respected by Belgacom)	

	Intervention Window
Intervention Window	24/24 hours, 7/7 days
(to be respected by Belgacom)	

~~1625~~ A first feedback will be available within 1 hour after trouble ticket start resolution timer.

~~17~~26 Another feedback will be available within 2 hours after trouble ticket start resolution timer. Successive feedback will be available on demand of the Beneficiary every 1 hours for every trouble ticket.

~~18~~27 Note that the Repair Timer will be frozen in case appointment needed for the intervention proposed by Belgacom is scheduled later on demand of the Beneficiary. The repair timer will be unfrozen and continued at the time of the appointment.

~~19~~28 Third parties duly mandated by Beneficiary (suppliers, contractors, clients, resellers) and with which the Beneficiary has a contractual relationship, to be proven to Belgacom by the Beneficiary before the issuing of the first trouble ticket, have the right to open trouble tickets directly with Belgacom, under the responsibility of the Beneficiary, who would have to pay wrongful repair requests under the conditions foreseen in BRUO.

6.7. Availability

~~20~~29 Availability is equal to $((T_c - T_i) / T_c)$ where T_c is the total time of availability committed to user (24/24 7/7) and T_i the total time of interruption per year from the date of signing the agreement of the Raw Copper or Shared Pair service, taking into account the total number of lines BRUO / BROBA subject to an ISLA. The time of interruption is defined as from the trouble ticket start resolution timer for a trouble that has been sorted out as being a Belgacom fault, excluding conditions of force majeure and wrongfully repair requests up to the moment of the ticket closure, mentioned to the Beneficiary with information about the reason of outage.

	Average yearly availability
Availability	99,94% for $n \leq 1500$ lines in improved SLA 99,95% for $1500 < n \leq 2500$ lines in improved SLA 99,96% for $2500 < n \leq 5000$ lines in improved SLA 99,97% % for $n > 5000$ lines Where n = number of lines inter-beneficiary in ISLA (BRUO or BROBA)

7.8. Beneficiary 's obligations

7.1.8.1. Contact persons

- A technical contact with the Beneficiary will be available 24/24, 7/7

- Beneficiary will provide a SPOC with its respective name, telephone number or e-mail. for the purpose of follow up or support.

7.2.8.2. Site access

- When calling the Belgacom Helpdesk, the Beneficiary will communicate the site access procedure.
- If an appointment is needed at user address, access is authorized without negotiation. It is the responsibility of the Beneficiary to inform its user about it.
- The appointment date and time proposed by Belgacom will be accepted by the Beneficiary except when the latter is objectively impeded, in which case Belgacom will suggest a new date and time for appointment.
- The user or site contact person communicated is present at the proposed date and/or hour

Any failure to comply with these procedures shall result in a stop-clock / freeze rule (see point 3.5).

7.3.8.3. Required Information

Beneficiary will provide correct information with relevance for the repair process.

In case of incomplete information (see chapter [4.24.2](#)) in ticket creation by Beneficiary, the stop-clock : freeze rule is applicable and the timer will be unfrozen after Beneficiary has provided the necessary information.

8.9. Prices

8.1. Repair

~~21—One time fee for configuration of systems and resources. The setup fee is to be paid one time only, for the first Improved SLA being BRUO or BROBA if they are requested at the same time.~~

	One time fee
Setup fee	€2000,47

~~22—One time fee per line for setup of Improved SLA in case of a new line.~~

	One time fee
Activation fee	€8,23

~~23~~ One time fee per line for change of the SLA from Basic to Improved (or reverse) in case of an existing line.

	Per local loop
Change SLA type fee	€8,23

~~24~~ Rental fee per local loop with the Improved SLA type in addition to the monthly fee.

	Monthly Rental
Extra Rental Fee	€7,11

~~30~~ Reference is made to Annex H Price List.

~~9.10.~~ **Compensations**

~~9.1.10.1.~~ **General**

~~25~~³¹ _____ Compensations are applicable in the cases that Belgacom has not respected its commitment within the delay (net time) or on the date agreed with Beneficiary, excluding the cases in which Beneficiary or its User is responsible for the delay or in the case of force majeure.

~~32~~ _____ Compensations will be settled through a Beneficiary's invoice without VAT.

~~26~~ _____ Payment will in principle be expressed in a discount on next provisioning and rental bill(s) for the respective service.

~~27~~³³ _____ The Beneficiary needs to provide Belgacom with the necessary information in case of a delayed repair or any shortage of Belgacom that give cause for the compensations described in this Improved Service Level Agreement. Belgacom will upon receipt verify this information. When this verification appears that the information of the Beneficiary shows a shortcoming of Belgacom that gives cause for paying a compensation, this payment will be done immediately and automatically.

~~28~~³⁴ _____ The Beneficiary will submit a detailed request for compensation to Belgacom including for every repair requested at least date and hour notified/resolved, circuit id, problem on line and product type. The validity of each request for compensation will be examined by Belgacom and motivated in case

of rejection for one or more repair records of this compensation request within a delay of maximum 20 working days, if this is related to repair cases of the preceding three months, outside this delay the request is automatically considered as approved by Belgacom.

²⁹³⁵In case of repair timer escalations, the consequences as described further in this paragraph shall be applicable to Belgacom. The compensations are calculated on a cumulative basis according to the rules detailed in following tables.

9.2.10.2. Repair Timer Escalations

³⁰³⁶ Troubles which last more than the net timer described in points 4.1.1 and are the fault of Belgacom, shall entitle Beneficiary to receive payment of compensation by Belgacom. Troubles concerning the conditions as determined in Annex C Technical Specifications and which last more than the timer described in paragraph ~~6.15+~~ and are not the fault of Beneficiary shall entitle Beneficiary to receive payment of compensation by Belgacom, i.e. basic rental fee + extra rental fee, provided he cannot claim compensation due to a case of force majeure where Belgacom is unable to establish the connection or repair the breakdown within the agreed timeframe. In these cases, Belgacom shall notify Beneficiary of the timeframe in which his request will probably be carried out. The time of interruption is defined as from the trouble ticket start resolution timer for a trouble that has been sorted out as being Belgacom's responsibility, excluding conditions of force majeure and wrongfully repair requests, up to the moment of the ticket closure, mentioned to the Beneficiary with information about the reason of outage. The compensations are cumulative. Every extra day started, is considered as a full day.

Type of repair timer	Compensation
< 60% in 4 hours	50% of the line monthly rental fee per trouble ticket closed in more than 4 hours
Between 60% and <80% in 6 hours	100% of the line monthly rental fee per trouble ticket closed in more than 6 hours
Between 80% and <95% in 8 hours	150% of the line monthly rental fee per trouble ticket closed in more than 8 hours

9.3.10.3. Availability

³¹³⁷ In case the guaranteed minimum yearly availability of the line is not respected due to a cause which is not external to Belgacom, the Beneficiary is entitled to a compensation as described in the table hereunder. The definition of the availability is given at the section ~~76~~

Availability Compensation	
Number of related pairs	Compensation (in EUR)
< 100 or < 2 LEX/LDC concerned	0
> 100 and > 1 LEX/LDC concerned	5% of yearly extra rental fee *number of lines of Beneficiary subject to ISLA, with a minimum of 6500€ with Improved SLA



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Amendment to the Raw Copper/Shared Pair Agreement between .../... and Belgacom

10.11. Between

.../... a limited liability company incorporated under the laws of .../... , having its registered office at .../...

(hereafter referred to as “.../...”)

And

Belgacom N.V./S.A., a Belgian autonomous public enterprise organized under the Law of March 21, 1991 and the Royal Decree of August 19, 1992, with registered office and place of business at 1030 Brussels, 27 Boulevard du Roi Albert II, registered with the Register of Commerce of Brussels under number 587 163 (hereafter referred to as "Belgacom")

Whereas .../... and Belgacom (jointly referred to as the “Parties”) have entered into Agreement for the Provisioning of ...Raw Copper..., ...Shared Pair... in the Local Loops of Belgacom on ...Date... (hereafter referred to as the “ULL Agreement”);

Whereas the Parties have agreed to define improved service levels guarantees in the frame of the Service;

Now, therefore, it is hereby agreed as follows:

Article 1 - Adjunction of the Improved Service Level Agreement

By the present Amendment, the Parties agree to add the Improved Service Level Agreement as enclosed to the present Amendment.

Article 2 - General provisions

The provisions of a general nature of the Raw Copper/Shared Pair Agreement including, in particular but without limitation, those on liability, confidentiality, choice of law and dispute resolution are incorporated by reference into and are fully applicable to the present Amendment to the Raw Copper/Shared Pair Agreement.

The present amendment constitutes, at the time of signature of this amendment, the only changes to the existing Raw Copper/Shared Pair Agreement.

In witness whereof, .../... and Belgacom have caused this Amendment to the Raw Copper/Shared Pair Agreement to be executed in two original copies, each Party acknowledging having received one original copy, by the hands of their duly authorized officers, on the date and year written below.



together
with



Brussels, _____ .

For Belgacom:

For .../...

By :

By :

Title :

Title:

Date :

Date :

Annex G3 Raw copper and shared pair

Improved service level agreement for Provisioning

Created on: 16 February 2012

belgacom

1 Table of contents

1	Table of contents	1
2	Object	3
3	Prerequisites	3
4	Conditions	3
4.1	Terminology	3
4.2	Description	4
4.2.1	Validation xml Timer	4
4.2.2	Appointment Kept timer	5
4.3	Set-up of service	5
5	Beneficiary 's obligations	5
5.1	Contact persons	5
5.2	Required Information	5
6	Prices	6
7	Compensations	6
1	Table of contents	1
2	Object	2
3	Prerequisites	2
4	Conditions	2
4.1	Terminology	2
4.2	Description	3
4.3	Set-up of service	4
5	Values	4
6	Beneficiary 's obligations	4

6.1	Contact persons	4
6.2	Required Information	4
7	Prices	4
8	Compensations	5

2 Object

- 1 The present document defines the specific Terms and Conditions upon which Belgacom will provision Raw Copper and Shared Pair lines in case ISLA on provisioning for those lines was requested. The elements included in this document replace those in the basic service level agreement, unless stated otherwise.

3 Prerequisites

- 2 This Service Level agreement is signed between two parties being Belgacom and Beneficiary concerned.
- 3 Belgacom will provide a SPOC with telephone number and e-mail (CAR_LLU), for the purpose of follow up or support.
- 4 The document reflects only the service indicated. Any future interference due to synchronization with any other product is out of scope.
- 5 The Service Level Agreement is not valid in situations of force majeure. The term “Force Majeure” as used in this ISLA shall include, without limitation, earthquake, fire, flood, epidemic, act of war, strikes, whether declared or undeclared, blockade, insurrection, riot or other cause(s) beyond the reasonable control of either of the parties, these other causes being duly agreed as such by the other party.
- 56 ~~The ISLA on provisioning applies only for lines installed by Belgacom, and does not apply to any line installed by a certified technician.~~

4 Conditions

- 67 The services offered in virtue of this Improved SLA on Provisioning are to be described as follows:
 - Improved validation timers compared to Basic SLA Validation XML timer,
 - Improved percentages compared to basic SLA on Appointment Kept
 - Higher compensations in case of default (compared to basic SLA on Appointment Kept)
 - ~~Free of charge modification of the Service Requested Date by the Beneficiary, in case that the Due Date provided by Belgacom differs from the initial Service Requested Date of the Beneficiary.~~
 - Free of charge modification of the due date, in case that the due date provided by Belgacom after the validation differs from the date scheduled by Beneficiary via Open Calendar.
- 7 ~~The ISLA on provisioning applies only for lines installed by Belgacom, and does not apply to any line installed by a certified technician.~~

4.1 Terminology

- Order : assembly of all workorders needed to deliver an ordered product .
- Work order : one of the different actions assigned to a Belgacom technician to perform the delivery of an ordered product.
- Ordered product : the line ordered by the Beneficiary
- Appointment: Date for the customer visit which was communicated by Belgacom to the Beneficiary by means of XML.

4.2 Description

- 8 For an order for which ISLA for Provisioning has been requested by the Beneficiary via the **electronic Open Calendar** ordering system, Belgacom will take all necessary actions to follow-up this order in the provisioning chain and ensure the appointment on which Belgacom has committed **via xml** is kept.

4.2.1 Validation xml Timer

- 9 As soon as an order to activate BRUO lines **for an individual End-User with ISLA on Provisioning** is submitted to Belgacom through the secured electronic e-mail system (XML), via the Open Calendar ordering interface or as back up procedure via non-secured electronic system and fax as described in the Annex E - Planning & Operations, the order will be processed for validation. The validation xml timer will start on the receipt of the order. This receipt is the automated acknowledge message that is sent to the Beneficiary. Messages that are incorrect, due to the reasons as described in the Annex E - Planning and Operations will be returned with a Not Acknowledged message. In this case, Beneficiary needs to resend the order with the corrections.
- 10 The validation or rejection process consists of an administrative and technical validation. The validation will be sent as soon as all validations have passed successfully. In case of not acceptance of the order, **a reject message will be sent to the Beneficiary and the rejection** the reasons will be communicated with the respective message.
- 11 For all orders for which ISLA on Provisioning has been requested by the Beneficiary via the **electronic ordering message Open Calendar interface**, Belgacom will endeavour to validate the orders in the timers mentioned in the following table :

Type of treatment of the order	Validation Timer
Flowthrough treatment of the order	30 minutes
Manual treatment of the order	2 working days

Validation/Rejection Timer	Percentage of orders validated or rejected within the corresponding validation timer
30 minutes	50%
2 Working Days	98 %
5 Working Days	100%

12 Since the 100% timer is actually not feasible because of the orders requiring factual spot checks or site surveys, Belgacom will provide twice a year to BIPT a reporting on the cases being validated beyond 5 working days.

13 For every order submitted to Belgacom via the Open Calendar ordering interface, and validated by Belgacom, the Due Date of the order may only be adapted by Belgacom when, during the installation, the end-user was directly the cause of the change (e.g.: Customer Absent) or after payment by Belgacom to the OLO of the Change Date Fee mentioned in the Annex 6 Pricing and Billing.

4.2.2 Appointment Kept timer

~~14~~ This indicator ~~will is~~ not applicable for ~~all~~ lines installed by a certified technician.

~~15~~ Belgacom will publish globalized measures of Appointment Kept. Beneficiaries are entitled to request individual reports in order to monitor Belgacom's performance towards them. Each individual report requested will be charged at a fix fee (see Annex H: Price list).

~~16~~ Appointment Kept ~~is measured per Beneficiary. It~~ measures the number of orders with Customer Visit that have respected all their Customer Visit appointments. ~~In case of an order with multiple customer visits, if~~ one Customer Visit appointment has not been respected, the full order is considered out of SLA.

~~17~~ The bimonthly computation of the ISLA for Provisioning is defined as follows:

Number of ISLA orders for which all Customer Visit appointments are kept

% Appointment kept = -----
Number of ISLA orders having at least one Customer Visit

For all products ordered with an ISLA on Provisioning, this bi-monthly percentage is set at **99** %.

~~18~~ An appointment is considered as "kept" if the technician is "on site" on the day of the appointment as it was communicated to the Beneficiary.

~~19~~ If multiple customer visits are scheduled on the same date for installation of a line, the appointment is considered as kept if at least 1 intervention has started on the scheduled date. E.g. Splicer intervention followed by a standard installation

~~20~~ Notwithstanding the provisions of points ~~179~~ and ~~18+0~~ above, if the Belgacom technician was present on the appointment date but the enduser was not present ("customer absent"), refused or asked to postpone the installation, the appointment is considered as kept and the applicable fee will be charged. For the necessary second intervention the applicable fee will also be charged.

4.3 Set-up of service

~~21~~ Activation of the improved SLA per line can be done at ordering via the ~~electronic ordering system~~ Open Calendar interface.

5 Beneficiary's obligations

5.1 Contact persons

~~22~~ A contact person who will be present on site at the date of the appointment and whose contact number needs to be communicated in the xml.

5.2 Required Information

~~23~~ Beneficiary will provide in the order correct contact information with relevance for the provisioning process: Contact person who will be present on site at the day of the appointment, contact number, address.

~~24~~ In case of incomplete or incorrect information given in the order by Beneficiary, the ISLA on provisioning target cannot be guaranteed.

6 Prices

~~25~~ Reference is made to Annex H Price list.

~~26~~ For application of the ISLA, a one-time fee for follow-up and coordination will be applicable per customer visit.

	One-time fee
Per customer visit	€10

~~26~~ For any BRUO line ordered with ISLA on Provisioning, if the Due Date provided by Belgacom in the Validate XML differs from ~~the date scheduled by the Beneficiary via Open Calendar~~ ~~the initial Service Requested Date submitted initially by the Beneficiary~~, then any reasonable request of the Beneficiary to modify the ~~installation-Due Date~~ will be free of charge.

7 Compensations

~~27~~ Compensations are applicable in the cases that Belgacom has not respected its commitment on the date agreed with Beneficiary, excluding the cases in which Beneficiary or its Enduser is responsible (e.g. customer absent) or in the case of force majeure.

~~1~~

~~28~~ Compensations are only applicable for ordered products introduced via the Open Calendar interface.

~~29~~ Compensations are only applicable if the yearly ordered volumes of the Beneficiary exceed 500 orders. This threshold is necessary in order to minimize statistical risks due to a too low ordering level.

~~30~~ Compensation will be computed based on performance aggregated at BRXX level. This aggregation is necessary in order to have volumes that are statistically relevant.

~~31~~ Even though reports will be transmitted on a bi-monthly basis, the computation of compensations will be done on a yearly basis, except for Beneficiaries for whom the computation of the Basic SLA compensations will be done on a bi-monthly basis and subject to a minimum of 500 ISLA orders by period of two months.

~~32~~ Payment will be made via a creditnote on next provisioning and rental bill(s) for the respective service.

~~33~~ The Beneficiary needs to provide Belgacom with the necessary information in case of any shortage of Belgacom that might give cause for the compensations described in this Improved Service Level Agreement. Belgacom will upon receipt verify this information. When at this verification appears that the information of the Beneficiary shows a shortcoming of Belgacom that gives cause for paying a

compensation, this payment will be done immediately and automatically on the next invoice relevant to the service concerned.

~~434~~ The Beneficiary will submit a detailed request for compensation to Belgacom. The validity of each request for compensation will be examined by Belgacom and motivated in case of rejection within a delay of maximum 20 working days, if the request is related to orders submitted during the 3 months preceding the request. If Belgacom has not rejected the request within the delay of 20 working days, the request will automatically be considered as approved by Belgacom. If the request is related to orders submitted before the 3 months preceding the request, the delay of 20 working days does not apply.

	Compensation
Per appointment missed	€40



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Amendment to the Raw Copper/Shared Pair Agreement between .../... and Belgacom

Between

.../... a limited liability company incorporated under the laws of .../... , having its registered office at .../...

(hereafter referred to as “.../...”)

And

Belgacom N.V./S.A., a Belgian autonomous public enterprise organized under the Law of March 21, 1991 and the Royal Decree of August 19, 1992, with registered office and place of business at 1030 Brussels, 27 Boulevard du Roi Albert II, registered with the Brussels Register of Legal Entities under number VAT BE 0202 239 951 (hereafter referred to as “Belgacom”)

Whereas .../... and Belgacom (jointly referred to as the “Parties”) have entered into Agreement for the Provisioning of ...Raw Copper..., ...Shared Pair... in the Local Loops of Belgacom on ...Date... (hereafter referred to as the “ULL Agreement”);

Whereas the Parties have agreed to define improved service levels guarantees in the frame of the Service;

Now, therefore, it is hereby agreed as follows:

Article 1 - Adjunction of the Improved Service Level Agreement

By the present Amendment, the Parties agree to add the Improved Service Level Agreement foer Provisioning as enclosed to the present Amendment.

Article 2 - General provisions

The provisions of a general nature of the Raw Copper/Shared Pair Agreement including, in particular but without limitation, those on liability, confidentiality, choice of law and dispute resolution are incorporated by reference into and are fully applicable to the present Amendment to the Raw Copper/Shared Pair Agreement.

The present amendment constitutes, at the time of signature of this amendment, the only changes to the existing Raw Copper/Shared Pair Agreement.

In witness whereof, .../... and Belgacom have caused this Amendment to the Raw Copper/Shared Pair Agreement to be executed in two original copies, each Party acknowledging having received one original copy, by the hands of their duly authorized officers, on the date and year written below.



together
with



Brussels, _____ .

For Belgacom:

For .../...

By :

By :

Title :

Title:

Date :

Date :

Annex H Price List

Created on: 16 February 2012

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1 Table of contents

1	Table of contents.....	2
2	Introduction	4
3	Startup fee	4
4	Inquiry fees	4
4.1	XML Inquiry.....	4
4.2	LLU Inquiry Tool.....	5
5	Pre-provisioning of Infrastructure Pricing.....	5
6	Installation fees	12
6.1	Activation Fee.....	12
6.2	Rush Order.....	13
6.3	SNA14	
7	Rental fees	15
7.1	Raw Copper.....	15
7.2	Shared Pair & Raw Copper Plus	15
8	SLA documented reports	16
9	Compensation for Non First Time Right Installation.....	17
10	One time fees	17
10.1	Cancellation fee	17
10.2	Change date fee	18
10.3	Deactivation fee.....	18
10.4	Order pending due to useless End User visit	19
10.5	Wrongful repair request.....	19
10.6	Change Tie Cable request.....	19
10.7	Conversion PSTN/ISDN	19



together
with



10.8 Coordinated Move	20
11 Migration fees.....	20
11.1 Physical Migration fees.....	20
11.2 Single Line Migration fees	20
11.2.1 Conversion resulting in any change on the Belgacom Voice service (from BRUO with voice to BRUO without voice, or conversely)	21
11.2.2 Other migration fees (change owner and/or any other scenario of conversion)	21
11.3 Project Migration fee	22
11.4 Mass Migration fees.....	22
12 ISLA fees.....	23
12.1 Set-up fee	23
12.2 Activation fee.....	23
12.3 Change SLA Type fee.....	23
12.4 ISLA Repair Recurring fee	24
12.5 ISLA Provisioning one time fee	24
13 Use of e-tools and databases	24
13.1 Repair e-Tools	24
13.2 Street Information.....	25
14 Specific costs for certified technicians	25
14.1 Training and certification	25

2 Introduction

- 1 By its decision of June 11th 2008 on the BRUO-BROBA addendum NTP process, the BIPT imposes on Belgacom to modify its BRUO offer. This modification has been carried out by means of a new addendum and this new Annex H. Raw Copper and Shared pair activation fees as listed in this Annex are valid as of July 17th 2008.
- 2 By its decision of July 2nd 2008 on Blocks & Tie-cabling pricing, the BIPT imposes on Belgacom to modify the Annex H of its BRUO offer. The price list below reflects the changes imposed by this decision and the Blocks & Tie cable prices are valid as of July 14th 2008.
- 3 The prices presented in this Price List are expressed in Euro and are VAT exclusive.
- 4 The different fees mentioned in the present document are defined in the BRUO documents.
- 5 The prices apply to both Raw Copper and Shared Pair, except when indicated otherwise.

3 Startup fee

- 6 The start-up fee is charged to Beneficiary, operator, consultant or other that requires explanations by Belgacom BRUO specialists (Product Management and/or Customer service) on the offer content (e.g. this fee is not charged for negotiation meetings). This fee is due until the first installation of a collocation of the Beneficiary for BRUO usage.

Information on BRUO	Price
Rate per hour per Belgacom person	€ 99,49

4 Inquiry fees

4.1 XML Inquiry

- 7 A Request for Inquiry is an XML message that is used to make specific requests for feasibility for a given address. These feasibility inquiries are treated by a specific Belgacom service.
- 8 The Request for Inquiry fee will only be invoiced for all the xml that received a 'Done' Message with the requested information.

Inquiry Fee	Price
-------------	-------

Per xml Done	€ 9,94
--------------	--------

4.2 LLU Inquiry Tool

Inquiry Fee	Price
Per inquiry done (either by Web interface or by XML)	0 €

5 Pre-provisioning of Infrastructure Pricing

- 9 As far as the links established between the MDF and the Beneficiary's collocated rack are concerned, the Beneficiary has the advantage of user rights which implies that a transfer of these rights is possible between Beneficiaries within the same site, provided that Belgacom is informed. Belgacom will charge to the Beneficiary the relevant costs incurred in the execution of this transfer of user rights.
- 10 The table below includes the prices for the installation of Blocks, Tie Cabling and Splitter Cards in the Colocation Area.

Legend of the table:

type	<ul style="list-style-type: none"> - In case of Raw Copper : loop type: <ul style="list-style-type: none"> o Type 1 = Low bandwidth PSTN/ISDN o Type 2= High Bandwidth ADSL/SDSL - In case of Shared pair : switch service type: PSTN or ISDN
------	--

- 11 The annual MDF cost, applicable on all existing tie cables, will be invoiced annually within the first quarter of each year.

The first year following an new order (year X+1), this invoice will not consist of a full year billing, but the remaining part of year X, in which the order was placed (reference period being installation date till December 31st of year X).

In case of Distant colocation, additional connector LSA blocks are needed.

NET	product	type	colo type	# users	m cables 100p	m cables 96p	m cables 24p	# splitters	Unit Price €	annual MDF cost €
AGE	Raw Copper	1	Physical/Co-mingling	400	360			0	6.121,77	423,37
AGE	Raw Copper	1	Physical/Co-mingling	300	270			0	4.791,32	317,53
AGE	Raw Copper	1	Physical/Co-mingling	200	180			0	3.221,17	211,69
AGE	Raw Copper	1	Physical/Co-mingling	100	90			0	1.890,72	105,84
AGE	Raw Copper	2	Physical/Co-mingling	384		360		0	6.811,67	398,76
AGE	Raw Copper	2	Physical/Co-mingling	288		270		0	5.308,74	299,07
AGE	Raw Copper	2	Physical/Co-mingling	192		180		0	3.566,12	199,38
AGE	Raw Copper	2	Physical/Co-mingling	96		90		0	2.063,20	99,69
AGE	Raw Copper	2	Physical/Co-mingling	48			180	0	1.883,45	49,84
AGE	Raw Copper	2	Physical/Co-	24			90	0	1.281,28	49,84

NET	product	type	colo type	# users	m cables	m cables	m cables	# splitters	Unit Price €	annual MDF cost €
					100p	96p	24p			
LEX	Raw Copper	1	mingling Physical/Co- mingling	400	200			0	4.077,27	423,37
LEX	Raw Copper	1	Physical/Co- mingling	300	150			0	3.198,02	317,53
LEX	Raw Copper	1	Physical/Co- mingling	200	100			0	2.318,77	211,69
LEX	Raw Copper	1	Physical/Co- mingling	100	50			0	1.439,52	105,84
LEX	Raw Copper	2	Physical/Co- mingling	384		200		0	4.511,17	398,76
LEX	Raw Copper	2	Physical/Co- mingling	288		150		0	3.523,44	299,07
LEX	Raw Copper	2	Physical/Co- mingling	192		100		0	2.535,72	199,38
LEX	Raw Copper	2	Physical/Co- mingling	96		50		0	1.548,00	99,69
LEX	Raw Copper	2	Physical/Co- mingling	48			100	0	1.420,25	49,84
LEX	Raw Copper	2	Physical/Co- mingling	24			50	0	1.049,68	49,84
LDC	Raw Copper	2	Physical/Co- mingling	48			30	0	1.014,95	49,84
AGE	Shared Pair	PSTN	Physical/Co- mingling	384		520		384	13.568,61	797,52
AGE	Shared Pair	PSTN	Physical/Co- mingling	288		390		288	10.206,37	598,14
AGE	Shared Pair	PSTN	Physical/Co- mingling	192		260		192	7.076,38	398,76



together
with



NET	product	type	colo type	# users	m cables 100p	m cables 96p	m cables 24p	# splitters	Unit Price €	annual MDF cost €
AGE	Shared Pair	PSTN	Physical/Co-mingling	96		130		96	3.712,28	199,38
AGE	Shared Pair	PSTN	Physical/Co-mingling	48			260	48	2.991,95	99,69
AGE	Shared Pair	PSTN	Physical/Co-mingling	24			130	24	1.804,49	49,84
AGE	Shared Pair	ISDN	Physical/Co-mingling	384		520		384	13.568,61	797,52
AGE	Shared Pair	ISDN	Physical/Co-mingling	288		390		288	10.206,37	598,14
AGE	Shared Pair	ISDN	Physical/Co-mingling	192		260		192	7.076,38	398,76
AGE	Shared Pair	ISDN	Physical/Co-mingling	96		130		96	3.712,28	199,38
AGE	Shared Pair	ISDN	Physical/Co-mingling	48			260	48	2.991,95	99,69
AGE	Shared Pair	ISDN	Physical/Co-mingling	24			130	24	1.804,49	49,84
LEX	Shared Pair	PSTN	Physical/Co-mingling	384		320		384	10.752,91	797,52
LEX	Shared Pair	PSTN	Physical/Co-mingling	288		240		288	8.034,67	598,14
LEX	Shared Pair	PSTN	Physical/Co-mingling	192		160		192	5.548,68	398,76
LEX	Shared Pair	PSTN	Physical/Co-mingling	96		80		96	3.068,28	199,38
LEX	Shared Pair	PSTN	Physical/Co-mingling	48			160	48	2.412,95	99,69
LEX	Shared Pair	PSTN	Physical/Co-mingling	24			80	24	1.514,99	49,84

NET	product	type	colo type	# users	m	m	m	# splitters	Unit Price €	annual MDF cost €
					100p	96p	24p			
LEX	Shared Pair	ISDN	Physical/Co-mingling	384		320		384	10.752,91	797,52
LEX	Shared Pair	ISDN	Physical/Co-mingling	288		240		288	8.034,67	598,14
LEX	Shared Pair	ISDN	Physical/Co-mingling	192		160		192	5.548,68	398,76
LEX	Shared Pair	ISDN	Physical/Co-mingling	96		80		96	3.068,28	199,38
LEX	Shared Pair	ISDN	Physical/Co-mingling	48			160	48	2.412,95	99,69
LEX	Shared Pair	ISDN	Physical/Co-mingling	24			80	24	1.514,99	49,84
LDC	Shared Pair	PSTN	Physical/Co-mingling	24			35	24	1.254,44	49,84
LDC	Shared Pair	ISDN	Physical/Co-mingling	24			35	24	1.254,44	49,84
AGE	Raw Copper	1	Distant	400	360			0	6.958,54	423,37
AGE	Raw Copper	1	Distant	300	270			0	5.418,89	317,53
AGE	Raw Copper	1	Distant	200	180			0	3.639,55	211,69
AGE	Raw Copper	1	Distant	100	90			0	2.099,91	105,84
AGE	Raw Copper	2	Distant	384		360		0	7.762,34	398,76
AGE	Raw Copper	2	Distant	288		270		0	6.021,74	299,07
AGE	Raw Copper	2	Distant	192		180		0	4.041,45	199,38
AGE	Raw Copper	2	Distant	96		90		0	2.300,87	99,69
AGE	Raw Copper	2	Distant	48			180	0	2.002,28	49,84
AGE	Raw Copper	2	Distant	24			90	0	1.400,11	49,84

NET	product	type	colo type	# users	m cables	m cables	m cables	# splitters	Unit Price €	annual MDF cost €
					100p	96p	24p			
LEX	Raw Copper	1	Distant	400	200			0	4.914,04	423,37
LEX	Raw Copper	1	Distant	300	150			0	3.825,59	317,53
LEX	Raw Copper	1	Distant	200	100			0	2.737,15	211,69
LEX	Raw Copper	1	Distant	100	50			0	1.648,71	105,84
LEX	Raw Copper	2	Distant	384		200		0	5.461,84	398,76
LEX	Raw Copper	2	Distant	288		150		0	4.236,44	299,07
LEX	Raw Copper	2	Distant	192		100		0	3.011,05	199,38
LEX	Raw Copper	2	Distant	96		50		0	1.785,67	99,69
LEX	Raw Copper	2	Distant	48			100	0	1.539,08	49,84
LEX	Raw Copper	2	Distant	24			50	0	1.168,51	49,84
LDC	Raw Copper	2	Distant	48			30	0	1.133,78	49,84
AGE	Shared Pair	PSTN	Distant	384		520		384	14.519,28	797,52
AGE	Shared Pair	PSTN	Distant	288		390		288	10.919,37	598,14
AGE	Shared Pair	PSTN	Distant	192		260		192	7.551,71	398,76
AGE	Shared Pair	PSTN	Distant	96		130		96	3.949,95	199,38
AGE	Shared Pair	PSTN	Distant	48			260	48	3.110,78	99,69
AGE	Shared Pair	PSTN	Distant	24			130	24	1.923,32	49,84
AGE	Shared Pair	ISDN	Distant	384		520		384	14.519,28	797,52
AGE	Shared Pair	ISDN	Distant	288		390		288	10.919,37	598,14
AGE	Shared Pair	ISDN	Distant	192		260		192	7.551,71	398,76
AGE	Shared Pair	ISDN	Distant	96		130		96	3.949,95	199,38
AGE	Shared Pair	ISDN	Distant	48			260	48	3.110,78	99,69



together
with



NET	product	type	colo type	# users	m cables 100p	m cables 96p	m cables 24p	# splitters	Unit Price €	annual MDF cost €
AGE	Shared Pair	ISDN	Distant	24			130	24	1.923,32	49,84
LEX	Shared Pair	PSTN	Distant	384		320		384	11.703,58	797,52
LEX	Shared Pair	PSTN	Distant	288		240		288	8.747,67	598,14
LEX	Shared Pair	PSTN	Distant	192		160		192	6.024,01	398,76
LEX	Shared Pair	PSTN	Distant	96		80		96	3.305,95	199,38
LEX	Shared Pair	PSTN	Distant	48			160	48	2.531,78	99,69
LEX	Shared Pair	PSTN	Distant	24			80	24	1.633,82	49,84
LEX	Shared Pair	ISDN	Distant	384		320		384	11.703,58	797,52
LEX	Shared Pair	ISDN	Distant	288		240		288	8.747,67	598,14
LEX	Shared Pair	ISDN	Distant	192		160		192	6.024,01	398,76
LEX	Shared Pair	ISDN	Distant	96		80		96	3.305,95	199,38
LEX	Shared Pair	ISDN	Distant	48			160	48	2.531,78	99,69
LEX	Shared Pair	ISDN	Distant	24			80	24	1.633,82	49,84
LDC	Shared Pair	PSTN	Distant	24			35	24	1.373,27	49,84
LDC	Shared Pair	ISDN	Distant	24			35	24	1.373,27	49,84

6 Installation fees

6.1 Activation Fee

12. This is the activation fee for the Service on a single line. No difference will be made between the active and the non active loops.

	Price
Activation fee without Customer Visit	
Raw Copper, installed by Belgacom	€ 25,44
Raw Copper, installed by a certified technician	€ 8,65
Shared Pair	€ 35,31

Additional fee for Telecom installation	Price
Raw Copper, installed by Belgacom	€ 66.49
Raw Copper, installed by a certified technician	€ 0,00
Shared Pair	€ 38,88

Additional fee for customer visit detected during repair	Price
Raw Copper, installed by Belgacom	€ 101.27

13. If an activation without customer visit of a Raw Copper line is ordered, and during the activation process of the line Belgacom finds that a customer visit is required – according to the process as described in the Appendix A: “NTP process for provide new Raw Copper orders” of the BRUO Main Body – the additional fee for Telecom Installation will be added to the Activation fee without Customer Visit, independently of the request of the Beneficiary.
14. The Additional fee for Telecom Installation will also be due after a repair action performed by Belgacom on the newly installed Raw Copper line, when the provisioning process – as described in the Appendix A: “NTP process for provide new Raw Copper orders” of the BRUO Main Body – allowed to determine that the installation of a NTP by a Belgacom technician was not necessary, and that the trouble covered by the Trouble Ticket was due to the absence of the NTP.
15. In case of request by the Beneficiary of a Telecom Installation together with the Activation, the Additional fee for Telecom Installation is added to the Activation Fee without Customer Visit.
16. The Additional fee for Telecom Installation Shared Pair includes the Splitter installation, travel to the end-user and hardware costs.
The Additional fee for Telecom Installation Raw Copper, installed by Belgacom includes the installation of the Network Termination Point, travel to the end-user and hardware cost.
17. If during the activation process of a Shared Pair Belgacom finds that the installation of a splitter is required, Belgacom reserves the right to invoice the ‘additional fee for Telecom installation’, independent of the initial request of the Beneficiary.
18. If during a repair action performed by Belgacom on a newly installed Raw Copper line installed by a certified technician, in case the trouble covered by the Trouble Ticket was due to an incorrect installation performed by the certified technician, an additional fee for repair will be due. This fee will be invoiced on top of the Activation fee for Raw Copper, installed by certified technician.

Additional fee for repair due to incorrect installation by certified technician	Price
Raw Copper installed by certified technician	€ 118,06

6.2 Rush Order

19. When Rush order has been requested the standard activation fee will be doubled.

6.3 SNA

20. In case Belgacom needs to perform additional work, also called Small Network Adaptation, both the SNA and the installation of the line will in any case be performed by Belgacom according to the terms and definitions as defined in this Offer, the following fee will apply in surplus of the activation fee, relevant to an installation by Belgacom.

Small Network Adaptation Fee	€ 441,66
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7 Rental fees

7.1 Raw Copper

Monthly Rental Fee per loop	Price/Monthly
Raw Copper	€ 8,03

21. The rental of raw copper multiple pair orders will be applicable by User line.

7.2 Shared Pair & Raw Copper Plus

Monthly Rental Fee per loop	Price/Monthly
Shared Pair	€ 0,56
Raw Copper Plus (also called Shared Pair wov)	€ 8,03

Monthly splitter Maintenance Fee per loop	Price/Monthly
Splitter maintenance fee per Shared Pair or Raw Copper Plus line	€ 0,33

22. The rental fee and the maintenance fee will be summarized on the invoice as follows:

Monthly Rental Fee per loop	Price/Monthly
Raw Copper Plus incl Maintenance Splitter card	€ 8,36
Shared Pair incl Maintenance Splitter card	€ 0,89

8 SLA documented reports

- 46 Belgacom is entitled to invoice the Beneficiary for the production of the SLA documented reports described in the Annex G, Basic SLA, section 7 “Documented reports”. The unit price per report amounts 25,14 €.

9 Compensation for Non First Time Right Installation

23. In cases that a BRUO line is brought into service by Belgacom and that a repair ticket is created for this line by the Beneficiary within 14 calendar days after provisioning closure date, giving a fault located on Belgacom access network, and caused by Belgacom or a third party working for Belgacom, the Beneficiary will be entitled for this line to a compensation for “Non first time Right Installation”.
24. The compensation due by Belgacom per Non First Time Right Installation related to a specific BRUO line is equal to the Activation Fee of the BRUO Service on this End User line, as defined in § 12 to 14 of this document.
25. Compensations for Non First Time Right Installation will be settled through a Beneficiary’s invoice without VAT.
26. Together with this invoice, the Beneficiary must provide Belgacom with the necessary information to claim for Non First Time Right Installation. Belgacom will upon receipt verify this information. When this verification appears that the information of the Beneficiary shows a shortcoming of Belgacom that gives cause for paying compensation for Non First Time Right Installation, refunding will be done by Belgacom.
27. This necessary information will be provided to Belgacom under the form of a structured file (Excel or CSV format), and will include at least the following data’s for each Non First Time Right Installation:
 - Beneficiary, Circuit Id, Ready For Service Date, Belgacom repair ticket nr, Belgacom repair ticket opening date, Belgacom repair ticket closure date, number of the Belgacom invoice of the claimed Non First Time Right Installation and total activation fee, as mentioned in the invoice, of the claimed Non First Time Right Installation (HTVA).

Each invoice of The Beneficiary related to Non First Time Right Installation claims will group the cases of one or several complete months, based on the Belgacom repair ticket closure date.

10 One time fees

10.1 Cancellation fee

28. The cancellation fee is the fee that the Beneficiary has to pay in case the beneficiary wants to stop an order in progress. Depending on the timing of the cancellation the following fees are due:

Cancellation Fee	Price
Cancel before Due Date – 1 (12 pm)	€ 6,99
Cancel after Due Date – 1 (12 pm)	Installation fees + Deactivation fee

10.2 Change date fee

29. When a Beneficiary request to change the date of implementation, Belgacom will invoice this Beneficiary the following Change date fee:

Change Date Fee	Price
Change before DD – 1 (12pm)	€ 6,59
Change after DD – 1 (12pm)	Activation + Deactivation fee

30. In case such change is requested after due date – 1 (12 pm), the related installation fee and deactivation fee will have to be paid by the Beneficiary

10.3 Deactivation fee

31. This is the fee that the beneficiary has to pay in case the beneficiary wants to stop an already activated service.

Deactivation Fee	Price
Raw Copper	€ 12,01
Shared Pair	€ 23,12



together
with



10.4 Order pending due to useless End User visit

13. This fee is due when the technician performs a useless end-user visit on the appointment date, and if the installation is performed by Belgacom. A useless end-user visit can happen for the following reasons:

- End-user refuses the installation,
- End-user is absent,
- End-user is not ready for the installation,
- End-user cancels the order.

32. The useless End User visit fee is due when an End User of the Beneficiary is not present at his premises on the appointment date.

Useless End User visit	Price
Per intervention	€ 20,04

10.5 Wrongful repair request

33. In case of wrongful repair request by a Beneficiary, Belgacom will invoice to Beneficiary an administrative fee of 104.61 EUR.

34. If Belgacom has performed specific work due to this wrongful repair request made by Beneficiary, Belgacom will invoice these additional costs to Beneficiary.

~~10.6~~ Change Tie Cable request

10.6

35. The Beneficiary has the possibility to request a Tie Cable through the repair process. Reference is made to the Annex P&O, for a detailed explanation on the process.

<u>Change Tie Cable request</u>	<u>Price</u>
<u>Per request</u>	<u>€ 100.85</u>

10.7 Conversion PSTN/ISDN

~~35-36.~~ Conversion is the change from Shared pair over PSTN toward Shared Pair over ISDN and vice versa.

Conversion Fee	Price
Shared Pair	€ 38,97

10.8 Coordinated Move

Coordinated Move Fee	Price
Move of the Shared Pair service from location A to location B in coordination with PSTN move	€ 58,43

~~36-37.~~ This fee remunerates the coordination of the move of the Beneficiary's data service together with the Belgacom Voice service, in the framework of a Shared Pair. The coordinated move fee includes both the activation and the deactivation part.

11 Migration fees

11.1 Physical Migration fees

~~37-38.~~ This section only refers to migrations towards a BRUO service. The tariffs for migrations

- towards a WBA VDSL2 service are described in Annex 6 of WBA VDSL2
- towards a BROBA ADSL service are described in Annex 6 of BROBA II ADSL.
- towards a BROBA SDSL service are described in Annex 6 of BROBA II SDSL.

11.2 Single Line Migration fees

~~38-39.~~ The migration fee includes both the activation and the deactivation part of the migration, and will be entirely invoiced to the party requesting for migration.

~~39-40.~~ The migration fee is applicable in the following cases:

- Change of ownership:** transfer of a line from Beneficiary 1 to Beneficiary 2. The fee is invoiced to the party requesting for transfer (i.e Beneficiary 2).
- Convert:** product modification from any product to Raw Copper or Shared pair. The line remains at the ownership of the Beneficiary (no transfer of ownership). The fee is invoiced to the party requesting for conversion.

c. A combination of a. and b.

~~40-41.~~ This migration fee includes the deactivation of the source service

11.2.1 Conversion resulting in any change on the Belgacom Voice service (from BRUO with voice to BRUO without voice, or conversely)

~~41-42.~~ The following tariffs are applicable to the OLO requesting for conversion in accordance with the scenario of conversion from BRUO Shared Pair to BRUO Raw Copper (and conversely) presented in the following table.

~~42-43.~~ Note: in case of cease or porting of a Belgacom voice service on a Shared Pair line type, the line will be per default converted into a Raw Copper+ line type. A conversion to Raw Copper must directly been asked by Belgacom or by the OLO +

Conversion fees with change on the Belgacom Voice service for a BRUO product	Price
Convert to Shared Pair asked by Belgacom following a request of the end-user to a Belgacom voice service	€ 0
Convert to Shared Pair asked by OLO	€ 38.08
Convert from Shared Pair to Raw Copper+ indirectly asked by OLO through a Number Portability request	€ 5.28
Convert from Shared Pair to Raw Copper+ asked by Belgacom following a request of the end-user to cease/port his Belgacom voice service	€ 0
Convert to Raw Copper asked by OLO and installed by Belgacom	€ 36.35
Convert to Raw Copper asked by OLO and installed by Certified Technician	€ 8.19

11.2.2 Other migration fees (change owner and/or any other scenario of conversion)

~~43-44.~~ The following tariffs are applicable to the OLO requesting for migration in accordance with the scenario of migration to BRUO presented in the following table (except cases in 8.1.1.1).

Other Migration fees to BRUO Shared Pair or Raw Copper	Price

Change of owner/Convert to Raw Copper, installed by Belgacom	€ 36.35
Change of owner/Convert to Raw Copper, installed by a Certified Technician	€ 8.19
Change of owner/Convert to Shared Pair	€ 38.08

~~44-45.~~ If during a repair action performed by Belgacom on a line migrated to a Raw Copper line, installed by a certified technician, in case the trouble covered by the Trouble Ticket was due to an incorrect intervention performed by the certified technician, an additional fee for repair will be due. This fee will be invoiced on top of the Migration fee for Raw Copper, installed by certified technician.

Additional fee for repair due to incorrect intervention by certified technician	Price
Raw Copper installed by certified technician	€65,57

~~45-46.~~ For scenarios for which no specific Single Line migration process is developed (see list of active scenarios in Annex K Migrations), the provisioning will be realized in two steps, the first will be the deactivation of the previous situation and the second one the activation of the new situation. Therefore a deactivation fee will be billed to the Beneficiary of the previous situation and an activation fee will be billed to the Beneficiary of the new service. In parallel, in case of product modification within the installed base of a Beneficiary, the same Beneficiary will be billed the deactivation fee and the activation fee.

11.3 Project Migration fee

~~46-47.~~ Because of the specific character of the Project Migration, pricing will be proposed on a case-by-case quotation.

11.4 Mass Migration fees

Migration Fee for Mass Migrations	Price
Mass Migration to BRUO Raw Copper	€ 27,19
Mass Migration to BRUO Shared Pair	€ 35,46

~~47-48.~~ For scenarios for which no specific Mass migration process is developed (see list of active scenarios in Annex K Migrations), the provisioning will be realized in two steps, the first will be the deactivation of the previous situation and the second one the activation of the new situation. Therefore a deactivation fee will be billed to the Beneficiary of the previous situation and an activation fee will be billed to the Beneficiary of the new

service. In case of product modification within the installed base of a Beneficiary, the same Beneficiary will be billed the deactivation fee and the activation fee.

12 ISLA fees

12.1 Set-up fee

~~48-49.~~ This is the one-time fee for configuration of systems and resources. The setup fee is to be paid one time only, for the first Improved SLA Repair being BRUO or BROBA if they are requested at the same time.

	One-time fee
Setup fee	€2000,47

12.2 Activation fee

~~49-50.~~ This is the one-time fee per line for setup of Improved SLA Repair in case of a new line.

	One-time fee
Activation fee	€8,23

12.3 Change SLA Type fee

~~50-51.~~ One-time fee per line for change of the SLA Repair from Basic to Improved (or reverse) in case of an existing line.

	Per local loop
Change SLA type fee	€8,23

12.4 ISLA Repair Recurring fee

~~51-52.~~ This is the monthly recurring fee per local loop on which the Improved SLA for repair has been activated. This fee will be added to the rental fee of the Service.

	Monthly Rental
ISLA Repair Recurring Fee	€7,11

12.5 ISLA Provisioning one time fee

~~52-53.~~ This is the one time fee per customer visit for an order for which the Improved SLA for Provisioning has been requested. This fee will be added to the activation fee of the order.

	One time fee
ISLA Provisioning per customer visit	€ 10

13 Use of e-tools and databases

13.1 Repair e-Tools

~~53-54.~~ The e-tool for repair BRUO and the repair line measurement

Repair e-Tools	Price
Repair and Line Measurement	Free of Charge

13.2 Street Information

54-55. The Beneficiary will be invoiced for the KVD inquiry performed.

Received in one inquiry:	Price
First KVD Inquiry (1 KVD + 1 half hour for looking up the info)	€ 17,25
For every extra KVD	€ 0,59
For every extra 20' started A maximum of €17.25 * {# of requested KVD's} will be billed	€ 16,66

55-56. The Network Street Relation Database can be obtained in MS Access format.

Network Street Relation Database	Price
Initial License Fee	€ 16.660
1 update/year annual fee	€ 2.000
6 updates/year annual fee	€ 5.000

14 Specific costs for certified technicians

14.1 Training and certification

56-57. The program of the training to follow by each candidate certified technician is determined by Belgacom individually, based on the Belgacom trainings already received by each candidate and on its professional experience. For each candidate to the certification it will result in a personal training program, based on a series of theoretical and practical training modules, followed by an individual test. The duration of each training module is a multiple of half days. The duration of the test is less than a half day.

~~57-58.~~ After its certification, each certified technician will have to follow mandatory updating sessions organized periodically by Belgacom to refresh its technical skills on the services covered by the project Certified Technician and communicate him the evolution of the processes and of the documentation systems. The duration of each updating session is a multiple of half days.

~~58-59.~~ The cost of a theoretical training module, or of an updating session, of an half day is: € 79,00 per certified technician.

~~59-60.~~ The cost of a practical training module of an half day is: € 68,00 per certified technician.

~~60-61.~~ The cost of the test is: € 53,00 per certified technician.

~~61-62.~~ If the certified technician is an employee of a Beneficiary, the cost of the training modules and of the test will be invoiced by Belgacom to this Beneficiary.

~~62-63.~~ If the certified technician is a subcontractor or an employee of a subcontractor of one or several Beneficiaries, the cost of the training modules and of the test will be invoiced by Belgacom to the subcontractor.