# Reference Unbundling Offer

## Entreprise des Postes et Télécommunications

## **01/09 2007 – 31/12 2008**

DOCUMENT APPROVED BY ILR EXCEPT AS REGARDS TO THE CHAPTER "3.4 Quality of Service – Service Level Agreement (SLA)".

| **Date** | **Status as from 1st January 2009 onwards** |
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| 08.01.09 | Submission to ILR for review and approval as well as publication on EPT's interconnect Website of the version V2 updated to include:<br>(i) ILR's request as to specific information to be given by EPT in relation to Cable Pair Management (point 5.3.2 of Schedule 5, in compliance with regulation 08/128/ILR) transmitted to ILR for review and approval; and<br>(ii) ILR's regulation referenced 08/135/ILR dated December 17th, 2008 modifying ILR's regulation referenced 08/128/ILR dated April 11th 2008 as to the extension of the validity period of the RUO 2007-2008. |
| 23.01.09 | Submission to ILR for review and approval of the version updated to strictly comply to ILR's request as to:<br>(i) specific information to be given by EPT in relation to Cable Pair Management (point 5.3.2 of Schedule 5, in compliance with regulation 08/128/ILR) and<br>(ii) the wording specified onto the 1st page of the RUO 2007-2008 to clearly mention that the RUO 2007-2008 has been approved by ILR's regulation referenced 08/128/ILR dated April 11th 2008 except its article 3.4 Quality of Service – Service Level Agreement (SLA). |
| 03.02.09 | Version updated futher to ILR's requirement:<br>(i) the wording specified into the art.1.3 of the RUO 2007-2008 has been adapted to strictly comply with ILR's regulation 08/128/ILR. |

# Table of Contents

# 1 Introduction

1.1. This Reference Unbundling Offer ("RUO") provides for the unbundling terms and conditions, which shall apply and be granted to Other Alternative Operators ("OAO") for the provisioning of EPT's ("Entreprise des P&T Luxembourg") Local Loop Unbundling services ("LLU Services").

1.2. The LLU Services covered by this RUO are as follows:

- Unbundled Metallic Path Facility Service,
- Shared Access Service.

1.3. This RUO is valid as from September 1st, 2007, until December 31st, 2008 unless:

- A new RUO is approved or adopted by the Institut Luxembourgeois de Régulation ("ILR"), or
- A material change occurs in the laws or regulations, governing telecommunications in Luxembourg.

**This RUO remains in force after 31 December 2008, for an unspecified period of time, until a new RUO is approved or adopted by the l'Institut Luxembourgeois de Régulation ("ILR"), or a material change occurs in the laws or regulations governing telecommunications in Luxembourg.**

1.4. Unless expressly defined otherwise hereafter (in particular in article 2 – Definitions below), the terms used in this RUO shall be construed and interpreted in accordance with the Law of March 21st, 1997 on Telecommunications, including its implementing regulations (the "Law") and the Regulation of the European Parliament and of the Council on unbundled access to the local loop adopted on December 18th, 2000.

1.5. This RUO includes all the Schedules attached hereto, which detail the different LLU Services covered by this RUO and constitute an integral part thereof.

1.6. The referred collocation services are part of the applicable RCO ("Reference Collocation Offer") and shall be provided in compliance with the specific terms and conditions of the said RCO.

# 2 Definitions

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| Active Local Loop | Continuous copper pair in the local loop between the Network Termination Point (NTP) and the Main Distribution Frame (MDF) providing service to the End User. |
| ADSL | Asymmetrical Bit-Rate Digital Subscriber Line. |
| Cancellation Request for Low Bandwidth Service | A request from the End User to EPT in order to cancel Low Bandwidth Service provided by EPT. |
| Calendar | Time sheet defining for each OAO the maximum number of appointments per day agreed with EPT for MPF activation/migration, it being specified that this Calendar shall be used by the OAO to exchange the End User's appointments with EPT. |
| Collocation | The provision by EPT of physical space and technical facilities necessary to reasonably accommodate and connect the relevant equipment of an OAO. |
| Collocation Equipment Room | Physical space in EPT site allocated for Collocation purposes. |
| Commencement Date | Forecasting term for a date when e.g. a Service will start. |
| Confidential Information | Information that shall not be shared, in whole or in part, with third parties other than EPT and the relevant OAO, including in particular financial information, technical data, discoveries, know-how, techniques, designs, sketches, photographs, plans, drawings, blueprints, diagrams, specifications, marketing plans, studies, results, goals, sales figures, or other business information as well as any combination thereof. |
| CPM | Cable Pair Management Plan. |
| Disclosing Party | The party in a LLU Agreement handing over Confidential Information. |
| Distribution Cable | The copper cable located behind the street cabinet in the direction of the relevant End User's Premises. |
| End User | Any natural or legal person with whom EPT or OAO(s) has entered into an agreement for the provision of publicly available telecommunication services. |
| EPT | Entreprise des Postes et des Télécommunications, an autonomous "Etablissement Public" created by the "Loi du 10 août 1992 portant création de l'Entreprise des Postes et Télécommunications". |
| EPT Access Point | The physical interface within EPT's network at which the interconnection services as referred to and defined in the RIO can be obtained. |
| EPT FCP | The Fault Contact Point provided by EPT to the relevant End User and the OAO for addressing Fault Reports. |
| ETS | European Telecommunication Standards. |
| FCP | Fault Contact Point. |
| Fault Report | As the case may be, either written report sent by OAO to EPT in case of faults discovered within the Local Loop Unbundling (LLU) service or fault notification made per telephone to EPT by the End User in case of faults discovered within the Low Bandwidth Service in the |

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| | context of Shared Local Loop Service (SLLS). |
| Feeder Cable | The copper cable between the Main Distribution Frame (MDF) at the EPT Local Exchange and the street cabinets. |
| Forecast | The process of OAO's forecasting future demands of LLU services or SLLS. |
| FTTC/FTTB | Fibre to the Curb / Fibre to the Building. |
| HDF - Handover Distribution Frame | The HDF will be located in the OAO specified Collocation area. The HDF includes only the "iron work" and will be provided by the OAO, while the termination blocks of the Tie Cables to be fixed on the HDF will be provided by EPT together with the ordered Tie Cables. |
| HDSL | High Bit-Rate Digital Subscriber Line. |
| High Bandwidth Problem | An existing or presumed fault declared by the End User as fault via a Fault Report concerning the functionality of the High Bandwidth Service of SLLS. |
| High Bandwidth Services | xDSL services offered by an OAO to the End User(s) via SLLS. |
| ILR - Institut Luxembourgeois de Régulation | The national regulatory authority in Luxembourg. |
| ISDN | Integrated Services Digital Network. |
| Local Exchange | The telephony exchange closest to the end user. |
| LLU | Local Loop Unbundling. |
| LLU Agreement | The agreement between EPT and the concerned OAO, including the schedules and – if relevant – amendments thereto, covering LLU Services and which:<br>(i) has already been executed prior to the entry into force of this RUO and will shall be automatically amended thereby, or which<br>(ii) will be later on executed for the purpose of and in compliance with this RUO, which shall be an integral part thereof. |
| LLU Services | Unbundling services, including as the case may be metallic path facility, sub-loop unbundling services or shared local loop services. |
| Local Loop | The physical twisted metallic pair circuit connecting the network termination point at the relevant End User's premises to the main distribution frame or equivalent facility in the fixed public telephone network. |
| Local Sub-Loop | A partial local loop connecting the network termination point at the relevant End User's premises to a concentration point or a specified intermediate access point in the fixed public telephone network. |
| Low Bandwidth Problem | An existing or presumed fault declared by the End User as being a fault via a Fault Report concerning the functionality of the Low Bandwidth Service of SLLS. |
| Low Bandwidth Services | PSTN or ISDN services offered by EPT to the End User via SLLS. |
| MDF - Main Distribution Frame | The termination point of the raw copper circuit in EPT's Local Exchange building. |
| MPF - Metallic Path Facility | A twisted pair of fully metallic continuous unequipped copper wires on the section between EPT's MDF at the EPT Local Exchange and the relevant End User's address connected on a Network Termination Point if it exists. |

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| MSN | Multiple Subscriber Numbers. |
| Non-Active Local Loop | A Local Loop that is not actively used by EPT to provide a telecommunication service to a specific End User before the unbundling of the Local Loop is requested. |
| NTP - Network Termination Point | The termination point of the raw copper section at the relevant End User's premises at which point the EPT's access network ends. |
| OAO – Other Alternative Operator (also referred to OLO) | Any legal or natural person exploiting telecommunications networks and/or providing telecommunications services in Luxembourg. |
| OAO Access Point | The physical interface within the Other Alternative Operator's System at which the Interconnection Services can be obtained. |
| OAO FCP | The Fault Contact Point provided by the OAO for the relevant End User and EPT. |
| Order Forecast | Written plan to be submitted by the relevant OAO to EPT and stating OAO's future orders for LLU Services or SLLS provided by EPT. |
| Party | As the case may be, either EPT or the OAO with which a LLU Agreement for the provisioning of raw copper or SLLS in the local loops of EPT is (being) concluded. |
| Parties | EPT and the OAO with which a LLU Agreement for the provisioning of raw copper or SLLS in the local loops of EPT is (being) concluded. |
| POTS | Plain Old Telephone System. |
| PRI | Primary Rate Interface. |
| PSD | Power Spectral Density. |
| PSM | Power Spectrum Management. |
| PSTN | Public Services Telephone Network. |
| RCO - Reference Collocation Offer | The applicable EPT's reference offer for collocation services in force. |
| Ready for Service Date | Date at which a given LLU Service should be ready for commercial launch. |
| Receiving Party | The Party in an agreement receiving Confidential Information. |
| RUO - Reference Unbundling Offer | The present reference offer for LLU Services. |
| Schedule(s) | The schedule(s) attached to this RUO, as listed in its table of contents. |
| SDSL | Symmetric Single pair High Bit Rate Digital Subscriber Line. |
| Shelter | Building or container housing telecom equipment. |
| Short Term Forecast | Forecast covering next coming 1 – 6 months. |
| Site | Physical building housing telecom equipment. |
| SLCP | Sub Loop Connection Point. |
| SLLS | Shared Local Loop Service offered by EPT as defined in this RUO. |
| SLU | Sub Loop Unbundling. |
| Street Cabinet | The distributor allowing cross-connection between the feeder cable pairs and the distribution cable pairs. |
| xDSL | ADSL, SDSL, VDSL2. |

# 3 The RUO Principles

## *3.1 Service Description*

The EPT LLU Services shall:

i) be provided by EPT to an OAO in accordance with the terms and conditions of this RUO;

ii) consist of:

- Provision by EPT to an OAO of a Metallic Path Facility ("MPF") to enable the OAO to provide telecommunications service(s) to End Users, or
- Transfer of an existing metallic pair from EPT to the OAO, provided that such metallic pair at the time of request by the OAO's is supporting one or more of the compatible telecommunication services provided at the time of such request by EPT to the concerned End User; or
- Provision of shared access services;

iii) only be used for the delivery by the relevant OAO to End Users of LLU Services, which are compliant with the specifications as referred to in the relevant Schedules; and

iv) only be provided in conjunction with the EPT's Collocation Service for MPF-access as defined in the applicable RCO.

The EPT LLU Services shall only be provided on a line where:

i) A NTP exists and is in service in the relevant End User's premises,

ii) The OAO has ordered the required HDF and Tie Cables, and

iii) As regards to the transfer of an existing metallic pair from EPT to the OAO, the concerned End User has prior requested that the contract(s) for the existing End User service(s) in force at that time between the said End User and EPT be terminated, all this in accordance with EPT's respective applicable terms and conditions. For this purpose, the concerned End User may empower in writing the concerned OAO for canceling on the End User's behalf all existing telecommunication services provided by EPT to the End-User and carried by the existing metallic pair to be transferred. For the avoidance of doubt, in such case, the OAO shall be responsible for evidencing at any time upon first request its valid empowerment, if required notably by EPT or ILR .

## *3.2 Responsibilities*

### 3.2.1 EPT Responsibilities

EPT shall be responsible for:

- The access network used to provide the EPT LLU, Sub Local Loop Unbundling or Shared Local Loop from End User's NTP to the MDF or the SLCP.
- Connecting or disconnecting Tie Cables and individual access lines in response to OAO confirmed orders submitted to EPT in accordance with Schedule 6 - Planning and Operation.
- Providing billing information, as specified hereafter in article 3.9 - Financial conditions.
- Conducting tests, if need be, in the context of cable and spectrum management as defined in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop to protect the integrity of the access network.
- Informing OAO on system alteration to be made in the network and having a potential effect on the services offered by the OAO.

EPT shall not be responsible for:

- Expanding, modifying or conditioning in any way EPT's access network (or part of it, including new connections to existing or new buildings), to provide EPT LLU Services, and EPT shall in no case be obliged thereto, unless expressly agreed otherwise in the LLU Agreement and only to the strict extend as specifically agreed upon by and between the Parties.
- The performance and follow-up of any service that the OAO operates on a line and provided as part of the LLU Services.

### 3.2.2 OAO Responsibilities

The OAO shall be responsible for:

- Ordering or terminating, as the case may be, a line in accordance with Schedule 7 - Ordering and Provisioning Procedure.
- Using exclusively telecommunications terminal equipment compliant to "Règlement grand-ducal du 4 février 2000 concernant les équipements hertziens et les équipements terminaux de télécommunications et la reconnaissance mutuelle de leur conformité".
- Conducting appropriate fault testing and producing associated Fault Reports to evidence faults in the EPT's network in accordance with Schedule 6 - Planning and Operation.
- Informing the relevant End User about all technical modifications required on his/her existing installation and the service impacts that might occur.

- Tracking EPT's system alteration activities in order to make sure that the End User's services are maintained.

### 3.3 EPT's General Powers

Occasionally, EPT, acting reasonably, may suspend services as described in this RUO for any of the following reasons:

- If required by a duly authorised national or regional authority duly authorised and empowered to do so, or

- For the purpose of repair, maintenance and/or improvement of any of EPT's telecommunication systems and telecommunications apparatus.

Wherever possible, EPT will give the OAO reasonable written notice before performing any of the actions related to the above and EPT will do its best efforts to restore MPF as soon as possible after the concerned temporary suspension.

EPT shall have the right to disconnect the compliant equipment or any part of it without prior reference or notice to the OAO if at such time, in EPT's reasonable opinion it is exposing or could expose any person to any danger of death or injury.

Without prejudice to the foregoing clause, EPT shall have the right to request the OAO to disconnect any compliant equipment or any part of it within a reasonable time period, if, at such time, in EPT's reasonable opinion, it is causing, suspected of causing or could cause damage to the MDF Site or EPT's telecommunications apparatus or any other property or if such exposure or damage is or may be imminent. EPT will immediately notify the OAO of the circumstances in which such compliant equipment has to be disconnected. If the OAO has not disconnected the concerned equipment within a reasonable time period, EPT shall have the right to disconnect itself the concerned equipment after prior notification thereof to the OAO.

EPT shall not be liable to the OAO for any loss, damage or injury arising due to EPT's action in disconnecting the compliant equipment or for any interruption to the telecommunication service carried out by the OAO using the compliant equipment howsoever caused, except where the loss damage or injury is caused directly due to EPT's gross negligence.

In the event of a disconnection in accordance with the above, the OAO shall not reconnect the compliant equipment until the reasons for its disconnection have been fully remedied. In case the danger or threat referred to above is caused directly due to EPT's negligence, then EPT shall reimburse to the OAO the evidenced reasonable direct costs of reconnecting the compliant equipment.

## *3.4 Quality of Service – Service Level Agreement (SLA)*

EPT will provide the LLU Services in case of either (i) a transfer of an existing metallic pair together with the telecommunication services provided by EPT to the End User at the time of such request, or of (ii) a new MPF provided that a spare copper pair is available between the End User's building and the OAO's SLCP or, as the case may be, MDF, in accordance with this RUO.

### 3.4.1 Standard SLA

The Service levels set out in the relevant Schedules attached hereto shall apply and are in line with the service levels granted by EPT to its retail End-Users for similar services, it being specified among other things that:

- Except in case of Force Majeure event, if EPT fails to provide the above-mentioned connection in compliance with Schedule 7 – Ordering and Provisioning Procedure, the OAO will be granted in the benefit of the concerned End-User of a financial indemnity equivalent to one-month fixed fee of the concerned LLU Service(s),; should this delay fall beyond fifteen (15) calendar days, the said indemnity will be increased to be equivalent to two-month fixed fee of the concerned LLU Service(s);
- Subject to the specific terms and conditions of this RUO, EPT will re-establish LLU Services before the end of the business day following the day at which a Fault Report has been validly submitted, except where the required clearance works are of such importance that they need substantial works to be carried out (e.g. civil works) or that an appointment with the End User is to be made;
- Fault clearance outside business hours or with priority handling is possible after acceptance of the conditions and the respective fees set out in chapter 6.4 and 8.5 of this RUO.

### 3.4.2 Premium SLA

If an OAO wants a higher level of service for a particular Local Loop Unbundling service (Premium Service Level Agreement), EPT may provide upon written request of the concerned OAO a commercial offer for a specific Service Level Agreement, in line with EPT's network technical specifications and capabilities.

### 3.4.3 Specific case of Rush Orders

In case an OAO is willing that the LLU Agreement covers the specific case of urgent orders, whatever the type thereof (such as e.g. installation and/or modification orders), to be carried out with priority and within short periods upon OAO's express demand ("Rush Orders"), EPT will provide the said OAO upon written request with a commercial offer specifying the terms and conditions of acceptance and treatment by EPT of such Rush Orders, including in particular:

- the list of services and/or products within LLU Services concerned by the possibility of Rush Orders,
- the hours of reception and treatment of such Rush Orders (normal business hours or otherwise),

- the lump price supplement to be paid specifically in such case, depending notably on the concerned maximum treatment time period and the hours (normal business hours or otherwise) during which a Rush Order can be treated by EPT, as well as
- the procedure to be complied with by the OAO in case of Rush Orders.

Upon agreement of this specific commercial offer by the Parties, the corresponding provisions will be included in the respective LLU Agreement to be signed by and between the Parties.

### *3.5 System Protection*

Each Party is responsible for the safe operation of its respective system and shall take all reasonable and necessary steps and measures in its operation, implementation and maintenance to ensure that its system does not:

- Endanger the safety or health of employees, contractors, agents or End Users of the other Party.

- Damage, interfere with or cause any deterioration in the operation of the other Party's system or a third party operator's system.

### *3.6 Configuration and technical constraints*

Access lines will be provided in accordance with the technical constraints specified in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop. EPT shall not be liable for a shortage of access lines or cable saturation, e.g. due to broadband usage.

However, in case of cable saturation, meaning that no additional broadband connection is possible in that cable, EPT will make all reasonable efforts to implement an appropriate technical solution, provided such solution is economically balanced and compatible with EPT's strategy, within a reasonable time frame in order to meet End User's requirements for broadband services as specified by OAO to EPT.
Such technical solutions may consist in the implementation of remote equipment in the field, closer to the End Users. In this case, the copper pairs may disappear between the central office and this remote equipment and the unbundling will then have to be changed to Sub-Loop Unbundling.

EPT can reserve a minimal number of pairs in each cable section:

- For repair of existing services, or

- In case of shortage after prior consultation with ILR.

## 3.7 System Alteration

If EPT wishes to make a system alteration, it shall give to the OAO and to the ILR a minimum 3-month written notice prior to the foreseen date of the anticipated system alteration, which shall specify the technical details of the contemplated system alteration and the foreseen date of the anticipated system alteration.

Following such notification, EPT shall provide to the OAO additional information, as the OAO may reasonably request, including, to the extent reasonably practicable, the potential impact thereof on the service(s) provided by the OAO to the End Users.

## 3.8 Coordination between the Parties

EPT shall put into place an entity in order to manage provisioning of raw copper in EPT's local loops. This entity will be the single point of contact for the OAO handling questions regarding the operational management of unbundling.
This entity will be accessible from 8 a.m. to 12 a.m and from 1 p.m. to 5 p.m. from Monday to Friday, except on legal and usage holidays in Luxembourg.

The OAO undertakes to contact only the EPT single point of contact as specified here above and to provide its own single point of contact for the management of unbundling, including for questions regarding operational subjects.

The EPT's and concerned OAO's respective entity being the single points of contact in relation to this RUO and to the provision of the LLU Services are or, as the case may be, will be specified in the concerned LLU Agreement.

## 3.9 Financial conditions

### 3.9.1 Tariffs and Billing

In compensation for raw copper services and shared access provided by EPT under this RUO, the OAO shall pay the tariffs specified in Schedule 8 - Tariffs.

Billing procedures are or, as the case may be, will be described in the LLU Agreement between the concerned OAO and EPT.

### 3.9.2 Bank Guarantee

The OAO will, at EPT's request, provide for an irrevocable and unconditional bank guarantee issued in EPT's favour by a first rank EU financial institution for an amount of 50.000,- €.

The guarantee shall be issued for a period at least equivalent to the duration of this RUO.

### *3.10 End Users and Branding*

#### 3.10.1 End Users

Without prejudice to the applicable regulatory framework, EPT will not undertake customer handling/care of the OAO's End Users.

#### 3.10.2 Branding

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 expressly agreed upon in writing between the Parties. Such use of the brand will then be strictly limited to the service at stake.

EPT is allowed to use, for all interventions in the context of this RUO, its normal vehicles and staff uniforms with all advertising on them as for its own products and services.

The OAO is not allowed to attach any branding or advertising signs on EPT's equipment and infrastructure, neither in EPT's sites nor in End User's sites.

## 4 Property rights

All relevant infrastructures used for the provisioning of LLU Services to the OAO remains and shall remain the integral property of EPT.

With the cessation of LLU Services by the OAO or a specific End User, whatever the reason, any usage rights of the OAO on that relevant infrastructure will automatically expire on the effective cessation date of the LLU Services.

If an End User terminates the telecommunication service(s) provided by the OAO by means of the MPF, the OAO shall submit a handback order in due time and according to the procedure defined in Schedule 7 - Ordering and Provisioning Procedure so that the MPF may be marked as soon as possible as available for re-use by any other OAO.

## 5 General Conditions

### *5.1 Confidentiality*

A Receiving Party shall keep in the strictest confidence all Confidential Information, whichever may be the way or support of its transmission (e.g. in writing, via e-mail or orally) and will not disclose such information to any third party unless the Disclosing Party expressly prior agrees in writing to the release or disclosure of that specific Confidential Information to the said third party. A Receiving Party shall exercise at least the same security level and degree of care than that Party applies to protect its own Confidential Information of an equivalent nature, and in no case less than reasonable care.

Confidential Information shall be used by the Receiving Party solely for the purposes for

which it was disclosed.

OAO has to inform the End User that his/her personal data is being transferred to EPT, as specified and/or required by the national data protection legislation.

### 5.2 Force Majeure

Neither Party shall be liable for any breach of a LLU Agreement or delay in the implementation of any of its obligations under a LLU Agreement caused by a "Force Majeure" event.

The Party affected by a "Force Majeure" event shall promptly notify the other (i) upon occurrence thereof of the estimated extent and duration of such inability to perform its obligations and do its reasonable efforts to mitigate the detrimental consequences of the said "Force Majeure" event.

As soon as reasonably practicable after cessation of the said "Force Majeure" event, the concerned Party shall notify the other thereof and deliveries under and/or performance of a LLU Agreement shall be resumed without undue delay.

If, as a result of a "Force Majeure" event, the performance by either Party of its obligations under a LLU Agreement is only partially affected, such Party shall nevertheless remain liable for the performance of those obligations not affected by the said "Force Majeure".

To the extent that a Party is prevented, as a result of "Force Majeure", from providing all or part of the services or facilities to be provided under a LLU Agreement, the other Party shall be released to the equivalent extent from its obligations to make payment for such services or facilities.

### 5.3 Limitation of Liability

Neither Party undertakes any liability for the acts or omissions of a third party provider of telecommunications services.

Neither Party excludes or restricts its liability for death or personal injury caused by its own negligence or liability.

Neither Party will be liable to the other for any claims, proceedings or actions brought or made against that Party by an End User of services provided by that Party.

Neither Party shall be liable to the other in contract, tort (including gross negligence or breach of statutory duty) or otherwise for indirect or consequential damage or any other losses of profit whatsoever arising in connection with the execution and/or implementation of a LLU Agreement, howsoever caused.

# 6 Procedure for Reaching a LLU Agreement

LLU Agreements will be negotiated and entered into, based on the standard terms and conditions approved by the ILR, pursuant to and in compliance with the applicable legislation.

These standard terms and conditions will be made available after signature of a non-disclosure agreement.

Requests for entering into a LLU Agreement with EPT under this RUO must be made in writing and per registered mail to the following address:

**Entreprise des Postes et Télécommunications**
Direction Générale
L-2020 Luxembourg
Tel: +352 47 65 1
Fax: +352 47 51 10

# SCHEDULES

# Schedule 1 - Service Description - Metallic Path Facility

*Contents:*



## *1.1 Description*

The Metallic Path Facility (MPF) means a pair of fully metallic continuous unequipped copper wires between EPT's Main Distribution Frame (MDF) at EPT's Local Exchange and the Network Termination Point (NTP) at the End User's premises, at which point the EPT access network ends. The Metallic Path Facility can be an active loop or a non-active loop.

At the EPT Local Exchange, the MPFs are terminated at the MDFs. The OAO's access to the metallic wire pairs will be established by connecting Tie Cables from the MDF to the Handover Distribution Frame (HDF).

The OAO shall gain access to an end-to-end metallic pair in the EPT's access network; provided that the required MPF is non-loaded and no active equipment (pair gain system etc) is present in the relevant circuit. It is further required that the metallic pair circuit is existing and can be provided without new construction of physical metallic pair wires in the network.

The construction of new metallic pair circuits is outside the scope of this RUO and shall be subject to commercial negotiations.

## *1.2 Types Of Offered Loops*

### 1.2.1 Voice or low bit-rate data transmission copper loop

Defined as copper loop only to be used for the transmission of voice-band signals, signals for which the binary rate is smaller or equal to 160kbit/s or for the transmission of signals using ISDN (Integrated Services Digital Network) basic access line code. Requirements for equipment to be connected are specified in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

### 1.2.2 Broadband data transmission copper local loop

Defined as copper loop to be used to connect services as ADSL, PRI (Primary Rate Interface), or other services for which the binary rate is higher than 160kbit/s. Requirements for equipment to be connected are specified in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

### 1.3 Network Termination Points

The MPF service covers the 2 wire copper circuit, starting from the MDF at the Local Exchange side and terminating to the NTP on the End User's site.

The type of NTP depends on the End User's site.

- In Multi-End Users' apartment buildings and buildings for large businesses or corporations, the NTP is the cross-connectable distribution box in the building.
- In one-family houses, the NTP is the first distribution box inside the End User's house.

The End User, who has full responsibility for repair and necessary extensions, owns the in-house cabling system to the different telephone plugs.

To allow proper fault analysis for MPF with service-migration, EPT agrees to assume testing and measurements to the following end-points at End User's site:

- If the End User's site is a multi-End User's apartment building or multi-tenant building, this will be the first connected telephone plug inside the apartment.
- If the End User's site is a single house, this will be located on the inside, and will be either a telephone plug or a distribution box.
- If the End User's site has a cross-connectable distribution box where multiple pairs are connectable for one End User, this will always be that distribution box.

### 1.4 Boundary Conditions And Prerequisites

Collocation is a prerequisite for the implementation of these LLU Services.
Provisioning and maintenance of Collocation will be offered by EPT as specified in the applicable RCO.

The OAO commits to receive, from the End User, a signed request for a telecommunication service to be provided on a metallic pair in the access network prior to order a MPF.

In case of inconsistency, audit complaint or dispute with the End User, EPT may ask to receive a copy of this request. The OAO shall keep the request for the minimum time period specified by applicable Luxembourg laws.

When ordering one of the types of loop being offered under this RUO, the OAO shall notify to EPT the equipment that he intends to connect to the metallic pair.
EPT may require a certificate from the OAO stating that the equipment conforms to the equipment requirements specified in the RCO and in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

The OAO is only allowed to use the indicated type of loop for the purpose described in chapter 0 - 1.2 Types Of Offered Loops, and may not use any other type of equipment than the one indicated in the order form.

EPT will not support customer handling/care services for the OAO's End Users. Requests from OAO's End Users due to inadequate handling of those requests by the said OAO will be dismissed by EPT, unless otherwise agreed.

EPT needs to ensure the coexistence of all transmission services provided by any operator or OAO on the same cable.
Therefore, the OAO must comply with the following terms:

- A request from the OAO for renting a metallic pair circuit shall always be accompanied by information on equipment type as defined in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop, the OAO intends to connect to this metallic pair. In case EPT suspects that the use of the MPF does not match the intended use as declared in the order form, EPT has the right to measure the signal over that loop without disturbing the operation of the OAO's network and take all necessary measures to protect the integrity of the EPT's network.
  EPT shall reasonably request in writing the right for all measurements that cannot be done without temporary suspension of the OAO's services.

- In any case of changes by the OAO of equipment/technology used, the OAO will inform EPT of this fact in order not to cause service degradation in the EPT's network for other End Users.

- If equipment or network components, which are operated by the OAO for its own use and are connected to the EPT network, cause disturbances in the EPT network, the OAO shall be required to disconnect the End User's connection without any delay.

- In order to ensure optimal use of the access network in the context of high-speed signals transmission, EPT is applying cable pair management. These rules take into account the characteristics of the access network cables and the spectral compatibility between signals of different technologies as defined in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

- If the OAO finds that a fault was caused by conditions or circumstances in the EPT's network, the OAO shall inform EPT thereof without any delay. The OAO shall be responsible for the accuracy of this information and support consequently any costs related to any EPT's unnecessary intervention.

## *1.5 Provisioning And Cessation*

The procedure for MPF provisioning is described in Schedule 7 - Ordering and Provisioning Procedure.

The procedure for combined provisioning of MPF and number portability is described in Schedule 7 - Ordering and Provisioning Procedure.

The procedure for MPF cessation is described in Schedule 7 - Ordering and Provisioning Procedure.

# Schedule 2 - Service Description - Sub-Loop Unbundling (SLU)

*Contents:*



## *2.1 Description*

These products have been developed to meet EPT's obligations under the EU Regulation of 18 December 2000 on unbundled access to the Local Loop. Sub-Loop Unbundling (SLU) means providing an OAO with access to a partial local loop connecting the Network Termination Point (NTP) at the End User's premises to a Sub Loop Connection Point (SLCP) in the local network.

Such SLCPs or new concentration points do exist in buildings and in indoor or outdoor shelters. The connection between the SLCP and the OAO equipment will be realized with external Tie Cables installed by EPT.

In order to accommodate the additional cable terminations, EPT may need to adapt, rebuild or replace the existing SLCP cabinet as far as this is possible under the given local circumstances. The costs of this work will be born by the OAO requesting access to that SLCP.

Information concerning existing SLCPs in concentration points is published on the dedicated secured web site.

All equipment connected to Sub-Loops must comply with the specifications defined in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

## *2.2 Types Of Sub-Loops Offered*

The Sub-Loops offered under this RUO are of the same types as the ones specified for the MPF in Schedule 1 - Service Description - Metallic Path Facility.

## *2.3 Network Termination Points*

NTPs at the End User's premises are defined in the same way as specified in Schedule 1 - Service Description - Metallic Path Facility.

## *2.4 Boundary Conditions And Prerequisites*

The same conditions and prerequisites shall apply mutatis mutandis as defined in Schedule 1 - Service Description - Metallic Path Facility, except that Collocation is not a prerequisite for SLU-services. For the connection of OAO's equipment to the SLCP, an OAO specific external Tie Cable has to be provisioned by EPT.

## 2.5 Provision Of SLU

The same rules shall apply mutatis mutandis as specified for the MPF in Schedule 1 - Service Description - Metallic Path Facility.

# Schedule 3 - Service Description - Shared Local Loop Service (SLLS)

*Contents:*



## *3.1 Description*

The SLLS product allows a voice service, provided by EPT, and an ADSL service, offered by an OAO, to be integrated into the same 2 wire copper pair.

SLLS will only be offered on a Local Loop where EPT is already supplying the relevant End User with analogue telephone service or ISDN-BRA service; provided that the required MPF is non-loaded and no active equipment (pair gain system, etc) is present in the relevant circuit. Shared Local Loop in the case of Sub-Loop Unbundling has to be analysed on a case by case basis.

If an End User disconnects EPT's retail PSTN/ISDN service, EPT will initiate action to disconnect the PSTN/ISDN service and will notify the OAO of such a disconnection. SLLS will be converted to Broadband-MPF. The tariff for Broadband-MPF will be applied. The applicable procedure is described in Schedule 7 - Ordering and Provisioning Procedure.

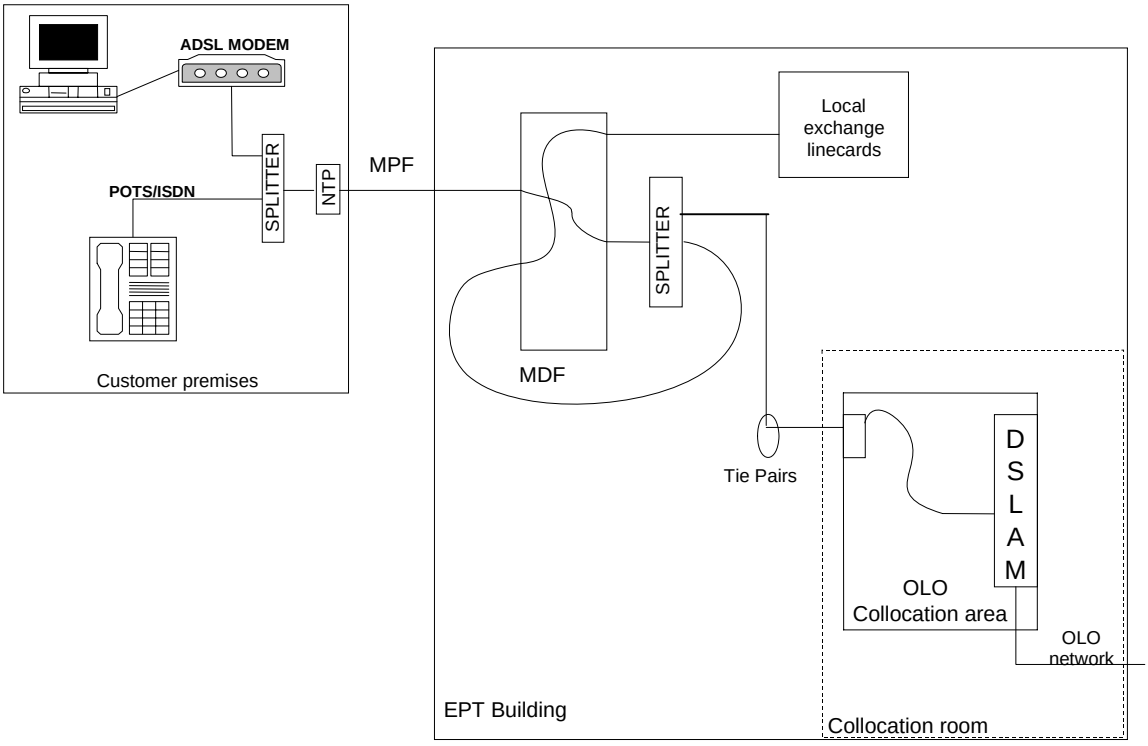


**Figure 1: Configuration a) Splitter at End User's premises (for ISDN or POTS)**

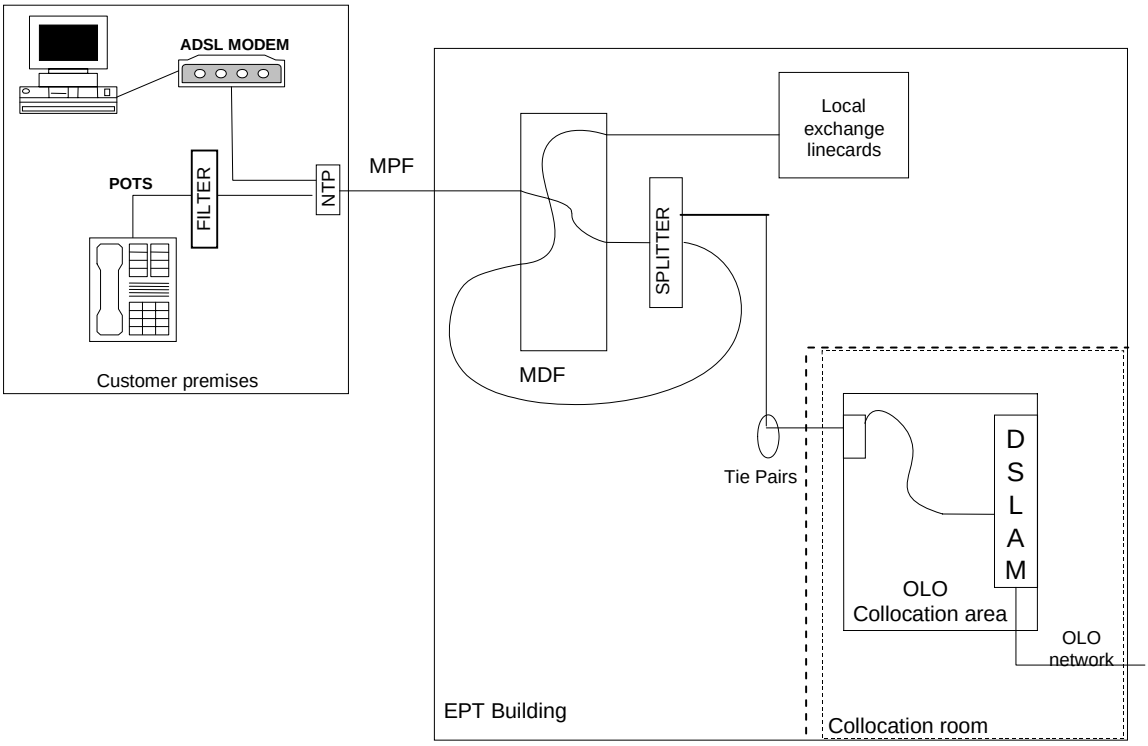


**Figure 2: Configuration b) Distributed Filters at End User's premises (for POTS only)**

## *3.2 Types Of Offered Loops*

The following types of SLLS are offered under the present RUO:

- SLLS for ADSL over PSTN,
- SLLS for ADSL over ISDN.

Technical information concerning the nature of the signals to be used for each type of Shared MPF is detailed in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

## *3.3 Network*

### 3.3.1 Splitters and distributed filters

Splitters or distributed filters are required in order to enable EPT's voice band services (PSTN/ISDN) and the relevant OAO supplied ADSL data services to co-exist on the same copper pair.

Splitters and filters have to be installed as follows:

- POTS: Centralised Splitter on MDF side; Filter (or Splitter) on End User's side

- ISDN: Centralised Splitter on MDF side; Splitter on End User's side.

The line signals of the ADSL service must be compliant to chapter Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

The OAO is responsible for ordering Tie Cables and centralised splitters for the MDF site and splitters or distributed filters for the End User's site prior to the request of Shared Pair services for individual End Users. This ordering process is described in Schedule 7 - Ordering and Provisioning Procedure. The centralised splitters have to be defined as being Splitters for POTS lines or Splitters for ISDN lines. Distributed filters can only be used in case of POTS.

The splitters in the Local Exchange are provided and installed by EPT. At the End User's premises, the appropriate splitter or distributed filters are installed by the OAO. In order to guarantee compatibility of the network elements installed in the Local Exchange and at End User's premises, the OAO has to use the splitters and filters provided by EPT.

#### *3.3.1.1 Adapt the in-house cabling at the End User premises using a splitter.*

The OAO is installing an appropriate (POTS or ISDN) centralised splitter at the End User's premises. EPT's responsibility terminates in any case at the NTP.

The OAO has the right to connect the necessary cabling between the splitter and the broadband ADSL-modem to the splitter interface. If the quality of the existing in-house cabling between the splitter and the broadband modem is insufficient to carry high bit rate traffic, it is the OAO's responsibility to provide an appropriate link on this section.
The OAO is not allowed to disconnect any narrow-band equipment or change their functionality without the acknowledgement of the End User.

If the connection of the OAO's equipment to the splitter interface is disturbing the narrow-band service of the End User, EPT will disconnect the equipment at the splitter level and inform the OAO thereof. This intervention by EPT shall be considered as a wrongful repair request and be billed as a consequence at the corresponding rate to the OAO. It is the OAO's obligation to clear the fault before reconnecting to the splitter interface, to avoid any impairment on the narrow-band service.

#### *3.3.1.2 Adapt the in-house cabling at the End User premises using distributed filters*

In case of POTS, distributed filters can also be used instead of a splitter. Those are located between each narrow-band telephone service device and the remote in-house points. EPT's responsibility terminates in any case at the NTP.

The OAO has the right to connect the CPE (End User's Premises Equipment) directly to the remote in-house point. If the quality of the existing in-house cabling is insufficient to carry high bit rate traffic, it is the OAO's responsibility to provide an appropriate cabling infrastructure.

The OAO is not allowed to disconnect any narrow-band equipment or change their functionality without the End User's prior acknowledgement.

If the connection of the OAO's equipment is disturbing the narrow-band service of the End User, EPT will disconnect the equipment and inform the OAO thereof. This intervention by EPT shall be considered as a wrongful repair request and shall be billed as a consequence at the corresponding rate to the OAO. It will be the OAO's obligation to fully clear the fault before reconnecting the CPE, to avoid any impairment on the narrow-band service.

### 3.3.2 Network termination points

The SLLS will terminate in the Local Exchange at the high frequency interface of a central office splitter and in the End User's premises at the high frequency interface of the splitter or on the telephone plug of End User, where OAO's equipment is connected.

At the End User's premises, the OAO will access the shared line at the high frequency interface of the splitter or, in case of distributed filters, at the telephone plug. The provision and installation of the End Users' wiring for the ADSL services, in accordance with Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop, as well as the provision and installation of any equipment to provide ADSL services will be the responsibility of the OAO. Replacement or changes to the existing End Users' wiring to install the appropriate equipment will be the OAO's responsibility.

At the Local Exchange, the copper wires are terminated at the MDF. A wire connection is used to connect the Local Loop from the MDF to the splitter rack. The low frequency is connected from the splitter through the MDF to the EPT's switch for providing EPT's ISDN or PSTN service. OAO's access to the SLLS (high frequency) will be established with Tie Cables for broadband usage from the Splitters to the OAO's collocation area in that same EPT's building.

### 3.3.3 Spectrum Management and Equipment compatibility

Requirements related to spectrum management and the equipment connected to the SLLS are described in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

## *3.4 Boundary Conditions And Prerequisites*

Collocation is a prerequisite for the implementation of these LLU Services. Provisioning and maintenance of Collocation will be offered by EPT in compliance with the terms and conditions of the applicable RCO.

SLLS can only be requested by an OAO to provide ADSL services to the same End User that has contracted POTS/ISDN services with EPT on that same MPF.

No sub-letting or sharing of the SLLS provided by EPT shall be permitted.

The used MPF providing EPT SLLS remains and shall remain EPT's property.

The SLLS shall only be available, where EPT continues to use the Local Loop to provide the POTS/ISDN service to the End User.

EPT needs to ensure the coexistence of all transmission services provided by the different

operators and OAOs on the same cable.
Therefore, the OAO must comply with the following terms:

- A request from the OAO for SLLS shall always be accompanied by information on equipment type as defined in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop of the equipment that the OAO intends to connect to this shared access. In case EPT suspects that the use of the SLLS does not match the intended use as declared in the order form, EPT has the right to measure the signal over the Tie Cable without disturbing the operation of the OAO's network and take all necessary measures to protect the integrity of the EPT's network. EPT shall reasonably request in writing the right for all measurements, which cannot be done without temporary suspension of the OAO's services.

- In any case of changes by the OAO of equipment/technology used, the OAO will inform in writing EPT of this fact in order not to cause service degradation in the EPT's network for other End Users.

- If equipment or network components, which are operated by the OAO for its own use and are connected to the EPT's network, cause disturbances in the EPT's network, the OAO shall be required to disconnect the End User's connection without any delay.

- In order to ensure optimal use of the access network in the context of high-speed signals transmission, EPT may apply pair selection rules. These rules take into account the characteristics of the access network cables and the spectral compatibility between signals of different technologies as defined in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.

- If the OAO finds that a fault was caused by conditions or circumstances in the EPT's network, the OAO shall inform EPT thereof without any delay. The OAO shall be responsible for the accuracy of this information and shall support consequently any costs related to any EPT's unnecessary intervention.

## *3.5 Provisioning And Cessation*

The procedures for SLLS provisioning and cessation are described in Schedule 7 - Ordering and Provisioning Procedure.

# Schedule 4 - Service Description - Tie Cables

*Contents:*



## *4.1 Internal Tie Cables*

### 4.1.1 Description

At the EPT Local Exchange, the copper wires are terminated in the MDF. The OAO's access to the copper wire will be established with internal Tie Cables from the MDF of the Local Exchange to the OAO's Collocation area in that same EPT's Site.

The Collocation room may be situated inside the EPT's building or in a container outside the building.

The OAO will order the internal Tie Cables prior to the request of MPF. The procedure covering forecasts are described in Schedule 6 - Planning and Operation; the ordering process is described in Schedule 7 - Ordering and Provisioning Procedure. If, at a certain point in time, no more free wires are available in the internal Tie Cables, the specific orders for MPF will be rejected.

The internal Tie Cables will be supplied in increments of 100 pairs. The type of cable provided is twisted pair broadband cable.

### 4.1.2 Boundary conditions and prerequisites

Collocation is a prerequisite for the implementation of these LLU Services. As long as an OAO does not have approved Collocation facilities, no order for internal Tie Cables can be executed.

The OAO shall provide, at its own expenses, in the specified Collocation area, suitable accommodation for the EPT's equipment associated with the internal Tie Cables.

The internal Tie Cable will have, associated with it, termination blocks provided by EPT. The termination blocks are installed at the MDF and at the HDF provided by the OAO. The HDF is for the sole use of the OAO within the specified Collocation area.

Internal Tie Cables for voice-band or narrow-band data will be terminated on LSA-plus connection blocks with a possibility to disconnect or to do intrusive measurement

All installations shall be done by EPT or by EPT's subcontractors. The routing of the internal Tie Cables shall be at EPT's sole discretion.

EPT shall responsible for the installation and maintenance of the cable and termination blocks. The handover point shall be the termination block on the HDF.

The OAO shall be solely responsible for any loss, theft, destruction of, or damage to EPT's equipment in the accommodation housing the internal Tie Cable at the accommodation provided by the OAO, howsoever caused, occurring at any time while such EPT's equipment is so located.

For normal provisioning, EPT does not need to intervene on the HDF termination blocks. Therefore, the OAO is entitled to lock access to the HDF.

In case of presumed interference or other problems on the Tie Cable as described in Schedule 6 - Planning and Operation, EPT may request the OAO to enable temporary access to a locked HDF at no expense for EPT.

### 4.1.3 Provisioning And Cessation

The procedure for internal Tie Cables provisioning is described in Schedule 7 - Ordering and Provisioning Procedure.

## 4.2 External Tie Cables

### 4.2.1 Description

External Tie Cables are used to connect the OAO's HDF to the MDF in case of Distant or Adjacent Collocation.

The OAO will order the external Tie Cables prior to the request of MPF. The procedure covering forecasts are described in Schedule 6 - Planning and Operation; the ordering process is described in Schedule 7 - Ordering and Provisioning Procedure. If at a certain point in time, no more free wires are available in the external Tie Cables, the specific order for MPF will be rejected.

The external Tie Cables will be supplied in increments of 100 pairs. The type of cable provided is non-shielded twisted pair cables of 0,5 mm gauge; EPT’s rules for Cable Pair Management shall apply.

### 4.2.2 Boundary conditions and prerequisites

#### *4.2.2.1 Collocation in a Shelter adjacent to existing EPT Site*

The OAO shall provide, at his expenses and at the shelter provided by the OAO, suitable accommodation for the EPT equipment associated with the External Tie Cables. The external Tie Cables will have associated with it termination blocks provided by EPT. The external Tie Cables will be terminated at the MDF and at the HDF on the termination blocks installed in the OAO's specified area. The ironwork of the Distribution Frame hall be provided by the OAO and must be of sufficient size and of relevant specification to enable EPT to fix all termination blocks of the ordered external Tie Cables.

External Tie Cables for voice-band or narrow-band data will be terminated on LSA-plus connection blocks with a possibility to disconnect or to do intrusive measurement.

#### *4.2.2.2 Collocation in an OAO owned distant location site*

Distant Collocation is the service according to which EPT offers an extension of the Tie Cables from the MDF in an EPT's technical building to the first existing manhole on the boundary of EPT's premises for the purpose of junction with the OAO's cabling for LLU Services. EPT will indicate to the OAO the point of interconnection between OAO's and EPT's respective infrastructures, e.g. the first existing manhole on the public domain outside EPT-MDF premises.

EPT shall bring Tie Cables from a dedicated block on the MDF through the external EPT's cable ducts to the hand-over manhole. The splicing in EPT's manhole to connect Tie Cables to the OAO's cables will be executed by EPT. The related costs shall be charged to the OAO.

### 4.2.3 General Responsibilities

EPT is responsible for the installation and maintenance of the cable and termination blocks. The handover point is the termination block on the HDF at the OAO's site in case of Collocation in a shelter adjacent to existing EPT's site and the joint in the manhole in case of Collocation in an OAO's owned distant location site.

The OAO shall be solely responsible for any loss, theft or destruction of, or damage to EPT's equipment located in the accommodation housing the external Tie Cable at the premises provided by the OAO, howsoever caused,.

In case of presumed interference or other problems on the Tie Cable, EPT may request the OAO to enable temporary access to the HDF at no expense for EPT.

### 4.2.4 Provisioning And Cessation

The procedure for internal Tie Cables provisioning is described in Schedule 7 - Ordering and Provisioning Procedure.

## *4.3 Tie Cable Management*

Tie Cables shall at all times be filled before a new Tie Cable is deployed for the provision of additional MPF; the OAO shall be responsible for ensuring this.
The OAO shall therefore submit MPF provisioning for partially filled Tie-Cables in preference to empty Tie Cables.

In case of capacity constraints on the MDF and partially used Tie Cables, a rearrangement may need to be performed to de-fragment the use of cables and to eliminate gaps within the Tie Cable pair allocation thus eliminating unused pairs in excess of 50% of active pairs.

This activity will be done in cooperation with the OAO, while EPT will do the rearrangement, pair by pair, at the MDF and the OAO at the HDF.

EPT will bill this rearrangement activity to the OAO.

# Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop

*Contents:*



## *5.1 Introduction*

This schedule gives an overview of the existing EPT's access network using unscreened twisted metallic pairs and defines technical specifications applicable to transmission systems to be used on this network.

To ensure the prevention of undue interference between transmission systems used on different metallic pairs in the same access cable, transmission systems (whether provided by EPT, an OAO or an End Users) connected to metallic pairs of the EPT's access network need to conform to these specifications. References are made to international standards and to EPT's user network interfaces specifications. As new version of the below references may be subsequently published, the reader must always refer to the most recent version.

In order to enable an efficient use of the access networks for all connected systems, EPT has to limit spectral pollution by applying limits on:

- System diversity (technology mix in the same cable),
- Penetration (number of systems in the same cable),
- Signals (level, spectra).

System diversity and penetration are handled by Cable Pair Management (CPM); Signals are handled by Power Spectrum Management (PSM).

## *5.2 Cable Pair Management And Network Characteristics*

### 5.2.1 Cable Pair Management

#### *5.2.1.1 Background*

In order to maximize the capability of the systems deployed over the copper network, the effects of their mutual interference must be minimized. Where there are multiple operators or OAOs over the same infrastructure, as in the case of an LLU access network, a Cable Pair Management (CPM) is essential in order to:

- Maximise benefits for the End User,
- Ensure network integrity,

- Achieve a high level of End User penetration for broadband services,
- Foster the introduction of innovative technology,
- Ensure efficient use of the transmission capacity of the cable,
- Reduce risks of disputes.

The protection of existing services must be guaranteed and account must be taken to the many systems already deployed and their performance must be protected.

EPT applies a combined Cable Pair Management and Power Spectrum Management (PSM) to reduce mutual interference of the different systems due to cross talk between cable pairs in the cable. As a consequence:

- The number of broadband systems that can be deployed within an access cable depends on the diversity of systems installed, the spectral interoperability between the different broadband flows and on the characteristics of the cable itself. EPT installs such broadband systems on the cable as long as the quality degradation is acceptable. To identify possible spectral interferences and to enable a high penetration with broadband services in the cables, EPT is testing on a regular basis the state of the art technologies as defined by the telecom industries and supported by the equipment supplier.

CPM does not include in-house networking under the End User's responsibility. Signals from systems connected to an in-house network may interfere to cable systems either through cross talk between pairs or through leakage back of the system connected to the cable pair.

Any equipment connected directly to a MPF must be CPM compliant.

In some cases, and without the knowledge of or information to EPT, End Users might have taken advantage of existing opportunities to deploy broadband data systems over analogue leased lines, where simple copper pairs have been established between two premises. In case of identified interference and/or significant performance degradation on other systems, EPT will request immediate removal of those systems that are not compliant to CPM.

#### *5.2.1.2 Enforcement and policing of the Cable Management*

Due to the statistical nature of the figures involved (for example, cross talk), the CPM cannot give a guarantee of the performance of a system class over a particular copper pair or prevent harmful interference between transmission systems on the same access network in all cases.

Non-compliance with the CPM also does not necessarily lead to immediately observable service degradation. Detecting and locating systems that are non-compliant with the CPM is a difficult task. Non-intrusive test equipment to allow such detection is currently not generally available. EPT is therefore entitled to operate intrusive testing to identify the interference source.

During fault finding, it might be necessary to include co-operation of all cable users (including OAOs), also of those who are not themselves suffering from interference and are

not suspect as the interference source. Such support is not subject to any indemnification for the OAOs.

If non-compliance is detected in a reliable manner, the disturbing system is to be disconnected from the network immediately. This includes disconnection of End User's systems and equipment directly connected to the metallic copper pair.

Where it is not possible to locate the disturbing system unambiguously by measurement, EPT will perform a re-arrangement of the broadband pairs in the cable to optimize the distribution of broadband systems in relation to the specific characteristics of that cable. In case satisfying performance cannot be established by this rearrangement, the "last in-first out" (LIFO) principle will be applied on the cable until a level of performance is reached on the remaining systems, acceptable by all OAOs.

As the operation of the “last-in-first-out“ could favour a single system operating at the limit of the characteristics at the cost of an optimized broadband utilisation of that cable, an even performance concerning distance and supported bit rate on all remaining systems on the cable should be aimed for. In such a situation, weak performing systems can be eliminated at the benefit of an optimized overall broadband utilisation of the cable.

### 5.2.2 Network characteristics

#### *5.2.2.1 Generalities*

A subscriber loop consists of sections of twisted pairs of cables. All sections are usually composed of underground cables of different physical characteristics, and connected together by means of electrical splices. The underground cables are placed either directly in the ground or sometimes in conduct systems with manholes to give easy access to the joints. Normal aerial cables are generally quite seldom, though overhead drop wire or drop cables are used to connect small agglomerations of houses on rather short distances of 10 to 50 meters to a pole where underground cables terminate.

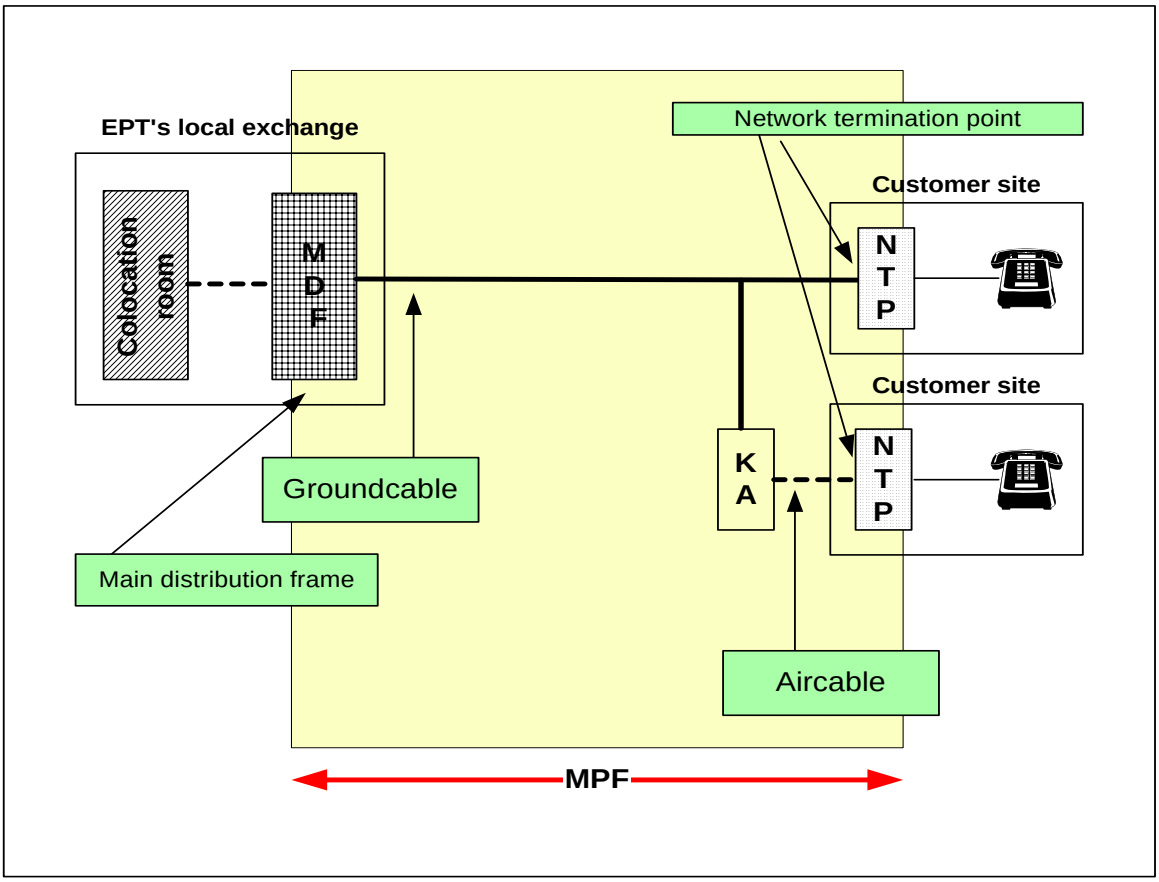


**Figure 3**

In the ideal situation, the access network has a tree configuration, with up to three hierarchical levels of branching. A branching node can be a Street Cabinet or any other facility owned by EPT. Every branching node offers the possibilities to manually cross-connect (or jumper) the twisted metallic pair of the feeder cable to any metallic pair in the distribution cables. In a branching node, the total number of metallic pairs of the feeder-cable is substantially smaller than the sum of those in all the distribution cables, typically a ratio of 1 to 1.6. Branching nodes are potential SLCPs for Sub-Loop Unbundling. The reality shows that cable arrangements can lead to a meshed structure in the feeding network.
All twisted metallic pairs start either at the MDF installed at the Local Exchange in EPT's network or at the SLCP in case of Sub-Loop Unbundling.

The distribution cables terminate on the NTPs in the individual End User's sites. The NTP is a rather small connector box installed inside the End User's facility at the entering point of the underground cable or the drop wire cable in the End User's premises.

Occasionally, the NTP can be attached on the outside of a wall of the End User's site.

During the last years, EPT has introduced the FTTC/FTTB technology, which means that optical fibres have been laid out between the MDF (in EPT's Local Exchange) and the curb (FTTC) or even the End User's premises (FTTB). In these cases, copper pairs may have disappeared on these sections and have remained between the FTTC/FTTB-shelters and the NT's. The shelters are potential SLCPs for Sub-Loop Unbundling.

### *5.2.2.2 Copper Cable Properties*

#### 5.2.2.2.1 Physical characteristics of the cables

Each telecom copper cable consists of a number of copper conductors grouped in quads. The quads can be arranged in bundles or in layers, depending on the type of cable.

- A conductor can be isolated by a layer of paper (in the older generation cables) or by foam skin polyethylene.
- Most of the conductors have a 0.4 mm or 0.5 mm diameter. Distant customers, however, need to be connected via conductors of 0.6 mm and 0.8 mm.
- Number of pairs may be ranged from 6 pairs in distribution cables ending to private homes up to 2000 pairs in feeder cables going out to the central office.
- To achieve water and vapour sealing, the conductors are surrounded by an alum-polyethylene sheath in the plastic insulated cables and by a lead sheath in the paper insulated cables.
- The plastic cables are longitudinally watertight trough a petrogelat filling.
- An armoring protects ground cables.

#### 5.2.2.2.2 Electrical characteristics of the cables

The table below gives some typical characteristics of the access network cables (figures taken from EPT's call for offers to be guaranteed by the cable manufacturers).

| Diameter | LR | KC | A800 |
|---|---|---|---|
| 0.4 mm | 300 | 50 | 1,55 |
| 0.5 mm | 192 | 52 | 1,25 |
| 0.6 mm | 130 | 40 | 0,95 |
| 0.8 mm | 73,2 | 40 | 0,75 |

LR = Loop Resistance in ohm/km measured with direct current
KC = maximum Kilometric Capacity in nF/km measured at 800 Hz
A800 = Attenuation measured at 800 Hz in dB/km

EPT's access network designed initialed to provide analogue telephony service respects following specifications:

- DC loop impedance: max. 1200 ohm
- Line attenuation in the loop: max 8,2dB at 800 Hz

In some exceptions, to serve very remote locations, these values might be exceeded.

The insulation resistance of each conductor in the cable in relation to the rest of the conductors (and any shielding) is expected to be at least 500 Mohm in all operating cables.

Please note that all values are indicated for reference purposes only. In field-measurements, they may change.

For example, to measure the attenuation, a loop is made of several pieces of cables and then additional attenuations and reflections due to the splices and the different cable gauges will occur.

### 5.2.3 Addition to comply with article 3 of ILR's decision 08/128ILR

EPT informs immediately the OLOs when problems due to cable fill or other reasons are likely to arise.

## *5.3 Power Spectrum Management Of The Equipment To Be Connected To The Metallic Path Facility*

The document ETSI TR 101 830-1 and EPT's user network interface descriptions are the two main references. When both are mentioned, the values stated in EPT's "User Network Interface"- descriptions apply.

For the present document, the referred schedules from ETSI TR 101 830-1 are based on version V1.3.1 (2002-12). As a new version of the below references may be subsequently published, the reader must always refer to the most recent version.

Other transmission technologies than those referenced hereafter or used by EPT may be used, if compliant with ETSI standards and if their spectral harmlessness with regard to other used technologies by EPT is proven and confirmed by a bilateral agreed field trial on EPT's network.

Due to the statistical nature of the figures involved (for example cross talk), the PSM cannot give a guarantee of the performance of a system class over a particular copper pair or prevent harmful interference between transmission systems on the same access network in all cases.

Non-compliance with the PSM also does not necessarily lead to immediately observable service degradation. Detecting and locating systems that are non-compliant with the PSM is a difficult task. Non-intrusive test equipment to allow such detection is currently not generally available. EPT is therefore entitled to operate intrusive testing to identify the interference source.

During fault finding, it might be necessary to include co-operation of all cable users (including OAOs), also of those who are not themselves suffering from interference and are not suspect as the interference source. Such support is not subject to any indemnification for the OAOs.

The following requirements are subject to amendments whenever changes to the relevant standards occur.

### 5.3.1 Requirements for equipment to be connected for Voice or low bit-rate data transmission on MPF

#### *5.3.1.1 Voice band signals*

This section covers signals from telephony transmission equipment (e.g. telephones, voice band modems, Faxes, analogue leased lines etc.) on a single wire pair. Unless otherwise specified, the requirements on DTMF-signals (Dual Tone Multi-Frequency), as defined in ETSI_TBR 21, are equal to the voice signal. A signal can be classified as a voice band signal if it is compliant with all sub-clauses below.

| **Parameter** | **Requirements** |
|---|---|
| Frequency range | 300 Hz to 3400 Hz |
| Total signal voltage | ETSI TR 101 830-1 Sub-clause8.1.1. |
| Peak amplitude | ETSI TR 101 830-1 Sub-clause8.1.2 |
| Narrow-band signal voltage | ETSI TR 101 830-1 Sub-clause8.1.3 |
| Unbalance about earth | ETSI TR 101 830-1 Sub-clause8.1.4 |
| Feeding Power (from the LT-port) | ETSI TR 101 830-1 Sub-clause8.1.5 |
| Reference impedance $Z_R$ | ETSI TR 101 830-1 Sub-clause8.1.6 |
| Ringing signal | ETSI TR 101 830-1 Sub-clause8.1.7<br>EPT's user network interface description "Caractéristiques de l'interface d'abonné analogique" |
| Metering signals | ETSI TR 101 830-1 Sub-clause8.1.8 |

#### *5.3.1.2 Low bit rate data transmission*

This section covers signals that are generated by digital transmission equipment, based on 2B1Q line coding, up to 160 kb/s, including ISDN-BRA and 64 kb/s and 128 kb/s leased lines.

| **Parameter** | **Requirements** |
|---|---|
| Total signal power | ETSI TR 101 830-1 Sub-clause 9.1.1. |
| Peak amplitude | ETSI TR 101 830-1 Sub-clause 9.1.2 |
| Narrow-band signal voltage | ETSI TR 101 830-1 Sub-clause 9.1.3 |
| Unbalance about earth | ETSI TR 101 830-1 Sub-clause 9.1.4 |
| Feeding Power (from the LT-port) | ETSI TR 101 830-1 Sub-clause 9.1.5 |

### 5.3.2 Requirements for equipment to be connected for Broadband data transmission copper local loop

#### *5.3.2.1 Symmetrical broadband*

This section summarises symmetrical signals that are generated by digital transmission equipment up to 2,3 Mb/s. These signals are commonly used to carry services like high quality leased lines, with symmetrical bit rates (in up- and downstream directions).

#### 5.3.2.1.1 SDSL PAM16 Signals

This section covers signals, generated by SDSL (Symmetric single pair high bit-rate Digital Subscriber Line) transmission equipment on one wire-pair, based on PAM16 line coding. This sub-clause is based on the ETSI TS 101 524 and ITU-T G.991.2.

A signal can be classified as a "PAM16 signal" if it is compliant with all sub-clauses below. Unless otherwise indicated the following signal specifications apply with a resistive load impedance of 135 and does not apply to the DC remote power feeding (if existing).

| **Parameter** | **Requirements** |
|---|---|
| Total signal power | ETSI TR 101 830-1 Sub-clause 10.5.1 |
| Peak amplitude | ETSI TR 101 830-1 Sub-clause 10.5.2 |
| Narrow-band signal power | ETSI TR 101 830-1 Sub-clause 10.5.3 |
| Unbalance about earth | ETSI TR 101 830-1 Sub-clause 10.5.4 |
| Feeding Power (from the LT-port) | ETSI TR 101 830-1 Sub-clause 10.5.5 |

### *5.3.2.2 Asymmetrical broad band*

This section summarises asymmetrical signals that are generated by digital transmission equipment up to 100 Mb/s, including ADSL, ADSL2 and ADSL2+ and VDSL2. Asymmetrically means a bit rate in the downstream direction and a significantly lower bit-rate in the upstream direction. 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 End User's side.

Asymmetrical DSL systems generate different signals in different transmission directions. Reversal of their transmission direction, which means the injection of upstream signals into LT-ports and downstream signals into the NT-ports, will cause a substantial reduction of the maximum reach. Such a reduction is even significant for all asymmetrical DSL systems when only one such system is reversed. Therefore, it is strictly forbidden to reverse the transmission direction.

#### 5.3.2.2.1 xDSL over PSTN

This category covers signals, generated by xDSL transmission equipment. These signals may share the same wire pair with PSTN signals. This clause is based on ETSI TS 101 388, ANSI T1.413 and ITU-T G.992.1 Annex A (ADSL), G.992.3 Annex A (ADSL2), G.992.5 (ADSL2+) and G993.2 Annex A, Annex H, Annex L (VDSL2).

A signal can be classified as an "ADSL over PSTN" (actually only for ADSL G.992.1) if it is compliant with all sub-clauses below:

| Parameter | Requirements |
|---|---|
| Total signal power (downstream only) | ETSI TR 101 830-1 Sub-clause11.1.1 |
| Total signal power (upstream only) | ETSI TR 101 830-1 Sub-clause 11.1.2 |
| Peak amplitude | ETSI TR 101 830-1 Sub-clause 11.1.3 |
| Narrow-band signal power (downstream only) | ETSI TR 101 830-1 Sub-clause 11.1.4 |
| Narrow-band signal power (upstream only) | ETSI TR 101 830-1 Sub-clause 11.1.5 |
| Unbalance about earth (upstream & downstream | ETSI TR 101 830-1 Sub-clause 11.1.6 |

The requirements for any PSTN signal operating in the frequency band below ADSL on the same wire pair are defined in section 5.3.1.1 - Voice band signals

#### 5.3.2.2.2 xDSL over ISDN signals

This category covers signals, generated by ADSL transmission equipment. These signals may share the same wire pair with ISDN signals. This clause is based on ETSI TS 101388 and ITU-T G.992.1 (ADSL), G.992.3 (ADSL2), G.992.5 (ADSL2+) and G993.2 (VDSL2). A signal can be classified as an "ADSL over ISDN" (actually only for ADSL G.992.1) if it is compliant with all sub-clauses below.

| Parameter | Requirements |
|---|---|
| Total signal power (downstream only) | ETSI TR 101 830-1 Sub-clause 11.3.1. |
| Total signal power (upstream only) | ETSI TR 101 830-1 Sub-clause 11.3.2 |
| Peak amplitude | ETSI TR 101 830-1 Sub-clause 11.3.3 |
| Narrow-band signal power (downstream only) | ETSI TR 101 830-1 Sub-clause 11.3.4 |
| Narrow-band signal power (upstream only) | ETSI TR 101 830-1 Sub-clause 11.3.5 |
| Unbalance about earth (upstream & downstream | ETSI TR 101 830-1 Sub-clause 11.3.6 |

# Schedule 6 - Planning and Operation

*Contents:*



## *6.1 Preliminary Exchange of Information*

EPT will provide to the OAO as soon as reasonably practicable, but not later than T51 from the date of signature of the non disclosure agreement for the LLU Services an internet access address and password to enable the OAO to view:

- The location of MDF Sites,
- A module to find for each postal address the correspondent MDF or SLCP Site,
- For each MDF Site the type of Collocation foreseen and the actual status of deployed Collocation at each location.

The data is provided for the sole purpose of enabling the OAO to consider whether to request services from EPT pursuant to this offer.

## *6.2 Electronic Information exchange*

The exchange of information will be done by the means of electronic messaging transfer of XML files via webservice in SOAP (Simple Object Access Protocol) format. For a transition period until 1.1.2009, the exchange of information via Internet e-mail, is accepted by EPT. After that period, all OAOs shall conform to the exchange via webservice in SOAP format.

To be accepted, the structure of the files transmitted shall correspond to the specifications as agreed between Parties.

Before the first data transmission can take place, the OAO has to perform transmission tests with EPT. A period of maximum T52 is foreseen between the OAO's declaration of his interest in LLU Services and the first file to be accepted.

## *6.3 Forecasting*

Providing new MPF service to OAOs is a very labor intensive activity. The volume of activity depends mainly of the commercial activity of the different OAOs without any direct influence of EPT. To allow proper planning of EPT's production capacity and of its work force allocation as well as to respond to the demand within the indicated time limits, an accurate forecasting of the required provisioning is essential.

### 6.3.1 Procedure

As soon as possible and in any event not less than 3 months from the Commencement Date, and prior to placing any orders for service, the OAO shall provide Order Forecasts to EPT.

The OAO shall submit 4 times a year to EPT a rolling forecast of MPF and Tie Cable capacities on a quarterly basis for a period of 1 year. Forecast volumes will be made for a whole quarter, except for every first quarter of a Forecast period, where the volumes will be provided per month.

EPT will assume an even distribution of orders over the month unless otherwise indicated by the OAO. This may be subject to bilateral review.

To allow EPT to plan and set up its production capacity and resources, the OAO needs to provide forecasts of loops.

If the OAO fails to provide Forecasts, EPT cannot guarantee to respond to orders placed during this period.

If the initial Forecast for the first quarter exceeds EPT's resources, EPT may adjust these Forecasts to its production capacity.

### 6.3.2 Deviations

Forecast volumes of orders will fall within 110% and 80% volume bands. This indicates acceptable parameters for Forecast accuracy. The observation period for measuring deviations is a quarter of a year.

If order volumes exceed more than 10% of the OAO's Forecast, such additional orders might be handled within EPT's remaining handling capacity or, if no handling capacity is available, postponed to the next observation period. If order volumes are lower than 80% of the OAO's Forecast, EPT will charge the OAO for the not ordered services below the 80% of the Forecast half of the installation charge as defined in Schedule 8 - Tariffs if it was not possible to allocate the forecasted capacity to handle orders of other OAOs exceeding their forecasts.

By submitting a new Forecast at the end of the quarter n, the OAO has the possibility to adjust the quarter n+1 by 10%, the quarter n+2 by 30% and the new values for quarter n+3 can be defined without any limitations.

## *6.4 Fault Reporting And Repair*

### 6.4.1 EPT Fault contact point (EPT FCP), fault acceptance and billing

The OAO shall send a Fault Report to EPT's FCP at the following email address:

**BO_ACC_DER@ept.lu.**

EPT shall send a mail to the OAO at the opening and at the closing of a fault ticket. To do so, the OAO shall provide EPT with an e-mail address for the exchange of this notification

messages.

All related phone calls should be directed via the EPT's FCP : +352 4991 5868.

OAO's faults will be accepted by EPT 24/7.

Fault clearance will be performed during normal working days from Monday - Friday from 8 a.m. to 12 a.m. and from 1 p.m. to 5 p.m.

Special conditions are applied for fault clearance on Saturdays, Sundays and legal and public holidays.

Fault clearance interventions are billed by EPT to OAO as defined in Schedule 8 - Tariffs.

Fault reporting and repair have to be performed on conditions and time schedules as specified in the related paragraphs below.
Only accepted faults will be treated.

### 6.4.2 Fault reporting and repair for MPF

#### *6.4.2.1 Fault reporting to EPT by the OAO*

- Prior to submitting a Fault Report, the OAO shall have to ensure that a genuine fault exists and that every effort has been made in advance to check that the fault resides within EPT's area of responsibility.

- Fault Reports affecting the MPF will be exchanged between the OAO FCP and the EPT FCP.

- The OAO shall provide sufficient information to allow the diagnosis of the reported fault and to enable the progression of the fault until resolution. Therefore, all Fault Request should be done using a predefined fault report form that can be downloaded from "interconnect.ept.lu". Fault Reports are nevertheless also accepted via simple e-mail containing at least the following data:

  - EPT's reference number of the line
  - Contact point and phone number of the End User
  - Address of the End User
  - Contact point and phone number of the OAO
  - Type of service affected
  - Description of the reported fault
  - Date and description of the intervention of the OAO's technician.

  The OAO may pass any additional information considered relevant to the Fault Report but EPT shall not be obliged to use this information.

EPT will send a notification message by e-mail to the OAO at the opening and at the closing of each fault ticket. This automatically sent notification messages are triggered by the EPT's reference number of the line. If this field is not indicated in the fault reporting message of the OAO, no notification will be sent to the OAO.

#### *6.4.2.2 Fault reporting to EPT by the End User*

The OAO has to inform the End User about the OAO's responsibility and communicate the OAO FCP to the End User in order to prevent any abuse of EPT's support services.

EPT will not accept any Fault Report from the OAO's End Users. EPT has no obligation to report a fault to the OAO if an End User is reporting directly a fault.

#### *6.4.2.3 EPT and OAO liabilities for the fault clearance*

The OAO is requested to transmit to EPT all measurement data from tests the OAO has already performed on MPF.

These measurements should include the following items:

- Resistance measurements,
- Capacity measurements,
- Attenuation.

In case the OAO encounters problems on DSL services offered through an MPF line, the following additional information is required:

- DSL line synchronous or not synchronous,
- PPPoE OK or not OK,
- DSL bit rate values up/down,
- Noise margin.

If requested by EPT, the OAO shall disconnect the terminal equipment at the End User's site in order to allow the testing of the MPF. EPT can also request to the OAO a timeframe for isolating the MPF at the HDF in the OAO's Collocation facilities to do the necessary measurements.
OAO's refusal to follow this request will not allow EPT to verify the lines and can be considered as a wrongful repair request.

If all information regarding the Fault Report is provided correctly by the OAO, EPT accepts the Fault Report and starts fault localization and fault clearance process within the normal working hours. If EPT detects a fault on the MPF, EPT will use all reasonable endeavors to repair the fault.

The fault clearance is to be achieved within T40. The applicable tariffs are specified in Schedule 8 - Tariffs.

The OAO shall cooperate with EPT's reasonable requests in an effort to locate and if possible resolve any fault. EPT reserves the right to contact and make an appointment with the OAO's End User for repair of the MPF. In case where contact with the End User is necessary for repair and the OAO failed to give this information, the repair request will be rejected.

When EPT believes that a fault has been cleared, a fault clearance notification will be sent to the OAO and the measurement of the fault repair time will cease. If the OAO will not confirm or reject the fault clearance notification within a period of one hour, the fault will be closed automatically by EPT.

Both Parties recognize and acknowledge that the fault repair time commence when EPT accepts the ownership of the fault and ended when EPT informs the OAO that the fault has been repaired or closed for any other valid reason.

If the OAO rejects the clearance of the fault within a period of one hour after fault clearance notification, the OAO shall provide the following information:

- The reason why the OAO reasonably believes that the circuit is unsuitable for use as a MPF,
- Whether or not the OAO believes that the MPF is within the agreed specifications,
- All additional information that the OAO reasonably considers suitable to assist in understanding and diagnosing any underlying fault in the MPF.

The OAO must cooperate with EPT to carry out further tests, even on OAO's equipment when reasonably requested to do so. At its sole discretion, EPT may , carry out additional work at the request of the OAO. The OAO shall pay EPT's costs for such additional work.

#### *6.4.2.4 Wrongful repair request*

A wrongful repair request is occurring when EPT has done all necessary measurements on the line and test results prove that the quality of the MPF is not the cause of service interruption or service degradation.

In case of a repair where the detected fault lies outside the section of the MPF for which EPT is responsible or in case of a wrongful repair request, all the costs for work and traveling already performed by EPT to that repair request will be charged to the OAO.

#### *6.4.2.5 Feedback on requested repair*

In case the OAO contacts EPT on written request about an ongoing repair action, EPT will inform the OAO of the current repair status. On OAO's request, a report confirmation shall be sent by fax or by e-mail.

#### *6.4.2.6 Customers liabilities*

The End User will grant EPT's field-force access to the NTP within his/her premises as often as this is necessary for the clearance of the fault. In case of any problems, EPT will

report this to the OAO, who will contact the End User and take the necessary arrangements to grant access to EPT.

In case the End User is absent when EPT's workforce is visiting the End User, EPT will drop a card in the mailbox requesting the End User to contact EPT's helpdesk to convene an appointment. The normal intervention periods cannot be respected in this case and the intervention shall be suspended until the End User contacts EPT's helpdesk.

### 6.4.3 Fault reporting and repair for SLLS

#### *6.4.3.1 General*

EPT will be responsible for the repair of the low bandwidth services offered to the End User. OAO will be responsible for the repair of the high bandwidth services. EPT's responsibility with respect to the repair of the high bandwidth service is limited to the following equipment installed by EPT, i.e. centralized splitters at the central office, the cabling between the splitter and the HDF as well as the MPF between the MDF and the NTP at the End User's premises.

#### *6.4.3.2 Fault reporting to EPT by the OAO*

- Prior to submitting a Fault Report, the OAO shall ensure that a genuine fault exists and that every effort has been made to check that the fault resides within EPT's area of responsibility.

- Fault Reports affecting the high bandwidth will be exchanged between the OAO FCP and the EPT FCP.

- The OAO shall provide sufficient information to allow the diagnosis of the reported fault and to enable the progression of the fault until resolution. Therefore all fault requests must contain the following data:

    - Circuit identification number that was provided in the SLLS provisioning process,

    - Contact point and phone number of the End User,

    - Contact point and phone number of the OAO,

    - Type of service affected,

    - Description of the reported fault and all relevant technical details.

The OAO may submit any additional information the OAO considered as being relevant to the Fault Report, but EPT is not obliged to use this information.

#### 6.4.3.3 Fault reporting to EPT by the End User

The OAO has to inform the End User about the OAO's responsibility and communicate the OAO FCP to the End User in order to prevent any abuse of EPT's PSTN/ISDN support service.

For fault reporting, EPT will receive direct calls from the End User through the same channels as it already exists for End User support regarding EPT's PSTN/ISDN services.

According to the content of the End User's Fault Report, the following scenarios may occur:

- Low Bandwidth Problem: EPT will start the repair process for PSTN/ISDN.
- High Bandwidth Problem: EPT will refer the End User to the OAO FCP.and EPT will not accept any Fault Report concerning the high bandwidth of SLLS from the OAO's End Users.
- Low Bandwidth Problem and High Bandwidth Problem: both previous scenarios will be executed independently.

#### 6.4.3.4 Fault reporting to OAO by EPT

The OAO has to provide his OAO FCP to EPT in order to enable EPT to pass the OAO FCP contact information to the End User in case of a High Bandwidth Problem.

EPT has no obligation to report a fault to the OAO in case an End User is reporting a fault concerning a High Bandwidth Problem.

#### 6.4.3.5 EPT and OAO liabilities for the fault clearance

If all the information regarding a Fault Report is provided correctly by the OAO, EPT accepts the Fault Report and starts the fault localisation and the fault clearance process within the normal working hours.

The Fault Repair is achieved within T40 days. The applicable tariffs are specified in Schedule 8 - Tariffs. If necessary, the OAO is required to disconnect his xDSL service upon EPT's request to enable appropriate measurements of the line. Refusal from the OAO to do so will imply that EPT will not be in a position to verify the lines and can be considered as a wrongful repair request.

The OAO shall co-operate with EPT's reasonable requests in an effort to locate and if possible resolve any fault. EPT reserves the right to contact and make an appointment with the End User of the OAO for repair. In case where contact with the End User is necessary for repair and the OAO failed to give this information, the repair request will be rejected.

Should the repair activity establish that the OAO connects equipment that is not compliant with the requirements set out in the Schedule 5 - Technical specifications for Transmission

Equipment In The Local Loop, or equipment that causes disturbances for EPT and/or for other End Users in the cables, EPT is entitled to disconnect the SLLS after prior OAO's notification.

In any case of planned maintenance and repair that can affect the SLLS, EPT shall inform the OAO.

If the OAO requests the repair and EPT concludes that OAO's equipment caused the fault, the OAO will be billed for the work done by EPT.

When EPT believes that a fault is cleared, a fault clearance notification shall be sent to the OAO and the measurement of the fault repair time will cease. It has to be stressed that such a notification can only be sent to the OAO for faults reported in writing to the address BO_ACC_DER@ept.lu. If the OAO will not confirm or reject the fault clearance notification within a period of one hour, the fault will be closed automatically by EPT.

Both Parties recognize that the fault repair time commences when EPT accepts the ownership of the fault and ends when EPT informs the OAO that the fault has been repaired or closed for any other valid reason.

If the OAO rejects the clearance of the fault within a period of one hour after fault clearance notification, the OAO shall provide the following information:

- The reason why the OAO reasonably believes that the circuit is unsuitable for SLLS,
- Whether or not the OAO believes that the SLLS is within the agreed specifications,
- All additional information that the OAO considers as suitable to assist in understanding and diagnosing any underlying fault in the SLLS.

The OAO must co-operate with EPT to carry out further tests, even on OAO’s equipment when reasonably requested to do so.
At its sole discretion, EPT may carry out additional work at the request of the OAO. The OAO shall pay EPT’s costs for such additional work.

#### *6.4.3.6 Wrongful repair request*

A wrongful repair request is occurring when EPT has done all necessary measurements on the line and test results prove that the quality of the SLLS is not the cause of service interruption or service degradation.

In case of a repair where the detected fault lies outside the section of the SLLS for which EPT is responsible or in case of a wrongful repair request, all the costs for work and traveling already performed by EPT for that repair request will be charged to the OAO.

#### *6.4.3.7 Feedback on requested repair*

In case the OAO contacts EPT in writing about an ongoing repair action, EPT will inform the OAO of the current repair status. On OAO's request, a status report shall be sent by fax or by e-mail.

#### 6.4.3.8 Customers liabilities

The End User will grant EPT's field-force access to the NTP and splitter within his/her premises as often as this is necessary for the clearance of the fault.

In case the End User is absent when EPT's workforce is visiting the End User, EPT will drop a card in the mailbox requesting the End User to contact EPT's helpdesk to convene an appointment. The normal intervention periods cannot be respected in this case and the intervention is suspended until the End User contacts EPT's helpdesk.

# Schedule 7 - Ordering and Provisioning Procedure

Contents:



## *7.1 Appointment Handling*

The following appointment handling procedure is valid for the provision of MPF, MPFNP and SLLS service, hereafter referred to as the Services. For the provision of these Services, coordination between EPT, OAO and OAO's End User is required in order to fulfill the installation of the Services.

Each OAO maintains a Calendar (Time Schedule) with all its appointments related to the Services.

The Calendar is exchanged between the OAO and EPT and the appointments shall be fixed between the Parties as described hereafter.

EPT will define time frames and time allocation rules with the OAO taking into consideration the time needed for installing the different types of Services and EPT's available labor forces.

The OAO will arrange an appointment with his End User for the provisioning of the Services in respect of the constraints of OAO's Calendar.

Appointments can be taken from Monday to Friday except on legal and public holidays.

The appointment will specify:

- relating date,
- relating time, scheduled between 8 AM and 12 AM or between 1 PM and 5 PM, at which the technician may get access to End User's premises.

The OAO shall include the appointments in its Calendar and send it to EPT by electronic messaging system at least T50 before the first appointment.
EPT will plan all related appointments of this period in its service order schedule.

Should the case arise that an appointment cannot be met, the defaulting Party will inform the other Party as soon as possible. After resolution of the related problems, the defaulting Party in fault will contact the other Party in order to define a new time frame, in which the former appointment will be included.

Each Party will endeavour to respect the agreed Calendar with the other Party.

## *7.2 Provisioning of Tie Cables*

### 7.2.1 General

Orders are related to OAO's dedicated equipment. This equipment consists in Tie Cables and associated OAO's termination blocks.
All installation is done by EPT's technicians or by EPT's subcontractors.
Forecasts and ordering are done by the OAO for each type of Tie Cable and per Local Exchange.

Forecasts and firm orders shall be done using the specific templates provided by EPT. Templates will be considered as valid only when they are properly completed.
In case of missing or incorrect data, the template will be rejected and the reasons of rejection will be indicated in EPT's reply message.

All Forecasts and firm orders must be submitted by registered mail to the SPOC of EPT for LLU Services.

Irrespective of the terms and conditions stated below, EPT reserves the right to reject Forecasts per Local Exchange if those Forecasts are, in respect to the volumes requested by the OAO, not in line with reasonable market demands.

### 7.2.2 Ordering Procedure

The OAO can order Tie Cabling through a firm order. A firm order consists of the requested capacity per type of Tie Cable and this for each Local Exchange. Together with the firm order, the OAO includes the date he wants the Tie Cabling to be ready. This date will be at least T30 later than the firm order date. EPT will confirm the receipt of every firm order and inform the OAO when the installation of the Tie Cables and termination blocks is completed.

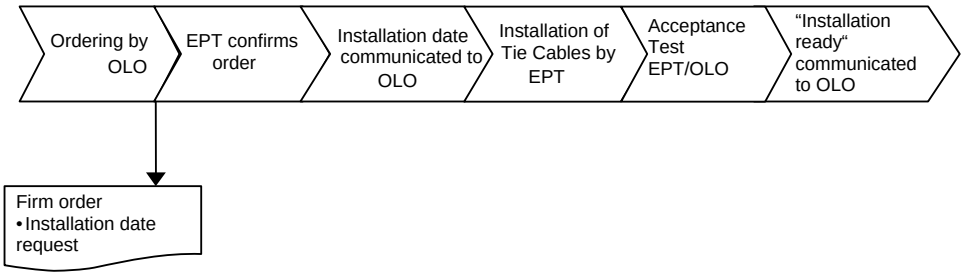


**Figure 4*: Overview of the ordering process of Tie Cables.***

### 7.2.3 Term and billing

The minimum period of service for any Tie Cable (Internal or External) shall be 12 months commencing on the Ready for Service Date. If an OAO terminates service of a Tie Cable before the end of the minimum period of service, the OAO shall pay a sum equal to 20% of the rental charges, being the rental charges applicable on the date of provision and

calculated for the remainder of the minimum term of service.

For each Tie Cable and associated products and services ordered by the OAO, the OAO shall pay to EPT monthly in advance connection and rental charges as specified from time to time in Schedule 8 - Tariffs.

### 7.2.4 Internal Tie Cables

The first order for internal Tie Cables shall cover a minimum capacity of 100 pairs for broadband services or 100 pairs for voice or narrow-band services. The maximum capacity that may be ordered in one time is limited to 500 pairs.
The OAO is permitted to order additional internal Tie Cable capacity when the net amount of available connections per internal Tie Cable type possibly being provisioned within a single Collocation place becomes 100 pairs or less.

Subject to agreed Forecasts, EPT shall make reasonable endeavors to provide the OAO the ordered internal Tie Cables within T30. Tie cables can also be provided within the initial Collocation arrangement project and will then be part of an overall planning and timing.

### 7.2.5 External Tie Cables

The first order for external Tie Cables shall cover a minimum capacity of 100 pairs. The maximum capacity that can be ordered in one time is limited to 500 pairs.
The OAO is permitted to order additional external Tie Cable capacity when the net amount of available connections per internal Tie Cable type possibly being provisioned within a single Collocation place becomes 100 pairs or less.

Subject to agreed Forecasts, EPT shall make reasonable endeavours to provide the OAO the ordered external Tie Cables within T31 days.

## *7.3 Provisioning Procedure of Metallic Path Facility*

### 7.3.1 Metallic Path Facility without Number Porting (MPF)

#### *7.3.1.1 Definition*

The ordering procedure for MPF without migration of service covers the following 3 tiered inter-Party activities:

- The OAO's submission of a survey request and EPT's reply to that request in a positive or negative way,
- In case of a positive survey, the OAO can order the provisioning of the MPF by indicating an appointment for that MPF on the Calendar exchanged with EPT,EPT will confirm the realisation date and the MPF line will be activated on the confirmed date.

#### *7.3.1.2 General considerations*

EPT will not accept any order for MPF unless the following prerequisites have been

fulfilled:

- An individual LLU Agreement has been signed between the Parties,
- A Collocation facility at that specific MDF Site exists and the installation of an internal or external Tie Cable has been completed.

The MPF ordering process is OAO controlled.

This means:

- End Users will contact directly the OAO they wish to purchase the End Users' service from,
- Before signature of an order for MPF, the OAO's agent will inform the End User about the procedures and responsibilities in case of providing service to the End User through MPF service and about the service impacts on his/her existing telecom services,
- EPT will not accept any orders for MPF directly from an End User,
- Only the OAO will communicate with EPT,
- Submission of MPF orders are accepted by means of automatic file transfer via WEB service in SOAP format. For a transition period lasting until 1.1.2009, orders may also be submitted by simple mail, with the required information in structured format as agreed between the OAO and EPT.

In circumstances of doubt or of any claims raised by the End User, the new OAO contracting service with the End User has to provide evidence by submitting the original request-form signed by the End User within T4. Such documents have to be archived by the OAO at least for the period specified by applicable Luxembourg law for contractual documents.

Orders for MPF survey and MPF provisioning can only be submitted via e-mail exchange.

An OAO can submit a survey request for provisioning of MPF in those local area networks where this OAO has contracted internal or external Collocation facilities. To determine the relation of the End User address to its serving Collocation Site or a SLCP, the OAO can refer to the specific EPT Internet database.

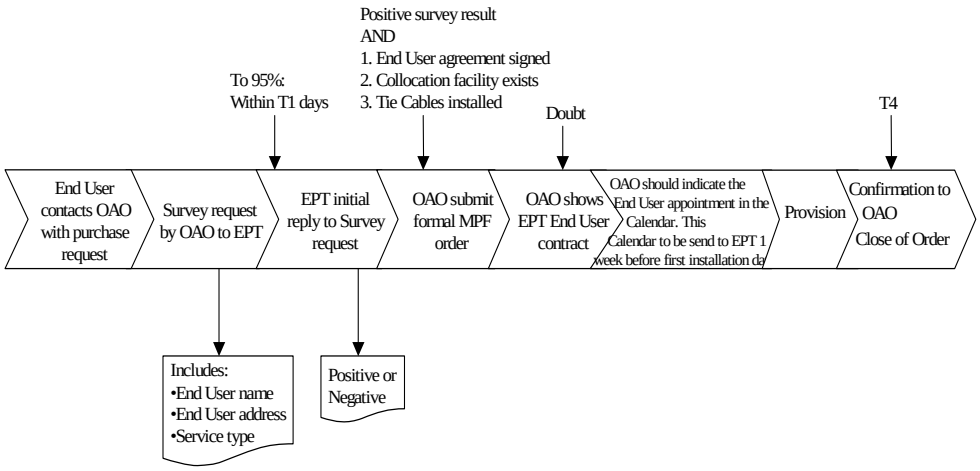


**Figure 5*: Ordering process for MPF.***

### *7.3.1.3 Submission of an MPF survey request*

A submitted MPF survey request will contain at least the following information:

- OAO Reference Number,
- End User's name,
- End User's exact installation address,
- MDF number,
- Provision Type,
- Service Type requested (narrow band, broadband).

EPT will treat the requests in a non-discriminatory way based on the principle of “first in - first served”.

EPT will respond to this survey request within the timescale defined in the parameter schedule by sending back either a negative survey answer or a positive answer with the relevant technical information on the MPF and a confirmation if the provisioning can be performed for the requested activation date. In case of a negative survey answer, EPT will indicate the relevant reasons.

If the key conditions of MPF submission are met and essential information is provided, EPT will handle this survey request in the same manner it handles its own internal requests for MPF.

The following reasons will nevertheless lead to a negative survey answer:

- End User's address is not connected to EPT’s local network,
- Address is not served by the indicated MDF or SLCP,

- MPF is not available for the requested service quality,
- Unallocated MPF is not available to the End User's address,
- Unallocated MPF is not available in intermediate sections in the local area network,
- Unallocated Tie Cable capacity is not available,
- Allocation of MPF for broadband is inhibited due to interference problems on that section of the network,
- Allocation of MPF for broadband is inhibited due to cable length greater than 6000 m on that section of the network,
- Allocation of MPF for broadband inhibited due to interference problems on that section of the network.

EPT will endeavour to reply to 95% of the survey requests within a delay of T1 days.

While performing a survey for MPF, EPT is reserving the involved infrastructure elements for a period of T2, as defined in the parameter schedule.
If in the meantime no appointment date for the activation of the line has been received from the OAO for provisioning the allocated MPF, the MPF survey will be cancelled and the reservation of the allocated infrastructure elements will be levied.

With the positive answer to a survey for MPF services, EPT will supply the cable length information of the reserved MPF to the OAO and the EPT's reference number in case of survey success.

In case the survey performed by EPT results in a negative answer or if the OAO does not place a MPF provisioning order, EPT will charge the amount for the survey as indicated in the price schedule. A positive answer followed by a firm provisioning order from the OAO by providing an appointment date for the line does not require the payment of the survey charge.

#### *7.3.1.4 Order for Provisioning of MPF*

After notification of a positive survey, the OAO coordinates an appointment date with his End User. The OAO will submit a weekly Calendar to EPT handling the different appointments coordinated with its End Users. This Calendar has to be submitted at the latest on Tuesday at noon for the appointments of the following week. The number of appointments available per week for each OAO will be periodically negotiated between EPT and the OAO.

The activation date is confirmed by EPT. For relations where the automatic file exchange is already operational an XML message "MPF Time Schedule" is sent to the OAO. At the confirmed activation date, EPT will connect the MPF in the network and test the line from the MDF to the NTP at the End User premises.

In case of positive testing, the end point of the MPF on the MDF will be the jumper to the indicated connection point of the OAO’s Tie Cable.

The OAO shall be responsible for the service deployed on this line as from the information date onwards.

Should the installation of the requested MPF fail for any of the below reasons, EPT will inform the OAO by the electronic messaging system:

- Failure to meet the test,
- Defect copper pair in a section,
- Discrepancy between data for reserved MPF and physical availability of pairs in the network,
- Damaged cable within a section of the path for that MPF.

EPT will endeavour to find an alternative solution to provide the MPF as ordered by the OAO in a time period of T6 days. If reasonable means do not allow to provide the MPF to the OAO, EPT will send a final failure message.

A final failure message will also be sent in case of one of the following reasons:

- No alternative solution to initially reserved MPF routing available,
- Incoherence in the allocation of Tie Cable connection points,
- Mismatch between MPF type and indicated connected equipment type,
- Mismatch between MPF survey request and MPF provisioning order.

#### *7.3.1.5 Connection of the in-house cabling at the End User premises*

EPT's MPF responsibility terminates at the NTP as described in Schedule 1 - Service Description - Metallic Path Facility.

In case the OAO wants to connect additional in-house cabling to EPT's NTP, he is entitled to connect the cables to distribution boxes of single-family houses or to the cross-connection distribution frame of corporate customers.

In case additional in-house cabling is to be connected to an NTP in a multi-tenant premise, the OAO will indicate this in his order for provisioning MPF. At the moment of MPF installation, EPT will introduce the cable in the NTP-box.

If the OAO or End User wants to deviate from this standard, this has also to be expressly indicated in the order for provisioning MPF. A non-standard connection will normally need a modification at the NTP level and a specific survey will be required. In this case, normal timing as defined for the MPF provisioning shall not apply.

### 7.3.2 MPF combined with Number Porting (MPFNP)

#### *7.3.2.1 Definition*

This process allows the OAO to take over an active PSTN or ISDN basic access line together with the main number and multiple subscriber numbers (MSN) allocated to this line. Considering the complexity of combined provisioning, this procedure is limited to both above-mentioned types of service.

The ordering procedure for MPF combined with numbering portability covers the following 3 tiered inter-party activities:

- The OAO's submission of a survey request and EPT's reply to that request in a positive or negative way.
- In case of a positive survey, the OAO will coordinate an appointment date with his End User. The OAO will submit a weekly calendar to EPT handling the different appointments coordinated with its End Users. This Calendar has to be submitted at the latest on Tuesday at noon for the appointments of the following week. The number of appointments available per week for each OAO will be periodically negotiated between EPT and the OAO.
- The activation date will be confirmed by EPT. For relations where the automatic file exchange is already operational, an XML message "MPF Time Schedule" will be sent to the OAO
- Modification of the lines to provide MPF combined with a number portability in a same process will be achieved.

If PSTN or ISDN Basic Access (BA) service is provided through an active system (concentrator or pair gain system) in the Local Loop, combined provisioning of MPF and NP is not possible.

#### *7.3.2.2 General considerations*

EPT will not accept any order for MPFNP unless following prerequisites have been fulfilled:

- An LLU Agreement has been signed by the Parties.
- An individual agreement for telephony service interconnection and number portability has been signed by that OAO.
- A Collocation facility at that specific MDF exists and the installation of an internal or external Tie Cable has been completed.

The MPFNP ordering process is OAO controlled. This means:

- End Users will directly contact the OAO if they wish to purchase the End User PSTN or ISDN-BA service.

- EPT will not accept any orders for MPFNP directly from an End User.
- Only the OAO will communicate with EPT.
- The contract of the existing End User Services shall be terminated in compliance with applicable terms and conditions for EPT telecommunication services
- The OAO has to assure that all prerequisites and required formalities in relation to the "Procedure for number portability" as defined by the "Number Portability" working group in May 2000 are respected.

In case of doubt or any claims raised by the End User, the new OAO contracting service with the End User has to evidence such a contract by submitting the original request form signed by the End User within T4. Such documents have to be archived by the OAO at least for the time period defined by applicable Luxembourg law for contractual documents.

Orders for MPFNP survey and MPFNP provisioning can only be submitted by exchanging XML messages via Webservice in SOAP format. For a transition period lasting until 1.1.2009, orders my also be submitted by simple mail, containing the information in structured format as agreed between the OAO and EPT.

An OAO can submit a survey request for provisioning of MPFNP in those local area networks where this OAO has contracted internal or external Collocation facilities. To determine the relation of the End User's address to its serving Collocation Site or a SLCP, the OAO can refer to the specific Internet database.

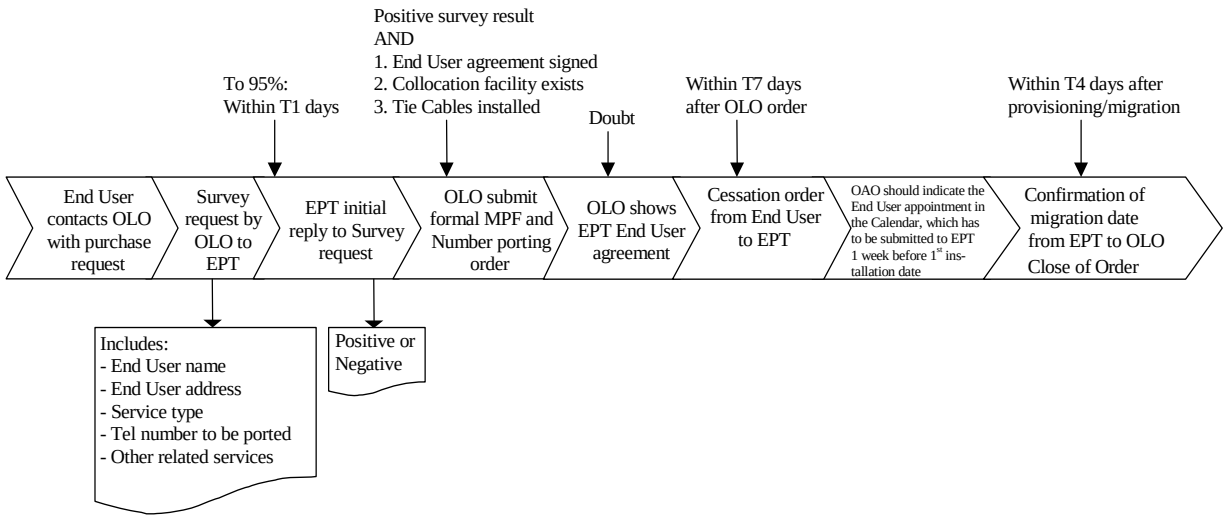


**Figure 6: Order process for MPFNP.**

### *7.3.2.3 Submission of an MPFNP survey request*

A submitted MPFNP survey request will contain at least the following information:

- OAO's Reference Number,

- End User's name,
- End User's exact installation address,
- End User's EPT account number (required for automated process),
- MDF number,
- Provision Type,
- Service Type Requested (Narrowband, Broadband),
- Service to be migrated (ISDN BA or PSTN) and if related services are active on that number or line,
- End User's telephone number(s) to be ported,
- Line Detail (Multi-line without secondary number ….).

EPT will respond to this survey request within T1 days as defined in the parameter schedule by sending back either a negative or a positive survey answer with the relevant technical information on the MPF. If the key conditions of MPFNP delivery are met and essential information is provided, EPT will not reject a request.
In case of a negative survey answer, EPT will indicate the relevant reasons.

The following reasons will lead to a negative survey answer:

- Presently used MPF is provided trough a pair gains system,
- Address is not served by the indicated MDF,
- Unallocated Tie Cable capacity is not available,
- Allocation of MPFNP for broadband is inhibited due to cable length greater than 6000m on that section of the network,
- Any of the reject reasons as specified in the number portability document from May 2000 as defined by the working group.

In case the survey performed by EPT results in a negative answer or if the OAO does not place a combined provisioning order, EPT will charge the amount for the survey as indicated in the price schedule.
A positive answer followed by a firm provisioning order does not require the payment of the survey charge.

#### *7.3.2.4 Order for provisioning of MPFNP*

After notification of a positive survey, the OAO will coordinate an appointment date with his End User. OAO will submit a weekly Calendar to EPT handling the different appointments coordinated with its End Users. This Calendar has to be submitted at the latest on Tuesday at noon for the appointments of the following week. The number of appointments available per week for each OAO will be periodically negotiated between

EPT and OAO

The activation date is confirmed by EPT. For relations where the automatic file exchange is already operational an XML message "MPF Time Schedule" is sent to the OAO.

EPT will reject an order if EPT does not receive, within a period of T7 days after receipt of the OAO's order, a matching cessation order from the End User according to applicable EPT's terms and conditions for telecommunication services, confirming that it is the End User's intention to cease service(s) with EPT and receive existing service from that OAO.

EPT will perform the migration in the following way:

- Connect MPF to the indicated connection point of the OAO's Tie Cable,
- Activate the number re-routing in its network to transfer calls to the OAO's network,
- The OAO can now test the successful migration of service and confirm the successful migration within 0,5 hours to EPT by phone,
- The OAO is responsible for the service deployed on this line as from this moment onwards,
- In case migration of service has not been performed successfully, EPT will re-establish the initial situation. Both Parties will then liaise to identify the underlying problem,
- In case of successful migration, the OAO will inform the other OAOs that the number porting has taken place according to the procedure for number portability.

Should it not be possible to migrate related service within the fixed time frames as the End User line is damaged at the point in time migration should take place, EPT will inform the OAO also by e-mail. EPT will endeavour to propose a new migration date, as soon as the re-establishment of the MPF will allow it.

EPT will send a final failure message in case of one of the following situations:

- Incoherence in the allocation information of Tie Cable connection points provided by the OAO,
- Planned physical change in EPT's local network,
- Mismatch between MPFNP survey request and MPFNP provisioning order.

For those requests that have been rejected, the request will be closed in the database with the indication of the appropriate reject reason code(s). The combined order for provisioning of MPF and number porting will be abandoned at this point in time and appropriate information is sent back to the OAO.

### 7.3.3 Transfer of MPF

#### *7.3.3.1 General*

An active PSTN or ISDN basic access line, provided through LLU Services from EPT, can be subject to subsequent transfer together with the main number and Multiple Subscriber Numbers (MSN) allocated to this line from a previous OAO to a new OAO, or back to EPT.

One OAO can cancel the service of another OAO if so requested by an End User. The End User must have previously signed the necessary authorisation form, stating that the End User has respected its contractual obligations against the OAO that previously used the MPF.

#### *7.3.3.2 Transfer of MPFNP from OAO to another OAO*

For transfer of an active MPF combined with number porting, the normal procedure for number porting, as defined by the working group in the document of May 2000, has to be respected between the previous and the new OAO.

The new OAO has to submit a survey request to EPT that is handled by EPT in analogy to Schedule 7 - Ordering and Provisioning Procedure.
The subsequent combined order for MPF transfer and number porting will be handled in the following way.

- Migration to be done at requested date and time as indicated in the Calendar,
- Disconnect the MPF from the previous Tie Cable and connect it to the indicated connection point of the new OAO's Tie Cable,
- Inform the previous and the new OAO by phone within 0,5 hour that the migration has been accomplished and that number re-routing to transfer calls to the OAO's network can be activated,
- The successful migration of service can now be tested between the previous OAO and the new OAO, who will confirm the successful migration within 0,5 hour to EPT by phone,
- The OAO is responsible for the service deployed on this line as from this moment onwards,
- In case migration of service has not been performed successfully, EPT will proceed to validate the MPF transfer between Tie Cables. In case no abnormal situation can be stated at this level, EPT will re-establish the initial situation. The previous and new OAOs will then liaise to identify the underlying problem.

In case of successful migration, the new OAO will inform the other OAOs that the number porting has taken place according to the procedure defined for number portability.

In case of unsuccessful transfer, EPT will update its database and send a closing message back to the requesting OAO by electronic mail.

#### 7.3.3.3 Transfer of MPFNP from OAO to EPT

In case of a transfer of an active MPF together with number porting back to EPT, where the number to be ported is belonging to a number range allocated to EPT, EPT will inform the donnor OAO at least 3 working days before the effective transfer date. For relations where the automatic file exchange is already operational, an XML message "MPFNP CANCELATION" will be sent to the OAO.

In case of a transfer of an active MPF back to EPT together with a number belonging to an OAO's numbering range, EPT will previously issue a number porting request according to the procedure defined by the number porting working group in May 2000 to the previous OAO being the “donor operator” in terms of number porting with the indication that MPF is transferred at the same time.

On the indicated activation date, EPT will proceed as follows:

- Inform the previous OAO by phone that the migration will be performed within the next 2 hours,
- Disconnect the MPF from the previous Tie Cable and connect it to EPT’s service line card,
- Inform the previous OAO by phone within 0,5 hour that the migration has been accomplished and that number re-routing to transfer calls to EPT’s network can be activated,
- The successful migration of service can now be tested by EPT and will be confirmed to the previous OAO within 0,5 hour,
- EPT will be responsible for the service deployed on this line as from this moment onwards.
- In case migration of service has not been performed successfully, EPT will re-establish the initial situation. The previous OAO and EPT will then liaise to identify the underlying problem.

In case of successful migration, both involved parties will update their databases and close the request. EPT will send a broadcast message to the other OAOs and ILR according to the procedure defined in the document for number porting.

In case of an unsuccessful transfer, the previous OAO shall close the request and both parties update their respective databases. Both Parties will then liaise to identify the underlying problem.

### 7.3.4 Hand-back Procedure

In case an End User terminates its services provided by the OAO through MPF, this OAO will inform EPT within a time period of T8 days that MPF has become available for reallocation.

The OAO will send this hand-back information by an electronic message.

To avoid any undue disconnections, the message will contain following mandatory information:

- OAO's Cancellation Reference,
- Old OAO's Reference,
- Old EPT's Reference,
- Type of handback (MPF or MPFNP),
- Tie-Cable connection point number,
- End User's name,
- End User's address,
- Disconnection Due Date

EPT will confirm the hand-back message by an electronic reply within T9 days. For relations where the automatic file exchange is already operational, an XML message "MPFNP CANCELATION" will be sent to the OAO. At the date of receipt by EPT of correct hand-back information, the rental billed to the OAO for this line will be terminated. The termination fee will be charged on the last rental bill.

In case the submitted mandatory information in a hand-back request is considered as incoherent after validation in the EPT database, this stated incoherence will be indicated in a reply message to the OAO.

The MPF will not be disconnected until the incoherence has been clarified with the best endeavors of both Parties. The rental of the MPF billed to the OAO will continue until the MPF can finally be disconnected.

### 7.3.5 Cancellation of an order before activation

If an OAO may want to abandon its request for MPF after he has submitted a formal order by the electronic messaging system, he shall send a cessation order to EPT by e-mail. The electronic message will contain at least the following information:

- MPF number,
- Tie Cable connection point number,
- End User's name,
- End User's address.

If the date of receipt of the order cancellation by EPT is more than T5 days ahead to the agreed appointment date with the End User, EPT will cancel the order and the OAO shall pay the MPF charge for order cancelled before activation as well as the survey charge, as defined in Schedule 8 - Tariffs.

In case EPT receives the cessation order later than T5 days before to the agreed appointment date with the End User or in case of MPF order with NP, EPT will cancel the

order and charge the full connection charge for that type of service as defined in Schedule 8 - Tariffs. The survey charge has then not to be paid.

EPT will send a confirmation message back to the OAO within T9 days.

## *7.4 Provisioning Procedure of Shared Local Loop Services (SLLS)*

### 7.4.1 Splitters and Filters

#### *7.4.1.1 General*

In order to provide SLLS, splitters have to be installed at EPT's Local Exchanges.
At End User's premises, splitters or filters are needed, depending on the configuration as explained in Schedule 3 – Service Description – Shared Local Loop Service (SLLS)

Splitters and filters are provided by EPT upon OAO's request as stated below.

#### *7.4.1.2 Forecasting*

Every OAO willing to take advantage of SLLS will provide 4 times a year a rolling Forecast for the expected need of splitters and filters. Forecasts for splitters have to differentiate between POTS and ISDN splitters, for EPT's Local Exchanges or End User's premises. EPT will use this Forecasts to set-up a framework contract with an equipment supplier.

The forecasted numbers of splitters and filters have to be coherent with the Forecast of SLLS. As the splitters are installed in fixed multiples per type in the different exchanges, certain excess to the number of SLLS has to be considered.

#### *7.4.1.3 Ordering and Provisioning*

##### 7.4.1.3.1 General

The OAO can order splitters for its used SLLS through a firm order.
Orders have to be provided using specific templates in accordance with Schedule 9 – Request Forms.

For each OAO's firm order for splitters/filters, EPT will send a corresponding delivery request to its equipment supplier. EPT will inform the OAO on the confirmed delivery delay of the supplier and of any unforeseen delay in the delivery.

EPT will provide splitters for POTS SLLS or ISDN SLLS according to ITU recommendation G922.1.

##### 7.4.1.3.2 Splitters for Local Exchange

The order shall inform about the requested number of incremental units, per type of unit and this for each individual Local Exchange.

The splitters for EPT Local Exchange area will be provided and installed under EPT's responsibility. For each installation of a block of central office splitters, a dedicated Tie Cable will be installed between the splitters and the OAO's HDF.

The conditions for the installation of a Tie Cable are defined in Schedule 4 Service Description – Tie Cables. These Tie Cables have to be ordered by the OAO.

#### 7.4.1.3.3 Splitters for End User site

Splitters for End User's site can be ordered by OAO in increments of 50. They have to be installed by the OAO.

The order shall inform about the requested number of incremental units, per type of unit.

#### 7.4.1.3.4 Filters for End User site

Filters can be ordered by the OAO in increments of 50. They have to be installed by OAO.

The order shall inform about the requested number of incremental units, per type of unit.

### 7.4.2 Shared Local Loop Services (SLLS)

#### *7.4.2.1 General considerations:*

This process allows the OAO to order a SLLS.
The process is a 3 tiered inter-Parties activity:

- The OAO's submission of a survey request and EPT's reply to this request in a positive or negative way,
- In case of a positive survey, the OAO can submit a formal order for the provisioning of SLLS.

EPT will not accept any order for SLLS unless following prerequisites have been fulfilled:

- A LLU Agreement has been signed between the Parties,
- A Collocation facility at that specific MDF Site exists and the installation of an appropriate internal or external Tie-cable has been completed.

The SLLS ordering process is OAO controlled.

This means:

- End Users will contact directly the OAO they wish to purchase the End User Service from,
- Before signature of an order requiring SLLS, the OAO's agent will inform the End User about the procedure and responsibilities in case of providing service through SLLS,
- EPT will not accept any orders for SLLS directly from an End User,
- Only the OAO will communicate with EPT.

In case of inconsistency, doubt or any claims raised by the End User, the OAO, contracting service with the End User, has to provide evidence by submitting the original request-form signed by the End User within T20 days. Such documents have to be archived by the OAO for at least the period specified by the applicable Luxembourg law for contractual documents.

Orders for SLLS survey and SLLS ordering can only be submitted via e-mail exchange.
The OAO must conform to the agreements made regarding the electronic information exchange as described in Schedule 6 - Planning and Operation.

An OAO can submit a survey request for SLLS in those local area networks where this OAO has contracted internal or external Collocation facilities.

To determine the relation of the End User's address to the serving Collocation site, the OAO can refer to the specific EPT Internet database.

#### *7.4.2.2 Submitting of a Shared Local Loop Service (SLLS) survey request*

A submitted SLLS survey request will contain at least the following information:

- OAO's Code,
- The requested service type (SLLS),
- End User's name,
- End User's Address,
- Number of PSTN or ISDN line serving as SLLS support,
- Service Type requested (ADSL).

EPT will treat the request in a non-discriminatory way based on the principle of “first in first served”.

EPT will respond to this survey by sending back either a negative or a positive survey answer with the relevant technical information. In case of a negative survey answer, EPT will indicate the relevant reasons.

If the key conditions for SLLS are met and all essential information is provided, EPT will handle this survey request in the same manner it handles its own internal request for SLLS.

The following reasons will nevertheless lead to a negative survey answer:

- End User cannot be identified by EPT,
- Miss-match between End User's name and End User's address,
- Miss-match between End User's name and number of PSTN or ISDN line serving as SLLS support,
- PSTN or ISDN service is not provided through a MPF,
- Allocation of SLLS inhibited due to interference problems on that section of the

network.

EPT will endeavour to reply to 95% of the survey requests within a delay of T11 days.

While performing a survey for SLLS, EPT is reserving the involved SLLS to the requesting OAO for a maximum period of T12 days as defined in the parameter schedule.

If in the meantime no formal order has been received from the OAO for provisioning the allocated SLLS, the SLLS survey will be cancelled and the reservation on the specific pair in the local loop will be levied.

With a positive answer to a survey request for SLLS, EPT will supply the cable length information and the information whether this line is a PSTN or an ISDN line to the OAO.

The survey performed by EPT resulting in a negative answer or if the OAO does not place a SLLS provisioning order, EPT will charge the amount for the survey as specified in the price schedule. A positive answer followed by a firm provisioning order will not require the payment of a survey charge.

#### *7.4.2.3 Order for Provisioning of Shared Local Loop Services*

After notification of a positive survey, the OAO shall submit within T13 days a formal provisioning order. The provisioning order shall be send to EPT by the electronic messaging system and shall contain at least the following information:

- The OAO's code
- The survey order number,
- The End User's name (complete name for physical persons or the official juridical name for other companies or legal bodies),
- Phone number where the End User wants to be contacted to arrange the appointment,
- The connected equipment type,
- The connection point of the Tie Cable (as indicated in Schedule 6 - Planning and Operation).

After validation of the submitted information, EPT will contact the End User to arrange an appointment for the provisioning of the SLLS.
At the arranged installation date, EPT will connect the SLLS in the network and test the line from the MDF to the centralised splitter interface at the End User’s premises or at the NTP in case distributed filters are used.

In case of a positive testing, the end point of the splitter in the Local Exchange will be jumpered to the indicated connection point of the OAO’s Tie Cable.

EPT will endeavour to provide 95% of the SLLS orders within a time period of T15 days

provided that the End User accepts the proposed appointment date within this time frame.

No later than T14 days after the SLLS has been connected, EPT will send a confirmation with the electronic messaging system to the OAO. The OAO will be responsible for the service deployed on this line as from the date of this information onwards.

Should the installation of the requested SLLS fail for any of the below indicated reasons, EPT will inform the OAO by the electronic messaging system.

- If the installation of the splitters on the line did prevent the underlying POTS or ISDN service to continue to work properly (mainly due to insertion loss of the splitters), SLLS is not possible on this line and the order has to be closed finally,

- A discrepancy exists between the information for reserved SLLS and physical situation in the network that prevents installation of SLLS (for instance, PSTN or ISDN service is provided through active elements in the network; pair gain, etc).

Such cases prevent the provisioning of SLLS on this specific line. If there exists no second POTS or ISDN line to the same End User on the same premises that could support SLLS, the SLLS order has to be discarded. In this case, EPT will send a final failure message to the OAO.

### 7.4.3 Hand-back Procedure for SLLS

In case an End User terminates its services provided by the OAO through SLLS, the OAO will inform EPT within a time period of the T18 days that SLLS has become available for reallocation.

The OAO will send this hand-back information by an electronic message in the format as defined in Schedule 6 - Planning and Operation.

To avoid any undue disconnection, the message will contain following mandatory information:

- SLLS number,
- Centralised Splitter or Distributed Filters,
- Tie-cable connection point number,
- End User's name,
- End User's Address,
- Date of deactivation.

EPT will confirm the hand-back message by an electronic reply within T19 days. At the date of receipt by EPT of correct hand-back information, the rental billed to the OAO for this line will be terminated. The termination fee will be charged on the last rental bill.

In case the submitted mandatory information in a hand-back request is considered incoherent after validation in the EPT database, this stated incoherence will be indicated in a reply message to the OAO.

The SLLS will not be disconnected until the incoherence has been clarified with the best endeavours of both Parties. The rental of the SLLS billed to the OAO will continue until the SLLS can finally be disconnected.

### 7.4.4 Cancellation of Low Bandwidth Service

A cancellation request for Low Bandwidth Service has to be sent by the End User to EPT.

If the End User cancels the Low Bandwidth Service he/she has contracted with EPT, the SLLS will automatically be converted into a MPF.

EPT will inform the OAO of this conversion by the electronic messaging system, giving following information:

- SLLS number,
- Centralised splitter or distributed filters,
- Tie cable connection point number,
- End User's name,
- End User's address,
- New allocated MPF number,
- Date of conversion.

The OAO will be billed the MPF charge as indicated in Schedule 8 - Tariffs as from the date the Low Bandwith Service will be cancelled.

#### *7.4.4.1 Reactivation of low-band service*

A line that had been used as SLLS and converted to an MPF after cancellation of the Low Bandwith Service can be reactivated as a SLLS. This change back from MPF to SLLS may take place when the End User requests activation of Low Bandwith Service to be provided by EPT.

If the End User orders the Low Bandwith Service from EPT, the MPF service will automatically be converted into a SLLS.

EPT will inform the OAO of this conversion by the electronic messaging system, giving following information:

- MPF number,
- Tie cable connection point number,
- End User's name,
- End User's address,

- New allocated SLLS number,
- Date of conversion.

The OAO will be billed the SLLS charge as indicated in Schedule 8 - Tariffs as from the date the Low Bandwith Service will be activated.

### 7.4.5 Cancellation of an order before activation

If, at the End User's request to the OAO or for any other reason, the OAO wants to abandon its request for SLLS, after having submitted a formal order, the OAO will inform EPT by the electronic messaging system of his decision to cancel this order. The electronic message will contain at least the following information:

- SLLS number,
- Tie cable connection point number,
- End User's name,
- End User's address.

If the date of receipt of the order for cancellation by EPT is more than T21 days before the agreed appointment date with the End User, EPT will cancel the order and the OAO pays the SLLS charge for order cancellation before activation as well as the survey charge, as defined in Schedule 8 - Tariffs.

In case EPT receives the order for cancellation later than T21 days before the agreed appointment date with the End User, EPT will cancel the order and charge the full SLLS provisioning tariff as defined in Schedule 8 - Tariffs to the OAO. The survey charge has not to be paid.

EPT will send a confirmation message back to the OAO within T19 days.

# Schedule 8 - Tariffs

*Contents:*



## *8.1 Internal Tie Cable*

| Item | Euro |
|---|---|
| Connection charge for Tie Cables - voice-band usage - per 100 pairs | 1.302,00 |
| Connection charge for Tie Cables - broadband usage - per 100 pairs | 2.050,00 |
| Monthly charge for Tie Cables voice-band usage - per 100 pairs | 3,00 |
| Monthly charge for Tie Cables broadband usage - per 100 pairs | 3,00 |
| EPT manpower for special works required by the OAO - per hour | 74,67 |

## *8.2 External Tie Cable*

| Item | Euro |
|---|---|
| Connection charge for Tie Cables - voice-band usage - per 100 pairs | Bespoke |
| Connection charge for Tie Cables - broadband usage - per 100 pairs | Bespoke |
| Monthly charge for Tie Cables voice-band usage - per 100 pairs | Bespoke |
| Monthly charge for Tie Cables broadband usage - per 100 pairs | Bespoke |
| EPT manpower for special works required by the OAO - per hour | 74,67 |

## *8.3 Metallic Path Facility (MPF)*

*(SAME CHARGES FOR MPF combined with NP)*

| Item | Euro |
|---|---|
| Survey charge for a non-active local loop including length provisioning in case of no firm order | 50,60 |
| Survey charge for an active local loop including length provisioning in case of no firm order | 26,45 |
| Connection charge MPF including survey charge - non-active local loop | 102,69 |
| Connection charge MPF including survey charge - active local loop | 58,79 |
| Monthly rental MPF for voice-band usage | 10,75 |
| Monthly rental MPF for broadband usage | 10,75 |
| MPF Hand-back charge | 32,34 |
| MPF loop resistance measurement | 170,80 |
| MPF length, resistance, insertion loss measurement | 170,80 |
| MPF order canceled before activation | 13,89 |
| MPF Wrongful Repair Request | 170,80 |
| EPT manpower for special works required by the OAO - per hour | 74,67 |

## *8.4 Shared Access*

| Item | Euro |
|---|---|
| Survey charge for an SLLS including length provisioning in case of no firm order | 26,45 |
| Connection charge SLLS including survex charge | 81,16 |
| Monthly rental SLLS | 3,2 |
| Provisioning of POTS/ADSL Splitters at the LE, 24 units | 1.053,65 |
| Provisioning of ISDN/ADSL Splitters at the LE, 24 units | 1.115,95 |
| Provisioning of POTS/ADSL Splitter for End User site | 13,12 |
| Provisioning of ISDN/ADSL Splitter for End User site | 11,25 |
| Filter for End User's site | 3,00 |
| SLLS Hand-back charge | 32,34 |
| SLLS order cancelled before activation | 13,89 |
| SLLS Wrongful Repair Request | 170,80 |
| EPT manpower for special works required by the OAO - per hour | 74,67 |

## *8.5 Fault Repair*

### 8.5.1 The fault repair is achieved within T40.

| *Time of intervention, (working days, from Monday to Friday)* | *Origin of the fault is situated* | *Price* |
|---|---|---|
| 8am-5pm | On EPT's side | For free |
| 8am-5pm | On OAO's side | Price A |

### 8.5.2 The OAO wishes that the fault repair were done prior to other End User's requests or outside working hours. In this case, the following prices are applicable.

| *Time of intervention* | *Origin of the fault is situated* | *Price* |
|---|---|---|
| ***Priority from 7am-7pm (Monday to Friday) and 8am-12pm (Saturday)*** | ***On OAO's or on EPT's side*** | ***Price B*** |
| ***From 7pm-7am from Monday to Friday, Saturday from 12am on and Sunday*** | ***On OAO's or on EPT's side*** | ***Price C*** |

### 8.5.3 Manpower fees

- Price A = Actual EPT manpower fee - per hour plus surcharges following the table below
- Price B = Actual EPT manpower fee - per hour plus surcharges following the table below with a minimum of 250 Euros per intervention
- Price C = Actual EPT manpower fee - per hour plus surcharges following the table below with a minimum of 500 Euros per intervention.

The prices A, B and C are not applied if a general fault takes place.

| ***Time:*** | ***6h00-7h00*** | ***07h00-19h00*** | ***19h00-22h00*** | ***22h00-6h00*** |
|---|---|---|---|---|
| Monday to Friday | 50% | 0% | 50% | 65% |
| Saturday | 50% | | | 65% |
| Sunday | 70% | | | 85% |
| Legal and public holiday | 200% | | | 215% |

| | **Euro** |
|---|---|
| Actual EPT manpower fee - per hour | 74,67 |
| All manpower fees are based on the Luxembourgian price index 652,16. They will be updated following the evolution of this price index. | |

## Schedule 9 - Request Forms

Request forms will be made available by EPT to OAO pursuant to the services OAO is opting for.

# Schedule 10 - Parameter Schedule

*Contents:*



## *10.1 Provisioning of MPF*

| Timer | Value | Description |
|---|---|---|
| T1 | 5 working days | Response time to the survey request |
| T2 | 20 working days | Maximum time period for MPF reservation as from the date the positive survey request has been send by electronic mail |
| T3 | 3 working days | Time period between the date the positive survey has been send by electronic mail and the date the operator submits a firm activation order for the MPF |
| T4 | 5 working days | Delivering by OAO to EPT of the original MPF request form signed by the End User in case of doubt |
| T5 | 2 working days | Order cancellation before agreed appointment date for installation of the service |
| T6 | 5 working days | Time period to submit an alternative solution in case the reserved resources in EPT's network are not usable to provide MPF |
| T7 | 20 working days | Maximum time period to wait for the customers matching order after a positive order has been submitted by the Operator |
| T8 | 2 working days | Time period as from the moment service has been terminated to inform EPT that MPF has become available for re-use |
| T9 | 2 working days | Confirmation by EPT to hand-back message or Cancellation of Order before activation time period to provide the hand-back message to EPT |

### 10.2 Provisioning of SLLS

| Timer | Value | Description |
|---|---|---|
| T11 | 5 working days | Response time to the survey request |
| T12 | 10 working days | Maximum time period for SLLS reservation as from the date the positive survey request has been send by electronic mail |
| T13 | 3 working days | Time period between the date the positive survey has been send by electronic mail and the date the operator submits a firm activation order for the SLLS |
| T14 | 2 working days | Time period between the moment the SLLS has been provisioned and the confirmation is send by the electronic message |
| T15 | 21 working days | Time period to provide 95% SLLS orders in the network |
| T18 | 2 working days | Time period as from the moment service has been terminated to inform EPT that SLLS has become available for re-use |
| T19 | 2 working days | Confirmation by EPT to hand-back message or Cancellation of Order before activation time period to provide the hand-back message to EPT |
| T20 | 5 working days | Delivering by OAO to EPT of the original SLLS request form signed by the End User in case of doubt |
| T21 | 2 working days | Order cancellation before agreed appointment date for installation of the service |

### 10.3 Provision of Tie Cables

| | | |
|---|---|---|
| T30 | 21 working days | Provision of ordered Internal Tie Cables |
| T31 | 35 working days | Provision of ordered External Tie Cables |

### 10.4 Fault Reporting and Repair

| Timer | Value | Description |
|---|---|---|
| T40 | 2 working days | Time period to achieve 95% of fault repair requests |

### 10.5 Other

| Timer | Value | Description |
|---|---|---|
| T50 | 4 working days | Notification period for appointments sent to EPT |
| T51 | 5 working days | Provision of an internet address and password to the OAO to access the MDF information |
| T52 | 20 working days | Maximum period between the declaration of an OAO that it is interested in Local Loop Unbundling Services and the acceptance of first electronic exchanged file |