



Reference Unbundling Offer

Entreprise des Postes et Télécommunications

2005

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1 Introduction

- 1.1. This Reference Unbundling Offer (RUO) provides for the unbundling terms and conditions, which shall be granted to Other Licensed Operators (OLO) for the provisioning of EPT's (Entreprise des P&T Luxembourg) Local Loop Unbundling (LLU) services.
- 1.2. The Local Loop Unbundling services covered by this RUO are as follows:
 - Unbundled Metallic Path Facility Service
 - Shared Access Service
- 1.3. This RUO is valid from September 1st, 2004, until December 31, 2006 unless:
 - A new RUO is approved or adopted by the ILR (Institut Luxembourgeois de Régulation).
 - A material change occurs in the law or regulations governing telecommunications in Luxembourg.
- 1.4. Unless defined otherwise herein, the terms used in this RUO must be interpreted in accordance with the Law of March 21, 1997 on Telecommunications (the "Law"), its implementing regulations and the Regulation of the European Parliament and of the Council on unbundled access to the local loop adopted on December 18, 2000.
- 1.5. This RUO includes Schedules which detail the different services covered by this offer and constitute an integral part thereof.
- 1.6. The referenced collocation services are part of the RCO.

2 Definitions

Active Local Loop	Continuous copper pair in the local loop between the NTP and the MDF providing service to the End User
ADSL	Asymmetrical Digital Subscriber Line
Agreement	The agreement between EPT and OLO, including the schedules and – if relevant – amendments on this agreement or schedules.
Cancellation request for Low Bandwidth Service	A request from the End User to EPT in order to cancel Low Bandwidth Service provided by EPT.
Collocation	The provision by EPT of physical space and technical facilities necessary to reasonably accommodate and connect the relevant equipment of an OLO.
Collocation Equipment Room	Physical space in EPT site allocated for Collocation purposes.
Commencement Date	Forecasting term for date when e.g. a service will start.
Confidential Information	Information that is not to be shared by others than EPT and the relevant OLO.
CPM	Cable Pair Management Plan
Disclosing Party	The party in an agreement handing over confidential information.
Distribution Cable	The copper cable located behind the street cabinet in the direction of the End User Premises.
End User	The party with whom EPT or OLO(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 can be obtained.
EPT FCP	The Fault Contact Point provided by EPT for the End User and the OLO
ETS	European Telecommunication Standards
FCP	Fault Contact Point
Fault Report	Report written by OLO and sent to EPT in case of faults discovered within the LLU service or a report written by the End User and sent to EPT in case of faults discovered within the SLLS service.
Feeder Cable	The copper cable between the Main Distribution Frame (MDF) at the EPT Local Exchange and the street cabinets.
Forecast	In this case, the process of OLO forecasting future demand of LLU services or SLLS.
Handover Distribution Frame (HDF)	The HDF will be located in the OLO specified Collocation area. The HDF includes only the "iron work" and will be provided by the OLO. 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 the OLO to the End User 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
Local loop	The physical twisted metallic pair circuit connecting the network termination point at the 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 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 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.
Main Distribution Frame (MDF)	The termination point of the raw copper circuit in EPT's Local Exchange Building.
Metallic Path Facility (MPF)	A twisted pair of fully metallic continuous unequipped copper wires on the section between EPT's MDF at the EPT Local Exchange and the End User's address connected on a Network Termination Point if it exists.
MSN	Multiple Subscriber Numbers
Network Termination Point (NTP)	The termination point of the raw copper section at the End User's premises at which point the EPT access network ends.
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 asked.
OLO Access Point	The physical interface within the Other Licensed Operator's System at which the Interconnection Services can be obtained.
OLO FCP	The Fault Contact Point provided by the OLO for the End User and EPT
Order Forecast	In this case, a plan from OLO stating future orders for LLU services or SLLS provided by EPT.
Other Licensed Operator (OLO)	Any legal or natural person exploiting telecommunications networks and/or services subject to a license pursuant to Article 7 of the Law of March 21, 1997 on Telecommunications.
Parties	EPT and the OLO with which an 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
Ready For Service	Date when service should be ready for commercial launch.

Date	
Receiving Party	The party in an agreement receiving confidential information.
Reference Collocation Offer (RCO)	The reference offer for collocation services in force..
Reference Unbundling Offer (RUO)	The present offer for unbundling services.
Shelter	Building or container housing telecom equipment.
Short Term Forecast	Forecast covering nextcoming 1 – 6 months.
Site	A 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.
Tie Cable	The connection cable from the dedicated OLO blocks at the HDF and the MDF in that same Local Exchange.
Time Schedule	Schedule used for managing the timing of the service provisioning. The Time Schedule is agreed between OLO and EPT taking into consideration all related constraints, as the volume and type of services to provide and the manpower available to execute the related works.
xDSL	ADSL , SDSL

3 The Local Loop Unbundling Services Offer Principles

3.1 Service Description

The EPT Local Loop Unbundling service:

- i) Shall be provided by EPT to OLO in accordance with the terms and conditions of this Offer.
- ii) Shall consist of:
 - Provision of telecommunications service(s) to End Users by the OLO, whereby EPT will provide a Metallic Path Facility (MPF) to the OLO, or
 - Transfer of an existing metallic pair from EPT to the OLO, provided that such metallic pair at the time of request by the OLO is supporting one or more of the compatible telecommunication services provided by EPT to an End User; or

Provision of shared access services.
- iii) Shall only be used for the delivery of Services (End Users), which are compliant with the specifications as referenced in the schedules.
- iv) Shall only be provided in conjunction with the EPT Collocation Service for MPF-access.

The EPT Local Loop Unbundling service shall only be provided on a line where:

- i) A Network Termination Point exists and is in service on the user premises.
- ii) The OLO has ordered the required Handover Distribution Frame (HDF) and Tie Cables.
- iii) For the transfer of an existing metallic pair from EPT to the OLO the current End User has requested that the contract(s) for the existing End User service(s) is (are) terminated in accordance with the EPT general conditions for telecommunication services.

3.2 Responsibilities

3.2.1 EPT Responsibilities

EPT shall be responsible for:

- The access network used to provide the EPT Local Loop Unbundling, Sub Local Loop Unbundling or Shared Local Loop from End User's Network Termination Point (NTP) to the MDF or the SLCP.

- Connecting or disconnecting Tie Cables and individual access lines in response to OLO confirmed orders in accordance with Schedule 6 - Planning and Operation.
- Providing billing information, as specified in article 3.9 - Financial conditions.
- Conducting tests 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 OLO on system alteration to be made in the network having a potential effect on the OLO offered services.
- Informing OLO about cable fill (reaching 10%) in order to make OLO aware of the fact that system alteration may be necessary soon.

EPT shall not be responsible for:

- Expanding, modifying or conditioning the EPT access network to provide EPT Local Loop Unbundling service offer unless otherwise specified in the Agreement.
- The performance of any service OLO operates on a line provided as part of the EPT Local Loop Unbundling service offer.

3.2.2 OLO Responsibilities

The OLO shall be responsible for:

- Ordering a line in accordance with Schedule 7 - Ordering and Provisioning Procedure.
- Using exclusively telecommunications terminal equipment complying with the "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 fault testing and producing associated fault test reports to prove faults in the EPT network in accordance with Schedule 6 - Planning and Operation.
- Informing the End User about all technical modifications required on his existing installation and the service impacts that might occur.
- Tracking EPT's system alteration activities in order to make sure that the customer's services are maintained.

3.3 EPT's General Powers

Occasionally, EPT, acting reasonably, may temporarily suspend services as described in this offer:

- If required by a duly authorised national or regional authority.

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

Wherever possible, EPT will give the OLO written notice before performing any of the things above and EPT will restore MPF as soon as possible after the temporary suspension.

EPT shall have the right to disconnect the compliant equipment or any part of it without prior reference to the OLO if at such time in the reasonable opinion of EPT it is exposing any person to any danger of death or injury.

EPT shall have the right to request the OLO to disconnect the compliant equipment or any part of it in a reasonable delay if at such time in the reasonable opinion of EPT it is causing or is suspected of causing damage to the MDF Site or EPT's telecommunications apparatus or other property or such exposure or damage is imminent. EPT will immediately notify the OLO of the circumstances in which such compliant equipment has to be disconnected. If the OLO has not disconnected the compliant equipment in a reasonable delay, EPT shall have the right to disconnect itself the compliant equipment after prior notification of the OLO.

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

In the event of a disconnection in accordance with the above, the OLO shall not reconnect the compliant equipment until the reasons for its disconnection have been remedied . Provided that if the danger or threat referred to is caused directly due to the negligence of EPT then EPT shall be responsible for the costs of reconnecting the compliant equipment.

3.4 Quality Of Service

EPT shall provide the EPT Local Loop Unbundling service offer principles to the service levels set out in the Schedules to this offer at the minimum terms of comparable EPT end user service.

If an Operator wants a higher level of service for a particular Local Loop Unbundling service, EPT can provide a commercial offer for a specific Service Level Agreement.

3.5 System Protection

Each Party is responsible for the safe operation of its system and shall take all reasonable and necessary steps in its operation and implementation 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, that means no additional broadband connection is possible in that cable, EPT will make all reasonable efforts to implement an appropriate technical solution within a reasonable time frame in order to meet customer requirements for broadband services. 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 has to be changed to Sub-Loop Unbundling.

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

- For repair of existing services.
- In case of shortage after consultation with ILR

3.7 System Alteration

If EPT wishes to make a system alteration, it shall give the OLO and the ILR no less than 3 months written notice prior to the date of the anticipated system alteration. The notice shall specify the technical details of the system alteration and the date of the anticipated system alteration. Following such notification EPT shall supply to the OLO such information as the OLO may reasonably request including, to the extent reasonably practicable, the potential impact on the service provided by the OLO 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 the local loops of EPT. This entity will be the single point of contact for the OLO handling questions regarding the operational management of unbundling. This entity will be accessible from 8.00 to 12.00 and 13.00 to 17.00 from Monday to Friday, except legal and usage holidays in Luxembourg. EPT shall communicate the coordinates of the entity to the OLO.

The OLO shall provide a single point of contact for the management of unbundling, including handling of questions regarding operational subjects to EPT. OLO shall communicate the coordinates of the entity to the EPT.

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 OLO shall pay the tariffs provided in Schedule 8 - Tariffs.

Billing procedures are described in the Agreement between the Parties.

3.9.2 Bank Guarantee

The OLO will, at the request of EPT, provide for an irrevocable and unconditional bank guarantee issued in favour of EPT by an EU financial institution for an amount of 50.000,- €.

The guarantee shall be issued for a period equivalent to the duration of unbundling service offer.

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 OLO'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 explicitly agreed 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 offer its normal vehicles with all advertising on it for its own products.

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

4 Property rights

All relevant infrastructures used for the provisioning of Local Loop Unbundling Services to the OLO remains the integral property of EPT.

With the cessation of Local Loop Unbundling Services by the OLO or a specific End User any usage rights of the OLO on that relevant infrastructure expires.

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

5 General Conditions

5.1 Confidentiality

A Receiving Party shall keep in confidence Confidential Information and will not disclose such information to any third party unless the Disclosing Party agrees in writing to the release of that information. A Receiving Party shall exercise no lesser security or degree of care than that Party applies to its own Confidential Information of an equivalent nature.

Confidential Information shall be used solely for the purposes for which it was disclosed. OLO has to inform the End User that his personal data is being transferred to EPT, as foreseen by the national data protection legislation.

5.2 Force Majeure

Neither Party shall be liable for any breach of this Agreement caused by force majeure. The Party affected by force majeure shall promptly notify the other of the estimated extent and duration of such inability to perform its obligations ("force majeure notification"). Upon cessation of the delay or failure resulting from force majeure the affected Party shall notify the other Party of the cessation.

If, as a result of force majeure, the performance by either Party of its obligations under this Agreement is only partially affected, such Party shall nevertheless remain liable for the performance of those obligations not affected by 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 this 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 loss of profit whatsoever arising in connection with the execution of this Agreement, howsoever caused.

6 Procedure For Reaching An Agreement

Unbundling of the local loop agreements will be negotiated and entered into, based on the standard terms and conditions approved by the ILR pursuant to the applicable legislation.

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

Requests for entering into a Local Loop Unbundling Service Contract with EPT must be made in writing and registered mail to the following address:

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

SCHEDULES

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- Schedule 1 - Service Description - Metallic Path Facility
- Schedule 2 - Service Description - Sub-Loop Unbundling (SLU)
- Schedule 3 - Service Description - Shared Local Loop Service (SLLS)
- Schedule 4 - Service Description - Tie Cables
- Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop
- Schedule 6 - Planning and Operation
- Schedule 7 - Ordering and Provisioning Procedure
- Schedule 8 - Tariffs
- Schedule 9 - Request Forms
- Schedule 10 - Parameter Schedule

1 Schedule 1 - Service Description - Metallic Path Facility

Contents:

- 1.1 Description
- 1.2 Types Of Offered Loops
- 1.3 Network Termination Points
- 1.4 Boundary Conditions And Prerequisites
- 1.5 Provisioning And Cessation

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 MPF's are terminated at the MDF's. The OLO's access to the metallic wire pairs will be established by connecting Tie Cables from the MDF to the Handover Distribution Frame (HDF).

The OLO shall gain access to an end-to-end metallic pair in the EPT 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 is 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 . ~~only those are allowed.~~

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 to the NTP on the End User site.

The type of NTP depends on the End User site.

- In Multi-End User 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 house of the End User.

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

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

- If the End User site is a multi-End User apartment building or multi-tenant building this will be the first connected telephone plug inside the apartment.
- If the End User 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 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 this service. Provisioning and maintenance of Collocation will be offered by EPT as presented in the RCO.

The OLO 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 delay of conservation will be in accordance with Luxembourg laws.

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

The OLO is only allowed to use the indicated type of loop for the purpose described in chapter 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 OLO's End Users. Requests from End Users of the OLO due to inadequate handling of those requests by the OLO, will be dismissed by EPT, unless otherwise agreed.

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

- A request from the OLO 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 OLO 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 OLO's network and take all necessary measures to protect the integrity of the EPT network. EPT shall reasonably request in writing the right for all measurements that cannot be done without temporary suspension of the OLO's services.
- In any case of changes by the OLO of equipment/technology used, the OLO will inform EPT of this fact in order not to cause service degradation in the EPT network for other End Users.
- If equipment or network components, that are operated by the OLO for its own use and are connected to the EPT network, cause disturbances in the EPT network, the OLO shall be required to disconnect the End User 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 pair selection rules. These rules take account of the characteristics of the access network cables and of the spectral compatibility between signals of different technologies as defined in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.
- EPT reserves the right to modify the pair selection rules at a later point in time with the purpose of preventing disruptions after consultation with ILR.
- If the OLO finds that a fault was caused by conditions in the EPT network, the OLO shall without any delay inform EPT thereof. The OLO shall be responsible of accuracy of this information and support consequently any costs related to an unnecessary intervention by EPT.

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.

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

Contents:

- 2.1 Description
- 2.2 Types Of Sub-Loops Offered
- 2.3 Network Termination Points
- 2.4 Boundary Conditions And Prerequisites
- 2.5 Provision Of SLU

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 OLO 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 SLCP are existing or new concentration points, in buildings and in indoor or outdoor shelters. The connection between the SLCP and the OLO 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 OLO requesting access to that SLCP.

Information concerning existing SLCP's in concentration points is published on the secure web-site.

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

2.2 Types Of Sub-Loops Offered

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

2.3 Network Termination Points

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

2.4 Boundary Conditions And Prerequisites

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

2.5 Provision Of SLU

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

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

Contents:

- 3.1 Description
- 3.2 Types Of Offered Loops
- 3.3 Network
- 3.4 Boundary Conditions And Prerequisites
- 3.5 Provisioning And Cessation

3.1 Description

The SLLS product allows a voice service provided by EPT and an ADSL service offered by an OLO, 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 case by case.

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 OLO of such a disconnection. SLLS will be converted to Broadband-MPF. The tariff for Broadband-MPF will be applied. The procedure is described in Schedule 7 - Ordering and Provisioning Procedure.

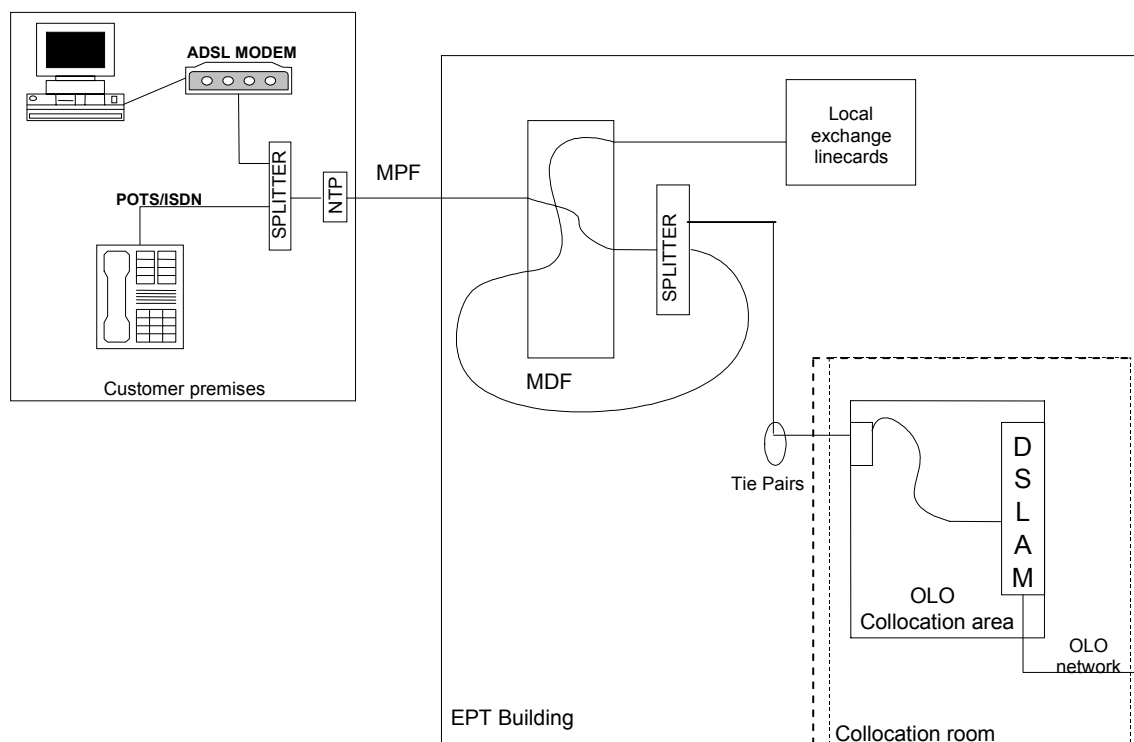


Figure 1: Configuration a) Splitter at Customer premises (for ISDN or POTS)

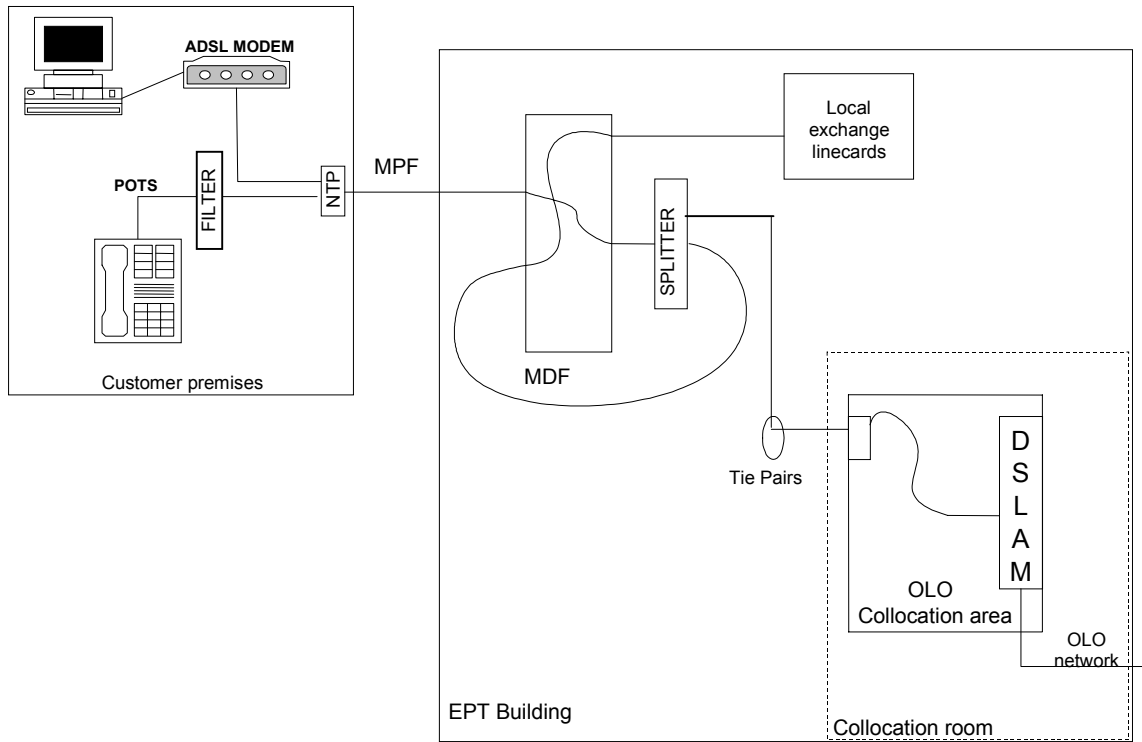


Figure 2: Configuration b) Distributed Filters at Customer premises (for POTS only)

3.2 Types Of Offered Loops

The following types of SLLS are offered under the present Reference Unbundling Offer. 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.

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

3.3 Network

3.3.1 Splitters and distributed filters

Splitters or distributed filters are required in order to enable EPT's voiceband services (PSTN/ISDN) and the OLO 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 side
- ISDN: Centralised Splitter on MDF side; Splitter on End User 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 OLO is responsible for ordering Tie Cables and centralised splitters for the MDF site and splitters or distributed filters for the End User 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 customer premises the appropriate splitter or distributed filters are installed by the OLO. In order to guarantee compatibility of the network elements installed in the local exchange and at End User premises, OLO 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.

OLO is installing an appropriate (POTS or ISDN) centralised splitter at the End User's premises. EPT's responsibility terminates at the NTP.

The OLO 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 bitrate traffic, it is the responsibility of the OLO to provide an appropriate link on this section.

The OLO 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 OLO's equipment to the splitter interface is disturbing the narrow-band service of the customer, EPT will disconnect the equipment at the splitter level and inform the OLO. This intervention by EPT is considered as a wrongful repair request and billed at the corresponding rate to the OLO. It is the OLO'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 at the NTP.

The OLO has the right to connect the CPE (Customer Premises Equipment) directly to the remote in-house point. If the quality of the existing in-house cabling is insufficient to carry high bitrate traffic, it is the responsibility of the OLO to provide an appropriate cabling infrastructure.

The OLO 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 OLO's equipment is disturbing the narrow-band service of the customer, EPT will disconnect the equipment and inform the OLO. This intervention by EPT is considered as a wrongful repair request and billed at the corresponding rate to the OLO. It is the OLO's obligation to 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 premises at the high frequency interface of the splitter or on the telephone plug of End User, where OLO's equipment is connected.

At the End User premises the OLO 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 OLO. Replacement or changes to the existing End Users wiring to install the appropriate equipment will be the responsibility of the OLO.

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 switch for providing EPT's ISDN or PSTN service. OLO's access to the SLLS (high frequency) will be established with Tie Cables for broad-band usage from the Splitters to the OLO collocation area in that same EPT 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 this service. Provisioning and maintenance of Collocation will be offered by EPT as defined in EPT's RCO.

SLLS can only be requested by an OLO 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 MPF used to provide the EPT SLLS shall remain the property of EPT.

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 on the same cable. Therefore the OLO must comply with the following terms:

- A request from the OLO 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 the OLO 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 OLO's network and take all necessary measures to protect the integrity of the EPT network. EPT shall reasonably request in writing the right for all measurements which cannot be done without temporarily suspension of the OLO's services.
- In any case of changes by the OLO of equipment/technology used, the OLO will inform EPT of this fact in order not to cause service degradation in the EPT network for other End Users.
- If equipment or network components, that are operated by the OLO for its own use and are connected to the EPT network, cause disturbances in the EPT network, the OLO shall be required to disconnect the End User 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 pair selection rules. These rules take account of the characteristics of the access network cables and of the spectral compatibility between signals of different technologies as defined in Schedule 5 - Technical specifications for Transmission Equipment In The Local Loop.
- EPT reserves the right to modify the pair selection rules at a later point in time with the purpose of preventing disruptions after consultation with ILR.

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

3.5 Provisioning And Cessation

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

4 Schedule 4 - Service Description - Tie Cables

Contents:

- 4.1 Internal Tie Cables
- 4.2 External Tie Cables
- 4.3 Tie Cable Management

4.1 Internal Tie Cables

4.1.1 Description

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

The Collocation room may be situated inside the EPT building or in a Container outside the building.

The OLO 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.

- For loops used for narrow-band and broadband data transmission, broadband cables with twisted pairs will be provided.

4.1.2 Boundary conditions and prerequisites

Collocation is a prerequisite for the implementation of this service. As long as an OLO does not have approved Collocation facilities, no order for Internal Tie Cables can be executed.

The OLO shall provide at its expense in the specified Collocation area, suitable accommodation for the EPT 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 in the OLO specified Collocation area at the HDF provided by the OLO. The HDF is for the sole use of the OLO 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 installation is done by EPT or by the subcontractors of EPT. The routing of the Internal Tie Cables is at the sole discretion of EPT.

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

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

For normal provisioning EPT does not need to intervene on the HDF termination blocks. Therefore the OLO 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 OLO 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 OLO HDF to the MDF in case of Distant or Adjacent Collocation.

The OLO 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.

- For loops used for narrow-band and broadband data transmission, non-shielded twisted pair cables of 0,5 mm gauge will be provided; EPT's rules for Cable Pair Management will apply.
-

4.2.2 Boundary conditions and prerequisites

4.2.2.1 Collocation in a Shelter adjacent to existing EPT Site

The OLO shall provide at its expense at the shelter provided by the OLO 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 on the OLO Site on the termination blocks installed in the OLO specified area at the HDF. The iron work of the Distribution Frame is provided by the OLO 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 OLO 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 technical building to the first existing manhole on the boundary of EPT's premises for the purpose of junction with the OLO's cabling for Unbundling services. EPT will indicate to OLO the point of interconnection between OLO and EPT infrastructure 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 cable ducts to the hand-over manhole. The splicing in the EPT manhole to connect Tie cables to the OLO cables will be executed by EPT. The related costs will be charged to the OLO.

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 OLO Site in case of collocation in a Shelter adjacent to existing EPT site and the joint in the manhole in case of collocation in an OLO owned distant location site.

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

In case of presumed interference or other problems on the Tie Cable, EPT may request the OLO 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 OLO is responsible for ensuring this. The OLO 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 eliminate gaps within the Tie Cable pair allocation and eliminate unused pairs in excess of 50% of active pairs.

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

EPT will bill this rearrangement activity to the OLO.

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

Contents:

- 5.1 Introduction
- 5.2 Cable Pair Management And
- 5.3 Power Spectrum Management Of The Equipment To Be Connected To The Metallic Path Facility

5.1 Introduction

This schedule gives an overview of the existing EPT 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, OLO or End Users) connected to metallic pairs of the EPT access network need to conform to these specifications. References are made to international standards and to EPT user network interfaces specifications. In case a new version of the references below is 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; this is done 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 maximise the capability of the systems deployed over the copper network the effects of their mutual interference must be minimised. Where there are multiple operators over the same infrastructure, as in the case of an Unbundled Local Loop 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 customer 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.

Due to the complexity and uncertainty involved, with the all over-riding need to preserve network integrity, CPM is cautious and might possibly be optimised at a later date, reducing deployment limitations respectively introducing other deployment limitations.

EPT applies a combined Cable Pair Management and Power Spectrum Management (PSM) to reduce mutual interference between the different systems by cross-talk between cable pairs in the cable.

- The number of broadband systems that can be deployed within an access cable depends on the diversity of systems installed and on the characteristics of the cable itself. EPT counts the number of systems the transmission speed of which passes 160 kbit/s. If the cable fill with such systems reaches 10% of the total number of copper pairs in the cable, EPT informs the OLOs to make them know that problems may arise in the near future (such as a need to convert from Unbundling to Sub-Loop Unbundling). EPT continues nevertheless to install broadband systems on the cable as long as the quality degradation is acceptable.
- The pair selection rules do not offer any guarantees as to the potential bitrate in any access cable or no any specific copper pair.
- The principle of pair selection rules is presently applicable, but non necessary applicable in the long term.

The CPM does not include in-house networking under the End Users 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 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, 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 OLOs.

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 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 optimise 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 OLOs.

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 optimised 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 optimised overall broadband utilisation of the cable.

The last-in-first-out principal is also applied in case of broadband technology change, e.g. upgrade from an ADSL to an ADSL2+.

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 either placed 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.

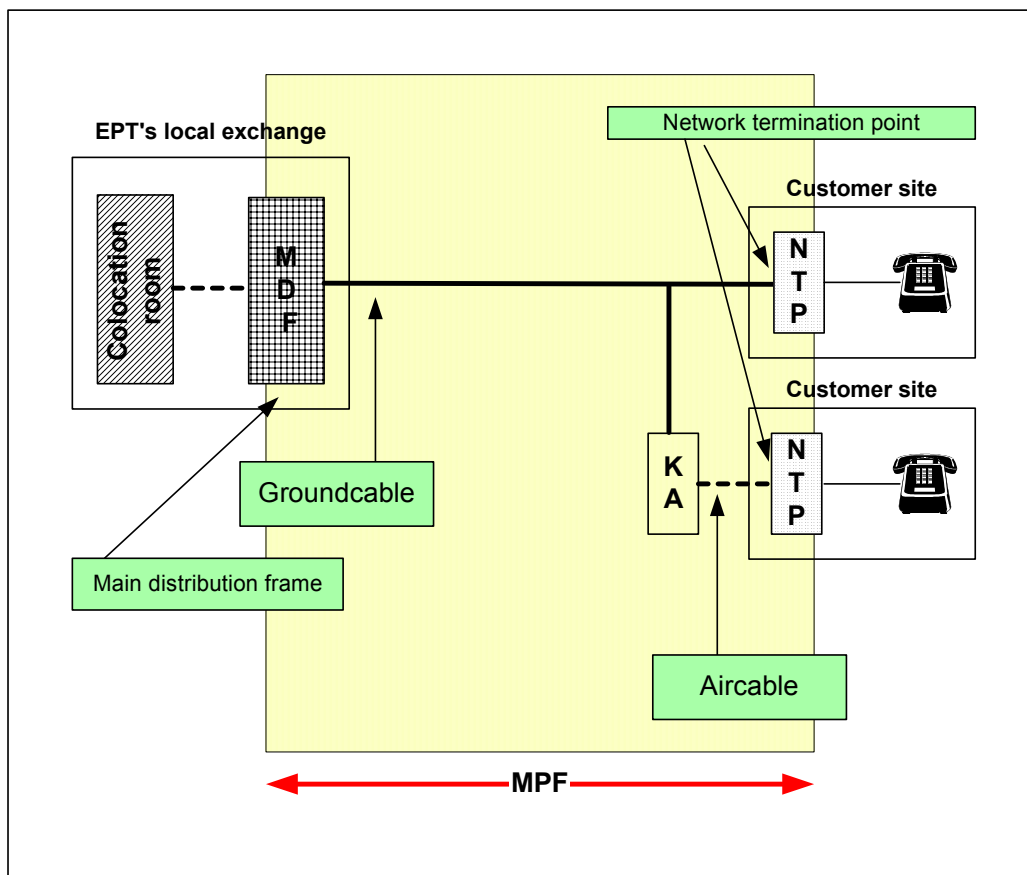


Figure 3

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 SLCP's 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 at the MDF installed at the Local Exchange in EPT's network. The distribution cables terminate on the NTPs in the individual End User 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 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 customer's premises (FTTB). In most cases copper pairs have disappeared on these sections and remain between the FTTC/FTTB-shelters and the NT's. The shelters are potential SLCP's 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: Ranges from 6 pairs in distribution cables ending in private homes up to 2000 pairs in feeder cables going out of the central office.
- To achieve water and vapour sealing, the conductors are surrounded by an alu-polyethylene sheath in the plastic insulated cables and by a lead sheath in the paper insulated cables.
- The plastic cables are longitudinally watertight through a petrogelat filling.
- Ground cables are protected by an armoring.

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 initially 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: All indicated values are indicated for reference purposes only. In field-measurements they are subjected to 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.

5.3 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). In case a new version of the references below is 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, 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 OLOs.

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-clause 8.1.1.
Peak amplitude	ETSI TR 101 830-1 Sub-clause 8.1.2
Narrow-band signal voltage	ETSI TR 101 830-1 Sub-clause 8.1.3
Unbalance about earth	ETSI TR 101 830-1 Sub-clause 8.1.4
Feeding Power (from the LT-port)	ETSI TR 101 830-1 Sub-clause 8.1.5
Reference impedance Z_R	ETSI TR 101 830-1 Sub-clause 8.1.6
Ringling signal	ETSI TR 101 830-1 Sub-clause 8.1.7 EPT's user network interface description "Caractéristiques de l'interface d'abonné analogique"
Metering signals	ETSI TR 101 830-1 Sub-clause 8.1.8

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 subclause is based on the ETSI TS 101 524 and ITU-T G.991.2..

A signal can be classified as an "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 Ω and does not apply to the DC remote power feeding (if any).

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 25 Mb/s, including ADSL, ADSL2 and ADSL2+. 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 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 ADSL over PSTN

This category covers signals, generated by ADSL 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 (ADSL), G.992.3 (ADSL2) and G.992.5 (ADSL2+).

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-clause 11.2.1

Total signal power (upstream only)	ETSI TR 101 830-1 Sub-clause 11.2.2
Peak amplitude	ETSI TR 101 830-1 Sub-clause 11.2.3
Narrow-band signal power (downstream only)	ETSI TR 101 830-1 Sub-clause 11.2.4
Narrow-band signal power (upstream only)	ETSI TR 101 830-1 Sub-clause 11.2.5
Unbalance about earth (upstream & downstream)	ETSI TR 101 830-1 Sub-clause 11.2.6

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 ADSL 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 101388 and ITU-T G.992.1 (ADSL), G.992.3 (ADSL2) and G.992.5 (ADSL2+). 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 11.4.1.
Total signal power (upstream only)	ETSI TR 101 830-1 Sub-clause 11.4.2
Peak amplitude	ETSI TR 101 830-1 Sub-clause 11.4.3
Narrow-band signal power (downstream only)	ETSI TR 101 830-1 Sub-clause 11.4.4
Narrow-band signal power (upstream only)	ETSI TR 101 830-1 Sub-clause 11.4.5
Unbalance about earth (upstream & downstream)	ETSI TR 101 830-1 Sub-clause 11.4.6

6 Schedule 6 - Planning and Operation

Contents:

- 6.1 Preliminary Exchange of Information
- 6.2 Electronic Information exchange
- 6.3 Forecasting
- 6.4 Fault Reporting And Repair

6.1 Preliminary Exchange of Information

EPT will provide to the OLO as soon as reasonably practicable, but not later than T51 from the date of signature of the nondisclosure agreement for the unbundling services an internet access address and password to enable the OLO to view:

- The location of MDF Sites.
- A module to find for each postal address the correspondent MDF 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 OLO 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 via Internet e-mail. The e-mail, which is exchanged among the Parties, has attached a file that contains the information. This attached file is encrypted and electronically signed using PGP (Pretty Good Privacy).

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 OLO has to perform transmission tests with EPT. A period of maximum T52 is foreseen between the declaration of an OLO that it is interested in Local Loop Unbundling Services and the first file to be accepted.

6.3 Forecasting

Providing new MPF service to OLOs is a very labour intensive activity. The volume of activity depends mainly of the commercial activity of the different OLOs without any direct influence of EPT. To allow proper planning of EPT production capacity and of its work force allocation and 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 OLO shall provide to EPT Order Forecasts.

The OLO 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. Forecasts 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 OLO. This may be subject to bilateral review.

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

If the OLO 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 can 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 per cent of the OLO's forecast such additional orders might be handled within the remaining handling capacity of EPT or, if no handling capacity is available, postponed to the next observation period. If order volumes are lower than 80 per cent of the OLO's forecast EPT will charge the OLO 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 operators exceeding their forecasts.

By submitting a new forecast at the end of the quarter n, the OLO 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 OLO 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 OLO to confirm receipt of the fault report (fault acceptance). All related phone calls should be directed via the EPT's FCP +352 4991 5868.

OLO'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 apply for fault clearance on Saturdays, Sundays and legal and public holidays. Fault clearance interventions by will be billed by EPT to OLO as defined in Schedule 8 - Tariffs.

Fault reporting and repair has to be performed in the conditions and time schedules as stated 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 OLO

- Prior to submitting a fault report, the OLO 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 MPF will be exchanged between the OLO and the EPT FCP.
- The OLO 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 must contain the following data:
 - Circuit identification number.
 - Contact point and phone number of the End User.
 - Contact point and phone number of the OLO.
 - Type of service affected.
 - Description of the reported fault.

The OLO may pass any additional information considered relevant to the Fault Report but EPT is not obliged to use this information.

6.4.2.2 Fault reporting to EPT by the End User

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

EPT will not accept any fault report from the OLO's End Users. EPT has no obligation to report a fault to the OLO in case an End User is reporting a fault.

6.4.2.3 EPT and OLO liabilities for the fault clearance

The OLO is requested to transmit to EPT all measurement data from tests the OLO has already performed on MPF. These measurements must include at least:

- Resistance measurements
- Capacity measurements

If requested by EPT, the OLO shall disconnect the terminal equipment at the End User site in order to allow the testing of the MPF. EPT can also request to the OLO a timeframe for isolating the MPF at the HDF in the OLO's Collocation facilities to do the necessary measurements. Refusal from the OLO to do so will not allow EPT to verify the lines and

can be considered as wrongful repair request.

If all the information regarding the Fault Report is provided correctly by the OLO, EPT accepts the Fault Report and starts the fault localization and the 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 achieved within T40. The applicable tariffs are specified in Schedule 8 - Tariffs.

The OLO 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 End User of the OLO for repair of the MPF. In case where contact with the End User is necessary for repair and the OLO failed to give this information, the repair request will be rejected.

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

Both parties recognise that the fault repair time commence when EPT accepts the ownership of the fault and ended when EPT informs the OLO that the fault has been repaired or closed for any other valid reason.

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

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

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

6.4.2.4 Wrongful repair request

A wrongful repair request is where 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 of 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 for that repair request will be charged to the OLO.

6.4.2.5 Feedback on requested repair

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

6.4.2.6 Customers liabilities

The End User will grant EPT's field-force access to the NTP within its premises as often as this necessary for the clearance of the fault. In case of problems EPT will report this to the OLO who will contact the End User and take the necessary arrangements to grant access to EPT access.

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 delays cannot be respected in this case and the intervention is 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. OLO 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 OLO

- Prior to submitting a fault report, the OLO 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 OLO and the EPT FCP.
- The OLO 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 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 OLO
 - Type of service affected

- Description of the reported fault and all relevant technical details

The OLO may pass any additional information considered 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 OLO has to inform the End User about the responsibility of the OLO and communicate the OLO FCP to the End User in order to prevent an 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 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 will occur:

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

6.4.3.4 Fault reporting to OLO by EPT

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

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

6.4.3.5 EPT and OLO liabilities for the fault clearance

If all the information regarding the Fault Report is provided correctly by the OLO, 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 OLO is required to disconnect his xDSL service upon EPT's request to enable appropriate measurements of the line. Refusal from the OLO to do so will imply that EPT is not in a position to verify the lines and can be considered as wrongful repair request.

The OLO 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 OLO for repair. In case where contact with the End User is necessary for repair and the OLO failed to give this information, the repair request will be rejected.

Should the repair activity establish that the OLO 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 Customers in the cables, EPT is entitled to disconnect the SLLS after prior notification of the OLO.

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

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

When EPT believes that a fault has been cleared, a fault clearance notification shall be sent to the OLO and the measurement of the fault repair time will cease. If the OLO will not confirm or reject the fault clearance notification within a period of one hour, the fault will be automatically closed 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 OLO that the fault has been repaired or closed for any other valid reason.

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

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

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

6.4.3.6 Wrongful repair request

A wrongful repair request is where 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 of the section of the SLLS for which EPT is responsible or in case of a wrongful repair request, all the costs for work and travelling already performed by EPT for that repair request will be charged to the OLO.

6.4.3.7 Feedback on requested repair

In case the OLO contacts EPT on written request about an ongoing repair action, EPT will inform the OLO of the current repair status. On request by the OLO, a status report shall be sent by fax or by electronic mail.

6.4.3.8 Customers liabilities

The End User will grant EPT's field-force access to the NTP and splitter within its 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 delays cannot be respected in this case and the intervention is suspended until the End User contacts EPT's helpdesk.

7 Schedule 7 - Ordering and Provisioning Procedure

Contents:

- 7.1 Appointment Handling
- 7.2 Provisioning of Tie Cables
- 7.3 Provisioning Procedure of Metallic Path Facility
- 7.4 Provisioning Procedure of Shared Local Loop Services (SLLS)

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 Service. For the provision of these Services, a coordination between EPT, OLO and OLO's End User is required in order to fulfill the installation of the Services.

Each OLO maintains a Time Schedule with all its appointments related to the Services. The Time Schedule is exchanged between OLO and EPT and the appointments are fixed between Parties as described hereafter.

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

OLO will arrange an appointment with its End User for the provisioning of the Service in respect of the constraints of OLO's Time Schedule.

Appointments can be taken from Monday to Friday except legal and public holidays. The appointment will specify the date and whether the technician will access the End User premises between 8h00 and 12h00 (a.m.) or between 13h00 and 17h00.

OLO shall include the appointments in its Time Schedule 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 Party in fault will inform the other Party as soon as possible. After solvation of the related problems, the 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 time schedule agreed with the other Party.

7.2 Provisioning of Tie Cables

7.2.1 General

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

Tie Cable and per Local Exchange.

Forecasts and firm orders shall be done through the use of the specific templates provided by EPT. Templates will be considered as valid only when they are properly completed. In case data is missing or not correct, the template will be rejected. In the latter case, 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 unbundled services.

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

7.2.2 Ordering Procedure

The OLO 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 OLO includes the date when he wants the Tie Cabling to be ready. This date will be at least T32 later than the date of the firm order. EPT will confirm the receipt of every firm order and inform the OLO when the installation of the Tie Cables and termination blocks is completed. .

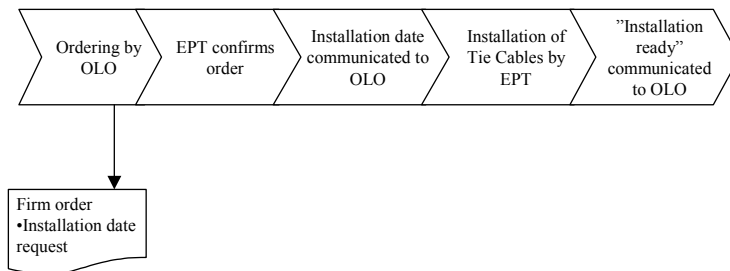


Figure 4: Overview of the ordering process of Tie Cables.

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 OLO terminates service of a Tie Cable before the end of the minimum period of service the OLO shall pay a sum equal to 20% of the rental, being the rental 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 OLO, the OLO shall pay to EPT monthly in advance the connection and rental charges 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 can be ordered in one time is limited to 500 pairs. The OLO is permitted to order additional Internal Tie Cable capacity at the point in time at which the net amount of available connections per Internal Tie Cable type provisioned within a single Collocation place becomes 100 pairs or less.

Subject to agreed Forecasts, EPT shall make reasonable endeavors to provide the OLO the ordered Internal Tie Cables within T30. Tie cables can also be provided within the initial Collocation arrangement project and will than 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 OLO is permitted to order additional External Tie Cable capacity at the point in time at which the net amount of available connections per Internal Tie Cable type provisioned within a single Collocation place becomes 100 pairs or less.

Subject to agreed Forecasts, EPT shall make reasonable endeavours to provide the OLO 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 OLO'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 OLO can submit a formal order for the provisioning of MPF.
- Installation of the ordered MPF

7.3.1.2 General considerations

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

- An individual agreement for unbundling services offer has been signed.
- 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 OLO controlled. This means:

- End Users will contact directly the OLO they wish to purchase the End User service from.
- Before signature of an order for MPF, the OLO'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 existing telecom services.
- EPT will not accept any orders for MPF directly from an End User.
- Only the OLO will communicate with EPT.

In circumstances of doubt or any claims by the End User, the new OLO 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 OLO for a period as defined by national law for contractual documents.

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

An OLO can submit a survey request for provisioning of MPFNP in those local area networks where this OLO 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 OLO can refer to the specific EPT Internet database.

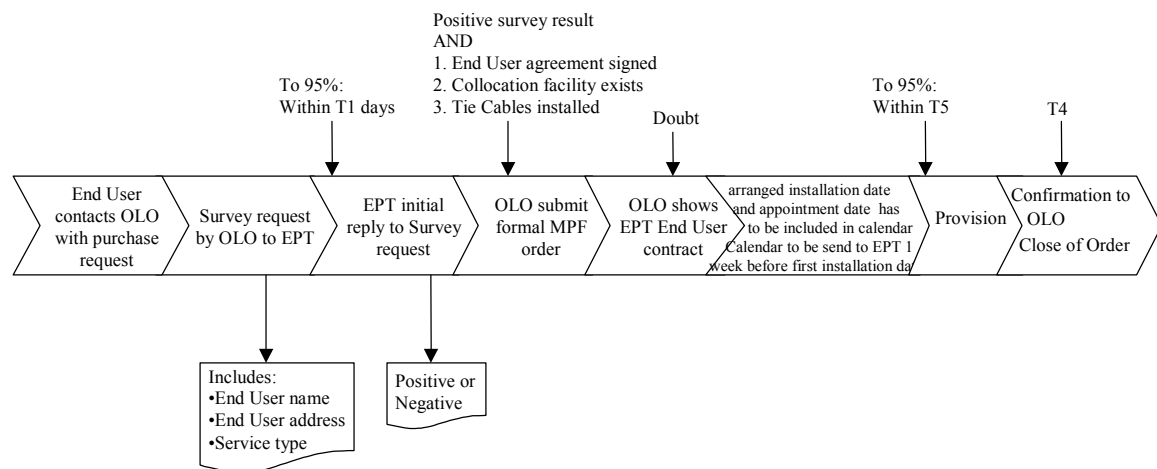


Figure 5: Ordering process for MPF.

7.3.1.3 Submission of an MPF survey request

A submitted MPF survey request will contain as a minimum the following information:

- OLO Reference Number
- End User name
- End User 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 as 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.

Provided that 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 address not connected to EPT’s local network.
- Address not served by the indicated MDF or SLCP.
- MPF not available for the requested service quality.
- No unallocated MPF available to the End User address.
- No unallocated MPF available in intermediate sections in the local area network.
- No unallocated Tie Cable capacity available.
- Allocation of MPF for broadband inhibited due to interference problems on that section of the network.
- Allocation of MPF for broadband 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 mean time no formal order has been received from the OLO 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 OLO and the EPT reference number in case of Survey Success.

The survey performed by EPT resulting in a negative answer or if the OLO 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 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 OLO submits within T3 a formal provisioning order. The provisioning order is sent to EPT by the electronic messaging system and contains as a minimum following information:

- OLO Reference number
- The EPT reference number
- The End User name (complete name for a physical person or the official juridical name for other companies or legal bodies)
- End User Address
- The MDF number
- The MPF length
- Provision type
- Requested Service Type
- The connection point of the Tie Cable (as indicated in Schedule 6 - Planning and Operation).

At the arranged 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 OLO's Tie Cable.

The OLO is responsible for the service deployed on this line as from the date of information moment onwards.

Should the installation of the requested MPF fail for any of the below indicated reasons, EPT will inform the OLO 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 alternate solution to provide the MPF as ordered by the OLO in a delay of T6 days. If it is not possible by any reasonable means to provide the MPF to the OLO, EPT will send a final failure message.

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

- No alternate 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 NTPs as described in Schedule 1 - Service Description - Metallic Path Facility.

In case the OLO 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 OLO will indicate this in his order for provisioning MPF. At the moment of installation of the MPF, EPT will introduce the cable in the NTP-box.

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

7.3.2 MPF combined with Number Porting (MPFNP)

7.3.2.1 Definition

This process allows the OLO 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 OLO'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 OLO can submit a formal order for the provisioning of the MPF combined with a number portability to take place in the same process.
- Modification of the lines

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 individual agreement for unbundling services offer has been signed.
- An individual agreement for telephony service interconnection and number portability have been signed by that OLO.
- 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 OLO controlled. This means:

- End Users will directly contact the OLO 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 OLO will communicate with EPT.
- The contract of the existing End User Services is terminated in accordance with EPT's general conditions for telecommunication services
- The OLO 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 circumstances of doubt or any claims by the End User, the new OLO 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 OLO for a period as defined by national law for contractual documents.

Orders for MPFNP survey and MPFNP provisioning can only be submitted via electronic mail exchange.

An OLO can submit a survey request for provisioning of MPF in those local area networks

where this OLO 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 OLO can refer to the specific Internet database.

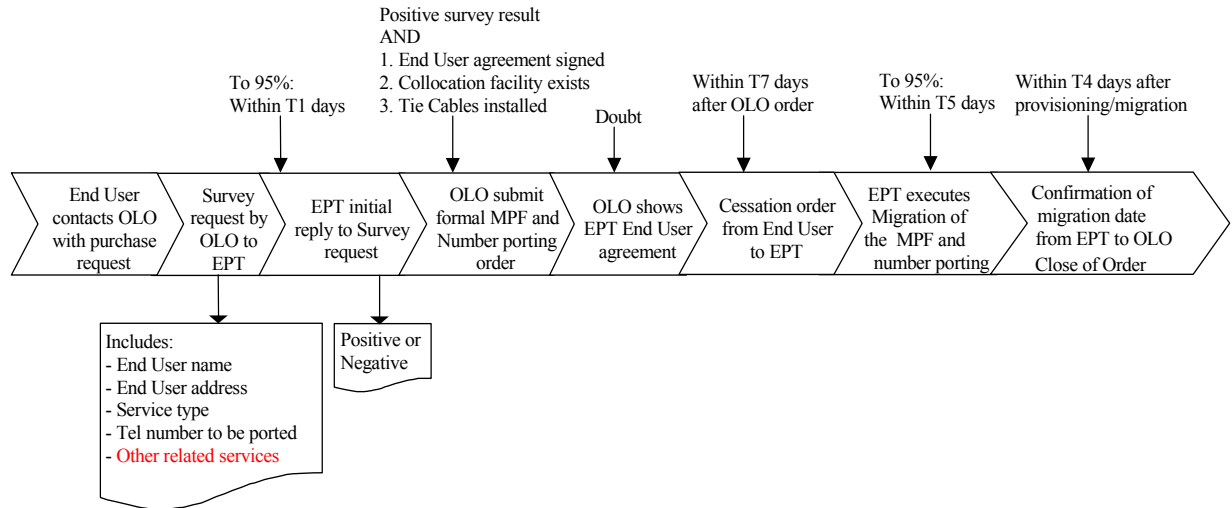


Figure 6: Order process for MPFNP.

7.3.2.3 Submission of an MPFNP survey request

A submitted MPFNP survey request will contain as a minimum following information:

- OLO Reference Number
- End User name.
- End User address.
- 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. Provided that 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 through a pair gain system.
- Address not served by the indicated MDF.
- No unallocated Tie Cable capacity available.
- Allocation of MPFNP for broadband 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.
- ADSL on the line

The survey performed by EPT resulting in a negative answer or if the OLO 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 OLO submits within T3 days a formal provisioning order. The provisioning order is sent to EPT by the electronic messaging system and contains as a minimum following information:

- The OLO Reference Number
- The EPT Reference Number
- The survey order number.
- End User name.
- End User address.
- The MDF number
- The MPF length
- Provision Type
- Requested Service Type
- The service to be migrated (ISDN, POTS)
- The number(s) to be ported.
- The connection point of the Tie Cable (as indicated in the planning and operation schedule).

- The new route

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

EPT will perform the migration in the following way:

- Disconnect its own service at the MDF and connect the existing MPF to the indicated connection point of the OLO's Tie Cable.
- Activate the number re-routing in its network to transfer calls to the OLO network.
- The OLO can now test the successful migration of service and confirm the successful migration within 0,5 hours to EPT by phone.
- The OLO 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 OLO will inform the other OLOs that the number porting has taken place according to the procedure for number portability.

Should it not be possible to migrate 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 OLO also by electronic mail. EPT will endeavour to propose a new migration date, as soon as the reestablishment 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 OLO.
- 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 OLO.

7.3.3 Transfer of MPF

7.3.3.1 General

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

One OLO can cancel the service of another OLO 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 OLO that previously used the MPF.

7.3.3.2 Transfer of MPFNP from OLO to another OLO

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 OLO.

The new OLO 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 Time Schedule
- Disconnect the MPF from the previous Tie Cable and connect it to the indicated connection point of the new OLO's Tie Cable.
- Inform the previous and the new OLO by phone within 0,5 hour that the migration has been accomplished and that number re-routing to transfer calls to the OLO's network can be activated.
- The successful migration of service can now be tested between the previous OLO and the new OLO, who will confirm the successful migration within 0,5 hour to EPT by phone.
- The OLO 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 OLOs will then liaise to identify the underlying problem.

In case of successful migration, the new OLO will inform the other OLOs 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 OLO by electronic mail.

7.3.3.3 Transfer of MPFNP from OLO to EPT

In case of a transfer of an active MPF together with number porting back to EPT, EPT will issue a number porting request according to the procedure defined by the number porting working group in May 2000 to the previous OLO 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 OLO 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 OLO 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 OLO within 0,5 hour by phone.
- EPT 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. The previous OLO 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 inform the other OLOs and ILR according to the procedure defined in the document for number porting.

In case of an unsuccessful transfer, the previous OLO closes 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 OLO through MPF, this OLO will inform EPT within a delay of T8 that MPF has become available for reallocation.

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

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

- OLO Cancellation Reference
- Old OLO Reference
- Old EPT Reference

- Type of handback (MPF or MPFNP)
- Tie-Cable connection point number.
- End User name.
- End User address.
- Disconnection Due Date

EPT will confirm the hand-back message by an electronic reply within T9. At the date of receipt by EPT of a correct hand-back information, the rental billed to the OLO 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 are considered incoherent after validation in the EPT database, this stated incoherence will be indicated in a reply message to the OLO.

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 OLO will continue until the MPF can finally be disconnected.

7.3.5 Cancellation of an order before activation

If an OLO may want to abandon its request for MPF after he has submitted a formal order by the electronic messaging system, he sends a cessation order to EPT by electronic mail. The electronic message will contain as a minimum the following information:

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

If the date of receipt of the order cancellation by EPT is more than T5 ahead to the agreed appointment date with the End User, EPT will cancel the order and the OLO pays 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 before to the agreed appointment date with the End User or in case on 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 OLO within T9.

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 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 request of the OLO as stated below.

7.4.1.2 Forecasting

Every operator who wants 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 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, a 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 OLO can order splitters for its used SLLS through a firm order. Orders have to be provided through the use of specific templates in accordance with Schedule 9 - Request Forms.

For each firm order of an OLO for splitters/filters, EPT will send a corresponding delivery request to its equipment supplier. EPT will inform the OLO 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 the responsibility of EPT. For each installation of a block of central office splitters a dedicated Tie Cable will be installed between the splitters and the HDF of the OLO. 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 OLO.

7.4.1.3.3 Splitters for End User site

Splitters for End User site can be ordered by OLO in increments of 50. They have to be installed by OLO.

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 OLO in increments of 50. They have to be installed by OLO.

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 OLO to order a Shared Local Loop Service. The process is a three tiered inter-Parties activity:

- The OLO'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 OLO can submit a formal order for the provisioning of SLLS

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

- An individual agreement for unbundling services offer has been signed
- 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 OLO controlled. This means:

- End Users will contact directly the OLO they wish to purchase the End User Service from
- Before signature of an order requiring Shared Local Loop Service, the OLO'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 OLO will communicate with EPT

In circumstances of inconsistency, doubt or any claims by the End User, the OLO, contracting service with the End User, has to provide evidence by submitting the original request-form signed by the End User within T20 . Such documents have to be archived by the OLO for a period as defined by the national law for contractual documents.

Orders for Shared Local Loop Service survey and Shared Local Loop Service ordering can only be submitted via electronic mail exchange. The OLO must conform to the Agreements made regarding the electronic information exchange as described in Schedule 6 - Planning and Operation.

An OLO can submit a survey request for Shared Local Loop Service in those local area networks where this OLO has contracted internal or external Collocation facilities. To determine the relation of the End User address to the serving Collocation site, the OLO 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 as a minimum the following information:

- OLO Code
- The requested service type (SLLS)
- End User name
- End User 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.

Provided that 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 name and End User address
- Miss-match between End user 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 OLO for a maximum period of T12 as defined in the parameter schedule. If in the mean time no formal order has been received from the OLO 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 if this line is an PSTN or an ISDN line to the OLO.

The survey performed by EPT resulting in a negative answer or if the OLO does not place a SLLS 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 a survey charge.

7.4.2.3 Order for Provisioning of Shared Local Loop Services

After notification of a positive survey, the OLO submits within T13 a formal provisioning order. The provisioning order is sent to EPT by the electronic messaging system and contains as a minimum following information:

- The OLO code
- The survey order number
- The End User 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 customers 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 OLO's Tie Cable.

EPT will endeavour to provision 95% of the SLLS orders within a delay of T15 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 OLO. The OLO is 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 OLO 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 OLO.

7.4.3 Hand-back Procedure for SLLS

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

The OLO 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 name
- End User Address
- Date of deactivation

EPT will confirm the hand-back message by an electronic reply within T19. At the date of receipt by EPT of a correct hand-back information, the rental billed to the OLO 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 are considered incoherent after validation in the EPT database, this stated incoherence will be indicated in a reply message to the OLO.

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 OLO 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 has contracted with EPT, the SLLS service will automatically be converted to a MPF.

EPT will inform the OLO 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 name
- End User address
- New allocated MPF number
- Date of conversion

The OLO will be billed the MPF charge as indicated in Schedule 8 - Tariffs as from the date the low band 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 band service, can be reactivated as a SLLS. This change back from MPF to SLLS takes

place when the End User requests activation of low band service to be provided by EPT. If the End User orders the low band service from EPT, the MPF service will automatically be converted to a SLLS.

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

- MPF number
- Tie cable connection point number
- End User name
- End User address
- New allocated SLLS number
- Date of conversion

The OLO will be billed the SLLS charge as indicated in Schedule 8 - Tariffs as from the date the low band service will be activated.

7.4.5 Cancellation of an order before activation.

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

- SLLS number
- Tie cable connection point number
- End User name
- End User address

If the date of receipt of the order for cancellation by EPT is more than T21 before the agreed appointment date with the End User, EPT will cancel the order and the OLO 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 cessation order later than T21 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 OLO. The survey charge has not to be paid.

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

8 Schedule 8 - Tariffs

Contents:

- 8.1 Internal Tie Cable
- 8.2 External Tie Cable
- 8.3 Metallic Path Facility (MPF)
- 8.4 Shared Access
- 8.5 Fault Repair

8.1 Internal Tie Cable

Item	Euro
Connection charge for Tie Cables - voice-band usage - per 100 pairs	1.254,90
Connection charge for Tie Cables - broadband usage - per 100 pairs	1.975,20
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 Operator - per hour	69,50

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 OLO - per hour	69,50

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		135,03
	from 03.02.05	102,69
Connection charge MPF including survey charge - active local loop		91,13
	from 03.02.05	58,79
Monthly rental MPF for voice-band usage		13,26
	from 03.02.05	12,90
	from 01.01.06	11,73
Monthly rental MPF for broadband usage		15,79
	from 03.02.05	12,90
	from 01.01.06	11,73
MPF Hand-back charge		

	from 03.02.05	32,34
MPF length provision		170,80
MPF loop resistance measurement		170,80
MPF length, resistance, insertion loss measurement		170,80
MPF order cancelled before activation		13,89
MPF Wrongful Repair Request		170,80
EPT manpower for special works required by the OLO - per hour		69,50

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 survey charge		169,78
	from 03.02.05	81,16
Monthly rental SLLS		7,54
	from 03.02.05	4,68
Provisioning of POTS/ADSL Splitters at the LE, 24 units		1.498,66
Provisioning of ISDN/ADSL Splitters at the LE, 24 units		1.561,69
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 site		3,00
SLLS Hand-back charge		135,03
	from 03.02.05	32,34
SLLS order cancelled before activation		13,89
SLLS Wrongful Repair Request		170,80
EPT manpower for special works required by the OLO - per hour		69,50

8.5 Fault Repair

8.5.1 The fault repair is achieved within T40.

<i>Time of intervention, (working days, from Monday to Friday)</i>	<i>Origin of the fault is situated</i>	<i>Price</i>
8am-5pm	On EPT's side	For free
8am-5pm	On OLO's side	PriceA

8.5.2 The OLO wishes that the fault repair is done prior to other customers requests or outside working hours. In this case the following prices are applicable.

<i>Time of intervention</i>	<i>Origin of the fault is situated</i>	<i>Price</i>
Priority from 7am-7pm (Monday to Friday) and 8am-12pm (Saturday)	On OLO's or on EPT's side	Price B
From 7pm-7am from Monday to Friday, Saturday from 12am on and Sunday	On OLO'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	69,50
All manpower fees are based on the luxemburgish price index 605,61. They will be updated following the evolution of this price index.	

9 Schedule 9 - Request Forms

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

10 Schedule 10 - Parameter Schedule

Contents:

- 10.1 Provisioning of MPF
- 10.2 Provisioning of SLLS
- 10.3 Provision of Tie Cables
- 10.4 Fault Reporting and Repair
- 10.5 Other

10.1 Provisioning of MPF

Timer	Value	Description
T1	5 working days	Response time to the survey request
T2	10 working days	Maximum delay for MPF reservation as from the date the positive survey request has been send by electronic mail
T3	3 working days	Delay 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 OLO 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	Delay to submit an alternate solution in case the reserved resources in EPT's network are not usable to provide MPF
T7	20 working days	Maximum delay to wait for the customers matching order after a positive order has been submitted by the Operator
T8	2 working days	Delay 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 Delay 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 delay for SLLS reservation as from the date the positive survey request has been send by electronic mail
T13	3 working days	Delay 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	Delay between the moment the SLLS has been provisioned and the confirmation is send by the electronic message
T15	21 working days	Delay to provision 95% SLLS orders in the network
T18	2 working days	Delay 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 Delay to provide the hand-back message to EPT
T20	5 working days	Delivering by OLO 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
T32	20 working days	Maximum number of days between the firm order and preferred ready for service date

10.4 Fault Reporting and Repair

Timer	Value	Description
T40	2 working days	Delay to realize 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 OLO to access the MDF information
T52	20 working days	Maximum period between the declaration of an OLO that it is interested in Local Loop Unbundling Services and the acceptance of first electronic exchanged file.