Reference Unbundling Offer

Entreprise des Postes et Télécommunications

2001

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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
- Collocation Services

1.3 This RUO is valid from January 1st, 2001, 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.

2 The Local Loop Unbundling Services Offer Principles

2.1 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
- Shared access (to be completed),

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.

2.2 Responsibilities

2.2.1 EPT Responsibilities

EPT shall be responsible for:

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

- 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 2.9.

- 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.

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.

2.2.2 OLO Responsibilities

The OLO shall be responsible for:

- Ordering a line in accordance with Schedule 6 (Ordering 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).

2.3 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.

2.4 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.

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.

2.5 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.

2.6 Configuration

EPT shall determine the maximum number of access lines per access cable in accordance with Schedule 5 (Technical Specifications For Transmission Equipment In The Local Loop).

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

2.7 System Alteration

If EPT wishes to make a system alteration, it shall give the OLO and the ILR no less than 6 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.

2.8 Coordination Between The Parties

2.8.1 Single Point Of Contact

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.

2.8.2 Request forms

t.b.d.

2.8.3 Preliminary exchange of information

See chapter 6.6.1

2.9 Financial conditions

2.9.1 Tariffs And Billing

In compensation for Raw Copper Services 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.

2.9.2 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.

2.10 End Users And Branding

2.10.1 End Users

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

2.10.2 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.

3 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 5. (Ordering Procedure) so that the MPF may be marked as available for re-use by any other OLO.

4 General Conditions

4.1 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.

4.2 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.

4.3 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.

5 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

6 SCHEDULES

REFERENCE UNBUNDLING OFFER

6.1 Schedule 1 : Provision Of Metallic Path Facility - Service Description

6.1.1 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.

6.1.2 Types Of Offered Loops

6.1.2.1 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).

6.1.2.2 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).

6.1.3 Network

6.1.3.1 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.

6.1.4 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 Schedule 4 (Collocation Services).

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 Schedule 4 (Collocation Services) 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 6.1.2, 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.

- 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.

6.1.5 Provisioning And Cessation

The procedure for MPF provisioning is described in Schedule 7 (Ordering Procedure).

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

The procedure for MPF cessation is described in Schedule 7 (Ordering Procedure).

REFERENCE UNBUNDLING OFFER

6.2 Schedule 2: Provision Of Sub-Loop Unbundling

6.2.1 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, e.g.: concentration point or a specified intermediate access point in the local network.

The connection between the SLCP and the OLO equipment will be realized with external Tie Cables.

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

Information concerning existing SLCP's 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).

6.2.2 Types Of Sub-Loops Offered

The Sub-Loops offered are of the same types as for the MPF in Schedule 1 (Provision Of MPF - Service Description).

6.2.3 Provision Of SLU

The same rules apply as for the MPF in Schedule 1 (Provision Of MPF - Service Description).

6.2.4 Network

NTP's at the End User premises are defined in the same way as in Schedule 1 (Provision Of MPF - Service Description).

6.2.5 Boundary Conditions And Prerequisites

The same conditions and prerequisites apply as defined in Schedule 1 (Provision Of MPF - Service Description), 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.

REFERENCE UNBUNDLING OFFER

6.3 Schedule 3: Provision of Shared Local Loop Service (SLLS)

6.3.1 Description

The SLLS product allows a voice service provided by EPT and an xDSL service offered by an OLO, to be integrated over 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.

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. The procedure is described in Schedule 7 (Ordering Procedure)

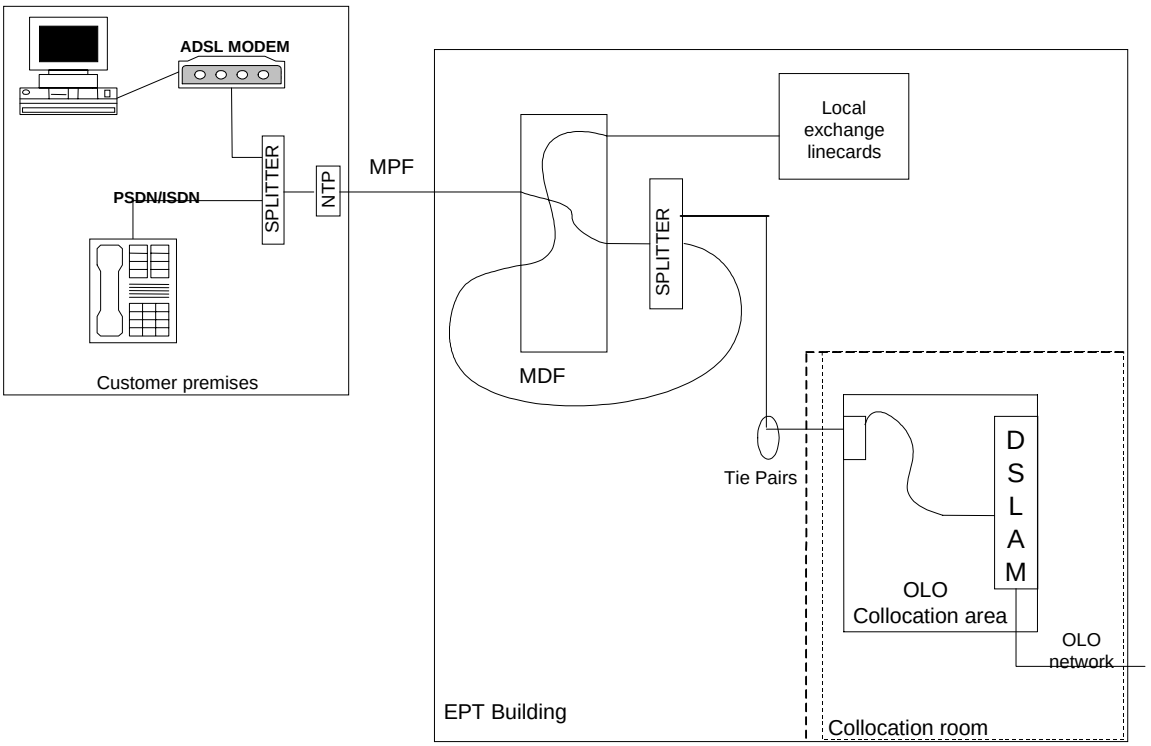


Figure 6.3.1

6.3.2 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.

- SLLS for xDSL over PSTN
- SLLS for xDSL over ISDN

6.3.3 Network

6.3.3.1 Network termination points

Under Shared MPF the OLO is responsible for ordering appropriate splitters at each end of the shared MPF. These splitters are provided and installed by EPT at the Local Exchange as well as at the customer premises.

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

At the customer premises the OLO will access the shared line at the high frequency interface of the splitter. The provision and installation of the customers wiring for the xDSL services as well as the provision and installation of any equipment to provide xDSL services will be the responsibility of the OLO. Replacement or changes to the existing customers 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.

6.3.3.2 Splitters

Splitters are required for the PSTN/ISDN service and the OLO supplied xDSL services to co-exist on the same metallic pair. The line signals of the xDSL service must be compliant to chapter 6.5.2.

The OLO is responsible for ordering Tie Cables and splitters at the MDF site and at 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 Procedures". The splitters have to be defined as being Splitters for PSTN lines or Splitters for ISDN lines.

6.3.4 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 presented in Schedule 4 (Collocation Services).

SLLS can only be requested by an OLO to provide xDSL services to the same End User that has contracted PSTN/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 PSTN/ISDN service to the End User.

SLLS shall not be available where Carrier Preselection is existent on the requested MPF. This does not preclude the future availability of a process whereby a cease order for Carrier Preselection is co-ordinated with an order for SLLS .
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.

- 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.

6.3.5 Spectrum Management and Equipment compatibility

Requirements related to spectrum management and the equipment connected to the SLLS are described in Schedule 5.

6.3.6 Provisioning And Cessation

The procedure for SLLS provisioning is described in Schedule 7 (Ordering Procedure).

The procedure for SLLS cessation is described in Schedule 7 (Ordering Procedure).

6.4 Schedule 4: Collocation services

6.4.1 Description

Collocation is a service provided by EPT to an OLO. The service offers the possibility for the OLO to locate its transmission equipment within a dedicated Collocation Equipment Room in an EPT MDF Site or an adjacent facility to such a Site for the purpose of providing access to EPT's MPF and Shared Access services.

EPT's Collocation service shall only be provided within or adjacent to an existing EPT Site. EPT will not structurally change or build any new Sites to provide such Collocation services. If no existing floor space, for the purpose of Collocation, is available on the existing Site, EPT may with the assent of the first OLO install a special outside Collocation Shelter on its premises which serves than as Collocation Equipment Room. This container can only be used from both parties for the purposes of Collocation services and must be shared with all OLOs in the same way as a Collocation Equipment Room in an existing EPT Site.

Floor space for Collocation purposes shall be allocated on a "first come - first served" basis.

EPT may classify available floor space as "unavailable" for Collocation purposes if it plans to abandon a Site within 18 months.

6.4.2 Types of Collocation

There are three types of Collocation site configurations:

- Collocation within existing EPT Site.
- Collocation in Shelter adjacent to existing EPT Site.
- Collocation in Shelter distant from existing EPT Site.
- Virtual collocation, should the case arise, shall be made available if technically feasible and where physical collocation is not possible.

6.4.3 Collocation Within Existing EPT Site

6.4.3.1 Description

The Collocation within an existing EPT Site consists of designated floor space within an equipment room at the Site. The following basic facilities shall be accessible at the Collocation Site:

- The physical Collocation floor space (specified area) occupied by the physical Collocation cabinet set installed by the OLO.
- Fire detection and protection, lighting, AC power supply, grounding, climate control and cable trays.
- Rights of access and access control for OLO's staff.
- Ducting on EPT's property up to the border of the Site to provide the fibre facility link.

The following optional facilities shall be accessible, subject to a separate order and agreement between the OLO and EPT:

- 48V DC no break power supply.
- 230V AC monitored power supply.

The transmission link for the physical Collocation facility shall be provided in the following way:

- EPT shall provide cable ducts to the boundary of EPT premises.
- OLO shall provide transmission link to the cable ducts provided by EPT.
- EPT shall bring the transmission link through the EPT cable ducts into the physical collocation facility.

6.4.3.2 Provisioning

The fundamentals of the provisioning process are described in figure 1.

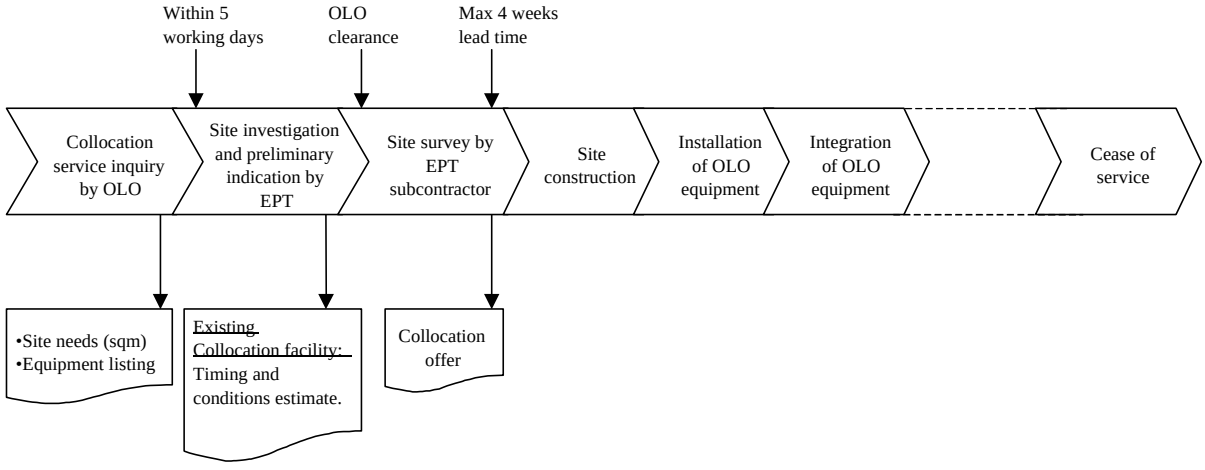


Figure 1: Provisioning process of Collocation within existing EPT Site.

6.4.3.3 First provisioning of a Collocation facility

An OLO who is interested in establishing Collocation at a specific Site, can request EPT for information regarding the availability of Collocation service at this Site. Requests for Collocation can only be made for Sites housing an EPT MDF access point. In the request, the OLO will describe its needs regarding the referred Site and the type of equipment it wishes to install.

Within 5 working days of receiving an OLO request, EPT will give the OLO a preliminary indication whether a Collocation facility already exist at this Site and an indication of timing and conditions for implementation. If Collocation facilities have still to be arranged the answer will also include the fees for full surveys in accordance to the price list and a non-disclosure agreement. If Collocation is not possible at the specific site, EPT will provide the OLO with the reasons for this.

After accepting the above-mentioned conditions, the OLO may request EPT to carry out a full survey for Collocation services at the specific Site (Collocation request). EPT will subcontract the full survey and the pricing to an independent "bureau d'études" of its choice, duly authorized for such type of work in Luxembourg.

At the latest 4 weeks after the relevant Collocation request, EPT will send a detailed and transparent offer, established by the subcontractor, to the OLO indicating the costs of the necessary adaptation of the Collocation room and the timing to execute the adaptations.

The common adaptation and installation costs cover the costs for the adaptation of the EPT building to the specific security and operational requirements applicable to Collocation services. The installation of the utility equipment, which is common to the Collocation Equipment Room, intended to implement and maintain the adequate environmental and operational conditions required by Collocation is also included.

The common adaptation, site survey and installation costs will be charged at 100% to the first (n) OLO(s) requesting EPT-sited interconnection at the concerned Site.

50% of the costs will be paid at the firm order for collocation arrangement, the remaining 50% will be paid after the completion of the adaptation of the premises and prior to the installation of the OLO's equipment.

When an additional OLO requests Collocation in the same site, it will be charged [100/(n+1)] % of the common costs paid by the first OLO(s) plus a fee covering administration costs. The amount paid by the additional OLO(s) will be refunded to the first OLO(s) with deduction of the administrative costs covering rebilling and financial costs.

The same procedure will be followed at subsequent requests for Collocation at the same Site.

After acceptance of the conditions of the Collocation offer, the OLO shall introduce a formal purchase order to EPT for obtaining Collocation space. EPT will subcontract to that "bureau d'études" that had established the Site survey, the project management to execute the necessary adaptations to prepare a Collocation facility compliant to the specifications mentioned in this document.

6.4.3.4 OLO Cable Introduction

To facilitate the introduction of the OLO cable to the collocation space, EPT will provide a manhole at the border of the public domain. The OLO will bring his cable to this manhole. The minimum length between the manhole and the collocation space will be provided by EPT to the OLO. A surplus of cable must be available in the manhole to bridge the distance to the collocation space.

The installation of the OLO cable from the manhole to the collocation space will be realised by EPT. Costs for these works will have to be covered by the OLO as defined in Schedule 8.

6.4.3.5 Provisioning of Internal Tie Cables

6.4.3.5.1 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 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 broadband data transmission cables with shielded pairs will be provided.

- For loops used for voice or narrow-band data transmission non-shielded twisted pair cables of 0,5 mm gauge will be provided

6.4.3.5.2 Provisioning

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.

The first order for Internal Tie Cables shall cover a minimum capacity of 100 pairs for broadband services and 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 21 working days. Tie cables can also be provided within the initial Collocation arrangement project and will than be part of an overall planning and timing.

For each Internal 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).

The minimum period of service for any Internal Tie Cable shall be 12 months commencing on the Ready For Service Date. If an OLO terminates service of a Internal 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.

6.4.3.5.3 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.

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.

6.4.4 Collocation In Shelter Adjacent Or Distant To Existing EPT Site

6.4.4.1 Description

The adjacent Collocation facility shall consist of a lockable Shelter, procured by the OLO, housing the HDF. The adjacent/distant Collocation Shelter should be installed on or near the boundary of EPT premises.

The fiber facilities link ducting for the adjacent Collocation facility shall be provided in the following way:

- OLO shall provide copper facilities link from the OLO distant location site to the adjacent Collocation facility at the EPT premises boundary.
- EPT shall provide egress ducting from EPT MDF building to the boundary of EPT premises.
- EPT shall bring the External Tie Cable link through the EPT cable ducts into the adjacent Collocation facility.

In case where the placement of a lockable shelter on or near the boundary of EPT premises is not possible, EPT accepts to prolong External Tie Cable to an OLO's distant Collocation site when adequate duct space is available. This distant Collocation room should nevertheless be installed in the near vicinity of the EPT MDF Site.

EPT will not provide any construction services on buildings or duct space where distant location is required.

Duct space from EPT premises to the distant location and the pose of External Tie Cable can be provided by EPT on the basis of a commercial offer.

6.4.4.2 Provisioning

The fundamentals of the provisioning process are described in figure 2.

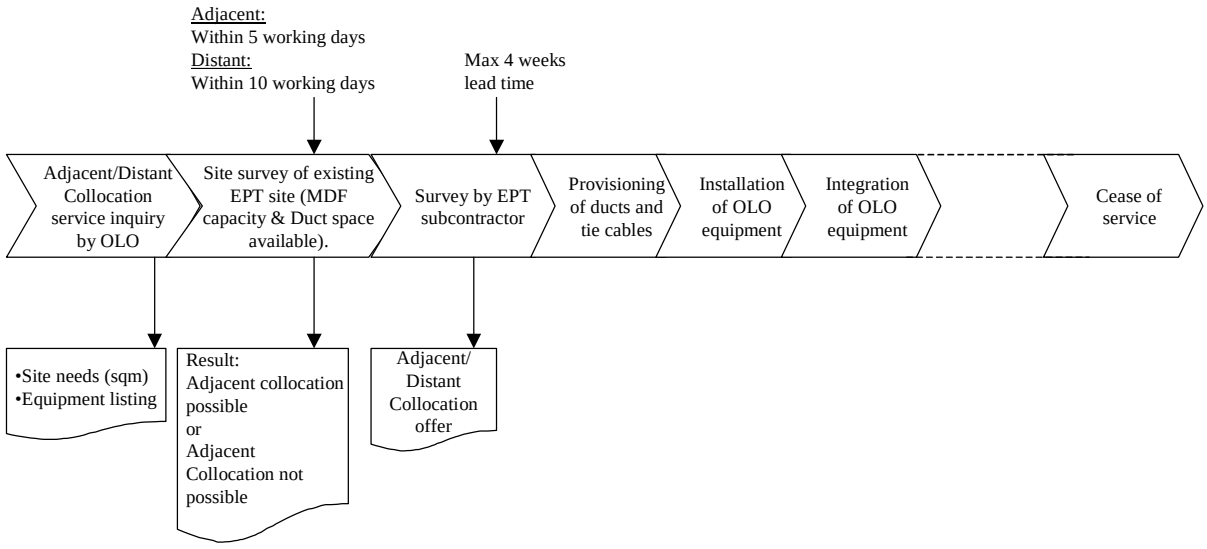


Figure 2: Provisioning process of Collocation in Shelter distant or adjacent to EPT Site.

On receipt of a request from an OLO for an adjacent or distant Collocation, EPT will conduct an initial Site survey of the relevant EPT MDF Site to confirm that MDF capacity and duct space is available for the requisite External Tie Cables.

Within 5 working days of receipt EPT will give the OLO a preliminary indication whether adjacent Collocation facility is immediately possible. If adjacent Collocation is not immediately possible at the specific Site, EPT will provide the OLO with the reasons why Collocation is not available.

In case of a request for distant Collocation, EPT will conduct an initial Site survey of the relevant EPT MDF Site to confirm that MDF capacity and duct space is available for the requisite external Tie Cables. EPT will respond to the OLO within 10 working days indicating whether or not distant Collocation is immediately possible. If distant Collocation is not immediately possible at the specific Site, EPT will provide the OLO with the reasons why Collocation is not available.

The OLO may request EPT to carry out a full survey for Collocation services at the specific Site. EPT will subcontract the elaboration of full survey and the pricing to an independent "bureau d'études".

At the latest 4 weeks after the relevant Collocation request, EPT will send a detailed and transparent offer, established by the subcontractor to the OLO indicating the costs of the necessary adaptation of MDF capacity and for egress ducting as well as indicating timescales.

When the OLO accepts the proposal by conforming its order, EPT provides an order confirmation and will begin with the provisioning of ducts and Tie Cables within a typical target timescale of 30 working days after reception of the "permission de voirie".

The adjacent Collocation facility provisioning will not include special end to end tests of the Metallic Path circuits between the OLO's HDF and EPT’s MDF.

6.4.4.3 Provision of External Tie Cables

6.4.4.3.1 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 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 broadband data transmission:
  - Shielded cables will be provided if the OLO HDF is installed in a Shelter on or near the boundary of the EPT MDF Site.
  - Non-shielded twisted pair cables of 0,5 mm gauge will be provided if the HDF is not installed on or near the boundary of the EPT MDF Site; in this case EPT's rules for Cable Pair Management will apply.
- For loops used for voice or narrow-band data transmission, non-shielded twisted pair cables of 0,5 mm gauge will be provided.

6.4.4.3.2 Provisioning

The OLO shall provide at its expense at the shelter or the premises provided by the OLO for distant Collocation 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 do intrusive measurement.

For distant Collocation where the OLO has installed a Shelter on or near the boundary of EPT premises, the OLO will be provided with a Tie Cable to this Shelter.

For distant Collocation where the OLO equipment is installed in a distant location, provisioning of Tie Cables may be offered by EPT on commercially agreed conditions.

The first order for External Tie Cables shall cover a minimum capacity of 100 pairs for broadband services and 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 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 35 working days.

For each External 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).

The minimum period of service for any External Tie Cable shall be 12 months commencing on the Ready For Service Date. If an OLO terminates service of an External 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.

6.4.4.3.3 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.

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.

6.4.5 Virtual collocation

Should the case arise EPT shall offer virtual collocation on MDF sites where no physical collocation is available. This offer is limited to equipment used by EPT for standard operation.

6.4.6 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.

6.4.7 Space allocation and Installation rules

6.4.7.1 Space allocation

If an OLO wishes to make a reservation for a Collocation space in an existing Site, he must send a reservation request to EPT.

Collocation space will be allocated on a basis of 600 * 600 mm footprints and includes space for maintenance access.

To allow the limited availability of Collocation space, EPT will allocate Collocation space on a “first-come, first-served” basis. This mechanism will be implemented using the time stamp on the ordering request.

Subsequent reservation requests for Collocation space within the same OLO's room will only be accepted if the OLOs still installed Collocation facilities have been fully deployed.

6.4.7.2 Installation rules

The OLO shall install only transmission equipment (including line terminators, modems, multiplexers, etc.) . The transmission equipment shall be installed by OLO itself or by authorised staff working under OLO's responsibility. OLO's transmission facilities will be extended by means of Tie Cables to the MDF within EPT’s technical area. On request, each OLO may be indicated an appropriate place to install a HDF. EPT or its authorized staff working under EPT’s responsibility will do the extension between HDF and MDF at the costs stated in the product specific service description and in each Collocation Agreement.

The OLO can not allow under any condition:

- A third party to use the specified floor area partially or completely.
- The use by itself or by any third party of the specified floor area partly or completely for other purposes than described in this service description or in the specific Collocation Agreement.

The OLO may not without prior written consent of EPT:

- Alter the OLO specified floor area.
- Transfer its rights to a third party.

The OLO may not cause any inconvenience towards other users of the Site room or cause interference with the equipment of such OLOs or to EPT.

All OLO transmission equipment shall comply with the relevant technical specifications. OLO shall make sure that its equipment does not cause disturbance or interference to EPT equipment or to other OLO's equipment in the technical building. If this would be the case, both parties shall cooperate to resolve the problems. Any costs incurred by such a relevant event shall be borne by OLO.

OLO shall not touch another OLO's equipment.

OLO shall provision, maintain and administer its transmission equipment in an adequate manner and shall in particular, take steps necessary to ensure that it does not present or cause danger for safety or health.

6.4.7.3 Basic facilities of the Collocation room

AC power:

- One or more interface points will be provided per Collocation space for standard 230 VAC 'unmonitored' power supply.
- The 230 VAC 'unmonitored' power supply is made available in accordance with the connection conditions of the local electricity distribution company that supplies the power. 'Unmonitored' means that in the event of an interruption in the supply of electricity, the supply will not be taken over by a different electricity source.
- No guarantee is offered with regard to the maximum duration of an interruption in the supply of electricity as this depends entirely on the electricity distribution company.
- The power cable(s) to the Collocation Space will be provided and installed by EPT. Costs for this power cabling will have to be covered by the OLO as defined in Schedule 8.

Earthing:

- The earthing system will be in accordance with ETS 300 253 and ITU-T recommendation K27. The minimum earthing facility is a ring line in the Collocation space that has multiple links to the building-based earthing facilities.

Climate Control:

- Climate control will be in compliance with ETS 300 019-1-3 class 3.1. The Operators hosted at a specific site commit to take in charge the cost for later installation/extension of the air-condition system when the specifications can no be met due to a higher heat dissipation.

Floor Loading:

- The floors may be subjected to uniformly distributed loads of maximum 5500 N/m².
- Load concentrations must be calculated in each individual case to check conformity with the floor loading limitations of specific service facilities.
- OLO equipment should present an evenly distributed floor load.

Fire detection and protection:

- The Service Facility will be provided with one smoke-alarm connected to a fire-alarm installation

Lighting:

- A standard lighting of 300 lux will be provided in the Collocation space.
- Emergency exits will be lighted with at least 1 lux at floor level.

48V DC no break power supply:

- The 48V DC no break power supply is in accordance with ETS 300 132-2 Power supply interface at the input of the telecommunications equipment; Part 2.
- EPT will provide a distribution board in the Collocation Equipment Room. OLO must specify the required power capacity at the time of the Site report. The power cable(s) to the Collocation Space will be provided and installed by EPT. Costs for this power cabling will have to be covered by the OLO as defined in Schedule 8.
- In the distribution board fuses with a maximum value of 80 A shall be used.

230V AC monitored power supply:

- The 230V AC monitored power supply is provided with backup by means of a (mobile) generator. 'Monitored' means that in the event of an interruption in the supply of electricity, the supply will be taken over by a different electricity source. Take-over time may vary from site to site and will be provided with the collocation survey.
- EPT will provide a distribution board in the Collocation Equipment Room. OLO must specify the required power capacity at the time of the Site report.
- The power cable(s) to the Collocation Space will be provided and installed by EPT. Costs for this power cabling will have to be covered by the OLO as defined in Schedule 8.
- In the distribution board fuses with a maximum value of 16 A shall be used.

6.4.7.4 Characteristics of OLO supplied racks and equipment to be Collocated

The standard dimensions as defined in ETS 300 119 are to be used for the construction of the cabinets for the OLO's equipment. The maximum allowed height of the cabinet is 2200 mm.

The OLO equipment to be installed in the specified floor area must conform to ETS 300 253 and ITU-T recommendation K27 together with the earthing facility supplied by EPT.

OLO provided 230V AC / 48V DC equipment and installation shall comply with the ETS 300 132-1, ETS 300 132-2, DIN VDE 0185.

For safety reasons the presence of batteries in the Collocation room is not allowed.

Electro-magnetic effects and radiation by the OLO equipment must comply with the requirements of ETS 300 386-1 table 3.

6.4.7.5 Access conditions for OLO staff

EPT will provide the OLO with access to the Collocation Equipment Room. EPT shall, where reasonably practicable, provide dedicated entrance facilities for the Collocation Equipment Room. Where it is not reasonably practicable to provide such facilities, EPT will provide to the OLO alternative facilities as set out hereafter.

OLO staff, in principle, does not need to be accompanied by EPT security staff during visits to the dedicated space inside the EPT Site building. As a consequence, no compensation for such kind of activity by EPT staff has been included in the present document but may be due in particular circumstances. However, the OLO's attention is drawn to the fact that certain restrictions will apply such as:

- Only authorised staff can enter EPT’s building.
- OLO's staff should always be able to identify themselves.

6.4.7.6 Security

Access to a Collocation Equipment Room that has dedicated external access and a solid internal perimeter may be controlled either by mechanical or electronic locking in conjunction with an access control system at EPT’s discretion.

The OLO acknowledges that access to each MDF Site will be controlled at all times and will provide an audit trail.

EPT will only permit access by the OLO and/or the OLO's employees, agents and contractors to the specified floor area specific to the OLO.

When at an MDF Site, all OLO employees, agents or contractors must display an appropriate identity card. Where required for use with an EPT managed access control system a suitable access card will be provided by EPT.

The buildings within the EPT estate fall into two main categories, each of which has specific security needs, as follows:

- Guarded buildings – are manned buildings which have receptionists at the access point(s) to control access.

- Unguarded buildings – are manned or unmanned buildings which have no people at the access point(s) to control access.

6.4.7.6.1 Access to Guarded Buildings

OLO employees, agents or contractors will, on production and verification of their identity card, be allowed entry to an MDF Site in order to access the Collocation Equipment Room housing the OLO equipment. Access will be limited to those areas necessary to conduct OLO business.

Access to a Collocation Equipment Room housing the OLO equipment which has only internal access within guarded building, without electronic access control, will require formal entry/exit registration against a previously agreed list of named OLO employees, agents or contractors held at the security post or reception desk.

6.4.7.6.2 Access to Unguarded Buildings

Access to unguarded buildings within the EPT estate is controlled by the following methods:

- Electronic access using an access card, together with a PIN.

- Access using a physical key.

Access to the Collocation Equipment Room, housing OLO equipment, which has only internal access within unmanned or part-time manned buildings will be restricted to those people issued with an access card programmed to allow entry at the designated building main entrance, and their supervised visitors.

6.4.7.6.3 Access Cards and PINs

In an EPT MDF Site where access is provided by means of an electronic access control system using access cards and PINs, only OLO employees, agents or contractors issued with an access card and a valid PIN programmed to allow entry will be allowed automatic entry into the building.

The OLO must, without delay, report to EPT the loss of any cards issued by EPT to the OLO in accordance with EPT's instructions.

OLO cardholders may host access to a Collocation Equipment Room, housing OLO equipment, only where this involves direct and permanent supervision by the cardholder.

All cards remain the property of EPT and may be withdrawn or disabled by EPT at any time.

OLO employees, agents or contractors will only be issued with keys which allows access to

a Collocation Equipment Room, housing OLO equipment, and not to any other part of a EPT building.

Lost keys issued to the OLO by EPT must be reported immediately to EPT in accordance with instruction provided by EPT at time of issue.

Employees of EPT or third parties contracted by EPT, and working under the responsibility of EPT, shall only have access to the Collocation Equipment Room, housing OLO equipment, in so far this access is necessary:

- For inspection of safety situation in the Collocation Equipment Room with regard to electrical safety, fire safety and fire hazard.
- In connection with the carrying out of maintenance work to the basic facilities.
- If unforeseen circumstances of an urgent nature such as calamities, trouble or any suspicion of trouble give cause hereto.

For the avoidance of doubt, the OLO understands and accepts that third parties such as the emergency services, law enforcement agencies may have a legal right of entry to EPT premises at any time including the Collocation Equipment Room housing the OLO equipment and the specified floor area.

The OLO will pay EPT the appropriate charges for any services provided under this Schedule by EPT calculated in accordance with the charges specified from time to time in the price list.

6.4.7.7 Safety Standards

6.4.7.7.1 Fire safety

Installed structures and materials chosen will be fire retarding or non-combusting. An exception applies only to outside cables, which enter a building or premises.

To reduce the risk of fire, OLOs are not allowed to temporarily store any packaging materials or other combustible materials on the allocated areas or on any space on EPT premises.

6.4.7.7.2 Acoustic safety

Audible noise spectrum for equipment shall not exceed the noise level of 65 dB(A) in the frequency range from 20 to 20 kHz (method of measurement ISO 3741 or equivalent, measurement of equipment IEC 651 type 1 or equivalent filter A).

6.4.7.7.3 Personnel protection

Constructions will be designed in a way that it is not possible to touch components, which may injure humans as a consequence of high voltage or high temperature.

The corners and surfaces of structures, equipment and auxiliary devices shall be machined so as to eliminate the danger of injure under normal conditions.

To protect eyes against laser and led edition, optical cables shall be recognizable as such. Optical connectors in systems having a hazard class higher than 1, shall be provided with a warning label. Light sources (laser and led with a power higher than <t.b.d.>) shall be equipped with power attenuation in case of fiber rupture according to <t.b.d.>.

6.4.7.7.4 Hazardous materials

All materials that are not or no longer compliant to national or EEC regulations for reasons of health or environmental risks are prohibited in Collocation Equipment Rooms.

6.4.8 Collocation Cease Process

This process enables an existing Collocation, of any type, to be ceased. Two cases can occur:

- A cease requested by the OLO.
- A cease requested by EPT. This will only occur where the OLO has breached its contract, ceased to be a licensed interconnect operator or EPT has provided the requested notice of closure of the EPT MDF site.

6.4.8.1 Cease Process where the OLO requests the cease

- The OLO will submit a cease order for the relevant Collocation to EPT.
- Both parties will agree a cessation date and associated project plan. EPT will accept the date proposed by the OLO provided that this date is at least one calendar month from receipt of the cease order.
- When the cessation is complete, any physical Collocation space is returned to EPT and any equipments are returned to their appropriate owners. The OLO will take out all its equipment in an agreed time-scale. After this period EPT retains the right to clear out any OLO's residual belongings left in the EPT estate at OLO's costs.

6.4.8.2 Cease process where EPT requests the cease

- EPT will submit a cease order, including a proposed cease date for the relevant Collocation to the OLO. This will be provided at least one calendar year in advance of the proposed cease date to allow the OLO to arrange for a suitable alternative.
- EPT will in addition to the cease order, send the OLO an offer of alternative arrangements for access to the affected MDF.
- The OLO will agree a cessation date with EPT, this date to match EPT’s initial proposed date where practicable.

- If the OLO wishes to continue serving End Users via the affected MDF, it will submit an order form via the standard process, for a replacement Collocation facility. The timing of this order submission should be appropriately aligned with the agreed cessation date.

- EPT and the OLO will draw up and agree a coordinated cessation or migration project plan to agreed time-scales. This plan should ensure minimal service disruption during the move to any agreed new location.

- Either the cessation/migration plan will be implemented by both parties to the agreed time-scales or the Collocation will simply cease according the agreed plan.

REFERENCE UNBUNDLING OFFER

6.5 Schedule 5: Technical specifications for Transmission Equipment in the local loop

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.

6.5.1 Cable Pair Management And Transmission Properties Of The Cables

6.5.1.1 Cable Pair Management

6.5.1.1.1 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 Plan (CPM) is essential in order to:

- Maximize 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. In developing a CPM, 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, the initial CPM is cautious and might possibly be optimised, reducing deployment limitations at a later date.

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.

- CPM is based on a plan of pair management and allowed cable fill for broadband use.

- PSM is specified by a number of PSD (Power Spectral Density) masks, applicable at a number of defined points in the access network. Those systems that transmit within the specific defined PSD are suitable for connection to the access network at that defined point.

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 trough 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 and PSM 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.

6.5.1.1.2 Enforcement and policing of the Cable Management Plan

Due to the statistical nature of the figures involved (for example, cross talk), the CPM and 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 CPM and PSM also does not necessarily lead to immediately observable service degradation. Detecting and locating systems that are non-compliant with the CPM and 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 faultfinding 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.

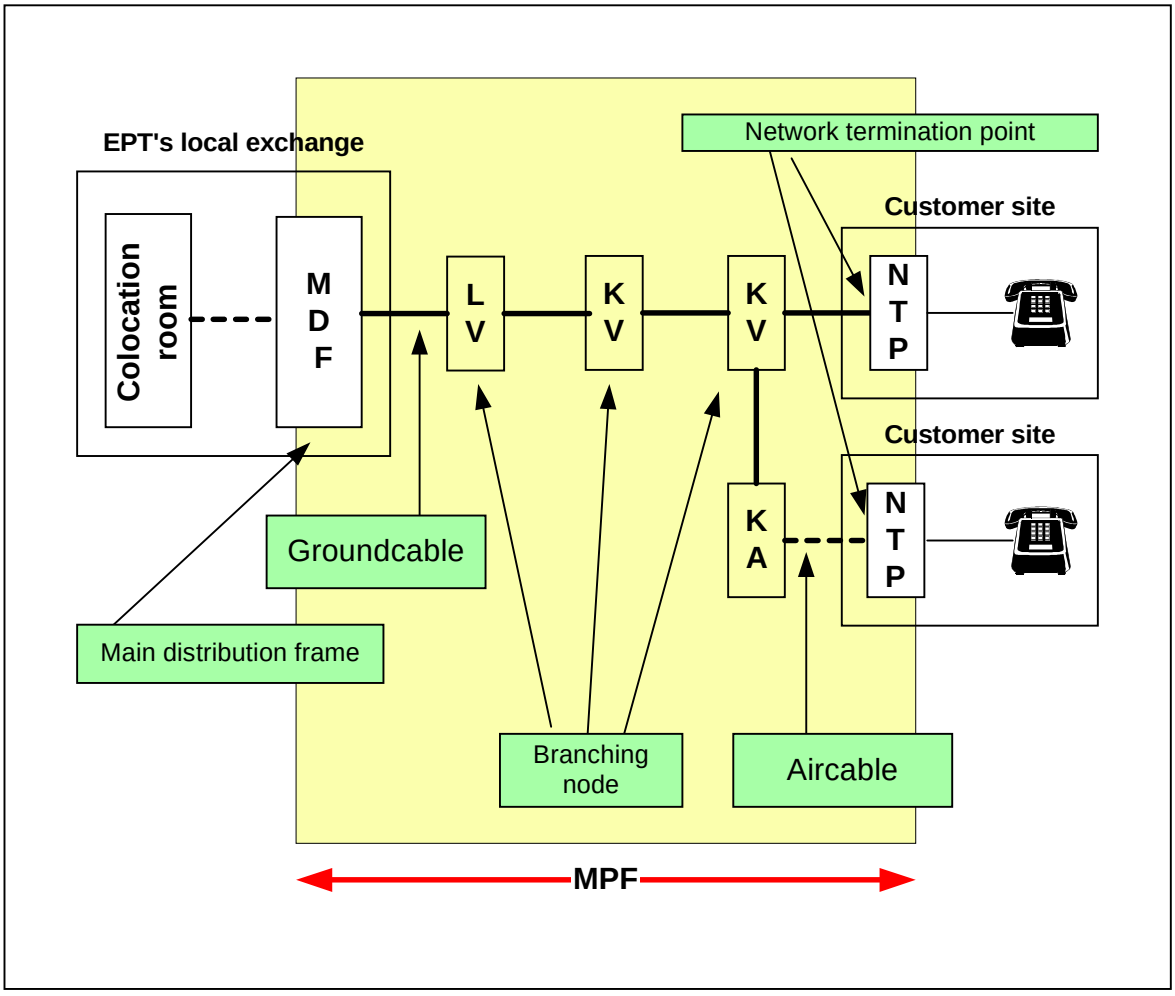
Where it is not possible to locate the disturbing system unambiguously by measurement, EPT will perform a re-arrangement of the broadband pairs in the cable to optimise the distribution of broadband systems in relation to the specific characteristics of that cable. In case satisfying performance cannot 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 utilization 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.

6.5.1.2 Network characteristics

6.5.1.2.1 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.



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. 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.

Due to congestion in some parts of EPT's access network, pair gain systems in the form of switches have been deployed. EPT has deployed in some parts of its local network active elements serving dedicated parts of the local area network. In such cases the metallic pair serving End Users in this area do not start at the MDF and MPF can only be provided as Sub Loop Unbundling Service (SLU) from this Sub Loop Connection Point (SLCP) to an End User site.

6.5.1.2.2 Cable Properties

6.5.1.2.2.1 Physical characteristics of the cables

Each telecom 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 trough a petrogelat filling.
- Ground cables are protected by an armoring.

6.5.1.2.2.2 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 guarantied 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 initialled 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.

6.5.2 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 (www.telecom.lu) are the two main references. When both are mentioned, the values stated in EPT's user network interface descriptions apply.
Other transmission technologies than those referenced hereafter or used by EPT may be used after prior approval by ETSI and if their spectral harmlessness against other used technologies by EPT is proven and confirmed by a bilateral agreed field trial on EPT's network.

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

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

6.5.2.1.1 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 7.1.1.
Peak amplitude	ETSI TR 101 830-1 Sub-clause 7.1.2
Narrow-band signal voltage	ETSI TR 101 830-1 Sub-clause 7.1.3
Unbalance about earth	ETSI TR 101 830-1 Sub-clause 7.1.4
Feeding Power (from the LT-port)	ETSI TR 101 830-1 Sub-clause 7.1.5
Reference impedance Z_R	ETSI TR 101 830-1 Sub-clause 7.1.6
Ringing signal	ETSI TR 101 830-1 Sub-clause 7.1.7 EPT's user network interface description "Caractéristiques de l'interface d'abonné analogique"
Metering signals	ETSI TR 101 830-1 Sub-clause 7.1.8

6.5.2.1.2 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 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

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

6.5.2.2.1 Symmetrical broadband

This section summarizes symmetrical signals that are generated by digital transmission equipment up to 2 Mb/s. If such a system requires more than one wire-pair for carrying that bit-rate, the signal description holds for each individual wire-pair. These signals are commonly used to carry services like high quality leased lines, with symmetrical bit rates (in up- and downstream directions).

6.5.2.2.1.1 HDSL.2B1Q/2 Signals

This section covers signals, generated by HDSL (High bit-rate Digital Subscriber Line) transmission equipment on two wire-pairs, based on 2B1Q line coding. This subclause is based on the ETSI TS 101 135 specification. These are essentially 584 kbaud systems (per wire-pair).

A signal (per wire-pair) can be classified as an "HDSL.2B1Q/2 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 9.2.1.
Peak amplitude	ETSI TR 101 830-1 Sub-clause 9.2.2
Narrow-band signal power	ETSI TR 101 830-1 Sub-clause 9.2.3
Unbalance about earth	ETSI TR 101 830-1 Sub-clause 9.2.4
Feeding Power (from the LT-port)	ETSI TR 101 830-1 Sub-clause 9.2.5

6.5.2.2.1.2 HDSL.CAP/2 Signals

This category covers signals, generated by HDSL transmission equipment on two wire-pairs, based on CAP modulation. This sub-clause is based on the ETSI TS 101 135 specification.

A signal (per wire-pair) can be classified as an "HDSL.CAP/2 signal" if it is compliant with all sub-clauses below. Unless otherwise indicated, the following signal specification applies 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 9.4.1.
Peak amplitude	ETSI TR 101 830-1 Sub-clause 9.4.2
Narrow-band signal power	ETSI TR 101 830-1 Sub-clause 9.4.3
Unbalance about earth	ETSI TR 101 830-1 Sub-clause 9.4.4
Feeding Power (from the LT-port)	ETSI TR 101 830-1 Sub-clause 9.4.5

6.5.2.2.2 Asymmetrical broad band

This section summarizes asymmetrical signals that are generated by digital transmission equipment up to 8 Mb/s, including ADSL. 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

6.5.2.2.2.1 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 101388, ANSI T1.413 and ITU-T 992.1. A signal can be classified as an "ADSL over PSTN" if it is compliant with all sub-clauses below.

Parameter	**Requirements**
Total signal power (downstream only)	ETSI TR 101 830-1 Sub-clause 10.1.1.
Total signal power (upstream only)	ETSI TR 101 830-1 Sub-clause 10.1.2
Peak amplitude	ETSI TR 101 830-1 Sub-clause 10.1.3
Narrow-band signal power (downstream only)	ETSI TR 101 830-1 Sub-clause 10.1.4
Narrow-band signal power (upstream only)	ETSI TR 101 830-1 Sub-clause 10.1.5
Unbalance about earth (upstream & downstream	ETSI TR 101 830-1 Sub-clause 10.1.6

The requirements for any PSTN signal operating in the frequency band below ADSL on the same wire pair are defined in section 6.4.5.1.

6.5.2.2.2.2 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 992.1. A signal can be classified as an "ADSL over ISDN" if it is compliant with all sub-clauses below.

Parameter	**Requirements**
Total signal power (downstream only)	ETSI TR 101 830-1 Sub-clause 10.2.1.
Total signal power (upstream only)	ETSI TR 101 830-1 Sub-clause 10.2.2
Peak amplitude	ETSI TR 101 830-1 Sub-clause 10.2.3
Narrow-band signal power (downstream only)	ETSI TR 101 830-1 Sub-clause 10.2.4
Narrow-band signal power (upstream only)	ETSI TR 101 830-1 Sub-clause 10.2.5
Unbalance about earth (upstream & downstream	ETSI TR 101 830-1 Sub-clause 10.2.6

6.5.3 Requirements for spectral compatibility between ADSL over POTS and ADSL over ISDN

t.b.d.

6.6 Schedule 6: Planning and Operation

6.6.1 Preliminary exchange of information

6.6.1.1 EPT on collocation possibilities

EPT will provide to the OLO as soon as reasonably practicable, but not later than 5 working days 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 or most far SLCP.
- 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.

6.6.2 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). The chosen data transport format is XML.

To be accepted, the structure of the files transmitted shall correspond to the specifications described in the technical appendix to the interconnect agreement for Local Loop Unbundling Services.

Before the first data transmission can take place, the OLO has to perform transmission tests with EPT. A period of maximum 20 working days is foreseen between the declaration of an OLO that it is interested in Local Loop Unbundling Services and the first file to be accepted. This period is necessary for the Parties in order to perform the initialisation of the OLOs into the respective information systems.

6.6.3 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.

6.6.3.1 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.

6.6.3.2 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.

6.6.4 Fault reporting and repair

6.6.4.1 Fault reporting and repair for MPF

6.6.4.1.1 Fault reporting procedure

- 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 Fault Contact Point (EPT FCP). EPT will not accept any fault report from the OLO's customers.

- The OLO shall contact EPT FCP by phone. A confirmation of the fault request must be sent afterwards by fax or by electronic mail. All following calls necessary during test and repair period or after acceptance/rejection of the repair action should also be directed via 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.

6.6.4.1.2 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 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.

6.6.4.1.3 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.

6.6.4.1.4 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.

6.6.4.1.5 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.

6.6.4.2 Fault reporting and repair for SLLS

6.6.4.2.1 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 equipment installed by EPT, i.e. splitters,the cabling between the splitter and NTP and the MPF between the MDF at the Local Exchange and the NTP at the customer premises.

6.6.4.2.2 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 Fault Contact Point (EPT FCP). EPT will not accept any fault report concerning the high bandwidth of SLLS from the OLO's customers.
- The OLO shall contact EPT FCP by phone. A confirmation of the fault request must be sent afterwards by fax or by electronic mail. All following calls necessary during test and repair period or after acceptance/rejection of the repair action should also be directed via 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.

6.6.4.2.3 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.
- Low Bandwidth Problem and High Bandwidth Problem: both previous scenarios will be executed independently.

6.6.4.2.4 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.

6.6.4.2.5 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.

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 6.5, 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.

6.6.4.2.6 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.

6.6.4.2.7 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 confirmation of the report shall be sent by fax or by electronic mail.

6.6.4.2.8 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.

REFERENCE UNBUNDLING OFFER

6.7 Schedule 7: Ordering Procedure

6.7.1 Ordering Procedure Of Tie Cables

6.7.1.1 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 in Schedule 9 (Request Forms). 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.

6.7.1.2 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 20 working days 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 3 shows an overview of the process.

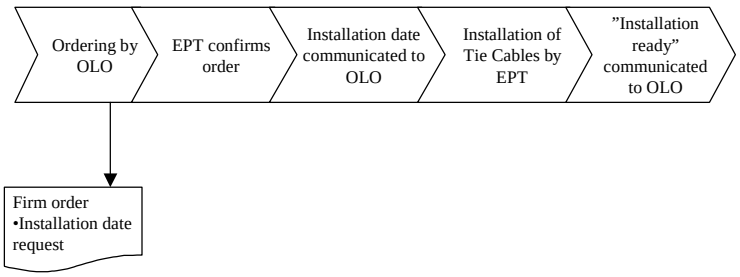


Figure 3: Ordering process of Tie Cables.

6.7.2 Ordering Procedure Of Metallic Path Facility

6.7.2.1 Definition

The ordering procedure for MPF without migration of service covers the following 2 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.

6.7.2.2 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.
- 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 5 working days. 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. 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 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 EPT Internet database.

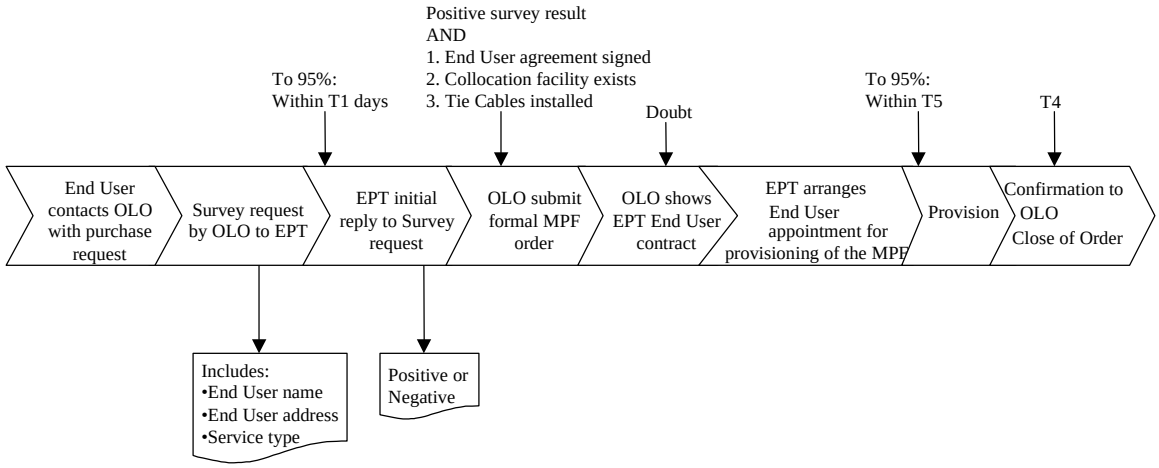


Figure 4: Ordering process for MPF.

6.7.2.3 Submission of an MPF survey request

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

- End User name.
- End User address.
- 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”.
The OLO shall specify a requested activation date within the survey request. EPT’s agreement to this activation date is subject to the delivery times for the MPF survey request as defined in the parameter schedule.

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.

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

For each survey EPT conducts with a positive or negative answer and irrespective if the OLO places a MPF provisioning order, EPT will charge the amount as indicated in the price schedule.

6.7.2.4 Order for provisioning of Metallic Path Facility

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:

- The OLO code.
- The survey order number.
- The End User name (complete name for a physical person or the official juridical name for other companies or legal bodies)
- Phone number to contact the End User to arrange an appointment.
- The MPF service type.
- 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 MPF. EPT shall inform the OLO about the arranged appointment with the End User unless otherwise agreed. 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.

EPT will endeavour to provision 95% of the MPF orders within a delay of T5 provided that the End User did accept an appointment date within this time frame.

Not later than T4 days after the MPF 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 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 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.

6.7.2.5 Appointment handling

After validation of the submitted information, EPT will contact the End User to arrange an appointment for provisioning of the MPF. 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 8.00 and 12.00 (a.m.) or between 13.00 and 17.00.

If, on the agreed appointment date, the End User can not be reached on site to provide access, ETP's technician drops a card in the End User mailbox inviting the End User to contact EPT's helpdesk to arrange a new appointment. These orders are not considered in the provisioning statistics.

6.7.2.6 Connection of the in-house cabling at the End User premises

EPT's MPF responsibility terminates at the NTPs as described in Schedule 1 (Provision Of Metallic Path Facility – Service Description).

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. For a single MPF this cable can consist of a 6 pair cable at the maximum.

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.

6.7.3 Ordering Procedure For Combined Provisioning of MPF And Number Porting

6.7.3.1 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 2 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.

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.

6.7.3.2 General considerations

EPT will not accept any order for MPF 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 MPF 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 MPF directly from an End User.
- Only the OLO will communicate with EPT.
- The contract of the existing End User Service 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 5 working days. 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. 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 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. The provisioning process is described in figure 5.

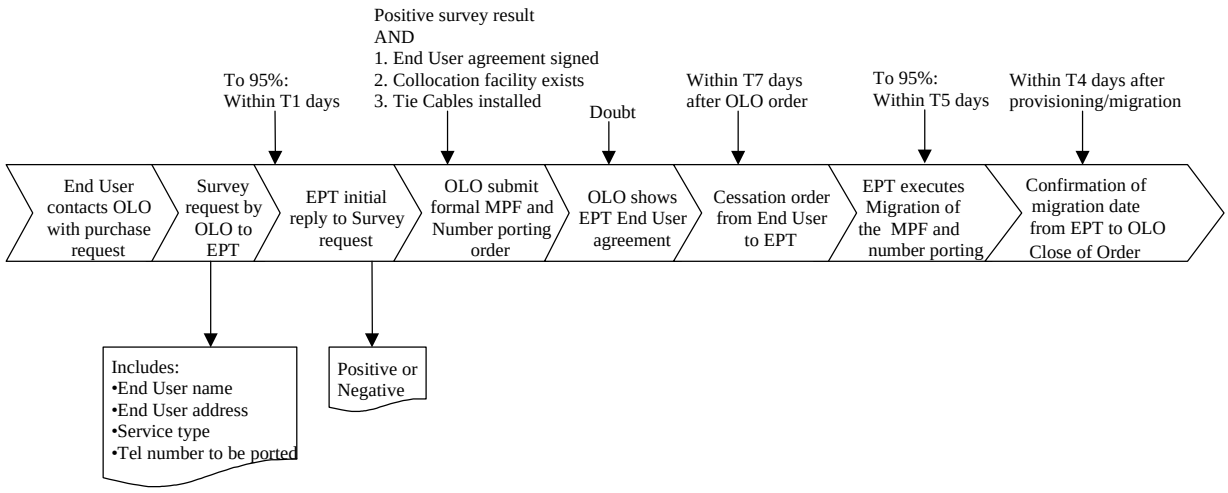


Figure 5: Order process for combined provisioning of MPF and number porting.

6.7.3.3 Submission of a combined survey request for MPF and number porting

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

- End User name.
- End User address.
- Service to be migrated (ISDN BA or PSTN)
- End User's telephone number(s) to be ported

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 MPF delivery are met and essential information is provided, EPT will not reject a request. In case of a negative survey answer EPT will indicate the relevant reasons.

The following reasons will lead to a negative survey answer:

- Presently used MPF is provided trough a pair gain system.
- Address not served by the indicated MDF.
- No unallocated Tie Cable capacity available.
- Any of the reject reasons as specified in the number portability document from May 2000 as defined by the working group.

For each survey performed by EPT with a positive or negative answer and irrespective if

the OLO places a combined provisioning order, EPT will charge the amount as indicated in the price schedule.

6.7.3.4 Order for combined provisioning of MPF and number porting

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 code.
- The survey order number.
- End User name.
- End User address.
- The number(s) to be ported.
- The connected equipment type.
- The connection point of the Tie Cable (as indicated in the planning and operation schedule).

EPT will reject an order if EPT does not receive, within a delay of T7 working days 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 endeavour to provision 95% of the MPF orders within a delay of T3 + 5 working days.

EPT will perform the migration in the following way:

- Inform the OLO by phone that the migration will be performed within the next 2 hours.
- 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.
- Inform the OLO by phone within 0,5 hour that the migration has been accomplished.
- 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 liase 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.

Not later than T4 days after the migration has been performed, EPT will send a confirmation by the electronic messaging system to the OLO confirming the date the migration took place.

This message will also close the order.

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 the messaging system. 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 EPTs local network.

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.

6.7.4 Transfer of MPF

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.

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. The subsequent combined order for MPF transfer and number porting will be handled in the following way.

- Inform the previous and the new 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 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 liase 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.

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 liase 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 liase to identify the underlying problem.

6.7.5 Hand-back Procedure

In case an End User terminates its services provided by the OLO trough 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 in the format as defined in Schedule 6 (Planning and Operations).

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

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

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.

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.

6.7.6 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 the electronic messaging system. 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 2 days ahead to the agreed appointment date with the End User, EPT cancels the order and the OLO pays the MPF charge for order cancelled before activation, as defined in Schedule 8 (Tariffs).

In case EPT receives the cessation order later than 2 days 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).

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

6.7.7 Ordering procedure of splitters

6.7.7.1 General

Orders are related to the OLO dedicated splitters at the EPT Local Exchanges. The splitters will be provided and installed in the EPT Local Exchange area under the responsibility of EPT. The connection from the splitters to the OLO Collocation area in that same EPT site will be realised with Internal Tie Cables for broadband services. These Tie Cables have to be ordered by the OLO following chapter 6.7.1.

6.7.7.2 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. These forecasts have to differentiate between POTS and ISDN splitters. EPT will use this forecasts to set-up a framework contract with an equipment supplier for the delivery of splitter pairs (MDF side and customer side).

The forecasted numbers of splitter pairs 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.

6.7.7.3 Ordering of splitters

EPT will provide and install splitters for POTS SLLS or ISDN SLLS according to ITU recommendation G922.1. The splitters are installed in the Local Exchange within the areas reserved for EPT's equipment.

The OLO can order splitters for its used SLLS through a firm order. A firm order consists of the requested number of incremental units, per type of unit and this for each individual Local Exchange. Orders have to be provided through the use of specific templates provided in Schedule 9 (Request Forms).

For each firm order of an OLO for splitters, 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.

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 (Collocation Services).

6.7.8 Ordering procedure of Shared Local Loop Services (SLLS)

6.7.8.1 General considerations:

This process allows the OLO to order a Shared Local Loop Service. The process is a two 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 MPF

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 5 working days . 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.

6.7.8.2 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 (xDSL)

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 and with 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 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.

For each survey EPT conducts with either a positive or a negative answer and irrespective if the OLO places a SLLS provisioning order, EPT will charge the amount as indicated in the price schedule.

6.7.8.3 Order for provisioning SLLS

After notification of a positive survey, the OLO submits within T13 a formal provisioning order. The provisioning order is send 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 splitter interface at the customers premises.

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 PSTN 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.

6.7.8.4 Appointment handling

After validation of the submitted information, EPT will contact the End User to arrange an appointment for provisioning of SLLS. 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 between 8.00 and 12.00 am or between 13.00 and 17.00 pm.

If, on the agreed appointment date, the End User can not be reached on site to provide access, EPT's technician drops a card in the End Users mailbox inviting the End User to contact EPT's helpdesk to arrange a new appointment. These orders are not considered in the provisioning statistics.

6.7.8.5 Connection of the in-house cabling at the End User premises

EPT is installing an appropriate (POTS or ISDN) centralised splitter at the End User's premises. EPT's responsibility terminates at the high frequency interface of the splitter.

The OLO has the right to connect the necessary cabling between the splitter and the broadband xDSL-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.

If no spare pairs are available between the NTP and the remote in-house points where the CPE (Customer Premises Equipment) is to be installed, the OLO is not allowed to disconnect any narrow-band equipment or change their functionality without the acknowledgement of the End User. When installing the splitter, EPT can, on the customer's request, extend the in-house cabling if the necessary effort remains within reasonable limits.

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.

6.7.9 Deactivation of Shared Local Loop Service

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 Operations)

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

- SLLS number
- 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.

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.

6.7.10 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
- Tie cable connection point number
- End User name
- End User address

- New allocated MPF number
- Date of conversion

EPT will nevertheless not change the cabling at the EPT and End User premises or the Tie Cable connection point and the installed splitters will remain active in the line. The OLO is not allowed to influence the MPF in a way so that the low band service on that pair would be inhibited.
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

6.7.11 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.

6.7.12 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 2 days 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 defined in schedule 8 (Tariffs).

In case EPT receives the cessation order later than 2 days before the agreed appointment date with the End User, EPT will cancel the order and charge the full SLLS provisioning tariff as defined in Schedule 8 to the OLO.

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

REFERENCE UNBUNDLING OFFER

6.8 Schedule 8: Tariffs

6.8.1 Physical Collocation

	Euro	Luf
Quote for building adaptations (including estimated delays for realization)	t.b.d.	t.b.d.
Monthly charge for the rental of the floor space, per footprint including the accessibility to the equipment, and air-conditioning		
Metropolitan area:	62,00	2.501.-
Urban area:	49,60	2.001.-
Rural area:	44,70	1.803.-
Monthly charge per used MDF site (covering maintenance and cleaning)	t.b.d.	t.b.d.
Introduction of the OLO fibre cable to the collocation space	t.b.d. (case by case quotation)	
Monthly charge for unmonitored AC Electric Power Consumption - per required fuse power in KW	59,00	2.380.-
Monthly charge for monitored AC Electric Power Consumption - per required fuse power in KW	117,70	4.748.-
Monthly charge for monitored DC Electric Power Consumption - per required fuse power in KW	154,90	6.249.-
Provisioning and installation of power cables to the collocation space	t.b.d. (case by case quotation)	
Extra co-location facilities: (extra power sockets, lighting,...)	Bespoke	
Unique fee for issuing an access card and a physical access key	38,70	1.561.-
Monthly charge for access control by access cards	5,80	234.-
Fee in case of lost of a card / key	30,80	1.242.-
EPT manpower for special works required by the OLO - per hour	69,50	2.804.-

6.8.2 Distant Collocation

	Euro	Luf
Distant Collocation	Bespoke	

6.8.3 Internal Tie Cable

	Euro	Luf
Connection charge for Tie Cables - voice-band usage - per 100 pairs	1.254,90	50.623.-
Connection charge for Tie Cables - broadband usage - per 100 pairs	t.b.d.	t.b.d.
Monthly charge for Tie Cables voice-band usage - per 100 pairs	3,00	121.-

Monthly charge for Tie Cables broadband usage - per 100 pairs	3,00	121.-
EPT manpower for special works required by the Operator - per hour	69,50	2.804.-

6.8.4 External Tie Cable

	Euro	Luf
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	2.804.-

6.8.5 Metallic Path Facility (MPF)

(SAME CHARGES FOR MPF combined with NP)

	Euro	Luf
Survey charge for a non-active local loop including length provisioning	50,60	2.041,-
Survey charge for an active local loop including length provisioning	26,45	1.067,-
Connection charge MPF - non-active local loop	135,03	5.447,-
Connection charge MPF - active local loop	91,13	3.676,-
Monthly rental MPF for voice-band usage	13,26	535,-
Monthly rental MPF for broadband usage	15,79	637,-
MPF Hand-back charge	Free of charge	
MPF length provision	170,80	6.890.-
MPF loop resistance measurement	170,80	6.890.-
MPF length, resistance, insertion loss measurement	170,80	6.890.-
MPF order cancelled before activation	13,89	560.-
MPF Wrongful Repair Request	170,80	6.890.-
EPT manpower for special works required by the OLO - per hour	69,50	2.804.-

6.8.6 Shared Access

	Euro	Luf
Survey charge for an SLLS including length provisioning	26,45	1.067,-
Connection charge SLLS	169,78	6.849,-
Monthly rental SLLS	7,54	304,-
Provisioning of Splitters at the LE	t.b.d.	t.b.d.
Provisioning of Splitters at the customer site	t.b.d.	t.b.d.
SLLS Hand-back charge	135,03	5.447.-
SLLS order cancelled before activation	13,89	560.-
SLLS Wrongful Repair Request	170,80	6.890.-
EPT manpower for special works required by the OLO - per hour	69,50	2.804.-

6.9 Schedule 9: Request Forms

t.b.d.

REFERENCE UNBUNDLING OFFER

6.10 Schedule 10: Parameter Schedule

6.10.1.1 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	2 working days	Delay between the moment the MPF has been provisioned and the confirmation is send by the electronic message
T5	21 working days	Delay to provision 95% MPF orders in the network
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

6.10.1.2 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

REFERENCE UNBUNDLING OFFER

6.11 Schedule 11: 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.
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	Date when service should be ready for commercial launch.
Receiving Party	The party in an agreement receiving confidential information.
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.
xDSL	ADSL , SDSL