



Reference Interconnect Offer (RIO)

Entreprise des Postes et Télécommunications

February 2015

Prices in Euro

Date	Status
27.07.2009	Version dated July 09 transmitted to ILR for review and approval.
25.05.2010	Version updated further to ILR's request dated 20.04.2010
01.07.2014	Version with new leased lines profiles and changes to the CPS activation
19.11.2014	Version with new tariffs for calls to Shared Revenue Numbers. These new tariffs will be applicable as of 1st January 2015
24.02.2015	Version with new tariffs for terminating an originating calls following ILR's Regulation 15/185 and 15/186. These new tariffs will be applicable as of 1st March 2015

Table of Contents

1.	<i>Introduction</i>	6
2.	<i>Definitions</i>	8
3.	<i>Interconnection Architecture</i>	12
4.	<i>The terminating access service</i>	15
5.	<i>Originating Access Service</i>	16
6.	<i>Interconnection Link Services</i>	24
7.	<i>Transit Service</i>	29
8.	<i>Leased Lines Interconnection Service</i>	30
9.	<i>Number Portability (NP)</i>	32
10.	<i>Quality of service of EPT's Interconnection Services</i>	34
11.	<i>Procedure for Reaching an Interconnection Agreement</i>	36
12.	<i>Annexes 1 to 11</i>	37

1. Introduction

1.1. This Reference Interconnect Offer ("RIO") defines the interconnection terms and conditions (including the list of the interconnection services) which EPT¹ will apply to all Operators in order to allow end-users who are connected to the system of an Operator to communicate with end-users who are connected to the telecommunication networks of EPT, or services accessible through EPT's system and vice versa. This RIO focuses mainly on circuit switched voice services and does not exclude other services.

1.2. The services covered by this RIO are:

- Terminating access service;
- Originating access service by means of Carrier Selection and Carrier Preselection;
- Interconnection link service;
- Transit service;
- Leased line interconnection service;
- Number Portability;
- Special Services Offered to Operators.

1.3. This RIO defines the minimal interconnection terms and conditions which EPT will grant to other Operators. Nevertheless, EPT reserves the right to provide more beneficial terms and conditions, in accordance with the applicable regulatory framework, including the principle of non-discrimination.

1.4. No Operator shall be responsible for the content of calls passed through his own or an interconnected Operator's network. Laws and regulations

¹ Unless defined otherwise in the operative parts of the RIO, capitalized terms are defined in Section 2 – Definitions - of this RIO

regarding confidentiality and access by legal authorities to calls on the Operator's and EPT's network will apply.

1.5. This RIO is valid from March 1 2015, unless

- A new RIO is approved or adopted by the ILR, or
- A material change occurs in the laws or regulations, governing telecommunications in Luxembourg.

1.6. The content of this RIO may be reviewed and amended in order to comply with applicable rules and regulations. Furthermore, the ILR reserves the right to request or impose on EPT modifications to the RIO or the adoption of a new RIO to be undertaken by EPT.

1.7. Unless defined otherwise, the terms used in this RIO must be interpreted in accordance with the Law of February 27th, 2011 on Networks and Electronic Communication Services (the "Law") and its implementing regulations.

1.8. All prices mentioned in this RIO, including those specified in the Appendices attached hereto, are in EURO (€) and exclusive of Value-Added Tax (VAT) or any other legal taxes, which will be added where applicable.

2. Definitions

Call: The establishment of a connection through a telecommunications network and the transmission and the delivery of a signal from the terminal on which this signal was generated to the terminal to which this signal is addressed or to a network platform or any other facility giving an automatic answer in those cases where the connection cannot be established.

Calling Line Identification (CLI): The CLI is the number of the calling user conveyed by each Operator's network for each call, it may also be provided by the network or partly by the calling user. This information is flagged either as "network-provided" or as "user provided, verified and passed". If the verification of a user provided CLI fails, the network-provided CLI will be transmitted.

Calling Line Identification Presentation (CLIP): Supplementary service provided for in ITU-T Recommendation I.251.3.

Calling Line Identification Restriction (CLIR): Supplementary service provided for in ITU-T Recommendation I.251.4.

Capacity of the Interconnection Link: The capacity defined for the Interconnection Link and the corresponding EPT access point to which the Operator wishes to be connected (expressed as a number of 2 Mbit/s links or any other unit agreed upon between parties).

Carrier Selection Code (CSC): A selection code as defined and allocated by the ILR and which is used to enable the originating access

service.

Carrier Preselection (CPS): A pre-programmed selection of an Operator allowing the access to services provided by that Operator without the need for the end-user to dial the CSC.

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 Gateway Exchange: An EPT exchange directly connected to an EPT Access Point at which calls are initially switched in the telecommunications network of the EPT, when conveyed from the Operator Access Point, or finally switched in the telecommunications network of the EPT when conveyed to the Operator Access Point.

EPT Access Point: The physical interface within EPT's System from which the Interconnection Services can be obtained.

Half Circuit: Provision of leased lines between a termination point located in EPT's network and the POI.

ILR: Institut Luxembourgeois de Régulation.

Interconnection: The interconnection with EPT, as defined in the Law.

Interconnect Agreement: An agreement between EPT and an Operator, which defines the conditions for the Interconnection.

Interconnection Link: A Link between an EPT Access Point and an Operator Access Point for the provision of Interconnection traffic.

Interconnection Service: Services described in the present Reference Interconnect Offer.

International Public Telecommunication Number: Defined as in ITU-T Recommendation E.164.

KPI: Key Performance Indicator

Link: Set of telecommunications facilities necessary to establish one or more transmission paths between two locations.

National (Significant) Number: Defined as in ITU-T Recommendation E.164.

Number portability: The case where a subscriber retains its originally assigned directory number when changing from one network Operator (donor network; Donor Operator) to another (recipient network; Recipient Operator) and is not related to changing the nature of service nor the location.

OAo Other Alternative Operator

Operator: Any legal or natural person exploiting telecommunications networks and/or providing telecommunications services in Luxembourg.

Operator Access Gateway Exchange: An Operator exchange directly connected to an Operator Access Point at which calls are initially switched in the Operator System, when conveyed from the EPT Access Point, or finally switched in Operator System when conveyed to the EPT Access Point.

Operator Access Point: The physical interface within the Operator's System at which the Interconnection Services can be obtained.

Parties: EPT and the Operator which an Interconnection

V dated 24.02.2015

Agreement is (being) concluded with.

Point of Interconnection (POI): The physical point on the Interconnection Link where the telecommunications network of EPT and the Operator's System are interconnected. The POI is the boundary between EPT and the Operator domains of responsibility.

Reference Interconnect Offer (RIO): The present offer for Interconnection Services.

System: All equipment and software which, an Operator uses to provide his telecommunications services.

SLA: Service Level Agreement

3. Interconnection Architecture

3.1. National Interconnection Sites

EPT has two sites that have been designed for use as National Interconnection Access Points grounds of their optimal network integration. These are existing manned EPT sites, containing relevant switching and transmission equipment with all digital functionality for national and international traffic.

The addresses of the interconnection points are as follows:

- national interconnection point 1: 10 rue d'Eprenay, L-1490 Luxembourg-Gare
- national interconnection point 2: 1 rue Yolande, L-2761 Luxembourg-Belair

The Operator can either use both Interconnection Access Points or select the Interconnection Access Point at which he wants to interconnect his System.

In case of national interconnection, the offered Interconnect Services relate to the entire national area.

3.2 Regional Interconnection Sites

EPT has introduced three (3) sites that have been designated for use as Regional Interconnection Access. These are existing manned EPT sites containing relevant switching and transmission equipment with all digital functionality for regional traffic.

The addresses of the interconnection points are as follows:

- regional interconnection point 1: 10, rue d'Eprenay, L-1490 Luxembourg
- regional interconnection point 2: 69, rue Arthur Useldinger, L-4351 Esch-sur-Alzette
- regional interconnection point 3: 14, Place de l'Hôtel de Ville, L-9051 Ettelbruck

The offer for the regional interconnection service is subject to negotiation and conclusion of an Interconnect Agreement or of an amendment to the existing Interconnect Agreement.

In case of regional interconnection, the offered Interconnect Services only relate to those end-users situated in the respective limited geographical region.

Only calls terminated at or originated from EPT's geographical numbers belonging to a specific regional area are allowed to be routed through this respective regional interconnect point. The number ranges allocated to the different regional interconnect switches are published on EPT's Internet site "www.posttechnologies.lu" rubric "Operators".

In case of an outage of a regional interconnection switch, the traffic can be re-routed through the national interconnection points.

Regional interconnection tariffs are based on an assumption of traffic distribution over the 3 regional interconnection sites. Therefore, Operators which opt for regional interconnection must interconnect in all three of these regional interconnection sites since interconnection to only one or two of these sites is not possible under the same tariff conditions.

3.3. System Alteration

If EPT wishes to make a system alteration, it shall give the OAO 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 OAO such information as the OAO may reasonably request including, to the extent reasonably practicable, the potential impact on the service provided by the OAO to the End Users.

3.4. Standards

Where relevant for interconnection with EPT, the following hierarchy of standards and procedures will apply:

Any legal requirements

ETSI standards

ITU-T Recommendations

National standards

Any other international standards

The signaling system will be based on the ITU-T SS7 protocols, ISUP Blue Book version. Tests for the SS7 will be performed following the pertinent ITU-T recommendations such as Q781-Q785.

The transmission level of the interconnection is based on the pertinent ITU-T recommendations for PDH and SDH interfaces .

4. The terminating access service

4.1. The terminating access service conveys a call handed over from the Operator's System, at an EPT Access Point for termination on any national number of EPT network. Tariffs may be different for different categories of services identified by different number ranges.

4.2. The tariffs applied by EPT for the provision of the terminating access service are indicated in Annex 2. Only calls that have been setup successfully and answered will be charged. The charging time starts with the answering signal and ends with the first clear signal generated either by the calling or the called party.

In case of bi-directional regional interconnect service; the tariff applied by the Operator for providing the terminating access service to its network will be negotiated between the Parties.

4.3. Whenever CLI is transferred to the telecommunications network of EPT, EPT will not communicate such CLI to an end-user if such CLI is marked as CLIR unless the call is directed to an emergency number.

5. Originating Access Service

5.1. EPT will enable its end-users to access the System of an Operator by means of a CSC to be dialed on a call by call basis. By doing so, the end-user can, on a call by call basis, override the default Operator designated by EPT for the service concerned. This service is not available from EPT pay phones.

The originating access service will be based upon one-stage dialing.

5.2. The calling end-user is identified through the CLI, which is transmitted by EPT to the Operator's System through the POI.

5.3. Once a Call has been handed over to the Operator's System, based upon the dialed CSC, the responsibility for the further handling and routing of this Call is transferred so that EPT will not request a compensation from the calling end-user. The Operator to whom such Calls have been handed over will be invoiced by EPT for the originating access service.

5.4. The tariffs applicable to the originating access service are set out in Annex 3.

5.5. The originating access service is available for all Calls regardless of the number dialed after the CSC except for calls to the emergency service 112 and access to Internet through number range 12 xxx.(ILR Decision 05/87/ILR from 1st August, 2005) To access the originating access service, the numbering sequence dialed by an EPT end-user will consist of the CSC, followed by either the National (Significant) Number or the international prefix (00) and the International Public Telecommunication Number. The CSC and the full numbering sequence are transferred to the Operator's System (including the international prefix).

5.6. Carrier Preselection (CPS)

The preselection of the Operator is applicable under the conditions defined by the present Reference Interconnect Offer (RIO) and in accordance with applicable legislation and decisions.

Pre-Selection will enable a subscriber of EPT to continuously use a pre-programmed selection of an Operator allowing the access to services provided by that Operator without the need for the end-user to dial the CSC.

A subscriber who has opted for CPS can nevertheless access the EPT system, and via this system any other Operator who provides Carrier Selection, on a call by call basis and thus override the CPS mode by using the Carrier Selection Code.

5.7 IMPLEMENTATION OF CPS

5.7.1 Single point of contact

EPT has put into place an entity in order to manage CPS. This entity is the single point of contact for the Operator for all questions regarding the operational management of CPS. This entity is accessible from 8.00 to 12.00 and 13:00 to 17.00 from Monday to Friday, except legal and public holidays in Luxembourg. EPT will communicate the coordinates of the entity to the Operator. The Operator commits to not communicating these coordinates to the subscribers.

The Operator will give the co-ordinates of a single point of contact for the management of CPS to EPT, including for questions regarding operational subjects. EPT commits to not communicating these coordinates to the subscribers.

V dated 24.02.2015

5.7.2 Request for CPS

CPS will only be available to Operators with which EPT has signed an interconnect agreement and where the interconnect service is operational.

The subscriber who wishes to use CPS takes contact with an Operator of his choice. The Operator commits to receiving a signed request from the holder of an EPT subscription line by which the holder asks EPT to proceed the activation of CPS. A standard model of this request is enclosed in Annex 9.

Before the signature of the request, the Operator's agent will inform the subscriber about the CPS service and about the liabilities for the delivered service.

In general a request for CPS corresponds to a subscriber line. A request for CPS will thus be activated on all telephone numbers associated to this subscriber line, i.e. in case of a line with several associated telephone numbers (hunting group, MSN etc.) the request for CPS has to be done for the pilot number but CPS service will be activated on all the associated telephone numbers to this pilot number

The Operator ensures that all information defined as mandatory is filled out and signed by the customer on customer request before submission of the activation request to EPT.

EPT accepts request for CPS in form of an XML message that include at least the following indications:

-full name of the subscriber (for legal entities, the legal designation)

- name of the chosen Operator for CPS

- one phone number of the concerned line

- subscriber identification number at EPT invoice

- date and signature of the subscriber or its legal representative

- date and signature of the Operator's agent for acceptance

- CPS code to be used

Based on the data collected, the Operator shall form an electronic activation file in the format described in Annex 10.

5.7.3 ACTIVATION OF CPS BY EPT

The Operator sends the electronic activation file to EPT by means of an electronic messaging system. The electronic file can be received and operated between 06.00 and 18.00 hours from Monday to Friday, except on legal and public holidays.

The original request shall be kept by the Operator and presented to EPT on request in such cases as doubt, inconsistency, audit, complaint or dispute with the customer. The delay of conservation will be in accordance with Luxembourg's laws.

Provided that the interconnect links are active, EPT foresees a period of 7 working days between the declaration of an Operator's interest in CPS and the first file to be accepted. This period is necessary for EPT in order to perform the initialization of the Operator in the operational system.

The Operator must be able to route all the calls relevant for CPS and originating from the indicated telephone numbers that have been transmitted to EPT.

The exchange of information will be done by means of electronic messaging transfer via Internet E-mail with encryption and authentication as specified in the standard agreement. Before the first data transmission, the Operator has to perform transmission tests with EPT according to the defined test procedure. EPT will acknowledge receipt of the transmitted file by means of an electronic message.

The structure of the files transmitted to EPT shall respond to the specifications described in Annex 10. Should the structure of the file not be in accordance with those specifications, the entire file will be rejected.

EPT will perform certain checks on the request received, in particular:

- the subscriber and line data;
- the validity of user information;
- the admissibility of the request;
- the line category.

These verifications and 95% of the activation will be conducted within 5 working days, starting from the reception by EPT of the electronic file. On request, average activation delays will be delivered to the ILR for verification.

For those requests that are acceptable, EPT will validate the request and send an acceptance confirmation to the Operator by means of the electronic messaging system.

EPT will search all the associated telephone numbers of the subscriber line

(pilot number) indicated by the operator and provide CPS service on all this numbers. EPT will indicate in the response message to the operator all the telephone numbers provided with CPS service.

EPT will activate CPS on the switch related to the relevant subscriber. A CPS activation message will be sent to the Operator after the activation is performed. This message contains, date and time of the activation for the activated lines.

The rejected requests will be mentioned as well as the relevant causes of rejection, in particular:

- the number does not exist;
- the line is only temporary;
- the incoherent name of the subscriber;
- the duplication of request;
- the incoherent or not existing EPT subscriber account number;
- two or more requests for the same line number entered the same day.

This list shall not be considered as exhaustive.

In order to guarantee the correct treatment of the CPS requests and to avoid delays in the activation of the service, EPT may add supplementary causes of rejection to the above list. In such a case, EPT will inform all the Operators that have signed a CPS agreement of the introduction of this new reject code with a one-month delay together with detailed information.

EPT will treat the files in a non-discriminatory way based on the principle of "first in, first served".

5.7.4 CANCELLATION OR MODIFICATION OF CPS

5.7.4.1 If a subscriber wants to modify an active CPS on his line to change the

conveying Operator, he submits a written request to the new Operator of his choice. The new Operator and EPT will process this request for modification as described under article 5.7.3. In addition to the procedure in article 5.7.3, EPT will also send a notification to the previous conveying Operator that CPS for this subscriber has been modified via the electronic messaging system.

In order to protect the end-users and to avoid incoherencies in the operators' or EPT's system the minimal duration for a CPS configuration shall be 1 month. No modification request for a dedicated line shall be accepted within this minimum period.

This request contains a statement by which the subscriber certifies that he has no other obligations toward the preselected Operator and that he has fulfilled his contractual obligations. In all cases the last signed document by the subscriber shall prevail. The former operator is not allowed to reintroduce a CPS modification request referring to an older contract signed by the subscriber.

If a subscriber submits its written request for cancellation of CPS to the active preselected Operator, this Operator transmits a copy of the written request to EPT on the day following the day of receipt.

5.7.4.2 Besides the cancellation by means of the subscriber, the activation of an existing CPS can be cancelled for one of the following reasons:

- the subscription with EPT is cancelled;
- the subscriber asks for a modification of his line conditioning a change of the line number;
- the subscriber moves to a category (such as temporary subscription) for which the access to CPS is not available.

In those cases the Operator will be informed of the cancellation of the existing

CPS by means of the electronic messaging system.

5.7.5 MODIFICATION OF THE LINE

Each modification of the line that does affect the line number or the identity of the subscriber will conduct to the cancelling of the existing Pre-selection. Prior to the modification, EPT will inform the subscriber and the preselected operator that CPS will be deactivated.

5.7.6 TARIFFS APPLICABLE TO CPS

The tariffs applicable for CPS are defined in Annex 7.

5.7.7 REQUEST FORM FOR CARRIER PRESELECTION

A model of the request form to be used for Carrier Preselection is enclosed in Annex 9.

6. Interconnection Link Services

6.1. The interconnection link service consists in the physical linking between an EPT Access Point and an Operator Access Point. The Interconnection Link provided by EPT carries a number of 2 Mbit/s links.

EPT will ensure the availability of the following Interconnection Link Services for the conveyance of the Operator's traffic:

- (a) Operator-sited interconnection
- (b) in span interconnection
- (c) EPT sited interconnection

Operator sited Interconnection

6.2. For Operator sited interconnection, EPT will supply and operate an Interconnection Link in its entirety for both way traffic. The Interconnection Link will remain EPT's possession. Tariffs for Operator -sited interconnection are indicated in Annex 4.

The Point of Interconnection shall be located at the Access Point on the DDF (digital distribution frame) of the Party that has the operational responsibility for the Interconnect Link.

The Operator will provide access to EPT at its site for the installation and maintenance of EPT transmission equipment located at this site. The Operator will supply a suitable location for EPT equipment, electric power and safekeeping of EPT transmission equipment, at no cost to EPT, as far as the equipment is used for the interconnection link(s) carrying the OAO interconnect traffic.

In the event of breakdown of an Interconnection Link, EPT will initiate fault location and initiate correction as quickly as possible but not later than one hour after notification by the Operator and repair such a link at its own cost, unless it establishes that the Operator is responsible for such a breakdown.

In span Interconnection

6.3. For in-span interconnection, the Operator and EPT will each provide their own part of the Interconnection Link. The POI of these Interconnection Links will be agreed upon between EPT and the Operator. EPT's consent shall not be unduly withheld to the satisfaction of the ILR. The Interconnection Link is based on one STM-1 SDH carrier system, unless another arrangement has been agreed upon between EPT and the Operator.

The part of the Interconnection Link owned by the Operator will be connected to the part of the Interconnection Link owned by EPT at a footway box. The capacity and technical specifications of the part of the Interconnection Link owned by EPT will be provided as required by the Operator when ordering the interconnection link.

In the event of breakdown of the part of the Interconnection Link provided by EPT, EPT will initiate fault location and initiate correction as quickly as possible but not later than one hour after notification by the Operator and repair its part of the link at its own cost, unless it establishes that the Operator is responsible for such a breakdown.

EPT-sited Interconnection

6.4. For EPT-sited interconnection, the Operator will supply and operate an Interconnection Link in its entirety. The Interconnection Link will remain in the Operator's property.

The Point of Interconnection shall be located at the Access Point on the DDF (digital distribution frame) of the Party that has the operational responsibility for the Interconnect Link.

EPT will provide access to the Operator at its site for the installation and maintenance of the Operator's transmission equipment located at this site. EPT will supply a suitable location for the Operator's transmission equipment used in direct relation with interconnect services (interconnect traffic and half-circuits),

electric power and safekeeping.

EPT will permit EPT-sited interconnection at the sites identified in preceding Article 3. EPT may also decide to provide EPT-sited interconnection in the immediate vicinity of these sites at the same cost and conditions as those applied in respect of the site indicated in Article 3 of this RIO. In its request for EPT-sited interconnection, the Operator will describe his needs regarding the installation of his transmission equipment on the premises of EPT. Whenever EPT determines that EPT-sited interconnection is not reasonably feasible, it will inform the Operator and the ILR of the reasons of such unfeasibility within 15 days of receiving the request. EPT will comply, should the ILR find that EPT-sited interconnection is reasonably feasible.

In case of non-feasibility of EPT-sited interconnection, EPT will cooperate with the Operator in order to find an appropriate alternative solution.

For the provision of the co-location facilities, the conditions and prices of the Reference Co-location Offer (RCO) of EPT will apply.

Interconnection Links

6.5. The tariffs for Interconnection Links are indicated in Annex 4.

6.6. Each Party is responsible for the dimensioning and payment of the Interconnection Links required for the conveyance of its own traffic. An operator's own traffic consists in the traffic for which the operator is billed by the operator who it interconnects with.

The Operator is responsible for:

- the traffic conveyed through its System and handed over at EPT Access Point in order to use EPT's Terminating Access Services, Transit Services and Access to EPT's premium rate service;

- the traffic generated by the EPT System conveyed to the Operator's System through EPT Collecting Access service (CSC and CPS);
- the traffic generated on EPT System conveyed to the Operator's system through the Access Service for Calls to free-phone numbers of the Operator.

EPT is dimensioning its Interconnection Links used for the conveyance of the traffic handed-over from the EPT Access Point to the Operator Access Point in such a way that the call congestion on the Interconnection Link does not exceed 1% during busy hours as defined in ITU-T E600, 5.1. The Operator provides forecast information for the traffic delivered from the EPT Access Point to the Operator Access Point.

Whenever a National and a Regional POI are collocated, the traffic from and to such POIs will have to be carried on distinct 2 Mbit/s links.

6.7 Requests for Interconnection Links must be addressed in writing to EPT to the address specified in 11.

Initial Capacity Order

The initial capacity order must be submitted at the latest 4 months before the requested date marking the start of the service. EPT will aim to keep shorter delays taking into consideration its availability and organizational constraints.

Subsequent Capacity Orders

Any subsequent capacity order has to be submitted at the latest 2 months before the requested date marking the start of the service. EPT will aim to keep shorter delays taking into consideration its availability and organizational constraints.

Modification of a Capacity Order

Any modification of a capacity order resulting in a decrease of the capacity,

submitted to EPT less than 2 months prior to the requested date of bringing into service of the reduced capacity, grants EPT a fair compensation for additional expenses duly documented.

The Operator shall supply capacity requirements, forecasts and routing data every 6 months to EPT for a 18 months planning. This information will only be used by EPT for the planning and dimensioning of its network and will be kept strictly confidential.

6.8. The signalling systems between EPT and the Operator shall be based, where relevant, on the ITU-T SS7 protocols, ISUP Blue Book version or other protocols to be agreed upon between the Operator and EPT.

At the transmission levels, the interconnection is based on the pertinent ITU-T Recommendations for PDH and SDH interfaces.

7. Transit Service

The transit service is the Interconnection Service whereby EPT routes traffic handed over from one interconnected Operator's System and transmitted to another interconnected Operator's System on its telecommunications network.

EPT will ensure the transparent communication of all signaling information (including CLI-related), which was communicated to it in relation to the handing-over of traffic.

The tariffs for the transit service are defined in Annex 5.

Basically, EPT will provide settlement in cascade. For this service, EPT will apply charges as specified in paragraph a) and b) of Annex 5.

Transit services have to be paid by the Operator who bills the final customer.

8. Leased Lines Interconnection Service

8.1. The leased line interconnection service is the Interconnection Service whereby EPT provides half circuits between a termination point of the telecommunications network of the EPT located on the premises of an end-user and an EPT Access Point. For the sake of clarity, it is determined that the EPT access Point will in any case be located at a national or regional interconnection site as defined in art. 3. For digital lines, the Access Point may be located off EPT premises (inspan or Operator-sited interconnection). In these cases, the Operator is responsible for dimensioning and payment of the Interconnection Links between the EPT access points and his premises needed to carry the respective bitstreams.

8.2. The provision of half circuits is limited to the following capacities: 2048 kbit/s and structured 155 Mbit/s.

8.3. EPT only provides the installation of half circuits of 155 Mbit/s if enough capacity is available in EPT's own network between the termination point located on the premises of an end-user and an EPT Access Point. In the event of insufficient capacity, EPT will inform the Operator within 5 working days after receipt of the request of the current situation and of the approximate date foreseen by EPT for a network extension.

8.4. Upgrade of an existing half circuit on request of an operator: For such services, EPT will charge the prices as defined in Annex 6

8.5 Half circuits will have a minimal rental time of 1 month. In case of cancellation of the half circuit, the Operator must take into account a delay of 2 weeks.

8.6. EPT will be responsible for:

i) the provision and installation of the subscriber terminating unit in the premises of the end-user,

ii) the provision and switching of the leased line from the location of the end-user to the POI of the Operator situated in a co-location room,

iii) the maintenance of the leased line according to the Technical Framework Document.

8.7. The Operator will be responsible for:

i) the connection of the leased line to his transmission facilities at his own expense,

ii) contacting the EPT fault contact point to report faults according to the Technical Framework Document (TFD); Chapter 5: Fault Report

iii) ensuring that all equipment connected to the leased line and the subscriber termination unit meets the safety standards and all other equipment approval requirements set out in the Interconnect Agreement and the TFD.

8.8. For each request of a half circuit the Operator will use the request form as provided in Annex 9.3 hereafter.

8.9. Except for case sub 8.3. mentioned above, half circuits will be installed within the delay defined in art 10.2 . If a problem occurs during the installation procedure, EPT will immediately inform the Operator.

8.10. In the event of planned intervention on his network that could have a negative influence on operator's half circuits, EPT shall inform the operator on the occurrence of this intervention 5 working days before that intervention.

The interfaces provided are those as defined in Annex 9.3. – Request Form for half-circuits.

The tariffs for the leased lines interconnection service are defined in Annex 6.

9. Number Portability (NP)

9.1. Scope.

Number portability (NP) is applicable under the conditions defined by the document DOC-NP-ILT which describes the procedures applicable to number portability in Luxembourg (the NP-Document).

As defined by the NP-Document, the Recipient Operator transmits the electronic file containing the requested data to EPT by means of an electronic messaging system. The transmission of the electronic files can be operated between 06.00 and 18.00 hours from Monday to Friday, except legal and public holidays. EPT will acknowledge receipt of the transmission file by means of the same electronic messaging system.

As defined in the NP-Document, requests can be transmitted in timeframe $T1+n$.. $T1+m$. For EPT, $n=2$ weeks and $m = 16$ weeks.

NP will be activated by the EPT from Monday to Friday from 8.00 to 12.00 and 13.00 to 17.00 hours except legal and public holidays in Luxembourg. This time schedule may be extended to 7.00 to 19.00 hours on Monday to Friday and 8.00 to 12.00 hours on Saturday with the supplementary costs to be paid by the Recipient Operator.

9.2. Tariffs and Billing

Tariffs of number portability will be those defined in Annex 8.

Billing procedures will be as described in the Porting Agreement between the Parties.

9.3 Request form for Number Portability

A template of the request form to be used for Number Portability is enclosed in Annex 9.

10. Quality of service of EPT's Interconnection Services

10.1. As far as the terminating access service is concerned, EPT undertakes to ensure for its own System a network failure rate, which does not exceed 1,5% as a national 3 months average, for failures which are exclusively due to its System. Network failure rate is the ratio between the number of calls handed over by an Operator to be terminated on EPT's Network and failed due to insufficiencies in EPT Network and the total amount of calls handed over by that Operator to be terminated on EPT's network (excluding, in particular, failures due to end-user behaviour and failure of terminal equipment).

10.2. In relation to the leased line interconnection service, EPT shall install its circuits within 1 month after the reception date by EPT of the duly completed request form. Longer delays, up to a maximum of 3 months, may be required for installations outside of the building perimeter (périmètre construisible). EPT shall inform the Operator immediately upon the moment of acceptance of the order about any delay that will exceed the one-month period.

10.3. In relation to the leased line interconnection service, EPT undertakes to ensure a quality of service as described in the basic SLA framework in Annex 11. EPT is also prepared to examine specific requests made by some Operators in order to conclude specific Service Level Agreements with those Operators. The negotiation for the conclusion of such SLAs shall take place in the context of the commercial negotiations between EPT and the Operators, and shall be in accordance with the quality EPT provides for its retail clients.

10.4. In the event of disturbance of the conveyance of traffic within its System, EPT may be constrained to implement the classical measures of traffic regulation (call gapping, etc. ...) in order to limit its effect on the quality of the service provided to its customers as well as to the Interconnected Operators. These measures of traffic regulation are applied to EPT and Operator traffic without discrimination. The target figures given above for network failure rate do

not include failures that are caused by the mentioned measures of traffic regulation. The Operator and the ILR shall be informed if the above-mentioned measures for traffic regulation have to be applied and how long they may last.

10.5. EPT shall respect the quality conditions as they are defined in the applicable legal regulation and in accordance with the quality EPT provides for its retail clients.

10.6. EPT shall publish quarterly on the web-site for interconnect products KPI's covering the provisioning time and fault repair time

11. Procedure for Reaching an Interconnection Agreement

Interconnection agreements shall be negotiated and reached according to the general modalities for interconnection as determined by the ILR (Article 23 of the Law).

EPT may demand the delivery of a bank guarantee on first demand of a Luxembourg based bank of 75.000,- € in favour of EPT for the provisioning of the interconnect service. When, and as long as there exist serious and ascertained doubts regarding a client's solvency, the Company may without prejudice to previous arrangements demand payment in advance.

Requests for interconnection services shall be made in writing to the following address:

Entreprise des Postes et Télécommunications

Direction Générale

L-2020 Luxembourg

Tél: +352 47 65 1

Fax: +352 47 51 10

12. Annexes 1 to 11

All prices mentioned here after are given exclusive of VAT or any other legal taxes, which will be added where applicable.

Annex 1: Special services offered to Operators

1.1 Calls to 800 numbers terminated in the EPT network

This service consists in the conveyance by EPT of Calls handed over by an Operator at a National Point of Interconnection between the Operator's System and EPT System for termination on EPT System, on one of EPT's Free phone numbers in accordance with the National Numbering Plan of Luxembourg.

The rates to be paid by EPT for Terminating Access Service to EPT's Free phone numbers are as specified below:

	Call Setup	Charge/Minute (€ct)
Peak	0	1,67
Off Peak	0	1,67

1.2 Originating Access service to Free-phone numbers

This service consists in the conveyance by the Operator of Calls handed over by EPT at a National Point of Interconnection between EPT System and the Operator's System for termination on the Operator's System, on one of the Operator's Free phone numbers in accordance with the National Numbering Plan of Luxembourg.

The rates to be paid by the Operator to EPT for Originating Access Service to the Operator's Free phone numbers will be as specified below:

	Call Setup	Charge/Minute (€ct)
Peak	0	1,67
Off Peak	0	1,67

The rates to be paid by the Operator to EPT for Originating Access Service to the Operator's Free phone numbers and emanating from an EPT Payphone

V dated 24.02.2015

are as specified below:

	Call Setup	Charge/Minute (€ct)
Peak	0	16,87
Off Peak	0	16,87

1.3.1 Terminating Access Service to National Directory inquiries (11817)

The rates to be paid by the Operator to EPT for Terminating Access Service to National Directory inquiries are as specified below:

Each first 60 seconds:	38,81 €ct
Each subsequent 10 seconds:	9,73 €ct

1.3.2 Terminating Access Service to International Directory inquiries (11816)

The rates to be paid by the Operator to EPT for Terminating Access Service to National Directory inquiries are as specified below:

Each first 60 seconds:	58,27 €ct
Each subsequent 10 seconds:	9,73 €ct

1.4 Terminating Access service to Shared Revenue Numbers (Premium Rate Service - 90x)

This service consists in the conveyance by EPT of Calls handed over by the Operator at a National Point of Interconnection between the Operator's System and EPT System for termination on EPT System, on one of EPT's Shared revenue numbers in accordance with the National Numbering Plan of Luxembourg.

a) Premium rate services on duration basis (price per minute)

(Levels and number ranges defined by EPT)

Number range ¹⁾	Suggested End-user price (in €ct, exclusive VAT)	Rate to be paid to EPT €ct	billing period (in seconds)
90Y 7 1 XXX	2,56	0,75	60
90Y 7 2 XXX	12,82	9,86	30

¹⁾ V dated 24.02.2015

90Y 7 3 XXX	21,37	17,45	30
90Y 7 4 XXX	34,19	28,83	30
90Y 7 5 XXX	55,56	47,81	30
90Y 7 6 XXX	72,65	62,99	20
90Y 7 7 XXX	98,29	85,76	20
90Y 7 8 XXX	170,94	150,28	20

¹⁾ Number ranges allocated to EPT by ILR for Y= 0, 1 or 5

b) Premium rate services on call basis (price per call)

Number range ¹⁾	Suggested End-user price (in €ct, exclusive VAT)	Rate to be paid to EPT €ct	maximum call duration (in seconds)
90Y 7 9 0XX	10,68	7,73	30
90Y 7 9 1XX	21,37	17,21	30
90Y 7 9 2XX	42,73	36,19	30
90Y 7 9 3XX	64,10	55,17	30
90Y 7 9 4XX	128,21	112,09	30
90Y 7 9 5XX	192,31	169,02	30
90Y 7 9 6XX	256,41	225,95	30
90Y 7 9 7XX	512,82	453,67	30

¹⁾ Number ranges allocated to EPT by ILR for Y= 0, 1 or 5

1.5 Originating Access service to Shared Revenue Numbers (Premium Rate Service)

This service consists in the conveyance of Calls handed over by EPT at a National Point of Interconnection between the EPT System and the Operator's System for termination on the Operator's System, to one of the Operator's Shared revenue numbers in accordance with the National Numbering Plan of Luxembourg.

V dated 24.02.2015

The price levels and billing periods authorized by EPT system are those listed below. In case of other price levels suggested by the Operator, EPT will apply the level immediately lower indicated on the list, either otherwise agreed between the Parties.

No change will be possible for the billing periods.

EPT will claim a handling charge for the acceptance and conveyance of calls to the Operator's shared revenue numbers as listed below. This charge is calculated on the basis of the costs incurred by EPT for conveyance, billing, bad debt risk and financial costs.

a) Premium rate services on duration basis (price per minute)

(Levels and number ranges to be defined by the operator)

Level	End-user price applied by EPT (in €ct, exclusive VAT)	Part EPT €ct	billing period (in seconds)
0	2,56	1,82	60
1	12,82	2,96	30
2	21,37	3,92	30
3	34,19	5,36	30
4	55,56	7,75	30
5	72,65	9,66	20
6	98,29	12,53	20
7	170,94	20,66	20

b) Premium rate services on call basis (price per call)

Level	End-user price applied by EPT	Part EPT €ct	maximum call duration
-------	-------------------------------	-----------------	-----------------------

	(in €ct, exclusive VAT)		(in seconds)
1	10,68	2,96	30
2	21,37	4,15	30
3	42,73	6,55	30
4	64,10	8,94	30
5	128,21	16,11	30
6	192,31	23,28	30
7	256,41	30,46	30
8	512,82	59,15	30

1.6 Access to Internet Service

The scope of Access to Internet Service relates to non-geographical numbers foreseen by ILR for these purposes.

1.6.1 Non-identified Access

This service consists in the conveyance of Calls originating in the EPT network and handed over by EPT at a National or a Regional Point of Interconnection between the Operator's System and EPT System for termination on the Operator's System, on one of the Operator's numbers in accordance with the National Numbering Plan of Luxembourg used for Internet Access.

The Operator has no direct commercial relation with the calling customer who will be billed by EPT. The collected amount will be paid to the Operator in deduction of the handling charge as described hereafter.

The price levels to be implemented into EPT's billing system shall be defined by the Operator. The one-off charge for initialisation, the monthly fee for

maintenance comprising one price change per year, the price for a supplementary price change as well as billing costs will be defined on a transparent and non-discriminatory basis communicated to the ILR.

The time periods for peak, off-peak and off off-peak cannot be adapted individually but must stay identical to those applied by EPT.

EPT will levy a handling charge for the acceptance and conveyance of calls to the Operator's shared revenue numbers as listed below.

Prices:

Service	Price	
Conveyance charge		
National Interconnection		
	Call setup €ct	Charge / minute €ct
Peak	0,34	0,85
Off-peak	0,16	0,43
Regional Interconnection		
	Call setup €ct	Charge / minute €ct
Peak	0,25	0,65
Off-peak	0,13	0,33

1.6.2. Identified Access

This service consists in the conveyance of Calls originating in the EPT network and handed over by EPT at a National or a Regional Point of Interconnection between the Operator's System and EPT System for termination on the Operator's System, on one of the Operator's numbers in accordance with the National Numbering Plan of Luxembourg used for Internet Access.

The Operator has a direct commercial relation with the calling customer and the Operator does all customer-billing operations.

The charges for call conveyance are as listed below:

Service	Price	
Conveyance charge		
National Interconnection		
	Call setup €ct	Charge / minute €ct
Peak	0,34	0,85
Off-peak	0,16	0,43
Regional Interconnection		
	Call setup €ct	Charge / minute €ct
Peak	0,25	0,65
Off-peak	0,13	0,33

Special conditions:

1. Considering the aforementioned Internet access, the Originating Access Service as defined in article 5 of the present RIO will not be applicable for access calls to Internet Services.
2. For both cases of Internet Access as specified in section 1.6.1 and 1.6.2 of the present document the Access servers (including identification) to Internet will have to be installed and maintained by the Operator.

Annex 2: Tariffs applicable to the terminating access service

A. Terminating access service to geographic numbers, national and regional interconnection.

	Call setup €ct	Charge / minute ² €ct
Peak ³	0	0,14
Off-peak	0	0,14

B. Terminating access service to non-geographic numbers and Emergency Numbers

Tariffs and billing arrangements for terminating access service to numbers not determined in the present RIO may vary according to the technical implementation chosen for the interconnection. In any circumstance, the tariffs will be cost based and non-discriminatory.

Terminating access to emergency numbers is free of charge.

² To be billed on a per nearest second basis

³ Peak: worked days (jours ouvrables) between 8.00 and 19.00

Off-peak: time outside Peak

Annex 3: Tariffs applicable to the originating access service

One-off fee for programming CSC into EPT switches: 4.462,- €

If multiple CSCs are to be programmed at the same time the fee for each additional CSC is: 743,- €

Originating access service from geographic numbers through CSC or CPS,
national and regional interconnection.

	Call setup €ct	Charge / minute ⁴ €ct
Peak ⁵	0	0,44
Off-peak	0	0,44

⁴ To be billed on a per nearest second basis

⁵ Peak: worked days (jours ouvrables) between 8.00 and 19.00

Off-peak: time outside Peak

V dated 24.02.2015

Annex 4: Tariffs applicable to the interconnection link service

Annual fee per 2 Mbit/s system (annual costs for the access point equipment and maintenance): 1.713,- €

One-off charge per operator (covering installation and testing): 8.149,- €

A Operator-sited Interconnection

Yearly charge per operator (covering billing and service quality control): 5000,- €

Each 2 Mbit/s	Installation fee	Monthly rental fee
Interconnected Access Points located in the same local network zone	1.487.-€	173.-€
Interconnected Access Points located both either in local networks of Luxembourg-City or of Esch/Alzette	1.487.-€	235.-€
Interconnected Access Points located in adjacent local network zones	1.487.-€	334.-€
Interconnected Access Points located in non-adjacent local network	1.487.-€	451.-€

zones		
-------	--	--

B In-Span Interconnection

Monthly charge per used Interconnect Site (covering billing, maintenance and service quality control): 210,- €

	Installation fee	Monthly rental fee
STM-1	5.339,- €	620,- €

C EPT-sited Interconnection

Monthly charge per used Interconnect Site (covering billing, maintenance and service quality control): 210,- €

For all co-location services, the conditions and prices of the applicable Reference Co-location Offer (RCO) of EPT will fully apply.

D. Modification of Interconnection Links

The establishment, the modification and the cancellation of trunks, as well as the connection or disconnection of circuits or signalling links required by an operator, are charged to this operator if these changes apply to existing interconnect trunks.

The necessary changes related to the extension of an existing interconnect trunk by adding supplementary interconnect links are not charged to the operator.

Change required by the operator	Tariff
--	---------------

Establishment of a new trunk	646,- €
Modification or cancellation of an existing trunk	485,- €
Connection or disconnection of circuits	161,- €
Connection or disconnection of a signalling link	323,- €

Annex 5: Tariffs for transit services

Routing of interconnect traffic from an interconnected Operator's network to another interconnected Operator's network using EPT's transit services.

The Activation of transit interconnect routes per operator to be reached in

transit will be billed at a rate of: 181,- €

The maintenance of the transit relations per call case per month will be billed at a rate of: 1,08.- €

a) Routing of transit traffic

Transit from one Operator's network to another Operator's network	Call setup €ct	Charge / minute ¹ €ct
Peak ²	0,04	0,20
Off-peak	0,02	0,10

b) Additional prices for settlement in cascade for geographic numbers

	Charge / min €ct
terminating charge to the third party's network	as defined in the applicable interconnect agreement
settlement charge	0,16

c) Additional prices for settlement in cascade for non-geographic numbers

	Charge (€ct)
terminating charge to the third party's network	as defined in the applicable interconnect agreement

V dated 24.02.2015

settlement basis charge per minute	0,19
settlement basis charge per call	0,19

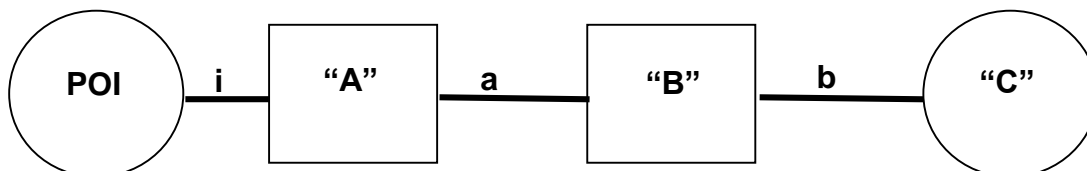
¹ To be billed on a per nearest second basis

² Peak: worked days (jours ouvrables) between 8.00 and 19.00

Off-peak: time outside Peak

Annex 6: Tariffs for leased lines services - Half circuits

A “Half circuit” means the dedicated link between the customer premises and the point of interconnection of the operator which can be used by the operator to provide services such as leased lines, connections to the switched telephone network, data services or broadband access.

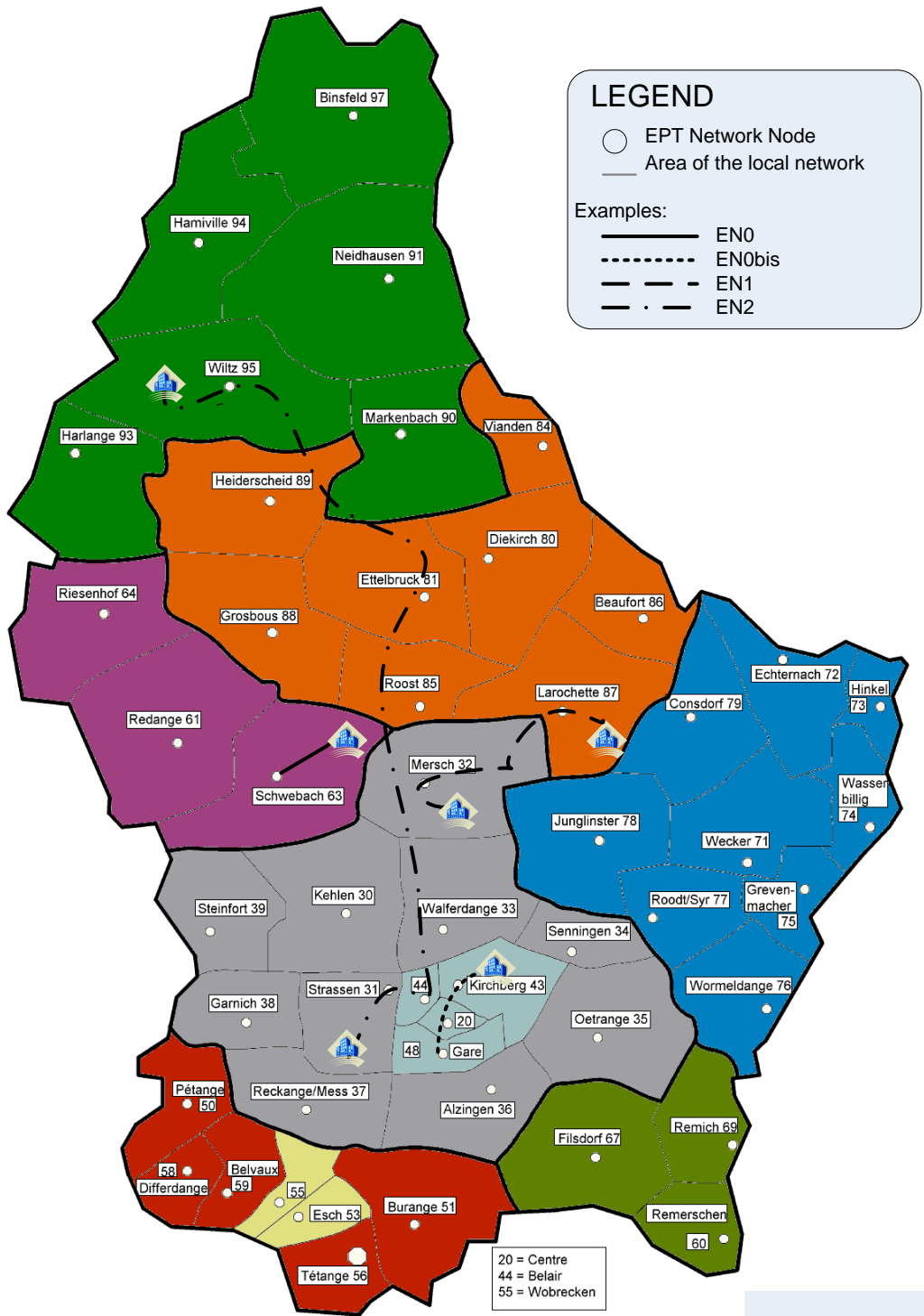


In the diagram above, the following definitions apply:

- POI: point of interconnection between the operator and EPT in a co-location site
- Interconnection link between the operator and EPT
- “A”: EPT’s network node to which the operator is interconnected.
- a: inter-nodal link (this link is in general not be present for type “EN0” half circuits
- “B”: EPT’s network node to which the operator’s customer is connected (same as Node A in the case of type “EN0” half circuits
- b: Local tail
- “C”: Operator’s customer

Type of Half Circuit	Average distance (a)	Average length of the HC (a)+(b)
“EN0” POI and Customer located in the local network served by the same node	0 km	2 km

“EN0bis” POI and Customer located in the local network served by nodes in the City of Luxembourg and Esch/Alzette	3 km	5 km
“EN1” POI and Customer located in adjacent local networks	8 km	10 km
“EN2” POI and Customer located in non-adjacent local networks	>15 km	>18 km



Capacity	Installation Fee	Monthly rental			
		EN0 Same Local network	EN0bis Networks of City of Luxembourg and Esch/Alzette	EN1 Adjacent Local Networks	EN2 Non-Adjacent Local Networks
kbit/s					
2048	1487.-	173.-	235.-	334.-	451.-
Mbit/s					
155	3000.-	1450.-	1707.-	1901.-	2545.-

Upgrade of an existing half circuit:

The difference between the installation fee of the existing half circuit and the installation fee of a half circuit of the ordered capacity.

Annex 7: Tariffs for Carrier Preselection (CPS)

1 One-off fee for the implementation of CPS: 4833,- €

(if the supplementary services of CSC and CPS are to be programmed at the same time for one operator in EPT switches a discount of 991- € will be granted on the sum of prices for CPS and CSC)

2 One-off fee for the activation per number of CPS on an end-user line:

per line: 4,50.- €

per supplementary line under the same number ¹⁾: 1,86.- €

3 CPS Access service

The rates to be paid will be as specified in the Annex 3 for originating access service.

¹⁾ for the sake of clarity the fee of 4,50.- € is due per pilot number whereas the fee of 1,86.- € is due per supplementary line

Annex 8: Tariffs for Number Portability (NP)

Standard tariffs applicable to Number Portability

- | | |
|--|------------|
| 1 Activation fee for number portability per number activation: | 14,38.- € |
| 2 Additional conveyance fee per minute for inconsistent or erroneous codes if the volume of inconsistent or erroneous codes exceeds the percentage of 1% of the total calls to ported numbers: | 0,63.- €ct |

Annex 9: Request Forms

1. Request Form for Carrier Preselection

2. Request Form for Number Portability

3. Request Form for Half-Circuits

As published on the EPT website: www.posttechnologies.lu section “operators”

Annex 10: Electronic activation file for Carrier Preselection.

The data transport format is defined as being XML.

The Data Type Definition (DTD) for Carrier Pre-selection will be as defined in the bilateral contracts concluded between the Parties.

Annex 11: Half circuits: Fault repair and Standard SLA

1. Fault repair

Normal fault repair.

Fault clearance will be performed during normal working days from Monday-Friday, 7h00 AM –7h00 PM.

Time of intervention, (working days, from Monday to Friday)	Origin of the fault is situated	Price
7h00AM-7h00PM	On EPT's side	For free
7h00AM-7h00PM	On OAO's side	PriceA

If fault repair outside the normal working hours for fault clearance on half-circuits is requested by the operator the following prices are applicable.

Time of intervention	Origin of the fault is situated	Price
Saturday from 8h00AM-12h00PM	On EPT's side	For free
Saturday from 8h00AM-12h00PM	On OAO's side	Price B
From 7h00PM-7h00AM from Monday to Friday, Saturday from 12h00AM on and Sunday	On OAO's or on EPT's side	Price C

Manpower fees:

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

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

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

Time:	06h00AM-07h00AM	07h00AM-07h00PM	07h00PM-10h00PM	10h00PM-06h00AM
Monday to Friday	50%	0%	50%	65%
Saturday	50%			65%
Sunday	70%			85%
Legal and public holiday	200%			215%

	Euro
Actual EPT manpower fee - per hour	
“Ingénieur technicien”	73,68
“Expéditionnaire technique”	62,33
Travel expenses	3,38
All manpower fees will be updated following the evolution of this price index.	

2. Standard SLA

Half-circuits	SLA
Availability	99.6%
Restauration time	8 hours ⁽¹⁾
Call-back time	1.5 hours ⁽¹⁾
In-service time	25 working days ⁽²⁾
Help-desk phone number	12417

⁽¹⁾ during working hours

⁽²⁾ for 64kbit/s, nx64kbit/s and 2Mbit/s in case a network termination point exists already on that specific address. The delivery time for circuits with higher band-witthes depends on the existing infrastructure to the required termination point

3. Premium SLA

A premium SLA is provided upon request and is subject to commercial negotiation between the parties.