



Reference Interconnect Offer (RIO)

RIO – Eltrona Interdiffusion 2018

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1 Scope and Limits of the Interconnect Offer

This Reference Interconnect Offer (RIO) deals with Interconnect Services offered to a duly authorized Public Network Operator, hereafter called "Interconnected Operator" for termination of (voice) Calls to the network of Eltrona Interdiffusion S.A., hereafter called "Eltrona".

This Reference Interconnect Offer has been issued and developed in accordance with the obligations imposed on Eltrona in ILR Regulations 16/208/ILR and 16/209/ILR.

The Interconnect Services included in this RIO encompass the following services:

- Interconnection Services, as described in paragraph 5
- Terminating Access Services, as described in paragraph 6

This RIO does not cover calls to numbers which were initially attributed to Eltrona, but have been ported to other networks.

As a general principle, operators are not responsible for the content of the communications conveyed through Interconnect services.

While Eltrona operates its own access network, manages its own numbering range and billing to its End Users, it currently relies on POST Luxembourg's services and switching platforms for call set-up, routing and handling and interconnection to other voice operators.

Therefore, interconnection and call termination services have been delegated to POST Luxembourg which provides these services on behalf of Eltrona in accordance with the obligations set out in Regulations 16/208/ILR and 16/209/ILR.

Operators requesting access to Eltrona's public telephony network and call termination to national Eltrona numbers are therefore required to enter into an Interconnect Agreement with POST Luxembourg which will not only cover access and call termination in POST Luxembourg's public telephony network, but also give access to and allow call termination on Eltrona's public telephony network at the same technical and financial conditions.

2 Offer Validity

This RIO is valid as from its entry into force unless

- A new RIO is published by Eltrona ;
- A material change occurs in the laws or regulations, governing telecommunications in Luxembourg.

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 Eltrona modifications to the offer.

The validity of the present RIO is determined by regulation 14/177/ILR dealing with the procedures related to the publication of a reference offer dated August 28th 2014 and regulations 16/208/ILR and 16/209/ILR dealing with the obligations imposed on operators having significant market power in the market of fixed call termination (Market 1/2014).

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

3 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.
EEA	European Economic Area, which includes all EU countries as well as Iceland, Liechtenstein and Norway (status on 21 st February 2017).
Eltrona	Eltrona Interdiffusion S.A.
End User	Any natural or legal person with whom an operator has entered into an agreement for the provision of publicly available telecommunication services
ILR	<i>Institut Luxembourgeois de Régulation</i> , the national regulatory authority in Luxembourg, in particular in the field of electronic communications networks and services
Interconnect Agreement	The agreement that must be concluded between POST Luxembourg and the Interconnected Operator in view of the provision of Terminating Access Services to Eltrona's number ranges (incl. numbers ported to Eltrona) and any further interconnect services as specified in POST Luxembourg's Reference Interconnect Offer, as well as any services and features ancillary to these interconnect services if expressly agreed therein by the POST Luxembourg and the Interconnected Operator.
Interconnect Services	Services provided by POST Luxembourg related to the conveyance of voice calls to Eltrona numbers and end users, including Interconnection Services and Terminating Access Services.
Interconnected Operator	Any legal or natural person operating telecommunications networks and/or providing telecommunications services in Luxembourg as approved by the ILR and having entered into an Interconnect Agreement with POST Luxembourg.
Interconnection (Services)	Interconnection with the Interconnected Operator set up by POST Luxembourg, according to the terms and conditions as specified in POST Luxembourg's RIO, required to convey phone calls to Eltrona numbers and end users.
Interconnection Link	A Link between a POST Technologies Access Point and an Operator Access Point for the provision of Interconnection traffic.

International Public Telecommunication Number	Defined as in ITU-T Recommendation E.164.
IP	Internet Protocol
National (Significant) Number	Defined as in ITU-T Recommendation E.164.
POI	The physical Point Of Interconnection where the telecommunications network of POST Luxembourg and the Interconnected Operator's system are interconnected. The POI is the boundary between POST Luxembourg's and the Interconnected Operator's domains of responsibility.
POST Luxembourg	Name used in all its commercial relationships by the "Entreprise des Postes et Télécommunications, an autonomous "Etablissement Public" created by the "Loi du 10 août 1992 portant création de l'Entreprise des Postes et Télécommunications" as further modified.
POST Luxembourg's Website	Refers to POST Luxembourg's website for operators : http://www.posttechnologies.lu/en/operators
RCO	Reference Co-location Offer (of POST Luxembourg)
Regulation 14/177/ILR	The ILR regulation referenced 14/177/ILR, dated August 28, 2014 and titled « Règlement 14/177/ILR du 28 août 2014 concernant les procédures à suivre par un opérateur identifié comme puissant sur le marché dans le cadre de l'obligation de publication d'une offre de référence », as may be subsequently amended or replaced in whole or in part.
Regulation 16/208/ILR	The ILR regulation referenced 16/208/ILR, dated November 28, 2016 and titled « Règlement 16/208/ILR du 28 novembre 2016 portant sur la définition du marché pertinent de la fourniture en gros de terminaison d'appel sur réseaux téléphoniques publics individuels en position déterminée (Marché 1/2014), l'identification des opérateurs puissants sur ce marché et les obligations imposées à ce titre », as may be subsequently amended or replaced in whole or in part.
Regulation 16/209/ILR	The ILR regulation referenced 16/209/ILR, dated November 28, 2016 and titled « Règlement 16/209/ILR du 28 novembre 2016 portant sur la fixation des plafonds tarifaires pour la prestation de terminaison d'appel sur divers réseaux téléphoniques publics individuels en position déterminée (Marché 1/2014) », as may be subsequently amended or replaced in whole or in part.
RIO	Reference Interconnect Offer
SIP	Session Initiation Protocol
SS7	Signalling System No. 7
TDM	Time Division Multiplexing
Terminating Access Services	Conveyance of phone calls from the point of interconnection to the terminal of the end user

4 Procedure for reaching an Interconnect Agreement

Interconnect Agreements shall be negotiated and entered into with Eltrona's designated partner for Interconnect Services POST Luxembourg, based on its standard terms and conditions, pursuant to and in compliance with the applicable legislation. POST Luxembourg shall endeavour its best efforts to conclude an Interconnect Agreement in no less than fifteen (15) days after receipt of a valid request.

Any request for entering into an Interconnect Agreement with POST Luxembourg shall be made in writing and per registered mail directly to either of the following addresses:

POST Luxembourg

Département Développement et Vente en gros

2, rue Emile Bian

L-1235 Luxembourg

Tel: +352 49 91 1

Eltrona Interdiffusion S.A.

Wholesale et Interconnection

4 – 8, rue de l'Acierie

L-1112 Luxembourg

Tel: +352 49 94 66 1

Eltrona will relay every request received for interconnection and termination of calls to geographic numbers routed within its network to POST Luxembourg, which will directly contact the requesting party for the conclusion of an Interconnect Agreement.

POST Luxembourg's relevant Reference Offers can be found on its website at the following address:

<http://www.posttechnologies.lu/en/operators/regulatory/reg-offer> .

5 Interconnection Services

5.1 Interconnection Architecture

As described in paragraph 1, Eltrona has chosen POST Luxembourg for the provision of Interconnect Services required for the termination of calls to Eltrona's public telephony network.

POST Luxembourg has defined specific sites in its network for use as national Point of Interconnection (POI) which are specified in POST Luxembourg's Reference Interconnect Offer (RIO). At these sites, POST Luxembourg also offers co-location facilities described in its Reference Co-location Offer (RCO).

As of March 2017, these sites are:

- for TDM Interconnections based on SS7 signalling protocols:
 - National interconnection point 1: CT Gare - 10, rue d'Epernay L-1490 Luxembourg
 - National interconnection point 2: CT Belair - 1, rue Yolande L-2761 Luxembourg
- for IP Interconnections based on SIP signalling protocols:
 - National interconnection point 1: CT Gare - 10, rue d'Epernay L-1490 Luxembourg
 - National interconnection point 2: CT Kirchberg - 2, rue du Fort Thüngen L-1499 Luxembourg

Please note that new TDM interconnections will only be provided by POST Luxembourg until 31st March 2018.

Standards for the interconnection of voice networks based on IP technology are currently the subject of a workgroup led by the ILR.

POST Luxembourg supports the termination of voice calls to both its own and Eltrona's numbering range (including numbers ported to any of these operators) on the same interconnection points. No dedicated interconnection needs to be established for the termination of calls to Eltrona-owned numbers.

As such, existing interconnections established in the past according to the terms and conditions of POST Luxembourg's Reference Interconnect Offer for the termination of calls to POST Luxembourg's own numbering range and numbers ported to its network can also be used for the termination of voice calls to Eltrona's numbers.

The Interconnected Operator is solely responsible for the dimensioning of the Interconnections so as to provide sufficient capacity for the conveyance of the traffic handed over at the interconnection point.

Operators not present within POST Luxembourg's co-location facilities at the aforementioned sites can request a quote from POST Luxembourg to extend the interconnection to a site of their choice within Luxembourg.

Both the currently applicable Reference Interconnect Offer (RIO) and the Reference Co-location Offer (RCO) of POST Luxembourg can be found on its website at

<http://www.posttechnologies.lu/en/operators/regulatory/reg-offer> .

5.2 System Alteration

If Eltrona and/or POST Luxembourg wishes to make a system alteration, it shall give the Interconnected Operator 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, POST Technologies shall supply to the Operator such information as the Operator may reasonably request, including, to the extent reasonably practicable, the potential impact on the service provided by the Operator to its End Users.

Any change which will require the Interconnected Operator to establish Interconnections with an operator other than POST Luxembourg in order to terminate voice calls to Eltrona numbers according to the terms and conditions of this RIO and in accordance with Regulations 16/208/ILR and 16/209/ILR will also be notified by Eltrona to the Interconnected Operator and the ILR no less than 6 months prior to its entry into force via the publication of an updated Reference Interconnect Offer.

5.3 Standards

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

- Any legal requirements (incl. requirements defined via regulation issued by the ILR)
- ETSI standards
- ITU-T Recommendations
- National standards
- Any other international standards

The signaling system for TDM interconnections 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.

The signaling system for IP Interconnections will be based on the SIP protocol and comply with future regulations as issued by the ILR. Standards for the interconnection of voice networks based on IP technology are currently the subject of a workgroup led by the ILR. For the time being, IP interconnections are provided based on mutual technical and financial arrangements between POST Luxembourg and the interested Operator.

6 The Terminating Access Service

The Terminating Access Service conveys a Call handed over from the Interconnected Operator's System at a POI for termination on any national number allocated to Eltrona's Network. Tariffs may be different for different categories of services identified by different number ranges.

The tariffs applied by Eltrona via its designated provider of Interconnect Services for the provision of the Terminating Access Service to geographic numbers are indicated in paragraph 7.

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.

Whenever CLI is transferred to the telecommunications network of Eltrona and its interconnection provider POST Luxembourg, CLI will not be communicated to an End User if such CLI is marked as CLIR.

As far as the Terminating Access Service is concerned, Eltrona and POST Luxembourg undertake to ensure for their own systems a network failure rate which does not exceed 1,5% as a national 3 months' average, for failures which are exclusively due to their systems. Network failure rate is the ratio between the number of Calls handed over by an Interconnected Operator to be terminated on Eltrona and POST Luxembourg's networks and failed due to insufficiencies in Eltrona and POST Luxembourg's network and the total amount of Calls handed over by that Interconnected Operator to be terminated on Eltrona and POST Luxembourg's network (excluding, in particular, failures due to end user behaviour and failure of terminal equipment).

In the event of disturbance of the conveyance of traffic within its system, Eltrona and POST Luxembourg 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 Eltrona, POST Luxembourg and the Interconnected Operators' 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 Interconnected Operators and the ILR shall be informed if the above-mentioned measures for traffic regulation have to be applied and how long they may last.

Eltrona and POST Luxembourg shall respect the quality conditions as they are defined in the applicable legal regulation and in accordance with the quality they provide to their retail customers.

7 Tariffs

7.1 Tariffs Applicable to the Terminating Access Service of Calls Originating within the EEA

The tariffs for the Terminating Access Service are defined in accordance with ILR regulation 16/209/ILR. Unless defined otherwise in future amendments of the present RIO, the tariffs will be automatically adapted at the start of a new billing period as featured in the following tables.

The tariffs in the following paragraphs 7.1.1 and 7.1.2 of this RIO only apply to the termination of voice calls originating within the EEA (European Economic Area), provided that the calling number can be identified as belonging to a numbering plan of one of the countries of the EEA. No charges are billed for call set-up.

7.1.1 Terminating Access Service to Geographic Numbers, National Interconnection

Billing Period	Peak/Off-Peak	Charge/minute (€ct)
01/01/2017 – 31/12/2017	Peak	0,131
01/01/2017 – 31/12/2017	Off-Peak	0,131
01/01/2018 – 31/12/2018	Peak	0,135
01/01/2018 – 31/12/2018	Off-Peak	0,135
01/01/2019 – 31/12/2019	Peak	0,138
01/01/2019 – 31/12/2019	Off-Peak	0,138

Only applicable to calls originating within the EEA

7.1.2 Terminating Access Service to Geographic Numbers, Regional Interconnection

Billing Period	Peak/Off-Peak	Charge/minute (€ct)
01/01/2017 – 31/12/2017	Peak	0,131
01/01/2017 – 31/12/2017	Off-Peak	0,131
01/01/2018 – 31/12/2018	Peak	0,135
01/01/2018 – 31/12/2018	Off-Peak	0,135
01/01/2019 – 31/12/2019	Peak	0,138
01/01/2019 – 31/12/2019	Off-Peak	0,138

Only applicable to calls originating within the EEA

7.1.3 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 are published on Eltrona's Website. In any circumstance, the tariffs will be non-discriminatory.

Terminating Access to emergency numbers is free of charge.

7.2 Tariffs Applicable to the Terminating Access Service of Calls Originating outside of the EEA

As of 1st April 2018, Eltrona will apply, based upon the country of the calling party number, a surcharge for the termination in its network according to the following rules:

- 1) Termination of calls with A-Number belonging to any of the Country Codes included in Table 1: Eltrona will not apply any surcharge.
- 2) Termination of calls with A-Number belonging to any of the Country Codes included in Table 2: Eltrona will apply a surcharge of **4,5 €cts/min.**
- 3) Termination of calls with A-Number not belonging to any of the Country Codes included in Table 1 or Table 2, with no A-number (no CLI), with incorrect A-Number (either in format or content), invalid A-Number, modified or manipulated A-number: Eltrona will apply a surcharge of **12 €cts/min.**

These surcharges will be applied in addition to the termination rate specified in paragraphs 7.1.1 and 7.1.2 of this RIO.

Table 1

Country	Prefix
Alaska	+1907
Australia	+61
Austria	+43
Belgium	+32
Bulgaria	+359
Canada	+1
China	+86
Colombia	+57
Croatia	+385
Cyprus	+357
Czech	+420
Denmark	+45
Estonia	+372
Finland	+358
France	+33
French Guiana	+594
Germany	+49
Greece	+30
Guadeloupe	+590
Hawaii	+1808
Hungary	+36
Iceland	+354
India	+91
Ireland	+353

Italy	+39
Japan	+81
Korea South	+82
Latvia	+371
Liechtenstein	+423
Lithuania	+370
Malta	+356
Martinique	+596
Mayotte	+262
Mexico	+52
Netherlands	+31
Norway	+47
Poland	+48
Portugal	+351
Puerto Rico	+1787; +1939
Reunion	+262262
Romania	+40
Slovakia	+421
Slovenia	+386
Spain	+34
Sweden	+46
UK	+44
USA	+1

Table 1: No surcharges will be applied for the termination of voice calls originating in these countries.

Table 2

Country	Prefix
+888 United Nat. Office for Coord. of Human. Affairs	+888; +8835100
Bangladesh	+880
Bermuda	+1441
Bhutan	+975
Brazil	+55
Brunei	+673
Cambodia	+855
Costa Rica	+506
Dominican Rep	+1809; +1829; +1849
Egypt	+20
Faroe Islands	+298
French Polynesia	+689
Gibraltar	+350
Guam	+1671
Hong Kong	+852
Indonesia	+62
Kuwait	+965
Laos	+856
Malaysia	+60
Mauritius	+230
Mongolia	+976
Netherlands Antilles St. Martin	+1721
New Zealand	+64
Pakistan	+92
Panama	+507
Paraguay	+595
Singapore	+65
South Africa	+27
Switzerland	+41
Taiwan	+886
Thailand	+66
Uruguay	+598
Venezuela	+58
Vietnam	+84
Virgin Islands (US)	+1340

Table 2: A surcharge of 4,5 €/cts/min will be applied for the termination of voice calls originating in these countries.



7.3 Tariffs applicable to the Interconnection Services

Fees for TDM and IP Interconnection Services as previously described in this RIO will be invoiced directly by POST Luxembourg to the Interconnected Operator. The applicable tariffs can be found in POST Luxembourg's currently applicable Reference Interconnect Offer on its website.