

Reference Interconnect Offer Fix and Mobile (RIO F&M)

PROXIMUS LUXEMBOURG S.A.

Société Anonyme (public limited company)
Established and with its registered office at
18 rue du Puits Romain L-8070 BERTRANGE
Registered with the Commercial and Corporate Registry of Luxembourg
under the number B-19.669

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Version	Status	
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1.1	Issued and developed in accordance with the obligations imposed to PROXIMUS in the ILR regulation 16/208/ILR dated 28 th November 2016 (market 1/2014)	
1.2	Issued and developed in accordance with the obligations imposed to PROXIMUS in the ILR regulation ILR/T17/4 dated 9 June 2017 (market 2/2014)	
1.3	Version for public consultation with regulated tariffs for termination of calls originating from EEA countries and new tariffs for termination of calls originating from outside EEA countries	
1.4	Version published on 22 nd of January 2018 after completion of public consultation and with effective date 1 st of February 2018.	
1.5	Interconnection point addresses Data Center Bissen (cf.Art. 4.a)	
1.6	Version published after completion of public consultation (07/04/2021 – 07/05/2021) with effective date 7 June 2021 in accordance with Regulation ILR/T21/1, 18 January 2021 for market 1/2014, Regulation ILR/T21/2, 18 January 2021 for market 2/2014 And Regulation EU 2021/654	
1.7	Version for public consultation with new tariffs for termination of calls originating from outside EEA countries. See Annex B –Tariffs applicable to the Termination Access Service of calls originating outside of EEA, from 1 st of August 2021	
1.8	Country zone changes	
1.9	Version 1.9 applicable as of 01/03/2022 (EUA and Canada moved to EEA Country Zone)	
2.0	Complete Review of the offer – Version published after public consultation (22 February 2024 au 22 March 2024) with effective date 1st May 2024	



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1. Scope and limits of the Interconnection Offer

PROXIMUS LUXEMBOURG S.A. a company registered under the laws of Luxembourg, having its registered office at 18, rue du Puits Romain, Zone d'Activité de Bourmicht, L-8070 Bertrange, Luxembourg, registered with the Luxembourg Trade and Company Register under number B19.669 will be referred hereinafter as "PROXIMUS".

PROXIMUS uses its trademark "Tango" to address its activities in relation to residential customers (CBU), and "Telindus" to address its activities in relation to business customers (EBU/B2B).

This Reference Interconnect Offer (hereinafter "RIO" or "RIO F&M") deals with Interconnect Services offered to a duly authorized Public Network Operator, hereafter called "Interconnected Operator", for termination of fix and mobile voice calls to the "network of PROXIMUS", hereafter called "PROXIMUS".

This Reference Interconnect Offer has been issued and developed in accordance with the obligations imposed on PROXIMUS in the Regulation ILR/T21/2 dated 18th of January 2021 (market 1/2014) and Regulation ILR/T21/2 dated 18th January 2021 (market 2/2014).

The Interconnect Services included in this Reference Interconnect Offer encompass the following services:

- Terminating Access Services, as described in section 5;
- Interconnect Link Services, as described in section 6.

This Reference Interconnect Offer only covers calls to PROXIMUS numbers, excluding numbers from other operators and ported-out PROXIMUS numbers. Number portability check shall therefore be carried out before sending traffic to PROXIMUS. Other interconnect services such Voice Transit may be negotiated between PROXIMUS and the "Interconnected Operator" and included in the final Contract "Interconnect Agreement".

As a general principle, PROXIMUS is not responsible for the content of the communications conveyed through its Interconnect Services.

PROXIMUS supports voice interconnections only over IP Technology.



2. Offer validity

Term. The effective date of this RIO is valid from the date of definitive publication in compliance with the applicable regulations and, more particularly, in compliance with Regulation 14/177/ILR and this RIO shall remain in force after, unless

- a new Reference Interconnect Offer is published by PROXIMUS,
- a material change occurs in the laws of regulations, governing telecommunications in Luxembourg.

Modification. Amendment. In accordance with Regulation 14/177/ILR, this RIO may be timely reviewed and amended in order to comply with applicable rules and regulations. Furthermore, the ILR has the right to request or impose on PROXIMUS modifications to the applicable RIO or the adoption of a new RIO to be undertaken by PROXIMUS in compliance with the applicable rules and regulation.

Validity. The validity of the present RIO is determined by the decision 14/177/ILR dealing with the procedures related to the publication of a reference offer dated 28 august 2014 and Regulation ILR/T21/1 dated 18th of January 2021 (market 1/2014) fixing the fixed termination tariffs (FTR), as well as ILR Regulation T21/2 dated 18th of January 2021 (market 2/2014) fixing the mobile termination tariffs (MTR).

Unless defined otherwise, the terms used in this RIO must be interpreted in accordance with the Law of December, 27, 2021 transposing Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (the "Law") and its implementing regulations or any other applicable law or regulation in the context of this RIO.

RIO tariffs. All RIO tariffs are in EURO (€) and exclusive of Value-Added Tax (VAT) or any other legal taxes, which will be added if applicable.

Billing. The Interconnected Operator undertakes to pay all invoices in relation to this RIO in EURO (€) and within the payment period specified on the relevant invoice(s). If payment is not received by PROXIMUS on the due date, PROXIMUS will send a reminder to the Interconnected Operator. If the Interconnected Operator fails to pay any amount due hereunder by the due date then PROXIMUS shall be entitled to charge and receive interest at a legal rate from the day after payment was due until the date payment is made.



3. Definitions

Term	Description
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 between PROXIMUS' and the "Interconnected Operator's" systems for voice calls.
ILR	Institut Luxembourgeois de Régulation.
Interconnection Link	A logical link between PROXIMUS' and the "Interconnected Operator's" systems for processing for voice calls
IP	Internet Protocol
IP Interconnect	IP based interconnections between two networks
"Interconnected operator":	An operator wishing to be or being interconnected to PROXIMUS
International Public Telecommunication Number.	Defined as in ITU T Recommendation E.164.
National (significant) Number	Defined as in ITU T Recommendation E.164.
KPI	Key Performance Indicator
Link	Set of physical and logical telecommunications facilities necessary to establish one or more transmission paths between two systems



Regulation ILR/T17/9	ILR Regulation ILR/T17/9 dated 9 August 2017 «relative aux exigences techniques et opérationnelles minimales requises pour l'interconnexion en mode IP pour la voix sur les réseaux publics individuels en position déterminée »
Regulation ILR/T21/1	ILR Regulation ILR/T21/1 dated 18 January 2021 "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 »
Regulation ILR/T21/2	ILR Regulation ILR/T21/2 dated 18 January 2021 "portant sur la définition du marché pertinent de la fourniture en gros de terminaison d'appel vocal sur réseaux mobiles individuels (marché 2/2014) l'identification des opérateurs puissants sur ce marché et les obligations imposées à ce titre »
Regulation 14/177/ILR	ILR Regulation 14/177/ILR dated 28 August 2014 "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 »
Reference Interconnect Offer Fix and Mobile (RIO F&M) or 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
Operator Access Point	The physical interface or location where the telecommunications network of PROXIMUS and the "Interconnected Operator's" System are interconnected. and at which the Interconnection Services can be obtained.
"PROXIMUS"	PROXIMUS offering interconnect services through this offer
Parties	PROXIMUS, offering interconnection services, and the "Interconnected Operator" buying interconnection services under this agreement.



4. Interconnection Architecture

4.a – Direct physical Interconnection

PROXIMUS offers the following sites, which have been designed for use as Interconnection Access Points due to their optimal network integration.

Interconnection point addresses:

IP Interconnections, based on SIP signalling protocols, are available at:

- LuxConnect DC1, 202, Z.A.E. Wolser F, L-3290 Bettembourg.
- LuxConnect DC2, 3, op der Poukewiss, Z.A.C. Klengbousbierg, L-7795 Bissen / Roost

The Operator can either use both Interconnection Access Points or select the Interconnection Access Point at which it wants to interconnect its system.

The handover point of the physical interconnection link at PROXIMUS' interconnection sites is located in the Meet-Me room at the respective LuxConnect datacentre. Interconnection can only be done via fibre over a 10GBASE-LR interface. All costs incurred by the datacentre operator for patching are to be borne by the "Interconnected Operator".

Should the Interconnected Operator need to house transmission equipment for the Interconnection at PROXIMUS' interconnection sites, the "Interconnected Operator" needs to find an agreement with the datacentre operator (LuxConnect). PROXIMUS will not provide any space, nor any services for the transmission equipment of the Interconnected Operator at PROXIMUS's interconnection sites.

If the Interconnected Operator is not physically present with its network at the PROXIMUS interconnection site(s), PROXIMUS could also provide an individual offer for an Interconnection Access Point to its network at any address specified by the "Interconnected Operator".

IP Interconnection over direct physical links will be supplied in compliance with Regulation ILR/T17/9 regarding the minimal technical and operational requirements for IP based Voice Interconnections on public telephony networks.

4.b – Interconnection over LU-CIX

Besides the physical Interconnection, Proximus offers an alternative Interconnection Access Point via the VoIP VLAN of LU-CIX. The "Interconnected Operator" is free to decide how and where to connect to the LU-CIX platform. Each operator bears the costs for its own connection to LU-CIX.



The "Interconnected Operator" needs to establish BGP sessions with both of Proximus' routers present on the VoIP VLAN.

IP Interconnection over the LU-CIX VoIP VLAN will be supplied in compliance with Regulation ILR/T17/9 regarding the minimal technical and operational requirements for IP based Voice Interconnections on public telephony networks.

4.c – Minimum Traffic requirements

Taking into account the principle of reasonable demand, for a direct physical interconnection, Proximus requires that the "Interconnected Operator" is terminating a minimum of 1.000.000 minutes per month of Voice traffic to destinations hosted on Proximus' mobile and/or fixed networks.

For an interconnection over the LU-CIX VoIP VLAN, Proximus requires that the "Interconnected Operator" is terminating a minimum of 10.000 minutes per month of Voice traffic to destinations hosted on Proximus' mobile and/or fixed networks.

Should the minimum traffic requirement not be met, PROXIMUS reserves the right to refuse a new interconnection based on this offer. For existing interconnections, PROXIMUS regularly checks whether the minimum traffic requirement is still met. If the minimum traffic requirement is no longer met, PROXIMUS reserves the right to terminate the interconnection or to charge for the volume specified in the minimum traffic requirement, even if this has not been reached.

4.d – System alteration

If PROXIMUS 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 PROXIMUS shall supply to the connected Operators such information as the "Interconnected Operator" may reasonably request including, to the extent reasonably practicable, the potential impact on the service provided by the "Interconnected Operator" to the End Users.



4.e - Standards

Where relevant, the following standards and procedures will apply:

- Any legal and ILR regulation requirements
- ITU-Recommendations
- ETSI standards
- Any other relevant international standards.

The signalling system for IP interconnections will be based on the SIP protocol and comply with the regulations as issued by the ILR. Proximus Interconnect Order Form can be requested on demand of "Interconnected Operator".

The capacity or bandwidth has to be defined between the parties prior to the installation. As an example, preferred CODECs are G.711 a-Law and G.722, signalling follows SIP RFC 3261 with restrictions according to Proximus SIP Technical specifications. Other topologies are available but submitted to technical agreement between both Parties.

5. Service description: Terminating access service

The fix and mobile terminating access service consist of connecting a voice call handed over by the "Interconnected Operator's" System at PROXIMUS' Access Point, to any national fix and/or mobile number of PROXIMUS' network. Calls with a destination to numbers of other operators, as well as to ported-out PROXIMUS numbers are excluded. Number portability checks shall therefore be carried out before sending traffic to PROXIMUS. The detailed list of destination phone numbers accepted for the terminating access service could be found in "Annex D – Accepted Numbers for Voice Call Termination".

Tariffs may be different for different categories of services identified by different fix or mobile number ranges. The tariffs applied by PROXIMUS for the provision of the terminating access service are indicated in Annex A. 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.

For sake of fraud prevention/detection, CLI shall always be transferred from the telecommunications network of the "The Interconnected Operator", PROXIMUS will not communicate such CLI to an end-user if such CLI is marked as CLIR (restricted) unless the call is directed to an emergency number.



6. Interconnection Link Service

The interconnection link service consists in the logical linking between PROXIMUS' and the "Interconnected Operator's" systems. The "Interconnected Operator" must interconnect to an Interconnection Access Point as defined in paragraph 4.

The relevant charges for Interconnection links are defined in Annex C.

6.a General

The "Interconnected Operator" is responsible for the dimensioning and payment of the interconnection links required for the conveyance of its own traffic. The "Interconnected Operator" is responsible for the traffic conveyed through its System and handed over at PROXIMUS's Access Point in order to use PROXIMUS's terminating fix and mobile access services.

Initial Order

The initial order must be submitted at the latest 3 months before the launch date of the service. PROXIMUS will aim to keep shorter delays taking into consideration its availability and organizational constraints.

Modification Orders

Any modification order has to be submitted at the latest 1 month before the desired implementation date. PROXIMUS will aim to keep shorter delays taking into consideration its availability and organizational constraints.

There is a one-off charge for setting up the first Interconnection Link with a new Interconnected Operator. This one-off charge includes the complete technical set-up, the configuration in the network, the set-up of the Interconnected Operator in the Billing, as well as end-to-end testing. Should PROXIMUS agree to use the planned Interconnection Link bidirectionally (i.e. also to terminate voice traffic from PROXIMUS to the Interconnected Operator), this lump sum cost may be refunded or waived.

6.b Capacity

The "Interconnected Operator" is solely responsible for the dimensioning of the Interconnection links (bandwidth and amount of concurrent SIP sessions). Proximus will dimension SIP Trunk according to specifications, limited to contracted SIP trunk capacity.



7. QoS for interconnection services

As far as the terminating access service is concerned, PROXIMUS 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 "Interconnected Operator" to be terminated on PROXIMUS's Network and failed due to insufficiencies in PROXIMUS's Network and the total amount of calls handed over by "The Interconnected Operator" to be terminated on PROXIMUS'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, PROXIMUS may be constrained to implement the classical measures of traffic regulation (limiting channels, etc.) in order to limit its effect on the quality of the service provided to its customers as well as to the "Interconnected Operator".

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 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.

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



8. Procedures for reaching an interconnection agreement

Interconnection agreements shall be negotiated according to the procedures and regulations determined by ILR.

On first demand by the "Interconnected Operator", PROXIMUS may request bank guarantees of 50.000€ (of a bank based in Luxembourg) for the provisioning of the interconnect service.

Other "reasonable" guarantees, as payment in advance, may be requested before provisioning of the interconnection service.

Agreement requests shall be addressed by registered letter and by email to:

PROXIMUS LUXEMBOURG S.A. Attn. de la Directrice Légal et Régulatoire 18 rue du Puits Romain – L-8070 Bertrange

E-mail: legal@proximus.lu



9. Annexes

The following documents shall form part of this RIO

- Annex A Regulated Tariffs applicable to the Termination Access Service of calls originating within EEA
- Annex B –Tariffs applicable to the Termination Access Service of calls originating outside of EEA, from 1st of August 2021
- Annex C Fees for Interconnection link service
- Annex D Accepted Numbers for Voice Call Termination

and in the event of any inconsistencies between them, the order of precedence shall (unless expressly stated to the contrary) be as follows:

- (i) The main body of this RIO
- (ii) The Annexes to this RIO.



Annex A – Regulated Tariffs applicable to the Termination Access Service of calls originating within EEA

The tariffs for the terminating Access Service are defined in accordance with ILR regulation ILR/T21/1 and ILR/T21/2.

a) Terminating access service to PROXIMUS's geographic Fixed numbers of Calls Originating within the EEA

The following tariffs only apply to the termination of voice calls originating within the EEA (European Economic Area) only if the calling number (the so-called A-Number) is identified as belonging to the numbering plan of one of these countries.

Period	Charge per minute (in €ct excl. VAT)
07.06.2021 – 30.06.2021	0.138 eurocent/min
01.07.2021 – 31.12.2021	0.110 eurocent/min
01.01.2022 - until the application of a new regulation	0.07 eurocent/min

These rates are only applicable to calls originating within the EEA.

This tariff for terminating access services is adapted in compliance with the Commission Delegated Regulation EU 2021/654 of 18 December 2020 supplementing Directive EU 2018/1972 of the European Parliament and of the Council by setting a single maximum Union-Wide mobile voice termination rate and a single maximum Union-Wide fixed voice termination rate



b) Terminating access service to PROXIMUS's Mobile numbers of Calls Originating within the EEA

The following tariffs only apply to the termination of voice calls originating within the EEA (European Economic Area) only if the calling number (the so-called A-Number) is identified as belonging to the numbering plan of one of these countries.

Period	Charge per minute (in €ct excl. VAT)
07.06.2021 – 30.06.2021	0.89 eurocent/min
01.07.2021 – 31.12.2021	0.70 eurocent/min
01.01.2022 – 31.12.2022	0.55 eurocent/min
01.01.2023 – 31.12.2023	0.40 eurocent/min
01.01.2024 – until the application of a new regulation	0.20 eurocent/min

These rates are only applicable to calls originating within the EEA.

This tariff for terminating access services is adapted in compliance with the Commission Delegated Regulation EU 2021/654 of 18 December 2020 supplementing Directive EU 2018/1972 of the European Parliament and of the Council by setting a single maximum Union-Wide mobile voice termination rate and a single maximum Union-Wide fixed voice termination rate.



c) List of countries within the EEA where Regulated Tariffs is applied

List of EEA (European Economic Area) countries and territories:

ISO Code	Country Name	Country Code
AUT	Austria	43
BEL	Belgium	32
BGR	Bulgaria	359
CAN	Canada	1
HRV	Croatia	385
СҮР	Cyprus	357
CZE	Czech Republic	420
DNK	Denmark	45
EST	Estonia	372
FIN	Finland	358
FRA	France	33
GUF	French Guiana	594
DEU	Germany	49
GRC	Greece	30
GLP	Guadeloupe	590
HUN	Hungary	36
ISL	Iceland	354
IRL	Ireland	353
ITA	Italy	39
LVA	Latvia	371
LIE	Liechtenstein	423
LTU	Lithuania	370
LUX	Luxembourg	352
MLT	Malta	356
MTQ	Martinique	596
MYT	Mayotte	262
NLD	Netherlands	31
NOR	Norway	47
POL	Poland	48
PRT	Portugal	351
REU	Reunion	262
ROU	Romania	40
SVK	Slovakia	421
SVN	Slovenia	386
ESP	Spain	34
SWE	Sweden	46
GBR	United Kingdom	44
USA	United States Alaska	1907
USA	United States Hawaii	1808
USA	United States of America	1
PRI	Puerto Rico	1787, 1939
	American Samoa	1684
	Nothern Mariana Islands	1670



Annex B –Tariffs applicable to the Termination Access Service of calls originating outside of EEA, from 1st of March 2022

From 1st of March of 2022, PROXIMUS will apply a surcharge for the termination on both its **Mobile** and **Fixed** networks based on the country of origin of the call when it is originating outside of EEA.

The surcharge applied in addition of the flat rate is dependent of 3 Origin of Calls Categories (0, 1, 2 with respective surcharge: **none**, **5€cts/min**, **12€cts/min**):

Flat rate for Fixed network: 0.138€cts/min.

• Flat rate for Mobile network: 0.89€cts/min.

Origin of Calls Category 0: No surcharge will apply for calls originating from these countries:

No Countries in Category 0.

Origin of Calls Category 1: A surcharge of 5 €cts/min in addition of the Flat rate will apply for calls originating from these countries:

Origin Category 1 : Flat rate + Surcharge of 5 €cts/min		
ISO Code	Country Name	Country Code
AUS	Australia	61
BGD	Bangladesh	880
BMU	Bermuda	1441
BRA	Brazil	55
BRN	Brunei	673
CHN	China	86
COL	Colombia	57
CRI	Costa Rica	506
DOM	Dominican Republic	1809, 1829, 1849
EGY	Egypt	20
GIB	Gibraltar	350
HKG	Hong Kong	852
IND	India	91
IDN	Indonesia	62
JPN	Japan	81
KWT	Kuwait	965
MYS	Malaysia	60

OCO	Pimilic		
PIO	KIMUS		
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	l		
NZL	New Zealand	64	
PAK	Pakistan	92	
SGP	Singapore	65	
ZAF	South Africa	27	
KOR	South Korea	82	
CHE	Switzerland	41	
TWN	Taiwan	886	
THA	Thailand	66	
VIR	United States Virgin Islands	1340	
VNM	Viet Nam	84	

Origin of Calls Category 2: A surcharge of 12 €cts/min in addition of the flat rate will apply for calls originating from rest of the and to any country that is not listed in EEA Countries, Categories 0 and 1. Will also apply if A-Number (CLI) is missing or content is incorrect, modified or manipulated.



Annex C - Fees for Interconnection link service

One-Off charge for licensed SIP Trunk capacity	20€/SIP session
One-Off charge per Interconnected Operator Covering installation and testing. This fee is waived if PROXIMUS accepts to use the Interconnection bidirectionally.	10.000,-€

Modification of Interconnection Links

The establishment, the modification, as well as the disconnection of trunks required by an Interconnected Operator, are charged to the Interconnected Operator.

Change required by the Operator	Installation fee
Establishment of a new trunk	1.000,- €
Modification or cancellation of an existing trunk	500,- €