

ITEM

233 **GSM-based Roaming Service**

ITEM

233.1 **Service Description**

This service provides GSM-based wholesale roaming to mobile wireless carriers, other than Bell Mobility and Rogers Communications Canada Inc. and their respective affiliates, successors or assigns, that are licensees of one or more commercial mobile wireless spectrum licenses under the licensing framework established by Innovation, Science and Economic Development Canada. GSM-based wholesale roaming is provided in accordance with the terms and conditions established by the CRTC in Telecom Regulatory Policy CRTC 2015-177, as well as in Telecom Decision CRTC 2017-56 and Telecom Order CRTC 2017-433. This GSM-based Roaming Service allows retail end-customers of Canadian mobile wireless carriers to originate or terminate communications by roaming on the Company’s wireless network based on the Commission’s requirements set out in Telecom Regulatory Policy CRTC 2015-177.

C  
|

Pursuant to paragraphs 410 and 421 of Telecom Regulatory Policy CRTC 2021-130 (“TRP 2021-130”), GSM-based Roaming Service shall also enable seamless roaming and roaming on the Company’s 5G networks. GSM-based Roaming Service on 5G shall be provided by the Company to enable voice, data and text retail mobile services only in accordance with the terms and conditions herein. The Company shall make available Seamless Roaming Service as an add-on capability of the GSM-based Roaming Service upon the Wholesale Roaming Customer’s request pursuant to the terms contained herein.

N  
|  
|  
|  
|  
|  
|D  
|  
|  
|  
|  
|  
|  
|  
|

Because the Commission has forborne, in Telecom Decision 2017-56, with respect to the regulation of this service as set out in that decision, the Company may also provide the service in this tariff at rates and on terms different from the tariffed rates and terms pursuant to an agreement entered into between the Company and a Wholesale Roaming Customer.

N  
|  
|  
|

ITEM  
 233 **GSM-based Roaming Service - Continued**

ITEM  
 233.2 **Definitions**

For the purposes of this Tariff Item:

“*Available Footprint*” shall mean at any particular time, the geographic areas being covered by the VPMN in Canada. The Available Footprint shall be limited to geographic areas where the VPMN Operator, or an affiliate of the VPMN Operator, owns and operates the UTRAN (Universal Terrestrial Radio Access Network) or EUTRAN (Evolved Universal Terrestrial Radio Access Network or NGRAN (Next Generation Radio Access Network) once it is deployed and available for roaming, but shall exclude any areas where the VPMN Operator has exclusively deployed a Private Network. For the purpose of this definition, a “private network” means a network deployed by the VPMN Operator for a specific customer or groups of customers, on which the VPMN Operator’s broader customer base does not have access to such network deployment.

“*GSM*” Global System for Mobile (GSM) is a technology based protocol used for wireless networks.

“*GSM-based Roaming Service*” enables the retail customers of a wireless carrier (the home network carrier) to automatically access voice, text, and data services by using a visited wireless carrier’s network (also referred to as “the host network”), including the radio access network (RAN), using GSM-based technologies. 5G roaming shall be implemented pursuant to section 2.12 of the *GSMA 5G Implementation Guidelines: NSA Option 3*, dated February 2020.

“*Home Network Inner Boundary*” means the area within the HPMN, as shown on a coverage map and as agreed to by the Parties, as delineated by a boundary of Wholesale Roaming Customer cell sites, and within which the Wholesale Roaming Customer has informed the Company that the Wholesale Roaming Customer has a coverage gap where the Wholesale Roaming Customer will request Seamless Roaming Service along the outer boundary of such area, pursuant to Item 233.3.8 and subject to Items 233.3.15 and 233.3.16. The Home Network Inner Boundary must be within the Available Footprint.

“*Home Network Outer Boundary*” means the perimeter of the HPMN coverage area, as shown on a coverage map provided by the Wholesale Roaming Customer to the Company and as agreed to by the Parties, where that perimeter falls within the Available Footprint.

“*HPMN*” – shall mean Home Public Mobile Network. Public Wi-Fi networks do not form any part of a HPMN.

“*IR.21*” shall mean IREG Document 21 as defined by the GSM Association and may be updated from time to time.

D  
|

C  
|  
|  
|  
|  
|  
|

N  
|  
|  
|  
|  
|  
|

|  
|  
|

Carrier Access Services

ITEM 233	<b>GSM-based Roaming Service - Continued</b>	N
ITEM 233.2	<b>Definitions – Continued</b>	
	“IREG” shall mean International Roaming Expert Group for the purposes of connectivity and roaming service testing and certification between the HPMN and VPMN.	M 
	“Indirect Interconnection” shall mean the use of a third party supplier or suppliers, interconnected with other third party suppliers, consistent with GSM Association Permanent Reference Documents as set out in Item 233.3.1, to provide:	N   
	a. Signalling System 7 (SS7) and diameter signaling for Roaming End-Customer authentication, services available to the Roaming End-Customer while using the GSM-based Roaming Service, and transit for Short Message Service (SMS) back to the HPMN and termination of incoming calls;	   
	b. Internet Protocol (IP) Packet eXchange (IPX) to allow the VPMN to pass IP-based traffic back to the HPMN; and	 
	c. Data clearing house to allow the HPMN to receive call detail records from the VPMN.	
	“LAC” shall mean Location Area Code.	M
	“PMN” shall mean Public Mobile Network and is a network that complies with the definition of a GSM network as set out in the Articles of Association of the GSM Association (GSMA). Public Wi-Fi networks do not form any part of a PMN.	N   
	“PRD” shall mean Permanent Reference Document by the GSM Association Technical Specification and may be updated from time to time.	M 
	“PTCRB” shall mean PCS-Type Certification Review Board, which is the body responsible for the testing and certification of GSM and Long-Term Evolution (LTE) devices and for generating the input regarding testing of standards development.	M,C   
	“Party” shall mean the Wholesale Roaming Customer or the Company and the “Parties” means both the Wholesale Roaming Customer and the Company.	N 
	“RAEX IOT” means GSM Association Roaming Agreement EXchange Inter-Operator Tariff.	 
	“RAEX OpData” means GSM Association Roaming Agreement EXchange Operational Roaming Data.	 

M – Moved from Page 233-1A

ITEM  
233

**GSM-based Roaming Service - Continued**

ITEM  
233.2

**Definitions – Continued**

“*Roaming End-Customer*” shall mean a Person

- a. with a valid subscription for roaming use issued by a Wholesale Roaming Customer; and
- b. who is using the supported technology utilizing a GSM SIM (Subscriber Identity Module) and/or a GSM USIM (Universal Subscriber Identity Module) to enable that Person to access the mobile telecommunications service(s) of the VPMN Operator, for roaming in the Available Footprint of VPMN Operator, provided such person or entity is served by the Wholesale Roaming Customer that has not acquired spectrum or has acquired spectrum and is yet to build towers to provide coverage to its own customers.

“*Roaming Service*” provides a Roaming End-Customer with the ability to access voice, SMS and data services offered by the VPMN Operator on an incidental basis and not on a permanent basis. For further clarity, the VPMN Operator is not required to provide a Roaming End-Customer with a service that the Wholesale Roaming Customer does not itself provide to its end customers.

"*Seamless Roaming Boundary*" means a boundary for Seamless Roaming Service, consisting of the edge of the coverage of one or more cell sites on the VPMN in a single region along either (i) the Home Network Outer Boundary, or (ii) a Home Network Inner Boundary. For greater certainty, other areas within the HPMN coverage area are not a Seamless Roaming Boundary even if Roaming End-Customers are served by the Roaming Service in those areas from time to time due to signal strength on the HPMN, or other reasons.

"*Seamless Roaming Boundary Change*" means making changes requested by the Wholesale Roaming Customer that impact one or more of the cell sites included in an existing Seamless Roaming Boundary. Such changes may be requested by the Wholesale Roaming Customer no more than once every thirty (30) days; each monthly request may include one or more boundary changes in one or more regions.

“*Seamless Roaming Service*” is an add-on capability of the GSM-based Roaming Service. It provides a Roaming End-Customer with the ability to hand off VoLTE calls and data sessions from the HPMN to the VPMN. Seamless Roaming Service is not available for 3G technologies, it is available for 4G and 5G technologies (VoLTE & data on 5G-NSA). Seamless Roaming Service will be made available where the Home Network Outer Boundary meets a geographic area within the Available Footprint, and also along a Home Network Inner Boundary as agreed to by the Parties, subject to Items 233.3.15 and 233.3.16. The Wholesale Roaming Customer must subscribe to the GSM-based Roaming Service and request Seamless Roaming Service pursuant to the process contained herein in order to be eligible to obtain the Seamless Roaming Service. Seamless Roaming Service will be enabled by an Evolved Packet Core (EPC) to EPC interconnection and integration between the VPMN and HPMN, facilitating packet switch data and VoLTE session handovers, with no IP Multimedia Subsystem (IMS) to IMS peering.

ITEM		
233	<b>GSM-based Roaming Service - Continued</b>	
ITEM 233.2	<b>Definitions – Continued</b>	
	“Short Message Service (SMS)” A wireless messaging service that permits the transmission of a short text message from and/or to a digital mobile telephone while on the TELUS Available Footprint.	M   M,C
	“TAC” shall mean Tracking Area Code.	M
	“TAP” shall mean Transferred Accounting Procedure.	
	“VoLTE” shall mean Voice over LTE.	N
	“VPMN” shall mean Visited Public Mobile Network which is the network that provides GSM-based Roaming Service to the Roaming End-Customers of a Wholesale Roaming Customer. Public Wi-Fi networks do not form any part of a VPMN.	M,C M 
	"VPMN Operator" shall mean the Party who allows Roaming End-Customers of a Wholesale Roaming Customer to use its Public Mobile Network, in accordance with the Telecom Regulatory Policy CRTC 2015-177.	   
	“Wholesale Roaming” enables the retail end-customers of a mobile wireless carrier (i.e. the Wholesale Roaming Customer) to automatically access voice, text, and data services by using a visited wireless carrier’s network (also referred to as “the host network”), including the RAN.	C 
	“Wholesale Roaming Customer” shall mean the Party which is providing mobile telecommunications services to its customers in a geographic area on a HPMN where it holds a licence or has a right to establish and operate a Public Mobile Network.	
	“3GPP” - The 3rd Generation Partnership Project (3GPP) unites seven telecommunications standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC), known as “Organizational Partners” and provides their members with a stable environment to produce the Reports and Specifications that define 3GPP technologies.	

M – Moved from Page 233-2

ITEM  
233

**GSM-based Roaming Service - Continued**

ITEM  
233.3

**Conditions of Service**

1. This tariff enables the establishment of roaming relationships between a VPMN Operator and Wholesale Roaming Customer in accordance with:

- a. The technical requirements and terms and conditions set forth in this tariff.
- b. GSM Association Permanent Reference Document for Roaming (AA.12), GSM Association Permanent Reference Document - Common Annexes (AA.13) and GSM Association 5G Implementation Guidelines Option 3.
- c. For Seamless Roaming: GSM Association VoLTE Roaming Testing (IR.25) and VoLTE Implementation questionnaire.
- d. TELUS' individual annexes entitled the RAEX IOT and RAEX OpData.
- e. TELUS IR.21.
- f. all relevant GSM Association Technical Specifications.
- g. all binding GSM Association Permanent Reference Documents that specifically apply to domestic roaming.
- h. the non-binding GSM Association Permanent Reference Documents.

C  
|  
|  
N  
|  
C,F  
F  
|  
|  
|

including in each case all the commercial aspects, as defined in this Tariff. In case of conflict between any of the above documents and specifications and this Tariff, the provisions in this Tariff shall prevail.

Additional requirements and exceptions to the Technical Specifications and GSM Association Permanent Reference Documents are detailed in this Tariff.

For the avoidance of doubt, there is no obligation on the part of a Wholesale Roaming Customer to use the Roaming Service offered by a VPMN Operator.

C

GSM-based Roaming Service must allow roaming on its GSM-based mobile wireless networks to all subscribers served by the Wholesale Roaming Customer, including the subscribers of any MVNOs operating on their Wholesale Roaming Customers' networks. The Wholesale Roaming Customer must ensure that any access to the VPMN on behalf of its reseller or MVNO customers occurs on the same basis, and with the same limitations, as set out in this Wholesale Roaming Tariff. For greater certainty, Seamless Roaming is provided subject to the restrictions set out in the definition of Seamless Roaming.

N  
|

2. Implementation of the Roaming Services and Quality of Service

- a. Both Parties agree that the Roaming End-Customers, during roaming, may experience conditions of service different from the conditions they experience when accessing their own Wholesale Roaming Customer's PMN. The Wholesale Roaming Customer acknowledges and agrees that the VPMN Operator shall not be obligated to provide i) the Roaming Service such that the Roaming End-Customers will be provided with the ability to access voice, SMS and data services at a level of quality, functionality, technology, service, level of service or generation of GSM technology in excess of that generally offered for similar services to the Wholesale Roaming Customer's own customers; ii) a functionality or technology for which no standards and industry guidelines have been developed or widely adopted in Canada; or iii) a functionality or technology that is still in a testing phase or has not reached the final deployment phase for the VPMN Operator.
- b. Subject to Item 233.3.2.a, the VPMN Operator shall provide the Roaming Service such that the Roaming End-Customers will have access to the voice, SMS and data services at a level of quality comparable to that generally offered for similar services to the VPMN Operator's own customers.

C  
|  
|  
|  
|  
|  
|  
|  
|  
|

ITEM  
233

**GSM-based Roaming Service – Continued**

ITEM  
233.3

**Conditions of Service – Continued**

- c. Network Interconnection: GSM-based Roaming Service shall be provided by the Company, upon request from a Wholesale Roaming Customer, only at such locations (and in respect of such facilities and equipment of the Company) that meet the applicable industry and technical standards and guidelines, as well as CRTC stipulations, established for interconnection. The Company and the Wholesale Roaming Customer will implement interconnections between the HPMN and the VPMN by way of Indirect Interconnection unless the Company and the Wholesale Roaming Customer agree otherwise in writing. F  
C  
|

The implementation of the Signalling Protocols and/or Inter-PLMN backbone (as defined in IREG PRDs) shall be in accordance with the Technical Specifications and relevant GSM Association Permanent Reference Documents with the exception of PMN specific deviations and/or chosen options agreed by both Parties during the testing phase. The technical information relevant for Roaming shall be exchanged between the Parties as part of IREG testing procedures and IREG PRDs. Each Party agrees to adhere to the processes set out in PRD IR.21, Section 4: Procedures for Updating the Database, when making changes in the numbering and addressing information with an impact on Roaming.

- d. Restrictions on Roaming: No Party shall have any access hereunder to the network or services of any third party network operator with which the VPMN Operator may have roaming arrangements. F

3. The Wholesale Roaming Customer shall be the Company’s customer for the services provided under this Item. The provision of this Tariff Item is subject to the Company’s General Terms of Service (as referenced in Item 100) insofar as they are reasonably applicable and not inconsistent with this Tariff. The Wholesale Roaming Customer shall pay to the Company all charges incurred for services provided through any connections furnished to the Wholesale Roaming Customer pursuant to this Tariff Item, such as long-distance telephone calls, directory assistance, operator assistance and other chargeable services.

4. The provision of GSM-based Roaming Service by the Company to the Wholesale Roaming Customer pursuant to this Tariff Item does not constitute a partnership, joint venture or joint undertaking between the Company and the Wholesale Roaming Customer. C  
|

5. The Company shall not be responsible to the Roaming End-Customers for end-to-end service. |  
|

ITEM  
233**GSM-based Roaming Service - Continued**ITEM  
233.3**Conditions of Service – Continued**

6. The Company reserves the right to modify or change, from time to time and in its sole discretion, its network, facilities, equipment or service (including exchange boundaries or Local Calling Area boundaries) in accordance with the applicable provisions of the Company's tariffs and CRTC directives.
7. The Wholesale Roaming Customer acknowledges and agrees that the design, engineering, construction and modification of the Available Footprint is entirely within the discretion of the Company and the Company is under no obligation to make any additions or modifications to the Available Footprint to accommodate the needs or requirements of Roaming End-Customers or to address any incompatibility in the technologies used by the Company and the Wholesale Roaming Customer that may preclude or otherwise affect the provision of Roaming Service and Seamless Roaming Service hereunder to any Roaming End-Customer. No provision of this Tariff Item shall be construed as vesting in the Wholesale Roaming Customer any control or ownership interest whatsoever in any equipment, facilities or operations of the Company including, without limitation, the Available Footprint.
8. Seamless Roaming Service is available to be ordered as of April 6, 2022. The submission of a Seamless Roaming Request by the Wholesale Roaming Customer (as described below) will initiate the timeline of the seamless roaming project. The seamless roaming project will be comprised of several phases: (i) High Level Implementation Assessment; (ii) Drafting and Finalization of Statement of Work ("SoW"); and (iii) Detailed Solution Design, Testing, and Implementation. Each Party will be required to participate in each phase of the project and the level of effort and materials required by the Company to complete each phase of the project is provided subject to Item 233.4.2.
  - a. Seamless Roaming Request:
    - i. A Wholesale Roaming Customer that wishes to add Seamless Roaming Service to its existing Roaming Service must make a written request to the Company's relevant Carrier Relations prime to add the Seamless Roaming Service. Prior to making the written request as detailed below, the Wholesale Roaming Customer may request necessary network border site information from the Company specific to the locations for which it will seek the Seamless Roaming Service from the Company. Such site information request must be made in writing to the applicable Carrier Relations prime at the Company. The Company shall provide the network border site information to the Wholesale Roaming Customer within seven (7) days of receiving such request.



ITEM

233

**GSM-based Roaming Service - Continued**

N

ITEM

233.3

**Conditions of Service – Continued**

- ii. In this request, the Wholesale Roaming Customer must clearly specify: 1) the province; 2) latitude and longitude of cell site location; 3) E-UTRAN Cell Identifier (“ECI”); 4) TAC list and map; and 5) neighbour frequencies to be added to Enhanced NodeB’s (“eNodeB’s”) for each cell site in the following:
    - A. the portion of the Home Network Outer Boundary along which the Seamless Roaming Service is requested, and if applicable, the Home Network Inner Boundary along which the Seamless Roaming Service is requested;
    - B. the Wholesale Roaming Customer neighbour cell sites for (1) the portion of the Home Network Outer Boundary along which Seamless Roaming Service is requested and (2) the Home Network Inner Boundary along which the Seamless Roaming Service is requested, if applicable; and
    - C. the proposed Company cell sites where the Wholesale Roaming Customer requests a seamless handoff.
  - iii. The information requested for items (ii)(A) through (C) above must be provided in both a spreadsheet and a GIS file in MapInfo format, or such other format as specified by the Company.
  - iv. In this request, the Wholesale Roaming Customer must also provide a list of all vendors for the Wholesale Roaming Customer’s RAN and core network, along with a general description of the type of equipment provided by each vendor. Such information is to be provided in a spreadsheet.
  - v. The Company will review the information received and may seek additional information from the Wholesale Roaming Customer as required to conduct a seamless roaming high level implementation assessment.
- b. High Level Implementation Assessment:
- i. Once the Company has received the required information in the specified format, the Company will work with the Wholesale Roaming Customer to perform a high level implementation assessment of the seamless roaming request. (Note: The Company and the Wholesale Roaming Customer will discuss and agree upon the specific regions from the request that are out of scope for the implementation activity.)
  - ii. As part of the high level implementation assessment, the Company will provide an initial estimate of the effort (labour) required to complete the seamless roaming implementation for the specific portions of the Wholesale Roaming Customer’s network boundaries that are mutually agreed to be in scope. The initial estimate is a non-binding high level estimate, meant to be used to determine whether Parties wish to proceed with the creation of a SoW.

ITEM  
233

**GSM-based Roaming Service - Continued**

N

ITEM  
233.3

**Conditions of Service – Continued**

- c. Drafting and Finalization of SoW:
  - i. The Wholesale Roaming Customer and the Company will work together to agree on a SoW reflecting what each Party will do to implement the Seamless Roaming Service, including roles and responsibilities of each Party set out in a Responsible, Accountable, Consulted, Informed (“RACI”) chart with accompanying descriptions and scope. It is expected that each Party will be responsible to perform its own detailed solution design, testing and implementation of the solution and that the Wholesale Roaming Customer will need to carry out numerous activities for the project, including but not limited to RAN drive test and data fill validation.
  - ii. The Wholesale Roaming Customer and the Company will sign the SoW to indicate alignment between the Parties prior to commencement of any implementation activities.
  - iii. Without limiting the Company’s right to make changes pursuant to Items 233.3.6, 233.3.7 and 233.3.9, the Wholesale Roaming Customer acknowledges and agrees that the SoW may need to be updated and amended as part of the detailed solution, design, testing and implementation phase.
- d. Detailed Solution Design, Testing, and Implementation:
  - i. Following the signing of the SoW, each Party will develop a detailed solution design to enable the Seamless Roaming Service in their respective networks.
  - ii. The Company may seek additional information from the Wholesale Roaming Customer as required to complete this phase of the project.
  - iii. Activities at this stage include but are not limited to: design documentation, validation and sign-offs; test documentation, validation and sign-offs; system assessments (billing, security, interoperability, etc.); vendor consulting; system and environment set-up (DNS, OSS, etc.); testing (lab, field testing in a single cluster, monitoring of test cluster); production data fills and drive test validation (core, RAN); enablement across in-scope sites; and service assurance. Certain of these activities will be performed by one or both Parties.
  - iv. Implementation of the Seamless Roaming Service will be completed in a manner mutually agreed to by the Company and the Wholesale Roaming Customer in the SoW, without limiting the Company’s right to make changes pursuant to Items 233.3.6, 233.3.7 and 233.3.9 of this Tariff.
- e. Subsequent changes:
  - i. After the SoW is signed, should the Wholesale Roaming Customer subsequently (i) change or update its underlying wireless technology (including but not limited to software, hardware updates), any of its wireless technology vendor(s), and/or (ii) seek to implement any other technology or operational changes which impact the operation of the Seamless Roaming Service, then the process outlined in the preceding sections (a) through (d) must be followed.

ITEM  
233

**GSM-based Roaming Service - Continued**

N

ITEM  
233.3

**Conditions of Service – Continued**

- ii. Network boundary changes to the Home Network Outer Boundary and the Home Network Inner Boundary are subject to Item 233.3.8.f, “Seamless Roaming Boundary Change Process”.
  - iii. Updates to cell site information are subject to Item 233.3.8.g, “Wholesale Roaming Customer Updated Cell Site Information Change Process”.
  - iv. The Wholesale Roaming Customer shall provide at least thirty (30) days written notice to the Company that the Wholesale Roaming Customer intends to cease supporting seamless handoff at particular cell sites located along the Home Network Outer Boundary or the Home Network Inner Boundary, and the Company shall be entitled to cease supporting the Seamless Roaming Service for such sites as of the date notified by the Wholesale Roaming Customer.
- f. Seamless Roaming Boundary Change Process:
- i. Following the implementation of the Seamless Roaming Service, the Wholesale Roaming Customer shall be entitled to initiate no more than one Seamless Boundary Change in a thirty (30) day period unless otherwise agreed to by the Parties.
  - ii. A Wholesale Roaming Customer may initiate a Seamless Roaming Boundary Change by providing a written request to the applicable Carrier Relations prime at the Company. The written request shall contain the following in respect of the Wholesale Roaming Customer’s cell sites that either (1) will no longer be part of the Wholesale Roaming Customer’s existing Home Network Outer Boundary and/or Home Network Inner Boundary, or (2) are intended to comprise part of the of the Wholesale Roaming Customer’s Home Network Outer Boundary and/or Home Network Inner Boundary following the Seamless Roaming Network Boundary Change:
    - A. the information set out in Item 233.3.8.a.ii in the format set out in Item 233.3.8.a.iii, (for a single network boundary change, it is anticipated that some of the information originally provided as part of the original seamless roaming request could be re-used and re-submitted with any changes to relevant cell site information clearly indicated);
    - B. the date on which the Wholesale Roaming Customer will implement the relevant change(s) to the HPMN;
    - C. a summary of any relevant changes made to the Wholesale Roaming Customer’s network since the last change to the Wholesale Roaming Customer’s Home Network Outer Boundary and/or Home Network Inner Boundary (as the case may be) that could impact the provision of Seamless Roaming.

ITEM  
233

**GSM-based Roaming Service - Continued**

N

ITEM  
233.3

**Conditions of Service – Continued**

- iii. Upon receipt of a written request, the Company shall, without undue delay, review the information provided by the Wholesale Roaming Customer for completeness and provide the Wholesale Roaming Customer with either a confirmation that the Company has received the complete information required to provide its response or with a request for omitted information.
  - iv. Within seven (7) days of confirming the receipt of complete information, or such longer period as may be agreed to by the Parties, the Company shall provide the Wholesale Roaming Customer with a response containing relevant information regarding the Company’s cell sites that correspond to the Seamless Handoff Boundary Change.
  - v. Based on the information exchanged, the Parties shall work together in good faith to agree on a SoW reflecting what each Party will do to implement the Seamless Roaming Boundary Change.
  - vi. The Company shall undertake commercially reasonable efforts to make the necessary adjustments to the implementation of the relevant Seamless Roaming Boundary on its network within thirty (30) days of confirming the receipt of complete information or such later date as agreed upon by the Parties, subject to any unforeseen technical issues that may arise prior to completion or any delays caused by the Wholesale Roaming Customer.
- g. Wholesale Roaming Customer Updated Cell Site Information Change Process:
- i. Following the implementation of the Seamless Roaming Service, the Wholesale Roaming Customer may provide updated relevant cell site information as required for the Seamless Roaming Service, but no more than once every thirty (30) days unless otherwise agreed to by the Parties.
  - ii. The Wholesale Roaming Customer shall provide its updated cell site information to the applicable Carrier Relations prime at the Company, including the following information as applicable (this package of information is referred to as the “Cell Site Information Change Request”):
    - A. The proposed cell site information changes, including the following as applicable for each cell site for which a change is requested: 1) the province; 2) latitude and longitude of cell site location; 3) E-UTRAN Cell Identifier (“ECI”); 4) TAC list and map; and 5) other relevant parameters;
    - B. The required cell site information must be provided in both a spreadsheet and a GIS file in MapInfo format, or such other format as specified by the Company, with all cell site changes clearly indicated; and
    - C. The date on which the Wholesale Roaming Customer will implement the proposed cell site changes.
  - iii. Upon receipt of a Cell Site Information Change Request, the Company shall, without undue delay, review the information provided by the Wholesale Roaming Customer for completeness and provide the Wholesale Roaming Customer with either a confirmation that the Company has received the complete information required to provide its response or with a request for omitted information.

ITEM  
233

**GSM-based Roaming Service - Continued**

N

ITEM  
233.3

**Conditions of Service – Continued**

- iv. If the Cell Site Information Change Request contains the required information, then the Company will determine whether such request necessitates a change on the TELUS network, and the Company will advise the Wholesale Roaming Customer whether such change must occur within a TELUS maintenance window. The Company will make commercially reasonable efforts to provide the Wholesale Roaming Customer with an estimate within seven (7) business days of confirming receipt of complete information within the Cell Site Information Change Request, of the likely timeframe in which it will complete the associated adjustments required on the TELUS network
- v. The Company shall undertake commercially reasonable efforts to make the necessary adjustments on its network associated with the Cell Site Information Change Request within thirty (30) days of confirming the receipt of complete information or such other date as agreed upon by the Parties, subject to any unforeseen technical issues that may arise prior to completion or any delays caused by the Wholesale Roaming Customer.
- vi. Following the completion by the Company of a Cell Site Information Change Request, the Wholesale Roaming Customer shall be responsible for testing the resulting functionality of the Seamless Roaming Service at its impacted cell site locations, as required.
- vii. The Wholesale Roaming Customer may request updated cell site information from the Company at any time. Such a request must be made in writing to the applicable Carrier Relations prime at the Company. The Company shall provide such information to the Wholesale Roaming Customer within seven (7) days of receiving such request. The Company will clearly indicate any changes to cell site information from the previous iteration.

ITEM

233

**GSM-based Roaming Service - Continued**

N

ITEM

233.3

**Conditions of Service – Continued**

- h. Resolving Impediments to Providing the Seamless Roaming Service:
  - i. The Company will advise the Wholesale Roaming Customer whether implementation of the Seamless Roaming Service (or changes to the Seamless Roaming Service, as the case may be, such as a Seamless Roaming Boundary Change), is feasible, given the information provided by the Wholesale Roaming Customer. If it is determined that it is not feasible to implement the Seamless Roaming Service (or the requested changes to the Seamless Roaming Service, as the case may be), the Company will advise the Wholesale Roaming Customer of the basis for its determination, the Parties will work together in good faith to identify how any impediments to implementing the Seamless Roaming Service (or the requested changes to the Seamless Roaming Service, as the case may be), can be resolved in accordance with the terms of this Tariff. If a dispute between the Parties regarding the feasibility of implementing seamless roaming (or the requested changes to the Seamless Roaming Service, as the case may be), cannot be resolved, the Parties may seek to resolve the relevant issue using other means, including the CRTC's staff-assisted dispute resolution mechanisms.

ITEM  
233

**GSM-based Roaming Service - Continued**

ITEM  
233.3

**Conditions of Service - Continued**

- 9. Management of Modifications to the Roaming Services, Facilities and Certain Procedural Matters M
  - a. Changes to Roaming Services. The VPMN Operator may, at its sole discretion, from time to time make changes to the Roaming Service by adding, removing, replacing or modifying the network used for the Roaming Service (a "Change"), provided that the same additions, deletions, replacements and/or modifications, as the case may be, shall apply to equivalent services provided by the VPMN Operator to its own customers, and such changes affect all end-users in a similar manner, irrespective of their wireless carrier, to prevent unjust discrimination. For greater certainty, the Wholesale Roaming Customer acknowledges and agrees that a Change may impact wireless carriers differently for technology or engineering reasons including differences in equipment vendors, network design, generation of wireless technology, locations in which the Services are accessed, or approach to the implementation of Seamless Roaming. The VPMN Operator shall use all commercially reasonable efforts to provide the Wholesale Roaming Customer with ninety (90) days written notice prior to implementing a Change. Following notice of a Change served by the VPMN Operator, both Parties shall discuss the impact of any such Change for Roaming Customers and the necessary actions to be performed, including without limitation, in relation to: C
    - i. network and billing test procedures as set out in the Technical Specifications;
    - ii. administrative activities; and
    - iii. the targeted starting date of the applicable Change. M
  - b. For greater certainty, and without limiting other obligations which may need to be assumed by the Wholesale Roaming Customer as a result of the VPMN Operator implementing a Change, the Wholesale Roaming Customer shall be responsible for all of its own costs and expenses associated with accessing the VPMN in order to make use of or benefit from the Roaming Service and the Seamless Roaming Service. In addition, the VPMN Operator shall not be responsible to compensate the Wholesale Roaming Customer for any of the costs and expenses that the Wholesale Roaming Customer may incur as a result of the Wholesale Roaming Customer evaluating the impact and implications of a Change proposed by the VPMN Operator. C
  - c. Subject to Item 233.3.9.a above, nothing in this tariff shall be construed or interpreted as:
    - i. limiting the VPMN Operator's right to make changes or modifications to the Roaming Service and the Seamless Roaming Service provided that such changes or modifications comply with GSMA standards, specifications and protocols; and
    - ii. representing that the Roaming Service and the Seamless Roaming Service as offered by the VPMN Operator will remain the same during the Term. The Parties hereby expressly acknowledge and agree that the VPMN Operator shall have full and complete discretion as to the management of its Network, and with respect to resulting changes or modifications to the Roaming Service and the Seamless Roaming Service. |

M – Moved from Page 233-6

ITEM  
233

**GSM-based Roaming Service - Continued**

ITEM  
233.3

**Conditions of Service - Continued**

- 10. Charging, Billing and Accounting M
  - a. Charging and Rates: When a Wholesale Roaming End-Customer or an end customer of the reseller or MVNO customers of the Wholesale Roaming End-Customer uses the tariffed Services of the VPMN Operator (voice calls within Canada, SMS and data), the Wholesale Roaming Customer shall be responsible for payment of charges for the Services in accordance with the rates specified within this tariff. M,C  
|  
M  
|  
|
  - b. Implementation of Billable Records: The Parties shall implement the exchange of TAP via a Data Clearing House (DCH) in accordance with the GSMA PRDs. Further details are available in the TELUS AA.13 (Common Annex) and the RAEX OpData. |  
M,C  
|
  - c. Billing and Accounting: The Parties shall implement billing and accounting according to the GSM Association Permanent Reference Documents as amended from time to time. M  
|  
|
  - d. Settlement Procedure: The procedure for settlement of amounts between the parties is set forth in the TELUS AA.13 (Common Annex) and the RAEX OpData. The Parties may amend the procedure for settlement upon their mutual written agreement. C
- 11. Customer Care
 

Roaming End-Customers shall contact the customer care services of the Wholesale Roaming Customer while roaming. Roaming End-Customers shall not contact the VPMN Operator. The Wholesale Roaming Customer's customer care services will be the sole point of contact for the Roaming Customers of the Wholesale Roaming Customer. The Wholesale Roaming Customer may then contact the VPMN Operator for troubleshooting as needed. The contact details for the Wholesale Roaming Customer are detailed in the TELUS Domestic IR.21. |  
|
- 12. For future use.

M – Moved from Page 233-7



ITEM  
233**GSM-based Roaming Service - Continued**ITEM  
233.3**Conditions of Service - Continued**

13. The Wholesale Roaming Customer must ensure that its services, facilities or equipment will not interfere with, impair or cause damage to the Company's services, facilities or equipment; or endanger the safety of Company employees or the public. In the event of any failure to comply with this condition, the Company will notify the Wholesale Roaming Customer in writing that temporary discontinuance of the use of the Company's services, facilities or equipment may be required. When prior notice is not practicable, the Company may temporarily discontinue, without notifying the Wholesale Roaming Customer, the provision of a service, facility or equipment if such action is reasonable under the circumstances. In cases of such temporary discontinuance, the Wholesale Roaming Customer will be notified verbally (and in writing as soon as possible after the temporary discontinuance) and afforded the opportunity to correct the situation.

14. For planning purposes only, the Wholesale Roaming Customer shall furnish TELUS with best effort roaming volume forecasts for the following year of voice minutes, Megabytes data usage, SMS count usage and unique roamers count two weeks after the request of roaming services and at the beginning of each calendar year. However, the Wholesale Roaming Customer shall not be obligated to meet their forecasts. Such forecasts as provided by the Wholesale Roaming Customer shall be kept confidential.

15. In Telecom Regulatory Policy CRTC 2015-177, paragraph 65, the Commission stated that "With respect to the availability of economically feasible and practical substitutes, the Commission notes that wholesale Roaming Service enables wireless carriers to

- a. provide coverage in areas where they do not have spectrum, and
- b. fill in coverage gaps in areas where they do have spectrum, but have not deployed network facilities."

The Roaming Customer must take all reasonable steps to ensure that their subscribers configure their devices to register on the HPMN in priority to the VPMN where roaming is permitted, to minimize in-footprint roaming and traffic offloading.

ITEM  
233**GSM-based Roaming Service - Continued**ITEM  
233.3**Conditions of Service - Continued**

16. Consistent with Item 233.3.15, the Wholesale Roaming Customer shall strive to avoid any capacity offloading in areas where both the Wholesale Roaming Customer and the VPMN Operator have networks, especially in the densely populated urban areas. C

The Wholesale Roaming Customer will take all reasonable steps to ensure that its handsets preferentially seek out its HPMN and do not seek out the VPMN when the Wholesale Roaming Customer's HPMN is successfully identified with a signal strength that can provide service. |

The Parties' engineering groups will share such data and other information reasonably necessary or convenient to identify occurrences of capacity offload by specific area. |

If the Wholesale Roaming Customer repeatedly offloads capacity in a particular area where its HPMN has coverage then the Wholesale Roaming Customer shall take reasonable steps to prevent any further reoccurrences in that area, such as by the installation of additional capacity in that area. |

If it is technically more practicable, the VPMN Operator may request that the Wholesale Roaming Customer take actions to suspend the voice, SMS and data services to the Roaming End-Customers in the area where the offloading occurred.

17. The Company shall only respond to trouble reports from the Wholesale Roaming Customer, or the Wholesale Roaming Customer's duly authorized representatives, after the Wholesale Roaming Customer has first determined the trouble does not originate in the Wholesale Roaming Customer's system or network service. The Wholesale Roaming Customer shall instruct its end-customers to report all cases of trouble to the Wholesale Roaming Customer.

ITEM

233

**GSM-based Roaming Service - Continued**

ITEM

233.3

**Conditions of Service - Continued**

18. Devices:

a. The Wholesale Roaming Customer shall not knowingly sell or otherwise provide Devices used for roaming on the VPMN, including all modifications thereto, unless such Devices:

- i. are capable of operating on the VPMN;
- ii. initially have and continue to have PTCRB approval; and
- iii. comply with all applicable laws, rules, and regulations, including the rules and regulations of Industry Canada.

b. In the event that the VPMN Operator believes, acting reasonably, that any Devices used or to be used for roaming on the VPMN adversely affect or could adversely affect the VPMN or other customers of the VPMN Operator or the VPMN Operator otherwise has concerns with regard to such Devices, then the VPMN Operator may require, upon written notice to the Wholesale Roaming Customer, that such Devices be tested prior to permitting their use or continued use, as the case may be, on the VPMN. For greater certainty, this Section shall not apply to Devices similar in nature to the Devices in use by the VPMN Operator's subscribers or otherwise made available by other operators and members of the GSM Association. The Parties hereby agree that the general intent of this Section is to address the use by Roaming Customers of complex Devices, or Devices that have a very distinct purpose from any of the Devices offered by the VPMN Operator to its own subscribers.

c. All Devices of the Roaming Customers which are to be used for Roaming on the VPMN must be able to operate on the Wholesale Roaming Customer's PMN using the radio spectrum frequencies used by the Wholesale Roaming Customer's PMN in the respective exchanges in which the Roaming Customers' mobile phone numbers are located.

d. The Wholesale Roaming Customer shall ensure that the Devices of Roaming End-Customers are able to receive and comply with applicable codes (for example: 3GPP TS 51.010-1 V5.5.0 (2003-09) standard Cause Code 13: "Roaming Not Allowed in this Location Area") from the VPMN Operator in order to deny access of any such Device in a particular geographic area and in order to prohibit such Device from reattempting registration on the VPMN Operator's PMN until it has moved into another geographic area.

e. Equipment Identity Register: The Wholesale Roaming Customer acknowledges that the Company has an equipment identity register (EIR) program. If any Device belonging to a Roaming End-Customer is identified as being stolen or unauthorized equipment that is registered in the Company's EIR or in another EIR registry program in which the Company participates, then the Company shall be entitled to prevent usage of such equipment on the Company's VPMN. In the event the Company notifies the Wholesale Roaming Customer of any Devices that have been used for Roaming which the Company believes have been stolen or are unauthorized, then the Wholesale Roaming Customer shall use commercially reasonable efforts to investigate the registration of the Device and, where appropriate, suspend such Device.

ITEM  
 233 **GSM-based Roaming Service - Continued**

ITEM  
 233.3 **Conditions of Service - Continued**

- 19. For future use. C
  
- 20. Suspension or Termination of Roaming Services and Other Remedies: N
  - a. The VPMN Operator has the right at any time upon thirty (30) days written notice, without liability, to suspend or terminate access to any or all of the Roaming Services made available hereunder for the Wholesale Roaming Customer in the event that
    - i. The Wholesale Roaming Customer is in default of the payment of any undisputed amount due to the VPMN Operator under this Tariff Item.
      - A. The VPMN Operator may not suspend or terminate Roaming Service where
        - (1) the Wholesale Roaming Customer is prepared to enter into and honour a reasonable deferred payment agreement; or
        - (2) there is a dispute regarding the basis of the proposed suspension or termination, provided payment is being made for undisputed outstanding amounts and the VPMN Operator does not have reasonable grounds for believing that the purpose of that dispute is to evade or delay payment.
      - ii. the Wholesale Roaming Customer has failed to comply with the deposit provisions as set out in Item 112 of the Company’s General Terms of Service; or
      - iii. the network access provided under this Tariff is used in a manner other than that permitted by the definition of the Roaming Service.
  - b. Notwithstanding anything in this Tariff Item to the contrary, the VPMN Operator may, without liability, suspend or terminate all or any of its Roaming Services to specific Roaming End-Customer(s) for technical reasons where it would suspend or terminate those Roaming Services to its own subscribers.
  - c. For greater certainty, the phrase “reasonable advance notice” as used in this Item 233.3.20 will generally be at least thirty (30) days. Prior to suspension or termination, the VPMN Operator must provide Wholesale Roaming Customer with reasonable advance notice, stating
    - i. the reason for the proposed suspension or termination and the amount owing, if any;
    - ii. the scheduled suspension or termination date; and
    - iii. subject to contrary provisions of this Tariff or as approved by the CRTC, that a reasonable deferred payment agreement can be entered into (where the reason for suspension or termination is failure to pay).

ITEM  
233 **GSM-based Roaming Service - Continued**

ITEM  
233.3 **Conditions of Service - Continued**

- d. Where repeated efforts to contact the Wholesale Roaming Customer have failed, the VPMN Operator must, at a minimum, deliver the notice referred to in Item 233.3.20.c to the billing address prior to delivering the notice referred to in Item 233.3.20.e.
- e. In addition to the notice required by Item 233.3.20.c the VPMN Operator must, at least 24 hours prior to suspension or termination, advise the Wholesale Roaming Customer or another responsible person that suspension or termination is imminent, except where
  - i. repeated efforts to so advise have failed;
  - ii. immediate action must be taken to protect the VPMN Operator from network harm resulting from facilities controlled or provided by the Wholesale Roaming Customer; or
  - iii. the suspension or termination occurs by virtue of a failure to provide payment when requested by the VPMN Operator for non-recurring charges that have accrued, by providing notice to the Wholesale Roaming Customer with details regarding the services and charges in question, prior to the normal billing date.
- f. Except with the Wholesale Roaming Customer's consent or in exceptional circumstances, suspension or termination may occur only on business days between 8 a.m. and 5 p.m., local time, unless the business day precedes a non-business day, in which case disconnection may not occur after 12 noon local time.
- g. Suspension or termination does not affect the Wholesale Roaming Customer's obligation to pay any amount owed to the VPMN Operator.
- h. In the case of Roaming Services that have been suspended, the VPMN Operator must make a daily pro rata allowance based on the monthly charge for such services.
- i. The VPMN Operator must restore Roaming Service, without undue delay, where the grounds for suspension or termination no longer exist, or a payment or deferred payment agreement has been negotiated. Service charges may apply.
- j. Where it becomes apparent that suspension or termination occurred in error or was otherwise improper, the VPMN Operator must restore Roaming Service the next day, at the latest, unless exceptional circumstances do not permit this, and no reconnection charges shall be levied.
- k. The VPMN Operator must follow an incremental approach to suspending and terminating the Roaming Service provided to the Wholesale Roaming Customer, with reasonable advance notice.

---

ITEM

233

**GSM-based Roaming Service - Continued**

ITEM

233.3

**Conditions of Service - Continued**

21. For future use.

22. For future use.

23. For future use.

24. For future use.

M,D

|  
|  
|  
|  
|  
|  
|  
|  
|

M – Moved from Pages 233-12 and 233-14

ITEM  
 233 **GSM-based Roaming Service - Continued**

ITEM  
 233.3 **Conditions of Service - Continued**

25. In addition to the provisions provided for in General Tariff (CRTC 21461) Item 119.0 - *Confidentiality of Customer Records*, neither Company nor Wholesale Roaming Customer shall disclose to any third party during the service requisition or subscription period of this Tariff Item, and for three (3) years following the termination or expiration of the subscription in question, any confidential information as follows: M |
- a. For the purposes of Tariff Item 233.3.25 and subject to Item 233.3.25.b, confidential information means any data or information, tangible or intangible, that is of value to the disclosing party and is not generally known in the industry or to competitors of the disclosing party. Confidential information shall include: |
    - i. tangible information, marked by the disclosing party with the word “Confidential” or otherwise identified by an appropriate stamp or legend indicating its confidential nature; |
    - ii. Confidential information disclosed orally or visually and identified by the disclosing party as confidential when disclosed, and confirmed by the disclosing party in a written notice within thirty (30) days following disclosure, which notice shall include markings similar to those outlined in Item 233.3.25.a.i above; and |
    - iii. all other information that, notwithstanding the absence of markings or designations, would be understood by the parties, exercising reasonable business judgment, to be confidential. |  - b. Confidential information shall not include information that is: |
    - i. previously known to a party free of any obligation to keep it confidential; |
    - ii. or has been or is subsequently made public by a party that owns that information or by a third party who is under no obligation of confidence to any party; |
    - iii. independently developed by a party without reference to or knowledge of the other party’s confidential information; or, |
    - iv. disclosed with the prior approval of the owner of the information. |

M – Moved from Page 233-16





ITEM

233

**GSM-based Roaming Service - Continued**

ITEM

233.3

**Conditions of Service - Continued**

h. For future use.

i. In the event that the Wholesale Roaming Customer is served with court orders or warrants in connection with interception of private communications on the VPMN, the Wholesale Roaming Customer may advise the concerned governmental authority to issue the court order or warrant in the name of the VPMN Operator. C

j. In relation to lawful intercept, the VPMN Operator will be responsible for addressing any interception of private communications court orders and warrants relating to the VPMN by any governmental authority. |

k. As per paragraph 148 of Telecom Regulatory Policy CRTC 2015-177, the customer of GSM-based Roaming Service shall not be prevented from disclosing the identity of their wholesale roaming providers to their current or potential customers.

ITEM  
233**GSM-based Roaming Service - Continued**ITEM  
233.4**Rates**

1. The Wholesale Roaming Customer shall pay the maximum rates and charges as shown on the following table for GSM-based Roaming Service, and such rates and charges are in addition to other rates and charges for other services that may be applicable and negotiated under an agreement.

C,F

C

Service Item	Rate
Voice per minute	\$0.015735
SMS per text	\$0.001796
Data per MB	\$0.014071