

**TUSASS A/S
(Referred to as TUSASS)
Wholesale Data Services**

**Annex D7
Mobile Access Service ("MA")
Technical Description**

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Abbreviations

| Abbreviation | Description |
|--------------|-----------------------------|
| BSA | Bit Stream Access |
| C-VLAN | Customer VLAN |
| DSL | Digital Subscriber Line |
| DSLAM | DSL Access Multiplexer |
| CPE | Customer Premises Equipment |
| L2VPN | Layer 2 VPN |
| MA | Mobile Access |
| NTP | Network Termination Point |
| POP | Point of Presence |
| QoS | Quality of Service |
| S-VLAN | Service (Provider) VLAN |
| TPID | Tag Protocol Identifier |
| VLAN | Virtual Local Area Network |
| VPN | Virtual Private Network |

1. Introduction

This Annex provides the technical description of the Mobile Access("MA") Service.

The Service Description and processes to support the implementation of this Service are located in the Service Description (Annex C7 of this Agreement) and the Operations & Maintenance Manual (Annex E7 of this Agreement).

All equipment and plant that is deployed as part of the implementation of this Service shall comply with relevant national and international standards.

All installation procedures used must comply with standard industry practices and national and international standards.

2. General Definitions

The TUSASS wholesale portfolio consists of the following services:

- Bitstream Access Service;
- Mobile Access Service;
- Co-location Service;
- Connect IP Service;
- Global IP Service;
- Local IP Service, and
- National IP Service.
- SIP-Trunk Service

A service description for each of the TUSASS wholesale Services is included in Annex C to this agreement. A technical description for each of these Services is included in Annex D to this Agreement.

The service description and technical description for each of the TUSASS Services describes how each of the Services connects to allow the Service Taker to provide its end to end service to its customer.

3. Service Overview

The MA Service enables a Service Taker to design, create and operate an IP service between the Service Taker's core network and its End-Customers. The service(s) the Service Taker chooses to provide is not dependant on TUSASS equivalent broadband portfolio in other aspects than available line speed.

The MA Service is an optional part of the complete wholesale portfolio which enables a Service Taker to provide IP based services such as Internet access. The MA Service does not in itself provide any IP or Internet access services – additional parts of the wholesale portfolio are required.

The MA Service is a virtual connectivity service providing many-to-one connections between an End-Customer CPE's and an APN presented as a logical sub-interface on a Service Taker's Connect IP Service.

Effectively the setup is an IP subnet with the APN representing the Gateway.

4. Transport

Transportation of MA traffic is implemented as L3VPNs. To preserve end-customer isolation across disparate access network branches, traffic entering the L3VPN are separated through Client Isolation.

5. Interfaces

The L3VPN is presented at a virtual interface at the Service Takers Local IP Service in Nuuk.

- a C-VLAN tag identifying the APN
- a S-VLAN tag identifying the Service Provider.

6. Access control

The MA CPE's will be assigned an IP address from the Service Takers pool. The address will be made available to the Service Takers Radius server through the APN Gateway's Radius Client functionality using the EAP-SIM protocol (RFC4186)

7. IP addressing

The Service taker must provide one or two IP address spaces for each Connect IP location for assignment to the End-Customer's CPEs (Two address spaces are required for Mobile Core network redundancy).

8. Walled Garden

The Service taker must specify an IP address for walled garden access. The walled garden access may not be used to provide subscription less services other than access to a self-sign-up portal or contact information

9. Policy control

The Service Providers network does not enforce policies other than maximum down and upload speeds.