

GSMA Service VoLTE Showcase #8 - Interoperability Testing

19th April 2023

Challenges identified in the Network and Roaming Working Group

| Issues | Impact |
|--|--|
| MNOs unable to sunset 2G/3G networks | 5G roll out is delayed as MNOs unable to use 2G/3G spectrum |
| OEMs block unknown VoLTE networks | Operational costs of maintaining old networks |
| OEMs block VoLTE roaming | Regional device blocking |
| Variations in network settings despite GSMA Network Settings Exchange | Testing logistics - shipping of test devices expensive and impractical at volume |
| Lack of industry VoLTE interoperability experience | Large OEMs will not provide the time or resource to smaller MNOs |
| ~ 500 LTE networks yet to launch VoLTE increases roaming testing exponentially | Scale prevents direct testing ~2000 VoLTE capable devices ~350 new ones per year |

NG Testing PRD & TSG Endorsement for OMDs

GSMA Networks Group agreed the VoLTE test methodology

We have adopted the GSMA NG defined VoLTE testing methodology, documented in IR.25 PRD, for GSMA Interoperability Testing

IR.25 documents the specification of the end-to-end functional capability tests for VoLTE roaming

Recent changes enhance emergency call testing in line with VRE TF recommendations

GSMA Terminal Steering Group supports the VoLTE tests

Both OEM and operator members in TSG have endorsed the tests through the creation of TS.59 PRD (Device Type Naming Requirements)

An OMD no longer blocks an accredited network using a known / supported IMS profile

TS.59 is a reference document to align all device types in markets around the world to enable a common baseline, it references SIM locked, OEM locked, unlocked, custom and open market device types

NRG recommendation: GSMA IoP VoLTE testing



MNO / MVNO

Network Test

- Network examined via test equipment acting as a reference device
- Test uses the IMS configuration settings of the network



MNO / MVNO

Network Roaming Test

- Testing of two S8HR VoLTE roaming networks via test equipment acting as a reference device in each network
- The test uses the respective IMS configuration settings of each network



Manufacturer / OEM

Device Test

- Testing of a device against test equipment (i.e. a simulated network) of an IMS-based service
- The device is tested against the recommended IR.25 device profiles to generically test its IMS service capability



MNO / MVNO and OEM

Network & Device Test

- Real device tested against already tested network
- The network is an emulation of the real network based on message traces taken during the network only test
- The test uses the IMS configuration settings of the MNO network

Evolution of device testing



Device Test

- Testing of a device against test equipment (i.e. a simulated network) of an IMS-based service
- The device is tested against the recommended IR.25 device profiles to generically test its IMS service capability



Device Test (Self-Accreditation)

- The GSMA also permits an OEM to carry out self-accreditation in their own labs to prove compliance of its devices for IMS-based services against P#6.
- Self accredited devices are requested to unlock VoLTE for all accredited networks using P#4 or P#6 as recommended in GSMA PRD TS.59.



Network and Device Combination Test

- Real device tested against already tested network
- The network is an emulation of the real network based on message traces taken during the network only test
- The test uses the IMS configuration settings of the MNO network

Companies involved in VoLTE IoP Testing

| MNOs/ MVNOs | OEMs |
|-----------------|---------|
| Altan Redes | Google |
| Andorra Telecom | HMD |
| APUA | Huawei |
| ASTCA | OPPO |
| Evolve Cellular | Samsung |
| Gibtel | Sony |
| LTC Mobile | Unisoc |
| Manx Telecom | |
| Post Luxembourg | |
| Truphone | |
| Union Telephone | |

[VoLTE Test Results](#)

GSMA Network Settings Exchange - VoLTE badge

One location, where MNOs can share their latest IMS network settings with OEMs, so services run reliably across all devices, worldwide.



90%

of the world's devices reached



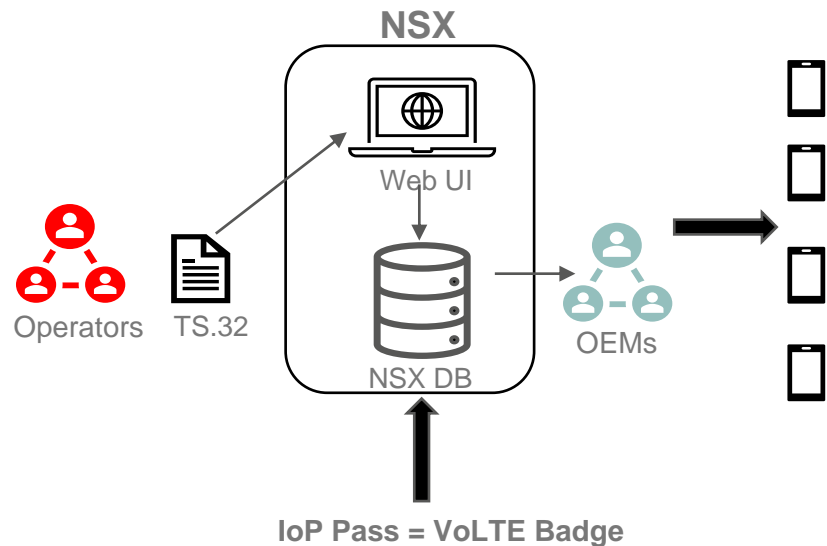
610+

OEMs participating



1

location to access the world's OEMs



Our Goal

Build confidence and trust between MNOs + OEMs to get away from 1:1 testing everywhere

MNO Strategy

- Focus on P#4 or P#6 profiles
- Both support SMSoIP and differ in that the latter also includes VoWiFi
- MNO planning VoLTE starts with P#4 and can migrate to P#6
- Recognise IoP tests attract smaller MNOs and MVNOs
- Continued engagement with OEMs to try to speed up device unlocking for accredited networks

OEM Strategy

- Self-Certification of Devices
 - Aimed at “bigger” manufacturers
 - Devices tested in-house and traces provided to GSMA
 - A certificate is then issued
- Promote device test to smaller manufacturers
- Encourage testing in accredited networks (own QA test, lend devices or unlock in-hand devices)
- Request OEMs unlock IR.25 compliant networks (via NSX)
- Encourage all OEMs to adopt the similar non-certified carrier strategy as Apple

Thank you

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