



CapacityAdvisor™ DMTS-9200 VoLTE Feature Pack

The VoLTE Feature Pack for the DMTS-9200 capacity test system lets network equipment manufacturers and network operators test their VoLTE implementations under load. Key aspects of the VoLTE test capability include: support for hundreds of GBR dedicated bearers per sector, UE connectivity to the IMS network using SIP, parallel mobile Internet activity per UE, and support for customer-specified P-headers.

The end-to-end VoLTE test capability of the DMTS-9200 shows the capacity implications of supporting VoLTE for all aspects of the network, from the RF scheduling and dedicated bearers all the way through to SIP stack performance in the IMS.

The high-performance DMTS-9200 platform evaluates changes in R-factor MOS measurements with increasing load for hundreds of parallel VoLTE sessions on a single sector and in the presence of parallel Internet traffic. The effect of VoLTE traffic on Internet traffic figures-of-merit such as web page download times can also be measured for varying levels of VoLTE load.

The best-in-class Viavi Solutions Workbench is used to configure the VoLTE traffic profiles, leveraging its ability to use statistical probabilities to create realistic call-arrival rates and hold-time distributions. It also tests error paths such as user busy and call abandonment.

Key Features

- VoLTE traffic for thousands of subscribers
- UEs interact with IMS Proxy-CSCF
- End-to-end SIP implementation
- VoLTE originations and terminations
- RTP for media and control
- AMR and AMR-WB codec support
- GUI-driven development with Viavi Workbench
- Simultaneous IPv4 and IPv6 in a test case
- User-selectable voice data files or random data

Applications

- Testing guaranteed bit rate bearer performance
- Testing VoLTE capacity
- Characterizing VoLTE impact on mobile internet performance
- Determining benefits of TTI bundling on VoLTE performance for degraded SINR/BLER
- Measuring impact of high VoLTE subscriber count on R-factor mean opinion score (MOS)
- Determining impact of parallel internet traffic on R-factor

VoLTE Key Performance Indicators

Session activation attempts (occasions)
Session activation success (occasions)
Session activation rejections (occasions)
Session deactivation attempts (occasions)
Session deactivation success (occasions)
Session deactivation events by network (occasions)
Number of registration attempted (messages)
Number of registration succeeded (messages)
Number of registration rejected (messages)
Number of reregistration notifications received (messages)
Number of deregistration request sent (messages)
Number of outgoing calls attempted (messages)
Number of outgoing calls succeeded (messages)
Number of outgoing calls rejected (messages)
Number of incoming calls received (messages)
Number of incoming calls established (messages)
Number of incoming calls rejected (messages)
Caller call setup time (milliseconds)
Callee call setup time (milliseconds)
Number of call hangup requests attempted (messages)
Number of call hangup requests received (messages)
Number of call hangup requests completed (messages)
Number of call hangup requests failed (messages)
Number of bits sent using AMR codec (messages)
Number of bits sent using AMR-WB codec (messages)
Number of outgoing calls dropped due to errors (messages)
Number of incoming calls dropped due to errors (messages)
Elapsed time for caller to receive first RTP packet (msec)
Elapsed time for callee to receive first RTP packet (msec)

VoLTE RTP Key Performance Indicators

Number of RTP packets sent (packets)
Total number of bits of complete RTP packets sent (bits)
Number of RTP packets received (packets)
Total number of bits of complete RTP packets received (bits)
RTP packet delay (milliseconds)
RTP packet loss (packets)
RTP packet jitter (milliseconds)
Number of out of sequence RTP packets received (packets)
Number of duplicate RTP packets received (packets)

VoLTE SIP Key Performance Indicators

Registers sent (messages)
Register 200 responses received (messages)
Register error responses received (messages)
Subscribes sent (messages)
Subscribes 2xx responses sent (messages)
Subscribes error responses sent (messages)
Notifys sent (messages)
Notifys 2xx responses sent (messages)
Notifys error responses sent (messages)
Invites sent (messages)

VoLTE SIP Key Performance Indicators Continued

Invite 100 responses sent (messages)
Invite 180 responses sent (messages)
Invite 183 responses sent (messages)
Invite 2xx responses sent (messages)
Invite error responses sent (messages)
Acks sent (messages)
Byes sent (messages)
Bye 2xx responses sent (messages)
Bye error responses sent (messages)
Updates sent (messages)
Updates received (messages)
Update 2xx responses sent (messages)
Update error responses sent (messages)
Cancel sent (messages)
Cancel 2xx responses sent (messages)
Cancel error responses sent (messages)
Pracks sent (messages)
Prack 2xx responses sent (messages)
Prack error responses sent (messages)
Registers resent (messages)
Subscribes resent (messages)
Notifys resent (messages)
Invites resent (messages)
Acks resent (messages)
Byes resent (messages)
Updates resent (messages)
Cancel resent (messages)
Pracks resent (messages)
Registers received (messages)
Subscribes received (messages)
Subscribe 2xx responses received (messages)
Subscribe error responses received (messages)
Notifys received (messages)
Notify 2xx responses received (messages)
Notify error responses received (messages)
Invites received (messages)
Invite 100 responses received (messages)
Invite 180 responses received (messages)
Invite 183 responses received (messages)
Invite 2xx responses received (messages)
Invite error responses received (messages)
Acks received (messages)
Byes received (messages)
Bye 2xx responses received (messages)
Bye error responses received (messages)
Cancel received (messages)
Cancel 2xx responses received (messages)
Cancel error responses received (messages)
Pracks received (messages)
Prack 2xx responses received (messages)
Prack error responses received (messages)



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