

Nemo Tools ETSI Compliance Standards

March 2018

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1 Introduction

This document describes the compliance of Nemo measurement tools with the requirements specified in the ETSI TS 102 250 technical specifications. Technical Specification (TS) has been produced by ETSI Technical Committee Speech Processing, Transmission and Quality Aspects (STQ).

Copies of the ETSI TS 102 250 technical specification document can be downloaded from <http://www.etsi.org>.

2 Quality of Services and Protocols

2.1 Service independent QoS criteria

ETSI TS 102 250-1 V2.2.1.

Section	Clause	Compliance	Note
8	Service Independent QoS Criteria	Compliant	
8.1	Unavailability	Compliant	
8.2	Non-Accessibility	Compliant	
8.3	Time parameters	Compliant	
8.4	Transfer Time	Compliant	
8.5	Content Integrity	Compliant	

2.2 Service dependent QoS criteria

ETSI TS 102 250-1 V2.2.1.

Section	Clause	Compliance	Note
9	Service dependent QoS Criteria	Compliant	
9.1	Rate Parameters	Compliant	
9.2	Ratio Parameters	Compliant	
9.3	Service Non-Accessibility	Compliant	
9.4	Setup Time	Compliant	
9.5	Failure Ratio	Compliant	
9.6	Cut-off ratio	Compliant	
9.7	End-to-end Failure Ratio	Compliant	
9.8	End-to-end Delivery Time	Compliant	PP tool required.

2.3 Service independent QoS parameters

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
5	Service Independent QoS Parameters	Compliant	
5.1	Radio Network Unavailability [%]	Compliant	
5.2	Network Non-Accessibility [%]	Compliant	With PP tool.
5.3	Attach Failure Ratio [%]	Compliant	
5.4	Attach Setup Time [s]	Compliant	

5.5	PDP Context Activation Failure Ratio [%]	Compliant	With PP tool.
5.6	PDP Context Activation Time [s]	Compliant	
5.7	PDP Context Cut-off Ratio [%]	Compliant	
5.8	Data Call Access Failure Ratio [%]	Compliant	With PP tool.
5.9	Data Call Access Time [s]	Compliant	
5.10	DNS Host Name Resolution Failure Ratio [%]	Compliant	With PP tool.
5.11	DNS Host Name Resolution Time [s]	Compliant	

2.4 Direct services QoS parameters

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6	Direct Services QoS Parameters	Partly Compliant	Mobile broadcast, web radio and WLAN service provisioning with HTTP based authentication are not implemented. Push to Talk over Cellular, streaming video, telephony, video telephony and Web browsing partly compliant.

2.4.1 File transfer (FTP)

ETSI TS 102 250-2 V2.5.1.

Section	Clause	Compliance	Note
6.1	File Transfer (FTP)	Compliant	
6.1.1	FTP {Download Upload} Service Non-Accessibility [%]	Compliant	Method A and B
6.1.2	FTP {Download Upload} Setup Time [s]	Compliant	Method A and B
6.1.3	FTP {Download Upload} IP-Service Access Failure Ratio [%]	Compliant	Method A and B
6.1.4	FTP {Download Upload} IP-Service Setup Time [s]	Compliant	Method A and B

6.1.5	FTP {Download Upload} Session Failure Ratio [%]	Compliant	
6.1.6	FTP {Download Upload} Session Time [s]	Compliant	
6.1.7	FTP {Download Upload} Mean Data Rate [kbit/s]	Compliant	
6.1.8	FTP {Download Upload} Data Transfer Cut-off Ratio [%]	Compliant	Method A and B

2.4.2 Mobile broadcast

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.2	Mobile Broadcast	Not Compliant	Not implemented.

2.4.3 Ping

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.3	Ping	Compliant	
6.3.1	Ping Round Trip Time [ms]	Compliant	

2.4.4 Push-to-talk over cellular (PoC)

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.4	Push to Talk over Cellular (PoC)	Partly compliant	PTT call functionality implemented based on third party interface provided by Qualcomm (Qchat) and Kodiak InstaPoC™. Both interfaces provide information about the call state similar to CS calls and also PTT state (idle, receiving, transmitting and preparing to transmit). PTT registration trigger points do not exist.

6.4.3	PoC Registration Failure Ratio [%]	Not compliant	
6.4.4	PoC Registration Time [s]	Not compliant	
6.4.5	PoC Publish Failure Ratio [%]	Not compliant	
6.4.6	PoC Publish Time [s]	Not compliant	
6.4.7	PoC Registration Failure Ratio (long) [%]	Not compliant	
6.4.8	PoC Registration Time (long) [s]	Not compliant	
6.4.9	PoC Session Initiation Failure Ratio (on-demand) [%]	Partly compliant	With PP tool. Failure ratio calculations based on call attempts/connections.
6.4.10	PoC Session Initiation Time (on-demand) [s]	Compliant	
6.4.11	PoC Session Media Parameters Negotiation Failure Ratio (pre-established) [%]	Not compliant	
6.4.12	PoC Session Media Parameters Negotiation Time (pre-established) [s]	Not compliant	
6.4.13	PoC Session Initiation Failure Ratio (pre-established) [%]	Partly compliant	With PP tool. Failure ratio calculations based on call attempts and PTT state.
6.4.14	PoC Session Initiation Time (pre-established) [s]	Partly compliant	With PP tool. Based on PTT state (Transmitting-Preparing to transmit)
6.4.15	PoC Session Setup Failure Ratio (on-demand) [%]	Not compliant	
6.4.16	PoC Session Setup Failure Ratio (pre-established) [%]	Not compliant	
6.4.17	PoC Session Setup Time [s]	Partly compliant	Based on call events. Registration time not included.
6.4.18	PoC Push to Speak Failure Ratio [%]	Compliant	With PP tool
6.4.19	PoC Push to Speak Time [s]	Compliant	With PP tool calculating time between PTT call state.

6.4.20	PoC Session Leaving Failure Ratio (on-demand) [%]	Not compliant	
6.4.21	PoC Session Leaving Time (on-demand) [s]	Not compliant	
6.4.22	PoC Session Leaving Failure Ratio (pre-established) [%]	Not compliant	
6.4.23	PoC Session Leaving Time (pre-established) [s]	Not compliant	
6.4.24	PoC Deregistration Failure Ratio [%]	Not compliant	
6.4.25	PoC Deregistration Time [s]	Not compliant	
6.4.26	PoC Busy Floor Response Failure Ratio [%]	Not compliant	
6.4.27	PoC Busy Floor Response Time [s]	Not compliant	
6.4.28	PoC Talk Burst Request Failure Ratio [%]	Not compliant	
6.4.29	PoC Talk Burst Request Time [s]	Compliant	With PP tool. Time between preparing to transmit to transmitting.
6.4.30	PoC Talk Burst Cut-off Ratio [%]	Compliant	With PP tool.
6.4.31	PoC Talk Burst Packet Drop Ratio [%]	Not compliant	
6.4.32	PoC Voice Transmission Delay (first) [s]	Compliant	With PP tool.
6.4.33	PoC Speech Transmission Delay (others) [s]	Compliant	With PP tool.

2.4.5 Streaming video

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.5	Streaming Video	Partly compliant	6.5.7 Streaming audio quality and 6.5.9 Streaming Audio/Video De-Synchronization not supported. Additional KPIs with YouTube streaming provided which are not specified by ETSI TS but are included in the ETSI TR 101 578: Video duration, streamed duration, streaming buffering, playback position and video resolution.
6.5.4	Streaming Service Non-Accessibility [%]	Compliant	
6.5.5	Streaming Service Access Time [s]	Compliant	
6.5.6	Streaming Reproduction Cut-off Ratio [%]	Compliant	
6.5.7	Streaming Audio Quality	Not compliant	With HTTP/ TCP (YouTube) streaming audio quality can be presented with streaming status. During buffering state, audio quality MOS is 1 and during streaming (playing) 5 as there is no quality degradation with HTTP/TCP streaming
6.5.8	Streaming Video Quality	Compliant	Compliant with optional video streaming quality option with RTSP/UDP streaming. With HTTP/TCP (YouTube) streaming video quality can be presented with streaming status. During buffering state video quality MOS is 1 and during streaming (playing) 5 as there is no quality degradation with HTTP/TCP streaming.

6.5.9	Streaming Audio/Video De-Synchronization	Not compliant	
6.5.10	Streaming Reproduction Start Failure Ratio [%]	Compliant	
6.5.11	Streaming Reproduction Start Delay [s]	Compliant	
6.5.12	Streaming Teardown Failure Ratio [%]	Not compliant	
6.5.13	Streaming Teardown Time [s]	Not compliant	
6.5.14	Streaming Rebuffering Failure Ratio [%]	Compliant	With PP tool. Streaming status buffering change to stopped followed by drop data connection.
6.5.15	Streaming Rebuffering Time [s]	Compliant	

2.4.6 Telephony

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.6	Telephony	Compliant	Speech quality requires optional license.
6.6.1	Telephony Service Non-Accessibility [%]	Compliant	
6.6.2	Telephony Setup Time [s]	Compliant	
6.6.3	Telephony Speech Quality on Call Basis	Compliant	
6.6.4	Telephony Speech Quality on Sample Basis	Compliant	
6.6.5	Telephony Cut-off Call Ratio [%]	Compliant	With PP tool.
6.6.6	Telephony CLIP Failure Ratio [%]	Compliant	With PP tool.

2.4.6.1 Video telephony

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.7	Video Telephony	Partly compliant	Audio/Video information is not captured by the measurement system.
6.7.1	Network Accessibility/Availability	Compliant	
6.7.3	VT Service Non-Accessibility [%]	Compliant	
6.7.4	VT Service Access Time [s]	Compliant	

6.7.5	VT Audio/Video Setup Failure Ratio [%]	Compliant	With PP tool.
6.7.6	VT Audio/Video Setup Time [s]	Not compliant	
6.7.7	VT Cut-off Call Ratio [%]	Compliant	
6.7.8	VT Speech Quality on Call Basis	Compliant	
6.7.9	VT Speech Quality on Sample Basis	Compliant	
6.7.10	VT Video Quality	Compliant	Supported with Nokia 3G test terminals.
6.7.11	VT End-To-End Mean One-Way Transmission Time [s]	Not compliant	
6.7.12	VT Audio/Video Synchronization [%]	Not compliant	

2.4.7 Web browsing (HTTP)

ETSI TS 102 250-2 V2.5.1 (2016-06).

Section	Clause	Compliance	Note
6.8	Web Browsing (HTTP)	Compliant	
6.8.1	HTTP Service Non-Accessibility [%]		Replaced by clause 6.8.3
6.8.2	HTTP Setup Time [s]		Replaced by clause 6.8.4
6.8.3	HTTP IP-Service Access Failure Ratio [%]	Compliant	
6.8.4	HTTP IP-Service Setup Time [s]	Compliant	
6.8.5	HTTP Session Failure Ratio [%]	Compliant	
6.8.6	HTTP Session Time [s]	Compliant	
6.8.7	HTTP Mean Data Rate [kbit/s]	Compliant	
6.8.8	HTTP Data Transfer Cut-off Ratio [%]	Compliant	
6.8.9	HTTP Content Compression Ratio [%]	Not compliant	

2.4.8 Web radio

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.9	Web Radio	Not compliant	Not implemented.

2.4.9 WLAN service provisioning with HTTP-based authentication

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.10	WLAN service provisioning with HTTP based authentication	Not compliant	Not implemented.

2.4.10 Wireless application protocol (WAP)

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.11	Wireless Application Protocol (WAP)	Partly compliant	Access time parameters not supported.
6.11.1	WAP Activation Failure Ratio [%] (WAP 1.x only)	Compliant	With PP tool
6.11.2	WAP Activation Time [s] (WAP 1.x only)	Compliant	
6.11.3	WAP {Page} IP Access Failure Ratio [%] (WAP 2.x only)	Not compliant	IP service access time not available.
6.11.4	WAP {Page} IP Access Setup Time [s] (WAP 2.x only)	Not compliant	IP service access time not available.
6.11.5	WAP {Page} Session Failure Ratio [%]	Compliant	With PP tool.
6.11.6	WAP {Page} Session Time [s]	Compliant	
6.11.7	WAP {Page} Request Failure Ratio [%]	Compliant	With PP tool.
6.11.8	WAP {Page} Request Time [s]	Compliant	Time (DREQ- to first DRATE).
6.11.9	WAP {Page} Mean Data Rate [kbit/s]	Compliant	
6.11.10	WAP {Page} Data Transfer Cut-off Ratio [%]	Compliant	With PP tool.
6.11.11	WAP {Page} Data Transfer Time [s]	Compliant	

2.4.11 IMS multimedia telephony

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.12	IMS Multimedia Telephony	Partly compliant	SIP-based VoIP calls supported. Speech quality requires optional license. Speech Transmission Delay/Speech Path Delay not supported. Video, real time text, messaging and file/media sharing not supported.
6.12.1	MTSI Registration Failure Ratio [%]	Compliant	
6.12.2	MTSI Registration Time [s]	Compliant	With PP tool.
6.12.3	MTSI Session Set-up Failure Ratio [%]	Compliant	With PP tool.
6.12.4	MTSI Session Set-up Time [s]	Compliant	With PP tool.
6.12.5	MTSI Session Add Failure Ratio [%]	Not compliant	
6.12.6	MTSI Session Add Time [s]	Not compliant	
6.12.7	MTSI Session Remove Failure Ratio [%]	Not compliant	
6.12.8	MTSI Session Remove Time [s]	Not compliant	
6.12.9	MTSI Session Completion Failure Ratio [%]	Compliant	With PP tool.
6.12.10	MTSI Speech Quality	Compliant	Requires optional license
6.12.11	MTSI Speech Transmission Delay [s]	Partly compliant	RTP round trip time available.
6.12.12	MTSI Speech Path Delay [s]	Not compliant	
6.12.13	MTSI Video Quality	Not compliant	Not implemented
6.12.14	MTSI Video Transmission Delay [s]	Not compliant	Not implemented
6.12.15	MTSI Video Path Delay [s]	Not compliant	Not implemented
6.12.16	MTSI Audio/Video De-Synchronization [%]	Not compliant	Not implemented

6.12.17	MTSI Real-Time Text Failure Ratio [%]	Not compliant	Not implemented
6.12.18	MTSI Real-Time Text Delivery Time [s]	Not compliant	Not implemented
6.12.19	MTSI Messaging Failure Ratio [%]	Not compliant	Not implemented
6.12.20	MTSI Messaging Delivery Time [s]	Not compliant	Not implemented
6.12.21	MTSI File/Media Sharing Failure Ratio [%]	Not compliant	Not implemented
6.12.22	MTSI File/Media Sharing Mean Data Rate [kbit/s]	Not compliant	
6.12.23	MTSI Media Setup Time [s]	Not compliant	
6.12.24	MTSI Media Add Time [s]	Not compliant	

2.4.12 Group call

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
6.14	Group Call	Not compliant	Not implemented

2.4.13 Generic store-and-forward parameters

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
7.1	Generic Store-and-forward Parameters	Not compliant	Not implemented

2.4.14 E-mail

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
7.2	E-mail	Partly compliant	Header download/upload not supported. E-mail notifications not supported
7.2.2	E-Mail {Download Upload} Service Non-Accessibility [%]	Compliant	Trigger points recorded. Calculation with PP tool. This parameter was removed from ETSI 102 250-2 due to major changes in the e-mail QoS concept.

7.2.3	E-Mail {Download Upload} Setup Time [s]	Compliant	This parameter was removed from ETSI 102 250-2 due to major changes in the e-mail QoS concept.
7.2.4	E-Mail {Download Upload} IP- Service Access Failure Ratio [%]	Partly compliant	Compliant with SMTP/POP3/IMAP without SSL. Trigger points recorded. Calculation with PP tool. IP service access time is not ETSI compliant with SMTP. This parameter was replaced by the "Login Non-Accessibility" parameter specified in clause 7.2.11.
7.2.5	E-Mail {Download Upload} IP- Service Setup Time [s]	Compliant	Compliant with SMTP/POP3/IMAP without SSL. Trigger points recorded. Calculation with PP tool. IP service access time is not ETSI compliant with SMTP. This parameter was replaced by the "Login Non-Accessibility" parameter specified in clause 7.2.12.
7.2.6	E-mail {Upload Download} Session Failure Ratio [%]	Compliant	Trigger points recorded. Calculation with PP tool.
7.2.7	E-mail {Upload Header Download Download} Session Time [s]	Not compliant	This parameter was removed because the significance of the parameter is weak due to the following factors: <ul style="list-style-type: none"> • Different e-mail client implementations behave quite differently during a session with respect to the POP3/IMAP4 commands they send to the e-mail server. • In certain use cases (e.g. header download first) user interaction is required to resume the session.

7.2.8	E-mail {Upload Header Download Download} Mean Data Rate [kbit/s]	Partly compliant	Header download/upload not supported.
7.2.9	E-mail {Upload Header Download Download} Data Transfer Cut-off Ratio [%]	Partly compliant	Header download/upload not supported. Trigger points recorded. Calculation with PP tool
7.2.10	E-mail {Upload Header Download Download} Data Transfer Time [s]	Partly compliant	Header download/upload not supported.
7.2.11	E-mail Login Non- Accessibility [%]	Compliant	Compliant with SMTP/ POP3/IMAP without SSL. Trigger points recorded. Calculation with PP tool. IP service access time is not ETSI compliant with SMTP.
7.2.12	E-mail Login Access Time [s]	Compliant	Compliant with SMTP/ POP3/IMAP without SSL. Trigger points recorded. Calculation with PP tool. IP service access time is not ETSI compliant with SMTP.
7.2.13	E-mail Notification Push Failure Ratio [%]	Not compliant	Not implemented.
7.2.14	E-mail Notification Push Transfer Time [s]	Not compliant	Not implemented.
7.2.15	E-mail End-to-End Failure Ratio [%]	Not compliant	Not implemented.

2.4.15 Multimedia messaging service (MMS)

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
7.3	Multimedia Messaging Service (MMS)	Compliant	MMS End-to-End Delivery Time must be calculated with PP tool.
7.3.2	MMS Send Failure Ratio [%]	Compliant	Trigger points recorded. Calculation with PP tool.
7.3.3	MMS Retrieval Failure Ratio [%]	Compliant	Trigger points recorded. Calculation with PP tool.
7.3.4	MMS Send Time [s]	Compliant	Trigger points recorded. Calculation with PP tool
7.3.5	MMS Retrieval Time [s]	Compliant	Trigger points recorded. Calculation with PP tool

7.3.6	MMS Notification Failure Ratio [%]	Compliant	Trigger points recorded. Calculation with PP tool
7.3.7	MMS Notification Time [s]	Compliant	Trigger points recorded. Calculation with PP tool
7.3.8	MMS End-to-End Failure Ratio [%]	Compliant	Trigger points recorded. Calculation with PP tool
7.3.9	MMS End-to-End Delivery Time [s]	Compliant	Trigger points recorded. Calculation with PP tool

2.4.16 Short message service (SMS), short data service (SDS)

ETSI TS 102 250-2 V2.2.1.

Section	Clause	Compliance	Note
7.4	Short Message Service (SMS) , Short Data Service (SDS)	Compliant	SMS End-to-End Delivery Time must be calculated with PP tool. Short Data Service (SDS) not supported.
7.4.2	{SMS SDS} Service Non-Accessibility [%]	Compliant	Trigger points recorded. Calculation with PP tool
7.4.3	{SMS SDS} Access Delay [s]	Compliant	Trigger points recorded. Calculation with PP tool
7.4.4	{SMS SDS} Completion Failure Ratio [%]	Compliant	Trigger points recorded. Calculation with PP tool
7.4.5	{SMS SDS} End-to-End Delivery Time [s]	Compliant	Trigger points recorded. Calculation with PP tool
7.4.6	{SMS SDS} Receive Confirmation Failure Ratio [%]	Compliant	Trigger points recorded. Calculation with PP tool
7.4.7	{SMS SDS} Receive Confirmation Time [s]	Compliant	Trigger points recorded. Calculation with PP tool
7.4.8	{SMS SDS} Consumed Confirmation Failure Ratio [%]	Compliant	Trigger points recorded. Calculation with PP tool