IST doc.10

TETRA Terminal Interoperability Certificate

January 2003

TELTRONIC MDT- 400

Manufacturer	Terminal	Software/Hardware Release No.	Dates of testing
TELTRONIC	**MDT- 400**	**HW: 0.3.** **SW: 04.02.05**	**20 - 31 January 2003**

ISCTI (Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione) has witnessed that the TELTRONIC Terminal is operating in accordance with:

TETRA Interoperability Profile:

TIP PART 1 CORE: TTR 001- 01 VER 3.0.13, JUNE 2001

TIP PART 3: DGNA: TTR 001- 03 VER 1.0.3, MAY 2001

TIP PART 9: AMBIENCE LISTENING TTR 001 - 09 VER 1.0.3, JANUARY 2002

TIP PART 7: FSSN TTR 001- 07 VER 1.0.0, JANUARY 2002

The test results for the tested features can be found in the tables of this certificate.

Issue 2 January 8th 2004.
This certificate replaces the previous.

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Information about the equipment used for testing

Testing during the January 2003 IOP Test Session:

The tests were performed using the following Infrastructure:

Manufacturer		Infrastructure		Software/Hardware Release No.
Nokia		**NTS 3.0**		**HW: DXT256 (exchange)** **SW: w3 6.7-1** **HW: TBS400 (base station)** **SW: TBC 6.47- 0, TBBM 3.43- 0**

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Additional information about the test performed

The tests were performed in the 380-400 MHz band. The SwMI was operating with the following configuration:

MCC	346
MNC	5
Colour code	35 - 40
LA1 carrier frequency (BS Tx)	395.1875 MHz
LA2 carrier frequency (BS Tx)	395.4125 MHz
PSTN gateway	16777184 (FFFFE0)
Subscriber classes	$FFFF_{16}$

Test Results

The test results are shown in the tables below.
Test results and the certificates from previous IOP test session are available on TETRA MoU web site (http://www.tetramou.com/interoperability).
Tables indicate whether or not tests addressing a specific requirement of the TIP specification have been performed, whether or not the requirement is applicable for the SwMI, and the result of the test if executed. Each entry of the table may take one of seven values:

-	:	No test performed.
N/A:		Not applicable for the SwMI
NTPA:		No Test Plan/case Available
No	**:**	Not supported by Terminal
P	:	Pass
F	:	Fail
I	:	Inconclusive

No test performed (-) is assigned in case of no test case performed during the IOP session.
The test results have been derived from examining the behaviour of a live system. The verdicts indicated are based on the log evaluation of the information exchange between the SwMI and the terminals indicated in the following tables. The verdicts reflect the fact that at the time of the IOP testing it was/was not possible to demonstrate a behaviour that was in accordance with the related requirement.

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	NOKIA SwMI	Teltronic MDT 400
	Table 1. CORE TTR 001-01	
6	**Registration**	
6.1	**ITSI attach** - ITSI attach (without group attachment) 1.1	**–**
6.2	**ITSI attach including group attachment** –1.2	**–**
6.2	**ITSI attach including group attachment** Ms initiated Multiple group attachment during MS registration – 2.2.1	**–**
6.3	**Roaming&perioding location updating** Cell re-selection without communication activity – 7.1.1	**–**
6.4	**SwMI initiated location updating** SwMI initiated location updating without group reporting – 1.3.1	**–**
6.4	**SwMI initiated location updating**– SwMI initiated location updating with group reporting - 1.3.2	**N/A**
6.5	**De-registration** –1.4	**–**
7	**Individual call**	
7.1	**Call set-up**	
7.1.1	**Hook signalling** Individual hook call set-up – 4.1.1	**–**
7.1.1	**Hook signalling** Individual call set-up, resource queuing – 4.1.3	**–**
7.1.1	**Hook signalling** Duplex call set-up – 4.2.1	**–**
7.1.1	**Hook signalling** Duplex call set-up, resource queuing – 4.2.2	**–**
7.1.1	**Hook signalling.** MS-ISDN Individual call – 9.1	**P**
7.1.2	**Direct through-connect** MS-ISDN Individual call – 9.1	**–**
7.1.2	**Direct through-connect** Individual direct call set-up – 4.1.2	**–**
7.1.2	**Direct through-connect** Individual call set-up resource queuing– 4.1.3	**P**
7.1.3	**Call set-up Modifications**	
7.1.3.1.4	**Point to point' to 'point to multipoint'** Emergency call set-up, P2P to P2MP call modification – 6.2.2	**–**
7.1.3.2.3	**Duplex to simplex** Call set-up modifications by called party, duplex to semiduplex – 4.3.2	**–**
7.1.3.2 1	**Direct to hook** Call set-up Modification by called party, direct to hook – 4.3.1	**–**
7.2	**Transmission control**	
7.2.1	**End of transmission** Individual hook call set-up – 4.1.1	**–**
7.2.1	**End of transmission** Individual direct call set-up – 4.1.2	**–**
7.2.2	**Request to transmit** Individual hook call set-up – 4.1.1	**–**
7.2.2	**Request to transmit** MS-ISDN Individual call – 9.1	**–**
7.2.2	**Request to transmit** Individual direct call set-up – 4.1.2	**–**
7.2.3	**Request to transmit (in the presence of an active talker)** pre-emptive speech item request, non pre emptive transmission request queuing – 4.1.4	**N/A**
7.2.3	**Request to transmit (in the presence of an active talker)** pre-emptive speech item request, non pre emptive transmission request rejection – 4.1.5	**N/A**
7.3	**Call Maintenance** Queuing during Individual call restoration, Transmitting – 7.3.4.1	**–**
7.3	**Call Maintenance** Queuing during individual call restoration, receiving. (Announced Type 3) – 7.3.4.2	**–**
7.3	**Call Maintenance** Queuing during individual call restoration. Receiving (Unannounced) – 7.3.4.3	**–**
7.3	**Call Maintenance** Queuing during individual call restoration. Communication inactivity. (Announced Type 3) – 7.3.5.1	**–**
7.3	**Call Maintenance** Queuing dudring Individual call restoration, Communication inactivity (Unannounced) - 7.3.5.2	**–**

7.3	**Call Maintenance** Queuing during Duplex call restoration (Announced type 3) - 7.4.2	–
7.4	**Call disconnection** Individual hook call set-up – 4.1.1	–
7.4	**Call disconnection** Individual direct call set-up – 4.1.2	–
7.4	**Call disconnection** Duplex call set-up – 4.2.1	–
7.5	**Emergency individual call.** Emergency individual call. Resource pre-emption – 6.2.1	–
7.5.1	**Emergency speech item request** Emergency individual call. Resource pre-emption – 6.2.1	–
7.5.2	**Emergency individual call modification** Emergency call set-up, P2P to P2MP call modification – 6.2.2	–
8	**Group management**	
8.2.5	**Class of usage values 101_2, 011_2, 010_2, High, normal, low priority scanned.** Status to scanned group – 5.1.2.3	–
8.2.7	**Selected group and SwMI initiated attachment/detachments** Roaming outside and back inside of group area of the selected group – 2.4.2	–
8.2.7	**Selected group and SwMI initiated attachment/detachments** Roaming outside and back inside of group area of an attached non-selected group – 2.4.3	–
8.4	**Attachment of the selected group** MS initiated single group attachment of the selected group, accepted – 2.1.1 (by an MS, which can have no selected group)	–
8.4	**Attachment of the selected group** MS initiated single group attachment of the selected group, rejection – 2.1.3 (by an MS, which can have no selected group)	–
8.4	**Attachment of the selected group** Null group attachment as the selected group – 2.1.5	–
8.4	**Attachment of the selected group** Change of selected group – 2.1.6	–
8.5	**Multiple group attachment** MS initiated single group attachment of other than selected group, accepted – 2.1.2	–
8.5	**Multiple group attachment** MS initiated single attachment of other than selected group, rejection – 2.1.4	–
8.5	**Multiple group attachment** MS initiated Multiple group attachment, rejection of some of the attached groups – 2.2.5	–
8.5	**Multiple group attachment** MS initiated Multiple group attachment with attachment to selected group – 2.2.2	–
8.5	**Multiple group attachment** MS initiated Multiple group attachment during MS registration – 2.2.1	–
8.5	**Multiple group attachment** Ms initiated Multiple group attachment with no selected group – 2.2.3	–
8.5	**Multiple group attachment** MS initiated Multiple group attachment, only the attachment of the selected group is accepted – 2.2.4	**N/A**
8.6	**MS initiated detachment** MS initiated detachment of the selected group – 2.3.1	–
8.6	**MS initiated detachment** MS initiated group detachment of the selected group and an attached group – 2.3.2	–
8.7	**SwMI initiated group attachment and detachment**	
8.7.1	**SwMI initiated detachment** SwMI initiated group detachment with another value than Temporary 1 detachment and attachment – 2.4.1	**N/A**
8.7.1	**SwMI initiated detachment** Roaming outside and back inside of group area of the selected group – 2.4.2	–
8.7.1	**SwMI initiated detachment** Roaming outside and back inside of group area of an attached non/selected group – 2.4.3	–
8.7.2	**SwMI initiated attachment** SwMI initiated group detachment with another value than Temporary 1 detachment and attachment – 2.4.1	**N/A**
8.7.2	**SwMI initiated attachment** Roaming outside and back inside of group area of an attached non/selected group – 2.4.3	–
8.7.2	**SwMI initiated attachment** Roaming outside and back inside of group area of the selected group – 2.4.2	–
8.7.4	**SwMI initiated location updating with group report request** SwMI initiated location updating with group reporting – 1.3.2	**N/A**
8.7.5	**SwMI initiated registration without group report request** SwMI initiated location updating without group reporting – 1.3.1	–

9	**Group call**	
9.1	**Call set-up** Normal Group call – 3.1	–
9.1	**Call set-up** Group Call set-up, resource queuing – 3.3	P
9.1	**Call set-up** MS-ISDN group call – 9.2	P
9.1	**Call set-up** Group scanning – 3.8	–
9.1.2	**Call set-up modifications** Group call-SwMI changes requested call priority – 3.7	N/A
9.1.2	**End of transmission** Normal Group call – 3.1	–
9.2.1	**End of transmission** Group scanning – 3.8	–
9.2.2	**Request to transmit** Normal Group call – 3.1	–
9.2.2	**Request to transmit** MS-ISDN group call – 9.2	P
9.2.2	**Request to transmit** Pre-emptive speech item request, non pre-emptive transmission request queuing – 3.4	N/A
9.2.2	**Request to transmit** Group scanning –3.8	–
9.2.2	**Request to transmit** Pre-emptive speech item request, non pre-emptive transmission request rejection –3.5	N/A
9.3	**Call disconnection** Normal Group call – 3.1	–
9.3	**Call disconnection** Group call disconnection by call owner MS – 3.6	N/A
9.4	**Late entry –** 3.2	–
9.6	**Emergency group call**	
9.6	**Emergency group call** Emergency call set-up to busy group, speech item interruption – 6.1.1	–
9.6	**Emergency group call** Pre-emption during group call restoration. Transmitting (Announced Type 3) – 7.2.5	N/A
9.6	**Emergency group call** Emergency group call resource pre-emption – 6.1.2	–
9.6.1	**Emergency speech item request** Emergency call set-up to busy group speech item interruption – 6.1.1	–
9.6.2	**Emergency group call modification** Emergency call set-up, P2MP to P2P call modification – 6.1.3	–
10	**Cell re-selection**	
10.1	**Undeclared cell re-selection** Cell re-selection without communication activity – 7.1.1	–
10.2	**Unannounced cell re-selection with call restoration**	
10.2.1	**Unannounced cell re-selection** Group call restoration, Receiving (Unannounced) – 7.2.2	–
10.2.1	**Unannounced cell re-selection** Queuing during group call restoration,. Receiving (Unannounced) – 7.2.4	–
10.2.1	**Unannounced cell re-selection** Queuing during individual call restoration. Receiving (Unannounced) – 7.3.4.3	–
10.2.1	**Unannounced cell re-selection** Queuing during individual call restoration, Communication inactivity (Unannounced) – 7.3.5.2	–
10.2.1	**Unannounced cell re-selection** individual call restoration, Receiving (Unannounced) – 7.3.2.2	–
10.2.1	**Unannounced cell re-selection** individual call restoration, Communication inactivity (Unannounced) - 7.3.3.2	–
10.2.2	**Announced cell re-selection Type without Preferred Neighbour Selected** Group call restoration, Transmitting. (Announced Type 3) – 7.2.1	–
10.2.2	**Announced cell re-selection without Preferred Neighbour Selected** Queuing, during group call restoration, Transmitting (Announced Type 3) – 7.2.3	–
10.2.2	**Announced cell re-selection Type without Preferred Neighbour Selected** Pre-emption during group call restoration. Transmitting. (Announced Type 3) – 7.2.5	N/A
10.2.2	**Announced cell re-selection Type without Preferred Neighbour Selected** Individual call restoration. Transmitting party – 7.3.1	–
10.2.2	**Announced cell re-selection Type without Preferred Neighbour Selected** Individual call restoration. Receiving (Announced Type 3) – 7.3.2.1	–
10.2.2	**Announced cell re-selection Type without Preferred Neighbour Selected** Queuing during individual call restoration. Communication inactivity. (Announced Type 3) – 7.3.5.1	–
10.2.2	**Announced cell re-selection Type without Preferred Neighbour Selected** Queuing during individual call restoration. Transmitting. – 7.3.4.1	–
10.2.2	**Announced cell re-selection Type without Preferred Neighbour Selected** Queuing during individual call restoration. Receiving (Announced Type 3) – 7.3.4.2	–

10.2.2	**Announced cell re-selection Type without Preferred Neighbour Selected** individual call restoration. Communication inactivity (Announced Type 3) – 7.3.3.1	–
10.2.2	**Announced cell re-selection** Queuing during Duplex call restoration (Announced Type 3) – 7.4.2	–
10.2.2	**Announced cell re-selection** Duplex call restoration (Announced Type 3) – 7.4.1	–
10.2.3	**Announced cell re-selection Type with Preferred Neighbour Selected** Group call announced cell-reselection with preferred neighbour selected and with call restoration. Transmitting – 7.2.7	–
10.2.3	**Announced cell re-selection Type with Preferred Neighbour** Individual call, Announced cell re-reselection with preferred neighbour selected and with call restoration Transmitting – 7.3.6	–
10.3.1	**Announced Type with Preferred Neighbour Selected and without Forward Registration** Group call Announced cell re-selection without call restoration, (seamless hand-over) without forward registration transmetting – 7.2.6	–
10.3.1	**Announced Type with Preferred Neighbour Selected and without Forward Registration** Duplex call, Announced cell-re-selection without call restoration without forward registration – 7.4.3	–
10.3.2	**Announced Type with Preferred Neighbour Selected and with Forward Registration** Individual call. Announced cell re-selection without call restoration with forward registration . Transmitting – 7.3.7	–
10.3.2	**Preferred Neighbour Selected and without Forward Registration Forward Registration** Group call. Announced cell re-selection without call restoration with forward registration . Transmitting – 7.2.8	–
11	**Short data service**	
11.1.1	**Service Overview** MS-ISDN addressed individual status message – 9.3	No
11.1.1	**Service Overview** MS-ISDN addressed group status message – 9.4	P
11.1.3.1	**MS to Wireline Dispatcher with Status Acknowledge** Status transfer to dispatcher - 5.1.2.2	–
11.1.3.2	**MS to MS/Group with General Status Acknowledge)** Status transfer to group – 5.1.2.1	–
11.1.3.2	**MS to MS/Group with General Status Acknowledge** Individual addressed status transfer (Dispatcher) – 5.1.1	–
11.1.3.2	**MS to MS/Group with General Status Acknowledge** Status to scanned group - 5.1.2.3	–
11.1.3.2	**MS to MS/Group with General Status Acknowledge** MS-ISDN addressed group status message – 9.4	P14
11.1.3.2	**MS to MS/Group with General Status Acknowledge** MS-ISDN addressed individual status message – 9.3	No
12	**Telephone call**	
12.2	**Call Set-up**	
12.1	**Gateway addresses** TETRA-originated call set-up – 8.1	–
12.2.1	**MS Originated, Late Through-Connect** TETRA-originated call set-up – 8-1	–
12.2.1	**MS Originated, early Through-Connect** TETRA-originated call set-up – 8-1	–
12.2.3	**MS Originated, Call Queued** TETRA-originated call set-up queuing – 8.2	–
12.2.4	**MS terminated** PSTN originated call – 8.3	–
12.4	**DTMF Over dial** TETRA-originated successful DTMF over-dial – 8.4	–
12.4	**DTMF Over dial** TETRA-originated unsuccessful DTMF over-dial – 8.5	N/A
12.5	**Disconnect Causes** TETRA-originated call set-up – 8.1	–
12.5	**Disconnect Causes** TETRA-originated call set-up queuing – 8.2	–
12.5	**Disconnect Cause** PSTN originated call – 8.3	–
12.6	**Emergency telephone call** Emergency call to emergency number – 6.3.1	–
14	**Layer 2 operation**	
14.1.1.4	**Up-link FACCH and down-link TCH.** Sending SDS-TL message in FACCH during group call – 10.1	P
14.1.1.2	**Traffic channel (TCH).** Sending SDS-TL message in SACCH during group call – 10.2	P
14.1.1.2	**Traffic channel (TCH).** Sending SDS-TL message in SACCH during individual call – 10.4	P
14.1.1.4	**Up-link FACCH and down-link TCH.** Sending SDS-TL message in FACCH during individual call – 10.3	P

	Table 3. DGNA TTR 001-03	
7	**SS-DGNA not supported**	
7.5	**SS-DGNA specific functions not supported** SS-DGNA specific function not supported by MS –1.1.1	–
7.5	**SS-DGNA specific functions not supported** SS-DGNA specific function not supported by SwMI –1.1.2	N/A
8	**Supported SS-DGNA functions**	
8.1	**Group assignment**	
8.1	**Group assignment** DGNA assignment without attachment – 1.2.1	N/A
8.1	**Group assignment** DGNA assign with attachment as selected group, MS has no selected group 1.3.1	N/A
8.1	**Group assignment** DGNA assign with attachment as selected group, MS has selected group 1.3.2	N/A
8.1	**Group assignment** DGNA assign with attachment, attachment not allowed at next ITSI attach – 1.4.1	F16
8.1	**Group assignment** DGNA assign with attachment, attachment required at next ITSI attach – 1.4.2	–
8.1	**Group assignment** DGNA assign with attachment, pre programmed group – 1.4.3	–
8.1	**Group assignment** DGNA assign with attachment as scanned group, MS has selected group – 1.5.1	–
8.1	**Group assignment** DGNA assign, with embedded attachment rejected attachment by MS – 1.6.1	–
8.1.1	**Assignment of a group without attachment** DGNA assignment without attachment – 1.2.1	N/A
8.1.2	**Assignment of a group with attachment** DGNA assign with attachment as selected group, MS has no selected group –1.3.1	N/A
8.1.2	**Assignment of a group with attachment** DGN/A assign with attachment as scanned group, MS has selected group – 1.5.1	–
8.1.2	**Assignment of a group with attachment** DGNA assign with attachment as selected group, MS has selected group – 1.3.2	N/A
8.1.2	**Assignment of a group with attachment** DGNA assign with attachment, attachment not allowed at next ITSI attach – 1.4.1	F16
8.1.2	**Assignment of a group with attachment** DGNA assign with attachment, attachment required at next ITSI attach – 1.4.2	–
8.1.2	**Assignment of a group with attachment** DGNA assign, with embedded attachment rejected by MS – 1.6.1	–
8.2	**Group de–assignment**	
8.2	**Group de – assignment** Removing radio subscriber from selected DGNA group – 1.7.1	–
8.2	**Group de – assignment** De-assignament of MS from pre-programmed selected group - 1.7.2	P
8.2	**Group de–assignment** De-assignment of MS from pre-programmed scaned group – 1.7.3	–
	Table 7. FSSN TTR 001-07	
2.6.1	**Individual call using FSSN** Individual intra FSSN call within a fleet - 1.1	P
2.6.1	**Individual call using FSSN** Individual intra FSSN call between two fleet - 1.2	P
2.6.2	**Group call within single FSSN domain using FSSN for CPI/TPI** Group call within single FSSN domain - 1.3	P
2.6.3	**Group call maintenance using FSSN for TPI** Group call within single FSSN domain - 1.3	P

2.6.4	**Individually and group addressed status messages** Individually addressed FSSN status messages - 1.4	**P**
2.6.4	**Individually and group addressed status messages** FSSN as a CPI in group addressed ststus message - 1.5	**P**
2.6.5	**Individually and group addressed SDS text status messages** Individually addressed FSSN SDS-TL messages - 1.6	**P**
2.6.5	**Individually and group addressed SDS text status messages** Group addressed FSSN SDS-TL messages - 1.7	**P**
	Table 8. AMBIENCE Listening 001-09	
2.5.1	**SS-AL Call set-up** Ambience listening call set-up - 1.1	**P**
2.5.2	**SwMI initiated disconnection of SS-AL call** Ambience listening call set-up - 1.1	**P**
2.5.4	**Affected user MS receives a new call reqest from the SwMI during SS-AL call** Ms makes a new individual call during Ambience Listening call - 1.2	**P**
2.5.5.1	**PDP context activation during SS-AL call** MS activates PDP context during Ambience Listening call - 1.3	**P**
2.5.5.2	**MS attemps to start a packet data instance during SS-AL call** MS starts Packet Data tranfer during Ambience Listening call - 1.4	**P**
2.5.5.2	**MS attemps to start a packet data instance during SS-AL call** Ambience Listening Call set-up to MS that has an active PDP context - 1.5	**P**
2.5.5.4	**SS-AL call set-up to MS that has an active PDP context** Ambience Listening Callup to MS that has an active PDP context - 1.5	**P**

COMMENTS:

P14 SwMI does not convert SSI to MS-ISDN for Calling MS Identity when sending group addressed status message and SDS-TL message.

F16 SwMI rejects Teltronic MS selected group attachment (CoU5) after powering on and re-attach the group with CoU 4.