



IST doc.10 V02

# TETRA Terminal Interoperability Certificate

July 2002

## CLEARTONE

Manufacturer	Terminal Type	Software/Hardware Release No.	Dates of testing
Clearstone	CM9000P	SW: TMP.036G4C HW: 1.5	2-18 July 2002

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

### TETRA Interoperability Profile:

- TIP v2 Core - TTR 001-1 ver 2.1.1, March 2000
- TIP v3 SDS - TTR 001-2 ver 1.0.1, August 2001
- TIP v3 DGNA - TTR 001-3 ver 1.0.3, May 2001
- TIP v3 Authentication - TTR 001-4 ver 1.0.0, November 2000
- TIP v3 PD - TTR 001-5 ver 1.0.0, November 2000
- DMO - TTR 002-1 ver 1.0.3, November 2000

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

Authorised IOP test engineer

(Ivano Luciani)

Radio Office Manager

(Ing. A. La Padula)

ISCTI has made every effort to ensure that tests have been made correctly, and in accordance with the relevant TIPs. ISCTI has no liability for the test results, or towards the manufacturers.

ISCTI  
V.le America 201  
00144 Rome, Italy

Tlf. +39 06 5444 2663  
Fax +39 06 5410904

E-mail: Web-

site: <http://www.comunicazioni.it>



## Information about the equipment used for testing

### Testing during the July 2002 IOP Test Session:

The tests were performed using the following SwMI:

Manufacturer	Infrastructure	Software/Hardware Release No.
Nokia	NTS Rel 3.0	HW: DXT64 (Exchange) SW: w3 6.6-0 CD2 HW: TBS400 (Base Station) SW: TBC 6.38-0 SW: TBBM 3.33-0

The DMO tests were performed using the following terminals:

Manufacturer	Terminal Type	Software/Hardware Release No.
Motorola	MTP300	S/W: R25.40.26 H/W: H12PCH6TZ5BN
Motorola	MTM700	S/W: D73.03.05 H/W: PMNE1840A
Nokia	THR420E	SW: HY12.4-5 HW: HRU420-03
Cleartone	CM9000P	SW: TMP.036G4C HW: 1.5

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00144 Rome, Italy  
Tlf. +39 06 5444 2663  
Fax +39 06 5410904



## Additional information about the test performed

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

MCC	346
MNC	5
Colour code	30 - 35
LA1 carrier frequency (BS Tx)	395.1875 MHz
LA2 carrier frequency (BS Tx)	395.4125 MHz
PSTN gateway	16777184
Subscriber classes	FFFF <sub>16</sub>

## 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 five values:

- : No test performed.
- N/A: Not applicable for the SwMI
- P : Pass
- F : Fail
- I : Inconclusive

No test performed (-) is also assigned either in case of no test case being available or because it is not applicable for the terminal.

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 terminal(s) 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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**Table 1: Test performed CORE TIP V2**

Nokia SwMI	Clearstone CM9000P
<b>6 Registration</b>	
6.1 ITSI attach	-
6.2 ITSI attach including group attachment	-
6.3 Roaming location updating	-
6.4 De-registration	-
<b>7 Individual call</b>	
7.1 Call setup	-
7.1 Call setup(Queuing)	-
7.1.1 Hook signalling (simplex)	-
7.1.1 Hook signalling (Duplex)	-
7.1.2 Direct through-connect (Simplex)	-
7.1.2 Direct through-connect (Duplex)	-
7.1.3 Call setup Modifications	-
7.1.3 (Duplex to Semi duplex)	-
7.1.3.2 Setup modification by called party	-
7.1.3.2.1 Direct to hook	-
7.2 Transmission control	-
7.2.1 End of transmission	-
7.2.2 Request to transmit	-
7.2.3 Request for speech item	N/A
7.3 Call maintenance	-
7.4 Call disconnection	-
7.5 Emergency individual call	-
7.5.1 Emergency speech item request	-
7.5.2 Emergency individual call modification	-
<b>8 Group management</b>	
8.4 MS Attachment of the selected group	-
8.4 MS Attachment of the selected group (Rejection)	-
8.4 MS Attachment of the Null group	-
8.4 MS Change of the selected group	-
8.5 Multiple group attachment	-
8.5 Multiple group attachment with reject	-
8.6 MS initiated detachment	-
8.7 SwMI initiated group attachment and detachment	-
8.7.1 SwMI initiated detachment (5.4.1)	P
8.7.2 SwMI initiated attachment (5.4.1)	P
8.7.3 SwMI initiated group reporting	-
8.7.4 SwMI initiated registration with group report request	-

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Nokia SwMI		Cleartone CMS9000P
<b>9 Group call</b>		
9.1 Call setup		P
9.1 Call setup (Queuing)		P
9.1.1 Call setup modifications		-
9.2.1 End of transmission		-
9.2.2 Request to transmit		-
9.2.3 Request for speech item		N/A
9.3 Call disconnection		P
9.4 Late entry		P
9.5 Emergency group call .		
9.5 Emergency group call (Setup to busy group)		-
9.5.1 Emergency speech item request		-
9.5.2 Emergency group call modification		P
<b>10 Cell re-selection</b>		
10.1 Undeclared cell re-selection		-
10.2.1 Unannounced cell re-selection with call restoration		
10.2.1 (Group call)		-
10.2.1 (Queuing, group call)		-
10.2.1 (individual call)		-
10.2.1 (Queuing, individual call)		-
10.2.2 Announced		
10.2.2 (Group call)		-
10.2.2 (Queuing, group call)		-
10.2.2 (Pre-emption, group call)		-
10.2.2 (individual call, traffic)		-
10.2.2 (individual call, inactivity)		-
10.2.2 (Queuing, individual call, traffic)		-
10.2.2 (Queuing, individual call, inactivity)		-
<b>11 Short data service</b>		
11.1 Status messages (to dispatcher)		-
11.1 Status messages (Text messaging)		-
<b>12 Telephone call</b>		
12.1 Gateway Addresses		-
12.2 Call Set-up		
12.2.1 MS Originated, Late Through-Connect		P
12.2.2 MS Originated, Early Through-Connect		-
12.2.3 MS Originated, Call Queued		-
12.2.4 MS Terminated		P
12.3 Call Maintenance		-
12.4 DTMF Over-dial		I(7)
12.5 Disconnect Causes		P
12.6 Emergency telephone call		-

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**Table 2: Test performed SDS TIP V3**

Nokia SwMI	Cleartone CM9000P
<b>7 User defined data type 1, 2 and 3</b>	
7 Type 1	-
7 Type 2	-
7 Type 3 (3.1)	P
<b>8 User defined data type 4</b>	
8 User defined data type 4 without SDS-TL	
8.1 User defined data type 4 with SDS-TL	
8.1.2 MS to MS, Standard Report (3.2)	P
8.1.2 MS to MS, Standard Report with Store and Forward (3.2)	-
8.1.3 MS to MS, Short Report (3.2)	-
8.2 Text messaging	
8.2.1.4 No acknowledgement requested (3.3)	P
8.2.2 MS to MS, Short report (3.2)	-

**Table 3: Test performed DGNA TIP V3**

Nokia SwMI	Cleartone CM9000P
<b>7 SS-DGNA not supported</b>	
7.4 General Reject of SS-DGNA <sup>1</sup>	-
7.5 SS-DGNA specific functions not supported by MS (4.1)	-
7.5 SS-DGNA specific functions not supported by SwMI (4.2)	N/A
<b>8 Supported SS-DGNA functions</b>	
8.1 Group assignment	-
8.1.1 Assignment of a group without attachment (4.3)	N/A
8.1.2 Assignment of a group with attachment.(4.4)	N/A
8.1.2 MS NOT allowed to attach that group after ITSI-ATTACH (4.5)	F(8)
8.1.2 Assignment of a group which is already in the MS group database (pre-programmed) (4.6)	F(10)
8.2 Group de-assignment (4.7)	P

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**Table 4: Test performed AUTHENTICATION TIP V3**

Nokia SwMI	Cleartone CM9000P
<b>7 Authentication functions</b>	
7.1 SwMI initiated location update with authentication, success (2.1)	P
7.1 SwMI initiated location update with authentication, failure (2.2)	-
7.2 SwMI initiated location update with authentication, roaming (2.3)	P

**Table 5: Test performed PACKET DATA TIP V3**

Nokia SwMI	Cleartone CM9000P
<b>7 Information flow</b>	
7.1 Context Activation (Test case Number index)	
7.1.1 TE IPCP Initiated, Static Address (TE supplied) (5.1)	-
7.1.2 TE IPCP Initiated, Dynamic Address (5.2)	P
7.1.6 Provisioning Reject (5.3)	P
7.2 Context Deactivation	
7.2.1 MS initiated deactivation (5.5)	P
7.2.2 SwMI initiated deactivation (5.4)	P

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Nokia SwMI	Clearstone CM9000P
7.3 PDCH Access	
7.3.1 MS Initiated Access on the MCCH (5.6)	P
7.3.1 MS Initiated Access on the MCCH (Roaming without Data transmission, STANDBY state) (5.13)	P
7.3.2 SwMI Initiated Access on the MCCH (5.8)	P
7.3.3 MS Initiated Access Reject (5.10)	P
7.4 SN Data transfer	
7.4 SN Data transfer (5.7 and 5.9)	P
7.5 End of Data	
7.5.1 Normal (5.6-5.9 and 5.13)	P
7.5.2 MS timer Expired	-
7.6 Advanced Link Set-up	
7.6.1 MS initiated AL Set-up (5.6 and 5.8)	P
7.6.2 MS initiated AL Reset	-
7.6.3 SwMI initiated AL Reset	-
7.7 Advanced Link Data Transfer	
7.7.1 Normal Downlink (5.8 and 5.9)	P
7.7.2 Downlink, Lost Segment	-
7.7.3 Downlink, Lost Segment and AR	-
7.7.4 Normal Up link (5.6 and 5.7)	P
7.8 Advanced Link Disconnection	-
7.8.1 MS initiated context deactivation (5.5)	I(4.1)
7.8.2 SwMI initiated context deactivation (5.4)	I(4.1)
7.10 Link Reconnect	
7.10.1 BS Data	-
7.10.2 MS Data (Roaming during Data transmission, READY state) (5.11)	P
7.10.2 MS Data (Roaming without Data transmission, READY state) (5.12)	P

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**Table 6: Test performed DMO**

	Nokia THR 420E	Motorola MTM700	Motorola MTP300	Cleartone CM9000P
<b>7 Activation and Deactivation of Direct Mode</b>				
7 Activation of Direct Mode	-	-	-	-
7 Deactivation of Direct Mode	-	-	-	-
<b>8 Group call (Test case Number)</b>				
8.1 Call setup, Initiating (3.1)	P	P	P	P
8.1 Call setup, Receiving known address (3.2)	P	P	P	P
8.1 Call setup, Receiving unknown address(3.3)	P	P	P	P
8.1 Call setup, Late entry (3.4)	P	P	P	P
8.1 Call setup, Engaged terminal (3.8)	P	P	P	P
8.1 Call setup, Occupied carrier (3.9)	P	P	P	P
8.2 Ongoing call (3.1)	P	P	P	P
8.2 Ongoing call, Expiry DT207 (3.7)	P	P	P	P
8.3 Call release, Normal (3.1)	P	P	P	P
8.3 Call release, Expiry DT311 (3.5)	-	P	P	P
8.3 Call release, Expiry DT221 (3.6)	P	P	P	P
8.4 Group address capability	-	-	-	-

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## Comments:

**Note (4.1): MS doesn't send AL-DISC before PDP context deactivation**

**Note (7): DTMF digits not dialled**

**Note (8): MS accepts DGNA Assignment but rejects Attachment.**

**Note (10): MS does not support it, so the test case is not correctly performed.**

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