



IST doc.10

TETRA Terminal Interoperability Certificate

May 2003

THALES

Manufacturer	Terminal	Software/Hardware Release No.	Dates of testing
Thales	VECTOR RADIO PRM5202A	SW: ControlTarget 3.15.0; ControlBoot 2.0.0; TAA 3.12.1; Control FGPA 3.14.0; AlgPkgTea2 3.15.1; Black DSP 3.15.1; TSM 3.15.0; HW: Serial Number 1009.	12 May 2003

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

TETRA Interoperability Profile:

TIP PART 1: Core TTR 001-01 Ver. 3.0.13, June 2001

TIP PART 4: Authentication TTR 001-04 Ver. 1.0.0, November 2000

TIP PART 11: Air Interface Encryption TTR 001-11 Ver. 1.0.0, December 2001

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

Authorised IOP test engineer

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Radio Office Manager

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Information about the equipment used for testing

Testing during the May 2003 IOP Test Session:

The tests were performed using the following SwMI:

Manufacturer	Infrastructure	Software/Hardware Release No.
Motorola	Dimetra IP R5.0 SER	ZC SW: ZC_APP_ZCTE_R05.00.12.05 NM SW: DMNM-R11.01.02.04 EBTS SW: TSC_PR3_APP-R05.30.69 BRC_APP-R05.20.56

Additional information about the test performed

The tests were performed in the site 7 and site 8. The SwMI was operating with the following configuration:

MCC	238
MNC	1
Colour code	41
LA20 carrier frequency (BS Tx)	394.7625 MHz site 7
LA21 carrier frequency (BS Tx)	393.0125 MHz site 8
PSTN gateway telephone number	43488011
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
No	Not supported by Terminal
NTPA	No Test Plan/case Available
P	Pass
F	Fail
I	Inconclusive

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.

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



	MOTOROLA SwMI	Thales Vector PRM 5202A
	Table 1. CORE TTR 001-01	
6	Registration	
6.1	ITSI attach ITSI attach (without group attachment) – 1.1	P
6.2	ITSI attach including group attachment ITSI attach including group attachment – 1.2	P
6.2	ITSI attach including group attachment MS initiated Multiple group attachment during MS registration – 2.2.1	No
6.3	Roaming & Periodic location updating Cell re-selection without communication activity – 7.1.1	P
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 De-registration – 1.4	P
7	Individual call	
7.1	Call set-up	
7.1.1	Hook signalling Individual hook call set-up – 4.1.1	P
7.1.1	Hook signalling Individual call set-up, resource queuing – 4.1.3	P
7.1.1	Hook signalling Duplex call set-up – 4.2.1	N/A
7.1.1	Hook signalling Duplex call set-up, resource queuing – 4.2.2	N/A
7.1.1	Hook signalling. MS-ISDN Individual call – 9.1	N/A
7.1.2	Direct through-connect MS-ISDN Individual call – 9.1	N/A
7.1.2	Direct through-connect Individual direct call set-up – 4.1.2	N/A
7.1.2	Direct through-connect Individual call set-up resource queuing – 4.1.3	N/A
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	N/A
7.1.3.2.1	Direct to hook Call set-up Modification by called party, direct to hook – 4.3.1	N/A
7.1.3.2.3	Duplex to simplex Call set-up modifications by called party, duplex to semi duplex – 4.3.2	N/A
7.2	Transmission control	
7.2.1	End of transmission Individual hook call set-up – 4.1.1	P
7.2.1	End of transmission Individual direct call set-up – 4.1.2	N/A
7.2.2	Request to transmit Individual hook call set-up – 4.1.1	P
7.2.2	Request to transmit MS-ISDN Individual call – 9.1	N/A
7.2.2	Request to transmit Individual direct call set-up – 4.1.2	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 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	No
7.2.3	Request to transmit (in the presence of the an active talker) MS-ISDN Individual call – 9.1	N/A
7.3	Call Maintenance Queuing during Individual call restoration, Transmitting – 7.3.4.1	N/A
7.3	Call Maintenance Queuing during individual call restoration, receiving. (Announced Type 3) – 7.3.4.2	N/A
7.3	Call Maintenance Queuing during individual call restoration. Receiving (Unannounced) – 7.3.4.3	N/A



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7.3	Call Maintenance Queuing during individual call restoration. Communication inactivity. (Announced Type 3) – 7.3.5.1	N/A
7.3	Call Maintenance Queuing during Individual call restoration, Communication inactivity (Unannounced) - 7.3.5.2	N/A
7.3	Call Maintenance Queuing during Duplex call restoration (Announced type 3) – 7.4.2	N/A
7.4	Call disconnection Individual hook call set-up – 4.1.1	P
7.4	Call disconnection Individual direct call set-up – 4.1.2	N/A
7.4	Call disconnection Duplex call set-up – 4.2.1	N/A
7.5	Emergency individual call. Emergency individual call. Resource pre-emption – 6.2.1	N/A
7.5.1	Emergency speech item request Emergency individual call. Resource pre-emption – 6.2.1	N/A
7.5.2	Emergency individual call modification Emergency call set-up, P2P to P2MP call modification – 6.2.2	N/A
8	Group management	
8.2.5	Class of usage values 10₁, 011₂, 010₂, High, normal, low priority scanned. Status to scanned group – 5.1.2.3	N/A
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	N/A
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	N/A
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)	P
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)	P
8.4	Attachment of the selected group Null group attachment as the selected group – 2.1.5	No
8.4	Attachment of the selected group Change of selected group – 2.1.6	P
8.5	Multiple group attachment MS initiated single group attachment of other than selected group, accepted – 2.1.2	No
8.5	Multiple group attachment MS initiated single attachment of other than selected group, rejection – 2.1.4	N/A
8.5	Multiple group attachment MS initiated Multiple group attachment, rejection of some of the attached groups – 2.2.5	N/A
8.5	Multiple group attachment MS initiated Multiple group attachment with attachment to selected group – 2.2.2	No
8.5	Multiple group attachment MS initiated Multiple group attachment during MS registration – 2.2.1	No
8.5	Multiple group attachment Ms initiated Multiple group attachment with no selected group – 2.2.3	No
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	P
8.6	MS initiated detachment MS initiated group detachment of the selected group and an attached group – 2.3.2	No
8.7	SwMI initiated group attachment and detachment	



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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	N/A
8.7.1	SwMI initiated detachment Roaming outside and back inside of group area of an attached non/selected group – 2.4.3	N/A
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	N/A
8.7.2	SwMI initiated attachment Roaming outside and back inside of group area of the selected group – 2.4.2	N/A
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	P
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	N/A
9.1	Call set-up Group scanning – 3.8	No
9.1.2	Call set-up modifications Group call-SwMI changes requested call priority – 3.7	N/A
9.2.1	End of transmission Normal Group call – 3.1	P
9.2.1	End of transmission Group scanning – 3.8	No
9.2.2	Request to transmit Normal Group call – 3.1	P
9.2.2	Request to transmit MS-ISDN group call – 9.2	N/A
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	No
9.2.2	Request to transmit Pre-emptive speech item request, non pre-emptive transmission request rejection – 3.5	No
9.3	Call disconnection Normal Group call – 3.1	P
9.3	Call disconnection Group call disconnection by call owner MS – 3.6	N/A
9.4	Late entry – 3.2	P
9.5	Emergency group call	
9.5	Emergency group call Emergency call set-up to busy group, speech item interruption – 6.1.1	P
9.5	Emergency group call Pre-emption during group call restoration. Transmitting (Announced Type 3) – 7.2.5	P
9.5	Emergency group call Emergency group call resource pre-emption – 6.1.2	P
9.5.1	Emergency speech item request Emergency call set-up to busy group speech item interruption – 6.1.1	P
9.5.2	Emergency group call modification Emergency call set-up, P2MP to P2P call modification – 6.1.3	N/A
10	Cell re-selection	
10.1	Undeclared cell re-selection Cell re-selection without communication activity – 7.1.1	P
10.2	Cell re-selection with call restoration	
10.2.1	Unannounced cell re-selection Group call restoration, Receiving (Unannounced) – 7.2.2	P
10.2.1	Unannounced cell re-selection Queuing during group call restoration, Receiving (Unannounced) – 7.2.4	P



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10.2.1	Unannounced cell re-selection Queuing during individual call restoration. Receiving (Unannounced) – 7.3.4.3	No
10.2.1	Unannounced cell re-selection Queuing during individual call restoration, Communication inactivity (Unannounced) – 7.3.5.2	No
10.2.1	Unannounced cell re-selection Individual call restoration, Receiving (Unannounced) – 7.3.2.2	No
10.2.1	Unannounced cell re-selection individual call restoration, Communication inactivity (Unannounced) – 7.3.3.2	No
10.2.2	Announced cell re-selection Type without Preferred Neighbour Selected Group call restoration, Transmitting. (Announced Type 3) – 7.2.1	P
10.2.2	Announced cell re-selection without Preferred Neighbour Selected Queuing, during group call restoration, Transmitting (Announced Type 3) – 7.2.3	P
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	P
10.2.2	Announced cell re-selection Type without Preferred Neighbour Selected Individual call restoration. Transmitting party – 7.3.1	P
10.2.2	Announced cell re-selection Type without Preferred Neighbour Selected Individual call restoration. Receiving (Announced Type 3) – 7.3.2.1	P
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	P
10.2.2	Announced cell re-selection Type without Preferred Neighbour Selected Queuing during individual call restoration. Transmitting. – 7.3.4.1	P
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	P
10.2.2	Announced cell re-selection Type without Preferred Neighbour Selected individual call restoration. Communication inactivity (Announced Type 3) – 7.3.3.1	P
10.2.2	Announced cell re-selection Queuing during Duplex call restoration (Announced Type 3) – 7.4.2	N/A
10.2.2	Announced cell re-selection Duplex call restoration (Announced Type 3) – 7.4.1	N/A
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	N/A
10.2.3	Announced cell re-selection Type with Preferred Neighbour Selected Individual call, Announced cell re-selection with preferred neighbour selected and with call restoration Transmitting – 7.3.6	N/A
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 transmitting – 7.2.6	N/A
10.3.1	Announced Type with Preferred Neighbour Selected and without Forward Registration Duplex call, Announced cell-reselection without call restoration without forward registration – 7.4.3	N/A



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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	N/A
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	N/A
11	Short data service	
11.1.1	Service Overview MS-ISDN addressed individual status message – 9.3	N/A
11.1.1	Service Overview MS-ISDN addressed group status message – 9.4	N/A
11.1.3.1	MS to Wire line Dispatcher with Status Acknowledge Status transfer to dispatcher – 5.1.2.2	P
11.1.3.2	MS to MS/Group with General Status Acknowledge Status transfer to group – 5.1.2.1	N/A
11.1.3.2	MS to MS/Group with General Status Acknowledge Individual addressed status transfer (Dispatcher) – 5.1.1	N/A
11.1.3.2	MS to MS/Group with General Status Acknowledge Status to scanned group – 5.1.2.3	N/A
11.1.3.2	MS to MS/Group with General Status Acknowledge MS-ISDN addressed group status message – 9.4	N/A
11.1.3.2	MS to MS/Group with General Status Acknowledge MS-ISDN addressed individual status message – 9.3	N/A
12	Telephone call	
12.1	Gateway addresses TETRA-originated call set-up – 8.1	P
12.2	Call Set-up	
12.2.1	MS Originated, Late Through-Connect TETRA-originated call set-up – 8.1	P
12.2.2	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	P
12.2.4	MS terminated PSTN originated call – 8.3	P
12.4	DTMF Over dial TETRA-originated successful DTMF over-dial – 8.4	P
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	P
12.5	Disconnect Causes TETRA-originated call set-up queuing – 8.2	P
12.5	Disconnect Cause PSTN originated call – 8.3	P
12.6	Emergency telephone call Emergency call to emergency number – 6.3.1	N/A
14	Layer 2 operation	
14.1.1.2	Traffic channel (TCH) Sending SDS-TL message in SACCH during group call – 10.2	-
14.1.1.2	Traffic channel (TCH) Sending SDS-TL message in SACCH during individual call – 10.4	No
14.1.1.4	Up-link FACCH and down-link TCH Sending SDS-TL message in FACCH during group call – 10.1	N/A
14.1.1.4	Up-link FACCH and down-link TCH Sending SDS-TL message in FACCH during individual call – 10.3	N/A
Table 4. AUTHENTICATION TTR 001-04		
7	Authentication functions	
7.1	MS initiated location updating with authentication Successful ITSI attach registration with authentication – 1.1.1	P



	MOTOROLA SwMI	Thales Vector PRM 5202A
7.1	MS initiated location updating with authentication Rejected registration, authentication failure – 1.1.2	P
7.1	MS initiated location updating with authentication Successful roaming location update with authentication – 1.1.3	P
Table 6. AIE TIP: TTR 001-11		
Air Interface Encryption functions		
2.3.5	DCK retrieval supported by SwMI	N/A
2.3.6	Security Class 2 Registration with encryption applied. Authentication not required by SwMI – 1.1.1	P
2.3.6	Security Class 2 Registration with encryption applied. Authentication required by SwMI – 1.1.2	P
2.3.6	Security Class 2 Registration without encryption applied. Authentication not required by SwMI – 1.1.3	P
2.3.6	Security Class 2 Registration without encryption applied. Authentication required by SwMI – 1.1.4	P
2.3.6	Security Class 2 Undeclared cell re-selection – 1.2.1	P
2.3.6	Security Class 2 Unannounced cell re-selection – 1.2.2	P
2.3.7	Security Class 3	N/A
2.3.8	DCK Forwarding using announced type 1 cell re-selection	N/A
2.3.9	DCK Forwarding using announced type 2 cell re-selection	N/A
2.3.10	DCK forwarding using OTAR PREPARE and OTAR NEW CELL	N/A
2.3.11	Change of Security Class or Cipher Key on the serving cell	N/A
2.3.11.4	D-CK CHANGE DEMAND (Change of Chipher Key – Absolute IV)	N/A
2.3.11.5	D-CK CHANGE DEMAND (Change of Chipher Key – Immediate)	N/A
2.3.15.1	MS CCK Management SwMI initiated change of CCK on the serving cell during group call-Future CCK unknown to MS – 2.5.2	N/A
2.3.16	Call Related Signalling Call from class 2 MS to Class 2 MS – 1.3.1.1	P
2.3.16	Call Related Signalling Call from class 2 MS to Class 1 MS – 1.3.1.2	P
2.3.16	Call Related Signalling Call from class 1 MS to Class 2 MS – 1.3.1.3	P
2.3.16	Call Related Signalling Call from class 2 MS to Class 2 Group – 1.3.2.1	P
2.3.16	Call Related Signalling Call from class 2 MS to Class 1 Group – 1.3.2.2	P
2.3.16	Call Related Signalling Class 3	N/A
2.3.17	Call Unrelated Signalling Status from Class2 MS in Class 1 Group call to idle Class2 MS – 1.4.1	N/A
2.3.17	Call Unrelated Signalling Status from idle Class 2 MS to Class 2 MS in Class 1 Group call – 1.4.2	N/A
2.3.17	Call Unrelated Signalling Status from Class 3 MS in Class 1 group call to Class 3 MS – 2.4.1	N/A
2.3.17	Call Unrelated Signalling Status from Class 3 MS to Class 3 MS in Class 1 group call – 2.4.2	N/A
2.3.20	AI Signalling Protection Registration with encryption applied. Authentication not required by SwMI – 1.1.1	P



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2.3.20	AI Signalling Protection Registration with encryption applied. Authentication required by SwMI – 1.1.2	P
2.3.20	AI Signalling Protection Registration without encryption applied. Authentication not required by SwMI – 1.1.3	P
2.3.20	AI Signalling Protection Registration without encryption applied. Authentication required by SwMI – 1.1.4	P
2.3.20	AI Signalling Protection Undeclared cell-reselection – 1.2.1	P
2.3.20	AI Signalling Protection Unannounced cell reselection – 1.2.2	P
2.3.20	AI Signalling Protection Class 3	N/A
2.3.21	Reject Causes	NTPA
2.4	Group Presence Indication	NTPA
2.6.1	MS-initiated location updating with SCK ciphering, no SCK request, authentication	NTPA
2.6.2	MS-initiated location updating with SCK ciphering, no SCK request, no authentication Registration with encryption applied. Authentication not required by SwMI – 1.1.1	P
2.6.2	MS-initiated location updating with SCK ciphering, no SCK request, no authentication Registration without encryption applied. Authentication not required by SwMI – 1.1.3	P
2.6.3	MS-initiated location updating with SCK ciphering, and authentication Registration with encryption applied. Authentication required by SwMI – 1.1.2	P
2.6.3	MS-initiated location updating with SCK ciphering, and authentication Registration without encryption applied. Authentication required by SwMI– 1.1.4	P
2.6.4	MS Initiated location updating with SCK ciphering and SCK request	NTPA
2.6.5	MS Initiated location updating with SCK ciphering and SCK request and authentication	NTPA
2.6.6	MS-initiated location updating with DCK ciphering, DCK request and authentication	N/A
2.6.7	MS-initiated location updating with DCK ciphering, with DCK ciphering (no DCK request, no authentication)	N/A
2.6.8	MS-initiated location updating with DCK ciphering, and authentication	N/A
2.6.9	MS-initiated location updating with DCK ciphering, and DCK request	N/A

Comments:

No comments