

TETRA Interoperability Certificate

**Airbus D&S, Tetra System Rel 7.0, SwMI -
Airbus D&S, P8GR, Terminal**

Helsinki, April 2015

Latest Certified SwMI SW Release:	Rel7.0	Latest Certified Terminal SW Release:	7.56-4
Latest Certified SwMI HW Release:	M98F (DXTip)	Latest Certified Terminal HW Release:	RC-44

ISCTI (Istituto Superiore della Comunicazioni e delle Tecnologie dell'Informazione) certifies, that the Airbus D&S, Tetra System Rel. 7.0, SwMI and the Airbus D&S , P8GR, terminal have been subject to interoperability testing for the "certified" features listed on the second page of this certificate. In accordance with the TETRA Interoperability Profiles, TIP compliance Test Plan and the related TETRA interoperability requirement tables.

The table lists all the available TETRA interoperability profiles, and summarises the main functionalities of every profile according to the TETRA interoperability requirement tables.

A feature is "Certified" when it has been successfully tested during the last test session with one of the testing method described in the TETRA process document part 1 (TPD001-01).

A breakdown into the feature details is given in the Feature Compliance Overview section of this certificate.

This certificate has been issued following a fully witnessed single test session between Airbus D&S and Airbus D&S on April 2015. Detailed test results are listed in the Test Report associated to this Certificate.

Details and explanation about the procedure used to provide verdicts are in the TIC process TPD001-01

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Certified features

Tetra Association TTR001-01:Core	
Registration	Certified
Group Management	Partial
Group call	-
Individual call	-
Status messages	Certified
Pre-emptive Priority Call	-
Emergency Call	-
Cell Re-selection	Certified
PSTN interconnect	-
MS-ISDN Numbering	Certified
In Call Signalling	-
Subscriber Class Procedures	Certified
Common Secondary Control Channels	Certified
BS Fallback Operation	Certified
Energy Economy Mode	Partial
Transmit Inhibit	-
Mixed band operation	-
Tetra Association TTR001-02:SDS	
SDS Type 1, 2 or 3	-
SDS-TL	Partial
Store and Forward	Partial
Multipart SDS	-

Tetra Association TTR001-04:Auth	
SwMI Initiated (non-mutual) Authentication	Certified
SwMI Initiated Authentication made Mutual by MS	Certified
TEI Query	Certified
Tetra Association TTR001-11:AIE	
Security Class 2 Air Interface Encryption	-
Security Class 3 Air Interface Encryption	Certified
Security Class 3G Air Interface Encryption	-
Management of CMG and GSKO	-
Key Status demand	-
Change of Security Class for Fallback operation	-
Change of Security Class (other than for Fallback operation)	-
Key Management for Secure Direct Mode Operation	-
Tetra Association TTR001-13:ED	
Enable and temporary disable of an MS	Certified
Permanent disable of an MS	Certified
Tetra Association TTR001-21: CALLOUT	
Full Callout	-
Simple Callout	Certified
Interaction with other services and events	Partial
Callout Test and Callout Availability	Certified
Callout Text and Callout Pre-Coded Status	Partial
Storage of Callout Information	Certified

Feature Compliance Overview

The first pages of this certificate provide an indication about the main interoperable TETRA features for each TIP specification (as described in the TIC-RT). The main interoperable TETRA features result depend on a set of sub-feature, the outcomes associated to each sub-feature are directly derived from the analysis of the performed test cases.

The results associated to each feature and sub-feature are shown in the "Feature compliance report" table below. The main features are indicated with blue background and the associated sub-features (or second level features) have white background.

The outcome assigned to a sub-feature as shown on page 2, is derived by the Feature compliance report tables.

Outcome	Definition
Certified	All required tests have been performed and passed
Partial	Not all the required tests have been performed but none have failed
-	Feature cannot be certified e.g. it is not supported by at least one product, no tests were performed, or some tests were performed but at least one failed

The outcome is derived from the verdict assigned to a sub feature which is the result of an analysis of the test case results listed in the Test Report. The verdict assigned to each subfeature is derived from one or several test case results or test steps result, the TETRA Interoperability requirement tables (TIC-RTs) indicate the link between sub-features and test cases for the certified set of equipment capabilities (see Test Report).

Verdict	Definition
Passed	All mandated tests or steps of tests linked to this functionality (as per TIC-RT indication) are compliant with the TIP specification relevant to this feature or sub-feature
Incomplete	Not all mandated tests (as per TIC-RT indication) have been executed

Failed	At least one of mandated test or steps of test linked to this functionality failed to match the TIP specification relevant to this feature or sub-feature
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The verdict associated to the feature gives also indication about the method used to test that feature or sub-feature. The allowed testing Methods are listed in the table below, a complete description of the procedures and constraints associated to each of them can be found in the "TPD001-01 TETRA Interoperability Certification Process Description" document.

Testing Method	Description
Complete	All mandated tests associated to the feature or sub-feature have been executed
Spot	Only a selection of the mandatory test cases associated to the feature or sub-feature has been executed during the test session. These tests are a subset of the tests performed on an equivalent software which has been "completely" tested against the same functionality on a different equipment, see manufacturer declaration in the associated Test Report
Regression	Only a selection of the mandatory test cases associated to the feature or sub-feature has been executed during the test session. These tests are a subset of the tests performed on a previous version of the same software which has been "completely" tested in a previous test session against the same functionality, see manufacturer definition in the associated Test Report
Regression on spot	The regression method (see the previous item) has been applied at this session on the verdicts from the referenced (previous) session where the spot testing method (see above) had been applied
Witnessed	The TIP heading lines in the Feature Compliance Report indicate whether each TIP is partially or fully witnessed by the Certification Body. Additionally, for a partially-witnessed TIP, the number of witnessed test cases that passed is shown for each the feature and sub-feature. There may have been some un-witnessed passed tests and they will have been found to be successful based on the log file evaluation

Depending on equipment capabilities declared by the manufacturer, some features or sub features cannot be

tested. The following table describes meaning of the used abbreviation:

Indication	Definition
Not Supported	The SwMI and/or MS do not support the minimum features required to verify these items.

ISCTI has made every effort to ensure that every result has been correctly evaluated in accordance with the relevant TIPs, Test Plans and TIC-RTs. ISCTI has no liability for the test results, or towards the manufacturers,

The table on the following page lists HW and SW releases of SwMI and Terminal under test in the last four test sessions and the used TIP specifications, Test Plans and TIC-RTs

This Certificate and Certificates from previous test sessions are available on the TETRA + Critical Communications Association web site (<http://www.tandcca.com/interop/page/12476>).

The feature results are shown in the tables below

Information on equipment under test and document references

Test Session Host/Date/Place	Airbus D&S April 2015 Helsinki			
SwMI Type	Airbus TETRA System Rel7.0			
SwMI HW Release	M98F (DXTip)			
SwMI SW Release	7.0			
Terminal Type	P8GR			
Terminal HW Release	RC-44			
Terminal SW Release	7.56-4			

SwMI Callout Application SW Release	1.0			
TIP Specs and TIP Compliance Test Plans				
Core	TTR001-01 v6.1.1 IOP001-01 v3.1.0 TIC-RT001-01 v263			
SDS	TTR001-02 v2.1.3 IOP001-02 v2.0.0 TIC-RT001-02 v215			
Auth	TTR001-04 v3.0.0 IOP001-04 v2.0.0 TIC-RT001-04 v226			
AIE	TTR001-11 v3.0.3 IOP001-11 v3.0.2 TIC-RT001-11 v326			
ED	TTR001-13 v2.0.0 IOP001-13 v1.0.0 TIC-RT001-13 v147			
Callout	TTR001-21 v2.1.1 IOP001-21 v2.0.0 TIC-RT001-21 v107			

Feature compliance report

Test Session	Airbus D&S April 2015 Helsinki			
Core - Fully Witnessed Testing				
Registration	PASSED Complete 5_pass_of_5			
Initial registration	PASSED Complete 2_pass_of_2			
SwMI initiated location updating	PASSED Complete 1_pass_of_1			
LA timer based Periodic location updating	PASSED Complete 1_pass_of_1			
De-registration	PASSED Complete 1_pass_of_1			
Group Management	Incomplete 3_pass_of_5			
Single group attachment	Incomplete 0_pass_of_1			
Multiple group attachment	Incomplete 2_pass_of_3			
MS initiated group detachment	Not Supported			
SwMI initiated group management	PASSED Complete 1_pass_of_1			
Group call				
Normal group call	Not Supported			
Late entry	Not Supported			
Priority Group scanning	Not Supported			
Call setup modifications	Not Supported			
Resource Queuing based on Call Priority	Not Supported			
Broadcast Call	Not Supported			
Limited coverage notification	Not Supported			
Individual call				
Simplex individual call	Not Supported			
Duplex individual call	Not Supported			
Call setup modifications	Not Supported			
Resource Queuing based on Call Priority	Not Supported			
Indication of imminent call disconnection	Not Supported			
Status messages	PASSED			

	Complete 4_pass_of_4			
Individual addressed Status transfer	PASSED Complete 1_pass_of_1			
Group addressed Status transfer	PASSED Complete 3_pass_of_3			
Pre-emptive Priority Call				
Pre-emption of Resources	Not Supported			
Pre-emption of Busy Users	Not Supported			
Emergency Call				
Pre-emption of Resources	Not Supported			
Pre-emption of Busy Users	Not Supported			
Call setup modifications	Not Supported			
Call disconnection by non-call owner	Not Supported			
Cell Re-selection	PASSED Complete 1_pass_of_1			
Undeclared	PASSED Complete 1_pass_of_1			
Unannounced	Not Supported			
Announced - with Call Restoration	Not Supported			
Announced - without Call Restoration	Not Supported			
Expedited	Not Supported			
PSTN interconnect				
TETRA Originated Call	Not Supported			
PSTN Originated Call	Not Supported			
DTMF over-dial	Not Supported			
Emergency Telephone Calls	Not Supported			
MS-ISDN Numbering	PASSED Complete 2_pass_of_2			
MS ISDN - Voice Call	Not Supported			
MS-ISDN Status	PASSED Complete 2_pass_of_2			
In Call Signalling				
Slow Signalling on Traffic Channel (SACCH)	Not Supported			
Fast Signalling on Traffic Channel (FACCH)	Not Supported			
Subscriber Class Procedures	PASSED Complete 6_pass_of_6			
Cell Selection based on Subscriber Class	PASSED Complete 2_pass_of_2			
Subscriber Class Delivery during Location Update	PASSED Complete 1_pass_of_1			
Use of Preferred Subscriber Classes	PASSED Complete			

	3_pass_of_3 PASSED Complete 7_pass_of_7			
Common Secondary Control Channels				
One C-SCCH per cell	PASSED Complete 4_pass_of_4			
Two C-SCCH per cell	PASSED Complete 3_pass_of_3			
Three C-SCCH per cell	PASSED Complete 2_pass_of_2			
BS Fallback Operation	PASSED Complete 5_pass_of_5			
Switch to/from BS Fallback Operation	PASSED Complete 2_pass_of_2			
Roaming to avoid a cell in BS Fallback Operation	PASSED Complete 2_pass_of_2			
Services with BS Fallback Operation	PASSED Complete 1_pass_of_1			
Ignore a cell in Fallback Operation	Not Supported			
User selectable Fallback behaviour	Not Supported			
Energy Economy Mode	Incomplete 4_pass_of_5			
Energy Economy Mode Operation	Incomplete 4_pass_of_5			
Transmit Inhibit	FAILED Complete 5_pass_of_9			
TXI Activation & De-Activation	FAILED Complete 2_pass_of_3			
TXI Activation & De-Activation with TxI Status available to the Dispatcher	FAILED Complete 2_pass_of_5			
Receipt of group addressed service during TXI	PASSED Complete 1_pass_of_1			
Mixed band operation				
Mixed band operation, inter-cell	Not Supported			
Mixed band operation, intra-cell	Not Supported			
Mixed band operation, Full	Not Supported			
Short Data Service (SDS) - Fully Witnessed Testing				
SDS Type 1, 2 or 3				
SDS Type 1	Not Supported			
SDS Type 2	Not Supported			
SDS Type 3	Not Supported			
SDS-TL	Incomplete 1_pass_of_14			
Individually Addressed	Incomplete 0_pass_of_3			

Group Addressed	Incomplete 1_pass_of_3			
Using MS-ISDN dialling	Not Supported			
Using UCS2 coding scheme	Incomplete 0_pass_of_4			
Using 7-bit coding scheme	Incomplete 0_pass_of_2			
Using 8-bit Latin 1 coding scheme	Incomplete 0_pass_of_2			
Using 8-bit Latin 5 coding scheme	Not Supported			
Using 8-bit Latin 9 coding scheme	Incomplete 0_pass_of_2			
Store and Forward	Incomplete 1_pass_of_9			
Individually Addressed	Incomplete 1_pass_of_9			
Group Addressed	Not Supported			
Multipart SDS	Incomplete 0_pass_of_3			
Multipart SDS	Incomplete 0_pass_of_3			
Authentication - Fully Witnessed Testing				
SwMI Initiated (non-mutual) Authentication	PASSED Complete 3_pass_of_3			
Attach with authentication	PASSED Complete 1_pass_of_1			
Roaming with authentication	PASSED Complete 1_pass_of_1			
SwMI rejects MS during authentication	PASSED Complete 1_pass_of_1			
MS rejects SwMI during authentication	Not Supported			
SwMI Initiated Authentication made Mutual by MS	PASSED Complete 2_pass_of_2			
Attach with authentication	PASSED Complete 1_pass_of_1			
Roaming with authentication	PASSED Complete 1_pass_of_1			
TEI Query	PASSED Complete 1_pass_of_1			
TEI Query Operation	PASSED Complete 1_pass_of_1			
Air Interface Encryption - Fully Witnessed Testing				

Security Class 2 Air Interface Encryption	Incomplete 0_pass_of_2			
Location Updating and AI Signalling Protection	Incomplete 0_pass_of_2			
TM-SCK provisioning during location updating	Not Supported			
Communications between parties using encryption	Not Supported			
Communications between clear and encrypted parties	Not Supported			
Communications between encrypted parties on a channel designated to operate in clear	Not Supported			
OTAR of TM-SCK	Not Supported			
Change of TM-SCK	Not Supported			
Packet Data with Class 2 Air Interface Encryption	Not Supported			
Security Class 3 Air Interface Encryption	PASSED Complete 4_pass_of_4			
Clear Location Updating and AI Signalling Protection	PASSED Complete 2_pass_of_2			
Encrypted Location Updating and AI Signalling Protection	PASSED Complete 2_pass_of_2			
DCK Forwarding at MS request	PASSED Complete 1_pass_of_1			
DCK Forwarding by SwMI (without MS request)	Not Supported			
DCK Retrieval	PASSED Complete 1_pass_of_1			
CCK provisioning during location updating	PASSED Complete 2_pass_of_2			
Communications between parties using encryption	Not Supported			
Communications between clear and encrypted parties	Not Supported			
Communications between encrypted parties on a channel designated to operate in clear	Not Supported			
OTAR of CCK	Not Supported			
Change of CCK	Not Supported			
Packet Data with Class 3 Air Interface Encryption	Not Supported			
Security Class 3G Air Interface Encryption				
GCK Key Association setting	Not Supported			

Communications between parties using encryption	Not Supported			
Communications between clear and encrypted parties	Not Supported			
OTAR of GCK	Not Supported			
Change of GCK	Not Supported			
Management of CMG and GSKO				
OTAR and change of CMG and GSKO	Not Supported			
Key Status demand				
SCK Key Status demand	Not Supported			
GCK Key Status demand	Not Supported			
GSKO Key Status demand	Not Supported			
Change of Security Class for Fallback operation	Incomplete 0_pass_of_3			
Seamless change to Security Class 2 for BS Fallback operation	Not Supported			
Non-seamless change to Security Class 2 for BS Fallback operation	Incomplete 0_pass_of_3			
Provisioning of TM-SCK for fallback to Security Class 2 operation	Not Supported			
Change to Security Class 1 for BS Fallback operation	Not Supported			
Change of Security Class (other than for Fallback operation)				
Change between Security Class 3 and Security Class 3G	Not Supported			
Change between Security Class 2 and Security Class 3	Not Supported			
Change from Security Class 3G to Security Class 2	Not Supported			
Key Management for Secure Direct Mode Operation				
OTAR of DM-SCK	Not Supported			
Change of DM-SCK	Not Supported			
Enable Disable - Fully Witnessed Testing				
Enable and temporary disable of an MS	PASSED Complete 7_pass_of_7			
Enable and temporary disable of an MS without authentication	Not Supported			
Enable and temporary disable of an MS with authentication	PASSED Complete 4_pass_of_4			
Registration of a temporary disabled MS	PASSED Complete 2_pass_of_2			
Rejection of applicable invalid enable/disable requests	PASSED Complete 1_pass_of_1			

Removable SIMs do not affect the subscriber or equipment that has been enabled/disabled	Not Supported			
Disabling of an MS during a call or while on the PDCH	Not Supported			
Permanent disable of an MS	PASSED Complete 3_pass_of_3			
Permanent disable of an MS with authentication	PASSED Complete 2_pass_of_2			
Permanently Disabled MS cannot send air interface signalling	PASSED Complete 1_pass_of_1			
Callout - Fully Witnessed Testing				
Full Callout				
Individually Addressed Full Callout with request for Terminal Receipt message and with request for User Receipt message	Not Supported			
Group Addressed Full Callout without request for Terminal Receipt message and without request for User Receipt message	Not Supported			
Using current selected group during Full Callout	Not Supported			
Full Callout with immediate change to Callout Group	Not Supported			
Full Callout with change to Callout Group on non-rejecting user response	Not Supported			
Full Callout with rejecting User Receipt message	Not Supported			
Full Callout with timeout for User Receipt message	Not Supported			
Callout Incident Information messages	Not Supported			
Group Call to Callout Group	Not Supported			
End of Full Callout	Not Supported			
Simple Callout	PASSED Complete 6_pass_of_6			
Individually Addressed Callout with request for Terminal Receipt message and with request for User Receipt message	PASSED Complete 1_pass_of_1			
Individually Addressed Callout with request for Terminal Receipt message and without request for User Receipt message	PASSED Complete 1_pass_of_1			
Group Addressed Callout without request for Terminal Receipt message and without request for User Receipt message	PASSED Complete 1_pass_of_1			
Group Addressed Callout without	PASSED			

request for Terminal Receipt message and with request for User Receipt message	Complete 1_pass_of_1			
Simple Callout with rejecting User Receipt message	PASSED Complete 1_pass_of_1			
Simple Callout with timeout for User Receipt message	PASSED Complete 1_pass_of_1			
Interaction with other services and events	Incomplete 9_pass_of_10			
Interaction with previous Callout	PASSED Complete 1_pass_of_1			
Interaction with emergency call	Not Supported			
Interaction with non-emergency call	Not Supported			
Interaction with data and status	Incomplete 7_pass_of_8			
Interaction with local services	Not Supported			
Manual exit	PASSED Complete 1_pass_of_1			
Callout Test and Callout Availability	PASSED Complete 4_pass_of_4			
Callout Test	PASSED Complete 2_pass_of_2			
Callout Availability	PASSED Complete 2_pass_of_2			
Callout Availability request	PASSED Complete 1_pass_of_1			
Callout Text and Callout Pre-Coded Status	PASSED Complete 8_pass_of_8			
Callout Text	PASSED Complete 2_pass_of_2			
Concatenated Callout Text	Not Supported			
Callout Pre-Coded Status	PASSED Complete 6_pass_of_6			
Storage of Callout Information	PASSED Complete 2_pass_of_2			
Viewing Callout information from previous Callout(s)	PASSED Complete 1_pass_of_1			
Deletion of Callout information from previous Callout(s)	PASSED Complete 1_pass_of_1			

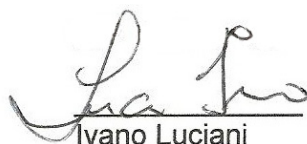
Annex A

Annex A

List of Revisions of the Certificate

Date	Ver.	Modification
26 June 2015	1	First published version
09 July 2015	2	updating: Information on equipment under test and document references table: the SwMI Callout Application SW Release has been added SwMI Callout Application SW Release. Certified features table: AIE Class 2 and for AIE 'Change of Security Class for Fallback Operation' the Outcome has been changed from "Partial" to "-" Feature compliance report table: in SDS-TL due to typo error 3 rows has been changed from "Incomplete 0_pass_of_2 Not Supported" to "Not Supported".
23 July 2015	3	Certified features table: SDS-TL, Store and Forward and Multipart SDS the Outcome has been changed from "Partial" to "Certified"
12 August 2015	4	Reinstated Test-nr verdicts to correctly reflect what was not tested.
3 September 2015	5	Certified features table: Multipart SDS, Security Class 2 Air Interface Equipment and Change of Security Class for Fallback operation, the Outcome has been changed from "Partial" to "-".

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