DMO TETRA Interoperability Certificate

Cassidian, TH1n, DM Terminal

Helsinki, June 2013

Latest Certified DM Terminal SW Release:	V7.03-3
Latest Certified DM Terminal HW Release:	RC-36

ISCTI (Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione) certifies that the Cassidian, TH1n, DM Terminal has been subject to interoperability testing for the features DMO Core and DMO Air Interface Encryption listed in the "Certified features" tables of this certificate with the following DM Terminal Cassidian THR9i, in accordance with the TETRA Interoperability Profiles, TIP compliance Test Plan and related TETRA interoperability requirement tables.

The certificate features associated to each DM terminal are shown in the "Certificate features" tables.

The table lists all the available TETRA interoperability profiles, and summarizes 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 on June 2013. 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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Date of issue:
1 July 2013
v1

Certified feature

DMO Core Test Session Helsinki, June 2013 Cassidian TH1n	Cassidian TH1n	Cassidian THR9i
TTR002-01 DMO Core		
Registration	Certified	Certified
Group Call	Certified	Certified
Individual Call	Certified	Certified
Status Call	Failed	Failed
SDS TL	Certified	Certified
TTR002-05 DMO AIE-Core		
DMO AIE Encryption	Certified	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-features, the verdicts 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 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 test cases 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 is the result of the analysis of the test case results listed in the Test Report. The verdict assigned to each sub-feature 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 tests linked to this functionality failed to match the TIP specification relevant to this feature or sub-feature.

The verdict associated to the feature or sub-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 the 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 has been applied on the verdicts based on the spot testing method.
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-feature cannot be tested. The following table describes meaning of the used abbreviation:

Indication	Definition
Not supported	At least one MS do not support the minimum features required to verify these items

ISCTI has made every effort to ensure that every result have 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 DM Terminals under test in the test session 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 Place/Date	Helsinki, June 2013
DM Terminal Type	Cassidian TH1n
DM Terminal HW release	RC-36
DM Terminal SW release	V7.03-3
DM Terminal 1 Type	Cassidian THR9i
DM Terminal 1 HW release	RC-30
DM Terminal 1 SW release	V7.03-3
TIP Specs and TIP Compliance Test Plans	
DCore	TTR002-01 v211 IOP002-01 v103 TIC-RT002-01 v123
DAIE-Core	TTR002-05 v100 IOP002-05 v100 TIC-RT002-05 v106

Feature compliance report

DMO Test Session Helsinki, June 2013 Cassidian TH1n	Cassidian TH1n	Cassidian THR9i
TTR002-01 Core		
Registration	**PASSED Complete 2_pass_of_2**	**PASSED Complete 2_pass_of_2**
Activation/Deactivation	PASSED Complete 1_pass_of_1	PASSED Complete 1_pass_of_1
RF Carrier Selection	PASSED Complete 1_pass_of_1	PASSED Complete 1_pass_of_1
Group Call	**PASSED Complete 43_pass_of_43**	**PASSED Complete 43_pass_of_43**
Intra-MNI Group Calls	PASSED Complete 6_pass_of_6	PASSED Complete 6_pass_of_6
Inter-MNI Group Calls	PASSED Complete 4_pass_of_4	PASSED Complete 4_pass_of_4
Emergency Group Calls	PASSED Complete 6_pass_of_6	PASSED Complete 6_pass_of_6
Pre-emptive priority Calls	PASSED Complete 4_pass_of_4	PASSED Complete 4_pass_of_4
Group Call Maintenance	PASSED Complete 19_pass_of_19	PASSED Complete 19_pass_of_19
Late Entry Group Calls	PASSED Complete 4_pass_of_4	PASSED Complete 4_pass_of_4
Open Group Calls	PASSED Complete 6_pass_of_6	PASSED Complete 6_pass_of_6

DMO Test Session Helsinki, June 2013 Cassidian TH1n	Cassidian TH1n	Cassidian THR9i
TTR002-01 Core		
Individual Call	**PASSED Complete 20_pass_of_20**	**PASSED Complete 20_pass_of_20**
Intra-MNI Individual Calls	PASSED Complete 4_pass_of_4	PASSED Complete 4_pass_of_4
Inter-MNI Individual Calls	PASSED Complete 6_pass_of_6	PASSED Complete 6_pass_of_6
Pre-emptive priority Calls	PASSED Complete 6_pass_of_6	PASSED Complete 6_pass_of_6
Individual Call maintenance	PASSED Complete 4_pass_of_4	PASSED Complete 4_pass_of_4
Individual Call with Presence Check	PASSED Complete 8_pass_of_8	PASSED Complete 8_pass_of_8
Individual call without Presence Check	PASSED Complete 8_pass_of_8	PASSED Complete 8_pass_of_8
Individual Late Entry	PASSED Complete 4_pass_of_4	PASSED Complete 4_pass_of_4
Status Call	**FAILED Complete 12_pass_of_16**	**FAILED Complete 12_pass_of_16**
Individual Status Calls	PASSED Complete 2_pass_of_2	PASSED Complete 2_pass_of_2
Group Status call	FAILED Complete 8_pass_of_12	FAILED Complete 8_pass_of_12
Status sent in a Voice Call	PASSED Complete 6_pass_of_6	PASSED Complete 6_pass_of_6
Status sent out of a Call	FAILED Complete 4_pass_of_8	FAILED Complete 4_pass_of_8

DMO Test Session Helsinki, June 2013 Cassidian TH1n	Cassidian TH1n	Cassidian THR9i
TTR002-01 Core		
SDS TL	**PASSED Complete 4_pass_of_4**	**PASSED Complete 4_pass_of_4**
Individual SDS-TL Calls	PASSED Complete 2_pass_of_2	PASSED Complete 2_pass_of_2
Group SDS-TL call	PASSED Complete 2_pass_of_2	PASSED Complete 2_pass_of_2
TTR002-05 DMO AIE-Core		
DMO AIE Encryption	**PASSED Complete 20_pass_of_20**	**PASSED Complete 20_pass_of_20**
Encrypted Group Calls	PASSED Complete 8_pass_of_8	PASSED Complete 8_pass_of_8
Encrypted Individual Calls	PASSED Complete 4_pass_of_4	PASSED Complete 4_pass_of_4
Encrypted Status messages	PASSED Complete 2_pass_of_2	PASSED Complete 2_pass_of_2
Pre-emption of encrypted activity	PASSED Complete 2_pass_of_2	PASSED Complete 2_pass_of_2
Handling mismatched keys	PASSED Complete 4_pass_of_4	PASSED Complete 4_pass_of_4