

TETRA Interoperability Certificate

**Teltronic, NEBULA, SwMI –
APSI, APT7000, Terminal**

Zaragoza, November 2014

Latest Certified SwMI SW Release:	14.23.50	Latest Certified Terminal SW Release:	v2.0.0
Latest Certified SwMI HW Release:	1.14.23.21.26	Latest Certified Terminal HW Release:	v1.0.0

ISCTI (Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione) certifies, that the Teltronic, NEBULA, SwMI and the APSI, APT7000, terminal have been subject to interoperability testing for the “certified” features listed on second page of this certificate, in accordance with the TETRA Interoperability Profiles, TIP compliance Test Plan and related TETRA interoperability requirement 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 multi test session between Teltronic and APSI on November 2014. 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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12 December 2014
v 1

Certified features

Tetra Association TTR001-05:PD-TEDS	
Context Management	Certified
Single Slot Packet Data	Certified
Multi Slot Packet Data	Certified
TEDS	Certified
Mixed band operation	-

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 grey background and the associated sub-features (or second level features) have light blue 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 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.
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.

The verdict associated to the feature gives also indication about the method used to test that 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 have been executed
Spot	Only a selection of the mandatory test cases associated to the 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 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 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 Date/Place	Teltronic Zaragoza November 2014			
SwMI Type	NEBULA			
SwMI HW Release	1.14.23.21.26			
SwMI SW Release	14.23.50			
Terminal Type	APT7000			
Terminal HW Release	v1.0.0			
Terminal SW Release	v2.0.0			
TIP Specs and TIP Compliance Test Plans				
PD-TEDS	TTR001-05 v3.0.0 IOP001-05 v3.0.5 TIC-RT001-05 v3.0.7			

Feature compliance report

Test Session	Teltronic Zaragoza November 2014			
Packet Data - TEDS				
Context Management	PASSED Complete 9_pass_of_9			
Context Activation	PASSED Complete 7_pass_of_7			
User authentication	PASSED Complete 2_pass_of_2			
Single Slot Packet Data	PASSED Complete 10_pass_of_10			
Data Transfer	PASSED Complete 7_pass_of_7			
Cell re-selection	PASSED Complete 3_pass_of_3			
Multi Slot Packet Data	PASSED Complete 2_pass_of_2			
Data Transfer	PASSED Complete 2_pass_of_2			
TEDS	PASSED Complete 16_pass_of_16			
TEDS with Context Activation	PASSED Complete 2_pass_of_2			
TEDS Data Transmission, using LLC Optimisation	PASSED Complete 7_pass_of_7			
TEDS Data Transmission, not using LLC Optimisation	Not Supported			
TEDS Cell Reselection, using LLC Optimisation	PASSED Complete 7_pass_of_7			

TEDS Cell Reselection, not using LLC Optimisation	Not Supported			
Mixed band operation				
Mixed band operation, inter-cell	Not Supported			
Mixed band operation, intra-cell	Not Supported			
Mixed band operation, Full	Not Supported			