

DMO TETRA Interoperability Certificate

Motorola Solutions, MTP6650, DMO Repeater

Berlin, January 2018

Latest Certified Repeater SW Release:	PTAR952AC
Latest Certified Repeater HW Release:	MR16.1

ISCTI (Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione) certifies that the Motorola Solutions MTP6650 DMO Repeater has been subject to interoperability testing for the features listed in the "Certified features" tables of this certificate with the following DMO Terminals Motorola Solutions

MTP850Fug, in accordance with the TETRA Interoperability Profiles, TIP compliance Test Plan and related TETRA interoperability requirement tables.

The certificate features of each DM Terminal acting as master during testing is highlighted in light blue.

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 January 2018. 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.

NOTE: the MTP6650 Repeater was tested as Repeater Type 1A only.

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Certified features

Note: The DM-MSA under test is highlighted in light blue background.

DMO Test Session Berlin, January 2018 Motorola Solutions MTP6650		Motorola Solutions MTP850Fug
TTR002-03 DMO Repeater		
Presence Signal	Certified	
DM-MS authorization	Certified	
Group Call	Certified	
Individual Call	Certified	
Call Maintenance	Certified	
Status messages	Certified	
SDS TL	Certified	
TTR002-05 DMO AIE - Rep		
DMO AIE Encryption - via Repeater Type 1A	Certified	
DMO AIE Encryption - via Repeater Type 1B		

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 certified DM Terminal acting as master during testing is highlighted in light blue. The main features are indicated with grey 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 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).

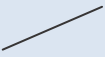
Verdict	Definition
Passed	All mandated tests or steps of tests linked to this functionality (as per TIC-RT indication) are compliant with the TIP specification relevant to this feature.
Incomplete	Not all Mandated tests (as per TIC-RT indication) have been executed.
Failed	At least one of mandated test or steps of tests linked to this functionality failed to match the TIP specification relevant to

	this feature.
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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 annex B.
Regression	Only a selection of the mandatory the test cases associated to the feature is 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	The Repeater and/or MS do not support the minimum features required to verify these items
	The Result is not relevant (or needed) to verify the Repeater and/or MS features

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 TCCA web site

(<https://tandcca.com/interoperability/interoperability-certificates-and-test-reports/>).

The feature results are shown in the tables below.

Information on equipment under test and document references

Test Session Place/Date	BDBOS-ZPL, Berlin January 2018
Repeater Type	Motorola Solutions MTP6650
Repeater HW release	MR16.1
Repeater SW release	PTAR952AC
DM Terminal 1 Type	Motorola Solutions MTP850Fug
DM Terminal 1 HW release	PT912BG
DM Terminal 1 SW release	MR16_a
TIP Specs and TIP Compliance Test Plans	
Repeater	TTR002 03 v120 IOP002 03 v110 TIC-RT002-03 v117
DAIE -Rep	TTR002 05 v100 IOP002 05 v110 TIC-RT002-05-3 v110

Feature compliance report

<p>DMO Test Session Berlin, January 2018 Motorola Solutions MTP6650</p>	<p>Motorola Solutions MTP850Fug</p>
<p>TTR002-03 Repeater – fully witnessed testing</p>	
<p>Presence Signal</p>	<p>PASSED Complete 5_pass_of_5</p>
<p>Presence Signal on free channel</p>	<p>PASSED Complete 1_pass_of_1</p>
<p>Presence Signal on occupied channel</p>	<p>PASSED Complete 4_pass_of_4</p>
<p>DM-MS authorization</p>	<p>PASSED Complete 8_pass_of_8</p>
<p>Usage Restriction Type</p>	<p>PASSED Complete 8_pass_of_8</p>
<p>Validity Time</p>	<p>Not_Supported</p>
<p>Group call</p>	<p>PASSED Complete 4_pass_of_4</p>
<p>Intra-MNI Group Calls</p>	<p>PASSED Complete 2_pass_of_2</p>
<p>Inter-MNI Group Calls</p>	<p>PASSED Complete 2_pass_of_2</p>

DMO Test Session Berlin, January 2018 Motorola Solutions MTP6650	Motorola Solutions MTP850Fug
Individual Call	PASSED Complete 7_pass_of_7
Individual Call with Presence Check	PASSED Complete 5_pass_of_5
Individual call without Presence Check	PASSED Complete 2_pass_of_2
Call Maintenance	PASSED Complete 19_pass_of_19
Changeover	PASSED Complete 2_pass_of_2
Pre-emption	PASSED Complete 6_pass_of_6
Procedures in Occupation	PASSED Complete 6_pass_of_6
Procedures in Reservation	PASSED Complete 7_pass_of_7
Status Messages	PASSED Complete 14_pass_of_14
Intra-MNI Status Calls	PASSED Complete 14_pass_of_14
Individual Status Calls	PASSED Complete 2_pass_of_2
Group Status call	PASSED Complete 12_pass_of_12
Status sent in a Voice Call	PASSED Complete

DMO Test Session Berlin, January 2018 Motorola Solutions MTP6650	Motorola Solutions MTP850Fug
	6_pass_of_6
Status sent out of a Call	PASSED Complete 8_pass_of_8
SDS TL	PASSED Complete 8_pass_of_8
Group Addressed Intra-MNI SDS-TL	PASSED Complete 2_pass_of_2
Open TSI Addressed SDS-TL	PASSED Complete 2_pass_of_2
Individually Addressed intra- MNI SDS-TL	PASSED Complete 2_pass_of_2
Individually Addressed inter- MNI SDS-TL	PASSED Complete 2_pass_of_2
TTR002-05 (class 2) DMO AIE Encryption - via Repeater – fully witnessed testing	
DMO AIE Encryption - via Repeater Type 1A	PASSED Complete 16_pass_of_16
Encrypted Group Calls	PASSED Complete 4_pass_of_4
Encrypted Individual Calls	PASSED Complete 4_pass_of_4
Encrypted Status messages	PASSED Complete 2_pass_of_2
Pre-emption of encrypted activity	PASSED Complete 2_pass_of_2
Handling mismatched keys	PASSED Complete

DMO Test Session Berlin, January 2018 Motorola Solutions MTP6650	Motorola Solutions MTP850Fug
	4_pass_of_4
SDS-TL messages	PASSED Complete 2_pass_of_2
DMO AIE Encryption - via Repeater Type 1B	
Encrypted Group Calls	
Encrypted Individual Calls	
Encrypted Status messages	
Pre-emption of encrypted activity	
Handling mismatched keys	

Note: The DM-MSA under test is highlighted in light blue background.