

## DMO TETRA Interoperability Certificate

### Hytera, MT680 Plus DMO Terminal

Bad Mnder , September 2015

Latest Certified DM Terminal SW Release:	V3.07.12.095
Latest Certified DM Terminal HW Release:	126800

ISCTI (Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione) certifies that the Hytera MT680 Plus, DMO 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 Terminals Hytera, MT680 Plus and Hytera Z1p, PT580H Plus 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.

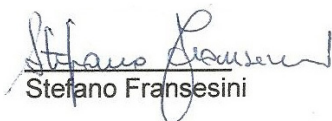
The table lists all the available TETRA interoperability profiles, and summarizes the main functionalities of every profile according to the TETRA interoperability requirement tables.

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 session on September 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.

**IOP test engineer**



Stefano Fransesini

**Head of the Procedure**



Ivano Luciani

**Radio Office Manager**



Giuseppe Pierri

ISCTI - V.le America 201, 00144 Rome, Italy  
Ph.: +39 06 5444 2663, Fax: +39 06 5410904  
e-mail: [tetra\\_ctc.iscom@mise.gov.it](mailto:tetra_ctc.iscom@mise.gov.it)  
Web: [www.mise.gov.it](http://www.mise.gov.it)

**Date of issue:**

**19 November 2015**

**V 1**

## Certified feature

<b>DMO Test Session Bad Mnder, September 2015 Hytera MT680 Plus</b>	<b>Hytera MT680 Plus</b>	<b>Hytera Z1p</b>	<b>Hytera PT580H Plus</b>
<b>TTR002-01 DMO Core</b>			
<b>Registration</b>	Certified	Certified	Certified
<b>Group Call</b>	Certified	Certified	Certified
<b>Individual Call</b>	Certified	Certified	Certified
<b>Status Call</b>	Certified	Certified	Certified
<b>SDS TL</b>	Certified	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
<b>Certified</b>	All required tests have been performed and passed.
<b>Partial</b>	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
<b>Passed</b>	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.
<b>Incomplete</b>	Not all Mandated tests (as per TIC-RT indication) have been executed.
<b>Failed</b>	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
<b>Complete</b>	All mandated tests associated to the feature or sub-feature have been executed.
<b>Spot</b>	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.
<b>Regression</b>	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
<b>Regression on spot</b>	The regression method has been applied on the verdicts based on the spot testing method.
<b>Witnessed</b>	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
<b>Not supported</b>	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](http://www.tandcca.com/interop/page/12476) 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	Bad Mnder, September 2015
DM Terminal Type	Hytera MT680 Plus
DM Terminal HW release	126800
DM Terminal SW release	V3.07.12.095
DM Terminal 1 Type	Hytera Z1p
DM Terminal 1 HW release	130000
DM Terminal 1 SW release	V3.07.12.095
DM Terminal 2 Type	Hytera PT580H Plus
DM Terminal 2 HW release	115801
DM Terminal 2 SW release	V3.07.12.095

TIP Specs and TIP Compliance Test Plans	
DCore	TTR02-01_v2.1.1_DCore IOP002-01_v1.0.3_DCore TIC-RT002-01_v1.2.7_DCore

## Feature compliance report

DMO Test Session Bad Mnder, September 2015 Hytera MT680 Plus	Hytera MT680 Plus	Hytera Z1p	Hytera PT580H Plus
<b>TTR02-01 DCore</b>			
<b>Registration</b>	<b>Spot</b> 0_pass_of_2	<b>Spot</b> 0_pass_of_2	<b>Spot</b> 0_pass_of_2
Activation/Deactivation	Spot 0_pass_of_1	Spot 0_pass_of_1	Spot 0_pass_of_1
RF Carrier Selection	Spot 0_pass_of_1	Spot 0_pass_of_1	Spot 0_pass_of_1
<b>Group Call</b>	<b>PASSED Spot</b> 7_pass_of_39	<b>PASSED Spot</b> 22_pass_of_39	<b>PASSED Spot</b> 6_pass_of_39
Intra-MNI Group Calls	Spot 0_pass_of_6	PASSED Spot 3_pass_of_6	PASSED Spot 1_pass_of_6
Inter-MNI Group Calls	PASSED Spot 2_pass_of_4	PASSED Spot 3_pass_of_4	PASSED Spot 1_pass_of_4
Emergency Group Calls	Spot 0_pass_of_6	PASSED Spot 3_pass_of_6	PASSED Spot 1_pass_of_6
Pre-emptive priority Calls	<b>Not_Supported</b>	<b>Not_Supported</b>	<b>Not_Supported</b>
Group Call Maintenance	PASSED Spot 3_pass_of_19	PASSED Spot 10_pass_of_19	PASSED Spot 3_pass_of_19
Late Entry Group Calls	Spot 0_pass_of_4	PASSED Spot 2_pass_of_4	Spot 0_pass_of_4
Open Group Calls	PASSED Spot 2_pass_of_6	PASSED Spot 4_pass_of_6	PASSED Spot 1_pass_of_6

DMO Test Session Bad Mnder, September 2015 Hytera MT680 Plus		Hytera MT680 Plus	Hytera Z1p	Hytera PT580H Plus
<b>Individual Call</b>		<b>PASSED Spot 3_pass_of_14</b>	<b>PASSED Spot 8_pass_of_14</b>	<b>PASSED Spot 5_pass_of_14</b>
Intra-MNI Individual Calls	PASSED Spot 2_pass_of_4	PASSED Spot 3_pass_of_4	PASSED Spot 2_pass_of_4	
Inter-MNI Individual Calls	Spot 0_pass_of_6	PASSED Spot 3_pass_of_6	PASSED Spot 1_pass_of_6	
Pre-emptive priority Calls	<b>Not_Supported</b>	<b>Not_Supported</b>	<b>Not_Supported</b>	
Individual Call maintenance	PASSED Spot 1_pass_of_4	PASSED Spot 2_pass_of_4	PASSED Spot 2_pass_of_4	
Individual Call with Presence Check	PASSED Spot 1_pass_of_4	PASSED Spot 2_pass_of_4	PASSED Spot 1_pass_of_4	
Individual call without Presence Check	Spot 0_pass_of_6	PASSED Spot 3_pass_of_6	PASSED Spot 2_pass_of_6	
Individual Late Entry	PASSED Spot 2_pass_of_4	PASSED Spot 3_pass_of_4	PASSED Spot 2_pass_of_4	
<b>Status Call</b>	<b>PASSED Spot 2_pass_of_4</b>	<b>PASSED Spot 3_pass_of_4</b>	<b>PASSED Spot 1_pass_of_4</b>	
Individual Status Calls	PASSED Complete 2_pass_of_2	PASSED Complete 2_pass_of_2	PASSED Spot 1_pass_of_2	
Group Status call	Spot 0_pass_of_2	PASSED Spot 1_pass_of_2	Spot 0_pass_of_2	
Status sent in a Voice Call	<b>Not_Supported</b>	<b>Not_Supported</b>	<b>Not_Supported</b>	
Status sent out of a Call	PASSED Spot 2_pass_of_4	PASSED Spot 3_pass_of_4	PASSED Spot 1_pass_of_4	



<b>DMO Test Session Bad Mnder, September 2015 Hytera MT680 Plus</b>	<b>Hytera MT680 Plus</b>	<b>Hytera Z1p</b>	<b>Hytera PT580H Plus</b>
<b>SDS TL</b>	<b>PASSED Spot 2_pass_of_8</b>	<b>PASSED Spot 5_pass_of_8</b>	<b>PASSED Spot 2_pass_of_8</b>
Individual intra-MNI SDS-TL, unacknowledged, 8 bit	Spot 0_pass_of_2	PASSED Spot 1_pass_of_2	PASSED Spot 1_pass_of_2
Individual inter-MNI SDS-TL, unacknowledged, 8 bit	Spot 0_pass_of_2	PASSED Spot 1_pass_of_2	Spot 0_pass_of_2
Group SDS-TL intra- MNI, unacknowledged, no reports, 8 bit	PASSED Complete 2_pass_of_2	PASSED Complete 2_pass_of_2	PASSED Spot 1_pass_of_2
Open TSI addressed SDS-TL, unacknowledged, no reports, 8 bit	Spot 0_pass_of_2	PASSED Spot 1_pass_of_2	Spot 0_pass_of_2