

# DMO TETRA Interoperability Certificate

## Direct Mode Operation Core - Air Interface Encryption

Motorola, MTP6650, DMO Terminal

### Remotely Witnessed Session

Penang - Malaysia, April 2021

|   |           |
|---|-----------|
| Latest Certified DM Terminal<br>SW Release: | MR2021.1  |
| Latest Certified DM Terminal<br>HW Release: | PTAR952AC |

ISCTI (Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione) certifies that the Motorola MTP6650, 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 Terminals Motorola, MTP6650, Motorola MTM800Fug, and Motorola MXP600 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.

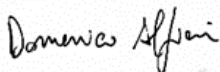
The table lists all the available TETRA interoperability profiles, and summarizes the main functionalities of every profile according to the TETRA interoperability requirement tables.

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).

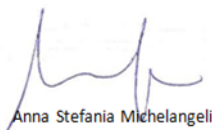
A breakdown into the feature details is given in the Feature Compliance Overview section of this certificate.

This certificate has been issued following a fully witnessed single test session on April 2021. **Certification Body was not present at the host lab during the session, but witnessed testing remotely.** 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

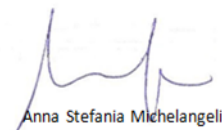


Head of the Procedure



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Date of issue:  
Date 23 June 2021  
v1

### Certified feature

| DMO Core Test Session<br>Penang - Malaysia, April 2021<br>Motorola MTP6650 | Motorola<br>MTP6650 | Motorola<br>MTM800Fug | Motorola<br>MXP600 |
|--|---------------------|-----------------------|--------------------|
| <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>   | Failed              | Failed                | Failed             |
| <b>SDS TL</b>  | Certified           | Certified             | Certified          |
| <b>TTR002-05 DMO AIE-Core</b>  |                     |                       |                    |
| <b>DMO AIE Encryption</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.<br>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 TCCA web site. The feature results are shown in the tables below.

### Information on equipment under test and document references

| Test Session Place/Date  | Penang - Malaysia, April 2021 |
|--------------------------|-------------------------------|
| DM Terminal Type         | Motorola MTP6650              |
| DM Terminal HW release   | PTAR952AC                     |
| DM Terminal SW release   | MR2021.1                      |
| DM Terminal 1 Type       | Motorola MTP6650              |
| DM Terminal 1 HW release | PTAR952AC                     |
| DM Terminal 1 SW release | MR2021.1                      |
| DM Terminal 2 Type       | Motorola MTM800Fug            |
| DM Terminal 2 HW release | MT953CG                       |
| DM Terminal 2 SW release | MR2021.1                      |
| DM Terminal 3 Type       | Motorola MXP600               |
| DM Terminal 3 HW release | PTW952HEB                     |
| DM Terminal 3 SW release | MR2021.1                      |

| <b>TIP Specs and<br/>TIP Compliance Test Plans</b> |   |
|--|---|
| <b>DCore</b>                                       | TTR 002-01 Version 2.3.0<br>IOP 002-01 Ver. 1.1.0<br>TIC-RT002-01_v131_DCore  |
| <b>DAIE-Core</b>                                   | TTR 002-05 Ver 1.0.0<br>IOP 002-05 Ver 1.1.0<br>TIC-RT002-05-1_v112_DAIE-Core |

## Feature compliance report

| DMO Test Session<br>Penang - Malaysia, April 2021<br>Motorola MTP6650 | Motorola<br>MTP6650                      | Motorola<br>MTM800Fug                    | Motorola<br>MXP600                       |
|---|--|--|--|
| <b>TTR002-01 Core – Remotely Fully Witnessed Testing</b>              |  |  |  |
| <b>Registration</b>   | <b>PASSED Complete<br/>2_pass_of_2</b>   | <b>PASSED Complete<br/>2_pass_of_2</b>   | <b>PASSED Complete<br/>2_pass_of_2</b>   |
| Activation/Deactivation   | PASSED Complete<br>1_pass_of_1           | PASSED Complete<br>1_pass_of_1           | PASSED Complete<br>1_pass_of_1           |
| RF Carrier Selection  | PASSED Complete<br>1_pass_of_1           | PASSED Complete<br>1_pass_of_1           | PASSED Complete<br>1_pass_of_1           |
| <b>Group Call</b>   | <b>PASSED Complete<br/>43_pass_of_43</b> | <b>PASSED Complete<br/>43_pass_of_43</b> | <b>PASSED Complete<br/>43_pass_of_43</b> |
| Intra-MNI Group Calls   | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           |
| Inter-MNI Group Calls   | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           |
| Emergency Group Calls   | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           |
| Pre-emptive priority Calls  | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           |
| Group Call Maintenance  | PASSED Complete<br>19_pass_of_19         | PASSED Complete<br>19_pass_of_19         | PASSED Complete<br>19_pass_of_19         |
| Late Entry Group Calls  | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           |
| Open Group Calls  | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           |
| <b>Individual Call</b>  | <b>PASSED Complete<br/>20_pass_of_20</b> | <b>PASSED Complete<br/>20_pass_of_20</b> | <b>PASSED Complete<br/>20_pass_of_20</b> |
| Intra-MNI Individual Calls  | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           |
| Inter-MNI Individual Calls  | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           |
| Pre-emptive priority Calls  | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           | PASSED Complete<br>6_pass_of_6           |

| <b>DMO Test Session<br/>Penang - Malaysia, April 2021<br/>Motorola MTP6650</b> | <b>Motorola<br/>MTP6650</b>              | <b>Motorola<br/>MTM800Fug</b>            | <b>Motorola<br/>MXP600</b>               |
|--|--|--|--|
| Individual Call maintenance  | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           |
| Individual Call with Presence Check  | PASSED Complete<br>8_pass_of_8           | PASSED Complete<br>8_pass_of_8           | PASSED Complete<br>8_pass_of_8           |
| Individual call without Presence Check   | PASSED Complete<br>8_pass_of_8           | PASSED Complete<br>8_pass_of_8           | PASSED Complete<br>8_pass_of_8           |
| Individual Late Entry  | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           | PASSED Complete<br>4_pass_of_4           |
| <b>Status Call</b>   | <b>FAILED Complete<br/>14_pass_of_16</b> | <b>FAILED Complete<br/>14_pass_of_16</b> | <b>FAILED Complete<br/>14_pass_of_16</b> |
| Individual Status Calls  | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           |
| Group Status call  | PASSED Complete<br>12_pass_of_12         | PASSED Complete<br>12_pass_of_12         | PASSED Complete<br>12_pass_of_12         |
| Status sent in a Voice Call  | FAILED Complete<br>6_pass_of_8           | FAILED Complete<br>6_pass_of_8           | FAILED Complete<br>6_pass_of_8           |
| Status sent out of a Call  | PASSED Complete<br>8_pass_of_8           | PASSED Complete<br>8_pass_of_8           | PASSED Complete<br>8_pass_of_8           |
| <b>SDS TL</b>  | <b>PASSED Complete<br/>8_pass_of_8</b>   | <b>PASSED Complete<br/>8_pass_of_8</b>   | <b>PASSED Complete<br/>8_pass_of_8</b>   |
| Individual intra-MNI SDS-TL, unacknowledged, 8 bit                             | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           |
| Individual inter-MNI SDS-TL, unacknowledged, 8 bit                             | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           |
| Group SDS-TL intra-MNI, unacknowledged, no reports, 8 bit                      | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           |
| Open TSI addressed SDS-TL, unacknowledged, no reports, 8 bit                   | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           | PASSED Complete<br>2_pass_of_2           |
| Multipart SDS-TL   | Not_Supported                            | Not_Supported                            | Not_Supported                            |
| <b>TTR002-05 DMO AIE-Core – Remotely Fully Witnessed Testing</b>               |  |  |  |
| <b>DMO AIE Encryption</b>  | <b>PASSED Complete<br/>24_pass_of_24</b> | <b>PASSED Complete<br/>24_pass_of_24</b> | <b>PASSED Complete<br/>24_pass_of_24</b> |



| <b>DMO Test Session<br/>Penang - Malaysia, April 2021<br/>Motorola MTP6650</b> | <b>Motorola<br/>MTP6650</b>    | <b>Motorola<br/>MTM800Fug</b>  | <b>Motorola<br/>MXP600</b>     |
|--|--------------------------------|--------------------------------|--------------------------------|
| Encrypted Group Calls  | PASSED Complete<br>8_pass_of_8 | PASSED Complete<br>8_pass_of_8 | PASSED Complete<br>8_pass_of_8 |
| Encrypted Individual Calls   | PASSED Complete<br>4_pass_of_4 | PASSED Complete<br>4_pass_of_4 | PASSED Complete<br>4_pass_of_4 |
| Encrypted Status messages  | PASSED Complete<br>2_pass_of_2 | PASSED Complete<br>2_pass_of_2 | PASSED Complete<br>2_pass_of_2 |
| Pre-emption of encrypted activity  | PASSED Complete<br>2_pass_of_2 | PASSED Complete<br>2_pass_of_2 | PASSED Complete<br>2_pass_of_2 |
| Handling mismatched keys   | PASSED Complete<br>6_pass_of_6 | PASSED Complete<br>6_pass_of_6 | PASSED Complete<br>6_pass_of_6 |
| Encrypted SDS-TL messages  | PASSED Complete<br>2_pass_of_2 | PASSED Complete<br>2_pass_of_2 | PASSED Complete<br>2_pass_of_2 |