

**Project 25 Compliance Assessment Program**  
**SDOC - Motorola Solutions - ASTRO BASE STATION REPEATER GTR8000**  
**July 20, 2018**

**BASE STATION REPEATER PRODUCT INFORMATION**

Base Station Repeater Info	Detail
Model Name:	ASTRO 25 System GTR8000 Trunked Base Station/Repeater w/RF preselector
Tested Software Versions:	SiteRptrBR_R07.17.28 - ASTRO System Release 7.17, 7.16, 7.15, 7.14, 7.13, 7.11, 7.9, 7.8, 7.7
Hardware Capabilities/Options & Software Options:	VHF (136-174MHz); UHF-R1 (380-435MHz); UHF-R2 (435-524MHz); 700MHz; 800MHz, P25 Conventional, P25 Trunking, P25 TDMA Trunking, RF preselector

Test case results and updated software versions for this model can be found in the Summary Test Report identified below.

**TEST REQUIREMENTS CAB IDENTIFICATION**

This product was tested according to the P25 CAP Test Requirements Compliance Assessment Bulletin (CAB) indicated by the checked box.

check one	P25 CAP Test Requirement CAB	Details
	<b>P25-CAB-CAI_TEST_REQ – August 2016<sup>1</sup></b>	Adds conventional interoperability testing to the March 2010 P25 CAP Test Requirements
✓	<b>P25-CAB-CAI_TEST_REQ – July 2017<sup>2</sup></b>	Includes August 2016 P25 CAP Test Requirements; Adds TDMA performance and interoperability testing and trunked supplementary data testing

**SUMMARY TEST REPORT IDENTIFIER<sup>3</sup>**

Summary Test Report (STR) Identifier:	STR - MOT - ASTRO25 - BASE STATION REPEATER
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**CONTACT INFORMATION**

Company Info	Details
Company Name:	Motorola Solutions, Inc.
Company Website URL:	<a href="http://www.motorolasolutions.com">www.motorolasolutions.com</a>
P25 CAP Contact Name:	Rick Tasher
P25 CAP Contact Phone:	(847) 538-2489
P25 CAP Contact Email:	<a href="mailto:Rick.Tasher@motorolasolutions.com">Rick.Tasher@motorolasolutions.com</a>

<sup>1</sup> The following version of the 2016 CAB was used for testing: Baseline Common Air Interface Testing Requirements (August 2016).

<sup>2</sup> The following version of the 2017 CAB was used for testing: Baseline Common Air Interface Testing Requirements (July 2017)

<sup>3</sup> The Summary Test Report for this product is available upon request. Please send your STR request to [P25CAP@hq.dhs.gov](mailto:P25CAP@hq.dhs.gov) and include the base station repeater 'Vendor Name'.

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**CONVENTIONAL PERFORMANCE**

The Base Station Repeater product has been tested for Conventional Performance. All requirements were passed except for those requirements identified below under Unsupported or Failed Requirements.

**P25 CAP Conventional Performance Testing Coverage**

**Receiver Tests:** Reference Sensitivity, Faded Reference Sensitivity, Adjacent Channel Rejection, Offset Adjacent Channel Rejection, Co-Channel Rejection, Spurious Response Rejection, Intermodulation Rejection, Signal Displacement Bandwidth, Late Entry Unsilence Delay, and Receiver Throughput Delay.  
**Transmitter Tests:** Unwanted Emissions (Adjacent Channel Power Ratio), Transmitter Throughput Delay, Frequency Deviation for C4FM, and Modulation Fidelity, Transient Frequency Behavior.

**Unsupported or Failed Requirements**

1. **None**

**TRUNKING PERFORMANCE - FDMA**

The Base Station Repeater product has been tested for Trunking Performance - FDMA. All requirements were passed except for those requirements identified below under Unsupported or Failed Requirements.

**P25 CAP FDMA Trunking Performance Testing Coverage**

**Receiver Tests:** Reference Sensitivity, Faded Reference Sensitivity, Adjacent Channel Rejection, Offset Adjacent Channel Rejection, Co-Channel Rejection, Spurious Response Rejection, Intermodulation Rejection, and Signal Displacement Bandwidth.  
**Transmitter Tests:** Unwanted Emissions (Adjacent Channel Power Ratio), Transmitter Throughput Delay, Frequency Deviation for C4FM, and Modulation Fidelity, Transient Frequency Behavior.  
**Trunked Tests:** Time to Grant

**Unsupported or Failed Requirements**

1. **None**

**TRUNKING PERFORMANCE - TDMA**

(only applicable for the 2017 CAB)

The Base Station Repeater product has been tested for Trunking Performance - TDMA. All requirements were passed except for those requirements identified below under Unsupported or Failed Requirements.

**P25 CAP TDMA Trunking Performance Testing Coverage**

**Receiver Tests:** Reference Sensitivity, Faded Reference Sensitivity, Adjacent Channel Rejection, Offset Adjacent Channel Rejection, Co-Channel Rejection, Spurious Response Rejection, Intermodulation Rejection, and Signal Displacement Bandwidth.

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Transmitter Tests: Unwanted Emissions (Adjacent Channel Power Ratio), Modulation Fidelity, and Symbol Rate Accuracy.

Unsupported or Failed Requirements

1. **None**

**CONVENTIONAL REPEAT MODE INTEROPERABILITY**

The Base Station Repeater product has been tested for Conventional Repeat Mode Interoperability. All test cases were passed except for those cases identified below under Unsupported or Failed Test Cases. Test cases that passed but require specific, sometimes optional, product capabilities are also identified below.

P25 CAP Repeat Mode Interoperability Testing Coverage

Network Access Code (NAC) Operation, Group Voice Call, Emergency Call, Unit-to-Unit Voice Call, Encryption, Call Alert, Radio Check, Message Update, Status Update, Status Query, and Radio Unit Monitor.

Unsupported or Failed Test Cases

1. **None**

Optional Product Capabilities Required to Pass Test Cases

1. **None**

**CONVENTIONAL REPEAT MODE with DISPATCH MONITORING CONSOLE INTEROPERABILITY**

The Base Station Repeater product has been tested for Conventional Repeat Mode with Dispatch Monitoring Console Interoperability. All test cases were passed except for those test cases identified below under Unsupported or Failed Test Cases. Test cases that passed but require specific, sometimes optional, product capabilities are also identified below.

P25 CAP Repeat Mode Interoperability Testing Coverage

Group Voice Call, Emergency Call, All Call, Unit-to-Unit Voice Call, Encryption, Emergency Alarm, Call Alert, Radio Check, Radio Unit Inhibit/Uninhibit, Message Update, Status Update, Status Query, and Radio Unit Monitor.

Unsupported or Failed Test Cases

1. Emergency Call (Test Case 2.6.3.4.2), Message Update (Test Cases 2.7.6.4.1, 2.7.6.4.2) are unsupported by the Motorola console.
2. Routine Group Voice Call (Test Case 2.6.2.4.1) passes two out of the three pass criteria because the Motorola console does not support selective squelch.

Optional Product Capabilities Required to Pass Test Cases

1. In order to pass the Encryption Test case, a DMC with AES-256 encryption is required.

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**TRUNKED BASE STATION REPEATER INTEROPERABILITY – FDMA**

(Baseline features are tested as part of the 2016 CAB. Additional features are tested as part of the 2017 CAB.)

The Base Station Repeater product has been tested for Trunked Interoperability - FDMA. All test cases were passed except for those test cases identified below under Unsupported or Failed Test Cases. Test cases that passed but require specific, sometimes optional, product capabilities are also identified below.

**2016 P25 CAP FDMA Trunked Interoperability Testing Coverage**

Full Registration, Group Voice Call, Unit to Unit Voice Call, Broadcast Voice Call, Affiliation, Announcement Group Call, Emergency Alarm, Emergency Group Call, Encryption, Intra-Location Registration Area Roaming

**2017 P25 CAP FDMA Trunked Interoperability Testing Coverage**

Deregistration, System Call, Call Alert, Short Message, Status Query, Status Update, Radio Unit Monitoring, Radio Unit Disable/Re-Enable, and Radio Check.

**Unsupported or Failed Test Cases**

1. Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check (Test Case 2.2.3.4.4), Unit-to-Unit Call without Target Availability Check (Test Case 2.2.3.4.5), Unit-to-Unit Call Queued without Target Availability Check (Test Case 2.2.3.4.6), Radio Unit Monitor Individual Non-Silent and Silent (Test Cases 2.2.19.4.1 and 2.2.19.4.2), System Call, Short Message, Status Query are not supported.
2. Unit-to-Unit Call, Call Alert, Radio Unit Disable, Radio Check, Status Update, Radio Unit Monitoring are not supported in Inter-System and Inter-WACN roaming configurations.

**Optional Product Capabilities Required to Pass Test Cases**

1. **None**

**TRUNKED BASE STATION REPEATER INTEROPERABILITY – TDMA**

(only applicable for the 2017 CAB)

The Base Station Repeater product has been tested for Trunked Interoperability - TDMA. All test cases were passed except for those test cases identified below under Unsupported or Failed Test Cases. Test cases that passed but require specific, sometimes optional, product capabilities are also identified below.

**P25 CAP TDMA Trunked Interoperability Testing Coverage**

Registration, Group Voice Call, Unit-to-Unit Voice Call, Broadcast Call, Announcement Group Call, Emergency Group Call, Encryption Group Call, System Call, Radio Unit Monitoring, and Transmitting Subscriber Forced Preemption.

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Unsupported or Failed Test Cases

1. System Call, Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check (Test Case 2.2.3.4.4), Unit-to-Unit Call without Target Availability Check (Test Case 2.2.3.4.5), Unit-to-Unit Call Queued without Target Availability Check (Test Case 2.2.3.4.6), Radio Unit Monitor Individual Non-Silent and Silent (Test Cases 2.2.19.4.1 and 2.2.19.4.2, TDMA SU Forced Audio Preemption (Test Case 2.2.26.4.1) are not supported.
2. Unit-to-Unit Call and Radio Unit Monitoring are not supported in Inter-System and Inter-WACN roaming configurations.

Optional Product Capabilities Required to Pass Test Cases

1. **None**

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**SIGNATURE AND DATE**

17-July-2018

Date Signed

GThein

Vendor's Authorized Representative Signature

Gretchen Thein

Vendor's Authorized Representative Printed Name

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**BURDEN STATEMENT**

OMB NO: 6040-0015 (additional questions are pending OMB approval)

EXPIRATION DATE: 6/30/2019 (additional questions are pending OMB approval)

An agency may not conduct or sponsor information collection and a person is not required to respond to this information collection unless it displays a current valid Office of Management and Budget control number and expiration date. The control number for this collection is 6040-0015 and this form will expire on 06/30/2019 (additional questions are pending OMB approval). The estimated average time to complete this form is 60 minutes per respondent. If you have any comments regarding the burden estimate, you can write to the U.S. Department of Homeland Security, Science and Technology Directorate, Washington, D.C. 20528.

DHS FORM 10044 – June 2009