

**Project 25 Compliance Assessment Program**  
**SDOC - TAIT COMMUNICATIONS – TBCK4A**  
**January 16, 2020** [Date submitted or resubmitted to P25 CAP]

**BASE STATION REPEATER PRODUCT INFORMATION**

<b>Base Station Repeater Info</b>	<b>Detail</b>
Model Name:	TBCK4A
Tested Software Versions:	Reciter FW: p25-2.40.00.0003, p25-3.05.00.0002 Amplifier FW: 1.11.00.0001, Power Management Unit: 316 Front Panel: 1.10.01.0001
Hardware Capabilities/Options & Software Options:	762-870 MHz, 50 Watts TBAS041 Analog Air Interface, TBAS050 P25 Common Air Interface, TBAS056 P25 Trunking Interface, TBAS061 Central Voter, TBAS062 - Simulcast, TBAS063 P25 Trunking Failsoft, TBAS065 Linear Simulcast Modulation, TBAS066 P25 Phase 2 Trunking, TBAS069 P25 Phase 2 Simulcast, TBAS071 IP Networking Satellite, TBAS083 20/25 kHz Unrestricted WB, 762-870 MHz, 50 Watts

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.

<b>check one</b>	<b>P25 CAP Test Requirement CAB</b>	<b>Details</b>
<b>X</b>	<b>P25-CAB-CAI_TEST_REQ – July 2017</b>	Includes August 2016 P25 CAP Test Requirements; Adds TDMA performance and interoperability testing and trunked supplementary data testing
	<b>P25-CAB-CAI_TEST_REQ – October 2018</b>	Includes all July 2017 P25 CAP Test Requirements; Adds minor updates to conventional interoperability testing due to TIA standard update

**SUMMARY TEST REPORT IDENTIFIER<sup>1</sup>**

Summary Test Report (STR) Identifier:	STR - TAIT COMMUNICATIONS - BASE STATION REPEATER
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<sup>1</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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**CONTACT INFORMATION**

<b>Company Info</b>	<b>Details</b>
Company Name:	Tait Communications Limited
Company Website URL:	<a href="https://www.taitradio.com/">https://www.taitradio.com/</a>
P25 CAP Contact Name:	David Jackson
P25 CAP Contact Phone:	+64 3 357 0283
P25 CAP Contact Email:	david.jackson@taitradio.com

**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 Unsquelch 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. Receiver Late Entry Unsquelch Delay and Receiver Throughput Delay tests do not apply since the fixed station does not provide an audio (analog) output. Functionality is not supported by the base station repeater.
2. Transmitter Throughput Delay test does not apply since the fixed station does not provide an audio (analog) input. Functionality is not supported by the base station repeater.

**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

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Unsupported or Failed Requirements

1. Transmitter Throughput Delay test does not apply since the fixed station does not provide an audio (analog) input. Functionality is not supported by the base station repeater.
- 2.

**TRUNKING PERFORMANCE - TDMA**

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.

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. Radio Unit Monitor - Test Case 3 – Radio Unit Monitor Initiated by SU 1 – Unit-to-Unit Call - Functionality is not supported by the representative subscriber units tested with the base station repeater under test

Optional Product Capabilities Required to Pass Test Cases

1. None

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**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 – Emergency Call from DMC*, Radio Check - *Test Case 1 – Initiate Radio Check from DMC*, Message Update - *Test Case 1 – Message Update from DMC & Test Case 2 – DMC to Group Message Update*, Status Update - *Test Case 2 – Talk Group Status Update Initiated by SU 1* - Functionality is not supported by the representative FNE dispatch monitoring consoles tested with the base station repeater under test
2. Radio Unit Monitor - *Test Case 2 – Radio Unit Monitor Initiated by DMC – Unit-to-Unit Call* - Functionality is not supported by the representative subscriber units tested with the base station repeater under test

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

1. None

**TRUNKED BASE STATION REPEATER INTEROPERABILITY – FDMA**

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.

**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, 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. Inter-SYS Roaming and Inter-WACN Roaming are unsupported.
2. Unit-to-Unit Voice Call - *Test Case 3 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment After Target Availability Check*, *Test Case 4 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check*, *Test Case 5 – Unit-to-Unit Call without Target Availability Check*, and *Test Case 6 – Unit-to-Unit Call Queued without Target Availability Check* are unsupported

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3. System Call is unsupported
4. Radio Unit Monitoring - *Test Case 1 – Individual Non-Silent, Test Case 2 – Individual Silent, Test Case 3 – Group Non-Silent, and Test Case 4 – Group Silent* are unsupported

Optional Product Capabilities Required to Pass Test Cases

1. None

**TRUNKED BASE STATION REPEATER INTEROPERABILITY – TDMA**

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.

Unsupported or Failed Test Cases

1. Inter-SYS Roaming and Inter-WACN Roaming are unsupported.
2. Unit-to-Unit Voice Call - *Test Case 3 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment After Target Availability Check, Test Case 4 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check, Test Case 5 – Unit-to-Unit Call without Target Availability Check, and Test Case 6 – Unit-to-Unit Call Queued without Target Availability Check* are unsupported
3. System Call is unsupported
4. Radio Unit Monitoring - *Test Case 1 – Individual Non-Silent, Test Case 2 – Individual Silent, Test Case 3 – Group Non-Silent, and Test Case 4 – Group Silent* are unsupported

Optional Product Capabilities Required to Pass Test Cases

1. None

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**SIGNATURE AND DATE**

January 7, 2020



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Date Signed

Vendor's Authorized Representative Signature

Brian Emmett

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Vendor's Authorized Representative Printed Name

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