

## Project 25 Compliance Assessment Program

### SDOC - TAIT – TPK5B

June 24, 2020 [Date submitted or resubmitted to P25 CAP]

#### **SUBSCRIBER PRODUCT INFORMATION**

Subscriber Info	Detail
Model Name:	TPDK5B
Tested Software Versions:	Boot Code QPD1B_S00_3.01.03.0001, QPD5B_S00_3.05.11.0001  DSP QPD1A_A02_2.06.00.0011, QPD1A_A02_2.15.01.0012, QPD5A_A02_2.16.09.0036  Radio Application QPD1F_A00_2.06.00.0011, QPD1F_A00_2.15.01.0012, QPD5F_A00_2.16.09.0036  Firmware Package QI94P_A02_2.15.01.0012, QI94P_A02_2.16.09.0036  FPGA Image QPD1G_S00_1.09.00.0003, QPD1G_S00_1.12.15.0001, QPD5G_S00_1.12.19.0001
Hardware Capabilities/Options & Software Options:	762-870 MHz, TPDB1X-K502_0006 / TPDB5X-K502_0001, P25 Conventional, P25 Trunked, P25 TDMA Trunked

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>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 - SUBSCRIBER
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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 please include the subscriber 'Vendor Name'.

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**CONTACT INFORMATION**

Vendor Name:	Tait Communications Limited
Vendor Website URL:	https://www.taitradio.com/
P25 CAP Contact Name:	David Jackson
P25 CAP Contact Phone:	+64 3 357 0283
P25 CAP Contact Email:	david.jackson@taitradio.com

**ENCRYPTION STATEMENT**

This product complies with the P25 CAP Encryption Requirements CAB (P25-CAB-ENC\_REQ). The checked box indicates how the product was tested.

<b>X</b>	Tested with the AES 256 encryption algorithm and shall be available with AES 256 encryption at a minimum or without any encryption of any type.
	Tested without the AES 256 encryption algorithm and shall only be available without any encryption of any type.

**CONVENTIONAL PERFORMANCE**

The Subscriber 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, Signal Delay Spread Capability, Adjacent Channel Rejection, Offset Adjacent Channel Rejection, Co-Channel Rejection, Spurious Response Rejection, Intermodulation Rejection, Signal Displacement Bandwidth, Late Entry Unsquench Delay, and Receiver Throughput Delay.

**Transmitter Tests:** Unwanted Emissions (Adjacent Channel Power Ratio), Transmitter Power and Encoder Attack Time, Transmitter Throughput Delay, Frequency Deviation for C4FM, and Modulation Fidelity, Transient Frequency Behavior.

**Unsupported or Failed Requirements**

1. None

**TRUNKING PERFORMANCE - FDMA**

The Subscriber 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, Signal Delay Spread Capability, 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), Power Attack time, Encoder Attack Time, Transmitter Throughput Delay, Frequency Deviation for C4FM, and Modulation Fidelity, Transient Frequency Behavior.

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Trunked Tests: Trunking Control Channel Slot Times, Trunking Request Time, and Transmitter Time to Key on a Traffic Channel.

Unsupported or Failed Requirements

1. The following functionality was not supported by the test equipment / representative base station repeater / FNE tested with the subscriber under test:
  - a. Trunking Control Channel Slot Times – 37.5 ms Slot – Encoder Attack Time
  - b. Trunking Control Channel Slot Times – 37.5 ms Slot – RF Power Attack Time
  - c. Trunking Control Channel Slot Times – 37.5 ms Slot – RF Power Turn Off Time
  - d. Trunking Request Time – 37.5 ms Slot

**TRUNKING PERFORMANCE - TDMA**

The Subscriber 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, Signal Delay Spread Capability, 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), Frequency Deviation for H-CPM, Modulation Fidelity, Symbol Rate Accuracy, H-CPM Logical Channel Power measurements, and H-CPM Channel Time Alignment.

Unsupported or Failed Requirements

1. None

**CONVENTIONAL DIRECT MODE INTEROPERABILITY**

The Subscriber product has been tested for Conventional Direct Mode 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 Direct 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 1 – Radio Unit Monitor Initiated by SU 1 – Group Call and Test Case 2 – Radio Unit Monitor Initiated by SU 5 – Group Call are unsupported.

Optional Product Capabilities Required to Pass Test Cases

1. None

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**CONVENTIONAL REPEAT MODE INTEROPERABILITY**

The Subscriber product has been tested for Conventional Repeat Mode 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**

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 Subscriber 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. Radio Unit Monitor - Test Case 1 – Radio Unit Monitor Initiated by DMC – Group Call is unsupported
2. Emergency Call - Test Case 2 – Emergency Call from DMC and Message Update - Test Case 1 – Message Update from DMC and Test Case 2 – DMC to Group Message Update are unsupported by the representative FNE dispatch monitoring console tested with the subscriber under test

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

1. None

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**TRUNKED SUBSCRIBER UNIT INTEROPERABILITY – FDMA**

The Subscriber 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 5 – Unit-to-Unit Call without Target Availability Check and Test Case 6 – Unit-to-Unit Call Queued without Target Availability Check and Radio Unit Monitoring- Test Case 4 – Group Silent are unsupported
3. Unit-to-Unit Voice Call - Test Case 4 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check, System Call - Test Case 1 – System Call, and Radio Unit Monitoring- Test Case 1 – Individual Non-Silent, Test Case 2 – Individual Silent and Test Case 3 – Group Non-Silent are unsupported by the representative base station repeater tested with the subscriber under test

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

1. None

**TRUNKED SUBSCRIBER UNIT INTEROPERABILITY – TDMA**

The Subscriber 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. Radio Unit Monitoring- Test Case 4 – Group Silent is unsupported
3. Unit-to-Unit Voice Call - Test Case 4 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check, System Call - Test Case 1 – System Call, and Radio Unit Monitoring- Test Case 1 – Individual Non-Silent, Test Case 2 – Individual Silent and Test Case 3 – Group Non-Silent are unsupported by the representative base station repeater tested with the subscriber under test

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**SIGNATURE AND DATE**



24<sup>th</sup> June 2020

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Date Signed

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Vendor's Authorized Representative Signature

Brian Emmett

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Vendor's Authorized Representative Printed Name

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