Project 25 Compliance Assessment Program
SDOC - TAIT – TMBK5B
April 03, 2020 [Date submitted or resubmitted to P25 CAP]

SUBSCRIBER PRODUCT INFORMATION

Subscriber Info	Detail
Model Name:	TMBK5B
Tested Software Versions:	Head Unit Boot Code: QCB1B_S00_3.01.03.0001 QCB5B_S00_3.05.12.0001 DSP: QCB1F_S00_1.01.04.0014 Radio Application: QCB1F_S00_1.01.08.1023 QCB1G_S00_1.07.00.0002 QCB5F_S00_2.00.05.0018 FPGA Image: TMBC12-0100_0006 QCB1G_S01_1.12.02.0001 QCB5G_S01_1.12.14.0002 Torso Boot Code: QMB1B_S00_3.01.03.0001 QMB2B_S00_3.05.06.0001 DSP: QMB1A_A00ML_2.00.00.4080, QMB1A_A03_2.11.06.0071, QMB2A_A02_2.16.07.0033 Radio Application: QMB1F_A00ML_2.00.00.4080 QMB1F_A00_2.11.06.0071, QMB2F_A00_2.16.07.0033 Firmware Package: QI94M_A02_2.11.06.0071 QI94M_A02_2.16.07.0033 FPGA Image: QMB1G_S00_1.07.00.0002, QMB1G_S00_1.12.02.0001, QMB2G_S00_1.12.18.0001
Hardware Capabilities/Options & Software Options:	762-776 MHz, 850-870 MHz, T02-00012-XFAA / T02-00013-XPAA / TMBB14-K500, 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
X	**P25-CAB-CAI_TEST_REQ – July 2017**	Includes August 2016 P25 CAP Test Requirements; Adds TDMA performance and interoperability testing and trunked supplementary data testing
.	**P25-CAB-CAI_TEST_REQ - October 2018**	Includes all July 2017 P25 CAP Test Requirements; Adds minor updates to conventional interoperability testing due to TIA standard update .

SUMMARY TEST REPORT IDENTIFIER[1]

Summary Test Report (STR) Identifier:	STR - TAIT COMMUNICATIONS - SUBSCRIBER

CONTACT INFORMATION

Vendor Info	Details
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.

X	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 Unsquelch 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

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[1] The Summary Test Report for this product is available upon request. Please send your STR request to P25CAP@hq.dhs.gov and please include the subscriber 'Vendor Name'.

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.
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

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

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

SIGNATURE AND DATE

03 April 2020

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         Date Signed   Vendor's Authorized Representative <u>Signature</u>

                                       Brian Emmett

                            _____

                                Vendor's Authorized Representative <u>Printed Name</u>

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