

## Project 25 Compliance Assessment Program

SDOC – BK TECHNOLOGIES – K95KNGM500

December 06, 2019

### SUBSCRIBER PRODUCT INFORMATION

Subscriber Info	Detail
Model Name:	K95KNGM500
Tested Software Versions:	FW: 2.3.4.4 SW:3.4.4 DSP:3.4.3 SW:5.5.0F Release: 5.5.6.0a SW:: 5.6.0a DSP: 5.6.0
Hardware Capabilities/Options & Software Options:	KNG-M500, 440-520 MHz, Full Display; Full Keypad; DTMF Microphone P25 Conventional, P25 Trunking, P25 TDMA Trunking, AES-256 Encryption

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
<input checked="" type="checkbox"/>	<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
<input type="checkbox"/>	<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 - BK TECHNOLOGIES - SUBSCRIBER
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### CONTACT INFORMATION

Vendor Info	Details
Vendor Name:	BK TECHNOLOGIES
Vendor Website URL:	<a href="https://www.bktechnologies.com/">https://www.bktechnologies.com/</a>
P25 CAP Contact Name:	Jim Holthaus
P25 CAP Contact Phone:	402-990-1551
P25 CAP Contact Email:	<a href="mailto:jholthaus@bktechnologies.com">jholthaus@bktechnologies.com</a>

<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'.

**Project 25 Compliance Assessment Program**  
**SDOC – BK TECHNOLOGIES – K95KNGM500**  
**December 06, 2019**

**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 Unsilence 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. Offset Adjacent Channel Rejection – Not Tested

**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. Offset Adjacent Channel Rejection – Not Tested

**Project 25 Compliance Assessment Program**  
**SDOC – BK TECHNOLOGIES – K95KNGM500**  
**December 06, 2019**

**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. Status Query and Radio Unit Monitor are unsupported

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

1. None

**Project 25 Compliance Assessment Program**  
**SDOC – BK TECHNOLOGIES – K95KNGM500**  
**December 06, 2019**

**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. Status Query and Radio Unit Monitor are unsupported

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. Status Update – Test Case 2, Status Query, and Radio Unit Monitor are unsupported
2. Message Update – Test Case 1 and Test Case 2 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

**Project 25 Compliance Assessment Program**  
**SDOC – BK TECHNOLOGIES – K95KNGM500**  
**December 06, 2019**

**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. The following functionality was unsupported by the subscriber under test
  - a. Home System Operation:
    - i. Radio Unit Monitoring - Test Case 2 – Individual Silent
  - b. Inter-System Roaming Operation:
    - i. Unit-to-Unit Voice Call –
      1. Test Case 1 – Unit-to-Unit Call with Target Availability Check
      2. Test Case 2 - Unit-to-Unit Call with Target Availability Check- Denied by Target
      3. Test Case 3 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment After Target Availability Check
      4. Test Case 5 – Unit-to-Unit Call without Target Availability Check
      5. Test Case 6 – Unit-to-Unit Call Queued without Target Availability Check
    - ii. Intra-Location Registration Area Roaming , Call Alert, Short Message, Status Update, Radio Unit Monitoring
  - c. Inter-WACN Roaming Operation:
    - i. Full Registration - Test Case 3 – Unverified Registration
2. The following functionality was unsupported by the representative base station repeaters/FNEs tested with the subscriber under test
  - a. Home System Operation:
    - i. Unit-to-Unit Voice Call –Test Case 4 - Unit-to-Unit Call Queued with Target Availability Check –Traffic Channel Assignment Before Target Availability Check
    - ii. System Call
  - b. Inter-System Roaming Operation:
    - i. System Call
    - ii. Status Query
  - c. Inter-WACN Roaming Operation:
    - i. Unit-to-Unit Voice Call, System Call, Call Alert, Short Message , Status Query, Status Update, Radio Unit Monitoring, Radio Unit Disable/Re-Enable, Radio Check

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

1. None

**Project 25 Compliance Assessment Program**  
**SDOC – BK TECHNOLOGIES – K95KNGM500**  
**December 06, 2019**

**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. The following functionality was unsupported by the subscriber under test
  - a. Home System Operation:
    - i. Unit to Unit Call - Test Case 5 – Unit-to-Unit Call without Target Availability Check
    - ii. Unit to Unit Call - Test Case 6 – Unit-to-Unit Call Queued without Target Availability Check
    - iii. Radio Unit Monitoring - Test Case 2 – Individual Silent
  - b. Inter-System Roaming Operation:
    - i. Unit-to-Unit Voice Call - Test Case 1 – Unit-to-Unit Call with Target Availability Check
    - ii. Unit-to-Unit Voice Call - Test Case 3 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment After Target Availability Check
    - iii. Unit-to-Unit Voice Call - Test Case 5 – Unit-to-Unit Call without Target Availability Check
    - iv. Unit-to-Unit Voice Call - Test Case 6 – Unit-to-Unit Call Queued without Target Availability Check
    - v. Radio Unit Monitoring
2. The following functionality was unsupported by the representative base station repeaters/FNEs tested with the subscriber under test
  - a. Home System Operation:
    - i. Unit-to-Unit Voice Call – Test Case 4 - Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check
    - ii. System Call
  - b. Inter-System Roaming Operation:
    - i. Unit-to-Unit Voice Call – Test Case 4 - Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check
    - ii. System Call
    - iii. Transmitting Subscriber Forced Preemption
  - c. Inter-WACN Roaming Operation:
    - i. Unit-to-Unit Voice Call, System Call, Radio Unit Monitoring,
    - ii. Transmitting Subscriber Forced Preemption - Test Case 1 – TDMA SU Forced Audio Preemption

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

1. None

Project 25 Compliance Assessment Program  
SDOC – BK TECHNOLOGIES – K95KNGM500  
December 06, 2019

**SIGNATURE AND DATE**

5 Nov 2019                        
Date Signed                      Vendor's Authorized Representative Signature

Jim Hothaus  
Vendor's Authorized Representative Printed Name

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