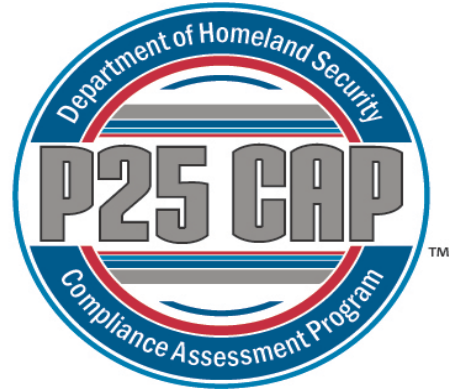




**Homeland
Security**

Science and Technology

Office for Interoperability and Compatibility
Technology Center



*Project 25 Compliance Assessment Program
(P25 CAP)*

Project 25 Compliance Assessment Bulletin

ISSI/CSSI Conformance Testing Requirements

P25-CAP_ISSI-CSSI Conf Test REQ CAB (DEC 2020)

December 2020

CAB – Project 25 Compliance Assessment Bulletin
Conf – Conformance
P25 CSSI – Project 25 Console Subsystem Interface
P25 ISSI – Project 25 Inter-RF Subsystem Interface
REQ – Test Requirements

Notice of Disclaimer and Limitation of Liability

The Project 25 Compliance Assessment Program (P25 CAP) provides equipment purchasers demonstrated evidence of a product’s compliance with a select group of requirements defined in the suite of P25 Standard. Although successful tests will demonstrate P25 compliance for the specific requirements tested, the conclusions drawn from these tests do not apply to every environment or individual users’ needs. P25 CAP-mandated tests only demonstrate product compliance with the tested features listed in the Supplier’s Declaration of Compliance and, therefore, only attest to a product’s compliance with specific requirements within the P25 Standard.

Revision History

Version	Date	Description
Draft	6/20/2014	Revised dates and made minor editorial changes. Changed Responders Knowledgebase links to First Responder Group links.
Draft (For PC)	3/3/2015	Final release version for public comment (PC) approved on March 3, 2015. Posted for PC on March 19, 2015.
Draft 2 (For PC)	6/30/2015	Incorporates public comment-resolution candidates. Posted again for PC the week of June 30, 2015.
2016 Release	8/17/2016	Addresses March and July 2015 public comments. Posted for general use on August 17, 2016.
2018 draft release (For PC)	11/27/2018	Addresses changes in Conformance testing; TDMA testing and Console testing added. Posted for PC on February 11, 2019.
May 2019 Release	5/31/2019	Addresses changes based on comments received from February 11, 2019 Public Comment.
Dec. 2020 revision	12/30/2020	Added Conformance Pass/Fail Criteria document reference [4] and Section 2.5 “ <i>Conformance Pass/Fail Documentation</i> ” to emphasize role of this important document. Test case 7.2.1 [Table 14] and Test case 7.2.2 [Table 22] are no longer ‘required pass’ test cases. Added Section 2.6 “ <i>Alternate Conformance Testing Methods.</i> ” Format updates, added F/TDMA to clarify terminology; new filenames, various minor copy edits.

Table of Contents

Notice of Disclaimer and Limitation of Liability	ii
Revision History	ii
Table of Contents	iii
1 Introduction.....	1
1.1 Scope	1
1.2 Effective Date	1
1.3 Normative References.....	2
1.4 Abbreviations.....	3
2 P25 CAP Conformance Testing Overview	4
2.1 Scope of Testing.....	4
2.2 Test Tool Testing Methodology	4
2.3 Equipment Under Test (EUT) Configurations	4
2.4 Test Case Documentation.....	5
2.5 Conformance Pass/Fail Criteria Documentation	5
2.6 Alternate Conformance Testing Method	6
3 ISSI Conformance Testing Requirements	7
3.1 Full Rate (FDMA) Group Voice Services.....	7
3.2 Half Rate (TDMA) Group Voice Services.....	8
3.3 Supplementary Data Services.....	9
4 CSSI Conformance Testing Requirements - RFSS	10
4.1 Full Rate (FDMA) Group Voice Services.....	10
4.2 Half Rate (TDMA) Group Voice Services.....	10
4.3 Full Rate (FDMA) Unit To Unit Voice Services	11
4.4 Half Rate (TDMA) Unit To Unit Voice Services	11
4.5 Supplementary Data Services.....	12
5 CSSI Conformance Testing Requirements - Console	13
5.1 Full Rate (FDMA) Group Voice Services.....	13
5.2 Half Rate (TDMA) Group Voice Services.....	13
5.3 Full Rate (FDMA) Unit To Unit Voice Services	14
5.4 Half Rate (TDMA) Unit To Unit Voice Services	14
5.5 Supplementary Data Services.....	15
6 Exceptions	16

Figures and Tables

Figure 1. Conformance Test Diagram	4
Table 1. Required PASS Test Case Numbers	7
Table 2. ISSI-RFSS Full Rate Group Voice Conformance Test Cases	7
Table 3. Required PASS Test Case Numbers	8
Table 4. ISSI-RFSS Half Rate Group Voice Conformance Test Cases	8
Table 5. Required PASS Test Case Numbers	9
Table 6. ISSI-RFSS Supplementary Data Conformance Test Cases	9
Table 7. Required PASS Test Case Numbers	10
Table 8. CSSI-RFSS Full Rate Group Voice Conformance Test Cases	10
Table 9. Required PASS Test Case Numbers	10
Table 11. CSSI-RFSS Full Rate Unit To Unit Voice Conformance Test Cases	11
Table 12. CSSI-RFSS Half Rate Unit To Unit Voice Conformance Test Cases	12
Table 13. Required PASS Test Case Numbers	12
Table 15. Required PASS Test Case Numbers	13
Table 16. CSSI-CSS Full Rate Group Voice Conformance Test Cases	13
Table 17. Required PASS Test Case Numbers	13
Table 18. CSSI-CSS Half Rate Group Voice Conformance Test Cases	14
Table 19. CSSI-CSS Full Rate Unit To Unit Voice Conformance Test Cases	14
Table 20. CSSI-CSS Half Rate Unit To Unit Voice Conformance Test Cases	15
Table 21. Required PASS Test Case Numbers	15
Table 22. CSSI-CSS Supplementary Data Test Cases	15
Table 23. P25 CAP Exceptions	16

1 Introduction

The Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) Office for Interoperability and Compatibility (OIC) Project 25 Compliance Assessment Program (P25 CAP) is a voluntary program that allows P25 equipment suppliers to demonstrate their products' compliance with selected requirements within the suite of P25 standards. The purpose of the program is to provide emergency response agencies with evidence that the communications equipment they are purchasing meet P25 standards for performance, conformance and interoperability.

The program requires test laboratories to demonstrate their competence through a rigorous and objective assessment process conducted by the approved accreditation bodies.¹ Such a process promotes the user community's confidence in, and acceptance of, test results from DHS-recognized laboratories. All equipment suppliers that participate in the P25 CAP must use DHS-recognized laboratories to conduct performance, conformance and interoperability tests on their products. P25 equipment suppliers will release Summary Test Report (STR) and Supplier's Declaration of Compliance (SDOC) documents based on the Detailed Test Report (DTR) from the DHS-recognized laboratory(s) that performed the product testing. This documentation will serve to increase the public's confidence in the performance, conformance and interoperability of P25 equipment.

Performance, conformance and interoperability issues are likely to occur in all communications technologies and especially in ones like P25 with protocols that constantly adapt to changing user requirements. Users should seek to address such problems with the supplier first, then with TIA TR8.25 Compliance Assessment Subcommittee, and then within the P25 CAP and, notably, before product launch and deployment. Further, the declaration of compliance-related documents developed by program participants will provide useful technical information about the equipment.

1.1 Scope

Federal grant funding guidance states that grantees using federal funds to purchase P25 equipment should obtain evidence that the equipment has been tested in a manner consistent with P25 CAP. The evidence should show the equipment has been tested based on all of the applicable, published P25 CAP Compliance Assessment Bulletins (CAB) covering performance, conformance and interoperability. The SDOC documents posted to the dhs.gov/science-and-technology/p25-cap website provides that evidence. This CAB lists test cases for the P25 Console Sub-System Interface (CSSI) and the P25 Inter Sub-System Interface (ISSI).

1.2 Effective Date

This Compliance Assessment Bulletin became effective on May 31, 2019.

¹ American Association for Laboratory Accreditation (A2LA); ANSI-ASQ National Accreditation Board (ANAB); International Accreditation New Zealand (IANZ).

1.3 Normative References

The section below provides a list of the primary references for this document. Other detailed reference information is embedded in the material or listed in numbered footnotes. The versions and filenames current as of this revision are provided, however practitioners are encouraged to verify which is most current version available by checking the DHS P25 CAP website. Certain documents such as the Test Case documents, the Pass/Fail Criteria and the STR and SDOC template documents are available only by request via email to P25CAP@hq.dhs.gov.

- [1] **ISSI-RFSS Conformance Test Case Document** – Project 25 Compliance Assessment Program
ISSI-RFSS Conformance Test Cases; current version: December 2020.
Filename: P25-CAP_ISSI-RFSS Conf Test REQ CAB (DEC 2020).pdf
- [2] **CSSI-RFSS Conformance Test Case Document** – Project 25 Compliance Assessment Program
CSSI-RFSS Conformance Test Cases; current version: December 2020.
Filename: P25-CAP_CSSI-RFSS Conf Test REQ CAB (DEC 2020).pdf
- [3] **CSSI-CSS Conformance Test Case Document** – Project 25 Compliance Assessment Program
CSSI-CSS Conformance Test Cases; current version: December 2020.
Filename: P25-CAP_CSSI-CSS Conf Test REQ CAB (DEC 2020).pdf
- [4] **ISSI/CSSI Conformance Test Pass/Fail Criteria** – Project 25 Compliance Assessment Program
ISSI/CSSI Conformance Test Pass/Fail Criteria; current version: December 2020.
Filename: P25-CAP_CSSI-CSS Conf Test REQ CAB (DEC 2020).pdf
- [5] **ISSI CSSI Equipment Test SDOC Template** – Project 25 Compliance Assessment Program
ISSI/CSSI Equipment Test Supplier’s Declaration of Compliance (SDOC) Template; current version: December 2020.
Filename: P25-CAP_ISSI-CSSI Equipment Conformance SDOC TEMPLATE (DEC 2020).docx
- [6] **ISSI CSSI Equipment Test STR Template** – Project 25 Compliance Assessment Program
ISSI/CSSI Equipment Test Summary Test Report (STR) Template; current version: December 2020.
Filename: P25-CAP_ISSSI-CSSI Equipment Conformance STR TEMPLATE (Dec 2020).xlsx
- [7] **ISSI/CSSI Conformance Test Requirements CAB** – Project 25 Compliance Assessment Program baseline
ISSI/CSSI Conformance Test Requirements Compliance Assessment Bulletin; current version: December 2020.
Filename: P25-CAP_ISSI-CSSI Conf Test REQ CAB (DEC 2020).pdf
- [8] **ISSI/CSSI Conformance Test Tool Verification Requirements CAB** – Project 25 Compliance Assessment Program
ISSI/CSSI Conformance Test Tool Verification Requirements Compliance Assessment Bulletin; current version: December 2020.
Filename: P25-CAP_ISSI-RFSS Conf Test Tool REQ CAB (DEC 2020).pdf

1.4 Abbreviations

CSS	Console Subsystem
CSSI	Console Subsystem Interface
FNE	Fixed Network Equipment
ISSI	Inter-RF Subsystem Interface
ICC Test Tool	ISSI/CSSI Conformance Test Tool
P25	Project 25
P25 CAP	Project 25 Compliance Assessment Program
RFSS	Radio Frequency Subsystem
RTP	Real Time Protocol
SDOC	Supplier's Declaration of Compliance
SDP	Session Description Protocol
SIP	Session Initiation Protocol
STR	Summary Test Report
WACN	Wide Area Communications Network (Identifier)

2 P25 CAP Conformance Testing Overview

2.1 Scope of Testing

P25 CAP ISSI/CSSI Conformance testing will validate the FNE equipment under test portion of the SIP, SDP and RTP messages that are exchanged during specific test cases between the FNE equipment under test and the conformance test tool.

The conformance test tool solution enables conformance testing of these interfaces in the P25 public safety network. The test tool simulates RFSSs, console subscriber units and mobile subscriber units to test FNE equipment with the P25 ISSI/CSSI interfaces.

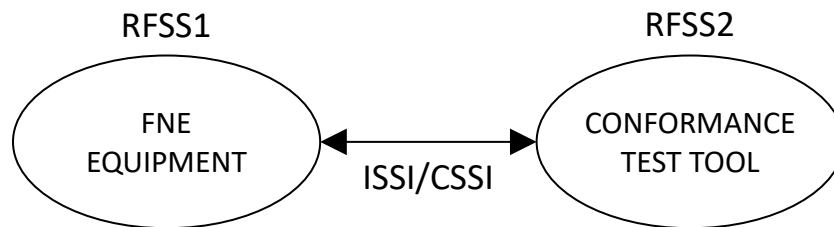


Figure 1. Conformance Test Diagram

2.2 Test Tool Testing Methodology

The FNE equipment under test is always referenced as RFSS1 in the test cases. The conformance test tool will always be referenced as RFSS2. As appropriate, the equipment under test will be configured and tested as a group home RFSS and group serving RFSS. For group voice test cases and unit to unit voice test cases, the equipment will be tested for the full rate vocoder mode (FDMA) and the half rate vocoder mode (TDMA). As appropriate, the equipment under test will be configured and tested for supplementary data services. See references [1], [2], [3] and [4] for more details.

2.3 Equipment Under Test (EUT) Configurations

Three Equipment Under Test (EUT) configurations are recognized in P25 CAP Conformance testing for ISSI/CSSI equipment: ISSI testing for RFSS equipment, CSSI testing for RFSS equipment, and CSSI testing for console equipment.

Two different console configurations can be conformance tested. A ‘console’ based on CSS equipment is testable. A ‘CSS-based console’ is essentially a console with RFSS equipment but the equipment does not support RF sites. A ‘console’ that is integrated with a RFSS that does support RF sites is also testable and has been referred to as a ‘native console.’ Conformance testing for either console configuration is limited to Group Serving roles.

As appropriate, the equipment under test will initiate the test case, i.e., the equipment initiates the test case by transmitting to the test tool. The equipment under test will also be the target of the test case, i.e., the test tool initiates the test case by transmitting to the equipment.

When a CSSI or an ISSI of a RFSS is under test, and the test case calls for the RFSS to initiate the test case, it is expected that a mobile subscriber unit (registered to the RFSS under test) would initiate the

test case. If appropriate for the test case, the mobile subscriber unit would also be affiliated to the subscriber group being used for the test.

When a CSSI of a console is under test, and the test case calls for the console to initiate the test case, it is expected that a console subscriber unit would initiate the test case. If appropriate for the test case, the console subscriber unit would also be affiliated to the subscriber group being used for the test.

When an ISSI of an RFSS is under test, the test tool simulates a Group Serving RFSS or a Group Home RFSS depending on the test case. The Inter-WACN or the Inter-System connection type can be used for ISSI testing.

When a CSSI of an RFSS is under test, the test tool simulates a Group Serving Console role. The Inter-WACN, Inter-System or Intra-System connection type can be used for testing.

When a CSSI of a console is under test, the test tool simulates a Group Home RFSS. The Inter-WACN, Inter-System or Intra-System connection type can be used for testing.

2.4 Test Case Documentation

The test cases for ISSI/CSSI conformance testing are document in the separate documents listed below.

The test cases for ISSI testing of a RFSS are found in *ISSI-RFSS Conformance Test Case Document*. This is reference [1].

The test cases for CSSI testing of a RFSS are found in *CSSI-RFSS Conformance Test Case Document*. This is reference [2].

The test cases for CSSI testing of a third-party Console Subsystem are found in *CSSI-CSS Conformance Test Case Document*. This is reference [3].

2.5 Conformance Pass/Fail Criteria Documentation

The pass/fail criteria for the messages and message sequences that make up the test cases defined in [1], [2], and [3] is found in the *ISSI/CSSI Conformance Test Pass/Fail Criteria* document. This is reference [4].

Each test case is a series of messages where each message within the series of messages must be correct for the test case to pass. The Pass/Fail document defines the correct content and format for each required message for a test case to pass. The test tool verifies message content, message format and message sequence for each test case according to the appropriate Test Case documentation and Pass/Fail documentation. Conformance test tools will also identify which message(s) within the test case at issue if the test case fails. The series of messages for a test case is sometimes referred to as a 'message sequence chart' or a 'bounce chart'. These can be found in references [1], [2] and [3].

2.6 Alternate Conformance Testing Method

The development of the *ISSI/CSSI Conformance Test Tool Verification Requirements CAB* [8] document revealed many challenges associated with the conformance test tool-based verification. For these reasons and others outlined below, the P25 Compliance Assessment Program will consider an alternate ISSI/CSSI Conformance testing approach that does not rely upon the use of a CAP-verified ISSI/CSSI Test Tool product. Some limitations are created by short term challenges, such as a limited number of vendors of an ICC Test Tool available for competitive procurements, others are created by underlying architectures.

The Test Tool described in the conformance and verification document functions as a simulated RFSS using prompt and response evaluations. While this approach has many benefits, it is critical the P25 Compliance Assessment Program remains vigilant to ensure the Test Tool-based approach does not create limitations as the ISSI and CSSI evolve over time.

Among the specific needs is to enable passive evaluation of an active ISSI/CSSI connection, which are used and operational and in use by Public Safety agencies throughout the US. In this instance, a Wireline Monitor may be the best method for testing conformity if conducted with appropriate subject matter experts and under controlled conditions.

To ensure the alternative conformance testing approach remains equally robust, the P25 CAP will request additional detail and documentation. These include, but are not limited to: requiring a test plan review prior to commencing testing; submission of full Manual Protocol Analyzer Test Reports, an expanded scope of features tested and wireline monitor data content captures to verify the more intricate behaviors, as needed. The alternate approach will need to maintain the scope of established of *P25 Conformance Test Cases* [1] – [3] and *P25 CAP Conformance Test Case Pass/Fail Criteria* [4]. Additionally, it should be noted that either the use of an ICC test tool or an alternate approach may require retesting in the event of major software updates or system changes during testing.

Should development of this alternate approach be needed, the P25 CAP will need to work closely with our advisors, governance and stakeholders to develop necessary compliance documents for the alternate approach. The resulting P25 CAP process will need to be repeatable and well-documented such that it achieves accurate and comprehensive results enabling P25 CAP to verify conformance to the P25 standard.

Those interested in further information or are interested in initiating this program please contact the P25 CAP support staff at P25CAP@hq.dhs.gov.

3 ISSI Conformance Testing Requirements

3.1 Full Rate (FDMA) Group Voice Services

The ISSI test cases in Table 2 apply to Radio Frequency Sub-System (RFSS) testing. All the test cases shall be tested. Testing can be executed when the ISSI is configured as an Inter-WACN connection type or an Inter-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 1 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 2.

Table 1. Required PASS Test Case Numbers

3.2.1	3.2.2	3.4.1	3.4.2	3.5.1	3.5.2
3.6.1	3.6.2	3.7.1	3.7.2	3.8.1	3.8.2

The ISSI full rate group voice services shall be tested for conformance in accordance with the test cases established in the current version of the *ISSI-RFSS Conformance Test Case Document*, reference [1].

Table 2. ISSI-RFSS Full Rate Group Voice Conformance Test Cases

Test Cases [1]	ISSI-RFSS Full Rate Group Voice Conformance Test Case Descriptions
3.1	Full Rate Unconfirmed Group Call - Group Home Role
3.1.1	RFSS Initiates Unconfirmed Group Call
3.1.2	RFSS Receives Unconfirmed Group Call
3.2	Full Rate Emergency Unconfirmed Group Call - Group Home Role
3.2.1	** RFSS Initiates Emergency Unconfirmed Group Call
3.2.2	** RFSS Receives Emergency Unconfirmed Group Call
3.3	Full Rate Unconfirmed Group Call - Group Serving Role
3.3.1	RFSS Initiates Unconfirmed Group Call
3.3.2	RFSS Receives Unconfirmed Group Call
3.4	Full Rate Emergency Unconfirmed Group Call - Group Serving Role
3.4.1	** RFSS Initiates Emergency Unconfirmed Group Call
3.4.2	** RFSS Receives Emergency Unconfirmed Group Call
3.5	Full Rate Confirmed Group Call - Group Home Role - Delayed Resources
3.5.1	** RFSS Initiates Confirmed Group Call
3.5.2	** RFSS Receives Confirmed Group Call
3.6	Full Rate Confirmed Group Call - Group Serving Role - Delayed Resources
3.6.1	** RFSS Initiates Confirmed Group Call
3.6.2	** RFSS Receives Confirmed Group Call
3.7	Full Rate Confirmed Group Call - Group Home Role - No Resources
3.7.1	** RFSS Initiates Confirmed Group Call
3.7.2	** RFSS Receives Confirmed Group Call
3.8	Full Rate Confirmed Group Call - Group Serving Role - No Resources
3.8.1	** RFSS Initiates Confirmed Group Call
3.8.2	** RFSS Receives Confirmed Group Call

3.2 Half Rate (TDMA) Group Voice Services

The ISSI test cases in Table 4 apply to Radio Frequency Sub-System (RFSS) testing. All the test cases shall be tested. Testing can be executed when the ISSI is configured as an Inter-WACN connection type or an Inter-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 3 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 4.

Table 3. Required PASS Test Case Numbers

4.2.1	4.2.2	4.4.1	4.4.2	4.5.1	4.5.2
4.6.1	4.6.2	4.7.1	4.7.2	4.8.1	4.8.2

The ISSI half rate group voice services shall be tested for conformance in accordance with the test cases established in the current version of the *ISSI-RFSS Conformance Test Case Document*, reference [1].

Table 4. ISSI-RFSS Half Rate Group Voice Conformance Test Cases

Test Cases [1]	ISSI-RFSS Half Rate Group Voice Conformance Test Case Descriptions
4.1	Half Rate Unconfirmed Group Call - Group Home Role
4.1.1	RFSS Initiates Unconfirmed Group Call
4.1.1	RFSS Receives Unconfirmed Group Call
4.2	Half Rate Emergency Unconfirmed Group Call - Group Home Role
4.2.1	** RFSS Initiates Emergency Unconfirmed Group Call
4.2.2	** RFSS Receives Emergency Unconfirmed Group Call
4.3	Half Rate Unconfirmed Group Call - Group Serving Role
4.3.1	RFSS Initiates Unconfirmed Group Call
4.3.2	RFSS Receives Unconfirmed Group Call
4.4	Half Rate Emergency Unconfirmed Group Call - Group Serving Role
4.4.1	** RFSS Initiates Emergency Unconfirmed Group Call
4.4.2	** RFSS Receives Emergency Unconfirmed Group Call
4.5	Half Rate Confirmed Group Call - Group Home Role - Delayed Resources
4.5.1	** RFSS Initiates Confirmed Group Call
4.5.2	** RFSS Receives Confirmed Group Call
4.6	Half Rate Confirmed Group Call - Group Serving Role - Delayed Resources
4.6.1	** RFSS Initiates Confirmed Group Call
4.6.2	** RFSS Receives Confirmed Group Call
4.7	Half Rate Confirmed Group Call - Group Home Role - No Resources
4.7.1	** RFSS Initiates Confirmed Group Call
4.7.2	** RFSS Receives Confirmed Group Call
4.8	Half Rate Confirmed Group Call - Group Serving Role - No Resources
4.8.1	** RFSS Initiates Confirmed Group Call
4.8.2	** RFSS Receives Confirmed Group Call

3.3 Supplementary Data Services

The ISSI test cases in Table 6 apply to Radio Frequency Sub-System (RFSS) testing. All the test cases shall be tested. Testing can be executed when the ISSI is configured as an Inter-WACN connection type or an Inter-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 5 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 6.

Table 5. Required PASS Test Case Numbers

5.1.1	5.1.2	5.2.1	5.2.2	5.3.1	5.3.2
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The ISSI supplementary data services shall be tested for conformance in accordance with the test cases established in the current version of the *ISSI-RFSS Conformance Test Case Document*, reference [1].

Table 6. ISSI-RFSS Supplementary Data Conformance Test Cases

Test Cases [1]	ISSI-RFSS Supplementary Data Conformance Test Case Descriptions
5.1	Emergency Alarm
5.1.1	** Emergency Alarm initiated by a mSU Home to RFSS1 and Registered in RFSS2; Group Home RFSS 2
5.1.2	** Emergency Alarm initiated by a mSU Home to RFSS2 and Registered in RFSS1; Group Home RFSS 1
5.2	Emergency Alarm Cancel
5.2.1	** Emergency Alarm Cancel initiated by a mSU Home to RFSS1 and Registered in RFSS2; Group Home RFSS 2
5.2.2	** Emergency Alarm Cancel initiated by a mSU Home to RFSS2 and Registered in RFSS1; Group Home RFSS 1
5.3	Group Emergency Cancel
5.3.1	** Group Emergency Cancel initiated by a mSU Home to RFSS1 and Registered in RFSS2; Group Home RFSS 2
5.3.2	** Group Emergency Cancel initiated by a mSU Home to RFSS2 and Registered in RFSS1; Group Home RFSS 1
5.4	Call Alert
5.4.1	Call Alert from mSU1 to mSU2; mSU1 home to RFSS1 and registered in RFSS2; mSU2 home to RFSS2 and registered in RFSS1
5.4.2	Call Alert from mSU2 to mSU1; mSU1 home to RFSS1 and registered in RFSS2; mSU2 home to RFSS2 and registered in RFSS1

4 CSSI Conformance Testing Requirements - RFSS

4.1 Full Rate (FDMA) Group Voice Services

The CSSI test cases in Table 8 apply to Radio Frequency Sub-System (RFSS) testing. All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type or an Intra-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 7 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 8.

Table 7. Required PASS Test Case Numbers

3.2.1	3.3.1	3.4.1
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The full rate group services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-RFSS Conformance Test Case Document*, reference [2].

Table 8. CSSI-RFSS Full Rate Group Voice Conformance Test Cases

Test Cases [2]	CSSI-RFSS Full Rate Group Voice Conformance Test Case Descriptions
3.1	Full Rate Unconfirmed Group Call - Group Home Role
3.1.1	RFSS Initiates Unconfirmed Group Call
3.1.2	RFSS Receives Unconfirmed Group Call
3.2	Full Rate Emergency Unconfirmed Group Call - Group Home Role
3.2.1	** RFSS Initiates Emergency Unconfirmed Group Call
3.3	Full Rate Confirmed Group Call - Group Home Role - Delayed Resources
3.3.1	** RFSS Receives Confirmed Group Call
3.4	Full Rate Confirmed Group Call - Group Home Role - No Resources
3.4.1	** RFSS Receives Confirmed Group Call

4.2 Half Rate (TDMA) Group Voice Services

The CSSI test cases in Table 10 apply to Radio Frequency Sub-System (RFSS) testing. All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type or an Intra-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 9 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 10.

Table 9. Required PASS Test Case Numbers

4.2.1	4.3.1	4.4.1
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The half rate group services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-RFSS Conformance Test Case Document*, reference [2].

Table 10. CSSI-RFSS Half Rate Group Voice Conformance Test Cases

Test Cases [2]	CSSI-RFSS Half Rate Group Voice Conformance Test Case Descriptions
4.1	Half Rate Unconfirmed Group Call - Group Home Role
4.1.1	RFSS Initiates Unconfirmed Group Call
4.1.2	RFSS Receives Unconfirmed Group Call
4.2	Half Rate Emergency Unconfirmed Group Call - Group Home Role
4.2.1	** RFSS Initiates Emergency Unconfirmed Group Call
4.3	Half Rate Confirmed Group Call - Group Home Role - Delayed Resources
4.3.1	** RFSS Receives Confirmed Group Call
4.4	Half Rate Confirmed Group Call - Group Home Role - No Resources
4.4.1	** RFSS Receives Confirmed Group Call

4.3 Full Rate (FDMA) Unit To Unit Voice Services

The CSSI test cases in Table 11 apply to a Radio Frequency Sub-System (RFSS). All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type or an Intra-System connection type.

The full rate unit to unit voice services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-RFSS Conformance Test Case Document*, reference [2].

Table 11. CSSI-RFSS Full Rate Unit To Unit Voice Conformance Test Cases

Test Cases [2]	CSSI-RFSS Full Rate Unit To Unit Voice Conformance Test Case Descriptions
5.1	RFSS1 (mSU) Initiated Unit to Unit Call with Target Availability Check
5.1.1	RFSS1 (mSU) Initiated Unit to Unit Call with Target Availability Check
5.2	RFSS2 (cSU) Initiated Unit to Unit Call with Target Availability Check
5.2.1	CSS2 (cSU) Initiated Unit to Unit Call with Target Availability Check
5.3	RFSS1 (mSU) Initiated Unit to Unit Call without Target Availability Check
5.3.1	RFSS1 (mSU) Initiated Unit to Unit Call without Target Availability Check
5.4	RFSS2 (cSU) Initiated Unit to Unit Call without Target Availability Check
5.4.1	CSS2 (cSU) Initiated Unit to Unit Call without Target Availability Check

4.4 Half Rate (TDMA) Unit To Unit Voice Services

The CSSI test cases in Table 12 apply to a Radio Frequency Sub-System (RFSS). All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type or an Intra-System connection type.

The half rate unit to unit voice services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-RFSS Conformance Test Case Document*, reference [2].

Table 12. CSSI-RFSS Half Rate Unit To Unit Voice Conformance Test Cases

Test Cases [2]	CSSI-RFSS Half Rate Unit To Unit Voice Conformance Test case Descriptions
6.1	RFSS1 (mSU) Initiated Unit to Unit Call with Target Availability Check
6.1.1	RFSS1 (mSU) Initiated Unit to Unit Call with Target Availability Check
6.2	RFSS2 (cSU) Initiated Unit to Unit Call with Target Availability Check
6.2.1	CSS2 (cSU) Initiated Unit to Unit Call with Target Availability Check
6.3	RFSS1 (mSU) Initiated Unit to Unit Call without Target Availability Check
6.3.1	RFSS1 (mSU) Initiated Unit to Unit Call without Target Availability Check
6.4	RFSS2 (cSU) Initiated Unit to Unit Call without Target Availability Check
6.4.1	CSS2 (cSU) Initiated Unit to Unit Call without Target Availability Check

4.5 Supplementary Data Services

The CSSI test cases in Table 14 apply to a Radio Frequency Sub-System (RFSS). All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type or an Intra-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 13 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 14.

Table 13. Required PASS Test Case Numbers

7.1.1	7.2.2	7.3.1	7.3.2
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The supplementary data services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-RFSS Conformance Test Case Document*, reference [2].

Table 14. CSSI-RFSS Supplementary Data Conformance Test Cases

Test Cases [2]	CSSI-RFSS Supplementary Data Conformance Test Case Descriptions
7.1	Emergency Alarm
7.1.1	** Emergency Alarm initiated by a mSU Home to and Registered in RFSS1; Group Home RFSS 1
7.2	Emergency Alarm Cancel
7.2.1	Emergency Alarm Cancel initiated by a cSU Home to RFSS2; Group Home RFSS 1
7.2.2	** Emergency Alarm Cancel initiated by a mSU Home to and Registered in RFSS1; Group Home RFSS 1
7.3	Group Emergency Cancel
7.3.1	** Group Emergency Cancel initiated by a cSU Home to RFSS2; Group Home RFSS 1
7.3.2	** Group Emergency Cancel initiated by a mSU Home to and Registered in RFSS1; Group Home RFSS 1
7.4	Call Alert - RFSS1 (mSU) Initiated
7.4.1	Call Alert Initiated by a mSU Home to RFSS1
7.5	Call Alert - RFSS2 (cSU) Initiated
7.5.1	Call Alert Initiated by a cSU Home to RFSS2

5 CSSI Conformance Testing Requirements - Console

5.1 Full Rate (FDMA) Group Voice Services

The CSSI test cases in Table 16 apply to a CSS based Console or a Console integrated with a RFSS (native console). All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type or an Intra-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 15 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 16.

Table 15. Required PASS Test Case Numbers

3.2.1	3.3.1	3.4.1
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The full rate group services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-CSS Conformance Test Case Document*, reference [3].

Table 16. CSSI-CSS Full Rate Group Voice Conformance Test Cases

Test Cases [3]	CSSI-CSS Full Rate Group Voice Conformance Test Case Descriptions
3.1	Full Rate Unconfirmed Group Call - Group Serving Role
3.1.1	Console Initiates Unconfirmed Group Call
3.1.2	Console Receives Unconfirmed Group Call
3.2	Full Rate Emergency Unconfirmed Group Call - Group Serving Role
3.2.1	** Console Receives Emergency Unconfirmed Group Call
3.3	Full Rate Confirmed Group Call - Group Serving Role - Delayed Resources
3.3.1	** Console Initiates Confirmed Group Call
3.4	Full Rate Confirmed Group Call - Group Serving Role - No Resources
3.4.1	** Console Initiates Confirmed Group Call

5.2 Half Rate (TDMA) Group Voice Services

The CSSI test cases in Table 18 apply to a CSS-Based Console or a Console integrated with a RFSS (native console). All the test cases shall be tested. All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type or an Intra-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 17 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 18.

Table 17. Required PASS Test Case Numbers

4.2.1	4.3.1	4.4.1
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The half rate group services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-CSS Conformance Test Case Document*, reference [3].

Table 18. CSSI-CSS Half Rate Group Voice Conformance Test Cases

Test Cases [3]	CSSI-CSS Half Rate Group Voice Conformance Test Case Descriptions
4.1	Half Rate Unconfirmed Group Call - Group Serving Role
4.1.1	Console Initiates Unconfirmed Group Call
4.1.2	Console Receives Unconfirmed Group Call
4.2	Half Rate Emergency Unconfirmed Group Call - Group Serving Role
4.2.1	** Console Receives Emergency Unconfirmed Group Call
4.3	Half Rate Confirmed Group Call - Group Serving Role - Delayed Resources
4.3.1	** Console Initiates Confirmed Group Call
4.4	Half Rate Confirmed Group Call - Group Serving Role - No Resources
4.4.1	** Console Initiates Confirmed Group Call

5.3 Full Rate (FDMA) Unit To Unit Voice Services

The CSSI test cases in Table 19 apply to a CSS-Based Console or a Console integrated with a RFSS (native console). All the test cases shall be tested. All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type or an Intra-System connection type.

The full rate unit to unit services shall be tested for conformance in accordance with the test established in the current version of the *CSSI-CSS Conformance Test Case Document*, reference [3].

Table 19. CSSI-CSS Full Rate Unit To Unit Voice Conformance Test Cases

Test Cases [3]	CSSI-CSS Full Rate Unit Voice Conformance Test Case Descriptions
5.1	RFSS1 (cSU) Initiated Unit to Unit Call with Target Availability Check
5.1.1	RFSS1 (Console) Initiated Unit to Unit Call with Target Availability Check
5.2	RFSS2 (mSU) Initiated Unit to Unit Call with Target Availability Check
5.2.1	RFSS2 (mSU) Initiated Unit to Unit Call with Target Availability Check
5.3	RFSS1 (cSU) Initiated Unit to Unit Call without Target Availability Check
5.3.1	RFSS1 (Console) Initiated Unit to Unit Call without Target Availability Check
5.4	RFSS2 (mSU) Initiated Unit to Unit Call without Target Availability Check
5.4.1	RFSS2 (mSU) Initiated Unit to Unit Call without Target Availability Check

5.4 Half Rate (TDMA) Unit To Unit Voice Services

The CSSI test cases in Table 20 apply to a CSS-Based Console or a Console integrated with a RFSS (native console). All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type, or an Intra-System connection type.

The half rate unit to unit services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-CSS Conformance Test Case Document*, reference [3].

Table 20. CSSI-CSS Half Rate Unit To Unit Voice Conformance Test Cases

Test Cases [3]	CSSI-CSS Half Rate Unit To Unit Voice Conformance Test Case Descriptions
6.1	RFSS1 (cSU) Initiated Unit to Unit Call with Target Availability Check
6.1.1	RFSS1 (Console) Initiated Unit to Unit Call with Target Availability Check
6.2	RFSS2 (mSU) Initiated Unit to Unit Call with Target Availability Check
6.2.1	RFSS2 (mSU) Initiated Unit to Unit Call with Target Availability Check
6.3	RFSS1 (cSU) Initiated Unit to Unit Call without Target Availability Check
6.3.1	RFSS1 (Console) Initiated Unit to Unit Call without Target Availability Check
6.4	RFSS2 (mSU) Initiated Unit to Unit Call without Target Availability Check
6.4.1	RFSS2 (mSU) Initiated Unit to Unit Call without Target Availability Check

5.5 Supplementary Data Services

The CSSI test cases in Table 22 apply to a CSS-Based Console or a Console integrated with a RFSS (native console). All the test cases shall be tested. Testing can be executed when the CSSI is configured as an Inter-WACN connection type, an Inter-System connection type, or an Intra-System connection type.

P25 CAP has defined certain test cases as ‘required PASS’ test cases. ‘Required PASS’ means that the test case results shall be a PASS if the equipment is to be considered P25 CAP Compliant. Only P25 CAP Compliant equipment will be posted as ‘Approved (Grant Eligible) Equipment on the P25 CAP webpage. Table 21 lists the ‘Required PASS’ test case numbers. These test cases are noted with a double asterisk (**) in Table 22.

Table 21. Required PASS Test Case Numbers

7.1.1	7.2.1	7.3.1	7.3.2
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The supplementary data services shall be tested for conformance in accordance with the test cases established in the current version of the *CSSI-CSS Conformance Test Case Document*, reference [3].

Table 22. CSSI-CSS Supplementary Data Test Cases

Test Cases [3]	CSSI-Console Supplementary Data Test Case Descriptions
7.1	Emergency Alarm (test tool initiated, acknowledged by Console)
7.1.1	** Emergency Alarm initiated by a mSU Home to and Registered in RFSS2; Group Home RFSS 2 (received by Console)
7.2	Emergency Alarm Cancel
7.2.1	** Emergency Alarm Cancel initiated by a mSU Home to and Registered in RFSS2; Group Home RFSS 2 (received by Console)
7.2.2	Emergency Alarm Cancel initiated by a Console Home to RFSS1; Group Home RFSS 2
7.3	Group Emergency Cancel
7.3.1	** Group Emergency Cancel initiated by a mSU Home to and Registered in RFSS2; Group Home RFSS 2 (received by Console)
7.3.2	** Group Emergency Cancel initiated by a Console Home to RFSS1; Group Home RFSS 2
7.4	Call Alert - RFSS1 (cSU) Initiated
7.4.1	Call Alert Initiated by a Console Home to RFSS1
7.5	Call Alert - RFSS2 (mSU) Initiated
7.5.1	Call Alert Initiated by a mSU Home to RFSS2

6 *Exceptions*

The preceding sections provide the tests that are required as part of the P25 CAP. Exceptions to these test requirements are possible, on a case-by-case basis, at the discretion of the P25 CAP and will be noted by date, test and—as appropriate—duration in this section of the Compliance Assessment Bulletin.

Table 23. P25 CAP Exceptions

Exception	Date	Details
none		