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DRAFT TEST REPORT – 401032-1TRFWL

Applicant:

JMA Wireless (Teko Telecom Srl)

Product name (type):

TEKO CellHub High-power CBRS Radio Units

Model:

XR35WH2/ACY

FCC ID:

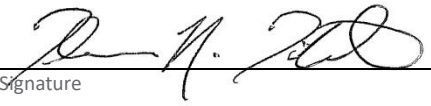
XM2-X35H2B

Specifications:

- WINNF-TS-0122, Version V1.0.1
- WINNF-IN-00129, Version V1.0.0.0

Date of issue:

October 20, 2020

Andrey Adelberg, Senior EMC/RF Specialist	
Tested by	Signature
Tom Tidwell, Director Nemko Direct for Telecom	
Reviewed by	Signature

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada.
The tests included in this report are within the scope of this accreditation

Lab locations

Company name	Nemko Canada Inc.			
Facilities	*Ottawa site:* 303 River Road Ottawa, Ontario Canada K1V 1H2 Tel: +1 613 737 9680 Fax: +1 613 737 9691	*Montréal site:* 292 Labrosse Avenue Pointe-Claire, Québec Canada H9R 5L8 Tel: +1 514 694 2684 Fax: +1 514 694 3528	*Cambridge site:* 1-130 Saltsman Drive Cambridge, Ontario Canada N3E 0B2 Tel: +1 519 650 4811	*Almonte site:* 1500 Peter Robinson Road West Carleton, Ontario Canada K0A 1L0 Tel: +1 613 256-9117
Test site registration	**Organization**	**Recognition numbers and location**		
	FCC/ISED	FCC: CA2040; IC: 2040A-4 (Ottawa/Almonte); FCC: CA2041; IC: 2040G-5 (Montreal); CA0101 (Cambridge)		
Website	www.nemko.com			

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contained in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Copyright notification

Table of Contents

Section 1 Report summary

1.1 Test specifications and methods

WINNF-TS-0122 Version V1.0.1, Sep 2018	Test and Certification for Citizens Broadband Radio Service (CBRS); Conformance and Performance Test Technical Specification; CBSD/DP as Unit Under Test (UUT)
WINNF-IN-00129, Version V1.0.0.0	WInnForum CBSD/DP UUT Security Test 6 Cases Tutorial
FCC 47 CFR Part 96	Citizens Broadband Radio Service
WINNF-TS-0016 Version V1.2.1	Signaling Protocols and Procedures for Citizens Broadband Radio Service (CBRS): Spectrum Access System (SAS) - Citizens Broadband Radio Service Device (CBSD) Interface Technical Specification
940660 D01 Part 96 CBRS Eqpt v02	Certification and test procedures for Citizens Broadband Radio Service devices authorized under Part 96

1.2 Exclusions

None

1.3 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was performed against all relevant requirements of the test standard except as noted in section 1.2 above. Results obtained indicate that the product under test complies In full with the requirements tested. The test results relate only to the items tested.

See "Summary of test results" for full details.

1.4 Test report revision history

Table 1.4-1: *Test report revision history*

Revision #	Date of issue	Details of changes made to test report
TRF	October 20, 2020	Original report issued

Section 2 Engineering considerations

2.1 Modifications incorporated in the EUT for compliance

There were no modifications performed to the EUT during this assessment.

2.2 Technical judgment

None

2.3 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 3 Test conditions

3.1 Atmospheric conditions

Temperature	15 °C – 35 °C
Relative humidity	20 % – 75 %
Air pressure	86 kPa (860 mbar) – 106 kPa (1060 mbar)

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

3.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages ±5 %, for which the equipment was designed.

Section 4 Measurement uncertainty

4.1 Uncertainty of measurement

UKAS Lab 34 and TIA-603-B have been used as guidance for measurement uncertainty reasonable estimations with regards to previous experience and validation of data. Nemko Canada, Inc. follows these test methods in order to satisfy ISO/IEC 17025 requirements for estimation of uncertainty of measurement for wireless products.

Measurement uncertainty budgets for the tests are detailed below. Measurement uncertainty calculations assume a coverage factor of K = 2 with 95% certainty.

Table 4.1-1: *Measurement uncertainty calculations for Radio*

Test name	Measurement uncertainty, ±dB
All antenna port measurements	0.55
Occupied bandwidth	4.45
Conducted spurious emissions	1.13
Radiated spurious emissions	3.78
AC power line conducted emissions	3.55

Section 5 Information provided by the applicant

5.1 Disclaimer

This section contains information provided by the applicant and has been utilized to support the test plan. Inaccurate information provided by the applicant can affect the validity of the results contained within this test report. Nemko accepts no responsibility for the information contained within this section and the impact it may have on the test plan and resulting measurements.

5.1 Applicant/Manufacture

Applicant name	JMA Wireless (Teko Telecom Srl)
Applicant address	Via Antonio Meucci, 24/A, Via Emilia Ponente, 380/D, 40024 Castel San Pietro Terme BO
Manufacture name	Same as applicant
Manufacture address	Same as applicant

5.2 EUT information

Product name	TEKO CellHub High-power CBRS Radio Units
Model	XR35WH2/ACY
Serial number	1023038001
Power supply requirements	48 V_{DC} via PoE powered from 120 V_{AC} / 60 Hz
Product description and theory of operation	The TEKO CellHub is a JMA Wireless radio unit that supports high capacity, multi-channel CBRS (3550–3700 MHz, FCC Part 96) band. CellHubs support LTE for CBRS. As part of the JMA Wireless XRAN system it has the option of working in conjunction with new or existing distributed antenna systems. Each physical antenna connected to CellHub acts as a CBSD under a Domain Proxy with compliance to the WInnForum SAS-CBSD interface, CBRS Alliance OnGo, and FCC Part 96 requirements. The Domain Proxy is provided as an independent software service module on the XRAN system. Multiple CellHubs can daisy chain.

5.3 Technical information

Type of equipment	☒	CBSD
	☒	Domain Proxy and CBSD
CBSD Category	☒	A
	☒	B
Frequency band	3550–3700 MHz	

5.4 EUT setup details

5.4.1 Radio exercise details

Operating conditions	SAS connected to Domain Proxy that acts on behalf of CBSDs. CBSDs connected to LTE Baseband. Spectrum analyzer connected to CBSDs' RF output. SAS Test Harness v1.0.0.3 Domain Proxy Software Version 1.3 CellHub Firmware Version 1.0

5.4.2 EUT setup configuration

Table 5.4-1: *EUT interface ports*

Description	Qty.
SFP+ (up to 9.8) SFP1 to the ABS or to an upper-level daisy-chained radio unit SFP2 to a lower-level daisy-chained radio unit	2
Power supply VAC MAINS connector	1
RF port 2.2 - 5 (f)	2

Table 5.4-2: *Support equipment*

Description	Brand name	Model, Part number, Serial number, Revision level
Laptop	HP	Model: ProBook 450 G7 SN: 00330-5821-69468-AAOEM
Spectrum Analyzer	Keysight	PXA Signal Analyzer PN: N9030B SN: MY56080146 Rev: 2019-04-28

Table 5.4-3: *Inter-connection cables*

Cable description	From	To	Length (m)
Ethernet	EPC Network	Domain Proxy	5
Ethernet	Domain Proxy	SAS	5
Optical fiber	Domain Proxy	CellHub	5
RF coax cable	CellHub	Spectrum Analyzer	5

EUT setup configuration, continued

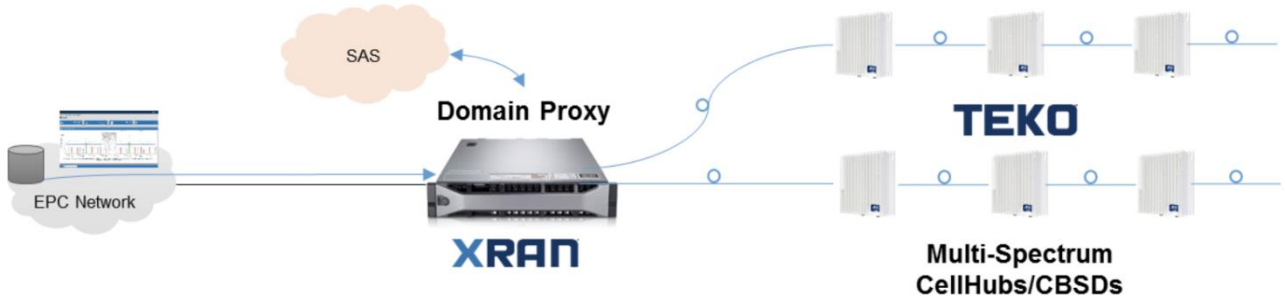


Figure 5.4-1: *Setup block diagram*

5.5 EUT security per CBRS requirements

Requirement	Compliance
What communication protocol is used between the SAS and the CBSD?	The SAS-CBSD protocol is based on the HTTPS (HTTP over TLS version 1.2). The HTTPS protocol provides transport level assurance that a message has been received by the intended recipient. Communication includes mutual authentication using pki certificates.
How are communications initiated?	Per standard specification, SAS server discovery: SAS server URL is provided to CBSD's. CBSD via domain proxy communicate to server per URL provided and TLS mutual authentication will be performed. The CBSD/Domain Proxy initiating the TLS connection shall authenticate the SAS, and the SAS shall authenticate the CBSD/Domain Proxy.
How does the CBSD validate messages from the SAS?	Each massage session is encrypted and validated with TLSv1.2 and CA certificates verification. Messages also checked against protocol structure json.
How does the device handle failure to communicate or authenticate the SAS?	On communication failure/authentication, devices we re-try to communicate if fails, alarm will raise, and TX will stop.
How does the SAS validate messages from a CBSD?	Each massage session is encrypted and validated with TLSv1.2 and CA certificates verification. Messages also checked against protocol structure json.
What encryption method is used?	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
How does the SAS ensure secure registration of protected devices?	By using user name and ID, also CPI signature can be used.

Note: Protocols in accordance with: Document WINNF-TS-0016 Version V1.2.1 from January 3rd, 2018

Section 6 Summary of test results

6.1 Testing location

Test location (s)	Ottawa

6.2 Testing period

Test start date	October 8, 2020	Test end date	October 14, 2020

6.3 Conditional test cases

Table 6.3-1: *Conditional test cases*

Condition	Conditional test case definitions	Applicability
C1	Mandatory for UUT which supports multi-step registration message	Applicable
C2	Mandatory for UUT which supports single-step registration with no CPI-signed data in the registration message. By definition, this is a subset of Category A devices which determine all registration information, including location, without CPI intervention.	Applicable
C3	Mandatory for UUT which supports single-step registration containing CPIsigned data in the registration message.	Not applicable
C4	Mandatory for UUT which supports RECEIVED_POWER_WITHOUT_GRANT measurement report type.	Applicable
C5	Mandatory for UUT which supports RECEIVED_POWER_WITH_GRANT measurement report type.	Not applicable
C6	Mandatory for UUT which supports parameter change being made at the UUT and prior to sending a deregistration	Not applicable

6.4 KDB-940660-D02-CPE requirement test results

Table 6.4-1: *CPE additional requirement results*

Test description	Verdict
CPE handshake timing requirements	Not applicable

6.5 WINNF-TS-0122 CBRS requirements test results

Table 6.5-1: *CBSD requirements results*

Section	Required for Cert	Test description	Verdict
6.1.4.1.1[2]	C1	Multi-Step registration	Pass
6.1.4.1.3[3]	C2	Single-Step registration for Category A CBSD	Pass
6.1.4.1.5[4]	C3	Single-Step registration for CBSD with CPI signed data	Pass
6.1.4.1.7[7]	C6	Registration due to change of an installation parameter	Pass
6.1.4.2.1	M	Missing Required parameters (responseCode 102)	Pass
6.1.4.2.3	M	Pending registration (responseCode 200)	Pass
6.1.4.2.5	M	Invalid parameter (responseCode 103)	Pass
6.1.4.2.7	M	Blacklisted CBSD (responseCode 101)	Pass
6.1.4.2.9	M	Unsupported SAS protocol version (responseCode 100)	Pass
6.1.4.2.11	M	Group Error (responseCode 201)	Pass
6.1.4.3.1[3]	C2	Category A CBSD location update	Pass
6.3.4.2.1	M	Unsuccessful Grant responseCode=400 (INTERFERENCE)	Pass
6.3.4.2.2	M	Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)	Pass
6.4.4.1.1	M	Heartbeat Success Case (first Heartbeat Response)	Pass
6.4.4.2.1	M	Heartbeat responseCode=105 (DEREGISTER)	Pass
6.4.4.2.2	M	Heartbeat responseCode=500 (TERMINATED_GRANT)	Pass
6.4.4.2.3	M	Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response	Pass
6.4.4.2.4	M	Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response	Pass
6.4.4.2.5	M	Heartbeat responseCode=502 (UNSYNC_OP_PARAM)	Pass
6.4.4.3.1	M	Heartbeat Response Absent (First Heartbeat)	Pass
6.4.4.3.2	M	Heartbeat Response Absent (Subsequent Heartbeat)	Pass
6.4.4.4.1[1]	O	Successful Grant Renewal in Heartbeat Test Case	Pass
6.5.4.2.1[5]	C4	Registration Response contains measReportConfig	Pass
6.5.4.2.3[6]	C5	Grant Response contains measReportConfig	Pass
6.5.4.2.4[6]	C5	Heartbeat Response contains measReportConfig	Pass
6.6.4.1.1	M	Successful Relinquishment	Pass
6.6.4.2.1[1]	O	Unsuccessful Relinquishment, responseCode=102	Pass
6.6.4.3.1[1]	O	Unsuccessful Relinquishment, responseCode=103	Pass
6.7.4.1.1	M	Successful Deregistration	Pass
6.7.4.2.1[1]	O	Deregistration responseCode=102	Pass
6.7.4.3.1[1]	O	Deregistration responseCode=103	Pass
6.8.4.1.1	M	Successful TLS connection between UUT and SAS Test Harness	Pass
6.8.4.2.1	M	TLS failure due to revoked certificate	Pass
6.8.4.2.2	M	TLS failure due to expired server certificate	Pass
6.8.4.2.3	M	TLS failure when SAS Test Harness certificate is issue by unknown CA	Pass
6.8.4.2.4	M	TLS failure when certificate at the SAS Test Harness is corrupted	Pass
7.1.4.1.1	M	UUT RF Transmit Power Measurement	Pass

Notes: M - Mandatory for certification

[1]Optoional requirements. Not required for certification. (O)

[2]Mandatory for UUT which supports multi-step registration message (C1)

[3]Mandatory for UUT which supports single-step registration with no CPI-signed data in the registration message. By definition, this is a subset of Category A devices which determine all registration information, including location, without CPI intervention. (C2)

[4]Mandatory for UUT which supports single-step registration containing CPI-signed data in the registration message. (C3)

[5]Mandatory for UUT which supports RECEIVED_POWER_WITHOUT_GRANT measurement report type. (C4)

[6]Mandatory for UUT which supports RECEIVED_POWER_WITH_GRANT measurement report type. (C5)

[7]Mandatory for UUT which supports parameter change being made at the UUT and prior to sending a deregistration. (C6)

6.6 WINNF-TS-0122 Domain proxy requirements test results

Table 6.6-1: *Domain Proxy requirements results*

Section	Required for Cert	Test description	Verdict
6.1.4.1.2[2]	C1	Domain Proxy Multi-Step registration	Pass
6.1.4.1.4[3]	C2	Domain Proxy Single-Step registration for Cat A CBSD	Pass
6.1.4.1.6[4]	C3	Domain Proxy Single-Step registration for CBSD with CPI signed data	Pass
6.1.4.1.7[7]	C6	Registration due to change of an installation parameter	Pass
6.1.4.2.2	M	Domain Proxy Missing Required parameters (responseCode 102)	Pass
6.1.4.2.4	M	Domain Proxy Pending registration (responseCode 200)	Pass
6.1.4.2.6	M	Domain Proxy Invalid parameters (responseCode 103)	Pass
6.1.4.2.8	M	Domain Proxy Blacklisted CBSD (responseCode 101)	Pass
6.1.4.2.10	M	Domain Proxy Unsupported SAS protocol version responseCode 100)	Pass
6.1.4.2.12	M	Domain Proxy Group Error (responseCode 201)	Pass
6.1.4.3.1[3]	C2	Category A CBSD location update	Pass
6.3.4.2.1	M	Unsuccessful Grant responseCode=400 (INTERFERENCE)	Pass
6.3.4.2.2	M	Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)	Pass
6.4.4.1.2	M	Domain Proxy Heartbeat Success Case (first Heartbeat Response)	Pass
6.4.4.2.1	M	Heartbeat responseCode=105 (DEREGISTER)	Pass
6.4.4.2.3	M	Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response	Pass
6.4.4.2.4	M	Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response	Pass
6.4.4.2.5	M	Heartbeat responseCode=502 (UNSYNC_OP_PARAM)	Pass
6.4.4.2.6	M	Domain Proxy Heartbeat responseCode=500 (TEMINATED_GRANT)	Pass
6.4.4.3.1	M	Heartbeat Response Absent (First Heartbeat)	Pass
6.4.4.3.2	M	Heartbeat Response Absent (Subsequent Heartbeat)	Pass
6.4.4.4.1[1]	O	Successful Grant Renewal in Heartbeat Test Case	Pass
6.5.4.2.2[5]	C4	Successful Grant Renewal in Heartbeat Test Case	Pass
6.5.4.2.3[6]	C5	Grant Response contains measReportConfig	Pass
6.5.4.2.5[6]	C5	Domain Proxy Heartbeat Response contains measReportConfig	Pass
6.6.4.1.2	M	Domain Proxy Successful Relinquishment	Pass
6.6.4.2.2[1]	O	Domain Proxy Unsuccessful Relinquishment, responseCode=102	Pass
6.6.4.3.2[1]	O	Domain Proxy Unsuccessful Relinquishment, responseCode=103	Pass
6.7.4.1.2	M	Domain Proxy Successful Deregistration	Pass
6.7.4.2.2[1]	O	Domain Proxy Deregistration responseCode=102	Pass
6.7.4.3.1[1]	O	Deregistration responseCode=103	Pass
6.8.4.1.1	M	Successful TLS connection between UUT and SAS Test Harness	Pass
6.8.4.2.1	M	TLS failure due to revoked certificate	Pass
6.8.4.2.2	M	TLS failure due to expired server certificate	Pass
6.8.4.2.3	M	TLS failure when SAS Test Harness certificate is issue by unknown CA	Pass
6.8.4.2.4	M	TLS failure when certificate at the SAS Test Harness is corrupted	Pass
7.1.4.1.1	M	UUT RF Transmit Power Measurement	Pass

Notes: M - Mandatory for certification

[1]Optoional requirements. Not required for certification. (O)

[2]Mandatory for UUT which supports multi-step registration message (C1)

[3]Mandatory for UUT which supports single-step registration with no CPI-signed data in the registration message. By definition, this is a subset of Category A devices which determine all registration information, including location, without CPI intervention. (C2)

[4]Mandatory for UUT which supports single-step registration containing CPI-signed data in the registration message. (C3)

[5]Mandatory for UUT which supports RECEIVED_POWER_WITHOUT_GRANT measurement report type. (C4)

[6]Mandatory for UUT which supports RECEIVED_POWER_WITH_GRANT measurement report type. (C5)

[7]Mandatory for UUT which supports parameter change being made at the UUT and prior to sending a deregistration. (C6)

Section 7 Testing data

7.1 [WINNF.FT.C.REG.1] Multi-Step registration

7.1.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.1 Successful registration (responseCode 0)

Upon a successful response from the SAS (responseCode = 0), the CBSD will generate its next message to the SAS. The SAS Test Harness when configured for verification of a particular CBSD-SAS protocol procedure (i.e. registration), will / may not respond to any subsequent messages sent by CBSD once the procedure being tested is complete.

6.1.4.1.1 [WINNF.FT.C.REG.1] Multi-Step registration

This test is mandatory for CBSD which supports multi-step registration. This test validates that each of the required parameters appear within the registration request message.

7.1.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.1.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.1.4 Test data

Table 7.1-1: *WINNF.FT.C.REG.1 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	CBSD sends correct Registration request information, as specified in [n.5], to the SAS Test Harness: • The required userId, fccId and cbsdSerialNumber registration parameters shall be sent from the CBSD and conform to proper format and acceptable ranges. • Any REG-conditional or optional registration parameters that may be included in the message shall be verified that they conform to proper format and are within acceptable ranges. Note: It is outside the scope of this document to test the Registration information that is supplied via another means.	☒	☐
3	• SAS Test Harness sends a CBSD Registration Response as follows: o *cbsdId* = C o *measReportConfig* shall not be included o *responseCode* = 0	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.2 [WINNF.FT.D.REG.2] Domain Proxy Multi-Step registration

7.2.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.1 Successful registration (responseCode 0)

Upon a successful response from the SAS (responseCode = 0), the CBSD will generate its next message to the SAS. The SAS Test Harness when configured for verification of a particular CBSD-SAS protocol procedure (i.e. registration), will / may not respond to any subsequent messages sent by CBSD once the procedure being tested is complete.

6.1.4.1.2 [WINNF.FT.D.REG.2] Domain Proxy Multi-Step registration

This test is mandatory for the Domain proxy that is controlling CBSDs which support multi-step registration. This test validates that each of the required parameters appear within the registration request message. This test case applies to Domain Proxy supervising two CBSDs.

7.2.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.2.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.2.4 Test data

Table 7.2-1: *WINNF.FT.D.REG.2 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	DP with two CBSD sends correct Registration request information, as specified in [n.5], in the form of one 2-element Array or as individual messages to the SAS Test Harness: • The required userId, fccId and cbsdSerialNumber registration parameters shall be sent for each CBSD and conform to proper format and acceptable ranges. • Any REG-conditional or optional registration parameters that may be included in the message shall be verified that they conform to proper format and are within acceptable ranges.	☒	☐
3	• SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or individual messages as follows: o *cbsdId* = Ci o *measReportConfig* shall not be included o *responseCode* = 0 for each CBSD	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.3 [WINNF.FT.C.REG.3] Single-Step registration for Category A CBSD

7.3.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.1 Successful registration (responseCode 0)

Upon a successful response from the SAS (responseCode = 0), the CBSD will generate its next message to the SAS. The SAS Test Harness when configured for verification of a particular CBSD-SAS protocol procedure (i.e. registration), will / may not respond to any subsequent messages sent by CBSD once the procedure being tested is complete.

6.1.4.1.3 [WINNF.FT.C.REG.3] Single-Step registration for Category A CBSD

This test is mandatory for CBSD which reports all Required and REG-Conditional parameters in the Registration request to the SAS, without CPI signed data. This test validates that each of the required and REG-Conditional parameters appear within the registration request message.

For a Category A CBSD which determine its own location, the test lab and vendor must agree on the required evidence showing the UUT meets the location requirement. In lieu of location verification, the vendor shall supply their test approach/procedure along with compliance data.

7.3.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.3.3 Observations, settings and special notes

If a waiver for the measurement capability has been obtained from the FCC for the CBSD, the WINNF.FT.C.REG.3_waiver test case shall be executed which is the same as above, but where measCapability is not required in the request message.
For the test log please refer to Section 9 of this test report.

7.3.4 Test data

Table 7.3-1: *WINNF.FT.C.REG.3 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	CBSD sends Registration request to SAS Test Harness: all required and REG-Conditional parameter included (userId, fccId, cbsdSerialNumber, cbsdCategory, airInterface, installationParam, measCapability) for a Category A CBSD. • The required userId, fccId and cbsdSerialNumber and REG-Conditional cbsdCategory, airInterface, installationParam, and measCapability registration parameters shall be sent from the CBSD and conform to proper format and acceptable ranges. • Any optional registration parameters that may be included in the message shall be verified that they conform to proper format and are within acceptable ranges.	☒	☐
3	• SAS Test Harness sends a CBSD Registration Response as follows: o *cbsdId* = C o *measReportConfig* shall not be included o *responseCode* = 0	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.4 [WINNF.FT.D.REG.4] Domain Proxy Single-Step registration for Category A CBSD

7.4.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.1 Successful registration (responseCode 0)

Upon a successful response from the SAS (responseCode = 0), the CBSD will generate its next message to the SAS. The SAS Test Harness when configured for verification of a particular CBSD-SAS protocol procedure (i.e. registration), will / may not respond to any subsequent messages sent by CBSD once the procedure being tested is complete.

6.1.4.1.4 [WINNF.FT.D.REG.4] Domain Proxy Single-Step registration for Category A CBSD

This test is mandatory for DP connected to CBSDs which report all Required and REG-Conditional parameters in the Registration request to the SAS, without CPI signed data. This test validates that each of the required and REG-Conditional parameters appear within the registration request message. This test case applies to Domain Proxy supervising two CBSDs.

For a Category A CBSD which determine own location, the test lab and vendor must agree on the required evidence showing the UUT meets the location requirement. In lieu of location verification, the vendor shall supply their test approach/procedure along with compliance data.

7.4.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.4.3 Observations, settings and special notes

If a waiver for the measurement capability has been obtained from the FCC for the CBSD, the WINNF.FT.D.REG.4_waiver test case shall be executed which is the same as above, but where measCapability is not required in the request message.

For the test log please refer to Section 9 of this test report.

7.4.4 Test data

Table 7.4-1: *WINNF.FT.D.REG.4 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	The DP with two CBSDs sends Registration requests in the form of one 2-element Array or as individual messages to SAS Test Harness. • The required userId, fccId and cbsdSerialNumber and REG-Conditional cbsdCategory, airInterface, installationParam, and measCapability registration parameters shall be sent from the CBSD and conform to proper format and acceptable ranges. • Any optional registration parameters that may be included in the message shall be verified that they conform to proper format and are within acceptable ranges.	☒	☐
3	• SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or individual messages as follows: o *cbsdId* = Ci. o *measReportConfig* for each CBSD shall not be included. o *responseCode* = 0 for each CBSD	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.5 [WINNF.FT.C.REG.5] Single-Step registration for CBSD with CPI signed data

7.5.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.1 Successful registration (responseCode 0)

Upon a successful response from the SAS (responseCode = 0), the CBSD will generate its next message to the SAS. The SAS Test Harness when configured for verification of a particular CBSD-SAS protocol procedure (i.e. registration), will / may not respond to any subsequent messages sent by CBSD once the procedure being tested is complete.

6.1.4.1.5 [WINNF.FT.C.REG.5] Single-Step registration for CBSD with CPI signed data

This test is mandatory for CBSD which reports all Required and REG-Conditional parameters in the Registration request to the SAS using CPI signed data. This test validates that each of the required and REG-Conditional parameters appear within the registration request message. All Category B devices, and Category A devices not able to determine its own location require installation by a CPI. This test is for devices where the CPI enters data into the CBSD and this information along with the CPI signature are sent in the request message. Excluded from this test are devices which require the CPI to enter the information into a SAS interface. These devices would use the multiple step registration test [WINNF.FT.C.REG.1].

7.5.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.5.3 Observations, settings and special notes

If a waiver for the measurement capability has been obtained from the FCC for the CBSD, the WINNF.FT.C.REG.5_waiver test case shall be executed which is the same as above, but where measCapability is not required in the request message.
For the test log please refer to Section 9 of this test report.

7.5.4 Test data

Table 7.5-1: *WINNF.FT.C.REG.5 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state • All of the required and REG-Conditional parameters shall be configured and CPI signature provided	–	–
2	CBSD sends Registration request to the SAS Test Harness: • The required userId, fccId and cbsdSerialNumber and REG-Conditional cbsdCategory, airInterface, measCapability and cpiSignatureData registration parameters shall be sent from the CBSD and conform to proper format and acceptable ranges. • Any optional registration parameters that may be included in the message shall be verified that they conform to proper format and are within acceptable ranges.	☒	☐
3	• SAS Test Harness sends a CBSD Registration Response as follows: ○ *cbsdId* = C ○ *measReportConfig* shall not be included. ○ *responseCode* = 0	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.6 [WINNF.FT.D.REG.6] Domain Proxy Single-Step registration for CBSD with CPI signed data

7.6.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.1 Successful registration (responseCode 0)

Upon a successful response from the SAS (responseCode = 0), the CBSD will generate its next message to the SAS. The SAS Test Harness when configured for verification of a particular CBSD-SAS protocol procedure (i.e. registration), will / may not respond to any subsequent messages sent by CBSD once the procedure being tested is complete.

6.1.4.1.6 [WINNF.FT.D.REG.6] Domain Proxy Single-Step registration for CBSD with CPI signed data

This test is mandatory for DP with CBSDs which report all Required and REG-Conditional parameters in the Registration request to the SAS using CPI signed data. This test validates that each of the required and REG-Conditional parameters appear within the registration request message. This test case applies to Domain Proxy supervising two CBSDs.

All Category B devices, and Category A devices not able to determine its own location require installation by a CPI. This test is for devices where the CPI enters data into the CBSD and this information along with the CPI signature are sent in the request message. Excluded from this test are devices which require the CPI to enter the information into a SAS interface. These devices would follow the multiple step registration test [WINNF.FT.D.REG.2].

7.6.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.6.3 Observations, settings and special notes

If a waiver for the measurement capability has been obtained from the FCC for the CBSD, the WINNF.FT.D.REG.6_waiver test case shall be executed which is the same as above, but where measCapability is not required in the request message.
For the test log please refer to Section 9 of this test report.

7.6.4 Test data

Table 7.6-1: *WINNF.FT.D.REG.6 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state • All of the required and REG-Conditional parameters shall be configured, and CPI signature provided	–	–
2	The DP with two CBSDs sends Registration requests in the form of one 2-element Array or as individual messages to the SAS Test Harness: • The required userId, fccId and cbsdSerialNumber and REG-Conditional cbsdCategory, airInterface, measCapability and cpiSignatureData registration parameters shall be sent from the CBSD and conform to proper format and acceptable ranges. • Any optional registration parameters that may be included in the message shall be verified that they conform to proper format and are within acceptable ranges.	☒	☐
3	• SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or individual messages as follows: ○ *cbsdId* = Ci ○ *measReportConfig* for each CBSD shall not be included ○ *responseCode* = 0 for each CBSD	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.7 [WINNF.FT.C.REG.7] Registration due to change of an installation parameter

7.7.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.1 Successful registration (responseCode 0)

Upon a successful response from the SAS (responseCode = 0), the CBSD will generate its next message to the SAS. The SAS Test Harness when configured for verification of a particular CBSD-SAS protocol procedure (i.e. registration), will / may not respond to any subsequent messages sent by CBSD once the procedure being tested is complete.

6.1.4.1.7 [WINNF.FT.C.REG.7] Registration due to change of an installation parameter

The purpose of this test is to verify the CBSD sends notification to the SAS when an installation parameter has been changed.

This test is limited to CBSDs that support a registration parameter change/update to be made at the CBSD.

Further, this test only applies to CBSD devices that allow a registration parameter change to be made prior to sending a deregistration.

This test is not valid for CBSDs requiring a deregistration prior to allowing a parameter change to be made (for example, (i) bring CBSD out of service (deregister), (ii) change registration parameter, (iii) bring CBSD back into service (register)). Refer to the deregistration test case [WINNF.FT.C.DRG.1].

This test is also not valid for CBSDs which require registration parameter updates to be made directly into the SAS via a SAS interface.

7.7.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.7.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.7.4 Test data

Table 7.7-1: *WINNF.FT.C.REG.7 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness	–	–
2	UUT has successfully registered with SAS Test Harness	–	–
3	Change an installation parameters at the UUT (time T) Tester needs to record the current time at which the parameter change is executed.	–	–
4	Monitor the SAS-CBSD interface. UUT sends a *deregistrationRequest* to the SAS Test Harness The deregistration request shall be sent within (T + 60 seconds) from step 3.	☒	☐

7.8 [WINNF.FT.C.REG.8] Missing Required parameters (responseCode 102)

7.8.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.1 [WINNF.FT.C.REG.8] Missing Required parameters (responseCode 102)

7.8.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.8.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.8.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (R) = 102

Table 7.8-1: *WINNF.FT.C.REG.8 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	CBSD sends a Registration request to SAS Test Harness.	–	–
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: ○ SAS response does not include *cbsdId* ○ *responseCode* (R) = 102	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.9 [WINNF.FT.D.REG.9] Domain Proxy Missing Required parameters (responseCode 102)

7.9.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.2 [WINNF.FT.D.REG.9] Domain Proxy Missing Required parameters (responseCode 102)

This test case applies to Domain Proxy supervising two CBSDs.

7.9.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.9.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.9.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (Ri) = 102 for each CBSD:

Table 7.9-1: *WINNF.FT.D.REG.9 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	–	–
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: o SAS response does not include a *cbsdId*. o *responseCode* (Ri) = 102 for each CBSD	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode=0*) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.10 [WINNF.FT.C.REG.10] Pending registration (responseCode 200)

7.10.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.3 [WINNF.FT.C.REG.10] Pending registration (responseCode 200)

7.10.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.10.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.10.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (R) = 200

Table 7.10-1: *WINNF.FT.C.REG.10 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	CBSD sends a Registration request to SAS Test Harness.	–	–
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: o SAS response does not include *cbsdId* o – *responseCode* (R) = 200	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.11 [WINNF.FT.D.REG.11] Domain Proxy Pending registration (responseCode 200)

7.11.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.4 [WINNF.FT.D.REG.11] Domain Proxy Pending registration (responseCode 200)

This test case applies to Domain Proxy supervising two CBSDs.

7.11.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.11.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.11.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (Ri) = 200 for each CBSD:

Table 7.11-1: *WINNF.FT.D.REG.11 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	–	–
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: o SAS response does not include a *cbsdId*. o *responseCode* (Ri) = 200 for each CBSD	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode=0*) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.12 [WINNF.FT.C.REG.12] Invalid parameter (responseCode 103)

7.12.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.5 [WINNF.FT.C.REG.12] Invalid parameter (responseCode 103)

7.12.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.12.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.12.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (R) = 103

Table 7.12-1: *WINNF.FT.C.REG.12 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	CBSD sends a Registration request to SAS Test Harness.	–	–
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: o SAS response does not include *cbsdId* o – *responseCode* (R) = 103	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.13 [WINNF.FT.D.REG.13] Domain Proxy Invalid parameters (responseCode 103)

7.13.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.6 [WINNF.FT.D.REG.13] Domain Proxy Invalid parameters (responseCode 103)

This test case applies to Domain Proxy supervising two CBSDs.

7.13.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.13.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.13.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* R1 = 0 for CBSD1 and R2 = 103 for CBSD2:

Table 7.13-1: *WINNF.FT.D.REG.13 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	–	–
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: o SAS response does not include a *cbsdId*. o *responseCode* (R1) = 0 for CBSD1 o *responseCode* (R2) = 103 for CBSD2	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode=0*) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.14 [WINNF.FT.C.REG.14] Blacklisted CBSD (responseCode 101)

7.14.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.7 [WINNF.FT.C.REG.14] Blacklisted CBSD (responseCode 101)

7.14.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.14.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.14.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (R) = 101

Table 7.14-1: *WINNF.FT.C.REG.14 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	CBSD sends a Registration request to SAS Test Harness.	–	–
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: o SAS response does not include *cbsdId* o – *responseCode* (R) = 101	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.15 [WINNF.FT.D.REG.15] Domain Proxy Blacklisted CBSD (responseCode 101)

7.15.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.8 [WINNF.FT.D.REG.15] Domain Proxy Blacklisted CBSD (responseCode 101)

This test case applies to Domain Proxy supervising two CBSDs.

7.15.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.15.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.15.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* R1 = 0 for CBSD1 and R2 = 101 for CBSD2.

Table 7.15-1: *WINNF.FT.D.REG.15 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	–	–
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: o SAS response does not include a *cbsdId*. o *responseCode* (R1) = 0 for CBSD1 o *responseCode* (R2) = 101 for CBSD2	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode=0*) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.16 [WINNF.FT.C.REG.16] Unsupported SAS protocol version (responseCode 100)

7.16.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.9 [WINNF.FT.C.REG.16] Unsupported SAS protocol version (responseCode 100)

7.16.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.16.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.16.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (R) = 100

Table 7.16-1: *WINNF.FT.C.REG.16 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	CBSD sends a Registration request to SAS Test Harness.	–	–
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: ○ SAS response does not include *cbsdId* ○ – *responseCode* (R) = 100	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.17 [WINNF.FT.D.REG.17] Domain Proxy Unsupported SAS protocol version (responseCode 100)

7.17.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.10 [WINNF.FT.D.REG.17] Domain Proxy Unsupported SAS protocol version (responseCode 100)

This test case applies to Domain Proxy supervising two CBSDs.

7.17.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.17.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.17.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (Ri) = 100 for each CBSD:

Table 7.17-1: *WINNF.FT.D.REG.17 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	–	–
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: o SAS response does not include a *cbsdId*. o *responseCode* (Ri) = 100 for each CBSD	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode=0*) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.18 [WINNF.FT.C.REG.18] Group Error (responseCode 201)

7.18.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.11 [WINNF.FT.C.REG.18] Group Error (responseCode 201)

The registrationRequest groupingParam is an optional field and will be validated by the SAS Test Harness if provided in the Registration Request message. This test will validate that the CBSD will remain Unregistered after receiving responseCode 201.

7.18.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.18.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.18.4 Test data

The following are the test execution steps where the Registration response contains *responseCode* (R) = 201

Table 7.18-1: *WINNF.FT.C.REG.18 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	CBSD sends a Registration request to SAS Test Harness.	–	–
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: o SAS response does not include *cbsdId* o – *responseCode* (R) = 201	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.19 [WINNF.FT.D.REG.19] Domain Proxy Group Error (responseCode 201)

7.19.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.2 Unsuccessful registration: non-zero responseCodes

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a valid registrationRequest message with a registrationResponse with a non-zero responseCode.

The purpose of these tests is to ensure that the CBSD does not transmit when a responseCode other than 0 is received. The information sent in the registration request message is not important, only that it shall conform to the protocol.

Missing/Invalid response codes are tested by injecting those responseCodes into the SAS Test Harness generated response message, even though the UUT has sent a valid message

6.1.4.2.12 [WINNF.FT.D.REG.19] Domain Proxy Group Error (responseCode 201)

The registrationRequest groupingParam is an optional field and will be validated by the SAS Test Harness if provided in the Registration Request message. This test will validate that the CBSD will remain Unregistered after receiving responseCode 201.

This test case applies to Domain Proxy supervising two CBSDs.

7.19.1 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.19.2 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.19.3 Test data

The following are the test execution steps where the Registration response contains *responseCode* R1 = 0 for CBSD1 and R2 = 201 for CBSD2.:

Table 7.19-1: *WINNF.FT.D.REG.19 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	–	–
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	–	–
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: ○ SAS response does not include a *cbsdId*. ○ *responseCode* (R1) = 0 for CBSD1 ○ *responseCode* (R2) = 201 for CBSD2	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode=0*) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.20 [WINNF.FT.C.REG.20] Category A CBSD location update

7.20.1 References, definitions and limits

WINNF-TS-0122, Clause 6.1:

CBSD Registration Process

6.1.1 This section provides test steps, conditions and procedures to test the conformance of the CBSD implementation for the CBSD Registration Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to register with.

6.1.4.3 Category A CBSD location update

This section is specific to Category A CBSDs that do not require professional installation. The requirement is for the Category A (non-professionally installed) to report to the SAS any location change exceeding a distance of 50m horizontally or 3m vertically within a 60 second window. It is left to the CBSD vendor and certification lab to generate the required evidence showing the UUT meets the requirement.

6.1.4.3.1 [WINNF.FT.C.REG.20] Category A CBSD location update

The test case ID is provided as a means to ensure that evidence is provided showing compliance to this requirement.

7.20.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.20.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.20.4 Test data

Table 7.20-1: *WINNF.FT.C.REG.20 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness	–	–
2	UUT has successfully registered with SAS Test Harness	–	–
3	Change an installation parameter at the UUT (time T) o Tester needs to record the current time at which the parameter change is executed.	–	–
4	Monitor the SAS-CBSD interface. UUT sends a deregistrationRequest to the SAS Test Harness The deregistration request shall be sent within (T + 60 seconds) from step 3.	☒	☐

7.21 [WINNF.FT.C.GRA.1] Unsuccessful Grant responseCode=400 (INTERFERENCE)

7.21.1 References, definitions and limits

WINNF-TS-0122, Clause 6.3:

CBSD Spectrum Grant Process

6.3.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the CBSD Spectrum Grant Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.

6.3.4.2 Unsuccessful responses from the SAS Test Harness

The test cases in this section are for verifying the handling of CBSD for various responseCodes in response from the-SAS Test Harness.

The actions taken in response of any responseCode are beyond the scope of this document unless mentioned in the test procedure.

6.3.4.2.1 [WINNF.FT.C.GRA.1] Unsuccessful Grant responseCode=400 (INTERFERENCE)

7.21.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.21.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.21.4 Test data

The following steps describe the test execution where the Grant response contains responseCode (R) = 400.

Table 7.21-1: *WINNF.FT.C.GRA.1 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness, with *cbsdId* = C	–	–
2	UUT sends valid Grant Request.	–	–
3	SAS Test Harness sends a Grant Response message, including • *cbsdId*=C • *responseCode* (R) = 400	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.22 [WINNF.FT.C.GRA.2] Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)

7.22.1 References, definitions and limits

WINNF-TS-0122, Clause 6.3:

CBSD Spectrum Grant Process

6.3.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the CBSD Spectrum Grant Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.

6.3.4.2 Unsuccessful responses from the SAS Test Harness

The test cases in this section are for verifying the handling of CBSD for various responseCodes in response from the-SAS Test Harness.

The actions taken in response of any responseCode are beyond the scope of this document unless mentioned in the test procedure.

6.3.4.2.2 [WINNF.FT.C.GRA.2] Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)

7.22.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.22.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.22.4 Test data

The following steps describe the test execution where the Grant response contains responseCode (R) = 401.

Table 7.22-1: *WINNF.FT.C.GRA.2 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness, with *cbsdId* = C	–	–
2	UUT sends valid Grant Request.	–	–
3	SAS Test Harness sends a Grant Response message, including • *cbsdId*=C • *responseCode* (R) = 401	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.23 [WINNF.FT.C.HBT.1] Heartbeat Success Case (first Heartbeat Response)

7.23.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.1 Successful Heartbeat (responseCode=0)

The test cases in this section test the success path for the Heartbeat process. The SAS Test Harness shall use a heartBeatInterval of 60 seconds, unless specifically provided in the test case.

6.4.4.1.1 [WINNF.FT.C.HBT.1] Heartbeat Success Case (first Heartbeat Response)

This test case incorporates validation of successful Spectrum Inquiry messaging (if present) and successful Grant messaging into the Heartbeat Success case.

7.23.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.23.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.23.4 Test data

Table 7.23-1: *WINNF.FT.C.HBT.1 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness, with *cbsdId* = C	–	–
2	UUT sends a message: • If message is type Spectrum Inquiry Request, go to step 3, or • If message is type Grant Request, go to step 5	–	–
3	UUT sends Spectrum Inquiry Request. Validate: • *cbsdId* = C • List of frequencyRange objects sent by UUT are within the CBRS frequency range	☒	☐
4	SAS Test Harness sends a Spectrum Inquiry Response message, including the following parameters: • *cbsdId* = C • *availableChannel* is an array of availableChannel objects • *responseCode* = 0	–	–
5	UUT sends Grant Request message. Validate: • *cbsdId* = C • maxEIRP is at or below the limit appropriate for CBSD category as defined by Part 96 • operationFrequencyRange, F, sent by UUT is a valid range within the CBRS band	☒	☐
6	SAS Test Harness sends a Grant Response message, including the parameters: • cbsdId = C • grantId = G = a valid grant ID • grantExpireTime = UTC time greater than duration of the test • responseCode = 0	–	–
7	UUT sends a first Heartbeat Request message. Verify Heartbeat Request message is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = “GRANTED”	☒	☐
8	SAS Test Harness sends a Heartbeat Response message, with the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0	–	–
9	For further Heartbeat Request messages sent from UUT after completion of step 8, validate message is sent within latest specified heartbeatInterval, and: • *cbsdId* = C • *grantId* = G • *operationState* = “AUTHORIZED” and SAS Test Harness responds with a Heartbeat Response message including the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0	☒	☐
10	Monitor the RF output of the UUT from start of test until UUT transmission commences. Verify: • UUT does not transmit at any time prior to completion of the first heartbeat response • UUT transmits after step 8 is complete, and its transmission is limited to within the bandwidth range F.	☒	☐

7.24 [WINNF.FT.D.HBT.2] Domain Proxy Heartbeat Success Case (first Heartbeat Response)

7.24.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.1 Successful Heartbeat (responseCode=0)

The test cases in this section test the success path for the Heartbeat process. The SAS Test Harness shall use a heartBeatInterval of 60 seconds, unless specifically provided in the test case.

6.4.4.1.2 [WINNF.FT.D.HBT.2] Domain Proxy Heartbeat Success Case (first Heartbeat Response)

This test case incorporates validation of successful Spectrum Inquiry messaging (if present) and successful Grant messaging into the Heartbeat Success case.

This test case applies to Domain Proxy supervising two CBSDs.

7.24.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.24.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.24.4 Test data

Table 7.24-1: *WINNF.FT.D.HBT.2 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • DP has two CBSD registered successfully with SAS Test Harness, with *cbsdId* = Ci, i={1,2}	–	–
2	DP sends a message: • If message is a Spectrum Inquiry Request, go to step 3 • If message is a Grant Request, go to step 5	–	–
3	DP sends a Spectrum Inquiry Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Spectrum Inquiry Request message is formatted correctly for each CBSD, including for CBSDi, i={1,2}: • cbsdId = Ci • List of frequencyRange objects sent by DP are within the CBRS frequency range	☒	☐
4	If a separate Spectrum Inquiry Request message was sent for each CBSD, the SAS Test Harness shall respond to each Spectrum Inquiry Request message with a separate Spectrum Inquiry Response message. If a single Spectrum Inquiry Request message was sent containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Spectrum Inquiry Response message containing a 2-object array. Verify parameters for each CBSD within the Spectrum Inquiry Response message are as follows, for CBSDi, i={1,2}: • *cbsdId* = Ci • *availableChannel* is an array of availableChannel objects • *responseCode* = 0	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	DP sends a Grant Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Grant Request message is formatted correctly for each CBSD, including for CBSDi, i={1,2}: • *cbsdId* = C • maxEIRP is at or below the limit appropriate for CBSD category as defined by Part 96 • operationFrequencyRange, Fi, sent by UUT is a valid range within the CBRS band	☒	☐
6	If a separate Grant Request message was sent for each CBSD, the SAS Test Harness shall respond to each Grant Request message with a separate Grant Response message. If a single Grant Request message was sent containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Grant Response message containing a 2-object array. Verify parameters for each CBSD within the Grant Response message are as follows, for CBSDi, i={1,2}: • *cbsdId* = Ci • *grantId* = Gi = a valid grant ID • *grantExpireTime* = UTC time greater than duration of the test • *responseCode* = 0	–	–
7	Ensure DP sends first Heartbeat Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Heartbeat Request message is formatted correctly for each CBSD, including, for CBSDi i={1,2}: • *cbsdId* = Ci, i={1,2} • *grantId* = Gi, i={1,2} • *operationState* = "GRANTED"	☒	☐
8	If a separate Heartbeat Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each Heartbeat Request message with a separate Heartbeat Response message. If a single Heartbeat Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Heartbeat Response message containing a 2-object array. Verify parameters for each CBSD within the Heartbeat Response message are as follows, for CBSDi: • *cbsdId* = Ci • *grantId* = Gi • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0	–	–
9	For further Heartbeat Request messages sent from DP after completion of step 8, validate message is sent within latest specified heartbeatInterval for CBSDi: • *cbsdId* = Ci • *grantId* = Gi • operationState = "AUTHORIZED" and SAS Test Harness responds with a Heartbeat Response message including the following parameters, for CBSDi • *cbsdId* = Ci • *grantId* = Gi • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0	☒	☐
10	Monitor the RF output of the UUT from start of test until UUT transmission commences. Monitor the RF output of the UUT from start of test until RF transmission commences. Verify: • UUT does not transmit at any time prior to completion of the first heartbeat response • UUT transmits after step 8 is complete, and its transmission is limited to within the bandwidth range Fi.	☒	☐

7.25 [WINNF.FT.C.HBT.3] Heartbeat responseCode=105 (DEREGISTER)

7.25.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.2 Unsuccessful Heartbeat Test Cases (responseCode != 0)

The test cases in this section cover Heartbeat Response messages with non-zero responseCodes. Part of the pass/fail criteria of these test cases is the cessation of all UUT RF transmission. Therefore, in all test cases, after the non-zero responseCode is sent, the SAS Test Harness shall not allow any new Grant Request from the UUT to succeed.

6.4.4.2.1 [WINNF.FT.C.HBT.3] Heartbeat responseCode=105 (DEREGISTER)

7.25.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.25.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.25.4 Test data

Table 7.25-1: *WINNF.FT.C.HBT.3 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* = C o valid *grantId* = G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface	–	–
2	UUT sends a Heartbeat Request message. Ensure Heartbeat Request message is sent within Heartbeat Interval specified in the latest Heartbeat Response, and formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	☒	☐
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = T = Current UTC time • *responseCode* = 105 (DEREGISTER)	–	–
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	–	–
5	Monitor the RF output of the UUT. Verify: • UUT shall stop transmission within (T + 60 seconds) of completion of step 3	☒	☐

7.26 [WINNF.FT.C.HBT.4] Heartbeat responseCode=500 (TERMINATED_GRANT)

7.26.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.2 Unsuccessful Heartbeat Test Cases (responseCode != 0)

The test cases in this section cover Heartbeat Response messages with non-zero responseCodes. Part of the pass/fail criteria of these test cases is the cessation of all UUT RF transmission. Therefore, in all test cases, after the non-zero responseCode is sent, the SAS Test Harness shall not allow any new Grant Request from the UUT to succeed.

6.4.4.2.2 [WINNF.FT.C.HBT.4] Heartbeat responseCode=500 (TERMINATED_GRANT)

7.26.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.26.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.26.4 Test data

Table 7.26-1: *WINNF.FT.C.HBT.4 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* = C o valid *grantId* = G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface	–	–
2	UUT sends a Heartbeat Request message. Ensure Heartbeat Request message is sent within Heartbeat Interval specified in the latest Heartbeat Response, and formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	☒	☐
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = T = Current UTC time • *responseCode* = 500 (TERMINATED_GRANT)	–	–
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	–	–
5	Monitor the RF output of the UUT. Verify: • UUT shall stop transmission within (T + 60 seconds) of completion of step 3	☒	☐

7.27 [WINNF.FT.C.HBT.5] Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response

7.27.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.2 Unsuccessful Heartbeat Test Cases (responseCode != 0)

The test cases in this section cover Heartbeat Response messages with non-zero responseCodes. Part of the pass/fail criteria of these test cases is the cessation of all UUT RF transmission. Therefore, in all test cases, after the non-zero responseCode is sent, the SAS Test Harness shall not allow any new Grant Request from the UUT to succeed.

6.4.4.2.3 [WINNF.FT.C.HBT.5] Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response

7.27.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.27.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.27.4 Test data

Table 7.27-1: *WINNF.FT.C.HBT.5 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* = C o valid *grantId* = G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in GRANTED, but not AUTHORIZED state (i.e. has not performed its first Heartbeat Request)	–	–
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "GRANTED"	☒	☐
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = T = Current UTC time • *responseCode* = 501 (SUSPENDED_GRANT)	–	–
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	Monitor the SAS-CBSD interface. Verify either A OR B occurs: A. UUT sends a Heartbeat Request message. Ensure message is sent within latest specified heartbeatInterval, and is correctly formatted with parameters: • *cbsdId* = C • *grantId* = G • *operationState* = "GRANTED" B. UUT sends a Relinquishment request message. Ensure message is correctly formatted with parameters: • *cbdsId* = C • *grantId* = G Monitor the RF output of the UUT. Verify: • UUT does not transmit at any time	☒	☐

7.28 [WINNF.FT.C.HBT.6] Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response

7.28.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.2 Unsuccessful Heartbeat Test Cases (responseCode != 0)

The test cases in this section cover Heartbeat Response messages with non-zero responseCodes. Part of the pass/fail criteria of these test cases is the cessation of all UUT RF transmission. Therefore, in all test cases, after the non-zero responseCode is sent, the SAS Test Harness shall not allow any new Grant Request from the UUT to succeed.

6.4.4.2.4 [WINNF.FT.C.HBT.6] Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response

7.28.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.28.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.28.4 Test data

Table 7.28-1: *WINNF.FT.C.HBT.6 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* = C o valid *grantId* = G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface	–	–
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within latest specified *heartbeatInterval*, and is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	☒	☐
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = T = Current UTC time • *responseCode* = 501 (SUSPENDED_GRANT)	–	–
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	Monitor the SAS-CBSD interface. Verify either A OR B occurs: A. UUT sends a Heartbeat Request message. Ensure message is sent within latest specified heartbeatInterval, and is correctly formatted with parameters: • *cbsdId* = C • *grantId* = G • *operationState* = "GRANTED" B. UUT sends a Relinquishment Request message. Ensure message is correctly formatted with parameters: • cbdsId = C • *grantId* = G Monitor the RF output of the UUT. Verify: • UUT shall stop transmission within (T + 60 seconds) of completion of step 3	☒	☐

7.29 [WINNF.FT.C.HBT.7] Heartbeat responseCode=502 (UNSYNC_OP_PARAM)

7.29.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.2 Unsuccessful Heartbeat Test Cases (responseCode != 0)

The test cases in this section cover Heartbeat Response messages with non-zero responseCodes. Part of the pass/fail criteria of these test cases is the cessation of all UUT RF transmission. Therefore, in all test cases, after the non-zero responseCode is sent, the SAS Test Harness shall not allow any new Grant Request from the UUT to succeed.

6.4.4.2.5 [WINNF.FT.C.HBT.7] Heartbeat responseCode=502 (UNSYNC_OP_PARAM)

7.29.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.29.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.29.4 Test data

Table 7.29-1: *WINNF.FT.C.HBT.7 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* = C o valid *grantId* = G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface	–	–
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within latest specified *heartbeatInterval*, and is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	☒	☐
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = T = Current UTC time • *responseCode* = 502 (NSYNC_OP_PARAM)	–	–
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	Monitor the SAS-CBSD interface. Verify: • UUT sends a Grant Relinquishment Request message. Verify message is correctly formatted with parameters: o *cbdsId* = C o *grantId* = G Monitor the RF output of the UUT. Verify: • UUT shall stop transmission within (T+60) seconds of completion of step 3.	☒	☐

7.30 [WINNF.FT.D.HBT.8] Domain Proxy Heartbeat responseCode=500 (TERMINATED_GRANT)

7.30.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.2 Unsuccessful Heartbeat Test Cases (responseCode != 0)

The test cases in this section cover Heartbeat Response messages with non-zero responseCodes. Part of the pass/fail criteria of these test cases is the cessation of all UUT RF transmission. Therefore, in all test cases, after the non-zero responseCode is sent, the SAS Test Harness shall not allow any new Grant Request from the UUT to succeed.

6.4.4.2.6 [WINNF.FT.D.HBT.8] Domain Proxy Heartbeat responseCode=500 (TERMINATED_GRANT)

This test case applies to Domain Proxy supervising two CBSDs.

7.30.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.30.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.30.4 Test data

Table 7.30-1: *WINNF.FT.C.HBT.8 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • DP has two CBSD registered successfully with SAS Test Harness • Each CBSD {1,2} has a valid single grant as follows: o valid *cbsdId* = Ci, i={1,2} o valid *grantId* = Gi, i={1,2} o grant is for frequency range Fi, power Pi o *grantExpireTime* = UTC time greater than duration of the test • Both CBSD are in AUTHORIZED state and transmitting within their granted bandwidth on RF interface	–	–
2	DP sends a Heartbeat Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of size 2. Verify Heartbeat Request message is sent within latest specified *heartbeatInterval*, and is formatted correctly for each CBSD, including, for CBSDi i={1,2}: • *cbsdId* = Ci, i = {1,2} • *grantId* = Gi, i = {1,2} • *operationState* = "AUTHORIZED"	☒	☐

Test data, continued

Step	Test Execution Steps	Pass	Fail
3	If separate Heartbeat Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each Heartbeat Request message with a separate Heartbeat Response message. If a single Heartbeat Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Heartbeat Response message containing a 2-object array. Parameters for each CBSD within the Heartbeat Response message should be as follows, for CBSDi: • *cbsdId* = Ci • *grantId* = Gi • For CBSD1: o *transmitExpireTime* = current UTC time + 200 seconds o *responseCode* = 0 • For CBSD2: o *transmitExpireTime* = T = current UTC time o *responseCode* = 500 (TERMINATED_GRANT)	–	–
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT. If CBSD sends further Heartbeat Request messages for CBSD1, SAS Test Harness shall respond with a Heartbeat Response message with parameters: • *cbsdId* = C1 • *grantId* = G1 • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0 • Heartbeat Request message is within *heartbeatInterval* of previous Heartbeat Request message	–	–
5	Monitor the RF output of CBSD2. Verify: • CBSD2 shall stop transmission within bandwidth F2 within (T + 60 seconds) of completion of step 3	☒	☐

7.31 [WINNF.FT.C.HBT.9] Heartbeat Response Absent (First Heartbeat)

7.31.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.3 Heartbeat Response Absent Test Cases

These test cases cover the case where communication is lost between the UUT and the SAS during the Heartbeat Process.

6.4.4.3.1 [WINNF.FT.C.HBT.9] Heartbeat Response Absent (First Heartbeat)

7.31.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.31.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.31.4 Test data

Table 7.31-1: *WINNF.FT.C.HBT.9 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* = C o valid *grantId* = G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in GRANTED, but not AUTHORIZED state (i.e. has not performed its first Heartbeat Request)	–	–
2	UUT sends a Heartbeat Request message. Ensure Heartbeat Request message is sent within latest specified *heartbeatInterval*, and is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "GRANTED"	☒	☐
3	After completion of Step 2, SAS Test Harness does not respond to any further messages from UUT to simulate loss of network connection	–	–
4	Monitor the RF output of the UUT from start of test to 60 seconds after step 3. Verify: • At any time during the test, UUT shall not transmit on RF interface	☒	☐

7.32 [WINNF.FT.C.HBT.10] Heartbeat Response Absent (Subsequent Heartbeat)

7.32.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.3 Heartbeat Response Absent Test Cases

These test cases cover the case where communication is lost between the UUT and the SAS during the Heartbeat Process.

6.4.4.3.2 [WINNF.FT.C.HBT.10] Heartbeat Response Absent (Subsequent Heartbeat)

7.32.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.32.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.32.4 Test data

Table 7.32-1: *WINNF.FT.C.HBT.10 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* = C o valid *grantId* = G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface	–	–
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within the latest specified *heartbeatInterval*, and is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	☒	☐
3	SAS Test Harness sends a Heartbeat Response message, with the following parameters: • cbsdId = C • *grantId* = G • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0	–	–
4	After completion of Step 3, SAS Test Harness does not respond to any further messages from UUT	–	–
5	Monitor the RF output of the UUT. Verify: • UUT shall stop all transmission on RF interface within (*transmitExpireTime* + 60 seconds), using the transmitExpireTime sent in Step 3.	☒	☐

7.33 [WINNF.FT.C.HBT.11] Successful Grant Renewal in Heartbeat Test Case

7.33.1 References, definitions and limits

WINNF-TS-0122, Clause 6.4:

CBSD Heartbeat Process

6.4.1 This section provides procedures for testing CBSD behavior during the Heartbeat Process. It assumes as precondition that CBSD has successfully discovered the SAS that it wants to register with, has successfully registered, has a successful Grant request, and is in the Granted or Authorized state.

6.4.4.4 Heartbeat Grant Renewal Cases

Test cases in this section test Grant Renewal within the Heartbeat Process.

6.4.4.4.1 [WINNF.FT.C.HBT.11] Successful Grant Renewal in Heartbeat Test Case

7.33.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.33.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.33.4 Test data

Table 7.33-1: *WINNF.FT.C.HBT.11 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* = C o valid *grantId* = G o grant is for frequency range F, power P • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface. • Grant has the following parameters at the start of the test: o *grantExpireTime* =UTC time equal to time at start of test + 300 seconds = Tgrant_expire o *transmitExpireTime* = UTC time equal to time at start of test + 200 seconds o *heartbeatInterval* = 60 seconds	–	–
2	UUT sends a Heartbeat Request message. If Heartbeat Request message contains grantRenew = TRUE, go to Step 6, else go to Step 3.	–	–
3	Verify Heartbeat Request message is sent within the latest specified *heartbeatInterval*, and is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	☒	☐
4	SAS Test Harness sends a Heartbeat Response message, with the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = current UTC + 200 seconds • *grantExpireTime* = same as Step 1 • *responseCode* = 0	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	Go to Step 2	–	–
6	Verify Heartbeat Request message is sent within the latest specified heartbeatInterval, and is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED" • *grantRenew* = TRUE	☒	☐
7	SAS Test Harness sends a Heartbeat Response message, with the following parameters: • *cbsdId* = C • *grantId* = G • *grantExpireTime* = UTC time set far in the future • *transmitExpireTime* = current UTC time + 200 seconds • responseCode = 0	–	–
8	Continue to respond to any *subsquentHeartbeat* Request from CBSD with Heartbeat Response with the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = same as Step 7 • *responseCode* = 0	–	–
9	Monitor RF transmission of UUT from start of test until Tgrant_expire + 60 seconds and ensure UUT continues to transmit throughout the time period.	☒	☐

7.34 [WINNF.FT.C.MES.1] Registration Response contains measReportConfig

7.34.1 References, definitions and limits

WINNF-TS-0122, Clause 6.5:

CBSD Measurement Report

6.5.1 This section explains test steps/condition/procedure for CBSD behavior for Measurement Reports.
The main test cases for Measurement Report are outlined below, in terms of Measurement Report Stimulus (in a Response message from SAS) and a Measurement Report Response (in the subsequent Request message from the UUT).
Devices which support one measurement capability must satisfy the test cases mandatory for that measurement capability. Devices which support multiple measurement capabilities must satisfy the test cases mandatory for each type of supported measurement capability.

6.5.4.2 Measurement Report Test Cases
Test cases in this section test the success path for each possible Measurement Report

6.5.4.2.1 [WINNF.FT.C.MES.1] Registration Response contains measReportConfig
This test case is mandatory for CBSD supporting RECEIVED_POWER_WITHOUT_GRANT.

7.34.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.34.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.34.4 Test data

Table 7.34-1: *WINNF.FT.C.MES.1 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness	–	–
2	UUT sends a Registration Request message. Validate the Registration Request message is formatted correctly, including: • *userId* is present and correct • *fccId* is present and correct • *cbsdSerialNumber* is present and correct • *measCapability* = "RECEIVED_POWER_WITHOUT_GRANT"	☒	☐
3	SAS Test Harness sends a Registration Response message, with the following parameters: • *cbsdId* = C = valid cbsdId for this UUT • *measReportConfig*= "RECEIVED_POWER_WITHOUT_GRANT" • *responseCode* = 0	–	–
4	UUT sends a message: • If message is type Spectrum Inquiry Request, go to step 5, or • If message is type Grant Request, go to step 7	–	–
5	UUT sends message type Spectrum Inquiry Request. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *measReport* is present, and is a properly formatted *rcvdPowerMeasReport*.	☒	☐

Test data, continued

Step	Test Execution Steps	Pass	Fail
6	SAS Test Harness sends a Spectrum Inquiry Response, with the following parameters: • *cbsdId* = C • *availableChannel* is an array of availableChannel objects • *responseCode* = 0	–	–
7	UUT sends message type Grant Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *measReport* is present, and is a properly formatted *rcvdPowerMeasReport*.	☒	☐

7.35 [WINNF.FT.D.MES.2] Domain Proxy Registration Response contains measReportConfig

7.35.1 References, definitions and limits

WINNF-TS-0122, Clause 6.5:

CBSD Measurement Report

6.5.1 This section explains test steps/condition/procedure for CBSD behavior for Measurement Reports.
The main test cases for Measurement Report are outlined below, in terms of Measurement Report Stimulus (in a Response message from SAS) and a Measurement Report Response (in the subsequent Request message from the UUT).
Devices which support one measurement capability must satisfy the test cases mandatory for that measurement capability. Devices which support multiple measurement capabilities must satisfy the test cases mandatory for each type of supported measurement capability.

6.5.4.2 Measurement Report Test Cases
Test cases in this section test the success path for each possible Measurement Report

6.5.4.2.2 [WINNF.FT.D.MES.2] Domain Proxy Registration Response contains measReportConfig
This test case is mandatory for Domain Proxy supervising CBSD which support RECEIVED_POWER_WITHOUT_GRANT.

7.35.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.35.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.35.4 Test data

Table 7.35-1: *WINNF.FT.D.MES.2 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • DP has successfully completed SAS Discovery and Authentication with SAS Test Harness	–	–
2	DP sends a Registration Request message for each of two CBSD. This may occur in a separate Request message per CBSD, or together in a single Request message with array of 2. Verify Registration Request message contains all required parameters properly formatted for CBSDi, i={1,2}, and specifically: • *userId* is present and correct • *fccId* is present and correct • *cbsdSerialNumber* is present and correct • *measCapability* = "RECEIVED_POWER_WITHOUT_GRANT"	☒	☐
3	If a separate Registration Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each Registration Request message with a separate Registration Response message. If a single Registration Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Registration Response message containing a 2-object array. Parameters for each CBSD within the Registration Response message should be as follows, for CBSDi: • *cbsdId* = Ci • *measReportConfig*= "RECEIVED_POWER_WITHOUT_GRANT" • *responseCode* = 0	–	–
4	UUT sends a message: • If message is type Spectrum Inquiry Request, go to step 5, or • If message is type Grant Request, go to step 7	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	UUT sends message type Spectrum Inquiry Request. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Spectrum Inquiry Request message contains all required parameters properly formatted for CBSDi, i= {1,2}, and specifically: • *cbsdId* = Ci • *measReport* is present, and is a properly formatted *rcvdPowerMeasReport*.	☒	☐
6	If a separate Spectrum Inquiry Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each Spectrum Inquiry Request message with a separate Spectrum Inquiry Response message. If a single Spectrum Inquiry Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Spectrum Inquiry Response message containing a 2-object array. Parameters for each CBSD within the Spectrum Inquiry Response message should be as follows: • *cbsdId* = Ci • *availableChannel* is an array of availableChannel objects • *responseCode* = 0	–	–
7	UUT sends message type Grant Request message. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify the Grant Request message contains all required parameters properly formatted for CBSDi, i= {1,2}, and specifically: • *cbsdId* = Ci • *measReport* is present, and is a properly formatted *rcvdPowerMeasReport*.	☒	☐

7.36 [WINNF.FT.C.MES.3] Grant Response contains measReportConfig

7.36.1 References, definitions and limits

WINNF-TS-0122, Clause 6.5:

CBSD Measurement Report

6.5.1 This section explains test steps/condition/procedure for CBSD behavior for Measurement Reports.
The main test cases for Measurement Report are outlined below, in terms of Measurement Report Stimulus (in a Response message from SAS) and a Measurement Report Response (in the subsequent Request message from the UUT).
Devices which support one measurement capability must satisfy the test cases mandatory for that measurement capability. Devices which support multiple measurement capabilities must satisfy the test cases mandatory for each type of supported measurement capability.

6.5.4.2 Measurement Report Test Cases
Test cases in this section test the success path for each possible Measurement Report

6.5.4.2.3 [WINNF.FT.C.MES.3] Grant Response contains measReportConfig
This test case is mandatory for UUT supporting RECEIVED_POWER_WITH_GRANT measurement reports.

7.36.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.36.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.36.4 Test data

Table 7.36-1: *WINNF.FT.C.MES.3 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C and *measCapability* = "RECEIVED_POWER_WITH_GRANT"	–	–
2	UUT sends a Grant Request message. Verify Grant Request message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *operationParam* is present and format is valid	☒	☐
3	SAS Test Harness sends a Grant Response message, with the following parameters: • *cbsdId* = C • *grantId* = G = valid grant ID • *grantExpireTime* = UTC time in the future • *heartbeatInterval* = 60 seconds • *measReportConfig*= "RECEIVED_POWER_WITH_GRANT" • *channelType* = "GAA" • *responseCode* = 0	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
4	UUT sends a Heartbeat Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • *operationState* = "GRANTED"	☒	☐
5	If Heartbeat Request message (step 4) contains *measReport* object, then: • verify *measReport* is properly formatted as object rcvdPowerMeasReport • end test, with PASS result else, if Heartbeat Request message (step 4) does not contain *measReport* object, then: • if number of Heartbeat Requests sent by UUT after Step 3 is = 5, then stop test with result of FAIL	☒	☐
6	SAS Test Harness sends a Heartbeat Response message, containing all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0 Go to Step 4, above	–	–

7.37 [WINNF.FT.C.MES.4] Heartbeat Response contains measReportConfig

7.37.1 References, definitions and limits

WINNF-TS-0122, Clause 6.5:

CBSD Measurement Report

6.5.1 This section explains test steps/condition/procedure for CBSD behavior for Measurement Reports.
The main test cases for Measurement Report are outlined below, in terms of Measurement Report Stimulus (in a Response message from SAS) and a Measurement Report Response (in the subsequent Request message from the UUT).
Devices which support one measurement capability must satisfy the test cases mandatory for that measurement capability. Devices which support multiple measurement capabilities must satisfy the test cases mandatory for each type of supported measurement capability.

6.5.4.2 Measurement Report Test Cases
Test cases in this section test the success path for each possible Measurement Report

6.5.4.2.4 [WINNF.FT.C.MES.4] Heartbeat Response contains measReportConfig
This test case is mandatory for UUT supporting RECEIVED_POWER_WITH_GRANT measurement reports.

7.37.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.37.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.37.4 Test data

Table 7.37-1: *WINNF.FT.C.MES.4 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C and *measCapability* = "RECEIVED_POWER_WITH_GRANT" • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. • Grant has heartbeatInterval = 60 seconds	–	–
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	☒	☐
3	SAS Test Harness sends a Heartbeat Response message, containing all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • *measReportConfig*= "RECEIVED_POWER_WITH_GRANT" • *responseCode* = 0	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
4	UUT sends a Heartbeat Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	☒	☐
5	If Heartbeat Request message (step 4) contains *measReport* object, then: • verify *measReport* is properly formatted as object rcvdPowerMeasReport • end test, with PASS result else, if Heartbeat Request message (step 4) does not contain *measReport* object, then: • If number of Heartbeat Requests sent by UUT after Step 3 is = 5, then stop test with result of FAIL	☒	☐
6	SAS Test Harness sends a Heartbeat Response message, containing all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • *responseCode* = 0 Go to Step 4, above	–	–

7.38 [WINNF.FT.D.MES.5] Domain Proxy Heartbeat Response contains measReportConfig

7.38.1 References, definitions and limits

WINNF-TS-0122, Clause 6.5:

CBSD Measurement Report

6.5.1 This section explains test steps/condition/procedure for CBSD behavior for Measurement Reports.
The main test cases for Measurement Report are outlined below, in terms of Measurement Report Stimulus (in a Response message from SAS) and a Measurement Report Response (in the subsequent Request message from the UUT).
Devices which support one measurement capability must satisfy the test cases mandatory for that measurement capability. Devices which support multiple measurement capabilities must satisfy the test cases mandatory for each type of supported measurement capability.

6.5.4.2 Measurement Report Test Cases
Test cases in this section test the success path for each possible Measurement Report

6.5.4.2.5 [WINNF.FT.D.MES.5] Domain Proxy Heartbeat Response contains measReportConfig
This test case is mandatory for Domain Proxy supervising CBSD which support RECEIVED_POWER_WITH_GRANT measurement reports.

7.38.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.38.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.38.4 Test data

Table 7.38-1: *WINNF.FT.D.MES.5 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • DP has successfully completed SAS Discovery and Authentication with SAS Test Harness • DP has successfully registered 2 CBSD with SAS Test Harness, each with *cbsdId*=Ci, i={1,2} and *measCapability* = "RECEIVED_POWER_WITH_GRANT" • DP has received a valid grant with *grantId* = Gi, i={1,2} for each CBSD • Both CBSD are in Grant State AUTHORIZED and actively transmitting within the bounds of their grants. • Grants have *heartbeatInterval* =60 seconds	–	–
2	Verify DP sends a Heartbeat Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Heartbeat Request message contains all required parameters properly formatted for each CBSD, specifically, for CBSDi: • *cbsdId* = Ci • *grantId* = Gi • *operationState* = "AUTHORIZED"	☒	☐

Test data, continued

Step	Test Execution Steps	Pass	Fail
3	If a separate Heartbeat Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each Heartbeat Request message with a separate Heartbeat Response message. If a single Heartbeat Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Heartbeat Response message containing a 2-object array. Parameters for each CBSD within the Heartbeat Response message containing all required parameters properly formatted, and specifically: • *cbsdId* = Ci • *grantId* = Gi • *measReportConfig*= "RECEIVED_POWER_WITH_GRANT" • *responseCode* = 0	–	–
4	Verify DP sends a Heartbeat Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Heartbeat Request message contains all required parameters properly formatted for each CBSD, and specifically, for CBSDi, i = {1,2}: • *cbsdId* = Ci • *grantId* = Gi • *operationState* = "AUTHORIZED" • Check whether *measReport* is present, and if present, ensure it is a properly formatted *rcvdPowerMeasReport* object, and record its reception for each CBSDi, i = {1,2}.	–	–
5	If Heartbeat Request message (step 4) contains *measReport* object, then: • Verify *measReport* is properly formatted as object rcvdPowerMeasReport • record which CBSD have successfully sent a *measReport* object If all CBSDi, i = {1,2} have successfully sent a *measReport* object, then • end test, with PASS result else, if the number of Heartbeat Requests sent per CBSD is 5 or more, then • stop test with result of FAIL	☒	☐
6	If a separate Heartbeat Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each Heartbeat Request message with a separate Heartbeat Response message. If a single Heartbeat Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Heartbeat Response message containing a 2-object array. Parameters for each CBSD within the Heartbeat Response message containing all required parameters properly formatted, and specifically: • *cbsdId* = Ci • *grantId* = Gi • *responseCode* = 0 Go to Step 4, above.	–	–

7.39 [WINNF.FT.C.RLQ.1] Successful Relinquishment

7.39.1 References, definitions and limits

WINNF-TS-0122, Clause 6.6:

CBSD Relinquishment Process

6.6.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the CBSD Relinquishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Each test generates a CBSD relinquishment request and validates the CBSD takes the appropriate action following the SAS relinquishment response. The CBSD shall send the Relinquishment request message after stopping the RF transmission.

6.6.4.1 Successful Relinquishment Request (responseCode 0)

6.6.4.1.1 [WINNF.FT.C.RLQ.1] Successful Relinquishment

7.39.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.39.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.39.4 Test data

Table 7.39-1: *WINNF.FT.C.RLQ.1 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with cbsdId=C • UUT has received a valid grant with grantId = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to relinquish UUT Grant from the SAS Test Harness	–	–
2	UUT sends a Relinquishment Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G	☒	☐
3	SAS Test Harness shall approve the request with a Relinquishment Response message with parameters: ○ *cbsdId* = C ○ *grantId* = G ○ *responseCode* = 0	–	–
4	After completion of step 3, SAS Test Harness will not provide any additional positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall stop RF transmission at any time between triggering the relinquishment and UUT sending the relinquishment request	☒	☐

7.40 [WINNF.FT.D.RLQ.2] Domain Proxy Successful Relinquishment

7.40.1 References, definitions and limits

WINNF-TS-0122, Clause 6.6:

CBSD Relinquishment Process

6.6.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the CBSD Relinquishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Each test generates a CBSD relinquishment request and validates the CBSD takes the appropriate action following the SAS relinquishment response. The CBSD shall send the Relinquishment request message after stopping the RF transmission.

6.6.4.1 Successful Relinquishment Request (responseCode 0)

6.6.4.1.2 [WINNF.FT.D.RLQ.2] Domain Proxy Successful Relinquishment

7.40.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.40.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.40.4 Test data

Table 7.40-1: *WINNF.FT.D.RLQ.2 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • DP has successfully completed SAS Discovery and Authentication with SAS Test Harness • DP has successfully registered 2 CBSD with SAS Test Harness, each with *cbsdId*=Ci, i={1,2} • DP has received a valid grant with *grantId* = Gi, i={1,2} for each CBSD • Both CBSD are in Grant State AUTHORIZED and actively transmitting within the bounds of their grants. Invoke trigger to relinquish each UUT Grant from the SAS Test Harness	–	–
2	Verify DP sends a Relinquishment Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Relinquishment Request message contains all required parameters properly formatted for each CBSD, specifically, for CBSDi: • *cbsdId* = Ci • *grantId* = Gi	☒	☐
3	If a separate Relinquishment Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each request message with a separate response message. If a single Relinquishment Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Response message containing a 2-object array. Parameters for each CBSD within the Relinquishment Response shall be as follows: • *cbsdId* = Ci • *grantId* = Gi • *responseCode* = 0	–	–
4	After completion of step 3, SAS Test Harness will not provide any additional positive response (*responseCode*=0) to further request messages from the UUT.	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall stop RF transmission at any time between triggering the relinquishments and UUT sending the relinquishment requests for each CBSD.	☒	☐

7.41 [WINNF.FT.C.RLQ.3] Unsuccessful Relinquishment, responseCode=102

7.41.1 References, definitions and limits

WINNF-TS-0122, Clause 6.6:

CBSD Relinquishment Process

6.6.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the CBSD Relinquishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Each test generates a CBSD relinquishment request and validates the CBSD takes the appropriate action following the SAS relinquishment response. The CBSD shall send the Relinquishment request message after stopping the RF transmission.

6.6.4.2 Missing Parameter (responseCode 102)
CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a message with a non-zero responseCode.

6.6.4.2.1 [WINNF.FT.C.RLQ.3] Unsuccessful Relinquishment, responseCode=102

7.41.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.41.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.41.4 Test data

The following are the test execution steps where the Relinquishment response contains *responseCode* (R) = 102.

Table 7.41-1: *WINNF.FT.C.RLQ.3 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to Relinquish UUT Grant from the SAS Test Harness	–	–
2	UUT sends a Relinquishment Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G	–	–
3	SAS Test Harness shall send a Relinquishment Response message with parameters: • *cbsdId* = C • No *grantId* • *responseCode* (R) = 102	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the relinquishment and UUT sending the relinquishment request	☒	☐

7.42 [WINNF.FT.D.RLQ.4] Domain Proxy Unsuccessful Relinquishment, responseCode=102

7.42.1 References, definitions and limits

WINNF-TS-0122, Clause 6.6:

CBSD Relinquishment Process

6.6.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the CBSD Relinquishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Each test generates a CBSD relinquishment request and validates the CBSD takes the appropriate action following the SAS relinquishment response. The CBSD shall send the Relinquishment request message after stopping the RF transmission.

6.6.4.2 Missing Parameter (responseCode 102)
CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a message with a non-zero responseCode.

6.6.4.2.2 [WINNF.FT.D.RLQ.4] Domain Proxy Unsuccessful Relinquishment, responseCode=102
This test case applies to Domain Proxy supervising two CBSDs.

7.42.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.42.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.42.4 Test data

The following are the test execution steps where the Relinquishment response contains *responseCode* (Ri) = 102 for each CBSD.

Table 7.42-1: *WINNF.FT.D.RLQ.4 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • DP has successfully completed SAS Discovery and Authentication with SAS Test Harness • DP has successfully registered 2 CBSD with SAS Test Harness, each with *cbsdId*=Ci, i={1,2} • DP has received a valid grant with *grantId* = Gi, i={1,2} for each CBSD • Both CBSD are in Grant State AUTHORIZED and actively transmitting within the bounds of their grants. Invoke trigger on UUT to Relinquish Grant from the SAS Test Harness	–	–
2	DP with two CBSDs sends Relinquishment Request with two objects to the SAS Test Harness. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify DP sends a Relinquishment Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Relinquishment Request message contains all required parameters properly formatted for each CBSD, specifically, for CBSDi: • *cbsdId* = Ci • *grantId* = Gi	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
3	If a separate Relinquishment Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each request message with a separate response message. If a single Relinquishment Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Response message containing a 2-object array. Parameters for each CBSD within the Relinquishment Response Message shall be as follows: • *cbsdId* = Ci • No *grantId* • *responseCode* (Ri) = 102 for each CBSD	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the relinquishment and UUT sending the relinquishment request	☒	☐

7.43 [WINNF.FT.C.RLQ.5] Unsuccessful Relinquishment, responseCode=103

7.43.1 References, definitions and limits

WINNF-TS-0122, Clause 6.6:

CBSD Relinquishment Process

6.6.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the CBSD Relinquishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Each test generates a CBSD relinquishment request and validates the CBSD takes the appropriate action following the SAS relinquishment response. The CBSD shall send the Relinquishment request message after stopping the RF transmission.

6.6.4.3 Invalid Parameter (responseCode 103)
CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a message with a non-zero responseCode.

6.6.4.3.1 [WINNF.FT.C.RLQ.5] Unsuccessful Relinquishment, responseCode=103

7.43.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.43.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.43.4 Test data

The following are the test execution steps where the Relinquishment response contains *responseCode* (R) = 103 and *responseData* = “grantId”.

Table 7.43-1: *WINNF.FT.C.RLQ.5 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to Relinquish UUT Grant from the SAS Test Harness	–	–
2	UUT sends a Relinquishment Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G	–	–
3	SAS Test Harness shall send a Relinquishment Response message with parameters: • *cbsdId* = C • *responseData* = “grantId” • *responseCode* (R) = 103	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the relinquishment and UUT sending the relinquishment request	☒	☐

7.44 [WINNF.FT.D.RLQ.6] Domain Proxy Unsuccessful Relinquishment, responseCode=103

7.44.1 References, definitions and limits

WINNF-TS-0122, Clause 6.6:

CBSD Relinquishment Process

6.6.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the CBSD Relinquishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Each test generates a CBSD relinquishment request and validates the CBSD takes the appropriate action following the SAS relinquishment response. The CBSD shall send the Relinquishment request message after stopping the RF transmission.

6.6.4.3 Invalid Parameter (responseCode 103)
CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a message with a non-zero responseCode.

6.6.4.3.2 [WINNF.FT.D.RLQ.6] Domain Proxy Unsuccessful Relinquishment, responseCode=103

7.44.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.44.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.44.4 Test data

The following are the test execution steps where the Relinquishment response contains *responseCode* (Ri) = 103 and *responseData* = “grantId” for each CBSD.

Table 7.44-1: *WINNF.FT.D.RLQ.6 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • DP has successfully completed SAS Discovery and Authentication with SAS Test Harness • DP has successfully registered 2 CBSD with SAS Test Harness, each with *cbsdId*=Ci, i={1,2} • DP has received a valid grant with *grantId* = Gi, i={1,2} for each CBSD • Both CBSD are in Grant State AUTHORIZED and actively transmitting within the bounds of their grants. Invoke trigger on UUT to Relinquish Grant from the SAS Test Harness	–	–
2	DP with two CBSDs sends Relinquishment Request with two objects to the SAS Test Harness. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify DP sends a Relinquishment Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Relinquishment Request message contains all required parameters properly formatted for each CBSD, specifically, for CBSDi: • *cbsdId* = Ci • *grantId* = Gi	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
3	If a separate Relinquishment Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each request message with a separate response message. If a single Relinquishment Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Response message containing a 2-object array. Parameters for each CBSD within the Relinquishment Response Message shall be as follows: • *cbsdId* = Ci • *responseData* = "grantId" • *responseCode* (Ri) = 103 for each CBSD	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
5	Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the relinquishment and UUT sending the relinquishment request	☒	☐

7.45 [WINNF.FT.C.DRG.1] Successful Deregistration

7.45.1 References, definitions and limits

WINNF-TS-0122, Clause 6.7:

CBSD Deregistration Process

6.7.1 This section explains test steps/condition/procedure for the CBSD Deregistration Request and its subsequent actions following the reception of the Deregistration Responses from the SAS.

A Deregistration request is issued by a CBSD to request a SAS to deregister the CBSD from the SAS. A Deregistration Request Message issued by a CBSD is provided in [n.5], Section 10.11.

In the Deregistration Response message, the SAS should echo back an array of DeregistrationResponse object. Each deregistrationResponse object consists of a cbsdId and a responseCode. If the deregistration request was successful, the responseCode should be set to 0, otherwise responseCode is set to appropriate error value. The deregistrationResponse Message and the deregistrationResponse object are provided in [n.5], Section 10.12.

Each test generates a CBSD deregistration request and validates the CBSD takes the appropriate actions following the SAS deregistration response.

These deregistration test cases assume the CBSD is the source (operator initiated, for instance reset site). Deregistrations triggered by the SAS in a response message with a responseCode of 105 are covered in other test cases.

6.7.4.1 Successful Deregistration Request (responseCode 0)

6.7.4.1.1 [WINNF.FT.C.DRG.1] Successful Deregistration

7.45.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.45.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.45.4 Test data

Table 7.45-1: *WINNF.FT.C.DRG.1 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to deregister UUT from the SAS Test Harness	–	–
2	UUT may send a Relinquishment request and receives Relinquishment response with *responseCode*=0	–	–
3	UUT sends Deregistration Request to SAS Test Harness with cbsdId = C.	☒	☐
4	SAS Test Harness shall approve the request with a Deregistration Response message with parameters: • *cbsdId* = C • *responseCode* = 0	–	–
5	After completion of step 3, SAS Test Harness will not provide any additional positive response (*responseCode*=0) to further request messages from the UUT.	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
6	Monitor the RF output of the UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: A. UUT sending a Registration Request message, as this is not mandatory B. UUT sending a Deregistration Request message	☒	☐

7.46 [WINNF.FT.D.DRG.2] Domain Proxy Successful Deregistration

7.46.1 References, definitions and limits

WINNF-TS-0122, Clause 6.7:

CBSD Deregistration Process

6.7.1 This section explains test steps/condition/procedure for the CBSD Deregistration Request and its subsequent actions following the reception of the Deregistration Responses from the SAS.

A Deregistration request is issued by a CBSD to request a SAS to deregister the CBSD from the SAS. A Deregistration Request Message issued by a CBSD is provided in [n.5], Section 10.11.

In the Deregistration Response message, the SAS should echo back an array of DeregistrationResponse object. Each deregistrationResponse object consists of a cbsdId and a responseCode. If the deregistration request was successful, the responseCode should be set to 0, otherwise responseCode is set to appropriate error value. The deregistrationResponse Message and the deregistrationResponse object are provided in [n.5], Section 10.12.

Each test generates a CBSD deregistration request and validates the CBSD takes the appropriate actions following the SAS deregistration response.

These deregistration test cases assume the CBSD is the source (operator initiated, for instance reset site). Deregistrations triggered by the SAS in a response message with a responseCode of 105 are covered in other test cases.

6.7.4.1 Successful Deregistration Request (responseCode 0)

6.7.4.1.2 [WINNF.FT.D.DRG.2] Domain Proxy Successful Deregistration

7.46.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.46.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.46.4 Test data

Table 7.46-1: *WINNF.FT.D.DRG.2 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • Each UUT has successfully registered with SAS Test Harness • Each UUT is in the authorized state • DP has successfully completed SAS Discovery and Authentication with SAS Test Harness • DP has successfully registered 2 CBSD with SAS Test Harness, each with *cbsdId*=Ci, i={1,2} • DP has received a valid grant with *grantId* = Gi, i={1,2} for each CBSD • Both CBSD are in Grant State AUTHORIZED and actively transmitting within the bounds of their grants. Invoke trigger to deregister each UUT from the SAS Test Harness	–	–
2	UUT may send a Relinquishment request and receives Relinquishment response with *responseCode*=0	–	–
3	Verify DP sends a Deregistration Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Deregistration Request message contains all required parameters properly formatted for each CBSD, specifically, for CBSDi: • *cbsdId* = Ci	☒	☐

Test data, continued

Step	Test Execution Steps	Pass	Fail
4	If a separate Deregistration Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each request message with a separate response message. If a single Deregistration Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Response message containing a 2-object array. Parameters for each CBSD within the Deregistration Response shall be as follows: • *cbsdId* = Ci • *responseCode* = 0	–	–
5	After completion of step 4, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
6	Monitor the RF output of each UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: A. UUT sending a Registration Request message, as this is not mandatory B. UUT sending a Deregistration Request message	☒	☐

7.47 [WINNF.FT.C.DRG.3] Deregistration responseCode=102

7.47.1 References, definitions and limits

WINNF-TS-0122, Clause 6.7:

CBSD Deregistration Process

6.7.1 This section explains test steps/condition/procedure for the CBSD Deregistration Request and its subsequent actions following the reception of the Deregistration Responses from the SAS.

A Deregistration request is issued by a CBSD to request a SAS to deregister the CBSD from the SAS. A Deregistration Request Message issued by a CBSD is provided in [n.5], Section 10.11.

In the Deregistration Response message, the SAS should echo back an array of DeregistrationResponse object. Each deregistrationResponse object consists of a cbsdId and a responseCode. If the deregistration request was successful, the responseCode should be set to 0, otherwise responseCode is set to appropriate error value. The deregistrationResponse Message and the deregistrationResponse object are provided in [n.5], Section 10.12.

Each test generates a CBSD deregistration request and validates the CBSD takes the appropriate actions following the SAS deregistration response.

These deregistration test cases assume the CBSD is the source (operator initiated, for instance reset site). Deregistrations triggered by the SAS in a response message with a responseCode of 105 are covered in other test cases.

6.7.4.2 Missing Parameter (responseCode 102)

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a message with a non-zero responseCode.

6.7.4.2.1 [WINNF.FT.C.DRG.3] Deregistration responseCode=102

7.47.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.47.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.47.4 Test data

The following are the test execution steps where the Deregistration response contains *responseCode* (R) = 102.

Table 7.47-1: *WINNF.FT.C.DRG.3 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to deregister UUT from the SAS Test Harness	–	–
2	UUT may send a Relinquishment request and receives Relinquishment response with *responseCode*=0	–	–
3	UUT sends Deregistration Request to SAS Test Harness with *cbsdId* = C	–	–
4	The SAS Test Harness sends the Deregistration Response Message to UUT with: • No *cbsdId* • *responseCode* (R) = 102	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.	–	–
6	Monitor the RF output of the UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: A. UUT sending a Registration Request message, as this is not mandatory B. UUT sending a Deregistration Request message	☒	☐

7.48 [WINNF.FT.D.DRG.4] Domain Proxy Deregistration responseCode=102

7.48.1 References, definitions and limits

WINNF-TS-0122, Clause 6.7:

CBSD Deregistration Process

6.7.1 This section explains test steps/condition/procedure for the CBSD Deregistration Request and its subsequent actions following the reception of the Deregistration Responses from the SAS.

A Deregistration request is issued by a CBSD to request a SAS to deregister the CBSD from the SAS. A Deregistration Request Message issued by a CBSD is provided in [n.5], Section 10.11.

In the Deregistration Response message, the SAS should echo back an array of DeregistrationResponse object. Each deregistrationResponse object consists of a cbsdId and a responseCode. If the deregistration request was successful, the responseCode should be set to 0, otherwise responseCode is set to appropriate error value. The deregistrationResponse Message and the deregistrationResponse object are provided in [n.5], Section 10.12.

Each test generates a CBSD deregistration request and validates the CBSD takes the appropriate actions following the SAS deregistration response.

These deregistration test cases assume the CBSD is the source (operator initiated, for instance reset site). Deregistrations triggered by the SAS in a response message with a responseCode of 105 are covered in other test cases.

6.7.4.2 Missing Parameter (responseCode 102)

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a message with a non-zero responseCode.

6.7.4.2.2 [WINNF.FT.D.DRG.4] Domain Proxy Deregistration responseCode=102

7.48.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.48.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.48.4 Test data

The following are the test execution steps where the Deregistration response contains *responseCode* (Ri) = 102 for each CBSD

Table 7.48-1: *WINNF.FT.C.DRG.3 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • DP has successfully completed SAS Discovery and Authentication with SAS Test Harness • DP has successfully registered 2 CBSD with SAS Test Harness, each with *cbsdId*=Ci, i={1,2} • DP has received a valid grant with *grantId* = Gi, i={1,2} for each CBSD • Both CBSD are in Grant State AUTHORIZED and actively transmitting within the bounds of their grants. Invoke trigger to deregister each UUT from the SAS Test Harness	–	–
2	UUT may send a Relinquishment request and receives Relinquishment response with *responseCode*=0 for each CBSD	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
3	Verify DP sends a Deregistration Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Deregistration Request message contains all required parameters properly formatted for each CBSD, specifically, for CBSDi: • *cbsdId* = Ci	–	–
4	If a separate Deregistration Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each request message with a separate response message. If a single Deregistration Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Response message containing a 2-object array. Parameters for each CBSD within the Deregistration Response Message shall be as follows: • No *cbsdId* in either response • *responseCode* (Ri) = 102 for each CBSD	–	–
5	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.		
6	Monitor the RF output of each UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: A. UUT sending a Registration Request message, as this is not mandatory B. UUT sending a Deregistration Request message	☒	☐

7.49 [WINNF.FT.C.DRG.5] Deregistration responseCode=103

7.49.1 References, definitions and limits

WINNF-TS-0122, Clause 6.7:

CBSD Deregistration Process

6.7.1 This section explains test steps/condition/procedure for the CBSD Deregistration Request and its subsequent actions following the reception of the Deregistration Responses from the SAS.

A Deregistration request is issued by a CBSD to request a SAS to deregister the CBSD from the SAS. A Deregistration Request Message issued by a CBSD is provided in [n.5], Section 10.11.

In the Deregistration Response message, the SAS should echo back an array of DeregistrationResponse object. Each deregistrationResponse object consists of a cbsdId and a responseCode. If the deregistration request was successful, the responseCode should be set to 0, otherwise responseCode is set to appropriate error value. The deregistrationResponse Message and the deregistrationResponse object are provided in [n.5], Section 10.12.

Each test generates a CBSD deregistration request and validates the CBSD takes the appropriate actions following the SAS deregistration response.

These deregistration test cases assume the CBSD is the source (operator initiated, for instance reset site). Deregistrations triggered by the SAS in a response message with a responseCode of 105 are covered in other test cases.

6.7.4.3 Invalid Parameter (responseCode 103)

CBSD under test cannot be expected to generate a message with a missing or invalid parameter. To test for responseCode not equal to 0, the SAS Test Harness will respond to a message with a non-zero responseCode.

6.7.4.3.1 [WINNF.FT.C.DRG.5] Deregistration responseCode=103

7.49.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.49.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.49.4 Test data

The following are the test execution steps where the Deregistration response contains *responseCode* (R) = 103 and *responseData* = “cbsdId”..

Table 7.49-1: *WINNF.FT.C.DRG.5 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to deregister UUT from the SAS Test Harness	–	–
2	UUT may send a Relinquishment request and receives Relinquishment response with *responseCode*=0	–	–
3	UUT sends Deregistration Request to SAS Test Harness with *cbsdId* = C	–	–
4	The SAS Test Harness sends the Deregistration Response Message to UUT with: • *responseData* = *cbsdId* • *responseCode* (R) = 103	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
5	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	–	–
6	Monitor the RF output of the UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: A. UUT sending a Registration Request message, as this is not mandatory B. UUT sending a Deregistration Request message	☒	☐

7.50 [WINNF.FT.C.SCS.1] Successful TLS connection between UUT and SAS Test Harness

7.50.1 References, definitions and limits

WINNF-TS-0122, Clause 6.8:

CBSD Security Validation

6.8.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the Security Establishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Certificate generation for executing the security test cases shall be according to section 9.1.
Each test initiates communication between CBSD and SAS and verifies that the communication is started over a secured communication.

6.8.4.1 Successful TLS connection
In all test cases under this category, the TLS connection is established successfully between the SAS Test Harness and CBSD. A pre-condition for these tests is that Certificates at CBSD and SAS Test Harness are correct and valid. The security procedure is irrespective of the procedures defined for the SAS Test Harness to CBSD communication.

6.8.4.1.1 [WINNF.FT.C.SCS.1] Successful TLS connection between UUT and SAS Test Harness

7.50.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.50.3 Observations, settings and special notes

Place in the WInnForum SAS Test Harness the correct SAS Test Harness X.509 certificates for this test case. Edit the conf.xml file appropriately for use of this certificate.
Verify the SAS Test Harness X.509 certificate is the correct X.509 certificate for this test case by inspecting its content as described in the "readme_file_x509_RSA_certs_test_labs.txt" [WINNF-IN-0156 Version V1.0.0.1]. For test case [WINNF.FT.C.SCS.1] the X.509 certificate is the regular SAS Test Harness X.509 certificate used for the Interface Conformance Testing in [WINNF-TS-0122 Version V1.0.0].
The method for executing CBSD/DP UUT security test case is via Wireshark. For the test log please refer to Section 9 of this test report.

7.50.4 Test data

Table 7.50-1: *WINNF.FT.C.CSC.1 test results*

Step	Test Execution Steps	Pass	Fail
1	Verify in Wireshark the following in the captured packets: 1. Wireshark "Protocol" column shows "TLSv1.2" 2. CBSD/DP UUT sends "Client Hello" message to WInnForum SAS Test Harness WInnForum SAS Test Harness sends "Server Hello" message to CBSD/DP UUT. • The "Server Hello" message "Handshake Protocol" IE includes the "Cipher Suite" IE. • Verify the "Cipher Suite" shown in Wireshark is one of the following: TLS_RSA_WITH_AES_128_GCM_SHA256, TLS_RSA_WITH_AES_256_GCM_SHA384, TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256, TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384, TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 3. "Application Data" messages are exchanged between WInnForum SAS Test Harness and CBSD/DP UUT.	☒	☐
2	Verify that WInnForum SAS Test Harness Command Prompt shows Registration Request Message from CBSD/DP UUT	☒	☐

7.51 [WINNF.FT.C.SCS.2] TLS failure due to revoked certificate

7.51.1 References, definitions and limits

WINNF-TS-0122, Clause 6.8:

CBSD Security Validation

6.8.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the Security Establishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Certificate generation for executing the security test cases shall be according to section 9.1.
Each test initiates communication between CBSD and SAS and verifies that the communication is started over a secured communication.

6.8.4.2 Unsuccessful TLS connection
In all test cases under this category, the TLS connection is not established successfully between the SAS Test Harness and CBSD. The security procedure is irrespective of the procedures defined for the SAS Test Harness to CBSD communication.

6.8.4.2.1 [WINNF.FT.C.SCS.2] TLS failure due to revoked certificate
Test case pre-requisite:
• The certificate at the SAS Test Harness shall be marked as revoked.

7.51.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.51.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.51.4 Test data

Place in the WInnForum SAS Test Harness the correct SAS Test Harness X.509 certificates for this test case. Edit the conf.xml file appropriately for use of this certificate.
Verify the SAS Test Harness X.509 certificate is the correct X.509 certificate for this test case by inspecting its content as described in the "readme_file_x509_RSA_certs_test_labs.txt" [WINNF-IN-0156 Version V1.0.0.1]. For test case [WINNF.FT.C.SCS.2] the X.509 certificate has

- Proper Validity time (the X.509 certificate is not expired)
- X.509v3 extension of "Authority Information Access: OCSP - URI: http://ocsp.testharness.cbrstestlab.com" (this URI is an example of the OCSP server available for the test lab)
- X.509v3 extension of "CRL Distribution Points: Full Name: URI: http://crlserver.testharness.cbrstestlab.com/crlserver.crl" (this URI is an example of the CRL server and CRL file available for the test lab)
- Certificate Serial Number appears as "Revoked" in the CRL file located in the CRL server available for the test lab or appears as "Revoked" in the OCSP server available for the test lab.

For execution of this test case the CRL file must have proper validity. If this test is intended to be executed when the validity date of the CRL file has expired, a new CRL file with proper validity needs to be generated as described in the "readme_file_x509_RSA_certs_test_labs.txt" [WINNF-IN-0156 Version V1.0.0.1].
For execution of this test case, the test lab also requires an available DNS server to resolve FQDNs of the OCSP server or CRL server.
The method for executing CBSD/DP UUT security test case is via Wireshark.

Test data, continued

Table 7.51-1: *WINNF.FT.C.CSC.2 test results*

Step	Test Execution Steps	Pass	Fail
1	Verify in Wireshark the following in the captured packets: 1. Wireshark "Protocol" column shows "TLSv1.2" 2. CBSD/DP UUT sends "Client Hello" message to WInnForum SAS Test Harness 3. WInnForum SAS Test Harness sends "Server Hello" message to CBSD/DP UUT. • The "Server Hello" message "Handshake Protocol" IE includes the "Cipher Suite" IE. • Verify the "Cipher Suite" shown in Wireshark is one of the following: TLS_RSA_WITH_AES_128_GCM_SHA256, TLS_RSA_WITH_AES_256_GCM_SHA384, TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256, TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384, TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 4. CBSD/DP UUT performs DNS resolution for the FQDN of the CRL server, or OCSP server, or both listed in the X.509v3 extensions described above for the X.509 certificate of SAS Test Harness. 5. CBSD/DP UUT: • Download the CRL file according to the full URI listed in X.509v3 extension of "CRL Distribution Points" described above. OR • Send to the OCSP server an OCSP "Request" message containing the certificate serial number, and OCSP server replies. OR • Both CRL file download and OCSP transaction as described above. 6. "Application Data" messages are not seen between WInnForum SAS Test Harness and CBSD/DP UUT. 7. CBSD/DP UUT may send a TLS "Alert" message to WInnForum SAS Test Harness notifying of rejecting the TLS connection before attempting to establish the TLS connection again.	☒	☐
2	Verify that WInnForum SAS Test Harness Command Prompt does not show any Request Message from CBSD/DP UUT	☒	☐

7.52 [WINNF.FT.C.SCS.3] TLS failure due to expired server certificate

7.52.1 References, definitions and limits

WINNF-TS-0122, Clause 6.8:

CBSD Security Validation

6.8.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the Security Establishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Certificate generation for executing the security test cases shall be according to section 9.1.
Each test initiates communication between CBSD and SAS and verifies that the communication is started over a secured communication.

6.8.4.2 Unsuccessful TLS connection
In all test cases under this category, the TLS connection is not established successfully between the SAS Test Harness and CBSD. The security procedure is irrespective of the procedures defined for the SAS Test Harness to CBSD communication.

6.8.4.2.2 [WINNF.FT.C.SCS.3] TLS failure due to expired server certificate
Test case pre-requisite:
• Configure the SAS Test Harness such that server certificate is valid but expired.

7.52.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.52.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.52.4 Test data

Table 7.52-1: *WINNF.FT.C.CSC.3 test results*

Step	Test Execution Steps	Pass	Fail
1	• UUT shall start CBSD-SAS communication with the security procedures	☒	☐
2	• Make sure that UUT uses TLS v1.2 for security establishment. • Make sure UUT selects the correct cipher suite. • UUT shall use CRL or OCSP to verify the validity of the server certificate. • Make sure that Mutual authentication does not happen between UUT and the SAS Test Harness.	☒	☐
3	UUT may retry for the security procedure which shall fail	☒	☐
4	SAS Test-Harness shall not receive any Registration request or any application data.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.53 [WINNF.FT.C.SCS.4] TLS failure when SAS Test Harness certificate is issued by an unknown CA

7.53.1 References, definitions and limits

WINNF-TS-0122, Clause 6.8:

CBSD Security Validation

6.8.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the Security Establishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Certificate generation for executing the security test cases shall be according to section 9.1.
Each test initiates communication between CBSD and SAS and verifies that the communication is started over a secured communication.

6.8.4.2 Unsuccessful TLS connection
In all test cases under this category, the TLS connection is not established successfully between the SAS Test Harness and CBSD. The security procedure is irrespective of the procedures defined for the SAS Test Harness to CBSD communication.

6.8.4.2.3 [WINNF.FT.C.SCS.4] TLS failure when SAS Test Harness certificate is issued by an unknown CA
Test case pre-requisite:
• Equip the SAS Test Harness with certificate signed by an unknown CA to the CBSD.

7.53.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.53.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.53.4 Test data

Table 7.53-1: *WINNF.FT.C.CSC.4 test results*

Step	Test Execution Steps	Pass	Fail
1	• UUT shall start CBSD-SAS communication with the security procedures	☒	☐
2	• Make sure that UUT uses TLS v1.2 for security establishment. • Make sure UUT selects the correct cipher suite. • UUT shall use CRL or OCSP to verify the validity of the server certificate. • Make sure that Mutual authentication does not happen between UUT and the SAS Test Harness.	☒	☐
3	UUT may retry for the security procedure which shall fail	☒	☐
4	SAS Test-Harness shall not receive any Registration request or any application data.	–	–
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	☒	☐

7.54 [WINNF.FT.C.SCS.5] TLS failure when certificate at the SAS Test Harness is corrupted

7.54.1 References, definitions and limits

WINNF-TS-0122, Clause 6.8:

CBSD Security Validation

6.8.1 This section provides test steps, condition and procedures to test the conformance of the CBSD implementation for the Security Establishment Procedure. A precondition is the CBSD has successfully discovered the SAS it wants to communicate with.
Certificate generation for executing the security test cases shall be according to section 9.1.
Each test initiates communication between CBSD and SAS and verifies that the communication is started over a secured communication.

6.8.4.2 Unsuccessful TLS connection
In all test cases under this category, the TLS connection is not established successfully between the SAS Test Harness and CBSD. The security procedure is irrespective of the procedures defined for the SAS Test Harness to CBSD communication.

6.8.4.2.4 [WINNF.FT.C.SCS.5] TLS failure when certificate at the SAS Test Harness is corrupted
Test case pre-requisite:
• The end-entity certificate at the SAS Test Harness shall be corrupted

7.54.2 Test summary

Verdict	Pass		
Tested by	Andrey Adelberg	Test date	October 13, 2020

7.54.3 Observations, settings and special notes

For the test log please refer to Section 9 of this test report.

7.54.4 Test data

Place in the WInnForum SAS Test Harness the correct SAS Test Harness X.509 certificates for this test case. Edit the conf.xml file appropriately for use of this certificate.
Verify the SAS Test Harness X.509 certificate is the correct X.509 certificate for this test case by inspecting its content as described in the "readme_file_x509_RSA_certs_test_labs.txt" [WINNF-IN-0156 Version V1.0.0.1]. For test case [WINNF.FT.C.SCS.5] the X.509 certificate has

• Invalid Signature as described in the "readme_file_x509_RSA_certs_test_labs.txt" [WINNF-IN-0156 Version V1.0.0.1].

The method for executing CBSD/DP UUT security test case is via Wireshark.

Test data, continued

Table 7.54-1: *WINNF.FT.C.CSC.5 alternative test results*

Step	Test Execution Steps	Pass	Fail
1	Verify in Wireshark the following in the captured packets: 1. Wireshark "Protocol" column shows "TLSv1.2" 2. CBSD/DP UUT sends "Client Hello" message to WInnForum SAS Test Harness 3. WInnForum SAS Test Harness sends "Server Hello" message to CBSD/DP UUT. • The "Server Hello" message "Handshake Protocol" IE includes the "Cipher Suite" IE. • Verify the "Cipher Suite" shown in Wireshark is one of the following: TLS_RSA_WITH_AES_128_GCM_SHA256, TLS_RSA_WITH_AES_256_GCM_SHA384, TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256, TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384, TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 4. "Application Data" messages are not seen between WInnForum SAS Test Harness and CBSD/DP UUT. 5. CBSD/DP UUT may send a TLS "Alert" message to WInnForum SAS Test Harness notifying of rejecting the TLS connection before attempting to establish the TLS connection again.	☒	☐
2	Verify that WInnForum SAS Test Harness Command Prompt does not show any Request Message from CBSD/DP UUT	☒	☐

7.55 [WINNF.PT.C.HBT.1] UUT RF Transmit Power Measurement

7.55.1 References, definitions and limits

WINNF-TS-0122, Clause 7.1:

CBSD RF Power Measurement

7.1.1 This section provides test steps, condition and procedures to demonstrate conformance of the CBSD to limitations on transmit power due to maxEirp setting of AUTHORIZED grants for that CBSD.

The methodology to measure RF transmit power of a UUT is out of scope of this document.

7.1.4.1 This test case places the UUT in REGISTERED state, with a grant in AUTHORIZED state, with grant parameters: {lowFrequency, highFrequency, maxEirp}. The maxEirp value is varied by performing multiple iterations of the test case.

7.1.4.1.1 [WINNF.PT.C.HBT.1] UUT RF Transmit Power Measurement

Given a combination of grant parameters: {lowFrequency = FL, highFrequency= FH, Occupied Bandwidth (OBW), where OBW <= (FH – FL), maxEirp = Pi}, this test case enables the UUT to obtain a grant with those parameters, to allow verification that the UUT complies to the maxEirp value of the grant.

7.55.2 Test summary

Verdict	Pass	Test date	October 8, 2020

7.55.3 Observations, settings and special notes

None

7.55.4 Test data

The test execution steps below will yield a single measurement case. The test steps are to be repeated for each power measurement step, Pi, i = {1...N}.

Table 7.55-1: *WINNF.PT.C.HBT.1 test results*

Step	Test Execution Steps	Pass	Fail
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with the SAS Test Harness • UUT has registered with the SAS, with CBSD ID = C • UUT has a single valid grant G with parameters {lowFrequency = FL, highFrequency = FH, maxEirp = Pi}, with grant in AUTHORIZED state, and grantExpireTime set to a value far past the duration of this test case *Note: in order for the UUT to request a grant with the parameters {lowFrequency, highFrequency, maxEirp), the SAS Test Harness may need to provide appropriate guidance in the availableChannel object of the spectrumInquiry response message, and the operationParam object of the grant response message. Alternately, the UUT vendor may provide the ability to set those parameters on the UUT so that the UUT will request a grant with those parameters.*	–	–

Test data, continued

Step	Test Execution Steps	Pass	Fail
2	UUT and SAS Test Harness perform a series of Heartbeat Request/Response cycles, which continues until the other test steps are complete. Messaging for each cycle is as follows: • UUT sends Heartbeat Request, including: o *cbsdId* = C o *grantId* = G • SAS Test Harness responds with Heartbeat Response, including: o *cbsdId* = C o *grantId* = G o *transmitExpireTime* = current UTC time + 200 seconds o *responseCode* = 0	–	–
3	Tester performs power measurement on RF interface(s) of UUT, and verifies it complies with the maxEirp setting, Pi. The RF measurement method is out of scope of this document, but may include additional configuration of the UUT, as required, to fulfil the requirements of the power measurement method. Note: it may be required for the vendor to provide a method or configuration to bring the UUT to a mode which is required by the measurement methodology. Any such mode is vendor-specific and depends upon UUT behavior and the measurement methodology.	☒	☐

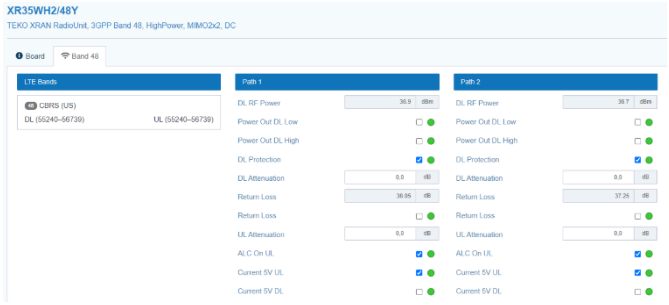


Figure 7.55-1: *Output power and power density validation when maxEirp setting Pi = 37*

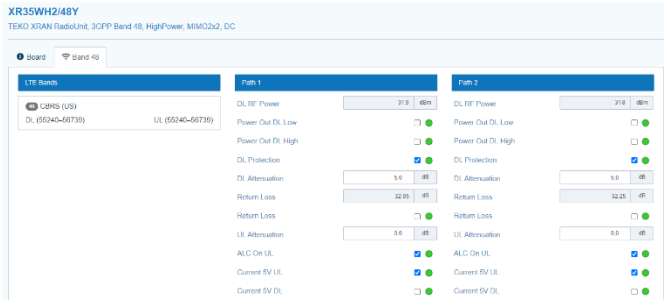


Figure 7.55-2: *Output power and power density validation when maxEirp setting Pi = 32*

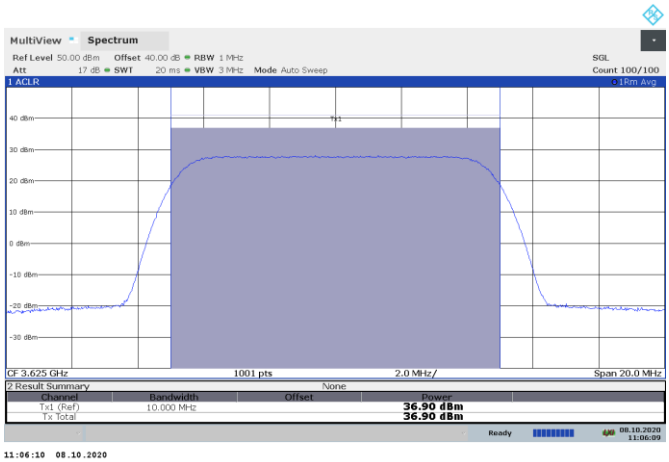


Figure 7.55-3: *Output power and power density validation when maxEirp setting Pi = 37*

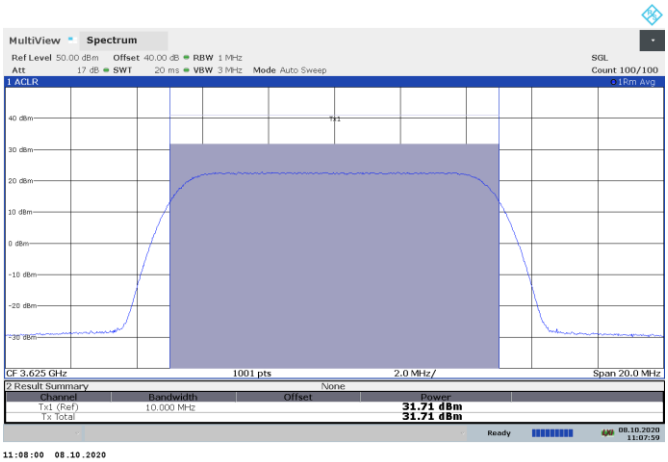


Figure 7.55-4: *Output power and power density validation when maxEirp setting Pi = 32*

2020-10-13T13:50:20.071Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:50:20.072Z - INFO - the selected test from the user : WINNF.FT.C.HBT.1 is starting now
2020-10-13T13:50:57.918Z - INFO - registration request from CBRS : {
"registrationRequest": [
{
"airInterface": {
"radioTechnology": "E_UTRA"
},
"cbsdCategory": "B",
"cbsdInfo": {},
"cbsdSerialNumber": "1023038001-1",
"fccId": "XM2-X35H2B",
"installationParam": {
"antennaAzimuth": 0,
"antennaBeamwidth": 0,
"antennaDowntilt": 0,
"antennaGain": 0,
"antennaModel": "xran",
"eirpCapability": 42,
"height": 0.0,
"heightType": "AGL",
"horizontalAccuracy": 50,
"indoorDeployment": false,
"latitude": 45.0,
"longitude": -76.0,
"verticalAccuracy": 3
},
"measCapability": [
"RECEIVED_POWER_WITHOUT_GRANT"
],
"userId": "abc"
}
]
}
2020-10-13T13:50:57.956Z - INFO - engine sent successfully, the response to CBRS : {
"registrationResponse": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"response": {
"responseCode": 0
}
}
]
}
2020-10-13T13:50:57.979Z - INFO - grant request from CBRS : {
"grantRequest": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,
"measFrequency": 3550000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3560000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3570000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3580000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3590000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3600000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3610000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3620000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3630000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3640000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3650000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3660000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3670000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3680000000,
"measRcvdPower": -100
},
{
"measBandwidth": 10000000,
"measFrequency": 3690000000,
"measRcvdPower": -100
}
]
},
"operationParam": {
"maxEirp": 32,
"operationFrequencyRange": {
"highFrequency": 3565000000,
"lowFrequency": 3560000000
}
}
}
]
}
2020-10-13T13:50:57.985Z - INFO - engine sent successfully, the response to CBRS : {
"grantResponse": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"channelType": "GAA",
"grantExpireTime": "2020-10-20T13:50:57Z",
"grantId": "599064654",
"heartbeatInterval": 60,
"response": {
"responseCode": 0

```
        }
      }
    ]
}
2020-10-13T13:50:58.031Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:50:58.034Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:54:18Z"
    }
  ]
}
2020-10-13T13:51:04.104Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:51:04.105Z - INFO - Time interval between two heartbeat request messages is:
6.072861, limit is: 65.0
2020-10-13T13:51:04.109Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:54:24Z"
    }
  ]
}
2020-10-13T13:51:10.101Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:51:10.103Z - INFO - Time interval between two heartbeat request messages is:
5.997241, limit is: 65.0
2020-10-13T13:51:10.107Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:54:30Z"
    }  ]}
2020-10-13T13:51:16.105Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:51:16.107Z - INFO - Time interval between two heartbeat request messages is:
6.003245, limit is: 65.0
2020-10-13T13:51:16.111Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:54:36Z"
    }
  ]
}
2020-10-13T13:51:22.111Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:51:22.112Z - INFO - Time interval between two heartbeat request messages is:
6.006, limit is: 65.0
2020-10-13T13:51:22.116Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:54:42Z"
    }
  ]
}
2020-10-13T13:51:28.102Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:51:28.103Z - INFO - Time interval between two heartbeat request messages is:
5.991016, limit is: 65.0
2020-10-13T13:51:28.108Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "599064654",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:54:48Z"
    }  ]}
2020-10-13T13:51:29.149Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T13:51:29.149Z - INFO - the question is : Did CBSD1 transmit power prior to
AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2020-10-13T13:52:13.218Z - INFO - for the question : Did CBSD1 transmit power prior to
AUTHORIZED state (first successful HBT response)? , the user choose n
2020-10-13T13:52:13.218Z - INFO - the question is : Did CBSD1 transmit only within the
frequency range specified in its grantRequest message? please choose one of the answers :
2020-10-13T13:52:16.317Z - INFO - for the question : Did CBSD1 transmit only within the
frequency range specified in its grantRequest message? , the user choose y
2020-10-13T13:52:17.169Z - INFO - The final result of the test : WINNF.FT.C.HBT.1 is - passed
```

Section 8 Log files library

8.1 Log file for test case ID: WINNF.FT.C.REG.1

```
2020-10-13T12:23:10.281Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:23:10.281Z - INFO - the selected test from the user : WINNF.FT.C.REG.1 is starting now
2020-10-13T12:23:34.866Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T12:23:34.872Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:23:36.310Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:23:36.310Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:23:45.391Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:23:48.272Z - INFO - The final result of the test : WINNF.FT.C.REG.1 is - passed
```

8.2 Log file for test case ID: WINNF.FT.D.REG.2

```
2020-10-13T13:53:47.435Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:53:47.435Z - INFO - the selected test from the user : WINNF.FT.D.REG.2 is starting
now
2020-10-13T13:55:59.469Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:55:59.494Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:56:04.077Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
```

```
        ],
        "userId": "abc"
      }
    ]
}
2020-10-13T13:56:04.094Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
    ]
}
2020-10-13T13:56:05.592Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:56:05.592Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2020-10-13T13:56:26.391Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2020-10-13T13:56:26.391Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T13:56:30.732Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T13:56:32.053Z - INFO - The final result of the test : WINNF.FT.D.REG.2 is - passed
```

8.3 Log file for test case ID: WINNF.FT.C.REG.3

```
2020-10-13T12:27:38.283Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:27:38.283Z - INFO - the selected test from the user : WINNF.FT.C.REG.3 is starting now
2020-10-13T12:27:39.616Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:27:39.632Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:27:41.287Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:27:41.287Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:27:45.923Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:27:47.211Z - INFO - The final result of the test : WINNF.FT.C.REG.3 is - passed
```

8.4 Log file for test case ID: WINNF.FT.D.REG.4

```
2020-10-13T13:57:55.149Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:57:55.150Z - INFO - the selected test from the user : WINNF.FT.D.REG.4 is starting
now
2020-10-13T13:57:58.506Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:57:58.529Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:58:00.156Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T13:58:00.156Z - INFO - the question is : Were there RF transmissions from the CBSD1
during the test? please choose one of the answers :
2020-10-13T13:58:27.718Z - INFO - for the question : Were there RF transmissions from the
CBSD1 during the test? , the user choose n
2020-10-13T13:58:27.718Z - INFO - the question is : Were there RF transmissions from the CBSD2
during the test? please choose one of the answers :
2020-10-13T13:58:28.221Z - INFO - for the question : Were there RF transmissions from the
CBSD2 during the test? , the user choose n
2020-10-13T13:58:29.230Z - INFO - The final result of the test : WINNF.FT.D.REG.4 is - passed
```

8.5 Log file for test case ID: WINNF.FT.C.REG.5


```
2020-10-13T12:30:21.556Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:30:21.556Z - INFO - the selected test from the user : WINNF.FT.C.REG.5 is starting
now
2020-10-13T12:30:33.042Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "cpiSignatureData": {
        "digitalSignature":
"A_AWXm_6V6VfRG151PVjH3UREcE7YQPNL7HNrBpg1zoTWuqBlMTqGgb1XjWB98D3QuNXBvnp
LQKYiETSOVkv_S359ne6zZafL2vyPMkktZVQZRieRoFVO8-SoMvc45Q9KWpx-ETD7S7u-
Xetkx_D96BTC8VUi7WnFBy3Gt0mp-
wd5C7ZMDqNK47MDkxPrta1VDlaDaW7nmT_IBAX3th0EIzGxW4ZuwE9SmQ2NMJjZdq-
c0Rl4adkKZe5iprDEtY0h64oVKs-
GpGfXXfPjTtckRgbDEE12Pismw0vEFeU3SDhnHVX7zv7LRmQT8VG3YNL9hy-
oWfYaU96vWFLRGznSA",
        "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTEyMjMzLTEiLCJmY2NJZCI6IlhNMi1YMzVIMkliLCJpbnN0YWx
sYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6MCwiYW50ZW5uYUJlYW13aWR0aCI6MCwiYW
50ZW5uYURvd250aWx0IjowLCJhbnRlbm5hR2FpbiI6MCwiYW50ZW5uYU1vZGVsIjoieHJhbiIsImVpc
nBDYXBhYmlsaXR5IjozMCwiaGVpZ2h0IjowLjAsImhlaWdodFR5cGUiOiJBR0wiLCJob3Jpem9udGFs
QWNjdXJhY3kiOjUwLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjQ1LjAsImxvbm
dpdHVkZSI6LTc2LjAsInZlcnRpY2FsQWNjdXJhY3kiOjN9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEY
XRhIjp7ImNwaUlkIjoiMTIzMjEiLCJjcGlOYW1lIjoiRG9tZW5pY28gRGkgSW9yaW8iLCJpbnN0YWxsQ2
VydGlmaWNhdGlvblRpbWUiOiIyMDIwLTEwLTEzVDE0OjI5OjE5KzAyOjAwIn19",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "XM2-X35H2B",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:30:33.050Z - INFO - Registration message contains cpiSignatureData
2020-10-13T12:30:33.050Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-10-13T12:30:33.051Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 30,
    "antennaAzimuth": 0,
    "heightType": "AGL",
    "antennaModel": "xran",
    "longitude": -76.0,
    "antennaGain": 0,
    "indoorDeployment": false,
    "latitude": 45.0,
    "horizontalAccuracy": 50,
    "antennaDowntilt": 0,
    "antennaBeamwidth": 0,
    "height": 0.0,
    "verticalAccuracy": 3
  },
  "fccId": "XM2-X35H2B",
  "professionalInstallerData": {
    "cpiName": "Domenico Di Iorio",
    "installCertificationTime": "2020-10-13T14:29:19+02:00",
    "cpiId": "12321"
  },
  "cbsdSerialNumber": "1023038001-1"
}
2020-10-13T12:30:33.057Z - INFO - verified signature on cpiSignatureData
2020-10-13T12:30:33.057Z - INFO - cbsdCategory= 'A', removing optional param from
cpi_schema
2020-10-13T12:30:33.061Z - INFO - cpiSignatureData data successfully validated against
jsonschema
2020-10-13T12:30:33.062Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:30:34.571Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T12:30:34.571Z - INFO - the question is : Were there RF transmissions from the CBSD1
during the test? please choose one of the answers :
2020-10-13T12:30:40.293Z - INFO - for the question : Were there RF transmissions from the
CBSD1 during the test? , the user choose n
2020-10-13T12:30:41.350Z - INFO - The final result of the test : WINNF.FT.C.REG.5 is - passed
```

8.6 Log file for test case ID: WINNF.FT.D.REG.6


```
2020-10-13T14:00:28.824Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:00:28.824Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting
now
2020-10-13T14:00:33.111Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "cpiSignatureData": {
        "digitalSignature":
"DZEdURtdmQ1XgmCvHhzZ_LpXsjaa7OINu4lIS7b8BQsayc4Adee1pr0RxzMTJ-fvJrHJMx0kF7-
Tyn5DRFvl3o6_FQagpQ9l4qOYHWhNjzVUU5cF5xVKC5fKHptHEYAcFlBSlrnRj4EzuwNeC7f19mnJJu
dNqumcH9D3CRHDRlEtRS_VTI3m8Hv2SptWVGBfC9naCH3fonEjH2i-jq4AK7dBvM6kZgxrJyo-
jx9sgu2RlIAd3tKHxsh_onV6ZL1x2b7VH0lfPKLQKpBuQ9fNRFqbFEUkkkZSpValWFyEGynEczF04vuC
NUD4Ls8O3ADuRMNSEOJtYq-0hcOBjckLDA",
        "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTEyMjMzLTEiLCJmY2NJZCI6IlhNMi1YMzVIMkliLCJpbnN0YWx
sYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6MCwiYW50ZW5uYUJlYW13aWR0aCI6MCwiYW
50ZW5uYURvd250aWx0IjowLCJhbnRlbm5hR2FpbiI6MCwiYW50ZW5uYU1vZGVsIjoieHJhbiIsImVpc
nBDYXBhYmlsaXR5IjozMCwiaGVpZ2h0IjowLjAsImhlaWdodFR5cGUiOiJBR0wiLCJob3Jpem9udGFs
QWNjdXJhY3kiOjUwLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjQ1LjAsImxvbm
dpdHVkZSI6LTc2LjAsInZlcnRpY2FsQWNjdXJhY3kiOjN9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEY
XRhIjp7ImNwaUlkIjoiMTIzMjEiLCJjcGlOYW1lIjoiRG9tZW5pY28gRGkgSW9yaW8iLCJpbnN0YWxsQ2
VydGlmaWNhdGlvblRpbWUiOiIyMDIwLTEwLTEzVDE1OjU5OjM2KzAyOjAwIn19",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "XM2-X35H2B",
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:00:33.130Z - INFO - Registration message contains cpiSignatureData
2020-10-13T14:00:33.130Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-10-13T14:00:33.131Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 30,
    "antennaAzimuth": 0,
    "heightType": "AGL",
    "antennaModel": "xran",
    "longitude": -76.0,
    "antennaGain": 0,
    "indoorDeployment": false,
    "latitude": 45.0,
    "horizontalAccuracy": 50,
    "antennaDowntilt": 0,
    "antennaBeamwidth": 0,
    "height": 0.0,
    "verticalAccuracy": 3
  },
  "fccId": "XM2-X35H2B",
  "professionalInstallerData": {
    "cpiName": "Domenico Di Iorio",
    "installCertificationTime": "2020-10-13T15:59:36+02:00",
    "cpiId": "12321"
  },
  "cbsdSerialNumber": "1023038001-1"
}
2020-10-13T14:00:33.132Z - INFO - verified signature on cpiSignatureData
2020-10-13T14:00:33.132Z - INFO - cbsdCategory= 'A', removing optional param from
cpi_schema
2020-10-13T14:00:33.137Z - INFO - cpiSignatureData data successfully validated against
jsonschema
2020-10-13T14:00:33.138Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:00:54.670Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "cpiSignatureData": {
        "digitalSignature":
"rxFm2lFCG4c6SqbYvHmiThDmL7V33Y2F6CNFyyPrar5KK6TxvAdA03SYzodrHR4IvtUHfaoWOugEW
DTUWJtnIA9PMzQxZwlMXa0wny5TmUFjJgat4f_Ef_vvGeMSwgytORuSAh8b4grE12Mlg6zZdHMzq
M6QE1RF5QkMnP6kDqhqMCcP3cF9So5YeyRaClMg-
CHI6BrkEKtk4fqAiipvW5wm4KDUJSMyKKf1b9mw1MU7gq_rmOXWGJUakFvUBSzNa9Q8Suyy49-
qwAtMXa2AlClHJoFcWCpR4ZpVdtOKplSKJh4STZTJ8ByHli61yvyg9Ui2Im-7WW1hyGZaD_Hesw",
        "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTEyMjMzLTliLCJmY2NJZCI6IlhNMi1YMzVIMkliLCJpbnN0YWxs
YXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6MCwiYW50ZW5uYUJlYW13aWR0aCI6MCwiYW5
0ZW5uYURvd250aWx0IjowLCJhbnRlbm5hR2FpbiI6MCwiYW50ZW5uYU1vZGVsIjoieHJhbiIsImVpcn
BDYXBhYmlsaXR5IjozMCwiaGVpZ2h0IjowLjAsImhlaWdodFR5cGUiOiJBR0wiLCJob3Jpem9udGFsQ
WNjdXJhY3kiOjUwLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjQ1LjAwMDAwMS
wibG9uZ2l0dWRlIjotNzUuOTk5OTk5LCJ2ZXJ0aWNhbEFjY3VyYWN5IjozfSwicHJvZmVzc2lvbmFsSW
5zdGFsbGVyRGF0YSI6eyJjcGlJZCI6IjEyMzIxIiwiY3BpTmFtZSI6IkRvbWVuaWNvIERpIElvcmlvIiwiaW5
zdGFsbENlcnRpZmljYXRpb25UaW1lIjoiMjAyMC0xMC0xM1QxNTo1OTo0MiswMjowMCJ9fQ",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "XM2-X35H2B",
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:00:54.684Z - INFO - Registration message contains cpiSignatureData
2020-10-13T14:00:54.684Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-10-13T14:00:54.685Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 30,
    "antennaAzimuth": 0,
    "heightType": "AGL",
    "antennaModel": "xran",
    "longitude": -75.999999,
    "antennaGain": 0,
    "indoorDeployment": false,
    "latitude": 45.000001,
    "horizontalAccuracy": 50,
    "antennaDowntilt": 0,
    "antennaBeamwidth": 0,
    "height": 0.0,
    "verticalAccuracy": 3
  },
  "fccId": "XM2-X35H2B",
  "professionalInstallerData": {
    "cpiName": "Domenico Di Iorio",
    "installCertificationTime": "2020-10-13T15:59:42+02:00",
    "cpiId": "12321"
  },
  "cbsdSerialNumber": "1023038001-2"
}
```

2020-10-13T14:00:54.686Z - INFO - verified signature on cpiSignatureData
2020-10-13T14:00:54.686Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2020-10-13T14:00:54.691Z - INFO - cpiSignatureData data successfully validated against jsonschema
2020-10-13T14:00:54.692Z - INFO - engine sent successfully, the response to CBRS : {

```
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

2020-10-13T14:00:55.855Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T14:00:55.855Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T14:01:03.416Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T14:01:03.416Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2020-10-13T14:01:04.368Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2020-10-13T14:01:05.496Z - INFO - The final result of the test : WINNF.FT.D.REG.6 is - passed

8.7 Log file for test case ID: WINNF.FT.C.REG.7

```
2020-10-13T12:48:13.163Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:48:13.163Z - INFO - the selected test from the user : WINNF.FT.C.REG.7 is starting now
2020-10-13T12:48:17.790Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0001,
        "verticalAccuracy": 1
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:48:17.808Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:48:24.004Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1"
    }
  ]
}
2020-10-13T12:48:24.011Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:48:25.177Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:48:25.177Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the
answers :
2020-10-13T12:48:29.762Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-10-13T12:48:30.746Z - INFO - The final result of the test : WINNF.FT.C.REG.7 is - passed
```

8.8 Log file for test case ID: WINNF.FT.C.REG.8

```
2020-10-13T12:37:50.756Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:37:50.757Z - INFO - the selected test from the user : WINNF.FT.C.REG.8 is starting now
2020-10-13T12:37:53.832Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0001,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:37:53.848Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
2020-10-13T12:37:55.763Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:37:55.763Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:38:01.026Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:38:02.203Z - INFO - The final result of the test : WINNF.FT.C.REG.8 is - passed
```

8.9 Log file for test case ID: WINNF.FT.D.REG.9

```
2020-10-13T14:03:47.067Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:03:47.067Z - INFO - the selected test from the user : WINNF.FT.D.REG.9 is starting
now
2020-10-13T14:03:50.869Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:03:50.917Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    },
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
2020-10-13T14:03:52.074Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T14:03:52.074Z - INFO - the question is : Were there RF transmissions from the CBSD1
during the test? please choose one of the answers :
2020-10-13T14:03:55.298Z - INFO - for the question : Were there RF transmissions from the
CBSD1 during the test? , the user choose n
2020-10-13T14:03:55.298Z - INFO - the question is : Were there RF transmissions from the CBSD2
during the test? please choose one of the answers :
2020-10-13T14:03:56.819Z - INFO - for the question : Were there RF transmissions from the
CBSD2 during the test? , the user choose n
2020-10-13T14:03:58.354Z - INFO - The final result of the test : WINNF.FT.D.REG.9 is - passed
```

8.10 Log file for test case ID: WINNF.FT.C.REG.10

```
2020-10-13T12:38:54.588Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:38:54.588Z - INFO - the selected test from the user : WINNF.FT.C.REG.10 is starting now
2020-10-13T12:38:57.559Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0001,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:38:57.591Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 200
      }
    }
  ]
}
2020-10-13T12:38:58.593Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:38:58.594Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:39:01.867Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:39:05.100Z - INFO - The final result of the test : WINNF.FT.C.REG.10 is - passed
```

8.11 Log file for test case ID: WINNF.FT.D.REG.11

```
2020-10-13T14:04:31.402Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:04:31.402Z - INFO - the selected test from the user : WINNF.FT.D.REG.11 is
starting now
2020-10-13T14:04:33.969Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:04:34.021Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 200
      }
    },
    {
      "response": {
        "responseCode": 200
      }
    }
  ]
}
2020-10-13T14:04:35.406Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T14:04:35.407Z - INFO - the question is : Were there RF transmissions from the CBSD1
during the test? please choose one of the answers :
2020-10-13T14:04:37.154Z - INFO - for the question : Were there RF transmissions from the
CBSD1 during the test? , the user choose n
2020-10-13T14:04:37.155Z - INFO - the question is : Were there RF transmissions from the CBSD2
during the test? please choose one of the answers :
2020-10-13T14:04:38.050Z - INFO - for the question : Were there RF transmissions from the
CBSD2 during the test? , the user choose n
2020-10-13T14:04:39.140Z - INFO - The final result of the test : WINNF.FT.D.REG.11 is - passed
```

8.12 Log file for test case ID: WINNF.FT.C.REG.12

```
2020-10-13T12:39:20.947Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:39:20.947Z - INFO - the selected test from the user : WINNF.FT.C.REG.12 is starting now
2020-10-13T12:39:40.161Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0001,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:39:40.188Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 103
      }
    }
  ]
}
2020-10-13T12:39:41.970Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:39:41.971Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:39:45.141Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:39:46.517Z - INFO - The final result of the test : WINNF.FT.C.REG.12 is - passed
```

8.13 Log file for test case ID: WINNF.FT.D.REG.13

```
2020-10-13T14:06:26.078Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:06:26.078Z - INFO - the selected test from the user : WINNF.FT.D.REG.13 is
starting now
2020-10-13T14:06:31.258Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:06:31.310Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "response": {
        "responseCode": 103
      }
    }
  ]
}
2020-10-13T14:06:33.086Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T14:06:33.087Z - INFO - the question is : Were there RF transmissions from the CBSD1
during the test? please choose one of the answers :
2020-10-13T14:06:36.268Z - INFO - for the question : Were there RF transmissions from the
CBSD1 during the test? , the user choose n
2020-10-13T14:06:36.268Z - INFO - the question is : Were there RF transmissions from the CBSD2
during the test? please choose one of the answers :
2020-10-13T14:06:37.500Z - INFO - for the question : Were there RF transmissions from the
CBSD2 during the test? , the user choose n
2020-10-13T14:06:38.109Z - INFO - The final result of the test : WINNF.FT.D.REG.13 is - passed
```

8.14 Log file for test case ID: WINNF.FT.C.REG.14

```
2020-10-13T12:39:59.828Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:39:59.829Z - INFO - the selected test from the user : WINNF.FT.C.REG.14 is starting now
2020-10-13T12:40:05.274Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0001,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:40:05.304Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 101
      }
    }
  ]
}
2020-10-13T12:40:06.837Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:40:06.837Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:40:10.988Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:40:12.380Z - INFO - The final result of the test : WINNF.FT.C.REG.14 is - passed
```

8.15 Log file for test case ID: WINNF.FT.D.REG.15

```
2020-10-13T14:08:09.189Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:08:09.189Z - INFO - the selected test from the user : WINNF.FT.D.REG.15 is
starting now
2020-10-13T14:08:12.556Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:08:12.624Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "response": {
        "responseCode": 101
      }
    }
  ]
}
2020-10-13T14:08:14.195Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T14:08:14.196Z - INFO - the question is : Were there RF transmissions from the CBSD1
during the test? please choose one of the answers :
2020-10-13T14:08:19.749Z - INFO - for the question : Were there RF transmissions from the
CBSD1 during the test? , the user choose n
2020-10-13T14:08:19.749Z - INFO - the question is : Were there RF transmissions from the CBSD2
during the test? please choose one of the answers :
2020-10-13T14:08:20.413Z - INFO - for the question : Were there RF transmissions from the
CBSD2 during the test? , the user choose n
2020-10-13T14:08:20.901Z - INFO - The final result of the test : WINNF.FT.D.REG.15 is - passed
```

8.16 Log file for test case ID: WINNF.FT.C.REG.16

```
2020-10-13T12:40:32.054Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:40:32.054Z - INFO - the selected test from the user : WINNF.FT.C.REG.16 is starting now
2020-10-13T12:40:39.873Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0001,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:40:39.891Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 100
      }
    }
  ]
}
2020-10-13T12:40:41.065Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:40:41.065Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:40:50.134Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:40:50.965Z - INFO - The final result of the test : WINNF.FT.C.REG.16 is - passed
```

8.17 Log file for test case ID: WINNF.FT.D.REG.17

```
2020-10-13T14:08:35.711Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:08:35.711Z - INFO - the selected test from the user : WINNF.FT.D.REG.17 is
starting now
2020-10-13T14:08:38.547Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:08:38.603Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 100
      }
    },
    {
      "response": {
        "responseCode": 100
      }
    }
  ]
}
2020-10-13T14:08:39.716Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T14:08:39.717Z - INFO - the question is : Were there RF transmissions from the CBSD1
during the test? please choose one of the answers :
2020-10-13T14:08:44.966Z - INFO - for the question : Were there RF transmissions from the
CBSD1 during the test? , the user choose n
2020-10-13T14:08:44.966Z - INFO - the question is : Were there RF transmissions from the CBSD2
during the test? please choose one of the answers :
2020-10-13T14:08:45.317Z - INFO - for the question : Were there RF transmissions from the
CBSD2 during the test? , the user choose n
2020-10-13T14:08:45.725Z - INFO - The final result of the test : WINNF.FT.D.REG.17 is - passed
```

8.18 Log file for test case ID: WINNF.FT.C.REG.18

```
2020-10-13T12:41:05.790Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:41:05.790Z - INFO - the selected test from the user : WINNF.FT.C.REG.18 is starting now
2020-10-13T12:41:08.336Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0001,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:41:08.361Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 201
      }
    }
  ]
}
2020-10-13T12:41:09.795Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:41:09.796Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:41:47.358Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:41:59.151Z - INFO - The final result of the test : WINNF.FT.C.REG.18 is - passed and :the additional comments for the current test are : WINNF.FT.C.REG.20
```

8.19 Log file for test case ID: WINNF.FT.D.REG.19

```
2020-10-13T14:09:09.942Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:09:09.942Z - INFO - the selected test from the user : WINNF.FT.D.REG.19 is
starting now
2020-10-13T14:09:12.642Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:09:12.711Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "response": {
        "responseCode": 201
      }
    }
  ]
}
2020-10-13T14:09:13.947Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T14:09:13.947Z - INFO - the question is : Were there RF transmissions from the CBSD1
during the test? please choose one of the answers :
2020-10-13T14:09:19.005Z - INFO - for the question : Were there RF transmissions from the
CBSD1 during the test? , the user choose n
2020-10-13T14:09:19.006Z - INFO - the question is : Were there RF transmissions from the CBSD2
during the test? please choose one of the answers :
2020-10-13T14:09:19.221Z - INFO - for the question : Were there RF transmissions from the
CBSD2 during the test? , the user choose n
2020-10-13T14:09:19.662Z - INFO - The final result of the test : WINNF.FT.D.REG.19 is - passed
```

8.20 Log file for test case ID: WINNF.FT.C.REG.20

```
2020-10-13T12:34:16.111Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:34:16.111Z - INFO - the selected test from the user : WINNF.FT.C.REG.7 is starting now
2020-10-13T12:35:18.171Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T12:35:18.205Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:35:32.386Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1"
    }
  ]
}
2020-10-13T12:35:32.388Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:35:34.212Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:35:34.212Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the
answers :
2020-10-13T12:36:11.986Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-10-13T12:36:12.969Z - INFO - The final result of the test : WINNF.FT.C.REG.7 is - passed
```

8.21 Log file for test case ID: WINNF.FT.C.GRA.1

```
2020-10-13T12:51:12.637Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:51:12.637Z - INFO - the selected test from the user : WINNF.FT.C.GRA.1 is starting now
2020-10-13T12:51:24.495Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T12:51:24.512Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:52:03.684Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T12:52:03.690Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
2020-10-13T12:52:04.698Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:52:04.698Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:52:30.437Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:52:31.221Z - INFO - The final result of the test : WINNF.FT.C.GRA.1 is - passed
```

8.22 Log file for test case ID: WINNF.FT.C.GRA.2

```
2020-10-13T12:55:49.496Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:55:49.496Z - INFO - the selected test from the user : WINNF.FT.C.GRA.2 is starting now
2020-10-13T12:55:53.072Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T12:55:53.086Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:56:02.776Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T12:56:02.784Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 401
      }
    }
  ]
}
2020-10-13T12:56:04.512Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:56:04.513Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-10-13T12:56:10.376Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-10-13T12:56:48.210Z - INFO - The final result of the test : WINNF.FT.C.GRA.2 is - passed
```

8.23 Log file for test case ID: WINNF.FT.C.HBT.1

```
2020-10-13T12:57:23.088Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T12:57:23.088Z - INFO - the selected test from the user : WINNF.FT.C.HBT.1 is starting
now
2020-10-13T12:57:27.615Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T12:57:27.638Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:57:33.827Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T12:57:33.832Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T12:57:33Z",
      "grantId": "4966257",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T12:57:33.838Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "4966257",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T12:57:33.842Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "4966257",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:00:53Z"
    }
  ]
}
2020-10-13T12:57:40.561Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "4966257",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T12:57:40.561Z - INFO - Time interval between two heartbeat request messages is:
6.723055, limit is: 65.0
2020-10-13T12:57:40.563Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "4966257",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:01:00Z"
    }
  ]
}
2020-10-13T12:57:46.571Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "4966257",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T12:57:46.572Z - INFO - Time interval between two heartbeat request messages is:
6.010041, limit is: 65.0
2020-10-13T12:57:46.576Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "4966257",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:01:06Z"
    }
  ]
}
2020-10-13T12:57:52.711Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "4966257",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T12:57:52.713Z - INFO - Time interval between two heartbeat request messages is:
6.14061, limit is: 65.0
2020-10-13T12:57:52.717Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "4966257",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:01:12Z"
    }
  ]
}
```

2020-10-13T12:57:58.710Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "4966257",
"operationState": "AUTHORIZED"
}
]
}
2020-10-13T12:57:58.711Z - INFO - Time interval between two heartbeat request messages is: 5.998521, limit is: 65.0
2020-10-13T12:57:58.715Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "4966257",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-10-13T13:01:18Z"
}
]
}
2020-10-13T12:58:04.701Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "4966257",
"operationState": "AUTHORIZED"
}
]
}
2020-10-13T12:58:04.702Z - INFO - Time interval between two heartbeat request messages is: 5.991318, limit is: 65.0
2020-10-13T12:58:04.707Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "4966257",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-10-13T13:01:24Z"
}
]
}
2020-10-13T12:58:06.126Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T12:58:06.126Z - INFO - the question is : Did CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2020-10-13T12:58:18.969Z - INFO - for the question : Did CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2020-10-13T12:58:18.969Z - INFO - the question is : Did CBSD1 transmit only within the frequency range specified in its grantRequest message? please choose one of the answers :
2020-10-13T12:58:32.993Z - INFO - for the question : Did CBSD1 transmit only within the frequency range specified in its grantRequest message? , the user choose y
2020-10-13T12:58:35.610Z - INFO - The final result of the test : WINNF.FT.C.HBT.1 is - passed

8.24 Log file for test case ID: WINNF.FT.D.HBT.2

```
2020-10-13T14:10:05.446Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:10:05.447Z - INFO - the selected test from the user : WINNF.FT.D.HBT.2 is starting
now
2020-10-13T14:10:08.635Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:10:08.705Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:10:08.730Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
```

```
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  }
]
}
2020-10-13T14:10:08.742Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:10:08Z",
      "grantId": "963670300",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:10:08Z",
      "grantId": "152230535",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:10:08.790Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "operationState": "GRANTED"
    },
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T14:10:08.800Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:28Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:28Z"
    }
  ]
}
2020-10-13T14:10:14.256Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:10:14.257Z - INFO - Time interval between two heartbeat request messages is: 5.466391, limit is: 65.0
2020-10-13T14:10:14.262Z - INFO - Time interval between two heartbeat request messages is: 5.466391, limit is: 65.0
2020-10-13T14:10:14.271Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:34Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:34Z"
    }
  ]
}
2020-10-13T14:10:20.255Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:10:20.256Z - INFO - Time interval between two heartbeat request messages is: 5.998755, limit is: 65.0
2020-10-13T14:10:20.260Z - INFO - Time interval between two heartbeat request messages is: 5.998755, limit is: 65.0
2020-10-13T14:10:20.263Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:40Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:40Z"
    }
  ]
}
2020-10-13T14:10:26.710Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:10:26.711Z - INFO - Time interval between two heartbeat request messages is: 6.454908, limit is: 65.0
2020-10-13T14:10:26.716Z - INFO - Time interval between two heartbeat request messages is: 6.454908, limit is: 65.0
2020-10-13T14:10:26.724Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:46Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:46Z"
    }
  ]
}
2020-10-13T14:10:32.700Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "operationState": "AUTHORIZED"
```

```
    }
  ]
}
```

2020-10-13T14:10:32.701Z - INFO - Time interval between two heartbeat request messages is: 5.989902, limit is: 65.0
2020-10-13T14:10:32.705Z - INFO - Time interval between two heartbeat request messages is: 5.989902, limit is: 65.0
2020-10-13T14:10:32.713Z - INFO - engine sent successfully, the response to CBRS : {

```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:52Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:52Z"
    }
  ]
}
```

2020-10-13T14:10:38.703Z - INFO - heartbeat request from CBRS : {

```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "operationState": "AUTHORIZED"
    }
  ]
}
```

2020-10-13T14:10:38.704Z - INFO - Time interval between two heartbeat request messages is: 6.003169, limit is: 65.0
2020-10-13T14:10:38.710Z - INFO - Time interval between two heartbeat request messages is: 6.003169, limit is: 65.0
2020-10-13T14:10:38.718Z - INFO - engine sent successfully, the response to CBRS : {

```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "963670300",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:58Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "152230535",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:13:58Z"
    }
  ]
}
```

2020-10-13T14:10:40.485Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T14:10:40.486Z - INFO - the question is : Did CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2020-10-13T14:10:47.687Z - INFO - for the question : Did CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2020-10-13T14:10:47.687Z - INFO - the question is : Did CBSD1 transmit only within the frequency range specified in its grantRequest message? please choose one of the answers :
2020-10-13T14:10:54.207Z - INFO - for the question : Did CBSD1 transmit only within the frequency range specified in its grantRequest message? , the user choose y
2020-10-13T14:10:54.208Z - INFO - the question is : Did CBSD2 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2020-10-13T14:10:55.367Z - INFO - for the question : Did CBSD2 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2020-10-13T14:10:55.367Z - INFO - the question is : Did CBSD2 transmit only within the frequency range specified in its grantRequest message? please choose one of the answers :
2020-10-13T14:10:56.359Z - INFO - for the question : Did CBSD2 transmit only within the frequency range specified in its grantRequest message? , the user choose y
2020-10-13T14:10:57.328Z - INFO - The final result of the test : WINNF.FT.D.HBT.2 is - passed

8.25 Log file for test case ID: WINNF.FT.C.HBT.3

```
2020-10-13T13:00:03.874Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:00:03.875Z - INFO - the selected test from the user : WINNF.FT.C.HBT.3 is starting
now
2020-10-13T13:00:13.645Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T13:00:13.662Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:00:19.026Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:00:19.030Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:00:19Z",
      "grantId": "59321861",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:00:19.035Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "59321861",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:00:19.038Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "59321861",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:03:39Z"
    }
  ]
}
2020-10-13T13:00:25.714Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "59321861",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:00:25.715Z - INFO - Time interval between two heartbeat request messages is:
6.679499, limit is: 65.0
2020-10-13T13:00:25.717Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "59321861",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:03:45Z"
    }
  ]
}
2020-10-13T13:00:31.700Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "59321861",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:00:31.701Z - INFO - Time interval between two heartbeat request messages is:
5.985473, limit is: 65.0
2020-10-13T13:00:31.704Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "59321861",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:03:51Z"
    }
  ]
}
2020-10-13T13:00:37.708Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "59321861",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:00:37.709Z - INFO - Time interval between two heartbeat request messages is:
6.007834, limit is: 65.0
2020-10-13T13:00:37.713Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "59321861",
      "response": {
        "responseCode": 105
      },
      "transmitExpireTime": "2020-10-13T13:00:37Z"
    }
  ]
}
```

2020-10-13T13:00:38.914Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:00:38.914Z - INFO - the question is : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 105? please choose one of the answers :
2020-10-13T13:01:59.836Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 105? , the user choose y
2020-10-13T13:02:00.677Z - INFO - The final result of the test : WINNF.FT.C.HBT.3 is - passed

8.26 Log file for test case ID: WINNF.FT.C.HBT.4

2020-10-13T13:03:17.965Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:03:17.965Z - INFO - the selected test from the user : WINNF.FT.C.HBT.4 is starting now
2020-10-13T13:03:24.914Z - INFO - registration request from CBRS : {

```
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
```

2020-10-13T13:03:24.942Z - INFO - engine sent successfully, the response to CBRS : {

```
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

2020-10-13T13:03:29.134Z - INFO - grant request from CBRS : {

```
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
```

2020-10-13T13:03:29.141Z - INFO - engine sent successfully, the response to CBRS : {

```
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:03:29Z",
      "grantId": "856136692",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

2020-10-13T13:03:29.148Z - INFO - heartbeat request from CBRS : {

```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "operationState": "GRANTED"
    }
  ]
}
```

2020-10-13T13:03:29.152Z - INFO - engine sent successfully, the response to CBRS : {

```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:06:49Z"
    }
  ]
}
```

2020-10-13T13:03:36.062Z - INFO - heartbeat request from CBRS : {

```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "operationState": "AUTHORIZED"
    }
  ]
}
```

2020-10-13T13:03:36.063Z - INFO - Time interval between two heartbeat request messages is: 6.913687, limit is: 65.0
2020-10-13T13:03:36.066Z - INFO - engine sent successfully, the response to CBRS : {

```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:06:56Z"
    }
  ]
}
```

2020-10-13T13:03:43.057Z - INFO - heartbeat request from CBRS : {

```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "operationState": "AUTHORIZED"
    }
  ]
}
```

2020-10-13T13:03:43.059Z - INFO - Time interval between two heartbeat request messages is: 6.995156, limit is: 65.0
2020-10-13T13:03:43.063Z - INFO - engine sent successfully, the response to CBRS : {

```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:07:03Z"
    }
  ]
}
```

2020-10-13T13:03:50.057Z - INFO - heartbeat request from CBRS : {

```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "operationState": "AUTHORIZED"
    }
  ]
}
```

2020-10-13T13:03:50.058Z - INFO - Time interval between two heartbeat request messages is: 7.000228, limit is: 65.0
2020-10-13T13:03:50.062Z - INFO - engine sent successfully, the response to CBRS : {

```
  "heartbeatResponse": [
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:07:10Z"
    }
  ]
}
2020-10-13T13:03:57.062Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:03:57.064Z - INFO - Time interval between two heartbeat request messages is: 7.005234, limit is: 65.0
2020-10-13T13:03:57.067Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:07:17Z"
    }
  ]
}
2020-10-13T13:04:04.064Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:04:04.066Z - INFO - Time interval between two heartbeat request messages is: 7.001889, limit is: 65.0
2020-10-13T13:04:04.070Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "856136692",
      "response": {
        "responseCode": 500
      },
      "transmitExpireTime": "2020-10-13T13:04:04Z"
    }
  ]
}
2020-10-13T13:04:06.019Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:04:06.019Z - INFO - the question is : Did the CBSD1 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? please choose one of the answers :
2020-10-13T13:04:23.639Z - INFO - for the question : Did the CBSD1 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? , the user choose y
2020-10-13T13:04:24.526Z - INFO - The final result of the test : WINNF.FT.C.HBT.4 is - passed
```


8.27 Log file for test case ID: WINNF.FT.C.HBT.5


```
2020-10-13T13:05:50.730Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:05:50.730Z - INFO - the selected test from the user : WINNF.FT.C.HBT.5 is starting now
2020-10-13T13:06:17.376Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T13:06:17.391Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:06:34.650Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:06:34.655Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:06:34Z",
      "grantId": "331262912",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:06:34.661Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "331262912",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:06:34.664Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "331262912",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2020-10-13T13:06:34Z"
    }
  ]
}
2020-10-13T13:06:34.711Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
```

```
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "331262912",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:06:34.712Z - INFO - Time interval between two heartbeat request messages is: 0.050033, limit is: 65.0
2020-10-13T13:06:34.715Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "331262912",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2020-10-13T13:06:34Z"
    }
  ]
}
2020-10-13T13:06:35.779Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:06:35.779Z - INFO - the question is : Did the CBSD transmit at any time during the test? please choose one of the answers :
2020-10-13T13:06:53.952Z - INFO - for the question : Did the CBSD transmit at any time during the test? , the user choose n
2020-10-13T13:06:54.680Z - INFO - The final result of the test : WINNF.FT.C.HBT.5 is - passed
```


8.28 Log file for test case ID: WINNF.FT.C.HBT.6


```
2020-10-13T13:07:54.784Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:07:54.784Z - INFO - the selected test from the user : WINNF.FT.C.HBT.6 is starting now
2020-10-13T13:07:59.175Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T13:07:59.192Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:08:03.551Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:08:03.558Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:08:03Z",
      "grantId": "633591214",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:08:03.566Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:08:03.570Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:11:23Z"
    }
  ]
}
2020-10-13T13:08:11.060Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:08:11.061Z - INFO - Time interval between two heartbeat request messages is: 7.494084, limit is: 65.0
2020-10-13T13:08:11.063Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:11:31Z"
    }
  ]
}
2020-10-13T13:08:17.061Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:08:17.062Z - INFO - Time interval between two heartbeat request messages is: 6.000762, limit is: 65.0
2020-10-13T13:08:17.064Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
```

```
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:11:37Z"
    }
  ]
}
2020-10-13T13:08:23.064Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:08:23.065Z - INFO - Time interval between two heartbeat request messages is:
6.002829, limit is: 65.0
2020-10-13T13:08:23.069Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2020-10-13T13:08:23Z"
    }
  ]
}
2020-10-13T13:08:23.077Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:08:23.079Z - INFO - Time interval between two heartbeat request messages is:
0.013353, limit is: 65.0
2020-10-13T13:08:23.083Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "633591214",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2020-10-13T13:08:23Z"
    }
  ]
}
2020-10-13T13:08:24.817Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T13:08:24.817Z - INFO - the question is : Did the CBSD stop RF transmission within 60
seconds of receiving Heartbeat response with responseCode = 501? please choose one of the
answers :
2020-10-13T13:08:36.197Z - INFO - for the question : Did the CBSD stop RF transmission within
60 seconds of receiving Heartbeat response with responseCode = 501? , the user choose y
2020-10-13T13:08:37.185Z - INFO - The final result of the test : WINNF.FT.C.HBT.6 is - passed
```


8.29 Log file for test case ID: WINNF.FT.C.HBT.7


```
2020-10-13T13:09:18.601Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:09:18.602Z - INFO - the selected test from the user : WINNF.FT.C.HBT.7 is starting
now
2020-10-13T13:09:22.997Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T13:09:23.021Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:09:27.656Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:09:27.662Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:09:27Z",
      "grantId": "281620037",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:09:27.669Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:09:27.673Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:12:47Z"
    }
  ]
}
2020-10-13T13:09:33.569Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
```

```
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:09:33.570Z - INFO - Time interval between two heartbeat request messages is: 5.900038, limit is: 65.0
2020-10-13T13:09:33.575Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:12:53Z"
    }
  ]
}
2020-10-13T13:09:39.693Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:09:39.694Z - INFO - Time interval between two heartbeat request messages is: 6.123614, limit is: 65.0
2020-10-13T13:09:39.698Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:12:59Z"
    }
  ]
}
2020-10-13T13:09:45.133Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:09:45.134Z - INFO - Time interval between two heartbeat request messages is: 5.439821, limit is: 65.0
2020-10-13T13:09:45.138Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
      "response": {
        "responseCode": 502
      },
      "transmitExpireTime": "2020-10-13T13:09:45Z"
    }
  ]
}
2020-10-13T13:09:45.146Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037"
    }
  ]
}
2020-10-13T13:09:45.150Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "281620037",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:09:46.632Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:09:46.633Z - INFO - the question is : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 502? please choose one of the answers :
2020-10-13T13:09:58.714Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 502? , the user choose y
2020-10-13T13:09:59.698Z - INFO - The final result of the test : WINNF.FT.C.HBT.7 is - passed
```

8.30 Log file for test case ID: WINNF.FT.D.HBT.8

```
2020-10-13T14:11:38.257Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:11:38.258Z - INFO - the selected test from the user : WINNF.FT.D.HBT.8 is starting
now
2020-10-13T14:11:42.782Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:11:42.836Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:11:43.329Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
```

```
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  }
]
}
2020-10-13T14:11:43.345Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:11:43Z",
      "grantId": "365503327",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:11:43Z",
      "grantId": "73764686",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:11:43.351Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "365503327",
      "operationState": "GRANTED"
    },
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "73764686",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T14:11:43.358Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "365503327",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:15:03Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "73764686",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:15:03Z"
    }
  ]
}
2020-10-13T14:11:49.739Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "365503327",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "73764686",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:11:49.740Z - INFO - Time interval between two heartbeat request messages is: 6.388529, limit is: 65.0
2020-10-13T14:11:49.749Z - INFO - Time interval between two heartbeat request messages is: 6.388529, limit is: 65.0
2020-10-13T14:11:49.752Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "365503327",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:15:09Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "73764686",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:15:09Z"
    }  ]}
2020-10-13T14:11:55.719Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "365503327",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "73764686",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:11:55.720Z - INFO - Time interval between two heartbeat request messages is: 5.979649, limit is: 65.0
2020-10-13T14:11:55.725Z - INFO - Time interval between two heartbeat request messages is: 5.979649, limit is: 65.0
2020-10-13T14:11:55.736Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "365503327",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:15:15Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "73764686",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:15:15Z"
    }
  ]
}
2020-10-13T14:12:01.744Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "365503327",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "73764686",
      "operationState": "AUTHORIZED"
    }  ]}
2020-10-13T14:12:01.744Z - INFO - Time interval between two heartbeat request messages is: 6.024825, limit is: 65.0
2020-10-13T14:12:01.748Z - INFO - Time interval between two heartbeat request messages is: 6.024825, limit is: 65.0
2020-10-13T14:12:01.751Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "365503327",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:15:21Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "73764686",
      "response": {
        "responseCode": 500
      },
      "transmitExpireTime": "2020-10-13T14:12:01Z"
    }  ]}
```


2020-10-13T14:12:03.286Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T14:12:03.286Z - INFO - the question is : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2020-10-13T14:12:09.624Z - INFO - for the question : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2020-10-13T14:12:09.624Z - INFO - the question is : Did the CBSD2 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? please choose one of the answers :
2020-10-13T14:12:20.848Z - INFO - for the question : Did the CBSD2 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? , the user choose y
2020-10-13T14:12:22.456Z - INFO - The final result of the test : WINNF.FT.D.HBT.8 is - passed

8.31 Log file for test case ID: WINNF.FT.C.HBT.9

```
2020-10-13T13:12:04.571Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:12:04.572Z - INFO - the selected test from the user : WINNF.FT.C.HBT.9 is starting
now
2020-10-13T13:12:08.160Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T13:12:08.182Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:12:12.662Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:12:12.668Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:12:12Z",
      "grantId": "491126805",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:12:12.676Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "491126805",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:15:32.765Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "491126805",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2020-10-13T13:15:32Z"
    }
  ]
}
2020-10-13T13:15:33.803Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T13:15:33.803Z - INFO - the question is : Were there RF transmissions from the CBSD
during the test? please choose one of the answers :
2020-10-13T13:15:47.582Z - INFO - for the question : Were there RF transmissions from the
CBSD during the test? , the user choose n
2020-10-13T13:15:48.174Z - INFO - The final result of the test : WINNF.FT.C.HBT.9 is - passed
```

8.32 Log file for test case ID: WINNF.FT.C.HBT.10

```
2020-10-13T13:16:20.223Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:16:20.223Z - INFO - the selected test from the user : WINNF.FT.C.HBT.10 is
starting now
2020-10-13T13:16:24.954Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T13:16:24.977Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:16:30.935Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:16:30.942Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:16:30Z",
      "grantId": "678434478",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:16:30.950Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "678434478",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:16:30.955Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "678434478",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:19:50Z"
    }
  ]
}
2020-10-13T13:16:38.068Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "678434478",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:16:38.069Z - INFO - Time interval between two heartbeat request messages is:
7.117448, limit is: 65.0
2020-10-13T13:16:38.072Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "678434478",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:19:58Z"
    }
  ]
}
2020-10-13T13:16:44.069Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "678434478",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:16:44.070Z - INFO - Time interval between two heartbeat request messages is:
6.000789, limit is: 65.0
2020-10-13T13:16:44.072Z - INFO - LAST HBT RESPONSE THAT SET TRANSMIT_EXPIRE_TIME WAS
AT:  2020-10-13 13:16:38.068413
2020-10-13T13:20:04.136Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "678434478",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2020-10-13T13:20:04Z"
    }
  ]
}
2020-10-13T13:20:05.431Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T13:20:05.432Z - INFO - the question is : Did the CBSD stop RF transmissions within
(transmitExpireTime + 60seconds) of last valid heartbeat response? please choose one of the
answers :
2020-10-13T13:20:13.626Z - INFO - for the question : Did the CBSD stop RF transmissions within
(transmitExpireTime + 60seconds) of last valid heartbeat response? , the user choose y
2020-10-13T13:20:15.722Z - INFO - The final result of the test : WINNF.FT.C.HBT.10 is - passed
```

8.33 Log file for test case ID: WINNF.FT.C.HBT.11

```
2020-10-13T13:21:02.154Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:21:02.154Z - INFO - the selected test from the user : WINNF.FT.C.HBT.11 is
starting now
2020-10-13T13:21:06.717Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "userId": "abc"
    }
  ]
}
2020-10-13T13:21:06.742Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:21:12.422Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:21:12.428Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-13T13:27:12Z",
      "grantId": "795955118",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:21:12.435Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "795955118",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:21:12.439Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "795955118",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:24:32Z"
    }
  ]
}
2020-10-13T13:22:08.070Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "795955118",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:22:08.071Z - INFO - Time interval between two heartbeat request messages is:
55.635111, limit is: 65.0
2020-10-13T13:22:08.073Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "795955118",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:25:28Z"
    }
  ]
}
2020-10-13T13:23:02.075Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "795955118",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:23:02.076Z - INFO - Time interval between two heartbeat request messages is:
54.004256, limit is: 65.0
2020-10-13T13:23:02.080Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "795955118",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:26:22Z"
    }
  ]
}
2020-10-13T13:23:56.088Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "795955118",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:23:56.089Z - INFO - Time interval between two heartbeat request messages is:
54.013086, limit is: 65.0
2020-10-13T13:23:56.092Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "795955118",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:27:12Z"
    }
  ]
}
```

2020-10-13T13:24:50.076Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "795955118",
"operationState": "AUTHORIZED"
}
]
}
2020-10-13T13:24:50.078Z - INFO - Time interval between two heartbeat request messages is: 53.988794, limit is: 65.0
2020-10-13T13:24:50.081Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "795955118",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-10-13T13:27:12Z"
}
]
}
2020-10-13T13:25:44.073Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "795955118",
"operationState": "AUTHORIZED"
}
]
}
2020-10-13T13:25:44.074Z - INFO - Time interval between two heartbeat request messages is: 53.996752, limit is: 65.0
2020-10-13T13:25:44.077Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "795955118",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-10-13T13:27:12Z"
}
]
}
2020-10-13T13:26:38.084Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "795955118",
"grantRenew": true,
"operationState": "AUTHORIZED"
}
]
}
2020-10-13T13:26:38.085Z - INFO - Time interval between two heartbeat request messages is: 54.011151, limit is: 65.0
2020-10-13T13:26:38.090Z - INFO - grantRenew received in HBT request message
2020-10-13T13:26:38.090Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantExpireTime": "2020-10-13T13:32:38Z",
"grantId": "795955118",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-10-13T13:29:58Z"
}
]
}
2020-10-13T13:27:32.075Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "795955118",
"operationState": "AUTHORIZED"
}
]
}
2020-10-13T13:27:32.076Z - INFO - Time interval between two heartbeat request messages is: 53.990482, limit is: 65.0
2020-10-13T13:27:32.079Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
"grantId": "795955118",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-10-13T13:30:52Z"
}
]
}
2020-10-13T13:27:33.579Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:27:33.580Z - INFO - the question is : Did the CBSD renew its grant successfully? please choose one of the answers :
2020-10-13T13:27:48.640Z - INFO - for the question : Did the CBSD renew its grant successfully? , the user choose y
2020-10-13T13:27:49.799Z - INFO - The final result of the test : WINNF.FT.C.HBT.11 is - passed

8.34 Log file for test case ID: WINNF.FT.C.MES.1

```
2020-10-13T13:30:19.744Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:30:19.745Z - INFO - the selected test from the user : WINNF.FT.C.MES.1 is
starting now
2020-10-13T13:30:36.367Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:30:36.406Z - INFO - Response message contains measReportConfig
2020-10-13T13:30:36.406Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReportConfig": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:31:01.852Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
```

```
  ]
}
2020-10-13T13:31:01.856Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:31:01Z",
      "grantId": "860758866",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:31:03.792Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:31:12.242Z - INFO - The final result of the test : WINNF.FT.C.MES.1 is - passed
```


8.35 Log file for test case ID: WINNF.FT.D.MES.2


```
2020-10-13T14:13:33.668Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:13:33.668Z - INFO - the selected test from the user : WINNF.FT.D.MES.2 is starting now
2020-10-13T14:13:45.254Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:13:45.285Z - INFO - Response message contains measReportConfig
2020-10-13T14:13:45.311Z - INFO - Response message contains measReportConfig
2020-10-13T14:13:45.311Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReportConfig": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "measReportConfig": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:13:45.334Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
```

```
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ],
      "operationParam": {
        "maxEirp": 20,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ] }
2020-10-13T14:13:45.343Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:13:45Z",
      "grantId": "586760652",
```

```
    "heartbeatInterval": 60,
    "response": {
      "responseCode": 0
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "channelType": "GAA",
    "grantExpireTime": "2020-10-20T14:13:45Z",
    "grantId": "813967559",
    "heartbeatInterval": 60,
    "response": {
      "responseCode": 0
    }    }  ] }
```


2020-10-13T14:13:46.684Z - INFO - arrived to nstep starting question answer session with the technician

2020-10-13T14:13:51.161Z - INFO - The final result of the test : WINNF.FT.D.MES.2 is - passed

8.36 Log file for test case ID: WINNF.FT.C.MES.3

2020-10-13T13:32:14.274Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13

2020-10-13T13:32:14.275Z - INFO - the selected test from the user : WINNF.FT.C.MES.3 is starting now

2020-10-13T13:32:23.524Z - INFO - registration request from CBRS : {


```
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
```


2020-10-13T13:32:23.547Z - INFO - engine sent successfully, the response to CBRS : {


```
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```


2020-10-13T13:32:28.924Z - INFO - grant request from CBRS : {


```
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
```

```
            },
            {
              "measBandwidth": 10000000,
              "measFrequency": 3690000000,
              "measRcvdPower": -100
            }
          ]
        },
        "operationParam": {
          "maxEirp": 37,
          "operationFrequencyRange": {
            "highFrequency": 3565000000,
            "lowFrequency": 3560000000
          }
        }
      }
    ]
}
2020-10-13T13:32:28.935Z - INFO - Response message contains measReportConfig
2020-10-13T13:32:28.936Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:32:28Z",
      "grantId": "708022713",
      "heartbeatInterval": 60,
      "measReportConfig": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:32:28.943Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:32:28.945Z - INFO - measReport received in heartbeat message
2020-10-13T13:32:28.949Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:35:48Z"
    }
  ]
}
2020-10-13T13:32:36.082Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:32:36.083Z - INFO - Time interval between two heartbeat request messages is:
7.138786, limit is: 65.0
2020-10-13T13:32:36.088Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
```

```
      "grantId": "708022713",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:35:56Z"
    }
  ]
}
2020-10-13T13:32:42.081Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:32:42.083Z - INFO - Time interval between two heartbeat request messages is: 5.999098, limit is: 65.0
2020-10-13T13:32:42.087Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:36:02Z"
    }
  ]
}
2020-10-13T13:32:48.081Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:32:48.083Z - INFO - Time interval between two heartbeat request messages is: 6.000127, limit is: 65.0
2020-10-13T13:32:48.088Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:36:08Z"
    }
  ]
}
2020-10-13T13:32:54.080Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:32:54.081Z - INFO - Time interval between two heartbeat request messages is: 5.998634, limit is: 65.0
2020-10-13T13:32:54.086Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "708022713",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:36:14Z"
    }
  ]
}
2020-10-13T13:32:55.320Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:33:01.291Z - INFO - The final result of the test : WINNF.FT.C.MES.3 is - passed
```

8.37 Log file for test case ID: WINNF.FT.C.MES.4


```
2020-10-13T13:34:13.524Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:34:13.524Z - INFO - the selected test from the user : WINNF.FT.C.MES.4 is
starting now
2020-10-13T13:34:18.210Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:34:18.247Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:34:22.079Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:34:22.085Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:34:22Z",
      "grantId": "994297583",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:34:22.092Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:34:22.095Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:37:42Z"
    }
  ]
}
2020-10-13T13:34:29.081Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:34:29.082Z - INFO - Time interval between two heartbeat request messages is:
6.988782, limit is: 65.0
2020-10-13T13:34:29.087Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:37:49Z"
    }
  ]
}
2020-10-13T13:34:35.083Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:34:35.084Z - INFO - Time interval between two heartbeat request messages is:
6.002046, limit is: 65.0
2020-10-13T13:34:35.087Z - INFO - Response message contains measReportConfig
2020-10-13T13:34:35.088Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "measReportConfig": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:37:55Z"
    }
  ]
}
2020-10-13T13:34:41.085Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
```

```
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
```


2020-10-13T13:34:41.087Z - INFO - Time interval between two heartbeat request messages is: 6.002567, limit is: 65.0

2020-10-13T13:34:41.088Z - INFO - measReport received in heartbeat message

2020-10-13T13:34:41.093Z - INFO - engine sent successfully, the response to CBRS :


```
{
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:38:01Z"
    }
  ]
}
```


2020-10-13T13:34:47.085Z - INFO - heartbeat request from CBRS :


```
{
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "operationState": "AUTHORIZED"
    }
  ]
}
```


2020-10-13T13:34:47.087Z - INFO - Time interval between two heartbeat request messages is: 6.000095, limit is: 65.0

2020-10-13T13:34:47.091Z - INFO - engine sent successfully, the response to CBRS :


```
{
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:38:07Z"
    }
  ]
}
```


2020-10-13T13:34:53.082Z - INFO - heartbeat request from CBRS :


```
{
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "operationState": "AUTHORIZED"
    }
  ]
}
```


2020-10-13T13:34:53.083Z - INFO - Time interval between two heartbeat request messages is: 5.996184, limit is: 65.0

2020-10-13T13:34:53.087Z - INFO - engine sent successfully, the response to CBRS :


```
{
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:38:13Z"
    }
  ]
}
```


2020-10-13T13:34:59.080Z - INFO - heartbeat request from CBRS :


```
{
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "operationState": "AUTHORIZED"
    }
  ]
}
```


2020-10-13T13:34:59.081Z - INFO - Time interval between two heartbeat request messages is: 5.998693, limit is: 65.0

2020-10-13T13:34:59.085Z - INFO - engine sent successfully, the response to CBRS :


```
{
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:38:19Z"
    }
  ]
}
```


2020-10-13T13:35:05.081Z - INFO - heartbeat request from CBRS :


```
{
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "operationState": "AUTHORIZED"
    }
  ]
}
```


2020-10-13T13:35:05.083Z - INFO - Time interval between two heartbeat request messages is: 6.001037, limit is: 65.0

2020-10-13T13:35:05.087Z - INFO - engine sent successfully, the response to CBRS :


```
{
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "994297583",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:38:25Z"
    }
  ]
}
```


2020-10-13T13:35:06.586Z - INFO - arrived to nstep starting question answer session with the technician

2020-10-13T13:35:15.508Z - INFO - The final result of the test : WINNF.FT.C.MES.4 is - passed

8.38 Log file for test case ID: WINNF.FT.D.MES.5


```
2020-10-13T14:14:22.705Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:14:22.706Z - INFO - the selected test from the user : WINNF.FT.D.MES.5 is
starting now
2020-10-13T14:14:32.383Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:14:32.458Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:14:32.465Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
```

```
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  }
]
}
2020-10-13T14:14:32.477Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:14:32Z",
      "grantId": "744595960",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:14:32Z",
      "grantId": "391427459",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:14:32.521Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "operationState": "GRANTED"
    },
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T14:14:32.526Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:17:52Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:17:52Z"
    }
  ]
}
2020-10-13T14:14:38.126Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:14:38.127Z - INFO - Time interval between two heartbeat request messages is:
5.604818, limit is: 65.0
2020-10-13T14:14:38.131Z - INFO - Time interval between two heartbeat request messages is:
5.604818, limit is: 65.0
2020-10-13T14:14:38.134Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:17:58Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:17:58Z"
    }
  ]
}
2020-10-13T14:14:44.124Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:14:44.124Z - INFO - Time interval between two heartbeat request messages is:
5.997596, limit is: 65.0
2020-10-13T14:14:44.127Z - INFO - Response message contains measReportConfig
2020-10-13T14:14:44.128Z - INFO - Time interval between two heartbeat request messages is:
5.997596, limit is: 65.0
2020-10-13T14:14:44.130Z - INFO - Response message contains measReportConfig
2020-10-13T14:14:44.131Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "measReportConfig": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:04Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "measReportConfig": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:04Z"
    } ]}
2020-10-13T14:14:50.141Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
```

```
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationState": "AUTHORIZED"
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "grantId": "391427459",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationState": "AUTHORIZED"
  } ]}
2020-10-13T14:14:50.142Z - INFO - Time interval between two heartbeat request messages is:
6.017865, limit is: 65.0
2020-10-13T14:14:50.143Z - INFO - measReport received in heartbeat message
2020-10-13T14:14:50.146Z - INFO - Time interval between two heartbeat request messages is:
6.017865, limit is: 65.0
2020-10-13T14:14:50.147Z - INFO - measReport received in heartbeat message
2020-10-13T14:14:50.149Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:10Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:10Z"
    } ]}
2020-10-13T14:14:56.127Z - INFO - heartbeat request from CBRS  : {
```

```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "operationState": "AUTHORIZED"
    }
  ]
}
```


2020-10-13T14:14:56.128Z - INFO - Time interval between two heartbeat request messages is: 5.985092, limit is: 65.0

2020-10-13T14:14:56.136Z - INFO - Time interval between two heartbeat request messages is: 5.985092, limit is: 65.0

2020-10-13T14:14:56.141Z - INFO - engine sent successfully, the response to CBRS : {


```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:16Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:16Z"
    }
  ]
}
```


2020-10-13T14:15:02.126Z - INFO - heartbeat request from CBRS : {


```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "operationState": "AUTHORIZED"
    }
  ]
}
```


2020-10-13T14:15:02.127Z - INFO - Time interval between two heartbeat request messages is: 5.999739, limit is: 65.0

2020-10-13T14:15:02.132Z - INFO - Time interval between two heartbeat request messages is: 5.999739, limit is: 65.0

2020-10-13T14:15:02.136Z - INFO - engine sent successfully, the response to CBRS : {


```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:22Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:22Z"
    } ]}
```


2020-10-13T14:15:08.126Z - INFO - heartbeat request from CBRS : {


```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "operationState": "AUTHORIZED"
    } ]}
```


2020-10-13T14:15:08.128Z - INFO - Time interval between two heartbeat request messages is: 6.000127, limit is: 65.0

2020-10-13T14:15:08.132Z - INFO - Time interval between two heartbeat request messages is: 6.000127, limit is: 65.0

2020-10-13T14:15:08.139Z - INFO - engine sent successfully, the response to CBRS : {


```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:28Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:28Z"
    }
  ]
}
```


2020-10-13T14:15:14.125Z - INFO - heartbeat request from CBRS : {


```
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "operationState": "AUTHORIZED"
    }
  ]
}
```


2020-10-13T14:15:14.126Z - INFO - Time interval between two heartbeat request messages is: 5.998917, limit is: 65.0

2020-10-13T14:15:14.131Z - INFO - Time interval between two heartbeat request messages is: 5.998917, limit is: 65.0

2020-10-13T14:15:14.141Z - INFO - engine sent successfully, the response to CBRS : {


```
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744595960",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:34Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "391427459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:18:34Z"
    } ]}
```


2020-10-13T14:15:15.765Z - INFO - arrived to nstep starting question answer session with the technician

2020-10-13T14:15:46.954Z - INFO - The final result of the test : WINNF.FT.D.MES.5 is - passed

8.39 Log file for test case ID: WINNF.FT.C.RLQ.1

```
2020-10-13T13:35:58.437Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:35:58.437Z - INFO - the selected test from the user : WINNF.FT.C.RLQ.1 is starting
now
2020-10-13T13:36:08.163Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:36:08.192Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:36:12.952Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:36:12.963Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:36:12Z",
      "grantId": "357235591",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:36:12.970Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "357235591",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:36:12.974Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "357235591",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:39:32Z"
    }
  ]
}
2020-10-13T13:36:19.084Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "357235591",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:36:19.084Z - INFO - Time interval between two heartbeat request messages is: 6.113987, limit is: 65.0
2020-10-13T13:36:19.086Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "357235591",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:39:39Z"
    }
  ]
}
2020-10-13T13:36:25.447Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "357235591"
    }
  ]
}
2020-10-13T13:36:25.455Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "357235591",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:36:26.468Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:36:26.469Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T13:38:42.743Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T13:38:43.681Z - INFO - The final result of the test : WINNF.FT.C.RLQ.1 is - passed
```

8.40 Log file for test case ID: WINNF.FT.D.RLQ.2

```
2020-10-13T14:16:12.843Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:16:12.843Z - INFO - the selected test from the user : WINNF.FT.D.RLQ.2 is starting
now
2020-10-13T14:16:17.880Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:16:17.911Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:16:18.762Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
```

```
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  }
]
}
2020-10-13T14:16:18.781Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:16:18Z",
      "grantId": "9590544",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:16:18Z",
      "grantId": "500865620",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:16:18.786Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "9590544",
      "operationState": "GRANTED"
    },
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "500865620",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T14:16:18.794Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "9590544",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:19:38Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "500865620",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:19:38Z"
    }
  ]
}
2020-10-13T14:16:24.122Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "9590544",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "500865620",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:16:24.123Z - INFO - Time interval between two heartbeat request messages is: 5.335503, limit is: 65.0
2020-10-13T14:16:24.128Z - INFO - Time interval between two heartbeat request messages is: 5.335503, limit is: 65.0
2020-10-13T14:16:24.135Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "9590544",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:19:44Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "500865620",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:19:44Z"
    }
  ]
}
2020-10-13T14:16:30.114Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "9590544",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "500865620",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:16:30.115Z - INFO - Time interval between two heartbeat request messages is: 5.991872, limit is: 65.0
2020-10-13T14:16:30.118Z - INFO - Time interval between two heartbeat request messages is: 5.991872, limit is: 65.0
2020-10-13T14:16:30.120Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "9590544",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:19:50Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "500865620",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:19:50Z"
    }
  ]
}
2020-10-13T14:16:36.113Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "9590544"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "500865620"
    }
  ]
}
2020-10-13T14:16:36.126Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "9590544",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "500865620",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:16:37.871Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T14:16:37.872Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T14:16:43.644Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T14:16:43.644Z - INFO - the question is : Did CBSD2 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T14:16:45.123Z - INFO - for the question : Did CBSD2 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T14:16:45.851Z - INFO - The final result of the test : WINNF.FT.D.RLQ.2 is - passed
```

8.41 Log file for test case ID: WINNF.FT.C.RLQ.3

```
2020-10-13T13:39:12.943Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:39:12.944Z - INFO - the selected test from the user : WINNF.FT.C.RLQ.3 is starting
now
2020-10-13T13:40:00.700Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:40:00.730Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:40:04.847Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:40:04.855Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:40:04Z",
      "grantId": "294746242",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:40:04.864Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "294746242",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:40:04.868Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "294746242",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:43:24Z"
    }
  ]
}
2020-10-13T13:40:10.826Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "294746242",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:40:10.827Z - INFO - Time interval between two heartbeat request messages is: 5.962372, limit is: 65.0
2020-10-13T13:40:10.831Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "294746242",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:43:30Z"
    }
  ]
}
2020-10-13T13:40:16.115Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "294746242"
    }
  ]
}
2020-10-13T13:40:16.121Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 102,
        "responseData": [
          "grantId"
        ]
      }
    }
  ]
}
2020-10-13T13:40:18.012Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:40:18.012Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T13:40:25.336Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T13:40:26.457Z - INFO - The final result of the test : WINNF.FT.C.RLQ.3 is - passed
```

8.42 Log file for test case ID: WINNF.FT.D.RLQ.4

```
2020-10-13T14:17:14.924Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:17:14.924Z - INFO - the selected test from the user : WINNF.FT.D.RLQ.4 is starting
now
2020-10-13T14:17:18.728Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:17:18.779Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:17:18.806Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
```

```
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  }
]
}
2020-10-13T14:17:18.818Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:17:18Z",
      "grantId": "742435457",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:17:18Z",
      "grantId": "2228087",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:17:18.867Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "742435457",
      "operationState": "GRANTED"
    },
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "2228087",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T14:17:18.875Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "742435457",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:20:38Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "2228087",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:20:38Z"
    }
  ]
}
2020-10-13T14:17:24.412Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "742435457",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "2228087",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:17:24.413Z - INFO - Time interval between two heartbeat request messages is: 5.545344, limit is: 65.0
2020-10-13T14:17:24.418Z - INFO - Time interval between two heartbeat request messages is: 5.545344, limit is: 65.0
2020-10-13T14:17:24.428Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "742435457",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:20:44Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "2228087",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:20:44Z"
    }
  ]
}
2020-10-13T14:17:30.418Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "742435457",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "2228087",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:17:30.419Z - INFO - Time interval between two heartbeat request messages is: 6.006119, limit is: 65.0
2020-10-13T14:17:30.424Z - INFO - Time interval between two heartbeat request messages is: 6.006119, limit is: 65.0
2020-10-13T14:17:30.433Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "742435457",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:20:50Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "2228087",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:20:50Z"
    }
  ]
}
2020-10-13T14:17:36.412Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "742435457"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "2228087"
    }
  ]
}
2020-10-13T14:17:36.419Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 102,
        "responseData": [
          "grantId"
        ]
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 102,
        "responseData": [
          "grantId"
        ]
      }
    }
  ]
}
2020-10-13T14:17:37.951Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T14:17:37.951Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T14:17:41.685Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T14:17:41.686Z - INFO - the question is : Did CBSD2 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T14:17:42.324Z - INFO - for the question : Did CBSD2 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T14:17:42.956Z - INFO - The final result of the test : WINNF.FT.D.RLQ.4 is - passed
```

8.43 Log file for test case ID: WINNF.FT.C.RLQ.5


```
2020-10-13T13:42:00.586Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:42:00.586Z - INFO - the selected test from the user : WINNF.FT.C.RLQ.5 is starting
now
2020-10-13T13:42:01.462Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:42:01.488Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:42:10.295Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:42:10.301Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:42:10Z",
      "grantId": "6037896",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:42:10.307Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "6037896",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:42:10.310Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "6037896",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:45:30Z"
    }
  ]
}
2020-10-13T13:42:18.085Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "6037896",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:42:18.086Z - INFO - Time interval between two heartbeat request messages is: 7.778412, limit is: 65.0
2020-10-13T13:42:18.097Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "6037896",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:45:38Z"
    }
  ]
}
2020-10-13T13:42:24.088Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "6037896"
    }
  ]
}
2020-10-13T13:42:24.093Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 103,
        "responseData": [
          "grantId"
        ]
      }
    }
  ]
}
2020-10-13T13:42:25.614Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:42:25.614Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T13:42:31.307Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T13:42:32.442Z - INFO - The final result of the test : WINNF.FT.C.RLQ.5 is - passed
```

8.44 Log file for test case ID: WINNF.FT.D.RLQ.6

```
2020-10-13T14:18:30.957Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:18:30.957Z - INFO - the selected test from the user : WINNF.FT.D.RLQ.6 is starting
now
2020-10-13T14:18:33.746Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:18:33.796Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:18:36.752Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
```

```
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  }
]
}
2020-10-13T14:18:36.772Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:18:36Z",
      "grantId": "959797212",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:18:36Z",
      "grantId": "185166028",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:18:36.779Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "959797212",
      "operationState": "GRANTED"
    },
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "185166028",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T14:18:36.786Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "959797212",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:21:56Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "185166028",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:21:56Z"
    }
  ]
}
2020-10-13T14:18:44.417Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "959797212",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "185166028",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:18:44.418Z - INFO - Time interval between two heartbeat request messages is:
7.638634, limit is: 65.0
2020-10-13T14:18:44.422Z - INFO - Time interval between two heartbeat request messages is:
7.638634, limit is: 65.0
2020-10-13T14:18:44.426Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "959797212",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:22:04Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "185166028",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:22:04Z"
    }
  ]
}
2020-10-13T14:18:50.416Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "959797212"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "185166028"
    }
  ]
}
2020-10-13T14:18:50.424Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 103,
        "responseData": [
          "grantId"
        ]
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 103,
        "responseData": [
          "grantId"
        ]
      }
    }
  ]
}
2020-10-13T14:18:51.980Z - INFO - arrived to nstep starting question answer session with the
technician
2020-10-13T14:18:51.981Z - INFO - the question is : Did CBSD1 cease RF transmission before
receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T14:18:57.893Z - INFO - for the question : Did CBSD1 cease RF transmission before
receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T14:18:57.893Z - INFO - the question is : Did CBSD2 cease RF transmission before
receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2020-10-13T14:18:58.213Z - INFO - for the question : Did CBSD2 cease RF transmission before
receipt of Relinquishment Request by Test Harness? , the user choose y
2020-10-13T14:18:59.098Z - INFO - The final result of the test : WINNF.FT.D.RLQ.6 is - passed
```

8.45 Log file for test case ID: WINNF.FT.C.DRG.1


```
2020-10-13T13:43:00.947Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:43:00.947Z - INFO - the selected test from the user : WINNF.FT.C.DRG.1 is
starting now
2020-10-13T13:43:10.544Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:43:10.561Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:43:10.566Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:43:10.570Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:43:10Z",
      "grantId": "515947019",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:43:10.618Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "515947019",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:43:10.622Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "515947019",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:46:30Z"
    }
  ]
}
2020-10-13T13:43:16.699Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "515947019",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:43:16.700Z - INFO - Time interval between two heartbeat request messages is: 6.081354, limit is: 65.0
2020-10-13T13:43:16.704Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "515947019",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:46:36Z"
    }
  ]
}
2020-10-13T13:43:20.430Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "515947019"
    }
  ]
}
2020-10-13T13:43:20.434Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "515947019",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:43:20.441Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1"
    }
  ]
}
2020-10-13T13:43:20.444Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:43:21.970Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:43:21.970Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2020-10-13T13:43:34.315Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-10-13T13:43:35.154Z - INFO - The final result of the test : WINNF.FT.C.DRG.1 is - passed
```

8.46 Log file for test case ID: WINNF.FT.D.DRG.2


```
2020-10-13T14:19:15.648Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:19:15.649Z - INFO - the selected test from the user : WINNF.FT.D.DRG.2 is
starting now
2020-10-13T14:19:23.659Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:19:23.720Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:19:23.728Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
```

```
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  }
]
}
2020-10-13T14:19:23.741Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:19:23Z",
      "grantId": "679819569",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:19:23Z",
      "grantId": "103987996",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:19:23.788Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "679819569",
      "operationState": "GRANTED"
    },
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "103987996",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T14:19:23.795Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "679819569",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:22:43Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "103987996",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:22:43Z"
    }
  ]
}
2020-10-13T14:19:29.415Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "679819569",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "103987996",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:19:29.416Z - INFO - Time interval between two heartbeat request messages is: 5.626621, limit is: 65.0
2020-10-13T14:19:29.419Z - INFO - Time interval between two heartbeat request messages is: 5.626621, limit is: 65.0
2020-10-13T14:19:29.421Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "679819569",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:22:49Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "103987996",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:22:49Z"
    }
  ]
}
2020-10-13T14:19:31.156Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "679819569"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "103987996"
    }
  ]
}
2020-10-13T14:19:31.164Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "679819569",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "103987996",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:19:31.170Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2"
    }
  ]
}
2020-10-13T14:19:31.177Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```


2020-10-13T14:19:32.691Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T14:19:32.691Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2020-10-13T14:19:45.646Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-10-13T14:19:45.646Z - INFO - the question is : Did CBSD2 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2020-10-13T14:19:47.030Z - INFO - for the question : Did CBSD2 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-10-13T14:19:47.759Z - INFO - The final result of the test : WINNF.FT.D.DRG.2 is - passed

8.47 Log file for test case ID: WINNF.FT.C.DRG.3

```
2020-10-13T13:44:11.499Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:44:11.500Z - INFO - the selected test from the user : WINNF.FT.C.DRG.3 is
starting now
2020-10-13T13:44:14.218Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:44:14.249Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:44:14.273Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:44:14.279Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:44:14Z",
      "grantId": "538226706",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:44:14.327Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "538226706",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:44:14.332Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "538226706",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:47:34Z"
    }
  ]
}
2020-10-13T13:44:20.096Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "538226706",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:44:20.097Z - INFO - Time interval between two heartbeat request messages is:
5.768955, limit is: 65.0
2020-10-13T13:44:20.101Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "538226706",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:47:40Z"
    }
  ]
}
2020-10-13T13:44:22.343Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "538226706"
    }
  ]
}
2020-10-13T13:44:22.345Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "538226706",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:44:22.349Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1"
    }
  ]
}
2020-10-13T13:44:22.352Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
```


2020-10-13T13:44:23.514Z - INFO - arrived to nstep starting question answer session with the technician

2020-10-13T13:44:23.514Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :

2020-10-13T13:44:30.147Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y

2020-10-13T13:44:31.086Z - INFO - The final result of the test : WINNF.FT.C.DRG.3 is - passed

8.48 Log file for test case ID: WINNF.FT.D.DRG.4


```
2020-10-13T14:20:06.496Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T14:20:06.496Z - INFO - the selected test from the user : WINNF.FT.D.DRG.4 is starting now
2020-10-13T14:20:10.730Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    },
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "A",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-2",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 30,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.000001,
        "longitude": -75.999999,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T14:20:10.781Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:20:10.808Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
```

```
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  },
  {
    "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3590000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3600000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3610000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3620000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3630000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3640000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3650000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3660000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3670000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3680000000,
          "measRcvdPower": -100
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3690000000,
          "measRcvdPower": -100
        }
      ]
    },
    "operationParam": {
      "maxEirp": 20,
      "operationFrequencyRange": {
        "highFrequency": 3565000000,
        "lowFrequency": 3560000000
      }
    }
  }
]
}
2020-10-13T14:20:10.820Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:20:10Z",
      "grantId": "660665527",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T14:20:10Z",
      "grantId": "527631582",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:20:10.867Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "660665527",
      "operationState": "GRANTED"
    },
    {
```

```
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "527631582",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T14:20:10.873Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "660665527",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:23:30Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "527631582",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:23:30Z"
    }
  ]
}
2020-10-13T14:20:16.416Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "660665527",
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "527631582",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T14:20:16.417Z - INFO - Time interval between two heartbeat request messages is: 5.549261, limit is: 65.0
2020-10-13T14:20:16.422Z - INFO - Time interval between two heartbeat request messages is: 5.549261, limit is: 65.0
2020-10-13T14:20:16.433Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "660665527",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:23:36Z"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "527631582",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T14:23:36Z"
    }
  ]
}
2020-10-13T14:20:18.577Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "660665527"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "527631582"
    }
  ]
}
2020-10-13T14:20:18.581Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "660665527",
      "response": {
        "responseCode": 0
      }
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2",
      "grantId": "527631582",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T14:20:18.585Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1"
    },
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-2"
    }
  ]
}
2020-10-13T14:20:18.588Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    },
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
2020-10-13T14:20:20.511Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T14:20:20.511Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2020-10-13T14:20:23.438Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-10-13T14:20:23.438Z - INFO - the question is : Did CBSD2 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2020-10-13T14:20:24.030Z - INFO - for the question : Did CBSD2 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-10-13T14:20:24.990Z - INFO - The final result of the test : WINNF.FT.D.DRG.4 is - passed
```

8.49 Log file for test case ID: WINNF.FT.C.DRG.5

```
2020-10-13T13:44:55.636Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-10-13T13:44:55.636Z - INFO - the selected test from the user : WINNF.FT.C.DRG.5 is
starting now
2020-10-13T13:44:59.752Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {},
      "cbsdSerialNumber": "1023038001-1",
      "fccId": "XM2-X35H2B",
      "installationParam": {
        "antennaAzimuth": 0,
        "antennaBeamwidth": 0,
        "antennaDowntilt": 0,
        "antennaGain": 0,
        "antennaModel": "xran",
        "eirpCapability": 47,
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 50,
        "indoorDeployment": false,
        "latitude": 45.0,
        "longitude": -76.0,
        "verticalAccuracy": 3
      },
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "abc"
    }
  ]
}
2020-10-13T13:44:59.782Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:44:59.791Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3640000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -100
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3565000000,
          "lowFrequency": 3560000000
        }
      }
    }
  ]
}
2020-10-13T13:44:59.797Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
```

```
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "channelType": "GAA",
      "grantExpireTime": "2020-10-20T13:44:59Z",
      "grantId": "744377962",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:44:59.844Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744377962",
      "operationState": "GRANTED"
    }
  ]
}
2020-10-13T13:44:59.847Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744377962",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:48:19Z"
    }
  ]
}
2020-10-13T13:45:05.097Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744377962",
      "operationState": "AUTHORIZED"
    }
  ]
}
2020-10-13T13:45:05.098Z - INFO - Time interval between two heartbeat request messages is: 5.253577, limit is: 65.0
2020-10-13T13:45:05.103Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744377962",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2020-10-13T13:48:25Z"
    }
  ]
}
2020-10-13T13:45:07.070Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744377962"
    }
  ]
}
2020-10-13T13:45:07.074Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1",
      "grantId": "744377962",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2020-10-13T13:45:07.081Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "XM2-X35H2BMock-SAS1023038001-1"
    }
  ]
}
2020-10-13T13:45:07.085Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "response": {
        "responseCode": 103,
        "responseData": [
          "cbsdId"
        ]
      }
    }
  ]
}
2020-10-13T13:45:08.651Z - INFO - arrived to nstep starting question answer session with the technician
2020-10-13T13:45:08.651Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2020-10-13T13:45:13.500Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-10-13T13:45:14.269Z - INFO - The final result of the test : WINNF.FT.C.DRG.5 is - passed
```

8.50 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.1

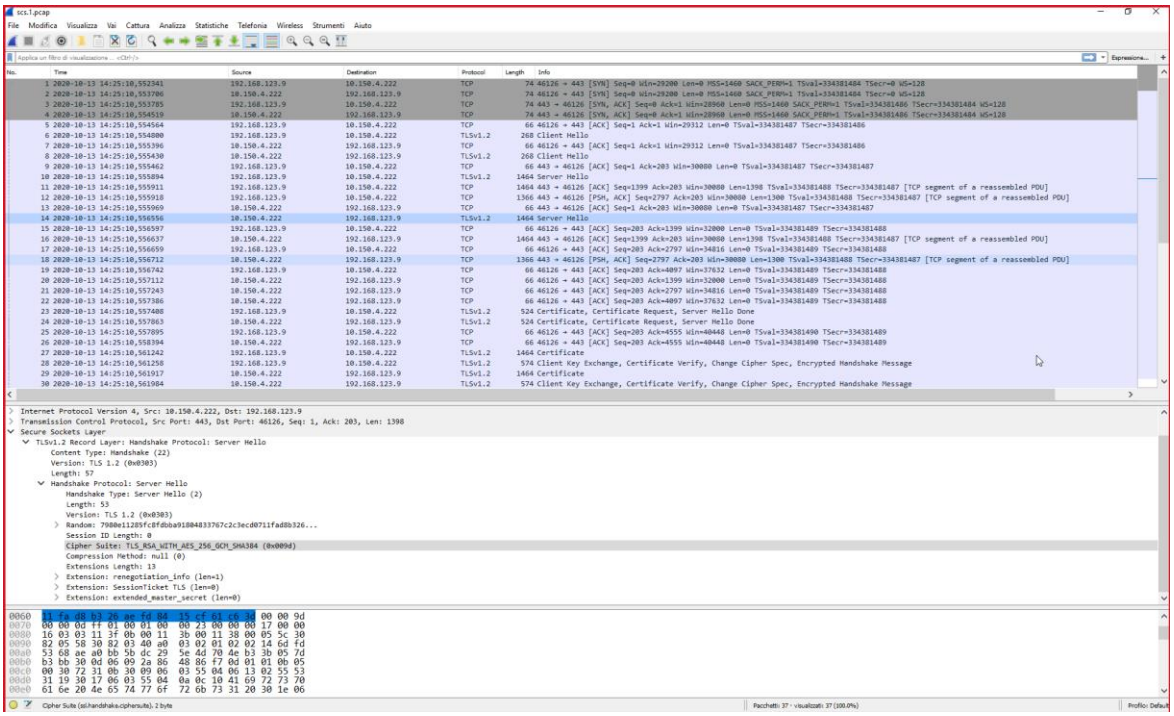


Figure 8.50-1: *WINNF.FT.C.SCS.1 screenshot*

8.51 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.2

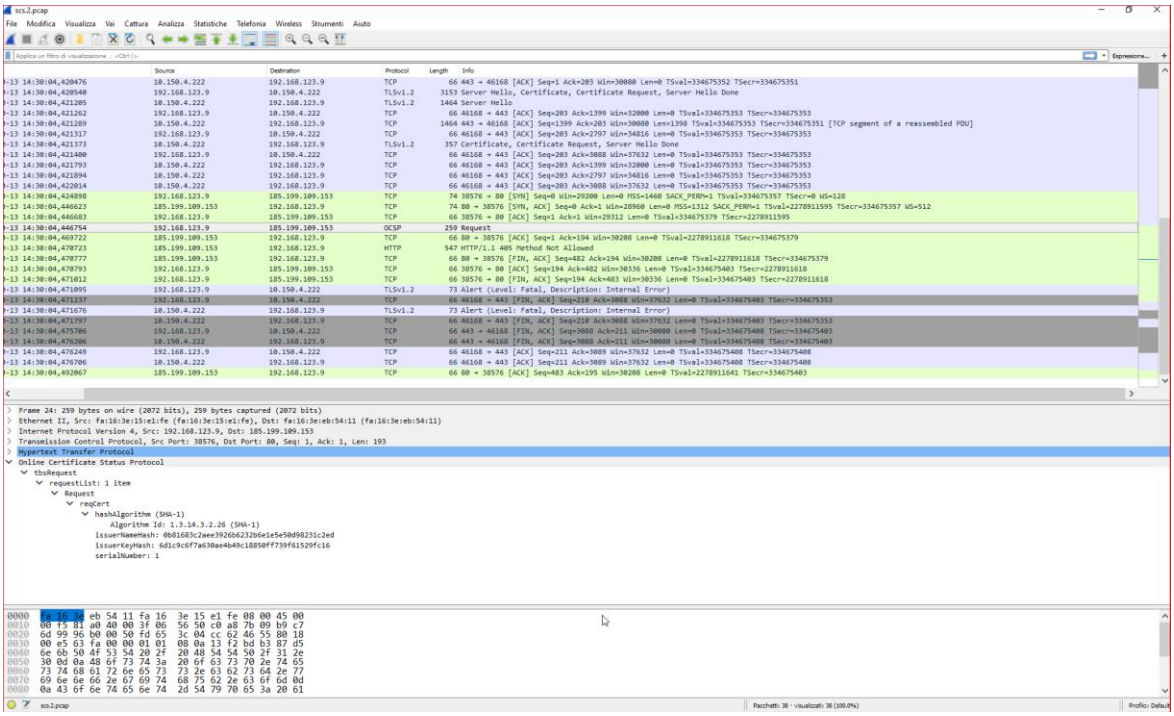


Figure 8.51-1: *WINNF.FT.C.SCS.2 screenshot*

8.52 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.3

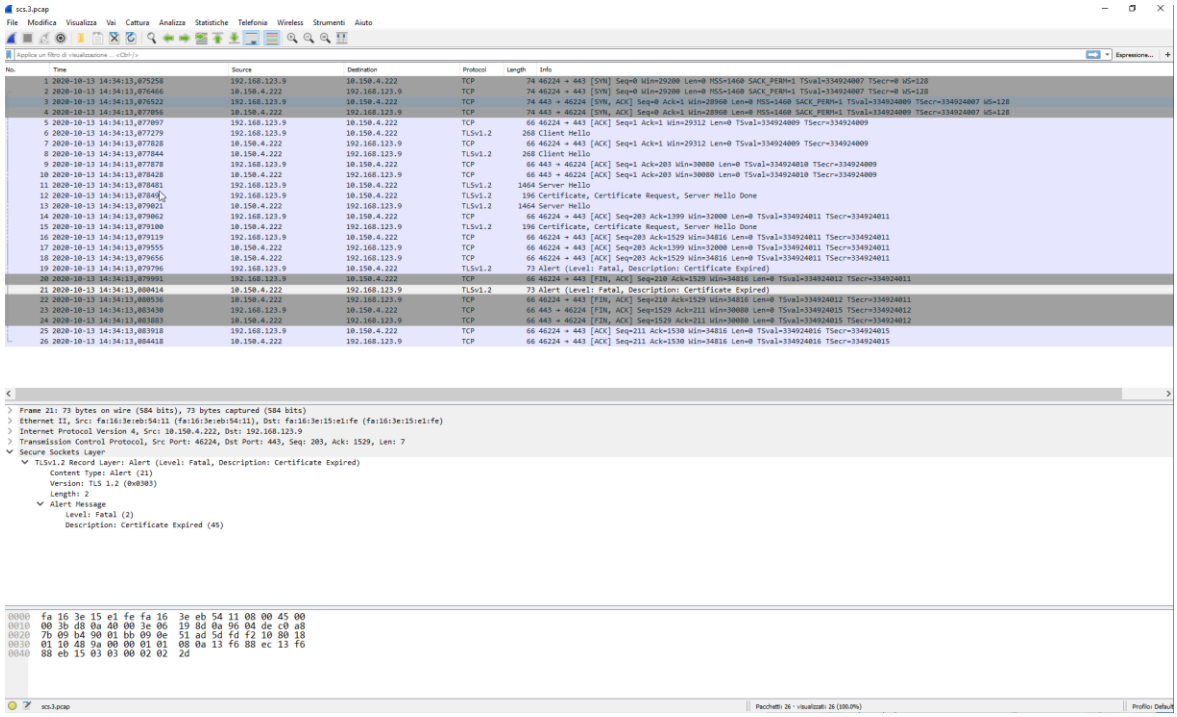


Figure 8.52-1: *WINNF.FT.C.SCS.3 screenshot*

8.53 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.4

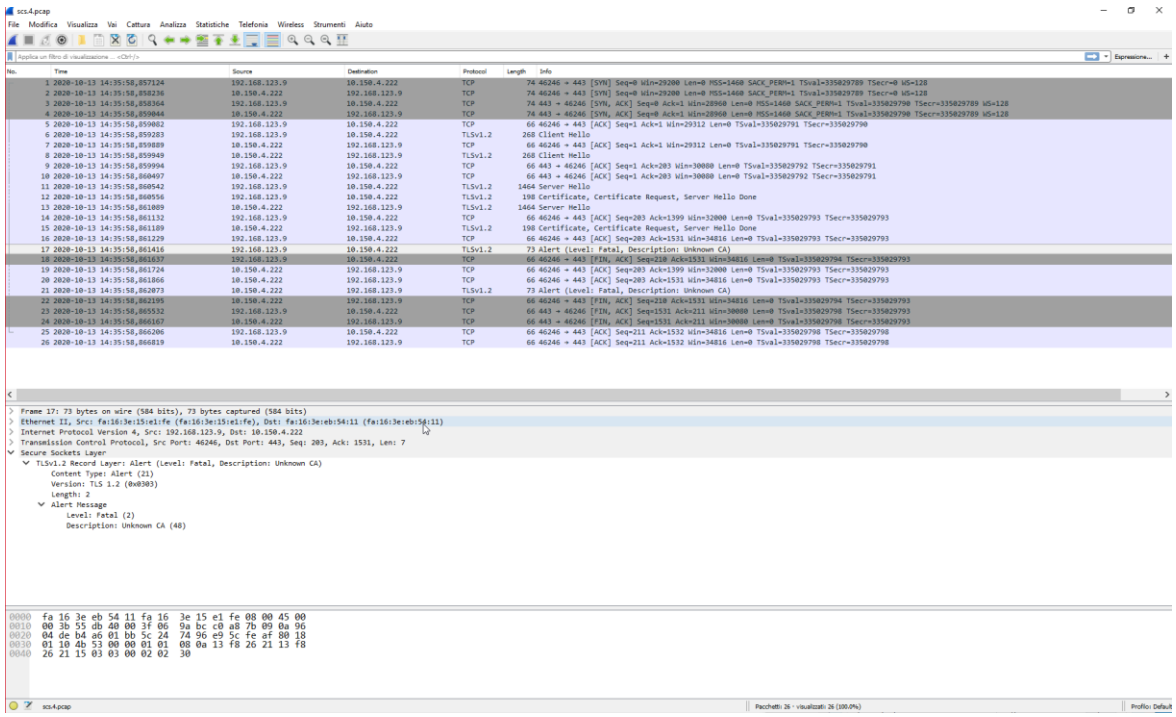


Figure 8.53-1: *WINNF.FT.C.SCS.4 screenshot*

8.54 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.5

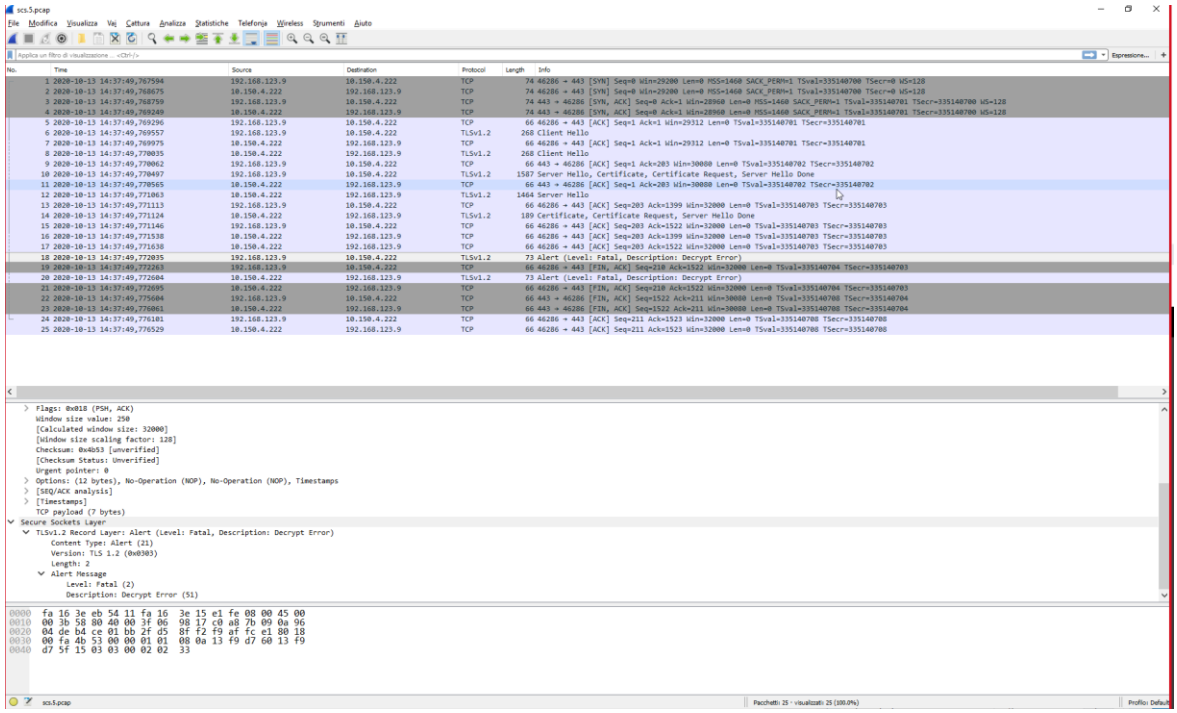


Figure 8.54-1: *WINNF.FT.C.SCS.5 screenshot*

End of the test report