ONE WORLD ○ OUR APPROVAL

Wireless test report – 360804-1TRFWL

Applicant:

Siemens Canada Limited

Product name:

CPE RF card and Base Station

CPE model:

WIN5137-AC-IS

Base Station model:

WIN7327

CPE FCC ID:

WQE5237001

Base Station FCC ID:

WQE723702

Specifications:

WINNF-TS-0122, Version V1.0.0

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

Date of issue: November 13, 2018

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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 contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

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Section 1. Report summary

1.1 Applicant and manufacturer

Company name	Siemens Canada Limited
Address	300 Applewood Crescent
City	Concord
Province/State	ON
Postal/Zip code	L4K 5C7
Country	Canada

1.2 Test specifications

WINNF-TS-0122 Version V1.0.0	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

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 1.5 below. 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 Exclusions

None

1.5 Test report revision history

Revision #	Date of issue	Details of changes made to test report
TRF	November 13, 2018	Original report issued

Section 2. Summary of test results

2.1 WINNF-TS-0122 requirements test results

Table 2.1-1: *Domain Proxy requirements results*

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

Notes: none

Section 3. Equipment under test (EUT) details

3.1 Sample information

Receipt date	October 1, 2018
Nemko sample ID number	1 and 2

3.2 EUT information

Product name	CPE and Base Station
CPE RF card model	WIN5137-5-AC-IS
Base Station model	WIN7327
Serial numbers	(BS) 43741218017; (CPE) 63743218001
Revision number	(BS) REV:09 H/W:A3; (CPE) REV:01 H/W:A7

3.3 Technical information

Frequency band	CBRS band: 3550–3700 MHz
Type of modulation	QPSK½ to 64QAM
Power requirements	48 V_{DC} via PoE powered from 120 V_{AC} / 60 Hz

3.4 Product description and theory of operation

The WiN51XX/WiN52XX ODU CPE is an IEEE 802.16-2005 compliant wireless device for deployment of point-to-multipoint (PMP) and point-to-point (PTP) network architectures.

The WiN51XX/WiN52XX ODU CPE is an outdoor device. The WiN51XX/WiN52XX ODU CPE is WiMAX Forum 802.16e Wave 2 (MIMO) Certified subscribers. Each subscriber registers and establishes a bi-directional data link with the base station sector controller.

The base station is connected to the head-end over IP Backhaul or via wireless channels. The outdoor CPEs are connected to the base station over wireless channels. The outdoor CPE is connected to the indoor residential gateway over Ethernet or coaxial networks.

The CPE consists of the following modules:

* Base-Band board – including the WiMAX 16e MIMO Base-Band SoC (running the 16e MAC + PHY) plus the User Interface plus the analog front end that interface the RF module.
* Power Supply board– DC/DC power supply. Converts the 48VDC to the various voltages that are feeding the Digital and the RF modules
* RF board - Single transmit dual receive module that modulate the analog WiMAX signal input from the Base-Band modem to the high frequency RF output. The power amplifier has a step gain control, down to 20 dB of nominal gain.
* Audio filter (WIN5137-DC Unit only)
* Chassis

The WiN51XX/WiN52XX CPE uses time division duplexing (TDD) to transmit and receive on the same RF channel. This is a non-contention based method for providing an efficient and predictable two-way PTP or PMP cell deployment. All uplink and downlink transmission scheduling is managed by the base station.

The WiN51XX/WiN52XX CPE implements advanced automatic transmit power control, which allows the unit to operate with the minimum power necessary for successful communications. This control is based on information transmitted by the base-station and RSSI of the base-station.

The modulation technique specifies how the data is coded within the OFDMA carriers. The base station supports QPSK, 16 QAM, and 64 QAM modulations.

The WIN7237 Pico WiMAX BST is a single sector station used to enhance outdoor and indoor WiMAX coverage and capacity. The unit is easily installable, powered by PoE and supports remote management. WIN7237 provides the full base station functionality necessary for serving a single sector. It supports up to 512 subscriber units and its light weight and small footprint allow it to be easily mounted by one person on poles, street lamps or walls.
The WIN7237 is a member of the WIN-MAX E family, a line of mobile WiMAX broadband wireless access systems based on the 802.16e mobile WiMAX standard. WIN-MAX E systems are designed for robustness and simplicity, offering feature-rich services with low deployment and operation costs, for unmatched operator competitiveness and fast ROI.
WIN7237 provides all the functionality necessary to communicate with fixed and mobile subscriber units according to the service criteria and customer Service Level Agreements (SLA). The end-to-end Quality of Service (QoS) ensures the same high quality WiMAX experience is delivered to customers outside or inside his/her home or small office.
Frequency range: 3550–3700 MHz
Average output power: 27 dBm ±1 dB max
The WIN7237 consists of the following modules:

- Base-Band board – including the WiMAX 16e MIMO Base-Band SoC (running the 16e MAC + PHY) plus the User Interface, GPS module for synchronization, DC/DC power supply and the analog front end that interface the RF module.
- RF board - Dual transmit & receive module that modulate the analog WiMAX signal input from the Base-Band modem to the high frequency RF output.
- Chassis

The WIN7237 uses time division duplexing (TDD) to transmit and receive on the same RF channel. This is a non-contention based method for providing an efficient and predictable two-way PTP or PMP cell deployment. The modulation technique specifies how the data is coded within the OFDMA carriers. The base station supports QPSK, 16 QAM, and 64 QAM modulations. The two transmitter chains are not correlated.

3.5 EUT exercise details

EUTs were controlled from the laptop to run the Data Base test cases. Other laptop was used for SAS Harness emulator.

3.6 EUT setup diagram

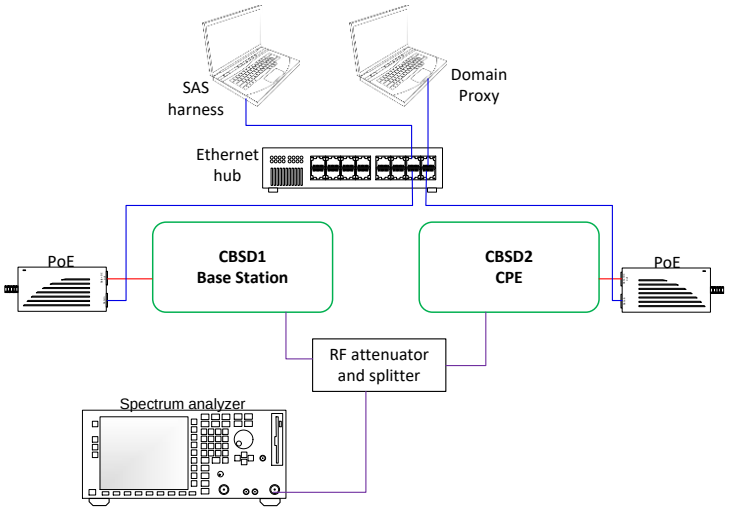

Figure 3.6-1: *Setup diagram*

3.7 EUT support equipment

Table 3.7-1: *EUT support equipment*

Description	Brand name	Model	Serial number/Part number
Laptop for SAS harness	IBM Thinkpad Lenovo	X240	PC001FCH
Laptop for UUT control (Domain Proxy)	IBM Thinkpad Lenovo	T450s	SL10G56446
PoE for EUT	N/A	0334B5555 Black	L21450039379
PoE for EUT	SINPRO	WIN1010	C106010624

3.8 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 usded.

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

Section 4. Engineering considerations

4.1 Modifications incorporated in the EUT

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

4.2 Technical judgment

None

4.3 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 5. Test conditions

5.1 Atmospheric conditions

Temperature	15–30 °C
Relative humidity	20–75 %
Air pressure	860–1060 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.

5.2 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 6. Measurement uncertainty

6.1 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 6.1-1: *Measurement uncertainty*

Test name	Measurement uncertainty, dB
All antenna port measurements	0.55

Section 7. Test equipment

7.1 Test equipment list

Table 7.1-1: *Equipment list*

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
Spectrum analyzer	Rohde & Schwarz	FSP	FA001920	1 year	Aug. 8/19

Section 8. Testing data

8.1 6.1.4.1.2 [WINNF.FT.D.REG.2] Domain Proxy Multi-Step registration

8.1.1 Definitions and limits

6.1 CBSD Registration Process
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.
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.

8.1.2 Test date

Start date	October 1, 2018

8.1.3 Observations, settings and special notes

None

8.1.4 Test data

Table 8.1-1: *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	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	☒	☐

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

8.2 6.1.4.1.4 [WINNF.FT.D.REG.4] Domain Proxy Single-Step registration for Cat A CBSD

8.2.1 Definitions and limits

6.1 CBSD Registration Process
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.
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.

8.2.2 Test date

Start date	October 1, 2018

8.2.3 Observations, settings and special notes

None

8.2.4 Test data

Table 8.2-1: *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	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 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	☒	☐

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

8.3 6.1.4.1.6 [WINNF.FT.D.REG.6] Domain Proxy Single-Step registration for CBSD with CPI signed data

8.3.1 Definitions and limits

6.1 CBSD Registration Process
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.
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].

8.3.2 Test date

Start date	October 1, 2018

8.3.3 Observations, settings and special notes

None

8.3.4 Test data

Table 8.3-1: *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 • 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: 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	☒	☐

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

8.4 6.1.4.1.7 [WINNF.FT.C.REG.7] Registration due to change of an installation parameter

8.4.1 Definitions and limits

6.1 CBSD Registration Process
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.
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.

8.4.2 Test date

Start date	October 1, 2018

8.4.3 Observations, settings and special notes

None

8.4.4 Test data

Table 8.4-1: *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 has successfully registered with SAS Test Harness	–	–
3	Change an installation parameter 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.	☒	☐

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

8.5 6.1.4.2.2 [WINNF.FT.D.REG.9] Domain Proxy Missing Required parameters (responseCode 102)

8.5.1 Definitions and limits

6.1 CBSD Registration Process
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
This test case applies to Domain Proxy supervising two CBSDs. The following are the test execution steps where the Registration response contains responseCode (Ri) = 102 for each CBSD

8.5.2 Test date

Start date	October 13, 2018

8.5.3 Observations, settings and special notes

None

8.5.4 Test data

Table 8.5-1: *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	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 for CBSD1 and 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	☒	☐

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

8.6 6.1.4.2.4 [WINNF.FT.D.REG.11] Domain Proxy Pending registration (responseCode 200)

8.6.1 Definitions and limits

6.1 CBSD Registration Process
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
The same steps provided for WINNF.FT.D.REG.9 shall be executed for this test, with the exception that the Registration response contains responseCode (Ri) = 200 for each CBSD.

8.6.2 Test date

Start date	October 1, 2018

8.6.3 Observations, settings and special notes

None

8.6.4 Test data

Table 8.6-1: *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	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 CBSD1 and 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	☒	☐

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

8.7 6.1.4.2.6 [WINNF.FT.D.REG.13] Domain Proxy Invalid parameters (responseCode 103)

8.7.1 Definitions and limits

6.1 CBSD Registration Process
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
The same steps provided for WINNF.FT.D.REG.9 shall be executed for this test, with the exception that the Registration response contains responseCode R1 = 0 for CBSD1 and R2 = 103 for CBSD2.

8.7.2 Test date

Start date	October 1, 2018

8.7.3 Observations, settings and special notes

None

8.7.4 Test data

Table 8.7-1: *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	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	☒	☐

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

8.8 6.1.4.2.8 [WINNF.FT.D.REG.15] Domain Proxy Blacklisted CBSD (responseCode 101)

8.8.1 Definitions and limits

6.1 CBSD Registration Process
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
The same steps provided for WINNF.FT.D.REG.9 shall be executed for this test, with the exception that the Registration response contains responseCode R1 = 0 for CBSD1 and R2 = 101 for CBSD2.

8.8.2 Test date

Start date	October 1, 2018

8.8.3 Observations, settings and special notes

None

8.8.4 Test data

Table 8.8-1: *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	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	☒	☐

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

8.9 6.1.4.2.10 [WINNF.FT.D.REG.17] Domain Proxy Unsupported SAS protocol version (responseCode 100)

8.9.1 Definitions and limits

6.1 CBSD Registration Process
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
The same steps provided for WINNF.FT.D.REG.9 shall be executed for this test, with the exception that the Registration response contains responseCode (Ri) = 100 for each CBSD.

8.9.2 Test date

Start date	October 1, 2018

8.9.3 Observations, settings and special notes

None

8.9.4 Test data

Table 8.9-1: *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	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 CBSD1 and 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	☒	☐

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

8.10 6.1.4.2.12 [WINNF.FT.D.REG.19] Domain Proxy Group Error (responseCode 201)

8.10.1 Definitions and limits

6.1 CBSD Registration Process
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
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.
The same steps provided for WINNF.FT.D.REG.9 shall be executed for this test, with the exception that the Registration response contains responseCode R1 = 0 for CBSD1 and R2 = 201 for CBSD2.

8.10.2 Test date

Start date	October 1, 2018

8.10.3 Observations, settings and special notes

None

8.10.4 Test data

Table 8.10-1: *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	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) = 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	☒	☐

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

8.11 6.1.4.3.1 [WINNF.FT.C.REG.20] Category A CBSD location update

8.11.1 Definitions and limits

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

8.11.2 Test date

Start date	October 1, 2018

8.11.3 Observations, settings and special notes

None

8.11.4 Test data

Table 8.11-1: *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 has successfully registered with SAS Test Harness	–	–
3	Change an installation parameter 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.	☒	☐

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

8.12 6.3.4.2.1 [WINNF.FT.C.GRA.1] Unsuccessful Grant responseCode=400 (INTERFERENCE)

8.12.1 Definitions and limits

6.3 CBSD Spectrum Grant Process
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.
Each test generates a CBSD spectrum grant request and validates the CBSD takes the appropriate action following the SAS spectrum grant response.
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.

8.12.2 Test date

Start date	October 1, 2018

8.12.3 Observations, settings and special notes

None

8.12.4 Test data

Table 8.12-1: *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	–	–
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	☒	☐

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

8.13 6.3.4.2.2 [WINNF.FT.C.GRA.2] Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)

8.13.1 Definitions and limits

6.3 CBSD Spectrum Grant Process
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.
Each test generates a CBSD spectrum grant request and validates the CBSD takes the appropriate action following the SAS spectrum grant response.
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.
The same steps provided for WINNF.FT.C.GRA.1 shall be executed for this test, with the exception that the Grant response contains responseCode (R) = 401.

8.13.2 Test date

Start date	October 1, 2018

8.13.3 Observations, settings and special notes

None

8.13.4 Test data

Table 8.13-1: *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) = 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	☒	☐

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

8.14 6.4.4.1.2 [WINNF.FT.D.HBT.2] Domain Proxy Heartbeat Success Case (first Heartbeat Response)

8.14.1 Definitions and limits

6.4 CBSD Heart Beat Process
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. 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.
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.

8.14.2 Test date

Start date	October 1, 2018

8.14.3 Observations, settings and special notes

None

8.14.4 Test data

Table 8.14-1: *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	–	–
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	☒	☐

Step	Test Execution Steps	Pass	Fail
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.	☒	☐

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

8.15 6.4.4.2.1 [WINNF.FT.C.HBT.3] Heartbeat responseCode=105 (DEREGISTER)

8.15.1 Definitions and limits

6.4 CBSD Heart Beat Process
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. 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.

8.15.2 Test date

Start date	October 1, 2018

8.15.3 Observations, settings and special notes

None

8.15.4 Test data

Table 8.15-1: *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 • 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	☒	☐

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

8.16 6.4.4.2.3 [WINNF.FT.C.HBT.5] Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response

8.16.1 Definitions and limits

6.4 CBSD Heart Beat Process
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. 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.

8.16.2 Test date

Start date	October 1, 2018

8.16.3 Observations, settings and special notes

None

8.16.4 Test data

Table 8.16-1: *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 • 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 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.	–	–

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	☒	☐

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

8.17 6.4.4.2.4 [WINNF.FT.C.HBT.6] Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response

8.17.1 Definitions and limits

6.4 CBSD Heart Beat Process
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. 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.

8.17.2 Test date

Start date	October 1, 2018

8.17.3 Observations, settings and special notes

None

8.17.4 Test data

Table 8.17-1: *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 • 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 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.	–	–

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	☒	☐

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

8.18 6.4.4.2.5 [WINNF.FT.C.HBT.7] Heartbeat responseCode=502 (UNSYNC_OP_PARAM)

8.18.1 Definitions and limits

6.4 CBSD Heart Beat Process
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. 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.

8.18.2 Test date

Start date	October 1, 2018

8.18.3 Observations, settings and special notes

None

8.18.4 Test data

Table 8.18-1: *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 • 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 (UNSYNC_OP_PARAM)	–	–
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	–	–
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.	☒	☐

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

8.19 6.4.4.2.6 [WINNF.FT.D.HBT.8] Domain Proxy Heartbeat responseCode=500 (TERMINATED_GRANT)

8.19.1 Definitions and limits

6.4 CBSD Heart Beat Process
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.
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.
This test case applies to Domain Proxy supervising two CBSDs.

8.19.2 Test date

Start date	October 1, 2018

8.19.3 Observations, settings and special notes

None

8.19.4 Test data

Table 8.19-1: *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”	☒	☐

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	☒	☐

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

8.20 6.4.4.3.1 [WINNF.FT.C.HBT.9] Heartbeat Response Absent (First Heartbeat)

8.20.1 Definitions and limits

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

8.20.2 Test date

Start date	October 1, 2018

8.20.3 Observations, settings and special notes

None

8.20.4 Test data

Table 8.20-1: *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 • 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	☒	☐

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

8.21 6.4.4.3.2 [WINNF.FT.C.HBT.10] Heartbeat Response Absent (Subsequent Heartbeat)

8.21.1 Definitions and limits

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

8.21.2 Test date

Start date	October 1, 2018

8.21.3 Observations, settings and special notes

None

8.21.4 Test data

Table 8.21-1: *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 • 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 issent 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.	☒	☐

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

8.22 6.5.4.2.3 [WINNF.FT.C.MES.3] Grant Response contains measReportConfig

8.22.1 Definitions and limits

6.5 CBSD Measurement Report
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.
This test case is mandatory for UUT supporting RECEIVED_POWER_WITH_GRANT measurement reports.

8.22.2 Test date

Start date	October 2, 2018

8.22.3 Observations, settings and special notes

None

8.22.4 Test data

Table 8.22-1: *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 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" • operationParam is set to valid operating parameters • channelType = "GAA" • responseCode = 0	–	–
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	☒	☐

Step	Test Execution Steps	Pass	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	–	–

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

8.23 6.5.4.2.5 [WINNF.FT.D.MES.5] Domain Proxy Heartbeat Response contains measReportConfig

8.23.1 Definitions and limits

6.5 CBSD Measurement Report
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.
This test case is mandatory for Domain Proxy supervising CBSD which support RECEIVED_POWER_WITH_GRANT measurement reports.

8.23.2 Test date

Start date	October 2, 2018

8.23.3 Observations, settings and special notes

None

8.23.4 Test data

Table 8.23-1: *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"	☒	☐
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	–	–

Step	Test Execution Steps	Pass	Fail
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 o	☒	☐
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.	–	–

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

8.24 6.6.4.1.2 [WINNF.FT.D.RLQ.2] Domain Proxy Successful Relinquishment

8.24.1 Definitions and limits

6.6 CBSD Relinquishment Process
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.
Successful Relinquishment Request (responseCode 0)

8.24.2 Test date

Start date	October 1, 2018

8.24.3 Observations, settings and special notes

None

8.24.4 Test data

Table 8.24-1: *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.	–	–
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.	☒	☐

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

8.25 6.6.4.1.4 [WINNF.FT.D.RLQ.4] Domain Proxy Unsuccessful Relinquishment, responseCode=102

8.25.1 Definitions and limits

6.6 CBSD Relinquishment Process
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.
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.
This test case applies to Domain Proxy supervising two CBSDs. The following are the test execution steps where the Relinquishment response contains responseCode (Ri) = 102 for each CBSD.

8.25.2 Test date

Start date	October 1, 2018

8.25.3 Observations, settings and special notes

None

8.25.4 Test data

Table 8.25-1: *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	☒	☐
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	–	–
4	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.	–	–

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 stopped RF transmission at any time between triggering the relinquishment and UUT sending the relinquishment request	☒	☐

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

8.26 6.6.4.3.2 [WINNF.FT.D.RLQ.6] Domain Proxy Unsuccessful Relinquishment, responseCode=103

8.26.1 Definitions and limits

6.6 CBSD Relinquishment Process
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.
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.
The same steps provided for WINNF.FT.D.RLQ.4 shall be executed for this test, with the exception that the Relinquishment response contains responseCode (Ri) = 103 and responseData = "grantId" for each CBSD.

8.26.2 Test date

Start date	October 1, 2018

8.26.3 Observations, settings and special notes

None

8.26.4 Test data

Table 8.26-1: *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	☒	☐
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 • responseCode (Ri) = 103 for CBSD1 and CBSD2 • responseData = "grantId" for CBSD1 and 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.	–	–

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 stopped RF transmission at any time between triggering the relinquishment and UUT sending the relinquishment request	☒	☐

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

8.27 6.7.4.1.2 [WINNF.FT.D.DRG.2] Domain Proxy Successful Deregistration

8.27.1 Definitions and limits

6.7 CBSD Deregistration Process
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.
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.
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.
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.
Successful Deregistration Request (responseCode 0)

8.27.2 Test date

Start date	October 1, 2018

8.27.3 Observations, settings and special notes

None

8.27.4 Test data

Table 8.27-1: *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 sends 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	☒	☐

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	☒	☐

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

8.28 6.7.4.2.2 [WINNF.FT.D.DRG.4] Domain Proxy Deregistration responseCode=102

8.28.1 Definitions and limits

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

8.28.2 Test date

Start date	October 1, 2018

8.28.3 Observations, settings and special notes

None

8.28.4 Test data

Table 8.28-1: *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 sends a Relinquishment request and receives Relinquishment response with responseCode=0 for each CBSD	–	–
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	–	–

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 Message shall be as follows: • No cbsdId in either response • responseCode (Ri) = 102	–	–
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	☒	☐

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

8.29 6.8.4.1.1 [WINNF.FT.C.SCS.1] Successful TLS connection between UUT and SAS Test Harness

8.29.1 Definitions and limits

6.8 CBSD Security Validation
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.
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.

8.29.2 Test date

Start date	October 3, 2018

8.29.3 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.

8.29.4 Test data

Table 8.29-1: *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	☒	☐

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

8.30 6.8.4.2.1 [WINNF.FT.C.SCS.2] TLS failure due to revoked certificate

8.30.1 Definitions and limits

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.
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.
Test case pre-requisite:
• The certificate at the SAS Test Harness shall be marked as revoked

8.30.2 Test date

Start date	October 3, 2018

8.30.3 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.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.

8.30.4 Test data

Table 8.30-1: *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 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	☒	☐

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

8.31 6.8.4.2.2 [WINNF.FT.C.SCS.3] TLS failure due to expired server certificate

8.31.1 Definitions and limits

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.
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.
Test case pre-requisite:
• Configure the SAS Test Harness such that server certificate is valid but expired.

8.31.2 Test date

Start date	October 3, 2018

8.31.3 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.3] the X.509 certificate has
• Expired Validity time. The date appearing in the "Not After" parameter of the X.509 certificate has passed.
The method for executing CBSD/DP UUT security test case is via Wireshark.

8.31.4 Test data

Table 8.31-1: *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 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 exchanged between WInnForum SAS Test Harness and CBSD/DP UUT.	☒	☐
2	Verify that WInnForum SAS Test Harness Command Prompt does not show any Request Message from CBSD/DP UUT	☒	☐

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

8.32 6.8.4.2.3 [WINNF.FT.C.SCS.4] TLS failure when SAS Test Harness certificate is issued by an unknown CA

8.32.1 Definitions and limits

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.
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.
Test case pre-requisite:
• Equip the SAS Test Harness with certificate signed by an unknown CA to the CBSD.

8.32.2 Test date

Start date	October 3, 2018

8.32.3 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.4] the X.509 certificate has
- PKI chain which is not known to the CBSD/DP UUT, and is different from the PKI chain of the SAS Test Harness X.509 certificate used in test WINNF.FT.C.SCS.1.

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

8.32.4 Test data

Table 8.32-1: *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 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	☒	☐

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

8.33 6.8.4.2.4 [WINNF.FT.C.SCS.5] TLS failure when certificate at the SAS Test Harness is corrupted

8.33.1 Definitions and limits

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.
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.
Test case pre-requisite:
• The end-entity certificate at the SAS Test Harness shall be corrupted

8.33.2 Test date

Start date	October 3, 2018

8.33.3 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.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.

8.33.4 Test data

Table 8.33-1: *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 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	☒	☐

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

8.34 7.1.4.1.1 [WINNF.PT.C.HBT] UUT RF Transmit Power Measurement

8.34.1 Definitions and limits

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.

8.34.1 Test date

Start date	October 2, 2018

8.34.1 Observations, settings and special notes

None

8.34.2 Test data

Table 8.34-1: *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	–	–
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.	☒	☐

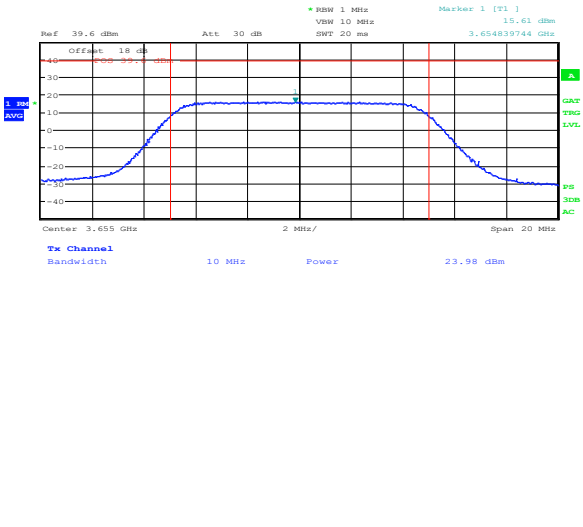

Figure 8.34-1: *Output power and power density validation when maxEirp setting Pi = 25*

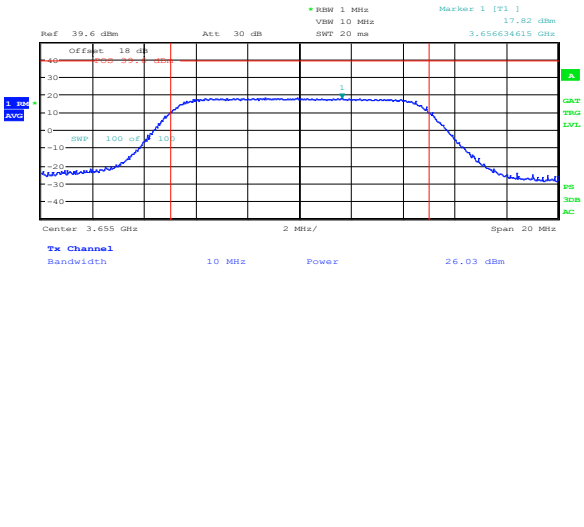

Figure 8.34-2: *Output power and power density validation when maxEirp setting Pi = 27*

Section 9. Log files library

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


```
2018-07-08T02:14:08.630Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T02:14:08.630Z - INFO - the selected test from the user : WINNF.FT.D.REG.2 is starting now
2018-07-08T02:15:02.812Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "cpiSignatureData": {
        "digitalSignature": "B2oXdxjSsLGB2z5KzEFsGAveCPqBeMsIiCoTy53W8FComv5a1Tfv3RVqbFjgY9lLD_sQtgVRvyUJjpxH-ReDj_ROltxrAiQWEgGOtMgVfMGJHa9Q-BJWppo4tuPFxGe-
UG4cMRWi82OP7MhmgVyNFtnIOO5qDbo_tr09OX4dm4g-eM2KGsZjv6DqVEYUL1Fvm5W-bU5UwaaeZp19Zt_FQl-
nlBINRdaFPVr3aHZZqqn9lV5A7w4e1EfE32CE126yCK8X4Jxzy4jw8FE7osqo_96qzfAo808Ndu93VCZD4t_wyXNdOx_GE4OU2-ek4VtAzgqzTz7QQJGRoq1frTWTLw",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjMuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6LTUuMCwiYW50ZW5uYUJlYW13aWR0aCI6NjAuMCwiaGVpZ2h0Ijo2LjAsInZlcnRpY2FsQWNjdXJhY3kiOjEuMCwiYW50ZW5uYUF6aW11dGgiOjE3MC4wLCJhbnRlbm5hTW9kZWwiOiJNVEkiLCJsb25naXR1ZGUiOi0xMDguMDEzNSwiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImxhdGl0dWRlIjo0Mi4yNDk1fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJpcGl OYW1lIjoiQ1BJMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3NDA0MTUwNzEifQ",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T02:15:02.861Z - INFO - Registration message contains cpiSignatureData
2018-07-08T02:15:02.861Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T02:15:02.862Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 170.0,
    "heightType": "AGL",
    "antennaModel": "MTI",
    "longitude": -108.0135,
    "height": 6.0,
    "indoorDeployment": false,
    "latitude": 42.2495,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": -5.0,
    "antennaBeamwidth": 60.0,
    "antennaGain": 3.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "43740415071"
}
2018-07-08T02:15:02.865Z - INFO - verified signature on cpiSignatureData
2018-07-08T02:15:02.865Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T02:15:02.872Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T02:15:02.874Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
```

```
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T02:15:03.037Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T02:15:03.039Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3555000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T02:15:03.166Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 20.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T02:15:03.167Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
2018-07-08T02:15:03.342Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
```

```
        "digitalSignature": "EyZ8EGXdy1vP-MDKTDO82ZjJe5ePbeAwzMGMWe5albGX_RsjQTFVgqHv411G7D4ZAqZfMHeU7bpbG4HUM6GSgpMKcmpD-I980BnYuTM1fZruLDMVY1Bkv-
qEMpHE4WvjXUgRfPI17cG3pQaa_pCkYIDLtO-Cuap_dbrA2NA8TiKB4X9bbGYLujQOcfqMR3v3MNB85FfvGJMAq32m-8DWeAKJfli4hG24UnpsPJnfWec-MY4SGO8aOdPP71XMEJoM7EVXRyqFt30-
VJVzKyoif4KckOg4XxrDEVdX875sm9KNbMqYl4UWYQGYWn8ADCqpv1f6cLK45phKvKB26nJ48Q",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjo
zMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb
3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjI3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0Mzl0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```


2018-07-08T02:15:03.387Z - INFO - Registration message contains cpiSignatureData
2018-07-08T02:15:03.388Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T02:15:03.388Z - INFO - encodedCpiSignedData contents = {


```
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.27186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
```


2018-07-08T02:15:03.391Z - INFO - verified signature on cpiSignatureData
2018-07-08T02:15:03.391Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T02:15:03.398Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T02:15:03.400Z - INFO - engine sent successfully, the response to CBRS : {


```
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```


2018-07-08T02:15:04.745Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T02:15:04.746Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T02:17:48.117Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T02:17:48.117Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T02:17:50.221Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-07-08T02:17:52.541Z - INFO - The final result of the test : WINNF.FT.D.REG.2 is - passed and :the additional comments for the current test are : n

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


```
2018-07-08T02:37:13.606Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T02:37:13.606Z - INFO - the selected test from the user : WINNF.FT.D.REG.4 is starting now
2018-07-08T02:37:23.864Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 3.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T02:37:23.885Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T02:37:24.023Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T02:37:24.025Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3555000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
```

```
        ],
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T02:37:24.161Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 20.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T02:37:24.163Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
2018-07-08T02:37:24.293Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 110.0,
        "antennaBeamwidth": 30.0,
        "antennaDowntilt": 0.0,
        "antennaGain": 0.0,
        "antennaModel": "ANT-3",
        "height": 0.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 39.27186719156334,
        "longitude": -118.50677490234372,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T02:37:24.315Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T02:37:25.626Z - INFO - arrived to nstep starting question answer session with the technician
```

2018-07-08T02:37:25.627Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T02:37:32.511Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T02:37:32.512Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T02:37:33.810Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-07-08T02:37:35.432Z - INFO - The final result of the test : WINNF.FT.D.REG.4 is - passed and :the additional comments for the current test are : n

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

2018-07-08T02:43:39.607Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T02:43:39.607Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now
2018-07-08T02:43:46.753Z - INFO - registration request from CBRS : {

```
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "cpiSignatureData": {
        "digitalSignature": "B2oXdxjSsLGB2z5KzEFsGAveCPqBeMsIiCoTy53W8FComv5a1Tfv3RVqbFjgY9lLD_sQtgVRvyUJjpxH-ReDj_ROltxrAiQWEgGOtMgVfMGJHa9Q-BJWppo4tuPFxGe-
UG4cMRWi82OP7MhmgVyNFtnIOO5qDbo_tr09OX4dm4g-eM2KGsZjv6DqVEYUL1Fvm5W-bU5UwaaeZp19Zt_FQl-
nlBINRdaFPVr3aHZZqqn9lV5A7w4e1EfE32CE126yCK8X4Jxzy4jw8FE7osqo_96qzfAo808Ndu93VCZD4t_wyXNdOx_GE4OU2-ek4VtAzgqzTz7QQJGRoq1frTWTLw",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjMuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6LTUuMCwiYW50ZW5uYUJlYW13aWR0aCI6NjAuMCwiaGVpZ2h0Ijo2LjAsInZlcnRpY2FsQWNjdXJhY3kiOjEuMCwiYW50ZW5uYUF6aW11dGgiOjE3MC4wLCJhbnRlbm5hTW9kZWwiOiJNVEkiLCJsb25naXR1ZGUiOi0xMDguMDEzNSwiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImxhdGl0dWRlIjo0Mi4yNDk1fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3NDA0MTUwNzEifQ",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```

2018-07-08T02:43:46.772Z - INFO - Registration message contains cpiSignatureData
2018-07-08T02:43:46.772Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T02:43:46.772Z - INFO - encodedCpiSignedData contents = {

```
  "installationParam": {
    "antennaAzimuth": 170.0,
    "heightType": "AGL",
    "antennaModel": "MTI",
    "longitude": -108.0135,
    "height": 6.0,
    "indoorDeployment": false,
    "latitude": 42.2495,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": -5.0,
    "antennaBeamwidth": 60.0,
    "antennaGain": 3.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "43740415071"
}
```

2018-07-08T02:43:46.774Z - INFO - verified signature on cpiSignatureData
2018-07-08T02:43:46.775Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T02:43:46.782Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T02:43:46.785Z - INFO - engine sent successfully, the response to CBRS : {

```
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
```

```
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T02:43:46.913Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T02:43:46.914Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3555000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T02:43:47.053Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 20.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T02:43:47.055Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
2018-07-08T02:43:47.230Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
```

"digitalSignature": "EyZ8EGXdy1vP-MDKTDO82ZjJe5ePbeAwzMGMWe5albGX_RsjQTFVgqHv411G7D4ZAqZfMHeU7bpbG4HUM6GSgpMKcmpD-I980BnYuTM1fZruLDMVY1Bkv-qEMpHE4WvjXUgRfPI17cG3pQaa_pCkYIDLtO-Cuap_dbrA2NA8TiKB4X9bbGYLujQOcfqMR3v3MNB85FfvGJMAq32m-8DWeAKJfli4hG24UnpsPJnfWec-MY4SGO8aOdPP71XMEJoM7EVXRyqFt30-VJVzKyoif4KckOg4XxrDEVdX875sm9KNbMqYl4UWYQGYWn8ADCqpv1f6cLK45phKvKB26nJ48Q",
"encodedCpiSignedData": "eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjI3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0Mzl0c3MxIn0",
"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
},
"fccId": "1234567890123456789",
"measCapability": [
"RECEIVED_POWER_WITH_GRANT"
],
"userId": "Xm6b0s"
}
]
}
2018-07-08T02:43:47.254Z - INFO - Registration message contains cpiSignatureData
2018-07-08T02:43:47.254Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T02:43:47.255Z - INFO - encodedCpiSignedData contents = {
"installationParam": {
"antennaAzimuth": 110.0,
"heightType": "AGL",
"antennaModel": "ANT-3",
"longitude": -118.50677490234372,
"height": 0.0,
"indoorDeployment": false,
"latitude": 39.27186719156334,
"horizontalAccuracy": 1.0,
"antennaDowntilt": 0.0,
"antennaBeamwidth": 30.0,
"antennaGain": 0.0,
"verticalAccuracy": 1.0
},
"professionalInstallerData": {
"cpiName": "CPI1",
"installCertificationTime": "2018-07-01T00:00:00Z",
"cpiId": "frn-test_CPI_FW01"
},
"fccId": "1234567890123456789",
"cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T02:43:47.257Z - INFO - verified signature on cpiSignatureData
2018-07-08T02:43:47.258Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T02:43:47.264Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T02:43:47.267Z - INFO - engine sent successfully, the response to CBRS : {
"registrationResponse": [
{
"cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
"response": {
"responseCode": 0
}
}
]
}
2018-07-08T02:43:48.625Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T02:43:48.628Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T02:43:53.201Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T02:43:53.201Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T02:43:54.650Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-07-08T02:44:05.519Z - INFO - The final result of the test : WINNF.FT.D.REG.6 is - passed and :the additional comments for the current test are : testDREG6

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


```
2018-07-08T03:00:17.005Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:00:17.005Z - INFO - the selected test from the user : WINNF.FT.C.REG.7 is starting now
2018-07-08T03:01:30.382Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 3.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T03:01:30.427Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:01:30.556Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T03:01:30.565Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
```

```
        ],
        "cbsdId": "123456789012345678 9Mock-SAS43740415071",
        "response": {
          "responseCode": 0
        }
      }
  ]
}
2018-07-08T03:01:30.725Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 20.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T03:01:30.734Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T03:01:30Z",
      "grantId": "646647142",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:01:30.883Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "646647142",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-08T03:01:30.891Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "646647142",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T03:04:50Z"
    }
  ]
}
2018-07-08T03:02:13.116Z - INFO - deregistration request from CBRS : {
  "deregistrationRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071"
    }
  ]
}
2018-07-08T03:02:13.123Z - INFO - engine sent successfully, the response to CBRS : {
  "deregistrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

2018-07-08T03:02:14.205Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:02:14.206Z - INFO - the question is : Did the CBSD stop RF transmissions upon sending the Deregister request? please choose one of the answers :
2018-07-08T03:02:26.105Z - INFO - for the question : Did the CBSD stop RF transmissions upon sending the Deregister request? , the user choose y
2018-07-08T03:02:51.601Z - INFO - The final result of the test : WINNF.FT.C.REG.7 is - passed and :the additional comments for the current test are : testFT.C.REG.7

9.5 Log file for test case ID: WINNF.FT.C.REG.9

2018-07-08T03:09:43.943Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:09:43.944Z - INFO - the selected test from the user : WINNF.FT.D.REG.9 is starting now
2018-07-08T03:10:07.311Z - INFO - registration request from CBRS : {


```
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```


2018-07-08T03:10:07.364Z - INFO - engine sent successfully, the response to CBRS : {


```
  "registrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
```


2018-07-08T03:10:07.518Z - INFO - registration request from CBRS : {


```
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "EyZ8EGXdy1vP-MDKTDO82ZjJe5ePbeAwzMGMWe5albGX_RsjQTFVgqHv411G7D4ZAqZfMHeU7bpbG4HUM6GSgpMKcmpD-I980BnYuTM1fZruLDMVY1Bkv-qEMpHE4WvjXUgRfPI17cG3pQaa_pCkYIDLtO-Cuap_dbrA2NA8TiKB4X9bbGYLujQOcfqMR3v3MNB85FfvGJMAq32m-8DWeAKJfli4hG24UnpsPJnfWec-MY4SGO8aOdPP71XMEJoM7EVXRyqFt30-VJVzKyoif4KckOg4XxrDEVdX875sm9KNbMqYl4UWYQGYWn8ADCqpv1f6cLK45phKvKB26nJ48Q",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjI3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
```

```
        "fccId": "1234567890123456789",
        "measCapability": [
          "RECEIVED_POWER_WITH_GRANT"
        ],
        "userId": "Xm6b0s"
      }
    ]
}
2018-07-08T03:10:07.560Z - INFO - Registration message contains cpiSignatureData
2018-07-08T03:10:07.560Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T03:10:07.561Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.27186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T03:10:07.563Z - INFO - verified signature on cpiSignatureData
2018-07-08T03:10:07.564Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T03:10:07.572Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T03:10:07.576Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
2018-07-08T03:10:09.003Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:10:09.004Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T03:10:14.211Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T03:10:14.211Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T03:10:18.263Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-07-08T03:10:33.745Z - INFO - The final result of the test : WINNF.FT.D.REG.9 is - passed and :the additional comments for the current test are : testWINNF.FT.D.REG.9
```


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


```
2018-07-08T03:13:42.870Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:13:42.870Z - INFO - the selected test from the user : WINNF.FT.D.REG.11 is starting now
2018-07-08T03:14:29.111Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
```

```
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T03:14:29.154Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 200
      }
    }
  ]
}
2018-07-08T03:14:29.335Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "EyZ8EGXdy1vP-MDKTDO82ZjJe5ePbeAwzMGMWe5albGX_RsjQTFVgqHv411G7D4ZAqZfMHeU7bpbG4HUM6GSgpMKcmpD-I980BnYuTM1fZruLDMVY1Bkv-
qEMpHE4WvjXUgRfPI17cG3pQaa_pCkYIDLtO-Cuap_dbrA2NA8TiKB4X9bbGYLujQOcfqMR3v3MNB85FfvGJMAq32m-8DWeAKJfli4hG24UnpsPJnfWec-MY4SGO8aOdPP71XMEJoM7EVXRyqFt30-
VJVzKyoif4KckOg4XxrDEVdX875sm9KNbMqYl4UWYQGYWn8ADCqpv1f6cLK45phKvKB26nJ48Q",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjI3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0Mzl0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T03:14:29.397Z - INFO - Registration message contains cpiSignatureData
2018-07-08T03:14:29.397Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T03:14:29.398Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.27186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
```

```
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T03:14:29.400Z - INFO - verified signature on cpiSignatureData
2018-07-08T03:14:29.401Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T03:14:29.407Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T03:14:29.409Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 200
      }
    }
  ]
}
2018-07-08T03:14:30.988Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:14:30.989Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T03:14:36.639Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T03:14:36.640Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T03:14:41.363Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-07-08T03:14:51.243Z - INFO - The final result of the test : WINNF.FT.D.REG.11 is - passed and :the additional comments for the current test are : testWINNF.FT.D.REG.11
```


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


```
2018-07-08T03:16:17.529Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:16:17.529Z - INFO - the selected test from the user : WINNF.FT.D.REG.13 is starting now
2018-07-08T03:16:33.483Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "EyZ8EGXdy1vP-MDKTDO82ZjJe5ePbeAwzMGMWe5albGX_RsjQTFVgqHv411G7D4ZAqZfMHeU7bpbG4HUM6GSgpMKcmpD-I980BnYuTM1fZruLDMVY1Bkv-
qEMpHE4WvjXUgRfPI17cG3pQaa_pCkYIDLtO-Cuap_dbrA2NA8TiKB4X9bbGYLujQOcfqMR3v3MNB85FfvGJMAq32m-8DWeAKJfli4hG24UnpsPJnfWec-MY4SGO8aOdPP71XMEJoM7EVXRyqFt30-
VJVzKyoif4KckOg4XxrDEVdX875sm9KNbMqYl4UWYQGYWn8ADCqpv1f6cLK45phKvKB26nJ48Q",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjI3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T03:16:33.541Z - INFO - Registration message contains cpiSignatureData
2018-07-08T03:16:33.542Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T03:16:33.542Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.27186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
```

```
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T03:16:33.544Z - INFO - verified signature on cpiSignatureData
2018-07-08T03:16:33.545Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T03:16:33.553Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T03:16:33.556Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 103
      }
    }
  ]
}
2018-07-08T03:16:44.953Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T03:16:44.995Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:16:46.595Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:16:46.596Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T03:16:51.543Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-07-08T03:16:51.544Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T03:16:53.456Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T03:16:59.660Z - INFO - The final result of the test : WINNF.FT.D.REG.13 is - passed and :the additional comments for the current test are : testWINNF.FT.D.REG.13
```

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

```
2018-07-08T03:22:19.182Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:22:19.182Z - INFO - the selected test from the user : WINNF.FT.D.REG.15 is starting now
2018-07-08T03:22:51.069Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T03:22:51.144Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:22:51.276Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T03:22:51.278Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3555000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
```

```
        ],
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T03:22:51.419Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T03:22:51.420Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
2018-07-08T03:22:51.577Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "EyZ8EGXdy1vP-MDKTDO82ZjJe5ePbeAwzMGMWe5albGX_RsjQTFVgqHv411G7D4ZAqZfMHeU7bpbG4HUM6GSgpMKcmpD-I980BnYuTM1fZruLDMVY1Bkv-
qEMpHE4WvjXUgRfPI17cG3pQaa_pCkYIDLtO-Cuap_dbrA2NA8TiKB4X9bbGYLujQOcfqMR3v3MNB85FfvGJMAq32m-8DWeAKJfli4hG24UnpsPJnfWec-MY4SGO8aOdPP71XMEJoM7EVXRyqFt30-
VJVzKyoif4KckOg4XxrDEVdX875sm9KNbMqYl4UWYQGYWn8ADCqpv1f6cLK45phKvKB26nJ48Q",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjI3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T03:22:51.619Z - INFO - Registration message contains cpiSignatureData
2018-07-08T03:22:51.619Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T03:22:51.620Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.27186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
```

```
      "antennaGain": 0.0,
      "verticalAccuracy": 1.0
    },
    "professionalInstallerData": {
      "cpiName": "CPI1",
      "installCertificationTime": "2018-07-01T00:00:00Z",
      "cpiId": "frn-test_CPI_FW01"
    },
    "fccId": "1234567890123456789",
    "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T03:22:51.621Z - INFO - verified signature on cpiSignatureData
2018-07-08T03:22:51.622Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T03:22:51.628Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T03:22:51.631Z - INFO - engine sent successfully, the response to CBRS  : {
   "registrationResponse": [
      {
         "response": {
            "responseCode": 101
         }
      }
   ]
}
2018-07-08T03:22:53.253Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:22:53.254Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T03:22:57.510Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T03:22:57.510Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T03:22:59.095Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-07-08T03:23:04.137Z - INFO - The final result of the test : WINNF.FT.D.REG.15 is - passed and :the additional comments for the current test are : testWINNF.FT.D.REG.15
```


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


```
2018-07-08T03:25:52.895Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:25:52.895Z - INFO - the selected test from the user : WINNF.FT.D.REG.17 is starting now
2018-07-08T03:27:57.842Z - INFO - registration request from CBRS  : {
   "registrationRequest": [
      {
         "airInterface": {
            "radioTechnology": "E_UTRA",
            "supportedSpec": "802.16e"
         },
         "callSign": "callSign123",
         "cbsdCategory": "A",
         "cbsdSerialNumber": "43740415071",
         "fccId": "1234567890123456789",
         "installationParam": {
            "antennaAzimuth": 170.0,
            "antennaBeamwidth": 60.0,
            "antennaDowntilt": -5.0,
            "antennaGain": 2.0,
            "antennaModel": "MTI",
            "height": 6.0,
            "heightType": "AGL",
            "horizontalAccuracy": 1.0,
            "indoorDeployment": false,
            "latitude": 42.2495,
            "longitude": -108.0135,
            "verticalAccuracy": 1.0
         },
         "measCapability": [
            "RECEIVED_POWER_WITH_GRANT"
         ],
         "userId": "Xm6b0s"
      }
   ]
}
2018-07-08T03:27:57.886Z - INFO - engine sent successfully, the response to CBRS  : {
   "registrationResponse": [
      {
         "response": {
            "responseCode": 100
```

```
        }
      }
    ]
}
2018-07-08T03:27:58.084Z - INFO - registration request from CBRS  : {
   "registrationRequest": [
      {
         "airInterface": {
            "radioTechnology": "E_UTRA",
            "supportedSpec": "802.16e"
         },
         "callSign": "callSign123",
         "cbsdCategory": "A",
         "cbsdSerialNumber": "437SS5072234324ss1",
         "cpiSignatureData": {
            "digitalSignature": "EyZ8EGXdy1vP-MDKTDO82ZjJe5ePbeAwzMGMWe5albGX_RsjQTFVgqHv411G7D4ZAqZfMHeU7bpbG4HUM6GSgpMKcmpD-I980BnYuTM1fZruLDMVY1Bkv-
qEMpHE4WvjXUgRfPI17cG3pQaa_pCkYIDLtO-Cuap_dbrA2NA8TiKB4X9bbGYLujQOcfqMR3v3MNB85FfvGJMAq32m-8DWeAKJfli4hG24UnpsPJnfWec-MY4SGO8aOdPP71XMEJoM7EVXRyqFt30-
VJVzKyoif4KckOg4XxrDEVdX875sm9KNbMqYl4UWYQGYWn8ADCqpv1f6cLK45phKvKB26nJ48Q",
            "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjI3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
            "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
         },
         "fccId": "1234567890123456789",
         "measCapability": [
            "RECEIVED_POWER_WITH_GRANT"
         ],
         "userId": "Xm6b0s"
      }
   ]
}
2018-07-08T03:27:58.125Z - INFO - Registration message contains cpiSignatureData
2018-07-08T03:27:58.125Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T03:27:58.125Z - INFO - encodedCpiSignedData contents = {
   "installationParam": {
      "antennaAzimuth": 110.0,
      "heightType": "AGL",
      "antennaModel": "ANT-3",
      "longitude": -118.50677490234372,
      "height": 0.0,
      "indoorDeployment": false,
      "latitude": 39.27186719156334,
      "horizontalAccuracy": 1.0,
      "antennaDowntilt": 0.0,
      "antennaBeamwidth": 30.0,
      "antennaGain": 0.0,
      "verticalAccuracy": 1.0
   },
   "professionalInstallerData": {
      "cpiName": "CPI1",
      "installCertificationTime": "2018-07-01T00:00:00Z",
      "cpiId": "frn-test_CPI_FW01"
   },
   "fccId": "1234567890123456789",
   "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T03:27:58.127Z - INFO - verified signature on cpiSignatureData
2018-07-08T03:27:58.128Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T03:27:58.135Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T03:27:58.137Z - INFO - engine sent successfully, the response to CBRS  : {
   "registrationResponse": [
      {
         "response": {
            "responseCode": 100
         }
      }
   ]
}
2018-07-08T03:28:00.133Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:28:00.134Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T03:28:05.227Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T03:28:05.228Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T03:28:06.652Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
```

2018-07-08T03:28:15.143Z - INFO - The final result of the test : WINNF.FT.D.REG.17 is - passed and :the additional comments for the current test are : testWINNF.FT.D.REG.17

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

2018-07-08T03:29:09.140Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:29:09.141Z - INFO - the selected test from the user : WINNF.FT.D.REG.19 is starting now
2018-07-08T03:30:10.973Z - INFO - registration request from CBRS : {
"registrationRequest": [
{
"airInterface": {
"radioTechnology": "E_UTRA",
"supportedSpec": "802.16e"
},
"callSign": "callSign123",
"cbsdCategory": "A",
"cbsdSerialNumber": "43740415071",
"fccId": "123456789012345678 9",
"groupingParam": [
{
"groupId": "Xm6b0s",
"groupType": "INTERFERENCE_COORDINATION"
}
],
"installationParam": {
"antennaAzimuth": 170.0,
"antennaBeamwidth": 60.0,
"antennaDowntilt": -5.0,
"antennaGain": 2.0,
"antennaModel": "MTI",
"height": 6.0,
"heightType": "AGL",
"horizontalAccuracy": 1.0,
"indoorDeployment": false,
"latitude": 42.2495,
"longitude": -108.0135,
"verticalAccuracy": 1.0
},
"measCapability": [
"RECEIVED_POWER_WITH_GRANT"
],
"userId": "Xm6b0s"
}
]
}
2018-07-08T03:30:11.017Z - INFO - engine sent successfully, the response to CBRS : {
"registrationResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"response": {
"responseCode": 0
}
}
]
}
2018-07-08T03:30:11.146Z - INFO - spectrumInquiry request from CBRS : {
"spectrumInquiryRequest": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"inquiredSpectrum": [
{
"highFrequency": 3700000000,
"lowFrequency": 3550000000
}
]
}
]
}
2018-07-08T03:30:11.147Z - INFO - engine sent successfully, the response to CBRS : {
"spectrumInquiryResponse": [
{
"availableChannel": [

```
          {
            "channelType": "GAA",
            "frequencyRange": {
              "highFrequency": 3555000000,
              "lowFrequency": 3550000000
            },
            "ruleApplied": "FCC_PART_96"
          }
        ],
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T03:30:11.271Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T03:30:11.272Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
2018-07-08T03:30:11.434Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "EyZ8EGXdy1vP-MDKTDO82ZjJe5ePbeAwzMGMWe5albGX_RsjQTFVgqHv411G7D4ZAqZfMHeU7bpbG4HUM6GSgpMKcmpD-I980BnYuTM1fZruLDMVY1Bkv-
qEMpHE4WvjXUgRfPI17cG3pQaa_pCkYIDLtO-Cuap_dbrA2NA8TiKB4X9bbGYLujQOcfqMR3v3MNB85FfvGJMAq32m-8DWeAKJfli4hG24UnpsPJnfWec-MY4SGO8aOdPP71XMEJoM7EVXRyqFt30-
VJVzKyoif4KckOg4XxrDEVdX875sm9KNbMqYl4UWYQGYWn8ADCqpv1f6cLK45phKvKB26nJ48Q",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjI3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "groupingParam": [
        {
          "groupId": "Xm6b0s",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```

```
2018-07-08T03:30:11.489Z - INFO - Registration message contains cpiSignatureData
2018-07-08T03:30:11.489Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T03:30:11.489Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.27186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T03:30:11.491Z - INFO - verified signature on cpiSignatureData
2018-07-08T03:30:11.492Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T03:30:11.498Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T03:30:11.500Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 201
      }
    }
  ]
}
2018-07-08T03:30:13.264Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:30:13.265Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T03:30:16.879Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T03:30:16.879Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-07-08T03:30:19.096Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-07-08T03:30:23.980Z - INFO - The final result of the test : WINNF.FT.D.REG.19 is - passed and :the additional comments for the current test are : testWINNF.FT.D.REG.19
```

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

```
2018-07-08T03:38:50.347Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:38:50.347Z - INFO - the selected test from the user : WINNF.FT.C.REG.7 is starting now
2018-07-08T03:39:35.926Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "groupingParam": [
        {
          "groupId": "Xm6b0s",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
```

```
            "height": 6.0,
            "heightType": "AGL",
            "horizontalAccuracy": 1.0,
            "indoorDeployment": false,
            "latitude": 42.1495,
            "longitude": -108.0135,
            "verticalAccuracy": 1.0
          },
          "measCapability": [
            "RECEIVED_POWER_WITH_GRANT"
          ],
          "userId": "Xm6b0s"
        }
      ]
}
2018-07-08T03:39:35.988Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:39:36.132Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T03:39:36.142Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:39:36.292Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T03:39:36.300Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
```

```
        "cbsdId": "123456789012345678 9Mock-SAS43740415071",
        "channelType": "GAA",
        "grantExpireTime": "2018-07-15T03:39:36Z",
        "grantId": "9140098",
        "heartbeatInterval": 60,
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T03:39:36.431Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "9140098",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-08T03:39:36.439Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "9140098",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T03:42:56Z"
    }
  ]
}
2018-07-08T03:40:00.916Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071"
    }
  ]
}
2018-07-08T03:40:00.921Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:40:02.508Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:40:02.508Z - INFO - the question is : Did the CBSD stop RF transmissions upon sending the Deregister request? please choose one of the answers :
2018-07-08T03:40:20.796Z - INFO - for the question : Did the CBSD stop RF transmissions upon sending the Deregister request? , the user choose y
2018-07-08T03:40:23.025Z - INFO - The final result of the test : WINNF.FT.C.REG.7 is - passed and :the additional comments for the current test are : n
```


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


```
2018-07-08T03:45:29.436Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:45:29.436Z - INFO - the selected test from the user : WINNF.FT.C.GRA.1 is starting now
2018-07-08T03:47:08.397Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "123456789012345678 9",
      "groupingParam": [
```

```
        {
          "groupId": "Xm6b0s",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T03:47:08.475Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:47:08.606Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T03:47:08.615Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:47:08.770Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
```

```
          "operationFrequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          }
        }
      }
    ]
}
2018-07-08T03:47:08.779Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
```


2018-07-08T03:47:10.670Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:47:10.671Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T03:47:16.775Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T03:47:27.107Z - INFO - The final result of the test : WINNF.FT.C.GRA.1 is - passed and :the additional comments for the current test are : testWINNF.FT.C.GRA.1

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

2018-07-08T03:48:50.014Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T03:48:50.014Z - INFO - the selected test from the user : WINNF.FT.C.GRA.2 is starting now
2018-07-08T03:48:53.915Z - INFO - registration request from CBRS : {


```
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "groupingParam": [
        {
          "groupId": "Xm6b0s",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```


2018-07-08T03:48:53.975Z - INFO - engine sent successfully, the response to CBRS : {


```
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
```

```
        }
      }
    ]
}
2018-07-08T03:48:54.114Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T03:48:54.134Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T03:48:54.303Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T03:48:54.312Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 401
      }
    }
  ]
}
2018-07-08T03:48:56.024Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T03:48:56.024Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-07-08T03:49:02.039Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-07-08T03:49:09.447Z - INFO - The final result of the test : WINNF.FT.C.GRA.2 is - passed and :the additional comments for the current test are : testWINNF.FT.C.GRA.2
```

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


```
2018-07-02T02:44:55.653Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-02T02:44:55.654Z - INFO - the selected test from the user : WINNF.FT.D.HBT.2 is starting now
2018-07-02T02:52:24.054Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-02T02:52:24.234Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T02:52:24.651Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-02T02:52:24.671Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
```

```
        ],
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-02T02:52:25.093Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 17.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-02T02:52:25.118Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T02:52:25Z",
      "grantId": "878798488",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T02:52:25.695Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "w9SeaVAzPAK0SzeKSkYcp0ejaX6gWSM1mWE3E65q4SMz5vIDWWadvCAsj8NzPeEWn8Ri-iGqL_e4WmPCM8OfzAkrlx4bdM-
c2Vd7ura4h8Ob906bdhFEbOP0on5GPOlhmyvsrvtQWWvtKlxX3aVyVr-zJqMa_npB6tXqB951az9PFLa3XT5-8Ji6caLoHLTRhWS0kRYdeR0PCBUlWCK5-i4qd36xdwKrKtuTgqBxAugvGnKiP5PNz-
0lfciAMcZL9BcRfAqNDN_e30-iKmUmVMK2u4A5sqwQecBcx54S6ACmTNctgfpWthQl02MSGBXYbvSAYSFk3JCdeZbHhypzmQ",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjE3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-02T02:52:25.838Z - INFO - Registration message contains cpiSignatureData
2018-07-02T02:52:25.838Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-02T02:52:25.839Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
```

```
    "latitude": 39.17186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-02T02:52:25.841Z - INFO - verified signature on cpiSignatureData
2018-07-02T02:52:25.841Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-02T02:52:25.856Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-02T02:52:25.861Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T02:52:26.333Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-02T02:52:26.357Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T02:52:26.789Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "operationParam": {
        "maxEirp": 14.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
```

```
2018-07-02T02:52:26.809Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T02:52:26Z",
      "grantId": "470368804",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T02:52:27.232Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "grantRenew": false,
      "operationState": "GRANTED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T02:52:27.296Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:55:47Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:55:47Z"
    }
  ]
}
2018-07-02T02:53:09.495Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
```

```
                "measFrequency": 3550000000,
                "measRcvdPower": -100
              }
            ]
          },
          "operationState": "AUTHORIZED"
        }
      ]
}
2018-07-02T02:53:09.496Z - INFO - Time interval between two heartbeat request messages is: 42.263282, limit is: 65.0
2018-07-02T02:53:09.528Z - INFO - Time interval between two heartbeat request messages is: 42.263282, limit is: 65.0
2018-07-02T02:53:09.554Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:56:29Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:56:29Z"
    }
  ]
}
2018-07-02T02:53:49.737Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T02:53:49.739Z - INFO - Time interval between two heartbeat request messages is: 40.242274, limit is: 65.0
2018-07-02T02:53:49.780Z - INFO - Time interval between two heartbeat request messages is: 40.242274, limit is: 65.0
2018-07-02T02:53:49.807Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "response": {
        "responseCode": 0
      },
```

```
        "transmitExpireTime": "2018-07-02T02:57:09Z"
      },
      {
        "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
        "grantId": "470368804",
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-07-02T02:57:09Z"
      }
    ]
}
2018-07-02T02:54:30.006Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T02:54:30.008Z - INFO - Time interval between two heartbeat request messages is: 40.269267, limit is: 65.0
2018-07-02T02:54:30.033Z - INFO - Time interval between two heartbeat request messages is: 40.269267, limit is: 65.0
2018-07-02T02:54:30.064Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:57:50Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:57:50Z"
    }
  ]
}
2018-07-02T02:55:10.295Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "grantRenew": false,
      "measReport": {
```

```
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T02:55:10.297Z - INFO - Time interval between two heartbeat request messages is: 40.289061, limit is: 65.0
2018-07-02T02:55:10.343Z - INFO - Time interval between two heartbeat request messages is: 40.289061, limit is: 65.0
2018-07-02T02:55:10.374Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:58:30Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:58:30Z"
    }
  ]
}
2018-07-02T02:55:50.551Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "878798488",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
```

```
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T02:55:50.552Z - INFO - Time interval between two heartbeat request messages is: 40.255092, limit is: 65.0
2018-07-02T02:55:50.588Z - INFO - Time interval between two heartbeat request messages is: 40.255092, limit is: 65.0
2018-07-02T02:55:50.613Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "878798488",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:59:10Z"
    },
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "grantId": "470368804",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T02:59:10Z"
    }
  ]
}
2018-07-02T02:55:52.376Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-02T02:55:52.377Z - INFO - the question is : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2018-07-02T02:56:01.590Z - INFO - for the question : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2018-07-02T02:56:01.590Z - INFO - the question is : Did the CBSD2 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2018-07-02T02:56:04.023Z - INFO - for the question : Did the CBSD2 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2018-07-02T02:56:11.245Z - INFO - The final result of the test : WINNF.FT.D.HBT.2 is - passed and :the additional comments for the current test are : testWINNF.FT.D.HBT.2
```


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


```
2018-07-02T03:13:34.225Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-02T03:13:34.225Z - INFO - the selected test from the user : WINNF.FT.C.HBT.3 is starting now
2018-07-02T03:13:50.700Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
```

```
  ]
}
2018-07-02T03:13:50.860Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:13:51.372Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-02T03:13:51.396Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:13:51.815Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 17.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-02T03:13:51.838Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T03:13:51Z",
      "grantId": "397951188",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:13:52.354Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
```

```
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "397951188",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T03:13:52.388Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "397951188",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T03:17:12Z"
    }
  ]
}
2018-07-02T03:14:34.587Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "397951188",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -75
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T03:14:34.589Z - INFO - Time interval between two heartbeat request messages is: 42.233232, limit is: 65.0
2018-07-02T03:14:34.615Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "397951188",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T03:17:54Z"
    }
  ]
}
2018-07-02T03:15:14.767Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "397951188",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -75
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T03:15:14.768Z - INFO - Time interval between two heartbeat request messages is: 40.179217, limit is: 65.0
2018-07-02T03:15:14.791Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
```

```
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "grantId": "397951188",
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-07-02T03:18:34Z"
      }
    ]
}
2018-07-02T03:15:54.991Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "397951188",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -75
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T03:15:54.993Z - INFO - Time interval between two heartbeat request messages is: 40.224147, limit is: 65.0
2018-07-02T03:15:55.020Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "397951188",
      "response": {
        "responseCode": 105
      },
      "transmitExpireTime": "2018-07-02T03:15:55Z"
    }
  ]
}
2018-07-02T03:15:56.365Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-02T03:15:56.365Z - 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 :
2018-07-02T03:16:20.686Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 105? , the user choose y
2018-07-02T03:16:23.119Z - INFO - The final result of the test : WINNF.FT.C.HBT.3 is - passed and :the additional comments for the current test are : n
```


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


```
2018-07-02T03:27:09.504Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-02T03:27:09.505Z - INFO - the selected test from the user : WINNF.FT.C.HBT.5 is starting now
2018-07-02T03:28:31.577Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
```

```
            "latitude": 42.2495,
            "longitude": -108.0135,
            "verticalAccuracy": 1.0
          },
          "measCapability": [
            "RECEIVED_POWER_WITH_GRANT"
          ],
          "userId": "Xm6b0s"
        }
      ]
}
2018-07-02T03:28:31.731Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:28:32.218Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-02T03:28:32.243Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:28:32.688Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 17.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-02T03:28:32.718Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T03:28:32Z",
      "grantId": "905758385",
```

```
        "heartbeatInterval": 60,
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-02T03:28:33.239Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "905758385",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T03:28:33.267Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "905758385",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-07-02T03:28:33Z"
    }
  ]
}
2018-07-02T03:28:38.376Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "905758385",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T03:28:38.382Z - INFO - Time interval between two heartbeat request messages is: 5.137343, limit is: 65.0
2018-07-02T03:28:38.403Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "905758385",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-07-02T03:28:38Z"
    }
  ]
}
2018-07-02T03:28:39.596Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-02T03:28:39.597Z - INFO - the question is : Did the CBSD transmit at any time during the test? please choose one of the answers :
2018-07-02T03:28:46.971Z - INFO - for the question : Did the CBSD transmit at any time during the test? , the user choose n
2018-07-02T03:28:56.818Z - INFO - The final result of the test : WINNF.FT.C.HBT.5 is - passed and :the additional comments for the current test are : testWINNF.FT.C.HBT.5
```


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


```
2018-07-02T03:31:35.805Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-02T03:31:35.806Z - INFO - the selected test from the user : WINNF.FT.C.HBT.6 is starting now
2018-07-02T03:32:16.031Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
```

```
        "fccId": "1234567890123456789",
        "installationParam": {
          "antennaAzimuth": 170.0,
          "antennaBeamwidth": 60.0,
          "antennaDowntilt": -5.0,
          "antennaGain": 2.0,
          "antennaModel": "MTI",
          "height": 6.0,
          "heightType": "AGL",
          "horizontalAccuracy": 1.0,
          "indoorDeployment": false,
          "latitude": 42.2495,
          "longitude": -108.0135,
          "verticalAccuracy": 1.0
        },
        "measCapability": [
          "RECEIVED_POWER_WITH_GRANT"
        ],
        "userId": "Xm6b0s"
      }
    ]
}
2018-07-02T03:32:16.232Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:32:16.638Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-02T03:32:16.655Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:32:17.062Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 17.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
```

```
        }
      }
    ]
}
2018-07-02T03:32:17.099Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T03:32:17Z",
      "grantId": "301957477",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:32:17.536Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "301957477",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T03:32:17.564Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "301957477",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T03:35:37Z"
    }
  ]
}
2018-07-02T03:32:59.691Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "301957477",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -75
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T03:32:59.692Z - INFO - Time interval between two heartbeat request messages is: 42.154892, limit is: 65.0
2018-07-02T03:32:59.715Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "301957477",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T03:36:19Z"
    }
  ]
}
2018-07-02T03:33:39.890Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
```

```
        "cbsdId": "123456789012345678 9Mock-SAS43740415071",
        "grantId": "301957477",
        "grantRenew": false,
        "measReport": {
          "rcvdPowerMeasReports": [
            {
              "measBandwidth": 10000000,
              "measFrequency": 3550000000,
              "measRcvdPower": -75
            }
          ]
        },
        "operationState": "AUTHORIZED"
      }
    ]
}
2018-07-02T03:33:39.891Z - INFO - Time interval between two heartbeat request messages is: 40.198998, limit is: 65.0
2018-07-02T03:33:39.923Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "301957477",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T03:36:59Z"
    }
  ]
}
2018-07-02T03:34:20.146Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "301957477",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -75
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T03:34:20.148Z - INFO - Time interval between two heartbeat request messages is: 40.256626, limit is: 65.0
2018-07-02T03:34:20.185Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "301957477",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-07-02T03:34:20Z"
    }
  ]
}
2018-07-02T03:34:33.812Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "301957477",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T03:34:33.819Z - INFO - Time interval between two heartbeat request messages is: 13.665862, limit is: 65.0
2018-07-02T03:34:33.843Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
```

```
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "grantId": "301957477",
        "response": {
          "responseCode": 501
        },
        "transmitExpireTime": "2018-07-02T03:34:33Z"
      }
    ]
}
```


2018-07-02T03:34:34.987Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-02T03:34:34.987Z - 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 :
2018-07-02T03:34:40.556Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 501? , the user choose y
2018-07-02T03:34:48.427Z - INFO - The final result of the test : WINNF.FT.C.HBT.6 is - passed and :the additional comments for the current test are : testWINNF.FT.C.HBT.6

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

2018-07-02T03:38:37.500Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-02T03:38:37.501Z - INFO - the selected test from the user : WINNF.FT.C.HBT.7 is starting now
2018-07-02T03:40:07.519Z - INFO - registration request from CBRS : {


```
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```


2018-07-02T03:40:07.672Z - INFO - engine sent successfully, the response to CBRS : {


```
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```


2018-07-02T03:40:08.120Z - INFO - spectrumInquiry request from CBRS : {


```
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
```

```
  ]
}
2018-07-02T03:40:08.153Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:40:08.576Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 17.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-02T03:40:08.597Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T03:40:08Z",
      "grantId": "13454606",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:40:09.074Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T03:40:09.111Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T03:43:29Z"
    }
  ]
}
2018-07-02T03:40:51.553Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
```

```
        "cbsdId": "123456789012345678 9Mock-SAS43740415071",
        "grantId": "13454606",
        "grantRenew": false,
        "measReport": {
          "rcvdPowerMeasReports": [
            {
              "measBandwidth": 10000000,
              "measFrequency": 3550000000,
              "measRcvdPower": -75
            }
          ]
        },
        "operationState": "AUTHORIZED"
      }
    ]
}
2018-07-02T03:40:51.563Z - INFO - Time interval between two heartbeat request messages is: 42.479263, limit is: 65.0
2018-07-02T03:40:51.592Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T03:44:11Z"
    }
  ]
}
2018-07-02T03:41:31.734Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -75
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T03:41:31.739Z - INFO - Time interval between two heartbeat request messages is: 40.180757, limit is: 65.0
2018-07-02T03:41:31.759Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T03:44:51Z"
    }
  ]
}
2018-07-02T03:42:11.965Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -75
          }
        ]
```

```
        },
        "operationState": "AUTHORIZED"
      }
    ]
}
2018-07-02T03:42:11.974Z - INFO - Time interval between two heartbeat request messages is: 40.231336, limit is: 65.0
2018-07-02T03:42:12.002Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606",
      "response": {
        "responseCode": 502
      },
      "transmitExpireTime": "2018-07-02T03:42:12Z"
    }
  ]
}
2018-07-02T03:42:25.681Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606"
    }
  ]
}
2018-07-02T03:42:25.695Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "13454606",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:42:26.730Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-02T03:42:26.731Z - 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 :
2018-07-02T03:42:39.487Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 502? , the user choose y
2018-07-02T03:42:48.349Z - INFO - The final result of the test : WINNF.FT.C.HBT.7 is - passed and :the additional comments for the current test are : testWINNF.FT.C.HBT.7
```


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


```
2018-07-02T03:55:53.587Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-02T03:55:53.588Z - INFO - the selected test from the user : WINNF.FT.D.HBT.8 is starting now
2018-07-02T03:57:17.751Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "123456789012345678 9",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
```

```
        "measCapability": [
          "RECEIVED_POWER_WITH_GRANT"
        ],
        "userId": "Xm6b0s"
      }
    ]
}
2018-07-02T03:57:17.883Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:57:18.314Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-02T03:57:18.339Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:57:18.717Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 17.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-02T03:57:18.739Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T03:57:18Z",
      "grantId": "669684463",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
```

```
    }
  ]
}
2018-07-02T03:57:19.248Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "w9SeaVAzPAK0SzeKSkYcp0ejaX6gWSM1mWE3E65q4SMz5vIDWWadvCAsj8NzPeEWn8Ri-iGqL_e4WmPCM8OfzAkrlx4bdM-
c2Vd7ura4h8Ob906bdhFEbOP0on5GPOlhmyvsrvtQWWvtKlxX3aVyVr-zJqMa_npB6tXqB951az9PFLa3XT5-8Ji6caLoHLTRhWS0kRYdeR0PCBUlWCK5-i4qd36xdwKrKtuTgqBxAugvGnKiP5PNz-
0lfciAMcZL9BcRfAqNDN_e30-iKmUmVMK2u4A5sqwQecBcx54S6ACmTNctgfpWthQl02MSGBXYbvSAYSFk3JCdeZbHhypzmQ",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjE3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-02T03:57:19.393Z - INFO - Registration message contains cpiSignatureData
2018-07-02T03:57:19.393Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-02T03:57:19.396Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.17186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-02T03:57:19.398Z - INFO - verified signature on cpiSignatureData
2018-07-02T03:57:19.398Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-02T03:57:19.420Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-02T03:57:19.427Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:57:19.814Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "inquiredSpectrum": [
```

```
          {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          }
        ]
      }
    ]
}
2018-07-02T03:57:19.852Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:57:20.296Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "operationParam": {
        "maxEirp": 14.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-02T03:57:20.313Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T03:57:20Z",
      "grantId": "626999808",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T03:57:20.703Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "669684463",
      "grantRenew": false,
      "operationState": "GRANTED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "626999808",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T03:57:20.739Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
```

```
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "669684463",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:00:40Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "626999808",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:00:40Z"
    }
  ]
}
2018-07-02T03:58:03.111Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "669684463",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -73
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "626999808",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -45
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T03:58:03.112Z - INFO - Time interval between two heartbeat request messages is: 42.407396, limit is: 65.0
2018-07-02T03:58:03.158Z - INFO - Time interval between two heartbeat request messages is: 42.407396, limit is: 65.0
2018-07-02T03:58:03.193Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "669684463",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:01:23Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "626999808",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:01:23Z"
    }
  ]
}
2018-07-02T03:58:43.739Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
```

```
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "669684463",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -76
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "626999808",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -45
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T03:58:43.741Z - INFO - Time interval between two heartbeat request messages is: 40.628281, limit is: 65.0
2018-07-02T03:58:43.769Z - INFO - Time interval between two heartbeat request messages is: 40.628281, limit is: 65.0
2018-07-02T03:58:43.795Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "669684463",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:02:03Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "626999808",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:02:03Z"
    }
  ]
}
2018-07-02T03:59:24.387Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "669684463",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -76
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "626999808",
      "grantRenew": false,
```

```
        "measReport": {
          "rcvdPowerMeasReports": [
            {
              "measBandwidth": 10000000,
              "measFrequency": 3550000000,
              "measRcvdPower": -45
            }
          ]
        },
        "operationState": "AUTHORIZED"
      }
    ]
}
2018-07-02T03:59:24.389Z - INFO - Time interval between two heartbeat request messages is: 40.64772, limit is: 65.0
2018-07-02T03:59:24.415Z - INFO - Time interval between two heartbeat request messages is: 40.64772, limit is: 65.0
2018-07-02T03:59:24.455Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "669684463",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:02:44Z"
    },
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "grantId": "626999808",
      "response": {
        "responseCode": 500
      },
      "transmitExpireTime": "2018-07-02T03:59:24Z"
    }
  ]
}
2018-07-02T03:59:25.805Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-02T03:59:25.805Z - INFO - the question is : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2018-07-02T03:59:46.958Z - INFO - for the question : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2018-07-02T03:59:46.959Z - 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 :
2018-07-02T03:59:56.634Z - INFO - for the question : Did the CBSD2 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? , the user choose y
2018-07-02T04:00:07.334Z - INFO - The final result of the test : WINNF.FT.D.HBT.8 is - passed and :the additional comments for the current test are : testWINNF.FT.D.HBT.8
```


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


```
2018-07-02T04:05:11.168Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-02T04:05:11.169Z - INFO - the selected test from the user : WINNF.FT.C.HBT.9 is starting now
2018-07-02T04:05:24.309Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
```

```
        "measCapability": [
          "RECEIVED_POWER_WITH_GRANT"
        ],
        "userId": "Xm6b0s"
      }
    ]
}
2018-07-02T04:05:24.471Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T04:05:24.927Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-02T04:05:24.955Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T04:05:25.457Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 17.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-02T04:05:25.479Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T04:05:25Z",
      "grantId": "522774007",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
```

```
    }
  ]
}
2018-07-02T04:05:25.935Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "522774007",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T04:05:43.344Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "522774007"
    }
  ]
}
2018-07-02T04:05:43.344Z - INFO - request message received while HBT is absent, sleep 187 sec before responding
2018-07-02T04:08:46.057Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "522774007",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-07-02T04:08:46Z"
    }
  ]
}
2018-07-02T04:08:47.396Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-02T04:08:47.397Z - INFO - the question is : Were there RF transmissions from the CBSD during the test? please choose one of the answers :
2018-07-02T04:08:50.444Z - INFO - engine sent successfully, the response to CBRS  : "list index out of range"
2018-07-02T04:09:48.366Z - INFO - for the question : Were there RF transmissions from the CBSD during the test? , the user choose n
2018-07-02T04:09:54.466Z - INFO - The final result of the test : WINNF.FT.C.HBT.9 is - passed and :the additional comments for the current test are : testWINNF.FT.C.HBT.9
```


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


```
2018-07-02T04:12:00.496Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-02T04:12:00.496Z - INFO - the selected test from the user : WINNF.FT.C.HBT.10 is starting now
2018-07-02T04:13:42.253Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
```

```
        ],
        "userId": "Xm6b0s"
      }
    ]
}
2018-07-02T04:13:42.399Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T04:13:42.840Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-02T04:13:42.863Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-02T04:13:43.395Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 17.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-02T04:13:43.416Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-09T04:13:43Z",
      "grantId": "660466459",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
```

```
}
2018-07-02T04:13:43.872Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "660466459",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-02T04:13:43.891Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "660466459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:17:03Z"
    }
  ]
}
2018-07-02T04:14:20.290Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "660466459",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -76
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T04:14:20.292Z - INFO - Time interval between two heartbeat request messages is: 36.41793, limit is: 65.0
2018-07-02T04:14:20.315Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "660466459",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-02T04:17:40Z"
    }
  ]
}
2018-07-02T04:15:01.018Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "660466459",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -75
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-02T04:15:01.020Z - INFO - Time interval between two heartbeat request messages is: 40.728267, limit is: 65.0
```

```
2018-07-02T04:15:01.027Z - INFO - LAST HBT RESPONSE THAT SET TRANSMIT_EXPIRE_TIME WAS AT:  2018-07-02 04:14:20.290872
2018-07-02T04:15:20.773Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "660466459"
    }
  ]
}
2018-07-02T04:15:20.773Z - INFO - request message received while HBT is absent, sleep 185 sec before responding
2018-07-02T04:18:21.147Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "grantId": "660466459",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-07-02T04:18:21Z"
    }
  ]
}
2018-07-02T04:18:22.854Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-02T04:18:22.854Z - INFO - the question is : Did the CBSD stop RF transmissions within (transmitExpireTime + 60seconds) of last valid heartbeat response? please choose one of the answers :
2018-07-02T04:18:25.870Z - INFO - engine sent successfully, the response to CBRS  : "list index out of range"
2018-07-02T04:18:34.257Z - INFO - for the question : Did the CBSD stop RF transmissions within (transmitExpireTime + 60seconds) of last valid heartbeat response? , the user choose y
2018-07-02T04:18:43.555Z - INFO - The final result of the test : WINNF.FT.C.HBT.10 is - passed and :the additional comments for the current test are : testWINNF.FT.C.HBT.10
```

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

```
2018-07-08T05:11:14.258Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T05:11:14.258Z - INFO - the selected test from the user : WINNF.FT.C.MES.3 is starting now
2018-07-08T05:11:33.611Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T05:11:33.674Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
```

```
    }
  ]
}
2018-07-08T05:11:33.839Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:11:33.848Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:11:33.966Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T05:11:33.973Z - INFO - Response message contains measReportConfig
2018-07-08T05:11:33.975Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T05:11:33Z",
      "grantId": "444497506",
      "heartbeatInterval": 60,
      "measReportConfig": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:11:34.116Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "grantRenew": false,
      "operationState": "GRANTED"
```

```
    }
  ]
}
2018-07-08T05:11:34.125Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:14:54Z"
    }
  ]
}
2018-07-08T05:12:09.967Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:12:09.969Z - INFO - Time interval between two heartbeat request messages is: 35.851087, limit is: 65.0
2018-07-08T05:12:09.972Z - INFO - measReport received in heartbeat message
2018-07-08T05:12:09.980Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:15:29Z"
    }
  ]
}
2018-07-08T05:12:43.843Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:12:43.844Z - INFO - Time interval between two heartbeat request messages is: 33.875612, limit is: 65.0
2018-07-08T05:12:43.853Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "response": {
        "responseCode": 0
```

```
        },
        "transmitExpireTime": "2018-07-08T05:16:03Z"
      }
    ]
}
2018-07-08T05:13:17.749Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:13:17.750Z - INFO - Time interval between two heartbeat request messages is: 33.905975, limit is: 65.0
2018-07-08T05:13:17.759Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:16:37Z"
    }
  ]
}
2018-07-08T05:13:51.639Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:13:51.641Z - INFO - Time interval between two heartbeat request messages is: 33.890608, limit is: 65.0
2018-07-08T05:13:51.650Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "444497506",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:17:11Z"
    }
  ]
}
2018-07-08T05:13:53.580Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T05:14:14.334Z - INFO - The final result of the test : WINNF.FT.C.MES.3 is - passed and :the additional comments for the current test are : testWINNF.FT.C.MES.3
```

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

```
2018-07-08T05:19:22.265Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T05:19:22.265Z - INFO - the selected test from the user : WINNF.FT.D.MES.5 is starting now
2018-07-08T05:20:04.363Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T05:20:04.436Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:20:04.555Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:20:04.565Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
```

```
        ],
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T05:20:04.699Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T05:20:04.707Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T05:20:04Z",
      "grantId": "41051837",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:20:04.869Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "w9SeaVAzPAK0SzeKSkYcp0ejaX6gWSM1mWE3E65q4SMz5vIDWWadvCAsj8NzPeEWn8Ri-iGqL_e4WmPCM8OfzAkrlx4bdM-
c2Vd7ura4h8Ob906bdhFEbOP0on5GPOlhmyvsrvtQWWvtKlxX3aVyVr-zJqMa_npB6tXqB951az9PFLa3XT5-8Ji6caLoHLTRhWS0kRYdeR0PCBUlWCK5-i4qd36xdwKrKtuTgqBxAugvGnKiP5PNz-
0lfciAMcZL9BcRfAqNDN_e30-iKmUmVMK2u4A5sqwQecBcx54S6ACmTNctgfpWthQl02MSGBXYbvSAYSFk3JCdeZbHhypzmQ",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjE3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T05:20:04.935Z - INFO - Registration message contains cpiSignatureData
2018-07-08T05:20:04.935Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T05:20:04.936Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
```

```
    "latitude": 39.17186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T05:20:04.938Z - INFO - verified signature on cpiSignatureData
2018-07-08T05:20:04.939Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T05:20:04.946Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T05:20:04.947Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:20:05.065Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:20:05.088Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:20:05.208Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "operationParam": {
        "maxEirp": 14.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
```

2018-07-08T05:20:05.215Z - INFO - engine sent successfully, the response to CBRS : {
"grantResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"channelType": "GAA",
"grantExpireTime": "2018-07-15T05:20:05Z",
"grantId": "825209644",
"heartbeatInterval": 60,
"response": {
"responseCode": 0
}
}
]
}
2018-07-08T05:20:05.335Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "41051837",
"grantRenew": false,
"operationState": "GRANTED"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "825209644",
"grantRenew": false,
"operationState": "GRANTED"
}
]
}
2018-07-08T05:20:05.354Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "41051837",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T05:23:25Z"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "825209644",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T05:23:25Z"
}
]
}
2018-07-08T05:20:41.241Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "41051837",
"grantRenew": false,
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,
"measFrequency": 3550000000,
"measRcvdPower": -100
}
]
},
"operationState": "AUTHORIZED"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "825209644",
"grantRenew": false,
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,

```
                "measFrequency": 3550000000,
                "measRcvdPower": -100
              }
            ]
          },
          "operationState": "AUTHORIZED"
        }
      ]
}
2018-07-08T05:20:41.242Z - INFO - Time interval between two heartbeat request messages is: 35.90644, limit is: 65.0
2018-07-08T05:20:41.257Z - INFO - Time interval between two heartbeat request messages is: 35.90644, limit is: 65.0
2018-07-08T05:20:41.266Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:24:01Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:24:01Z"
    }
  ]
}
2018-07-08T05:21:15.166Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:21:15.167Z - INFO - Time interval between two heartbeat request messages is: 33.925093, limit is: 65.0
2018-07-08T05:21:15.176Z - INFO - Response message contains measReportConfig
2018-07-08T05:21:15.177Z - INFO - Time interval between two heartbeat request messages is: 33.925093, limit is: 65.0
2018-07-08T05:21:15.186Z - INFO - Response message contains measReportConfig
2018-07-08T05:21:15.188Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "measReportConfig": [
```

```
          "RECEIVED_POWER_WITH_GRANT"
        ],
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-07-08T05:24:35Z"
      },
      {
        "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
        "grantId": "825209644",
        "measReportConfig": [
          "RECEIVED_POWER_WITH_GRANT"
        ],
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-07-08T05:24:35Z"
      }
    ]
}
2018-07-08T05:21:49.123Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:21:49.124Z - INFO - Time interval between two heartbeat request messages is: 33.956517, limit is: 65.0
2018-07-08T05:21:49.126Z - INFO - measReport received in heartbeat message
2018-07-08T05:21:49.134Z - INFO - Time interval between two heartbeat request messages is: 33.956517, limit is: 65.0
2018-07-08T05:21:49.136Z - INFO - measReport received in heartbeat message
2018-07-08T05:21:49.143Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:25:09Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:25:09Z"
```

```
    }
  ]
}
2018-07-08T05:22:23.124Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:22:23.125Z - INFO - Time interval between two heartbeat request messages is: 34.001054, limit is: 65.0
2018-07-08T05:22:23.133Z - INFO - Time interval between two heartbeat request messages is: 34.001054, limit is: 65.0
2018-07-08T05:22:23.143Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:25:43Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:25:43Z"
    }
  ]
}
2018-07-08T05:22:57.042Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
```

```
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:22:57.044Z - INFO - Time interval between two heartbeat request messages is: 33.918885, limit is: 65.0
2018-07-08T05:22:57.052Z - INFO - Time interval between two heartbeat request messages is: 33.918885, limit is: 65.0
2018-07-08T05:22:57.061Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:26:17Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:26:17Z"
    }
  ]
}
2018-07-08T05:23:30.929Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "41051837",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "825209644",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T05:23:30.930Z - INFO - Time interval between two heartbeat request messages is: 33.886187, limit is: 65.0
```

2018-07-08T05:23:30.939Z - INFO - Time interval between two heartbeat request messages is: 33.886187, limit is: 65.0
2018-07-08T05:23:30.948Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "41051837",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T05:26:50Z"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "825209644",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T05:26:50Z"
}
]
}
2018-07-08T05:24:04.866Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "41051837",
"grantRenew": false,
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,
"measFrequency": 3550000000,
"measRcvdPower": -100
}
]
},
"operationState": "AUTHORIZED"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "825209644",
"grantRenew": false,
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,
"measFrequency": 3550000000,
"measRcvdPower": -100
}
]
},
"operationState": "AUTHORIZED"
}
]
}
2018-07-08T05:24:04.868Z - INFO - Time interval between two heartbeat request messages is: 33.937444, limit is: 65.0
2018-07-08T05:24:04.877Z - INFO - Time interval between two heartbeat request messages is: 33.937444, limit is: 65.0
2018-07-08T05:24:04.886Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "41051837",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T05:27:24Z"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "825209644",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T05:27:24Z"
}

```
  ]
}
2018-07-08T05:24:06.835Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T05:24:18.217Z - INFO - The final result of the test : WINNF.FT.D.MES.5 is - passed and :the additional comments for the current test are : testWINNF.FT.D.MES.5
```


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


```
2018-07-08T05:29:53.417Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T05:29:53.417Z - INFO - the selected test from the user : WINNF.FT.D.RLQ.2 is starting now
2018-07-08T05:32:30.894Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T05:32:30.956Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:32:31.112Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:32:31.121Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
```

```
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:32:31.302Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T05:32:31.309Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T05:32:31Z",
      "grantId": "147222809",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:32:31.480Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "w9SeaVAzPAK0SzeKSkYcp0ejaX6gWSM1mWE3E65q4SMz5vIDWWadvCAsj8NzPeEWn8Ri-iGqL_e4WmPCM8OfzAkrlx4bdM-
c2Vd7ura4h8Ob906bdhFEbOP0on5GPOlhmyvsrvtQWWvtKlxX3aVyVr-zJqMa_npB6tXqB951az9PFLa3XT5-8Ji6caLoHLTRhWS0kRYdeR0PCBUlWCK5-i4qd36xdwKrKtuTgqBxAugvGnKiP5PNz-
0lfciAMcZL9BcRfAqNDN_e30-iKmUmVMK2u4A5sqwQecBcx54S6ACmTNctgfpWthQl02MSGBXYbvSAYSFk3JCdeZbHhypzmQ",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjE3MTg2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml
uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T05:32:31.524Z - INFO - Registration message contains cpiSignatureData
2018-07-08T05:32:31.524Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T05:32:31.525Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
```

```
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.17186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T05:32:31.527Z - INFO - verified signature on cpiSignatureData
2018-07-08T05:32:31.528Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T05:32:31.534Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T05:32:31.535Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:32:31.660Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:32:31.669Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:32:31.807Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "operationParam": {
        "maxEirp": 14.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
```

```
          }
        }
      }
    ]
}
2018-07-08T05:32:31.814Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T05:32:31Z",
      "grantId": "204008900",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:32:31.957Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "147222809",
      "grantRenew": false,
      "operationState": "GRANTED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "204008900",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-08T05:32:31.973Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "147222809",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:35:51Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "204008900",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:35:51Z"
    }
  ]
}
2018-07-08T05:33:03.899Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "147222809",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "204008900",
```

```
        "grantRenew": false,
        "measReport": {
          "rcvdPowerMeasReports": [
            {
              "measBandwidth": 10000000,
              "measFrequency": 3550000000,
              "measRcvdPower": -100
            }
          ]
        },
        "operationState": "AUTHORIZED"
      }
    ]
}
2018-07-08T05:33:03.900Z - INFO - Time interval between two heartbeat request messages is: 31.941913, limit is: 65.0
2018-07-08T05:33:03.910Z - INFO - Time interval between two heartbeat request messages is: 31.941913, limit is: 65.0
2018-07-08T05:33:03.920Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "147222809",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:36:23Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "204008900",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:36:23Z"
    }
  ]
}
2018-07-08T05:34:07.113Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "147222809"
    }
  ]
}
2018-07-08T05:34:07.119Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "147222809",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:34:07.242Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:34:07.243Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
```

```
                "highFrequency": 3555000000,
                "lowFrequency": 3550000000
              },
              "ruleApplied": "FCC_PART_96"
            }
          ],
          "cbsdId": "123456789012345678 9Mock-SAS43740415071",
          "response": {
            "responseCode": 0
          }
        }
      ]
}
2018-07-08T05:34:07.400Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T05:34:07.402Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
2018-07-08T05:34:07.544Z - INFO - relinquishment request from CBRS : {
  "relinquishmentRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "204008900"
    }
  ]
}
2018-07-08T05:34:07.549Z - INFO - engine sent successfully, the response to CBRS : {
  "relinquishmentResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "204008900",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:34:08.937Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T05:34:08.940Z - INFO - the question is : Did the CBSD1 stop RF transmission upon sending Relinquishment request? please choose one of the answers :
2018-07-08T05:34:23.786Z - INFO - for the question : Did the CBSD1 stop RF transmission upon sending Relinquishment request? , the user choose y
2018-07-08T05:34:23.786Z - INFO - the question is : Did the CBSD2 stop RF transmission upon sending Relinquishment request? please choose one of the answers :
2018-07-08T05:34:26.353Z - INFO - for the question : Did the CBSD2 stop RF transmission upon sending Relinquishment request? , the user choose y
2018-07-08T05:34:33.696Z - INFO - The final result of the test : WINNF.FT.D.RLQ.2 is - passed and :the additional comments for the current test are : testWINNF.FT.D.RLQ.2
```

9.25 Log file for test case ID: WINNF.FT.D.RLQ.4


```
2018-07-08T05:37:40.452Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T05:37:40.453Z - INFO - the selected test from the user : WINNF.FT.D.RLQ.4 is starting now
2018-07-08T05:38:15.276Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T05:38:15.322Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:38:15.457Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:38:15.466Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
```

```
        ],
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T05:38:15.591Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T05:38:15.599Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T05:38:15Z",
      "grantId": "181556131",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:38:15.796Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "w9SeaVAzPAK0SzeKSkYcp0ejaX6gWSM1mWE3E65q4SMz5vIDWWadvCAsj8NzPeEWn8Ri-iGqL_e4WmPCM8OfzAkrlx4bdM-
c2Vd7ura4h8Ob906bdhFEbOP0on5GPOlhmyvsrvtQWWvtKlxX3aVyVr-zJqMa_npB6tXqB951az9PFLa3XT5-8Ji6caLoHLTRhWS0kRYdeR0PCBUlWCK5-i4qd36xdwKrKtuTgqBxAugvGnKiP5PNz-
0lfciAMcZL9BcRfAqNDN_e30-iKmUmVMK2u4A5sqwQecBcx54S6ACmTNctgfpWthQl02MSGBXYbvSAYSFk3JCdeZbHhypzmQ",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjE3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T05:38:15.839Z - INFO - Registration message contains cpiSignatureData
2018-07-08T05:38:15.839Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T05:38:15.840Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
```

```
    "latitude": 39.17186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T05:38:15.842Z - INFO - verified signature on cpiSignatureData
2018-07-08T05:38:15.843Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T05:38:15.849Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T05:38:15.851Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:38:16.018Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:38:16.027Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:38:16.181Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS437SS5072234324ss1",
      "operationParam": {
        "maxEirp": 14.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
```

2018-07-08T05:38:16.189Z - INFO - engine sent successfully, the response to CBRS : {
"grantResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"channelType": "GAA",
"grantExpireTime": "2018-07-15T05:38:16Z",
"grantId": "39475209",
"heartbeatInterval": 60,
"response": {
"responseCode": 0
}
}
]
}
2018-07-08T05:38:16.321Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "181556131",
"grantRenew": false,
"operationState": "GRANTED"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "39475209",
"grantRenew": false,
"operationState": "GRANTED"
}
]
}
2018-07-08T05:38:16.337Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "181556131",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T05:41:36Z"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "39475209",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T05:41:36Z"
}
]
}
2018-07-08T05:38:46.619Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "181556131",
"grantRenew": false,
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,
"measFrequency": 3550000000,
"measRcvdPower": -100
}
]
},
"operationState": "AUTHORIZED"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "39475209",
"grantRenew": false,
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,

```
                "measFrequency": 3550000000,
                "measRcvdPower": -100
              }
            ]
          },
          "operationState": "AUTHORIZED"
        }
      ]
}
2018-07-08T05:38:46.621Z - INFO - Time interval between two heartbeat request messages is: 30.298359, limit is: 65.0
2018-07-08T05:38:46.630Z - INFO - Time interval between two heartbeat request messages is: 30.298359, limit is: 65.0
2018-07-08T05:38:46.640Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "181556131",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:42:06Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "39475209",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:42:06Z"
    }
  ]
}
2018-07-08T05:39:50.044Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "181556131"
    }
  ]
}
2018-07-08T05:39:50.050Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 102,
        "responseData": [
          "grantId"
        ]
      }
    }
  ]
}
2018-07-08T05:39:50.211Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "39475209"
    }
  ]
}
2018-07-08T05:39:50.217Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 102,
        "responseData": [
          "grantId"
        ]
      }
    }
  ]
}
2018-07-08T05:39:51.703Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T05:39:51.704Z - INFO - the question is : Did the CBSD1 stop RF transmission upon sending Relinquishment request? please choose one of the answers :
```

2018-07-08T05:39:59.996Z - INFO - for the question : Did the CBSD1 stop RF transmission upon sending Relinquishment request? , the user choose y
2018-07-08T05:39:59.996Z - INFO - the question is : Did the CBSD2 stop RF transmission upon sending Relinquishment request? please choose one of the answers :
2018-07-08T05:40:01.988Z - INFO - for the question : Did the CBSD2 stop RF transmission upon sending Relinquishment request? , the user choose y
2018-07-08T05:40:11.254Z - INFO - The final result of the test : WINNF.FT.D.RLQ.4 is - passed and :the additional comments for the current test are : testWINNF.FT.D.RLQ.4

9.26 Log file for test case ID: WINNF.FT.D.RLQ.6

2018-07-08T05:42:31.770Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T05:42:31.771Z - INFO - the selected test from the user : WINNF.FT.D.RLQ.6 is starting now
2018-07-08T05:46:58.702Z - INFO - registration request from CBRS : {


```
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```


2018-07-08T05:46:58.749Z - INFO - engine sent successfully, the response to CBRS : {


```
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```


2018-07-08T05:46:58.893Z - INFO - spectrumInquiry request from CBRS : {


```
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
```


2018-07-08T05:46:58.903Z - INFO - engine sent successfully, the response to CBRS : {


```
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
```

```
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:46:59.103Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T05:46:59.110Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T05:46:59Z",
      "grantId": "39441350",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:46:59.305Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "w9SeaVAzPAK0SzeKSkYcp0ejaX6gWSM1mWE3E65q4SMz5vIDWWadvCAsj8NzPeEWn8Ri-iGqL_e4WmPCM8OfzAkrlx4bdM-
c2Vd7ura4h8Ob906bdhFEbOP0on5GPOlhmyvsrvtQWWvtKlxX3aVyVr-zJqMa_npB6tXqB951az9PFLa3XT5-8Ji6caLoHLTRhWS0kRYdeR0PCBUlWCK5-i4qd36xdwKrKtuTgqBxAugvGnKiP5PNz-
0lfciAMcZL9BcRfAqNDN_e30-iKmUmVMK2u4A5sqwQecBcx54S6ACmTNctgfpWthQl02MSGBXYbvSAYSFk3JCdeZbHhypzmQ",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjE3MTg2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyR GF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T05:46:59.354Z - INFO - Registration message contains cpiSignatureData
2018-07-08T05:46:59.355Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T05:46:59.355Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
```

```
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.17186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T05:46:59.358Z - INFO - verified signature on cpiSignatureData
2018-07-08T05:46:59.359Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T05:46:59.366Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T05:46:59.369Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:46:59.496Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T05:46:59.505Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:46:59.633Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "operationParam": {
        "maxEirp": 14.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
```

```
          }
        }
      }
    ]
}
2018-07-08T05:46:59.641Z - INFO - engine sent successfully, the response to CBRS  : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T05:46:59Z",
      "grantId": "369617029",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T05:46:59.769Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "39441350",
      "grantRenew": false,
      "operationState": "GRANTED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "369617029",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-07-08T05:46:59.784Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "39441350",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:50:19Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "369617029",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:50:19Z"
    }
  ]
}
2018-07-08T05:47:30.929Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "39441350",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "369617029",
```

```
        "grantRenew": false,
        "measReport": {
          "rcvdPowerMeasReports": [
            {
              "measBandwidth": 10000000,
              "measFrequency": 3550000000,
              "measRcvdPower": -100
            }
          ]
        },
        "operationState": "AUTHORIZED"
      }
    ]
}
2018-07-08T05:47:30.931Z - INFO - Time interval between two heartbeat request messages is: 31.160371, limit is: 65.0
2018-07-08T05:47:30.940Z - INFO - Time interval between two heartbeat request messages is: 31.160371, limit is: 65.0
2018-07-08T05:47:30.949Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "39441350",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:50:50Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "369617029",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T05:50:50Z"
    }
  ]
}
2018-07-08T05:48:35.084Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "39441350"
    }
  ]
}
2018-07-08T05:48:35.106Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 103,
        "responseData": [
          "grantId"
        ]
      }
    }
  ]
}
2018-07-08T05:48:35.256Z - INFO - relinquishment request from CBRS  : {
  "relinquishmentRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "369617029"
    }
  ]
}
2018-07-08T05:48:35.261Z - INFO - engine sent successfully, the response to CBRS  : {
  "relinquishmentResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 103,
        "responseData": [
          "grantId"
        ]
      }
```

```
    }
  ]
}
```


2018-07-08T05:48:36.450Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T05:48:36.452Z - INFO - the question is : Did the CBSD1 stop RF transmission upon sending Relinquishment request? please choose one of the answers :
2018-07-08T05:48:48.142Z - INFO - for the question : Did the CBSD1 stop RF transmission upon sending Relinquishment request? , the user choose y
2018-07-08T05:48:48.143Z - INFO - the question is : Did the CBSD2 stop RF transmission upon sending Relinquishment request? please choose one of the answers :
2018-07-08T05:48:49.233Z - INFO - for the question : Did the CBSD2 stop RF transmission upon sending Relinquishment request? , the user choose y
2018-07-08T05:48:55.427Z - INFO - The final result of the test : WINNF.FT.D.RLQ.6 is - passed and :the additional comments for the current test are : testWINNF.FT.D.RLQ.6

9.27 Log file for test case ID: WINNF.FT.D.DRG.2

2018-07-08T06:15:33.568Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T06:15:33.568Z - INFO - the selected test from the user : WINNF.FT.D.DRG.2 is starting now
2018-07-08T06:16:40.252Z - INFO - registration request from CBRS : {

```
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```

2018-07-08T06:16:40.301Z - INFO - engine sent successfully, the response to CBRS : {

```
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

2018-07-08T06:16:40.431Z - INFO - spectrumInquiry request from CBRS : {

```
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
```

2018-07-08T06:16:40.455Z - INFO - engine sent successfully, the response to CBRS : {

```
  "spectrumInquiryResponse": [
```

```
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T06:16:40.584Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T06:16:40.593Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T06:16:40Z",
      "grantId": "393184849",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T06:16:40.826Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "w9SeaVAzPAK0SzeKSkYcp0ejaX6gWSM1mWE3E65q4SMz5vIDWWadvCAsj8NzPeEWn8Ri-iGqL_e4WmPCM8OfzAkrlx4bdM-
c2Vd7ura4h8Ob906bdhFEbOP0on5GPOlhmyvsrvtQWWvtKlxX3aVyVr-zJqMa_npB6tXqB951az9PFLa3XT5-8Ji6caLoHLTRhWS0kRYdeR0PCBUlWCK5-i4qd36xdwKrKtuTgqBxAugvGnKiP5PNz-
0lfciAMcZL9BcRfAqNDN_e30-iKmUmVMK2u4A5sqwQecBcx54S6ACmTNctgfpWthQl02MSGBXYbvSAYSFk3JCdeZbHhypzmQ",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjE3MTg2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
```

```
2018-07-08T06:16:40.884Z - INFO - Registration message contains cpiSignatureData
2018-07-08T06:16:40.885Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T06:16:40.885Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
    "latitude": 39.17186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T06:16:40.887Z - INFO - verified signature on cpiSignatureData
2018-07-08T06:16:40.888Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T06:16:40.895Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T06:16:40.896Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T06:16:41.049Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T06:16:41.060Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T06:16:41.209Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
```

```
        "operationParam": {
          "maxEirp": 14.0,
          "operationFrequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          }
        }
      }
    ]
}
2018-07-08T06:16:41.228Z - INFO - engine sent successfully, the response to CBRS  : {
   "grantResponse": [
      {
        "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
        "channelType": "GAA",
        "grantExpireTime": "2018-07-15T06:16:41Z",
        "grantId": "443935607",
        "heartbeatInterval": 60,
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T06:16:41.354Z - INFO - heartbeat request from CBRS  : {
   "heartbeatRequest": [
      {
        "cbsdId": "123456789012345678 9Mock-SAS43740415071",
        "grantId": "393184849",
        "grantRenew": false,
        "operationState": "GRANTED"
      },
      {
        "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
        "grantId": "443935607",
        "grantRenew": false,
        "operationState": "GRANTED"
      }
    ]
}
2018-07-08T06:16:41.370Z - INFO - engine sent successfully, the response to CBRS  : {
   "heartbeatResponse": [
      {
        "cbsdId": "123456789012345678 9Mock-SAS43740415071",
        "grantId": "393184849",
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-07-08T06:20:01Z"
      },
      {
        "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
        "grantId": "443935607",
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-07-08T06:20:01Z"
      }
    ]
}
2018-07-08T06:17:15.809Z - INFO - heartbeat request from CBRS  : {
   "heartbeatRequest": [
      {
        "cbsdId": "123456789012345678 9Mock-SAS43740415071",
        "grantId": "393184849",
        "grantRenew": false,
        "measReport": {
          "rcvdPowerMeasReports": [
            {
              "measBandwidth": 10000000,
              "measFrequency": 3550000000,
              "measRcvdPower": -100
            }
          ]
        },
```

```
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "443935607",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-07-08T06:17:15.810Z - INFO - Time interval between two heartbeat request messages is: 34.454869, limit is: 65.0
2018-07-08T06:17:15.824Z - INFO - Time interval between two heartbeat request messages is: 34.454869, limit is: 65.0
2018-07-08T06:17:15.833Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "393184849",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T06:20:35Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "443935607",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T06:20:35Z"
    }
  ]
}
2018-07-08T06:17:46.423Z - INFO - heartbeat request from CBRS  : {
  "heartbeatRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "393184849",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "443935607",
      "grantRenew": false,
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -100
          }
        ]
      },
      "operationState": "AUTHORIZED"
    }
  ]
}
```

2018-07-08T06:17:46.424Z - INFO - Time interval between two heartbeat request messages is: 30.613678, limit is: 65.0
2018-07-08T06:17:46.441Z - INFO - Time interval between two heartbeat request messages is: 30.613678, limit is: 65.0
2018-07-08T06:17:46.455Z - INFO - engine sent successfully, the response to CBRS : {

```
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "393184849",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T06:21:06Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "443935607",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T06:21:06Z"
    }
  ]
}
```

2018-07-08T06:18:22.100Z - INFO - deregistration request from CBRS : {

```
  "deregistrationRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071"
    }
  ]
}
```

2018-07-08T06:18:22.106Z - INFO - engine sent successfully, the response to CBRS : {

```
  "deregistrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

2018-07-08T06:18:22.256Z - INFO - deregistration request from CBRS : {

```
  "deregistrationRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1"
    }
  ]
}
```

2018-07-08T06:18:22.262Z - INFO - engine sent successfully, the response to CBRS : {

```
  "deregistrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

2018-07-08T06:18:23.858Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T06:18:23.858Z - INFO - the question is : Did the CBSD stop RF transmissions upon sending the Deregister request? please choose one of the answers :
2018-07-08T06:18:31.189Z - INFO - for the question : Did the CBSD stop RF transmissions upon sending the Deregister request? , the user choose y
2018-07-08T06:18:31.189Z - INFO - the question is : Did the CBSD stop RF transmissions upon sending the Deregister request? please choose one of the answers :
2018-07-08T06:18:32.383Z - INFO - for the question : Did the CBSD stop RF transmissions upon sending the Deregister request? , the user choose y
2018-07-08T06:18:34.669Z - INFO - The final result of the test : WINNF.FT.D.DRG.2 is - passed and :the additional comments for the current test are : no

9.28 Log file for test case ID: WINNF.FT.D.DRG.4


```
2018-07-08T06:23:26.853Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-07-08T06:23:26.854Z - INFO - the selected test from the user : WINNF.FT.D.DRG.4 is starting now
2018-07-08T06:24:21.537Z - INFO - registration request from CBRS  : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "43740415071",
      "fccId": "1234567890123456789",
      "installationParam": {
        "antennaAzimuth": 170.0,
        "antennaBeamwidth": 60.0,
        "antennaDowntilt": -5.0,
        "antennaGain": 2.0,
        "antennaModel": "MTI",
        "height": 6.0,
        "heightType": "AGL",
        "horizontalAccuracy": 1.0,
        "indoorDeployment": false,
        "latitude": 42.2495,
        "longitude": -108.0135,
        "verticalAccuracy": 1.0
      },
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T06:24:21.585Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T06:24:21.739Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T06:24:21.748Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
```

```
        ],
        "cbsdId": "1234567890123456789Mock-SAS43740415071",
        "response": {
          "responseCode": 0
        }
      }
    ]
}
2018-07-08T06:24:21.877Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "operationParam": {
        "maxEirp": 19.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
2018-07-08T06:24:21.886Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "1234567890123456789Mock-SAS43740415071",
      "channelType": "GAA",
      "grantExpireTime": "2018-07-15T06:24:21Z",
      "grantId": "539645953",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T06:24:22.079Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "E_UTRA",
        "supportedSpec": "802.16e"
      },
      "callSign": "callSign123",
      "cbsdCategory": "A",
      "cbsdSerialNumber": "437SS5072234324ss1",
      "cpiSignatureData": {
        "digitalSignature": "w9SeaVAzPAK0SzeKSkYcp0ejaX6gWSM1mWE3E65q4SMz5vIDWWadvCAsj8NzPeEWn8Ri-iGqL_e4WmPCM8OfzAkrlx4bdM-
c2Vd7ura4h8Ob906bdhFEbOP0on5GPOlhmyvsrvtQWWvtKlxX3aVyVr-zJqMa_npB6tXqB951az9PFLa3XT5-8Ji6caLoHLTRhWS0kRYdeR0PCBUlWCK5-i4qd36xdwKrKtuTgqBxAugvGnKiP5PNz-
0lfciAMcZL9BcRfAqNDN_e30-iKmUmVMK2u4A5sqwQecBcx54S6ACmTNctgfpWthQl02MSGBXYbvSAYSFk3JCdeZbHhypzmQ",
        "encodedCpiSignedData":
"eyJpbnN0YWxsYXRpb25QYXJhbSI6eyJoZWlnaHRUeXBlIjoiQUdMIiwiYW50ZW5uYUdhaW4iOjAuMCwiaG9yaXpvbnRhbEFjY3VyYWN5IjoxLjAsImFudGVubmFEb3dudGlsdCI6MC4wLCJhbnRlbm5hQmVhbXdpZHRoIjozMC4wLCJoZWlnaHQiOjAuMCwidmVydGljYWxBY2N1cmFjeSI6MS4wLCJhbnRlbm5hQXppbXV0aCI6MTEwLjAsImFudGVubmFNb2RlbCI6IkFOVC0zIiwibG9uZ2l0dWRlIjotMTE4LjUwNjc3NDkwMjM0MzcyLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM5LjE3MTg2NzE5MTU2MzM0fSwiZmNjSWQiOiIxMjM0NTY3ODkwMTIzNDU2Nzg5IiwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlOYW1lIjoiQ1BJMSIsIml uc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMTgtMDctMDFUMDA6MDA6MDBaIiwiY3BpSWQiOiJmcm4tdGVzdF9DUElfRlcwMSJ9LCJjYnNkU2VyaWFsTnVtYmVyIjoiNDM3U1M1MDcyMjM0MzI0c3MxIn0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "1234567890123456789",
      "measCapability": [
        "RECEIVED_POWER_WITH_GRANT"
      ],
      "userId": "Xm6b0s"
    }
  ]
}
2018-07-08T06:24:22.143Z - INFO - Registration message contains cpiSignatureData
2018-07-08T06:24:22.144Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-07-08T06:24:22.144Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "antennaAzimuth": 110.0,
    "heightType": "AGL",
    "antennaModel": "ANT-3",
    "longitude": -118.50677490234372,
    "height": 0.0,
    "indoorDeployment": false,
```

```
    "latitude": 39.17186719156334,
    "horizontalAccuracy": 1.0,
    "antennaDowntilt": 0.0,
    "antennaBeamwidth": 30.0,
    "antennaGain": 0.0,
    "verticalAccuracy": 1.0
  },
  "professionalInstallerData": {
    "cpiName": "CPI1",
    "installCertificationTime": "2018-07-01T00:00:00Z",
    "cpiId": "frn-test_CPI_FW01"
  },
  "fccId": "1234567890123456789",
  "cbsdSerialNumber": "437SS5072234324ss1"
}
2018-07-08T06:24:22.146Z - INFO - verified signature on cpiSignatureData
2018-07-08T06:24:22.147Z - INFO - cbsdCategory= 'A', removing optional param from cpi_schema
2018-07-08T06:24:22.152Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-07-08T06:24:22.154Z - INFO - engine sent successfully, the response to CBRS  : {
  "registrationResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T06:24:22.280Z - INFO - spectrumInquiry request from CBRS  : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      ]
    }
  ]
}
2018-07-08T06:24:22.289Z - INFO - engine sent successfully, the response to CBRS  : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3700000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-07-08T06:24:22.431Z - INFO - grant request from CBRS  : {
  "grantRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "operationParam": {
        "maxEirp": 14.0,
        "operationFrequencyRange": {
          "highFrequency": 3700000000,
          "lowFrequency": 3550000000
        }
      }
    }
  ]
}
```

2018-07-08T06:24:22.453Z - INFO - engine sent successfully, the response to CBRS : {
"grantResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"channelType": "GAA",
"grantExpireTime": "2018-07-15T06:24:22Z",
"grantId": "989154246",
"heartbeatInterval": 60,
"response": {
"responseCode": 0
}
}
]
}
2018-07-08T06:24:22.583Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "539645953",
"grantRenew": false,
"operationState": "GRANTED"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "989154246",
"grantRenew": false,
"operationState": "GRANTED"
}
]
}
2018-07-08T06:24:22.601Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "539645953",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T06:27:42Z"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "989154246",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2018-07-08T06:27:42Z"
}
]
}
2018-07-08T06:24:53.502Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "123456789012345678 9Mock-SAS43740415071",
"grantId": "539645953",
"grantRenew": false,
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,
"measFrequency": 3550000000,
"measRcvdPower": -100
}
]
},
"operationState": "AUTHORIZED"
},
{
"cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
"grantId": "989154246",
"grantRenew": false,
"measReport": {
"rcvdPowerMeasReports": [
{
"measBandwidth": 10000000,

```
                "measFrequency": 3550000000,
                "measRcvdPower": -100
              }
            ]
          },
          "operationState": "AUTHORIZED"
        }
      ]
}
2018-07-08T06:24:53.503Z - INFO - Time interval between two heartbeat request messages is: 30.91844, limit is: 65.0
2018-07-08T06:24:53.512Z - INFO - Time interval between two heartbeat request messages is: 30.91844, limit is: 65.0
2018-07-08T06:24:53.521Z - INFO - engine sent successfully, the response to CBRS  : {
  "heartbeatResponse": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071",
      "grantId": "539645953",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T06:28:13Z"
    },
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1",
      "grantId": "989154246",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-07-08T06:28:13Z"
    }
  ]
}
2018-07-08T06:25:25.555Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS43740415071"
    }
  ]
}
2018-07-08T06:25:25.561Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
2018-07-08T06:25:25.702Z - INFO - deregistration request from CBRS  : {
  "deregistrationRequest": [
    {
      "cbsdId": "123456789012345678 9Mock-SAS437SS5072234324ss1"
    }
  ]
}
2018-07-08T06:25:25.708Z - INFO - engine sent successfully, the response to CBRS  : {
  "deregistrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
2018-07-08T06:25:27.080Z - INFO - arrived to nstep starting question answer session with the technician
2018-07-08T06:25:27.080Z - INFO - the question is : Did the CBSD stop RF transmissions upon sending the Deregister request? please choose one of the answers :
2018-07-08T06:25:35.833Z - INFO - for the question : Did the CBSD stop RF transmissions upon sending the Deregister request? , the user choose y
2018-07-08T06:25:35.834Z - INFO - the question is : Did the CBSD stop RF transmissions upon sending the Deregister request? please choose one of the answers :
2018-07-08T06:25:37.610Z - INFO - for the question : Did the CBSD stop RF transmissions upon sending the Deregister request? , the user choose y
2018-07-08T06:25:43.203Z - INFO - The final result of the test : WINNF.FT.D.DRG.4 is - passed and :the additional comments for the current test are : testWINNF.FT.D.DRG.4
```

9.29 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.1

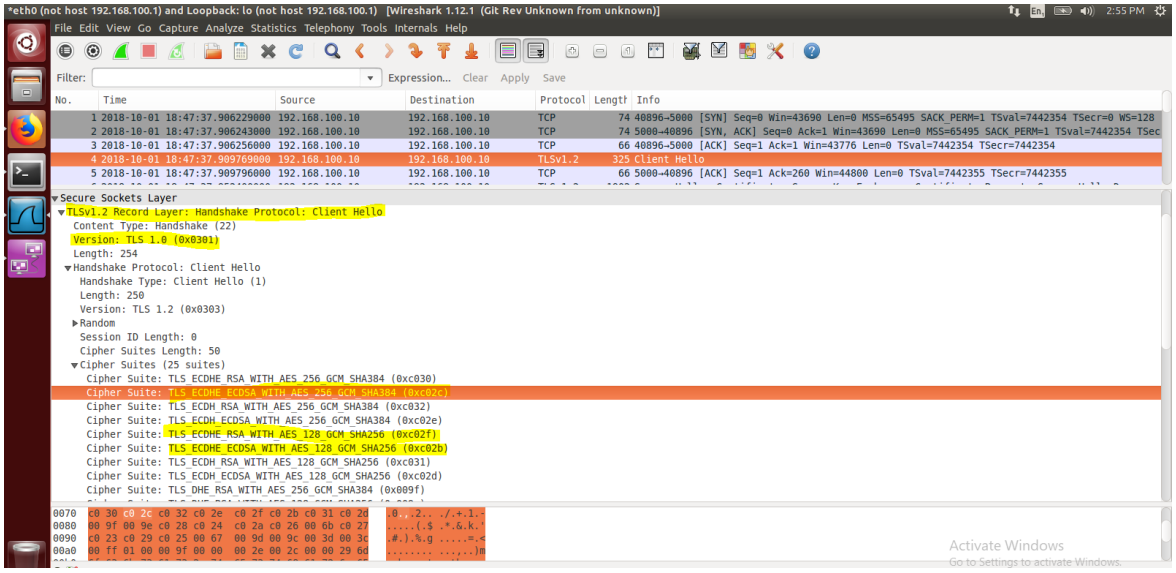

Figure 9.29-1: *Client hello*

9.30 Log file screenshot for test case ID: WINNF.FT.C.SCS.2

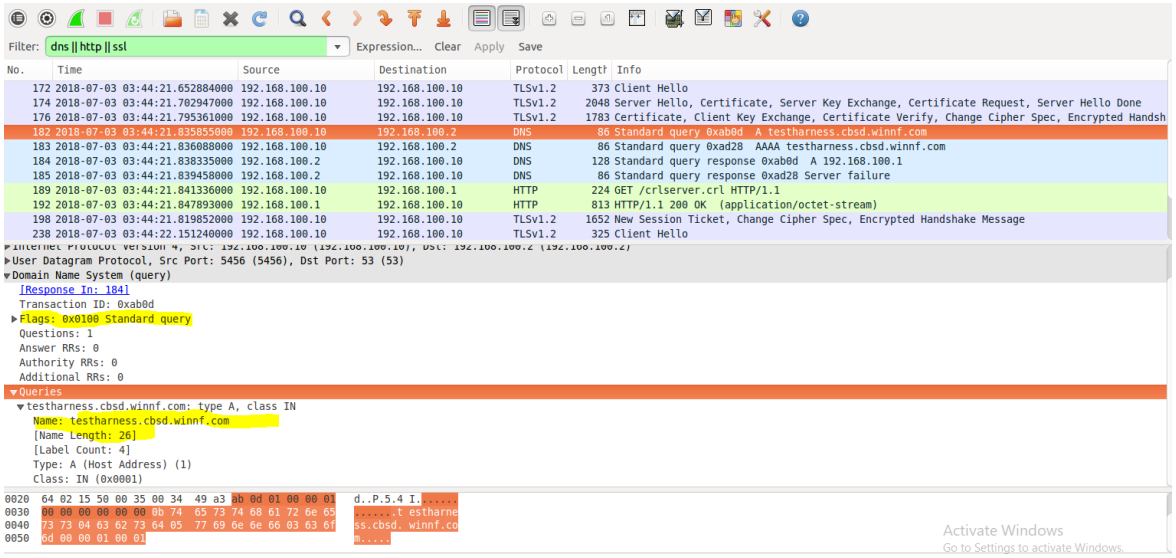

Figure 9.30-1: *DNS*

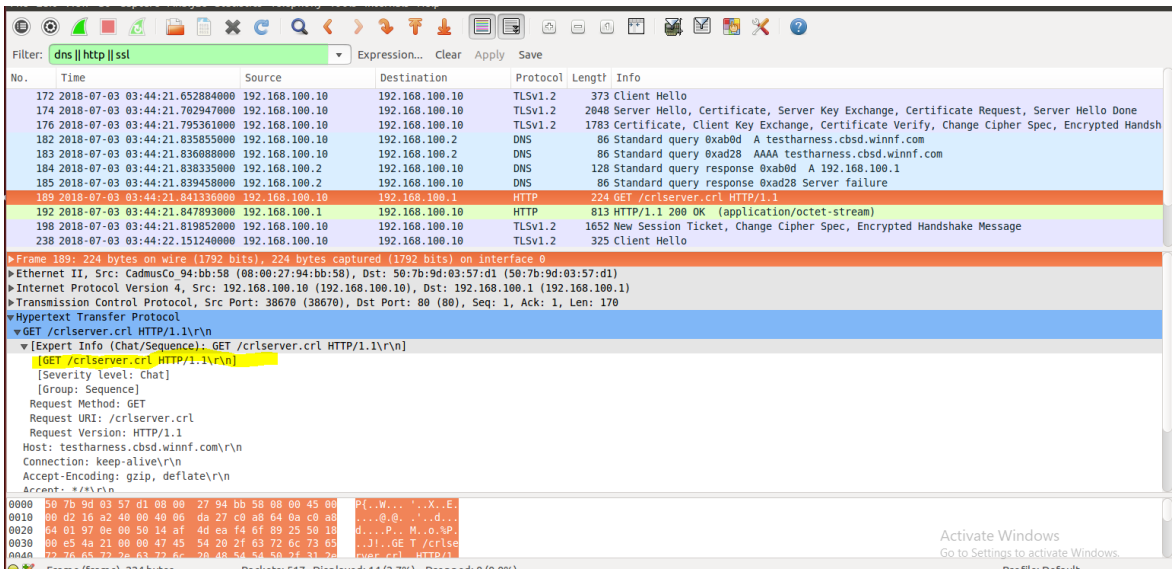

Figure 9.30-2: *GET with CRL file*

9.31 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.3

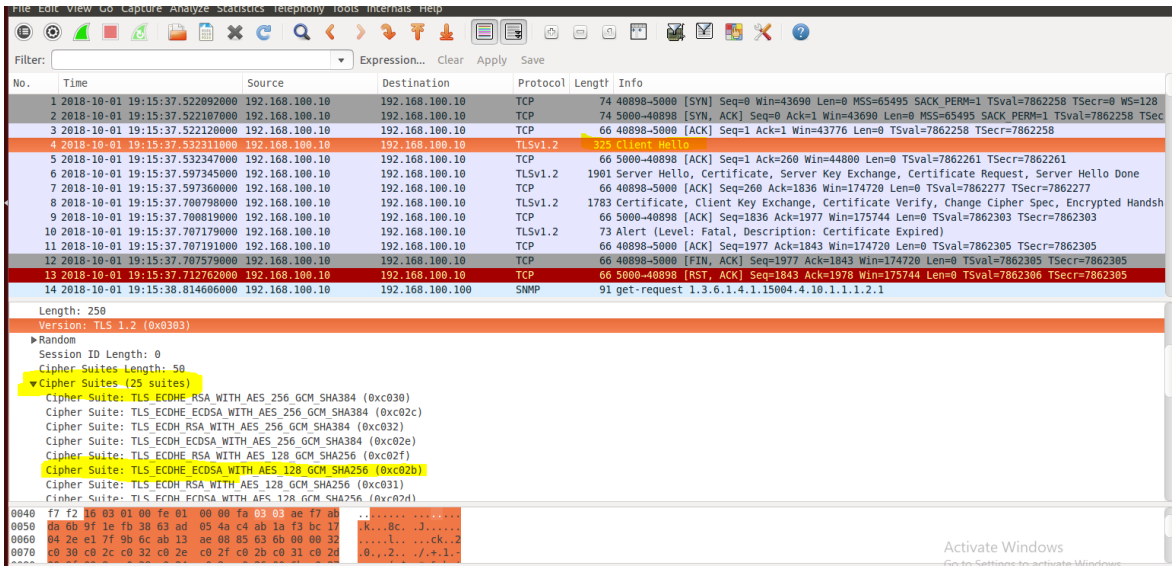

Figure 9.31-1: *Client hello*

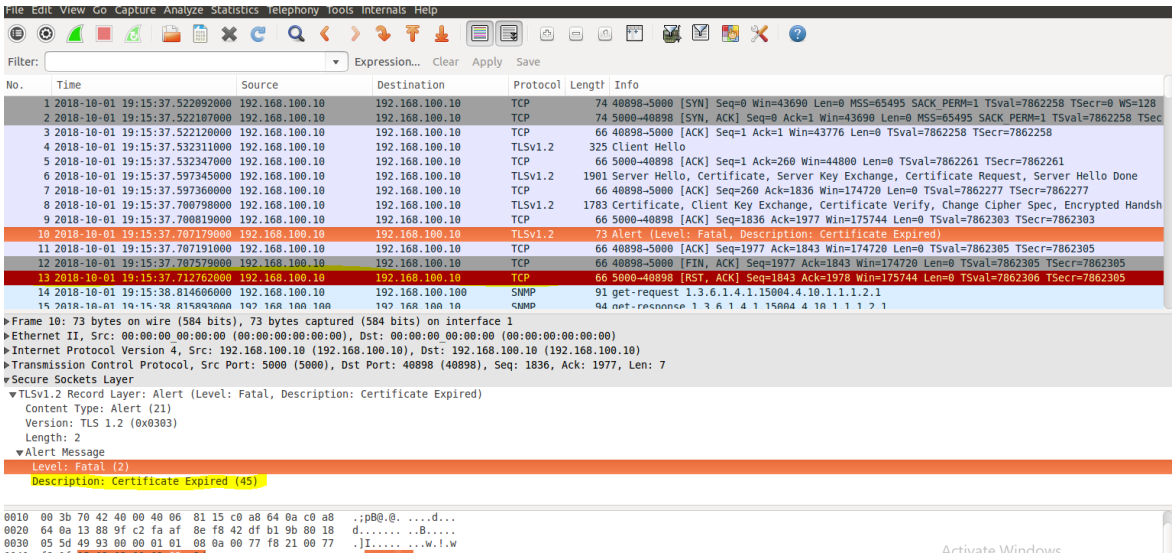

Figure 9.31-2: *Close connection*

9.32 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.4

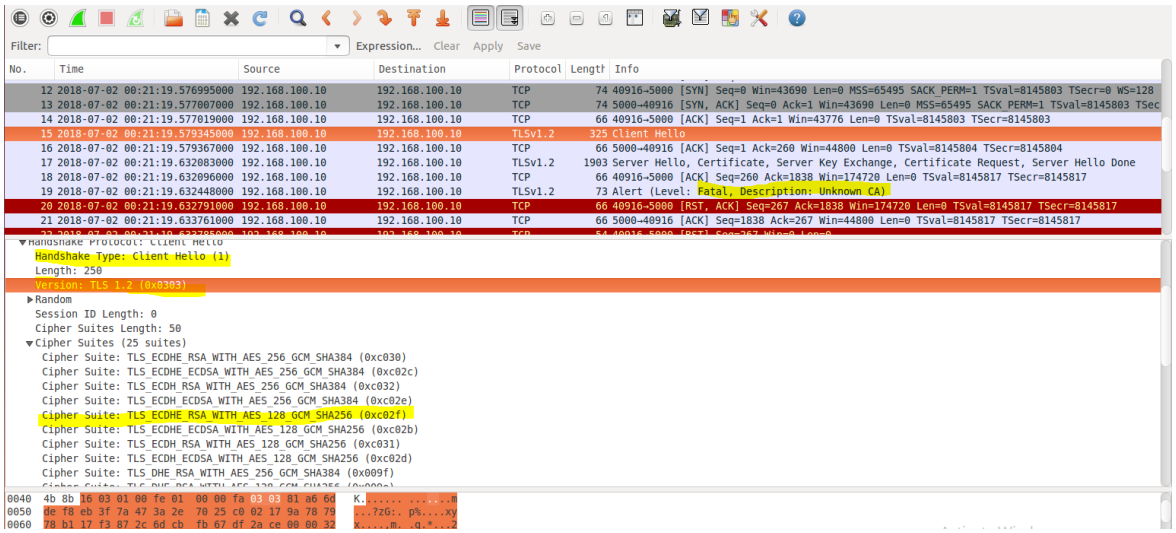

Figure 9.32-1: *Client hello*

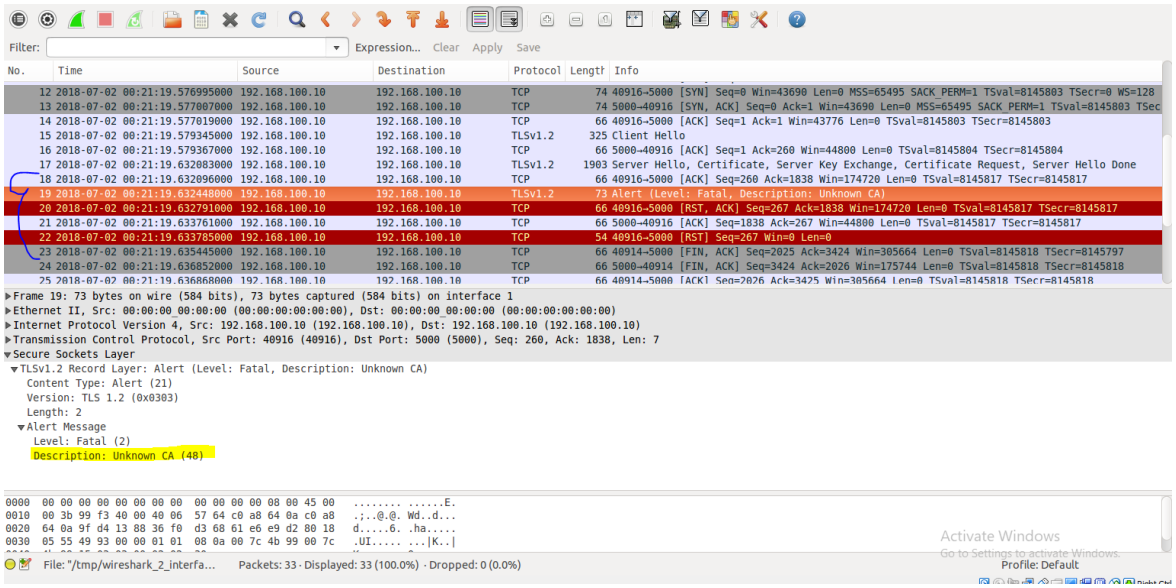

Figure 9.32-2: *Close connection*

9.33 Wireshark capture screenshot for test case ID: WINNF.FT.C.SCS.5

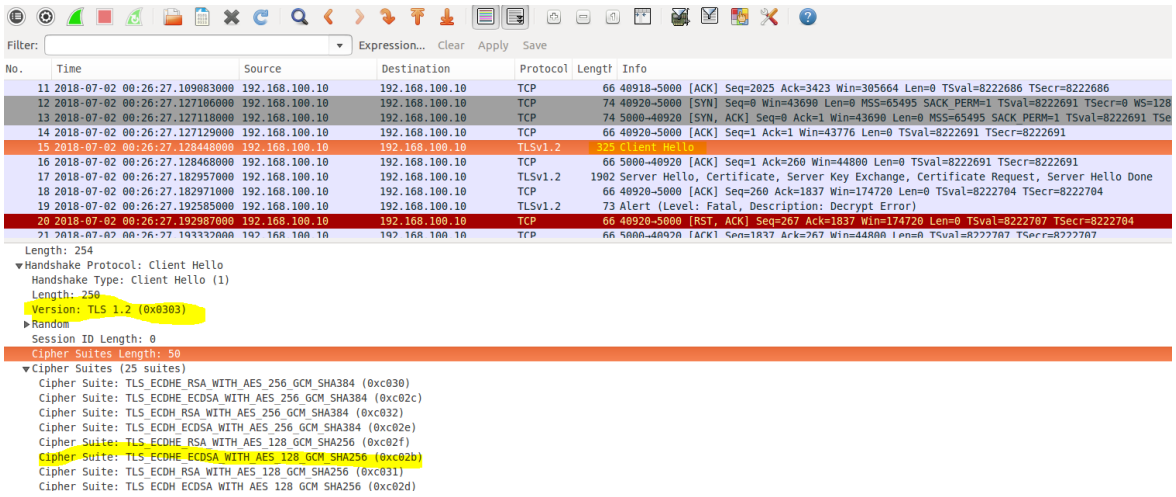

Figure 9.33-1: *Client hello*

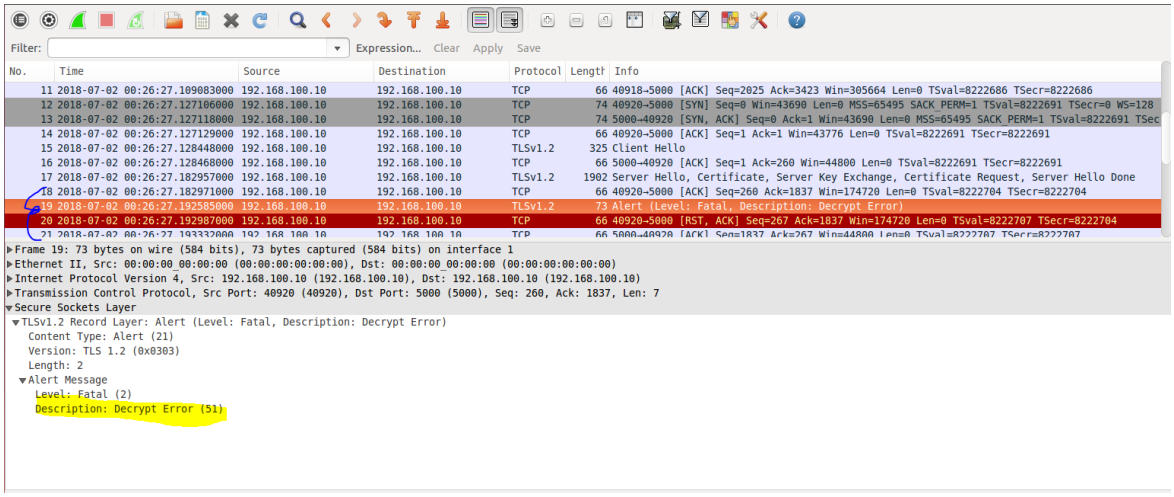

Figure 9.33-2: *Close connection*

END OF REPORT