



WINNF-TS-0122 TEST REPORT

FCC ID : QWP-30450M
Equipment : PmP 450m
Brand Name : Cambium Networks
Model Name : PmP 450m
Applicant : Cambium Networks Inc.
3800 Golf Road, Suite 360 Rolling Meadows, IL
60008, USA
Manufacturer : Cambium Networks Inc.
3800 Golf Road, Suite 360 Rolling Meadows, IL
60008, USA
Standard : WINNF-TS-0122 Version V1.0.1

The product was received on Nov. 19, 2018, and testing was started from Nov. 19, 2018 and completed on Dec. 21, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in WINNF-TS-0122 Version V1.0.1 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

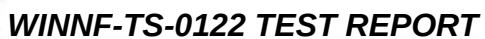
Approved by: Jordan Hsiao

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TEL : 886-3-327-3456
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Report Template No.: HE1-U2 Ver1.0

Summary of Test Result

Report Clause	Ref Std. Clause	CBSD	DP	Required for Cert.	Test Case ID	Test Case Title	Result (PASS/FAIL)	Remark
-	6.1.4.1.1	X	-	C1	WINNF.FT.C.REG.1	Multi-Step registration	N/A	-
-	6.1.4.1.2	-	X	C1	WINNF.FT.D.REG.2	Domain Proxy Multi-Step registration	N/A	-
-	6.1.4.1.3	X	-	C2	WINNF.FT.C.REG.3	Single-Step registration for Category A CBSD	N/A	-
-	6.1.4.1.4	-	X	C2	WINNF.FT.D.REG.4	Domain Proxy Single-Step registration for Cat A CBSD	N/A	-
-	6.1.4.1.5	X	-	C3	WINNF.FT.C.REG.5	Single-Step registration for CBSD with CPI signed data	N/A	-
3.1	6.1.4.1.6	-	X	C3	WINNF.FT.D.REG.6	Domain Proxy Single-Step registration for CBSD with CPI signed data	PASS	-
-	6.1.4.1.7	X	X	C6	WINNF.FT.C.REG.7	Registration due to change of an installation parameter	N/A	-
-	6.1.4.2.1	X	-	M	WINNF.FT.C.REG.8	Missing Required parameters (responseCode 102)	N/A	-
3.2	6.1.4.2.2	-	X	M	WINNF.FT.D.REG.9	Domain Proxy Missing Required parameters (responseCode 102)	PASS	-
-	6.1.4.2.3	X	-	M	WINNF.FT.C.REG.10	Pending registration (responseCode 200)	N/A	-
3.3	6.1.4.2.4	-	X	M	WINNF.FT.D.REG.11	Domain Proxy Pending registration (responseCode 200)	PASS	-
-	6.1.4.2.5	X	-	M	WINNF.FT.C.REG.12	Invalid parameter (responseCode 103)	N/A	-
3.4	6.1.4.2.6	-	X	M	WINNF.FT.D.REG.13	Domain Proxy Invalid parameters (responseCode 103)	PASS	-
-	6.1.4.2.7	X	-	M	WINNF.FT.C.REG.14	Blacklisted CBSD (responseCode 101)	N/A	-
3.5	6.1.4.2.8	-	X	M	WINNF.FT.D.REG.15	Domain Proxy Blacklisted CBSD (responseCode 101)	PASS	-
-	6.1.4.2.9	X	-	M	WINNF.FT.C.REG.16	Unsupported SAS protocol version (responseCode 100)	N/A	-
3.6	6.1.4.2.10	-	X	M	WINNF.FT.D.REG.17	Domain Proxy Unsupported SAS protocol version (responseCode 100)	PASS	-
-	6.1.4.2.11	X	-	M	WINNF.FT.C.REG.18	Group Error (responseCode 201)	N/A	-
3.7	6.1.4.2.12	-	X	M	WINNF.FT.D.REG.19	Domain Proxy Group Error (responseCode 201)	PASS	-



-	6.1.4.3.1	X	X	C2	WINNF.FT.C.REG.20	Category A CBSD location Update	N/A	-
3.8	6.3.4.2.1	X	X	M	WINNF.FT.C.GRA.1	Unsuccessful Grant responseCode=400 (INTERFERENCE)	PASS	-
3.9	6.3.4.2.2	X	X	M	WINNF.FT.C.GRA.2	Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)	PASS	-
-	6.4.4.1.1	X	-	M	WINNF.FT.C.HBT.1	Heartbeat Success Case (first Heartbeat Response)	N/A	-
3.10	6.4.4.1.2	-	X	M	WINNF.FT.D.HBT.2	Domain Proxy Heartbeat Success Case (first Heartbeat Response)	PASS	-
3.11	6.4.4.2.1	X	X	M	WINNF.FT.C.HBT.3	Heartbeat responseCode=105 (DEREGISTER)	PASS	-
-	6.4.4.2.2	X	-	M	WINNF.FT.C.HBT.4	Heartbeat responseCode=500 (TERMINATED_GRANT)	N/A	-
3.12	6.4.4.2.3	X	X	M	WINNF.FT.C.HBT.5	Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response	PASS	-
3.13	6.4.4.2.4	X	X	M	WINNF.FT.C.HBT.6	Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response	PASS	-
3.14	6.4.4.2.5	X	X	M	WINNF.FT.C.HBT.7	Heartbeat responseCode=502 (UNSYNC_OP_PARAM)	PASS	-
3.15	6.4.4.2.6	-	X	M	WINNF.FT.D.HBT.8	Domain Proxy Heartbeat responseCode=500 (TERMINATED_GRANT)	PASS	-
3.16	6.4.4.3.1	X	X	M	WINNF.FT.C.HBT.9	Heartbeat Response Absent (First Heartbeat)	PASS	-
3.17	6.4.4.3.2	X	X	M	WINNF.FT.C.HBT.10	Heartbeat Response Absent (Subsequent Heartbeat)	PASS	-
-	6.4.4.4.1	X	X	O	WINNF.FT.C.HBT.11	SuccessfulGrantRenewalin HeartbeatTestCase	N/A	-
-	6.5.4.2.1	X	-	C4	WINNF.FT.C.MES.1	Registration Response contains measReportConfig	N/A	-
3.18	6.5.4.2.2	-	X	C4	WINNF.FT.D.MES.2	Domain Proxy Registration Response contains measReportConfig	PASS	-
-	6.5.4.2.3	X	X	C5	WINNF.FT.C.MES.3	Grant Response contains measReportConfig	N/A	-
-	6.5.4.2.4	X	-	C5	WINNF.FT.C.MES.4	Heartbeat Response contains measReportConfig	N/A	-
-	6.5.4.2.5	-	X	C5	WINNF.FT.D.MES.5	Domain Proxy Heartbeat Response contains measReportConfig	N/A	-
-	6.6.4.1.1	X	-	M	WINNF.FT.C.RLQ.1	Successful Relinquishment	N/A	-



3.19	6.6.4.1.2	-	X	M	WINNF.FT.D.RLQ.2	Domain Proxy Successful Relinquishment	PASS	-
-	6.6.4.2.1	X	-	O	WINNF.FT.C.RLQ.3	Unsuccessful Relinquishment, responseCode=102	N/A	-
-	6.6.4.2.2	-	X	O	WINNF.FT.D.RLQ.4	Domain Proxy Unsuccessful Relinquishment, responseCode=102	N/A	-
-	6.6.4.3.1	X	-	O	WINNF.FT.C.RLQ.5	Unsuccessful Relinquishment, responseCode=103	N/A	-
-	6.6.4.3.2	-	X	O	WINNF.FT.D.RLQ.6	Domain Proxy Unsuccessful Relinquishment, responseCode=103	N/A	-
-	6.7.4.1.1	X	-	M	WINNF.FT.C.DRG.1	Successful Deregistration	N/A	-
3.20	6.7.4.1.2	-	X	M	WINNF.FT.D.DRG.2	Domain Proxy Successful Deregistration	PASS	-
-	6.7.4.2.1	X	-	O	WINNF.FT.C.DRG.3	Deregistration responseCode=102	N/A	-
-	6.7.4.2.2	-	X	O	WINNF.FT.D.DRG.4	Domain Proxy Deregistration responseCode=102	N/A	-
-	6.7.4.3.1	X	X	O	WINNF.FT.C.DRG.5	Deregistration responseCode=103	N/A	-
3.21	6.8.4.1.1	X	X	M	WINNF.FT.C.SCS.1	Successful TLS connection between UUT and SAS Test Harness	PASS	-
3.22	6.8.4.2.1	X	X	M	WINNF.FT.C.SCS.2	TLS failure due to revoked certificate	PASS	-
3.23	6.8.4.2.2	X	X	M	WINNF.FT.C.SCS.3	TLS failure due to expired server certificate	PASS	-
3.24	6.8.4.2.3	X	X	M	WINNF.FT.C.SCS.4	TLS failure when SAS Test Harness certificate is issued by unknown CA	PASS	-
3.25	6.8.4.2.4	X	X	M	WINNF.FT.C.SCS.5	TLS failure when certificate at the SAS Test Harness is corrupted	PASS	-
3.26	7.1.4.1.1	X	X	M	WINNF.PT.C.HBT	UUT RF Transmit Power Measurement	PASS	-

Note1:

◆ M: Mandatory for certification

◆ O: Optional. Not required for certification.

◆ C: Conditional. Mandatory if CBSD supports relevant functionality.

Note2: The unit under test type is CBSD with Domain Proxy and Conditional Test Case Definitions are C3 and C4.



Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Jordan Hsiao

Report Producer: Emily Chen

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature of Equipment Under Test	
FCC ID	QWP-30450M
Equipment	PmP 450m
Brand Name	Cambium Networks
Model Name	PmP 450m
Power Type	From Power Adapter
Category of CBSD	☐ Category A ☒ Category B
Professional Installation	☒ Yes ☐ No
Unit Under Test in Test ID	☒ CBSD with Domain Proxy ☐ CBSD without Domain Proxy
CBSD Hardware Version	4.1
CBSD Software Version	CANOPY 16.0 (Build INT-CBRS-69) AP
CBSD Firmware Version	N/A
Domain Proxy Software Version	1.0

Note 1: The above information was declared by manufacturer.

Note 2: Adapter information as below:

The EUT was powered by Adapter, and the Adapter was for measurement only, would not be marked.

Equipment	Brand Name	Model Name
Notebook	MEAN WELL	HLG-240H-54A

1.2 Conditional Test Case

☐	C1	Mandatory for UUT which supports multi-step registration message
☐	C2	Mandatory for UUT which supports single-step registration with no CPI-signed data in the registration message. By definition, this is a subset of Category A devices which determine all registration information, including location, without CPI intervention.
☒	C3	Mandatory for UUT which supports single-step registration containing CPI-signed data in the registration message.
☒	C4	Mandatory for UUT which supports RECEIVED_POWER_WITHOUT_GRANT measurement report type.
☐	C5	Mandatory for UUT which supports RECEIVED_POWER_WITH_GRANT measurement report type.
☐	C6	Mandatory for UUT which supports parameter change being made at the UUT and prior to sending a deregistration.

Note: The above information was declared by manufacturer.

1.3 Accessories

N/A

1.4 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E4300	N/A
2	WLAN AP	NETGEAR	WNDR3300v2	N/A
3	Notebook	ASUS	P2438U	N/A
4	CBSD2	Cambium Networks	PMP 450SM	N/A



1.5 Testing Location

Testing Location				
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL : 886-3-327-3456 FAX : 886-3-327-0973		
☐	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085		
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Radiated / RF Conducted	03CH01-HY	Robert Jiang	25°C / 60%	Nov. 19, 2018~Dec. 21, 2018

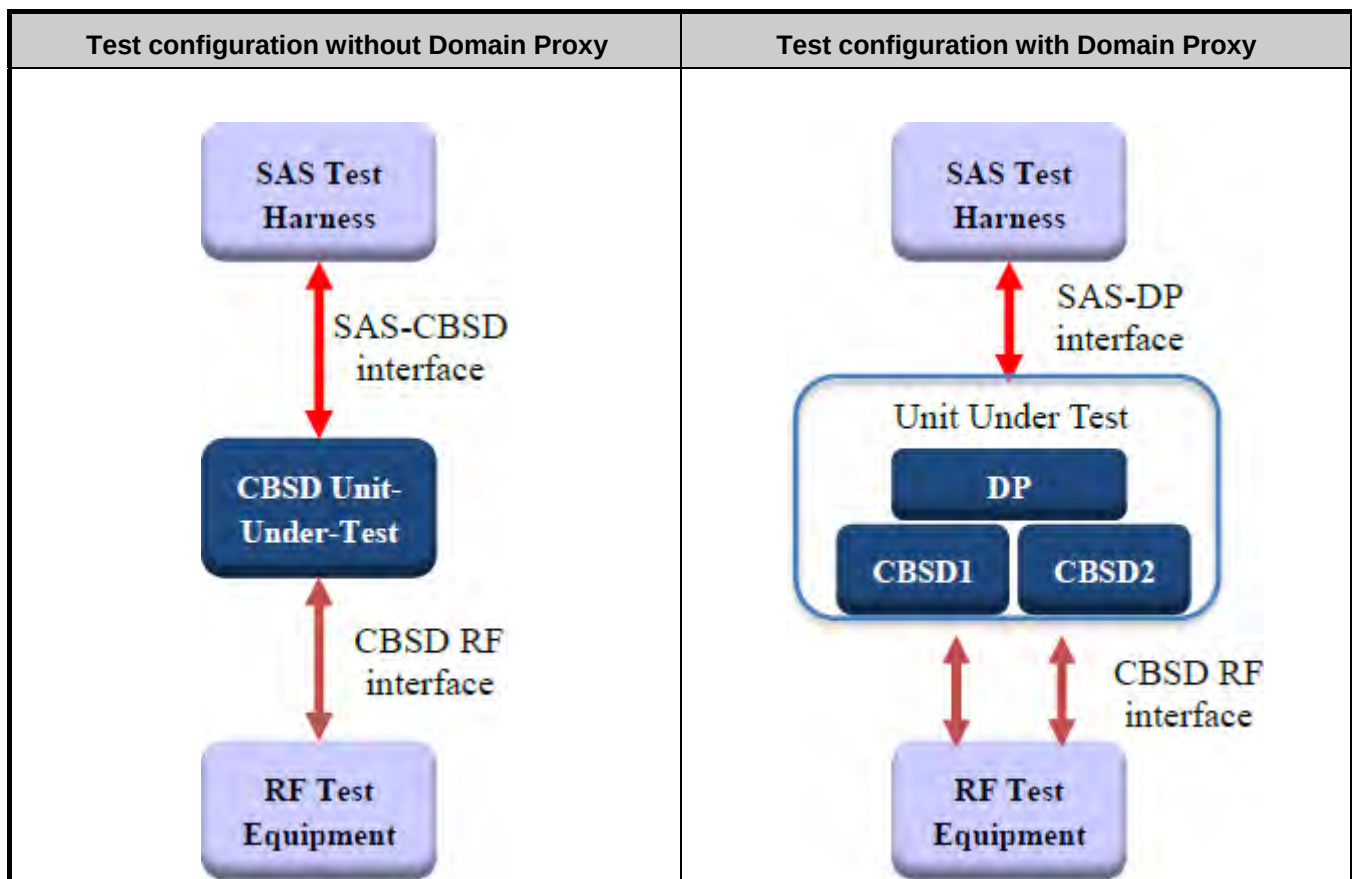
Test site Designation No. TW1190 with FCC.

Test site registered number IC 4086B-1 with Industry Canada.

2 Measurement Environment

Measurement Environment	
Test Harness version	v1.0.0.3
Operating System	WIN7
TLS version	1.2
Python	2.7.14

2.1 Test configuration



3 Test Results

The test parameter (e.g. C for cbsdid) used shall be refer to the test log file in appendix A. Some test case need to monitor RF interface and the measurement plots are in Appendix B. Some test case need to monitor security validation process which are in appendix C and D.

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

#	Test Execution Steps	Results	
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 <code>userId</code>, <code>fcId</code> and <code>cbsdSerialNumber</code> and REG-Conditional <code>cbsdCategory</code>, <code>airInterface</code>, <code>measCapability</code> and <code>cpiSignatureData</code> 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.	PASS	--
3	• SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: – <code>cbsdId</code> = Ci – <code>measReportConfig</code> for each CBSD shall not be included. – <code>responseCode</code> = 0 for each CBSD	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (<code>responseCode</code> =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	PASS	--

3.2 WINNF.FT.D.REG.9 - Domain Proxy Missing Required parameters (responseCode 102)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	--	--
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: – SAS response does not include a <i>cbsdId</i>. – <i>responseCode</i> = Ri for CBSD1 and CBSD2	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (<i>responseCode</i> =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	PASS	--

3.3 WINNF.FT.D.REG.11 - Domain Proxy Pending registration (responseCode 200)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	--	--
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: – SAS response does not include a <i>cbsdId</i>. – <i>responseCode</i> = Ri for CBSD1 and CBSD2	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (<i>responseCode</i> = 200) 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	PASS	--

3.4 WINNF.FT.D.REG.13 - Domain Proxy Invalid parameters (responseCode 103)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	--	--
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: – SAS response does not include a <i>cbsdId</i>. – <i>responseCode</i> = Ri for CBSD1 and CBSD2	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (<i>responseCode</i> R1 = 0 for CBSD1 and R2 = 103 for CBSD2) 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	PASS	--

3.5 WINNF.FT.D.REG.15 - Domain Proxy Blacklisted CBSD (responseCode 101)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	--	--
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: – SAS response does not include a <i>cbsdId</i>. – <i>responseCode</i> = Ri for CBSD1 and CBSD2	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (<i>responseCode</i> R1=0 for CBSD1 and R2=101 for CBSD2) 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	PASS	--

3.6 WINNF.FT.D.REG.17 - Domain Proxy Unsupported SAS protocol version (responseCode 100)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	--	--
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: – SAS response does not include a <i>cbstdId</i>. – <i>responseCode</i> = Ri for CBSD1 and CBSD2	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (<i>responseCode</i> (Ri) = 100 for each CBSD) 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	PASS	--

3.7 WINNF.FT.D.REG.19 - Domain Proxy Group Error (responseCode 201)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.	--	--
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: – SAS response does not include a <i>cbstdId</i>. – <i>responseCode</i>=Ri for CBSD1 and CBSD2	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (<i>responseCode</i> R1=0 for CBSD1 and R2=201 for CBSD2) 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	PASS	--

3.8 WINNF.FT.C.GRA.1 - Unsuccessful Grant responseCode=400 (INTERFERENCE)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: UUT has registered successfully with SAS Test Harness, with <i>cbsdId</i> = C	--	--
2	UUT sends valid Grant Request.	--	--
3	SAS Test Harness sends a Grant Response message, including <i>cbsdId</i>=C <i>responseCode</i> = R	--	--
4	After completion of step 3, SAS Test Harness does not provide any positive response (<i>responseCode</i> =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	PASS	--

3.9 WINNF.FT.C.GRA.2 - Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: UUT has registered successfully with SAS Test Harness, with <i>cbsdId</i> = C	--	--
2	UUT sends valid Grant Request.	--	--
3	SAS Test Harness sends a Grant Response message, including <i>cbsdId</i>=C <i>responseCode</i> =R	--	--
4	After completion of step 3, SAS Test Harness does not provide any positive response (<i>responseCode</i> =401) 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	PASS	--

3.10 WINNF.FT.D.HBT.2 - Domain Proxy Heartbeat Success Case (first Heartbeat Response)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: DP has two CBSD registered successfully with SAS Test Harness, with <i>cbsdId</i> = 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}: <i>cbsdId</i> = Ci - List of frequencyRange objects sent by DP are within the CBRS frequency range	PASS	--
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}: <i>cbsdId</i> = Ci <i>availableChannel</i> is an array of availableChannel objects <i>responseCode</i> = 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}: <i>cbsdId</i> = C <i>maxEIRP</i> is at or below the limit appropriate for CBSD category as defined by Part 96 <i>operationFrequencyRange</i>, Fi, sent by UUT is a valid range within the CBRS band	PASS	--

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 CBSD_i, $i=\{1,2\}$: • <i>cbsdId</i> = C_i • <i>grantId</i> = G_i = a valid grant ID • <i>grantExpireTime</i> = UTC time greater than duration of the test • <i>responseCode</i> = 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 CBSD_i $i=\{1,2\}$: • <i>cbsdId</i> = C_i, $i=\{1,2\}$ • <i>grantId</i> = G_i, $i=\{1,2\}$ • <i>operationState</i> = "GRANTED"	PASS	--
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 CBSD_i: • <i>cbsdId</i> = C_i • <i>grantId</i> = G_i • <i>transmitExpireTime</i> = current UTC time + 200 seconds • <i>responseCode</i> = 0	--	--
9	For further Heartbeat Request messages sent from DP after completion of step 8, validate message is sent within latest specified heartbeatInterval for CBSD_i: • <i>cbsdId</i> = C_i • <i>grantId</i> = G_i • <i>operationState</i> = "AUTHORIZED" and SAS Test Harness responds with a Heartbeat Response message including the following parameters, for CBSD_i: • <i>cbsdId</i> = C_i • <i>grantId</i> = G_i • <i>transmitExpireTime</i> = current UTC time + 200 seconds • <i>responseCode</i> = 0	PASS	--



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 F_i.	PASS	--
----	---	------	----

3.11 WINNF.FT.C.HBT.3 - Heartbeat responseCode=105 (DEREGISTER)

#	Test Execution Steps	Results	
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: ○ valid <i>cbsdlId</i> = C ○ valid <i>grantId</i> = G ○ grant is for frequency range F, power P ○ <i>grantExpireTime</i> = 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: • <i>cbsdlId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "AUTHORIZED"	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • <i>cbsdlId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = T = Current UTC time • <i>responseCode</i> = 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	PASS	--

3.12 WINNF.FT.C.HBT.5 - Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response

#	Test Execution Steps	Results	
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: ○ valid <i>cbsdId</i> = C ○ valid <i>grantId</i> = G ○ grant is for frequency range F, power P ○ <i>grantExpireTime</i> = 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: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "GRANTED"	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = T = current UTC time • <i>responseCode</i> = 501 (SUSPENDED_GRANT)	--	--
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 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: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "GRANTED" B. UUT sends a Relinquishment request message. Ensure message is correctly formatted with parameters: • <i>cbsdId</i> = C • <i>grantId</i> = G Monitor the RF output of the UUT. Verify: • UUT does not transmit at any time	PASS	--

3.13 WINNF.FT.C.HBT.6 - Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response

#	Test Execution Steps	Results	
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: ○ valid <i>cbsdId</i> = C ○ valid <i>grantId</i> = G ○ grant is for frequency range F, power P ○ <i>grantExpireTime</i> = 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: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "AUTHORIZED"	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = T = current UTC time • <i>responseCode</i> = 501 (SUSPENDED_GRANT)	--	--
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 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: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "GRANTED" B. UUT sends a Relinquishment Request message. Ensure message is correctly formatted with parameters: • <i>cbsdId</i> = C • <i>grantId</i> = G Monitor the RF output of the UUT. Verify: • UUT shall stop transmission within (T + 60 seconds) of completion of step 3	PASS	--

3.14 WINNF.FT.C.HBT.7 - Heartbeat responseCode=502 (UNSYNC_OP_PARAM)

#	Test Execution Steps	Results	
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: ○ valid <i>cbsdId</i> = C ○ valid <i>grantId</i> = G ○ grant is for frequency range F, power P ○ <i>grantExpireTime</i> = 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 <i>heartbeatInterval</i> , and is formatted correctly, including: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "AUTHORIZED"	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = T = Current UTC Time • <i>responseCode</i> = 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: ○ <i>cbsdId</i> = C ○ <i>grantId</i> = G Monitor the RF output of the UUT. Verify: • UUT shall stop transmission within (T+60) seconds of completion of step 3.	PASS	--

3.15 WINNF.FT.D.HBT.8 - Domain Proxy Heartbeat responseCode=500 (TERMINATED_GRANT)

#	Test Execution Steps	Results	
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: - valid <i>cbsdId</i> = Ci, i={1,2} - valid <i>grantId</i> = Gi, i={1,2} - grant is for frequency range Fi, power Pi <i>grantExpireTime</i> = 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 <i>heartbeatInterval</i>, and is formatted correctly for each CBSD, including, for CBSDi i={1,2}: <i>cbsdId</i> = Ci, i = {1,2} <i>grantId</i> = Gi, i = {1,2} <i>operationState</i> = "AUTHORIZED"	PASS	--
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: <i>cbsdId</i> = Ci <i>grantId</i> = Gi - For CBSD1: <i>transmitExpireTime</i> = current UTC time + 200 seconds <i>responseCode</i> = 0 - For CBSD2: <i>transmitExpireTime</i> = T = current UTC time <i>responseCode</i> = 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: • <i>cbsdId</i> = C1 • <i>grantId</i> = G1 • <i>transmitExpireTime</i> = current UTC time + 200 seconds • <i>responseCode</i> = 0 • Heartbeat Request message is within <i>heartbeatInterval</i> 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	PASS	--

3.16 WINNF.FT.C.HBT.9 - Heartbeat Response Absent (First Heartbeat)

#	Test Execution Steps	Results	
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: ○ valid <i>cbsdId</i> = C ○ valid <i>grantId</i> = G ○ grant is for frequency range F, power P ○ <i>grantExpireTime</i> = 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 <i>heartbeatInterval</i>, and is formatted correctly, including: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "GRANTED"	PASS	--
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	PASS	--

3.17 WINNF.FT.C.HBT.10 - Heartbeat Response Absent (Subsequent Heartbeat)

#	Test Execution Steps	Results	
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: ○ valid <i>cbsdId</i> = C ○ valid <i>grantId</i> = G ○ grant is for frequency range F, power P ○ <i>grantExpireTime</i> = UTC time greater than duration of the test • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface	--	--
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within the latest specified <i>heartbeatInterval</i>, and is formatted correctly, including: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "AUTHORIZED"	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, with the following parameters: • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = current UTC time + 200 seconds • <i>responseCode</i> = 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 (<i>transmitExpireTime</i> + 60 seconds), using the <i>transmitExpireTime</i> sent in Step 3.	PASS	--

3.18 WINNF.FT.D.MES.2 - Domain Proxy Registration Response contains measReportConfig

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

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

3.19 WINNF.FT.D.RLQ.2 - Domain Proxy Successful Relinquishment

#	Test Execution Steps	Results	
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 <i>cbsdId</i>=Ci, i={1,2} - DP has received a valid grant with <i>grantId</i>=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: <i>cbsdId</i> = Ci <i>grantId</i> = Gi	PASS	--
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: <i>cbsdId</i> = Ci <i>grantId</i> = Gi <i>responseCode</i> = 0	--	--
4	After completion of step 3, SAS Test Harness will not provide any additional positive response (<i>responseCode</i>=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.	PASS	--

3.20 WINNF.FT.D.DRG.2 - Domain Proxy Successful Deregistration

#	Test Execution Steps	Results	
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 <i>cbsdId</i>=Ci, i={1,2} - DP has received a valid grant with <i>grantId</i>= 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 <i>responseCode</i> =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: <i>cbsdId</i> = Ci	PASS	--
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: <i>cbsdId</i> = Ci <i>responseCode</i> = 0	--	--
5	After completion of step 4, SAS Test Harness will not provide any positive response (<i>responseCode</i> =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	PASS	--

3.21 WINNF.FT.C.SCS.1 - Successful TLS connection between UUT and SAS Test Harness

#	Test Execution Steps	Results	
1	- UUT shall start CBSD-SAS communication with the security procedure - The UUT shall establish a TLS handshake with the SAS Test Harness using configured certificate. - Configure the SAS Test Harness to accept the security procedure and establish the connection	PASS	--
2	- Make sure that Mutual authentication happens between UUT and the SAS Test Harness. - Make sure that UUT uses TLS v1.2 - Makesurethatciphersuitesfromoneofthefollowing is selected, - 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	PASS	--
3	A successful registration is accomplished using one of the test cases described in section 6.1.4.1, depending on CBSD capability. UUT sends a registration request to the SAS Test Harness and the SAS Test Harness sends a Registration Response with <i>responseCode</i> = 0 and <i>cbsdId</i>.	PASS	--
4	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	PASS	--

3.22 WINNF.FT.C.SCS.2 - TLS failure due to revoked certificate

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

3.23 WINNF.FT.C.SCS.3 - TLS failure due to expired server certificate

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

3.24 WINNF.FT.C.SCS.4 - TLS failure when SAS Test Harness certificate is issued by an unknown CA

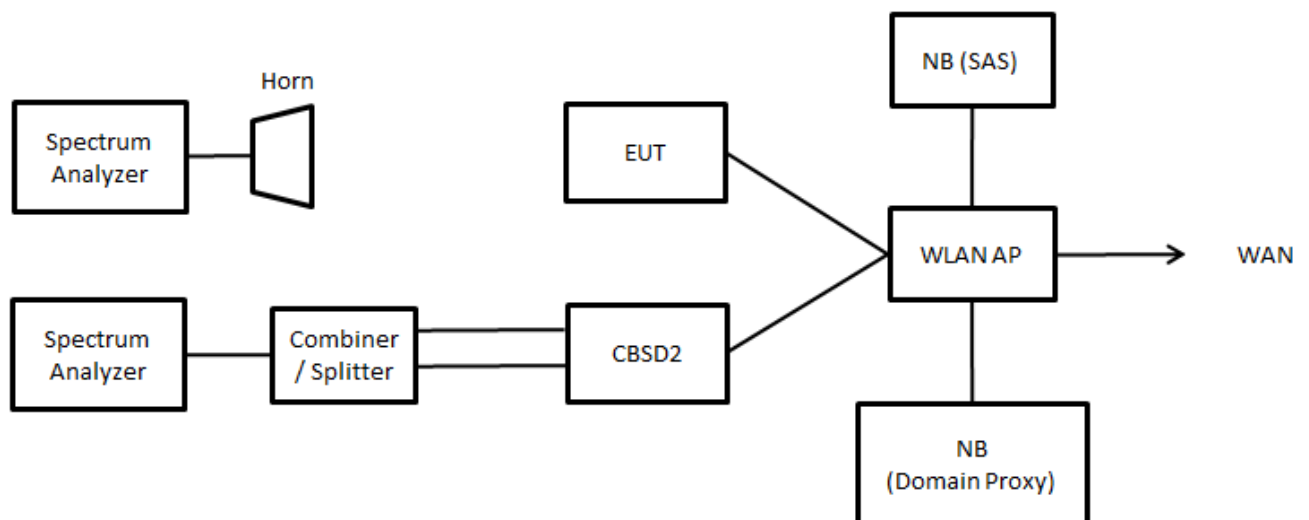
#	Test Execution Steps	Results	
1	• UUT shall start CBSD-SAS communication with the security procedures	PASS	--
2	• Make sure that UUT uses TLS v1.2 for security establishment. • Make sure UUT selects the correct cipher suite. • UUT shall use CRL or OCSP to verify the validity of the server certificate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

3.25 WINNF.FT.C.SCS.5 - TLS failure when certificate at the SAS Test Harness is corrupted

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

3.26 WINNF.PT.C.HBT - UUT RF Transmit Power Measurement

Items	Parameters
Maximum rated power (EIRP, dBm/MHz)	37dBm/MHz
Transmit dynamic range (EIRP, dBm/MHz)	-13~37dBm/MHz
Occupied bandwidth (OBW)	20MHz 10MHz
maxEirp values	1 dB increments from -13 dBm/MHz to 37 dBm/MHz (51 steps)



Note: To ensure EUT transmits with full power across the Bandwidth during the on duration of duty cycle, EUT is running maximum traffic during the test.



Spectrum Analyzer Setting	Parameters
Center Frequency	3660MHz
Frequency Span	40MHz
RBW / VBW	1MHz / 3MHz
Channel Power Meas Bandwidth	20MHz
Sweep Time	1ms

#	Test Execution Steps	Results	
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 CBSID 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 <i>Note: in order for the UUT to request a grant with the parameters {lowFrequency, highFrequency, maxEirp}, the SAS Test Harness may need to provide appropriate guidance in the availableChannel object of the spectrumInquiry response message, and the operationParam object of the grant response message. Alternately, the UUT vendor may provide the ability to set those parameters on the UUT so that the UUT will request a grant with those parameters.</i>	--	--
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 = currentUTCtime + 200seconds - o responseCode = 0	--	--

3	Tester performs power measurement on RF interface(s) of UUT, and verifies it complies with the maxEirp setting, P_i. The RF measurement method is out of scope of this document, but may include additional configuration of the UUT, as required, to fulfill the requirements of the power measurement method. <i>Note: it may be required for the vendor to provide a method or configuration to bring the UUT to a mode which is required by the measurement methodology. Any such mode is vendor-specific and depends upon UUT behavior and the measurement methodology.</i>	PASS	--
---	--	------	----

Frequency	Occupied Bandwidth	Grant maxEirp	maxEirp	Result
	(MHz)	(dBm/MHz)	(dBm/MHz)	
3660MHz	20	37	36.36	Pass
3660MHz	20	27	25.76	Pass
3660MHz	20	7	6.78	Pass
3660MHz	20	-13	-13.73	Pass

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Signal analyzer	Agilent	N9010A	MY52220519	10kHz~44GHz	Mar. 20, 2018	Mar. 19, 2019	Conducted (03CH01-HY)
Spectrum analyzer	Keysight	N9020A	MY55400138	10 Hz up to 26.5 GHz	Jan. 02, 2018	Jan. 01, 2019	Conducted (03CH01-HY)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (03CH01-HY)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (03CH01-HY)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (03CH01-HY)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (03CH01-HY)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (03CH01-HY)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 19, 2018	Nov. 18, 2019	Conducted (03CH01-HY)
RF Power Divider	Woken	4 Way	TH01-DV-01	1GHz ~ 6GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (03CH01-HY)
RF Power Divider	Woken	2 Way	TH01-DV-02	1GHz ~ 6GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (03CH01-HY)
Spectrum analyzer	Keysight	N9020A	MY55400138	10 Hz up to 26.5 GHz	Jan. 02, 2018	Jan. 01, 2019	Radiated (03CH01-HY)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiated (03CH01-HY)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 13, 2018	Nov. 12, 2019	Radiated (03CH01-HY)

Note: Calibration Interval of instruments listed above is one year.



5 Measurement Uncertainty

Test Items	Uncertainty	Remark
Conducted Emission	1.3 dB	Confidence levels of 95%
Radiated Emissions below 1GHz	4.3 dB	Confidence levels of 95%
Radiated Emissions above 1GHz	4.9 dB	Confidence levels of 95%

Test Log for WINNF.FT.D.REG.6 Test Case ID

2018-12-17T06:22:45.523Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T06:22:45.526Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now
 2018-12-17T06:22:53.332Z - INFO - registration request from CBRS : {

```
"registrationRequest": {
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
        "a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
        x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
        hmD9O-vpr-IIzrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
        iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJst_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
        M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
        "eyJmY2NJZCI6IlFUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
        5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
        GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
        udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
        NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
        hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGloYW1lIjoiQ1BJFVZzZXIiMTIzliwiaW5zdGFsbENlcnRpZmlj
        YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
}
```

2018-12-17T06:22:53.395Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T06:22:53.395Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T06:22:53.395Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,
 "antennaAzimuth": 0,



```
"heightType": "AMSL",
"longitude": -88.0808,
"height": 100,
"indoorDeployment": false,
"antennaBeamwidth": 90,
"antennaDowntilt": 0,
"latitude": 42.242,
"antennaGain": 15
},
"fccId": "QWP-30450M",
"professionalInstallerData": {
  "cpiName": "CPI User 123",
  "installCertificationTime": "2018-05-09T15:51:12.866Z",
  "cpid": "cpi123"
},
"cbid": "0a003e6070a5"
}
2018-12-17T06:22:53.398Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:22:53.403Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:22:53.405Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:22:59.479Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbidCategory": "B",
      "cbidInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbid": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJljM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5liwiY2JzZFNlcmIhbE51bWJlciI6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbGxhdGlvbiBhcmFtlj7ImxhdGlo4dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IklFNU0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF
```




```
6aW11dGgiOjAsImFudGVubmFEB3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGJJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEYLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
2018-12-17T06:22:59.494Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:22:59.496Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:22:59.496Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcclId": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:22:59.496Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:22:59.502Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:22:59.503Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```



```
}  
]  
}  
2018-12-17T06:23:00.529Z - INFO - arrived to nstep starting question answer session with the technician  
2018-12-17T06:23:00.532Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :  
2018-12-17T06:24:06.747Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n  
2018-12-17T06:24:06.750Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :  
2018-12-17T06:24:07.305Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n  
2018-12-17T06:24:08.631Z - INFO - The final result of the test : WINNF.FT.D.REG.6 is - passed
```

Test Log for WINNF.FT.D.REG.9 Test Case ID

2018-12-17T06:37:15.230Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T06:37:15.233Z - INFO - the selected test from the user : WINNF.FT.D.REG.9 is starting now
 2018-12-17T06:37:25.137Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwibG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLCJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLCJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQioiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIgaMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-17T06:37:25.177Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T06:37:25.177Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T06:37:25.177Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,



```
"antennaAzimuth": 0,
"heightType": "AMSL",
"longitude": -88.0808,
"height": 100,
"indoorDeployment": false,
"antennaBeamwidth": 90,
"antennaDowntilt": 0,
"latitude": 42.242,
"antennaGain": 15
},
"fcclId": "QWP-30450M",
"professionalInstallerData": {
  "cpiName": "CPI User 123",
  "installCertificationTime": "2018-05-09T15:51:12.866Z",
  "cpild": "cpi123"
},
"cbdsSerialNumber": "0a003e6070a5"
}
2018-12-17T06:37:25.178Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:37:25.184Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:37:25.186Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
2018-12-17T06:37:29.421Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbdsCategory": "B",
      "cbdsInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbdsSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJljM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5liwiY2JzZFNIcmIhBE51bWJlciI6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbgXhdGlvbiBhcmFtlj7ImxhdGlo0WRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IklFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF
```

```

6aW11dGgiOjAsImFudGVubmFEB3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGJJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEYLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
2018-12-17T06:37:29.483Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:37:29.483Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:37:29.483Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcclId": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:37:29.483Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:37:29.489Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:37:29.490Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}

```



```
]
}
```

2018-12-17T06:37:31.237Z - INFO - arrived to nstep starting question answer session with the technician

2018-12-17T06:37:31.240Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2018-12-17T06:38:36.585Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2018-12-17T06:38:36.588Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :

2018-12-17T06:38:38.546Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n

2018-12-17T06:38:39.582Z - INFO - The final result of the test : WINNF.FT.D.REG.9 is - passed

Test Log for WINNF.FT.D.REG.11 Test Case ID

2018-12-17T06:39:25.486Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T06:39:25.489Z - INFO - the selected test from the user : WINNF.FT.D.REG.11 is starting now

2018-12-17T06:39:28.944Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_b14Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiOG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTVMliwiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLcJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLcJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQ0iOjJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIjMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-17T06:39:28.977Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T06:39:28.977Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T06:39:28.979Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,



```
"antennaAzimuth": 0,
"heightType": "AMSL",
"longitude": -88.0808,
"height": 100,
"indoorDeployment": false,
"antennaBeamwidth": 90,
"antennaDowntilt": 0,
"latitude": 42.242,
"antennaGain": 15
},
"fcclId": "QWP-30450M",
"professionalInstallerData": {
  "cpiName": "CPI User 123",
  "installCertificationTime": "2018-05-09T15:51:12.866Z",
  "cpild": "cpi123"
},
"cbdsSerialNumber": "0a003e6070a5"
}
2018-12-17T06:39:28.980Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:39:28.984Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:39:28.986Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 200
      }
    }
  ]
}
2018-12-17T06:39:32.759Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbdsCategory": "B",
      "cbdsInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbdsSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsj-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJljM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5liwiY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbGxhdGlvbiBhcmFtlj7ImxhdGlo0WRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IklFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF
```



```

6aW11dGgiOjAsImFudGVubmFEB3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGJJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEYLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
2018-12-17T06:39:32.825Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:39:32.825Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:39:32.825Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcclId": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:39:32.826Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:39:32.832Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:39:32.834Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 200
      }
    }
  ]
}

```



```
]
}
```

2018-12-17T06:39:34.493Z - INFO - arrived to nstep starting question answer session with the technician

2018-12-17T06:39:34.494Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2018-12-17T06:40:40.009Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2018-12-17T06:40:40.010Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :

2018-12-17T06:40:40.617Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n

2018-12-17T06:40:41.589Z - INFO - The final result of the test : WINNF.FT.D.REG.11 is - passed

**Test Log for WINNF.FT.D.REG.13 Test Case ID**

2018-12-17T06:41:24.276Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-17T06:41:24.276Z - INFO - the selected test from the user : WINNF.FT.D.REG.13 is starting now

2018-12-17T06:41:27.022Z - INFO - registration request from CBRS : {
 "registrationRequest": [
 {
 "airInterface": {
 "radioTechnology": "CAMBIUM_NETWORKS"
 },
 "cbstdCategory": "B",
 "cbstdInfo": {
 "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
 "vendor": "Cambium Networks"
 },
 "cbstdSerialNumber": "0a003e6070a5",
 "cpisignatureData": {
 "digitalSignature":
 "a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
 x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
 hmD90-vpr-IlZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGve6u
 iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJSt_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
 M4YEL9c5Q8vCHyHeCvFA4hw",
 "encodedCpiSignedData":
 "eyJmY2NJZCI6IlFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGewMDNINjA3MGE1IiwiaW
 5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
 GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
 udGVubmFBemltdXRoljowLCJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
 NhcGFiaWxpdkHkiOjQwLCJhbnRlbn5hQmVhbXdpZHRolj05MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
 hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIjMTIzIiwiaW5zdGFsbENlcnRpZmlj
 YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
 "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
 },
 "fcclId": "QWP-30450M",
 "groupingParam": [
 {
 "groupId": "0a-00-3e-60-70-a5",
 "groupType": "INTERFERENCE_COORDINATION"
 }
],
 "measCapability": [
 "RECEIVED_POWER_WITHOUT_GRANT"
],
 "userId": "test"
 }
]
}

2018-12-17T06:41:27.084Z - INFO - Registration message contains cpisignatureData
2018-12-17T06:41:27.084Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:41:27.084Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {

```

    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T06:41:27.084Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:41:27.084Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:41:27.084Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:41:30.532Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUFm5HccR80kcADaOBIFzJlJm6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5IiwY2JzZFNlcmhE51bWJlciI6IjBhMDAzZTQzMWEzNCIsImLuc3

```



```
RhbGxhdGlvbIBhcmFtljlp7ImxhdGI0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvdjE4LCJlaXJwQ2FwYWJp
6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjE4Ljg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fccId": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
2018-12-17T06:41:30.562Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:41:30.562Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:41:30.562Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fccId": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:41:30.562Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:41:30.562Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:41:30.578Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 103
      }
    }
  ]
}
```



```
    }  
  }  
]  
}  
2018-12-17T06:41:32.388Z - INFO - arrived to nstep starting question answer session with the technician  
2018-12-17T06:41:32.388Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :  
2018-12-17T06:44:01.821Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n  
2018-12-17T06:44:01.835Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :  
2018-12-17T06:44:02.303Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n  
2018-12-17T06:44:02.897Z - INFO - The final result of the test : WINNF.FT.D.REG.13 is - passed
```

Test Log for WINNF.FT.D.REG.15 Test Case ID

2018-12-17T06:44:17.592Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T06:44:17.592Z - INFO - the selected test from the user : WINNF.FT.D.REG.15 is starting now

2018-12-17T06:44:20.618Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIjMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-17T06:44:20.650Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T06:44:20.650Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T06:44:20.650Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T06:44:20.665Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:44:20.665Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:44:20.665Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:44:25.891Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJlJm6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5liwiY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbgXhdGlvbiBhcmFtIjp7ImxhdGUiOidWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDg5ImhlaWdod

```




```
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50lpmYWxzZSwiYW50ZW5uYUUF
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-12-17T06:44:25.937Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:44:25.937Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:44:25.937Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcclId": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:44:25.937Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:44:25.953Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:44:25.953Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 101
      }
    }
  ]
}
```



```
}  
]  
}  
2018-12-17T06:44:27.732Z - INFO - arrived to nstep starting question answer session with the technician  
2018-12-17T06:44:27.732Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :  
2018-12-17T06:45:29.414Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n  
2018-12-17T06:45:29.414Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :  
2018-12-17T06:45:33.688Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n  
2018-12-17T06:45:34.780Z - INFO - The final result of the test : WINNF.FT.D.REG.15 is - passed
```

**Test Log for WINNF.FT.D.REG.17 Test Case ID**

2018-12-17T06:45:55.559Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-17T06:45:55.559Z - INFO - the selected test from the user : WINNF.FT.D.REG.17 is starting now

2018-12-17T06:45:59.226Z - INFO - registration request from CBRS : {
 "registrationRequest": [
 {
 "airInterface": {
 "radioTechnology": "CAMBIUM_NETWORKS"
 },
 "cbstdCategory": "B",
 "cbstdInfo": {
 "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
 "vendor": "Cambium Networks"
 },
 "cbstdSerialNumber": "0a003e6070a5",
 "cpisignatureData": {
 "digitalSignature":
 "a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
 x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
 hmD90-vpr-IlZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGve6u
 iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJSt_bI4Wow2zEvOpyhqfloodZuhbVaS0GJ2gj8oroL2BFHD1DG
 M4YEL9c5Q8vCHyHeCvFA4hw",
 "encodedCpiSignedData":
 "eyJmY2NJZCI6IlFUC0zMDQ1ME0iLCJYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1IiwiaW
 5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
 GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
 udGVubmFBemltdXRoljowLCJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
 NhcGFiaWxpdkHkiOjQwLCJhbnRlbn5hQmVhbXdpZHRolj05MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
 hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIjMTIzIiwiaW5zdGFsbENlcnRpZmlj
 YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
 "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
 },
 "fcclId": "QWP-30450M",
 "groupingParam": [
 {
 "groupId": "0a-00-3e-60-70-a5",
 "groupType": "INTERFERENCE_COORDINATION"
 }
],
 "measCapability": [
 "RECEIVED_POWER_WITHOUT_GRANT"
],
 "userId": "test"
 }
]
}

2018-12-17T06:45:59.273Z - INFO - Registration message contains cpisignatureData
2018-12-17T06:45:59.273Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:45:59.273Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {

```

        "eirpCapability": 40,
        "antennaAzimuth": 0,
        "heightType": "AMSL",
        "longitude": -88.0808,
        "height": 100,
        "indoorDeployment": false,
        "antennaBeamwidth": 90,
        "antennaDowntilt": 0,
        "latitude": 42.242,
        "antennaGain": 15
    },
    "fccId": "QWP-30450M",
    "professionalInstallerData": {
        "cpiName": "CPI User 123",
        "installCertificationTime": "2018-05-09T15:51:12.866Z",
        "cpild": "cpi123"
    },
    "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T06:45:59.273Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:45:59.289Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:45:59.289Z - INFO - engine sent successfully, the response to CBRS : {
    "registrationResponse": [
        {
            "response": {
                "responseCode": 100
            }
        }
    ]
}
2018-12-17T06:46:04.592Z - INFO - registration request from CBRS : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "CAMBIUM_NETWORKS"
            },
            "cbsdCategory": "B",
            "cbsdInfo": {
                "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
                "vendor": "Cambium Networks"
            },
            "cbsdSerialNumber": "0a003e431a34",
            "cpiSignatureData": {
                "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsj-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJlJm6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
                "encodedCpiSignedData":
"eyJmY2NJZCI6llo4SDg5RIQwMDA5liwiY2JzZFNlcmIhbE51bWJlcil6ljBhMDAzZTQzMWEzNCIsImIuc3
RhbgXhdGlvbiBhcmFtIjp7ImxhdG90dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdod

```



```
CI6MCwiaGVpZ2h0VHlwZSI6IkJFU0wiLCJpbmRvb3JEZXBs3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGlJZC16ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEYLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-12-17T06:46:04.640Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:46:04.640Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:46:04.640Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcclId": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:46:04.640Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:46:04.654Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:46:04.654Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 100
      }
    }
  ]
}
```



```
}  
]  
}  
2018-12-17T06:46:05.700Z - INFO - arrived to nstep starting question answer session with the technician  
2018-12-17T06:46:05.700Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :  
2018-12-17T06:47:07.289Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n  
2018-12-17T06:47:07.289Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :  
2018-12-17T06:47:08.506Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n  
2018-12-17T06:47:09.302Z - INFO - The final result of the test : WINNF.FT.D.REG.17 is - passed
```

Test Log for WINNF.FT.D.REG.19 Test Case ID

2018-12-17T06:47:23.559Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T06:47:23.559Z - INFO - the selected test from the user : WINNF.FT.D.REG.19 is starting now

2018-12-17T06:47:25.775Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwibG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMliwiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLcJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdHkiOjQwLcJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIgaMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-17T06:47:25.822Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T06:47:25.822Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T06:47:25.822Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T06:47:25.822Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:47:25.822Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:47:25.838Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:47:28.630Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJlJM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5liwiY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbgXhdGlvbiBhcmFtIjp7ImxhdGUiOidWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdod

```




```
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50lpmYWxzZSwiYW50ZW5uYUUF
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWZtd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGlJZC16ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjE5Ljg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fccId": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-12-17T06:47:28.661Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
}
2018-12-17T06:47:28.677Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3555000000,
            "lowFrequency": 3550000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

```
]
}
2018-12-17T06:47:28.677Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:47:28.677Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:47:28.677Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fccId": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:47:28.677Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:47:28.677Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:47:28.677Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 201
      }
    }
  ]
}
}
2018-12-17T06:47:30.674Z - INFO - arrived to nstep starting question answer session with the technician
2018-12-17T06:47:30.674Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-12-17T06:48:32.368Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-12-17T06:48:32.368Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-12-17T06:48:33.256Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-12-17T06:48:33.647Z - INFO - The final result of the test : WINNF.FT.D.REG.19 is - passed
```

Test Log for WINNF.FT.C.GRA.1 Test Case ID

2018-12-13T09:39:56.825Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-13T09:39:56.828Z - INFO - the selected test from the user : WINNF.FT.C.GRA.1 is starting now
 2018-12-13T09:40:00.548Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiYm9uZ2l0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLcJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLcJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIgaMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-13T09:40:00.592Z - INFO - Registration message contains cpiSignatureData
 2018-12-13T09:40:00.592Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-13T09:40:00.592Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-13T09:40:00.594Z - INFO - verified signature on cpiSignatureData
2018-12-13T09:40:00.598Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-13T09:40:00.599Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-13T09:40:38.430Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-13T09:40:38.441Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          }
        }
      ]
    }
  ]
}

```

```

    },
    "ruleApplied": "FCC_PART_96"
  }
],
"cbid": "QWP-30450MMock-SAS0a003e6070a5",
"response": {
  "responseCode": 0
}
}
]
}
2018-12-13T09:40:38.500Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": -13,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
}
2018-12-13T09:40:38.512Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
}
2018-12-13T09:40:39.872Z - INFO - arrived to nstep starting question answer session with the technician
2018-12-13T09:40:39.875Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-12-13T09:41:53.076Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-12-13T09:41:54.183Z - INFO - The final result of the test : WINNF.FT.C.GRA.1 is - passed

```

Test Log for WINNF.FT.C.GRA.2 Test Case ID

2018-12-13T09:42:13.073Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-13T09:42:13.075Z - INFO - the selected test from the user : WINNF.FT.C.GRA.2 is starting now
 2018-12-13T09:42:17.198Z - INFO - registration request from CBRS : {

```
"registrationRequest": {
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
        "a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
        x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
        hmD9O-vpr-IIZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
        iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJst_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
        M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
        "eyJmY2NJZCI6IlFUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
        5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
        GVpZ2h0IjoxMDAsImhlaWdodFR5cGUiOiJBTvNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
        udGVubmFBemltdXRoljowLCJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
        NhcGFiaWxpdkHkiOjQwLCJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
        hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYW11IjoiQ1BJFVZzZXIjMTIzliwiaW5zdGFsbENlcnRpZmlj
        YXRpb25UaW11IjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
}
```

2018-12-13T09:42:17.243Z - INFO - Registration message contains cpiSignatureData
 2018-12-13T09:42:17.243Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-13T09:42:17.244Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,
 "antennaAzimuth": 0,

```
"heightType": "AMSL",
"longitude": -88.0808,
"height": 100,
"indoorDeployment": false,
"antennaBeamwidth": 90,
"antennaDowntilt": 0,
"latitude": 42.242,
"antennaGain": 15
},
"fcclId": "QWP-30450M",
"professionalInstallerData": {
  "cpiName": "CPI User 123",
  "installCertificationTime": "2018-05-09T15:51:12.866Z",
  "cpild": "cpi123"
},
"cbbsdSerialNumber": "0a003e6070a5"
}
2018-12-13T09:42:17.246Z - INFO - verified signature on cpiSignatureData
2018-12-13T09:42:17.250Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-13T09:42:17.253Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
}
2018-12-13T09:42:38.851Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
}
2018-12-13T09:42:38.861Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          }
        }
      ]
    }
  ]
}
```

```
        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-12-13T09:42:38.907Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": -13,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-13T09:42:38.915Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 401
      }
    }
  ]
}
2018-12-13T09:42:40.092Z - INFO - arrived to nstep starting question answer session with the technician
2018-12-13T09:42:40.095Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-12-13T09:43:45.630Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-12-13T09:43:46.019Z - INFO - The final result of the test : WINNF.FT.C.GRA.2 is - passed
```


Test Log for WINNF.FT.D.HBT.2 Test Case ID

2018-12-17T05:44:06.384Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T05:44:06.387Z - INFO - the selected test from the user : WINNF.FT.D.HBT.2 is starting now
 2018-12-17T05:44:15.788Z - INFO - registration request from CBRS : {

```
"registrationRequest": {
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiYm9uZ2l0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLzJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLzJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQ0iOjJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIjMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": {
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    },
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
}
```

2018-12-17T05:44:15.924Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T05:44:15.924Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T05:44:15.924Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T05:44:16.009Z - INFO - verified signature on cpiSignatureData
2018-12-17T05:44:16.016Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T05:44:16.016Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T05:44:22.467Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJlJM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5IiwY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbgXhdGlvbiBhcmFtIjp7ImxhdGUiOidWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDg5ImhlaWdod

```



```
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50lpmYWxzZSwiYW50ZW5uYUFP
6aW11dGgiOjAsImFudGVubmFEB3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGlJZC16ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEYLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcid": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-12-17T05:44:22.520Z - INFO - Registration message contains cpiSignatureData
2018-12-17T05:44:22.520Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T05:44:22.522Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcid": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpid": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T05:44:22.523Z - INFO - verified signature on cpiSignatureData
2018-12-17T05:44:22.528Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T05:44:22.529Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```



```
    }
  }
]
}
2018-12-17T05:45:16.680Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-17T05:45:16.701Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T05:45:16.802Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 27,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-17T05:45:16.821Z - INFO - engine sent successfully, the response to CBRS : {
```

```

"grantResponse": [
  {
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "channelType": "GAA",
    "grantExpireTime": "2018-12-24T05:45:16Z",
    "grantId": "110433646",
    "heartbeatInterval": 60,
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-12-17T05:45:16.910Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-17T05:45:16.920Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:48:36Z"
    }
  ]
}
2018-12-17T05:45:23.361Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "inquiredSpectrum": [
        {
          "highFrequency": 3630000000,
          "lowFrequency": 3610000000
        }
      ]
    }
  ]
}
2018-12-17T05:45:23.369Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [

```

```

        {
            "channelType": "GAA",
            "frequencyRange": {
                "highFrequency": 3630000000,
                "lowFrequency": 3610000000
            },
            "ruleApplied": "FCC_PART_96"
        }
    ],
    "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
    "response": {
        "responseCode": 0
    }
}
]
}
2018-12-17T05:45:23.444Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "operationParam": {
                "maxEirp": 27,
                "operationFrequencyRange": {
                    "highFrequency": 3630000000,
                    "lowFrequency": 3610000000
                }
            }
        }
    ]
}
2018-12-17T05:45:23.450Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "channelType": "GAA",
            "grantExpireTime": "2018-12-24T05:45:23Z",
            "grantId": "325594567",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-17T05:45:23.552Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "grantId": "325594567",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}

```

```
]
}
2018-12-17T05:45:23.571Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:48:43Z"
    }
  ]
}
2018-12-17T05:46:12.007Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:46:12.012Z - INFO - Time interval between two heartbeat request messages is: 55.098,
limit is: 65.0
2018-12-17T05:46:12.030Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:49:32Z"
    }
  ]
}
2018-12-17T05:46:18.773Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:46:18.776Z - INFO - Time interval between two heartbeat request messages is: 55.22,
limit is: 65.0
2018-12-17T05:46:18.796Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
```



```
{
  "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
  "grantId": "325594567",
  "response": {
    "responseCode": 0
  },
  "transmitExpireTime": "2018-12-17T05:49:38Z"
}
]
}
2018-12-17T05:47:07.186Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:47:07.187Z - INFO - Time interval between two heartbeat request messages is: 55.178,
limit is: 65.0
2018-12-17T05:47:07.197Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:50:27Z"
    }
  ]
}
2018-12-17T05:47:14.020Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:47:14.023Z - INFO - Time interval between two heartbeat request messages is: 55.248,
limit is: 65.0
2018-12-17T05:47:14.029Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "response": {
```



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        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:50:34Z"
    }
  ]
}
2018-12-17T05:48:02.345Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:48:02.346Z - INFO - Time interval between two heartbeat request messages is: 55.159,
limit is: 65.0
2018-12-17T05:48:02.355Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:51:22Z"
    }
  ]
}
2018-12-17T05:48:09.301Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:48:09.302Z - INFO - Time interval between two heartbeat request messages is: 55.281,
limit is: 65.0
2018-12-17T05:48:09.312Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:51:29Z"
    }
  ]
}
```

```
]
}
2018-12-17T05:48:57.500Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:48:57.503Z - INFO - Time interval between two heartbeat request messages is: 55.156,
limit is: 65.0
2018-12-17T05:48:57.512Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:52:17Z"
    }
  ]
}
2018-12-17T05:49:04.609Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:49:04.612Z - INFO - Time interval between two heartbeat request messages is: 55.308,
limit is: 65.0
2018-12-17T05:49:04.632Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:52:24Z"
    }
  ]
}
2018-12-17T05:49:51.663Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
```

```

    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:49:51.664Z - INFO - Time interval between two heartbeat request messages is: 54.162,
limit is: 65.0
2018-12-17T05:49:51.676Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "110433646",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:53:11Z"
    }
  ]
}
2018-12-17T05:49:58.846Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T05:49:58.848Z - INFO - Time interval between two heartbeat request messages is: 54.238,
limit is: 65.0
2018-12-17T05:49:58.855Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "325594567",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T05:53:18Z"
    }
  ]
}
2018-12-17T05:50:00.459Z - INFO - arrived to nstep starting question answer session with the
technician
2018-12-17T05:50:00.461Z - INFO - the question is : Did CBSD1 transmit power prior to AUTHORIZED
state (first successful HBT response)? please choose one of the answers :
2018-12-17T05:50:00.467Z - INFO - for the question : Did CBSD1 transmit power prior to AUTHORIZED
state (first successful HBT response)? , the user choose n

```



2018-12-17T05:50:00.470Z - INFO - the question is : Did CBSD1 transmit only within the frequency range specified in its grantRequest message? please choose one of the answers :
2018-12-17T05:50:00.471Z - INFO - for the question : Did CBSD1 transmit only within the frequency range specified in its grantRequest message? , the user choose y
2018-12-17T05:50:00.473Z - INFO - the question is : Did CBSD2 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2018-12-17T05:50:00.476Z - INFO - for the question : Did CBSD2 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2018-12-17T05:50:00.479Z - INFO - the question is : Did CBSD2 transmit only within the frequency range specified in its grantRequest message? please choose one of the answers :
2018-12-17T05:50:33.986Z - INFO - for the question : Did CBSD2 transmit only within the frequency range specified in its grantRequest message? , the user choose y
2018-12-17T05:50:38.790Z - INFO - The final result of the test : WINNF.FT.D.HBT.2 is - passed and :the additional comments for the current test are : CBSD1 starts transmission at T05:45:24, CBSD2 starts transmission at T05:45:30

**Test Log for WINNF.FT.C.HBT.3 Test Case ID**

2018-12-13T09:52:25.805Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-13T09:52:25.808Z - INFO - the selected test from the user : WINNF.FT.C.HBT.3 is starting now
2018-12-13T09:53:19.990Z - INFO - registration request from CBRS : {

```
"registrationRequest": {
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-IIZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJst_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IlFUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGloYW1lIjoiQ1BJFVZzZXIiMTIzIiwiW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
}
}
```

2018-12-13T09:53:20.036Z - INFO - Registration message contains cpiSignatureData
2018-12-13T09:53:20.036Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-13T09:53:20.036Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,
 "antennaAzimuth": 0,

```
"heightType": "AMSL",
"longitude": -88.0808,
"height": 100,
"indoorDeployment": false,
"antennaBeamwidth": 90,
"antennaDowntilt": 0,
"latitude": 42.242,
"antennaGain": 15
},
"fccId": "QWP-30450M",
"professionalInstallerData": {
  "cpiName": "CPI User 123",
  "installCertificationTime": "2018-05-09T15:51:12.866Z",
  "cpild": "cpi123"
},
"cbbsdSerialNumber": "0a003e6070a5"
}
2018-12-13T09:53:20.157Z - INFO - verified signature on cpiSignatureData
2018-12-13T09:53:20.163Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-13T09:53:20.164Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-13T09:54:20.359Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-13T09:54:20.371Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          }
        }
      ]
    }
  ]
}
```

```

        "ruleApplied": "FCC_PART_96"
    }
],
"cbid": "QWP-30450MMock-SAS0a003e6070a5",
"response": {
    "responseCode": 0
}
}
]
}
2018-12-13T09:54:20.427Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbid": "QWP-30450MMock-SAS0a003e6070a5",
            "operationParam": {
                "maxEirp": 27,
                "operationFrequencyRange": {
                    "highFrequency": 3670000000,
                    "lowFrequency": 3650000000
                }
            }
        }
    ]
}
2018-12-13T09:54:20.437Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbid": "QWP-30450MMock-SAS0a003e6070a5",
            "channelType": "GAA",
            "grantExpireTime": "2018-12-20T09:54:20Z",
            "grantId": "713693464",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-13T09:54:20.496Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbid": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "713693464",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}
2018-12-13T09:54:20.503Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbid": "QWP-30450MMock-SAS0a003e6070a5",

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"grantId": "713693464",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-12-13T09:57:40Z"
}
]
}
2018-12-13T09:55:15.944Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "713693464",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T09:55:15.944Z - INFO - Time interval between two heartbeat request messages is: 55.449,
limit is: 65.0
2018-12-13T09:55:15.960Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "713693464",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T09:58:35Z"
    }
  ]
}
2018-12-13T09:56:11.082Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "713693464",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T09:56:11.082Z - INFO - Time interval between two heartbeat request messages is: 55.137,
limit is: 65.0
2018-12-13T09:56:11.082Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "713693464",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T09:58:35Z"
    }
  ]
}
```



```
        "transmitExpireTime": "2018-12-13T09:59:31Z"
      }
    ]
  }
2018-12-13T09:57:06.183Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "713693464",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T09:57:06.184Z - INFO - Time interval between two heartbeat request messages is: 55.101,
limit is: 65.0
2018-12-13T09:57:06.190Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "713693464",
      "response": {
        "responseCode": 105
      },
      "transmitExpireTime": "2018-12-13T09:57:06Z"
    }
  ]
}
2018-12-13T09:57:07.434Z - INFO - arrived to nstep starting question answer session with the
technician
2018-12-13T09:57:07.437Z - 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 :
2018-12-13T09:57:41.450Z - INFO - for the question : Did the CBSD stop RF transmission within 60
seconds of receiving Heartbeat response with responseCode = 105? , the user choose y
2018-12-13T09:58:11.796Z - INFO - The final result of the test : WINNF.FT.C.HBT.3 is - passed and :the
additional comments for the current test are : stop transmission at T09:57:20
```

Test Log for WINNF.FT.C.HBT.5 Test Case ID

2018-12-14T02:56:01.931Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-14T02:56:01.931Z - INFO - the selected test from the user : WINNF.FT.C.HBT.5 is starting now
 2018-12-14T02:56:04.960Z - INFO - registration request from CBRS : {

```
"registrationRequest": {
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiOG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLcJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLcJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQ0iOjJcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIjMTIzIiwiaw5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": {
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    },
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
}
]
```

2018-12-14T02:56:05.039Z - INFO - Registration message contains cpiSignatureData
 2018-12-14T02:56:05.039Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-14T02:56:05.039Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

        "antennaAzimuth": 0,
        "heightType": "AMSL",
        "longitude": -88.0808,
        "height": 100,
        "indoorDeployment": false,
        "antennaBeamwidth": 90,
        "antennaDowntilt": 0,
        "latitude": 42.242,
        "antennaGain": 15
    },
    "fccId": "QWP-30450M",
    "professionalInstallerData": {
        "cpiName": "CPI User 123",
        "installCertificationTime": "2018-05-09T15:51:12.866Z",
        "cpild": "cpi123"
    },
    "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-14T02:56:05.132Z - INFO - verified signature on cpiSignatureData
2018-12-14T02:56:05.132Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-14T02:56:05.132Z - INFO - engine sent successfully, the response to CBRS : {
    "registrationResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-14T02:57:05.285Z - INFO - spectrumInquiry request from CBRS : {
    "spectrumInquiryRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3670000000,
                    "lowFrequency": 3650000000
                }
            ]
        }
    ]
}
2018-12-14T02:57:05.332Z - INFO - engine sent successfully, the response to CBRS : {
    "spectrumInquiryResponse": [
        {
            "availableChannel": [
                {
                    "channelType": "GAA",
                    "frequencyRange": {
                        "highFrequency": 3670000000,
                        "lowFrequency": 3650000000
                    }
                }
            ]
        }
    ]
}

```

```

    },
    "ruleApplied": "FCC_PART_96"
  }
],
"cbid": "QWP-30450MMock-SAS0a003e6070a5",
"response": {
  "responseCode": 0
}
}
]
}
2018-12-14T02:57:05.380Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-14T02:57:05.395Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-21T02:57:05Z",
      "grantId": "400720728",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-14T02:57:05.443Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "400720728",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-14T02:57:05.457Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {

```

```
"cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
"grantId": "400720728",
"response": {
  "responseCode": 501
},
"transmitExpireTime": "2018-12-14T02:57:05Z"
}
]
}
2018-12-14T02:58:00.543Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "400720728",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-14T02:58:00.546Z - INFO - Time interval between two heartbeat request messages is: 55.101,
limit is: 65.0
2018-12-14T02:58:00.556Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "400720728",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-12-14T02:58:00Z"
    }
  ]
}
2018-12-14T02:58:01.910Z - INFO - arrived to nstep starting question answer session with the
technician
2018-12-14T02:58:01.944Z - INFO - the question is : Did the CBSD transmit at any time during the test?
please choose one of the answers :
2018-12-14T03:00:41.500Z - INFO - for the question : Did the CBSD transmit at any time during the
test? , the user choose n
2018-12-14T03:00:42.694Z - INFO - The final result of the test : WINNF.FT.C.HBT.5 is - passed
```

Test Log for WINNF.FT.C.HBT.6 Test Case ID

2018-12-14T03:07:17.391Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-14T03:07:17.391Z - INFO - the selected test from the user : WINNF.FT.C.HBT.6 is starting now
 2018-12-14T03:07:24.809Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
        "a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
        x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
        hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
        iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
        M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
        "eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1IiwiaW
        5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiYm9uZ2I0dWRlljotODguMDgwOCwia
        GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiwiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
        udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
        NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
        hdGEiOmsiY3BpSWQ0iOjJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJfVZzZXIgaMTIzIiwiaW5zdGFsbENlcnRpZmlj
        YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-14T03:07:24.917Z - INFO - Registration message contains cpiSignatureData
 2018-12-14T03:07:24.917Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-14T03:07:24.917Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-14T03:07:24.917Z - INFO - verified signature on cpiSignatureData
2018-12-14T03:07:24.917Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-14T03:07:24.917Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-14T03:08:26.055Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-14T03:08:26.177Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          }
        }
      ]
    }
  ]
}

```

```

    },
    "ruleApplied": "FCC_PART_96"
  }
],
"cbid": "QWP-30450MMock-SAS0a003e6070a5",
"response": {
  "responseCode": 0
}
}
]
}
2018-12-14T03:08:26.289Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 37,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-14T03:08:26.312Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-21T03:08:26Z",
      "grantId": "677517211",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-14T03:08:26.489Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbid": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "677517211",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-14T03:08:26.530Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {

```



```

        "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
        "grantId": "677517211",
        "response": {
            "responseCode": 0
        },
        "transmitExpireTime": "2018-12-14T03:11:46Z"
    }
}
]
}
2018-12-14T03:09:21.020Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "677517211",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
2018-12-14T03:09:21.022Z - INFO - Time interval between two heartbeat request messages is: 54.532,
limit is: 65.0
2018-12-14T03:09:21.029Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "677517211",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2018-12-14T03:12:41Z"
        }
    ]
}
2018-12-14T03:10:16.137Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "677517211",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
2018-12-14T03:10:16.138Z - INFO - Time interval between two heartbeat request messages is: 55.117,
limit is: 65.0
2018-12-14T03:10:16.144Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "677517211",
            "response": {
                "responseCode": 0
            }
        }
    ]
}

```

```

    },
    "transmitExpireTime": "2018-12-14T03:13:36Z"
  }
]
}
2018-12-14T03:11:12.232Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "677517211",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-14T03:11:12.233Z - INFO - Time interval between two heartbeat request messages is: 56.094,
limit is: 65.0
2018-12-14T03:11:12.244Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "677517211",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-12-14T03:11:12Z"
    }
  ]
}
2018-12-14T03:12:07.252Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "677517211",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-14T03:12:07.269Z - INFO - Time interval between two heartbeat request messages is: 55.02,
limit is: 65.0
2018-12-14T03:12:07.278Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "677517211",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-12-14T03:12:07Z"
    }
  ]
}

```



}

2018-12-14T03:12:08.747Z - INFO - arrived to nstep starting question answer session with the technician

2018-12-14T03:12:08.747Z - 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 :

2018-12-14T03:12:08.747Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 501? , the user choose y

2018-12-14T03:12:28.424Z - INFO - The final result of the test : WINNF.FT.C.HBT.6 is - passed and :the additional comments for the current test are : stop transmission at T03:11:14

Test Log for WINNF.FT.C.HBT.7 Test Case ID

2018-12-14T03:17:26.674Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-14T03:17:26.677Z - INFO - the selected test from the user : WINNF.FT.C.HBT.7 is starting now
 2018-12-14T03:17:50.447Z - INFO - registration request from CBRS : {

```
"registrationRequest": {
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
        "a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
        x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
        hmD9O-vpr-IIZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
        iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJst_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
        M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
        "eyJmY2NJZCI6IlFUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
        5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
        GVpZ2h0ljoXMDAsImhlaWdodFR5cGUioiJBTVNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
        udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
        NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
        hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGloYW1lIjoiQ1BJFVZzZXIiMTIzIiwiaw5zdGFsbENlcnRpZmlj
        YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
}
```

2018-12-14T03:17:50.533Z - INFO - Registration message contains cpiSignatureData
 2018-12-14T03:17:50.533Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-14T03:17:50.535Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,
 "antennaAzimuth": 0,

```

    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-14T03:17:50.536Z - INFO - verified signature on cpiSignatureData
2018-12-14T03:17:50.540Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-14T03:17:50.542Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-14T03:18:51.928Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-14T03:18:51.944Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          }
        }
      ]
    }
  ]
}

```

```

        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-12-14T03:18:51.990Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 27,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-14T03:18:51.990Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-21T03:18:51Z",
      "grantId": "157354275",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-14T03:18:52.038Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "157354275",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-14T03:18:52.053Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",

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"grantId": "157354275",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-12-14T03:22:12Z"
}
]
}
2018-12-14T03:19:47.497Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "157354275",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-14T03:19:47.497Z - INFO - Time interval between two heartbeat request messages is: 55.46,
limit is: 65.0
2018-12-14T03:19:47.497Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "157354275",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-14T03:23:07Z"
    }
  ]
}
2018-12-14T03:20:42.618Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "157354275",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-14T03:20:42.619Z - INFO - Time interval between two heartbeat request messages is: 55.12,
limit is: 65.0
2018-12-14T03:20:42.625Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "157354275",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-14T03:23:07Z"
    }
  ]
}
```

```

        "transmitExpireTime": "2018-12-14T03:24:02Z"
    }
]
}
2018-12-14T03:21:37.704Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "157354275",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
2018-12-14T03:21:37.720Z - INFO - Time interval between two heartbeat request messages is: 55.087,
limit is: 65.0
2018-12-14T03:21:37.720Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "157354275",
            "response": {
                "responseCode": 502
            },
            "transmitExpireTime": "2018-12-14T03:21:37Z"
        }
    ]
}
2018-12-14T03:21:37.782Z - INFO - relinquishment request from CBRS : {
    "relinquishmentRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "157354275"
        }
    ]
}
2018-12-14T03:21:37.813Z - INFO - engine sent successfully, the response to CBRS : {
    "relinquishmentResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "157354275",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-14T03:21:39.552Z - INFO - arrived to nstep starting question answer session with the
technician
2018-12-14T03:21:39.553Z - 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 :
2018-12-14T03:21:46.423Z - INFO - for the question : Did the CBSD stop RF transmission within 60

```




seconds of receiving Heartbeat response with responseCode = 502? , the user choose y
2018-12-14T03:22:10.016Z - INFO - The final result of the test : WINNF.FT.C.HBT.7 is - passed and :the
additional comments for the current test are : stop transmission at T03:21:39

Test Log for WINNF.FT.D.HBT.8 Test Case ID

2018-12-17T06:04:44.957Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T06:04:44.959Z - INFO - the selected test from the user : WINNF.FT.D.HBT.8 is starting now
 2018-12-17T06:04:47.131Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiYm9uZ2l0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLcJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLcJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJfVZzZXIgaMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-17T06:04:47.194Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T06:04:47.194Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T06:04:47.194Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T06:04:47.196Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:04:47.200Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:04:47.203Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:04:54.578Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJlJM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5IiwY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbgXhdGlvbiBhcmFtIjp7ImxhdGUiOidWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdod

```



```
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50lpmYWxzZSwiYW50ZW5uYUFP
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGlJZC16ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjE5Ljg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcid": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-12-17T06:04:54.625Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:04:54.625Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:04:54.625Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcid": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpid": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:04:54.627Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:04:54.631Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:04:54.634Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```



```
    }
  }
]
}
2018-12-17T06:05:48.091Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-17T06:05:48.109Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:05:48.177Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 27,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-17T06:05:48.184Z - INFO - engine sent successfully, the response to CBRS : {
```

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    "grantResponse": [
      {
        "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
        "channelType": "GAA",
        "grantExpireTime": "2018-12-24T06:05:48Z",
        "grantId": "498608294",
        "heartbeatInterval": 60,
        "response": {
          "responseCode": 0
        }
      }
    ]
  }
}
2018-12-17T06:05:48.250Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "498608294",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-17T06:05:48.269Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "498608294",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:09:08Z"
    }
  ]
}
2018-12-17T06:05:55.707Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "inquiredSpectrum": [
        {
          "highFrequency": 3630000000,
          "lowFrequency": 3610000000
        }
      ]
    }
  ]
}
2018-12-17T06:05:55.730Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [

```

```

        {
            "channelType": "GAA",
            "frequencyRange": {
                "highFrequency": 3630000000,
                "lowFrequency": 3610000000
            },
            "ruleApplied": "FCC_PART_96"
        }
    ],
    "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
    "response": {
        "responseCode": 0
    }
}
]
}
2018-12-17T06:05:55.851Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "operationParam": {
                "maxEirp": 27,
                "operationFrequencyRange": {
                    "highFrequency": 3630000000,
                    "lowFrequency": 3610000000
                }
            }
        }
    ]
}
2018-12-17T06:05:55.874Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "channelType": "GAA",
            "grantExpireTime": "2018-12-24T06:05:55Z",
            "grantId": "664993133",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-17T06:05:55.970Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "grantId": "664993133",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}

```

```

    ]
  }
  2018-12-17T06:05:55.977Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
      {
        "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
        "grantId": "664993133",
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-12-17T06:09:15Z"
      }
    ]
  }
  2018-12-17T06:06:43.322Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
      {
        "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
        "grantId": "498608294",
        "grantRenew": false,
        "operationState": "AUTHORIZED"
      }
    ]
  }
  2018-12-17T06:06:43.323Z - INFO - Time interval between two heartbeat request messages is: 55.072,
  limit is: 65.0
  2018-12-17T06:06:43.329Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
      {
        "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
        "grantId": "498608294",
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-12-17T06:10:03Z"
      }
    ]
  }
  2018-12-17T06:06:51.213Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
      {
        "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
        "grantId": "664993133",
        "grantRenew": false,
        "operationState": "AUTHORIZED"
      }
    ]
  }
  2018-12-17T06:06:51.214Z - INFO - Time interval between two heartbeat request messages is: 55.243,
  limit is: 65.0
  2018-12-17T06:06:51.221Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [

```




```
{
  "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
  "grantId": "664993133",
  "response": {
    "responseCode": 0
  },
  "transmitExpireTime": "2018-12-17T06:10:11Z"
}
]
}
2018-12-17T06:07:38.457Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "498608294",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T06:07:38.461Z - INFO - Time interval between two heartbeat request messages is: 55.136,
limit is: 65.0
2018-12-17T06:07:38.480Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "498608294",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:10:58Z"
    }
  ]
}
2018-12-17T06:07:46.476Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "664993133",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T06:07:46.479Z - INFO - Time interval between two heartbeat request messages is: 55.264,
limit is: 65.0
2018-12-17T06:07:46.487Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "664993133",
      "response": {
```

```
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:11:06Z"
    }
  ]
}
2018-12-17T06:08:32.634Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "498608294",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T06:08:32.638Z - INFO - Time interval between two heartbeat request messages is: 54.176,
limit is: 65.0
2018-12-17T06:08:32.658Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "498608294",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:11:52Z"
    }
  ]
}
2018-12-17T06:08:40.767Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "664993133",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T06:08:40.769Z - INFO - Time interval between two heartbeat request messages is: 54.291,
limit is: 65.0
2018-12-17T06:08:40.776Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "664993133",
      "response": {
        "responseCode": 500
      },
      "transmitExpireTime": "2018-12-17T06:08:40Z"
    }
  ]
}
```



```
]
}
```

2018-12-17T06:08:41.974Z - INFO - arrived to nstep starting question answer session with the technician

2018-12-17T06:08:41.976Z - INFO - the question is : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :

2018-12-17T06:09:09.719Z - INFO - for the question : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n

2018-12-17T06:09:09.720Z - 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 :

2018-12-17T06:09:12.323Z - INFO - for the question : Did the CBSD2 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? , the user choose y

2018-12-17T06:09:20.867Z - INFO - The final result of the test : WINNF.FT.D.HBT.8 is - passed and :the additional comments for the current test are : CBSD1 starts transmission at T06:06:10 ,CBSD2 stops transmission at T06:08:42

Test Log for WINNF.FT.C.HBT.9 Test Case ID

```
2018-12-14T05:50:28.970Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-14T05:50:28.970Z - INFO - the selected test from the user : WINNF.FT.C.HBT.9 is starting now
2018-12-14T05:50:32.180Z - INFO - registration request from CBRS  : {
```

```

    "registrationRequest": [
      {
        "airInterface": {
          "radioTechnology": "CAMBIUM_NETWORKS"
        },
        "cbstdCategory": "B",
        "cbstdInfo": {
          "softwareVersion": "CANOPY 16.0 (Build INT-CBRs-69) AP",
          "vendor": "Cambium Networks"
        },
        "cbstdSerialNumber": "0a003e6070a5",
        "cpiSignatureData": {
          "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNT08hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-IIzrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWOM1CsPM56ZMJ5UcljA8-IXCiGve6u
iBQZITYys4PTg-d_Yeo4FNnCtK8aSJsT_bl4Wow2zEvOpYhqfloWDzuhbVaSOgj2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
          "encodedCpiSignedData":
"eyJmY2NJZCI6IlFXUC0zMdQ1ME0iLCJYbnNkU2VyaWFsTnVtYmVyljoIMGEwMDNINjA3MGE1IiwiaW
5zdGFsbGF0aW9uUGFyYW0iOnsibGF0aXR1ZGUioiOiJBTVNMliwiaW5kb29yRGVwbG95bWVudCl6ZmFsc2UsImF
GVpZ2h0IjoxMDAsImhlaWdobFR5cGUiOiJBTVNMliwiaW5kb29yRGVwbG95bWVudCl6ZmFsc2UsImF
udGVubmFBemltdXROlJowLJCjhbnRIbm5hRG93bnRpbHQiOiJAslmFudGVubmFHYWluljoxNSwiZWlycE
NhcgGFiaWxpdkHkiOiJwLJCjhbnRIbm5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbgxlckR
hdGEiOnsiY3BpSWQyOiJjcGkxMjMiLCJjcGlOYW1lIjoIQ1BJIFVzZXIgaMTIzIiwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoIMjAxOC0wNS0wOVQxNT01MT0xMi44NjZalnl9",
          "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
        },
        "fccId": "QWP-30450M",
        "groupingParam": [
          {
            "groupId": "0a-00-3e-60-70-a5",
            "groupType": "INTERFERENCE_COORDINATION"
          }
        ],
        "measCapability": [
          "RECEIVED_POWER_WITHOUT_GRANT"
        ],
        "userId": "test"
      }
    ]
  }
}

2018-12-14T05:50:33.338Z - INFO - Registration message contains cpiSignatureData
2018-12-14T05:50:33.338Z - INFO - protectedHeader = {'alg': 'RS256', 'typ': 'JWT'}
2018-12-14T05:50:33.802Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,

```

```

    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-14T05:50:34.492Z - INFO - verified signature on cpiSignatureData
2018-12-14T05:50:34.539Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-14T05:50:34.553Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-14T05:51:34.717Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-14T05:51:34.747Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          }
        }
      ]
    }
  ]
}

```

```

        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-12-14T05:51:34.841Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 27,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-14T05:51:34.918Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-21T05:51:34Z",
      "grantId": "97089412",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-14T05:51:34.994Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "97089412",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-14T05:53:25.242Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",

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```
        "grantId": "97089412",
        "grantRenew": false,
        "operationState": "GRANTED"
    }
]
}
2018-12-14T05:53:25.242Z - INFO - request message received while HBT is absent, sleep 94 sec
before responding
2018-12-14T05:54:55.131Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "97089412",
            "response": {
                "responseCode": 501
            },
            "transmitExpireTime": "2018-12-14T05:54:55Z"
        }
    ]
}
2018-12-14T05:54:56.990Z - INFO - arrived to nstep starting question answer session with the
technician
2018-12-14T05:54:57.213Z - INFO - the question is : Were there RF transmissions from the CBSD
during the test? please choose one of the answers :
2018-12-14T05:54:59.641Z - INFO - engine sent successfully, the response to CBRS : "list index out of
range"
2018-12-14T05:55:43.293Z - INFO - for the question : Were there RF transmissions from the CBSD
during the test? , the user choose n
2018-12-14T05:55:44.707Z - INFO - The final result of the test : WINNF.FT.C.HBT.9 is - passed
```

Test Log for WINNF.FT.C.HBT.10 Test Case ID

```

2018-12-14T06:26:20.994Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-14T06:26:20.994Z - INFO - the selected test from the user : WINNF.FT.C.HBT.10 is starting
now
2018-12-14T06:26:25.183Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbstdCategory": "B",
      "cbstdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
        "vendor": "Cambium Networks"
      },
      "cbstdSerialNumber": "0a003e6070a5",
      "cpiSignatureData": {
        "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD90-vpr-IlZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGve6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJSt_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6IlFXUC0zMDQ1ME0iLCJYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1IiwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLCJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdHkiOjQwLCJhbnRlbn5hQmVhbXdpZHRolj05MH0sInByb2Zlc3Npb25hbEluc3RhbnRlc3R
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYWY1IjoiQ1BJFVZzZXIjMTIzIiwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fcclId": "QWP-30450M",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-60-70-a5",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "test"
    }
  ]
}
2018-12-14T06:26:25.213Z - INFO - Registration message contains cpiSignatureData
2018-12-14T06:26:25.213Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-14T06:26:25.229Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {

```



```

        "eirpCapability": 40,
        "antennaAzimuth": 0,
        "heightType": "AMSL",
        "longitude": -88.0808,
        "height": 100,
        "indoorDeployment": false,
        "antennaBeamwidth": 90,
        "antennaDowntilt": 0,
        "latitude": 42.242,
        "antennaGain": 15
    },
    "fccId": "QWP-30450M",
    "professionalInstallerData": {
        "cpiName": "CPI User 123",
        "installCertificationTime": "2018-05-09T15:51:12.866Z",
        "cpild": "cpi123"
    },
    "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-14T06:26:25.683Z - INFO - verified signature on cpiSignatureData
2018-12-14T06:26:25.697Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-14T06:26:25.713Z - INFO - engine sent successfully, the response to CBRS : {
    "registrationResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-14T06:27:26.135Z - INFO - spectrumInquiry request from CBRS : {
    "spectrumInquiryRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3670000000,
                    "lowFrequency": 3650000000
                }
            ]
        }
    ]
}
2018-12-14T06:27:26.157Z - INFO - engine sent successfully, the response to CBRS : {
    "spectrumInquiryResponse": [
        {
            "availableChannel": [
                {
                    "channelType": "GAA",
                    "frequencyRange": {
                        "highFrequency": 3670000000,

```

```

        "lowFrequency": 3650000000
      },
      "ruleApplied": "FCC_PART_96"
    }
  ],
  "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
  "response": {
    "responseCode": 0
  }
}
]
}
2018-12-14T06:27:26.230Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 27,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-14T06:27:26.240Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-21T06:27:26Z",
      "grantId": "444316083",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-14T06:27:26.315Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "444316083",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-14T06:27:26.326Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [

```



```
{
  "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
  "grantId": "444316083",
  "response": {
    "responseCode": 0
  },
  "transmitExpireTime": "2018-12-14T06:30:46Z"
}
]
}
2018-12-14T06:28:22.496Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "444316083",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-14T06:28:22.497Z - INFO - Time interval between two heartbeat request messages is: 56.18,
limit is: 65.0
2018-12-14T06:28:22.509Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "444316083",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-14T06:31:42Z"
    }
  ]
}
2018-12-14T06:29:17.269Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "444316083",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-14T06:29:17.273Z - INFO - Time interval between two heartbeat request messages is: 54.775,
limit is: 65.0
2018-12-14T06:29:17.282Z - INFO - LAST HBT RESPONSE THAT SET TRANSMIT_EXPIRE_TIME
WAS AT: 2018-12-14 06:28:22.496000
2018-12-14T06:31:07.700Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
```

```
"grantId": "444316083",
"grantRenew": false,
"operationState": "GRANTED"
}
]
}
2018-12-14T06:31:07.700Z - INFO - request message received while HBT is absent, sleep 94 sec
before responding
2018-12-14T06:32:37.302Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "444316083",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-12-14T06:32:37Z"
    }
  ]
}
2018-12-14T06:32:39.084Z - INFO - arrived to nstep starting question answer session with the
technician
2018-12-14T06:32:39.088Z - INFO - the question is : Did the CBSD stop RF transmissions within
(transmitExpireTime + 60seconds) of last valid heartbeat response? please choose one of the answers :
2018-12-14T06:32:41.703Z - INFO - engine sent successfully, the response to CBRS : "list index out of
range"
2018-12-14T06:32:53.848Z - INFO - for the question : Did the CBSD stop RF transmissions within
(transmitExpireTime + 60seconds) of last valid heartbeat response? , the user choose y
2018-12-14T06:33:05.946Z - INFO - The final result of the test : WINNF.FT.C.HBT.10 is - passed
and :the additional comments for the current test are : stop transmission at T06:30:18
```

**Test Log for WINNF.FT.D.MES.2 Test Case ID**

2018-12-17T06:14:28.714Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-17T06:14:28.717Z - INFO - the selected test from the user : WINNF.FT.D.MES.2 is starting now
2018-12-17T06:14:38.174Z - INFO - registration request from CBRS : {

```
"registrationRequest": {
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVnpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-IIZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJst_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IlFfXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGloYW1lIjoiQ1BJfVZzZXIiMTIzIiwiW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
}
}
```

2018-12-17T06:14:38.217Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:14:38.219Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:14:38.219Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,
 "antennaAzimuth": 0,

```

    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpid": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T06:14:38.220Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:14:38.224Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:14:38.226Z - INFO - Response message contains measReportConfig
2018-12-17T06:14:38.226Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "measReportConfig": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:14:45.121Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUSPC4S_9FaKCsj-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYl1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJlJM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98lA_XBC2eOwiJHF-alk8TJLCfAM51qModSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",

```

```

        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5IiwY2JzZFNlcmIhbE51bWJlciI6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbgxhdGlvbiBhcmFtIjlp7ImxhdGloZWRIIjo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IkkFNU0wiLCJpbmRvb3JEZXBs3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGloeSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbnN0YWxsQ2VydGlmaW
NhdGlvbiRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEjLjg2NloifX0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "Z8H89FT0009",
    "groupingParam": [
        {
            "groupId": "0a-00-3e-43-1a-34",
            "groupType": "INTERFERENCE_COORDINATION"
        }
    ],
    "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "SF5W5D"
}
]
}

```

2018-12-17T06:14:45.165Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T06:14:45.165Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T06:14:45.167Z - INFO - encodedCpiSignedData contents = {

```

        "installationParam": {
            "eirpCapability": 40,
            "antennaAzimuth": 0,
            "heightType": "AMSL",
            "longitude": -88.0808,
            "height": 0,
            "indoorDeployment": false,
            "antennaBeamwidth": 90,
            "antennaDowntilt": 0,
            "latitude": 42.242,
            "antennaGain": 18
        },
        "fccId": "Z8H89FT0009",
        "professionalInstallerData": {
            "cpiName": "CPI User 123",
            "installCertificationTime": "2018-05-09T15:51:12.866Z",
            "cpild": "cpi123"
        },
        "cbssdSerialNumber": "0a003e431a34"
    }
}

```

2018-12-17T06:14:45.167Z - INFO - verified signature on cpiSignatureData
 2018-12-17T06:14:45.173Z - INFO - cpiSignatureData data successfully validated against jsonschema
 2018-12-17T06:14:45.174Z - INFO - Response message contains measReportConfig
 2018-12-17T06:14:45.174Z - INFO - engine sent successfully, the response to CBRS : {
 "registrationResponse": [

```

{
  "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
  "measReportConfig": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "response": {
    "responseCode": 0
  }
}
]
}
2018-12-17T06:14:59.759Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ],
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -71
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -71
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -76
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -90
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -90
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -90
          }
        ]
      }
    }
  ]
}

```



```

    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3610000000,
      "measRcvdPower": -90
    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3620000000,
      "measRcvdPower": -90
    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3630000000,
      "measRcvdPower": -90
    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3640000000,
      "measRcvdPower": -90
    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3650000000,
      "measRcvdPower": -89
    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3660000000,
      "measRcvdPower": -89
    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3670000000,
      "measRcvdPower": -89
    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3680000000,
      "measRcvdPower": -89
    },
    {
      "measBandwidth": 10000000,
      "measFrequency": 3690000000,
      "measRcvdPower": -89
    }
  ]
}
]
}
]
}

```

2018-12-17T06:14:59.783Z - INFO - engine sent successfully, the response to CBRS : {

```

"spectrumInquiryResponse": [
  {
    "availableChannel": [
      {
        "channelType": "GAA",
        "frequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        },
        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-12-17T06:14:59.862Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -71
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -71
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -76
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -90
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -90
          },
          {
            "measBandwidth": 10000000,

```

```

        "measFrequency": 3600000000,
        "measRcvdPower": -90
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3610000000,
        "measRcvdPower": -90
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3620000000,
        "measRcvdPower": -90
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3630000000,
        "measRcvdPower": -90
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3640000000,
        "measRcvdPower": -90
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3650000000,
        "measRcvdPower": -89
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3660000000,
        "measRcvdPower": -89
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3670000000,
        "measRcvdPower": -89
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3680000000,
        "measRcvdPower": -89
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3690000000,
        "measRcvdPower": -89
    }
    ]
},
"operationParam": {
    "maxEirp": 27,

```

```

        "operationFrequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
        }
    }
}
]
}
2018-12-17T06:14:59.877Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "channelType": "GAA",
            "grantExpireTime": "2018-12-24T06:14:59Z",
            "grantId": "517399343",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-17T06:14:59.944Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "517399343",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}
2018-12-17T06:14:59.946Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "517399343",
            "response": {
                "responseCode": 501
            },
            "transmitExpireTime": "2018-12-17T06:14:59Z"
        }
    ]
}
2018-12-17T06:15:11.424Z - INFO - spectrumInquiry request from CBRS : {
    "spectrumInquiryRequest": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3630000000,
                    "lowFrequency": 3610000000
                }
            ]
        }
    ]
}

```

```
    }  
  ],  
  "measReport": {  
    "rcvdPowerMeasReports": [  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3550000000,  
        "measRcvdPower": -92  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3560000000,  
        "measRcvdPower": -87  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3570000000,  
        "measRcvdPower": -98  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3580000000,  
        "measRcvdPower": -98  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3590000000,  
        "measRcvdPower": -98  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3600000000,  
        "measRcvdPower": -98  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3610000000,  
        "measRcvdPower": -98  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3620000000,  
        "measRcvdPower": -98  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3630000000,  
        "measRcvdPower": -98  
      },  
      {  
        "measBandwidth": 10000000,  
        "measFrequency": 3640000000,  
        "measRcvdPower": -98  
      }  
    ]  
  }  
}
```

```

        "measRcvdPower": -96
      },
      {
        "measBandwidth": 10000000,
        "measFrequency": 3650000000,
        "measRcvdPower": -90
      },
      {
        "measBandwidth": 10000000,
        "measFrequency": 3660000000,
        "measRcvdPower": -91
      },
      {
        "measBandwidth": 10000000,
        "measFrequency": 3670000000,
        "measRcvdPower": -98
      },
      {
        "measBandwidth": 10000000,
        "measFrequency": 3680000000,
        "measRcvdPower": -99
      },
      {
        "measBandwidth": 10000000,
        "measFrequency": 3690000000,
        "measRcvdPower": -99
      }
    ]
  }
}
2018-12-17T06:15:11.437Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3630000000,
            "lowFrequency": 3610000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "response": {
        "responseCode": 0
      }
    }
  ]
}

```

```
2018-12-17T06:15:11.571Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -92
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -87
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -98
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -98
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3590000000,
            "measRcvdPower": -98
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3600000000,
            "measRcvdPower": -98
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3610000000,
            "measRcvdPower": -98
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3620000000,
            "measRcvdPower": -98
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3630000000,
            "measRcvdPower": -98
          }
        ]
      }
    }
  ]
}
```

```

        "measBandwidth": 10000000,
        "measFrequency": 3640000000,
        "measRcvdPower": -96
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3650000000,
        "measRcvdPower": -90
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3660000000,
        "measRcvdPower": -91
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3670000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3680000000,
        "measRcvdPower": -99
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3690000000,
        "measRcvdPower": -99
    }
    ]
},
"operationParam": {
    "maxEirp": 27,
    "operationFrequencyRange": {
        "highFrequency": 3630000000,
        "lowFrequency": 3610000000
    }
}
}
}
]
}
2018-12-17T06:15:11.585Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "channelType": "GAA",
            "grantExpireTime": "2018-12-24T06:15:11Z",
            "grantId": "53913782",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}

```




```
}  
]  
}  
2018-12-17T06:15:12.723Z - INFO - arrived to nstep starting question answer session with the technician  
2018-12-17T06:15:35.168Z - INFO - The final result of the test : WINNF.FT.D.MES.2 is - passed
```

Test Log for WINNF.FT.D.RLQ.2 Test Case ID

2018-12-17T06:50:05.424Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T06:50:05.424Z - INFO - the selected test from the user : WINNF.FT.D.RLQ.2 is starting now
 2018-12-17T06:50:08.434Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_bI4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwibG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLcJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLcJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQioiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIgaMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-17T06:50:08.466Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T06:50:08.466Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T06:50:08.466Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T06:50:08.466Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:50:08.466Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:50:08.466Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:50:12.506Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJlJM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5liwiY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbgXhdGlvbiBhcmFtIjp7ImxhdGUiOidWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdod

```



```
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50lpmYWxzZSwiYW50ZW5uYUFP
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGlJZC16ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEYLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcid": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-12-17T06:50:12.569Z - INFO - Registration message contains cpiSignatureData
2018-12-17T06:50:12.569Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T06:50:12.569Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcid": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T06:50:12.569Z - INFO - verified signature on cpiSignatureData
2018-12-17T06:50:12.569Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T06:50:12.569Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

```

    }
  }
]
}
2018-12-17T06:50:29.180Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-17T06:50:29.211Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:50:29.289Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 27,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-17T06:50:29.289Z - INFO - engine sent successfully, the response to CBRS : {

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```

"grantResponse": [
  {
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "channelType": "GAA",
    "grantExpireTime": "2018-12-24T06:50:29Z",
    "grantId": "469705070",
    "heartbeatInterval": 60,
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-12-17T06:50:29.368Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "469705070",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-17T06:50:29.382Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "469705070",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:53:49Z"
    }
  ]
}
2018-12-17T06:50:46.348Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "inquiredSpectrum": [
        {
          "highFrequency": 3630000000,
          "lowFrequency": 3610000000
        }
      ]
    }
  ]
}
2018-12-17T06:50:46.355Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [

```

```

        {
            "channelType": "GAA",
            "frequencyRange": {
                "highFrequency": 3630000000,
                "lowFrequency": 3610000000
            },
            "ruleApplied": "FCC_PART_96"
        }
    ],
    "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
    "response": {
        "responseCode": 0
    }
}
]
}
2018-12-17T06:50:46.437Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "operationParam": {
                "maxEirp": 27,
                "operationFrequencyRange": {
                    "highFrequency": 3630000000,
                    "lowFrequency": 3610000000
                }
            }
        }
    ]
}
2018-12-17T06:50:46.444Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "channelType": "GAA",
            "grantExpireTime": "2018-12-24T06:50:46Z",
            "grantId": "773729964",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-17T06:50:46.535Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "grantId": "773729964",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}

```

```
]
}
2018-12-17T06:50:46.542Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "773729964",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:54:06Z"
    }
  ]
}
2018-12-17T06:51:24.874Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "469705070",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T06:51:24.878Z - INFO - Time interval between two heartbeat request messages is: 55.506,
limit is: 65.0
2018-12-17T06:51:24.897Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "469705070",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:54:44Z"
    }
  ]
}
2018-12-17T06:51:41.812Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "773729964",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T06:51:41.815Z - INFO - Time interval between two heartbeat request messages is: 55.279,
limit is: 65.0
2018-12-17T06:51:41.825Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
```




```
{
  "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
  "grantId": "773729964",
  "response": {
    "responseCode": 0
  },
  "transmitExpireTime": "2018-12-17T06:55:01Z"
}
]
}
2018-12-17T06:52:20.025Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "469705070",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T06:52:20.026Z - INFO - Time interval between two heartbeat request messages is: 55.152,
limit is: 65.0
2018-12-17T06:52:20.042Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "469705070",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:55:40Z"
    }
  ]
}
2018-12-17T06:52:37.114Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "773729964",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T06:52:37.115Z - INFO - Time interval between two heartbeat request messages is: 55.3,
limit is: 65.0
2018-12-17T06:52:37.125Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "773729964",
      "response": {
```

```

        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T06:55:57Z"
    }
  ]
}
2018-12-17T06:52:54.207Z - INFO - relinquishment request from CBRS : {
  "relinquishmentRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "469705070"
    }
  ]
}
2018-12-17T06:52:54.237Z - INFO - engine sent successfully, the response to CBRS : {
  "relinquishmentResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "469705070",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:53:07.210Z - INFO - relinquishment request from CBRS : {
  "relinquishmentRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "773729964"
    }
  ]
}
2018-12-17T06:53:07.219Z - INFO - engine sent successfully, the response to CBRS : {
  "relinquishmentResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "773729964",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T06:53:08.674Z - INFO - arrived to nstep starting question answer session with the technician
2018-12-17T06:53:08.677Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :
2018-12-17T06:53:24.678Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y
2018-12-17T06:53:24.680Z - INFO - the question is : Did CBSD2 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :

```



2018-12-17T06:53:27.716Z - INFO - for the question : Did CBSD2 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y

2018-12-17T07:02:54.980Z - INFO - The final result of the test : WINNF.FT.D.RLQ.2 is - passed and :the additional comments for the current test are : CBSD1 stops transmission at T06:52:53, CBSD2 stops transmission at T06:53:07

Test Log for WINNF.FT.D.DRG.2 Test Case ID

2018-12-17T03:52:44.956Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T03:52:44.956Z - INFO - the selected test from the user : WINNF.FT.D.DRG.2 is starting now
 2018-12-17T03:52:55.142Z - INFO - registration request from CBRS : {

```
"registrationRequest": {
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
        "a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
        x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
        hmD9O-vpr-IIzrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
        iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJST_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
        M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
        "eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
        5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
        GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
        udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
        NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
        hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGloYW1lIjoiQ1BJFVZzZXIiMTIzIiwiaw5zdGFsbENlcnRpZmlj
        YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
}
```

2018-12-17T03:52:55.174Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T03:52:55.174Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T03:52:55.174Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,
 "antennaAzimuth": 0,

```

    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpid": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T03:52:55.267Z - INFO - verified signature on cpiSignatureData
2018-12-17T03:52:55.267Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T03:52:55.267Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T03:53:01.351Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsj-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJljM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98lA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5liwiY2JzZFNlcmIhbE51bWJlciI6IjBhMDAzZTZQzMWEzNCIsImIuc3
RhbGxhdGlvbiBhcmFtljp7ImxhdGloZWRIIjo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IklFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF

```

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6aW11dGgiOjAsImFudGVubmFEB3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI
6eyJjcGJJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEYLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0009",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-43-1a-34",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
2018-12-17T03:53:01.414Z - INFO - Registration message contains cpiSignatureData
2018-12-17T03:53:01.414Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T03:53:01.414Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcclId": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T03:53:01.414Z - INFO - verified signature on cpiSignatureData
2018-12-17T03:53:01.414Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T03:53:01.430Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "response": {
        "responseCode": 0
      }
    }
  ]
}

```

```

    }
  ]
}
2018-12-17T03:53:55.826Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-17T03:53:55.858Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T03:53:55.921Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 27,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
2018-12-17T03:53:55.937Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [

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    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-24T03:53:55Z",
      "grantId": "169370378",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T03:53:56.015Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "169370378",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-17T03:53:56.029Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "169370378",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T03:57:16Z"
    }
  ]
}
2018-12-17T03:54:01.895Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "inquiredSpectrum": [
        {
          "highFrequency": 3630000000,
          "lowFrequency": 3610000000
        }
      ]
    }
  ]
}
2018-12-17T03:54:01.895Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [

```



```

        "channelType": "GAA",
        "frequencyRange": {
            "highFrequency": 3630000000,
            "lowFrequency": 3610000000
        },
        "ruleApplied": "FCC_PART_96"
    }
],
"cbid": "Z8H89FT0009Mock-SAS0a003e431a34",
"response": {
    "responseCode": 0
}
}
]
}
2018-12-17T03:54:02.005Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbid": "Z8H89FT0009Mock-SAS0a003e431a34",
            "operationParam": {
                "maxEirp": 27,
                "operationFrequencyRange": {
                    "highFrequency": 3630000000,
                    "lowFrequency": 3610000000
                }
            }
        }
    ]
}
}
2018-12-17T03:54:02.005Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbid": "Z8H89FT0009Mock-SAS0a003e431a34",
            "channelType": "GAA",
            "grantExpireTime": "2018-12-24T03:54:02Z",
            "grantId": "771022080",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
}
2018-12-17T03:54:02.082Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbid": "Z8H89FT0009Mock-SAS0a003e431a34",
            "grantId": "771022080",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}
]

```



```
}
2018-12-17T03:54:02.098Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "771022080",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T03:57:22Z"
    }
  ]
}
2018-12-17T03:54:51.071Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "169370378",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T03:54:51.071Z - INFO - Time interval between two heartbeat request messages is: 55.056,
limit is: 65.0
2018-12-17T03:54:51.086Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "169370378",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-17T03:58:11Z"
    }
  ]
}
2018-12-17T03:54:57.372Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "grantId": "771022080",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-17T03:54:57.372Z - INFO - Time interval between two heartbeat request messages is: 55.29,
limit is: 65.0
2018-12-17T03:54:57.388Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
```

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        "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
        "grantId": "771022080",
        "response": {
            "responseCode": 0
        },
        "transmitExpireTime": "2018-12-17T03:58:17Z"
    }
}
}
2018-12-17T03:55:45.219Z - INFO - deregistration request from CBRS : {
    "deregistrationRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5"
        }
    ]
}
2018-12-17T03:55:45.233Z - INFO - engine sent successfully, the response to CBRS : {
    "deregistrationResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-17T03:55:52.612Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "grantId": "771022080",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
2018-12-17T03:55:52.612Z - INFO - Time interval between two heartbeat request messages is: 55.24,
limit is: 65.0
2018-12-17T03:55:52.628Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
            "grantId": "771022080",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2018-12-17T03:59:12Z"
        }
    ]
}
2018-12-17T03:56:23.844Z - INFO - deregistration request from CBRS : {
    "deregistrationRequest": [

```

```
{
  "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34"
}
]
```

2018-12-17T03:56:23.859Z - INFO - engine sent successfully, the response to CBRS : {
 "deregistrationResponse": [
 {
 "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
 "response": {
 "responseCode": 0
 }
 }
]
}

2018-12-17T03:56:25.029Z - INFO - arrived to nstep starting question answer session with the technician
2018-12-17T03:56:25.029Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2018-12-17T03:56:37.072Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2018-12-17T03:56:37.088Z - INFO - the question is : Did CBSD2 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2018-12-17T03:56:38.507Z - INFO - for the question : Did CBSD2 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2018-12-17T03:57:36.368Z - INFO - The final result of the test : WINNF.FT.D.DRG.2 is - passed and :the additional comments for the current test are : CBSD1 stops transmission at T03:55:44, CBSD2 stops transmission at T03:56:22

Test Log for WINNF.FT.C.SCS.1 Test Case ID

2018-12-17T08:16:30.838Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
 2018-12-17T08:16:30.841Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now
 2018-12-17T08:16:38.451Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e6070a5",
    "cpiSignatureData": {
      "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-ILZrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGVe6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aSJst_b14Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
      "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiYm9uZ2l0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiwiaw5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLcJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdHkiOjQwLcJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOmsiY3BpSWQ0iOjJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIjMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fccId": "QWP-30450M",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
  }
]
```

2018-12-17T08:16:38.506Z - INFO - Registration message contains cpiSignatureData
 2018-12-17T08:16:38.506Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
 2018-12-17T08:16:38.507Z - INFO - encodedCpiSignedData contents = {
 "installationParam": {
 "eirpCapability": 40,

```

    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 100,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 15
  },
  "fccId": "QWP-30450M",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e6070a5"
}
2018-12-17T08:16:38.622Z - INFO - verified signature on cpiSignatureData
2018-12-17T08:16:38.628Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T08:16:38.631Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-17T08:17:39.091Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) BHUL450",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e431a34",
      "cpiSignatureData": {
        "digitalSignature":
"Winc1sicBkQmobkS-ogMWVUsPC4S_9FaKCsJ-6kwc8YuPIYXI26TqczW4DJFgeh9NNOeNAtveL3FK
EmbeLjZ_3NSQC6l3DIFqb-WOMdg55E8KLOP-IFwMj7VgGllr5MYuiHdyhAR8o5dVBIM8r12GeXGxj0Bu
vYI1nVTuh7puq3fVBkGG3m3p1cvfEpdSBCGUfM5HccR80kcADaOBIFzJlJM6p-8O0L8nrZP_ec8CV_z
DTIRoY66bdc5C98IA_XBC2eOwiJHF-alk8TJLCfAM51qM0dSE9aQfZVUyHqXFZiOFDvGEUE3eqD_p-
wXYyv9JaXv2uR7p6kYfldzuw51zw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SDg5RIQwMDA5liwiY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQzMWEzNCIsImIuc3
RhbGxhdGlvbiBhcmFtIjp7ImxhdGUiOidWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdod

```



```
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50lpmYWxzZSwiYW50ZW5uYUFP
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJp
bGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvdjE4LCJlaXJwQ2FwYWJp
6eyJjcGlJZC16ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaW
NhdGlvdjE4LCJlaXJwQ2FwYWJpOjE4LCJlaXJwQ2FwYWJpOjE4LCJlaXJwQ2FwYWJpOjE4LCJlaXJwQ2FwYWJp
"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
},
"fcid": "Z8H89FT0009",
"groupingParam": [
  {
    "groupId": "0a-00-3e-43-1a-34",
    "groupType": "INTERFERENCE_COORDINATION"
  }
],
"measCapability": [
  "RECEIVED_POWER_WITHOUT_GRANT"
],
"userId": "SF5W5D"
}
]
}
2018-12-17T08:17:39.114Z - INFO - Registration message contains cpiSignatureData
2018-12-17T08:17:39.114Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-12-17T08:17:39.115Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,
    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fcid": "Z8H89FT0009",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpid": "cpi123"
  },
  "cbsdSerialNumber": "0a003e431a34"
}
2018-12-17T08:17:39.115Z - INFO - verified signature on cpiSignatureData
2018-12-17T08:17:39.121Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-12-17T08:17:39.122Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0009Mock-SAS0a003e431a34",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```



```
    }  
  }  
]  
}  
2018-12-17T08:17:40.848Z - INFO - arrived to nstep starting question answer session with the technician  
2018-12-17T08:17:40.849Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :  
2018-12-17T08:18:12.698Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n  
2018-12-17T08:18:12.703Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :  
2018-12-17T08:18:14.730Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n  
2018-12-17T08:18:15.599Z - INFO - The final result of the test : WINNF.FT.D.REG.6 is - passed
```




Test Log for WINNF.FT.C.SCS.2 Test Case ID

2018-12-17T08:24:40.460Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-17T08:24:40.463Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now



Test Log for WINNF.FT.C.SCS.3 Test Case ID

2018-12-17T08:42:20.395Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-17T08:42:20.398Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now



Test Log for WINNF.FT.C.SCS.4 Test Case ID

2018-12-17T08:49:55.387Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-17T08:49:55.388Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now



Test Log for WINNF.FT.C.SCS.5 Test Case ID

2018-12-17T08:52:14.984Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-17T08:52:14.986Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now

Test Log for WINNF.PT.C.HBT Test Case ID_ BW20M_Grant maxEirp 37

```

2018-12-13T08:22:02.701Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-13T08:22:02.703Z - INFO - Selected spectrum frequency is {'lowFrequency': 3650000000L,
'highFrequency': 3670000000L}
2018-12-13T08:22:02.703Z - INFO - Granted Spectrum Max Eirp = 37dBm/MHz
2018-12-13T08:22:02.704Z - INFO - the selected test from the user : PowerMeasTest is starting now
2018-12-13T08:22:24.414Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e6070a5",
      "cpiSignatureData": {
        "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUJJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD90-vpr-IIzrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGve6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aJsT_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6IlFUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiYm9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiwiiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOiJASlmFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbmGxlckR
hdGEiOmsiY3BpSWQ0iOjJjcGkxMjMiLCJjcGLOYWY1IjoiQ1BJFVZzZXIjMTIzIiwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fcclId": "QWP-30450M",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-60-70-a5",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "test"
    }
  ]
}
2018-12-13T08:22:24.461Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {

```

```

        "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
        "response": {
            "responseCode": 0
        }
    ]
}
2018-12-13T08:23:25.391Z - INFO - spectrumInquiry request from CBRS : {
    "spectrumInquiryRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3670000000,
                    "lowFrequency": 3650000000
                }
            ]
        }
    ]
}
2018-12-13T08:23:25.398Z - INFO - The requested spectrum is in the range, SpectrumInquiry response code is 0
2018-12-13T08:23:25.400Z - INFO - engine sent successfully, the response to CBRS : {
    "spectrumInquiryResponse": [
        {
            "availableChannel": [
                {
                    "channelType": "GAA",
                    "frequencyRange": {
                        "highFrequency": 3670000000,
                        "lowFrequency": 3650000000
                    },
                    "maxEirp": 37,
                    "ruleApplied": "FCC_PART_96"
                }
            ],
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-12-13T08:23:25.447Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "operationParam": {
                "maxEirp": 37,
                "operationFrequencyRange": {
                    "highFrequency": 3670000000,
                    "lowFrequency": 3650000000
                }
            }
        }
    ]
}

```

```

    }
  }
}
]
}
2018-12-13T08:23:25.453Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-20T08:23:25Z",
      "grantId": "28263943",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-13T08:23:25.500Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "28263943",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-13T08:23:25.507Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "28263943",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T08:26:45Z"
    }
  ]
}
2018-12-13T08:23:49.440Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "28263943",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T08:23:49.453Z - INFO - engine sent successfully, the response to CBRS : {

```

```
"heartbeatResponse": [
  {
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "grantId": "28263943",
    "response": {
      "responseCode": 0
    },
    "transmitExpireTime": "2018-12-13T08:27:09Z"
  }
]
}
2018-12-13T08:24:44.798Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "28263943",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T08:24:44.816Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "28263943",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T08:28:04Z"
    }
  ]
}
2018-12-13T08:25:38.808Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "28263943",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T08:25:38.819Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "28263943",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T08:28:58Z"
    }
  ]
}
```




}
]
}

**Test Log for WINNF.PT.C.HBT Test Case ID_ BW20M_Grant maxEirp 27**

```
2018-12-13T07:29:30.334Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-13T07:29:30.334Z - INFO - Selected spectrum frequency is {'lowFrequency': 3650000000L,
'highFrequency': 3670000000L}
2018-12-13T07:29:30.334Z - INFO - Granted Spectrum Max Eirp = 27dBm/MHz
2018-12-13T07:29:30.334Z - INFO - the selected test from the user : PowerMeasTest is starting now
2018-12-13T07:29:50.857Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbstdCategory": "B",
      "cbstdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
        "vendor": "Cambium Networks"
      },
      "cbstdSerialNumber": "0a003e6070a5",
      "cpiSignatureData": {
        "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNpABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD90-vpr-IIzrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGve6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aJsT_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6IlFUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiYm9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOiJAslmFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOiJQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbmGxlckR
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYWY1IjoiQ1BJFVZzZXIjMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fcclId": "QWP-30450M",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-60-70-a5",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "test"
    }
  ]
}
```

```
2018-12-13T07:29:50.901Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {

```

```
"cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
"response": {
  "responseCode": 0
}
]
}
2018-12-13T07:30:52.148Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-13T07:30:52.155Z - INFO - The requested spectrum is in the range, SpectrumInquiry response
code is 0
2018-12-13T07:30:52.157Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          },
          "maxEirp": 27,
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-13T07:30:52.219Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 27,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
```

```

    }
  }
}
]
}
2018-12-13T07:30:52.223Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-07T07:30:52Z",
      "grantId": "69782323",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-13T07:30:52.299Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-13T07:30:52.309Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-20T07:34:12Z"
    }
  ]
}
2018-12-13T07:31:47.767Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:31:47.776Z - INFO - engine sent successfully, the response to CBRS : {

```



```
"heartbeatResponse": [
  {
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "grantId": "69782323",
    "response": {
      "responseCode": 0
    },
    "transmitExpireTime": "2018-12-13T07:35:07Z"
  }
]
}
2018-12-13T07:32:41.917Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:32:41.924Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:36:01Z"
    }
  ]
}
2018-12-13T07:33:37.065Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:33:37.073Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:36:57Z"
    }
  ]
}
```

```
    }
  ]
}
2018-12-13T07:34:32.332Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:34:32.341Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:37:52Z"
    }
  ]
}
2018-12-13T07:35:27.483Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:35:27.490Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:38:47Z"
    }
  ]
}
2018-12-13T07:36:23.721Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
```

```
        "grantRenew": false,
        "operationState": "AUTHORIZED"
    }
]
}
2018-12-13T07:36:23.729Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:39:43Z"
    }
  ]
}
2018-12-13T07:37:18.969Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:37:18.976Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:40:38Z"
    }
  ]
}
2018-12-13T07:38:12.085Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:38:12.094Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
```

```
        "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
        "grantId": "69782323",
        "response": {
            "responseCode": 0
        },
        "transmitExpireTime": "2018-12-13T07:41:32Z"
    }
}
2018-12-13T07:39:07.214Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "69782323",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
2018-12-13T07:39:07.221Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "69782323",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2018-12-13T07:42:27Z"
        }
    ]
}
2018-12-13T07:40:02.328Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "69782323",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
2018-12-13T07:40:02.335Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "69782323",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2018-12-13T07:43:22Z"
        }
    ]
}
```



```
}
2018-12-13T07:40:57.467Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:40:57.474Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:44:17Z"
    }
  ]
}
2018-12-13T07:41:52.625Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:41:52.631Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:45:12Z"
    }
  ]
}
2018-12-13T07:42:47.813Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
```

```
    }
  ]
}
2018-12-13T07:42:47.822Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:46:07Z"
    }
  ]
}
2018-12-13T07:43:41.973Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:43:41.980Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:47:01Z"
    }
  ]
}
2018-12-13T07:44:37.137Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:44:37.144Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "69782323",
```

```

        "response": {
            "responseCode": 0
        },
        "transmitExpireTime": "2018-12-13T07:47:57Z"
    }
}
2018-12-13T07:45:32.295Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "69782323",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
2018-12-13T07:45:32.302Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "69782323",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2018-12-13T07:48:52Z"
        }
    ]
}
}

```

Test Log for WINNF.PT.C.HBT Test Case ID_ BW20M_Grant maxEirp 7

```

2018-12-13T07:51:17.561Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-13T07:51:17.562Z - INFO - Selected spectrum frequency is {'lowFrequency': 3650000000L,
'highFrequency': 3670000000L}
2018-12-13T07:51:17.562Z - INFO - Granted Spectrum Max Eirp = 7dBm/MHz
2018-12-13T07:51:17.563Z - INFO - the selected test from the user : PowerMeasTest is starting now
2018-12-13T07:51:23.437Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbstdCategory": "B",
      "cbstdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
        "vendor": "Cambium Networks"
      },
      "cbstdSerialNumber": "0a003e6070a5",
      "cpiSignatureData": {
        "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUJJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD90-vpr-IIzrfZFDjcCgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGve6u
iBQZITYyS4PTg-d_Yeo4FNnCtK8aJsT_bl4Wow2zEvOpyhqfloWDzuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6IlFUC0zMDQ1ME0iLCJjYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGU0OjQyLjI0MiwiYm9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGU0iJBTvNMIiwiiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLjChbnRlbn5hRG93bnRpbHQiOiJASlmFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLjChbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbmGxlckR
hdGEiOmsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYWY1IjoiQ1BJFVZzZXIjMTIzIiwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fcclId": "QWP-30450M",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-60-70-a5",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "test"
    }
  ]
}
2018-12-13T07:51:23.483Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {

```

```
"cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
"response": {
  "responseCode": 0
}
]
}
2018-12-13T07:52:23.654Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "inquiredSpectrum": [
        {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      ]
    }
  ]
}
2018-12-13T07:52:23.663Z - INFO - The requested spectrum is in the range, SpectrumInquiry response code is 0
2018-12-13T07:52:23.664Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3670000000,
            "lowFrequency": 3650000000
          },
          "maxEirp": 7,
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-13T07:52:23.737Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "operationParam": {
        "maxEirp": 7,
        "operationFrequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        }
      }
    }
  ]
}
```



```
    }
  }
}
]
}
2018-12-13T07:52:23.743Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "channelType": "GAA",
      "grantExpireTime": "2018-12-20T07:52:23Z",
      "grantId": "49481308",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-12-13T07:52:23.819Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-13T07:52:23.828Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:55:43Z"
    }
  ]
}
2018-12-13T07:53:20.451Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:53:20.460Z - INFO - engine sent successfully, the response to CBRS : {
```



```
"heartbeatResponse": [
  {
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "grantId": "49481308",
    "response": {
      "responseCode": 0
    },
    "transmitExpireTime": "2018-12-13T07:56:40Z"
  }
]
}
2018-12-13T07:54:13.588Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:54:13.596Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:57:33Z"
    }
  ]
}
2018-12-13T07:55:08.737Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:55:08.746Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:58:28Z"
    }
  ]
}
```

```
    }
  ]
}
2018-12-13T07:56:03.888Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:56:03.895Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T07:59:23Z"
    }
  ]
}
2018-12-13T07:56:59.009Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T07:56:59.016Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "49481308",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T08:00:19Z"
    }
  ]
}
```


Test Log for WINNF.PT.C.HBT Test Case ID_ BW20M_Grant maxEirp -13

```

2018-12-13T07:58:56.163Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2018-12-13T07:58:56.164Z - INFO - Selected spectrum frequency is {'lowFrequency': 3650000000L,
'highFrequency': 3670000000L}
2018-12-13T07:58:56.164Z - INFO - Granted Spectrum Max Eirp = -13dBm/MHz
2018-12-13T07:58:56.165Z - INFO - the selected test from the user : PowerMeasTest is starting now
2018-12-13T07:59:13.039Z - INFO - registration request from CBRS : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "CAMBIUM_NETWORKS"
            },
            "cbsdCategory": "B",
            "cbsdInfo": {
                "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-69) AP",
                "vendor": "Cambium Networks"
            },
            "cbsdSerialNumber": "0a003e6070a5",
            "cpiSignatureData": {
                "digitalSignature":
"a90CjgQt42K0b5x38cqJPJdtjABPb896gH5lh3F0gPWjWQWHUZJuOFDqrW0mPi93qmA9KKzPNxpdN
x_wA6lnRnKVMqmy9RQdn929LZfox2gG_LfJVNPABNtO8hbslj_QvhMlxvifu7yQdz0FJXuqvaj1Mt6FQgR
hmD9O-vpr-IlZrfZFDjcGgAikEe6_SmGY8A0EviAPB2AqcpS4aKWom1CsPM56ZMJ5UcljA8-IXCiGve6u
iBQZITYyS4PTg-d_Yeo4FNnCTk8aSJST_bl4Wow2zEvOpyhqfloodZuhbVaS0GJ2gj8oroL2BFHD1DG
M4YEL9c5Q8vCHyHeCvFA4hw",
                "encodedCpiSignedData":
"eyJmY2NJZCI6IIFXUC0zMdQ1ME0iLCJYnNkU2VyaWFsTnVtYmVyljoiMGEwMDNINjA3MGE1liwiaW
5zdGFsbGF0aW9uUGFyYW0iOmsibGF0aXR1ZGUiojQyLjI0MiwiG9uZ2I0dWRlljotODguMDgwOCwia
GVpZ2h0IjoxMDAsImhlaWdodFR5cGUioiJBTVNMIiwiiaW5kb29yRGVwbG95bWVudCI6ZmFsc2UsImF
udGVubmFBemltdXRoljowLCJhbnRlbn5hRG93bnRpbHQiOjAsImFudGVubmFHYWluljoxNSwiZWlycE
NhcGFiaWxpdkHkiOjQwLCJhbnRlbn5hQmVhbXdpZHRoljo5MH0sInByb2Zlc3Npb25hbEluc3RhbGxlckR
hdGEiOnsiY3BpSWQiOiJjcGkxMjMiLCJjcGLOYW1lIjoiQ1BJFVZzZXIgaMTIzliwiaW5zdGFsbENlcnRpZmlj
YXRpb25UaW1lIjoiMjAxOC0wNS0wOVQxNT01MT0xMi44NjZaIn19",
                "protectedHeader": "eyJhbnGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fcid": "QWP-30450M",
            "groupingParam": [
                {

```

```

        "groupId": "0a-00-3e-60-70-a5",
        "groupType": "INTERFERENCE_COORDINATION"
    }
],
    "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "test"
}
]
}

```

2018-12-13T07:59:13.085Z - INFO - engine sent successfully, the response to CBRS : {

```

    "registrationResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "response": {
                "responseCode": 0
            }
        }
    ]
}

```

2018-12-13T08:00:13.601Z - INFO - spectrumInquiry request from CBRS : {

```

    "spectrumInquiryRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3670000000,
                    "lowFrequency": 3650000000
                }
            ]
        }
    ]
}

```

2018-12-13T08:00:13.608Z - INFO - The requested spectrum is in the range, SpectrumInquiry response code is 0

2018-12-13T08:00:13.611Z - INFO - engine sent successfully, the response to CBRS : {

```
"spectrumInquiryResponse": [
  {
    "availableChannel": [
      {
        "channelType": "GAA",
        "frequencyRange": {
          "highFrequency": 3670000000,
          "lowFrequency": 3650000000
        },
        "maxEirp": -13,
        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "response": {
      "responseCode": 0
    }
  }
]
```

2018-12-13T08:00:13.701Z - INFO - grant request from CBRS : {

```
"grantRequest": [
  {
    "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
    "operationParam": {
      "maxEirp": -13,
      "operationFrequencyRange": {
        "highFrequency": 3670000000,
        "lowFrequency": 3650000000
      }
    }
  }
]
```

2018-12-13T08:00:13.707Z - INFO - engine sent successfully, the response to CBRS : {

```
"grantResponse": [
  {
```

```
"cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
"channelType": "GAA",
"grantExpireTime": "2018-12-20T08:00:13Z",
"grantId": "231017097",
"heartbeatInterval": 60,
"response": {
  "responseCode": 0
}
}
]
}
2018-12-13T08:00:13.773Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "231017097",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-12-13T08:00:13.782Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "231017097",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T08:03:33Z"
    }
  ]
}
2018-12-13T08:01:09.233Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
```

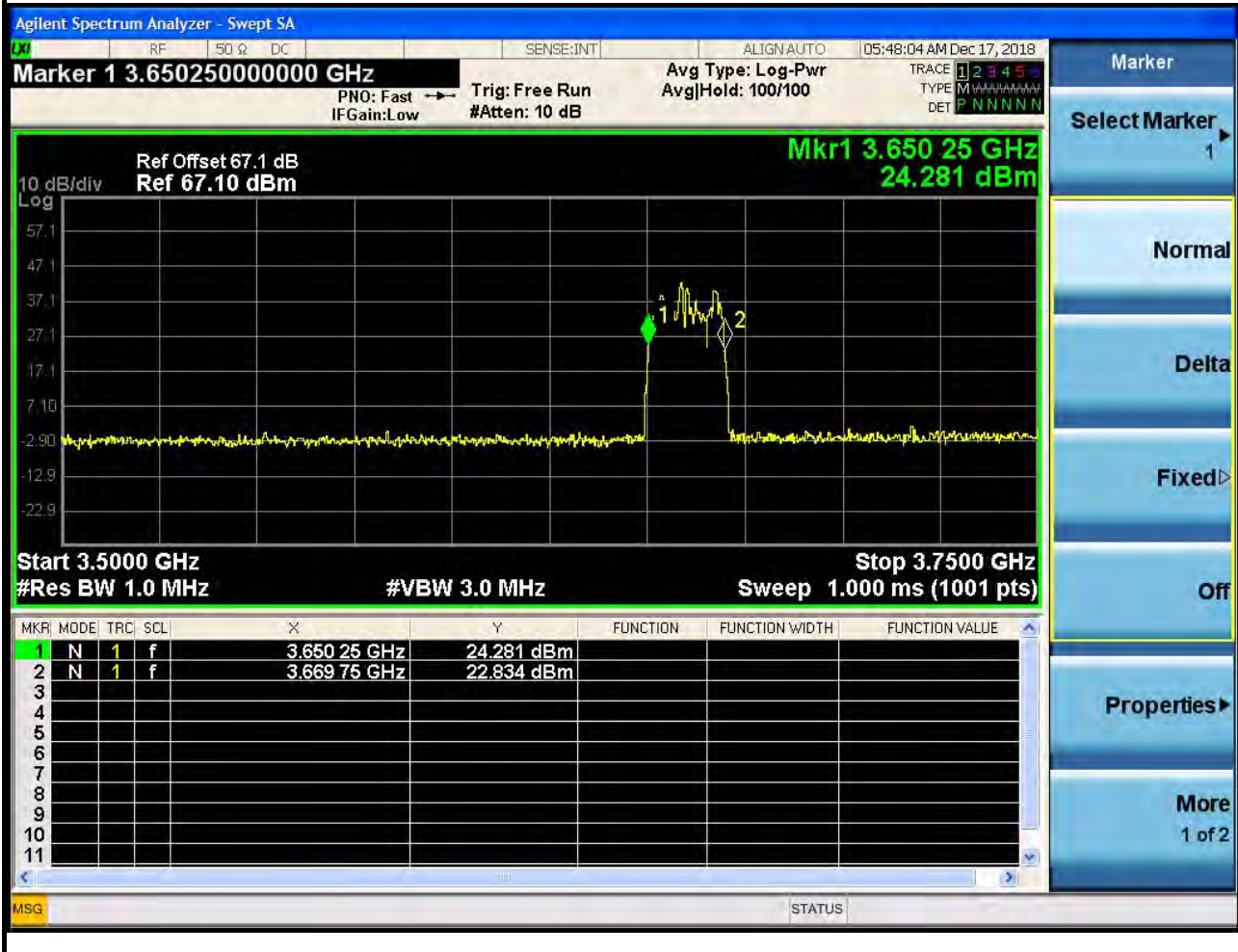
```
        "grantId": "231017097",
        "grantRenew": false,
        "operationState": "AUTHORIZED"
    }
]
}
2018-12-13T08:01:09.242Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "231017097",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2018-12-13T08:04:29Z"
        }
    ]
}
2018-12-13T08:02:04.381Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "231017097",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
2018-12-13T08:02:04.390Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
            "grantId": "231017097",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2018-12-13T08:05:24Z"
```

```
    }
  ]
}
2018-12-13T08:02:58.726Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "231017097",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T08:02:58.733Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "231017097",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-12-13T08:06:18Z"
    }
  ]
}
2018-12-13T08:03:54.161Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
      "grantId": "231017097",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-12-13T08:03:54.171Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
```

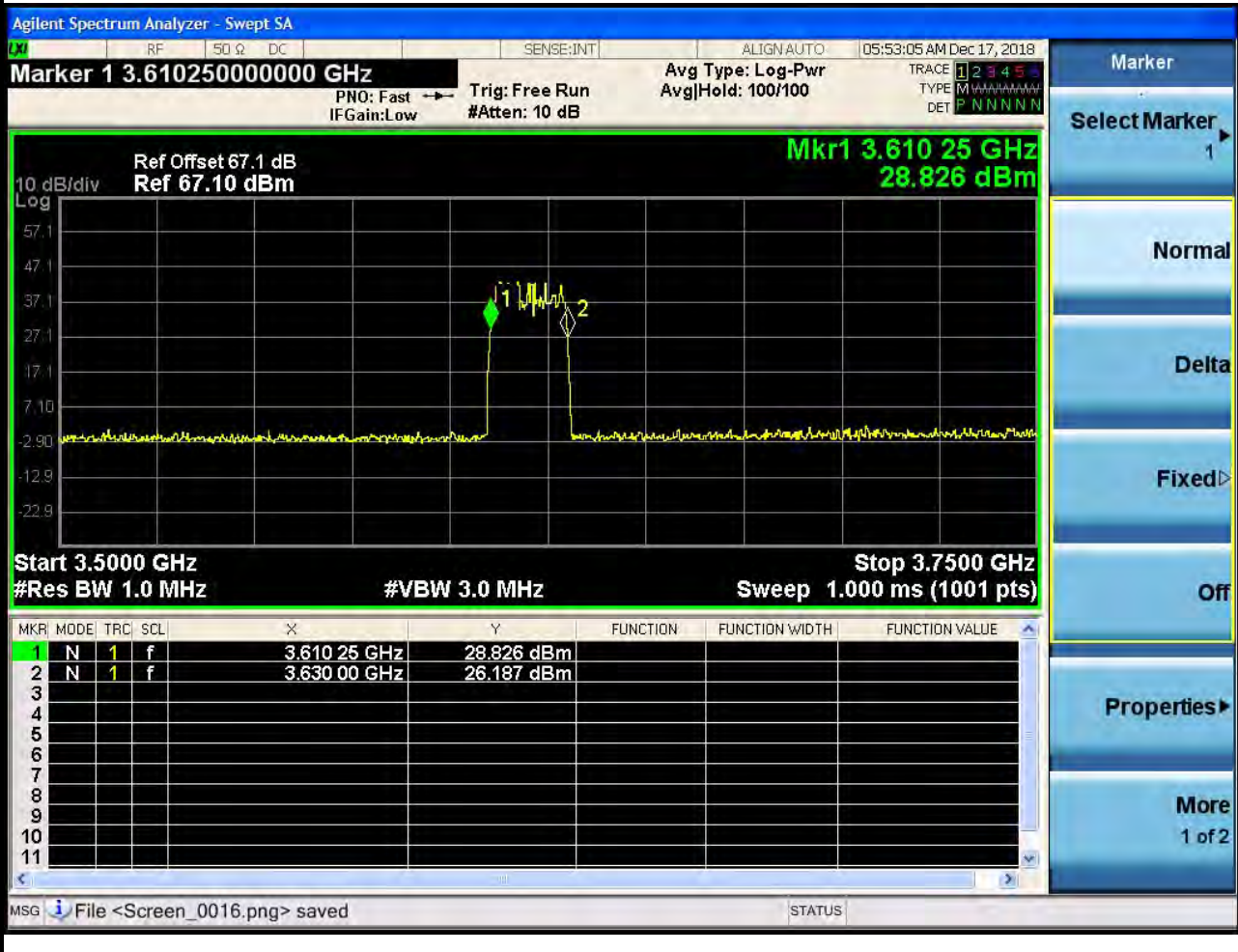


```
{
  "cbsdId": "QWP-30450MMock-SAS0a003e6070a5",
  "grantId": "231017097",
  "response": {
    "responseCode": 0
  },
  "transmitExpireTime": "2018-12-13T08:07:14Z"
}
]
```

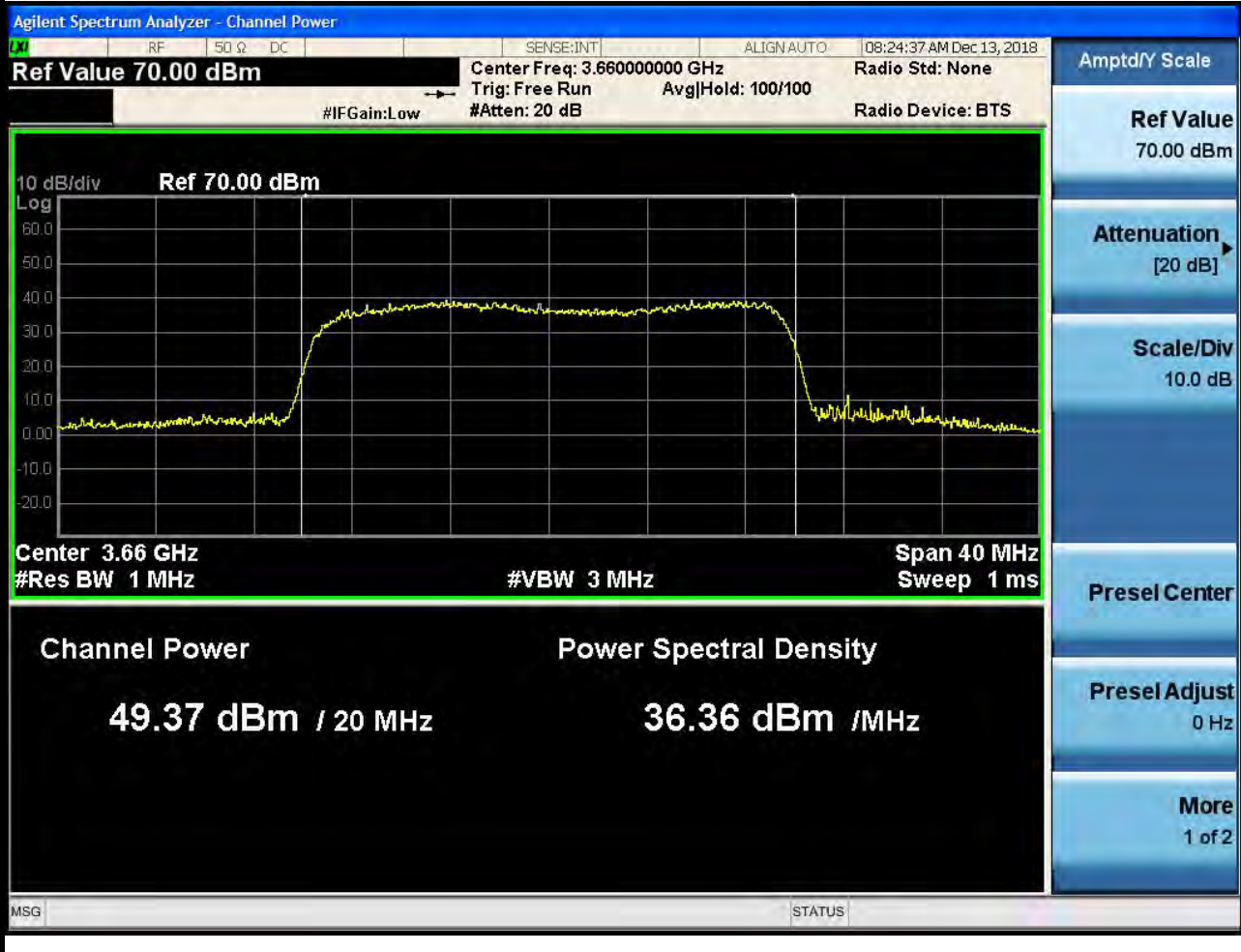
RF measurement plot for WINNF.FT.D.HBT.2 Test Case ID_CBSD1



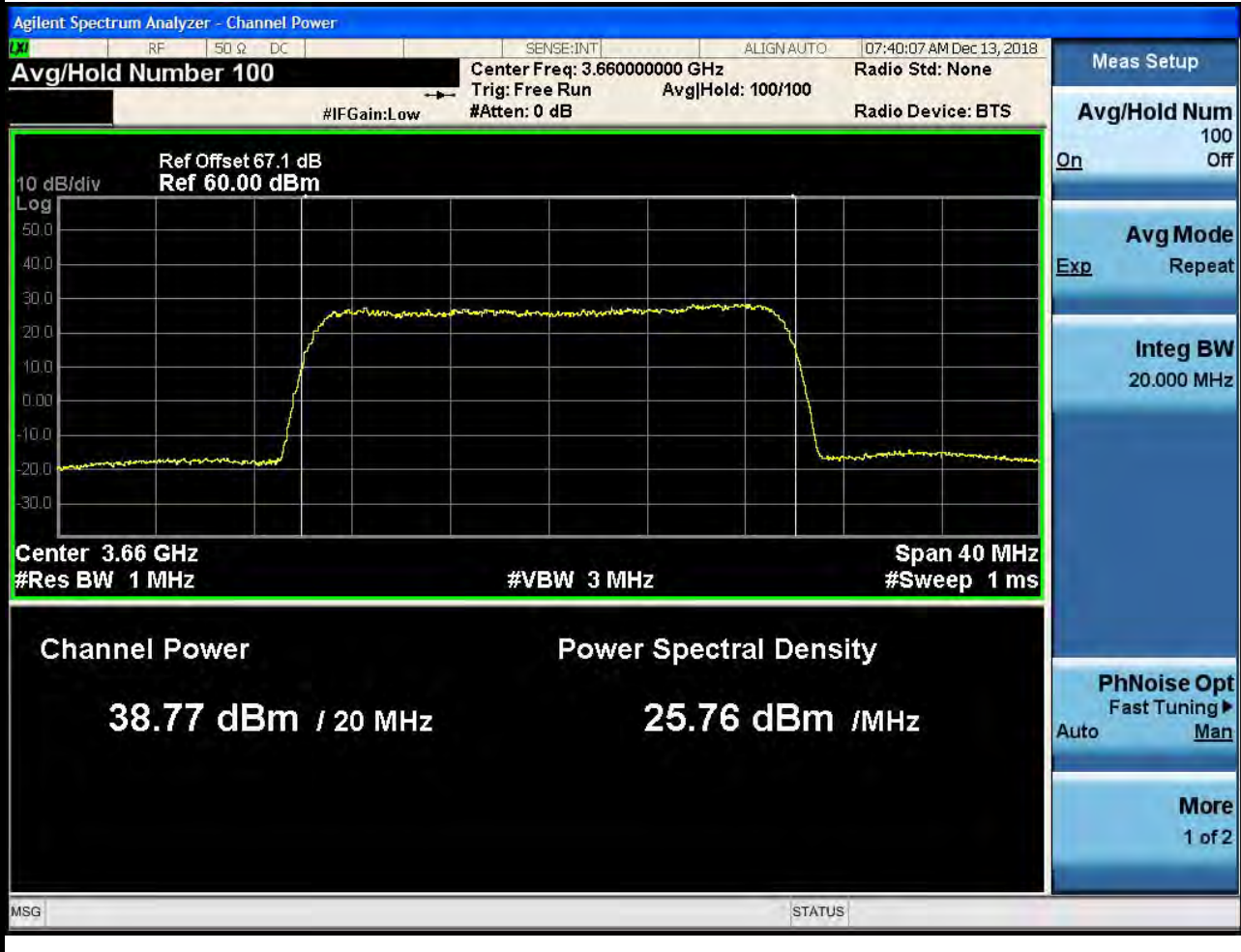
RF measurement plot for WINNF.FT.D.HBT.2 Test Case ID_CBSD2



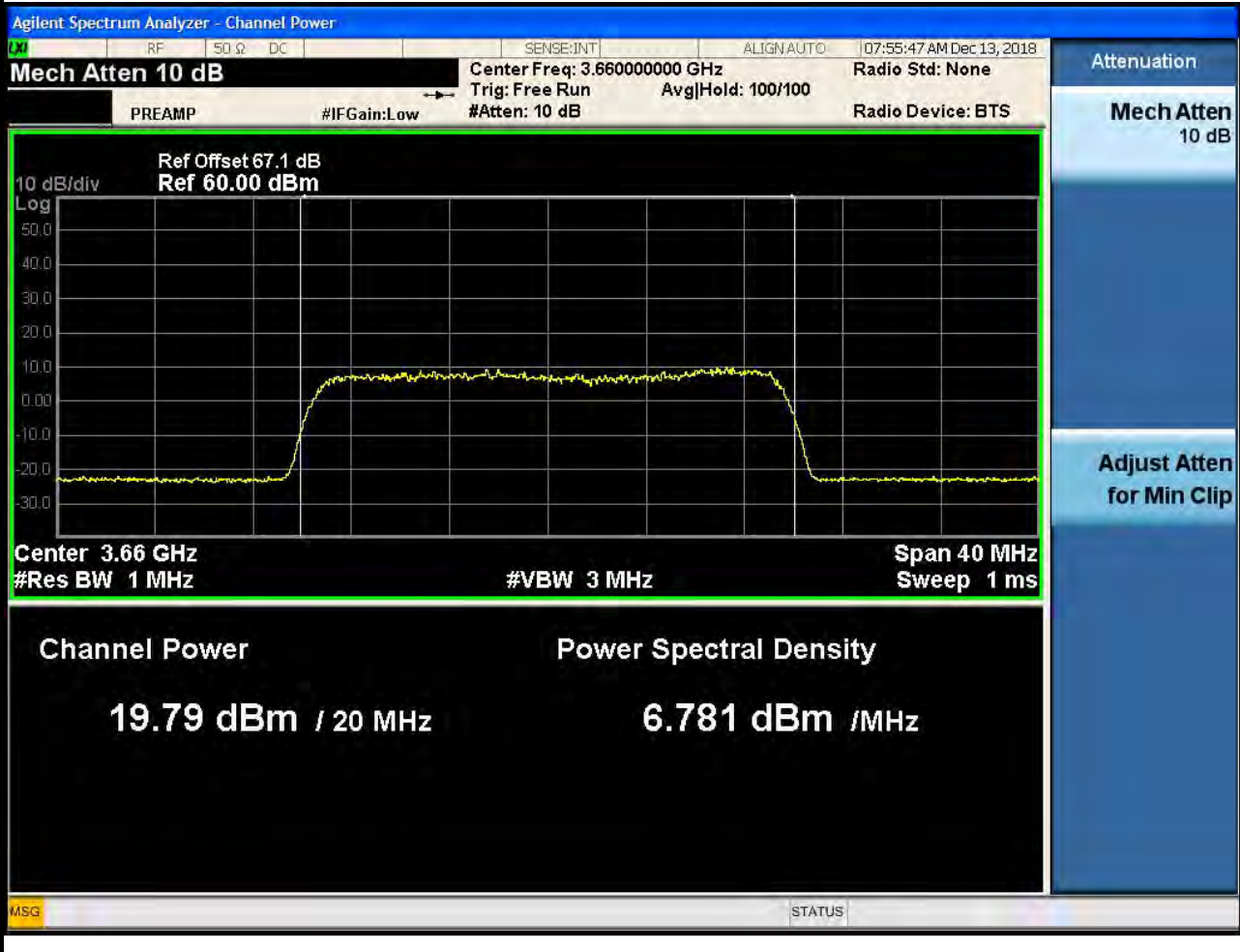
RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 37



RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 27



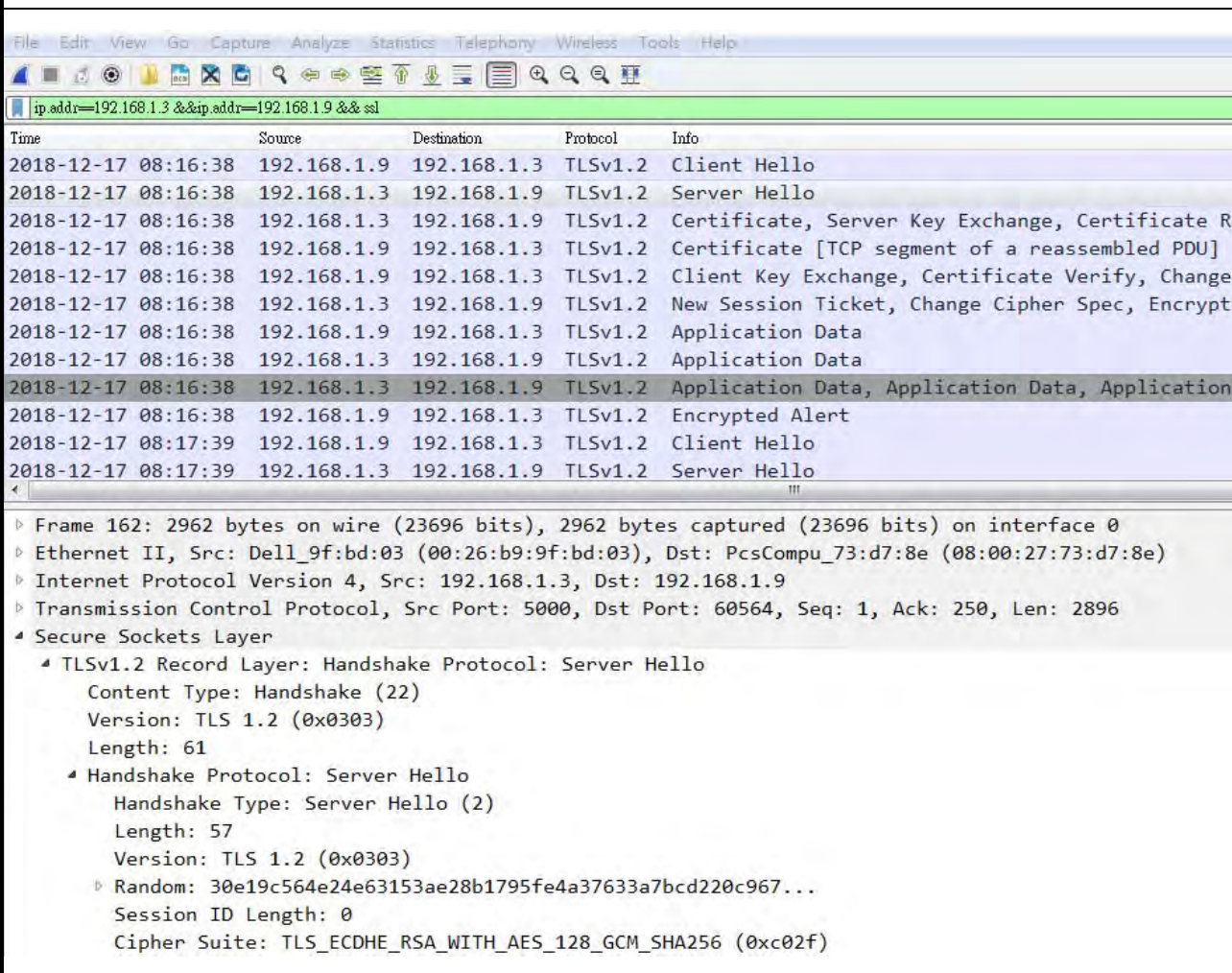
RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 7



RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp -13



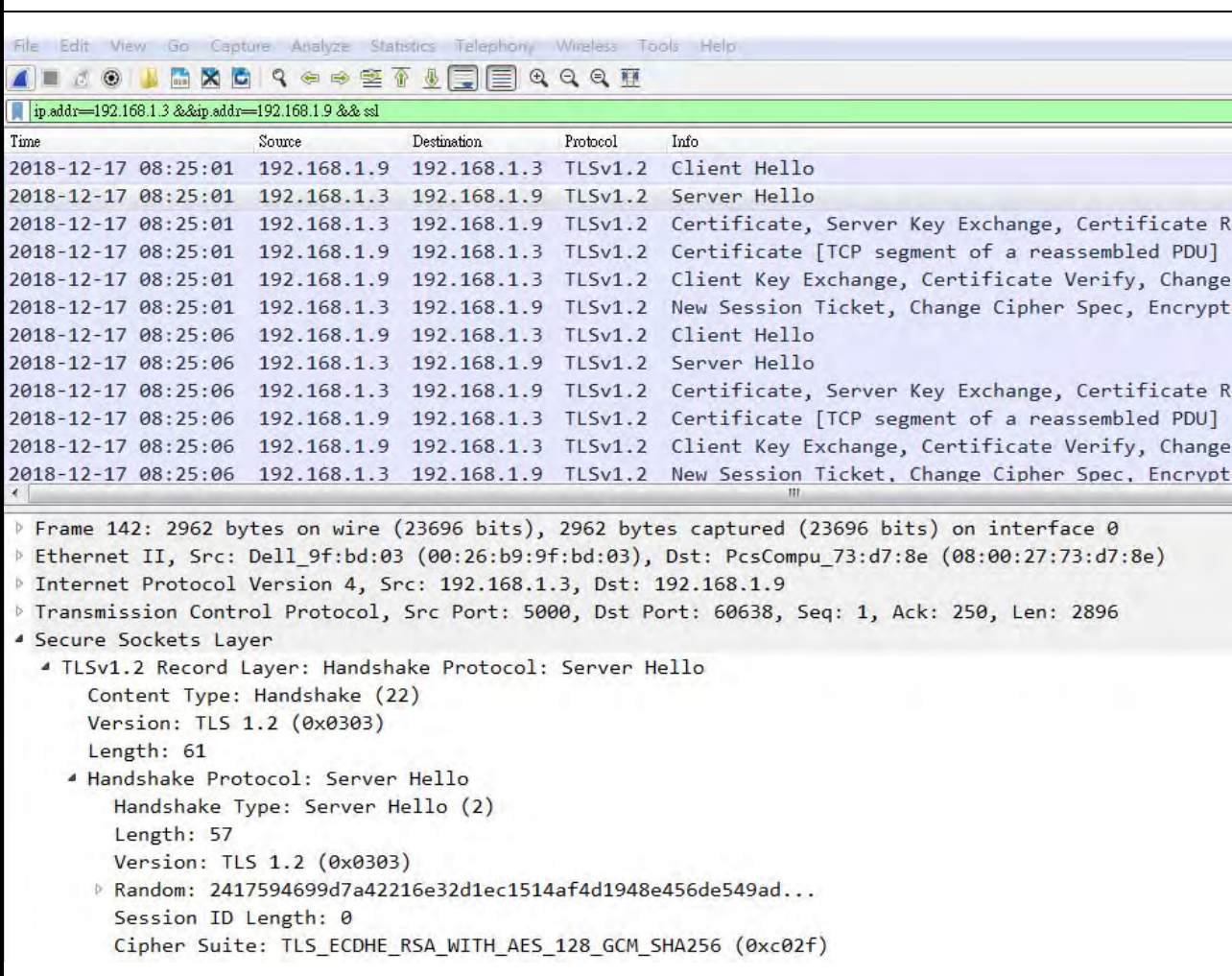
Wireshark Plots for WINNF.FT.C.SCS.1 Test Case ID



The image shows a Wireshark network traffic capture interface. The top menu bar includes File, Edit, View, Go, Capture, Analyze, Statistics, Telephony, Wireless, Tools, and Help. Below the menu is a toolbar with various icons for file operations, capture control, and analysis. The main display area shows a list of captured packets with columns for Time, Source, Destination, Protocol, and Info. The selected packet is 162, which is a TLSv1.2 Client Hello. The packet details pane on the right shows the structure of the TLSv1.2 Record Layer, including the Handshake Protocol: Server Hello, Content Type: Handshake (22), Version: TLS 1.2 (0x0303), Length: 61, Handshake Protocol: Server Hello, Handshake Type: Server Hello (2), Length: 57, Version: TLS 1.2 (0x0303), Random: 30e19c564e24e63153ae28b1795fe4a37633a7bcd220c967..., Session ID Length: 0, and Cipher Suite: TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 (0xc02f).

Time	Source	Destination	Protocol	Info
2018-12-17 08:16:38	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:16:38	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:16:38	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:16:38	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:16:38	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:16:38	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt
2018-12-17 08:16:38	192.168.1.9	192.168.1.3	TLSv1.2	Application Data
2018-12-17 08:16:38	192.168.1.3	192.168.1.9	TLSv1.2	Application Data
2018-12-17 08:16:38	192.168.1.3	192.168.1.9	TLSv1.2	Application Data, Application Data, Application
2018-12-17 08:16:38	192.168.1.9	192.168.1.3	TLSv1.2	Encrypted Alert
2018-12-17 08:17:39	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:17:39	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello

▶ Frame 162: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0
 ▶ Ethernet II, Src: Dell_9f:bd:03 (00:26:b9:9f:bd:03), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e)
 ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.9
 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 60564, Seq: 1, Ack: 250, Len: 2896
 ▲ Secure Sockets Layer
 ▲ TLSv1.2 Record Layer: Handshake Protocol: Server Hello
 Content Type: Handshake (22)
 Version: TLS 1.2 (0x0303)
 Length: 61
 ▲ Handshake Protocol: Server Hello
 Handshake Type: Server Hello (2)
 Length: 57
 Version: TLS 1.2 (0x0303)
 ▶ Random: 30e19c564e24e63153ae28b1795fe4a37633a7bcd220c967...
 Session ID Length: 0
 Cipher Suite: TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 (0xc02f)

Wireshark Plots for WINNF.FT.C.SCS.2 Test Case ID


The image shows a Wireshark network traffic capture interface. The top menu bar includes File, Edit, View, Go, Capture, Analyze, Statistics, Telephony, Wireless, Tools, and Help. Below the menu is a toolbar with various icons for packet capture and analysis. The main display area shows a list of captured packets with columns for Time, Source, Destination, Protocol, and Info. The selected packet is 142, which is a TLSv1.2 Client Hello. The packet details pane on the right shows the structure of the packet, including the Ethernet II header, Internet Protocol Version 4 header, Transmission Control Protocol header, and the Secure Sockets Layer (SSL) handshake protocol. The SSL handshake protocol details show the Content Type (Handshake), Version (TLS 1.2), Length (61), and the Handshake Protocol (Server Hello) details, including the Handshake Type (Server Hello), Length (57), Version (TLS 1.2), Random, Session ID Length (0), and Cipher Suite (TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256).

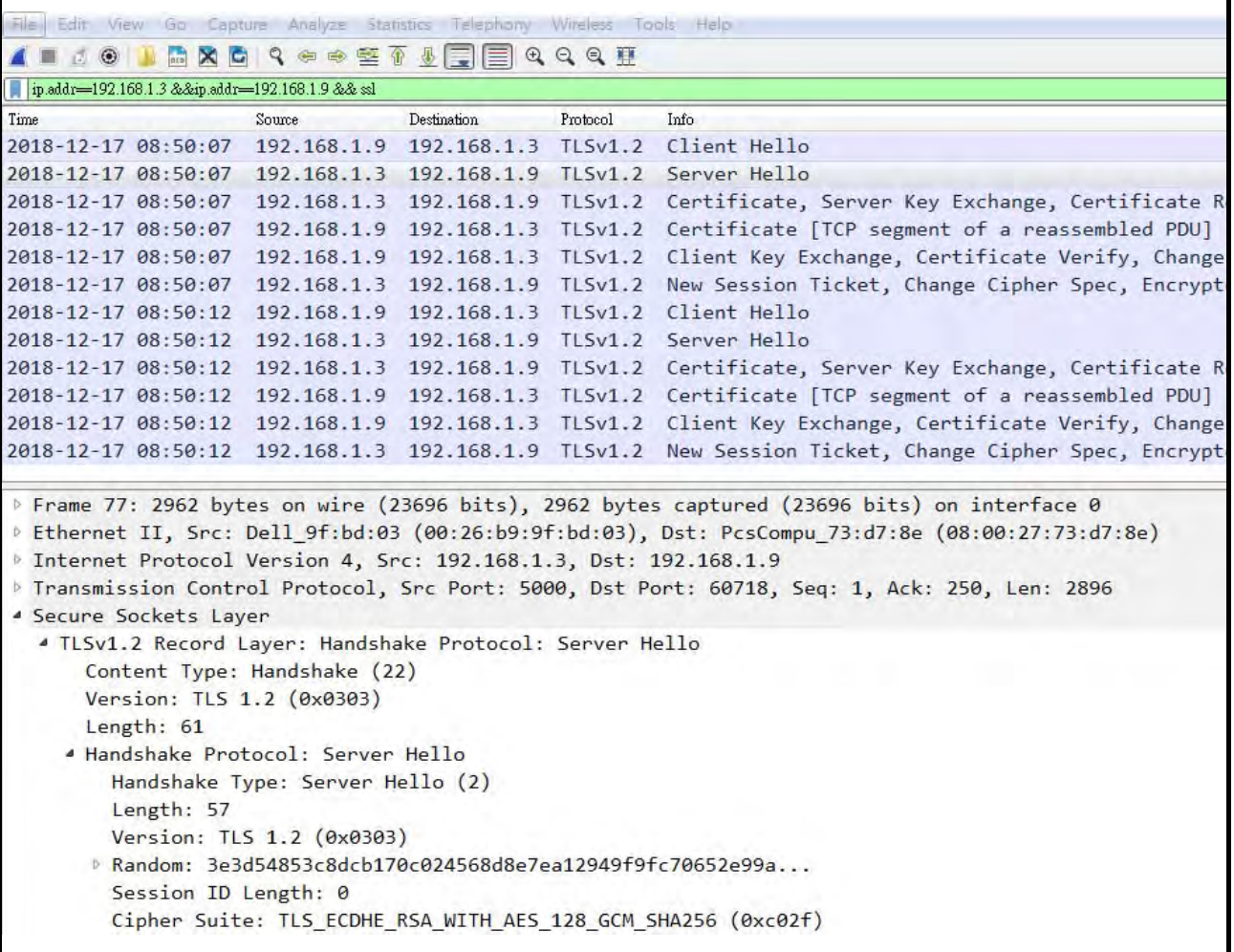
Time	Source	Destination	Protocol	Info
2018-12-17 08:25:01	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:25:01	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:25:01	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:25:01	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:25:01	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:25:01	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt
2018-12-17 08:25:06	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:25:06	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:25:06	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:25:06	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:25:06	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:25:06	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt

▶ Frame 142: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0
 ▶ Ethernet II, Src: Dell_9f:bd:03 (00:26:b9:9f:bd:03), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e)
 ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.9
 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 60638, Seq: 1, Ack: 250, Len: 2896
 ▲ Secure Sockets Layer
 ▲ TLSv1.2 Record Layer: Handshake Protocol: Server Hello
 Content Type: Handshake (22)
 Version: TLS 1.2 (0x0303)
 Length: 61
 ▲ Handshake Protocol: Server Hello
 Handshake Type: Server Hello (2)
 Length: 57
 Version: TLS 1.2 (0x0303)
 ▶ Random: 2417594699d7a42216e32d1ec1514af4d1948e456de549ad...
 Session ID Length: 0
 Cipher Suite: TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 (0xc02f)

Wireshark Plots for WINNF.FT.C.SCS.3 Test Case ID

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help				
ip.addr==192.168.1.3 &&ip.addr==192.168.1.9 &&ssl				
Time	Source	Destination	Protocol	Info
2018-12-17 08:42:28	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:42:28	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:42:28	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:42:28	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:42:28	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:42:28	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt
2018-12-17 08:42:37	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:42:38	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:42:38	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:42:38	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:42:38	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:42:38	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt
▶ Frame 147: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0 ▶ Ethernet II, Src: Dell_9f:bd:03 (00:26:b9:9f:bd:03), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e) ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.9 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 60698, Seq: 1, Ack: 250, Len: 2896 ▲ Secure Sockets Layer				
▲ TLSv1.2 Record Layer: Handshake Protocol: Server Hello - Content Type: Handshake (22) - Version: TLS 1.2 (0x0303) - Length: 61 ▲ Handshake Protocol: Server Hello - Handshake Type: Server Hello (2) - Length: 57 - Version: TLS 1.2 (0x0303) ▶ Random: 9b2e1687c99208901c10085801b299cc8ba18f104fa47271... - Session ID Length: 0 - Cipher Suite: TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 (0xc02f)				

Wireshark Plots for WINNF.FT.C.SCS.4 Test Case ID



The image shows a Wireshark network traffic capture. The top menu bar includes File, Edit, View, Go, Capture, Analyze, Statistics, Telephony, Wireless, Tools, and Help. Below the menu is a toolbar with various icons for file operations, navigation, and analysis. The filter bar at the top of the packet list shows the filter: `ip.addr==192.168.1.3 && ip.addr==192.168.1.9 && ssl`.

Time	Source	Destination	Protocol	Info
2018-12-17 08:50:07	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:50:07	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:50:07	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:50:07	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:50:07	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:50:07	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt
2018-12-17 08:50:12	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:50:12	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:50:12	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:50:12	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:50:12	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:50:12	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt

Below the packet list, the details pane for the selected packet (Frame 77) is shown:

- Frame 77: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0
- Ethernet II, Src: Dell_9f:bd:03 (00:26:b9:9f:bd:03), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e)
- Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.9
- Transmission Control Protocol, Src Port: 5000, Dst Port: 60718, Seq: 1, Ack: 250, Len: 2896
- Secure Sockets Layer
 - TLSv1.2 Record Layer: Handshake Protocol: Server Hello
 - Content Type: Handshake (22)
 - Version: TLS 1.2 (0x0303)
 - Length: 61
 - Handshake Protocol: Server Hello
 - Handshake Type: Server Hello (2)
 - Length: 57
 - Version: TLS 1.2 (0x0303)
 - Random: 3e3d54853c8dcb170c024568d8e7ea12949f9fc70652e99a...
 - Session ID Length: 0
 - Cipher Suite: TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 (0xc02f)

Wireshark Plots for WINNF.FT.C.SCS.5 Test Case ID

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help				
ip.addr==192.168.1.3 &&ip.addr==192.168.1.9 &&ssl				
Time	Source	Destination	Protocol	Info
2018-12-17 08:52:23	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:52:23	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:52:23	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:52:23	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:52:23	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:52:23	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt
2018-12-17 08:52:31	192.168.1.9	192.168.1.3	TLSv1.2	Client Hello
2018-12-17 08:52:31	192.168.1.3	192.168.1.9	TLSv1.2	Server Hello
2018-12-17 08:52:31	192.168.1.3	192.168.1.9	TLSv1.2	Certificate, Server Key Exchange, Certificate R
2018-12-17 08:52:31	192.168.1.9	192.168.1.3	TLSv1.2	Certificate [TCP segment of a reassembled PDU]
2018-12-17 08:52:31	192.168.1.9	192.168.1.3	TLSv1.2	Client Key Exchange, Certificate Verify, Change
2018-12-17 08:52:31	192.168.1.3	192.168.1.9	TLSv1.2	New Session Ticket, Change Cipher Spec, Encrypt
▶ Frame 50: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0 ▶ Ethernet II, Src: Dell_9f:bd:03 (00:26:b9:9f:bd:03), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e) ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.9 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 60726, Seq: 1, Ack: 250, Len: 2896 ◀ Secure Sockets Layer				
◀ TLSv1.2 Record Layer: Handshake Protocol: Server Hello Content Type: Handshake (22) Version: TLS 1.2 (0x0303) Length: 61 ◀ Handshake Protocol: Server Hello Handshake Type: Server Hello (2) Length: 57 Version: TLS 1.2 (0x0303) Random: 59b4d1f752d5752f6a9d14d80fed6b8b1ed0ea6c74fed177... Session ID Length: 0 Cipher Suite: TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 (0xc02f)				

CRL and OCSP Verify Plots for WINNF.FT.C.SCS.2 Test Case ID

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help						
ocsp						
No.	Time	Source	Destination	Protocol	Length	Info
16	2018-12-17 08:25:02.811466287	192.168.1.9	192.168.1.5	OCSP	296	Request
18	2018-12-17 08:25:02.817579338	192.168.1.5	192.168.1.9	OCSP	3697	Response
37	2018-12-17 08:25:07.895749635	192.168.1.9	192.168.1.5	OCSP	296	Request
39	2018-12-17 08:25:07.901441818	192.168.1.5	192.168.1.9	OCSP	3697	Response
▶ Frame 16: 296 bytes on wire (2368 bits), 296 bytes captured (2368 bits) on interface 0 ▶ Ethernet II, Src: PcsCompu_73:d7:8e (08:00:27:73:d7:8e), Dst: AsustekC_4e:9e:dc (c8:60:00:4e:9e:dc) ▶ Internet Protocol Version 4, Src: 192.168.1.9, Dst: 192.168.1.5 ▶ Transmission Control Protocol, Src Port: 40402, Dst Port: 80, Seq: 1, Ack: 1, Len: 229 ▶ Hypertext Transfer Protocol ▶ Online Certificate Status Protocol						
▼ tbsRequest - requestList: 1 item - Request - reqCert - hashAlgorithm (SHA-1) - issuerNameHash: ab2b204282381483787e5c2dc186c23a5c179f4b - issuerKeyHash: eb4924b18883e70f52e7a8f2f71e7822dbd915f8 - serialNumber: 17542170816009865400						