



WINNF-TS-0122 TEST REPORT

FCC ID : Z8H89FT0010

Equipment : 3GHz PMP 450 AP

Brand Name : Cambium Networks

Model Name : 3GHz PMP 450 AP

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 Aug. 30, 2018, and testing was started from Aug. 30, 2018 and completed on Oct. 02, 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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History of this test report

TEL : 886-3-327-3456
FAX : 886-3-327-0973
Report Template No.: HE1-U2 Ver1.0

Page Number : 3 of 43
Issued Date : Nov. 16, 2018
Report Version : 01

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.

Reviewed by: Jordan Hsiao

Report Producer: Cindy Peng

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature of Equipment Under Test	
FCC ID	Z8H89FT0010
Equipment	3GHz PMP 450 AP
Brand Name	Cambium Networks
Model Name	3GHz PMP 450 AP
Power Type	From PoE
Category of CBSD	<input type="checkbox"/> Category A <input checked="" type="checkbox"/> Category B
Professional Installation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Unit Under Test in Test ID	<input checked="" type="checkbox"/> CBSD with Domain Proxy <input type="checkbox"/> CBSD without Domain Proxy
CBSD Hardware Version	P1 Rev 1
CBSD Software Version	CANOPY 16.0 (Build INT-CBRS-51) AP
CBSD Firmware Version	081518
Domain Proxy Software Version	1.0

1.2 Conditional Test Case

<input type="checkbox"/>	C1	Mandatory for UUT which supports multi-step registration message
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	C3	Mandatory for UUT which supports single-step registration containing CPI-signed data in the registration message.
<input checked="" type="checkbox"/>	C4	Mandatory for UUT which supports RECEIVED_POWER_WITHOUT_GRANT measurement report type.
<input type="checkbox"/>	C5	Mandatory for UUT which supports RECEIVED_POWER_WITH_GRANT measurement report type.
<input type="checkbox"/>	C6	Mandatory for UUT which supports parameter change being made at the UUT and prior to sending a deregistration.



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	PY309300116
3	Notebook	ASUS	P2438U	PPD-QCNFA435
4	PoE	Phihong	PSA15M-300(AP)	N/A
5	PoE	Cambium Networks	NET-P15-30IN	N/A

1.5 Testing Location

Testing Location				
<input checked="" type="checkbox"/>	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		
<input type="checkbox"/>	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
RF Conducted		TH01-CB	Rex Liao	25°C / 60%
				Test Date
				Aug. 30, 2018~Oct. 02, 2018

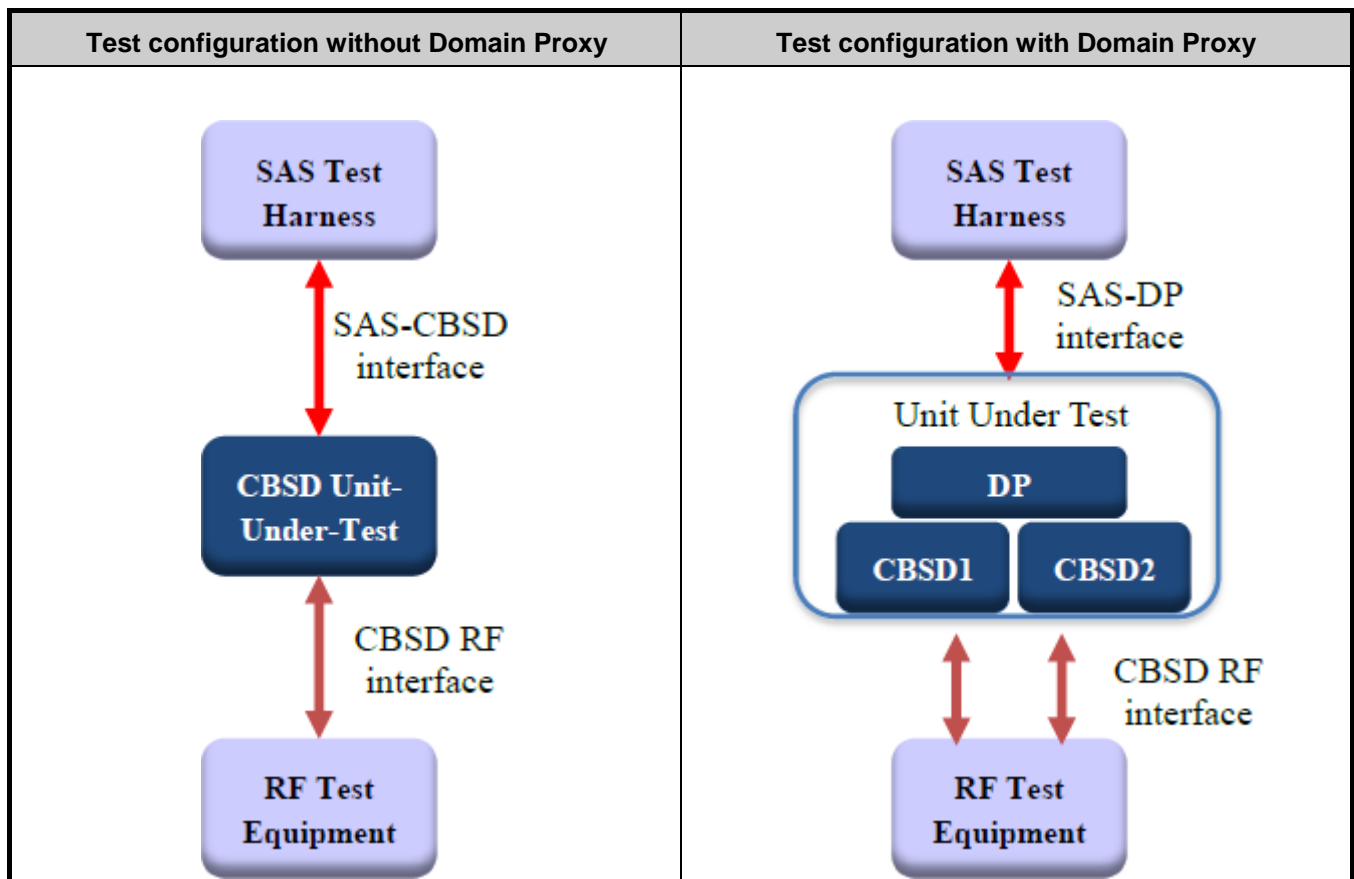
Test site Designation No. TW1190 with FCC.

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

2 Measurement Environment

Measurement Environment	
Test Harness version	v1.0.0.2
Operating System	WIN7
TLS version	1.2
Python	2.7.15

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.

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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or as individual messages as follows: <ul style="list-style-type: none"> – <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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> – 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> – 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> – 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> – 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> – SAS response does not include a <i>cbstdId</i>. – <i>responseCode</i>=<i>Ri</i> for CBSD1 and CBSD2 	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (<i>responseCode (Ri)</i> = 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • <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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • <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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> DP has two CBSD registered successfully with SAS Test Harness, with <i>cbsdId</i> = Ci, i={1,2} 	--	--
2	DP sends a message: <ul style="list-style-type: none"> 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}: <ul style="list-style-type: none"> <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}: <ul style="list-style-type: none"> <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}: <ul style="list-style-type: none"> <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	<p>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.</p> <p>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.</p> <p>Verify parameters for each CBSD within the Grant Response message are as follows, for CBSD_i, $i=\{1,2\}$:</p> <ul style="list-style-type: none"> • <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	<p>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.</p> <p>Verify Heartbeat Request message is formatted correctly for each CBSD, including, for CBSD_i $i=\{1,2\}$:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C_i, $i=\{1,2\}$ • <i>grantId</i> = G_i, $i=\{1,2\}$ • <i>operationState</i> = "GRANTED" 	PASS	--
8	<p>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.</p> <p>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.</p> <p>Verify parameters for each CBSD within the Heartbeat Response message are as follows, for CBSD_i:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C_i • <i>grantId</i> = G_i • <i>transmitExpireTime</i> = current UTC time + 200 seconds • <i>responseCode</i> = 0 	--	--
9	<p>For further Heartbeat Request messages sent from DP after completion of step 8, validate message is sent within latest specified heartbeatInterval for CBSD_i:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C_i • <i>grantId</i> = G_i • <i>operationState</i> = "AUTHORIZED" <p>and SAS Test Harness responds with a Heartbeat Response message including the following parameters, for CBSD_i:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C_i • <i>grantId</i> = G_i • <i>transmitExpireTime</i> = current UTC time + 200 seconds • <i>responseCode</i> = 0 	PASS	--



10	<p>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:</p> <ul style="list-style-type: none">• 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	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: <ul style="list-style-type: none"> ○ 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	<p>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:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "AUTHORIZED" 	PASS	--
3	<p>SAS Test Harness sends a Heartbeat Response message, including the following parameters:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = T = Current UTC time • <i>responseCode</i> = 105 (DEREGISTER) 	--	--
4	<p>After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.</p>	--	--
5	<p>Monitor the RF output of the UUT. Verify:</p> <ul style="list-style-type: none"> • 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	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: <ul style="list-style-type: none"> ○ 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	<p>UUT sends a Heartbeat Request message. Verify Heartbeat Request message is formatted correctly, including:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "GRANTED" 	PASS	--
3	<p>SAS Test Harness sends a Heartbeat Response message, including the following parameters:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = T = current UTC time • <i>responseCode</i> = 501 (SUSPENDED_GRANT) 	--	--
4	<p>After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.</p>	--	--
5	<p>Monitor the SAS-CBSD interface. Verify either A OR B occurs:</p> <p>A. UUT sends a Heartbeat Request message. Ensure message is sent within latest specified heartbeatInterval, and is correctly formatted with parameters:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "GRANTED" <p>B. UUT sends a Relinquishment request message. Ensure message is correctly formatted with parameters:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G <p>Monitor the RF output of the UUT. Verify:</p> <ul style="list-style-type: none"> • 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	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: <ul style="list-style-type: none"> ○ 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	<p>UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within latest specified heartbeatInterval, and is formatted correctly, including:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "AUTHORIZED" 	PASS	--
3	<p>SAS Test Harness sends a Heartbeat Response message, including the following parameters:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = T = current UTC time • <i>responseCode</i> = 501 (SUSPENDED_GRANT) 	--	--
4	<p>After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.</p>	--	--
5	<p>Monitor the SAS-CBSD interface. Verify either A OR B occurs:</p> <p>A. UUT sends a Heartbeat Request message. Ensure message is sent within latest specified heartbeatInterval, and is correctly formatted with parameters:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "GRANTED" <p>B. UUT sends a Relinquishment Request message. Ensure message is correctly formatted with parameters:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G <p>Monitor the RF output of the UUT. Verify:</p> <ul style="list-style-type: none"> • 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	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: <ul style="list-style-type: none"> ○ 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	<p>UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within latest specified <i>heartbeatInterval</i>, and is formatted correctly, including:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>operationState</i> = "AUTHORIZED" 	PASS	--
3	<p>SAS Test Harness sends a Heartbeat Response message, including the following parameters:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = C • <i>grantId</i> = G • <i>transmitExpireTime</i> = T = Current UTC Time • <i>responseCode</i> = 502 (UNSYNC_OP_PARAM) 	--	--
4	<p>After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.</p>	--	--
5	<p>Monitor the SAS-CBSD interface. Verify:</p> <ul style="list-style-type: none"> • UUT sends a Grant Relinquishment Request message. Verify message is correctly formatted with parameters: <ul style="list-style-type: none"> ○ <i>cbsdId</i> = C ○ <i>grantId</i> = G <p>Monitor the RF output of the UUT. Verify:</p> <ul style="list-style-type: none"> • 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	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> DP has two CBSD registered successfully with SAS Test Harness Each CBSD {1,2} has a valid single grant as follows: <ul style="list-style-type: none"> 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	<p>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.</p> <p>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}:</p> <ul style="list-style-type: none"> <i>cbsdId</i> = Ci, i = {1,2} <i>grantId</i> = Gi, i = {1,2} <i>operationState</i> = "AUTHORIZED" 	PASS	--
3	<p>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.</p> <p>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.</p> <p>Parameters for each CBSD within the Heartbeat Response message should be as follows, for CBSDi:</p> <ul style="list-style-type: none"> <i>cbsdId</i> = Ci <i>grantId</i> = Gi For CBSD1: <ul style="list-style-type: none"> <i>transmitExpireTime</i> = current UTC time + 200 seconds <i>responseCode</i> = 0 For CBSD2: <ul style="list-style-type: none"> <i>transmitExpireTime</i> = T = current UTC time <i>responseCode</i> = 500 (TERMINATED_GRANT) 	--	--

4	<p>After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.</p> <p>If CBSD sends further Heartbeat Request messages for CBSD1, SAS Test Harness shall respond with a Heartbeat Response message with parameters:</p> <ul style="list-style-type: none"> • <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	<p>Monitor the RF output of CBSD2. Verify:</p> <ul style="list-style-type: none"> • 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	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: <ul style="list-style-type: none"> ○ 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	<p>UUT sends a Heartbeat Request message. Ensure Heartbeat Request message is sent within latest specified <i>heartbeatInterval</i>, and is formatted correctly, including:</p> <ul style="list-style-type: none"> • <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	<p>Monitor the RF output of the UUT from start of test to 60 seconds after step 3. Verify:</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: <ul style="list-style-type: none"> ○ 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: <ul style="list-style-type: none"> • <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: <ul style="list-style-type: none"> • <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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> userId is present and correct fcclid is present and correct cbsdSerialNumber is present and correct measCapability = "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: <ul style="list-style-type: none"> cbsdId = Ci measReportConfig = "RECEIVED_POWER_WITHOUT_GRANT" responseCode = 0 	--	--
4	UUT sends a message: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> cbsdId = Ci measReport is present, and is a properly formatted rcvdPowerMeasReport. 	PASS	--

6	<p>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.</p> <p>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.</p> <p>Parameters for each CBSD within the Spectrum Inquiry Response message should be as follows:</p> <ul style="list-style-type: none"> • <i>cbsdId</i> = <i>Ci</i> • <i>availableChannel</i> is an array of <i>availableChannel</i> objects • <i>responseCode</i> = 0 	--	--
7	<p>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:</p> <ul style="list-style-type: none"> • <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	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> 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. <p>Invoke trigger to relinquish each UUT Grant from the SAS Test Harness</p>	--	--
2	<p>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:</p> <ul style="list-style-type: none"> <i>cbsdId</i> = Ci <i>grantId</i> = Gi 	PASS	--
3	<p>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.</p> <p>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.</p> <p>Parameters for each CBSD within the Relinquishment Response shall be as follows:</p> <ul style="list-style-type: none"> <i>cbsdId</i> = Ci <i>grantId</i> = Gi <i>responseCode</i> = 0 	--	--
4	<p>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.</p>	--	--
5	<p>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:</p> <ul style="list-style-type: none"> 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	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> 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. <p>Invoke trigger to deregister each UUT from the SAS Test Harness</p>	--	--
2	UUT sends a Relinquishment request and receives Relinquishment response with <i>responseCode</i> =0	--	--
3	<p>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:</p> <ul style="list-style-type: none"> <i>cbsdId</i> = Ci 	PASS	--
4	<p>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.</p> <p>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.</p> <p>Parameters for each CBSD within the Deregistration Response shall be as follows:</p> <ul style="list-style-type: none"> <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	<p>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:</p> <ul style="list-style-type: none"> UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Make sure that Mutual authentication happens between UUT and the SAS Test Harness. Make sure that UUT uses TLS v1.2 Make sure that cipher suites from one of the following is selected, <ul style="list-style-type: none"> 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	<p>A successful registration is accomplished using one of the test cases described in section 6.1.4.1, depending on CBSD capability.</p> <ul style="list-style-type: none"> 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	<p>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:</p> <ul style="list-style-type: none"> UUT shall not transmit RF 	PASS	--

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

#	Test Execution Steps	Results	
1	<ul style="list-style-type: none"> UUT shall start CBSD-SAS communication with the security procedures 	PASS	--
2	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> UUT shall start CBSD-SAS communication with the security procedures 	PASS	--
2	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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

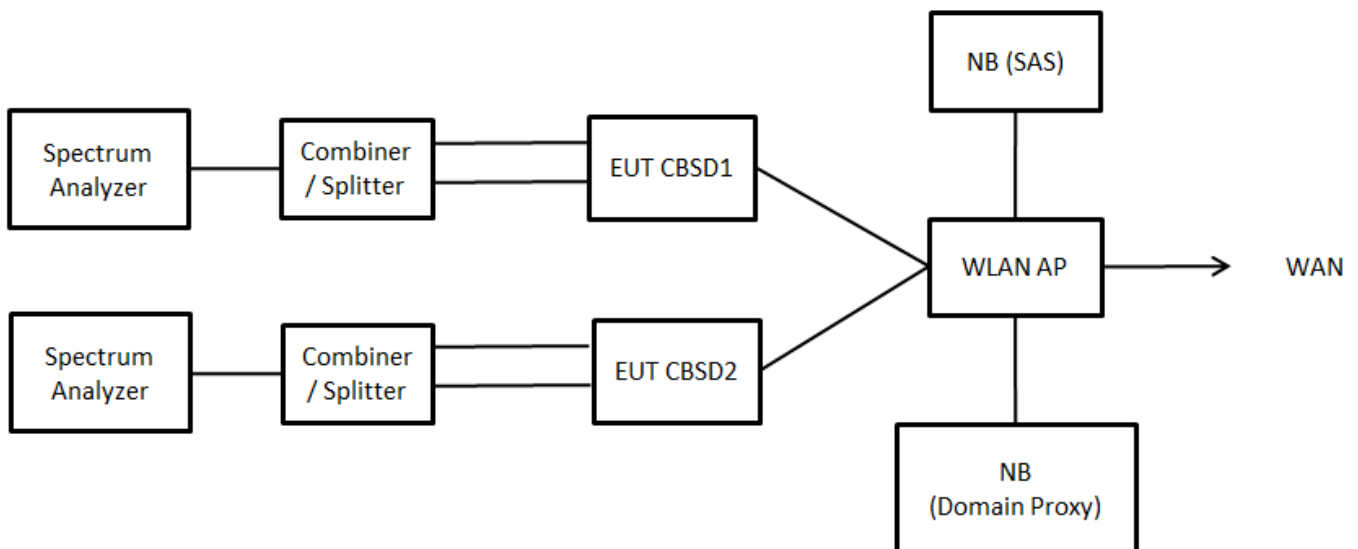
#	Test Execution Steps	Results	
1	<ul style="list-style-type: none"> UUT shall start CBSD-SAS communication with the security procedures 	PASS	--
2	<ul style="list-style-type: none"> Make sure that UUT uses TLS v1.2 for security establishment. Make sure UUT selects the correct cipher suite. UUT shall 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: <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> UUT shall start CBSD-SAS communication with the security procedures 	PASS	--
2	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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)	30dBm/MHz
Transmit dynamic range (EIRP, dBm/MHz)	-22~30dBm/MHz
Occupied bandwidth (OBW)	20MHz 10MHz
maxEirp values	1 dB increments from -22 dBm/MHz to 30 dBm/MHz (52 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	3630MHz
Frequency Span	40MHz
RBW / VBW	1MHz / 3MHz
Channel Power Meas Bandwidth	20MHz
Sweep Time	1ms

#	Test Execution Steps	Results	
1	<p>Ensure the following conditions are met for test entry:</p> <ul style="list-style-type: none"> • 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 <p><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></p>	--	--
2	<p>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:</p> <ul style="list-style-type: none"> • UUT sends Heartbeat Request, including: <ul style="list-style-type: none"> ○ cbsId = C ○ grantId = G • SAS Test Harness responds with Heartbeat Response, including: <ul style="list-style-type: none"> ○ cbsId = C ○ grantId = G ○ transmitExpireTime = current UTC time + 200 seconds ○ responseCode = 0 	--	--

3	<p>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.</p> <p><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></p>	PASS	--
---	--	------	----

Frequency	Occupied Bandwidth	Antenna Gain	Grant maxEirp	Conducted PSD	maxEirp	Result
	(MHz)	(dBi)	(dBm/MHz)	(dBm/MHz)	(dBm/MHz)	
3630MHz	20	18	30	11.39	29.39	Pass
3630MHz	20	18	3	-15.99	2.01	Pass
3630MHz	20	18	-22	-40.88	-22.88	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 (TH01-HY)
Spectrum Analyzer	Keysight	N9010A	MY55150165	9kHz~7GHz	Oct. 28, 2016	Oct. 27, 2017	Conducted (TH01-HY)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-HY)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-HY)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-HY)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-HY)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-HY)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-HY)
RF Power Divider	Woken	4 Way	TH01-DV-01	1GHz ~ 6GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-HY)
RF Power Divider	Woken	2 Way	TH01-DV-02	1GHz ~ 6GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-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%

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

2018-10-01T01:16:12.812Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:16:12.812Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now

2018-10-01T01:17:13.230Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e429ff0",
    "cpiSignatureData": {
      "digitalSignature":
"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
      "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IkkFNu0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fcclId": "Z8H89FT0010",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-42-9f-f0",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "SF5W5D"
  }
]
```

2018-10-01T01:17:13.263Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:17:13.263Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:17:13.263Z - 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": "Z8H89FT0010",
"professionalInstallerData": {
  "cpiName": "CPI User 123",
  "installCertificationTime": "2018-05-09T15:51:12.866Z",
  "cpild": "cpi123"
},
"cbdsSerialNumber": "0a003e429ff0"
}
2018-10-01T01:17:13.653Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:17:13.653Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:17:13.653Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbdsId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
}
2018-10-01T01:17:17.240Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbdsCategory": "B",
      "cbdsInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbdsSerialNumber": "0a003e429fd1",
      "cpiSignatureData": {
        "digitalSignature":
"FpTKcxgjN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZyFecRel_1wH_rEwsUzxfX7
NfNLLc0HHpDLTQuh3lvD-8Vw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImIuc
3RhbgXhdGlvblBhcmFtljlp7lmxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod

```



```
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50IjpmYWxzZSwiYW50ZW5uYUFl
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJ
pbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lrbmFsSW5zdGFsbGVyRGF0Y
SI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlma
WNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-d1",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
2018-10-01T01:17:17.256Z - INFO - Registration message contains cpiSignatureData
2018-10-01T01:17:17.256Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T01:17:17.256Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429fd1"
}
2018-10-01T01:17:17.256Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:17:17.272Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:17:17.272Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```



```
}  
}  
]  
}
```

2018-10-01T01:17:18.723Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T01:17:18.723Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2018-10-01T01:18:44.117Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2018-10-01T01:18:44.117Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :

2018-10-01T01:18:45.802Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n

2018-10-01T01:18:47.799Z - 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

2018-10-01T01:19:44.255Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:19:44.255Z - INFO - the selected test from the user : WINNF.FT.D.REG.9 is starting now

2018-10-01T01:19:57.500Z - INFO - registration request from CBRS : {

"registrationRequest": [

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgslmhlaWdo dCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxzZSwiYW50ZW5uYU F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW JpbGlo0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0 YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": [

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

],

"measCapability": [

"RECEIVED_POWER_WITHOUT_GRANT"

],

"userId": "SF5W5D"

}

]

}

2018-10-01T01:19:57.530Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:19:57.530Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:19:57.530Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbdsSerialNumber": "0a003e429ff0"
}
2018-10-01T01:19:57.530Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:19:57.530Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:19:57.546Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}
2018-10-01T01:20:01.757Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbdsCategory": "B",
      "cbdsInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbdsSerialNumber": "0a003e429fd1",
      "cpiSignatureData": {
        "digitalSignature":
"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWgDvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7
NfNLLc0HHpDLTQuh3lvD-8Vw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImLuc
3RhbGxhdGlvbiBhcmFtljlp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IjFNU0wiLCJpbmRvb3JlZXBsb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF

```

```

6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJ
pbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvmFsSW5zdGFsbGVyRGF0Y
SI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbnN0YWxsQ2VydGlma
WNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fccId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-d1",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
2018-10-01T01:20:01.805Z - INFO - Registration message contains cpiSignatureData
2018-10-01T01:20:01.805Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T01:20:01.805Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429fd1"
}
2018-10-01T01:20:01.805Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:20:01.805Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:20:01.805Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 102
      }
    }
  ]
}

```



```
]
}
```

2018-10-01T01:20:03.520Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T01:20:03.520Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2018-10-01T01:21:30.506Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2018-10-01T01:21:30.523Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :

2018-10-01T01:21:34.734Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n

2018-10-01T01:21:49.226Z - 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

2018-10-01T01:22:52.969Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:22:52.969Z - INFO - the selected test from the user : WINNF.FT.D.REG.11 is starting now

2018-10-01T01:23:00.114Z - INFO - registration request from CBRS : {

"registrationRequest": [

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429fd1",

"cpiSignatureData": {

"digitalSignature":

"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJZh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfTPtXqT8O-Zf2Uli2RrrXzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rUeOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7NfNLLc0HHpDLTQuh3lvD-8Vw",

"encodedCpiSignedData":

"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZkMSIsImIuc3RhbGxhdGlvbiBhcmFtljpw7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmtpdHVkZSI6LTg4LjA4MDgsImhlaWdodCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJpbGlo0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaWNhdGlvbiRpbWUiOiilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": [

{

"groupId": "0a-00-3e-42-9f-d1",

"groupType": "INTERFERENCE_COORDINATION"

}

],

"measCapability": [

"RECEIVED_POWER_WITHOUT_GRANT"

],

"userId": "SF5W5D"

}

]

}

2018-10-01T01:23:00.160Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:23:00.160Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:23:00.160Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbdsSerialNumber": "0a003e429fd1"
}
2018-10-01T01:23:00.160Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:23:00.160Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:23:00.160Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 200
      }
    }
  ]
}
2018-10-01T01:23:03.124Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbdsCategory": "B",
      "cbdsInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbdsSerialNumber": "0a003e429ff0",
      "cpiSignatureData": {
        "digitalSignature":
"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmIhbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbiBhcmFtljpw7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IkkFNu0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU

```

```
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
```

```
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
```

```
  },
```

```
    "fccId": "Z8H89FT0010",
```

```
    "groupingParam": [
```

```
      {
```

```
        "groupId": "0a-00-3e-42-9f-f0",
```

```
        "groupType": "INTERFERENCE_COORDINATION"
```

```
      }
```

```
    ],
```

```
    "measCapability": [
```

```
      "RECEIVED_POWER_WITHOUT_GRANT"
```

```
    ],
```

```
    "userId": "SF5W5D"
```

```
  }
```

```
]
```

```
}
```

2018-10-01T01:23:03.155Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:23:03.155Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:23:03.155Z - 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": "Z8H89FT0010",
```

```
  "professionalInstallerData": {
```

```
    "cpiName": "CPI User 123",
```

```
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
```

```
    "cpild": "cpi123"
```

```
  },
```

```
  "cbstdSerialNumber": "0a003e429ff0"
```

```
}
```

2018-10-01T01:23:03.155Z - INFO - verified signature on cpiSignatureData

2018-10-01T01:23:03.171Z - INFO - cpiSignatureData data successfully validated against jsonschema

2018-10-01T01:23:03.171Z - INFO - engine sent successfully, the response to CBRS : {

```
  "registrationResponse": [
```

```
    {
```

```
      "response": {
```

```
        "responseCode": 200
```

```
      }
```

```
    }
```

```
  }
```



```
]
}
```

2018-10-01T01:23:05.137Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T01:23:05.137Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :

2018-10-01T01:24:21.108Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n

2018-10-01T01:24:21.108Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2018-10-01T01:24:23.276Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2018-10-01T01:24:25.773Z - 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

2018-10-01T01:24:43.088Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:24:43.088Z - INFO - the selected test from the user : WINNF.FT.D.REG.13 is starting now

2018-10-01T01:24:49.578Z - INFO - registration request from CBRS : {

"registrationRequest": [

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgslmhlaWdo dCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxzZSwiYW50ZW5uYU F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW JpbGlo0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0 YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": [

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

],

"measCapability": [

"RECEIVED_POWER_WITHOUT_GRANT"

],

"userId": "SF5W5D"

}

]

}

2018-10-01T01:24:49.609Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:24:49.609Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:24:49.609Z - 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": "Z8H89FT0010",
"professionalInstallerData": {
  "cpiName": "CPI User 123",
  "installCertificationTime": "2018-05-09T15:51:12.866Z",
  "cpild": "cpi123"
},
"cbdsSerialNumber": "0a003e429ff0"
}
2018-10-01T01:24:49.609Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:24:49.625Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:24:49.625Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbdsId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
}
2018-10-01T01:24:54.789Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbdsCategory": "B",
      "cbdsInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbdsSerialNumber": "0a003e429fd1",
      "cpiSignatureData": {
        "digitalSignature":
"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzxfX7
NfNLLc0HHpDLTQuh3lvD-8Vw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImIuc
3RhbgXhdGlvbiBhcmFtIjlp7lmxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod
SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory Page No. : 14 of 144
TEL : 886-3-327-3456
FAX : 886-3-327-0973
```




```
}  
]  
}  
2018-10-01T01:24:56.286Z - INFO - arrived to nstep starting question answer session with the technician  
2018-10-01T01:24:56.286Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :  
2018-10-01T01:26:06.346Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n  
2018-10-01T01:26:06.346Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :  
2018-10-01T01:26:08.874Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n  
2018-10-01T01:26:11.167Z - 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

2018-10-01T01:26:24.365Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:26:24.365Z - INFO - the selected test from the user : WINNF.FT.D.REG.15 is starting now

2018-10-01T01:26:31.072Z - INFO - registration request from CBRS : {

"registrationRequest": [

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgslmhlaWdo dCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxzZSwiYW50ZW5uYU F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0 YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": [

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

],

"measCapability": [

"RECEIVED_POWER_WITHOUT_GRANT"

],

"userId": "SF5W5D"

}

]

}

2018-10-01T01:26:31.104Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:26:31.104Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:26:31.104Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbdsSerialNumber": "0a003e429ff0"
}
2018-10-01T01:26:31.104Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:26:31.104Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:26:31.104Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbdsId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:26:36.252Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbdsCategory": "B",
      "cbdsInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbdsSerialNumber": "0a003e429fd1",
      "cpiSignatureData": {
        "digitalSignature":
"FpTKcxgjN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7
NfNLLc0HHpDLTQuh3lvD-8Vw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAaZTQyOWZkMSIsImluc
3RhbgXhdGlvbIBhcmFtIjlp7lmxhdGI0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod

```



```
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50IjpmYWxzZSwiYW50ZW5uYUFl
6aW11dGgiOiJAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJ
pbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lrbmFsSW5zdGFsbGVyRGF0Y
SI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlma
WNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-d1",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-10-01T01:26:36.282Z - INFO - Registration message contains cpiSignatureData
2018-10-01T01:26:36.282Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T01:26:36.282Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429fd1"
}
2018-10-01T01:26:36.282Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:26:36.299Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:26:36.299Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 101
      }
    }
  ]
}
```



```
}  
]  
}  
2018-10-01T01:26:37.546Z - INFO - arrived to nstep starting question answer session with the technician  
2018-10-01T01:26:37.546Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :  
2018-10-01T01:27:44.049Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n  
2018-10-01T01:27:44.065Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :  
2018-10-01T01:27:46.654Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n  
2018-10-01T01:27:48.526Z - 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

2018-10-01T01:28:04.017Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:28:04.032Z - INFO - the selected test from the user : WINNF.FT.D.REG.17 is starting now

2018-10-01T01:28:11.973Z - INFO - registration request from CBRS : {

"registrationRequest": [

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgslmhlaWdo dCI6MCwiaGVpZ2h0VHlwZSI6lkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxzZSwiYW50ZW5uYU F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW JpbGlo0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0 YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": [

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

],

"measCapability": [

"RECEIVED_POWER_WITHOUT_GRANT"

],

"userId": "SF5W5D"

}

]

}

2018-10-01T01:28:12.020Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:28:12.020Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:28:12.020Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbdsSerialNumber": "0a003e429ff0"
}
2018-10-01T01:28:12.020Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:28:12.020Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:28:12.020Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 100
      }
    }
  ]
}
2018-10-01T01:28:16.482Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbdsCategory": "B",
      "cbdsInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbdsSerialNumber": "0a003e429fd1",
      "cpiSignatureData": {
        "digitalSignature":
"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7
NfNLLc0HHpDLTQuh3lvD-8Vw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImLuc
3RhbGxhdGlvbiBhcmFtIjpw7lmxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IjFNU0wiLCJpbmRvb3JlZXBsb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF

```

```

6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJ
pbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvmFsSW5zdGFsbGVyRGF0Y
SI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlma
WNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fccId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-d1",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-10-01T01:28:16.529Z - INFO - Registration message contains cpiSignatureData
2018-10-01T01:28:16.529Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T01:28:16.529Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429fd1"
}
2018-10-01T01:28:16.529Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:28:16.545Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:28:16.545Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "response": {
        "responseCode": 100
      }
    }
  ]
}

```



```
]
}
```

2018-10-01T01:28:18.229Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T01:28:18.229Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2018-10-01T01:29:25.762Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2018-10-01T01:29:25.776Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :

2018-10-01T01:29:29.147Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n

2018-10-01T01:29:31.174Z - 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

2018-10-01T01:29:41.331Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:29:41.345Z - INFO - the selected test from the user : WINNF.FT.D.REG.19 is starting now

2018-10-01T01:29:47.493Z - INFO - registration request from CBRS : {

```

    "registrationRequest": [
      {
        "airInterface": {
          "radioTechnology": "CAMBIUM_NETWORKS"
        },
        "cbsdCategory": "B",
        "cbsdInfo": {
          "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
          "vendor": "Cambium Networks"
        },
        "cbsdSerialNumber": "0a003e429ff0",
        "cpiSignatureData": {
          "digitalSignature":
            "E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
            Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
            a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
            VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
            LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
          "encodedCpiSignedData":
            "eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu
            c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdo
            dCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxzZSwiYW50ZW5uYU
            F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
            JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
            YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
            aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
          "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
        },
        "fcclId": "Z8H89FT0010",
        "groupingParam": [
          {
            "groupId": "0a-00-3e-42-9f-f0",
            "groupType": "INTERFERENCE_COORDINATION"
          }
        ],
        "measCapability": [
          "RECEIVED_POWER_WITHOUT_GRANT"
        ],
        "userId": "SF5W5D"
      }
    ]
  }

```

2018-10-01T01:29:47.555Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:29:47.555Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:29:47.555Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T01:29:47.555Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:29:47.555Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:29:47.555Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:29:51.095Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T01:29:51.111Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3555000000,
            "lowFrequency": 3550000000
          }
        }
      ]
    }
  ]
}

```

```

    },
    "ruleApplied": "FCC_PART_96"
  }
],
"cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"response": {
  "responseCode": 0
}
}
]
}
2018-10-01T01:30:02.546Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbstdCategory": "B",
      "cbstdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbstdSerialNumber": "0a003e429fd1",
      "cpiSignatureData": {
        "digitalSignature":
"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGDvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7
NfNLLc0HHpDLTQuh3lvD-8Vw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImIuc
3RhbGxhdGlvbIBhcmFtljlp7ImxhdGl0dWRlljo0Mi4yNDIsImxvbmVmdpdHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IklFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF
6aW11dGgiOjAsImFudGVubmFEb3dudGlscCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJ
pbGl0eSI6NDAsImFudGVubmFCZWZFd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0Y
SI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlma
WNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccId": "Z8H89FT0010",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-42-9f-d1",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "SF5W5D"
    }
  ]
}

```

```

    ]
  }
  2018-10-01T01:30:02.594Z - INFO - Registration message contains cpiSignatureData
  2018-10-01T01:30:02.594Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
  2018-10-01T01:30:02.594Z - 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": "Z8H89FT0010",
    "professionalInstallerData": {
      "cpiName": "CPI User 123",
      "installCertificationTime": "2018-05-09T15:51:12.866Z",
      "cpild": "cpi123"
    },
    "cbsdSerialNumber": "0a003e429fd1"
  }
  2018-10-01T01:30:02.594Z - INFO - verified signature on cpiSignatureData
  2018-10-01T01:30:02.594Z - INFO - cpiSignatureData data successfully validated against jsonschema
  2018-10-01T01:30:02.594Z - INFO - engine sent successfully, the response to CBRS : {
    "registrationResponse": [
      {
        "response": {
          "responseCode": 201
        }
      }
    ]
  }
  ]
}
2018-10-01T01:30:03.654Z - INFO - arrived to nstep starting question answer session with the technician
2018-10-01T01:30:03.654Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-10-01T01:32:21.214Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-10-01T01:32:21.214Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :
2018-10-01T01:32:22.963Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n
2018-10-01T01:32:24.413Z - 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

2018-10-01T01:35:09.914Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:35:09.930Z - INFO - the selected test from the user : WINNF.FT.C.GRA.1 is starting now

2018-10-01T01:35:18.072Z - INFO - registration request from CBRS : {

```
"registrationRequest": [
  {
    "airInterface": {
      "radioTechnology": "CAMBIUM_NETWORKS"
    },
    "cbsdCategory": "B",
    "cbsdInfo": {
      "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
      "vendor": "Cambium Networks"
    },
    "cbsdSerialNumber": "0a003e429ff0",
    "cpiSignatureData": {
      "digitalSignature":
"E6q6i5kLje8l4quEoYPa62tgo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
      "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IkJNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
      "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
    },
    "fcclId": "Z8H89FT0010",
    "groupingParam": [
      {
        "groupId": "0a-00-3e-42-9f-f0",
        "groupType": "INTERFERENCE_COORDINATION"
      }
    ],
    "measCapability": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "userId": "SF5W5D"
  }
]
```

2018-10-01T01:35:18.119Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:35:18.119Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:35:18.119Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T01:35:18.119Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:35:18.119Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:35:18.119Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:35:52.720Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T01:35:52.736Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}

```

```

    },
    "ruleApplied": "FCC_PART_96"
  }
],
"cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"response": {
  "responseCode": 0
}
}
]
}
2018-10-01T01:35:52.829Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
}
2018-10-01T01:35:52.845Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 400
      }
    }
  ]
}
}
2018-10-01T01:35:54.546Z - INFO - arrived to nstep starting question answer session with the technician
2018-10-01T01:35:54.546Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-10-01T01:37:26.305Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-10-01T01:37:34.401Z - 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

2018-10-01T01:37:47.645Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:37:47.645Z - INFO - the selected test from the user : WINNF.FT.C.GRA.2 is starting now

2018-10-01T01:37:52.559Z - INFO - registration request from CBRS : {

```

    "registrationRequest": [
      {
        "airInterface": {
          "radioTechnology": "CAMBIUM_NETWORKS"
        },
        "cbsdCategory": "B",
        "cbsdInfo": {
          "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
          "vendor": "Cambium Networks"
        },
        "cbsdSerialNumber": "0a003e429ff0",
        "cpiSignatureData": {
          "digitalSignature":
            "E6q6i5kLje8l4quEoYPa62tgo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
            Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
            a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
            VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
            LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
          "encodedCpiSignedData":
            "eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu
            c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdo
            dCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxzZSwiYW50ZW5uYU
            F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
            JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
            YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
            aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
          "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
        },
        "fcclId": "Z8H89FT0010",
        "groupingParam": [
          {
            "groupId": "0a-00-3e-42-9f-f0",
            "groupType": "INTERFERENCE_COORDINATION"
          }
        ],
        "measCapability": [
          "RECEIVED_POWER_WITHOUT_GRANT"
        ],
        "userId": "SF5W5D"
      }
    ]
  }

```

2018-10-01T01:37:52.607Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:37:52.607Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:37:52.607Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T01:37:52.607Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:37:52.621Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:37:52.621Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:37:53.323Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T01:37:53.323Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}

```



```

    },
    "ruleApplied": "FCC_PART_96"
  }
],
"cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"response": {
  "responseCode": 0
}
}
]
}
2018-10-01T01:37:53.434Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
}
2018-10-01T01:37:53.448Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 401
      }
    }
  ]
}
}
2018-10-01T01:37:54.743Z - INFO - arrived to nstep starting question answer session with the technician
2018-10-01T01:37:54.743Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2018-10-01T01:39:10.309Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2018-10-01T01:39:13.601Z - 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

2018-10-01T01:39:36.486Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:39:36.486Z - INFO - the selected test from the user : WINNF.FT.D.HBT.2 is starting now

2018-10-01T01:39:45.161Z - INFO - registration request from CBRS : {

"registrationRequest": {

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmIhbE51bWJlcil6ljBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgsImhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6lkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxZSSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGlo0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKGVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": {

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

},

"measCapability": {

"RECEIVED_POWER_WITHOUT_GRANT"

},

"userId": "SF5W5D"

}

}

}

2018-10-01T01:39:45.207Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:39:45.207Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:39:45.207Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429ff0"
}
2018-10-01T01:39:45.207Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:39:45.207Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:39:45.207Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:39:49.388Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbstdCategory": "B",
      "cbstdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbstdSerialNumber": "0a003e429fd1",
      "cpiSignatureData": {
        "digitalSignature":
"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7
NfNLLc0HHpDLTQuh3lvD-8Vw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImIuc
3RhbGxhdGlvbiBhcmFtIjlp7ImxhdGloZWRIljo0Mi4yNDIsImxvbmtpdHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JlZXBsb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF

```

```

6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJ
pbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvmFsSW5zdGFsbGVyRGF0Y
SI6eyJjcGJJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlma
WNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-d1",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-10-01T01:39:49.420Z - INFO - Registration message contains cpiSignatureData
2018-10-01T01:39:49.420Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T01:39:49.420Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429fd1"
}
2018-10-01T01:39:49.434Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:39:49.434Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:39:49.434Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}

```



```
    }
  ]
}
2018-10-01T01:39:54.099Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T01:39:54.115Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:39:54.224Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
2018-10-01T01:39:54.224Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
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    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T01:39:54Z",
      "grantId": "284099200",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:39:54.334Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T01:39:54.334Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:43:14Z"
    }
  ]
}
2018-10-01T01:40:49.572Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:40:49.588Z - INFO - Time interval between two heartbeat request messages is: 55.239,
limit is: 65.0
2018-10-01T01:40:49.588Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "response": {

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        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:44:09Z"
    }
  ]
}
2018-10-01T01:40:49.635Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T01:40:49.635Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:40:49.729Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}

```

```

}
2018-10-01T01:40:49.729Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T01:40:49Z",
      "grantId": "120299959",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:40:49.822Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T01:40:49.822Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:44:09Z"
    }
  ]
}
2018-10-01T01:41:44.844Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:41:44.844Z - INFO - Time interval between two heartbeat request messages is: 55.271,
limit is: 65.0
2018-10-01T01:41:44.859Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {

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"cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"grantId": "284099200",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-10-01T01:45:04Z"
}
]
}
2018-10-01T01:41:45.046Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:41:45.046Z - INFO - Time interval between two heartbeat request messages is: 55.224,
limit is: 65.0
2018-10-01T01:41:45.046Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:45:05Z"
    }
  ]
}
2018-10-01T01:42:40.115Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:42:40.115Z - INFO - Time interval between two heartbeat request messages is: 55.271,
limit is: 65.0
2018-10-01T01:42:40.131Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

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    },
    "transmitExpireTime": "2018-10-01T01:46:00Z"
  }
]
}
2018-10-01T01:42:40.240Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:42:40.240Z - INFO - Time interval between two heartbeat request messages is: 55.193,
limit is: 65.0
2018-10-01T01:42:40.240Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:46:00Z"
    }
  ]
}
2018-10-01T01:43:34.403Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:43:34.403Z - INFO - Time interval between two heartbeat request messages is: 54.288,
limit is: 65.0
2018-10-01T01:43:34.418Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:46:54Z"
    }
  ]
}

```

```
}
2018-10-01T01:43:34.480Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:43:34.480Z - INFO - Time interval between two heartbeat request messages is: 54.241,
limit is: 65.0
2018-10-01T01:43:34.480Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:46:54Z"
    }
  ]
}
2018-10-01T01:44:29.658Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:44:29.658Z - INFO - Time interval between two heartbeat request messages is: 55.256,
limit is: 65.0
2018-10-01T01:44:29.658Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:47:49Z"
    }
  ]
}
2018-10-01T01:44:29.720Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
```

```
"cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
"grantId": "120299959",
"grantRenew": false,
"operationState": "AUTHORIZED"
}
]
}
2018-10-01T01:44:29.720Z - INFO - Time interval between two heartbeat request messages is: 55.24,
limit is: 65.0
2018-10-01T01:44:29.736Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:47:49Z"
    }
  ]
}
2018-10-01T01:45:24.914Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:45:24.914Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "284099200",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:48:44Z"
    }
  ]
}
2018-10-01T01:45:24.944Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
```

```
}
2018-10-01T01:45:24.944Z - INFO - Time interval between two heartbeat request messages is: 55.224,
limit is: 65.0
2018-10-01T01:45:24.960Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "120299959",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T01:48:44Z"
    }
  ]
}
}
2018-10-01T01:45:26.318Z - INFO - arrived to nstep starting question answer session with the
technician
2018-10-01T01:45:26.318Z - INFO - the question is : Did the CBSD1 transmit power prior to
AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2018-10-01T01:49:56.651Z - INFO - for the question : Did the CBSD1 transmit power prior to
AUTHORIZED state (first successful HBT response)? , the user choose n
2018-10-01T01:49:56.651Z - INFO - the question is : Did the CBSD2 transmit power prior to
AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2018-10-01T01:49:58.663Z - INFO - for the question : Did the CBSD2 transmit power prior to
AUTHORIZED state (first successful HBT response)? , the user choose n
2018-10-01T01:55:13.335Z - INFO - The final result of the test : WINNF.FT.D.HBT.2 is - passed and :the
additional comments for the current test are : CBSD1 start transmit at T01:40:06 , CBSD2 start transmit
at T01:40:53
```

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

2018-10-01T01:56:08.589Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T01:56:08.589Z - INFO - the selected test from the user : WINNF.FT.C.HBT.3 is starting now

2018-10-01T01:56:21.569Z - INFO - registration request from CBRS : {

"registrationRequest": {

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBIadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6ljBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgslmhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6lkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxZSSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKGVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": {

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

},

"measCapability": {

"RECEIVED_POWER_WITHOUT_GRANT"

},

"userId": "SF5W5D"

}

}

}

2018-10-01T01:56:21.615Z - INFO - Registration message contains cpiSignatureData

2018-10-01T01:56:21.615Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T01:56:21.615Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T01:56:21.615Z - INFO - verified signature on cpiSignatureData
2018-10-01T01:56:21.615Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T01:56:21.631Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:57:22.003Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T01:57:22.019Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}

```

```

        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-10-01T01:57:22.096Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
2018-10-01T01:57:22.112Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T01:57:22Z",
      "grantId": "928846158",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T01:57:22.207Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "928846158",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T01:57:22.221Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",

```




```
"grantId": "928846158",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-10-01T02:00:42Z"
}
]
}
2018-10-01T01:58:17.523Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "928846158",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:58:17.523Z - INFO - Time interval between two heartbeat request messages is: 55.317,
limit is: 65.0
2018-10-01T01:58:17.539Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "928846158",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T02:01:37Z"
    }
  ]
}
2018-10-01T01:59:12.842Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "928846158",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T01:59:12.842Z - INFO - Time interval between two heartbeat request messages is: 55.318,
limit is: 65.0
2018-10-01T01:59:12.842Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "928846158",
      "response": {
        "responseCode": 0
      },
    },
  ]
}
```

```
        "transmitExpireTime": "2018-10-01T02:02:32Z"
      }
    ]
  }
}
2018-10-01T02:00:08.065Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "928846158",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
}
2018-10-01T02:00:08.065Z - INFO - Time interval between two heartbeat request messages is: 55.224,
limit is: 65.0
2018-10-01T02:00:08.065Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "928846158",
      "response": {
        "responseCode": 105
      },
      "transmitExpireTime": "2018-10-01T02:00:08Z"
    }
  ]
}
}
2018-10-01T02:00:09.923Z - INFO - arrived to nstep starting question answer session with the
technician
2018-10-01T02:00:09.923Z - 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 :
2018-10-01T02:01:17.657Z - INFO - for the question : Did the CBSD stop RF transmission within 60
seconds of receiving Heartbeat response with responseCode = 105? , the user choose y
2018-10-01T02:01:52.226Z - INFO - The final result of the test : WINNF.FT.C.HBT.3 is - passed and :the
additional comments for the current test are : CBSD1 stop transmission at T02:00:10
```

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

2018-10-01T02:02:11.290Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T02:02:11.290Z - INFO - the selected test from the user : WINNF.FT.C.HBT.5 is starting now

2018-10-01T02:02:22.164Z - INFO - registration request from CBRS : {

"registrationRequest": {

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6ljBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmdbpdHVkZSI6LTg4LjA4MDgsImhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6lkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxZSSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGlo0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKGVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": {

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

},

"measCapability": {

"RECEIVED_POWER_WITHOUT_GRANT"

},

"userId": "SF5W5D"

}

}

}

2018-10-01T02:02:22.303Z - INFO - Registration message contains cpiSignatureData

2018-10-01T02:02:22.303Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T02:02:22.303Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T02:02:22.319Z - INFO - verified signature on cpiSignatureData
2018-10-01T02:02:22.319Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T02:02:22.319Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T02:03:22.552Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T02:03:22.566Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}

```

```
        "ruleApplied": "FCC_PART_96"
      },
    ],
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-10-01T02:03:22.661Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
2018-10-01T02:03:22.661Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T02:03:22Z",
      "grantId": "836186530",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T02:03:22.753Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "836186530",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T02:03:22.769Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
```

```
"grantId": "836186530",
"response": {
  "responseCode": 501
},
"transmitExpireTime": "2018-10-01T02:03:22Z"
}
]
}
2018-10-01T02:04:18.025Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "836186530",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
}
2018-10-01T02:04:18.025Z - INFO - Time interval between two heartbeat request messages is: 55.271,
limit is: 65.0
2018-10-01T02:04:18.025Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "836186530",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-10-01T02:04:18Z"
    }
  ]
}
}
2018-10-01T02:04:19.055Z - INFO - arrived to nstep starting question answer session with the
technician
2018-10-01T02:04:19.055Z - INFO - the question is : Did the CBSD transmit at any time during the test?
please choose one of the answers :
2018-10-01T02:05:38.832Z - INFO - for the question : Did the CBSD transmit at any time during the
test? , the user choose n
2018-10-01T02:05:46.898Z - 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

2018-10-01T02:06:41.638Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T02:06:41.638Z - INFO - the selected test from the user : WINNF.FT.C.HBT.6 is starting now

2018-10-01T02:07:00.421Z - INFO - registration request from CBRS : {

"registrationRequest": {

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBIadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6ljBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgsImhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6lkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxZSSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKGVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": {

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

},

"measCapability": {

"RECEIVED_POWER_WITHOUT_GRANT"

},

"userId": "SF5W5D"

}

}

}

2018-10-01T02:07:00.467Z - INFO - Registration message contains cpiSignatureData

2018-10-01T02:07:00.467Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T02:07:00.467Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T02:07:00.467Z - INFO - verified signature on cpiSignatureData
2018-10-01T02:07:00.467Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T02:07:00.483Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T02:08:00.887Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T02:08:00.887Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}

```



```

        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-10-01T02:08:00.980Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
2018-10-01T02:08:00.996Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T02:08:00Z",
      "grantId": "845252481",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T02:08:01.089Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T02:08:01.089Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",

```



```
"grantId": "845252481",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-10-01T02:11:21Z"
}
]
}
2018-10-01T02:08:56.345Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T02:08:56.345Z - INFO - Time interval between two heartbeat request messages is: 55.255,
limit is: 65.0
2018-10-01T02:08:56.361Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T02:12:16Z"
    }
  ]
}
2018-10-01T02:09:51.601Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T02:09:51.601Z - INFO - Time interval between two heartbeat request messages is: 55.256,
limit is: 65.0
2018-10-01T02:09:51.601Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "response": {
        "responseCode": 0
      },
    },
  ]
}
```

```
        "transmitExpireTime": "2018-10-01T02:13:11Z"
      }
    ]
  }
}
2018-10-01T02:10:46.917Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T02:10:46.917Z - INFO - Time interval between two heartbeat request messages is: 55.317,
limit is: 65.0
2018-10-01T02:10:46.934Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-10-01T02:10:46Z"
    }
  ]
}
2018-10-01T02:11:42.220Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T02:11:42.220Z - INFO - Time interval between two heartbeat request messages is: 55.303,
limit is: 65.0
2018-10-01T02:11:42.220Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "845252481",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-10-01T02:11:42Z"
    }
  ]
}
}
```



2018-10-01T02:11:43.812Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T02:11:43.812Z - 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 :

2018-10-01T02:14:56.721Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 501? , the user choose y

2018-10-01T02:15:29.372Z - INFO - The final result of the test : WINNF.FT.C.HBT.6 is - passed and :the additional comments for the current test are : CBSD1 stop transmission at T02:10:48

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

2018-10-01T02:18:36.838Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T02:18:36.838Z - INFO - the selected test from the user : WINNF.FT.C.HBT.7 is starting now

2018-10-01T02:18:50.503Z - INFO - registration request from CBRS : {

"registrationRequest": {

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6ljBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgsImhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6lkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYWxZSSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKGVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": {

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

},

"measCapability": {

"RECEIVED_POWER_WITHOUT_GRANT"

},

"userId": "SF5W5D"

}

}

}

2018-10-01T02:18:50.596Z - INFO - Registration message contains cpiSignatureData

2018-10-01T02:18:50.596Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T02:18:50.596Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T02:18:50.596Z - INFO - verified signature on cpiSignatureData
2018-10-01T02:18:50.612Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T02:18:50.612Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T02:19:51.157Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T02:19:51.157Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}

```

```
        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-10-01T02:19:51.266Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
2018-10-01T02:19:51.280Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T02:19:51Z",
      "grantId": "952908474",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T02:19:51.375Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "952908474",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T02:19:51.391Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
```



```
"grantId": "952908474",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-10-01T02:23:11Z"
}
]
}
2018-10-01T02:19:56.648Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "952908474",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T02:19:56.648Z - INFO - Time interval between two heartbeat request messages is: 5.273,
limit is: 65.0
2018-10-01T02:19:56.663Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "952908474",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T02:23:16Z"
    }
  ]
}
2018-10-01T02:20:51.887Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "952908474",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T02:20:51.887Z - INFO - Time interval between two heartbeat request messages is: 55.239,
limit is: 65.0
2018-10-01T02:20:51.887Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "952908474",
      "response": {
        "responseCode": 0
      },
    },
  ]
}
```



```

        "transmitExpireTime": "2018-10-01T02:24:11Z"
    }
}
]
}
2018-10-01T02:21:47.157Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "grantId": "952908474",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}
}
2018-10-01T02:21:47.157Z - INFO - Time interval between two heartbeat request messages is: 55.271,
limit is: 65.0
2018-10-01T02:21:47.174Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "grantId": "952908474",
            "response": {
                "responseCode": 502
            },
            "transmitExpireTime": "2018-10-01T02:21:47Z"
        }
    ]
}
}
2018-10-01T02:21:47.282Z - INFO - relinquishment request from CBRS : {
    "relinquishmentRequest": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "grantId": "952908474"
        }
    ]
}
}
2018-10-01T02:21:47.282Z - INFO - engine sent successfully, the response to CBRS : {
    "relinquishmentResponse": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "grantId": "952908474",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
}
2018-10-01T02:21:48.483Z - INFO - arrived to nstep starting question answer session with the
technician
2018-10-01T02:21:48.483Z - 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 :

```



2018-10-01T02:22:23.101Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 502? , the user choose y
2018-10-01T02:22:54.769Z - INFO - The final result of the test : WINNF.FT.C.HBT.7 is - passed and :the additional comments for the current test are : CBSD1 stop transmission at T02:21:48

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

2018-10-01T06:18:51.302Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T06:18:51.305Z - INFO - the selected test from the user : WINNF.FT.D.HBT.8 is starting now

2018-10-01T06:18:55.598Z - INFO - registration request from CBRS : {

"registrationRequest": {

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429fd1",

"cpiSignatureData": {

"digitalSignature":

"FpTKcxgjN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzUU6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGDvWlspEdzMMJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7
NfNLLc0HHpDLTQuh3lvD-8Vw",

"encodedCpiSignedData":

"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmhE51bWJlcil6IjBhMDAzZTQyOWZkMSlmluc
3RhbGxhdGlvbiBhcmFtljp7ImxhdGloZW50dWRlIjo0Mi4yNDIsImxvbmtpdHVkZSI6LTg4LjA4MDgslmhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IkkFNU0wiLCJpbmRvb3JlZXB3b3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF
6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJ
pbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0Y
SI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlma
WNhdGlvbiRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": {

{

"groupId": "0a-00-3e-42-9f-d1",

"groupType": "INTERFERENCE_COORDINATION"

}

},

"measCapability": {

"RECEIVED_POWER_WITHOUT_GRANT"

},

"userId": "SF5W5D"

}

}

}

2018-10-01T06:18:55.644Z - INFO - Registration message contains cpiSignatureData

2018-10-01T06:18:55.644Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T06:18:55.644Z - 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": "Z8H89FT0010",
"professionalInstallerData": {
  "cpiName": "CPI User 123",
  "installCertificationTime": "2018-05-09T15:51:12.866Z",
  "cpild": "cpi123"
},
"cbstdSerialNumber": "0a003e429fd1"
}
2018-10-01T06:18:55.645Z - INFO - verified signature on cpiSignatureData
2018-10-01T06:18:55.651Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T06:18:55.651Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:19:56.066Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T06:19:56.078Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}
```

```
        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-10-01T06:19:56.180Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
2018-10-01T06:19:56.190Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T06:19:56Z",
      "grantId": "617615809",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:19:56.267Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "617615809",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:19:56.279Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
```

```

        "grantId": "617615809",
        "response": {
            "responseCode": 0
        },
        "transmitExpireTime": "2018-10-01T06:23:16Z"
    }
}
]
}
2018-10-01T06:20:09.528Z - INFO - registration request from CBRS : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "CAMBIUM_NETWORKS"
            },
            "cbsdCategory": "B",
            "cbsdInfo": {
                "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
                "vendor": "Cambium Networks"
            },
            "cbsdSerialNumber": "0a003e429ff0",
            "cpiSignatureData": {
                "digitalSignature":
                "E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
                Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
                a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
                VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
                LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
                "encodedCpiSignedData":
                "eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllhbE51bWJlciI6IjBhMDAzZTQyOWZmMCIsImlu
                c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRIljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdo
                dCI6MCwiaGVpZ2h0VHlwZSI6IkkFNuU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU
                F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
                JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
                YSI6eyJjcGIJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
                aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjE5Ljg2NloifX0",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fcclId": "Z8H89FT0010",
            "groupingParam": [
                {
                    "groupId": "0a-00-3e-42-9f-f0",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITHOUT_GRANT"
            ],
            "userId": "SF5W5D"
        }
    ]
}
2018-10-01T06:20:09.575Z - INFO - Registration message contains cpiSignatureData

```



```
2018-10-01T06:20:09.575Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T06:20:09.575Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T06:20:09.578Z - INFO - verified signature on cpiSignatureData
2018-10-01T06:20:09.582Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T06:20:09.584Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:20:51.496Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "617615809",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:20:51.497Z - INFO - Time interval between two heartbeat request messages is: 55.229,
limit is: 65.0
2018-10-01T06:20:51.503Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "617615809",
      "response": {
```

```

        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T06:24:11Z"
    }
  ]
}
2018-10-01T06:21:09.733Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T06:21:09.742Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:21:09.839Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}

```



```
}
2018-10-01T06:21:09.851Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T06:21:09Z",
      "grantId": "889140608",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:21:09.921Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "889140608",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:21:09.931Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "889140608",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T06:24:29Z"
    }
  ]
}
2018-10-01T06:21:46.736Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "617615809",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:21:46.740Z - INFO - Time interval between two heartbeat request messages is: 55.24,
limit is: 65.0
2018-10-01T06:21:46.759Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
```

```
"cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
"grantId": "617615809",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-10-01T06:25:06Z"
}
]
}
2018-10-01T06:22:05.167Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "889140608",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:22:05.171Z - INFO - Time interval between two heartbeat request messages is: 55.247,
limit is: 65.0
2018-10-01T06:22:05.190Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "889140608",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T06:25:25Z"
    }
  ]
}
2018-10-01T06:22:41.980Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "617615809",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:22:41.982Z - INFO - Time interval between two heartbeat request messages is: 55.244,
limit is: 65.0
2018-10-01T06:22:41.989Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "617615809",
      "response": {
        "responseCode": 500
      }
    }
  ]
}
```

```

    },
    "transmitExpireTime": "2018-10-01T06:22:41Z"
  }
]
}
2018-10-01T06:22:42.079Z - INFO - relinquishment request from CBRS : {
  "relinquishmentRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "617615809"
    }
  ]
}
2018-10-01T06:22:42.081Z - INFO - engine sent successfully, the response to CBRS : {
  "relinquishmentResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "617615809",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:23:00.372Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "889140608",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:23:00.375Z - INFO - Time interval between two heartbeat request messages is: 55.205,
limit is: 65.0
2018-10-01T06:23:00.384Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "889140608",
      "response": {
        "responseCode": 0
      }
    },
    "transmitExpireTime": "2018-10-01T06:26:20Z"
  ]
}
2018-10-01T06:23:42.292Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",

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```

        "inquiredSpectrum": [
            {
                "highFrequency": 3640000000,
                "lowFrequency": 3620000000
            }
        ]
    }
}

2018-10-01T06:23:42.293Z - INFO - engine sent successfully, the response to CBRS : {
    "spectrumInquiryResponse": [
        {
            "availableChannel": [
                {
                    "channelType": "GAA",
                    "frequencyRange": {
                        "highFrequency": 3555000000,
                        "lowFrequency": 3550000000
                    },
                    "ruleApplied": "FCC_PART_96"
                }
            ],
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
            "response": {
                "responseCode": 0
            }
        }
    ]
}

2018-10-01T06:23:55.589Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "grantId": "889140608",
            "grantRenew": false,
            "operationState": "AUTHORIZED"
        }
    ]
}

2018-10-01T06:23:55.592Z - INFO - Time interval between two heartbeat request messages is: 55.218,
limit is: 65.0
2018-10-01T06:23:55.602Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "grantId": "889140608",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2018-10-01T06:27:15Z"
        }
    ]
}

```



}

2018-10-01T06:23:57.326Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T06:23:57.331Z - 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 :

2018-10-01T06:24:15.680Z - INFO - for the question : Did the CBSD2 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? , the user choose y

2018-10-01T06:24:15.686Z - INFO - the question is : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :

2018-10-01T06:24:19.865Z - INFO - for the question : Did the CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n

2018-10-01T06:25:52.803Z - INFO - The final result of the test : WINNF.FT.D.HBT.8 is - passed and :the additional comments for the current test are : CBSD1 start transmit at T06:21:14 , CBSD2 stop transmission at T06:22:42

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

2018-10-01T06:32:11.625Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T06:32:11.627Z - INFO - the selected test from the user : WINNF.FT.C.HBT.9 is starting now

2018-10-01T06:32:13.927Z - INFO - registration request from CBRS : {

"registrationRequest": {

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmhE51bWJlcil6ljBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmdbpdHVkZSI6LTg4LjA4MDgslmhlaWdo
dCI6MCIwGVPz2h0VHlwZSI6lkFNu0wiLCJpbmRvb3JEZXBSb3ltZW50ljpYXZlZW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCIwYXZlZW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGlo0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKGVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcid": "Z8H89FT0010",

"groupingParam": {

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

},

"measCapability": {

"RECEIVED_POWER_WITHOUT_GRANT"

},

"userId": "SF5W5D"

}

}

}

2018-10-01T06:32:13.976Z - INFO - Registration message contains cpiSignatureData

2018-10-01T06:32:13.976Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T06:32:13.976Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T06:32:13.977Z - INFO - verified signature on cpiSignatureData
2018-10-01T06:32:13.983Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T06:32:13.983Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:33:14.792Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T06:33:14.815Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}

```

```
        "ruleApplied": "FCC_PART_96"
      }
    ],
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-10-01T06:33:14.894Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
2018-10-01T06:33:14.901Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T06:33:14Z",
      "grantId": "912853420",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:33:14.987Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "912853420",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:34:00.415Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
```




```
"grantId": "422706172",
"response": {
  "responseCode": 501
},
"transmitExpireTime": "2018-10-01T06:34:00Z"
}
]
}
2018-10-01T06:34:14.532Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "912853420",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:34:14.532Z - INFO - request message received while HBT is absent, sleep 145 sec
before responding
2018-10-01T06:35:14.608Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "912853420",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:35:14.609Z - INFO - request message received while HBT is absent, sleep 85 sec
before responding
2018-10-01T06:36:14.769Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "912853420",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:36:14.769Z - INFO - request message received while HBT is absent, sleep 25 sec
before responding
2018-10-01T06:36:35.009Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "912853420",
      "response": {
        "responseCode": 501
      }
    }
  ],
}
```



```
"transmitExpireTime": "2018-10-01T06:36:35Z"
    }
  ]
}
```

2018-10-01T06:36:36.644Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T06:36:36.647Z - INFO - the question is : Were there RF transmissions from the CBSD during the test? please choose one of the answers :

2018-10-01T06:36:39.533Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2018-10-01T06:36:39.612Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2018-10-01T06:36:39.772Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2018-10-01T06:38:23.858Z - INFO - for the question : Were there RF transmissions from the CBSD during the test? , the user choose n

2018-10-01T06:41:12.690Z - 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

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2018-10-01T06:42:02.161Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-10-01T06:42:02.164Z - INFO - the selected test from the user : WINNF.FT.C.HBT.10 is starting
now
2018-10-01T06:42:10.970Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e429ff0",
      "cpiSignatureData": {
        "digitalSignature":
"E6q6i5kLje8l4quEoYPa62tgo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmIhbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgslmhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IkkFNu0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGljZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fccl": "Z8H89FT0010",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-42-9f-f0",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "SF5W5D"
    }
  ]
}
2018-10-01T06:42:11.015Z - INFO - Registration message contains cpiSignatureData
2018-10-01T06:42:11.015Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T06:42:11.016Z - INFO - encodedCpiSignedData contents = {
  "installationParam": {
    "eirpCapability": 40,

```

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    "antennaAzimuth": 0,
    "heightType": "AMSL",
    "longitude": -88.0808,
    "height": 0,
    "indoorDeployment": false,
    "antennaBeamwidth": 90,
    "antennaDowntilt": 0,
    "latitude": 42.242,
    "antennaGain": 18
  },
  "fccId": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429ff0"
}
2018-10-01T06:42:11.016Z - INFO - verified signature on cpiSignatureData
2018-10-01T06:42:11.022Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T06:42:11.023Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:43:11.976Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T06:43:11.987Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          }
        }
      ]
    }
  ]
}

```

```

        },
        "ruleApplied": "FCC_PART_96"
    }
},
"cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"response": {
    "responseCode": 0
}
}
]
}
2018-10-01T06:43:12.101Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "operationParam": {
                "maxEirp": 21,
                "operationFrequencyRange": {
                    "highFrequency": 3640000000,
                    "lowFrequency": 3620000000
                }
            }
        }
    ]
}
2018-10-01T06:43:12.108Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "channelType": "GAA",
            "grantExpireTime": "2018-10-08T06:43:12Z",
            "grantId": "798439920",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-10-01T06:43:12.203Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "grantId": "798439920",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}
2018-10-01T06:43:12.210Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {

```



```
"cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"grantId": "798439920",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-10-01T06:46:32Z"
}
]
}
2018-10-01T06:44:07.428Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "798439920",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:44:07.430Z - INFO - Time interval between two heartbeat request messages is: 55.225,
limit is: 65.0
2018-10-01T06:44:07.437Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "798439920",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T06:47:27Z"
    }
  ]
}
2018-10-01T06:45:01.628Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "798439920",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:45:01.632Z - INFO - Time interval between two heartbeat request messages is: 54.2,
limit is: 65.0
2018-10-01T06:45:01.640Z - INFO - LAST HBT RESPONSE THAT SET TRANSMIT_EXPIRE_TIME
WAS AT: 2018-10-01 06:44:07.429000
2018-10-01T06:46:01.792Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "798439920",
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"grantRenew": false,
"operationState": "GRANTED"
}
]
}
2018-10-01T06:46:01.793Z - INFO - request message received while HBT is absent, sleep 144 sec
before responding
2018-10-01T06:47:01.858Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "798439920",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:47:01.858Z - INFO - request message received while HBT is absent, sleep 84 sec
before responding
2018-10-01T06:48:02.051Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "798439920",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:48:02.051Z - INFO - request message received while HBT is absent, sleep 24 sec
before responding
2018-10-01T06:48:08.177Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "798439920",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:48:08.177Z - INFO - request message received while HBT is absent, sleep 18 sec
before responding
2018-10-01T06:48:21.655Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "798439920",
      "response": {
        "responseCode": 501
      },
      "transmitExpireTime": "2018-10-01T06:48:21Z"
    }
  ]
}
```



```
}  
]  
}  
2018-10-01T06:48:23.188Z - INFO - arrived to nstep starting question answer session with the technician  
2018-10-01T06:48:23.190Z - INFO - the question is : Did the CBSD stop RF transmissions within (transmitExpireTime + 60seconds) of last valid heartbeat response? please choose one of the answers :  
2018-10-01T06:48:25.796Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"  
2018-10-01T06:48:25.859Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"  
2018-10-01T06:48:26.052Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"  
2018-10-01T06:48:26.180Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"  
2018-10-01T06:48:50.710Z - INFO - for the question : Did the CBSD stop RF transmissions within (transmitExpireTime + 60seconds) of last valid heartbeat response? , the user choose y  
2018-10-01T06:49:11.986Z - INFO - The final result of the test : WINNF.FT.C.HBT.10 is - passed  
and :the additional comments for the current test are : CBSD1 stop transmission at T06:46:02
```


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

2018-10-01T06:52:05.750Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T06:52:05.753Z - INFO - the selected test from the user : WINNF.FT.D.MES.2 is starting now

2018-10-01T06:52:11.476Z - INFO - registration request from CBRS : {

"registrationRequest": [

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429fd1",

"cpiSignatureData": {

"digitalSignature":

"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJZh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfTPtXqT8O-Zf2Uli2RrrXzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rUeOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7NfNLLc0HHpDLTQuh3lvD-8Vw",

"encodedCpiSignedData":

"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImIuc3RhbGxhdGlvbiBhcmFtIjp7ImxhdGloZWVud7WRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdodCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJpbGloeSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaWNhdGlvbiRpbWUiOiilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": [

{

"groupId": "0a-00-3e-42-9f-d1",

"groupType": "INTERFERENCE_COORDINATION"

}

],

"measCapability": [

"RECEIVED_POWER_WITHOUT_GRANT"

],

"userId": "SF5W5D"

}

]

}

2018-10-01T06:52:11.588Z - INFO - Registration message contains cpiSignatureData

2018-10-01T06:52:11.588Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T06:52:11.589Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429fd1"
}
2018-10-01T06:52:11.591Z - INFO - verified signature on cpiSignatureData
2018-10-01T06:52:11.595Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T06:52:11.596Z - INFO - Response message contains measReportConfig
2018-10-01T06:52:11.598Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "measReportConfig": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:52:14.618Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e429ff0",
      "cpiSignatureData": {
        "digitalSignature":
"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT

```

```

LGKBIadkcm5JncmmaZtnR5oKbzRzByg",
    "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmIhbE51bWJlciI6IjBhMDAzZTQyOWZmMCIsImlu
c3RhbmGxhdGlvbiBhcmFtljpw7lmxhdGlo4dWRlljo0Mi4yNDIsImxvbmddpHVkZSI6LTg4LjA4MDgsImhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IklFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvcnF5SW5zdGFsbGVyRGF0
YSI6eyJjcGIJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbiRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-f0",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
2018-10-01T06:52:14.683Z - INFO - Registration message contains cpiSignatureData
2018-10-01T06:52:14.684Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T06:52:14.684Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbdsSerialNumber": "0a003e429ff0"
}
2018-10-01T06:52:14.684Z - INFO - verified signature on cpiSignatureData
2018-10-01T06:52:14.690Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T06:52:14.691Z - INFO - Response message contains measReportConfig
2018-10-01T06:52:14.693Z - INFO - engine sent successfully, the response to CBRS : {

```

```
"registrationResponse": [
  {
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
    "measReportConfig": [
      "RECEIVED_POWER_WITHOUT_GRANT"
    ],
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-10-01T06:52:35.921Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ],
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -95
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -97
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -97
          },
          {
            "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
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3650000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3660000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3670000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3680000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3690000000,
        "measRcvdPower": -98
    }
}
]
}
]
}
]
}

```



```
2018-10-01T06:52:35.930Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

```
2018-10-01T06:52:36.038Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -95
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -97
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -97
          },
          {
            "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
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3650000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3660000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3670000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3680000000,
        "measRcvdPower": -98
    },
    {
        "measBandwidth": 10000000,
        "measFrequency": 3690000000,
        "measRcvdPower": -98
    }
    ]
},
"operationParam": {

```



```
        "maxEirp": 21,
        "operationFrequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
        }
    }
}
]
}
2018-10-01T06:52:36.048Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
            "channelType": "GAA",
            "grantExpireTime": "2018-10-08T06:52:36Z",
            "grantId": "633708690",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-10-01T06:52:36.134Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
            "grantId": "633708690",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}
2018-10-01T06:52:36.135Z - INFO - engine sent successfully, the response to CBRS : {
    "heartbeatResponse": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
            "grantId": "633708690",
            "response": {
                "responseCode": 501
            },
            "transmitExpireTime": "2018-10-01T06:52:36Z"
        }
    ]
}
2018-10-01T06:52:41.417Z - INFO - spectrumInquiry request from CBRS : {
    "spectrumInquiryRequest": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3640000000,
```



```

        "lowFrequency": 3620000000
      },
    ],
    "measReport": {
      "rcvdPowerMeasReports": [
        {
          "measBandwidth": 10000000,
          "measFrequency": 3550000000,
          "measRcvdPower": -95
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3560000000,
          "measRcvdPower": -97
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3570000000,
          "measRcvdPower": -97
        },
        {
          "measBandwidth": 10000000,
          "measFrequency": 3580000000,
          "measRcvdPower": -97
        },
        {
          "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,

```

[illegible]

```
}
2018-10-01T06:52:41.549Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "measReport": {
        "rcvdPowerMeasReports": [
          {
            "measBandwidth": 10000000,
            "measFrequency": 3550000000,
            "measRcvdPower": -95
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3560000000,
            "measRcvdPower": -97
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3570000000,
            "measRcvdPower": -97
          },
          {
            "measBandwidth": 10000000,
            "measFrequency": 3580000000,
            "measRcvdPower": -97
          },
          {
            "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
        },
        {
            "measBandwidth": 10000000,
            "measFrequency": 3650000000,
            "measRcvdPower": -98
        },
        {
            "measBandwidth": 10000000,
            "measFrequency": 3660000000,
            "measRcvdPower": -98
        },
        {
            "measBandwidth": 10000000,
            "measFrequency": 3670000000,
            "measRcvdPower": -98
        },
        {
            "measBandwidth": 10000000,
            "measFrequency": 3680000000,
            "measRcvdPower": -98
        },
        {
            "measBandwidth": 10000000,
            "measFrequency": 3690000000,
            "measRcvdPower": -99
        }
    ]
},
"operationParam": {
    "maxEirp": 21,
    "operationFrequencyRange": {
        "highFrequency": 3640000000,
        "lowFrequency": 3620000000
    }
}
}
]
}
2018-10-01T06:52:41.563Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "channelType": "GAA",
            "grantExpireTime": "2018-10-08T06:52:41Z",
            "grantId": "303672538",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}

```



```
}  
}  
]  
}
```

2018-10-01T06:52:42.759Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T06:53:43.755Z - 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

2018-10-01T06:54:57.253Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T06:54:57.256Z - INFO - the selected test from the user : WINNF.FT.D.RLQ.2 is starting now

2018-10-01T06:55:03.323Z - INFO - registration request from CBRS : {

"registrationRequest": {

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429ff0",

"cpiSignatureData": {

"digitalSignature":

"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",

"encodedCpiSignedData":

"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmhE51bWJlcil6IjBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbIBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmdbpdHVkZSI6LTg4LjA4MDgslmhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IkkFNu0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKGVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcid": "Z8H89FT0010",

"groupingParam": {

{

"groupId": "0a-00-3e-42-9f-f0",

"groupType": "INTERFERENCE_COORDINATION"

}

},

"measCapability": {

"RECEIVED_POWER_WITHOUT_GRANT"

},

"userId": "SF5W5D"

}

}

}

2018-10-01T06:55:03.358Z - INFO - Registration message contains cpiSignatureData

2018-10-01T06:55:03.358Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T06:55:03.359Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429ff0"
}
2018-10-01T06:55:03.361Z - INFO - verified signature on cpiSignatureData
2018-10-01T06:55:03.365Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T06:55:03.367Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:55:06.805Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbstdCategory": "B",
      "cbstdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbstdSerialNumber": "0a003e429fd1",
      "cpiSignatureData": {
        "digitalSignature":
"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJ
Zh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2Rrr
Xzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rU
eOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGDvWlspEdzMMJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7
NfNLLc0HHpDLTQuh3lvD-8Vw",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmIhbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImIuc
3RhbGxhdGlvbiBhcmFtIjpw7lmxhdGI0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdod
CI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JlZXBsb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF

```

```

6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJ
pbGI0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvmFsSW5zdGFsbGVyRGF0Y
SI6eyJjcGIJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlma
WNhdGlvbIRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-d1",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-10-01T06:55:06.858Z - INFO - Registration message contains cpiSignatureData
2018-10-01T06:55:06.858Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T06:55:06.858Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429fd1"
}
2018-10-01T06:55:06.859Z - INFO - verified signature on cpiSignatureData
2018-10-01T06:55:06.867Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T06:55:06.868Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}

```




```
    }
  ]
}
2018-10-01T06:56:03.756Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T06:56:03.766Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:56:03.868Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
2018-10-01T06:56:03.878Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
```



```
{
  "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
  "channelType": "GAA",
  "grantExpireTime": "2018-10-08T06:56:03Z",
  "grantId": "906601357",
  "heartbeatInterval": 60,
  "response": {
    "responseCode": 0
  }
}
]
}
2018-10-01T06:56:03.951Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T06:56:03.960Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T06:59:23Z"
    }
  ]
}
2018-10-01T06:56:07.687Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T06:56:07.697Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
```

```
        "channelType": "GAA",
        "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
        },
        "ruleApplied": "FCC_PART_96"
    }
],
"cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
"response": {
    "responseCode": 0
}
}
]
}
2018-10-01T06:56:07.786Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
            "operationParam": {
                "maxEirp": 21,
                "operationFrequencyRange": {
                    "highFrequency": 3640000000,
                    "lowFrequency": 3620000000
                }
            }
        }
    ]
}
}
2018-10-01T06:56:07.793Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
            "channelType": "GAA",
            "grantExpireTime": "2018-10-08T06:56:07Z",
            "grantId": "31174771",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
}
2018-10-01T06:56:07.881Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
            "grantId": "31174771",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}
]
```

```
}
2018-10-01T06:56:07.888Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T06:59:27Z"
    }
  ]
}
2018-10-01T06:56:16.122Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:56:16.124Z - INFO - Time interval between two heartbeat request messages is: 8.242,
limit is: 65.0
2018-10-01T06:56:16.130Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T06:59:36Z"
    }
  ]
}
2018-10-01T06:56:59.148Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:56:59.148Z - INFO - Time interval between two heartbeat request messages is: 55.196,
limit is: 65.0
2018-10-01T06:56:59.155Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
```

```
"cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"grantId": "906601357",
"response": {
  "responseCode": 0
},
"transmitExpireTime": "2018-10-01T07:00:19Z"
}
]
}
2018-10-01T06:57:11.302Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:57:11.305Z - INFO - Time interval between two heartbeat request messages is: 55.179,
limit is: 65.0
2018-10-01T06:57:11.312Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:00:31Z"
    }
  ]
}
2018-10-01T06:57:54.335Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:57:54.336Z - INFO - Time interval between two heartbeat request messages is: 55.188,
limit is: 65.0
2018-10-01T06:57:54.345Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

```

    },
    "transmitExpireTime": "2018-10-01T07:01:14Z"
  }
]
}
2018-10-01T06:58:06.474Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:58:06.476Z - INFO - Time interval between two heartbeat request messages is: 55.173,
limit is: 65.0
2018-10-01T06:58:06.486Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:01:26Z"
    }
  ]
}
2018-10-01T06:58:49.528Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:58:49.529Z - INFO - Time interval between two heartbeat request messages is: 55.193,
limit is: 65.0
2018-10-01T06:58:49.539Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:02:09Z"
    }
  ]
}

```

```
}
2018-10-01T06:59:01.701Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T06:59:01.703Z - INFO - Time interval between two heartbeat request messages is: 55.227,
limit is: 65.0
2018-10-01T06:59:01.709Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:02:21Z"
    }
  ]
}
2018-10-01T06:59:05.387Z - INFO - relinquishment request from CBRS : {
  "relinquishmentRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357"
    }
  ]
}
2018-10-01T06:59:05.394Z - INFO - engine sent successfully, the response to CBRS : {
  "relinquishmentResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "906601357",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T06:59:28.388Z - INFO - relinquishment request from CBRS : {
  "relinquishmentRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771"
    }
  ]
}
```

```
2018-10-01T06:59:28.397Z - INFO - engine sent successfully, the response to CBRS : {
  "relinquishmentResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "31174771",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

2018-10-01T06:59:30.275Z - INFO - arrived to nstep starting question answer session with the technician

2018-10-01T06:59:30.276Z - INFO - the question is : Did the CBSD1 stop RF transmission upon sending Relinquishment request? please choose one of the answers :

2018-10-01T07:00:05.305Z - INFO - for the question : Did the CBSD1 stop RF transmission upon sending Relinquishment request? , the user choose y

2018-10-01T07:00:05.308Z - INFO - the question is : Did the CBSD2 stop RF transmission upon sending Relinquishment request? please choose one of the answers :

2018-10-01T07:00:07.244Z - INFO - for the question : Did the CBSD2 stop RF transmission upon sending Relinquishment request? , the user choose y

2018-10-01T07:00:27.783Z - INFO - The final result of the test : WINNF.FT.D.RLQ.2 is - passed and :the additional comments for the current test are : CBSD1 stop transmission at T06:59:05 , CBSD2 stop transmission at T06:59:28

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

2018-10-01T07:03:35.358Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-10-01T07:03:35.359Z - INFO - the selected test from the user : WINNF.FT.D.DRG.2 is starting now

2018-10-01T07:03:38.809Z - INFO - registration request from CBRS : {

"registrationRequest": [

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429fd1",

"cpiSignatureData": {

"digitalSignature":

"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJZh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfTPtXqT8O-Zf2Uli2RrrXzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rUeOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7NfNLLc0HHpDLTQuh3lvD-8Vw",

"encodedCpiSignedData":

"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImIuc3RhbGxhdGlvbiBhcmFtljpw7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmtpdHVkZSI6LTg4LjA4MDgsImhlaWdodCI6MCwiaGVpZ2h0VHlwZSI6IklFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJpbGlo0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaWNhdGlvbiRpbWUiOiilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": [

{

"groupId": "0a-00-3e-42-9f-d1",

"groupType": "INTERFERENCE_COORDINATION"

}

],

"measCapability": [

"RECEIVED_POWER_WITHOUT_GRANT"

],

"userId": "SF5W5D"

}

]

}

2018-10-01T07:03:38.845Z - INFO - Registration message contains cpiSignatureData

2018-10-01T07:03:38.845Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-10-01T07:03:38.845Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbsdSerialNumber": "0a003e429fd1"
}
2018-10-01T07:03:38.846Z - INFO - verified signature on cpiSignatureData
2018-10-01T07:03:38.851Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T07:03:38.854Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T07:03:42.367Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e429ff0",
      "cpiSignatureData": {
        "digitalSignature":
"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
        "encodedCpiSignedData":
"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6ljBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvblBhcmFtljlp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdo

```

```
dCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-f0",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-10-01T07:03:42.403Z - INFO - Registration message contains cpiSignatureData
2018-10-01T07:03:42.403Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-10-01T07:03:42.403Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429ff0"
}
2018-10-01T07:03:42.404Z - INFO - verified signature on cpiSignatureData
2018-10-01T07:03:42.408Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-10-01T07:03:42.411Z - INFO - engine sent successfully, the response to CBRs : {
  "registrationResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
```

```

    }
  }
]
}
2018-10-01T07:04:39.763Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
]
}
2018-10-01T07:04:39.770Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
]
}
2018-10-01T07:04:39.868Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "operationParam": {
        "maxEirp": 21,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
]
}
2018-10-01T07:04:39.880Z - INFO - engine sent successfully, the response to CBRS : {

```

```

"grantResponse": [
  {
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
    "channelType": "GAA",
    "grantExpireTime": "2018-10-08T07:04:39Z",
    "grantId": "451709756",
    "heartbeatInterval": 60,
    "response": {
      "responseCode": 0
    }
  }
]
}
2018-10-01T07:04:39.967Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "451709756",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T07:04:39.977Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "451709756",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:07:59Z"
    }
  ]
}
2018-10-01T07:04:42.615Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T07:04:42.622Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [

```

```

        {
            "channelType": "GAA",
            "frequencyRange": {
                "highFrequency": 3640000000,
                "lowFrequency": 3620000000
            },
            "ruleApplied": "FCC_PART_96"
        }
    ],
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
    "response": {
        "responseCode": 0
    }
}
]
}
2018-10-01T07:04:42.719Z - INFO - grant request from CBRS : {
    "grantRequest": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "operationParam": {
                "maxEirp": 21,
                "operationFrequencyRange": {
                    "highFrequency": 3640000000,
                    "lowFrequency": 3620000000
                }
            }
        }
    ]
}
2018-10-01T07:04:42.730Z - INFO - engine sent successfully, the response to CBRS : {
    "grantResponse": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "channelType": "GAA",
            "grantExpireTime": "2018-10-08T07:04:42Z",
            "grantId": "387963937",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2018-10-01T07:04:42.796Z - INFO - heartbeat request from CBRS : {
    "heartbeatRequest": [
        {
            "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
            "grantId": "387963937",
            "grantRenew": false,
            "operationState": "GRANTED"
        }
    ]
}

```

```

    ]
  }
2018-10-01T07:04:42.802Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "387963937",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:08:02Z"
    }
  ]
}
2018-10-01T07:05:30.474Z - INFO - deregistration request from CBRS : {
  "deregistrationRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0"
    }
  ]
}
2018-10-01T07:05:30.480Z - INFO - engine sent successfully, the response to CBRS : {
  "deregistrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T07:05:35.121Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "451709756",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:05:35.121Z - INFO - Time interval between two heartbeat request messages is: 55.154,
limit is: 65.0
2018-10-01T07:05:35.131Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "grantId": "451709756",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:08:55Z"
    }
  ]
}

```

```
    }
  ]
}
2018-10-01T07:05:45.825Z - INFO - deregistration request from CBRS : {
  "deregistrationRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1"
    }
  ]
}
2018-10-01T07:05:45.832Z - INFO - engine sent successfully, the response to CBRS : {
  "deregistrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T07:05:47.371Z - INFO - arrived to nstep starting question answer session with the technician
2018-10-01T07:05:47.372Z - INFO - the question is : Did the CBSD stop RF transmissions upon sending the Deregister request? please choose one of the answers :
2018-10-01T07:06:13.440Z - INFO - for the question : Did the CBSD stop RF transmissions upon sending the Deregister request? , the user choose y
2018-10-01T07:06:13.441Z - INFO - the question is : Did the CBSD stop RF transmissions upon sending the Deregister request? please choose one of the answers :
2018-10-01T07:06:17.736Z - INFO - for the question : Did the CBSD stop RF transmissions upon sending the Deregister request? , the user choose y
2018-10-01T07:07:21.667Z - INFO - The final result of the test : WINNF.FT.D.DRG.2 is - passed and :the additional comments for the current test are : CBSD1 stop transmission at T07:05:30 , CBSD2 stop transmission at T07:05:45
```


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

2018-09-28T09:54:49.335Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-09-28T09:54:49.338Z - INFO - the selected test from the user : WINNF.FT.D.REG.6 is starting now

2018-09-28T09:55:00.618Z - INFO - registration request from CBRS : {

"registrationRequest": [

{

"airInterface": {

"radioTechnology": "CAMBIUM_NETWORKS"

},

"cbsdCategory": "B",

"cbsdInfo": {

"softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",

"vendor": "Cambium Networks"

},

"cbsdSerialNumber": "0a003e429fd1",

"cpiSignatureData": {

"digitalSignature":

"FpTKcxgjiN6vQd5Di3OQhWsdMTXolfxcnbzCnkC-Ws79mOxAKj_N3R5f10U3Vr7vIKXBs1NCcalKq-mJZh2QiFqgibIBJxDu-xBbNXaVUd7Qos5YEWAAxW9n78scQRObnsvwqLTER_WfPTpXqT8O-Zf2Uli2RrrXzdx7S1n53ilcW2XyD-a0ualGxGbUdwu-yCjGoL2Teytq8LVv0N6HjlgUBDEKUi6RX3_6OzQjzuu6U_3rUeOSw8n1ZK4Nlle458rcKXB3ZHJd3BnOVWGdvWlspEdzMmJ60JgTS1dgZYFecRel_1wH_rEwsUzfXF7NfNLLc0HHpDLTQuh3lvD-8Vw",

"encodedCpiSignedData":

"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlcil6IjBhMDAzZTQyOWZkMSIsImIuc3RhbGxhdGlvbiBhcmFtIjp7ImxhdGloZW50dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdodCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYUUF6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYWJpbGloeSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0YSI6eyJjcGlZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlmaWNhdGlvbiRpbWUiOiilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",

"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"

},

"fcclId": "Z8H89FT0010",

"groupingParam": [

{

"groupId": "0a-00-3e-42-9f-d1",

"groupType": "INTERFERENCE_COORDINATION"

}

],

"measCapability": [

"RECEIVED_POWER_WITHOUT_GRANT"

],

"userId": "SF5W5D"

}

]

}

2018-09-28T09:55:00.644Z - INFO - Registration message contains cpiSignatureData

2018-09-28T09:55:00.644Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}

2018-09-28T09:55:00.645Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429fd1"
}
2018-09-28T09:55:00.733Z - INFO - verified signature on cpiSignatureData
2018-09-28T09:55:00.739Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-09-28T09:55:00.740Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429fd1",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-09-28T09:55:05.128Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbstdCategory": "B",
      "cbstdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbstdSerialNumber": "0a003e429ff0",
      "cpiSignatureData": {
        "digitalSignature":
"E6q6i5kLje8l4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
        "encodedCpiSignedData":
"eyJmY2NJZCI6llo4SEZUODkwMDEwliwiY2JzZFNlcmllhbE51bWJlcil6ljBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvblBhcmFtljlp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgslmhlaWdo

```

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dCI6MCwiaGVpZ2h0VHlwZSI6IkFNU0wiLCJpbmRvb3JEZXBs3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE4LCJlaXJwQ2FwYW
JpbGl0eSI6NDAsImFudGVubmFCZWFTd2lkdGgiOjkwfSwicHJvZmVzc2l2bmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGIJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUEkgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbIRpbWUiOiOilyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
    "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
  },
  "fcclId": "Z8H89FT0010",
  "groupingParam": [
    {
      "groupId": "0a-00-3e-42-9f-f0",
      "groupType": "INTERFERENCE_COORDINATION"
    }
  ],
  "measCapability": [
    "RECEIVED_POWER_WITHOUT_GRANT"
  ],
  "userId": "SF5W5D"
}
]
}
}
2018-09-28T09:55:05.164Z - INFO - Registration message contains cpiSignatureData
2018-09-28T09:55:05.164Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2018-09-28T09:55:05.165Z - 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": "Z8H89FT0010",
  "professionalInstallerData": {
    "cpiName": "CPI User 123",
    "installCertificationTime": "2018-05-09T15:51:12.866Z",
    "cpild": "cpi123"
  },
  "cbstdSerialNumber": "0a003e429ff0"
}
2018-09-28T09:55:05.167Z - INFO - verified signature on cpiSignatureData
2018-09-28T09:55:05.174Z - INFO - cpiSignatureData data successfully validated against jsonschema
2018-09-28T09:55:05.177Z - INFO - engine sent successfully, the response to CBRs : {
  "registrationResponse": [
    {
      "cbstdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}

```



```
}  
}  
]  
}
```

2018-09-28T09:55:06.342Z - INFO - arrived to nstep starting question answer session with the technician

2018-09-28T09:55:06.345Z - INFO - the question is : Were there RF transmissions from the CBSD2 during the test? please choose one of the answers :

2018-09-28T09:56:38.681Z - INFO - for the question : Were there RF transmissions from the CBSD2 during the test? , the user choose n

2018-09-28T09:56:38.687Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2018-09-28T09:56:39.490Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2018-09-28T09:56:40.032Z - 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

2018-09-28T09:22:11.927Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-09-28T09:22:11.930Z - 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

2018-09-28T09:26:13.892Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-09-28T09:26:13.894Z - 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

2018-09-28T09:27:44.756Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-09-28T09:27:44.759Z - 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

2018-09-28T09:30:10.384Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24

2018-09-28T09:30:10.387Z - 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 3

```

2018-10-01T07:31:37.743Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-10-01T07:31:37.746Z - INFO - Selected spectrum frequency is {'lowFrequency': 3620000000L,
'highFrequency': 3640000000L}
2018-10-01T07:31:37.747Z - INFO - Granted Spectrum Max Eirp = 3dBm/MHz
2018-10-01T07:31:37.750Z - INFO - the selected test from the user : PowerMeasTest is starting now
2018-10-01T07:32:21.864Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e429ff0",
      "cpiSignatureData": {
        "digitalSignature":
"E6q6i5kLje8I4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlci6ljbhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbiBhcmFtljp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IkkFNu0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOiJlE4LCJlaXJwQ2FwYW
JpbGI0eSI6NDAsImFudGVubmFCZWZtd2lkZGgiOjkwfSwichJvZmVzc2lvmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbiRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fcclid": "Z8H89FT0010",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-42-9f-f0",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "SF5W5D"
    }
  ]
}
2018-10-01T07:32:21.910Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {

```

```
"cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"response": {
  "responseCode": 0
}
]
}
}
2018-10-01T07:33:22.578Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
}
2018-10-01T07:33:22.589Z - INFO - The requested spectrum is in the range, SpectrumInquiry response
code is 0
2018-10-01T07:33:22.591Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "maxEirp": 3,
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
}
2018-10-01T07:33:22.668Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 3,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
```

```

    }
  }
}
]
}
2018-10-01T07:33:22.677Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T07:33:22Z",
      "grantId": "902074770",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T07:33:22.782Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T07:33:22.793Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:36:42Z"
    }
  ]
}
2018-10-01T07:34:16.986Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:34:17.006Z - INFO - engine sent successfully, the response to CBRS : {

```

```
"heartbeatResponse": [
  {
    "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
    "grantId": "902074770",
    "response": {
      "responseCode": 0
    },
    "transmitExpireTime": "2018-10-01T07:37:37Z"
  }
]
}
2018-10-01T07:35:12.253Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:35:12.269Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:38:32Z"
    }
  ]
}
2018-10-01T07:36:07.427Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:36:07.434Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:39:27Z"
    }
  ]
}
```

```

    }
  ]
}
2018-10-01T07:37:02.591Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:37:02.602Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:40:22Z"
    }
  ]
}
2018-10-01T07:37:56.815Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:37:56.822Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:41:16Z"
    }
  ]
}
2018-10-01T07:38:52.033Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",

```

```
        "grantRenew": false,
        "operationState": "AUTHORIZED"
    }
]
}
2018-10-01T07:38:52.045Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:42:12Z"
    }
  ]
}
2018-10-01T07:39:47.253Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:39:47.265Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "902074770",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:43:07Z"
    }
  ]
}
```

Test Log for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp -22

```

2018-10-01T07:59:02.019Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-10-01T07:59:02.020Z - INFO - Selected spectrum frequency is {'lowFrequency': 3620000000L,
'highFrequency': 3640000000L}
2018-10-01T07:59:02.022Z - INFO - Granted Spectrum Max Eirp = -22dBm/MHz
2018-10-01T07:59:02.026Z - INFO - the selected test from the user : PowerMeasTest is starting now
2018-10-01T07:59:56.904Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e429ff0",
      "cpiSignatureData": {
        "digitalSignature":
"E6q6i5kLje8I4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlciI6IjBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbiBhcmFtIjlp7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IkkFNu0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOiJlE4LCJlaXJwQ2FwYW
JpbGI0eSI6NDAsImFudGVubmFCZWZtd2lkZGgiOjkwfSwichJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbiRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fcclId": "Z8H89FT0010",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-42-9f-f0",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "SF5W5D"
    }
  ]
}
2018-10-01T07:59:56.950Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {

```

```
"cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"response": {
  "responseCode": 0
}
]
}
}
2018-10-01T08:00:57.865Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
}
2018-10-01T08:00:57.872Z - INFO - The requested spectrum is in the range, SpectrumInquiry response
code is 0
2018-10-01T08:00:57.874Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "maxEirp": -22,
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
}
2018-10-01T08:00:57.950Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": -22,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
```




```
    }
  }
}
]
}
2018-10-01T08:00:57.957Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T08:00:57Z",
      "grantId": "395739683",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T08:00:58.046Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "395739683",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T08:00:58.053Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "395739683",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T08:04:18Z"
    }
  ]
}
2018-10-01T08:01:52.312Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "395739683",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T08:01:52.321Z - INFO - engine sent successfully, the response to CBRS : {
```

```

    "heartbeatResponse": [
      {
        "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
        "grantId": "395739683",
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-10-01T08:05:12Z"
      }
    ]
  }
}
2018-10-01T08:02:47.532Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "395739683",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T08:02:47.539Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "395739683",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T08:06:07Z"
    }
  ]
}
2018-10-01T08:03:42.733Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "395739683",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T08:03:42.740Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "395739683",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T08:07:02Z"
    }
  ]
}

```



}
]
}

Test Log for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 30

```

2018-10-01T07:17:55.729Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.2 - 2018-May-24
2018-10-01T07:17:55.730Z - INFO - Selected spectrum frequency is {'lowFrequency': 3620000000L,
'highFrequency': 3640000000L}
2018-10-01T07:17:55.733Z - INFO - Granted Spectrum Max Eirp = 30dBm/MHz
2018-10-01T07:17:55.736Z - INFO - the selected test from the user : PowerMeasTest is starting now
2018-10-01T07:18:31.936Z - INFO - registration request from CBRS : {
  "registrationRequest": [
    {
      "airInterface": {
        "radioTechnology": "CAMBIUM_NETWORKS"
      },
      "cbsdCategory": "B",
      "cbsdInfo": {
        "softwareVersion": "CANOPY 16.0 (Build INT-CBRS-51) AP",
        "vendor": "Cambium Networks"
      },
      "cbsdSerialNumber": "0a003e429ff0",
      "cpiSignatureData": {
        "digitalSignature":
"E6q6i5kLje8I4quEoYPa62tgzo1Mx9YG4JGzOFsWaBvPUZBbJHDwTVngtIAvFMZBtr0xx3oOYVEamA
Qh1aHNFKEB8yO8_vUKUSlnh2OkFEc3GIN1CBWiJNvxvqngQF5Hj31OG-INsbZSA97-ICUURPoFQyw
a4zqPwUbvIRAcS MkovBotrqWvCcJxM1VRedAyazOEnTQa2FYIntOEQS4hy9wjSR4Yz0RPxLi3eZgLkS
VYXdMLPFwBEjBJQew0e5aRawb61-cpGnwDUJm-ezueXyDwSQX6Ap7yYlkj0s1xubaNkf4MEHOfpCT
LGKBiadkcm5JncmmaZtnR5oKbzRzByg",
        "encodedCpiSignedData":
"eyJmY2NJZCI6Ilo4SEZUODkwMDEwliwiY2JzZFNlcmllbE51bWJlciI6IjBhMDAzZTQyOWZmMCIsImlu
c3RhbGxhdGlvbiBhcmFtlj7ImxhdGlo0dWRlljo0Mi4yNDIsImxvbmddpdHVkZSI6LTg4LjA4MDgsImhlaWdo
dCI6MCwiaGVpZ2h0VHlwZSI6IkkFNu0wiLCJpbmRvb3JEZXBSb3ltZW50IjpmYWxzZSwiYW50ZW5uYU
F6aW11dGgiOjAsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOiJlE4LCJlaXJwQ2FwYW
JpbGI0eSI6NDAsImFudGVubmFCZWZtd2lkZGgiOjkwfSwicHJvZmVzc2lvbmFsSW5zdGFsbGVyRGF0
YSI6eyJjcGlJZCI6ImNwaTEyMyIsImNwaU5hbWUiOiJDUeKgVXNlciAxMjMiLCJpbmN0YWxsQ2VydGlm
aWNhdGlvbiRpbWUiOiIyMDE4LTA1LTA5VDE1OjUxOjEyLjg2NloifX0",
        "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
      },
      "fcclid": "Z8H89FT0010",
      "groupingParam": [
        {
          "groupId": "0a-00-3e-42-9f-f0",
          "groupType": "INTERFERENCE_COORDINATION"
        }
      ],
      "measCapability": [
        "RECEIVED_POWER_WITHOUT_GRANT"
      ],
      "userId": "SF5W5D"
    }
  ]
}
2018-10-01T07:18:31.982Z - INFO - engine sent successfully, the response to CBRS : {
  "registrationResponse": [
    {

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```
"cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
"response": {
  "responseCode": 0
}
}
]
}
2018-10-01T07:19:32.448Z - INFO - spectrumInquiry request from CBRS : {
  "spectrumInquiryRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "inquiredSpectrum": [
        {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      ]
    }
  ]
}
2018-10-01T07:19:32.457Z - INFO - The requested spectrum is in the range, SpectrumInquiry response
code is 0
2018-10-01T07:19:32.457Z - INFO - engine sent successfully, the response to CBRS : {
  "spectrumInquiryResponse": [
    {
      "availableChannel": [
        {
          "channelType": "GAA",
          "frequencyRange": {
            "highFrequency": 3640000000,
            "lowFrequency": 3620000000
          },
          "maxEirp": 30,
          "ruleApplied": "FCC_PART_96"
        }
      ],
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T07:19:32.532Z - INFO - grant request from CBRS : {
  "grantRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "operationParam": {
        "maxEirp": 30,
        "operationFrequencyRange": {
          "highFrequency": 3640000000,
          "lowFrequency": 3620000000
        }
      }
    }
  ]
}
```

```

    }
  }
}
]
}
2018-10-01T07:19:32.538Z - INFO - engine sent successfully, the response to CBRS : {
  "grantResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "channelType": "GAA",
      "grantExpireTime": "2018-10-08T07:19:32Z",
      "grantId": "759321651",
      "heartbeatInterval": 60,
      "response": {
        "responseCode": 0
      }
    }
  ]
}
2018-10-01T07:19:32.625Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "759321651",
      "grantRenew": false,
      "operationState": "GRANTED"
    }
  ]
}
2018-10-01T07:19:32.637Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "759321651",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:22:52Z"
    }
  ]
}
2018-10-01T07:20:27.805Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "759321651",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:20:27.815Z - INFO - engine sent successfully, the response to CBRS : {

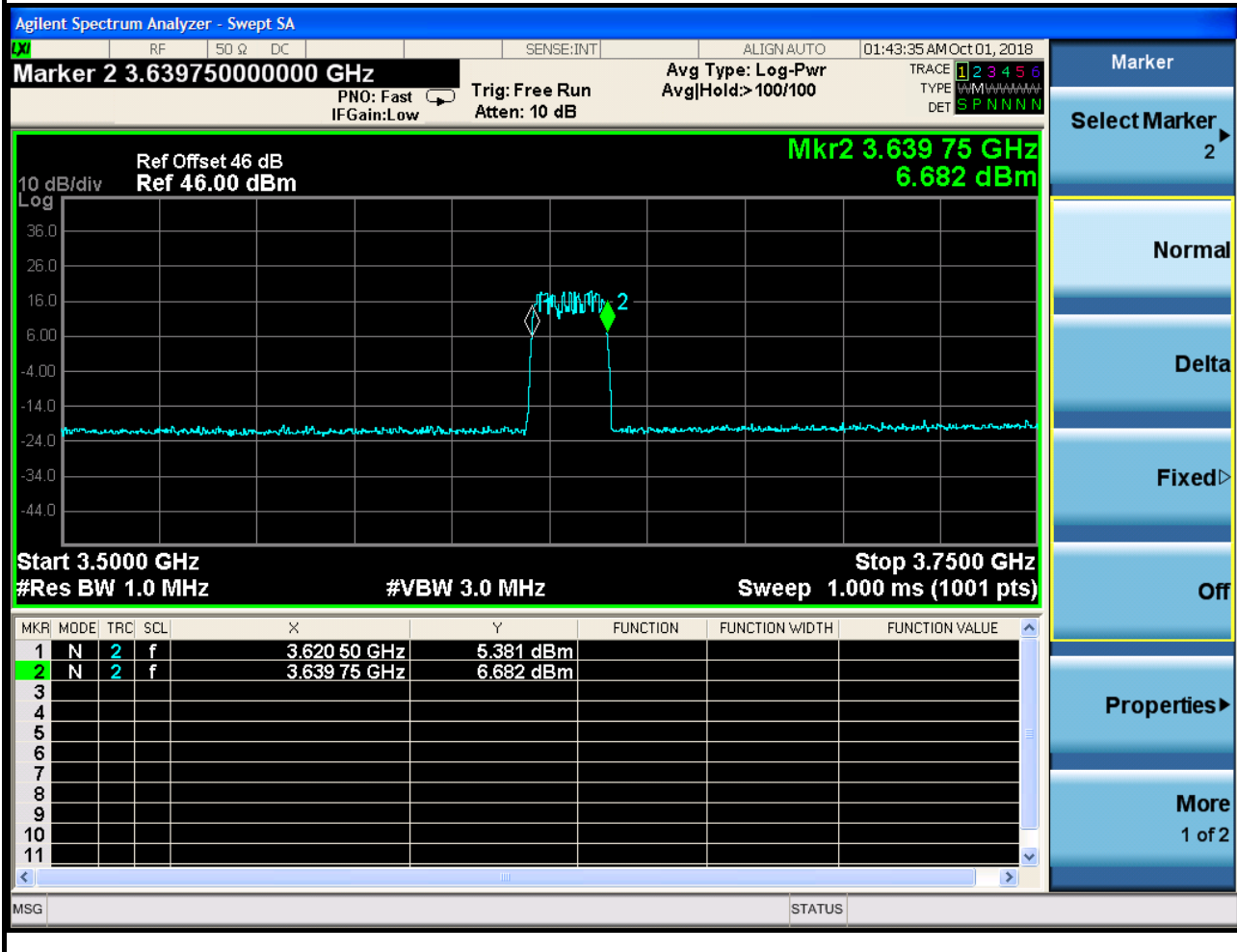
```

```

    "heartbeatResponse": [
      {
        "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
        "grantId": "759321651",
        "response": {
          "responseCode": 0
        },
        "transmitExpireTime": "2018-10-01T07:23:47Z"
      }
    ]
  }
}
2018-10-01T07:21:22.040Z - INFO - heartbeat request from CBRS : {
  "heartbeatRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "759321651",
      "grantRenew": false,
      "operationState": "AUTHORIZED"
    }
  ]
}
2018-10-01T07:21:22.048Z - INFO - engine sent successfully, the response to CBRS : {
  "heartbeatResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "grantId": "759321651",
      "response": {
        "responseCode": 0
      },
      "transmitExpireTime": "2018-10-01T07:24:42Z"
    }
  ]
}
2018-10-01T07:21:58.007Z - INFO - deregistration request from CBRS : {
  "deregistrationRequest": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0"
    }
  ]
}
2018-10-01T07:21:58.010Z - INFO - engine sent successfully, the response to CBRS : {
  "deregistrationResponse": [
    {
      "cbsdId": "Z8H89FT0010Mock-SAS0a003e429ff0",
      "response": {
        "responseCode": 0
      }
    }
  ]
}
}

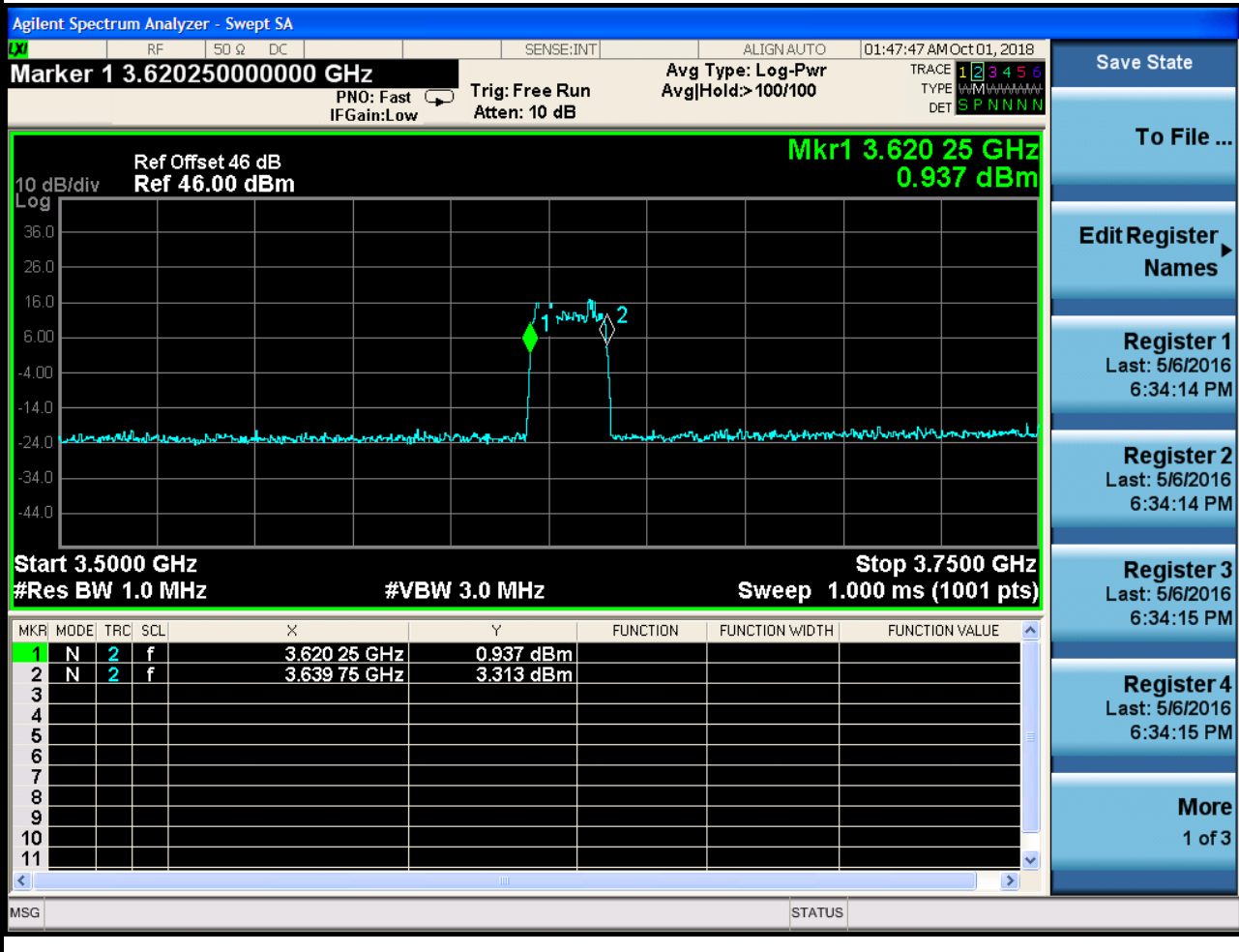
```

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

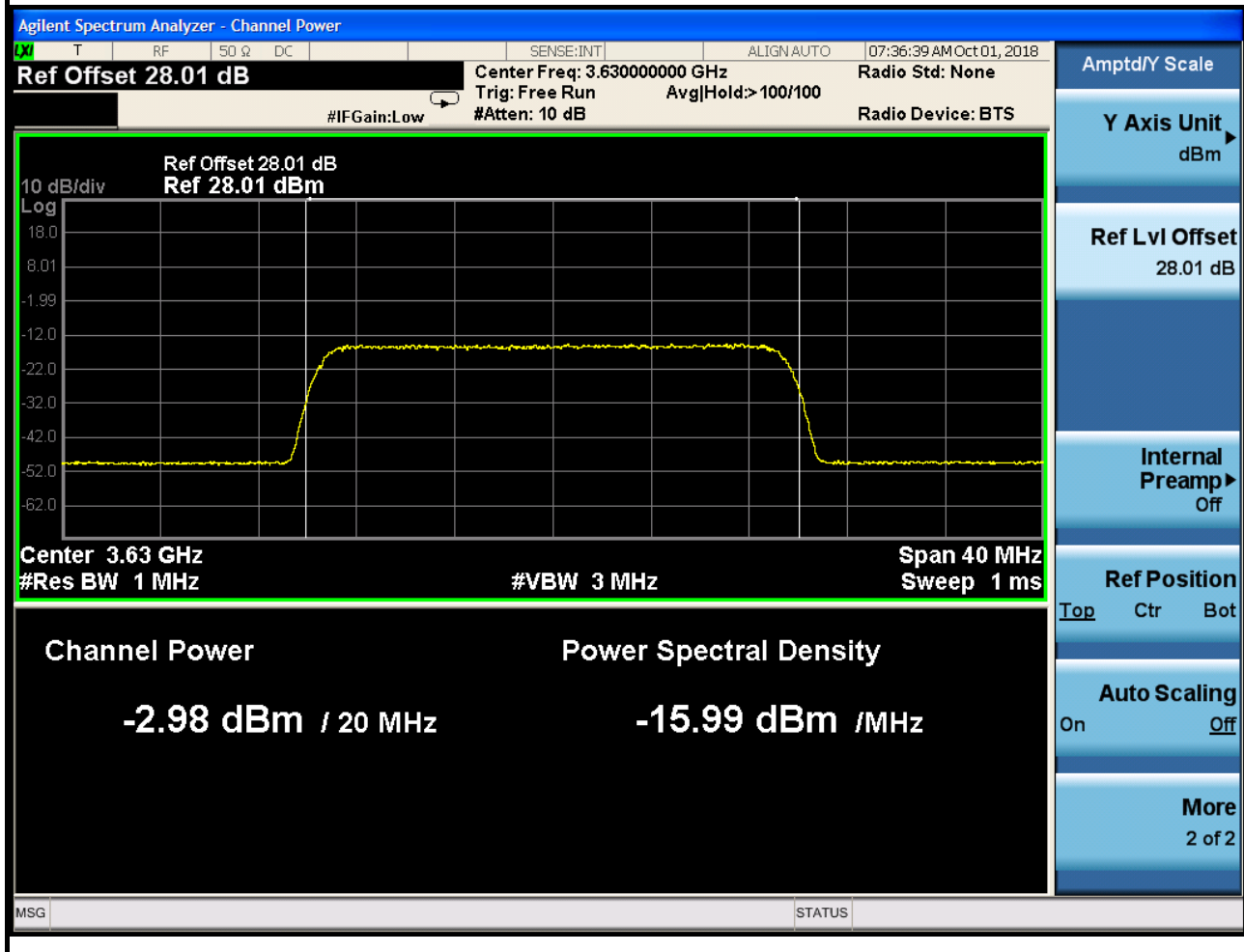




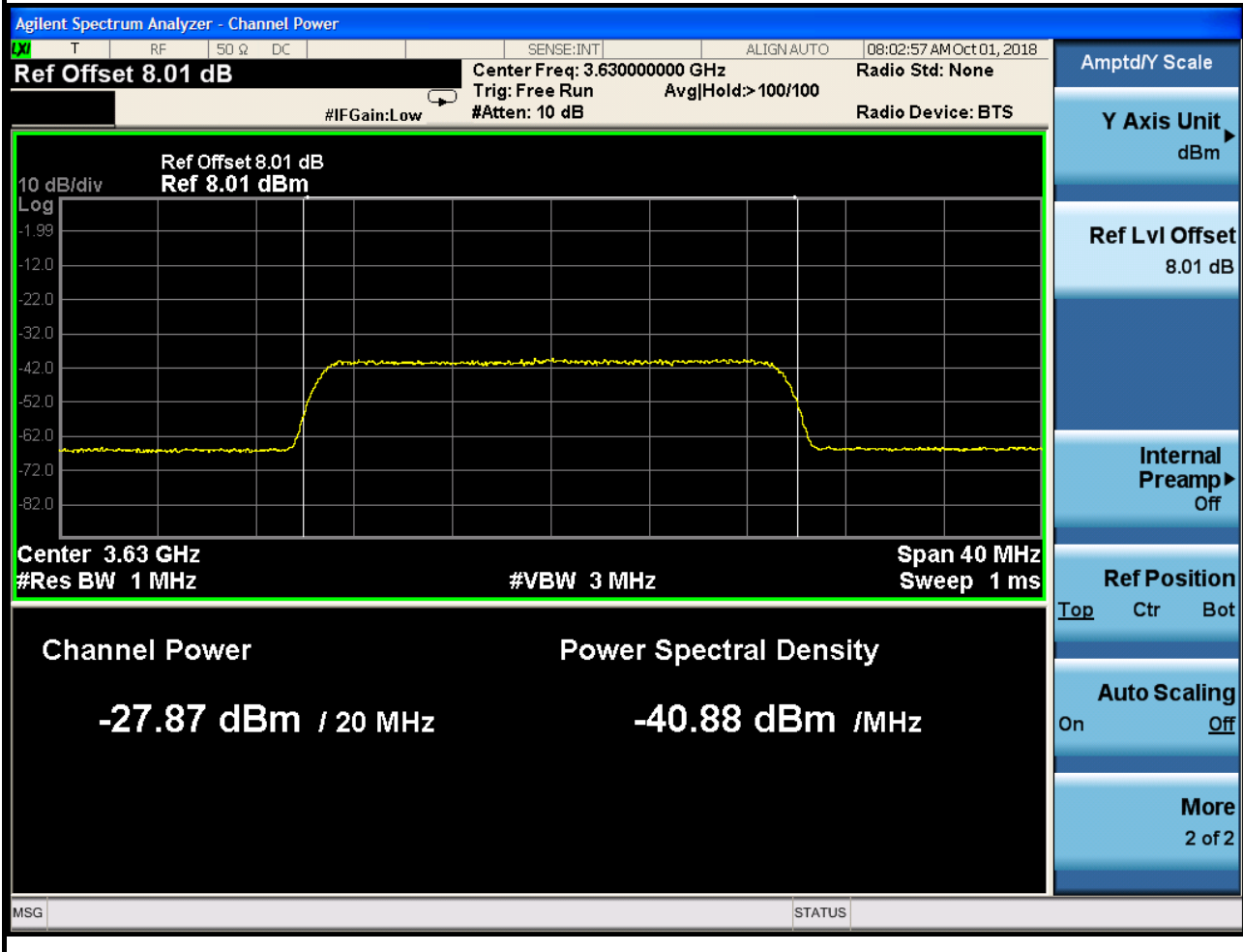
RF measurement plot for WINNF.FT.D.HBT.2 Test Case ID_CBSD2



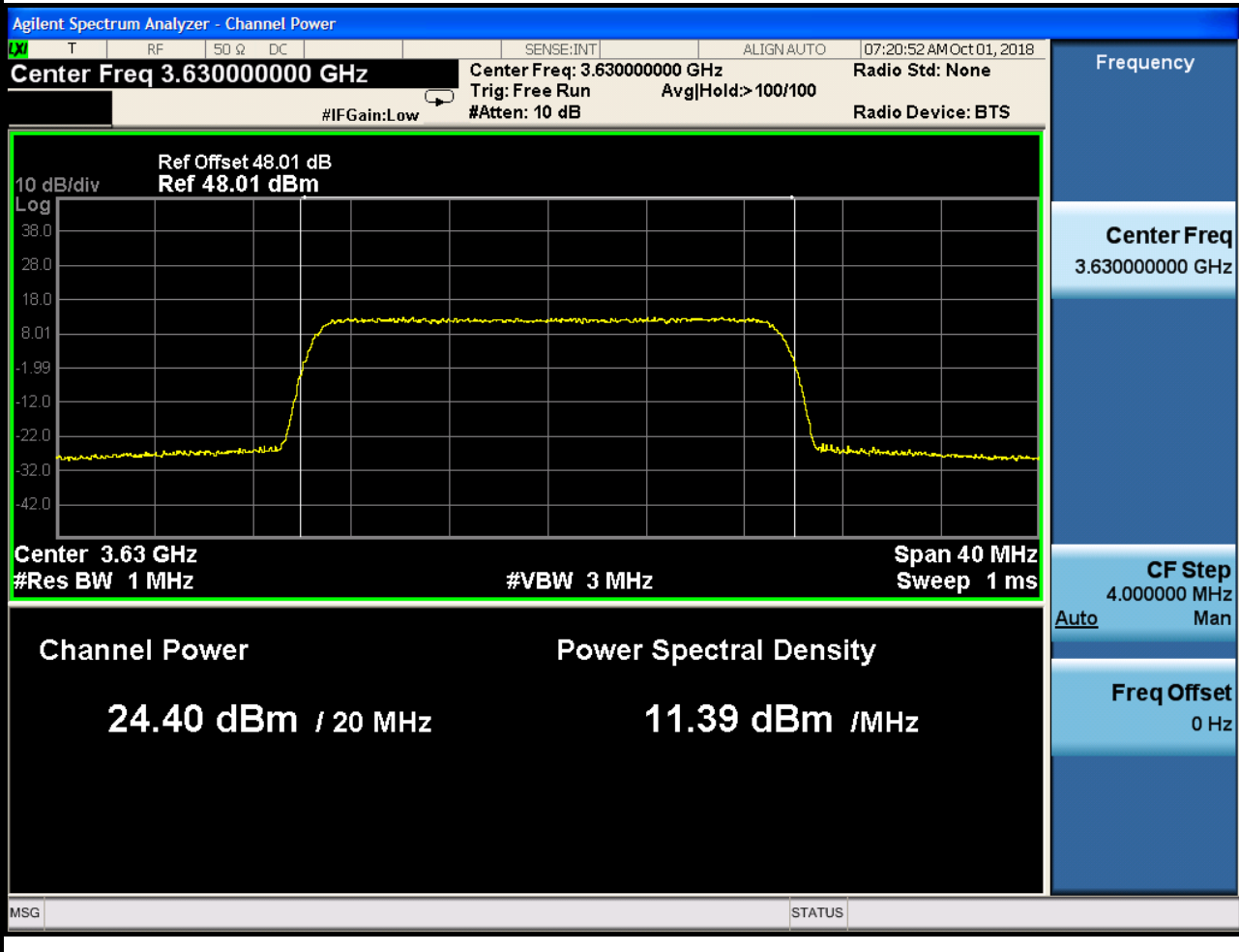
RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 3



RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp -22



RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 30



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

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help						
ssl						
No.	Time	Source	Destination	Protocol	Length	Info
1	2018-09-28 09:55:00	192.168.1.8	192.168.1.3	TLSv1.2	306	Client Hello
2	2018-09-28 09:55:00	192.168.1.3	192.168.1.8	TLSv1.2	2962	Server Hello
3	2018-09-28 09:55:00	192.168.1.3	192.168.1.8	TLSv1.2	564	Certificate, Server Key Exchange, Certificate R
6	2018-09-28 09:55:00	192.168.1.8	192.168.1.3	TLSv1.2	1514	Certificate [TCP segment of a reassembled PDU]
7	2018-09-28 09:55:00	192.168.1.8	192.168.1.3	TLSv1.2	444	Client Key Exchange, Certificate Verify, Change
8	2018-09-28 09:55:00	192.168.1.3	192.168.1.8	TLSv1.2	1620	New Session Ticket, Change Cipher Spec, Encrypt
10	2018-09-28 09:55:00	192.168.1.8	192.168.1.3	TLSv1.2	190	Application Data
11	2018-09-28 09:55:00	192.168.1.3	192.168.1.8	TLSv1.2	112	Application Data
12	2018-09-28 09:55:00	192.168.1.3	192.168.1.8	TLSv1.2	554	Application Data, Application Data, Application

▶ Frame 2: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0
 ▶ Ethernet II, Src: Dell_cb:86:b8 (00:26:b9:cb:86:b8), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e)
 ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.8
 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 55660, Seq: 1, Ack: 241, 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: 13b4a99b6488eab66d95ea176cdb028daf7e2796c24f127f...
 - 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

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help						
ssl						
No.	Time	Source	Destination	Protocol	Length	Info
1	2018-09-28 09:22:24	192.168.1.8	192.168.1.3	TLSv1.2	316	Client Hello
2	2018-09-28 09:22:24	192.168.1.3	192.168.1.8	TLSv1.2	2962	Server Hello
3	2018-09-28 09:22:24	192.168.1.3	192.168.1.8	TLSv1.2	677	Certificate, Server Key Exchange, Certificate R
6	2018-09-28 09:22:24	192.168.1.8	192.168.1.3	TLSv1.2	1514	Certificate [TCP segment of a reassembled PDU]
7	2018-09-28 09:22:24	192.168.1.8	192.168.1.3	TLSv1.2	444	Client Key Exchange, Certificate Verify, Change
8	2018-09-28 09:22:24	192.168.1.3	192.168.1.8	TLSv1.2	1620	New Session Ticket, Change Cipher Spec, Encrypt

▶ Frame 2: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0
 ▶ Ethernet II, Src: Dell_cb:86:b8 (00:26:b9:cb:86:b8), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e)
 ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.8
 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 55596, 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: ba27a15e713c52e3cd7e9cd60e0c60d095ca2c8ffb4596d6...
 - 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_OCSP

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help						
Apply a display filter ... <Ctrl-/>						
No.	Time	Source	Destination	Protocol	Length	Info
1	2018-09-28 09:22:47	192.168.1.8	192.168.1.5	OCSP	296	Request
▶ Frame 1: 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_c6:bb:3b (2c:4d:54:c6:bb:3b) ▶ Internet Protocol Version 4, Src: 192.168.1.8, Dst: 192.168.1.5 ▶ Transmission Control Protocol, Src Port: 47520, 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: 2ce839bb435d3f14012148a81f99428ade8f367a issuerKeyHash: 4ffbf55fed1df84cace50bd9d9977ef3758441f5 serialNumber: 14961302017428870585						

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

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help						
ssl						
No.	Time	Source	Destination	Protocol	Length	Info
1	2018-09-28 09:26:18	192.168.1.8	192.168.1.3	TLSv1.2	316	Client Hello
2	2018-09-28 09:26:18	192.168.1.3	192.168.1.8	TLSv1.2	2962	Server Hello
3	2018-09-28 09:26:18	192.168.1.3	192.168.1.8	TLSv1.2	565	Certificate, Server Key Exchange, Certificate R
6	2018-09-28 09:26:18	192.168.1.8	192.168.1.3	TLSv1.2	1514	Certificate [TCP segment of a reassembled PDU]
7	2018-09-28 09:26:18	192.168.1.8	192.168.1.3	TLSv1.2	444	Client Key Exchange, Certificate Verify, Change
8	2018-09-28 09:26:18	192.168.1.3	192.168.1.8	TLSv1.2	1620	New Session Ticket, Change Cipher Spec, Encrypt

▶ Frame 2: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0
 ▶ Ethernet II, Src: Dell_cb:86:b8 (00:26:b9:cb:86:b8), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e)
 ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.8
 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 55602, 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: 830e3179f317030b8312b36615751595a78fa9423fb7c2fe...
 - 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

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help						
ssl						
No.	Time	Source	Destination	Protocol	Length	Info
1	2018-09-28 09:27:56	192.168.1.8	192.168.1.3	TLSv1.2	316	Client Hello
2	2018-09-28 09:27:56	192.168.1.3	192.168.1.8	TLSv1.2	2962	Server Hello
3	2018-09-28 09:27:56	192.168.1.3	192.168.1.8	TLSv1.2	567	Certificate, Server Key Exchange, Certificate R
6	2018-09-28 09:27:56	192.168.1.8	192.168.1.3	TLSv1.2	1514	Certificate [TCP segment of a reassembled PDU]
7	2018-09-28 09:27:56	192.168.1.8	192.168.1.3	TLSv1.2	444	Client Key Exchange, Certificate Verify, Change
8	2018-09-28 09:27:56	192.168.1.3	192.168.1.8	TLSv1.2	1620	New Session Ticket, Change Cipher Spec, Encrypt

▶ Frame 2: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0
 ▶ Ethernet II, Src: Dell_cb:86:b8 (00:26:b9:cb:86:b8), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e)
 ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.8
 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 55604, 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: ec80dc84ad297c75072f96ec43ea44ebae1886f1067ddcfc...
 - 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						
ssl						
No.	Time	Source	Destination	Protocol	Length	Info
1	2018-09-28 09:30:14	192.168.1.8	192.168.1.3	TLSv1.2	316	Client Hello
2	2018-09-28 09:30:15	192.168.1.3	192.168.1.8	TLSv1.2	2962	Server Hello
3	2018-09-28 09:30:15	192.168.1.3	192.168.1.8	TLSv1.2	564	Certificate, Server Key Exchange, Certificate R
6	2018-09-28 09:30:15	192.168.1.8	192.168.1.3	TLSv1.2	1514	Certificate [TCP segment of a reassembled PDU]
7	2018-09-28 09:30:15	192.168.1.8	192.168.1.3	TLSv1.2	444	Client Key Exchange, Certificate Verify, Change
8	2018-09-28 09:30:15	192.168.1.3	192.168.1.8	TLSv1.2	1620	New Session Ticket, Change Cipher Spec, Encrypt

<ul style="list-style-type: none"> ▶ Frame 2: 2962 bytes on wire (23696 bits), 2962 bytes captured (23696 bits) on interface 0 ▶ Ethernet II, Src: Dell_cb:86:b8 (00:26:b9:cb:86:b8), Dst: PcsCompu_73:d7:8e (08:00:27:73:d7:8e) ▶ Internet Protocol Version 4, Src: 192.168.1.3, Dst: 192.168.1.8 ▶ Transmission Control Protocol, Src Port: 5000, Dst Port: 55608, Seq: 1, Ack: 250, Len: 2896 ▲ Secure Sockets Layer <ul style="list-style-type: none"> ▲ TLSv1.2 Record Layer: Handshake Protocol: Server Hello <ul style="list-style-type: none"> Content Type: Handshake (22) Version: TLS 1.2 (0x0303) Length: 61 ▲ Handshake Protocol: Server Hello <ul style="list-style-type: none"> Handshake Type: Server Hello (2) Length: 57 Version: TLS 1.2 (0x0303) ▶ Random: c8471a68b71d6d93839554c44ef39872cad01c002b6f6491... Session ID Length: 0 Cipher Suite: TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 (0xc02f)
