Testing Laboratory 1190

WINNF-TS-0122 TEST REPORT

FCC ID	:	2AVFNLCE122
Equipment	:	LTE-TDD CPE
Brand Name	:	Leax
Model Name	:	LCE122
Applicant	:	Leax Arkivator Telecom USA Inc. 833 E Arapaho Rd. Suite 203 Richardson, TX 75081
Manufacturer	:	Leax Arkivator Telecom USA Inc. 833 E Arapaho Rd. Suite 203 Richardson, TX 75081
Standard	:	WINNF-TS-0122 Version V1.0.1

The product was received on Mar. 13, 2020, and testing was started from Apr. 20. 2020 and completed on Apr. 22. 2020. 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

1 General Description 8
1.1 Product Feature of Equipment Under Test 8
1.2 Accessories 8
1.3 Support Equipment 9
1.4 Testing Location 9
2 Measurement Environment 10
2.1 Conditional Test Case 10
2.2 Test Configuration 11
2.3 Standards 12
2.4 Protocol test Procedure 12
2.5 Time Test for Getting Grant Procedure 12
3 Test Result of Protocol 13
3.1 WINNF.FT.C.REG.1 - Multi-Step registration 13
3.2 WINNF.FT.C.REG.5 - Single-Step registration for CBSD with CPI signed data 14
3.3 WINNF.FT.C.REG.8 - Missing Required parameters (responseCode 102) 15
3.4 WINNF.FT.C.REG.10 - Pending registration (responseCode 200) 16
3.5 WINNF.FT.C.REG.12 - Invalid parameter (responseCode 103) 17
3.6 WINNF.FT.C.REG.14 - Blacklisted CBSD (responseCode 101) 18
3.7 WINNF.FT.C.REG.16 - Unsupported SAS protocol version (responseCode 100) 19
3.8 WINNF.FT.C.REG.18 - Group Error (responseCode 201) 20
3.9 WINNF.FT.C.GRA.1 - Unsuccessful Grant responseCode=400 (INTERFERENCE) 21
3.10 WINNF.FT.C.GRA.2 - Unsuccessful Grant responseCode=401 (GRANT_CONFLICT) 22
3.11 WINNF.FT.C.HBT.1 - Heartbeat Success Case (first Heartbeat Response) 23
3.12 WINNF.FT.C.HBT.3 - Heartbeat responseCode=105 (DEREGISTER) 25
3.13 WINNF.FT.C.HBT.4 - Heartbeat responseCode=500 (TERMINATED_GRANT) 26
3.14 WINNF.FT.C.HBT.5 - Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response. 27
3.15 WINNF.FT.C.HBT.6 - Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response 28
3.16 WINNF.FT.C.HBT.7 - Heartbeat responseCode=502 (UNSYNC_OP_PARAM) 29
3.17 WINNF.FT.C.HBT.9 - Heartbeat Response Absent (First Heartbeat) 30
3.18 WINNF.FT.C.HBT.10 - Heartbeat Response Absent (Subsequent Heartbeat) 31
3.19 WINNF.FT.C.HBT.11 - Successful Grant Renewal in Heartbeat Test Case 32
3.20 WINNF.FT.C.MES.3 - Grant Response contains measReportConfig 34
3.21 WINNF.FT.C.MES.4 - Heartbeat Response contains measReportConfig 35
3.22 WINNF.FT.C.RLQ.1 - Successful Relinquishment 36
3.23 WINNF.FT.C.RLQ.3 - Unsuccessful Relinquishment, responseCode=102 37
3.24 WINNF.FT.C.RLQ.5 - Unsuccessful Relinquishment, responseCode=103 38
3.25 WINNF.FT.C.DRG.1 - Successful Deregistration 39
3.26 WINNF.FT.C.DRG.3 - Deregistration responseCode=102 40
3.27 WINNF.FT.C.DRG.5 - Deregistration responseCode=103 41
3.28 WINNF.FT.C.SCS.1 - Successful TLS connection between UUT and SAS Test Harness 42
3.29 WINNF.FT.C.SCS.2 - TLS failure due to revoked certificate 43
3.30 WINNF.FT.C.SCS.3 - TLS failure due to expired server certificate 44
3.31 WINNF.FT.C.SCS.4 - TLS failure when SAS Test Harness certificate is issued by an unknown CA 45
3.32 WINNF.FT.C.SCS.5 - TLS failure when certificate at the SAS Test Harness is corrupted 46
3.33 WINNF.PT.C.HBT - UUT RF Transmit Power Measurement 47
4 Test Result of Time Test for Getting Grant 50
5 Test Equipment and Calibration Data 51
6 Measurement Uncertainty 52
Appendix A. Test Logs
Appendix B. RF Measurement Plots
Appendix C. Wireshark Plots
Appendix D. CRL and OCSP Verify Plots
Appendix E. Time Test for Getting Grant
Appendix F. Test Photos
Photographs of EUT v01

History of this test report

Report No.	Version	Description	Issued Date
FG031307AB	01	Initial issue of report	Apr. 29, 2020

Summary of Test Result

Protocol Test Summary

Report Clause	Ref Std. Clause	CBSD	DP	Required for Cert.	Test Case ID	Test Case Title	Result (PASS/FAIL)	Remark
3.1	6.1.4.1.1	X	-	C1	WINNF.FT.C.REG.1	Multi-Step registration	PASS	-
-	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	-
3.2	6.1.4.1.5	X	-	C3	WINNF.FT.C.REG.5	Single-Step registration for CBSD with CPI signed data	PASS	-
-	6.1.4.1.6	-	X	C3	WINNF.FT.D.REG.6	Domain Proxy Single-Step registration for CBSD with CPI signed data	N/A	-
-	6.1.4.1.7	X	X	C6	WINNF.FT.C.REG.7	Registration due to change of an installation parameter	N/A	-
3.3	6.1.4.2.1	X	-	M	WINNF.FT.C.REG.8	Missing Required parameters (responseCode 102)	PASS	-
-	6.1.4.2.2	-	X	M	WINNF.FT.D.REG.9	Domain Proxy Missing Required parameters (responseCode 102)	N/A	-
3.4	6.1.4.2.3	X	-	M	WINNF.FT.C.REG.10	Pending registration (responseCode 200)	PASS	-
-	6.1.4.2.4	-	X	M	WINNF.FT.D.REG.11	Domain Proxy Pending registration (responseCode 200)	N/A	-
3.5	6.1.4.2.5	X	-	M	WINNF.FT.C.REG.12	Invalid parameter (responseCode 103)	PASS	-
-	6.1.4.2.6	-	X	M	WINNF.FT.D.REG.13	Domain Proxy Invalid parameters (responseCode 103)	N/A	-
3.6	6.1.4.2.7	X	-	M	WINNF.FT.C.REG.14	Blacklisted CBSD (responseCode 101)	PASS	-
-	6.1.4.2.8	-	X	M	WINNF.FT.D.REG.15	Domain Proxy Blacklisted CBSD (responseCode 101)	N/A	-
3.7	6.1.4.2.9	X	-	M	WINNF.FT.C.REG.16	Unsupported SAS protocol version (responseCode 100)	PASS	-
-	6.1.4.2.10	-	X	M	WINNF.FT.D.REG.17	Domain Proxy Unsupported SAS protocol version responseCode 100)	N/A	-
3.8	6.1.4.2.11	X	-	M	WINNF.FT.C.REG.18	Group Error (responseCode 201)	PASS	-
-	6.1.4.2.12	-	X	M	WINNF.FT.D.REG.19	Domain Proxy Group Error (responseCode 201)	N/A	-

-	6.1.4.3.1	X	X	C2	WINNF.FT.C.REG.20	Category A CBSD location Update	N/A	-
3.9	6.3.4.2.1	X	X	M	WINNF.FT.C.GRA.1	Unsuccessful Grant responseCode=400 (INTERFERENCE)	PASS	-
3.10	6.3.4.2.2	X	X	M	WINNF.FT.C.GRA.2	Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)	PASS	-
3.11	6.4.4.1.1	X	-	M	WINNF.FT.C.HBT.1	Heartbeat Success Case (first Heartbeat Response)	PASS	-
-	6.4.4.1.2	-	X	M	WINNF.FT.D.HBT.2	Domain Proxy Heartbeat Success Case (first Heartbeat Response)	N/A	-
3.12	6.4.4.2.1	X	X	M	WINNF.FT.C.HBT.3	Heartbeat responseCode=105 (DEREGISTER)	PASS	-
3.13	6.4.4.2.2	X	-	M	WINNF.FT.C.HBT.4	Heartbeat responseCode=500 (TERMINATED_GRANT)	PASS	-
3.14	6.4.4.2.3	X	X	M	WINNF.FT.C.HBT.5	Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response	PASS	-
3.15	6.4.4.2.4	X	X	M	WINNF.FT.C.HBT.6	Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response	PASS	-
3.16	6.4.4.2.5	X	X	M	WINNF.FT.C.HBT.7	Heartbeat responseCode=502 (UNSYNC_OP_PARAM)	PASS	-
-	6.4.4.2.6	-	X	M	WINNF.FT.D.HBT.8	Domain Proxy Heartbeat responseCode=500 (TEMINATED_GRANT)	N/A	-
3.17	6.4.4.3.1	X	X	M	WINNF.FT.C.HBT.9	Heartbeat Response Absent (First Heartbeat)	PASS	-
3.18	6.4.4.3.2	X	X	M	WINNF.FT.C.HBT.10	Heartbeat Response Absent (Subsequent Heartbeat)	PASS	-
3.19	6.4.4.4.1	X	X	O	WINNF.FT.C.HBT.11	SuccessfulGrantRenewalin HeartbeatTestCase	PASS	-
-	6.5.4.2.1	X	-	C4	WINNF.FT.C.MES.1	Registration Response contains measReportConfig	N/A	-
-	6.5.4.2.2	-	X	C4	WINNF.FT.D.MES.2	Domain Proxy Registration Response contains measReportConfig	N/A	-
3.20	6.5.4.2.3	X	X	C5	WINNF.FT.C.MES.3	Grant Response contains measReportConfig	PASS	-
3.21	6.5.4.2.4	X	-	C5	WINNF.FT.C.MES.4	Heartbeat Response contains measReportConfig	PASS	-
-	6.5.4.2.5	-	X	C5	WINNF.FT.D.MES.5	Domain Proxy Heartbeat Response contains measReportConfig	N/A	-
3.22	6.6.4.1.1	X	-	M	WINNF.FT.C.RLQ.1	Successful Relinquishment	PASS	-
-	6.6.4.1.2	-	X	M	WINNF.FT.D.RLQ.2	Domain Proxy Successful Relinquishment	N/A	-

3.23	6.6.4.2.1	X	-	O	WINNF.FT.C.RLQ.3	Unsuccessful Relinquishment, responseCode=102	PASS	-
-	6.6.4.2.2	-	X	O	WINNF.FT.D.RLQ.4	Domain Proxy Unsuccessful Relinquishment, responseCode=102	N/A	-
3.24	6.6.4.3.1	X	-	O	WINNF.FT.C.RLQ.5	Unsuccessful Relinquishment, responseCode=103	PASS	-
-	6.6.4.3.2	-	X	O	WINNF.FT.D.RLQ.6	Domain Proxy Unsuccessful Relinquishment, responseCode=103	N/A	-
3.25	6.7.4.1.1	X	-	M	WINNF.FT.C.DRG.1	Successful Deregistration	PASS	-
-	6.7.4.1.2	-	X	M	WINNF.FT.D.DRG.2	Domain Proxy Successful Deregistration	N/A	-
3.26	6.7.4.2.1	X	-	O	WINNF.FT.C.DRG.3	Deregistration responseCode=102	PASS	-
-	6.7.4.2.2	-	X	O	WINNF.FT.D.DRG.4	Domain Proxy Deregistration responseCode=102	N/A	-
3.27	6.7.4.3.1	X	X	O	WINNF.FT.C.DRG.5	Deregistration responseCode=103	PASS	-
3.28	6.8.4.1.1	X	X	M	WINNF.FT.C.SCS.1	Successful TLS connection between UUT and SAS Test Harness	PASS	-
3.29	6.8.4.2.1	X	X	M	WINNF.FT.C.SCS.2	TLS failure due to revoked certificate	PASS	-
3.30	6.8.4.2.2	X	X	M	WINNF.FT.C.SCS.3	TLS failure due to expired server certificate	PASS	-
3.31	6.8.4.2.3	X	X	M	WINNF.FT.C.SCS.4	TLSfailurewhenSASTestHarness certificateisissue by unknown CA	PASS	-
3.32	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	-
3.33	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 without Domain Proxy and Conditional Test Case Definitions are C1, C3 and C5.

Time Test for Getting Grant Summary

Trail	Time limit	Monitoring time	Measured result	Verdict	Remark
1	1 second	10 seconds	0.052 second	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Sandy Chuang

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature of Equipment Under Test	
EUT Type	CPE-CBSD
Power Type	From power adapter or PoE
Category of EUT	☐ Category A ☒ Category B
Professional Installation	☒ Yes ☐ No
EUT in Test ID	☐ EUT with Domain Proxy ☒ EUT without Domain Proxy
CBSD Hardware Version	V1.0
CBSD Software Version	LCE_V1.1.3
CBSD Firmware Version	N/A
Domain Proxy Hardware Version	N/A
Domain Proxy Software Version	N/A
Domain Proxy Firmware Version	N/A

Note: The above information was declared by manufacturer.

1.2 Accessories

Power	Brand Holder	Model	Rating
Adapter	INDUSTRIAL (SHENZHEN)., LTD.	ASSA107A-240050	INPUT:100-240V, 50/60Hz, 0.45A OUTPUT: 24.0V, 500mA
PoE	-	GRT-HCQ-1000	-
Others			
RJ-45 cable*1, non-shielded, 1m			
Sealing collar*1			
Metal band*2			

1.3 Support Equipment

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Switch	TP-Link	TL-SG1008M	N/A
B	Notebook	DELL	E4300	N/A
C	Notebook	DELL	E4300	N/A
D	BTS	Leax	LBS7320	2AVFNLBS7320
E	Notebook	ThinkPad	ThinkPad L480	N/A
F	Desktop PC	ASUS	PN8017DB8D	N/A
G	Notebook	DELL	E4300	N/A

1.4 Testing Location

Testing Location					
☐	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL : 886-3-327-3456 FAX : 886-3-327-0973			
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085			
Test Condition		**Test Site No.**	**Test Engineer**	**Test Environment**	**Test Date**
RF Conducted		TH01-CB	Jeff Wu	22-23.4°C / 56-57%	Apr. 20, 2020~ Apr. 22. 2020

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

2 Measurement Environment

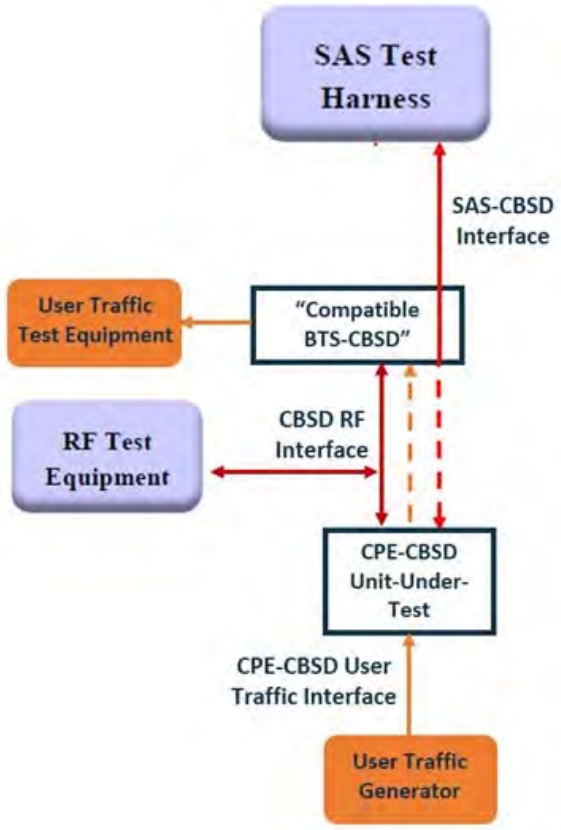
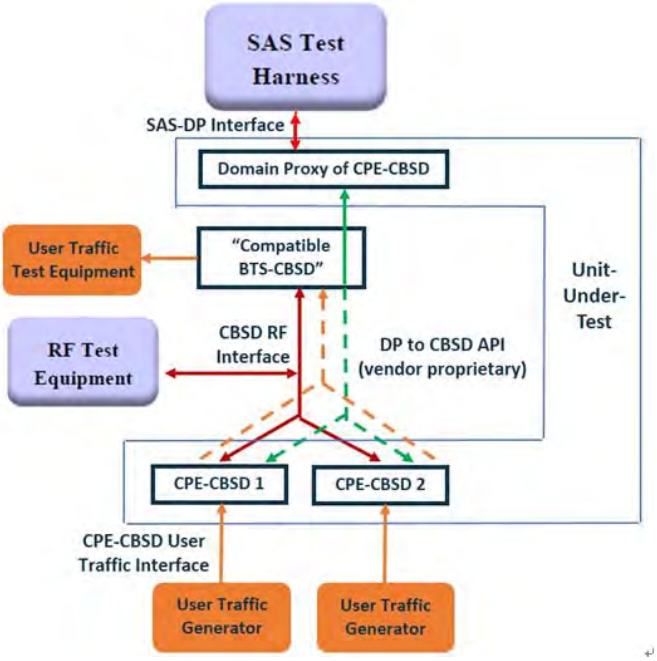
Measurement Environment Information	
Test Harness version	1.0.0.3
Operating System	Microsoft Windows 7
TLS version	1.2
Python	2.7.16

2.1 Conditional Test Case

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

Note: The above information was declared by manufacturer.

2.2 Test Configuration

Test configuration without Domain Proxy	Test configuration with Domain Proxy
	

2.3 Standards

[n.1]. FCC KDB 940660 D02 CPE-CBSD Handshake Procedures v02

[n.2]. WINNF-TS-0122 Version 1.0.1, “Conformance and Performance Test Technical Specification; CBSD/DP as Unit Under Test (UUT)”

2.4 Protocol test Procedure

The test cases for SAS<->CBSD protocol in [n.2] apply for CPE-CBSD device type. Following the [n.1], when running the test cases in [n.2] for CPE-CBSD device type, verify that

1. CPE-CBSD can begin transmitting its RF only after receiving radio signal from its compatible BTS-CBSD.
2. For all CPE-CBSD RF transmissions, the CPE-CBSD UUT radio frequency range and bandwidth are less or equal to the frequency range and bandwidth of its compatible BTS-CBSD.
3. Judging the last execution step appearing in [n.2] with “User data traffics” instead of “RF transmission.”

2.5 Time Test for Getting Grant Procedure

Use the WinnForum SAS Harness run test case WINNF.FT.C.GRA.1. Without answering the last question in WINNF.FT.C.GRA.1 will keep UUT’s grant request being rejected, then measure the time.

3 Test Result of Protocol

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

3.1 WINNF.FT.C.REG.1 - Multi-Step registration

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

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

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state • All of the required and REG-Conditional parameters shall be configured and CPI signature provided	--	--
2	CBSD sends Registration request to the SAS Test Harness: • The required userId, fccId and cbsdSerialNumber and REG- Conditional cbsdCategory, airInterface, measCapability and cpiSignatureData registration parameters shall be sent from the CBSD and conform to proper format and acceptable ranges. • Any optional registration parameters that may be included in the message shall be verified that they conform to proper format and are within acceptable ranges.	PASS	--
3	• SAS Test Harness sends a CBSD Registration Response as follows: – *cbsdId* = C – *measReportConfig* shall not be included. – *responseCode* = 0	--	--
4	After completion of step 3, SAS Test Harness does not provide any positive response (*responseCode*=0) to further request messages from the UUT.	--	--
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step3 is complete. This is the end of the test. Verify: • CPE-CBSD UUT shall not transmit user traffic	PASS	--

3.3 WINNF.FT.C.REG.8 - Missing Required parameters (responseCode 102)

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

3.4 WINNF.FT.C.REG.10 - Pending registration (responseCode 200)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	CBSD sends a Registration request to SAS Test Harness.	--	--
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: – SAS response does not include *cbsdId* – *responseCode* = R	--	--
4	After completion of step 3, SAS Test Harness does not provide any positive response (*responseCode*=200) 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: • CPE-CBSD UUT shall not transmit user traffic	PASS	--

3.5 WINNF.FT.C.REG.12 - Invalid parameter (responseCode 103)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	CBSD sends a Registration request to SAS Test Harness.	--	--
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: – SAS response does not include *cbsdId* – *responseCode* = R	--	--
4	After completion of step 3, SAS Test Harness does not provide any positive response (*responseCode*=103) 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: • CPE-CBSD UUT shall not transmit user traffic	PASS	--

3.6 WINNF.FT.C.REG.14 - Blacklisted CBSD (responseCode 101)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	CBSD sends a Registration request to SAS Test Harness.	--	--
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: – SAS response does not include *cbsdId* – *responseCode* = R	--	--
4	After completion of step 3, SAS Test Harness does not provide any positive response (*responseCode*=101) 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: • CPE-CBSD UUT shall not transmit user traffic	PASS	--

3.7 WINNF.FT.C.REG.16 - Unsupported SAS protocol version (responseCode 100)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	CBSD sends a Registration request to SAS Test Harness.	--	--
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: – SAS response does not include *cbsdId* – *responseCode* = R	--	--
4	After completion of step 3, SAS Test Harness does not provide any positive response (*responseCode*=100) 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: • CPE-CBSD UUT shall not transmit user traffic	PASS	--

3.8 WINNF.FT.C.REG.18 - Group Error (responseCode 201)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT is in the Unregistered state	--	--
2	CBSD sends a Registration request to SAS Test Harness.	--	--
3	SAS Test Harness rejects the request by sending a CBSD Registration Response as follows: – SAS response does not include *cbsdId* – *responseCode* = R	--	--
4	After completion of step 3, SAS Test Harness does not provide any positive response (*responseCode*=201) 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: • CPE-CBSD UUT shall not transmit user traffic	PASS	--

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

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

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

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

3.11 WINNF.FT.C.HBT.1 - Heartbeat Success Case (first Heartbeat Response)

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness, with *cbsdId* = C	--	--
2	UUT sends a message: • If message is type Spectrum Inquiry Request, go to step 3, or • If message is type Grant Request, go to step 5	--	--
3	UUT sends Spectrum Inquiry Request. Validate: • *cbsdId* = C • List of frequencyRange objects sent by UUT are within the CBRS frequency range	PASS	--
4	SAS Test Harness sends a Spectrum Inquiry Response message, including the following parameters: • *cbsdId* = C • availableChannel is an array of availableChannel objects • *responseCode* = 0	--	--
5	UUT sends Grant Request message. Validate: • *cbsdId* = C • maxEIRP is at or below the limit appropriate for CBSD category as defined by Part 96 • operationFrequencyRange, F, sent by UUT is a valid range within the CBRS band	PASS	--
6	SAS Test Harness sends a Grant Response message, including the parameters: • *cbsdId* = C • *grantId* = G = a valid grant ID • grantExpireTime = UTC time greater than duration of the test • *responseCode* = 0	--	--
7	UUT sends a first Heartbeat Request message. Verify HeartbeatRequest message is formatted correctly, including: • *cbsdId* = C • *grantId* = G • *operationState* = "GRANTED"	PASS	--
8	SAS Test Harness sends a Heartbeat Response message, with the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0	--	--

9	For further Heartbeat Request messages sent from UUT after completion of step 8, validate message is sent within latest specified heartbeatInterval, and: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED" and SAS Test Harness responds with a Heartbeat Response message including the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0	PASS	--
10	Monitor the RF output of the UUT from start of test until UUT transmission commences. Verify: • UUT does not transmit at any time prior to completion of the first heartbeat response • UUT transmits after step 8 is complete, and its transmission is limited to within the bandwidth range F.	PASS	--

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

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

3.13 WINNF.FT.C.HBT.4 - Heartbeat responseCode=500 (TERMINATED_GRANT)

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

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

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* =C o valid *grantId* =G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in GRANTED, but not AUTHORIZED state (i.e. has not performed its first Heartbeat Request)	--	--
2	UUT sends a Heartbeat Request message. Verify HeartbeatRequest message is formatted correctly, including: • *cbsdId* =C • *grantId* =G • *operationState* =“GRANTED”	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • *cbsdId* =C • *grantId* =G • *transmitExpireTime* = T = current UTC time • *responseCode* = 501 (SUSPENDED_GRANT)	--	--
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	--	--
5	Monitor the SAS-CBSD interface. Verify either A OR B occurs: A. UUT sends a Heartbeat Request message. Ensure message is sent within latest specified heartbeatInterval, and is correctly formatted with parameters: • *cbsdId* =C • *grantId* =G • *operationState* =“GRANTED” B. UUT sends a Relinquishment request message. Ensure message is correctly formatted with parameters: • *cbdsId* =C • *grantId* =G Monitor the RF output of the UUT. Verify: • UUT does not transmit at any time	PASS	--

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

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* =C o valid *grantId* =G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface	--	--
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within latest specified heartbeatInterval, and is formatted correctly, including: • *cbsdId* =C • *grantId* =G • *operationState* =“AUTHORIZED”	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • *cbsdId* =C • *grantId* =G • *transmitExpireTime* = T = current UTC time • *responseCode* = 501 (SUSPENDED_GRANT)	--	--
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	--	--
5	Monitor the SAS-CBSD interface. Verify either A OR B occurs: A. UUT sends a Heartbeat Request message. Ensure message is sent within latest specified heartbeatInterval, and is correctly formatted with parameters: • *cbsdId* =C • *grantId* =G • *operationState* =“GRANTED” B. UUT sends a Relinquishment Request message. Ensure message is correctly formatted with parameters: • *cbdsId* =C • *grantId* =G Monitor the RF output of the UUT. Verify: • CPE-CBSD UUT shall stop transmitting user traffic within (*T* + 60 seconds) of completion of step 3	PASS	--

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

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has registered successfully with SAS Test Harness • UUT has a valid single grant as follows: o valid *cbsdId* =C o valid *grantId* =G o grant is for frequency range F, power P o *grantExpireTime* = UTC time greater than duration of the test • UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface	--	--
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within latest specified *heartbeatInterval*,and is formatted correctly, including: • *cbsdId* =C • *grantId* =G • *operationState* =“AUTHORIZED”	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, including the following parameters: • *cbsdId* =C • *grantId* =G • *transmitExpireTime* = T = Current UTC Time • *responseCode* = 502 (UNSYNC_OP_PARAM)	--	--
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.	--	--
5	Monitor the SAS-CBSD interface. Verify: • UUT sends a Grant Relinquishment Request message. Verify message is correctly formatted with parameters: o *cbdsId* =C o *grantId*=G Monitor the RF output of the UUT. Verify: • CPE-CBSD UUT shall stop transmitting user traffic within (T+60) seconds of completion of step 3.	PASS	--

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

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

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

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

3.19 WINNF.FT.C.HBT.11 - Successful Grant Renewal in Heartbeat Test Case

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

7	SAS Test Harness sends a Heartbeat Response message, with the following parameters: • *cbsdId* = C • *grantId* = G • *grantExpireTime* = UTC time set far in the future • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode* = 0	--	--
8	Continue to respond to any subsquent Heartbeat Request from CBSD with Heartbeat Response with the following parameters: • *cbsdId* = C • *grantId* = G • *transmitExpireTime* = same as Step 7 • *responseCode* = 0	--	--
9	Monitor RF transmission of UUT from start of test until Tgrant_expire + 60 seconds and ensure UUT continues to transmit throughout the time period.	PASS	--

3.20 WINNF.FT.C.MES.3 - Grant Response contains measReportConfig

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C and *measCapability* = "RECEIVED_POWER_WITH_GRANT"	--	--
2	UUT sends a Grant Request message. Verify Grant Request message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *operationParam* is present and format is valid	PASS	--
3	SAS Test Harness sends a Grant Response message, with the following parameters: • *cbsdId* = C • *grantId* = G = valid grant ID • *grantExpireTime* = UTC time in the future • *heartbeatInterval* = 60 seconds • *measReportConfig*="RECEIVED_POWER_WITH_GRANT" • *operationParam* is set to valid operating parameters • *channelType* = "GAA" • *responseCode* = 0	--	--
4	UUT sends a Heartbeat Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • *operationState* = "GRANTED"	PASS	--
5	If Heartbeat Request message (step 4) contains *measReport* object, then: • verify *measReport* is properly formatted as object *rcvdPowerMeasReport* • end test, with PASS result else, if Heartbeat Request message (step 4) does not contain measReport object, then: If number of Heartbeat Requests sent by UUT after Step 3 is = 5, then stop test with result of FAIL	PASS	--
6	SAS Test Harness sends a Heartbeat Response message, containing all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = *G* • *transmitExpireTime* = current UTC time + 200 seconds • *responseCode*=0 Go to Step 4, above	--	--

3.21 WINNF.FT.C.MES.4 - Heartbeat Response contains measReportConfig

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C and *measCapability* = "RECEIVED_POWER_WITH_GRANT" • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. • Grant has *heartbeatInterval* = 60 seconds	--	--
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • *operationState* = "AUTHORIZED"	PASS	--
3	SAS Test Harness sends a Heartbeat Response message, containing all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = *G* • *measReportConfig*="RECEIVED_POWER_WITH_GRANT" • *responseCode* = 0	--	--
4	UUT sends a Heartbeat Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G • operationState = "AUTHORIZED"	PASS	--
5	If Heartbeat Request message (step 4) contains *measReport* object, then: • verify *measReport* is properly formatted as object *rcvdPowerMeasReport* • end test, with PASS result else, if Heartbeat Request message (step 4) does not contain measReport object, then: • If number of Heartbeat Requests sent by UUT after Step 3 is= 5, then stop test with result of FAIL	PASS	--
6	SAS Test Harness sends a Heartbeat Response message, containing all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = *G* • *responseCode*=0 Go to Step 4, above	--	--

3.22 WINNF.FT.C.RLQ.1 - Successful Relinquishment

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

3.23 WINNF.FT.C.RLQ.3 - Unsuccessful Relinquishment, responseCode=102

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

3.24 WINNF.FT.C.RLQ.5 - Unsuccessful Relinquishment, responseCode=103

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to Relinquish UUT Grant from the SAS Test Harness	--	--
2	UUT sends a Relinquishment Request message. Verify message contains all required parameters properly formatted, and specifically: • *cbsdId* = C • *grantId* = G	--	--
3	SAS Test Harness shall send a Relinquishment Response message with parameters: • *cbsdId* = C • No *grantId* • *responseCode* = R	--	--
4	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=103) to further request messages from the UUT.	--	--
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the relinquishment and UUT sending the relinquishment request	PASS	--

3.25 WINNF.FT.C.DRG.1 - Successful Deregistration

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to deregister UUT from the SAS Test Harness	--	--
2	UUT sends a Relinquishment request and receives Relinquishment response with *responseCode*=0	--	--
3	UUT sends Deregistration Request to SAS Test Harness with *cbsdId*= C.	PASS	--
4	SAS Test Harness shall approve the request with a Deregistration Response message with parameters: • *cbsdId* = C • *responseCode* = 0	--	--
5	After completion of step 3, SAS Test Harness will not provide any additional positive response (*responseCode*=0) to further request messages from the UUT.	--	--
6	Monitor the RF output of the UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: A. UUT sending a Registration Request message, as this is not mandatory B. UUT sending a Deregistration Request message	PASS	--

3.26 WINNF.FT.C.DRG.3 - Deregistration responseCode=102

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to deregister UUT from the SAS Test Harness	--	--
2	UUT sends a Relinquishment request and receives Relinquishment response with *responseCode*=0	--	--
3	UUT sends Deregistration Request to SAS Test Harness with *cbsdId*= C	--	--
4	The SAS Test Harness sends the Deregistration Response Message to UUT with: • No *cbsdId* • *responseCode* = 102	--	--
5	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	--	--
6	Monitor the RF output of the UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: A. UUT sending a Registration Request message, as this is not mandatory B. UUT sending a Deregistration Request message	PASS	--

3.27 WINNF.FT.C.DRG.5 - Deregistration responseCode=103

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness • UUT has successfully registered with SAS Test Harness, with *cbsdId*=C • UUT has received a valid grant with *grantId* = G • UUT is in Grant State AUTHORIZED and is actively transmitting within the bounds of its grant. Invoke trigger to deregister UUT from the SAS Test Harness	--	--
2	UUT sends a Relinquishment request and receives Relinquishment response with *responseCode*=0	--	--
3	UUT sends Deregistration Request to SAS Test Harness with *cbsdId*= C	--	--
4	The SAS Test Harness sends the Deregistration Response Message to UUT with: • No *cbsdId* • *responseCode* = 103	--	--
5	After completion of step 3, SAS Test Harness will not provide any positive response (*responseCode*=0) to further request messages from the UUT.	--	--
6	Monitor the RF output of the UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify: • UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs: A. UUT sending a Registration Request message, as this is not mandatory B. UUT sending a Deregistration Request message	PASS	--

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

#	Test Execution Steps	Results	
1	• UUT shall start CBSD-SAS communication with the security procedure • The UUT shall establish a TLS handshake with the SAS Test Harness using configured certificate. • Configure the SAS Test Harness to accept the security procedure and establish the connection	PASS	--

2	• Make sure that Mutual authentication happens between UUT and the SAS Test Harness.
	• Make sure that UUT uses TLS v1.2
	• Make sure that cipher suites from one of the following is selected,
	  • TLS_RSA_WITH_AES_128_GCM_SHA256
	  • TLS_RSA_WITH_AES_256_GCM_SHA384
	  • TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
	  • TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
	  • TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
		PASS	--

3	A successful registration is accomplished using one of the test cases described in section 6.1.4.1, depending on CBSD capability. • UUT sends a registration request to the SAS Test Harness and the SAS Test Harness sends a Registration Response with *responseCode* = 0 and *cbsdId*.	PASS	--
4	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • CPE-CBSD UUT shall not transmit user traffic	PASS	--

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

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

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

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

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

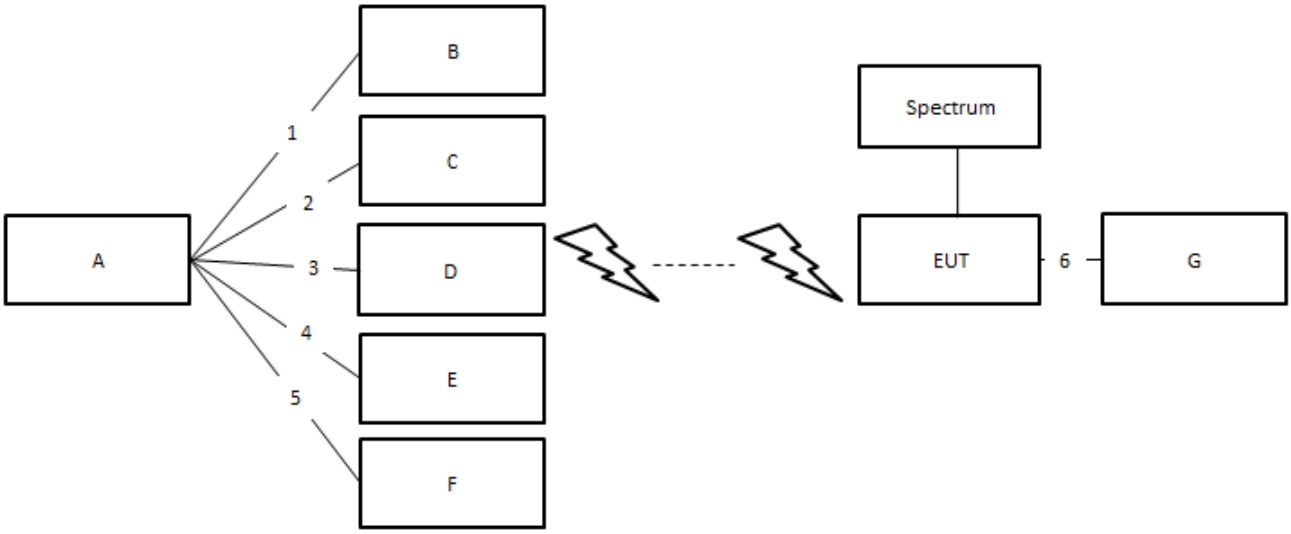
#	Test Execution Steps	Results	
1	• UUT shall start CBSD-SAS communication with the security procedures	PASS	--
2	• Make sure that UUT uses TLS v1.2 for security establishment. • Make sure UUT selects the correct cipher suite. • UUT shall use CRL or OCSP to verify the validity of the server certificate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

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

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

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

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



Item	Connection	Shielded	Length
1	RJ-45 cable	No	1.5m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	1.5m
4	RJ-45 cable	No	1.5m
5	RJ-45 cable	No	1.5m
6	RJ-45 cable	No	1.5m

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	3560MHz
Frequency Span	40MHz
RBW / VBW	1 MHz / 3MHz
Channel Power Meas Bandwidth	20MHz
Sweep Time	1ms

#	Test Execution Steps	Results	
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with the SAS Test Harness • UUT has registered with the SAS, with CBSD ID = C • UUT has a single valid grant G with parameters {lowFrequency = F_L, highFrequency = F_H, maxEirp = P_i}, with grant in AUTHORIZED state, and grantExpireTime set to a value far past the duration of this test case *Note: in order for the UUT to request a grant with the parameters {lowFrequency, highFrequency, maxEirp), the SAS Test Harness may need to provide appropriate guidance in the availableChannel object of the spectrumInquiry response message, and the operationParam object of the grant response message. Alternately, the UUT vendor may provide the ability to set those parameters on the UUT so that the UUT will request a grant with those parameters.*	--	--
2	UUT and SAS Test Harness perform a series of Heartbeat Request/Response cycles, which continues until the other test steps are complete. Messaging for each cycle is as follows: • UUT sends Heartbeat Request, including: o *cbsdId* = C o *grantId* = G • SAS Test Harness responds with Heartbeat Response, including: o *cbsdId* = C o *grantId* = G o *transmitExpireTime* = current UTC time + 200 seconds o *responseCode* = 0	--	--

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

Frequency	Bandwidth (MHz)	Antenna Gain (dBi)	Conducted PSD (dBm/MHz)	Grant maxEirp (dBm/MHz)	maxEirp (dBm/MHz)	Result
3560MHz	20	14	-25.64	1	-11.64	PASS
3560MHz	20	14	-8.333	19	5.67	PASS
3560MHz	20	14	7.845	37	21.85	PASS

4 Test Result of Time Test for Getting Grant

Refer as Appendix E

5 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum analyzer	Keysight	N9020A	MY55400138	10 Hz up to 26.5 GHz	Dec. 11, 2019	Dec. 10, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 18, 2019	Nov. 17, 2020	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	TH01-DV-01	1GHz ~ 6GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	TH01-DV-02	1GHz ~ 6GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)

6 Measurement Uncertainty

Test Items	Uncertainty	Remark
Conducted Emission	2.4 dB	Confidence levels of 95%

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

2020-04-22T02:27:08.598Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T02:27:08.598Z - INFO - the selected test from the user : WINNF.FT.C.REG.1 is starting now
2020-04-22T02:28:31.525Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T02:28:31.556Z - INFO - Registration message contains cpiSignatureData
2020-04-22T02:28:31.556Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T02:28:31.556Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
2020-04-22T02:28:31.713Z - INFO - verified signature on cpiSignatureData
2020-04-22T02:28:31.727Z - INFO - cpiSignatureData data successfully validated against jsonschema
2020-04-22T02:28:31.727Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
2020-04-22T02:28:32.789Z - INFO - arrived to nstep starting question answer session with the technician
2020-04-22T02:28:32.789Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-04-22T02:29:58.447Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-04-22T02:30:00.694Z - INFO - The final result of the test : WINNF.FT.C.REG.1 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.
```

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

2020-04-22T02:30:18.572Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T02:30:18.572Z - INFO - the selected test from the user : WINNF.FT.C.REG.5 is starting now
2020-04-22T02:31:20.318Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T02:31:20.381Z - INFO - Registration message contains cpiSignatureData
2020-04-22T02:31:20.381Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T02:31:20.381Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-22T02:31:20.381Z - INFO - verified signature on cpiSignatureData
    2020-04-22T02:31:20.395Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-22T02:31:20.395Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T02:31:21.676Z - INFO - arrived to nstep starting question answer session with the technician
    2020-04-22T02:31:21.676Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
    2020-04-22T02:32:24.426Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
    2020-04-22T02:32:27.250Z - INFO - The final result of the test : WINNF.FT.C.REG.5 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.
```

Test Log for WINNF.FT.C.REG.8 Test Case ID

2020-04-22T02:34:11.048Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T02:34:11.048Z - INFO - the selected test from the user : WINNF.FT.C.REG.8 is starting now
2020-04-22T02:35:03.349Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T02:35:03.381Z - INFO - Registration message contains cpiSignatureData
2020-04-22T02:35:03.381Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T02:35:03.381Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
2020-04-22T02:35:03.427Z - INFO - verified signature on cpiSignatureData
2020-04-22T02:35:03.443Z - INFO - cpiSignatureData data successfully validated against jsonschema
2020-04-22T02:35:03.443Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "response": {
                    "responseCode": 102
                }
            }
        ]
    }
2020-04-22T02:35:04.769Z - INFO - arrived to nstep starting question answer session with the technician
2020-04-22T02:35:04.769Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-04-22T02:36:16.140Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-04-22T02:36:21.895Z - INFO - The final result of the test : WINNF.FT.C.REG.8 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.
```

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

2020-04-22T02:37:14.608Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T02:37:14.608Z - INFO - the selected test from the user : WINNF.FT.C.REG.10 is starting now
2020-04-22T02:38:12.469Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T02:38:12.500Z - INFO - Registration message contains cpiSignatureData
2020-04-22T02:38:12.500Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T02:38:12.500Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-22T02:38:12.546Z - INFO - verified signature on cpiSignatureData
    2020-04-22T02:38:12.546Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-22T02:38:12.546Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "response": {
                    "responseCode": 200
                }
            }
        ]
    }
    2020-04-22T02:38:14.434Z - INFO - arrived to nstep starting question answer session with the technician
    2020-04-22T02:38:14.434Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
    2020-04-22T02:39:25.164Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
    2020-04-22T02:39:28.457Z - INFO - The final result of the test : WINNF.FT.C.REG.10 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.
```

Test Log for WINNF.FT.C.REG.12 Test Case ID

2020-04-22T02:44:19.842Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T02:44:19.842Z - INFO - the selected test from the user : WINNF.FT.C.REG.12 is starting now
2020-04-22T02:44:21.510Z - INFO - registration request from CBRS : {
"registrationRequest": [
{
"airInterface": {
"radioTechnology": "E_UTRA"
},
"callSign": "callSign123",
"cbsdCategory": "B",
"cbsdSerialNumber": "1257019101000069",
"cpiSignatureData": {
"digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3EWziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRBC7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
"encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIiLCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaWdodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDAxIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVUMTc6Mjg6MjBaIn19",
"protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
},
"fccId": "2AVFNLCE122",
"groupingParam": [
{
"groupId": "test",
"groupType": "INTERFERENCE_COORDINATION"
}
],
"measCapability": [
"RECEIVED_POWER_WITH_GRANT"
],
"userId": "test"
}
]
}
2020-04-22T02:44:21.542Z - INFO - Registration message contains cpiSignatureData
2020-04-22T02:44:21.542Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T02:44:21.542Z - INFO - encodedCpiSignedData contents = {
"installationParam": {
"antennaAzimuth": 7,
"heightType": "AGL",
"longitude": -122.01,

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-22T02:44:21.588Z - INFO - verified signature on cpiSignatureData
    2020-04-22T02:44:21.588Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-22T02:44:21.588Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "response": {
                    "responseCode": 103
                }
            }
        ]
    }
    2020-04-22T02:44:22.884Z - INFO - arrived to nstep starting question answer session with the technician
    2020-04-22T02:44:22.884Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
    2020-04-22T02:46:07.732Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
    2020-04-22T02:46:14.579Z - INFO - The final result of the test : WINNF.FT.C.REG.12 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.
```

Test Log for WINNF.FT.C.REG.14 Test Case ID

2020-04-22T02:48:49.687Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T02:48:49.687Z - INFO - the selected test from the user : WINNF.FT.C.REG.14 is starting now
2020-04-22T02:49:57.098Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T02:49:57.130Z - INFO - Registration message contains cpiSignatureData
2020-04-22T02:49:57.130Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T02:49:57.130Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
```


2020-04-22T02:49:57.130Z - INFO - verified signature on cpiSignatureData

2020-04-22T02:49:57.144Z - INFO - cpiSignatureData data successfully validated against jsonschema

2020-04-22T02:49:57.144Z - INFO - engine sent successfully, the response to CBRS : {


```
    "registrationResponse": [
        {
            "response": {
                "responseCode": 101
            }
        }
    ]
}
```


2020-04-22T02:49:58.611Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-22T02:49:58.611Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2020-04-22T02:51:01.792Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2020-04-22T02:51:04.724Z - INFO - The final result of the test : WINNF.FT.C.REG.14 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.

Test Log for WINNF.FT.C.REG.16 Test Case ID

2020-04-22T02:51:23.523Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T02:51:23.523Z - INFO - the selected test from the user : WINNF.FT.C.REG.16 is starting now
2020-04-22T02:59:25.253Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T02:59:25.285Z - INFO - Registration message contains cpiSignatureData
2020-04-22T02:59:25.285Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T02:59:25.285Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
}
2020-04-22T02:59:25.285Z - INFO - verified signature on cpiSignatureData
2020-04-22T02:59:25.285Z - INFO - cpiSignatureData data successfully validated against jsonschema
2020-04-22T02:59:25.301Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "response": {
                    "responseCode": 100
                }
            }
        ]
}
2020-04-22T02:59:26.891Z - INFO - arrived to nstep starting question answer session with the technician
2020-04-22T02:59:26.891Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
2020-04-22T03:00:50.102Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-04-22T03:00:57.575Z - INFO - The final result of the test : WINNF.FT.C.REG.16 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.
```

Test Log for WINNF.FT.C.REG.18 Test Case ID

2020-04-22T03:01:06.717Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T03:01:06.717Z - INFO - the selected test from the user : WINNF.FT.C.REG.18 is starting now
2020-04-22T03:02:21.721Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T03:02:21.753Z - INFO - Registration message contains cpiSignatureData
2020-04-22T03:02:21.753Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T03:02:21.767Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
2020-04-22T03:02:21.767Z - INFO - verified signature on cpiSignatureData
2020-04-22T03:02:21.767Z - INFO - cpiSignatureData data successfully validated against jsonschema
2020-04-22T03:02:21.767Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "response": {
                    "responseCode": 201
                }
            }
        ]
    }
```


2020-04-22T03:02:23.780Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-22T03:02:23.780Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2020-04-22T03:03:30.331Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2020-04-22T03:03:35.119Z - INFO - The final result of the test : WINNF.FT.C.REG.18 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.

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

2020-04-22T03:15:01.585Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T03:15:01.585Z - INFO - the selected test from the user : WINNF.FT.C.GRA.1 is starting now
2020-04-22T03:16:14.437Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T03:16:14.484Z - INFO - Registration message contains cpiSignatureData
2020-04-22T03:16:14.484Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T03:16:14.484Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-22T03:16:14.484Z - INFO - verified signature on cpiSignatureData
    2020-04-22T03:16:14.484Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-22T03:16:14.484Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T03:16:14.750Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-22T03:16:14.766Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
}
2020-04-22T03:16:14.921Z - INFO - grant request from CBRS    : {
    "grantRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "operationParam": {
                "maxEirp": 37,
                "operationFrequencyRange": {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            }
        }
    ]
}
2020-04-22T03:16:14.921Z - INFO - engine sent successfully, the response to CBRS    : {
    "grantResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
                "responseCode": 400
            }
        }
    ]
}
```


2020-04-22T03:16:16.621Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-22T03:16:16.621Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2020-04-22T03:17:32.250Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2020-04-22T03:17:35.901Z - INFO - The final result of the test : WINNF.FT.C.GRA.1 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.

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

2020-04-22T03:18:54.615Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T03:18:54.615Z - INFO - the selected test from the user : WINNF.FT.C.GRA.2 is starting now
2020-04-22T03:20:09.713Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T03:20:09.760Z - INFO - Registration message contains cpiSignatureData
2020-04-22T03:20:09.760Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T03:20:09.760Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-22T03:20:09.760Z - INFO - verified signature on cpiSignatureData
    2020-04-22T03:20:09.760Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-22T03:20:09.760Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T03:20:10.026Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-22T03:20:10.042Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
}
```


2020-04-22T03:20:10.197Z - INFO - grant request from CBRS : {


```
    "grantRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "operationParam": {
                "maxEirp": 37,
                "operationFrequencyRange": {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            }
        }
    ]
}
```


2020-04-22T03:20:10.197Z - INFO - engine sent successfully, the response to CBRS : {


```
    "grantResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
                "responseCode": 401
            }
        }
    ]
}
```


2020-04-22T03:20:11.680Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-22T03:20:11.680Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :

2020-04-22T03:21:19.400Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n

2020-04-22T03:21:24.266Z - INFO - The final result of the test : WINNF.FT.C.GRA.2 is - passed and :the additional comments for the current test are : There is RF transmission, but it's not user traffic.

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


```
2020-04-22T06:01:03.486Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T06:01:03.486Z - INFO - the selected test from the user : WINNF.FT.C.HBT.1 is starting now
2020-04-22T06:02:04.122Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-22T06:02:04.170Z - INFO - Registration message contains cpiSignatureData
2020-04-22T06:02:04.170Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-22T06:02:04.170Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-22T06:02:04.216Z - INFO - verified signature on cpiSignatureData
    2020-04-22T06:02:04.216Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-22T06:02:04.232Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T06:02:04.513Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-22T06:02:04.528Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T06:02:04.684Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-22T06:02:04.684Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-29T06:02:04Z",
                "grantId": "747185086",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T06:02:34.917Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "747185086",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-22T06:02:34.917Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "747185086",
                "response": {
                    "responseCode": 0
                },
```

```
            "transmitExpireTime": "2020-04-22T06:05:54Z"
        }
    ]
}
2020-04-22T06:03:05.134Z - INFO - heartbeat request from CBRS   : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "747185086",
            "operationState": "AUTHORIZED"
        }
    ]
}
2020-04-22T06:03:05.134Z - INFO - Time interval between two heartbeat request messages is: 30.218,
limit is: 65.0
2020-04-22T06:03:05.150Z - INFO - engine sent successfully, the response to CBRS   : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "747185086",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-22T06:06:25Z"
        }
    ]
}
2020-04-22T06:03:35.321Z - INFO - heartbeat request from CBRS   : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "747185086",
            "operationState": "AUTHORIZED"
        }
    ]
}
2020-04-22T06:03:35.321Z - INFO - Time interval between two heartbeat request messages is: 30.186,
limit is: 65.0
2020-04-22T06:03:35.321Z - INFO - engine sent successfully, the response to CBRS   : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "747185086",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-22T06:06:55Z"
        }
    ]
}
2020-04-22T06:04:05.522Z - INFO - heartbeat request from CBRS   : {
    "heartbeatRequest": [
```

```
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "747185086",
                "operationState": "AUTHORIZED"
            }
        ]
    }
```


2020-04-22T06:04:05.522Z - INFO - Time interval between two heartbeat request messages is: 30.201, limit is: 65.0

2020-04-22T06:04:05.522Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "747185086",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-22T06:07:25Z"
        }
    ]
}
```


2020-04-22T06:04:35.755Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "747185086",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-22T06:04:35.770Z - INFO - Time interval between two heartbeat request messages is: 30.233, limit is: 65.0

2020-04-22T06:04:35.770Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "747185086",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-22T06:07:55Z"
        }
    ]
}
```


2020-04-22T06:05:05.987Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "747185086",
            "operationState": "AUTHORIZED"
        }
    ]
```

}
2020-04-22T06:05:05.987Z - INFO - Time interval between two heartbeat request messages is: 30.233, limit is: 65.0
2020-04-22T06:05:05.987Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "747185086",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-04-22T06:08:25Z"
}
]
}
2020-04-22T06:05:07.859Z - INFO - arrived to nstep starting question answer session with the technician
2020-04-22T06:05:07.859Z - INFO - the question is : Did CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? please choose one of the answers :
2020-04-22T06:07:29.055Z - INFO - for the question : Did CBSD1 transmit power prior to AUTHORIZED state (first successful HBT response)? , the user choose n
2020-04-22T06:07:29.055Z - INFO - the question is : Did CBSD1 transmit only within the frequency range specified in its grantRequest message? please choose one of the answers :
2020-04-22T06:07:31.816Z - INFO - for the question : Did CBSD1 transmit only within the frequency range specified in its grantRequest message? , the user choose y
2020-04-22T06:07:39.382Z - INFO - The final result of the test : WINNF.FT.C.HBT.1 is - passed and :the additional comments for the current test are : CBSD starts user traffic at T06:02:38.

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


```
2020-04-21T07:38:26.226Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T07:38:26.242Z - INFO - the selected test from the user : WINNF.FT.C.HBT.3 is starting now
2020-04-21T07:39:24.351Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-21T07:39:24.446Z - INFO - Registration message contains cpiSignatureData
2020-04-21T07:39:24.446Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T07:39:24.446Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T07:39:24.446Z - INFO - verified signature on cpiSignatureData
    2020-04-21T07:39:24.446Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T07:39:24.460Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:39:24.757Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T07:39:24.773Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:39:24.914Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T07:39:24.928Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T07:39:24Z",
                "grantId": "255496762",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:39:55.161Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "255496762",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T07:39:55.161Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "255496762",
                "response": {
                    "responseCode": 0
                },
```

```
                "transmitExpireTime": "2020-04-21T07:43:15Z"
            }
        ]
    }
    2020-04-21T07:40:25.394Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "255496762",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T07:40:25.394Z - INFO - Time interval between two heartbeat request messages is: 30.233,
    limit is: 65.0
    2020-04-21T07:40:25.411Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "255496762",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T07:43:45Z"
            }
        ]
    }
    2020-04-21T07:40:55.611Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "255496762",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T07:40:55.611Z - INFO - Time interval between two heartbeat request messages is: 30.217,
    limit is: 65.0
    2020-04-21T07:40:55.628Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "255496762",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T07:44:15Z"
            }
        ]
    }
    2020-04-21T07:41:25.798Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
```

```
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "255496762",
                "operationState": "AUTHORIZED"
            }
        ]
}
```


2020-04-21T07:41:25.798Z - INFO - Time interval between two heartbeat request messages is: 30.186, limit is: 65.0

2020-04-21T07:41:25.798Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "255496762",
            "response": {
                "responseCode": 105
            },
            "transmitExpireTime": "2020-04-21T07:41:25Z"
        }
    ]
}
```


2020-04-21T07:41:27.747Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T07:41:27.747Z - INFO - the question is : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 105? please choose one of the answers :

2020-04-21T07:42:07.170Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 105? , the user choose y

2020-04-21T07:42:10.539Z - INFO - The final result of the test : WINNF.FT.C.HBT.3 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T07:41:28.

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


```
2020-04-21T07:47:56.651Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T07:47:56.651Z - INFO - the selected test from the user : WINNF.FT.C.HBT.4 is starting now
2020-04-21T07:49:10.104Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-21T07:49:10.151Z - INFO - Registration message contains cpiSignatureData
2020-04-21T07:49:10.151Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T07:49:10.151Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T07:49:10.197Z - INFO - verified signature on cpiSignatureData
    2020-04-21T07:49:10.213Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T07:49:10.213Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:49:10.509Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T07:49:10.525Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:49:10.665Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T07:49:10.680Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T07:49:10Z",
                "grantId": "604562678",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:49:40.914Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "604562678",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T07:49:40.914Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "604562678",
                "response": {
                    "responseCode": 0
                },
```

```
                "transmitExpireTime": "2020-04-21T07:53:00Z"
            }
        ]
    }
    2020-04-21T07:50:11.115Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "604562678",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T07:50:11.115Z - INFO - Time interval between two heartbeat request messages is: 30.202,
    limit is: 65.0
    2020-04-21T07:50:11.115Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "604562678",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T07:53:31Z"
            }
        ]
    }
    2020-04-21T07:50:41.316Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "604562678",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T07:50:41.332Z - INFO - Time interval between two heartbeat request messages is: 30.201,
    limit is: 65.0
    2020-04-21T07:50:41.332Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "604562678",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T07:54:01Z"
            }
        ]
    }
    2020-04-21T07:51:11.535Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
```

```
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "604562678",
                "operationState": "AUTHORIZED"
            }
        ]
    }
```


2020-04-21T07:51:11.535Z - INFO - Time interval between two heartbeat request messages is: 30.218, limit is: 65.0

2020-04-21T07:51:11.535Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "604562678",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T07:54:31Z"
        }
    ]
}
```


2020-04-21T07:51:41.704Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "604562678",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T07:51:41.704Z - INFO - Time interval between two heartbeat request messages is: 30.17, limit is: 65.0

2020-04-21T07:51:41.720Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "604562678",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T07:55:01Z"
        }
    ]
}
```


2020-04-21T07:52:11.921Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "604562678",
            "operationState": "AUTHORIZED"
        }
    ]
```

}
2020-04-21T07:52:11.921Z - INFO - Time interval between two heartbeat request messages is: 30.217, limit is: 65.0
2020-04-21T07:52:11.937Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "604562678",
"response": {
"responseCode": 500
},
"transmitExpireTime": "2020-04-21T07:52:11Z"
}
]
}
2020-04-21T07:52:13.186Z - INFO - arrived to nstep starting question answer session with the technician
2020-04-21T07:52:13.186Z - INFO - the question is : Did the CBSD1 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? please choose one of the answers :
2020-04-21T07:52:27.460Z - INFO - for the question : Did the CBSD1 stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 500? , the user choose y
2020-04-21T07:52:45.447Z - INFO - The final result of the test : WINNF.FT.C.HBT.4 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T07:52:13.

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


```
2020-04-21T07:56:07.125Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T07:56:07.125Z - INFO - the selected test from the user : WINNF.FT.C.HBT.5 is starting now
2020-04-21T07:57:22.816Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-21T07:57:22.910Z - INFO - Registration message contains cpiSignatureData
2020-04-21T07:57:22.910Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T07:57:22.910Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T07:57:22.910Z - INFO - verified signature on cpiSignatureData
    2020-04-21T07:57:22.910Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T07:57:22.910Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:57:23.221Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T07:57:23.237Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:57:23.378Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T07:57:23.394Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T07:57:23Z",
                "grantId": "679749308",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:57:53.627Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "679749308",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T07:57:53.627Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "679749308",
                "response": {
                    "responseCode": 501
                },
```

```
                "transmitExpireTime": "2020-04-21T07:57:53Z"
            }
        ]
    }
2020-04-21T07:58:23.858Z - INFO - heartbeat request from CBRS    : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "679749308",
            "operationState": "GRANTED"
        }
    ]
}
```


2020-04-21T07:58:23.858Z - INFO - Time interval between two heartbeat request messages is: 30.232, limit is: 65.0


```
2020-04-21T07:58:23.875Z - INFO - engine sent successfully, the response to CBRS    : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "679749308",
            "response": {
                "responseCode": 501
            },
            "transmitExpireTime": "2020-04-21T07:58:23Z"
        }
    ]
}
```


2020-04-21T07:58:25.029Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T07:58:25.029Z - INFO - the question is : Did the CBSD transmit at any time during the test? please choose one of the answers :

2020-04-21T07:58:30.801Z - INFO - for the question : Did the CBSD transmit at any time during the test? , the user choose n

2020-04-21T07:58:33.312Z - 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


```
2020-04-21T07:59:37.132Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T07:59:37.132Z - INFO - the selected test from the user : WINNF.FT.C.HBT.6 is starting now
2020-04-21T07:59:53.378Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-21T07:59:53.471Z - INFO - Registration message contains cpiSignatureData
2020-04-21T07:59:53.471Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T07:59:53.471Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T07:59:53.471Z - INFO - verified signature on cpiSignatureData
    2020-04-21T07:59:53.471Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T07:59:53.471Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:59:53.783Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T07:59:53.783Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T07:59:53.940Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T07:59:53.940Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T07:59:53Z",
                "grantId": "590146643",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:00:24.173Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "590146643",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T08:00:24.187Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "590146643",
                "response": {
                    "responseCode": 0
                },
```

```
                "transmitExpireTime": "2020-04-21T08:03:44Z"
            }
        ]
    }
    2020-04-21T08:00:54.390Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "590146643",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:00:54.390Z - INFO - Time interval between two heartbeat request messages is: 30.217,
    limit is: 65.0
    2020-04-21T08:00:54.390Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "590146643",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T08:04:14Z"
            }
        ]
    }
    2020-04-21T08:01:24.575Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "590146643",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:01:24.575Z - INFO - Time interval between two heartbeat request messages is: 30.186,
    limit is: 65.0
    2020-04-21T08:01:24.592Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "590146643",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T08:04:44Z"
            }
        ]
    }
    2020-04-21T08:01:54.792Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
```

```
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "590146643",
                "operationState": "AUTHORIZED"
            }
        ]
    }
```


2020-04-21T08:01:54.792Z - INFO - Time interval between two heartbeat request messages is: 30.217, limit is: 65.0

2020-04-21T08:01:54.809Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "590146643",
            "response": {
                "responseCode": 501
            },
            "transmitExpireTime": "2020-04-21T08:01:54Z"
        }
    ]
}
```


2020-04-21T08:02:25.306Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "590146643",
            "operationState": "GRANTED"
        }
    ]
}
```


2020-04-21T08:02:25.306Z - INFO - Time interval between two heartbeat request messages is: 30.514, limit is: 65.0

2020-04-21T08:02:25.306Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "590146643",
            "response": {
                "responseCode": 501
            },
            "transmitExpireTime": "2020-04-21T08:02:25Z"
        }
    ]
}
```


2020-04-21T08:02:26.446Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T08:02:26.446Z - INFO - the question is : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 501? please choose one of the answers :

2020-04-21T08:02:47.927Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 501? , the user choose y

2020-04-21T08:02:50.984Z - INFO - The final result of the test : WINNF.FT.C.HBT.6 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T08:01:56.

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

2020-04-21T08:03:29.516Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T08:03:29.516Z - INFO - the selected test from the user : WINNF.FT.C.HBT.7 is starting now
2020-04-21T08:06:45.288Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T08:06:45.677Z - INFO - Registration message contains cpiSignatureData
2020-04-21T08:06:45.677Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T08:06:45.677Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T08:06:45.677Z - INFO - verified signature on cpiSignatureData
    2020-04-21T08:06:45.677Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T08:06:45.677Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:06:45.927Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T08:06:45.943Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:06:46.177Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T08:06:46.191Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T08:06:46Z",
                "grantId": "742653472",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:07:16.410Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "742653472",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T08:07:16.424Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "742653472",
                "response": {
                    "responseCode": 0
                },
```

```
                "transmitExpireTime": "2020-04-21T08:10:36Z"
            }
        ]
    }
    2020-04-21T08:07:46.627Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "742653472",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:07:46.627Z - INFO - Time interval between two heartbeat request messages is: 30.217,
    limit is: 65.0
    2020-04-21T08:07:46.641Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "742653472",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T08:11:06Z"
            }
        ]
    }
    2020-04-21T08:08:16.812Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "742653472",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:08:16.812Z - INFO - Time interval between two heartbeat request messages is: 30.186,
    limit is: 65.0
    2020-04-21T08:08:16.812Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "742653472",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T08:11:36Z"
            }
        ]
    }
    2020-04-21T08:08:47.015Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
```

```
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "742653472",
                "operationState": "AUTHORIZED"
            }
        ]
    }
```


2020-04-21T08:08:47.015Z - INFO - Time interval between two heartbeat request messages is: 30.202, limit is: 65.0

2020-04-21T08:08:47.029Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "742653472",
            "response": {
                "responseCode": 502
            },
            "transmitExpireTime": "2020-04-21T08:08:47Z"
        }
    ]
}
```


2020-04-21T08:08:47.513Z - INFO - relinquishment request from CBRS : {


```
    "relinquishmentRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "742653472"
        }
    ]
}
```


2020-04-21T08:08:47.561Z - INFO - engine sent successfully, the response to CBRS : {


```
    "relinquishmentResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "742653472",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
```


2020-04-21T08:08:48.901Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T08:08:48.901Z - INFO - the question is : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 502? please choose one of the answers :

2020-04-21T08:09:48.042Z - INFO - for the question : Did the CBSD stop RF transmission within 60 seconds of receiving Heartbeat response with responseCode = 502? , the user choose y

2020-04-21T08:09:53.549Z - INFO - The final result of the test : WINNF.FT.C.HBT.7 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T08:08:47.3.

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


```
2020-04-21T08:35:26.726Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T08:35:26.726Z - INFO - the selected test from the user : WINNF.FT.C.HBT.9 is starting now
2020-04-21T08:36:32.138Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-21T08:36:32.184Z - INFO - Registration message contains cpiSignatureData
2020-04-21T08:36:32.184Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T08:36:32.184Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T08:36:32.184Z - INFO - verified signature on cpiSignatureData
    2020-04-21T08:36:32.200Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T08:36:32.200Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:36:32.466Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T08:36:32.466Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:36:32.621Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T08:36:32.638Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T08:36:32Z",
                "grantId": "264397688",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:37:02.869Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264397688",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T08:37:28.141Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264397688",
                "operationState": "GRANTED"
            }
        ]
```

}
2020-04-21T08:37:28.141Z - INFO - request message received while HBT is absent, sleep 179 sec before responding
2020-04-21T08:37:53.257Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "264397688",
"operationState": "GRANTED"
}
]
}
2020-04-21T08:37:53.257Z - INFO - request message received while HBT is absent, sleep 154 sec before responding
2020-04-21T08:38:18.296Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "264397688",
"operationState": "GRANTED"
}
]
}
2020-04-21T08:38:18.296Z - INFO - request message received while HBT is absent, sleep 129 sec before responding
2020-04-21T08:38:43.335Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "264397688",
"operationState": "GRANTED"
}
]
}
2020-04-21T08:38:43.335Z - INFO - request message received while HBT is absent, sleep 104 sec before responding
2020-04-21T08:39:08.466Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "264397688",
"operationState": "GRANTED"
}
]
}
2020-04-21T08:39:08.466Z - INFO - request message received while HBT is absent, sleep 79 sec before responding
2020-04-21T08:39:33.503Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "264397688",

```
                "operationState": "GRANTED"
            }
        ]
    }
```


2020-04-21T08:39:33.503Z - INFO - request message received while HBT is absent, sleep 54 sec before responding

2020-04-21T08:39:58.619Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "264397688",
            "operationState": "GRANTED"
        }
    ]
}
```


2020-04-21T08:39:58.619Z - INFO - request message received while HBT is absent, sleep 29 sec before responding

2020-04-21T08:40:22.878Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "264397688",
            "response": {
                "responseCode": 501
            },
            "transmitExpireTime": "2020-04-21T08:40:22Z"
        }
    ]
}
```


2020-04-21T08:40:24.844Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T08:40:24.844Z - INFO - the question is : Were there RF transmissions from the CBSD during the test? please choose one of the answers :

2020-04-21T08:40:27.153Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2020-04-21T08:40:27.262Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2020-04-21T08:40:27.309Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2020-04-21T08:40:27.339Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2020-04-21T08:40:27.480Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2020-04-21T08:40:27.512Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2020-04-21T08:40:27.621Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"

2020-04-21T08:41:41.174Z - INFO - for the question : Were there RF transmissions from the CBSD during the test? , the user choose n

2020-04-21T08:41:42.500Z - 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

2020-04-21T08:26:13.167Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T08:26:13.167Z - INFO - the selected test from the user : WINNF.FT.C.HBT.10 is starting now
2020-04-21T08:27:29.188Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T08:27:29.236Z - INFO - Registration message contains cpiSignatureData
2020-04-21T08:27:29.236Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T08:27:29.236Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T08:27:29.236Z - INFO - verified signature on cpiSignatureData
    2020-04-21T08:27:29.250Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T08:27:29.250Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:27:29.516Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T08:27:29.516Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:27:29.673Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T08:27:29.673Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T08:27:29Z",
                "grantId": "975371556",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:27:59.904Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "975371556",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T08:27:59.921Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "975371556",
                "response": {
                    "responseCode": 0
```

```
                },
                "transmitExpireTime": "2020-04-21T08:31:19Z"
            }
        ]
    }
    2020-04-21T08:28:30.154Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "975371556",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:28:30.154Z - INFO - Time interval between two heartbeat request messages is: 30.249,
    limit is: 65.0
    2020-04-21T08:28:30.154Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "975371556",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T08:31:50Z"
            }
        ]
    }
    2020-04-21T08:29:00.355Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "975371556",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:29:00.355Z - INFO - Time interval between two heartbeat request messages is: 30.202,
    limit is: 65.0
    2020-04-21T08:29:00.355Z - INFO - LAST HBT RESPONSE THAT SET TRANSMIT_EXPIRE_TIME
    WAS AT:    2020-04-21 08:28:30.154000
    2020-04-21T08:29:25.706Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "975371556",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:29:25.706Z - INFO - request message received while HBT is absent, sleep 179 sec
    before responding
```

2020-04-21T08:29:50.750Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "975371556",
"operationState": "AUTHORIZED"
}
]
}
2020-04-21T08:29:50.750Z - INFO - request message received while HBT is absent, sleep 154 sec before responding
2020-04-21T08:30:15.788Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "975371556",
"operationState": "AUTHORIZED"
}
]
}
2020-04-21T08:30:15.788Z - INFO - request message received while HBT is absent, sleep 129 sec before responding
2020-04-21T08:30:40.763Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "975371556",
"operationState": "AUTHORIZED"
}
]
}
2020-04-21T08:30:40.763Z - INFO - request message received while HBT is absent, sleep 104 sec before responding
2020-04-21T08:31:05.755Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "975371556",
"operationState": "AUTHORIZED"
}
]
}
2020-04-21T08:31:05.755Z - INFO - request message received while HBT is absent, sleep 79 sec before responding
2020-04-21T08:31:30.871Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "975371556",
"operationState": "GRANTED"
}
]

}
2020-04-21T08:31:30.871Z - INFO - request message received while HBT is absent, sleep 54 sec before responding
2020-04-21T08:31:55.908Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "975371556",
"operationState": "GRANTED"
}
]
}
2020-04-21T08:31:55.908Z - INFO - request message received while HBT is absent, sleep 29 sec before responding
2020-04-21T08:32:20.368Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "975371556",
"response": {
"responseCode": 501
},
"transmitExpireTime": "2020-04-21T08:32:20Z"
}
]
}
2020-04-21T08:32:22.240Z - INFO - arrived to nstep starting question answer session with the technician
2020-04-21T08:32:22.240Z - INFO - the question is : Did the CBSD stop RF transmissions within (transmitExpireTime + 60seconds) of last valid heartbeat response? please choose one of the answers :
2020-04-21T08:32:24.706Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"
2020-04-21T08:32:24.753Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"
2020-04-21T08:32:24.769Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"
2020-04-21T08:32:24.769Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"
2020-04-21T08:32:24.799Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"
2020-04-21T08:32:24.878Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"
2020-04-21T08:32:24.908Z - INFO - engine sent successfully, the response to CBRS : "list index out of range"
2020-04-21T08:33:19.602Z - INFO - for the question : Did the CBSD stop RF transmissions within (transmitExpireTime + 60seconds) of last valid heartbeat response? , the user choose y
2020-04-21T08:33:33.767Z - INFO - The final result of the test : WINNF.FT.C.HBT.10 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T08:31:29.

Test Log for WINNF.FT.C.HBT.11 Test Case ID

2020-04-21T08:10:10.163Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T08:10:10.177Z - INFO - the selected test from the user : WINNF.FT.C.HBT.11 is starting now
2020-04-21T08:11:22.812Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T08:11:22.858Z - INFO - Registration message contains cpiSignatureData
2020-04-21T08:11:22.858Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T08:11:22.858Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T08:11:22.858Z - INFO - verified signature on cpiSignatureData
    2020-04-21T08:11:22.858Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T08:11:22.858Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:11:23.124Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T08:11:23.140Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:11:23.296Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T08:11:23.296Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-21T08:17:23Z",
                "grantId": "635522846",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T08:11:53.529Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "635522846",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T08:11:53.529Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "635522846",
                "response": {
                    "responseCode": 0
```

```
                },
                "transmitExpireTime": "2020-04-21T08:15:13Z"
            }
        ]
    }
    2020-04-21T08:12:23.746Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "635522846",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:12:23.746Z - INFO - Time interval between two heartbeat request messages is: 30.217,
    limit is: 65.0
    2020-04-21T08:12:23.760Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "635522846",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T08:15:43Z"
            }
        ]
    }
    2020-04-21T08:12:53.931Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "635522846",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T08:12:53.931Z - INFO - Time interval between two heartbeat request messages is: 30.186,
    limit is: 65.0
    2020-04-21T08:12:53.931Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "635522846",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T08:16:13Z"
            }
        ]
    }
    2020-04-21T08:13:24.148Z - INFO - heartbeat request from CBRS    : {
```

```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "635522846",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T08:13:24.148Z - INFO - Time interval between two heartbeat request messages is: 30.217, limit is: 65.0

2020-04-21T08:13:24.148Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "635522846",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T08:16:44Z"
        }
    ]
}
```


2020-04-21T08:13:54.381Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "635522846",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T08:13:54.381Z - INFO - Time interval between two heartbeat request messages is: 30.233, limit is: 65.0

2020-04-21T08:13:54.398Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "635522846",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T08:17:14Z"
        }
    ]
}
```


2020-04-21T08:14:24.630Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "635522846",
            "grantRenew": true,
            "operationState": "AUTHORIZED"
```

```
            }
        ]
    }
```


2020-04-21T08:14:24.630Z - INFO - Time interval between two heartbeat request messages is: 30.248, limit is: 65.0

2020-04-21T08:14:24.630Z - INFO - grantRenew received in HBT request message

2020-04-21T08:14:24.630Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantExpireTime": "2020-04-21T08:20:24Z",
            "grantId": "635522846",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T08:17:44Z"
        }
    ]
}
```


2020-04-21T08:14:54.862Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "635522846",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T08:14:54.862Z - INFO - Time interval between two heartbeat request messages is: 30.233, limit is: 65.0

2020-04-21T08:14:54.878Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "635522846",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T08:18:14Z"
        }
    ]
}
```


2020-04-21T08:14:56.127Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T08:14:56.127Z - INFO - the question is : Did the CBSD renew its grant successfully? please choose one of the answers :

2020-04-21T08:18:25.042Z - INFO - for the question : Did the CBSD renew its grant successfully? , the user choose y

2020-04-21T08:18:26.384Z - INFO - The final result of the test : WINNF.FT.C.HBT.11 is – passed

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

2020-04-21T08:59:31.676Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T08:59:31.676Z - INFO - the selected test from the user : WINNF.FT.C.MES.3 is starting now
2020-04-21T09:00:32.355Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T09:00:32.450Z - INFO - Registration message contains cpiSignatureData
2020-04-21T09:00:32.450Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T09:00:32.450Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T09:00:32.450Z - INFO - verified signature on cpiSignatureData
    2020-04-21T09:00:32.466Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T09:00:32.466Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:00:32.762Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T09:00:32.762Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:00:32.917Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T09:00:32.934Z - INFO - Response message contains measReportConfig
    2020-04-21T09:00:32.934Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T09:00:32Z",
                "grantId": "833964191",
                "heartbeatInterval": 60,
                "measReportConfig": [
                    "RECEIVED_POWER_WITH_GRANT"
                ],
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:01:03.163Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "833964191",
                "measReport": {
                    "rcvdPowerMeasReports": [
                        {
                            "measBandwidth": 10000000,
                            "measFrequency": 3550000000,
                            "measRcvdPower": -60
                        },
```

```
                    {
                        "measBandwidth": 10000000,
                        "measFrequency": 3560000000,
                        "measRcvdPower": -60
                    }
                ]
            },
            "operationState": "GRANTED"
        }
    ]
}
2020-04-21T09:01:03.163Z - INFO - measReport received in heartbeat message
2020-04-21T09:01:03.178Z - INFO - engine sent successfully, the response to CBRS   : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:04:23Z"
        }
    ]
}
2020-04-21T09:01:33.395Z - INFO - heartbeat request from CBRS   : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
            "operationState": "AUTHORIZED"
        }
    ]
}
2020-04-21T09:01:33.395Z - INFO - Time interval between two heartbeat request messages is: 30.233,
limit is: 65.0
2020-04-21T09:01:33.411Z - INFO - engine sent successfully, the response to CBRS   : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:04:53Z"
        }
    ]
}
2020-04-21T09:02:03.644Z - INFO - heartbeat request from CBRS   : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
```

```
                "operationState": "AUTHORIZED"
            }
        ]
    }
```


2020-04-21T09:02:03.644Z - INFO - Time interval between two heartbeat request messages is: 30.249, limit is: 65.0

2020-04-21T09:02:03.644Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:05:23Z"
        }
    ]
}
```


2020-04-21T09:02:33.836Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T09:02:33.852Z - INFO - Time interval between two heartbeat request messages is: 30.192, limit is: 65.0

2020-04-21T09:02:33.852Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:05:53Z"
        }
    ]
}
```


2020-04-21T09:03:04.101Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T09:03:04.101Z - INFO - Time interval between two heartbeat request messages is: 30.264, limit is: 65.0

2020-04-21T09:03:04.101Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "833964191",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:06:24Z"
        }
    ]
}
```


2020-04-21T09:03:05.568Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T09:03:23.803Z - INFO - The final result of the test : WINNF.FT.C.MES.3 is – passed

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

2020-04-21T09:05:38.315Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T09:05:38.315Z - INFO - the selected test from the user : WINNF.FT.C.MES.4 is starting now
2020-04-21T09:07:00.513Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T09:07:00.559Z - INFO - Registration message contains cpiSignatureData
2020-04-21T09:07:00.559Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T09:07:00.559Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T09:07:00.605Z - INFO - verified signature on cpiSignatureData
    2020-04-21T09:07:00.621Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T09:07:00.621Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:07:00.917Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T09:07:00.917Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:07:01.073Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T09:07:01.073Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T09:07:01Z",
                "grantId": "822041904",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:07:31.306Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T09:07:31.322Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "response": {
                    "responseCode": 0
```

```
                },
                "transmitExpireTime": "2020-04-21T09:10:51Z"
            }
        ]
    }
    2020-04-21T09:08:01.555Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:08:01.555Z - INFO - Time interval between two heartbeat request messages is: 30.249,
    limit is: 65.0
    2020-04-21T09:08:01.555Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:11:21Z"
            }
        ]
    }
    2020-04-21T09:08:31.790Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:08:31.790Z - INFO - Time interval between two heartbeat request messages is: 30.235,
    limit is: 65.0
    2020-04-21T09:08:31.806Z - INFO - Response message contains measReportConfig
    2020-04-21T09:08:31.806Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "measReportConfig": [
                    "RECEIVED_POWER_WITH_GRANT"
                ],
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:11:51Z"
```

```
            }
        ]
    }
    2020-04-21T09:09:01.993Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "measReport": {
                    "rcvdPowerMeasReports": [
                        {
                            "measBandwidth": 10000000,
                            "measFrequency": 3550000000,
                            "measRcvdPower": -60
                        },
                        {
                            "measBandwidth": 10000000,
                            "measFrequency": 3560000000,
                            "measRcvdPower": -60
                        }
                    ]
                },
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:09:01.993Z - INFO - Time interval between two heartbeat request messages is: 30.202,
    limit is: 65.0
    2020-04-21T09:09:02.007Z - INFO - measReport received in heartbeat message
    2020-04-21T09:09:02.007Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:12:22Z"
            }
        ]
    }
    2020-04-21T09:09:32.194Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "822041904",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:09:32.194Z - INFO - Time interval between two heartbeat request messages is: 30.201,
    limit is: 65.0
```

2020-04-21T09:09:32.194Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "822041904",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-04-21T09:12:52Z"
}
]
}
2020-04-21T09:10:02.411Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "822041904",
"operationState": "AUTHORIZED"
}
]
}
2020-04-21T09:10:02.411Z - INFO - Time interval between two heartbeat request messages is: 30.217, limit is: 65.0
2020-04-21T09:10:02.427Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "822041904",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-04-21T09:13:22Z"
}
]
}
2020-04-21T09:10:32.612Z - INFO - heartbeat request from CBRS : {
"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "822041904",
"operationState": "AUTHORIZED"
}
]
}
2020-04-21T09:10:32.612Z - INFO - Time interval between two heartbeat request messages is: 30.202, limit is: 65.0
2020-04-21T09:10:32.628Z - INFO - engine sent successfully, the response to CBRS : {
"heartbeatResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "822041904",
"response": {

```
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:13:52Z"
        }
    ]
}
```


2020-04-21T09:11:02.815Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "822041904",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T09:11:02.829Z - INFO - Time interval between two heartbeat request messages is: 30.202, limit is: 65.0

2020-04-21T09:11:02.829Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "822041904",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:14:22Z"
        }
    ]
}
```


2020-04-21T09:11:04.779Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T09:11:08.664Z - INFO - The final result of the test : WINNF.FT.C.MES.4 is – passed

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


```
2020-04-21T09:11:42.095Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T09:11:42.095Z - INFO - the selected test from the user : WINNF.FT.C.RLQ.1 is starting now
2020-04-21T09:12:53.622Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-21T09:12:53.670Z - INFO - Registration message contains cpiSignatureData
2020-04-21T09:12:53.670Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T09:12:53.670Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T09:12:53.670Z - INFO - verified signature on cpiSignatureData
    2020-04-21T09:12:53.670Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T09:12:53.670Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:12:53.950Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T09:12:53.966Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:12:54.105Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T09:12:54.121Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T09:12:54Z",
                "grantId": "799450948",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:13:24.355Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "799450948",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T09:13:24.355Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "799450948",
                "response": {
                    "responseCode": 0
                },
```

```
                "transmitExpireTime": "2020-04-21T09:16:44Z"
            }
        ]
    }
    2020-04-21T09:13:54.555Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "799450948",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:13:54.555Z - INFO - Time interval between two heartbeat request messages is: 30.201,
    limit is: 65.0
    2020-04-21T09:13:54.555Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "799450948",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:17:14Z"
            }
        ]
    }
    2020-04-21T09:14:10.826Z - INFO - relinquishment request from CBRS    : {
        "relinquishmentRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "799450948"
            }
        ]
    }
    2020-04-21T09:14:10.842Z - INFO - engine sent successfully, the response to CBRS    : {
        "relinquishmentResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "799450948",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:14:12.168Z - INFO - arrived to nstep starting question answer session with the
    technician
    2020-04-21T09:14:12.168Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt
    of Relinquishment Request by Test Harness? please choose one of the answers :
    2020-04-21T09:14:28.813Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt
    of Relinquishment Request by Test Harness? , the user choose y
```

2020-04-21T09:14:57.174Z - INFO - The final result of the test : WINNF.FT.C.RLQ.1 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T09:14:10.

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


```
2020-04-21T09:18:22.595Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T09:18:22.595Z - INFO - the selected test from the user : WINNF.FT.C.RLQ.3 is starting now
2020-04-21T09:18:27.868Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-21T09:18:27.930Z - INFO - Registration message contains cpiSignatureData
2020-04-21T09:18:27.930Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T09:18:27.930Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
        "height": 3,
```

```
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T09:18:27.930Z - INFO - verified signature on cpiSignatureData
    2020-04-21T09:18:27.947Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T09:18:27.947Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:18:28.180Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T09:18:28.197Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
                ],
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:18:28.352Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T09:18:28.352Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T09:18:28Z",
                "grantId": "731111948",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:18:58.585Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "731111948",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T09:18:58.585Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "731111948",
                "response": {
                    "responseCode": 0
                },
```

```
                "transmitExpireTime": "2020-04-21T09:22:18Z"
            }
        ]
    }
    2020-04-21T09:19:28.802Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "731111948",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:19:28.802Z - INFO - Time interval between two heartbeat request messages is: 30.218,
    limit is: 65.0
    2020-04-21T09:19:28.818Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "731111948",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:22:48Z"
            }
        ]
    }
    2020-04-21T09:19:54.994Z - INFO - relinquishment request from CBRS    : {
        "relinquishmentRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "731111948"
            }
        ]
    }
    2020-04-21T09:19:54.994Z - INFO - engine sent successfully, the response to CBRS    : {
        "relinquishmentResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 102,
                    "responseData": [
                        "grantId"
                    ]
                }
            }
        ]
    }
    2020-04-21T09:19:56.898Z - INFO - arrived to nstep starting question answer session with the
    technician
    2020-04-21T09:19:56.898Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt
    of Relinquishment Request by Test Harness? please choose one of the answers :
```

2020-04-21T09:20:01.203Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y

2020-04-21T09:20:32.295Z - INFO - The final result of the test : WINNF.FT.C.RLQ.3 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T09:19:54.

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


```
2020-04-21T09:21:27.082Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T09:21:27.082Z - INFO - the selected test from the user : WINNF.FT.C.RLQ.5 is starting now
2020-04-21T09:22:51.540Z - INFO - registration request from CBRS    : {
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
2020-04-21T09:22:51.914Z - INFO - Registration message contains cpiSignatureData
2020-04-21T09:22:51.914Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T09:22:51.914Z - INFO - encodedCpiSignedData contents = {
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T09:22:51.914Z - INFO - verified signature on cpiSignatureData
    2020-04-21T09:22:51.930Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T09:22:51.930Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:22:52.180Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T09:22:52.196Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:22:52.335Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T09:22:52.351Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T09:22:52Z",
                "grantId": "728313205",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:23:22.585Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "728313205",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T09:23:22.585Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "728313205",
                "response": {
                    "responseCode": 0
```

```
                },
                "transmitExpireTime": "2020-04-21T09:26:42Z"
            }
        ]
    }
    2020-04-21T09:23:52.818Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "728313205",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:23:52.818Z - INFO - Time interval between two heartbeat request messages is: 30.233,
    limit is: 65.0
    2020-04-21T09:23:52.832Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "728313205",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:27:12Z"
            }
        ]
    }
    2020-04-21T09:24:23.112Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "728313205",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:24:23.128Z - INFO - Time interval between two heartbeat request messages is: 30.295,
    limit is: 65.0
    2020-04-21T09:24:23.128Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "728313205",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:27:43Z"
            }
        ]
    }
    2020-04-21T09:24:53.377Z - INFO - heartbeat request from CBRS    : {
```

```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "728313205",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T09:24:53.377Z - INFO - Time interval between two heartbeat request messages is: 30.264, limit is: 65.0

2020-04-21T09:24:53.391Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "728313205",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:28:13Z"
        }
    ]
}
```


2020-04-21T09:24:59.305Z - INFO - relinquishment request from CBRS : {


```
    "relinquishmentRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "728313205"
        }
    ]
}
```


2020-04-21T09:24:59.305Z - INFO - engine sent successfully, the response to CBRS : {


```
    "relinquishmentResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
                "responseCode": 103,
                "responseData": [
                    "grantId"
                ]
            }
        }
    ]
}
```


2020-04-21T09:25:01.036Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T09:25:01.036Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? please choose one of the answers :

2020-04-21T09:25:19.756Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment Request by Test Harness? , the user choose y

2020-04-21T09:25:23.671Z - INFO - The final result of the test : WINNF.FT.C.RLQ.5 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T09:24:59.

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

2020-04-21T09:26:24.496Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T09:26:24.496Z - INFO - the selected test from the user : WINNF.FT.C.DRG.1 is starting now
2020-04-21T09:26:59.861Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T09:26:59.892Z - INFO - Registration message contains cpiSignatureData
2020-04-21T09:26:59.892Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T09:26:59.892Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T09:26:59.892Z - INFO - verified signature on cpiSignatureData
    2020-04-21T09:26:59.892Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T09:26:59.908Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:27:00.174Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T09:27:00.188Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:27:00.329Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T09:27:00.345Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T09:27:00Z",
                "grantId": "151052527",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:27:30.578Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "151052527",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T09:27:30.578Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "151052527",
                "response": {
                    "responseCode": 0
```

```
                },
                "transmitExpireTime": "2020-04-21T09:30:50Z"
            }
        ]
    }
    2020-04-21T09:28:00.811Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "151052527",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:28:00.811Z - INFO - Time interval between two heartbeat request messages is: 30.233,
    limit is: 65.0
    2020-04-21T09:28:00.826Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "151052527",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:31:20Z"
            }
        ]
    }
    2020-04-21T09:28:31.013Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "151052527",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:28:31.028Z - INFO - Time interval between two heartbeat request messages is: 30.202,
    limit is: 65.0
    2020-04-21T09:28:31.028Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "151052527",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:31:51Z"
            }
        ]
    }
    2020-04-21T09:29:01.260Z - INFO - heartbeat request from CBRS    : {
```

"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "151052527",
"operationState": "AUTHORIZED"
}
]
}

2020-04-21T09:29:01.260Z - INFO - Time interval between two heartbeat request messages is: 30.248, limit is: 65.0

2020-04-21T09:29:01.260Z - INFO - engine sent successfully, the response to CBRS : {

"heartbeatResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "151052527",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-04-21T09:32:21Z"
}
]
}

2020-04-21T09:29:31.680Z - INFO - heartbeat request from CBRS : {

"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "151052527",
"operationState": "AUTHORIZED"
}
]
}

2020-04-21T09:29:31.680Z - INFO - Time interval between two heartbeat request messages is: 30.42, limit is: 65.0

2020-04-21T09:29:31.680Z - INFO - engine sent successfully, the response to CBRS : {

"heartbeatResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "151052527",
"response": {
"responseCode": 0
},
"transmitExpireTime": "2020-04-21T09:32:51Z"
}
]
}

2020-04-21T09:30:01.882Z - INFO - heartbeat request from CBRS : {

"heartbeatRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "151052527",
"operationState": "AUTHORIZED"
}

```
    ]
}
2020-04-21T09:30:01.882Z - INFO - Time interval between two heartbeat request messages is: 30.202, limit is: 65.0
2020-04-21T09:30:01.882Z - INFO - engine sent successfully, the response to CBRS    : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "151052527",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:33:21Z"
        }
    ]
}
2020-04-21T09:30:32.052Z - INFO - heartbeat request from CBRS    : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "151052527",
            "operationState": "AUTHORIZED"
        }
    ]
}
2020-04-21T09:30:32.052Z - INFO - Time interval between two heartbeat request messages is: 30.17, limit is: 65.0
2020-04-21T09:30:32.069Z - INFO - engine sent successfully, the response to CBRS    : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "151052527",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:33:52Z"
        }
    ]
}
2020-04-21T09:30:35.220Z - INFO - relinquishment request from CBRS    : {
    "relinquishmentRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "151052527"
        }
    ]
}
2020-04-21T09:30:35.220Z - INFO - engine sent successfully, the response to CBRS    : {
    "relinquishmentResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "151052527",
```

```
                "response": {
                    "responseCode": 0
                }
            }
        ]
}
```


2020-04-21T09:30:35.532Z - INFO - deregistration request from CBRS : {


```
    "deregistrationRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069"
        }
    ]
}
```


2020-04-21T09:30:35.548Z - INFO - engine sent successfully, the response to CBRS : {


```
    "deregistrationResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
```


2020-04-21T09:30:36.983Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T09:30:36.983Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :

2020-04-21T09:32:38.694Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y

2020-04-21T09:32:45.823Z - INFO - The final result of the test : WINNF.FT.C.DRG.1 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T09:30:35.

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

2020-04-21T09:34:50.108Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T09:34:50.108Z - INFO - the selected test from the user : WINNF.FT.C.DRG.3 is starting now
2020-04-21T09:35:01.762Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T09:35:01.809Z - INFO - Registration message contains cpiSignatureData
2020-04-21T09:35:01.809Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T09:35:01.809Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T09:35:01.809Z - INFO - verified signature on cpiSignatureData
    2020-04-21T09:35:01.809Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T09:35:01.809Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:35:02.089Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T09:35:02.089Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
                    }
```

```
                ],
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:35:02.339Z - INFO - grant request from CBRS    : {
        "grantRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "operationParam": {
                    "maxEirp": 37,
                    "operationFrequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                }
            }
        ]
    }
    2020-04-21T09:35:02.339Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-28T09:35:02Z",
                "grantId": "725988189",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:35:32.572Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "725988189",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-21T09:35:32.572Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "725988189",
                "response": {
                    "responseCode": 0
```

```
                },
                "transmitExpireTime": "2020-04-21T09:38:52Z"
            }
        ]
    }
    2020-04-21T09:36:02.805Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "725988189",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:36:02.805Z - INFO - Time interval between two heartbeat request messages is: 30.233,
    limit is: 65.0
    2020-04-21T09:36:02.821Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "725988189",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:39:22Z"
            }
        ]
    }
    2020-04-21T09:36:33.053Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "725988189",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-21T09:36:33.053Z - INFO - Time interval between two heartbeat request messages is: 30.249,
    limit is: 65.0
    2020-04-21T09:36:33.053Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "725988189",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-21T09:39:53Z"
            }
        ]
    }
    2020-04-21T09:37:03.286Z - INFO - heartbeat request from CBRS    : {
```

```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "725988189",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T09:37:03.286Z - INFO - Time interval between two heartbeat request messages is: 30.233, limit is: 65.0

2020-04-21T09:37:03.286Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "725988189",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:40:23Z"
        }
    ]
}
```


2020-04-21T09:37:33.487Z - INFO - heartbeat request from CBRS : {


```
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "725988189",
            "operationState": "AUTHORIZED"
        }
    ]
}
```


2020-04-21T09:37:33.487Z - INFO - Time interval between two heartbeat request messages is: 30.201, limit is: 65.0

2020-04-21T09:37:33.503Z - INFO - engine sent successfully, the response to CBRS : {


```
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "725988189",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:40:53Z"
        }
    ]
}
```


2020-04-21T09:37:54.563Z - INFO - relinquishment request from CBRS : {


```
    "relinquishmentRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "725988189"
        }
    ]
```

}
2020-04-21T09:37:54.578Z - INFO - engine sent successfully, the response to CBRS : {
"relinquishmentResponse": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
"grantId": "725988189",
"response": {
"responseCode": 0
}
}
]
}
2020-04-21T09:37:54.812Z - INFO - deregistration request from CBRS : {
"deregistrationRequest": [
{
"cbsdId": "2AVFNLCE122Mock-SAS1257019101000069"
}
]
}
2020-04-21T09:37:54.812Z - INFO - engine sent successfully, the response to CBRS : {
"deregistrationResponse": [
{
"response": {
"responseCode": 102
}
}
]
}
2020-04-21T09:37:56.684Z - INFO - arrived to nstep starting question answer session with the technician
2020-04-21T09:37:56.684Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :
2020-04-21T09:38:18.306Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y
2020-04-21T09:38:20.756Z - INFO - The final result of the test : WINNF.FT.C.DRG.3 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T09:37:54.

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

2020-04-21T09:39:47.835Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T09:39:47.835Z - INFO - the selected test from the user : WINNF.FT.C.DRG.5 is starting now
2020-04-21T09:40:39.917Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T09:40:39.960Z - INFO - Registration message contains cpiSignatureData
2020-04-21T09:40:39.960Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T09:40:39.961Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
```

```
            "longitude": -122.01,
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T09:40:39.963Z - INFO - verified signature on cpiSignatureData
    2020-04-21T09:40:39.967Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T09:40:39.970Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T09:40:40.250Z - INFO - spectrumInquiry request from CBRS    : {
        "spectrumInquiryRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "inquiredSpectrum": [
                    {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    }
                ]
            }
        ]
    }
    2020-04-21T09:40:40.263Z - INFO - engine sent successfully, the response to CBRS    : {
        "spectrumInquiryResponse": [
            {
                "availableChannel": [
                    {
                        "channelType": "GAA",
                        "frequencyRange": {
                            "highFrequency": 3570000000,
                            "lowFrequency": 3550000000
                        },
                        "ruleApplied": "FCC_PART_96"
```

```
                }
            ],
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2020-04-21T09:40:40.411Z - INFO - grant request from CBRS    : {
    "grantRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "operationParam": {
                "maxEirp": 37,
                "operationFrequencyRange": {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            }
        }
    ]
}
2020-04-21T09:40:40.417Z - INFO - engine sent successfully, the response to CBRS    : {
    "grantResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "channelType": "GAA",
            "grantExpireTime": "2020-04-28T09:40:40Z",
            "grantId": "901074317",
            "heartbeatInterval": 60,
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2020-04-21T09:41:10.635Z - INFO - heartbeat request from CBRS    : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "901074317",
            "operationState": "GRANTED"
        }
    ]
}
2020-04-21T09:41:10.651Z - INFO - engine sent successfully, the response to CBRS    : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "901074317",
            "response": {
```

```
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:44:30Z"
        }
    ]
}
2020-04-21T09:41:40.888Z - INFO - heartbeat request from CBRS   : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "901074317",
            "operationState": "AUTHORIZED"
        }
    ]
}
2020-04-21T09:41:40.891Z - INFO - Time interval between two heartbeat request messages is: 30.254,
limit is: 65.0
2020-04-21T09:41:40.895Z - INFO - engine sent successfully, the response to CBRS   : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "901074317",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-21T09:45:00Z"
        }
    ]
}
2020-04-21T09:42:00.174Z - INFO - relinquishment request from CBRS   : {
    "relinquishmentRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "901074317"
        }
    ]
}
2020-04-21T09:42:00.178Z - INFO - engine sent successfully, the response to CBRS   : {
    "relinquishmentResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "901074317",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2020-04-21T09:42:00.414Z - INFO - deregistration request from CBRS   : {
    "deregistrationRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069"
```

```
            }
        ]
    }
```


2020-04-21T09:42:00.418Z - INFO - engine sent successfully, the response to CBRS : {


```
    "deregistrationResponse": [
        {
            "response": {
                "responseCode": 103,
                "responseData": [
                    "cbsdId"
                ]
            }
        }
    ]
}
```


2020-04-21T09:42:02.339Z - INFO - arrived to nstep starting question answer session with the technician

2020-04-21T09:42:02.341Z - INFO - the question is : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? please choose one of the answers :

2020-04-21T09:42:17.026Z - INFO - for the question : Did CBSD1 cease RF transmission before receipt of Relinquishment request (if sent) or Deregistration request at Test Harness? , the user choose y

2020-04-21T09:42:21.224Z - INFO - The final result of the test : WINNF.FT.C.DRG.5 is - passed and :the additional comments for the current test are : CBSD stops user traffic at T09:42:00.

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

2020-04-21T04:00:41.663Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-21T04:00:41.663Z - INFO - the selected test from the user : WINNF.FT.C.REG.1 is starting now
2020-04-21T04:01:58.966Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-21T04:01:58.996Z - INFO - Registration message contains cpiSignatureData
2020-04-21T04:01:58.996Z - INFO - protectedHeader = {u'alg': u'RS256', u'typ': u'JWT'}
2020-04-21T04:01:58.996Z - INFO - encodedCpiSignedData contents = {


```
    "installationParam": {
        "antennaAzimuth": 7,
        "heightType": "AGL",
        "longitude": -122.01,
```

```
            "height": 3,
            "indoorDeployment": false,
            "latitude": 37.41,
            "antennaDowntilt": 0,
            "antennaBeamwidth": 65,
            "antennaGain": 14
        },
        "fccId": "2AVFNLCE122",
        "professionalInstallerData": {
            "cpiName": "test01",
            "installCertificationTime": "2020-04-15T17:28:20Z",
            "cpiId": "001"
        },
        "cbsdSerialNumber": "1257019101000069"
    }
    2020-04-21T04:01:59.091Z - INFO - verified signature on cpiSignatureData
    2020-04-21T04:01:59.091Z - INFO - cpiSignatureData data successfully validated against jsonschema
    2020-04-21T04:01:59.105Z - INFO - engine sent successfully, the response to CBRS    : {
        "registrationResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-21T04:02:00.743Z - INFO - arrived to nstep starting question answer session with the technician
    2020-04-21T04:02:00.743Z - INFO - the question is : Were there RF transmissions from the CBSD1 during the test? please choose one of the answers :
    2020-04-21T04:03:23.996Z - INFO - for the question : Were there RF transmissions from the CBSD1 during the test? , the user choose n
2020-04-21T04:03:25.213Z - INFO - The final result of the test : WINNF.FT.C.REG.1 is – passed
```

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

2020-04-21T06:31:55.301Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13

2020-04-21T06:31:55.301Z - INFO - the selected test from the user : WINNF.FT.C.REG.1 is starting now

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

2020-04-22T03:23:17.266Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13

2020-04-22T03:23:17.266Z - INFO - the selected test from the user : WINNF.FT.C.REG.1 is starting now

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

2020-04-21T06:13:27.944Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13

2020-04-21T06:13:27.944Z - INFO - the selected test from the user : WINNF.FT.C.REG.1 is starting now

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

2020-04-21T06:15:30.029Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13

2020-04-21T06:15:30.029Z - INFO - the selected test from the user : WINNF.FT.C.REG.1 is starting now

Test Log for WINNF.PT.C.HBT Test Case ID_ BW20M_Grant maxEirp 1

2020-04-22T05:39:46.492Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T05:39:46.492Z - INFO - Selected spectrum frequency is {'lowFrequency': 3550000000L, 'highFrequency': 3570000000L}
2020-04-22T05:39:46.492Z - INFO - Granted Spectrum Max Eirp = 1dBm/MHz
2020-04-22T05:39:46.492Z - INFO - the selected test from the user : PowerMeasTest is starting now
2020-04-22T05:41:06.380Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T05:41:06.427Z - INFO - engine sent successfully, the response to CBRS : {


```
    "registrationResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
```

```
                "responseCode": 0
            }
        }
    ]
}
2020-04-22T05:41:06.691Z - INFO - spectrumInquiry request from CBRS    : {
    "spectrumInquiryRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            ]
        }
    ]
}
2020-04-22T05:41:06.707Z - INFO - The requested spectrum is in the range, SpectrumInquiry response
code is 0
2020-04-22T05:41:06.707Z - INFO - engine sent successfully, the response to CBRS    : {
    "spectrumInquiryResponse": [
        {
            "availableChannel": [
                {
                    "channelType": "GAA",
                    "frequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    },
                    "maxEirp": 1,
                    "ruleApplied": "FCC_PART_96"
                }
            ],
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2020-04-22T05:41:06.862Z - INFO - grant request from CBRS    : {
    "grantRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "operationParam": {
                "maxEirp": 1,
                "operationFrequencyRange": {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            }
```

```
            }
        ]
    }
    2020-04-22T05:41:06.862Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-29T05:41:06Z",
                "grantId": "264871038",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T05:41:37.127Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-22T05:41:37.127Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:44:57Z"
            }
        ]
    }
    2020-04-22T05:42:07.345Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T05:42:07.359Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
```

```
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:45:27Z"
            }
        ]
    }
    2020-04-22T05:42:37.640Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T05:42:37.640Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:45:57Z"
            }
        ]
    }
    2020-04-22T05:43:07.842Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T05:43:07.857Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:46:27Z"
            }
        ]
    }
    2020-04-22T05:43:38.042Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T05:43:38.042Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "264871038",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:46:58Z"
            }
        ]
}
```

Test Log for WINNF.PT.C.HBT Test Case ID_ BW20M_Grant maxEirp 19

2020-04-22T05:44:32.486Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T05:44:32.486Z - INFO - Selected spectrum frequency is {'lowFrequency': 3550000000L, 'highFrequency': 3570000000L}
2020-04-22T05:44:32.486Z - INFO - Granted Spectrum Max Eirp = 19dBm/MHz
2020-04-22T05:44:32.486Z - INFO - the selected test from the user : PowerMeasTest is starting now
2020-04-22T05:46:17.335Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T05:46:17.381Z - INFO - engine sent successfully, the response to CBRS : {


```
    "registrationResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
```

```
                "responseCode": 0
            }
        }
    ]
}
2020-04-22T05:46:17.647Z - INFO - spectrumInquiry request from CBRS    : {
    "spectrumInquiryRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            ]
        }
    ]
}
2020-04-22T05:46:17.663Z - INFO - The requested spectrum is in the range, SpectrumInquiry response
code is 0
2020-04-22T05:46:17.663Z - INFO - engine sent successfully, the response to CBRS    : {
    "spectrumInquiryResponse": [
        {
            "availableChannel": [
                {
                    "channelType": "GAA",
                    "frequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    },
                    "maxEirp": 19,
                    "ruleApplied": "FCC_PART_96"
                }
            ],
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2020-04-22T05:46:17.819Z - INFO - grant request from CBRS    : {
    "grantRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "operationParam": {
                "maxEirp": 19,
                "operationFrequencyRange": {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            }
```

```
            }
        ]
    }
    2020-04-22T05:46:17.819Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-29T05:46:17Z",
                "grantId": "353635463",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T05:46:48.052Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-22T05:46:48.066Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:50:08Z"
            }
        ]
    }
    2020-04-22T05:47:18.331Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T05:47:18.331Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
```

```
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:50:38Z"
            }
        ]
    }
    2020-04-22T05:47:48.502Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T05:47:48.502Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:51:08Z"
            }
        ]
    }
    2020-04-22T05:48:18.687Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T05:48:18.703Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:51:38Z"
            }
        ]
    }
    2020-04-22T05:48:48.936Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
```

```
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T05:48:48.936Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "353635463",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T05:52:08Z"
            }
        ]
}
```

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

2020-04-22T03:38:01.325Z - INFO - WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
2020-04-22T03:38:01.325Z - INFO - Selected spectrum frequency is {'lowFrequency': 3550000000L, 'highFrequency': 3570000000L}
2020-04-22T03:38:01.325Z - INFO - Granted Spectrum Max Eirp = 37dBm/MHz
2020-04-22T03:38:01.325Z - INFO - the selected test from the user : PowerMeasTest is starting now
2020-04-22T03:38:52.414Z - INFO - registration request from CBRS : {


```
    "registrationRequest": [
        {
            "airInterface": {
                "radioTechnology": "E_UTRA"
            },
            "callSign": "callSign123",
            "cbsdCategory": "B",
            "cbsdSerialNumber": "1257019101000069",
            "cpiSignatureData": {
                "digitalSignature":
"k0BGNShVCwRDFabEUMgdw4KParUUCRvGprGfTrvjSw6wCHrE24o9Hh13jWgXo3R8WAYIhy1gF3E
WziLeU9OWB3XuM-XSaw_LUGiIT13My6IbJ134wLXG2MhsrGaKUi27_TX3Al0LoNEaN8KcBcVUhDRB
C7WUJB84M9gidys6x6NGpZk59_t8zyklnTVvVUDRYJmzBQfl9wNM2oBr1piTOzP1ZV_hE-VFHynuO9
mwoTiOI0lEoRWCNyvl9HZqFCokGVsu07EcGeEf56bwrNM_yrPjylMXYU5Pj4vn8nXlh1S8dP2nY9jpg1
Uoo3G1nsmHJfQPqAtyw0YKHAtZLi0iBg",
                "encodedCpiSignedData":
"eyJjYnNkU2VyaWFsTnVtYmVyIjoiMTI1NzAxOTEwMTAwMDA2OSIsImZjY0lkIjoiMkFWRk5MQ0UxMjIi
LCJpbnN0YWxsYXRpb25QYXJhbSI6eyJhbnRlbm5hQXppbXV0aCI6NywiYW50ZW5uYUJlYW13aWR0
aCI6NjUsImFudGVubmFEb3dudGlsdCI6MCwiYW50ZW5uYUdhaW4iOjE0LCJoZWlnaHQiOjMsImhlaW
dodFR5cGUiOiJBR0wiLCJpbmRvb3JEZXBsb3ltZW50IjpmYWxzZSwibGF0aXR1ZGUiOjM3LjQxLCJsb
25naXR1ZGUiOi0xMjIuMDF9LCJwcm9mZXNzaW9uYWxJbnN0YWxsZXJEYXRhIjp7ImNwaUlkIjoiMDA
xIiwiY3BpTmFtZSI6InRlc3QwMSIsImluc3RhbGxDZXJ0aWZpY2F0aW9uVGltZSI6IjIwMjAtMDQtMTVU
MTc6Mjg6MjBaIn19",
                "protectedHeader": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9"
            },
            "fccId": "2AVFNLCE122",
            "groupingParam": [
                {
                    "groupId": "test",
                    "groupType": "INTERFERENCE_COORDINATION"
                }
            ],
            "measCapability": [
                "RECEIVED_POWER_WITH_GRANT"
            ],
            "userId": "test"
        }
    ]
}
```


2020-04-22T03:38:52.461Z - INFO - engine sent successfully, the response to CBRS : {


```
    "registrationResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
```

```
                "responseCode": 0
            }
        }
    ]
}
2020-04-22T03:38:52.726Z - INFO - spectrumInquiry request from CBRS    : {
    "spectrumInquiryRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "inquiredSpectrum": [
                {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            ]
        }
    ]
}
2020-04-22T03:38:52.743Z - INFO - The requested spectrum is in the range, SpectrumInquiry response
code is 0
2020-04-22T03:38:52.743Z - INFO - engine sent successfully, the response to CBRS    : {
    "spectrumInquiryResponse": [
        {
            "availableChannel": [
                {
                    "channelType": "GAA",
                    "frequencyRange": {
                        "highFrequency": 3570000000,
                        "lowFrequency": 3550000000
                    },
                    "maxEirp": 37,
                    "ruleApplied": "FCC_PART_96"
                }
            ],
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "response": {
                "responseCode": 0
            }
        }
    ]
}
2020-04-22T03:38:52.898Z - INFO - grant request from CBRS    : {
    "grantRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "operationParam": {
                "maxEirp": 37,
                "operationFrequencyRange": {
                    "highFrequency": 3570000000,
                    "lowFrequency": 3550000000
                }
            }
```

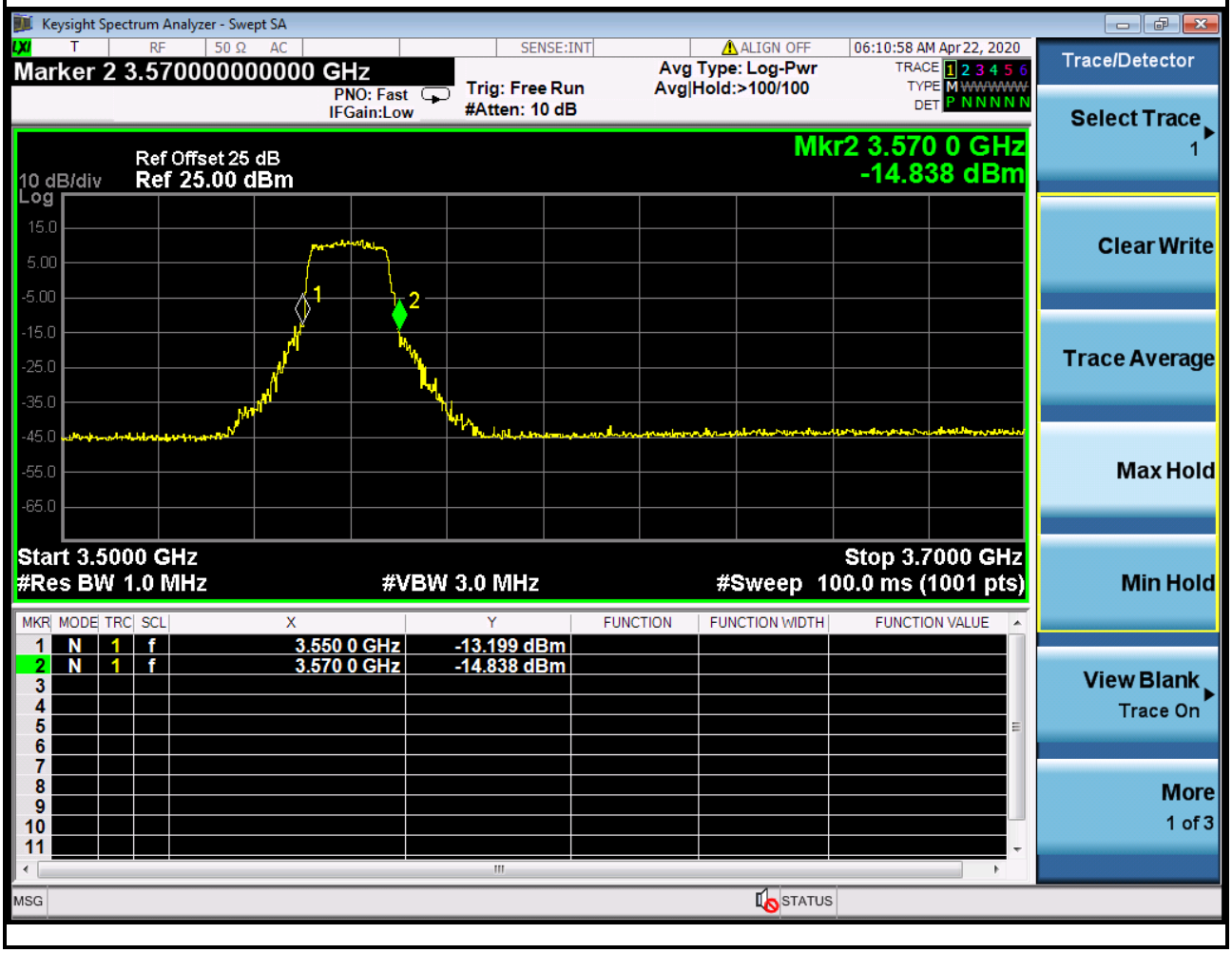
```
            }
        ]
    }
    2020-04-22T03:38:52.898Z - INFO - engine sent successfully, the response to CBRS    : {
        "grantResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "channelType": "GAA",
                "grantExpireTime": "2020-04-29T03:38:52Z",
                "grantId": "927614315",
                "heartbeatInterval": 60,
                "response": {
                    "responseCode": 0
                }
            }
        ]
    }
    2020-04-22T03:39:23.131Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "operationState": "GRANTED"
            }
        ]
    }
    2020-04-22T03:39:23.131Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T03:42:43Z"
            }
        ]
    }
    2020-04-22T03:39:53.348Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T03:39:53.365Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
```

```
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T03:43:13Z"
            }
        ]
    }
    2020-04-22T03:40:23.535Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T03:40:23.535Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T03:43:43Z"
            }
        ]
    }
    2020-04-22T03:40:53.736Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T03:40:53.752Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T03:44:13Z"
            }
        ]
    }
    2020-04-22T03:41:23.984Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
```

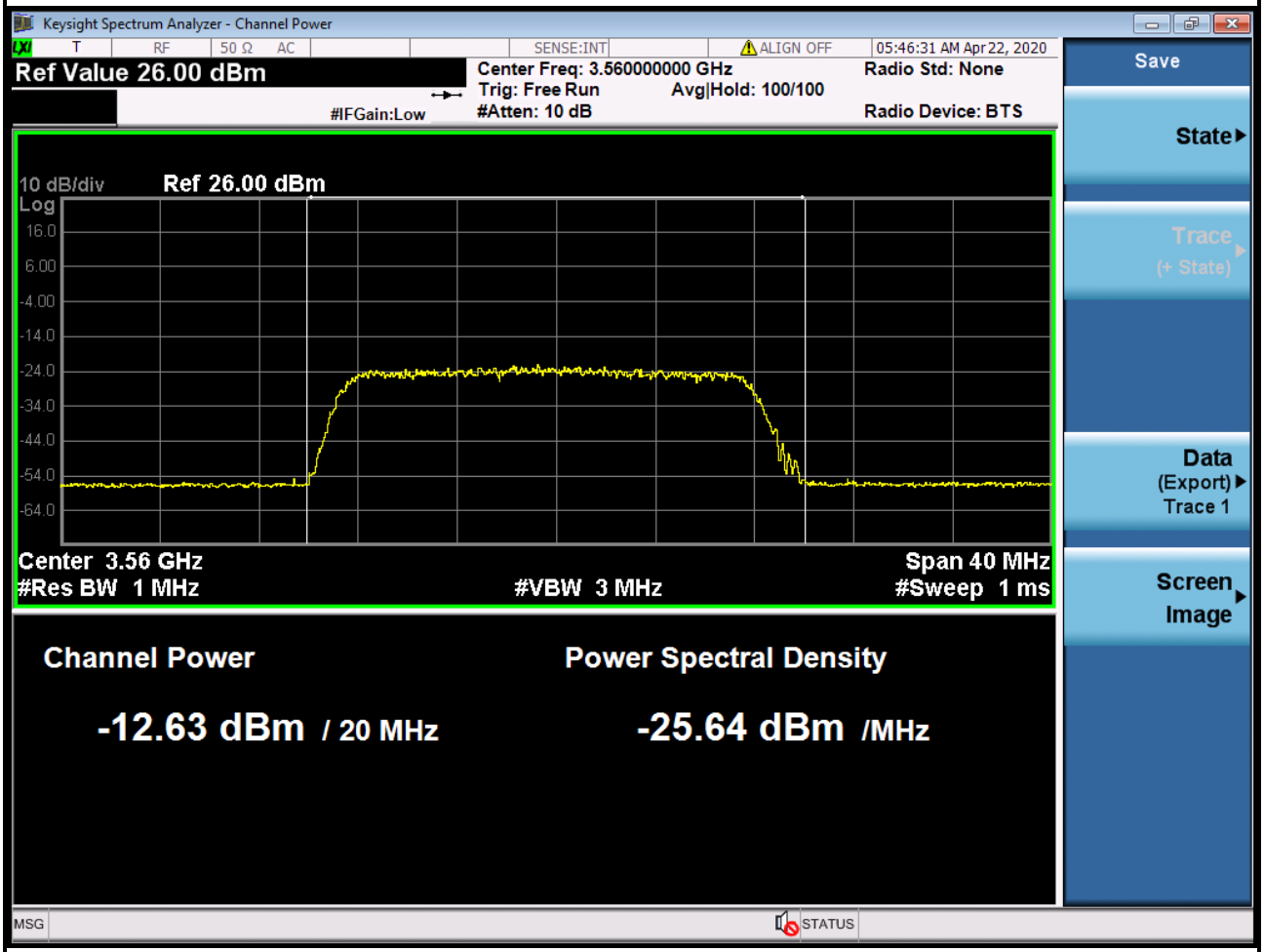
```
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "927614315",
            "operationState": "AUTHORIZED"
        }
    ]
}
2020-04-22T03:41:24.000Z - INFO - engine sent successfully, the response to CBRS    : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "927614315",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-22T03:44:44Z"
        }
    ]
}
2020-04-22T03:41:54.233Z - INFO - heartbeat request from CBRS    : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "927614315",
            "operationState": "AUTHORIZED"
        }
    ]
}
2020-04-22T03:41:54.233Z - INFO - engine sent successfully, the response to CBRS    : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "927614315",
            "response": {
                "responseCode": 0
            },
            "transmitExpireTime": "2020-04-22T03:45:14Z"
        }
    ]
}
2020-04-22T03:42:24.404Z - INFO - heartbeat request from CBRS    : {
    "heartbeatRequest": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
            "grantId": "927614315",
            "operationState": "AUTHORIZED"
        }
    ]
}
2020-04-22T03:42:24.420Z - INFO - engine sent successfully, the response to CBRS    : {
    "heartbeatResponse": [
        {
            "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
```

```
                "grantId": "927614315",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T03:45:44Z"
            }
        ]
    }
    2020-04-22T03:42:54.637Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T03:42:54.637Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T03:46:14Z"
            }
        ]
    }
    2020-04-22T03:43:24.854Z - INFO - heartbeat request from CBRS    : {
        "heartbeatRequest": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "operationState": "AUTHORIZED"
            }
        ]
    }
    2020-04-22T03:43:24.854Z - INFO - engine sent successfully, the response to CBRS    : {
        "heartbeatResponse": [
            {
                "cbsdId": "2AVFNLCE122Mock-SAS1257019101000069",
                "grantId": "927614315",
                "response": {
                    "responseCode": 0
                },
                "transmitExpireTime": "2020-04-22T03:46:44Z"
            }
        ]
    }
```

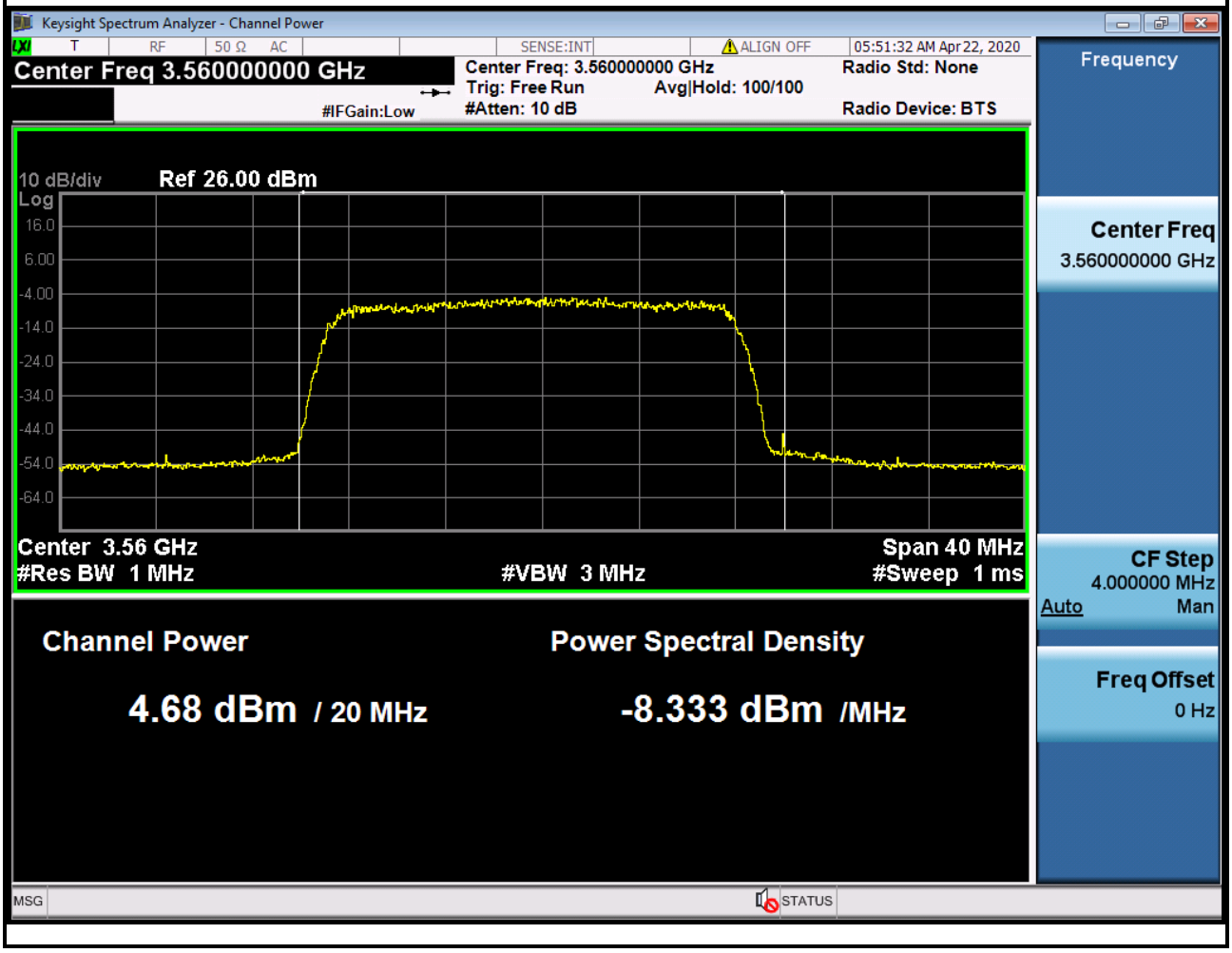
RF measurement plot for WINNF.PT.C.HBT Test Case ID



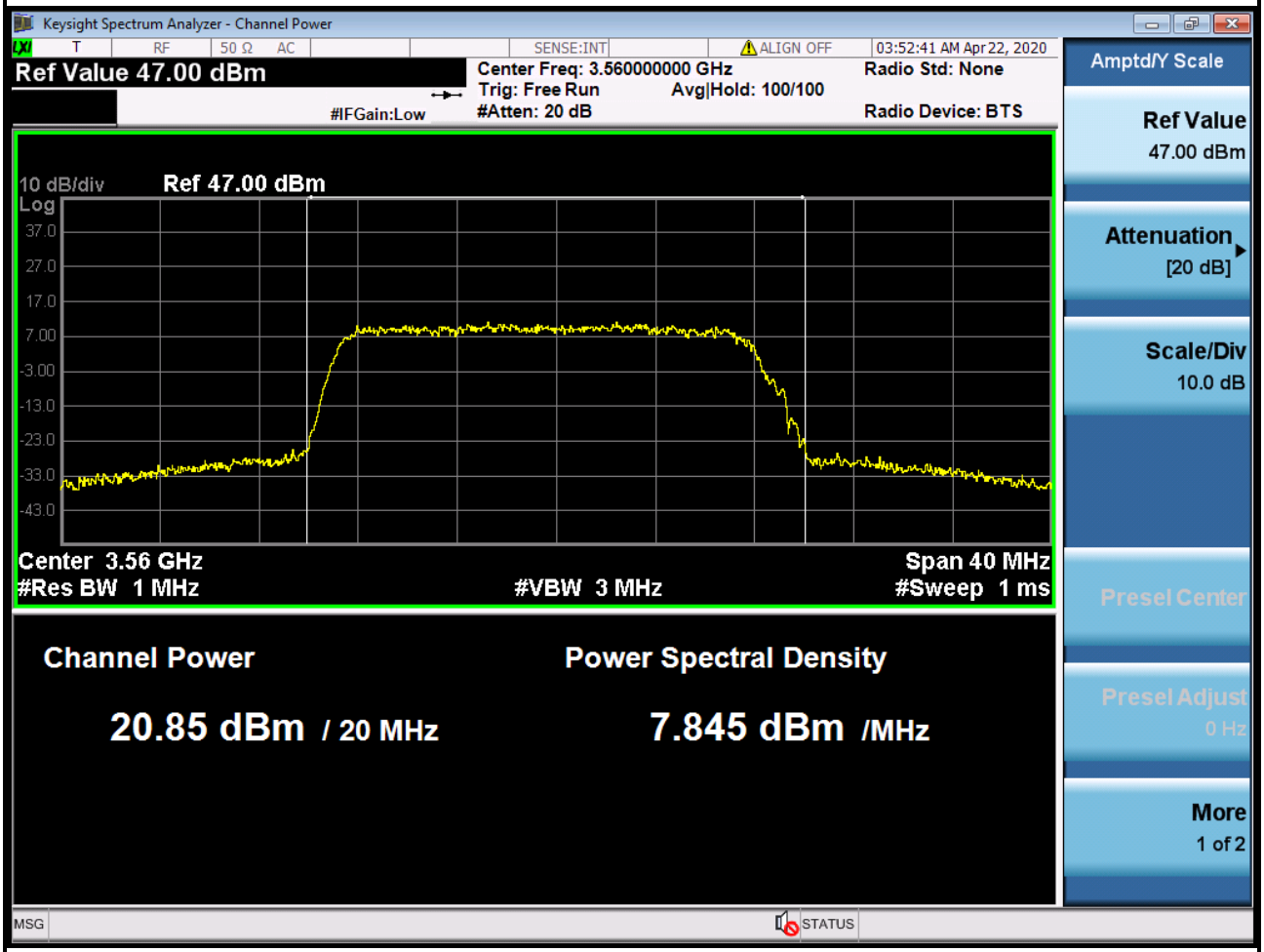
RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 1



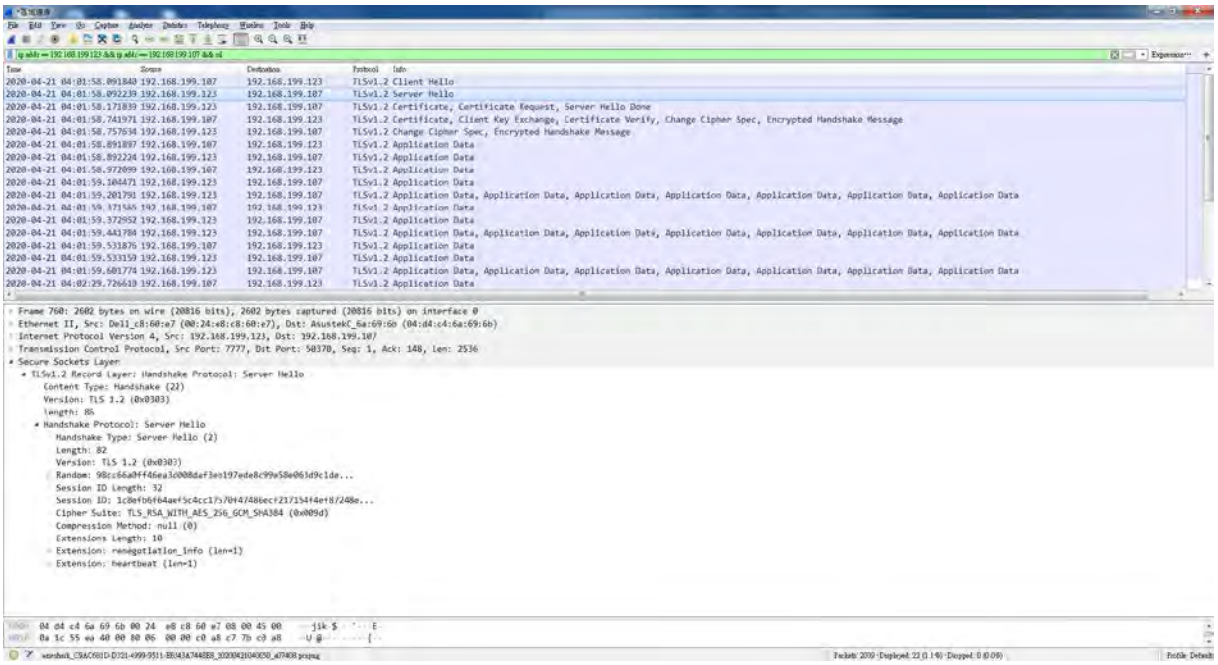
RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 19



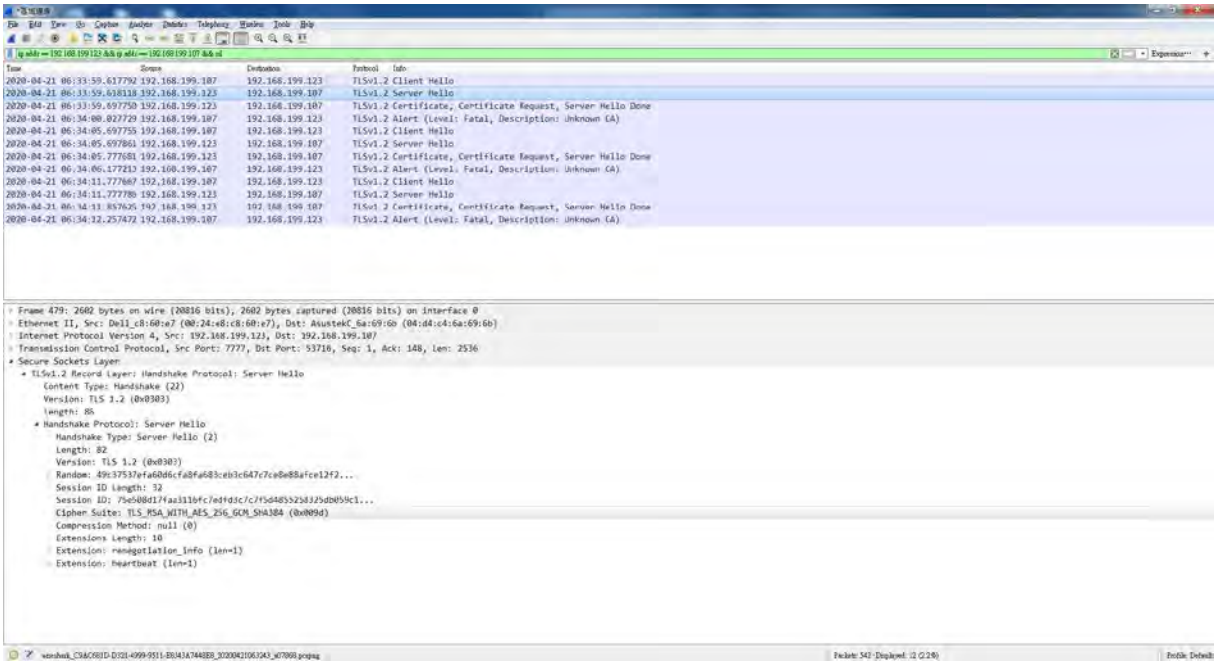
RF measurement plot for WINNF.PT.C.HBT Test Case ID_BW20M_Grant maxEirp 37



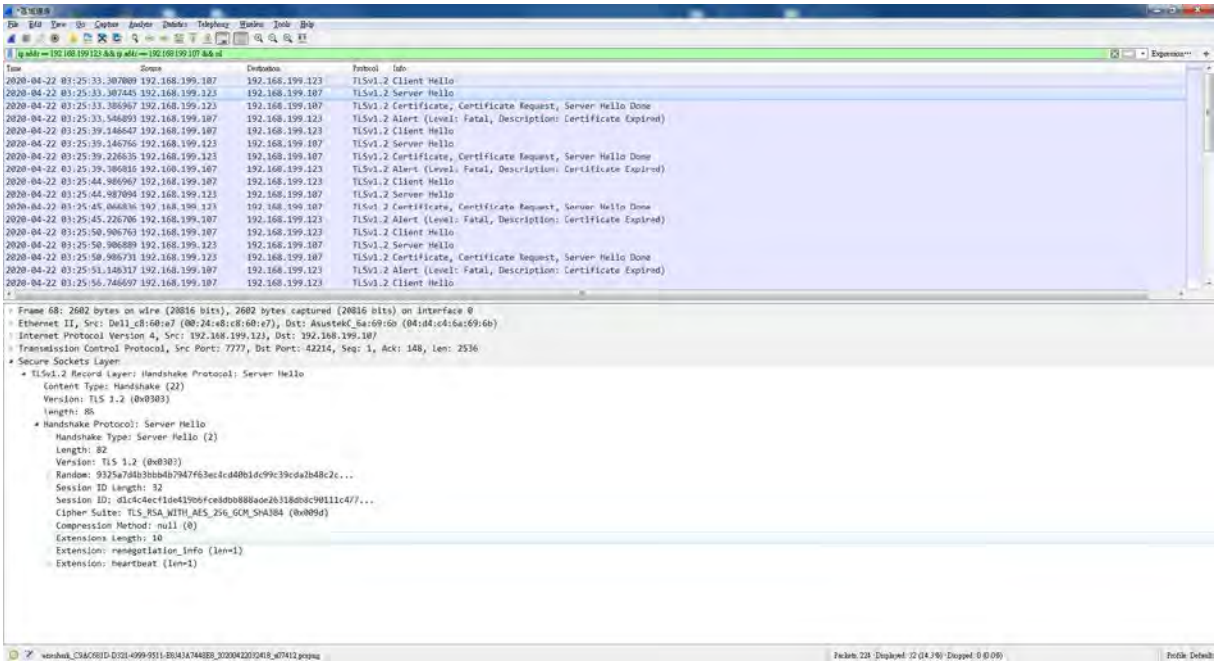
Wireshark Plots for WINNF.FT.C.SCS.1 Test Case ID



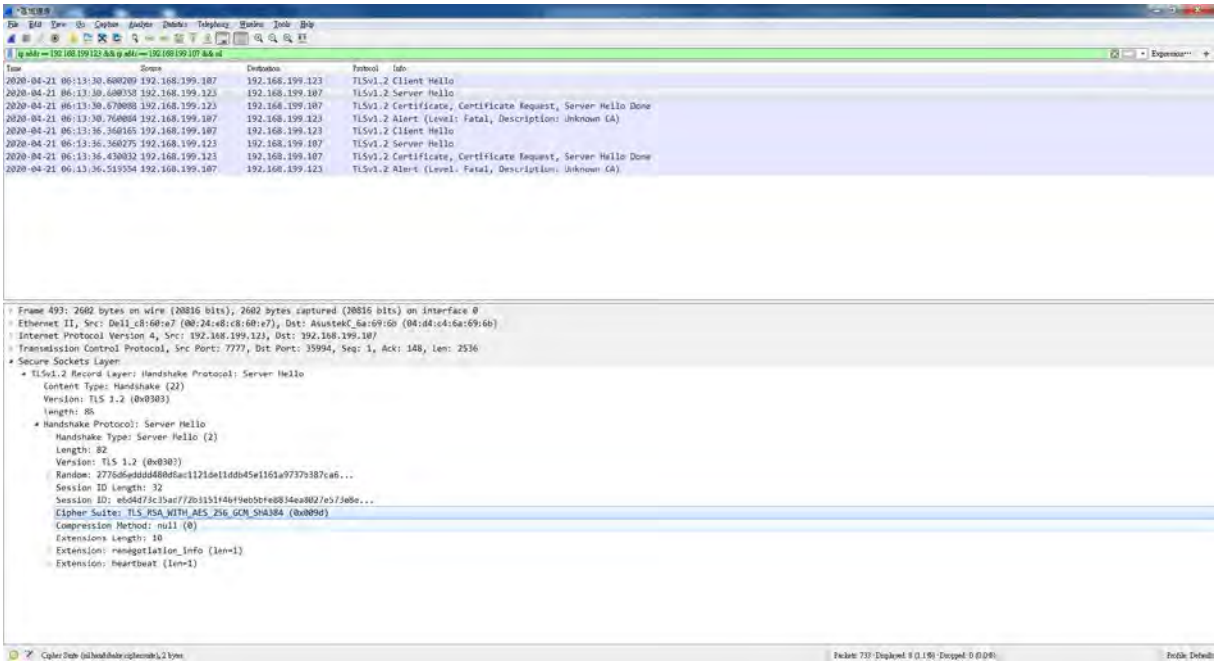
Wireshark Plots for WINNF.FT.C.SCS.2 Test Case ID



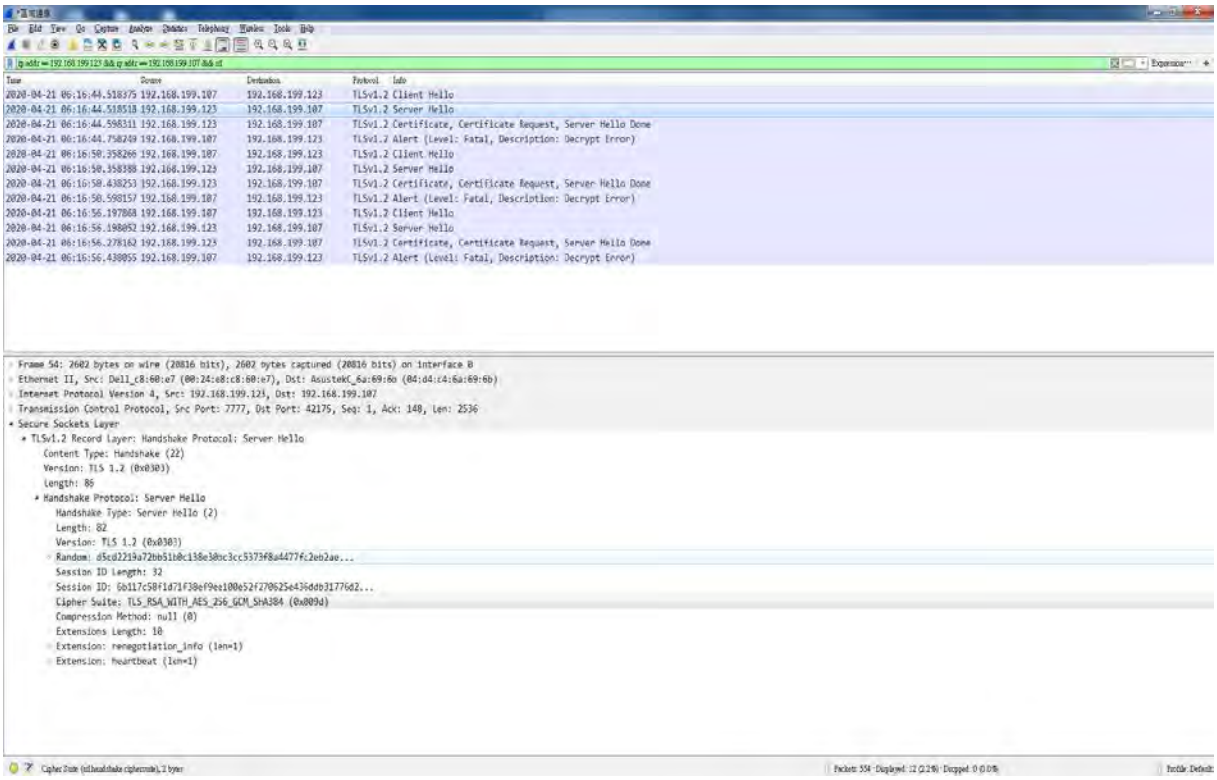
Wireshark Plots for WINNF.FT.C.SCS.3 Test Case ID



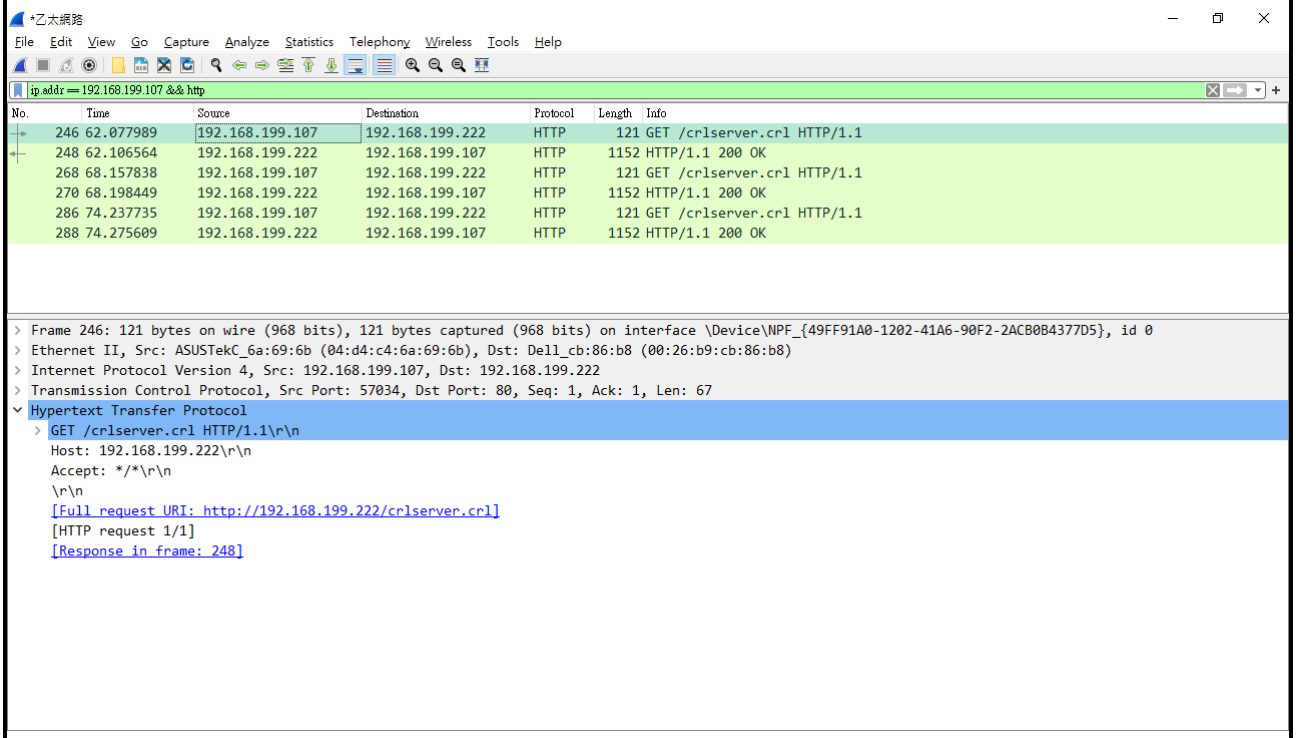
Wireshark Plots for WINNF.FT.C.SCS.4 Test Case ID



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

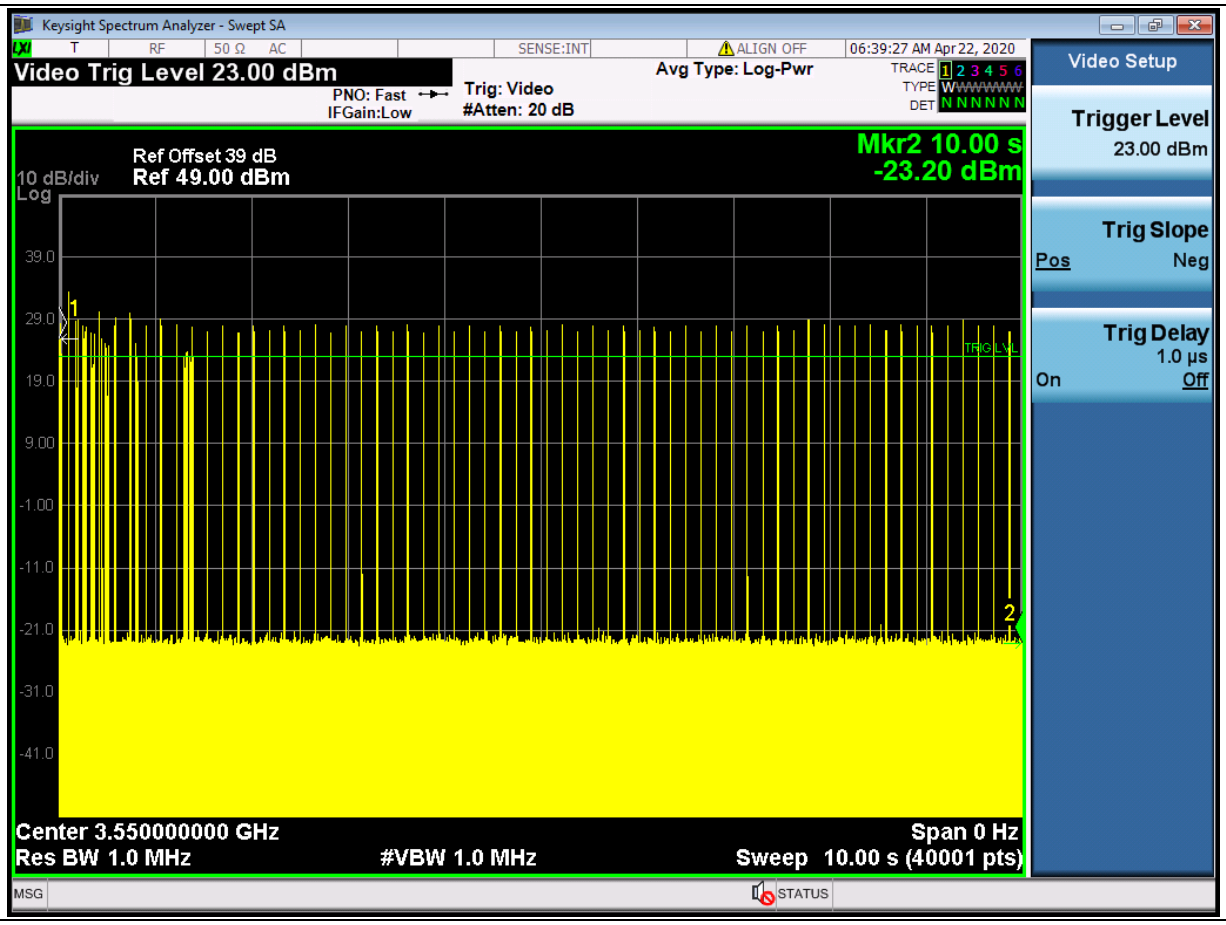


CRL and OCSP Verify Plots for WINNF.FT.C.SCS.2 Test Case ID

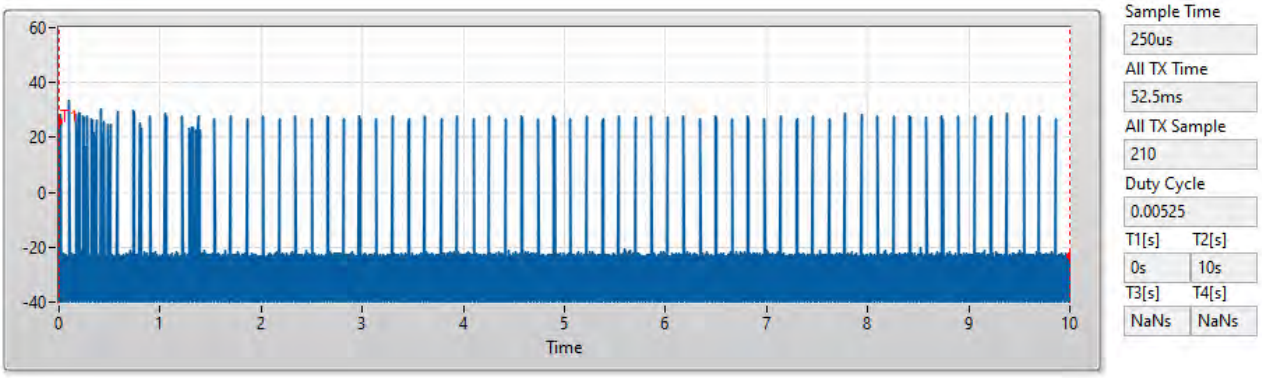


1 second within any 10-second period

Spectrum Analyzer



Calculated Result



The sum of On Time (aggregated time from marker 1 to 2): 0.052s < 1s = PASS