

Compliance Certification Services (Kunshan) Inc.

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# TEST REPORT

Application No.:	KSCR2204000567AT (SZCR2204001311AT)	
FCC ID:	2AG32MBS3100196N	
Applicant:	Baicells Technologies Co., Ltd.	
Address of Applicant:	9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China	
Manufacturer:	Baicells Technologies Co., Ltd.	
Address of Manufacturer:	9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China	
Equipment Under Test (EU	IT):	
EUT Name:	LTE Base Station	
Model No.:	mBS31001H	
Trade Mark:	Baicells	
Standard(s):	FCC 47 CFR Part 96	
	CBRSA-TS-9001-V1.2.1	
	WINNF-TS-0122-V1.0.2	
	KDB 940660 D01 V03	
Date of Receipt:	2022-04-10	
Date of Test:	2022-04-15 to 2022-04-24	
Date of Issue:	2022-04-28	
Test Result:	Pass*	

\* In the configuration tested, the EUT complied with the standards specified above.

Tom fin

Eric Lin Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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Revision Record				
Version Description Date Remark				
00	Original	2022-04-28	/	

Authorized for issue by:		
	Damon zhou	
	Damon Zhou / Project Engineer	
	En fri	
	Eric Lin / Reviewer	



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# 2 Test Summary

Item	Standard	Test Case ID	Result
Domain Proxy Multi-Step registration	WINNF-TS-0122- V1.0.0	WINNF.FT.D.REG.2	Pass
Domain Proxy Missing Required parameters (responseCode 102)	WINNF-TS-0122- V1.0.0	WINNF.FT.D.REG.9	Pass
Domain Proxy Pending registration (responseCode 200)	WINNF-TS-0122- V1.0.0	WINNF.FT.D.REG.11	Pass
Domain Proxy Invalid parameters (responseCode 103)	WINNF-TS-0122- V1.0.0	WINNF.FT.D.REG.13	Pass
Domain Proxy Blacklisted CBSD (responseCode 101)	WINNF-TS-0122- V1.0.0	WINNF.FT.D.REG.15	Pass
Domain Proxy Unsupported SAS protocol version responseCode 100)	WINNF-TS-0122- V1.0.0	WINNF.FT.D.REG.17	Pass
Domain Proxy Group Error (responseCode 201)	WINNF-TS-0122- V1.0.0	WINNF.FT.D.REG.19	Pass
Unsuccessful Grant responseCode=400 (INTERFERENCE)	WINNF-TS-0122- V1.0.0	WINNF.FT.C.GRA.1	Pass
Unsuccessful Grant responseCode=401 (GRANT_CONFLICT)	WINNF-TS-0122- V1.0.0	WINNF.FT.C.GRA.2	Pass
Domain Proxy Heartbeat Success Case (first Heartbeat Response)	WINNF-TS-0122- V1.0.0	WINNF.FT.D.HBT.2	Pass
Heartbeat responseCode=105 (DEREGISTER)	WINNF-TS-0122- V1.0.0	WINNF.FT.C.HBT.3	Pass
Heartbeat responseCode=501 (SUSPENDED_GRANT) in First Heartbeat Response	WINNF-TS-0122- V1.0.0	WINNF.FT.C.HBT.5	Pass
Heartbeat responseCode=501 (SUSPENDED_GRANT) in Subsequent Heartbeat Response	WINNF-TS-0122- V1.0.0	WINNF.FT.C.HBT.6	Pass
Heartbeat responseCode=502 (UNSYNC_OP_PARAM)	WINNF-TS-0122- V1.0.0	WINNF.FT.C.HBT.7	Pass
Domain Proxy Heartbeat responseCode=500 (TEMINATED_GRANT)	WINNF-TS-0122- V1.0.0	WINNF.FT.D.HBT.8	Pass
Heartbeat Response Absent (First Heartbeat)	WINNF-TS-0122- V1.0.0	WINNF.FT.C.HBT.9	Pass
Heartbeat Response Absent (Subsequent Heartbeat)	WINNF-TS-0122- V1.0.0	WINNF.FT.C.HBT.10	Pass
Domain Proxy Successful Relinquishment	WINNF-TS-0122- V1.0.0	WINNF.FT.D.RLQ.2	Pass
Domain Proxy Successful Deregistration	WINNF-TS-0122- V1.0.0	WINNF.FT.D.DRG.2	Pass



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Item	Standard	Test Case ID	Result
Successful TLS connection between UUT and SAS Test Harness	WINNF-TS-0122- V1.0.0	WINNF.FT.C.SCS.1	Pass
TLS failure due to revoked certificate	WINNF-TS-0122- V1.0.0	WINNF.FT.C.SCS.2	Pass
TLS failure due to expired server certificate	WINNF-TS-0122- V1.0.0	WINNF.FT.C.SCS.3	Pass
TLS failure when SAS Test Harness certificate is issue by unknown CA	WINNF-TS-0122- V1.0.0	WINNF.FT.C.SCS.4	Pass
TLS failure when certificate at the SAS Test Harness is corrupted	WINNF-TS-0122- V1.0.0	WINNF.FT.C.SCS.5	Pass
UUT RF Transmit Power Measurement	WINNF-TS-0122- V1.0.0	WINNF.PT.C.HBT.1	Pass
SAS Version: 1.0.0.3			

The UUT is a BTS-CBSD with Domain Proxy. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

### Test standards:

CBRSA-TS-9001-V1.2.1

CBRS Alliance Certification Test Plan

### WINNF-TS-0122-V1.0.2

Test and Certification for Citizens Broadband Radio Service (CBRS); Conformance and Performance Test Technical Specification; CBSD/DP as Unit Under Test (UUT)

KDB 940660 D01 Part 96 CBRS Eqpt v03



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# 4 General Information

# 4.1 Details of E.U.T.

Power supply:	Adapter Model NO.: HEP-185-54		
	Input: 100-240V~50/60Hz, 2.1A		
	Output: 54V, 3.45A		
Sample Type:	Fixed device		
CBSD Class:	В		
Transmitter Frequency Band:	LTE Band 48		
Transmitter Frequency Range:	3550~3700MHz		
Hardware Version:	D01		
Software Version:	BaiBS_QRTB_2.8.16_Helium		
Test sample:	SN1: 1202000240194DP0036		
SN2: 1202000240194DP0023           Antenna Gain:         15 dBi			
		Supported Carrier:	Max 2
MIMO Type:	2*2 MIMO		
Note: This is a BTS-CBSD communication with Domain Proxy. The Domain Proxy is a cloud Domain Proxy which information show as below:			
Hardware Version of Domain Proxy: A	01		
Software Version of Domain Proxy: DP 1.7			

# 4.2 Description of CBSD/DP Support Features

Condition	Feature Description	Supported
C1	Mandatory for UUT which supports multi-step registration message.	Y
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.	N
C3	Mandatory for UUT which supports single-step registration containing CPI- signed data in the registration message.	N
C4	Mandatory for UUT which supports RECEIVED_POWER_WITHOUT_GRANT measurement report type.	N
C5	Mandatory for UUT which supports RECEIVED_POWER_WITH_GRANT measurement report type.	N
C6	Mandatory for UUT which supports parameter change being made at the UUT and prior to sending a deregistration.	N

Y: Supported

N: Not supported



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# 4.3 Summary of Test Results

WINNF-TS-0122				
Classes Test Case Items Pass Items Pass Rate (%)				
FT (CBSD, DP/CBSD)	24	24	100	
PT (CBSD, DP/CBSD)	1	1	100	
Total	25	25	100	

Note:

1. Functional Test (FT): Test to validate the conformance of the Protocols and functionalities implemented in the CBSD/DP UUT to the requirements developed by WInnForum and supporting FCC/DoD requirements.

2. Field/Performance Test (PT): Test to check the capability of the CBSD/DP UUT to support various traffic models and actual operations in the field.

# 4.4 Measurement Uncertainty

No.	ltem	Measurement Uncertainty
1	Radio Frequency	± 7.25 x 10 <sup>-8</sup>
2	RF conducted power	± 0.75dB
3	Temperature test	± 1°C
4	Humidity test	± 3%
5	Supply voltages	± 1.5%
6	Time	± 3%

### 4.5 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
CPE	SMAWAVE	USB Dongle	1
Gateway	FreedomFi	FFG-HL-4-64	HL-2143-00004105

### 4.6 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.



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# 5 Equipment List

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
Laptop	Lenovo	Y510P	HFL000026	N/A	N/A
Spectrum Analyzer	KEYSIGHT	N9020A	KUS2001M00 1-2	2021/7/13	2022/7/12
Shield Room	研创	N/A	KS301115-2	N/A	N/A
Coaxial Cable	Thermax	N/A	14	2021/10/16	2022/10/15
Attenuator	Mini-Circuits	NAT-6-2W	15542-1	N.C.R.	N.C.R.
Humidity / Temperature Indicator	Anymetre	TH603	CZ700001(4/7	2021/10/14	2022/10/13



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# 6 Test Method and Environment

# 6.1 CBSD/DP Conformance and Performance

 Test Requirement:
 CBRS CBSD Test Specification WINNF-TS-0122-V1.0.2

 Test Method:
 CBRS CBSD Test Specification WINNF-TS-0122-V1.0.2

 WINNF-IN-0156\_WInnForum\_SAS\_Test\_Harness\_CBSD\_UUT\_Tutorial\_
 v1\_0\_0\_1

# 6.2 CBSD Test Procedure

- a. Connect the UUT to SAS Test Harness system and RF Test instruments via the CBSD interface and RF components. The highest level is set to test configuration.
- b. UUT shall be UTC time synchronized
- c. The frequency band is granted and set as UUT supported Modulation and Channels, transmitted power of the UUT according to it granted parameters from the SAS Test Harness.
- d. Each test case results were recorded and validated by SAS Test Harness system and RF instruments test cases was recorded test results from SAS Test Harness system.



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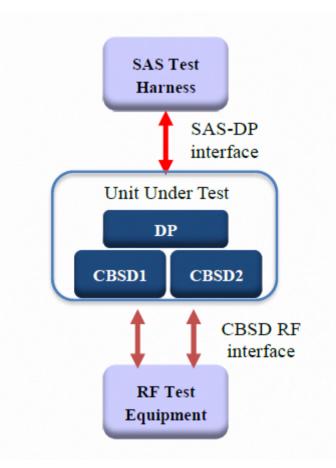


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# 6.3 Test Environment

Test Harness Version:	V1.0.0.3
Operating System:	Microsoft Windows 10
TLS Version:	1.2
Python Version:	2.7.13
Environmental Conditions:	25deg. C, 65%RH
Input Power:	120Vac, 60Hz

# 6.4 Test Setup



#### DP/CBSD as UUT, BTS-CBSD communication with Domain Proxy



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# 7 Test Data

# 7.1 CBSD Registration Process

### 7.1.1 WINNF.FT.D.REG.2

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has successfully completed SAS Discovery and Authentication with the SAS Test Harness</li> <li>UUT is in the Unregistered state</li> </ul>		
2	<ul> <li>DP with two CBSD sends correct Registration request information, as specified in [n.5], in the form of one 2-element Array or as individual messages to the SAS Test Harness:</li> <li>The required userId, fccId and cbsdSerialNumber registration parameters shall be sent for each CBSD and conform to proper format and acceptable ranges.</li> <li>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.</li> <li>Note: It is outside the scope of this document to test the Registration information that is supplied via another means.</li> </ul>	∎ Pass	□ Fail
3	<ul> <li>SAS Test Harness sends a CBSD Registration Response in the form of one 2-element Array or individual messages as follows:</li> <li>cbsdld = Ci</li> <li>measReportConfig shall not be included</li> <li>responseCode = 0 for each CBSD</li> </ul>		
4	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.		
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: UUT shall not transmit RF	∎ Pass	□ Fail



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### 7.1.2 WINNF.FT.D.REG.9

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness</li> <li>UUT is in the Unregistered state</li> </ul>		
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.		
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2- element Array or as individual messages as follows: - SAS response does not include a cbsdld. - responseCode = 102 for CBSD1 and CBSD2		
4	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.		
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: UUT shall not transmit RF	∎ Pass	□ Fail

### 7.1.3 WINNF.FT.D.REG.11

#	Test Execution Steps	Re	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness</li> <li>UUT is in the Unregistered state</li> </ul>		
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.		
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2- element Array or as individual messages as follows: - SAS response does not include a cbsdld. - responseCode = 200 for CBSD1 and CBSD2		
4	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.		
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: UUT shall not transmit RF	∎ Pass	□ Fail



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#### 7.1.4 WINNF.FT.D.REG.13

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

#### 7.1.5 WINNF.FT.D.REG.15

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



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#### 7.1.6 WINNF.FT.D.REG.17

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has successfully completed SAS Discovery and Authentication with SAS Test Harness</li> <li>UUT is in the Unregistered state</li> </ul>		
2	The DP with two CBSDs sends a Registration request in the form of one 2-element Array or as individual messages to SAS Test Harness.		
3	SAS Test Harness sends a CBSD Registration Response in the form of one 2- element Array or as individual messages as follows: - SAS response does not include a cbsdld. - responseCode = 100 for CBSD1 and CBSD2		
4	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.		
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: UUT shall not transmit RF	∎ Pass	□ Fail

#### 7.1.7 WINNF.FT.D.REG.19

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



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# 7.2 CBSD Spectrum Grant Process

# 7.2.1 WINNF.FT.C.GRA.1

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has registered successfully with SAS Test Harness, with cbsdld = C</li> </ul>		
2	UUT sends valid Grant Request.		
3	SAS Test Harness sends a Grant Response message, including - cbsdld=C - responseCode = 400		
4	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.		
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: UUT shall not transmit RF	∎ Pass	□ Fail

### 7.2.2 WINNF.FT.C.GRA.2

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has registered successfully with SAS Test Harness, with cbsdld = C</li> </ul>		
2	UUT sends valid Grant Request.		
3	SAS Test Harness sends a Grant Response message, including - cbsdld=C - responseCode = 400		
4	After completion of step 3, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.		
5	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: UUT shall not transmit RF	∎ Pass	□ Fail



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# 7.3 CBSD HeartBeat Process

# 7.3.1 WINNF.FT.D.HBT.2

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>DP has two CBSD registered successfully with SAS Test Harness, with cbsdld = Ci, i={1,2}</li> </ul>		
2	<ul> <li>DP sends a message:</li> <li>If message is type Spectrum Inquiry Request, go to step 3, or</li> <li>If message is type Grant Request, go to step 5</li> </ul>		
3	<ul> <li>DP sends a Spectrum Inquiry Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Spectrum Inquiry Request message is formatted correctly for each CBSD, including for CBSDi, i={1,2}:         <ul> <li>cbsdld = Ci</li> <li>List of frequencyRange objects sent by DP are within the CBRS frequency range</li> </ul> </li> </ul>	∎ Pass	□ Fail
4	If a separate Spectrum Inquiry Request message was sent for each CBSD, the SAS Test Harness shall respond to each Spectrum Inquiry Request message with a separate Spectrum Inquiry Response message. If a single Spectrum Inquiry Request message was sent containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Spectrum Inquiry Response message containing a 2-object array. Verify parameters for each CBSD within the Spectrum Inquiry Response message are as follows, for CBSDi, i={1,2}: <ul> <li>cbsdld = Ci</li> <li>availableChannel is an array of availableChannel objects</li> <li>responseCode = 0</li> </ul>		
5	<ul> <li>DP sends a Grant Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2.</li> <li>Verify Grant Request message is formatted correctly for each CBSD, including for CBSDi, i={1,2}: <ul> <li>cbsdld = C</li> <li>maxEIRP is at or below the limit appropriate for CBSD category as defined by Part 96</li> <li>operationFrequencyRange, Fi, sent by UUT is a valid range within the CBRS band</li> </ul> </li> </ul>	∎ Pass	□ Fail
6	If a separate Grant Request message was sent for each CBSD, the SAS Test Harness shall respond to each Grant Request message with a separate Grant Response message. If a single Grant Request message was sent containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Grant Response message containing a 2-object array. Verify parameters for each CBSD within the Grant Response message are as follows, for CBSDi, i={1,2}: cbsdld = Ci grantId = Gi = a valid grant ID		



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	<ul> <li>grantExpireTime = UTC time greater than duration of the test</li> <li>responseCode = 0</li> </ul>		
7	Ensure DP sends first Heartbeat Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Heartbeat Request message is formatted correctly for each CBSD, including, for CBSDi i={1,2}: • cbsdld = Ci, i={1,2} • grantId = Gi, i={1,2} • operationState = "GRANTED"	∎ Pass	□ Fail
8	If a separate Heartbeat Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each Heartbeat Request message with a separate Heartbeat Response message. If a single Heartbeat Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Heartbeat Response message containing a 2-object array. Verify parameters for each CBSD within the Heartbeat Response message are as follows, for CBSDi: <ul> <li>cbsdld = Ci</li> <li>grantId = Gi</li> <li>transmitExpireTime = current UTC time + 200 seconds</li> <li>responseCode = 0</li> </ul>		
9	<ul> <li>For further Heartbeat Request messages sent from DP after completion of step 8, validate message is sent within latest specified heartbeatInterval for CBSDi: <ul> <li>cbsdld = Ci</li> <li>grantId = Gi</li> <li>operationState = "AUTHORIZED"</li> </ul> </li> <li>and SAS Test Harness responds with a Heartbeat Response message including the following parameters, for CBSDi</li> <li>cbsdld = Ci</li> <li>grantId = Gi</li> <li>transmitExpireTime = current UTC time + 200 seconds</li> <li>responseCode = 0</li> </ul>	∎ Pass	□ Fail
10	<ul> <li>Monitor the RF output of the UUT from start of test until UUT transmission commences. Monitor the RF output of the UUT from start of test until RF transmission commences. Verify:         <ul> <li>UUT does not transmit at any time prior to completion of the first heartbeat response</li> <li>UUT transmits after step 8 is complete, and its transmission is limited to within the bandwidth range Fi.</li> </ul> </li> </ul>	∎ Pass	□ Fail



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	Analyzer - Occupied BW										
VBW 3.0000	50Ω AC MHz		Center Fre		0000 GHz	-	N OFF	06:02:15 Radio Sto	PM Apr 15, 2022 1: None	-	BW
		+++ #IFGain:Low	Trig: Free #Atten: 40		Avg Hold:	10/1	10	Radio De	vice: BTS		Res BW
										Auto	1.0000 MHz Man
10 dB/div	Ref 32.00 dBm					_					
22.0											Video BW
12.0										Auto	3.0000 MHz <u>Man</u>
2.00		worman	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	hy we we have	en an	<sup>ral</sup> 'N					
-8.00	/	ſ				Ì	5				
-28.0											
-38.0	here welden der fes frikter.								adres from the second		
-48.0											
-58.0											
Center 3.56 G			<i></i>						an 40 MHz		Filter Type
#Res BW 1 M	Hz		#VBI	N 3 MH	Ζ			SW	eep 1ms		Gaussian
Occupied	Bandwidt	า		Total P	ower		10.9	dBm			
	18	.367 MF	z								
Transmit F	req Error	32.582 k	Hz	% of OE	BW Powe	er	99	9.00 %			
x dB Bandy	width	20.25 M	Hz	x dB			-26.	00 dB			
MSG						Í.	STATU	S			
						_					



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#### 7.3.2 WINNF.FT.C.HBT.3

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has registered successfully with SAS Test Harness</li> <li>UUT has a valid single grant as follows:</li> <li>valid cbsdld = C</li> <li>valid grantId = G</li> <li>grant is for frequency range F, power P</li> <li>grantExpireTime = UTC time greater than duration of the test</li> <li>UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface</li> </ul>		
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:	∎ Pass	□ Fail
3	<ul> <li>SAS Test Harness sends a Heartbeat Response message, including the following parameters:</li> <li>cbsdld = C</li> <li>grantld = G</li> <li>transmitExpireTime = T = Current UTC time</li> <li>responseCode = 105 (DEREGISTER)</li> </ul>		
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.		
5	<ul> <li>Monitor the RF output of the UUT. Verify:</li> <li>UUT shall stop transmission within (T + 60 seconds) of completion of step 3</li> </ul>	∎ Pass	□ Fail



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#### 7.3.3 WINNF.FT.C.HBT.5

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



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#### 7.3.4 WINNF.FT.C.HBT.6

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has registered successfully with SAS Test Harness</li> <li>UUT has a valid single grant as follows:</li> <li>valid cbsdld = C</li> <li>valid grantId = G</li> <li>grant is for frequency range F, power P</li> <li>grantExpireTime = UTC time greater than duration of the test</li> <li>UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface</li> </ul>		
2	<ul> <li>UUT sends a Heartbeat Request message.</li> <li>Ensure Heartbeat Request message is sent within latest specified heartbeatInterval, and is formatted correctly, including: <ul> <li>cbsdld = C</li> <li>grantld = G</li> <li>operationState = "AUTHORIZED"</li> </ul> </li> </ul>	∎ Pass	□ Fail
3	<ul> <li>SAS Test Harness sends a Heartbeat Response message, including the following parameters:</li> <li>cbsdld = C</li> <li>grantId = G</li> <li>transmitExpireTime = T = current UTC time</li> <li>responseCode = 501 (SUSPENDED_GRANT)</li> </ul>		
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.		
5	<ul> <li>Monitor the SAS-CBSD interface. Verify either A OR B occurs:</li> <li>A. UUT sends a Heartbeat Request message. Ensure message is sent within latest specified heartbeatInterval, and is correctly formatted with parameters: <ul> <li>cbsdld = C</li> <li>grantld = G</li> <li>operationState = "GRANTED"</li> </ul> </li> <li>B. UUT sends a Relinquishment request message. Ensure message is correctly formatted with parameters: <ul> <li>cbdsld = C</li> <li>grantld = G</li> </ul> </li> <li>b. UUT sends a Relinquishment request message. Ensure message is correctly formatted with parameters: <ul> <li>cbdsld = C</li> <li>grantld = G</li> </ul> </li> <li>b. WUT sends a Relinquishment request message. Ensure message is correctly formatted with parameters: <ul> <li>cbdsld = C</li> <li>grantld = G</li> </ul> </li> <li>Monitor the RF output of the UUT. Verify: <ul> <li>UUT shall stop transmission within (T+60) seconds of completion of step 3</li> </ul> </li> </ul>	<b>■</b> Pass	□ Fail



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#### 7.3.5 WINNF.FT.C.HBT.7

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has registered successfully with SAS Test Harness</li> <li>UUT has a valid single grant as follows:</li> <li>valid cbsdld = C</li> <li>valid grantld = G</li> <li>grant is for frequency range F, power P</li> <li>grantExpireTime = UTC time greater than duration of the test</li> <li>UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface</li> </ul>		
2	UUT sends a Heartbeat Request message. Ensure Heartbeat Request message is sent within latest specified heartbeatInterval, and is formatted correctly, including:	∎ Pass	□ Fail
3	<ul> <li>SAS Test Harness sends a Heartbeat Response message, including the following parameters:</li> <li>cbsdld = C</li> <li>grantld = G</li> <li>transmitExpireTime = T = current UTC time</li> <li>responseCode = 502 (UNSYNC_OP_PARAM)</li> </ul>		
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.		
5	<ul> <li>Monitor the SAS-CBSD interface. Verify:</li> <li>UUT sends a Grant Relinquishment Request message. Verify message is correctly formatted with parameters:</li> <li>Cbsdld = C</li> <li>Grantld = G</li> <li>Monitor the RF output of the UUT. Verify:</li> <li>UUT shall stop transmission within (T+60) seconds of completion of step 3</li> </ul>	∎ Pass	□ Fail



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#### 7.3.6 WINNF.FT.D.HBT.8

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>DP has two CBSD registered successfully with SAS Test Harness</li> <li>Each CBSD {1,2} has a valid single grant as follows</li> <li>valid cbsdld = Ci, i={1,2}</li> <li>valid grantId = Gi, i={1,2}</li> <li>grant is for frequency range Fi, power Pi</li> <li>grantExpireTime = UTC time greater than duration of the test</li> <li>Both CBSD are in AUTHORIZED state and transmitting within their granted bandwidth on RF interface</li> </ul>		
2	<ul> <li>DP sends a Heartbeat Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of size 2. Verify Heartbeat Request message is sent within latest specified heartbeatInterval, and is formatted correctly for each CBSD, including, for CBSDi i={1,2}:</li> <li>cbsdld = Ci, i = {1,2}</li> <li>grantId = Gi, i = {1,2}</li> <li>operationState = "AUTHORIZED"</li> </ul>	∎ Pass	□ Fail
3	If separate Heartbeat Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each Heartbeat Request message with a separate Heartbeat Response message. If a single Heartbeat Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Heartbeat Response message containing a 2-object array. Parameters for each CBSD within the Heartbeat Response message should be as follows, for CBSDi: cbsdld = Ci grantId = Gi For CBSD1: o transmitExpireTime = current UTC time + 200 seconds o responseCode = 0 For CBSD2: o transmitExpireTime = T = current UTC time		
4	<ul> <li>o responseCode = 500 (TERMINATED_GRANT)</li> <li>After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.</li> <li>If CBSD sends further Heartbeat Request messages for CBSD1, SAS Test Harness shall respond with a Heartbeat Response message with parameters:         <ul> <li>cbsdld = C1</li> <li>grantId = G1</li> <li>transmitExpireTime = current UTC time + 200 seconds</li> <li>responseCode = 0</li> <li>Heartbeat Request message is within heartbeatInterval of previous Heartbeat Request message</li> </ul> </li> </ul>		
5	<ul> <li>Monitor the RF output of CBSD2. Verify:</li> <li>CBSD2 shall stop transmission within bandwidth F2 within (T + 60 seconds) of completion of step 3</li> </ul>	∎ Pass	□ Fail



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### 7.3.7 WINNF.FT.C.HBT.9

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has registered successfully with SAS Test Harness</li> <li>UUT has a valid single grant as follows:</li> <li>valid cbsdld = C</li> <li>valid grantId = G</li> <li>grant is for frequency range F, power P</li> <li>grantExpireTime = UTC time greater than duration of the test</li> <li>UUT is in GRANTED, but not AUTHORIZED state(i.e. has not performed its first Heartbeat Request)</li> </ul>		-
2	UUT sends a Heartbeat Request message. Ensure Heartbeat Request message is sent within latest specified heartbeatInterval, and is formatted correctly, including:	∎ Pass	□ Fail
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	<ul> <li>Monitor the RF output of the UUT from start of test to 60 seconds after step 3. Verify:</li> <li>At any time during the test, UUT shall not transmit on RF interface</li> </ul>	∎ Pass	□ Fail



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#### 7.3.8 WINNF.FT.C.HBT.10

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has registered successfully with SAS Test Harness</li> <li>UUT has a valid single grant as follows:</li> <li>valid cbsdld = C</li> <li>valid grantld = G</li> <li>grant is for frequency range F, power P</li> <li>grantExpireTime = UTC time greater than duration of the test</li> <li>UUT is in AUTHORIZED state and is transmitting within the grant bandwidth F on RF interface</li> </ul>		
2	UUT sends a Heartbeat Request message. Verify Heartbeat Request message is sent within latest specified heartbeatInterval, and is formatted correctly, including:	∎ Pass	□ Fail
3	<ul> <li>SAS Test Harness sends a Heartbeat Response message, including the following parameters:</li> <li>cbsdld = C</li> <li>grantId = G</li> <li>transmitExpireTime = T = current UTC time + 200 seconds</li> <li>responseCode = 0</li> </ul>		
4	After completion of step 3, SAS Test Harness shall not allow any further grants to the UUT.		
5	<ul> <li>Monitor the RF output of the UUT. Verify:</li> <li>UUT shall stop all transmission on RF interface within (transmitExpireTime + 60 seconds), using the transmitExpireTime sent in Step 3.</li> </ul>	∎ Pass	□ Fail



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# 7.4 CBSD Relinquishment Process

# 7.4.1 WINNF.FT.D.RLQ.2

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>DP has successfully completed SAS Discovery and Authentication with SAS Test Harness</li> <li>DP has successfully registered 2 CBSD with SAS Test Harness, each with cbsdld=Ci, i={1,2}</li> <li>DP has received a valid grant with grantId = Gi, i={1,2} for each CBSD</li> <li>Both CBSD are in Grant State AUTHORIZED and actively transmitting within the bounds of their grants.</li> </ul>		_
2	Verify DP sends a Relinquishment Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2. Verify Relinquishment Request message contains all required parameters properly formatted for each CBSD, specifically, for CBSDi:	∎ Pass	□ Fail
3	If a separate Relinquishment Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each request message with a separate response message. If a single Relinquishment Request message was sent by the DP containing a 2- object array (one per CBSD), the SAS Test Harness shall respond with a single Response message containing a 2-object array. Parameters for each CBSD within the Relinquishment Response shall be as follows:		
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	<ul> <li>Monitor the RF output of each UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify:</li> <li>UUT shall stop RF transmission at any time between triggering the relinquishments and UUT sending the relinquishment requests for each CBSD.</li> </ul>	∎ Pass	□ Fail



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# 7.5 CBSD Deregistration Process

### 7.5.1 WINNF.FT.D.DRG.2

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>Each UUT has successfully registered with SAS Test Harness</li> <li>Each UUT is in the authorized state</li> <li>DP has successfully completed SAS Discovery and Authentication with SAS Test Harness</li> <li>DP has successfully registered 2 CBSD with SAS Test Harness, each with cbsdld=Ci, i={1,2}</li> <li>DP has received a valid grant with grantId = Gi, i={1,2} for each CBSD</li> <li>Both CBSD are in Grant State AUTHORIZED and actively transmitting within the bounds of their grants.</li> </ul>		
2	UUT sends a Relinquishment request and receives Relinquishment response with responseCode=0		
3	<ul> <li>Verify DP sends a Deregistration Request message for each CBSD. This may occur in a separate message per CBSD, or together in a single message with array of 2.</li> <li>Verify Deregistration Request message contains all required parameters properly formatted for each CBSD, specifically, for CBSDi:</li> <li>cbsdld = Ci</li> </ul>	∎ Pass	□ Fail
4	If a separate Deregistration Request message was sent for each CBSD by the DP, the SAS Test Harness shall respond to each request message with a separate response message. If a single Deregistration Request message was sent by the DP containing a 2-object array (one per CBSD), the SAS Test Harness shall respond with a single Response message containing a 2-object array. Parameters for each CBSD within the Deregistration Response shall be as follows: • cbsdld = Ci • responseCode = 0		
5	After completion of step 4, SAS Test Harness will not provide any positive response (responseCode=0) to further request messages from the UUT.		
6	<ul> <li>Monitor the RF output of each UUT from start of test until 60 seconds after Step 4 is complete. This is the end of the test. Verify:         <ul> <li>UUT stopped RF transmission at any time between triggering the deregistration and either A OR B occurs:</li> <li>A. UUT sending a Registration Request message, as this is not mandatory</li> <li>B. UUT sending a Deregistration Request message</li> </ul> </li> </ul>	∎ Pass	□ Fail



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# 7.6 CBSD Security Validation

### 7.6.1 WINNF.FT.C.SCS.1

#	Test Execution Steps	Res	sults
1	<ul> <li>UUT shall start CBSD-SAS communication with the security procedure</li> <li>The UUT shall establish a TLS handshake with the SAS Test Harness using configured certificate.</li> <li>Configure the SAS Test Harness to accept the security procedure and establish the connection</li> </ul>	∎ Pass	□ Fail
2	<ul> <li>Make sure that Mutual authentication happens between UUT and the SAS Test Harness.</li> <li>Make sure that UUT uses TLS v1.2</li> <li>Make sure that cipher suites from one of the following is selected,</li> <li>TLS_RSA_WITH_AES_128_GCM_SHA256</li> <li>TLS_RSA_WITH_AES_256_GCM_SHA384</li> <li>TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256</li> <li>TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384</li> <li>TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA384</li> <li>TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA384</li> <li>TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256</li> </ul>	■ Pass	□ Fail
3	<ul> <li>A successful registration is accomplished using one of the test cases described in section 6.1.4.1, depending on CBSD capability.</li> <li>UUT sends a registration request to the SAS Test Harness and the SAS Test Harness sends a Registration Response with responseCode = 0 and cbsdld.</li> </ul>	∎ Pass	□ Fail
4	Monitor the RF output of the UUT from start of test until 60 seconds after Step 3 is complete. This is the end of the test. Verify: • UUT shall not transmit RF	∎ Pass	□ Fail

#### 7.6.2 WINNF.FT.C.SCS.2

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



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#### 7.6.3 WINNF.FT.C.SCS.3

#	Test Execution Steps	Res	sults
1	<ul> <li>UUT shall start CBSD-SAS communication with the security procedures</li> </ul>		
		Pass	Fail
2	<ul> <li>Make sure that UUT uses TLS v1.2 for security establishment.</li> <li>Make sure UUT selects the correct cipher suite.</li> <li>UUT shall use CRL or OCSP to verify the validity of the server certificate.</li> <li>Make sure that Mutual authentication does not happen between UUT and the SAS Test Harness.</li> </ul>	∎ Pass	□ Fail
3	• UUT may retry for the security procedure which shall fail.	∎ Pass	□ Fail
4	<ul> <li>SAS Test-Harness shall not receive any Registration request or any application data.</li> </ul>		
5	<ul> <li>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:</li> <li>UUT shall not transmit RF</li> </ul>	∎ Pass	□ Fail

#### 7.6.4 WINNF.FT.C.SCS.4

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



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#### 7.6.5 WINNF.FT.C.SCS.5

#	Test Execution Steps	Res	sults
	<ul> <li>UUT shall start CBSD-SAS communication with the security procedures</li> </ul>		
1		Pass	Fail
2	<ul> <li>Make sure that UUT uses TLS v1.2 for security establishment.</li> <li>Make sure UUT selects the correct cipher suite.</li> <li>UUT shall use CRL or OCSP to verify the validity of the server certificate</li> <li>Make sure that Mutual authentication does not happen between UUT and the SAS Test Harness.</li> </ul>	∎ Pass	□ Fail
3	• UUT may retry for the security procedure which shall fail.	∎ Pass	□ Fail
4	<ul> <li>SAS Test-Harness shall not receive any Registration request or any application data.</li> </ul>		
5	<ul> <li>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:</li> <li>UUT shall not transmit RF</li> </ul>	∎ Pass	□ Fail



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# 7.7 CBSD RF Power Measurement

### 7.7.1 WINNF.PT.C.HBT.1

#	Test Execution Steps	Res	sults
1	<ul> <li>Ensure the following conditions are met for test entry:</li> <li>UUT has successfully completed SAS Discovery and Authentication with the SAS Test Harness</li> <li>UUT has registered with the SAS, with CBSD ID = C</li> <li>UUT has a single valid grant G with parameters {lowFrequency = FL, highFrequency = FH, maxEirp = Pi}, with grant in AUTHORIZED state, and grantExpireTime set to a value far past the duration of this test case</li> <li>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</li> </ul>		
2	<ul> <li>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:</li> <li>UUT sends Heartbeat Request, including: <ul> <li>cbsdld = C</li> <li>grantld = G</li> </ul> </li> <li>SAS Test Harness responds with Heartbeat Response, including: o cbsdld = C</li> <li>grantld = G</li> <li>transmitExpireTime = current UTC time + 200 seconds</li> </ul>		
3	<ul> <li>responseCode = 0         Tester performs power measurement on RF interface(s) of UUT, and verifies it complies with the maxEirp setting, Pi. The RF measurement method is out of scope of this document, but may include additional configuration of the UUT, as required, to fulfill the requirements of the power measurement method.     </li> <li>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.     </li> </ul>	∎ Pass	□ Fail



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RF measurement plot for Test Case:

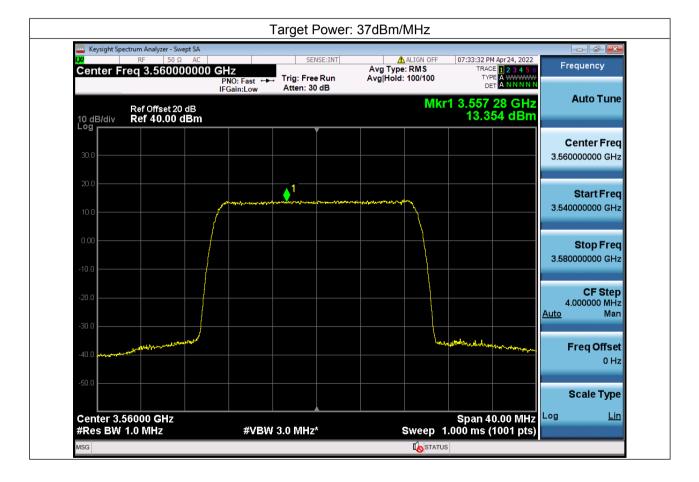
Tester performs power measurement on RF interface(s) of UUT, and verifies it complies with the maxEirp setting, Pi. The RF measurement method is out of scope of this document, but may include additional configuration of the UUT, as required, to fulfill the requirements of the power measurement method.

Freq. (MHz)	Conducted PSD (dBm/MHz)	Antenna Gain (dBi)	Array Gain (dB)	Loss (dB)	EIRP PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
3560	13.354	15.0	3.01	2	33.364	37	Pass
3560	-2.731	15.0	3.01	2	17.279	18	Pass
Noto							

Note:

1. Array Gain=10log(n), n is the antenna number, for this CBSD the n=2

2. EIRP PSD= Conducted PSD+ Antenna Gain+ Array Gain+ Loss



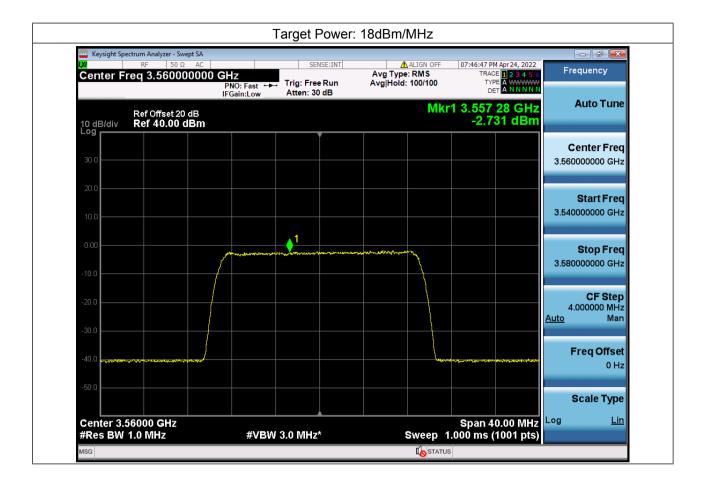


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# 8 Test Data Log

Test data log refer to log files (Log files appendix) except for securitytest cases which shows below.

# 8.1 WINNF.FT.C.SCS.1

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ls												1
	Time	Source	Destination	Protocol								
	4 0.001090	10.10.100.156	10.10.101.192	TLSv1.2		Client Hello						
	6 0.001697	10.10.101.192	10.10.100.156	TLSv1.2		Server Hello						
	8 0.002387	10.10.101.192	10.10.100.156	TLSv1.2		Certificate, Certif	icate Request	, Server He	ello Done			
	10 0.015582	10.10.100.156	10.10.101.192	TLSv1.2		Certificate						
	12 0.060351	10.10.100.156	10.10.101.192	TLSv1.2	653 C	Client Key Exchange	, Certificate	Verify, C	hange Cipher	Spec,	Encrypt	ed
ran ∽ TL	<pre>sport Layer Se Sv1.2 Record L Content Type: Version: TLS Length: 57 Handshake Pro Handshake Pro Handshake T Length: 53 Version: TL Random: ale Session ID Cipher Suit Compression Extensions: Extension:</pre>	curity ayer: Handshake Prot Handshake (22) 1.2 (0x0303) tocol: Server Hello (2 S 1.2 (0x0303) ca70c4a304b979c40a85 Length: 0 e: TLS_RSA_WITH_AES_ Method: null (0)	) 1f37d4c3c89d6498e35f9 256_GCM_SHA384 (0x009 len=1) 0)	9922bc352218								
00	[JA3S: 7555 ca 09 18 80 6a	tring: 771,157,65281 9800d0a8083dc4d7d6fd 0b 26 25 29 62 54 00 ff 06 d1 30 0a	dca6cf22] 9e 08 00 45 00 ····	j.&% )bT								



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### 8.2 WINNF.FT.C.SCS.2

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					× -
Time 6 0.000085	Source 10.10.100.28	Destination 10.10.100.222	Protocol HTTP	Length Info	
20 0.001083	10.10.100.222	10.10.100.222	PKIX-C	118 GET /sas_ca.crl HTTP/1.0 66 Certificate Revocation List	
20 01001005	TOTIOTIOOTEEE	101101100120	TREAT CH		
		118 bytes captured ( a:b0:22:d1:7c:5b), De		a0:75:1c (26:72:67:a0:75:1c)	
		0.100.28, Dst: 10.10.		,	
nsmission Cont ertext Transfe		t: 41730, Dst Port: 9	9007, Seq: 1,	Ack: 1, Len: 52	
ET /sas_ca.crl					
lost: fake-crl-	service\r\n				
r\n Full request U	RI: http://fake-crl-	service/sas ca.crll			
HTTP request 1		contract, sub_contral			
Response in fr	ame: 20]				
				分组: 22 · 己显示: 2 (9.1%)	E
Hypertext Transfer	Protocol: Protocol				
Hypertext Transfer	0_SCS.2.pcap		78.0 104		-
4-15T02%3A20%3A21+000 编辑(E) 视图(V)	0_SCS.2.pcap	统计(3)电话(1)无线(W)	工具(() 帮助()		-
t-15T02%3A20%3A21+000 编辑(E) 视图(V) ♂ ⑧ <mark>■ </mark>	0_5CS2.pcap 跳转(G) 捕获(C) 分析(A) 资 <b>Q</b> <del>余 ∞ ≊ 套 重</del>	<u> </u>		Ð	-
4-15T02%3A20%3A21+000 编辑(E) 视图(Y) 《 ⑧ 📄 👔 🕅 X Time	0_5532pcap 路转(⑤ 描获(C) 分析(A) 【 <b>《</b> ※ ※ <sup>※</sup> ① ① Source	Destination	Protocol	j) Length Info	-
H-15T02%3A20%3A21+000 编辑(E) 视图(Y) ② ⑧ ■ Ⅳ X Time 4 0.000251	0.5CS.2pcap 路转(④) 描訳(①) 分析(△) ② 《 ※ ※ ※ 肇 ④ Source 10.10.100.28	Destination 10.10.216	Protocol TLSv1.2	) Length Info 349 Client Hello	-
4-15T02%3A20%3A21+000 编辑(E) 视图(Y) 《 ⑧ 📄 👔 🕅 X Time	0_5532pcap 路转(⑤ 描获(C) 分析(A) 【 <b>《</b> ※ ※ <sup>※</sup> ① ① Source	Destination	Protocol TLSv1.2	) Length Info 349 Client Hello 4162 [Server Hello	-
-15T02%3A20%3A21+000 编辑(E) 视图(Y) ② ⑧ ■ ② X Time 4 0.000251 6 0.001220	0.553.2prap 2844(G) /#RE(C) 分析(A) 2	Destination 10.10.100.216 10.10.100.28	Protocol TLSv1.2 TLSv1.2	ð) Length Info 349 Client Hello 4162 [Server Hello	-
H-15T02%3A20%3A21+000 编辑(E) 视图(Y) ② ● ■ ② X Time 4 0.000251 6 0.001220 8 0.001281	0.5532prap 器林(⑤) 描述(⑤) 分析(A) 〇 <b>Q</b> ● ● ● 筆 ④ ④ Source 10.10.100.28 10.10.00.216 10.10.100.216	Destination 10.10.100.216 10.10.100.28 10.10.100.28	Protocol TLSv1.2 TLSv1.2 TLSv1.2	D Length Info 349 Client Hello 4162 [Server Hello 735 Certificate, Certificate Request, Server Hello Done	-
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+15102KJA20KJA21+000 ■■ (1) #UB(U) (2) (0) = (1) (2) (2) (0) (2) (2) (3) (0) (2) (4) (0) (2) (4) (0) (2) (5) (2) (4) (2) (2) (5) (2) (2) (2) (5) (2) (2) (2) (5) (2) (2) (2) (2) (5) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	0.953.2peap ■数時(① ) 捕获(① 分析(△) ② <b>Q</b> 金 金 塗 筆 重 Source 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.101.100.100 10.101.100.100 10.100.100 10.100.100 10.100.100 10.1000 10.1000 10.1	Image: Constraint on the second sec	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 treed (33296 bi st: a2:92:0c: 0.100.28	U Length Info 349 Client Hello 4162 [Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) ts) ae:84:72 (a2:92:0c:ae:84:72)	-
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H-15102K1A20K1A21+000 第冊位 税間() 税間() で ) 一 () 税間() で ) 一 () 税間() で ) 一 () 税間() で ) 一 () 税間() 10 0.090251 6 0.001220 8 0.001281 10 0.090429 mme 6: 4162 bytt ernet II, Src: ernet Protocol nsmission Cont insport Layer Sv LSv1.2 Record Content Type: Version: TLS	0.552.peap 副純(G) 捕获(C) 分析(A) C) 《 ● ● ● 筆 ④ ④ Source 10.10.100.28 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.28 ess on wire (33296 bit d2:39:99:c1:15:4c (d Version 4, Src: 10.1 ol Protocol, Src Prot recurity Layer: Handshake Prot Handshake (22)	Destination           10.100.28           10.10.100.28           10.10.100.28           10.10.100.216	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 treed (33296 bi st: a2:92:0c: 0.100.28	U Length Info 349 Client Hello 4162 [Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) ts) ae:84:72 (a2:92:0c:ae:84:72)	-
IIII02(1)A20(1)A21+000           WHED         WHEQUE           IIII00         4           0         000251           6         0.001220           8         0.001281           10         0.096429           me         6: 4162           byth         byth           renet         Protocol           nsmission         Content           LSv1.2         Record           Content         Type:           Version:         TLS           Length:         57	0.5C3.2pop ■新報(⑤) 捕获(ℂ) 分析(△) で	Destination           10.100.28           10.10.100.28           10.10.100.28           10.10.100.216	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 treed (33296 bi st: a2:92:0c: 0.100.28	U Length Info 349 Client Hello 4162 [Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) ts) ae:84:72 (a2:92:0c:ae:84:72)	-
1502X1A20X1A21+000           WHED           WHED           WHED           Ime           4<0.000251	0.552peap BMH(G) HERC() 分HF(A) C) Q ← → ⊆ P (A) Source 10.10.100.28 10.10.100.28 10.10.100.216 10.10.100.28 10.10.100.28 ess on wire (33296 bit d2:39:90:c1:15:4c (d Version 4, Src: 10.1 ol Protocol, Src Por recurity Layer: Handshake Prof Handshake (22) 1.2 (0x0303) ttocol: Server Hello	Destination 10.100.28 10.100.28 10.100.28 10.10.100.28 10.10.100.28 10.10.100.26 10.10.100.216 10.10.100.216 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.1	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 treed (33296 bi st: a2:92:0c: 0.100.28	U Length Info 349 Client Hello 4162 [Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) ts) ae:84:72 (a2:92:0c:ae:84:72)	-
+15102KiA20KiA21+000 第時氏 税肥() 税肥() 2 ④ 二 〇 2 11ms 4 0.000251 6 0.001220 8 0.001221 10 0.096429 me 6: 4162 bytt: ernet II, Src: ernet Protocol nsmission Contt insport Layer Si (LSv1.2 Record Content Type: Version: Type Version: Type Handshake Pro- Handshake	0.5C3.2pop ■新報(⑤) 捕获(ℂ) 分析(△) で	Destination 10.100.28 10.100.28 10.100.28 10.10.100.28 10.10.100.28 10.10.100.26 10.10.100.216 10.10.100.216 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.1	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 treed (33296 bi st: a2:92:0c: 0.100.28	U Length Info 349 Client Hello 4162 [Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) ts) ae:84:72 (a2:92:0c:ae:84:72)	-
H-15102K1A20K1A21+000     W田区     W田     W田     W田     W田     W田     W田     W田     W田     W田     WH     W     W	0.552peap BMH(G) HERC() 分HF(A) C) Q ← → ⊆ P (A) Source 10.10.100.28 10.10.100.28 10.10.100.216 10.10.100.28 10.10.100.28 ess on wire (33296 bit d2:39:90:c1:15:4c (d Version 4, Src: 10.1 ol Protocol, Src Por recurity Layer: Handshake Prof Handshake (22) 1.2 (0x0303) ttocol: Server Hello	Destination 10.100.28 10.100.28 10.100.28 10.10.100.28 10.10.100.28 10.10.100.26 10.10.100.216 10.10.100.216 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.1	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 treed (33296 bi st: a2:92:0c: 0.100.28	U Length Info 349 Client Hello 4162 [Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) ts) ae:84:72 (a2:92:0c:ae:84:72)	-
time     time     to 0.00051     to 0.00052     to 0.00120     to 0.00052     to 0.00120     to 0.00052     to 0.00120     to 0.0005     to 0.00120     to 0.0005     to 0.	0.5C32pop 器林(G) 描述(C) 分析(A) C) 保 金 金 筆 重 Source 10.10.100.28 10.10.100.216 10.10.100 10.10.100 10.	Destination 10.100.28 10.100.28 10.100.28 10.10.100.28 10.10.100.28 10.10.100.26 10.10.100.216 10.10.100.216 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.101.101.101 10.100.216 10.1	Protocol TLSV1.2 TLSV1	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-
15102(1):A20(1):A21+000           WHED         WWEOU           Image: A 0.000251         6 0.000251           6 0.000251         6 0.001220           8 0.001281         10 0.006429           mme 6: 4162 byft         9 0.006429           mme 6: 4162 byft         10 0.006429           mme 7: 40001 byft         10 0.006429           mme 7: 40001 byft         10 0.006429           mme 7: 40001 byft         10 0.006429           mme 8: 40001 byft         10 0.006429           mme 8: 40001 byft         10 0.006429           mme 8: 40001 byft	0.553.peap BMM(G) / MF(C) 分析(A) C) (Q) (Q) (Q) (Q) (Q) Source 10.10.100.28 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.100.216 10.100.28 es on wire (33296 bit d2:39:90:c1:15:14c (d2) Version 4, Src: 10.1 vol Protocol, Src Por Handshake (22) 1.2 (0x0303) ttocol: Server Hello (2 LS 1.2 (0x0303) 4709a54c4c0a3243b9a58 Length: 0	Image: Control of the state of the	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-
t-15102KiA20KiA21+000     (第一位)    (第二位)     (第二位)    (第一位)    (第二位)    (第一位)    (第二位)    (第一位)    (第一)    (第一)    (第一)    (第一)    ( = 1 )    (目))    (目))    (目))    (目))    (目	0.9532pap ■ ##(①) ##F(①) 分析(△) ② <b>Q</b> ● ● ● 筆 ④ ④ Source 10.10.100.216 10.100.216 10.100.216 10.10.100.216 10.100.216 10.100.216 10.10.100.216 10.100.216 10.100.216 10.100.	Destination           10.100.216           10.100.28           10.10.100.28           10.10.100.28           10.10.100.216           10.10.100.216           10.10.100.216           10.10.100.216           10.10.100.216           10.10.100.216           10.10.100.216           10.10.100.216           10.10.100.216           10.100.216           10.100.216           10.00.216 <t< td=""><td>Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,</td><td>J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096</td><td>-</td></t<>	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-
<ul> <li>H-ISTORCIARZONCIARZI+OUT</li> <li>WHEG)</li> <li></li></ul>	0.5C32pop BMH(G) 捕获(C) 分析(A) C) Q ← ∞ 至 ④ ④ Source 10.10.100.28 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.100.206 10.10	Image: Control of the state of the	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-
<ul> <li>ISTORICHARONICARI-COM</li> <li>ISTORICHARONICARI-COM</li> <li>ISTORICHARONICARI-COM</li> <li>ISTORICHARONICARIA</li> <li>ISTORICH</li></ul>	0.9532pap ■ ##(①) ##F(①) 分析(△) ② <b>Q</b> ● ● ● 筆 ④ ④ Source 10.10.100.216 10.100.216 10.100.216 10.10.100.216 10.100.216 10.100.216 10.10.100.216 10.100.216 10.100.216 10.100.	Q         Q         Q         I           Destination         10.100.216         10.100.28         10.100.28           10.10.100.28         10.10.100.28         10.10.100.28         10.10.100.28           10.10.100.216         DST PORT: 35         10.100.216         10.100.216           10.100.216         DST PORT: 35         10.100.216         10.100.216           20         38883016bfcd5045690c866         22         22         256_GCM_SHA384 (0x000)	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-
H-ISTORELAZONEAZI-OOU MELE WERCO Imme 4 0.000251 6 0.001220 8 0.001220 8 0.001220 8 0.001281 10 0.006429 me 6: 4162 bytt ernet Protocol nsmission Contr nsport Layer Si Length: 57 Vandshake Prr Handshake Pr Handshake Prr Handshake Pr Handsha	0.553.pep BMH(G)	Image: Control of the second	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	
<pre>http://www.application.com/ files/fil</pre>	0.552,peap BMH(G) HERC() SHF(A) Source 10.10.100.28 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.28 ess on wire (33296 bit d2:39:99:c1:15:14c (d Version 4, Src: 10.1 'ol Protocol, Src Por recurity Layer: Handshake Prot Handshake (22) 1.2 (0x0303) trocol: Server Hello (J LS 1.2 (0x0303) d709a54c4c0a3243ba581 Length: 0 te: TLS_RSA_WITH_AES_ n Method: null (0) Length: 13 renegotiation_info (65 1	Q         Q         Q         I           Destination         10.100.216         10.100.28         10.100.28           10.10.100.28         10.10.100.28         10.10.100.216         10.10.100.216           10.100.216, DSt         10.10.100.216         10.100.216         10.100.216           10.100.216, DSt         10.100.216         10.100.216         10.100.216           10.100.216, DSt         10.100         10.100         10.100           12:39:90:C11.5:4C), D0         10.100         10.100           21:00.216, DSt         10.100         10.100         10.100           22)         38883016bfcd5045690c866         22)         23883016bfcd5045690c866           22)         3883016bfcd5045690c866         10.000         10.000           22)         3883016bfcd5045690c866         10.000           22)         3883016bfcd5045690c866         10.000           22)         3883016bfcd5045690c866         10.000           231         10.100         10.000	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-
<pre>ListorkiAz0KiAz1+00 KHLC KURCU Lime 4 0.000251 6 0.001220 8 0.001220 8 0.001281 10 0.096429 me 6: 4162 byts ernet Protocol nsmission Cont. Lisv1.2 Record Content Type: Version: Type: Handshake Per Handshake Per Handshake Per Handshake Per Handshake Per Length: 53 Version: Type: Katom: 40 Session 10 Cipher Sui Compressio Extension: * Extension: * Extension: * Extension: * Length: * Renegoti * Renegot</pre>	0.5C32pop 器林(G) 描記(C) 分析(A) C) マ 金 金 筆 重 重 Source 10.10.100.28 10.10.100.216 10.100.216 10.10	Image: Control of the second	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-
<ul> <li>HISTORELAZONIAZI + ON</li> <li>MILE WELL</li> <li>WILE WELL</li>     &lt;</ul>	0.553.pep BMH(G)	Image: Control of the second	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-
<ul> <li>HISTORELAZONIAZI + ON</li> <li>MILE WELL</li> <li>WILE WELL</li>     &lt;</ul>	0.5C3.2pap BMH(G) 捕死(C) 分析(A) C) Q ↔ ↔ 至 ④ ④ Source 10.10.100.28 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.10.100.216 10.100.216	Image: Control of the second	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 red (33296 b) 51: a2:92:0c: 3.100.28 2058, Seq: 1,	J Length Info 349 Client Hello 4162 Server Hello 735 Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Certificate Revoked) (ts) ae:84:72 (a2:92:0c:ae:84:72) Ack: 284, Len: 4096	-



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### 8.3 WINNF.FT.C.SCS.3

						$\times$
ls	Time	Source	Destination	Protocol	Length Info	
	4 0.001084	10.10.101.247	10.10.100.47	TLSv1.2	349 Client Hello	
	6 0.001654	10.10.100.47	10.10.101.247		4162 Server Hello	
	8 0.002313	10.10.100.47	10.10.101.247	TLSv1.2	738 Certificate, Certificate Request, Server Hello Done	
	10 0.006307	10.10.101.247	10.10.100.47	TLSV1.2	73 Alert (Level: Fatal, Description: Certificate Expired)	
	17 0.189333	10.10.101.247	10.10.100.47	TLSv1.2		
the	rnet II, Src: rnet Protocol	ae:c9:00:09:a9:64 ( Version 4, Src: 10.	<pre>ts), 4162 bytes captu ae:c9:00:09:a9:64), D 10.100.47, Dst: 10.10 rt: 9000, Dst Port: 4</pre>	st: 36:ef:84: .101.247	:c8:62:d2 (36:ef:84:c8:62:d2)	
	sport Layer Se		rt: 9000, DSt Port: 4	8/32, Seq: 1,	, ACK: 284, Len: 4096	
			otocol: Server Hello			
		Handshake (22)	Jocoff. Server herro			
	Version: TLS					
	Length: 57					
~		tocol: Server Hello				
	Handshake	Type: Server Hello (	(2)			
	Length: 53	,,				
	Version: TI	5 1.2 (0x0303)				
	> Random: 91	3913abad80bab9453470	4115da8daf1fcee469d69	92e989e17808	6ba602e64	
	Session ID	Length: 0				
	Cipher Suit	te: TLS_RSA_WITH_AES	_256_GCM_SHA384 (0x00	(be		
	Compression	Method: null (0)				
	Extensions	Length: 13				
	<pre>~ Extension:</pre>	renegotiation_info	(len=1)			
	Type: re	negotiation_info (6	5281)			
	Length:	1				
	> Renegoti	ation Info extensio	n			
	<pre>~ Extension:</pre>	<pre>session_ticket (ler</pre>	1=0)			
		ssion ticket (35)				



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# 8.4 WINNE FT C SCS

	🔇 ९ 🗢 🗢 🕾 🖲 🕹	统计(5) 电话(Y) 无线(W)		
s				X
Time	Source	Destination	Protocol	Length Info
4 0.000473	10.10.100.222	10.10.100.47		349 Client Hello
6 0.002130	10.10.100.47	10.10.100.222		1646 Server Hello, Certificate, Certificate Request, Server Hello Done
8 0.003149	10.10.100.222	10.10.100.47	TLSv1.2	73 Alert (Level: Fatal, Description: Unknown CA)
15 0.107788 17 0.108280	10.10.100.222 10.10.100.47	10.10.100.47 10.10.100.222	TLSv1.2	583 Client Hello 1674 Server Hello, Certificate, Certificate Request, Server Hello Done
17 0.108280	10.10.100.47	10.10.100.222	11201.2	1074 Server herro, certificate, certificate kequest, server herro bone
		s), 1646 bytes captur		
		e:43:9†:c2:e8:1†), Ds 0.100.47, Dst: 10.10.		43:8f:16 (8a:76:ea:43:8f:16)
		t: 9000, Dst Port: 49		Ack: 284. Len: 1580
ransport Layer Se			, seq. 1	Heri 204, Cent 200
	ayer: Handshake Prot	ocol: Server Hello		
Content Type:	Handshake (22)			
Version: TLS	1.2 (0x0303)			
Length: 57				
	tocol: Server Hello			
	ype: Server Hello (2	)		
Length: 53	5 1.2 (0x0303)			
		604da9cdccf4fc9568c1	c1f19291cf64	1f317139e
Session ID		obiduscucciaressouci	cirijzjicio4	1.21.132
		256 GCM SHA384 (0x00	9d)	
	Method: null (0)			
Extensions	Length: 13			
<pre>~ Extension:</pre>	renegotiation_info (	len=1)		
Type: re	negotiation_info (65	281)		
Length:				
	ation Info extension			
		a)		
<pre>~ Extension:</pre>	<pre>session_ticket (len=</pre>	0)		
<ul> <li>Extension:</li> <li>Type: se</li> </ul>	<pre>session_ticket (len= ssion_ticket (35)</pre>	0)		
<pre>     Extension:     Type: se     Length: </pre>	session_ticket (len= ssion_ticket (35) a	0)		
<pre></pre>	<pre>session_ticket (len= ssion_ticket (35)</pre>	0)		分组: 80 · 己显示: 24 (30.0%)    配置
<pre>     Extension:     Type: se     Length: </pre>	session_ticket (len= ssion_ticket (35) a	0)		分组: 80 · 己显示: 24 (30.05)    配置
<ul> <li>Extension: Type: se Length:</li> <li>Transport Layer See</li> </ul>	session_ticket (len= ssion_ticket (35) a urity (tls), 1,580 byte(s)	0)		分组: 60 · 己显示: 24 (30.0%)    配置
<ul> <li>Extension: Type: se Length:</li> <li>Transport Layer Second -04-15T03%3A20%3A21+0000</li> </ul>	session_ticket (len= ssion_ticket (35) a uurity (tls), 1,580 byte(s)		丁貝(丁) 藝助(1	
<ul> <li>✓ Extension: Type: se Lenoth: /</li> <li>✓ Transport Layer Set</li> <li>-04-15103%3A21*0000</li> <li>(新編集) 親国(火)</li> </ul>	session_ticket (len= ssion_ticket (35) a :urity (tls). 1,580 byte(s) !_SCSApcap 跳转(G) 描訳(C) 分析(A)	统计(S)电话(M) 无线(W)	工具(1) 帮助(	
<ul> <li>ど Extension: Type: se Lenoth:</li> <li>Transport Layer See</li> <li>04-15703%3A20%3A21-0000</li> <li>日 範疇(日 税限(公))</li> <li>日 範疇(日 税限(公))</li> <li>日 範疇(日 税限(公))</li> </ul>	session_ticket (len= ssion_ticket (35) a uurity (tls), 1,580 byte(s)	统计(S)电话(M) 无线(W)		- - -
<ul> <li>Extension: Type: se Length:</li> <li>Transport Layer See</li> <li>Transport Layer See</li> <li>Simile:</li> <li>Simile:</li> <li>Simile:</li> <li>Simile:</li> <li>Time</li> </ul>	session_ticket (len= ssion_ticket (35) a uurity (tls), 1,580 byte(s) USCSApcap 跳转(G) 描訳(C) 分析(A) C ● ● ● 肇 ④ 墨 Source	統计(5) 电话(20) 无线(20) 二	Protocol	ے ا
<ul> <li>ど Extension: Type: set Interface</li> <li>マ Transport Layer Set</li> <li>マート1510398.342098.3421+0000</li> <li>日 新規(日) 税団(ソ)</li> <li>単 (日) 税(国)</li> <li></li></ul>	session_ticket (len= ssion_ticket (35) a uurity (1s), 1,580 byte(s) (SCSApcap 勤時(G) 描訳(C) 分析(A) C) 《 ● ● 签 ④ ④ Source 10.10.109.222	統计(5) 电话(2) 无线(2) <b>二 三 Q Q Q 亚</b> <u>Destination</u> 10.10.100.47	Protocol TLSv1.2	j) Length Info 349 Client Hello
<ul> <li>ど Extension: Type: see Length: 」</li> <li>プ Transport Layer See</li> <li>つ4-1510398:3A20*83A21+0000</li> <li>日 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)</li></ul>	sessio_ticket (len= ssion_ticket (35) a uurity (tls), 1,580 byte(s) (SC4Apcap 跳碗(G) 描載(C) 分析(A) C	<ul> <li>銀计(S) 电话(D) 无线(M)</li> <li>二 ● Q Q Q 亞</li> <li>型 ● Destination</li> <li>10.10.47</li> <li>10.10.100.47</li> <li>10.10.100.222</li> </ul>	Protocol TLSv1.2 TLSv1.2	d) Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done
<ul> <li>✓ Extension: Type: se Length:</li> <li>✓ Transport Layer See</li> <li>→ 15103%3A20%3A21+0000</li> <li>D Self(E) #020(y)</li> <li>Ø @ @ @ @ @ @ @</li> <li>Ø @ @ @ @ @</li> <li>Ø @ @ @ @ @ @ @ @</li> <li>Ø @ @ @ @ @ @ @ @ @</li> <li>Ø @ @ @ @ @ @ @ @ @</li> <li>Ø @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @ @</li></ul>	session_ticket (len= ssion_ticket (35) a uurity (tls), 1,580 byte(s) 以ていいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいい	統计(5) 电话(2) 无线(20) 二 三 Q Q Q 亚 Destination 10.10.100.47 10.10.100.47	Protocol TLSv1.2 TLSv1.2 TLSv1.2	J) Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Unknown CA)
<ul> <li>✓ Extension: Type: se Ienoth:</li> <li>✓ Transport Layer See</li> <li>Continue</li> <li>✓ Transport Layer See</li> <li>✓ Trans</li></ul>	session_ticket (len= ssion_ticket (35) 3	統计(5) 电话(2) 无线(2) 章 <b>电 Q Q 更</b> Destination 10.10.100.47 10.10.100.47 10.10.100.47 10.10.100.47	Protocol TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2	D Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Unknown CA) 583 Client Hello
<ul> <li>✓ Extension: Type: se Length:</li> <li>✓ Transport Layer See</li> <li>○ ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●</li></ul>	session_ticket (len= ssion_ticket (35) a uurity (tls), 1,580 byte(s) 以ていいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいいい	統计(5) 电话(2) 无线(20) 二 三 Q Q Q 亚 Destination 10.10.100.47 10.10.100.47	Protocol TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2	J) Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Unknown CA)
<ul> <li>✓ Extension: Type: se Ienoth</li> <li>✓ Transport Layer See</li> <li>←04-15109%3A20%3A21+0000</li> <li>D WHA(D) 4028(Δ)</li> <li>✓ W W W W</li> <li>✓ 0.000473</li> <li>✓ 0.000473</li></ul>	session_ticket (len- ssion_ticket (35) a uurity (tls), 1,580 byte(s) Source 10.10.100.222 10.10.100.222 10.10.100.222 10.10.100.222 10.10.100.222 10.10.100.222 10.10.100.47 on wire (584 bits),	<ul> <li>(統計(5) 电话(2) 天統(20)</li> <li>(1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2</li></ul>	Protocol TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2 34 bits)	D Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Unknown CA) 583 Client Hello 1674 Server Hello, Certificate, Certificate Request, Server Hello Done
<ul> <li>ど Extension: Type: see Inenth: // Inenth: //</li></ul>	sessio_ticket (len= ssion_ticket (35) a uurity (tls), 1,580 byte(s) (SC4peap 跳转(G) 描載(C) 分析(A) C	<ul> <li>(第十5) 电话① 无线(20)</li> <li>(第) ● (第) ● (第) ● (第)</li> <li>(10,10,100,47)</li> <li>(10,100,47)</li> <li>(10,100,47)&lt;</li></ul>	Protocol TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2 TLSv1.2 34 bits) st: ee:43:9f	D Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Unknown CA) 583 Client Hello
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<ul> <li>Extension: Type: se Ieneth: Transport Layer See</li> <li>Transport Layer See</li> <li>Transport Layer See</li> <li>Time</li> <li>● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●</li></ul>	session_ticket (len- ssion_ticket (35) 3 uurity (tls), 1,580 byte(s) (またスタルロタ) (またスター) (またス) ( (またス)) ( (またス)) ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (	<ul> <li>(第十5) 电话() 元は()</li> <li>(第一) (第一) (第一) (第一) (第一) (第一) (第一) (第一)</li></ul>	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 34 bits) st: ee:43:9f: 0.100.47	D Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alert (Level: Fatal, Description: Unknown CA) 583 Client Hello 1674 Server Hello, Certificate, Certificate Request, Server Hello Done
<ul> <li>ど Extension: Type: see Inenth: Inenth: Inenth: Wath (1) Wath (2) Wath (2)</li></ul>	sessio_ticket (len= ssion_ticket (35) a uurity (tls), 1,590 byte(s) (SCApcap 跳快(G) 描訳(C) 分析(A) C	<ul> <li>(第十5) 电话(2) 天线(20)</li> <li>(二) (二) (二) (二) (二) (二) (二) (二) (二) (二)</li></ul>	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 34 bits) st: ee:43:9f 3.100.47 2000, Seq: 28	Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alter (Level: Fatal, Description: Unknown CA) 583 Client Hello 1674 Server Hello, Certificate, Certificate Request, Server Hello Done c2:e8:1f (ee:43:9f:c2:e8:1f)
<ul> <li>Extension: Type: se Innoth: // Transport Layer Sec</li> <li>Transport Layer Sec</li> <li>第1507%3A20%3A21+0000</li> <li>第160</li> <li>第160</li> <li>第170</li> <li>第170</li> <li>第170</li> <li>108288</li> <li>170</li> <li>108288</li> <li>170</li> <li>108288</li> <li>170</li> <li>108288</li> <li>170</li> <li>108280</li> <li>Tame 8: 73 bytes</li> <li>thernet II, Src: ransport Layer Sec</li> <li>TLSV1.2 Record I</li> </ul>	session_ticket (len- ssion_ticket (35) a " "ScSApcap 跳转(G) 描訳(C) 分析(A) C   Q ← ⇒ 签 ④ ④ Source 10.10.100.222 10.100.200 10.200	<ul> <li>(第十5) 电话() 元は()</li> <li>(第一) (第一) (第一) (第一) (第一) (第一) (第一) (第一)</li></ul>	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 34 bits) st: ee:43:9f 3.100.47 2000, Seq: 28	Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alter (Level: Fatal, Description: Unknown CA) 583 Client Hello 1674 Server Hello, Certificate, Certificate Request, Server Hello Done c2:e8:1f (ee:43:9f:c2:e8:1f)
<ul> <li>Extension: Type: se Ieneth: Transport Layer See</li> <li>Transport Layer See</li> <li>Transport Layer See</li> <li>Time</li> <li>Matter Matter</li> <li>Matter</li> <li>Matter</li></ul>	session_ticket (len- ssion_ticket (35) a uurity (tis), 1,580 byte(s) (SCSApcap 副時(G) 捕服北(C) 分析(A) (C) 《 一 命 管 筆 重 Source 10.10.100.222 10.100.202	<ul> <li>(第十5) 电话(2) 天线(20)</li> <li>(二) (二) (二) (二) (二) (二) (二) (二) (二) (二)</li></ul>	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 34 bits) st: ee:43:9f 3.100.47 2000, Seq: 28	Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alter (Level: Fatal, Description: Unknown CA) 583 Client Hello 1674 Server Hello, Certificate, Certificate Request, Server Hello Done c2:e8:1f (ee:43:9f:c2:e8:1f)
<ul> <li>Extension: Type: se Innerfit: Transport Layer See</li> <li>Transport Layer See</li> <li>Innerfit: Innerfi</li></ul>	session_ticket (len- ssion_ticket (35) a uurity (tis), 1,580 byte(s) (SCSApcap 副時(G) 捕服北(C) 分析(A) (C) 《 一 命 管 筆 重 Source 10.10.100.222 10.100.202	<ul> <li>(第十5) 电话(2) 天线(20)</li> <li>(二) (二) (二) (二) (二) (二) (二) (二) (二) (二)</li></ul>	Protocol TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 TLSV1.2 34 bits) st: ee:43:9f 3.100.47 2000, Seq: 28	Length Info 349 Client Hello 1646 Server Hello, Certificate, Certificate Request, Server Hello Done 73 Alter (Level: Fatal, Description: Unknown CA) 583 Client Hello 1674 Server Hello, Certificate, Certificate Request, Server Hello Done c2:e8:1f (ee:43:9f:c2:e8:1f)
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◯ 🖉 Record Layer (tls.record), 7 byte(s)

| 分组: 80 · 己显示: 24 (30.0%)

|| 配置: Default



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### 8.5 WINNF.FT.C.SCS.5

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1s						$\times$	- 1
	Time	Source	Destination		Length Info		
	4 0.001079	10.10.101.198	10.10.100.222	TLSv1.2	349 Client Hello		
	6 0.001483	10.10.100.222	10.10.101.198		4162 Server Hello		
	8 0.002162	10.10.100.222	10.10.101.198	TLSv1.2			
	10 0.006355	10.10.101.198	10.10.100.222	TLSv1.2	······································		
_	18 0.106862	10.10.101.198	10.10.100.222	TLSv1.2	583 Client Hello		
ra	me 6: 4162 byte	s on wire (33296 bi	ts), 4162 bytes captu	red (33296 bi	its)		
th	ernet II, Src:	a6:c7:8a:1d:94:73 (a	a6:c7:8a:1d:94:73), D	st: 96:aa:fa:	:3d:b1:c4 (96:aa:fa:3d:b1:c4)		
nt	ernet Protocol	Version 4, Src: 10.	10.100.222, Dst: 10.1	0.101.198			
ra	nsmission Contr	ol Protocol, Src Por	rt: 9000, Dst Port: 4	7886, Seq: 1,	, Ack: 284, Len: 4096		
ra	nsport Layer Se	curity					
-	TLSv1.2 Record	Layer: Handshake Pro	tocol: Server Hello				
	Content Type:	Handshake (22)					
	Version: TLS	1.2 (0x0303)					
	Length: 57						
	<ul> <li>Handshake Pro</li> </ul>	tocol: Server Hello					
	Handshake '	Type: Server Hello (	2)				
	Length: 53						
	Version: TI	LS 1.2 (0x0303)					
	> Random: 8c	76fd6439262d9f55bb53	8ee1fbe88f9340160bf18	23ba6e3c0513	8a8554fa7		
	Session ID	Length: 0					
	Cipher Suit	te: TLS_RSA_WITH_AES	_256_GCM_SHA384 (0x00	19d)			
	Compression	n Method: null (0)					
	Extensions	Length: 13					
	<pre>~ Extension:</pre>	renegotiation_info	(len=1)				
	Type: re	negotiation_info (65	5281)				
	Length:	1					
	> Renegoti	ation Info extension	1				
	<pre>~ Extension:</pre>	session_ticket (len	=0)				
	Type: se	ssion_ticket (35)					
	length:	0					



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# 9 Photographs

# **9.1 EUT Constructional Details (EUT Photos)** Please Refer to Integral and internal photos for details.

- End of the Report -



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