

TEST REPORT

Application No.: GZCR2505000725AT
Applicant: Guangzhou Robustel Co., Ltd.
Address of Applicant: 501, Building #2,63 Yongan Road, Huangpu District, Guangzhou, China
Manufacturer: Guangzhou Robustel Co., Ltd.
Address of Manufacturer: 501, Building #2,63 Yongan Road, Huangpu District, Guangzhou, China
Factory: Guangzhou Robustel Co., Ltd.
Address of Factory: 501, Building #2,63 Yongan Road, Huangpu District, Guangzhou, China
Product Name: High Speed Smart 5G Router
Model No.: R5020L-A-5G-A25GL
Standard(s) : 47 CFR Part 15, Subpart E 15.407 (h) (2)
Date of Receipt: 2025-05-19
Date of Test: 2025-05-27 to 2025-06-06
Date of Issue: 2025-06-06

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Ricky Liu

Ricky Liu
Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch Testing Center EEC Laboratory

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Revision Record			
Version	Report No.	Date	Remark
01	GZCR250500072504	2025-06-06	Original

Authorized for issue by:				
		Jim Li		
		Jim Li/Project Engineer		
		Vico Cui		
		Vico Cui/Reviewer		



2 Test Summary

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Channel Move Time	47 CFR Part 15, Subpart E 15.407	KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
Non-occupancy period		KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
Channel Availability Check Time		KDB 905462 D02 Section 7.8.2	KDB 905462 D02 Section 5.1	Pass
Channel Closing Transmission Time		KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
U-NII Detection Bandwidth		KDB 905462 D02 Section 7.8.1	KDB 905462 D02 Section 5.1	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12-36 V powered by AC/DC adapter as below: Model:GQ24-120150-AX Input: AC 100-240 V, 50/60Hz, 1.0A Max Output: DC 12 V, 1.5 A, 18 W
Cable(s):	DC input ports LAN ports Wi-Fi antenna ports*2 NR antenna ports*4
Test Voltage:	AC 120 V, 60 Hz
Operation Frequency/Number of channels (20MHz):	U-NII-1: 5180-5240MHz (4 Channels); U-NII-2C: 5500-5700MHz (11 Channels); U-NII-3: 5745-5825MHz (5 Channels)
Operation Frequency/Number of channels/(40MHz):	U-NII-1: 5190-5230MHz (2 Channels); U-NII-2C: 5510-5670MHz (5 Channels); U-NII-3: 5755-5795MHz (2 Channels)
Operation Frequency/Number of channels (80MHz):	U-NII-1: 5210MHz (1 Channel); U-NII-2C: 5530-5610MHz (2 Channels); U-NII-3: 5775MHz (1 Channel)
Modulation Type:	802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11a/n/ac 20: 20MHz;
Channel Spacing:	802.11n/ac 40: 40MHz; 802.11ac 80: 80MHz
DFS Function:	Master
TPC Function:	Support TPC function
Antenna Type:	RP-SMA Connector with Dipole Antenna or Sucker Antenna Option 1: Dipole Antenna: Antenna 1: 3dBi and Antenna 2: 3dBi;
Antenna Gain:	Option 2: sucker Antenna: Antenna 1: 2.4dBi and Antenna 2: 2.4dBi (Refer to Remark)
Remark:	Two antennas can simultaneous transmission
Antenna Number:	2
Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.	



4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
RJ45 Cable (1.2m length)	/	/	/
Note Book Computer	LENOVO	ThinkPad T490	PF1D1MVJ

4.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,
Guangdong, China 510663

Tel: +86 20 82155555

No tests were sub-contracted.

4.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

● SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

● ISED (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

● VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



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4.5 Deviation from Standards

None

4.6 Abnormalities from Standard Conditions

None



5 Equipment List

RF Conducted Test					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2023-11-02	2025-11-01
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2024-08-19	2025-08-18
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2024-08-19	2025-08-18
Test Software	TST	V2.0	GZE100-78	N/A	N/A
MXG Vector Signal Generator	Keysight	N5182B	EMC2216	2024-10-14	2025-10-13

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2024-06-13	2025-06-12



6 Radio Spectrum Matter Test Results

6.1 Channel Move Time

Test Requirement KDB 905462 D02 Section 5.1

Test Method: KDB 905462 D02 Section 7.8.3

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 63.5 % RH

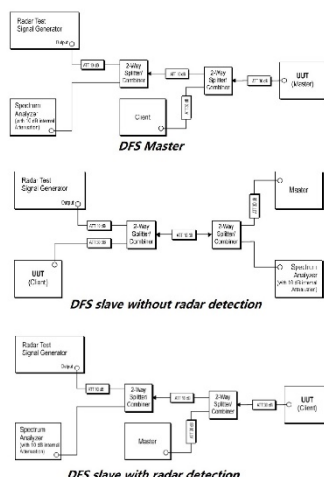
Atmospheric Pressure: 1004 mbar

6.1.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 04	Normal operating_Keep the EUT communication with the companion device.



6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (12000ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer to Appendix for Details



6.2 Non-occupancy period

Test Requirement KDB 905462 D02 Section 5.1

Test Method: KDB 905462 D02 Section 7.8.3

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 63.5 % RH

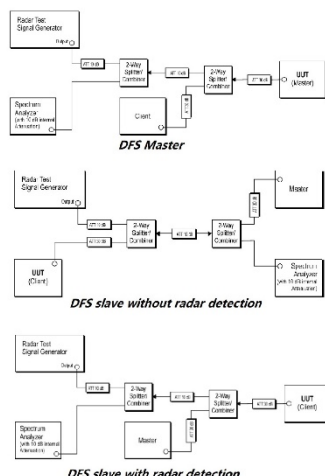
Atmospheric Pressure: 1004 mbar

6.2.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 04	Normal operating_Keep the EUT communication with the companion device.



6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (12000ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement of the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

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6.3 Channel Availability Check Time

Test Requirement KDB 905462 D02 Section 5.1

Test Method: KDB 905462 D02 Section 7.8.2

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 63.5 % RH

Atmospheric Pressure: 1004 mbar

6.3.2 Test Mode Description

Pre-scan / Mode		Description
Final test Code		

Final test	04	Normal operating_Keep the EUT communication with the companion device.
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6.3.4 Measurement Procedure and Data

1) Initial Channel Availability Check Time

The Initial Channel Availability Check Time tests that the UUT does not emit beacon, control, or data signals on the test Channel until the power-up sequence has been completed and the U-NII device checks for Radar Waveforms for one minute on the test Channel. This test does not use any Radar Waveforms and only needs to be performed one time.

a) The U-NII devices will be powered on and be instructed to operate on the appropriate U-NII Channel that must incorporate DFS functions. At the same time the UUT is powered on, the spectrum analyzer will be set to zero span mode with a 3 MHz RBW and 3 MHz VBW on the Channel occupied by the radar (Chr) with a 2.5 minute sweep time. The spectrum analyzer's sweep will be started at the same time power is applied to the U-NII device.

b) The UUT should not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle.

c) Confirm that the UUT initiates transmission on the channel

This measurement can be used to determine the length of the power-on cycle if it is not supplied by the manufacturer. If the spectrum analyzer sweep is started at the same time the UUT is powered on and the UUT does not begin transmissions until it has completed the cycle, the power-on time can be determined by comparing the two times.

2) Radar Burst at the Beginning of the Channel Availability Check Time

The steps below define the procedure to verify successful radar detection on the test Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB occurs at the beginning of the Channel Availability Check Time.

a) The Radar Waveform generator and UUT are connected using the applicable test setup described in the sections on configuration for Conducted Tests or Radiated Tests and the power of the UUT is switched off.

b) The UUT is powered on at T0. T1 denotes the instant when the UUT has completed its power-up sequence (T_{power-up}). The Channel Availability Check Time commences on Chr at instant T1 and will end no sooner than T1 + T_{ch_avail_check}.

c) A single Burst of one of the Short Pulse Radar Types 0-4 will commence within a 6 second window starting at T1. An additional 1 dB is added to the radar test signal to ensure it is at or above the DFS Detection Threshold, accounting for equipment variations/errors.

d) Visual indication or measured results on the UUT of successful detection of the radar Burst will be recorded and reported. Observation of Chr for UUT emissions will continue for 2.5 minutes after the radar Burst has been generated.

e) Verify that during the 2.5 minute measurement window no UUT transmissions occurred on Chr. The Channel Availability Check results will be recorded.

on Chr. The Channel Availability Check results will be recorded.



3) Radar Burst at the End of the Channel Availability Check Time

The steps below define the procedure to verify successful radar detection on the test Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1dB occurs at the end of the Channel Availability Check Time.

- a) The Radar Waveform generator and UUT are connected using the applicable test setup described in the sections for Conducted Tests (7.2) or Radiated Tests (7.3) and the power of the UUT is switched off.
- b) The UUT is powered on at T0. T1 denotes the instant when the UUT has completed its power-up sequence (Tpower_up). The Channel Availability Check Time commences on Chr at instant T1 and will end no sooner than T1 + Tch_avail_check.
- c) A single Burst of one of the Short Pulse Radar Types 0-4 will commence within a 6 second window starting at T1 + 54 seconds. An additional 1 dB is added to the radar test signal to ensure it is at or above the DFS Detection Threshold, accounting for equipment variations/errors.
- d) Visual indication or measured results on the UUT of successful detection of the radar Burst will be recorded and reported. Observation of Chr for UUT emissions will continue for 2.5 minutes after the radar Burst has been generated.
- e) Verify that during the 2.5 minute measurement window no UUT transmissions occurred

Please Refer to Appendix for Details



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6.4 Channel Closing Transmission Time

Test Requirement KDB 905462 D02 Section 5.1

Test Method: KDB 905462 D02 Section 7.8.3

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 63.5 % RH

Atmospheric Pressure: 1004 mbar

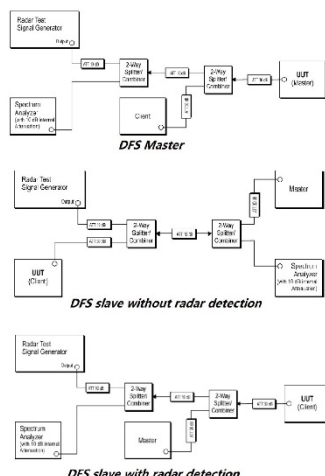
6.4.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	

Final test 04	Normal operating_Keep the EUT communication with the companion device.
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6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (12000ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer to Appendix for Details



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6.5 U-NII Detection Bandwidth

Test Requirement KDB 905462 D02 Section 5.1

Test Method: KDB 905462 D02 Section 7.8.1

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 63.5 % RH

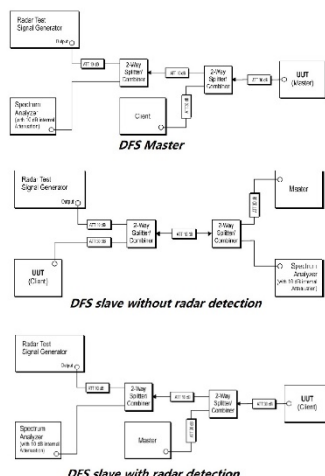
Atmospheric Pressure: 1004 mbar

6.5.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 04	Normal operating_Keep the EUT communication with the companion device.



6.5.3 Test Setup Diagram



6.5.4 Measurement Procedure and Data

1. Set up the DFS timing monitoring equipment and Set up the overall system for either radiated or conducted coupling to the UUT.

Adjust the equipment to produce a single Burst of any one of the Short Pulse Radar Types 0 - 4 at the center frequency of the UUT Operating Channel at the specified DFS Detection Threshold level.

Set the UUT up as a standalone device (no associated Client or Master, as appropriate) and no traffic. Frame based systems will be set to a talk/listen ratio reflecting the worst case (maximum) that is user configurable during this test.

2. Generate a single radar Burst, and note the response of the UUT. Repeat for a minimum of 10 trials. The UUT must detect the Radar Waveform within the DFS band using the specified U-NII Detection Bandwidth criterion.

3. Starting at the center frequency of the UUT operating Channel, increase the radar frequency in 5 MHz steps, repeating the above test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion. Repeat this measurement in 1MHz steps at frequencies 5 MHz below where the detection rate begins to fall. Record the highest frequency (denote as FH) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies above FH is not required to demonstrate compliance.

4. Starting at the center frequency of the UUT operating Channel, decrease the radar frequency in 5 MHz steps, repeating the above test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion. Repeat this measurement in 1MHz steps at frequencies 5 MHz above where the detection rate begins to fall. Record the lowest frequency (denote as FL) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies below FL is not required to demonstrate compliance.

5. The U-NII Detection Bandwidth is calculated as follows:

U-NII Detection Bandwidth = FH - FL

The U-NII Detection Bandwidth must meet the U-NII Detection Bandwidth criterion. Otherwise, the UUT does not comply with DFS requirements. This is essential to ensure that the UUT is capable of detecting Radar Waveforms across the same frequency spectrum that contains the significant energy from the system. In the case that the U-NII Detection Bandwidth is greater than or equal to the 99 percent power bandwidth for the measured FH and FL, the test can be truncated and the U-NII Detection Bandwidth can be reported as the measured FH and FL.

Please Refer to Appendix for Details



7 Appendix

1. Signal Calibration

1.1 Test Result

1.1.1 SC

Band: 2C							
Mode	Bandwidth (MHz)	Frequency (MHz)	Radarsignal		Signal Calibration		Verdict
			Type	Trial Id	Result	Limit	
802.11ac (VHT20)	20	5500	0	0	Refer To Test Graph		Pass
			1	0	Refer To Test Graph		Pass
			2	0	Refer To Test Graph		Pass
			3	0	Refer To Test Graph		Pass
			4	0	Refer To Test Graph		Pass
			5	0	Refer To Test Graph		Pass
			6	0	Refer To Test Graph		Pass



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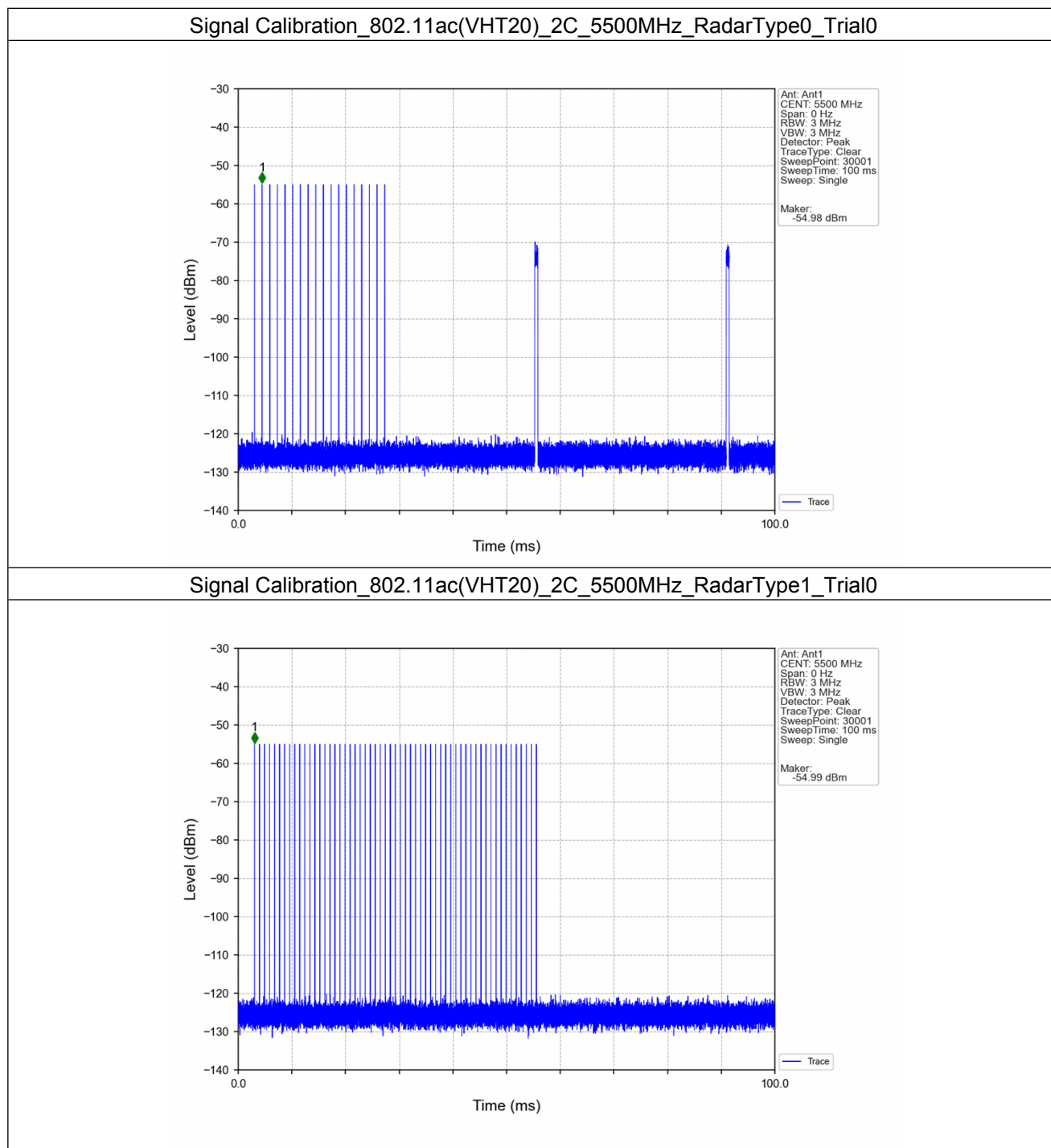
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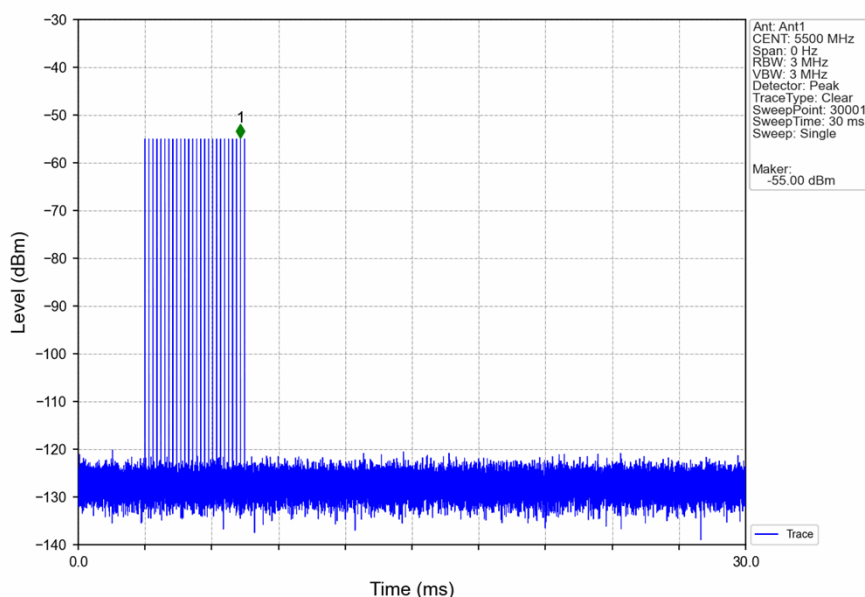
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1.2 Test Graph

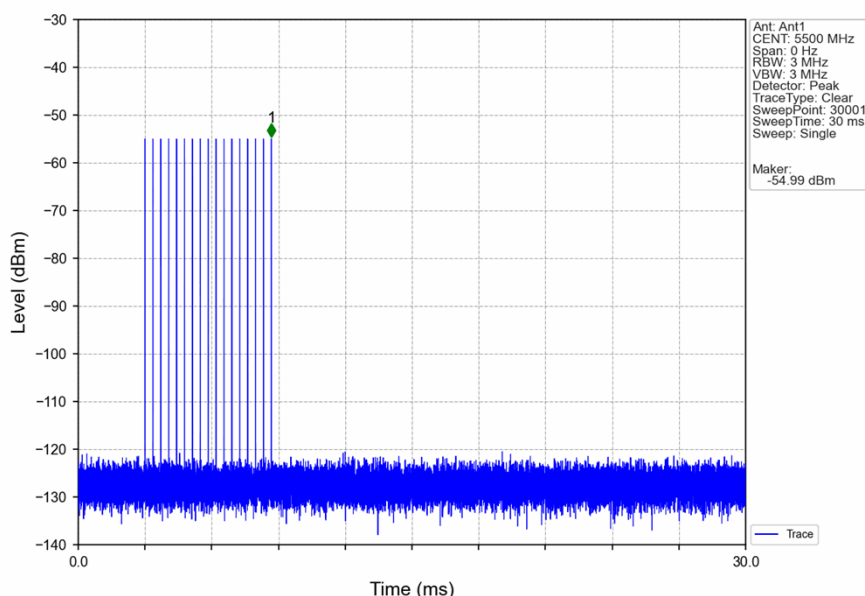
1.2.1 SC



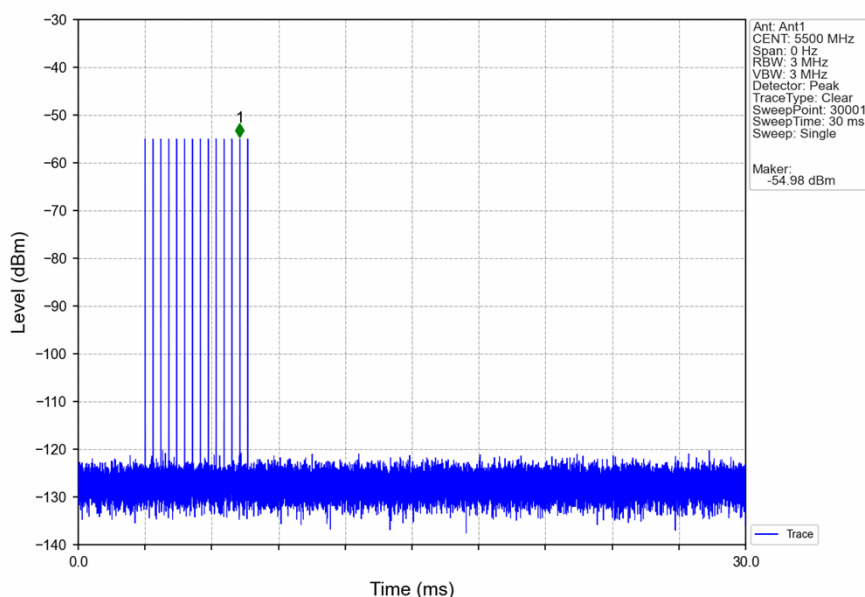
Signal Calibration_802.11ac(VHT20)_2C_5500MHz_RadarType2_Trial0



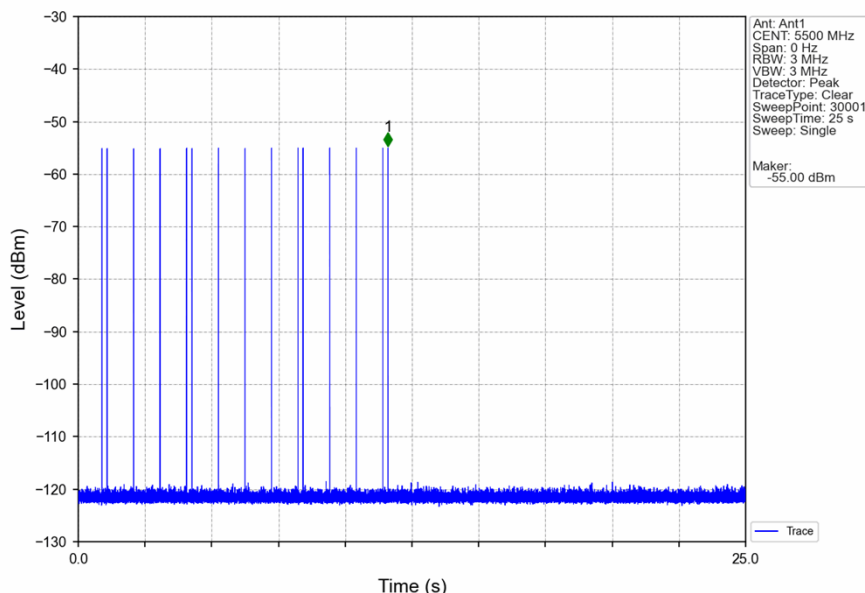
Signal Calibration_802.11ac(VHT20)_2C_5500MHz_RadarType3_Trial0



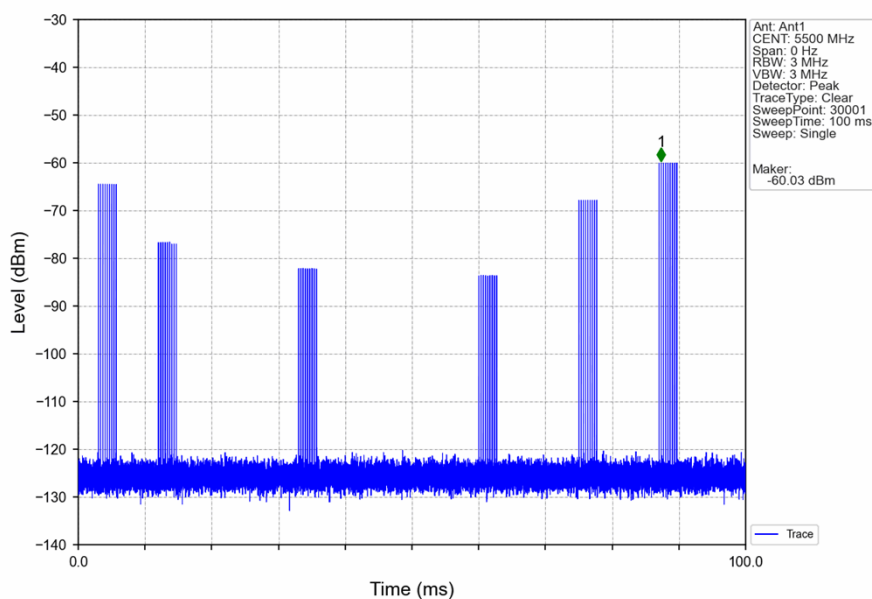
Signal Calibration_802.11ac(VHT20)_2C_5500MHz_RadarType4_Trial0



Signal Calibration_802.11ac(VHT20)_2C_5500MHz_RadarType5_Trial0



Signal Calibration_802.11ac(VHT20)_2C_5500MHz_RadarType6_Trial0



2. Channel Loading (Payload)

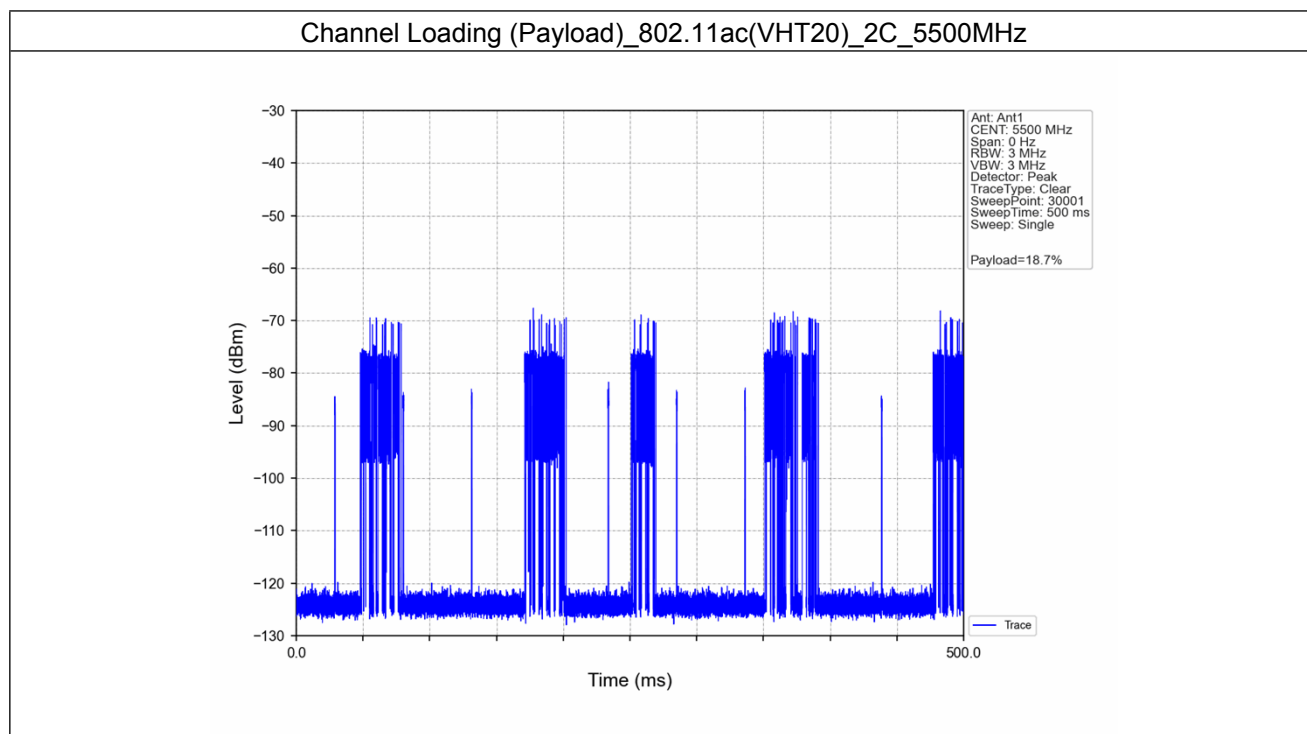
2.1 Test Result

2.1.1 Payload

Band: 2C					
Mode	Bandwidth (MHz)	Frequency (MHz)	Channel Loading (Payload) (%)		Verdict
			Result	Limit	
802.11ac (VHT20)	20	5500	18.70	>=17	Pass

2.2 Test Graph

2.2.1 Payload



3. U-NII Detection Bandwidth

3.1.1 20MHz_5500MHz

Band: 2C							
Mode	Bandwidth (MHz)	Frequency (MHz)	Detection Bandwidth (MHz)				Verdict
			FL	FH	Result	Limit	
802.11a	20	5500	5480.000	5520.000	40.000	16.842	Pass

3.1.2 20MHz_5500MHz_Data

Band: 2C / Bandwidth: 20MHz / Frequency: 5500MHz / RadarType: 0														
Frequency (MHz)	Trial Number and Detection result (Y: Detected; N: Non-detected)										Detection Probability (%)			Verdict
	0	1	2	3	4	5	6	7	8	9	Result	FL/FH	Limit	
5480	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100.00	FL	>=60	Pass
5485	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100.00	/	>=60	Pass
5490	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100.00	/	>=60	Pass
5495	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100.00	/	>=60	Pass
5505	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100.00	/	>=60	Pass
5510	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100.00	/	>=60	Pass
5515	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100.00	/	>=60	Pass
5520	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100.00	FH	>=60	Pass

4. Channel Available Check_init

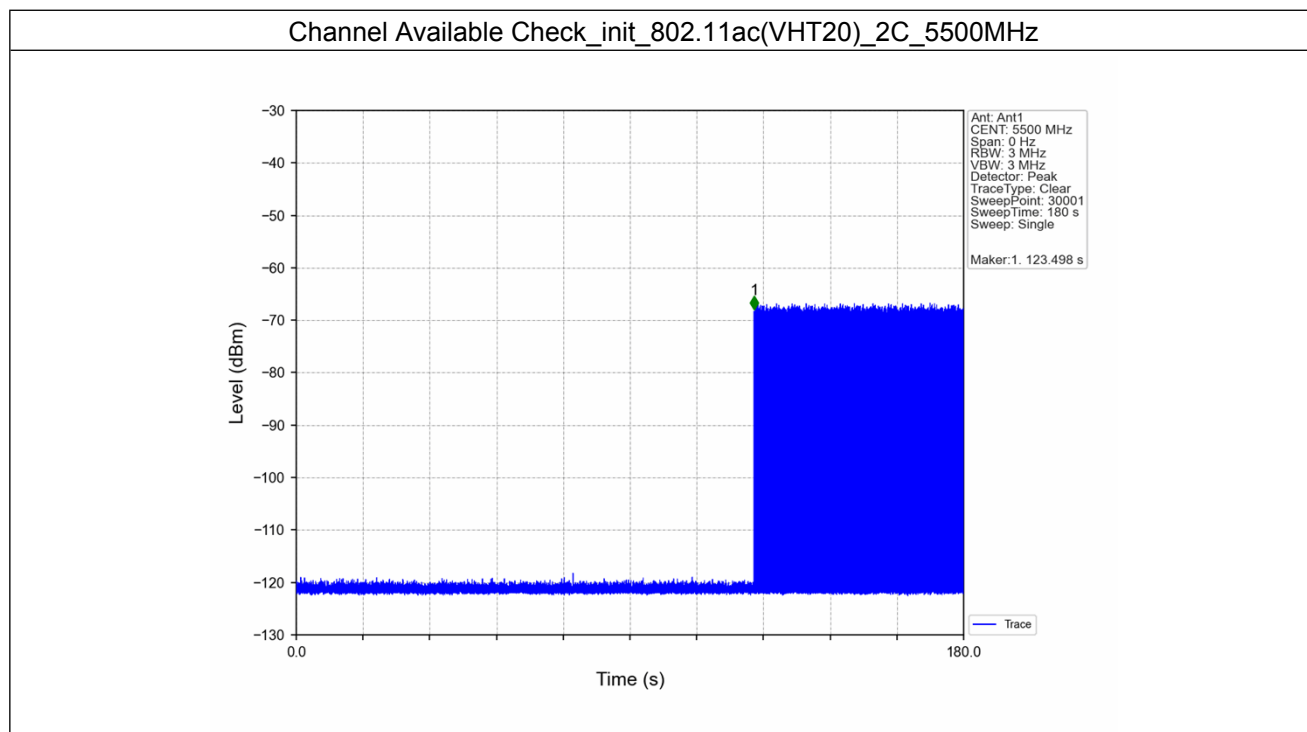
4.1 Test Result

4.1.1 CAC_init

Band: 2C					
Mode	Bandwidth (MHz)	Frequency (MHz)	Channel Available Check_init (s)		Verdict
			Result	Limit	
802.11ac (VHT20)	20	5500	123.50	>=60	Pass

4.2 Test Graph

4.2.1 CAC_init



5. Channel Available Check_Beginning

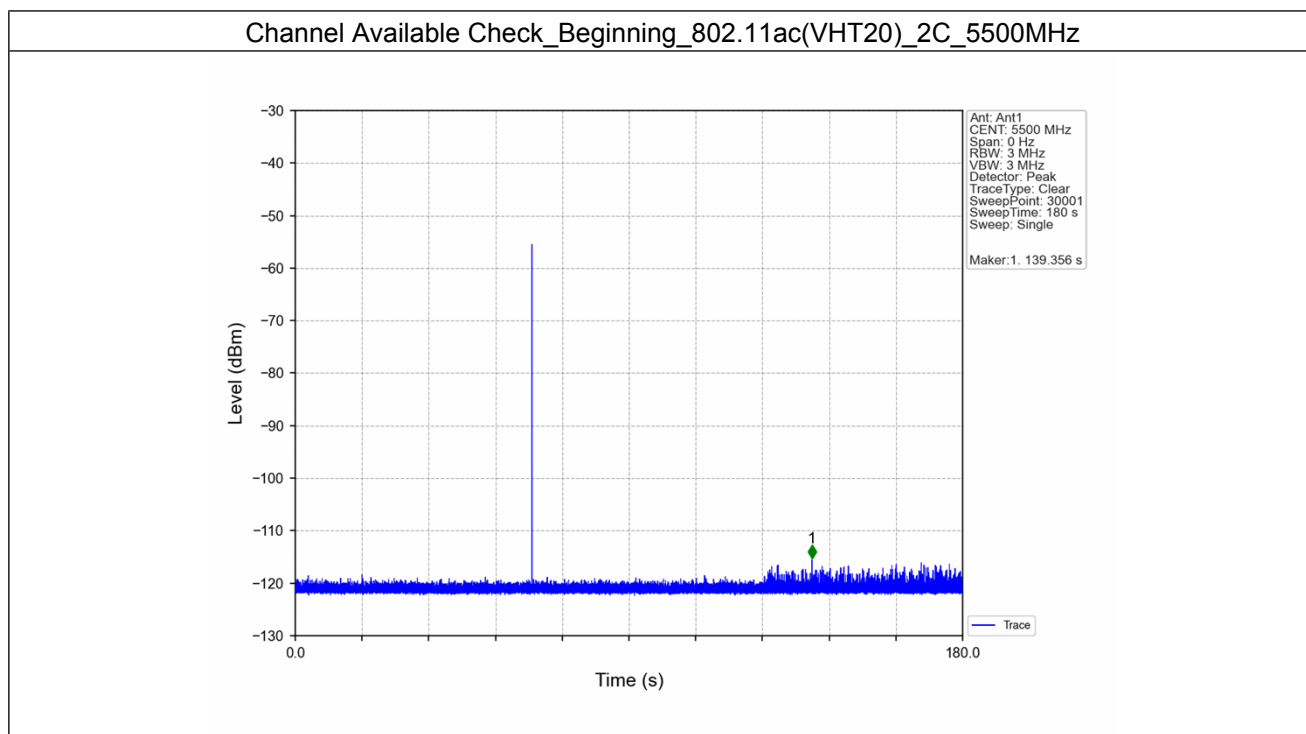
5.1 Test Result

5.1.1 CAC_Begin

Band: 2C					
Mode	Bandwidth (MHz)	Frequency (MHz)	Channel Available Check_Beginning		Verdict
			Result	Limit	
802.11ac (VHT20)	20	5500	Refer To Test Graph		Pass

5.2 Test Graph

5.2.1 CAC_Begin



6. Channel Available Check_Ending

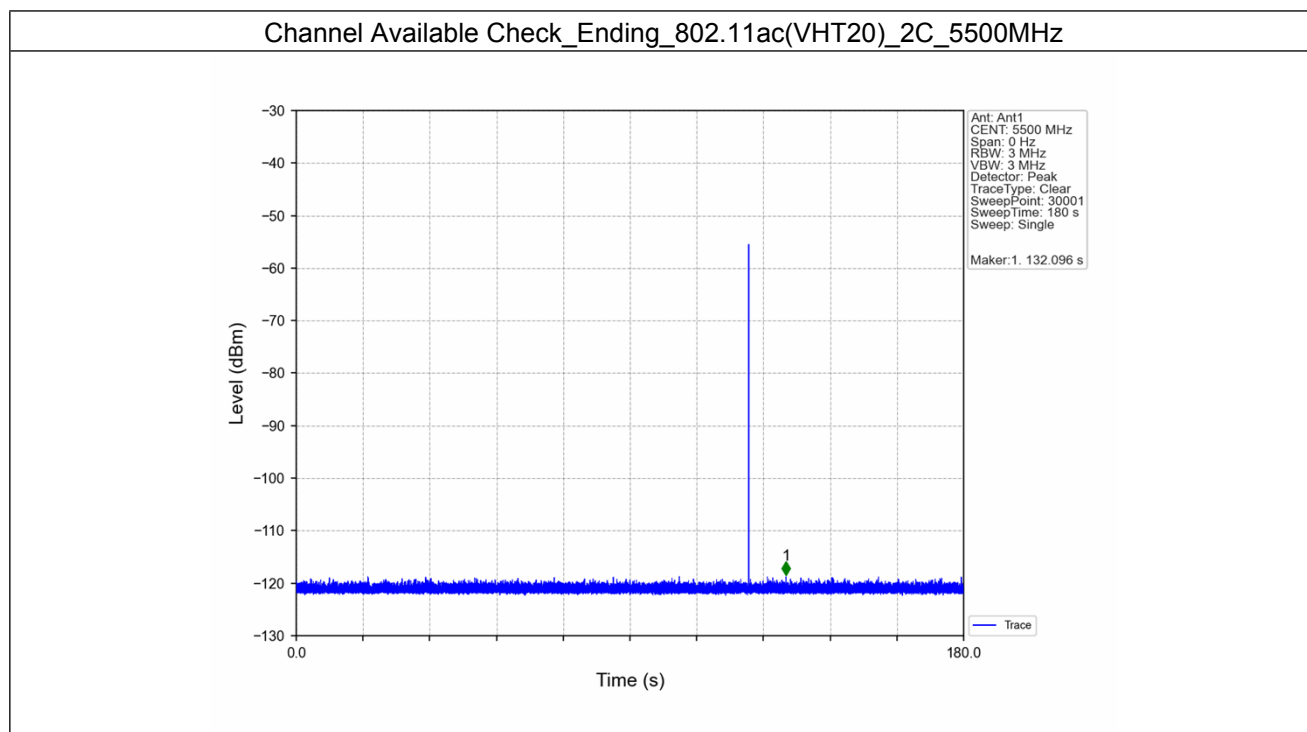
6.1 Test Result

6.1.1 CAC_End

Band: 2C					
Mode	Bandwidth (MHz)	Frequency (MHz)	Channel Available Check_Ending		Verdict
			Result	Limit	
802.11ac (VHT20)	20	5500	Refer To Test Graph		Pass

6.2 Test Graph

6.2.1 CAC_End



7. Channel Move Time and Closing Transmission Time

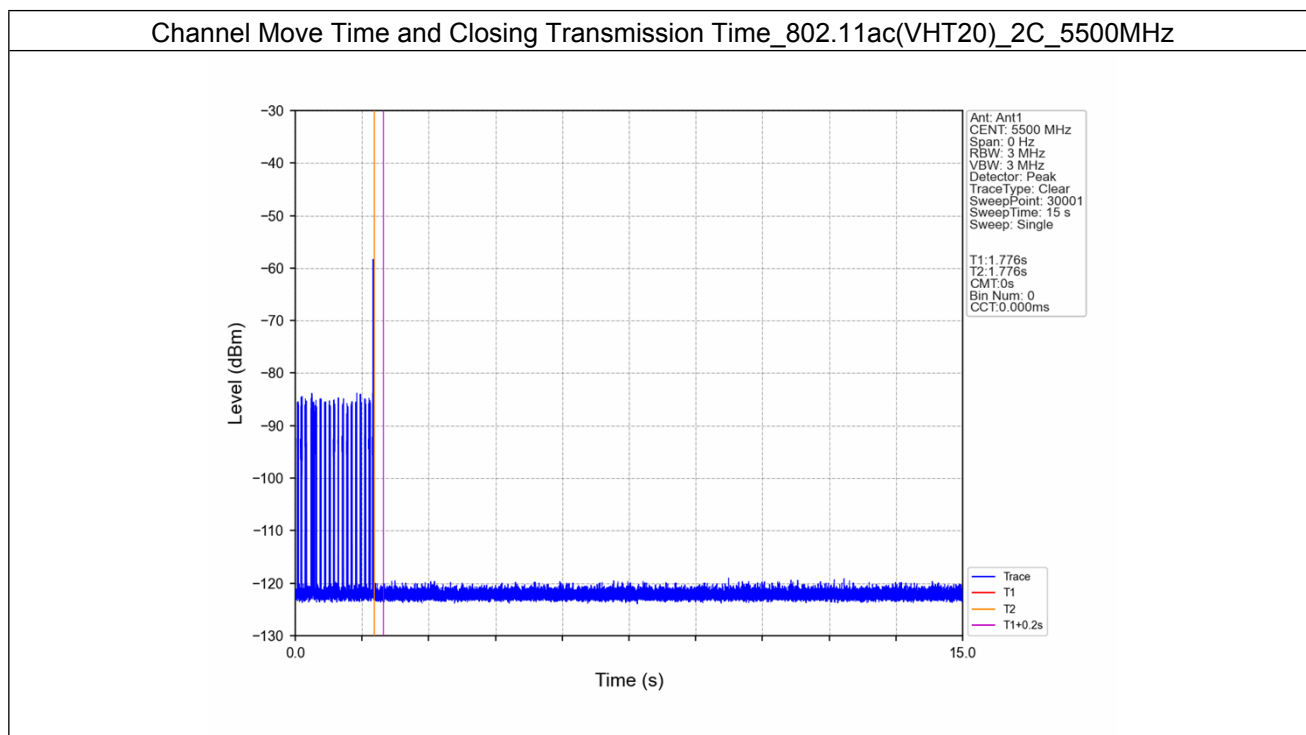
7.1 Test Result

7.1.1 CMT_CTT

Band: 2C					
Mode	Bandwidth (MHz)	Frequency (MHz)	Channel Move Time and Closing Transmission Time		Verdict
			Result	Limit	
802.11ac (VHT20)	20	5500	Refer To Test Graph		Pass

7.2 Test Graph

7.2.1 CMT_CTT



8. Non-Occupancy Period

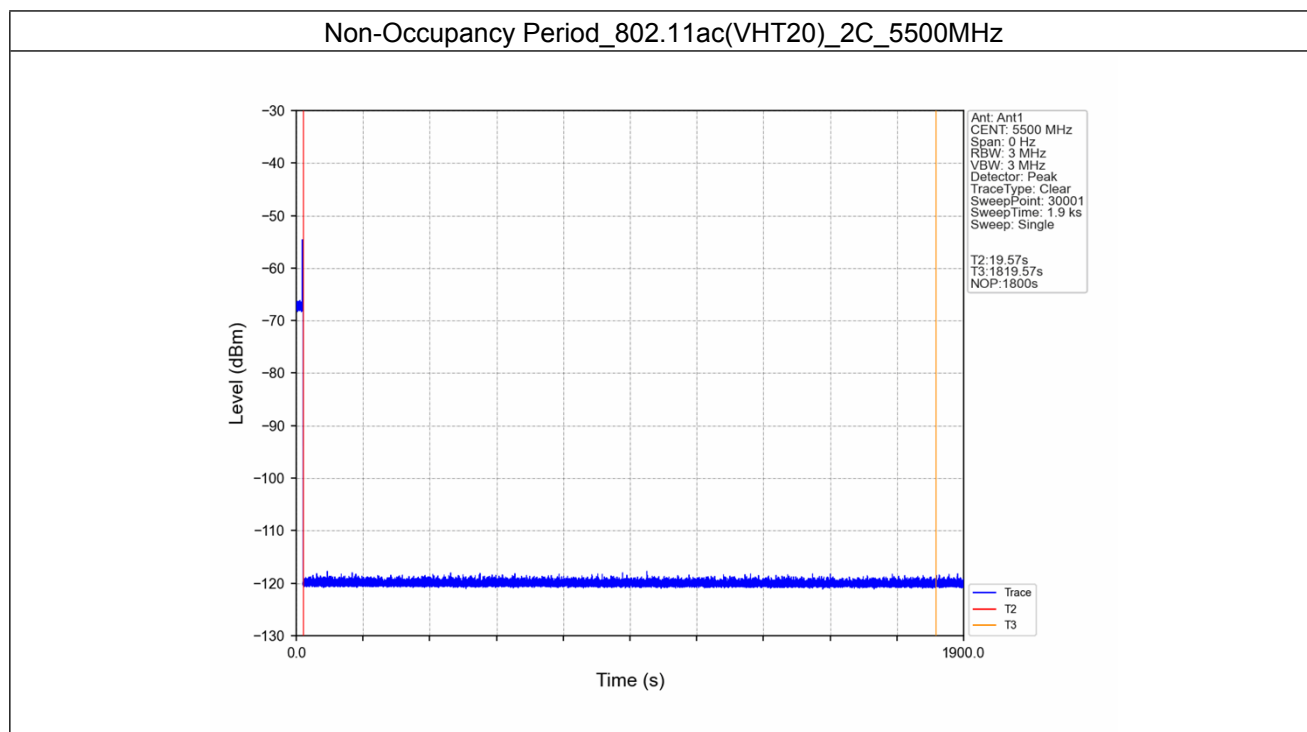
8.1 Test Result

8.1.1 Period

Band: 2C					
Mode	Bandwidth (MHz)	Frequency (MHz)	Non-Occupancy Period		Verdict
			Result	Limit	
802.11ac (VHT20)	20	5500	Refer To Test Graph		Pass

8.2 Test Graph

8.2.1 Period



- End of the Report -