Product Name: Smart Phone **PMN: Smart Phone**	**Report No: ITEZA2-202400339RF4**
For FCC ID Model: Blade GT, Blade GT Ultra, Blade GT Play, Blade GT Pro, Blade GT Max, Blade10 Play, Blade10 Max 5G **For ISED HVIN: Blade GT**	**Security Classification: Open**
Version: V1.0	**Total Page:161**

TIRT Testing Report

Prepared By:	**Checked By:**	**Approved By:**	
Aaron Long	Stone Tang	Joky Wang	
Aaron Long	Stone Tang	Joky Wang	

Radio Test Report

FCC ID: 2AX4YBLADEGT

IC: 33167-BLADEGT

This report concerns:Original Grant

Applicant:	Shenzhen DOOGEE Hengtong Technology CO.,LTD
FCC ID Address:	B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China
IC Address	B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Dafu Industrial Zone, Guanlan Aobei Community, Guanlan Street, Longhua New District, Shenzhen, Guangdong China
Manufacturer:	Shenzhen DOOGEE Hengtong Technology CO.,LTD
Address:	B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China
Sample No:	1000046260
Product Name:	Smart Phone
PMN:	Smart Phone
Brand Name:	DOOGEE
For FCC ID Model No.:	Blade GT, Blade GT Ultra, Blade GT Play, Blade GT Pro, Blade GT Max, Blade10 Play, Blade10 Max 5G
For ISED HVIN	Blade GT
Test No.:	Blade GT

Date of Receipt:	2024/09/11
Date of Test:	2024/09/11~2024/11/19
Issued Date:	2024/12/02
Testing Lab:	TIRT

Table of Contents Page

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
ITEZA2-202400339RF4	V1.0	Original Report.	2024.12.02	Valid

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart E				
Standard(s) Section	**Test Item**	**Test Result**	**Judgment**	**Remark**
Section 15.207 Section 7.2.4 RSS-GEN(8.8), ANSI C63.10	AC Power Line Conducted Emissions	APPENDIX A	PASS	------
Section 15.407(b)&15.209 Section 5.5 RSS-Gen(8.9), RSS-247(5.5), ANSI C63.10	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	------
15.407(a) 15.407(e)	Bandwidth	APPENDIX E	PASS	------
Section 15.407(a), RSS-247 5.4(2)	MaximumOutput Power	APPENDIX F	PASS	------
Section 15.407(a), RSS-247 5.2(2)	Power Spectral Density	APPENDIX G	PASS	------
15.407(f), RSS-GEN(6.11)	Frequency Stability	APPENDIX H	PASS	**NOTE (5)**
Section 15.203 Section 7.1.4 RSS-Gen Issue 5	Antenna Requirements	------	PASS	**NOTE (2)**
15.407(c)	Automatically Discontinue Transmission	------	PASS	**NOTE (3)**

Note:

(1) “N/A” denotes test is not applicable in this test report.

(2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203& RSS-GEN

(3) During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving.the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

(4) For UNII-1 this device was functioned as a

☐Outdoor access point device

☐Indoor access point device

☐Fixed point-to-point access points device

☒Client device

(5) The manufacturer states that the frequency sability is in compliance with 15.407(f), RSS-GEN(6.11)

(6) Measurement Standard Used:

RSS-247 Issue 3, RSS-Gen Issue 5, ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart E

1.1 TEST FACILITY

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen
Address:	104 Building C, Xinmingsheng Industrial Park No.132, Zhangge Old Village East Zone, Zhangge Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, P. R. China
CNAS Registration Number:	CNAS L14158
A2LA Registration Number:	6049.01
FCC Accredited Lab.Designation Number:	CN1366
FCC Test Firm Registration Number:	820690
CAB identifier	CN0159
Company Number	31418
Telephone:	+86-0755-27087573

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))
The TIRT measurement uncertainty as below table:

Uncertainty	
Parameter	Uncertainty
Occupied Channel Bandwidth	±142.12 KHz
RF power conducted	±0.74 dB
RF power radiated	±3.25dB
Spurious emissions, conducted	±1.78dB
Spurious emissions, radiated (30MHz～1GHz)	±4.6dB
Spurious emissions, radiated (1GHz ~ 18GHz)	±4.9dB
Conduction Emissions(150kHz~30MHz)	±3.1 dB
Humidity	±4.6%
Temperature	±0.7°C
Time	±1.25%

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	25.1°C	52%	DC 9V from adapte	Stone Tang
Radiated Emissions-9kHz to 30MHz	24.5°C	50%	DC 3.87V from battery or DC 9V from adapter	Stone Tang
Radiated Emissions-30MHz to 1000MHz	24.2°C	53%	DC 3.87V from battery or DC 9V from adapter	Stone Tang
Radiated Emissions-Above 1000 MHz	26.0°C	53%	DC 3.87V from battery or DC 9V from adapter	Stone Tang
Bandwidth	25.0°C	56%	DC 3.87V from battery or DC 9V from adapter	Stone Tang
MaximumOutput Power	24.9°C	54%	DC 3.87V from battery or DC 9V from adapter	Stone Tang
Power Spectral Density	25.1°C	62%	DC 3.87V from battery or DC 9V from adapter	Stone Tang

1.4 Accessories of Device (EUT)

Accessories	:	AC Adapter
Manufacturer	:	Shenzhen Theone Electronic CO.,Ltd
Model	:	TP182C-US
Ratings	:	Input: AC100-240V~ 50/60Hz 0.5A Max Output USB-A: 5.0V⎓3.0A 15.0W; 9.0V⎓2.0A 18.0W, 12.0V⎓1.5A 18.0W; Power:18.0W Max

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Phone
Brand Name	DOOGEE
For FCC ID Model No.	Blade GT, Blade GT Ultra, Blade GT Play, Blade GT Pro, Blade GT Max, Blade10 Play, Blade10 Max 5G
DIFF for. FCC ID Model No	There is no difference except the name of the model
PMN	Smart Phone
HVIN	Blade GT
Test Model	Blade GT
Software Version	DOOGEE-Blade_GT-EEA-Android14.0-20240830
Hardware Version//FVIN	M163-MUB-V2
Power Rating	DC 3.87V from battery or DC 9V from adapter
Operation FrequencyBand(s)	UNII-1: 5180 MHz~5240 MHz UNII-3: 5745 MHz~5825MHz
Modulation Type	IEEE 802.11n: OFDM (64QAM,16QAM,QPSK,BPSK) IEEE 802.11a: OFDM (64QAM,16QAM,QPSK,BPSK) IEEE802.11ac: OFDM (64QAM,16QAM, 256QAM,QPSK,BPSK)
MaximumOutput Power _UNII-1	11ac40 MIMO: 14.16dBm(0.026062W)
MaximumOutput Power _UNII-3	11ac20 MIMO: 11.06dBm(0.012764W)

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

IEEE 802.11a IEEE 802.11n20 IEEE 802.11ac20		IEEE 802.11n40 IEEE 802.11ac40		IEEE 802.11ac80	
UNII-1		UNII-1		UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

IEEE 802.11a IEEE 802.11n20 IEEE 802.11ac20		IEEE 802.11n40 IEEE 802.11ac40		IEEE 802.11ac80	
UNII-3		UNII-3		UNII-3	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

3. Antenna Specification:

Ant.	Manufactured	Model Name	Antenna Type	Connector	Gain (dBi)
1	Shenzhen 3Good Wireless Communication Co.,LTD.	M24C	PIFA	N/A	-1.44
2	Shenzhen 3Good Wireless Communication Co.,LTD.	M24C	PIFA	N/A	-1.23

Note:
1) The antenna gain is provided by the manufacturer.
2) The antenna is for testing and fixation purposes
3) The device supports WLAN MIMO CDD mode

4. Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with

G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

Mode	ANT1(dBi)	ANT2(dBi)	DG for Power (dBi)	DG for PSD(dBi)	Power Limit Reduction (dBi)	PSD Limit Reduction (dBi)
5GWIFI	-1.44	-1.23	-1.23	1.78	0	0

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

2.2 TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX A ModeChannel 36/40/48 (UNII-1)
Mode 2	TX N20 ModeChannel 36/40/48 (UNII-1) SISO/MIMO
Mode 3	TX N40 Mode Channel 38/46 (UNII-1) SISO/MIMO
Mode 4	TX AC20 ModeChannel 36/40/48 (UNII-1) SISO/MIMO
Mode 5	TX AC40 ModeChannel 38/46 (UNII-1) SISO/MIMO
Mode 6	TX AC80 Mode Channel 42 (UNII-1) SISO/MIMO
Mode 7	TX A Mode Channel 149/157/165 (UNII-3)
Mode 8	TX N20 Mode Channel 149/157/165 (UNII-3) SISO/MIMO
Mode 9	TX N40 Mode Channel 151/159 (UNII-3) SISO/MIMO
Mode 10	TX AC20 Mode Channel 149/157/165 (UNII-3) SISO/MIMO
Mode 11	TX AC40 Mode Channel 151/159 (UNII-3) SISO/MIMO
Mode 12	TX AC80 Mode Channel 155 (UNII-3) SISO/MIMO

In the test, the engineering mode of the prototype was used and the default power was used for the test

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test	
Final Test Mode	Description
Mode 5	TX 11ac40 MIMO Mode Channel 38 (UNII-1) MIMO

Radiated Emissions Test - Below 1GHz	
Final Test Mode	Description
Mode 5	TX 11ac40 MIMO Mode Channel 38 (UNII-1) MIMO

Radiated Emissions Test - Above 1GHz	
Final Test Mode	Description
Mode 10	TX AC20 Mode Channel 149/157/165 (UNII-3) SISO/MIMO
Mode 4	TX AC20 ModeChannel 36/40/48 (UNII-1) SISO/MIMO

Final conducted RF Test Mode	Description
Mode 1	TX A ModeChannel 36/40/48 (UNII-1)
Mode 2	TX N20 ModeChannel 36/40/48 (UNII-1) SISO/MIMO
Mode 3	TX N40 Mode Channel 38/46 (UNII-1) SISO/MIMO
Mode 4	TX AC20 ModeChannel 36/40/48 (UNII-1) SISO/MIMO
Mode 5	TX AC40 ModeChannel 38/46 (UNII-1) SISO/MIMO
Mode 6	TX AC80 Mode Channel 42 (UNII-1) SISO/MIMO
Mode 7	TX A Mode Channel 149/157/165 (UNII-3)
Mode 8	TX N20 Mode Channel 149/157/165 (UNII-3) SISO/MIMO
Mode 9	TX N40 Mode Channel 151/159 (UNII-3) SISO/MIMO
Mode 10	TX AC20 Mode Channel 149/157/165 (UNII-3) SISO/MIMO
Mode 11	TX AC40 Mode Channel 151/159 (UNII-3) SISO/MIMO
Mode 12	TX AC80 Mode Channel 155 (UNII-3) SISO/MIMO

Note:

(1) For AC power line conducted emissions and radiated emission below 1 GHz test, the TX 11ac40 MIMO Mode Channel 38 (UNII-1) MIMO is found to be the worst case and recorded.

(2) For radiated emission above 1 GHz test, the spurious points of 1GHz~26.5GHz and 26.5GHz~40GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

(3) All the bit rate of transmitter have been tested and found the lowest rate is found tobe the worst case and recorded.

2.3DUTY CYCLE

If duty cycle is ≥ 98 %, duty factor is not required.
If duty cycle is < 98 %, duty factor shall be considered.
The output power = measured power + duty factor.
The power spectral density = measured power spectral density + duty factor.

Please refer to 5GWIFI test data attachment

NOTE:
For IEEE 802.11a:
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11n(HT20):
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11n(HT40):
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11ac20：
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11ac40
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

For IEEE 802.11ac80
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth set VBW> 1/T, Trefers to the minimum transmission duration over which the transmitter is on and istransmitting at its Maximumpower control level for the tested mode of operation.

2.4BLOCKDIAGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED

EUT

2.5SUPPORT UNITS

Support Equipment				
No.	Equipment	Brand Name	Model Name	Remarks
1	/	/	/	/

3.AC POWER LINE CONDUCTED EMISSIONS

3.1LIMIT

Frequency (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:
(1) The tighter limit applies at the band edges.
(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

3.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipmentpowered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

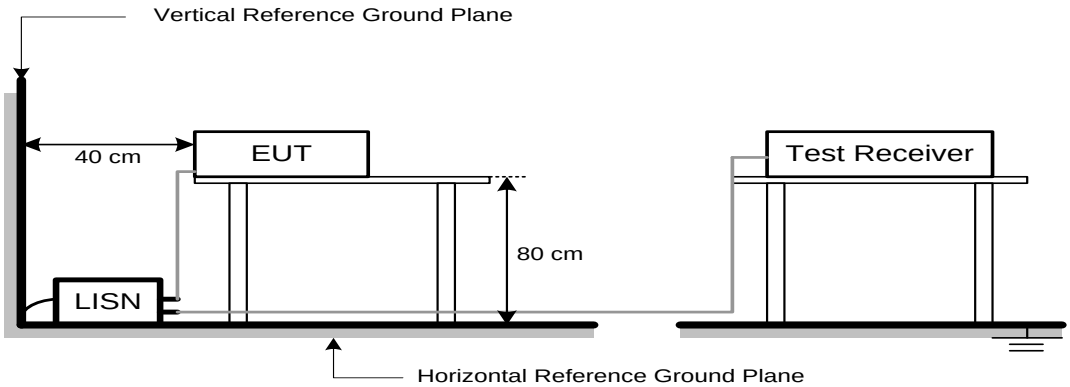
The following table is the setting of the receiver:

Receiver Parameter	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.3DEVIATIONFROMTESTSTANDARD

No deviation

3.4TESTSETUP



The LISN edge is arranged parallel to the edge of the test table
The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear ofthe EUT

3.5EUT OPERATION CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it).The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.
The EUT was programmed to be in continuously transmitting/TX mode.

3.6 TEST RESULTS

Please refer to the APPENDIX A.

4. RADIATED EMISSIONS

4.1LIMIT

In case the emission fall within the restricted band specified on FCC Part15 C Section 15.209 and 15.205, RSS-Gen §8.9, then the FCC Part15 C Section 15.209 and 15.205, RSS-Gen §8.9 limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS (Above 1000 MHz)

Frequency (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBμV/m)
5150-5250	-27	68.2
5250-5350	-27	68.2
5470-5725	-27	68.2
5725-5850 NOTE (2)	-27	68.2
	10	105.2
	15.6	110.8
	27	122.2

NOTE:

(1) The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$E = \frac{1000000\sqrt{30P}}{3}$ μV/m, where P is the eirp (Watts)

(2) According to 15.407(b)(4)(i), all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz ormore above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or belowthe band edge, and from 25 MHz above or below the band edge increasing linearly to a level of15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below theband edge increasing linearly to a level of 27 dBm/MHz at the band edge.

4.2TEST PROCEDURE

a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the Maximumreading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with Maximumhold mode when the test frequency is above 1GHz.

f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic or 40 GHz, whichever is lower
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for PK value 1MHz / 1/THz for AVG value

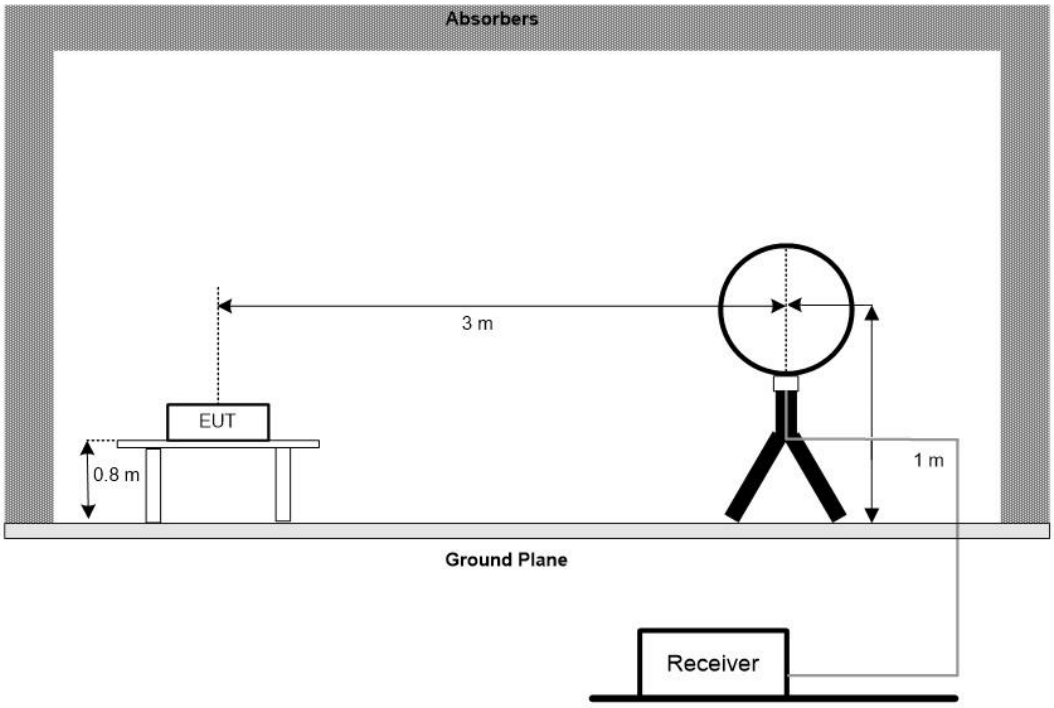
Receiver Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector
Start ~ Stop Frequency	1 GHz~40GHz for PK/AVG detector

4.3DEVIATIONFROMTESTSTANDARD

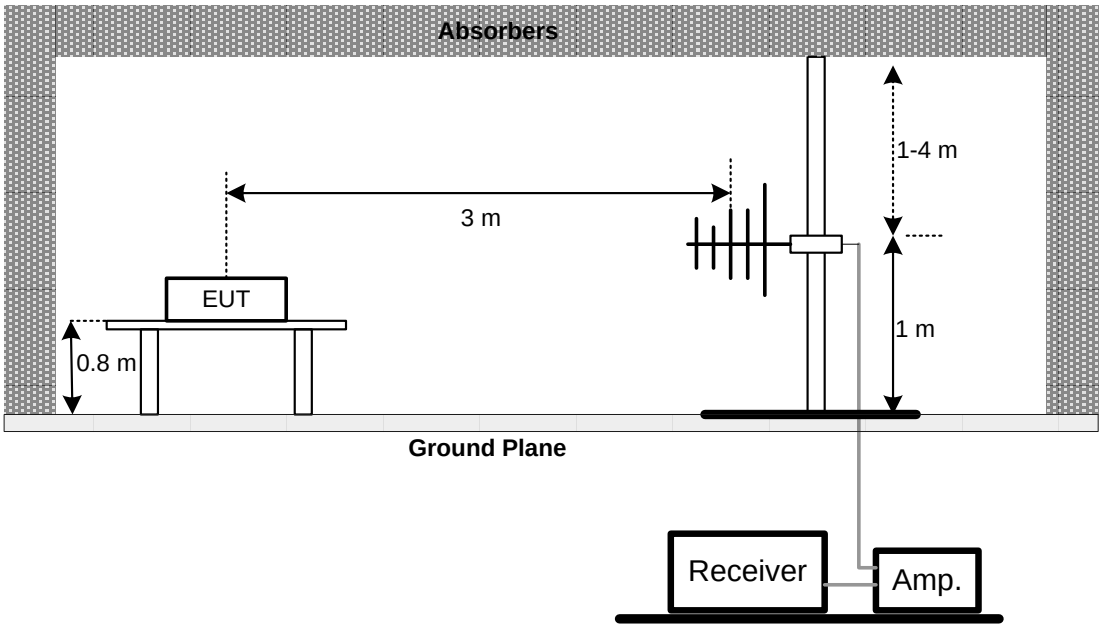
No deviation.

4.4TESTSETUP

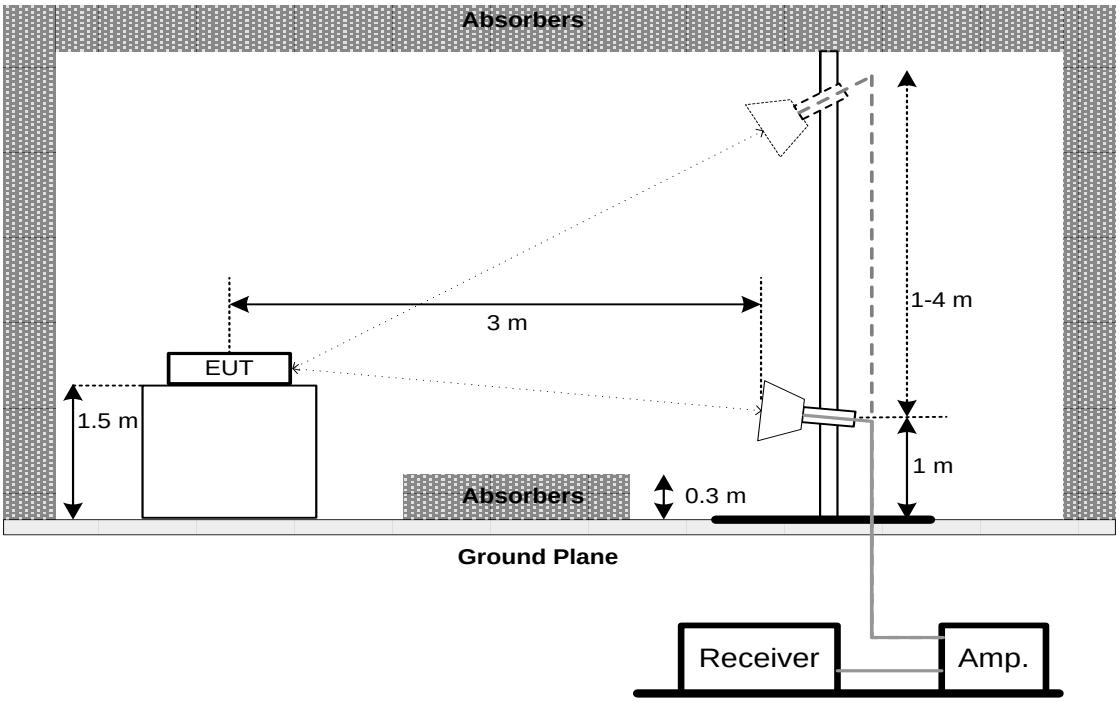
9 kHz to 30 MHz



30 MHz to 1 GHz



Above 1 GHz



4.5EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

4.6TEST RESULTS - 9 KHZTO 30MHZ

Please refer to the APPENDIX B.

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.7TEST RESULTS - 30 MHZTO 1000 MHZ

Please refer to the APPENDIX C.

4.8TEST RESULTS - ABOVE1000 MHZ

Please refer to the APPENDIX D.

Remark:

(1) No limit:This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5.BANDWIDTH

5.1LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC Part15 E Section 15.407, RSS-Gen §6.7; RSS-247 §6.2	26 dB Bandwidth	-	5150-5250
	26 dB Bandwidth	-	5250-5350
	26 dB Bandwidth	-	5470-5725
	6dB Bandwidth	Minimum 500 kHz	5725-5850

5.2TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below

b. Spectrum Setting:

For UNII-1, UNII-2A, UNII-2C

Spectrum Parameter	Setting
Span Frequency	> 26dB Bandwidth
RBW	Appromiximately 1% of the emission bandwidth
VBW	> RBW
Detector	Peak
Trace	MAX Hold
Sweep Time	Auto

For UNII-3:

Spectrum Parameter	Setting
Span Frequency	> 6dB Bandwidth
RBW	1MHz
VBW	3MHz
Detector	Peak
Trace	MAX Hold
Sweep Time	Auto

For 99% Occupied Bandwidth:

Spectrum Parameter	Setting
Span Frequency	1.5 times to 5 times the OBW
RBW	1% to 5% of the OBW
VBW	≥3*RBW
Detector	Peak
Trace	MAX Hold
Sweep Time	Auto

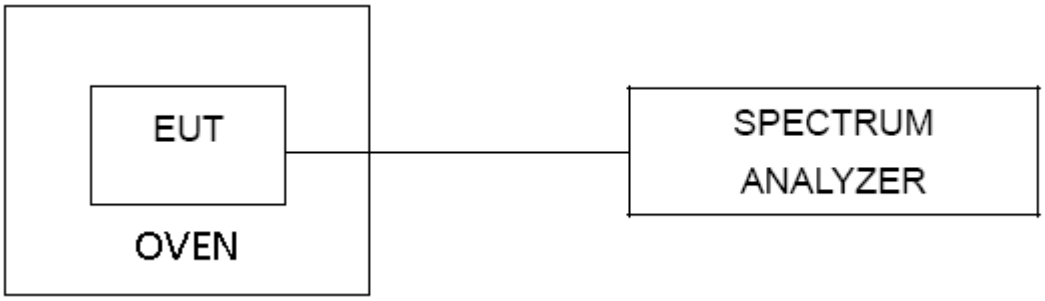
c. Measured the spectrum width with power higher than 26dB / 6dB below carrier.

d. .Compute the trace by integrating the spectrum, finally, maxhold displays the View

5.3DEVIATION FROM STANDARD

No deviation.

5.4TEST SETUP



5.5EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS

Please refer to 5GWIFI test data attachment

6.MAXIMUMOUTPUT POWER

6.1LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC Part15 E Section 15.407, RSS-247 §6.2	MAXimumOutput Power	AP device:1 Watt (30dBm) Client device: 250mW (23.98dBm)	5150-5250
		250mW (23.98dBm)	5250-5350
		250mW (23.98dBm)	5470-5725
		1 Watt (30dBm)	5725-5850

Note:

a. For client devices in the 5.15-5.25 GHz band, the Maximumconducted output power over the frequency band of operation shall not exceed 250 mW provided the Maximumantenna gain does not exceed 6 dBi. In addition, the Maximumpower spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the Maximumconducted output power and the Maximumpower spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

b. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the Maximumconducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26dB Bandwidth in megahertz.

6.2TEST PROCEDURE

a. The EUT was directly connected to the peak power analyzer and antenna output port as show in the block diagram below.

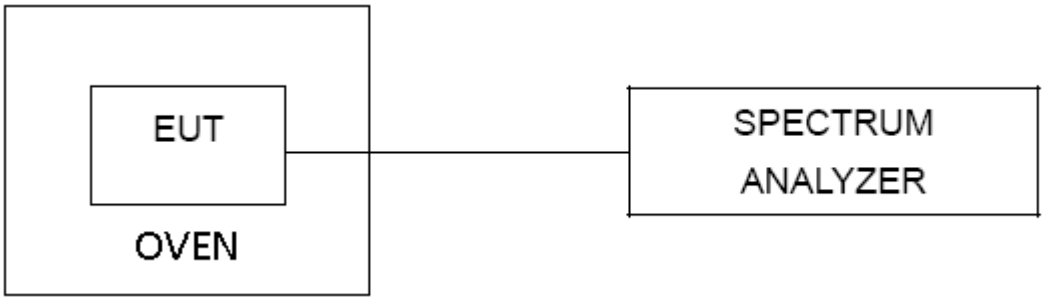
b. The test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

c. .Compute the trace by integrating the spectrum, finally, maxhold displays the View

6.3DEVIATION FROM STANDARD

No deviation.

6.4TEST SETUP



6.5EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULTS

Please refer to 5GWIFI test data attachment

7.POWER SPECTRAL DENSITY

7.1LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC Part15 E Section 15.407, RSS-247 §6.2	Power Spectral Density	AP device:17dBm/MHz Client device:11dBm/MHz	5150-5250
		11dBm/MHz	5250-5350
		11dBm/MHz	5470-5725
		30dBm/500kHz	5725-5850

7.2TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Spectrum Setting:

For UNII-1

Spectrum Parameter	Setting
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1MHz.
VBW	3MHz.
Detector	RMS
Trace average	100 trace
Sweep Time	Auto

For UNII-3:

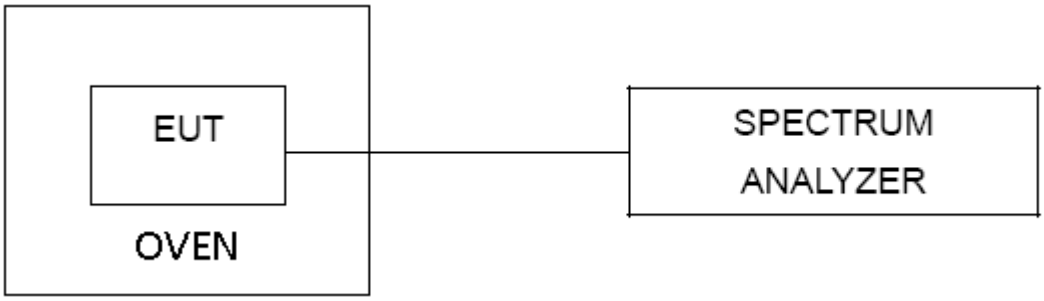
Spectrum Parameter	Setting
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	500KHz.
VBW	2MHz.
Detector	RMS
Trace average	100 trace
Sweep Time	Auto

c. .Compute the trace by integrating the spectrum, finally, maxhold displays the View

7.3DEVIATION FROM STANDARD

No deviation.

7.4TEST SETUP



7.5EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to 5GWIFI test data attachment

8.FREQUENCY STABILITY

8.1LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
15.407(f), RSS-Gen §6.11	Frequency Stability	An emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.	5150-5250
			5250-5350
			5470-5725
			5725-5850

8.2TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Spectrum Setting:

Spectrum Parameter	Setting
Span Frequency	Entire absence of modulation emissionsbandwidth
RBW	10 kHz
VBW	10kHz
Detector	Peak
Trace	MAX Hold
Sweep Time	Auto

c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

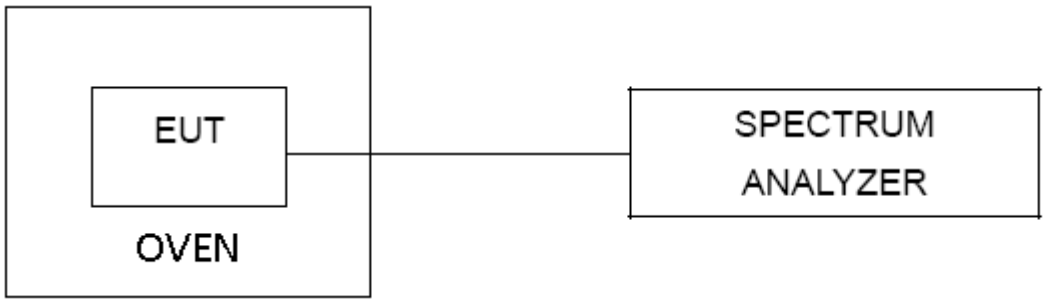
d. User manual temperature is-10°C~50°C.

c. .Compute the trace by integrating the spectrum, finally, maxhold displays the View

8.3DEVIATION FROM STANDARD

No deviation.

8.4TEST SETUP



8.5EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULTS

Please refer to 5GWIFI test data attachment

9. MEASUREMENT INSTRUMENTS LIST

Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI Receiver	Rohde&Schwarz	ESIB 40	YH-TIRT-SAC-966-20220911	2024/01/05	2025/01/04
Integral Antenna	Schwarzbeck	VULB 9163	01314	2023.12.11	2025.12.10
Integral Antenna	Rohde&Schwarz	HF907	RSM2991424	2023.12.11	2025.12.10
Preamplifier	Emtrace	RP01A	'02017	2024/01/05	2025/01/04
Preamplifier	Schwarzbeck	BBV9744	00143	2024/01/05	2025/01/04
Loop Antenna	ZHINAN	ZN30900A	12024	2024/01/05	2025/01/04
Horn Antenna	Schwarzbeck	BBHA9170	00956	2024/01/05	2025/01/04
RF Cable	/	LMR400UF-NMNM-7.0M	/	2024/01/05	2025/01/04
RF Cable	/	SFT2050PUR-NMNM-7.0M	/	2024/01/05	2025/01/04
EMI Receiver	Rohde&Schwarz	ESR7	1316.3003K07-102611-mk	2024/11/02	2025/11/01
LISN	Rohde&Schwarz	ENV216	3560.655.12-102915-Bp	2024/11/02	2025/11/01
RF Cable	\	SFT2050PUR-NMNM-2.0M	\	2024/01/05	2025/01/04
Spectrum analyzer	ROHDE&SCHWARZ	FSU26	200732	2024/01/05	2025/01/04
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	101722	2024/01/05	2025/01/04
Filter	HEWLETT PACKARD	JS0806-F	19K8060209	2024/01/05	2025/01/04

10.EUT TEST PHOTOS

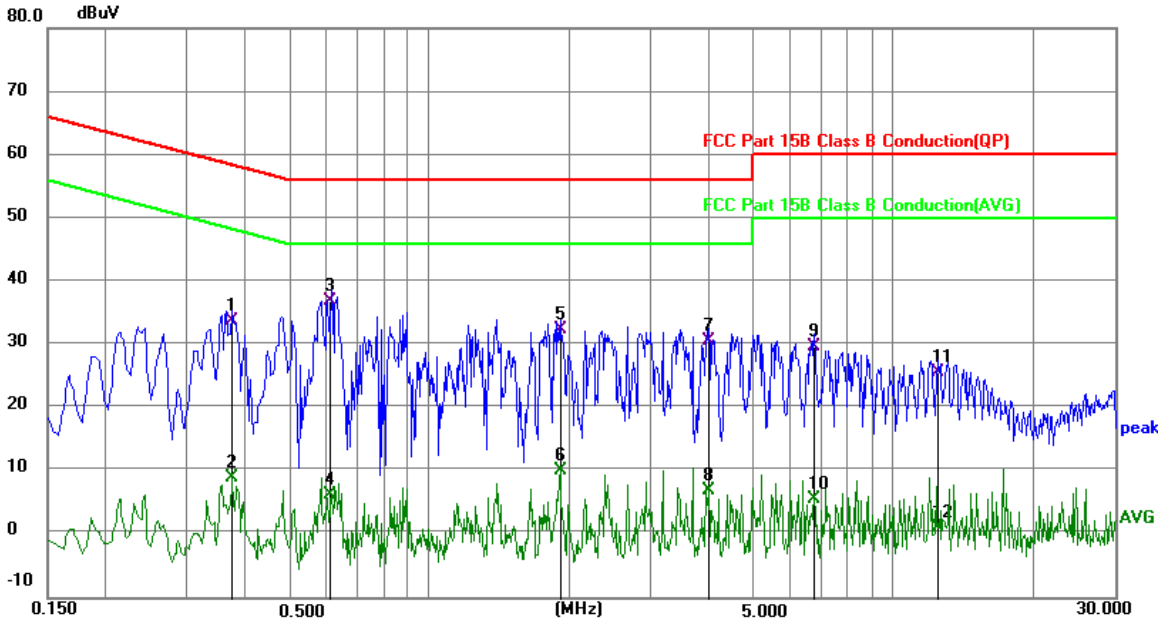
Reference to the **appendix II external photos** and **appendix III internal photos** for details.

11.EUT PHOTOS

Reference to the **appendix I** Test Setup Photo for details.

APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

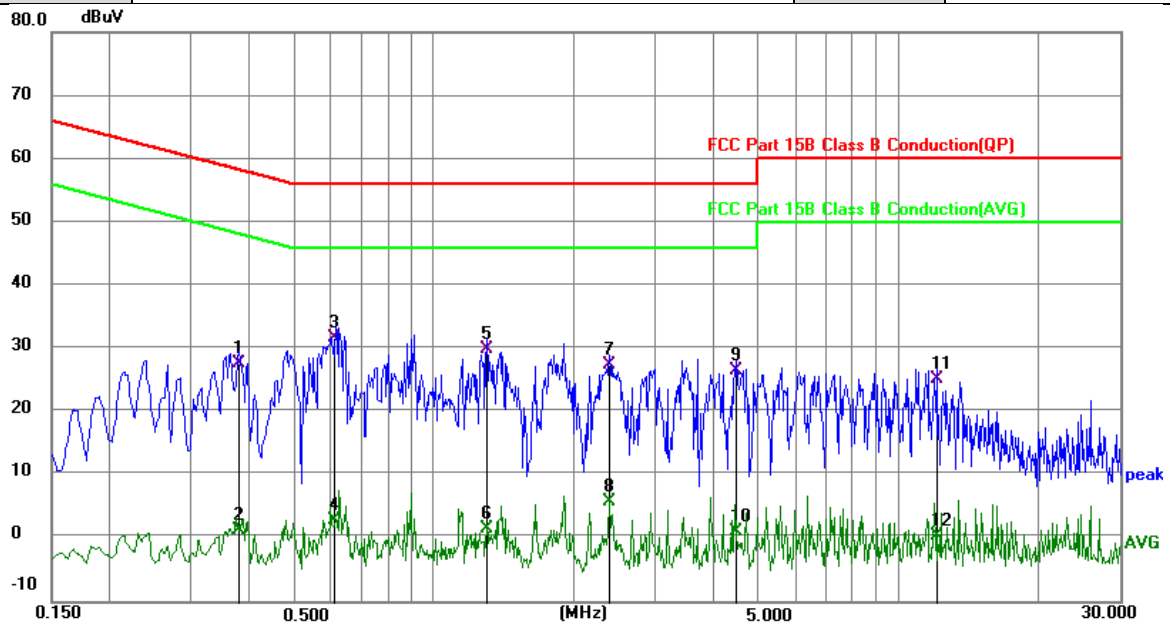
Test Mode	TX 11ac40 MIMO Mode Channel 38 (UNII-1) MIMO	Phase	Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3738	23.80	10.02	33.82	58.42	-24.60	QP	P	
2	0.3738	-1.11	10.02	8.91	48.42	-39.51	AVG	P	
3 *	0.6139	26.62	10.29	36.91	56.00	-19.09	QP	P	
4	0.6139	-4.01	10.29	6.28	46.00	-39.72	AVG	P	
5	1.9139	22.59	9.83	32.42	56.00	-23.58	QP	P	
6	1.9139	0.31	9.83	10.14	46.00	-35.86	AVG	P	
7	3.9860	20.57	10.08	30.65	56.00	-25.35	QP	P	
8	3.9860	-3.12	10.08	6.96	46.00	-39.04	AVG	P	
9	6.7460	19.46	10.25	29.71	60.00	-30.29	QP	P	
10	6.7460	-4.65	10.25	5.60	50.00	-44.40	AVG	P	
11	12.5060	15.43	10.30	25.73	60.00	-34.27	QP	P	
12	12.5060	-9.14	10.30	1.16	50.00	-48.84	AVG	P	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.
(3) The test result has included the cable loss.

Test Mode	TX 11ac40 MIMO Mode Channel 38 (UNII-1) MIMO	Phase	Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3780	17.63	10.01	27.64	58.32	-30.68	QP	P	
2	0.3780	-8.57	10.01	1.44	48.32	-46.88	AVG	P	
3 *	0.6139	21.55	10.27	31.82	56.00	-24.18	QP	P	
4	0.6139	-7.25	10.27	3.02	46.00	-42.98	AVG	P	
5	1.3020	20.20	9.72	29.92	56.00	-26.08	QP	P	
6	1.3020	-8.04	9.72	1.68	46.00	-44.32	AVG	P	
7	2.3900	17.55	9.84	27.39	56.00	-28.61	QP	P	
8	2.3900	-3.91	9.84	5.93	46.00	-40.07	AVG	P	
9	4.4820	16.47	10.04	26.51	56.00	-29.49	QP	P	
10	4.4820	-8.87	10.04	1.17	46.00	-44.83	AVG	P	
11	12.0900	14.94	10.28	25.22	60.00	-34.78	QP	P	
12	12.0900	-9.88	10.28	0.40	50.00	-49.60	AVG	P	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.
(3) The test result has included the cable loss.

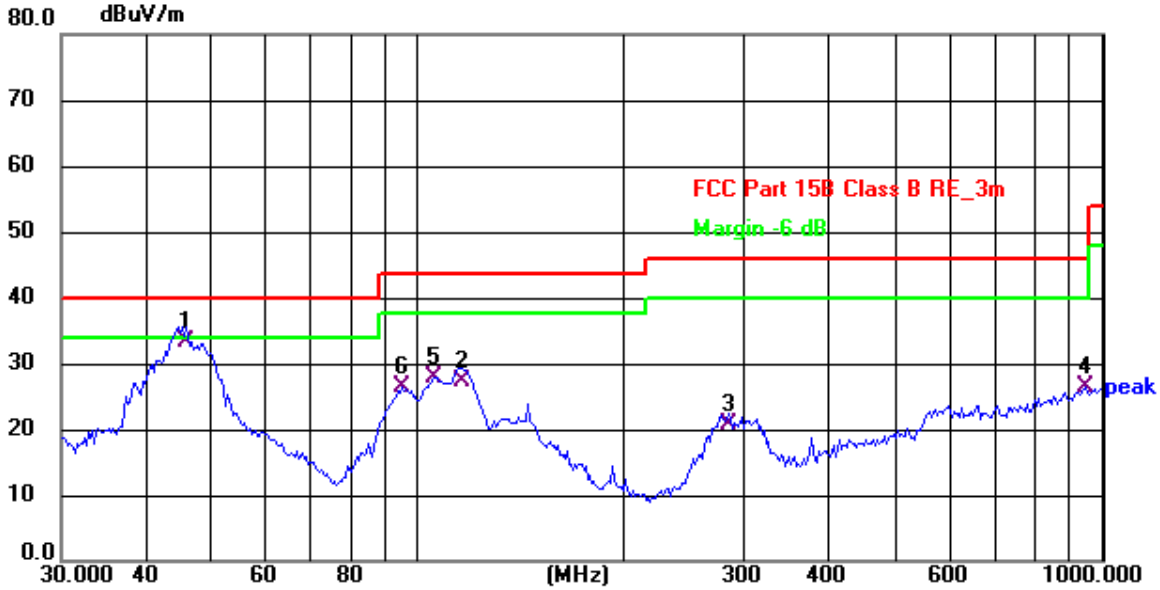
APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

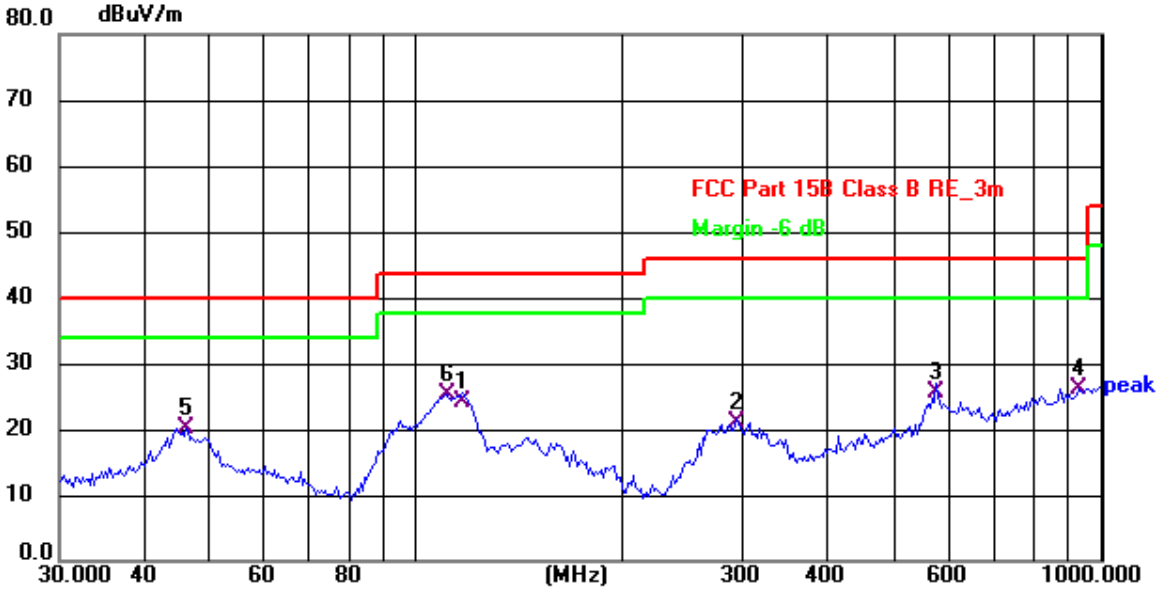
Test Mode	TX 11ac40 MIMO Mode Channel 38 (UNII-1) MIMO	Polarization	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	45.695	45.46	-12.20	33.26	40.00	-6.74	QP	100	90	P	
2	116.132	41.07	-13.88	27.19	43.50	-16.31	QP	100	0	P	
3	284.977	32.24	-11.45	20.79	46.00	-25.21	QP	100	0	P	
4	945.440	26.74	-0.27	26.47	46.00	-19.53	QP	100	360	P	
5	105.272	42.84	-14.95	27.89	43.50	-15.61	QP	100	90	P	
6	94.760	42.60	-16.08	26.52	43.50	-16.98	QP	100	90	P	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX 11ac40 MIMO Mode Channel 38 (UNII-1) MIMO	Polarization	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	116.950	37.87	-13.72	24.15	43.50	-19.35	QP	100	360	P	
2	293.084	32.01	-11.05	20.96	46.00	-25.04	QP	100	360	P	
3	574.626	31.36	-5.75	25.61	46.00	-20.39	QP	100	360	P	
4	932.271	26.72	-0.59	26.13	46.00	-19.87	QP	200	0	P	
5	46.016	32.44	-12.20	20.24	40.00	-19.76	QP	200	0	P	
6 *	110.569	39.84	-14.64	25.20	43.50	-18.30	QP	200	0	P	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ

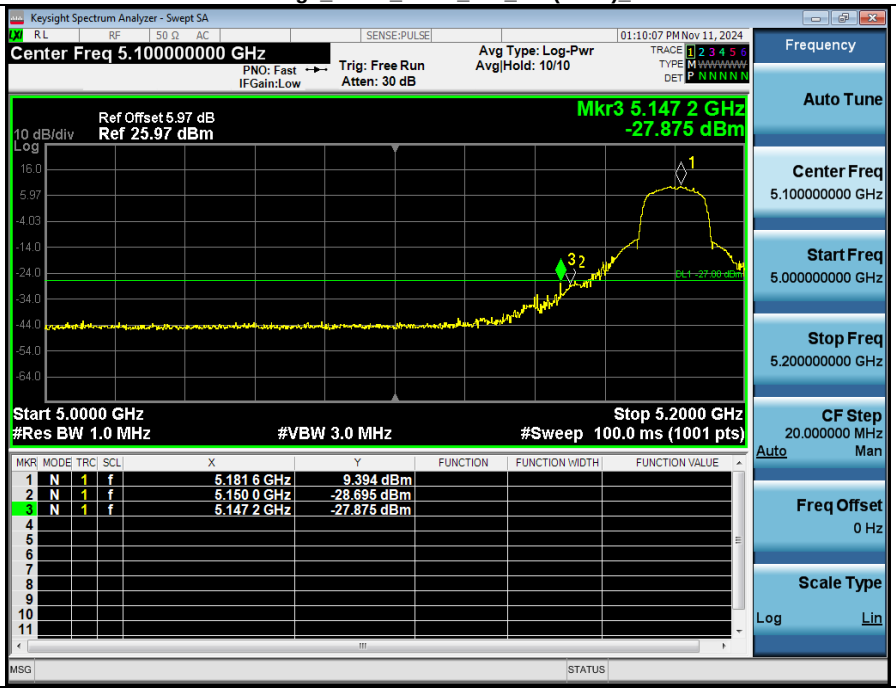
Test Result of Band edges.All ANT had been tested,only show the worst mode ANT1 test data

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark Frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	5149.00	-32.17	-27	Pass
NVNT	ANT1	802.11a	5240.00	5389.60	-43.30	-27	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	5147.20	-27.87	-27	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	5403.20	-42.47	-27	Pass
NVNT	ANT1	802.11ac(VHT20)	5180.00	5149.20	-31.62	-27	Pass
NVNT	ANT1	802.11ac(VHT20)	5240.00	5352.60	-41.77	-27	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	5148.89	-39.00	-27	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	5352.80	-30.18	-27	Pass
NVNT	ANT1	802.11ac(VHT40)	5190.00	5148.68	-39.46	-27	Pass
NVNT	ANT1	802.11ac(VHT40)	5230.00	5350.07	-31.47	-27	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	5142.80	-34.65	-27	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	5391.44	-42.55	-27	Pass

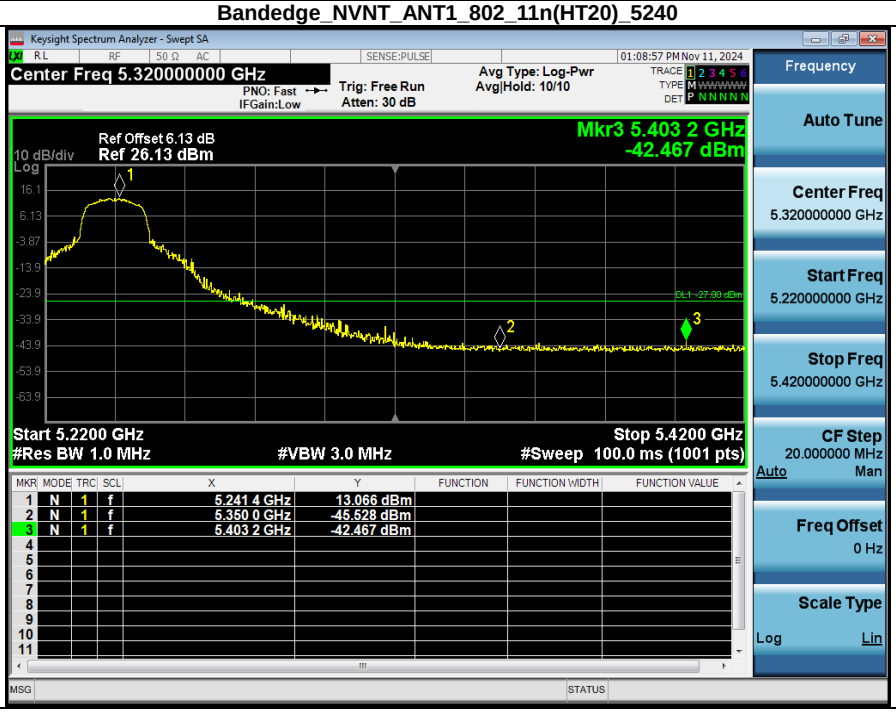
Bandedge_NVNT_ANT1_802_11a_5180

Bandedge_NVNT_ANT1_802_11a_5240

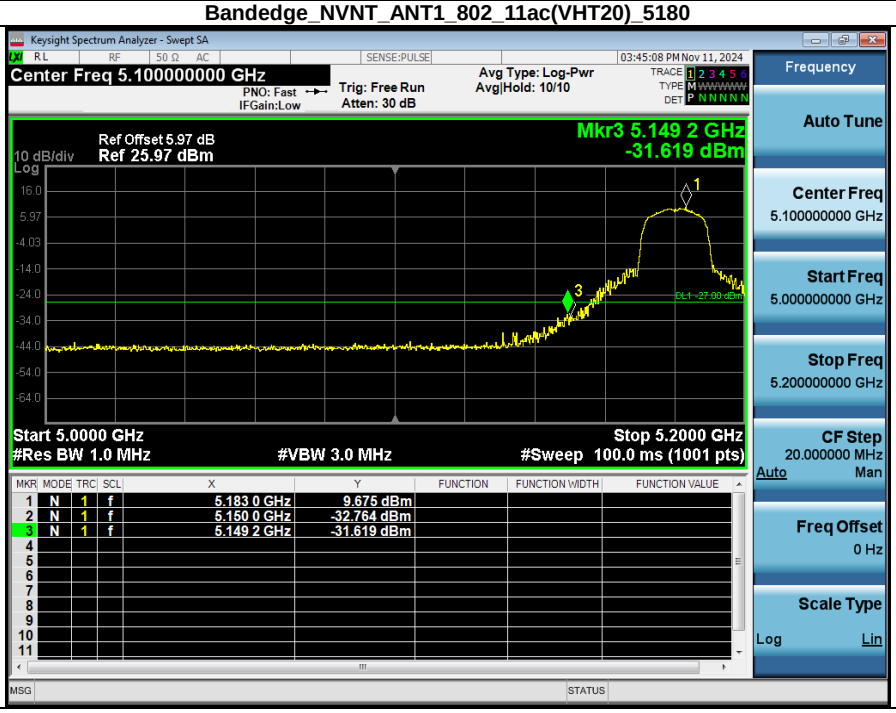
Bandedge_NVNT_ANT1_802_11n(HT20)_5180



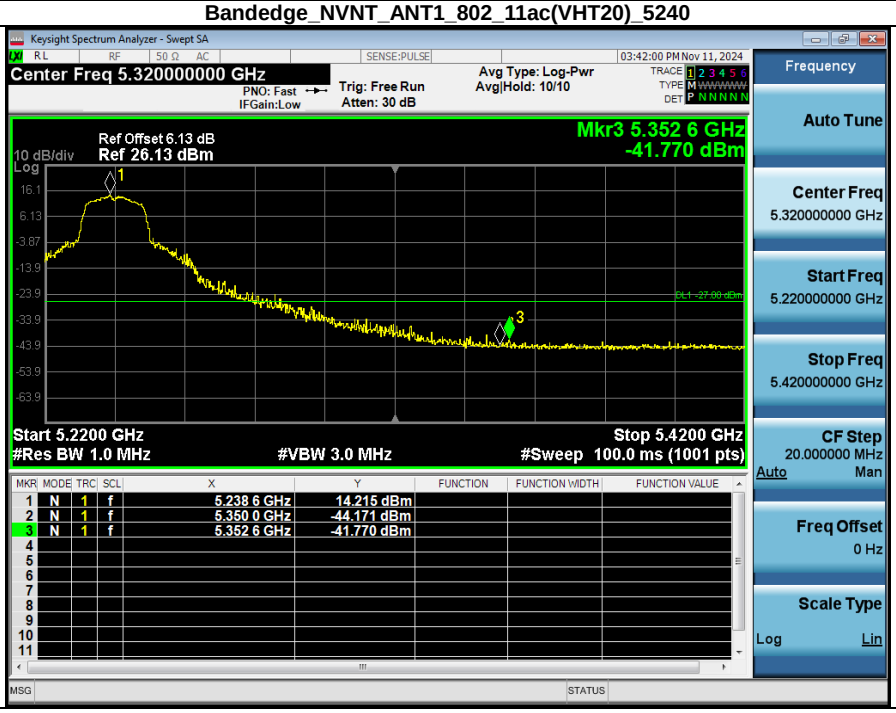
Bandedge_NVNT_ANT1_802_11n(HT20)_5240



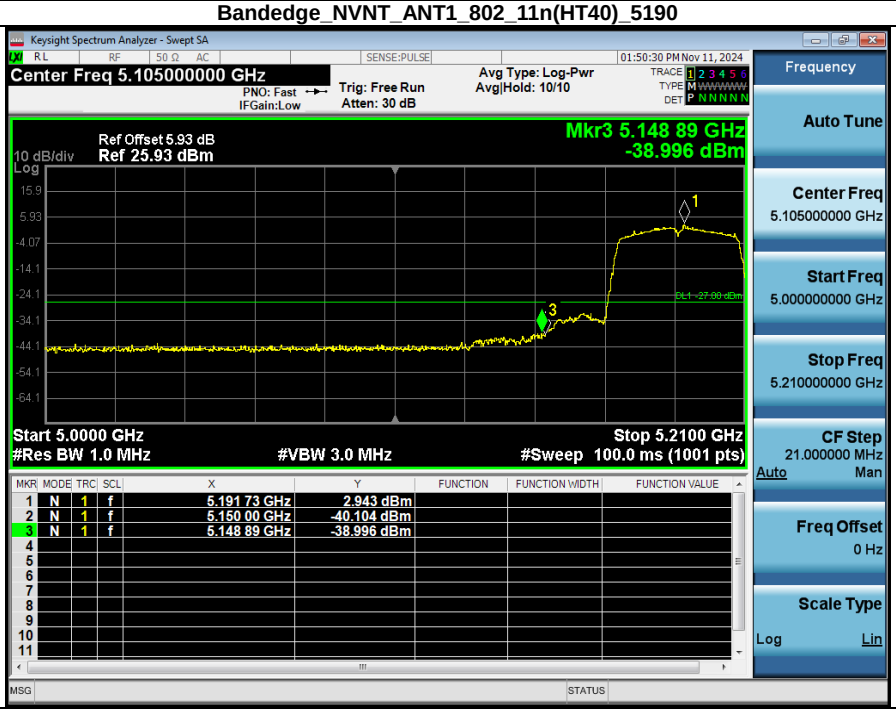
Bandedge_NVNT_ANT1_802_11ac(VHT20)_5180



Bandedge_NVNT_ANT1_802_11ac(VHT20)_5240

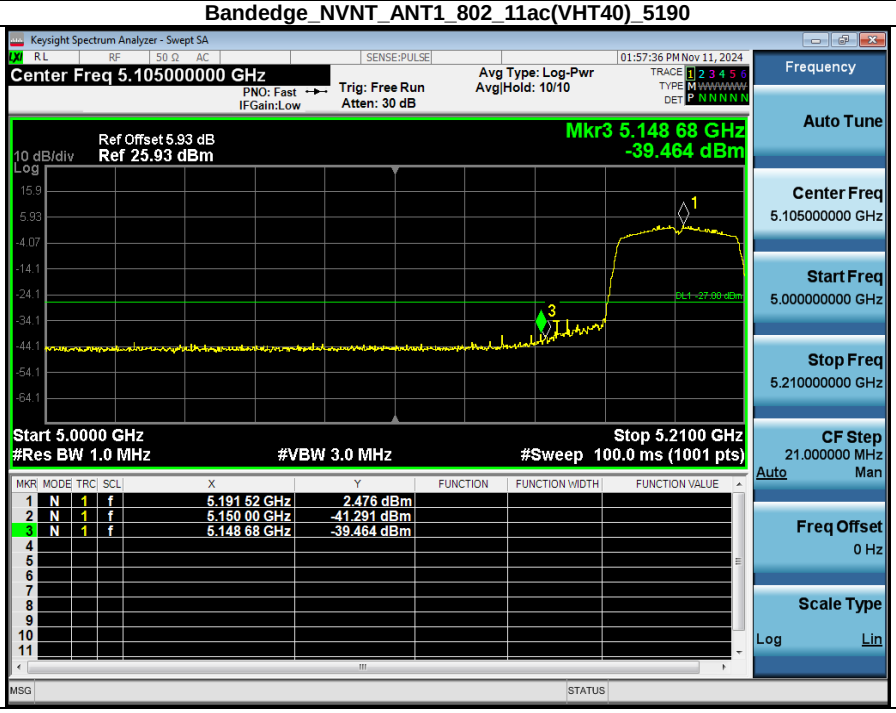


Bandedge_NVNT_ANT1_802_11n(HT40)_5190

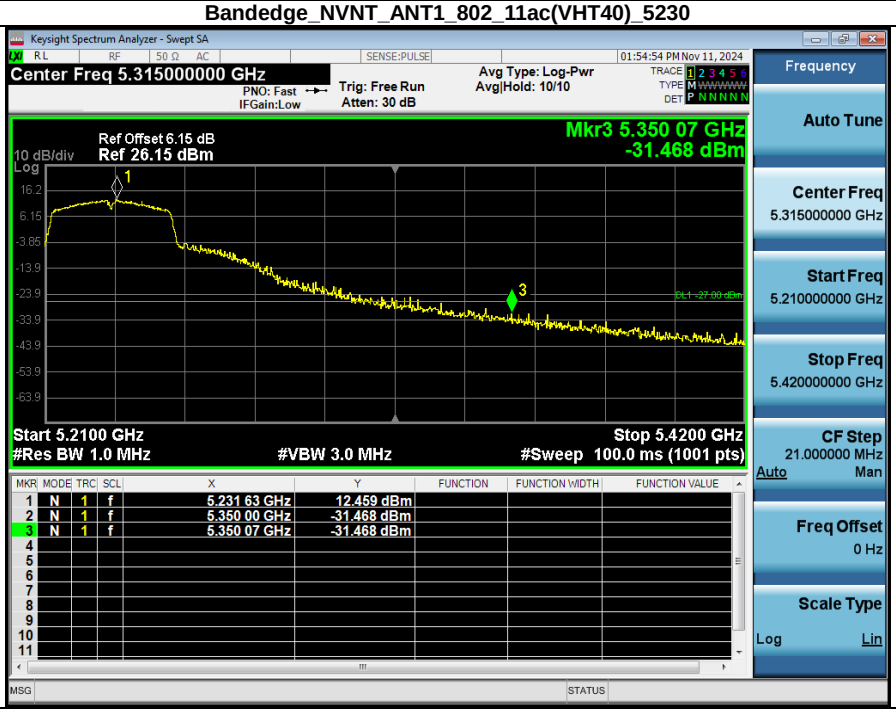


Bandedge_NVNT_ANT1_802_11n(HT40)_5230

Bandedge_NVNT_ANT1_802_11ac(VHT40)_5190



Bandedge_NVNT_ANT1_802_11ac(VHT40)_5230



Bandedge_NVNT_ANT1_802_11ac(VHT80)_5210