RADIO TEST REPORT

Report No.:STS2001236W14

Issued for

Winmate Inc.

9F, No.111-6, Shing-De Rd., San-Chung Dist., New Taipei City, 24158, Taiwan, R.O.C

Product Name:	Rugged Tablet PC
Brand Name:	Winmate
Model Name:	M101P-LA
Series Model:	RT10W-L10, M101PXXXXXXXXXX (Where X can be A-Z,a-z ,0-9,"-", Blank or Slash)
FCC ID:	PX9M101PH002
Test Standard:	FCC Part 15.407

Shenzhen STS Test Services Co., Ltd.
A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ,
Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China
TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@stsapp.com

TEST RESULT CERTIFICATION

Applicant's Name	:	Winmate Inc.
Address	:	9F, No.111-6, Shing-De Rd., San-Chung Dist., New Taipei City, 24158, Taiwan, R.O.C
Manufacture's Name	:	Winmate Inc.
Address	:	9F, No.111-6, Shing-De Rd., San-Chung Dist., New Taipei City, 24158, Taiwan, R.O.C
Product Description		
Product Name	:	Rugged Tablet PC
Brand Name	:	Winmate
Model Name	:	M101P-LA
Series Model	:	RT10W-L10, M101PXXXXXXXXXX (Where X can be A-Z,a-z ,0-9,"-", Blank or Slash)
Test Standards	:	FCC Part15.407
Test Procedure		ANSI C63.10-2013

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test	:	
Date of receipt of test item	:	20 Jan. 2020
Date (s) of performance of tests	:	20 Jan. 2020 ~ 18 Apr. 2020
Date of Issue	:	20 Apr. 2020
Test Result	:	**Pass**

Testing Engineer : Chris Chen
(Chris Chen)

Technical Manager : Sean She
(Sean she)

Authorized Signatory : Vita Li
(Vita Li)

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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	20 Apr. 2020	STS2001236W14	ALL	Initial Issue

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:
§ 15.407,KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

FCC Part 15.407		
FCC standard	Test Item	Results
15.207	AC Conducted Emission	PASS
§ 15.407 (2) (26 dB) / § 15.407 (e) (6 dB)/ § 15.407 (a) (99%)	26dB/6dB &99% Bandwidth	PASS
15.407(a) (1).(2).(3).(4).(5)	Maximum Conducted Output Power	PASS
15.407(b)& 15.209	Radiated Emission And (bandedge Emissions) Measurement	PASS
15.407(b)7	Conducted Emission And (bandedge Emissions) Measurement	PASS
15.407(a) (1).(2).(3).(4).(5)	Power Spectral Density	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
15.203/15.204	Antenna Requirement	PASS

NOTE:

(1) 'N/A' denotes test is not applicable in this Test Report.

(2) All tests are according to ANSI C63.10-2013.

1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD
Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China
FCC test Firm Registration Number: 625569
IC test Firm Registration Number: 12108A
A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.68dB
2	Unwanted Emissions, conducted	±2.988dB
3	All emissions, radiated 30-1GHz	±6.7dB
4	All emissions, radiated 1G-6GHz	±5.5dB
5	All emissions, radiated>6G	±5.8dB
6	Conducted Emission (9KHz-150KHz)	±4.43dB
7	Conducted Emission (150KHz-30MHz)	±5dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

<table>
<tr><td>Product Name</td><td>Rugged Tablet PC</td></tr>
<tr><td>Trade Name</td><td>Winmate</td></tr>
<tr><td>Model Name</td><td>M101P-LA</td></tr>
<tr><td>Series Model</td><td>RT10W-L10, M101PXXXXXXXXXX (Where X can be A-Z,a-z ,0-9,”-“, Blank or Slash)</td></tr>
<tr><td>Model Difference</td><td>Only for marketing purpose</td></tr>
<tr><td>Product Description</td><td>The EUT is a Rugged Tablet PC
<table>
<tr><td rowspan="4">Operation Frequency:</td><td>IEEE 802.11a/ n(HT20)/ac(VHT20):
5.180GHz-5.240GHz
IEEE 802.11n(HT40)/ac(VHT40):
5.190GHz-5.230GHz
IEEE 802.11ac(VHT80): 5.210GHz</td></tr>
<tr><td>IEEE 802.11a/ n(HT20)/ac(VHT20):
5.260GHz-5.320GHz
IEEE 802.11 n(HT40)/ac(VHT40):
5.270GHz-5.310GHz
IEEE 802.11ac(VHT80): 5.290GHz</td></tr>
<tr><td>IEEE 802.11a/ n(HT20)/ac(VHT20):
5.500GHz-5.700GHz
IEEE 802.11 n(HT40)/ac(VHT40):
5.510GHz-5.670GHz
IEEE 802.11ac(VHT80): 5.530GHz-5.610GHz</td></tr>
<tr><td>IEEE 802.11a/ n(HT20)/ac(VHT20):
5.745GHz-5.825GHz
IEEE 802.11a/ n(HT40)/ac(VHT40):
5.755GHz-5.795GHz
IEEE 802.11ac(VHT80): 5.775GHz</td></tr>
<tr><td>Modulation Type:</td><td>802.11a(OFDM):
BPSK,QPSK,16-QAM,64-QAM
802.11n(OFDM):
BPSK,QPSK,16-QAM,64-QAM
802.11ac(OFDM):
BPSK,QPSK,16-QAM,64-QAM,256-QAM</td></tr>
<tr><td>Antenna Designation:</td><td>Please refer to the Note 3.</td></tr>
<tr><td>Max.Output Power(Conducted):</td><td>21.01dBm</td></tr>
</table>
More details of EUT technical specification, please refer to the User Manual.</td></tr>
<tr><td>Test Channel</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Adapter</td><td>Input: AC 100-240V, 2.0A, 50/60Hz
Output: DC 19V, 3.42A</td></tr>
<tr><td>Battery</td><td>Battery 1:
Rated Voltage: 7.7V
Charge Limit: 8.8V
Capacity: 5900mAh
Battery 2:
Rated Voltage: 7.4V
Charge Limit: 8.4V
Capacity: 10280mAh</td></tr>
</table>

Hardware version number	M101PH-100
Software version number	8.8.4773.0004
Connecting I/O Port(s)	Please refer to the Note 1.

Note

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

2.

Operation Frequency of channel			
5.180GHz-5.240GHz		5.500GHz-5.720GHz	
Channel	Frequency	Channel	Frequency
36	5180	100	5500
38	5190	102	5510
40	5200	104	5520
42	5210	108	5540
44	5220	110	5550
46	5230	112	5560
48	5240	116	5580
		118	5590
5.260GHz-5.320GHz		120	5600
Channel	Frequency	124	5620
52	5260	126	5630
54	5270	128	5640
56	5280	132	5660
58	5290	134	5670
60	5300	136	5680
62	5310	140	5700
64	5320		
5.745GHz-5.825GHz			
Channel	Frequency		
149	5745		
151	5755		
153	5765		
157	5785		
159	5795		
161	5805		
165	5825		

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:
Carrier Frequency Channel

5GHz:

For 802.11a/n(HT20)/ac(VHT20)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
36	5180	52	5260
40	5200	60	5300
48	5240	64	5320

For 802.11a/n(HT20)/ac(VHT20)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
100	5500	149	5745
116	5580	157	5785
140	5700	165	5825

For 802.11 n(HT40)/ac(VHT40)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
38	5190	54	5270
46	5230	62	5310

For 802.11 n(HT40)/ac(VHT40)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
102	5510	151	5755
110	5550	159	5795
134	5670		

For 802.11ac (VHT80)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
42	5210	58	5290

For 802.11ac (VHT80)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
106	5530	155	5775
122	5610		

3. KDB 662911 D01 Multiple Transmitter Output v02r01
2) Directional Gain Calculations for In-Band Measurements
a) Basic methodology with NANT transmit antennas, each with the same directional gain GA NT dBi, being driven by NANT transmitter outputs of equal power. Directional gain is to be co mputed as follows:
(i) If any transmit signals are correlated with each other,
Directional gain = GANT + 10 log(NANT) dBi
(ii) If all transmit signals are completely uncorrelated with each other,
Directional gain = GANT
Antenna number: 2
Antenna A gain : 2.46dBi
Antenna B gain : 2.46dBi
MIMO technology Directional gain=5.47dBi

GANT + 10 log(NANT) dBi
Directional gain= 2.46+10log2=5.47dBi

Ant	Brand	Model Name	Ant Type	Connector	Gain (dBi)	NOTE
A	Winmate	M101P-LA	PIFA Antenna	N/A	Antenna A gain : 2.46dBi Antenna B gain : 2.46dBi MIMO technology Directional gain=5.47dBi	WLAN Ant

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Worst Mode	Description	Data Rate
Mode 1	TX IEEE 802.11a HT20 CH36&CH40&CH48	6 Mbps
Mode 2	TX IEEE 802.11a HT20 CH52&CH60&CH64	6 Mbps
Mode 3	TX IEEE 802.11a HT20 CH100&CH116&CH140	6 Mbps
Mode 4	TX IEEE 802.11a HT20 CH149&CH157&CH165	6 Mbps
Mode 5	TX IEEE 802.11n HT20 CH36&CH40&CH48	MCS 0
Mode 6	TX IEEE 802.11ac HT20 CH36&CH40&CH48	NSS1 MCS0
Mode 7	TX IEEE 802.11n HT20 CH52&CH60&CH64	MCS 0
Mode 8	TX IEEE 802.11ac HT20 CH52&CH60&CH64	NSS1 MCS0
Mode 9	TX IEEE 802.11n HT20 CH100&CH116&CH140	MCS 0
Mode 10	TX IEEE 802.11ac HT20 CH100&CH116&CH140	NSS1 MCS0
Mode 11	TX IEEE 802.11n HT20 CH149&CH157&CH165	MCS 0
Mode 12	TX IEEE 802.11ac HT20 CH149&CH157&CH165	NSS1 MCS0
Mode 13	TX IEEE 802.11n HT40 CH38&CH46	MCS 0
Mode 14	TX IEEE 802.11ac HT40 CH38&CH46	NSS1 MCS0
Mode 15	TX IEEE 802.11n HT40 CH54 &CH62	MCS 0
Mode 16	TX IEEE 802.11ac HT40 CH54 &CH62	NSS1 MCS0
Mode 17	TX IEEE 802.11n HT40 CH102&CH110&CH134	MCS 0
Mode 18	TX IEEE 802.11ac HT40 CH102&CH110&CH134	NSS1 MCS0
Mode 19	TX IEEE 802.11n HT40 CH151&CH159	MCS 0
Mode 20	TX IEEE 802.11ac HT40 CH151&CH159	NSS1 MCS0
Mode 21	TX IEEE 802.11ac HT80 CH42	NSS1 MCS0
Mode 22	TX IEEE 802.11ac HT80 CH58	NSS1 MCS0
Mode 23	TX IEEE 802.11ac HT80 CH106&122	NSS1 MCS0
Mode 24	TX IEEE 802.11ac HT80 CH155	NSS1 MCS0

Note: (1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

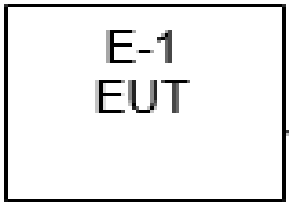
(3) We have be tested for all avaiable U.S. voltage and frequencies(For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation.

AC Conducted Emission

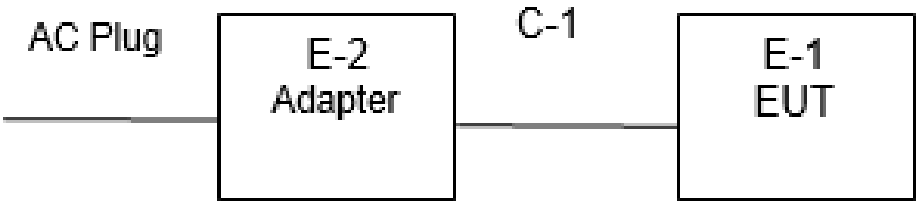
Test Case	
AC Conducted Emission	Mode 25: Keeping TX + WLAN Link

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious EmissionTest



Conducted Emission Test



2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-2	Adapter	EDAC	EA10733P-190	N/A	N/A
C-1	DC Cable	N/A	110cm	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
N/A	N/A	N/A	N/A	N/A	N/A

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESCI	101427	2019.07.29	2020.07.28
Signal Analyzer	Agilent	N9020A	MY51110105	2020.03.05	2021.03.04
Active loop Antenna	ZHINAN	ZN30900C	16035	2018.03.11	2021.03.10
Bilog Antenna	TESEQ	CBL6111D	34678	2017.11.02	2020.11.01
Horn Antenna	SCHWARZBECK	BBHA 9120D(1201)	9120D-1343	2018.10.19	2021.10.18
Horn Antenna (18-40GHz)	A-INFO	LB-180400-KF	J211020657	2018.03.11	2021.03.10
Pre-Amplifier (18G-40G)	SKET	LNPA_1840-50	SK2018101801	2019.10.22	2020.10.21
Spectrum Analyzer	R&S	FSV40-N	101823	2019.06.05	2020.06.04
Pre-Amplifier(0.1 M-3GHz)	EM	EM330	060665	2019.10.09	2020.10.08
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2019.10.12	2020.10.11
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Test SW	BULUN	BL410-E/18.905			

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2019.07.29	2020.07.28
LISN	R&S	ENV216	101242	2019.10.09	2020.10.08
LISN	EMCO	3810/2NM	23625	2019.10.09	2020.10.08
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 CE)			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
USB RF power sensor	DARE	RPR3006W	15I00041SNO03	2019.10.09	2020.10.08
Signal Analyzer	Agilent	N9020A	MY49100060	2019.10.09	2020.10.08
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
Test SW	FARAD	LZ-RF /LzRf-3A3			

3. EMC EMISSION TEST

3.1CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

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.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

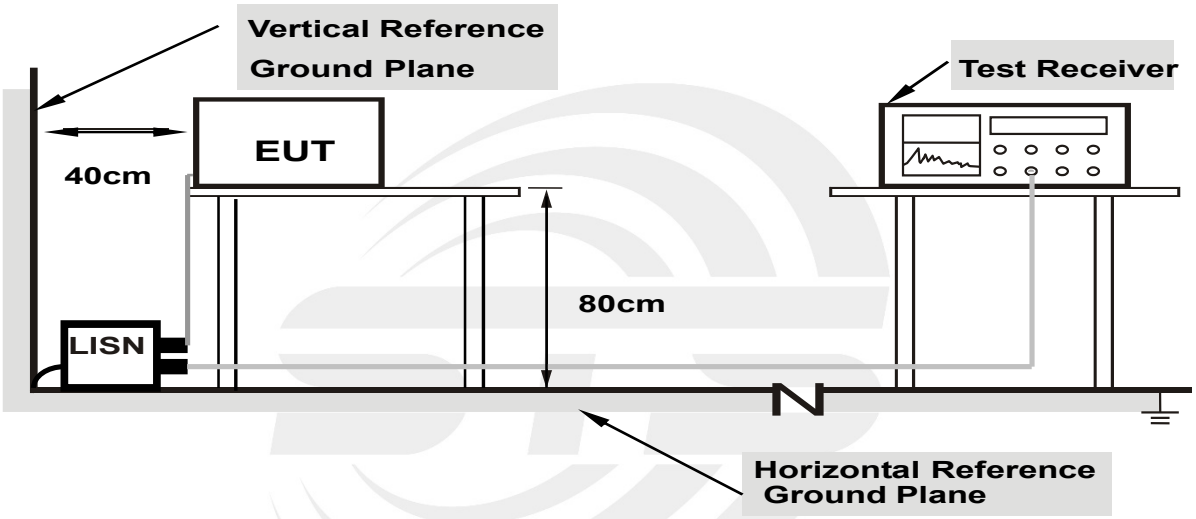
3.1.2 TEST PROCEDURE

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 equipments powered 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 ground plane 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.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

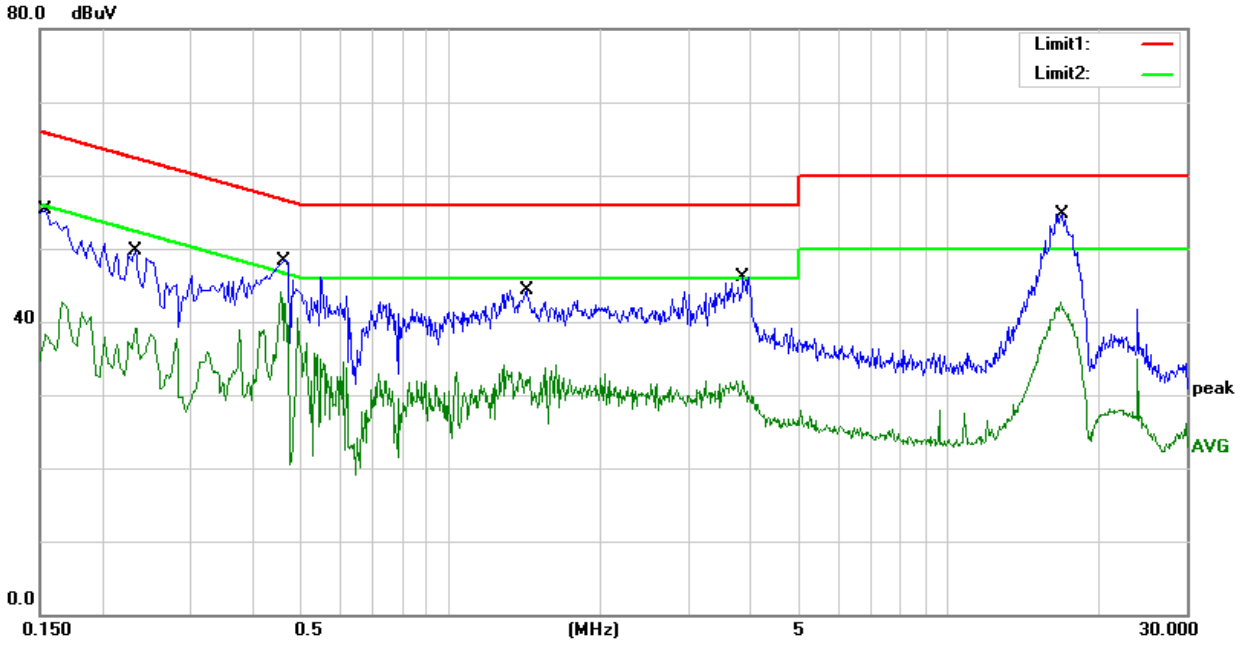
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS

Temperature:	22.9(C)	Relative Humidity:	47%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode：	Mode 25		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1538	32.40	19.79	52.19	65.79	-13.60	QP
2	0.1538	17.08	19.79	36.87	55.79	-18.92	AVG
3	0.2327	25.49	19.93	45.42	62.35	-16.93	QP
4	0.2327	16.37	19.93	36.30	52.35	-16.05	AVG
5	0.4580	28.49	20.03	48.52	56.73	-8.21	QP
6	0.4580	23.14	20.03	43.17	46.73	-3.56	AVG
7	1.4146	20.70	19.79	40.49	56.00	-15.51	QP
8	1.4146	9.44	19.79	29.23	46.00	-16.77	AVG
9	3.9111	19.67	19.83	39.50	56.00	-16.50	QP
10	3.9111	9.15	19.83	28.98	46.00	-17.02	AVG
11	16.8612	31.25	20.32	51.57	60.00	-8.43	QP
12	16.8612	20.89	20.32	41.21	50.00	-8.79	AVG

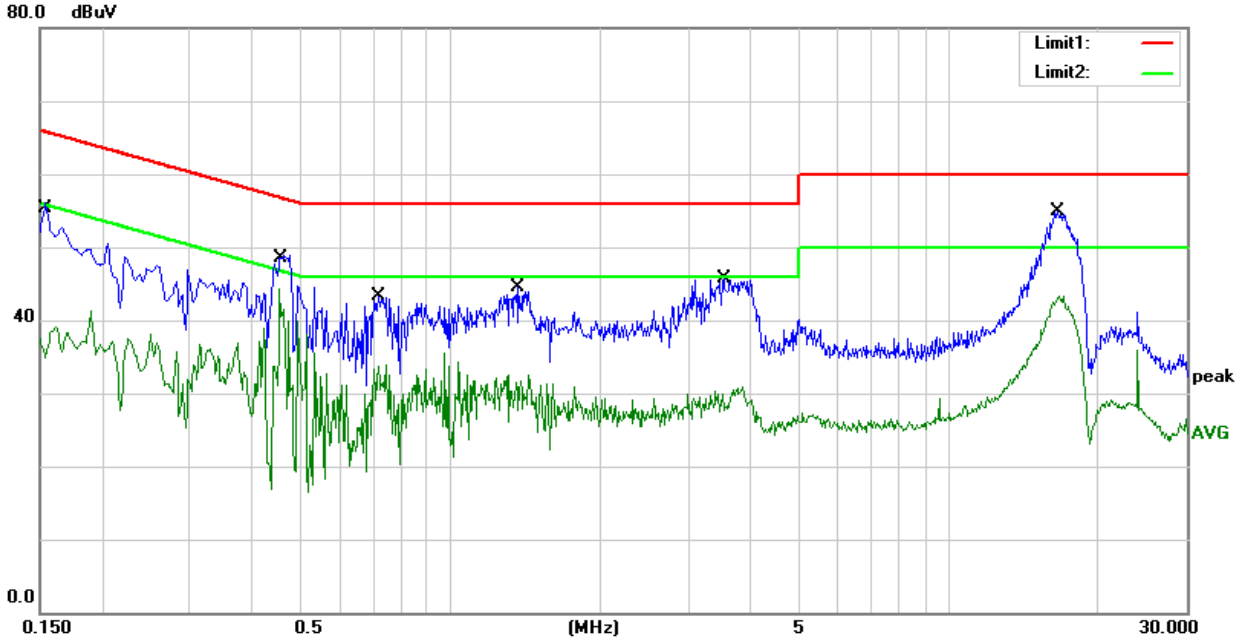
Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	22.9(C)	Relative Humidity:	47%RH
Test Voltage	AC 120V/60Hz	Phase:	N
Test Mode	Mode 25		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1508	32.39	19.75	52.14	65.96	-13.82	QP
2	0.1508	18.29	19.75	38.04	55.96	-17.92	AVG
3	0.4540	28.54	20.02	48.56	56.80	-8.24	QP
4	0.4540	23.39	20.02	43.41	46.80	-3.39	AVG
5	0.7248	19.36	19.85	39.21	56.00	-16.79	QP
6	0.7248	10.21	19.85	30.06	46.00	-15.94	AVG
7	1.3701	18.91	19.83	38.74	56.00	-17.26	QP
8	1.3701	9.68	19.83	29.51	46.00	-16.49	AVG
9	3.5683	19.72	19.93	39.65	56.00	-16.35	QP
10	3.5683	8.25	19.93	28.18	46.00	-17.82	AVG
11	16.5487	29.93	20.20	50.13	60.00	-9.87	QP
12	16.5487	22.45	20.20	42.65	50.00	-7.35	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



3.2 RADIATED EMISSION AND (BANDEDGE) MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.407(b)7& 15.205/209(a), then the (a); limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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 RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	68.2	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15E.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier harmonic (Peak/AV)
RB / VB (emission in restricted band)	1 MHz / 1 MHz, AV=1 MHz /3 MHz

For Band edge

Spectrum Parameter	Setting
Detector	Peak
RB / VB (emission in restricted band)	1 MHz / 1 MHz, AV=1 MHz /3 MHz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters(above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarizations of the antenna are set to make the measurement
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

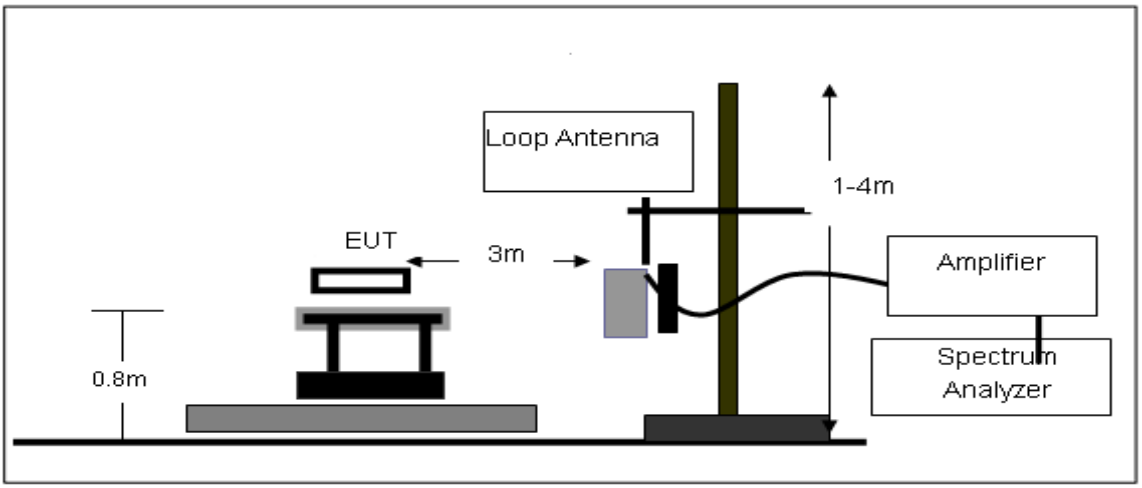
Both horizontal and vertical antenna polarities were tested and performed test to three orthogonal axis. The worst case emissions were reported

3.2.2 DEVIATION FROM TEST STANDARD

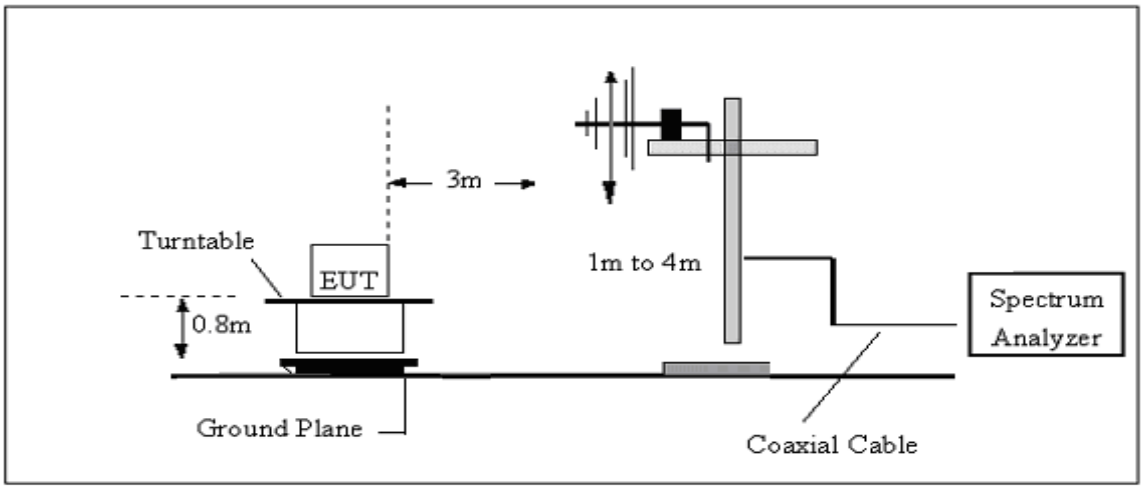
No deviation

3.2.3 TEST SETUP

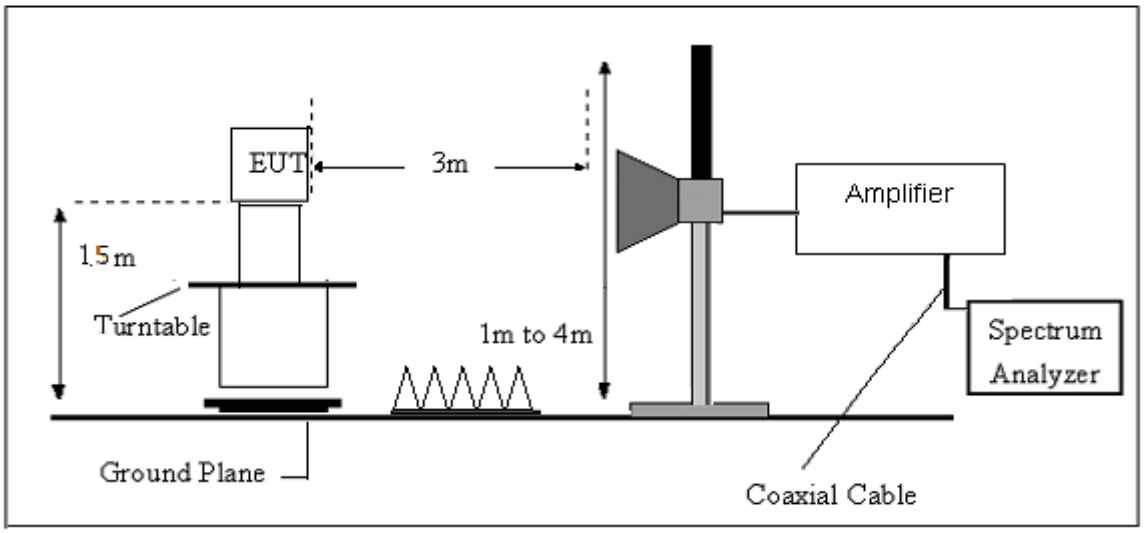
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:
FS = RA + AF + CL - AG
Where
FS = Field Strength
CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude
AG = Amplifier Gain
AF = Antenna Factor
For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

Factor=AF+CL-AG

3.2.6 TEST RESULTS (Between 9KHz – 30 MHz)

Temperature:	24.2(C)	Relative Humidtity:	57%RH
Test Voltage:	DC 7.7V	Polarization :	--
Test Mode:	TX Mode		

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:

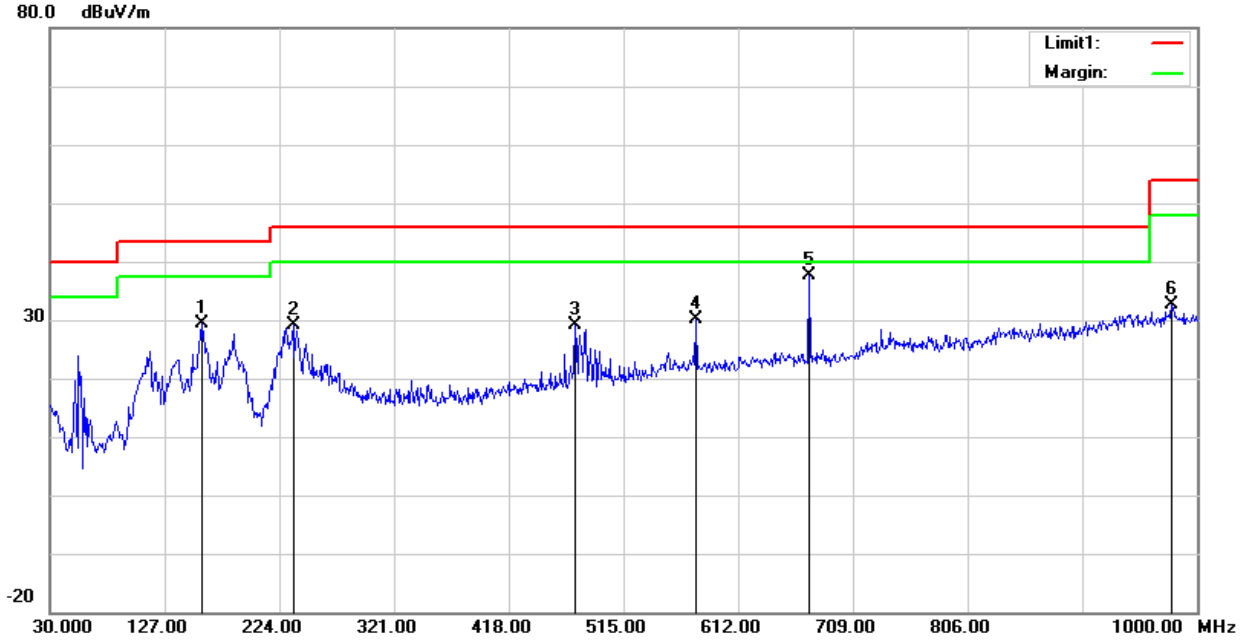
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (Between 30MHz – 1GHz)

Temperature	24.2(C)	Relative Humidtity:	57%RH
Test Voltage	DC 7.7V	Polarization:	Horizontal
Test Mode	Mode 1~24(Mode 18 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	158.0400	48.10	-18.74	29.36	43.50	-14.14	QP
2	235.6400	47.81	-18.62	29.19	46.00	-16.81	QP
3	474.2600	37.96	-8.85	29.11	46.00	-16.89	QP
4	576.1100	35.72	-5.70	30.02	46.00	-15.98	QP
5	672.1400	42.19	-4.52	37.67	46.00	-8.33	QP
6	978.6600	30.00	2.58	32.58	54.00	-21.42	QP

Remark:
1. Margin = Result (Result =Reading + Factor)–Limit

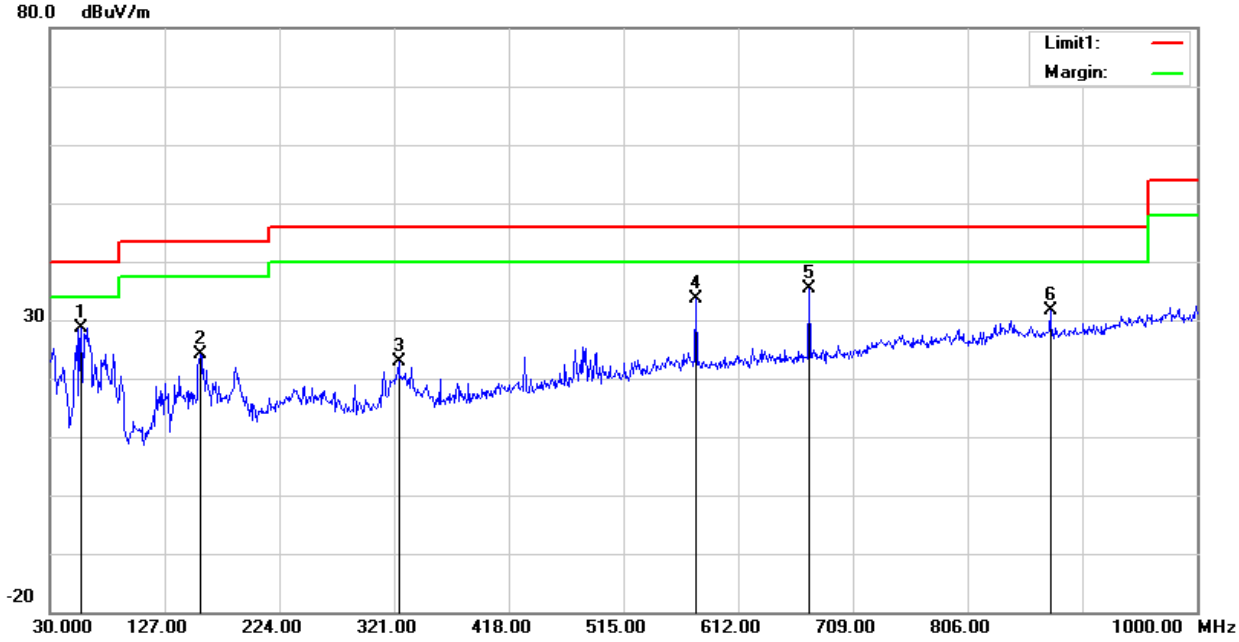


Temperature	24.2(C)	Relative Humidtity:	57%RH
Test Voltage	DC 7.7V	Polarization:	Vertical
Test Mode	Mode 1~24(Mode 18 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	56.1900	54.03	-25.30	28.73	40.00	-11.27	QP
2	157.0700	42.81	-18.70	24.11	43.50	-19.39	QP
3	324.8800	36.61	-13.85	22.76	46.00	-23.24	QP
4	576.1100	39.31	-5.70	33.61	46.00	-12.39	QP
5	672.1400	39.87	-4.52	35.35	46.00	-10.65	QP
6	875.8400	32.12	-0.61	31.51	46.00	-14.49	QP

Remark:

1. Margin = Result (Result =Reading + Factor)–Limit



3.2.8 TEST RESULTS (Above 1000 MHz)

Band I 5150-5250MHz

Frequency (MHz)	Reading (dBuV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBμV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11ac (VHT-20) 5180 MHz)										
3254.09	43.95	44.70	6.70	28.20	-9.80	34.15	68.20	-34.05	Pk	Vertical
3254.09	42.00	44.70	6.70	28.20	-9.80	32.20	54.00	-21.80	AV	Vertical
3253.92	44.25	44.70	6.70	28.20	-9.80	34.45	68.20	-33.75	Pk	Horizontal
3253.92	41.19	44.70	6.70	28.20	-9.80	31.39	54.00	-22.61	AV	Horizontal
3992.24	39.96	44.20	7.90	29.70	-6.60	33.36	68.20	-34.84	Pk	Vertical
3992.24	36.20	44.20	7.90	29.70	-6.60	29.60	54.00	-24.40	AV	Vertical
3991.34	38.78	44.20	7.90	29.70	-6.60	32.18	68.20	-36.02	Pk	Horizontal
3991.34	36.80	44.20	7.90	29.70	-6.60	30.20	54.00	-23.80	AV	Horizontal
7223.21	37.27	43.50	11.40	35.50	3.40	40.67	68.20	-27.53	Pk	Vertical
7223.21	34.88	43.50	11.40	35.50	3.40	38.28	54.00	-15.72	AV	Vertical
7216.64	36.92	43.50	11.40	35.50	3.40	40.32	68.20	-27.88	Pk	Horizontal
7216.64	33.79	43.50	11.40	35.50	3.40	37.19	54.00	-16.81	AV	Horizontal
10360.34	39.06	44.50	13.80	38.80	8.10	47.16	68.20	-21.04	Pk	Vertical
10360.34	36.91	44.50	13.80	38.80	8.10	45.01	54.00	-8.99	AV	Vertical
10360.33	38.87	44.50	13.80	38.80	8.10	46.97	68.20	-21.23	Pk	Horizontal
10360.33	36.58	44.50	13.80	38.80	8.10	44.68	54.00	-9.32	AV	Horizontal
11028.62	34.18	43.60	14.30	39.50	10.20	44.38	68.20	-23.82	Pk	Vertical
11028.62	30.12	43.60	14.30	39.50	10.20	40.32	54.00	-13.68	AV	Vertical
11030.61	33.69	43.60	14.30	39.50	10.20	43.89	68.20	-24.31	Pk	Horizontal
11030.61	29.77	43.60	14.30	39.50	10.20	39.97	54.00	-14.03	AV	Horizontal
13291.26	32.52	42.60	15.90	38.90	12.20	44.72	68.20	-23.48	Pk	Vertical
13291.26	29.34	42.60	15.90	38.90	12.20	41.54	54.00	-12.46	AV	Vertical
13288.65	31.81	42.60	15.90	38.90	12.20	44.01	68.20	-24.19	Pk	Horizontal
13288.65	29.67	42.60	15.90	38.90	12.20	41.87	54.00	-12.13	AV	Horizontal
Mid Channel (802.11ac (VHT-20) 5200 MHz)										
3254.04	45.16	44.70	6.70	28.20	-9.80	35.36	68.20	-32.84	Pk	Vertical
3254.04	42.00	44.70	6.70	28.20	-9.80	32.20	54.00	-21.80	AV	Vertical
3264.62	44.65	44.70	6.70	28.20	-9.80	34.85	68.20	-33.35	Pk	Horizontal
3264.62	42.03	44.70	6.70	28.20	-9.80	32.23	54.00	-21.77	AV	Horizontal
3986.91	39.07	44.20	7.90	29.70	-6.60	32.47	68.20	-35.73	Pk	Vertical
3986.91	36.59	44.20	7.90	29.70	-6.60	29.99	54.00	-24.01	AV	Vertical
3982.31	39.48	44.20	7.90	29.70	-6.60	32.88	68.20	-35.32	Pk	Horizontal
3982.31	36.12	44.20	7.90	29.70	-6.60	29.52	54.00	-24.48	AV	Horizontal
7224.57	36.83	43.50	11.40	35.50	3.40	40.23	68.20	-27.97	Pk	Vertical
7224.57	33.53	43.50	11.40	35.50	3.40	36.93	54.00	-17.07	AV	Vertical
7223.70	36.85	43.50	11.40	35.50	3.40	40.25	68.20	-27.95	Pk	Horizontal
7223.70	34.39	43.50	11.40	35.50	3.40	37.79	54.00	-16.21	AV	Horizontal
10400.04	39.45	44.50	13.80	38.80	8.10	47.55	68.20	-20.65	Pk	Vertical
10400.04	36.58	44.50	13.80	38.80	8.10	44.68	54.00	-9.32	AV	Vertical
10400.07	39.32	44.50	13.80	38.80	8.10	47.42	68.20	-20.78	Pk	Horizontal
10400.07	36.60	44.50	13.80	38.80	8.10	44.70	54.00	-9.30	AV	Horizontal
11031.17	33.78	43.60	14.30	39.50	10.20	43.98	68.20	-24.22	Pk	Vertical
11031.17	29.75	43.60	14.30	39.50	10.20	39.95	54.00	-14.05	AV	Vertical
11031.24	33.88	43.60	14.30	39.50	10.20	44.08	68.20	-24.12	Pk	Horizontal
11031.24	29.95	43.60	14.30	39.50	10.20	40.15	54.00	-13.85	AV	Horizontal
13298.87	31.84	42.60	15.90	38.90	12.20	44.04	68.20	-24.16	Pk	Vertical
13298.87	29.16	42.60	15.90	38.90	12.20	41.36	54.00	-12.64	AV	Vertical
13288.91	32.36	42.60	15.90	38.90	12.20	44.56	68.20	-23.64	Pk	Horizontal
13288.91	28.67	42.60	15.90	38.90	12.20	40.87	54.00	-13.13	AV	Horizontal

High Channel (802.11ac (VHT-20) 5240 MHz)										
3256.85	44.08	44.70	6.70	28.20	-9.80	34.28	68.20	-33.92	Pk	Vertical
3256.85	40.89	44.70	6.70	28.20	-9.80	31.09	54.00	-22.91	AV	Vertical
3263.54	44.53	44.70	6.70	28.20	-9.80	34.73	68.20	-33.47	Pk	Horizontal
3263.54	41.48	44.70	6.70	28.20	-9.80	31.68	54.00	-22.32	AV	Horizontal
3993.66	39.45	44.20	7.90	29.70	-6.60	32.85	68.20	-35.35	Pk	Vertical
3993.66	35.83	44.20	7.90	29.70	-6.60	29.23	54.00	-24.77	AV	Vertical
3995.97	39.00	44.20	7.90	29.70	-6.60	32.40	68.20	-35.80	Pk	Horizontal
3995.97	36.89	44.20	7.90	29.70	-6.60	30.29	54.00	-23.71	AV	Horizontal
7234.20	37.20	43.50	11.40	35.50	3.40	40.60	68.20	-27.60	Pk	Vertical
7234.20	33.76	43.50	11.40	35.50	3.40	37.16	54.00	-16.84	AV	Vertical
7228.74	36.84	43.50	11.40	35.50	3.40	40.24	68.20	-27.96	Pk	Horizontal
7228.74	34.88	43.50	11.40	35.50	3.40	38.28	54.00	-15.72	AV	Horizontal
10480.32	39.76	44.50	13.80	38.80	8.10	47.86	68.20	-20.34	Pk	Vertical
10480.32	36.28	44.50	13.80	38.80	8.10	44.38	54.00	-9.62	AV	Vertical
10480.27	39.49	44.50	13.80	38.80	8.10	47.59	68.20	-20.61	Pk	Horizontal
10480.27	35.77	44.50	13.80	38.80	8.10	43.87	54.00	-10.13	AV	Horizontal
11023.21	33.83	43.60	14.30	39.50	10.20	44.03	68.20	-24.17	Pk	Vertical
11023.21	29.96	43.60	14.30	39.50	10.20	40.16	54.00	-13.84	AV	Vertical
11018.95	33.96	43.60	14.30	39.50	10.20	44.16	68.20	-24.04	Pk	Horizontal
11018.95	29.76	43.60	14.30	39.50	10.20	39.96	54.00	-14.04	AV	Horizontal
13298.66	32.85	42.60	15.90	38.90	12.20	45.05	68.20	-23.15	Pk	Vertical
13298.66	29.75	42.60	15.90	38.90	12.20	41.95	54.00	-12.05	AV	Vertical
13280.27	32.12	42.60	15.90	38.90	12.20	44.32	68.20	-23.88	Pk	Horizontal
13280.27	28.61	42.60	15.90	38.90	12.20	40.81	54.00	-13.19	AV	Horizontal

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11ac (VHT-20).
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.
4. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band II 5250-5350MHz

Frequency (MHz)	Reading (dBuV)	Amplifier （dB）	Loss （dB）	Antenna Factor （dB/m）	Orrected Factor （dB）	Emission Level (dBμV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11ac (VHT-20) 5180 MHz)										
3262.70	44.58	44.70	6.70	28.20	-9.80	34.78	68.20	-33.42	Pk	Vertical
3262.70	41.18	44.70	6.70	28.20	-9.80	31.38	54.00	-22.62	AV	Vertical
3252.97	43.95	44.70	6.70	28.20	-9.80	34.15	68.20	-34.05	Pk	Horizontal
3252.97	41.71	44.70	6.70	28.20	-9.80	31.91	54.00	-22.09	AV	Horizontal
3982.24	38.97	44.20	7.90	29.70	-6.60	32.37	68.20	-35.83	Pk	Vertical
3982.24	37.12	44.20	7.90	29.70	-6.60	30.52	54.00	-23.48	AV	Vertical
3987.28	38.83	44.20	7.90	29.70	-6.60	32.23	68.20	-35.97	Pk	Horizontal
3987.28	36.27	44.20	7.90	29.70	-6.60	29.67	54.00	-24.33	AV	Horizontal
7227.46	37.48	43.50	11.40	35.50	3.40	40.88	68.20	-27.32	Pk	Vertical
7227.46	34.36	43.50	11.40	35.50	3.40	37.76	54.00	-16.24	AV	Vertical
7227.20	37.48	43.50	11.40	35.50	3.40	40.88	68.20	-27.32	Pk	Horizontal
7227.20	33.89	43.50	11.40	35.50	3.40	37.29	54.00	-16.71	AV	Horizontal
10360.02	39.28	44.50	13.80	38.80	8.10	47.38	68.20	-20.82	Pk	Vertical
10360.02	36.98	44.50	13.80	38.80	8.10	45.08	54.00	-8.92	AV	Vertical
10360.20	38.89	44.50	13.80	38.80	8.10	46.99	68.20	-21.21	Pk	Horizontal
10360.20	36.85	44.50	13.80	38.80	8.10	44.95	54.00	-9.05	AV	Horizontal
11024.40	32.72	43.60	14.30	39.50	10.20	42.92	68.20	-25.28	Pk	Vertical
11024.40	30.58	43.60	14.30	39.50	10.20	40.78	54.00	-13.22	AV	Vertical
11020.59	33.47	43.60	14.30	39.50	10.20	43.67	68.20	-24.53	Pk	Horizontal
11020.59	30.67	43.60	14.30	39.50	10.20	40.87	54.00	-13.13	AV	Horizontal
13297.45	32.89	42.60	15.90	38.90	12.20	45.09	68.20	-23.11	Pk	Vertical
13297.45	29.87	42.60	15.90	38.90	12.20	42.07	54.00	-11.93	AV	Vertical
13292.69	32.93	42.60	15.90	38.90	12.20	45.13	68.20	-23.07	Pk	Horizontal
13292.69	29.51	42.60	15.90	38.90	12.20	41.71	54.00	-12.29	AV	Horizontal
Mid Channel (802.11ac (VHT-20) 5200 MHz)										
3263.69	44.25	44.70	6.70	28.20	-9.80	34.45	68.20	-33.75	Pk	Vertical
3263.69	41.58	44.70	6.70	28.20	-9.80	31.78	54.00	-22.22	AV	Vertical
3247.98	43.97	44.70	6.70	28.20	-9.80	34.17	68.20	-34.03	Pk	Horizontal
3247.98	42.12	44.70	6.70	28.20	-9.80	32.32	54.00	-21.68	AV	Horizontal
3994.26	40.00	44.20	7.90	29.70	-6.60	33.40	68.20	-34.80	Pk	Vertical
3994.26	36.40	44.20	7.90	29.70	-6.60	29.80	54.00	-24.20	AV	Vertical
3993.50	39.59	44.20	7.90	29.70	-6.60	32.99	68.20	-35.21	Pk	Horizontal
3993.50	37.08	44.20	7.90	29.70	-6.60	30.48	54.00	-23.52	AV	Horizontal
7232.95	36.91	43.50	11.40	35.50	3.40	40.31	68.20	-27.89	Pk	Vertical
7232.95	34.26	43.50	11.40	35.50	3.40	37.66	54.00	-16.34	AV	Vertical
7231.70	37.11	43.50	11.40	35.50	3.40	40.51	68.20	-27.69	Pk	Horizontal
7231.70	33.85	43.50	11.40	35.50	3.40	37.25	54.00	-16.75	AV	Horizontal
10400.02	39.60	44.50	13.80	38.80	8.10	47.70	68.20	-20.50	Pk	Vertical
10400.02	36.10	44.50	13.80	38.80	8.10	44.20	54.00	-9.80	AV	Vertical
10400.25	38.86	44.50	13.80	38.80	8.10	46.96	68.20	-21.24	Pk	Horizontal
10400.25	36.80	44.50	13.80	38.80	8.10	44.90	54.00	-9.10	AV	Horizontal
11020.19	33.46	43.60	14.30	39.50	10.20	43.66	68.20	-24.54	Pk	Vertical
11020.19	30.19	43.60	14.30	39.50	10.20	40.39	54.00	-13.61	AV	Vertical
11024.48	34.05	43.60	14.30	39.50	10.20	44.25	68.20	-23.95	Pk	Horizontal
11024.48	30.45	43.60	14.30	39.50	10.20	40.65	54.00	-13.35	AV	Horizontal
13297.12	31.73	42.60	15.90	38.90	12.20	43.93	68.20	-24.27	Pk	Vertical
13297.12	29.32	42.60	15.90	38.90	12.20	41.52	54.00	-12.48	AV	Vertical
13290.97	32.12	42.60	15.90	38.90	12.20	44.32	68.20	-23.88	Pk	Horizontal
13290.97	28.72	42.60	15.90	38.90	12.20	40.92	54.00	-13.08	AV	Horizontal

High Channel (802.11ac (VHT-20) 5240 MHz)										
3247.70	44.64	44.70	6.70	28.20	-9.80	34.84	68.20	-33.36	Pk	Vertical
3247.70	41.25	44.70	6.70	28.20	-9.80	31.45	54.00	-22.55	AV	Vertical
3263.65	44.09	44.70	6.70	28.20	-9.80	34.29	68.20	-33.91	Pk	Horizontal
3263.65	41.32	44.70	6.70	28.20	-9.80	31.52	54.00	-22.48	AV	Horizontal
3993.50	38.86	44.20	7.90	29.70	-6.60	32.26	68.20	-35.94	Pk	Vertical
3993.50	36.44	44.20	7.90	29.70	-6.60	29.84	54.00	-24.16	AV	Vertical
3990.03	39.31	44.20	7.90	29.70	-6.60	32.71	68.20	-35.49	Pk	Horizontal
3990.03	36.52	44.20	7.90	29.70	-6.60	29.92	54.00	-24.08	AV	Horizontal
7234.74	36.65	43.50	11.40	35.50	3.40	40.05	68.20	-28.15	Pk	Vertical
7234.74	33.66	43.50	11.40	35.50	3.40	37.06	54.00	-16.94	AV	Vertical
7217.81	36.87	43.50	11.40	35.50	3.40	40.27	68.20	-27.93	Pk	Horizontal
7217.81	34.54	43.50	11.40	35.50	3.40	37.94	54.00	-16.06	AV	Horizontal
10480.29	39.34	44.50	13.80	38.80	8.10	47.44	68.20	-20.76	Pk	Vertical
10480.29	36.75	44.50	13.80	38.80	8.10	44.85	54.00	-9.15	AV	Vertical
10480.18	39.53	44.50	13.80	38.80	8.10	47.63	68.20	-20.57	Pk	Horizontal
10480.18	36.76	44.50	13.80	38.80	8.10	44.86	54.00	-9.14	AV	Horizontal
11016.77	32.76	43.60	14.30	39.50	10.20	42.96	68.20	-25.24	Pk	Vertical
11016.77	29.75	43.60	14.30	39.50	10.20	39.95	54.00	-14.05	AV	Vertical
11028.91	33.43	43.60	14.30	39.50	10.20	43.63	68.20	-24.57	Pk	Horizontal
11028.91	29.93	43.60	14.30	39.50	10.20	40.13	54.00	-13.87	AV	Horizontal
13298.94	32.44	42.60	15.90	38.90	12.20	44.64	68.20	-23.56	Pk	Vertical
13298.94	28.93	42.60	15.90	38.90	12.20	41.13	54.00	-12.87	AV	Vertical
13280.28	32.88	42.60	15.90	38.90	12.20	45.08	68.20	-23.12	Pk	Horizontal
13280.28	29.60	42.60	15.90	38.90	12.20	41.80	54.00	-12.20	AV	Horizontal

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11ac (VHT-20).
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.
4. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band III 5470-5725MHz

Frequency (MHz)	Reading (dBuV)	Amplifier （dB）	Loss （dB）	Antenna Factor （dB/m）	Orrected Factor （dB）	Emission Level (dBμV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11ac (VHT-20) 5500 MHz)										
3260.90	43.95	44.70	6.70	28.20	-9.80	34.15	68.20	-34.05	Pk	Vertical
3260.90	41.70	44.70	6.70	28.20	-9.80	31.90	54.00	-22.10	AV	Vertical
3260.08	44.67	44.70	6.70	28.20	-9.80	34.87	68.20	-33.33	Pk	Horizontal
3260.08	40.98	44.70	6.70	28.20	-9.80	31.18	54.00	-22.82	AV	Horizontal
3992.98	39.68	44.20	7.90	29.70	-6.60	33.08	68.20	-35.12	Pk	Vertical
3992.98	35.85	44.20	7.90	29.70	-6.60	29.25	54.00	-24.75	AV	Vertical
3989.58	39.52	44.20	7.90	29.70	-6.60	32.92	68.20	-35.28	Pk	Horizontal
3989.58	35.74	44.20	7.90	29.70	-6.60	29.14	54.00	-24.86	AV	Horizontal
7229.34	36.90	43.50	11.40	35.50	3.40	40.30	68.20	-27.90	Pk	Vertical
7229.34	34.35	43.50	11.40	35.50	3.40	37.75	54.00	-16.25	AV	Vertical
7219.43	36.49	43.50	11.40	35.50	3.40	39.89	68.20	-28.31	Pk	Horizontal
7219.43	34.72	43.50	11.40	35.50	3.40	38.12	54.00	-15.88	AV	Horizontal
10359.98	39.11	44.50	13.80	38.80	8.10	47.21	68.20	-20.99	Pk	Vertical
10359.98	36.11	44.50	13.80	38.80	8.10	44.21	54.00	-9.79	AV	Vertical
10360.06	39.97	44.50	13.80	38.80	8.10	48.07	68.20	-20.13	Pk	Horizontal
10360.06	35.85	44.50	13.80	38.80	8.10	43.95	54.00	-10.05	AV	Horizontal
11020.27	33.83	43.60	14.30	39.50	10.20	44.03	68.20	-24.17	Pk	Vertical
11020.27	31.05	43.60	14.30	39.50	10.20	41.25	54.00	-12.75	AV	Vertical
11028.63	33.55	43.60	14.30	39.50	10.20	43.75	68.20	-24.45	Pk	Horizontal
11028.63	30.91	43.60	14.30	39.50	10.20	41.11	54.00	-12.89	AV	Horizontal
13281.89	32.87	42.60	15.90	38.90	12.20	45.07	68.20	-23.13	Pk	Vertical
13281.89	28.78	42.60	15.90	38.90	12.20	40.98	54.00	-13.02	AV	Vertical
13296.11	31.56	42.60	15.90	38.90	12.20	43.76	68.20	-24.44	Pk	Horizontal
13296.11	29.79	42.60	15.90	38.90	12.20	41.99	54.00	-12.01	AV	Horizontal
Mid Channel (802.11ac (VHT-20) 5580 MHz)										
3250.83	44.26	44.70	6.70	28.20	-9.80	34.46	68.20	-33.74	Pk	Vertical
3250.83	41.11	44.70	6.70	28.20	-9.80	31.31	54.00	-22.69	AV	Vertical
3247.22	43.85	44.70	6.70	28.20	-9.80	34.05	68.20	-34.15	Pk	Horizontal
3247.22	41.48	44.70	6.70	28.20	-9.80	31.68	54.00	-22.32	AV	Horizontal
3995.17	38.72	44.20	7.90	29.70	-6.60	32.12	68.20	-36.08	Pk	Vertical
3995.17	36.88	44.20	7.90	29.70	-6.60	30.28	54.00	-23.72	AV	Vertical
3987.41	39.79	44.20	7.90	29.70	-6.60	33.19	68.20	-35.01	Pk	Horizontal
3987.41	35.91	44.20	7.90	29.70	-6.60	29.31	54.00	-24.69	AV	Horizontal
7227.11	37.01	43.50	11.40	35.50	3.40	40.41	68.20	-27.79	Pk	Vertical
7227.11	34.30	43.50	11.40	35.50	3.40	37.70	54.00	-16.30	AV	Vertical
7219.63	36.75	43.50	11.40	35.50	3.40	40.15	68.20	-28.05	Pk	Horizontal
7219.63	34.88	43.50	11.40	35.50	3.40	38.28	54.00	-15.72	AV	Horizontal
10400.13	40.02	44.50	13.80	38.80	8.10	48.12	68.20	-20.08	Pk	Vertical
10400.13	36.96	44.50	13.80	38.80	8.10	45.06	54.00	-8.94	AV	Vertical
10400.05	40.10	44.50	13.80	38.80	8.10	48.20	68.20	-20.00	Pk	Horizontal
10400.05	36.21	44.50	13.80	38.80	8.10	44.31	54.00	-9.69	AV	Horizontal
11034.51	33.54	43.60	14.30	39.50	10.20	43.74	68.20	-24.46	Pk	Vertical
11034.51	29.99	43.60	14.30	39.50	10.20	40.19	54.00	-13.81	AV	Vertical
11018.49	33.29	43.60	14.30	39.50	10.20	43.49	68.20	-24.71	Pk	Horizontal
11018.49	30.87	43.60	14.30	39.50	10.20	41.07	54.00	-12.93	AV	Horizontal
13282.04	32.63	42.60	15.90	38.90	12.20	44.83	68.20	-23.37	Pk	Vertical
13282.04	29.16	42.60	15.90	38.90	12.20	41.36	54.00	-12.64	AV	Vertical
13287.16	32.56	42.60	15.90	38.90	12.20	44.76	68.20	-23.44	Pk	Horizontal
13287.16	29.83	42.60	15.90	38.90	12.20	42.03	54.00	-11.97	AV	Horizontal

High Channel (802.11ac (VHT-20) 5700 MHz)										
3255.27	44.70	44.70	6.70	28.20	-9.80	34.90	68.20	-33.30	Pk	Vertical
3255.27	41.34	44.70	6.70	28.20	-9.80	31.54	54.00	-22.46	AV	Vertical
3260.78	44.83	44.70	6.70	28.20	-9.80	35.03	68.20	-33.17	Pk	Horizontal
3260.78	41.79	44.70	6.70	28.20	-9.80	31.99	54.00	-22.01	AV	Horizontal
3991.11	39.79	44.20	7.90	29.70	-6.60	33.19	68.20	-35.01	Pk	Vertical
3991.11	36.08	44.20	7.90	29.70	-6.60	29.48	54.00	-24.52	AV	Vertical
3989.35	39.24	44.20	7.90	29.70	-6.60	32.64	68.20	-35.56	Pk	Horizontal
3989.35	36.52	44.20	7.90	29.70	-6.60	29.92	54.00	-24.08	AV	Horizontal
7218.25	37.07	43.50	11.40	35.50	3.40	40.47	68.20	-27.73	Pk	Vertical
7218.25	34.48	43.50	11.40	35.50	3.40	37.88	54.00	-16.12	AV	Vertical
7230.33	37.16	43.50	11.40	35.50	3.40	40.56	68.20	-27.64	Pk	Horizontal
7230.33	33.96	43.50	11.40	35.50	3.40	37.36	54.00	-16.64	AV	Horizontal
10480.37	39.11	44.50	13.80	38.80	8.10	47.21	68.20	-20.99	Pk	Vertical
10480.37	35.73	44.50	13.80	38.80	8.10	43.83	54.00	-10.17	AV	Vertical
10479.98	39.58	44.50	13.80	38.80	8.10	47.68	68.20	-20.52	Pk	Horizontal
10479.98	37.15	44.50	13.80	38.80	8.10	45.25	54.00	-8.75	AV	Horizontal
11033.67	33.99	43.60	14.30	39.50	10.20	44.19	68.20	-24.01	Pk	Vertical
11033.67	30.70	43.60	14.30	39.50	10.20	40.90	54.00	-13.10	AV	Vertical
11028.91	32.74	43.60	14.30	39.50	10.20	42.94	68.20	-25.26	Pk	Horizontal
11028.91	31.17	43.60	14.30	39.50	10.20	41.37	54.00	-12.63	AV	Horizontal
13297.16	32.56	42.60	15.90	38.90	12.20	44.76	68.20	-23.44	Pk	Vertical
13297.16	28.72	42.60	15.90	38.90	12.20	40.92	54.00	-13.08	AV	Vertical
13283.57	32.89	42.60	15.90	38.90	12.20	45.09	68.20	-23.11	Pk	Horizontal
13283.57	29.22	42.60	15.90	38.90	12.20	41.42	54.00	-12.58	AV	Horizontal

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11ac (VHT-20).
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.
4. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band IV(5.725-5.850) GHz

Frequency (MHz)	Reading (dBuV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBμV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11ac (VHT-20) 5745 MHz)										
3264.15	45.05	44.70	6.70	28.20	-9.80	35.25	68.20	-32.95	Pk	Vertical
3264.15	42.02	44.70	6.70	28.20	-9.80	32.22	54.00	-21.78	AV	Vertical
3256.01	44.63	44.70	6.70	28.20	-9.80	34.83	68.20	-33.37	Pk	Horizontal
3256.01	41.71	44.70	6.70	28.20	-9.80	31.91	54.00	-22.09	AV	Horizontal
3982.34	39.81	44.20	7.90	29.70	-6.60	33.21	68.20	-34.99	Pk	Vertical
3982.34	36.02	44.20	7.90	29.70	-6.60	29.42	54.00	-24.58	AV	Vertical
3999.25	39.54	44.20	7.90	29.70	-6.60	32.94	68.20	-35.26	Pk	Horizontal
3999.25	35.81	44.20	7.90	29.70	-6.60	29.21	54.00	-24.79	AV	Horizontal
7222.60	36.93	43.50	11.40	35.50	3.40	40.33	68.20	-27.87	Pk	Vertical
7222.60	33.53	43.50	11.40	35.50	3.40	36.93	54.00	-17.07	AV	Vertical
7226.55	36.88	43.50	11.40	35.50	3.40	40.28	68.20	-27.92	Pk	Horizontal
7226.55	34.31	43.50	11.40	35.50	3.40	37.71	54.00	-16.29	AV	Horizontal
10360.16	39.97	44.50	13.80	38.80	8.10	48.07	68.20	-20.13	Pk	Vertical
10360.16	37.12	44.50	13.80	38.80	8.10	45.22	54.00	-8.78	AV	Vertical
10360.25	39.68	44.50	13.80	38.80	8.10	47.78	68.20	-20.42	Pk	Horizontal
10360.25	36.30	44.50	13.80	38.80	8.10	44.40	54.00	-9.60	AV	Horizontal
11017.21	34.04	43.60	14.30	39.50	10.20	44.24	68.20	-23.96	Pk	Vertical
11017.21	30.90	43.60	14.30	39.50	10.20	41.10	54.00	-12.90	AV	Vertical
11028.21	32.85	43.60	14.30	39.50	10.20	43.05	68.20	-25.15	Pk	Horizontal
11028.21	30.34	43.60	14.30	39.50	10.20	40.54	54.00	-13.46	AV	Horizontal
13288.96	32.34	42.60	15.90	38.90	12.20	44.54	68.20	-23.66	Pk	Vertical
13288.96	29.75	42.60	15.90	38.90	12.20	41.95	54.00	-12.05	AV	Vertical
13291.07	31.94	42.60	15.90	38.90	12.20	44.14	68.20	-24.06	Pk	Horizontal
13291.07	29.93	42.60	15.90	38.90	12.20	42.13	54.00	-11.87	AV	Horizontal
Mid Channel (802.11ac (VHT-20) 5785 MHz)										
3251.72	45.16	44.70	6.70	28.20	-9.80	35.36	68.20	-32.84	Pk	Vertical
3251.72	41.97	44.70	6.70	28.20	-9.80	32.17	54.00	-21.83	AV	Vertical
3251.08	44.09	44.70	6.70	28.20	-9.80	34.29	68.20	-33.91	Pk	Horizontal
3251.08	40.83	44.70	6.70	28.20	-9.80	31.03	54.00	-22.97	AV	Horizontal
3984.47	38.89	44.20	7.90	29.70	-6.60	32.29	68.20	-35.91	Pk	Vertical
3984.47	35.87	44.20	7.90	29.70	-6.60	29.27	54.00	-24.73	AV	Vertical
3998.98	39.29	44.20	7.90	29.70	-6.60	32.69	68.20	-35.51	Pk	Horizontal
3998.98	35.94	44.20	7.90	29.70	-6.60	29.34	54.00	-24.66	AV	Horizontal
7231.03	37.71	43.50	11.40	35.50	3.40	41.11	68.20	-27.09	Pk	Vertical
7231.03	33.67	43.50	11.40	35.50	3.40	37.07	54.00	-16.93	AV	Vertical
7224.11	36.78	43.50	11.40	35.50	3.40	40.18	68.20	-28.02	Pk	Horizontal
7224.11	34.33	43.50	11.40	35.50	3.40	37.73	54.00	-16.27	AV	Horizontal
10399.96	39.81	44.50	13.80	38.80	8.10	47.91	68.20	-20.29	Pk	Vertical
10399.96	35.95	44.50	13.80	38.80	8.10	44.05	54.00	-9.95	AV	Vertical
10400.16	40.07	44.50	13.80	38.80	8.10	48.17	68.20	-20.03	Pk	Horizontal
10400.16	36.75	44.50	13.80	38.80	8.10	44.85	54.00	-9.15	AV	Horizontal
11032.65	33.56	43.60	14.30	39.50	10.20	43.76	68.20	-24.44	Pk	Vertical
11032.65	30.08	43.60	14.30	39.50	10.20	40.28	54.00	-13.72	AV	Vertical
11023.28	33.42	43.60	14.30	39.50	10.20	43.62	68.20	-24.58	Pk	Horizontal
11023.28	30.23	43.60	14.30	39.50	10.20	40.43	54.00	-13.57	AV	Horizontal
13288.58	32.05	42.60	15.90	38.90	12.20	44.25	68.20	-23.95	Pk	Vertical
13288.58	28.74	42.60	15.90	38.90	12.20	40.94	54.00	-13.06	AV	Vertical
13283.22	31.71	42.60	15.90	38.90	12.20	43.91	68.20	-24.29	Pk	Horizontal
13283.22	29.78	42.60	15.90	38.90	12.20	41.98	54.00	-12.02	AV	Horizontal

High Channel (802.11ac (VHT-20) 5825 MHz)										
3258.71	44.15	44.70	6.70	28.20	-9.80	34.35	68.20	-33.85	Pk	Vertical
3258.71	42.18	44.70	6.70	28.20	-9.80	32.38	54.00	-21.62	AV	Vertical
3258.55	43.97	44.70	6.70	28.20	-9.80	34.17	68.20	-34.03	Pk	Horizontal
3258.55	41.81	44.70	6.70	28.20	-9.80	32.01	54.00	-21.99	AV	Horizontal
3995.63	40.01	44.20	7.90	29.70	-6.60	33.41	68.20	-34.79	Pk	Vertical
3995.63	36.60	44.20	7.90	29.70	-6.60	30.00	54.00	-24.00	AV	Vertical
3995.56	40.13	44.20	7.90	29.70	-6.60	33.53	68.20	-34.67	Pk	Horizontal
3995.56	36.17	44.20	7.90	29.70	-6.60	29.57	54.00	-24.43	AV	Horizontal
7226.91	36.47	43.50	11.40	35.50	3.40	39.87	68.20	-28.33	Pk	Vertical
7226.91	34.49	43.50	11.40	35.50	3.40	37.89	54.00	-16.11	AV	Vertical
7221.84	37.56	43.50	11.40	35.50	3.40	40.96	68.20	-27.24	Pk	Horizontal
7221.84	34.07	43.50	11.40	35.50	3.40	37.47	54.00	-16.53	AV	Horizontal
10480.00	40.08	44.50	13.80	38.80	8.10	48.18	68.20	-20.02	Pk	Vertical
10480.00	36.42	44.50	13.80	38.80	8.10	44.52	54.00	-9.48	AV	Vertical
10480.15	39.92	44.50	13.80	38.80	8.10	48.02	68.20	-20.18	Pk	Horizontal
10480.15	35.78	44.50	13.80	38.80	8.10	43.88	54.00	-10.12	AV	Horizontal
11018.56	32.90	43.60	14.30	39.50	10.20	43.10	68.20	-25.10	Pk	Vertical
11018.56	30.04	43.60	14.30	39.50	10.20	40.24	54.00	-13.76	AV	Vertical
11033.68	33.30	43.60	14.30	39.50	10.20	43.50	68.20	-24.70	Pk	Horizontal
11033.68	30.10	43.60	14.30	39.50	10.20	40.30	54.00	-13.70	AV	Horizontal
13294.07	32.70	42.60	15.90	38.90	12.20	44.90	68.20	-23.30	Pk	Vertical
13294.07	29.58	42.60	15.90	38.90	12.20	41.78	54.00	-12.22	AV	Vertical
13294.49	32.09	42.60	15.90	38.90	12.20	44.29	68.20	-23.91	Pk	Horizontal
13294.49	29.67	42.60	15.90	38.90	12.20	41.87	54.00	-12.13	AV	Horizontal

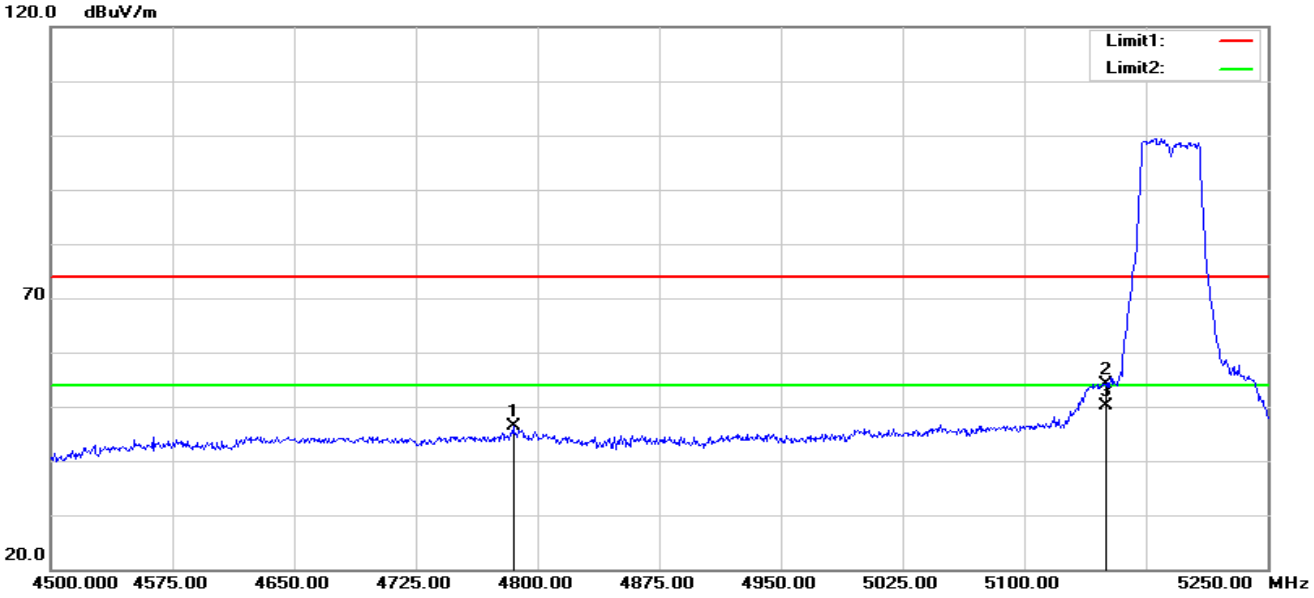
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11ac (VHT-20).
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.
4. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

3.2.9 Band Edge

Band I 5150-5250MHz

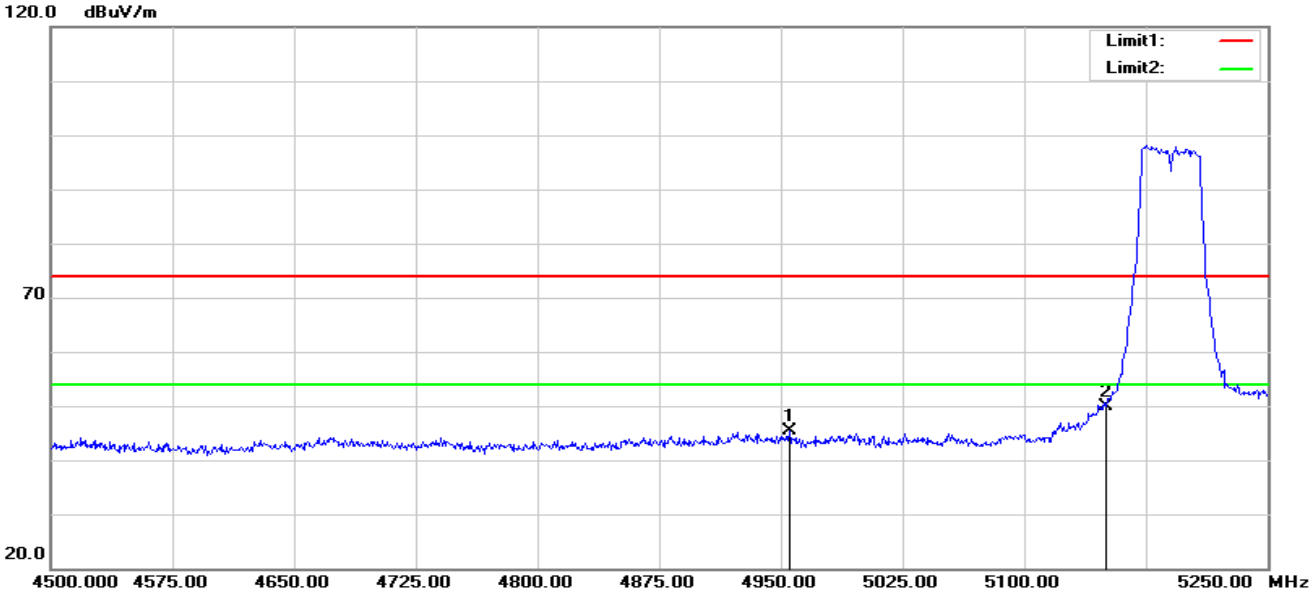
802.11n (HT-40) Low

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4785.000	53.62	-7.24	46.38	74.00	-27.62	peak
2	5150.000	59.95	-5.73	54.22	74.00	-19.78	peak
3	5150.000	55.97	-5.73	50.24	54.00	-3.76	AVG

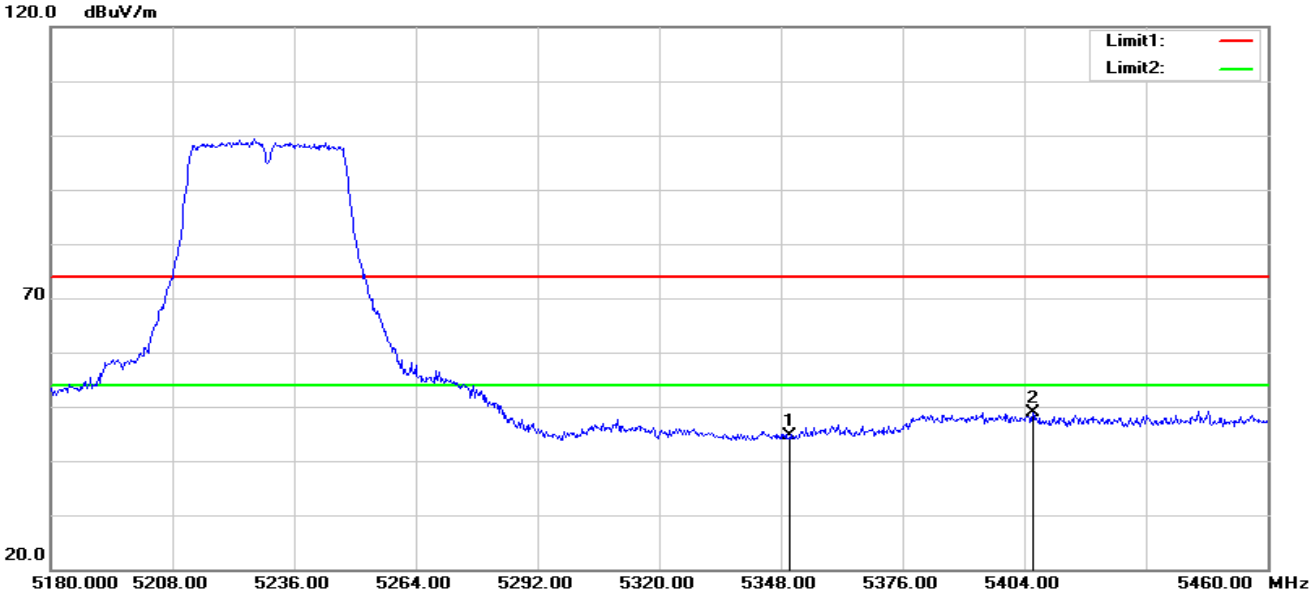
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4955.250	51.95	-6.48	45.47	74.00	-28.53	peak
2	5150.000	55.63	-5.73	49.90	74.00	-24.10	peak

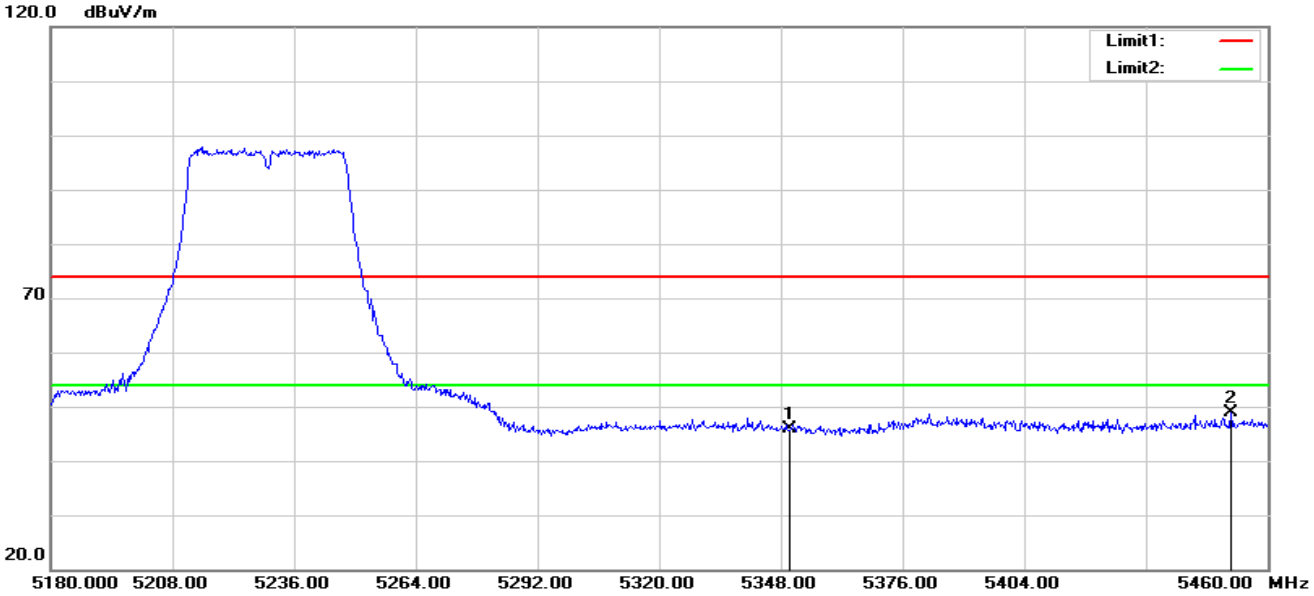
802.11n (HT-40) High

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	49.98	-5.23	44.75	74.00	-29.25	peak
2	5405.960	54.17	-5.24	48.93	74.00	-25.07	peak

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	51.17	-5.23	45.94	74.00	-28.06	peak
2	5451.600	54.11	-5.13	48.98	74.00	-25.02	peak

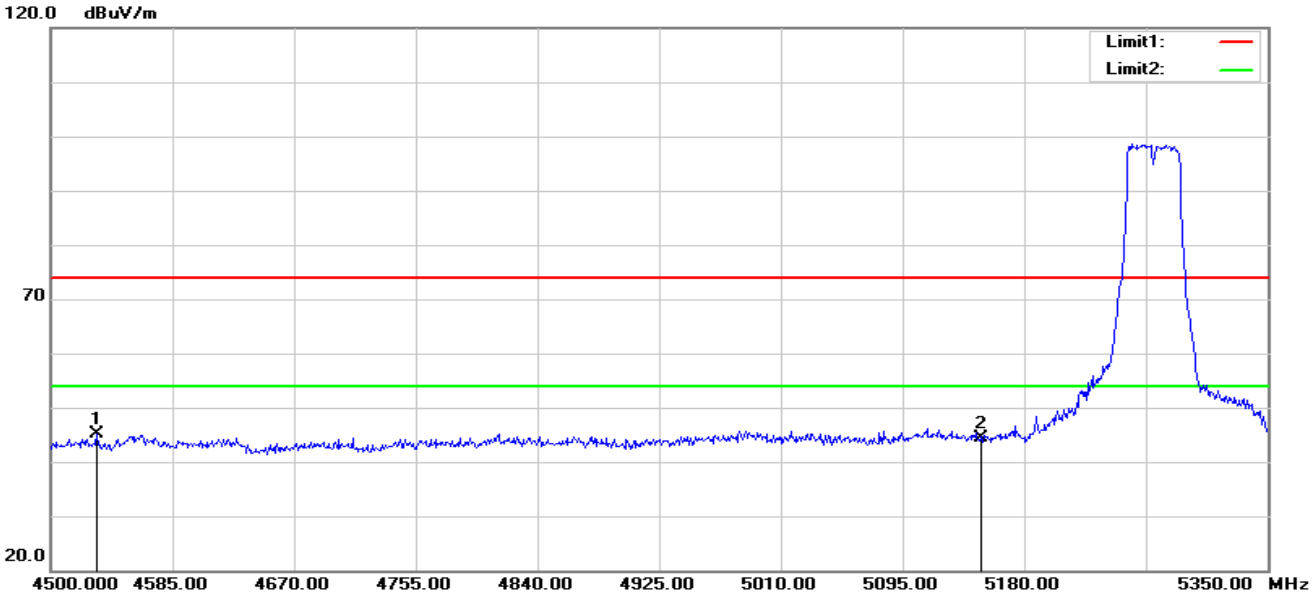
Note: 1. 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) all has been tested, the worst case is 802.11n (HT-40),only shown the worst case.

2. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band II 5250-5350MHz

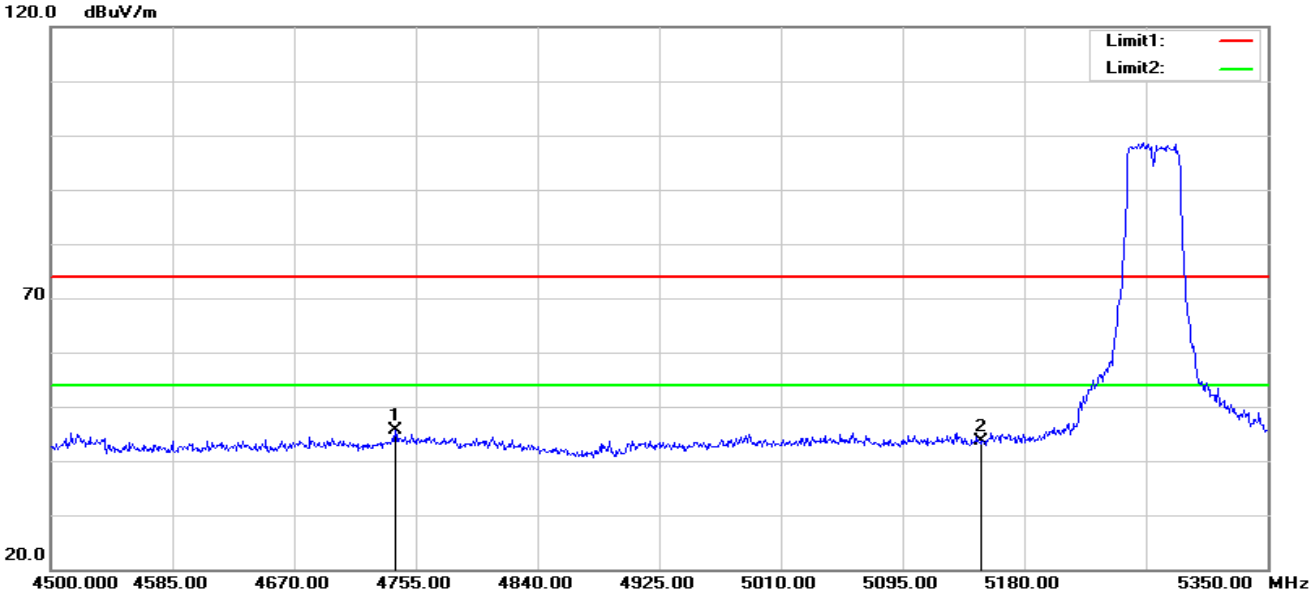
802.11n (HT-40) Low

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4532.300	53.10	-7.93	45.17	74.00	-28.83	peak
2	5150.000	50.23	-5.73	44.50	74.00	-29.50	peak

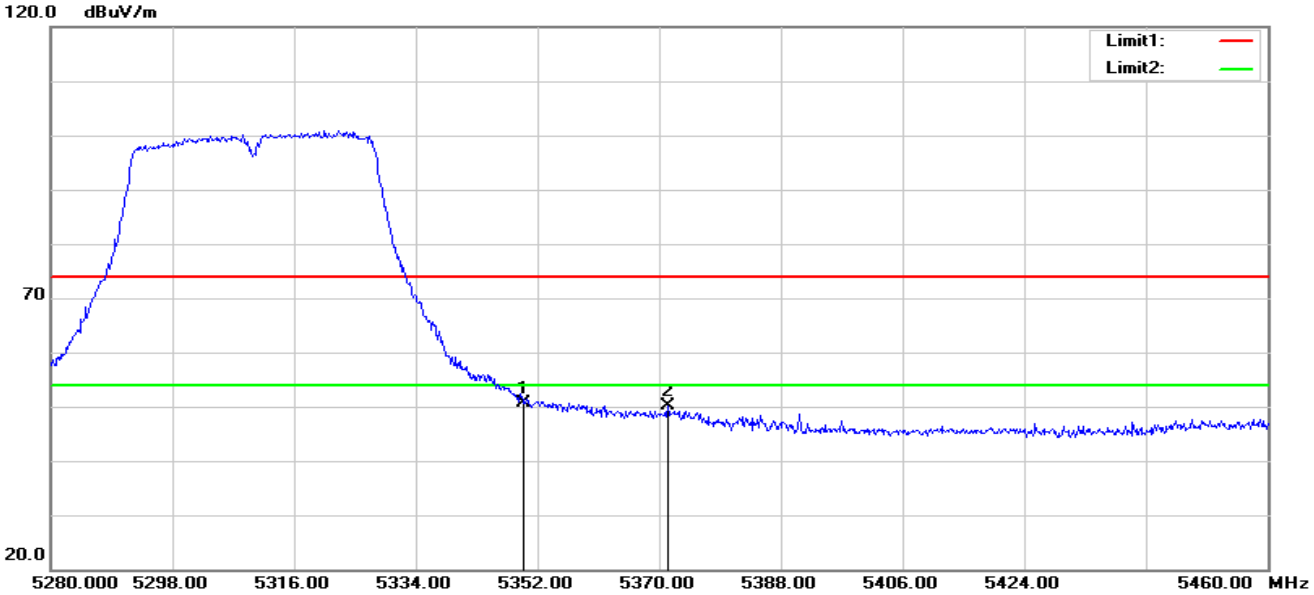
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4740.550	52.95	-7.30	45.65	74.00	-28.35	peak
2	5150.000	49.29	-5.73	43.56	74.00	-30.44	peak

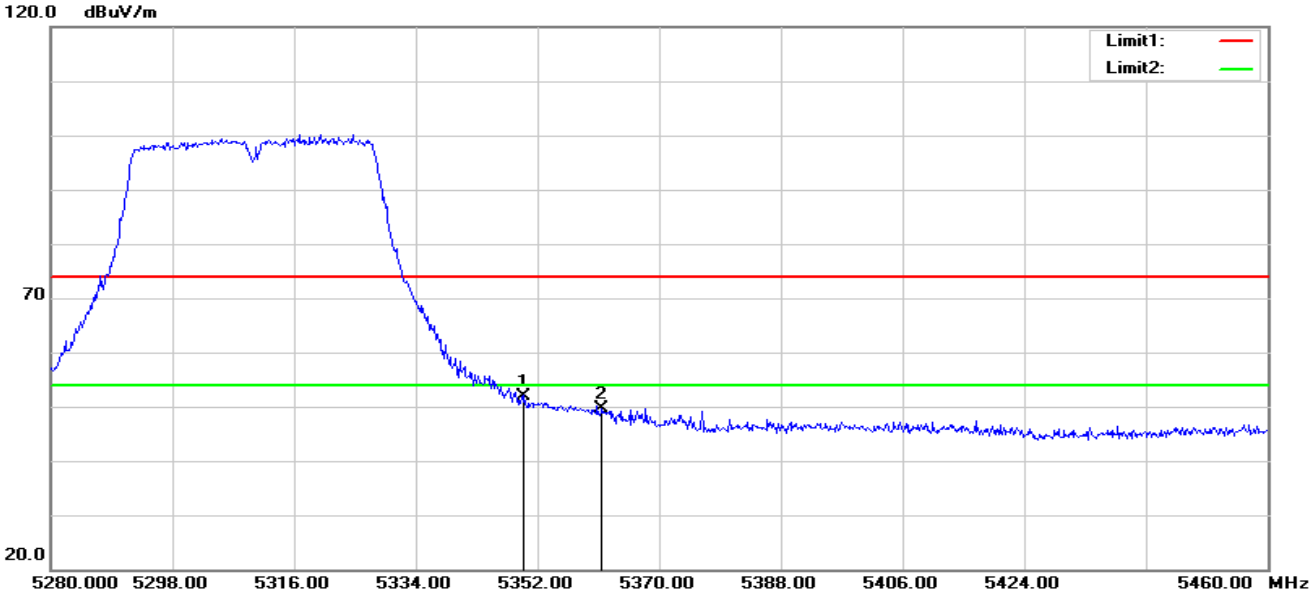
802.11n (HT-40) High

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	55.81	-5.23	50.58	74.00	-23.42	peak
2	5371.260	55.25	-5.24	50.01	74.00	-23.99	peak

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	57.21	-5.23	51.98	74.00	-22.02	peak
2	5361.540	54.98	-5.23	49.75	74.00	-24.25	peak

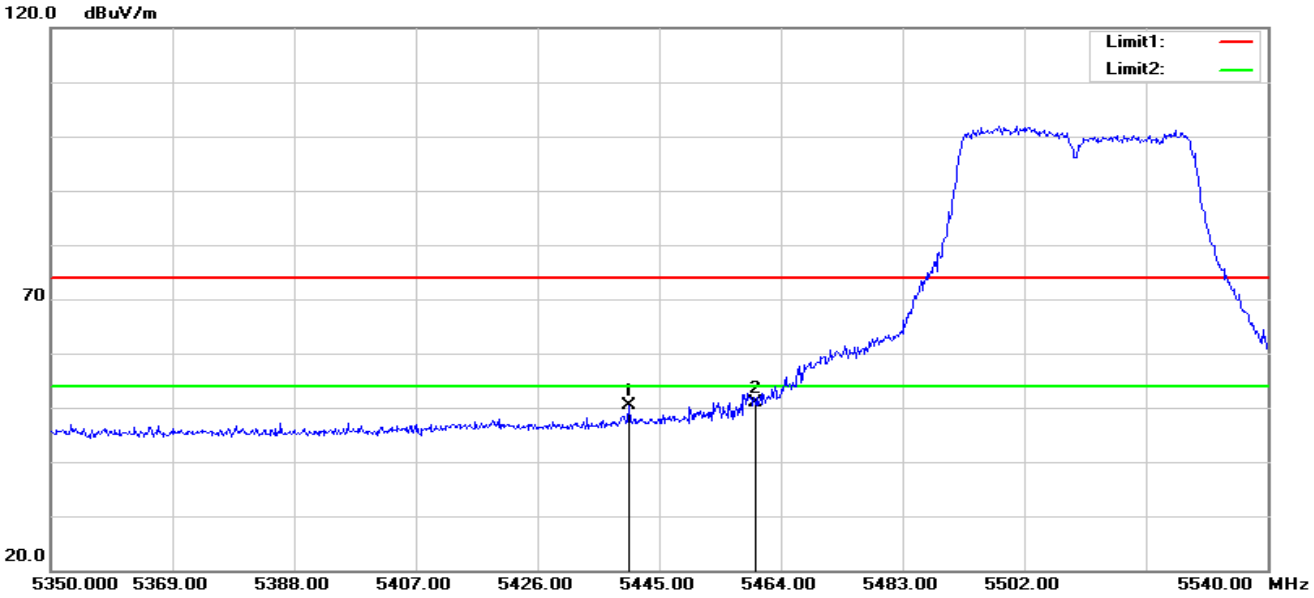
Note: 1. 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) all has been tested, the worst case is 802.11n (HT-40),only shown the worst case.

2. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band III 5470-5725MHz

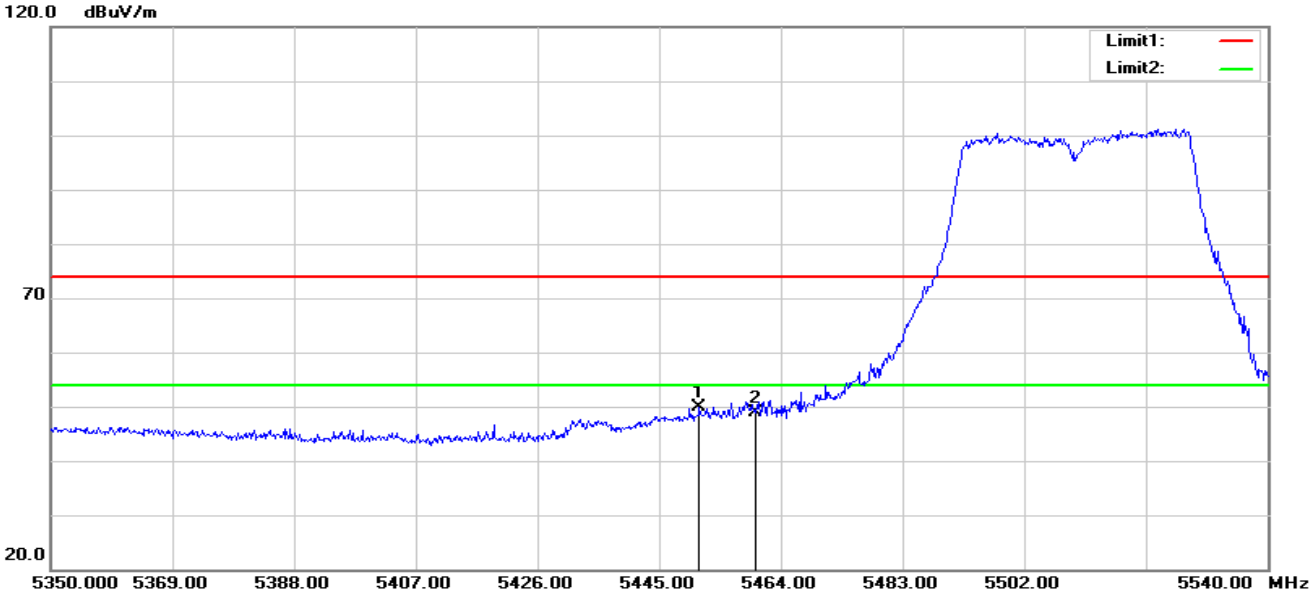
802.11ac (VHT-40) Low

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5440.250	55.63	-5.16	50.47	74.00	-23.53	peak
2	5460.000	55.99	-5.11	50.88	74.00	-23.12	peak

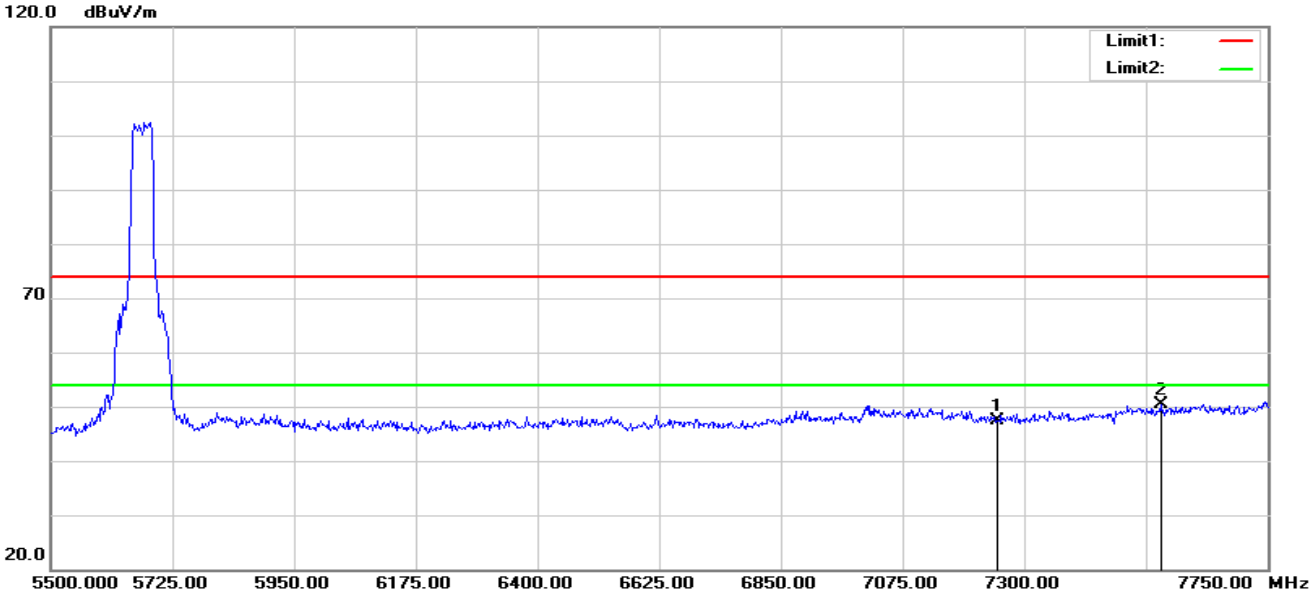
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	三 Remark
1	5451.270	55.06	-5.13	49.93	74.00	-24.07	peak
2	5460.000	53.90	-5.11	48.79	74.00	-25.21	peak

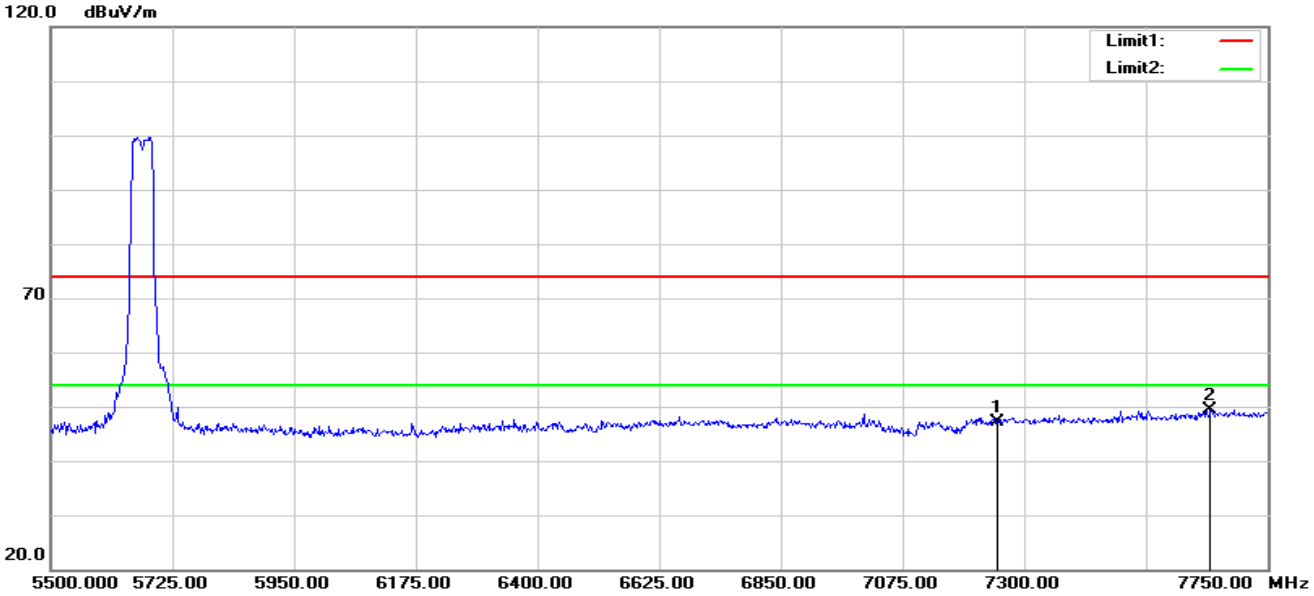
802.11ac (VHT-40) High

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7250.000	46.58	0.72	47.30	74.00	-26.70	peak
2	7552.000	48.68	1.69	50.37	74.00	-23.63	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7250.000	46.31	0.72	47.03	74.00	-26.97	peak
2	7644.250	47.64	1.79	49.43	74.00	-24.57	peak

Note: 1. 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) all has been tested, the worst case is 802.11ac (VHT-40),only shown the worst case.

2. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band IV(5.725-5.85 GHz)

Note: The main frequency is too far away from the restricted band and does not require testing.

4. CONDUCTED SPURIOUS EMISSIONS AND BANDEDGE

4.1 LIMIT

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

4.2 TEST PROCEDURE

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	1000 KHz/3000 KHz
Trace-Mode:	Max hold

.

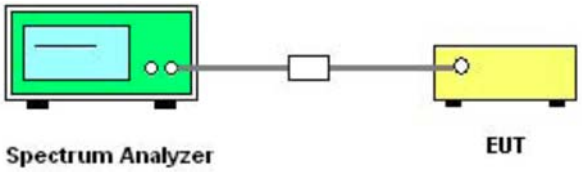
For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 5700 to 5725 MHz Upper Band Edge: 5850 to 5870 MHz
RB / VB (emission in restricted band)	1000 KHz/3000 KHz
Trace-Mode:	Max hold

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



The EUT which is powered by the Battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.
Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1000 kHz. In order to make an accurate measurement, set the span greater than RBW.

4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

Data See Attachment A

5. POWER SPECTRAL DENSITY TEST

5.1 LIMIT

1. For mobile and portable client devices in the 5.15-5.25 GHz band, , the maximum power 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 maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power 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 maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.2 TEST PROCEDURE

1. The setting follows Method SA-1 of FCC KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

For devices operating in the band, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (*i.e.,* 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/*T*, where *T* is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

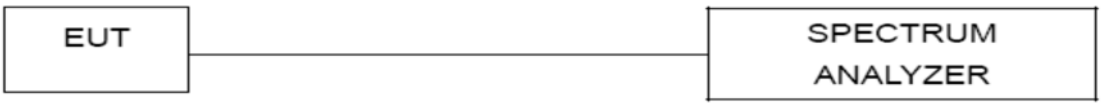
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS

5150-5250MHz									
Frequency	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Ant_A Duty cycle factor	Ant_B Duty cycle factor	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Power Density Total(dBm)	Limit	Result
802.11a									
5180	2.324	1.632	0.68	0.69	3.014	3.004	--	11	PASS
5200	2.285	1.296	0.68	0.69	2.965	2.965	--	11	PASS
5240	2.513	1.515	0.68	0.69	3.193	3.193	--	11	PASS
802.11n20									
5180	-1.286	-1.979	0.67	0.70	-0.586	-0.616	2.409	11	PASS
5200	-1.263	-1.614	0.67	0.70	-0.593	-0.593	2.417	11	PASS
5240	-1.397	-1.669	0.67	0.70	-0.727	-0.727	2.283	11	PASS
802.11n40									
5190	-4.201	-4.499	0.70	0.70	-3.501	-3.501	-0.491	11	PASS
5230	-4.021	-4.795	0.70	0.70	-3.321	-3.321	-0.311	11	PASS
802.11ac20									
5180	-1.397	-1.638	0.68	0.70	-0.697	-0.717	2.303	11	PASS
5200	-1.360	-1.707	0.68	0.70	-0.680	-0.680	2.330	11	PASS
5240	-0.689	-1.462	0.68	0.70	-0.009	-0.009	3.001	11	PASS
802.11ac40									
5190	-3.850	-4.106	0.68	0.73	-3.120	-3.170	-0.135	11	PASS
5230	-4.199	-4.257	0.68	0.73	-3.519	-3.519	-0.509	11	PASS
802.11ac80									
5210	-6.433	-6.321	0.73	0.78	-5.703	-5.703	-2.693	11	PASS

5250-5350MHz									
Frequency	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Ant_A Duty cycle factor	Ant_B Duty cycle factor	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Power Density Total(dBm)	Limit	Result
802.11a									
5260	1.496	1.072	0.69	0.69	2.186	2.186	--	11	PASS
5300	1.847	0.729	0.69	0.69	2.537	2.537	--	11	PASS
5320	1.785	0.999	0.69	0.69	2.475	2.475	--	11	PASS
802.11n20									
5260	-0.004	-1.397	0.70	0.70	0.696	0.696	3.706	11	PASS
5300	0.091	-1.196	0.70	0.70	0.791	0.791	3.801	11	PASS
5320	0.267	-3.714	0.70	0.70	0.967	0.967	3.977	11	PASS
802.11n40									
5270	-4.986	-4.651	0.71	0.70	-4.286	-4.276	-1.271	11	PASS
5310	-2.903	-4.301	0.71	0.70	-2.193	-2.193	0.817	11	PASS
802.11ac20									
5260	-0.728	-2.084	0.69	0.71	-0.018	-0.038	2.982	11	PASS
5300	-1.020	-1.709	0.69	0.71	-0.330	-0.330	2.680	11	PASS
5320	-0.978	-2.164	0.69	0.71	-0.288	-0.288	2.722	11	PASS
802.11ac40									
5270	-2.927	-5.619	0.72	0.70	-2.227	-2.207	0.793	11	PASS
5310	-2.699	-3.084	0.72	0.70	-1.979	-1.979	1.031	11	PASS
802.11ac80									
5290	-5.285	-5.262	0.75	0.78	-4.505	-4.535	-1.510	11	PASS

5470-5725MHz									
Frequency	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Ant_A Duty cycle factor	Ant_B Duty cycle factor	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Power Density Total(dBm)	Limit	Result
802.11a									
5500	2.840	1.273	0.70	0.70	3.540	3.540	--	11	PASS
5580	2.372	0.416	0.70	0.70	3.072	3.072	--	11	PASS
5700	2.148	-0.338	0.70	0.70	2.848	2.848	--	11	PASS
802.11n20									
5500	-1.573	-2.201	0.70	0.70	-0.873	-0.873	2.137	11	PASS
5580	-2.002	-2.914	0.70	0.70	-1.302	-1.302	1.708	11	PASS
5700	-1.936	-3.554	0.70	0.70	-1.236	-1.236	1.774	11	PASS
802.11n40									
5510	-2.809	-4.284	0.70	0.70	-2.109	-2.109	0.901	11	PASS
5550	-3.342	-4.204	0.70	0.70	-2.642	-2.642	0.368	11	PASS
5670	-3.611	-5.534	0.70	0.70	-2.911	-2.911	0.099	11	PASS
802.11ac20									
5500	-1.295	-2.227	0.73	0.70	-0.595	-0.565	2.430	11	PASS
5580	-1.716	-2.949	0.73	0.70	-0.986	-0.986	2.024	11	PASS
5700	-2.145	-3.635	0.73	0.70	-1.415	-1.415	1.595	11	PASS
802.11ac40									
5510	-1.889	-4.191	0.72	0.73	-1.159	-1.169	1.846	11	PASS
5550	-2.492	-4.060	0.72	0.73	-1.772	-1.772	1.238	11	PASS
5670	-2.861	-5.682	0.72	0.73	-2.141	-2.141	0.869	11	PASS
802.11ac80									
5530	-5.268	-8.169	0.75	0.78	-4.488	-4.518	-1.493	11	PASS
5610	-8.162	-8.858	0.75	0.78	-7.412	-7.412	-4.402	11	PASS

5725-5850MHz											
Frequency	Use RBW 510KHz direct measurement Ant_A Power Density (dBm)	Use RBW 510KHz direct measurement Ant_B Power Density (dBm)	Convert to RBW 500KHz direct measurement Ant_A Power Density (dBm)	Convert to RBW 500KHz direct measurement Ant_B Power Density (dBm)	Ant_A Duty cycle factor (dB)	Ant_B Duty cycle factor (dB)	Final Ant_A Power Density (dBm)	Final Ant_B Power Density (dBm)	Power Density Total (dBm)	Limit (dBm)	Result
802.11a											
5745	0.897	0.038	0.811	-0.048	0.690	0.690	1.501	0.642	--	30	PASS
5785	-0.182	0.192	-0.268	0.106	0.690	0.690	0.422	0.796	--	30	PASS
5825	0.202	-0.281	0.116	-0.367	0.690	0.690	0.806	0.323	--	30	PASS
802.11n20											
5745	-1.747	-2.589	-1.833	-2.675	0.700	0.700	-1.133	-1.975	1.477	30	PASS
5785	-2.370	-2.767	-2.456	-2.853	0.700	0.700	-1.756	-2.153	1.060	30	PASS
5825	-2.075	-2.975	-2.161	-3.061	0.700	0.700	-1.461	-2.361	1.123	30	PASS
802.11n40											
5755	-4.988	-5.812	-5.074	-5.898	0.700	0.700	-4.374	-5.198	-1.756	30	PASS
5795	-4.969	-5.792	-5.055	-5.878	0.700	0.700	-4.355	-5.178	-1.737	30	PASS
802.11ac20											
5745	-1.590	-2.646	-1.676	-2.732	0.700	0.700	-0.976	-2.032	1.538	30	PASS
5785	-2.186	-2.361	-2.272	-2.447	0.700	0.700	-1.572	-1.747	1.352	30	PASS
5825	-2.131	-2.872	-2.217	-2.958	0.700	0.700	-1.517	-2.258	1.139	30	PASS
802.11ac40											
5755	-4.848	-5.631	-4.934	-5.717	0.720	0.720	-4.214	-4.997	-1.578	30	PASS
5795	-5.207	-5.553	-5.293	-5.639	0.720	0.720	-4.573	-4.919	-1.732	30	PASS
802.11ac80											
5775	-10.902	-11.801	-10.988	-11.887	0.750	0.750	-10.238	-11.137	-7.654	30	PASS

Note: 1. RB conversion formula= 10 * LOG (500KHz / RBW)
2. Data see Attachment B.

6. BANDWIDTH MEASUREMENT

6.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

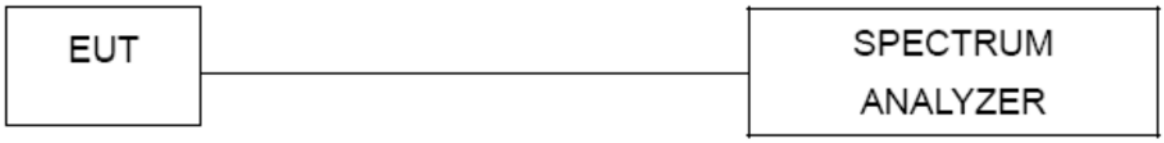
6.1.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > =RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5180	23.14	Pass
5200	23.15	Pass
5240	23.11	Pass
802.11n(HT20)		
5180	23.41	Pass
5200	23.81	Pass
5240	23.76	Pass
802.11n(HT40)		
5190	44.29	Pass
5230	42.39	Pass
802.11ac(VHT20)		
5180	23.46	Pass
5200	23.53	Pass
5240	23.47	Pass
802.11ac(VHT40)		
5190	44.36	Pass
5230	43.64	Pass
802.11ac(VHT80)		
5210	83.85	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5260	22.61	Pass
5300	22.81	Pass
5320	23.38	Pass
802.11n(HT20)		
5260	24.32	Pass
5300	24.07	Pass
5320	24.33	Pass
802.11n(HT40)		
5270	43.25	Pass
5310	43.00	Pass
802.11ac(VHT20)		
5260	24.30	Pass
5300	23.62	Pass
5320	23.53	Pass
802.11ac(VHT40)		
5270	43.14	Pass
5310	43.45	Pass
802.11ac(VHT80)		
5290	86.14	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5500	23.28	Pass
5580	23.10	Pass
5700	23.52	Pass
802.11n(HT20)		
5500	23.57	Pass
5580	23.36	Pass
5700	23.29	Pass
802.11n(HT40)		
5510	44.17	Pass
5550	42.70	Pass
5670	44.31	Pass
802.11ac(VHT20)		
5500	23.22	Pass
5580	23.57	Pass
5700	23.29	Pass
802.11ac(VHT40)		
5510	45.16	Pass
5550	42.47	Pass
5670	44.17	Pass
802.11ac(VHT80)		
5530	85.70	Pass
5610	86.18	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	24.32	Pass
5785	23.51	Pass
5825	23.37	Pass
802.11n(HT20)		
5745	23.62	Pass
5785	23.42	Pass
5825	23.56	Pass
802.11n(HT40)		
5755	43.60	Pass
5795	42.98	Pass
802.11ac(VHT20)		
5745	23.08	Pass
5785	24.44	Pass
5825	23.19	Pass
802.11ac(VHT40)		
5755	43.21	Pass
5795	43.56	Pass
802.11ac(VHT80)		
5775	82.34	Pass

Note: 1. Note: Antenna A Power> Antenna B Power, Both antenna A and B have been test, Only show the worst data of Antenna A.

2. Test plot see Attachment C.

6.2 OCCUPIED BANDWIDTH (99%) TEST APPLIED PROCEDURES / LIMIT

The following procedure shall be used for measuring (99 %) power bandwidth.

6.2.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.

2. Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1 % to 5 % of the OBW

4. Set VBW ≥ 3 · RBW

5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

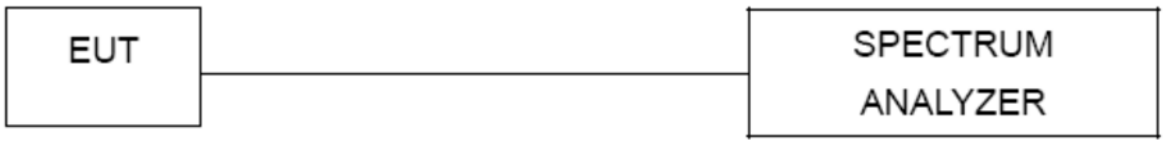
6. Use the 99 % power bandwidth function of the instrument (if available).

7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

6.2.2 DEVIATION FROM STANDARD

No deviation.

6.2.3 TEST SETUP



6.2.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.2.5 TEST RESULTS

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5180	16.685	Pass
5200	16.713	Pass
5240	16.690	Pass
802.11n(HT20)		
5180	17.841	Pass
5200	17.840	Pass
5240	17.856	Pass
802.11n(HT40)		
5190	36.386	Pass
5230	36.341	Pass
802.11ac(VHT20)		
5180	17.823	Pass
5200	17.831	Pass
5240	17.836	Pass
802.11ac(VHT40)		
5190	36.367	Pass
5230	36.338	Pass
802.11ac(VHT80)		
5210	75.212	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5260	16.709	Pass
5300	16.734	Pass
5320	16.701	Pass
802.11n(HT20)		
5260	17.869	Pass
5300	17.848	Pass
5320	17.846	Pass
802.11n(HT40)		
5270	36.336	Pass
5310	36.334	Pass
802.11ac(VHT20)		
5260	17.835	Pass
5300	17.842	Pass
5320	17.820	Pass
802.11ac(VHT40)		
5270	36.357	Pass
5310	36.353	Pass
802.11ac(VHT80)		
5290	75.249	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5500	16.703	Pass
5580	16.675	Pass
5700	16.692	Pass
802.11n(HT20)		
5500	17.857	Pass
5580	17.818	Pass
5700	17.815	Pass
802.11n(HT40)		
5510	36.383	Pass
5550	36.319	Pass
5670	36.356	Pass
802.11ac(VHT20)		
5500	17.811	Pass
5580	17.786	Pass
5700	17.835	Pass
802.11ac(VHT40)		
5510	36.373	Pass
5550	36.323	Pass
5670	36.422	Pass
802.11ac(VHT80)		
5530	75.043	Pass
5610	75.129	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.723	Pass
5785	16.689	Pass
5825	16.712	Pass
802.11n(HT20)		
5745	17.842	Pass
5785	17.830	Pass
5825	17.828	Pass
802.11n(HT40)		
5755	36.368	Pass
5795	36.370	Pass
802.11ac(VHT20)		
5745	17.810	Pass
5785	17.826	Pass
5825	17.819	Pass
802.11ac(VHT40)		
5755	36.340	Pass
5795	36.355	Pass
802.11ac(VHT80)		
5775	75.189	Pass

Note: 1. Note: Antenna A Power> Antenna B Power, Both antenna A and B have been test, Only show the worst data of Antenna A.
2. Test plot see Attachment C.

6.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth.

6.3.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 × RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3.2 DEVIATION FROM STANDARD

No deviation.

6.3.3 TEST SETUP

6.3.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.3.5 TEST RESULTS

Frequency (MHz)	6dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.34	Pass
5785	16.34	Pass
5825	16.35	Pass
802.11n(HT20)		
5745	17.60	Pass
5785	17.59	Pass
5825	17.59	Pass
802.11n(HT40)		
5755	36.36	Pass
5795	36.37	Pass
802.11ac(VHT20)		
5745	17.59	Pass
5785	17.56	Pass
5825	17.58	Pass
802.11ac(VHT40)		
5755	36.37	Pass
5795	36.38	Pass
802.11ac(VHT80)		
5775	75.11	Pass

Note: 1. Note: Antenna A Power> Antenna B Power, Both antenna A and B have been test, Only show the worst data of Antenna A.

2. Test plot see Attachment D.

7. MAXIMUM CONDUCTED OUTPUT POWER

7.1 LIMIT

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz,If transmitting antennas of directional gain greater than 6 dBi are used.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used.

<table>
<tr><td colspan="5">FCC Part15 (15.407) , Subpart E</td></tr>
<tr><td>Section</td><td>Test Item</td><td>Limit</td><td>Frequency Range (MHz)</td><td>Result</td></tr>
<tr><td rowspan="2">15.407(a) (1) (iv)</td><td rowspan="3">Peak Output Power</td><td>0.25 watt</td><td>5150-5250</td><td rowspan="3">PASS</td></tr>
<tr><td>The lesser of 250 mW or 11 dBm + 10 log (26 dB emission bandwidth)</td><td>5250-5350
5470-5725</td></tr>
<tr><td>15.407(a) (3)</td><td>1 watt</td><td>5725-5825</td></tr>
</table>

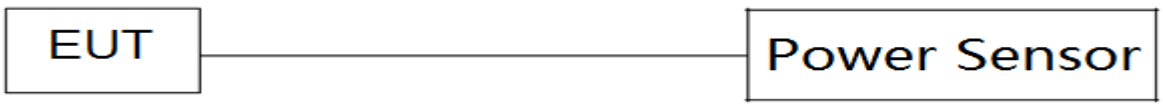
7.2 TEST PROCEDURE

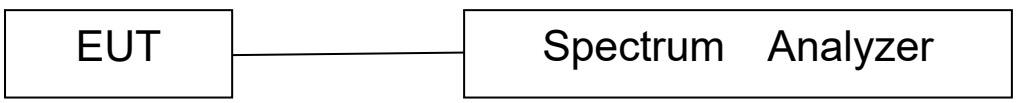
The EUT was directly connected to the Power Sensor&PC

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP





7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 5 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULTS

Note:

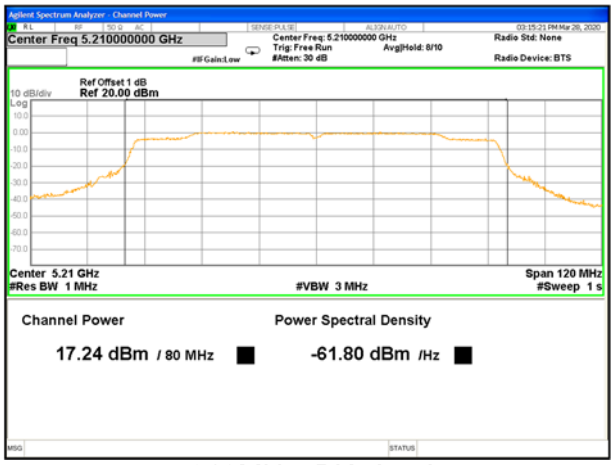
1. For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 0.25 W.
2. For mobile and portable client devices in the 5.25-5.35 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 0.25 W.
3. For mobile and portable client devices in the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 0.25 W.
4. For the band 5.745-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W.

Band I (5.15-5.25GHz)												
Test Channel	Frequency (MHz)	Ant A_AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	Ant_B Duty cycle factor(dB)	Ant A_ PK Power (dBm)	Ant B_PK Power (dBm)	Ant A_AV Power (dBm)	Ant_B AV Power (dBm)	PK Power Total(dBm)	AV Power Total(dBm)	LIMIT (dBm)
802.11a												
36	5180	13.75	13.2	0.68	0.69	18.5	18.6	14.43	13.89	--	--	23.98
40	5200	13.42	12.88	0.68	0.69	18.21	18.31	14.10	13.57	--	--	23.98
48	5240	13.48	12.69	0.68	0.69	18.19	18.15	14.16	13.38	--	--	23.98
802.11n(HT20)												
36	5180	10.17	10.03	0.67	0.70	15.47	15.45	10.84	10.73	18.47	13.80	23.98
40	5200	9.91	9.78	0.67	0.70	15.23	15.15	10.58	10.48	18.20	13.54	23.98
48	5240	9.84	9.67	0.67	0.70	15.12	15.05	10.51	10.37	18.10	13.45	23.98
802.11n(HT40)												
38	5190	11.46	10.48	0.70	0.70	16.65	15.65	12.16	11.18	19.19	14.71	23.98
46	5230	11.05	10.09	0.70	0.70	16.72	15.77	11.75	10.79	19.28	14.31	23.98
802.11ac(VHT20)												
36	5180	10.29	10.06	0.68	0.70	15.79	15.52	10.97	10.76	18.67	13.88	23.98
40	5200	10.02	9.9	0.68	0.70	15.48	15.49	10.70	10.60	18.50	13.66	23.98
48	5240	9.9	9.60	0.68	0.70	15.36	15.17	10.58	10.30	18.28	13.45	23.98
802.11ac(VHT40)												
38	5190	11.51	10.44	0.68	0.73	16.6	15.45	12.19	11.17	19.07	14.72	23.98
46	5230	11.1	10.03	0.68	0.73	16.63	15.75	11.78	10.76	19.22	14.31	23.98
802.11ac(VHT80)												
42	5210	8.05	8.09	0.73	0.78	17.24	17.62	8.78	8.87	20.44	11.84	23.98

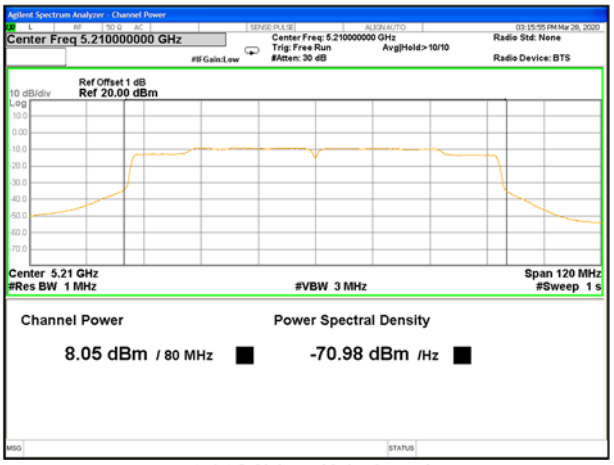
Band II(5.25-5.35GHz)												
Test Channel	Frequency (MHz)	Ant A_AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	Ant_B Duty cycle factor(dB)	Ant A_ PK Power (dBm)	Ant B_PK Power (dBm)	Ant A_AV Power (dBm)	Ant_B AV Power (dBm)	PK Power Total(dBm)	AV Power Total(dBm)	LIMIT (dBm)
802.11a												
52	5260	12.23	12.18	0.69	0.69	17.73	17.63	12.92	12.87	--	--	23.98
60	5300	12.75	11.97	0.69	0.69	17.53	17.39	13.44	12.66	--	--	23.98
64	5320	12.66	11.81	0.69	0.69	17.39	17.21	13.35	12.50	--	--	23.98
802.11n(HT20)												
52	5260	10.85	10.67	0.70	0.70	16.25	16.01	11.55	11.37	19.14	14.47	23.98
60	5300	10.6	10.37	0.70	0.70	15.95	15.85	11.30	11.07	18.91	14.20	23.98
64	5320	10.47	10.21	0.70	0.70	15.76	15.65	11.17	10.91	18.72	14.05	23.98
802.11n(HT40)												
54	5270	11.73	11.09	0.71	0.70	17.63	16.98	12.44	11.79	20.33	15.14	23.98
62	5310	11.42	11.02	0.71	0.70	17.52	16.65	12.13	11.72	20.12	14.94	23.98
802.11ac(VHT20)												
52	5260	9.89	9.72	0.69	0.71	15.33	15.27	10.58	10.43	18.31	13.52	23.98
60	5300	9.71	9.44	0.69	0.71	15.08	15.18	10.40	10.15	18.14	13.29	23.98
64	5320	9.58	9.34	0.69	0.71	15.05	14.82	10.27	10.05	17.95	13.17	23.98
802.11ac(VHT40)												
54	5270	11.69	11.07	0.72	0.70	17.59	16.84	12.41	11.77	20.24	15.11	23.98
62	5310	11.28	10.89	0.72	0.70	17.48	16.85	12.00	11.59	20.19	14.81	23.98
802.11ac(VHT80)												
58	5290	8.25	8.23	0.75	0.78	17.65	17.62	9.00	9.01	20.65	12.02	23.98

Band III(5.47-5.725GHz)												
Test Channel	Frequency (MHz)	Ant A_AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	Ant_B Duty cycle factor(dB)	Ant A_ PK Power (dBm)	Ant B_PK Power (dBm)	Ant A_AV Power (dBm)	Ant_B AV Power (dBm)	PK Power Total(dBm)	AV Power Total(dBm)	LIMIT (dBm)
802.11a												
100	5500	13.11	12.42	0.70	0.70	18.7	17.79	13.81	13.12	--	--	23.98
116	5580	12.94	12.91	0.70	0.70	18.32	18.38	13.64	13.61	--	--	23.98
140	5700	13.2	12.38	0.70	0.70	18.63	17.81	13.90	13.08	--	--	23.98
802.11n(HT20)												
100	5500	9.93	9.2	0.70	0.70	15.43	14.81	10.63	9.90	18.14	13.29	23.98
116	5580	9.74	9.83	0.70	0.70	15.43	15.43	10.44	10.53	18.44	13.50	23.98
140	5700	10.01	9.36	0.70	0.70	15.61	14.74	10.71	10.06	18.21	13.41	23.98
802.11n(HT40)												
102	5510	11.02	10.51	0.70	0.70	16.33	15.94	11.72	11.21	19.15	14.48	23.98
110	5550	10.7	10.76	0.70	0.70	16.59	16.63	11.40	11.46	19.62	14.44	23.98
134	5670	10.93	10.7	0.70	0.70	16.42	15.95	11.63	11.40	19.20	14.53	23.98
802.11ac(VHT20)												
100	5500	9.97	9.28	0.73	0.70	15.50	14.99	10.70	9.98	18.26	13.37	23.98
116	5580	9.76	9.85	0.73	0.70	15.21	15.39	10.49	10.55	18.31	13.53	23.98
140	5700	9.99	9.39	0.73	0.70	15.54	14.82	10.72	10.09	18.21	13.43	23.98
802.11ac(VHT40)												
102	5510	12.07	11.56	0.72	0.73	17.25	16.76	12.79	12.29	20.02	15.56	23.98
110	5550	11.68	11.81	0.72	0.73	17.59	17.78	12.40	12.54	20.70	15.48	23.98
134	5670	11.91	11.63	0.72	0.73	17.13	16.81	12.63	12.36	19.98	15.51	23.98
802.11ac(VHT80)												
106	5530	8.66	8.62	0.75	0.78	18	17.99	9.41	9.40	21.01	12.42	23.98
122	5610	7.9	7.9	0.75	0.78	17.31	17.09	8.65	8.68	20.21	11.68	23.98

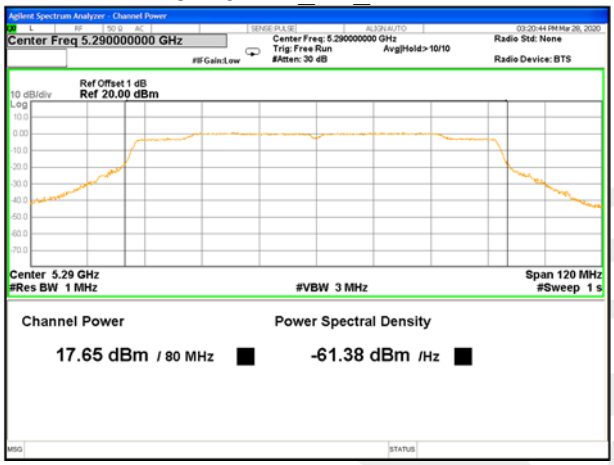
Band IV (5.725-5.85GHz)												
Test Channel	Frequency (MHz)	Ant A_AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	Ant_B Duty cycle factor(dB)	Ant A_ PK Power (dBm)	Ant B_PK Power (dBm)	Ant A_AV Power (dBm)	Ant_B AV Power (dBm)	PK Power Total(dBm)	AV Power Total(dBm)	LIMIT (dBm)
802.11a												
149	5745	12.05	11.61	0.69	0.69	16.84	17.02	12.74	12.30	--	--	30
157	5785	11.96	11.47	0.69	0.69	16.71	16.79	12.65	12.16	--	--	30
165	5825	12.39	11.66	0.69	0.69	17.06	16.98	13.08	12.35	--	--	30
802.11n(HT20)												
149	5745	11.48	9.9	0.70	0.70	16.85	15.37	12.18	10.60	19.18	14.47	30
157	5785	11.32	10.33	0.70	0.70	16.85	15.8	12.02	11.03	19.37	14.56	30
165	5825	11	10.26	0.70	0.70	16.59	15.71	11.70	10.96	19.18	14.36	30
802.11n(HT40)												
151	5755	11.32	10	0.70	0.70	17.17	15.78	12.02	10.70	19.54	14.42	30
159	5795	11.09	10.27	0.70	0.70	17.1	16.2	11.79	10.97	19.68	14.41	30
802.11ac(VHT20)												
149	5745	11.45	9.89	0.70	0.70	16.89	15.32	12.15	10.59	19.19	14.45	30
157	5785	11.34	10.1	0.70	0.70	16.71	15.77	12.04	10.80	19.28	14.47	30
165	5825	11.11	10.25	0.70	0.70	16.52	15.67	11.81	10.95	19.13	14.41	30
802.11ac(VHT40)												
151	5755	11.29	9.96	0.72	0.72	17.19	16.03	12.01	10.68	19.66	14.41	30
159	5795	11.22	10.33	0.72	0.72	17.07	16.09	11.94	11.05	19.62	14.53	30
802.11ac(VHT80)												
155	5775	8.02	7.99	0.75	0.77	17.15	17.07	8.77	8.76	20.12	11.78	30



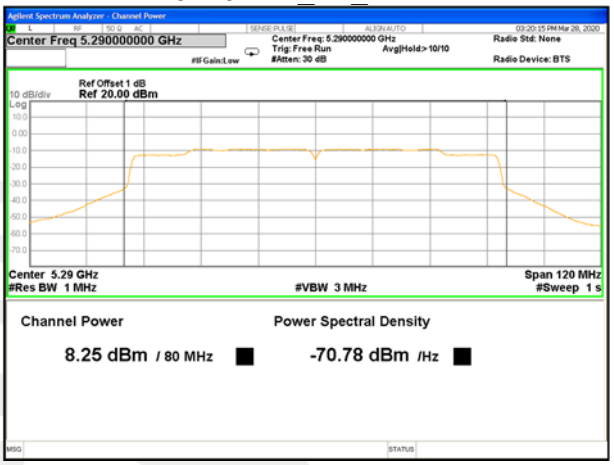
5210MHz_PK_Ant A



5210MHz_AV_Ant A



5290MHz_PK_Ant A



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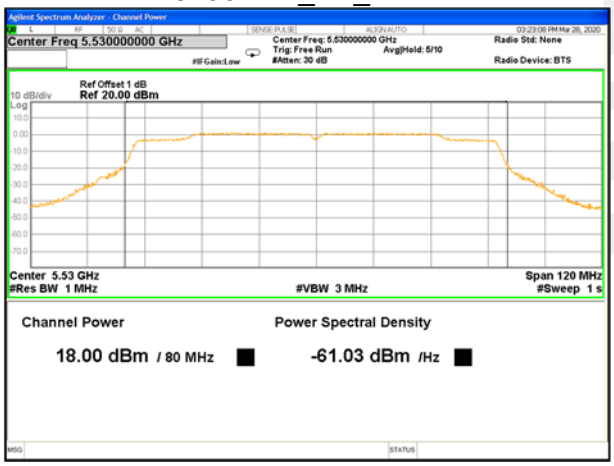
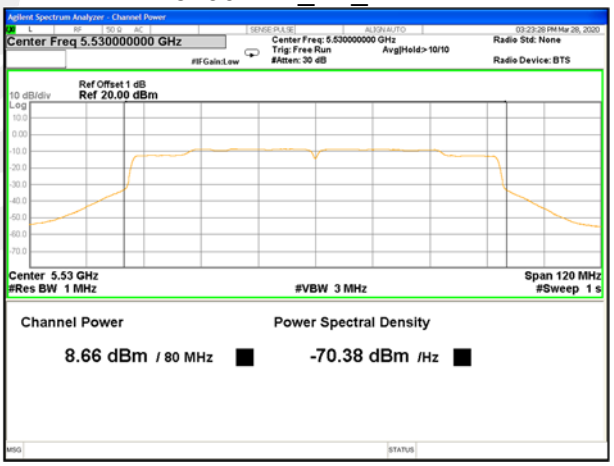
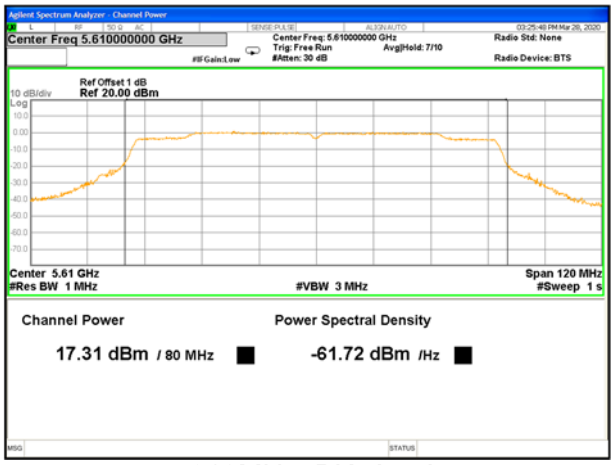


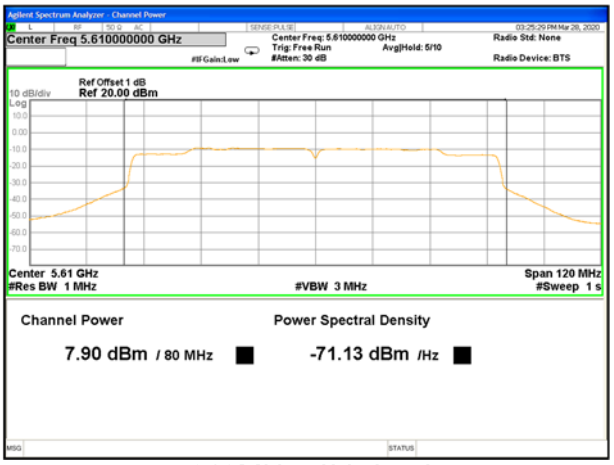
5530MHz_PK_Ant A



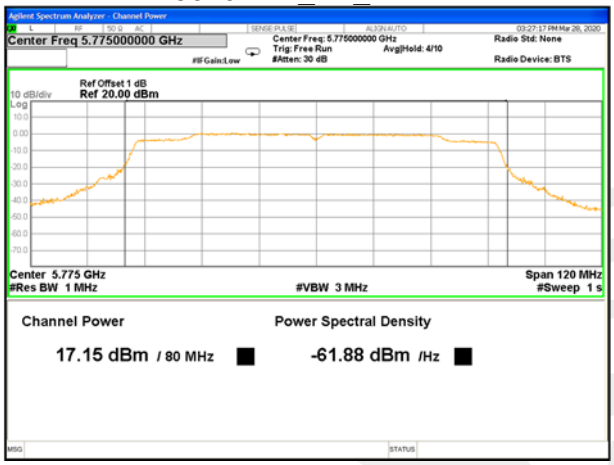
5530MHz_AV_Ant A



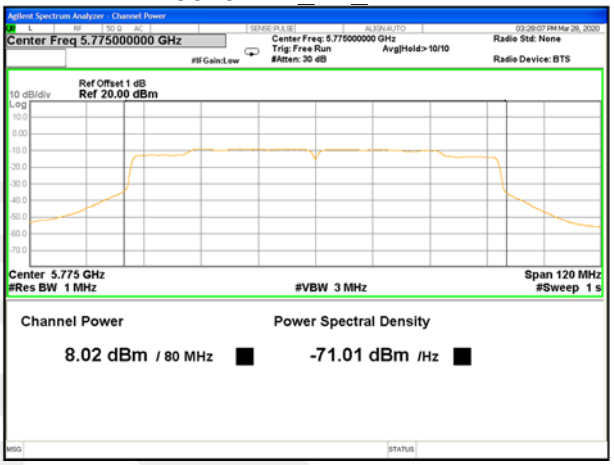
5610MHz_PK_Ant A



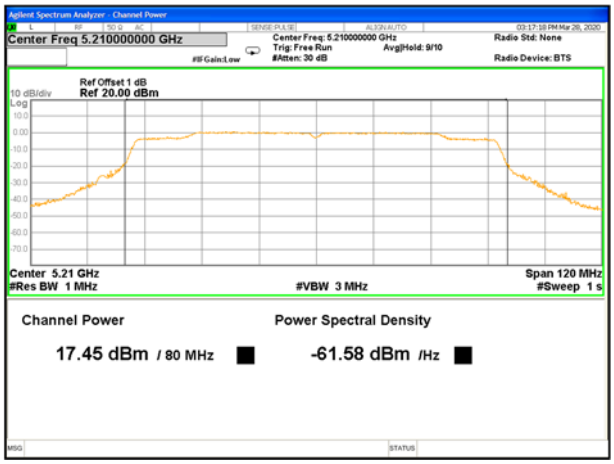
5610MHz_AV_Ant A



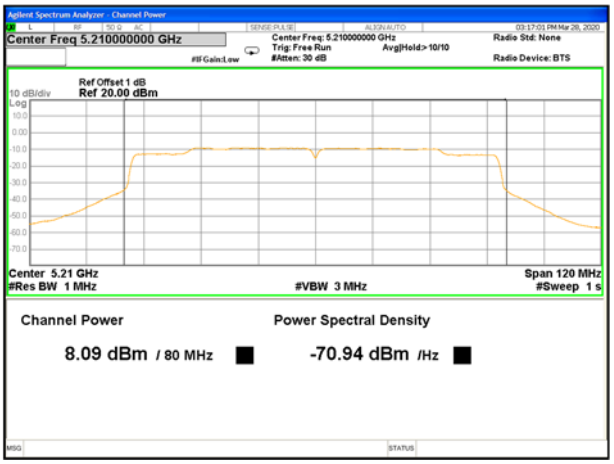
5775MHz_PK_Ant A



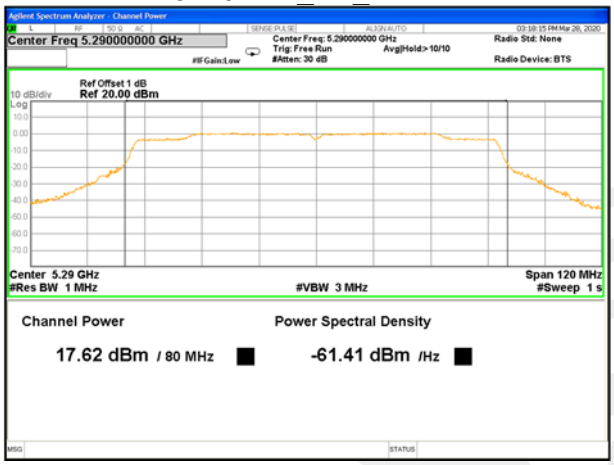
5775MHz_AV_Ant A



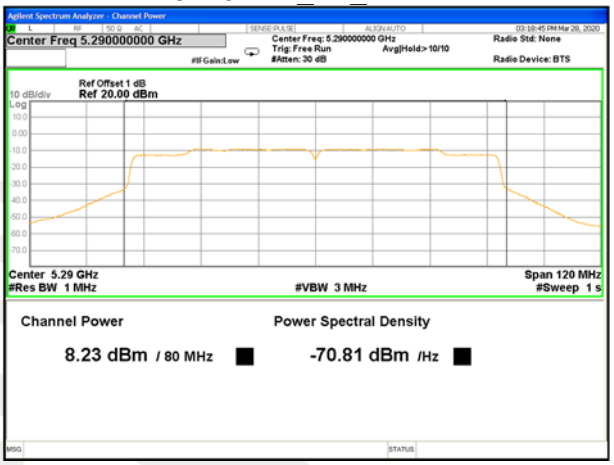
5210MHz_PK_Ant B



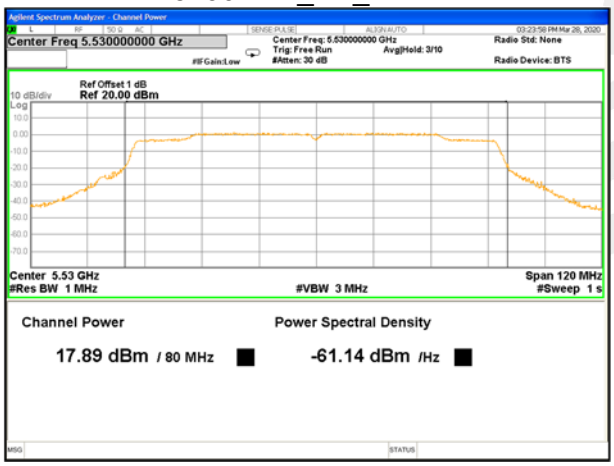
5210MHz_AV_Ant B



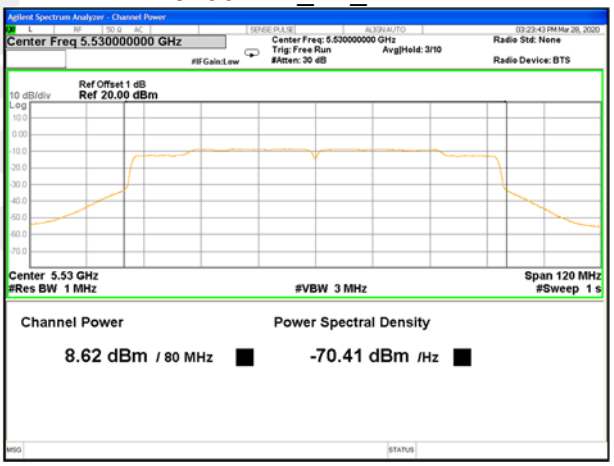
5290MHz_PK_Ant B



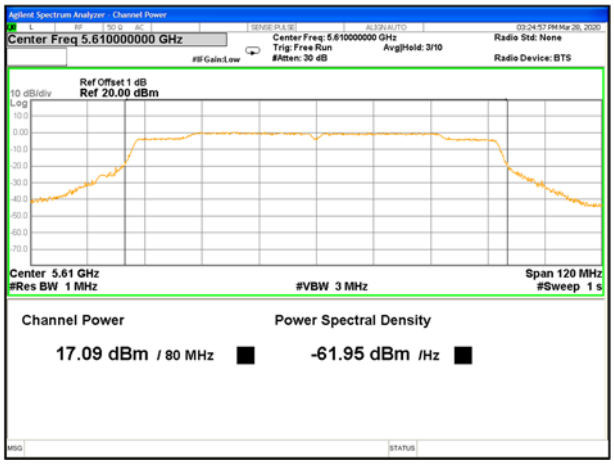
5290MHz_AV_Ant B



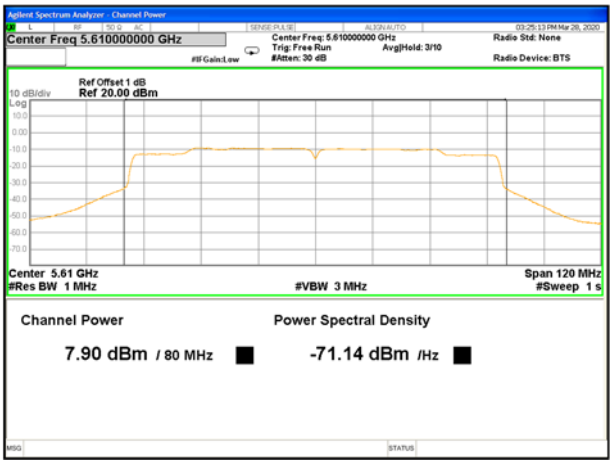
5530MHz_PK_Ant B



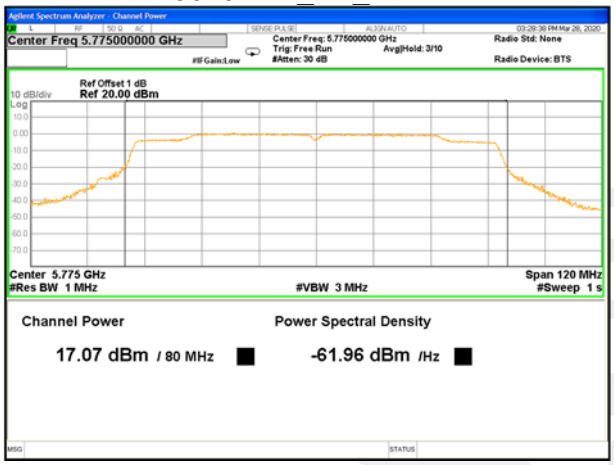
5530MHz_AV_Ant B



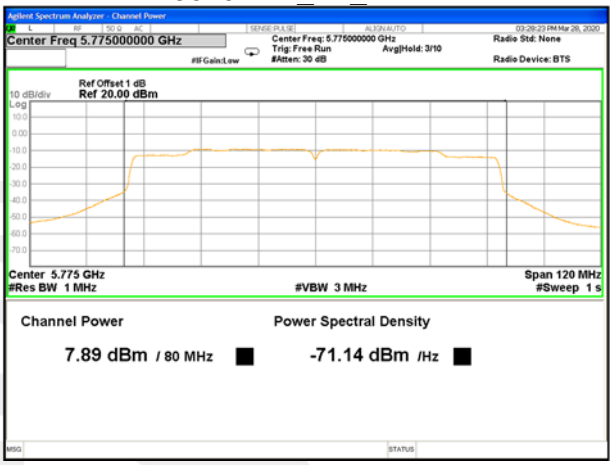
5610MHz_PK_Ant B



5610MHz_AV_Ant B



5775MHz_PK_Ant B

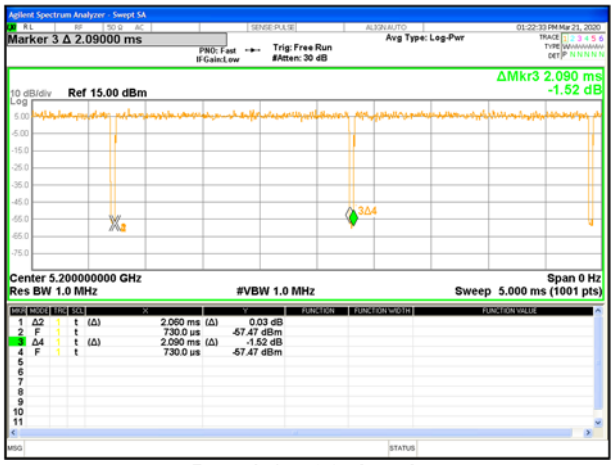


5775MHz_AV_Ant B

Duty cycle

ANT A				
Band 1				
Mode	Ton	Tp	Duty cycle(%)	Duty factor(dB)
a	2.085	2.440	85.45%	0.68
n20	1.930	2.250	85.78%	0.67
n40	0.948	1.113	85.18%	0.70
ac20	0.996	1.164	85.57%	0.68
ac40	0.506	0.592	85.47%	0.68
ac80	0.261	0.309	84.47%	0.73
Band 2				
Mode	Ton	Tp	Duty cycle(%)	Duty factor(dB)
a	2.060	2.415	85.30%	0.69
n20	1.920	2.255	85.14%	0.70
n40	0.942	1.110	84.86%	0.71
ac20	0.993	1.164	85.31%	0.69
ac40	0.502	0.592	84.80%	0.72
ac80	0.260	0.309	84.14%	0.75
Band 3				
Mode	Ton	Tp	Duty cycle(%)	Duty factor(dB)
a	2.060	2.420	85.12%	0.70
n20	1.920	2.255	85.14%	0.70
n40	0.945	1.110	85.14%	0.70
ac20	0.993	1.176	84.44%	0.73
ac40	0.502	0.592	84.80%	0.72
ac80	0.260	0.309	84.14%	0.75
Band 4				
Mode	Ton	Tp	Duty cycle(%)	Duty factor(dB)
a	2.060	2.415	85.30%	0.69
n20	1.920	2.255	85.14%	0.70
n40	0.945	1.110	85.14%	0.70
ac20	0.993	1.167	85.09%	0.70
ac40	0.502	0.592	84.80%	0.72
ac80	0.260	0.309	84.14%	0.75

ANT B				
Band 1				
Mode	Ton	Tp	Duty cycle(%)	Duty factor(dB)
a	2.060	2.415	85.30%	0.69
n20	1.920	2.255	85.14%	0.70
n40	0.945	1.110	85.14%	0.70
ac20	0.993	1.167	85.09%	0.70
ac40	0.500	0.592	84.46%	0.73
ac80	0.260	0.311	83.60%	0.78
Band 2				
Mode	Ton	Tp	Duty cycle(%)	Duty factor(dB)
a	2.060	2.415	85.30%	0.69
n20	1.920	2.255	85.14%	0.70
n40	0.945	1.110	85.14%	0.70
ac20	0.990	1.167	84.83%	0.71
ac40	0.502	0.590	85.08%	0.70
ac80	0.259	0.310	83.55%	0.78
Band 3				
Mode	Ton	Tp	Duty cycle(%)	Duty factor(dB)
a	2.060	2.420	85.12%	0.70
n20	1.920	2.255	85.14%	0.70
n40	0.945	1.110	85.14%	0.70
ac20	0.990	1.164	85.05%	0.70
ac40	0.500	0.592	84.46%	0.73
ac80	0.259	0.310	83.55%	0.78
Band 4				
Mode	Ton	Tp	Duty cycle(%)	Duty factor(dB)
a	2.060	2.415	85.30%	0.69
n20	1.920	2.255	85.14%	0.70
n40	0.945	1.110	85.14%	0.70
ac20	0.993	1.167	85.09%	0.70
ac40	0.502	0.592	84.80%	0.72
ac80	0.259	0.309	83.82%	0.77



Band 1-a20-Ant A

Band 1-n20-Ant A

Band 1-n40-Ant A

Band 1-ac20-Ant A

Band 1-ac40-Ant A

Band 1-ac80-Ant A

Band 2-a20-Ant A

Band 2-n20-Ant A

Band 2-n40-Ant A

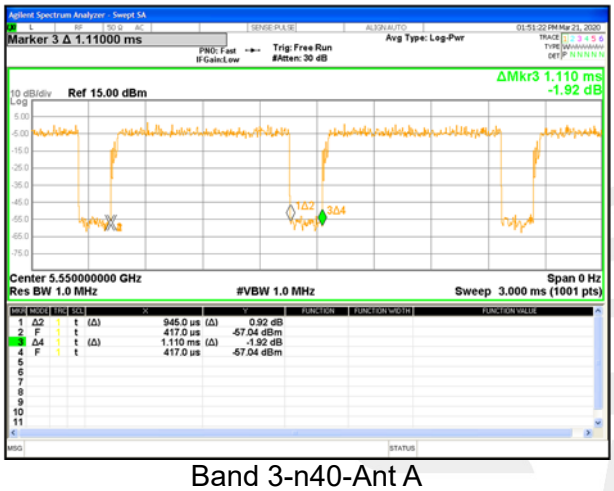
Band 2-ac20-Ant A

Band 2-ac40-Ant A

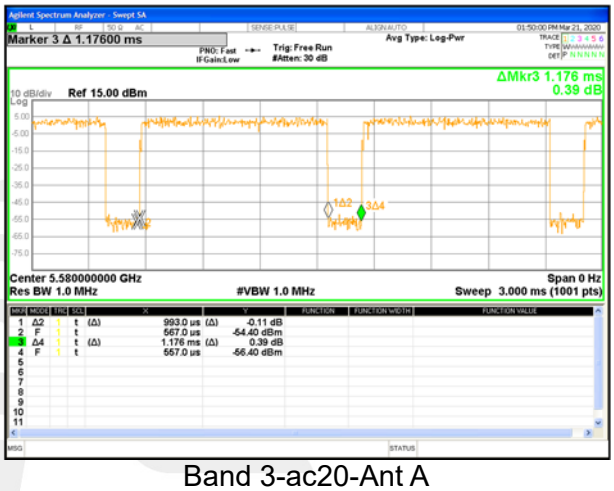
Band 2-ac80-Ant A

Band 3-a20-Ant A

Band 3-n20-Ant A



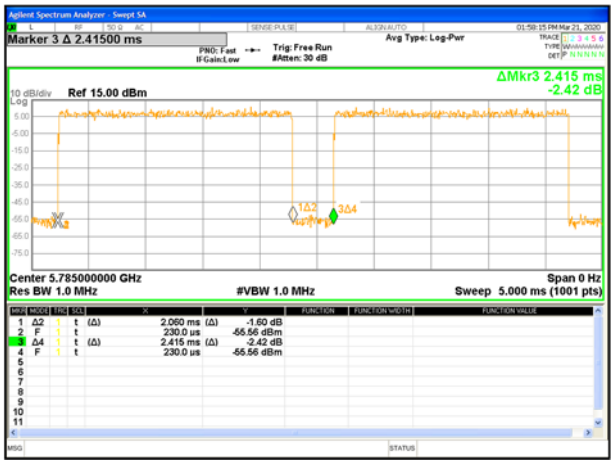
Band 3-n40-Ant A



Band 3-ac20-Ant A

Band 3-ac40-Ant A

Band 3-ac80-Ant A



Band 4-a20-Ant A

Band 4-n20-Ant A

Band 4-n40-Ant A

Band 1-a20-Ant B

Band 4-ac20-Ant A

Band 1-n20-Ant B

Band 4-ac40-Ant A

Band 1-n40-Ant B

Band 4-ac80-Ant A

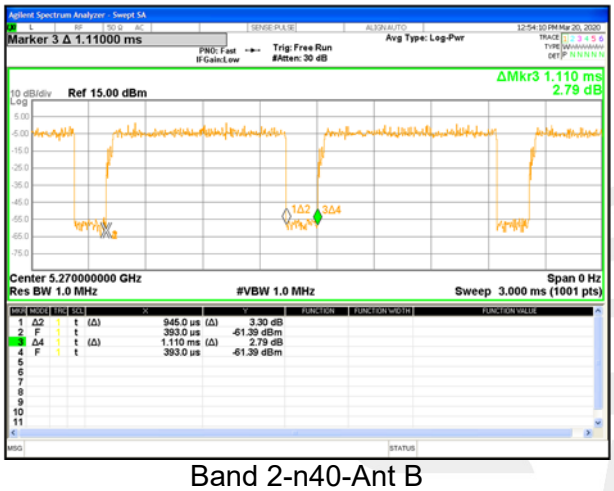
Band 1-ac20-Ant B

Band 1-ac40-Ant B

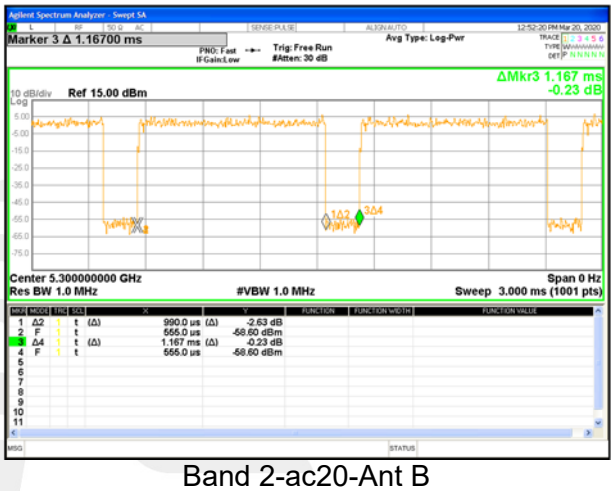
Band 1-ac80-Ant B

Band 2-a20-Ant B

Band 2-n20-Ant B



Band 2-n40-Ant B



Band 2-ac20-Ant B

Band 2-ac40-Ant B

Band 2-ac80-Ant B

Band 3-a20-Ant B

Band 3-n20-Ant B

Band 3-n40-Ant B

Band 3-ac20-Ant B

Band 3-ac40-Ant B

Band 3-ac80-Ant B

Band 4-a20-Ant B

Band 4-n20-Ant B

Band 4-n40-Ant B

Band 4-ac20-Ant B

Band 4-ac40-Ant B

Band 4-ac80-Ant B

8. AUTOMATICALLY DISCONTINUE TRANSMISSION

8.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

8.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

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

9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

9.2 EUT ANTENNA

The EUT antenna is PIFA Antenna Antenna. It comply with the standard requirement.

APPENDIX - PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※※END OF THE REPORT※※※※※