



RADIO TEST REPORT

Report No.: STS2111153W06

Issued for

Excellus Communications, LLC

27298 Wetland Road, Suite 101 Harrisburg, SD 57032 USA

Product Name:	4G senior phone
Brand Name:	Snapfon
Model Name:	Snapfōn ezFlip 4G v1.1
Series Model:	N/A
FCC ID:	2AW56-EZFLIP2
Test Standard:	FCC Part 15.407

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TEST RESULT CERTIFICATION

Applicant's Name..... : Excellus Communications, LLC
Address : 27298 Wetland Road, Suite 101 Harrisburg, SD 57032 USA

Manufacturer's Name : Ying Tai Electronics Co., Ltd
Address : ROOM 803, CHEVALIER HOUSE 45-51 CHATHAM ROAD
SOUTH, TSIM SHA TSUI, KOWLOON, HONG KONG

Product Description

Product Name..... : 4G senior phone
Brand Name : Snapfon
Model Name : Snapfon ezFlip 4G v1.1
Series Model..... : N/A

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 : 24 Nov. 2021

Date (s) of performance of tests : 24 Nov. 2021 ~ 27 Dec. 2021

Date of Issue..... : 27 Dec. 2021

Test Result..... : **Pass**

Testing Engineer :

(Chris Chen)

Technical Manager :

(Sean she)

Authorized Signatory :

(Vita Li)





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**Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	27 Dec. 2021	STS2111153W06	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 (a) /15.407 (e)	26dB/6dB &99% Bandwidth	PASS
15.407(a)	Maximum Conducted Output Power	PASS
15.407(b)/15.205/15.209	Radiated Emission And (bandedge Emissions) Measurement	PASS
15.407(a)	Power Spectral Density	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
15.203	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 $y \pm U$, where expanded 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	$\pm 0.87\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.895\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 3.80\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 4.09\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 4.92\text{dB}$
6	All emissions, radiated >6G	$\pm 5.49\text{dB}$
7	Conducted Emission (9KHz-30MHz)	$\pm 2.73\text{dB}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	4G senior phone	
Trade Name	Snapfon	
Model Name	Snapfon ezFlip 4G v1.1	
Series Model	N/A	
Model Difference	N/A	
Product Description	The EUT is a 4G senior phone	
	Operation Frequency:	IEEE 802.11n(HT20): 5.180GHz-5.240GHz
		IEEE 802.11n(HT40): 5.190GHz-5.310GHz
		IEEE 802.11n(HT20): 5.260GHz-5.320GHz
		IEEE 802.11n(HT40): 5.270GHz-5.310GHz
		IEEE 802.11n(HT20): 5.500GHz-5.700GHz
		IEEE 802.11n(HT40): 5.510GHz-5.670GHz
	Modulation Type:	IEEE 802.11n(HT20): 5.745GHz-5.825GHz
		IEEE 802.11n(HT40): 5.755GHz-5.795GHz
	Modulation Type:	802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM
	Antenna Designation:	Please refer to the Note 3.
	Max.Output Power(Conducted):	10.40 dBm
	More details of EUT technical specification, please refer to the User Manual.	
Test Channel	Please refer to the Note 2.	
Adapter	Input: AC 100-240V 50/60Hz 0.2A Output: DC 5V 1A	
Battery	Rated Voltage: 3.7V Charge Limit Voltage: 4.2V Capacity: 1500mAh	
Hardware version number	P31-MB-V1.2	
Software version number	Snapfon_ezFlip_V2.0_20210929_1457	
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.

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	106	5530
44	5220	108	5540
46	5230	110	5550
48	5240	112	5560
		116	5580
		118	5590
5.260GHz-5.320GHz		120	5600
Channel	Frequency	122	5610
52	5260	124	5620
54	5270	126	5630
56	5280	128	5640
58	5290	132	5660
60	5300	134	5670
62	5310	136	5680
64	5320	140	5700
5.745GHz-5.825GHz			
Channel	Frequency		
149	5745		
151	5755		
153	5765		
155	5775		
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 802.11n(HT20)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
36	5180	52	5260
40	5200	60	5300
48	5240	64	5320



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

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

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

3.	Ant	Brand	Model Name	Ant Type	Connector	Gain (dBi)	NOTE
	A	Snapfon	Snapfön ezFlip 4G v1.1	PIFA	N/A	0.5dBi	WLAN Ant

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.



2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly 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 802.11n HT20 CH36&CH40&CH48	MCS 0
Mode 2	TX IEEE 802.11n HT20 CH52&CH60&CH64	MCS 0
Mode 3	TX IEEE 802.11n HT20 CH100&CH116&CH140	MCS 0
Mode 4	TX IEEE 802.11n HT20 CH149&CH157&CH165	MCS 0
Mode 5	TX IEEE 802.11n HT40 CH38&CH46	MCS 0
Mode 6	TX IEEE 802.11n HT40 CH54 &CH62	MCS 0
Mode 7	TX IEEE 802.11n HT40 CH102&CH110&CH134	MCS 0
Mode 8	TX IEEE 802.11n HT40 CH151&CH159	MCS 0

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 been tested for all available U.S. voltage and frequencies (For 120V, 50/60Hz and 240V, 50/60Hz) for which the device is capable of operation.

(4) The battery is fully-charged during the radiated and RF conducted test.

AC Conducted Emission

Test Case	
AC Conducted Emission	Mode 9: Keeping TX + WLAN Link



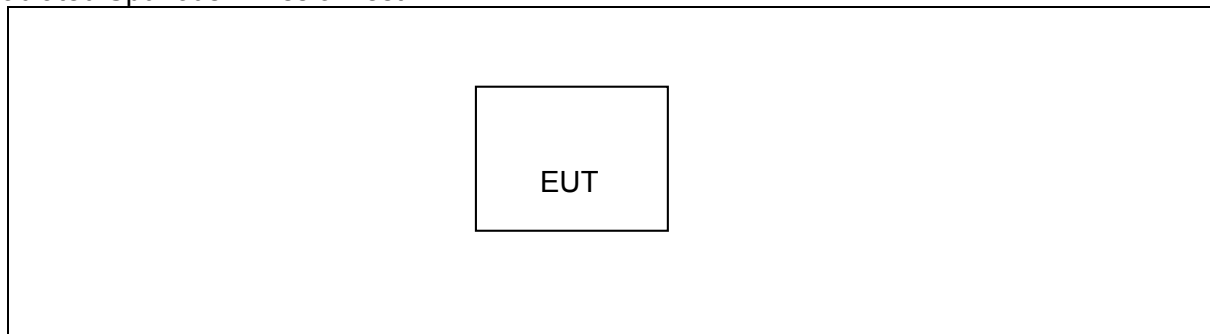
2.3 TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

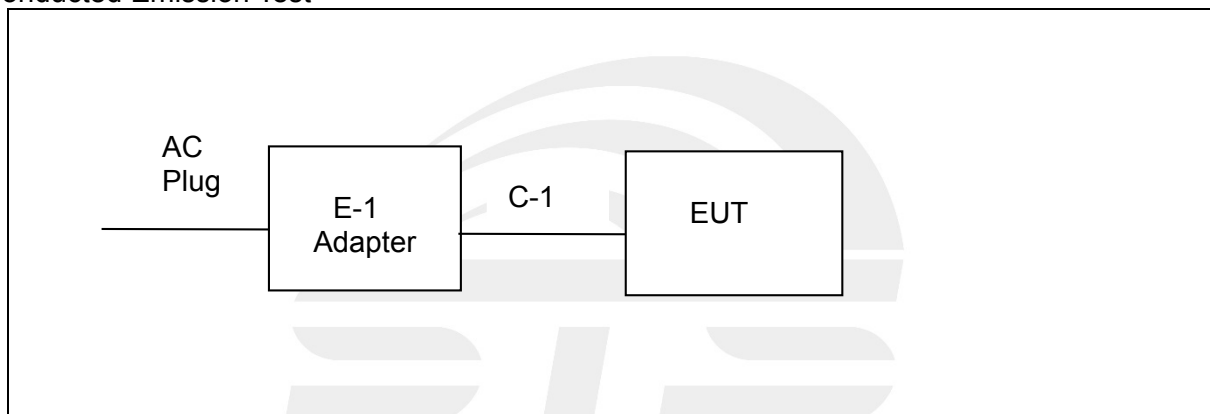
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
WIFI(5G)	U-NII Band 1 (5150MHz-5250MHz)	802.11n(HT20)	0.5	15	Engineering mode
		802.11n(HT40)		15	
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
WIFI(5G)	U-NII Band 2A (5250MHz-5350MHz)	802.11n(HT20)	0.5	12	Engineering mode
		802.11n(HT40)		12	
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
WIFI(5G)	U-NII Band 2C (5470MHz-5725MHz)	802.11n(HT20)	0.5	12	Engineering mode
		802.11n(HT40)		12	
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
WIFI(5G)	U-NII Band 3 (5725MHz-5850MHz)	802.11n(HT20)	0.5	15	Engineering mode
		802.11n(HT40)		15	

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Conducted Emission Test





2.5 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.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
E-1	Adapter	Snapfon	HJ-0501000E1-US	N/A	N/A
C-1	DC Cable	N/A	N/A	100cm	NO

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (2) “YES” is means “with core”; “NO” is means “without core”.



2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2021.09.30	2022.09.29
Signal Analyzer	R&S	FSV 40-N	101823	2021.09.30	2022.09.29
Active loop Antenna	ZHINAN	ZN30900C	16035	2021.04.11	2023.04.10
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2021.10.11	2023.10.10
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier(0.1M-3G Hz)	EM	EM330	060665	2021.10.08	2022.10.07
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2021.09.30	2022.09.29
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2021.09.28	2022.09.27
Temperature & Humidity	HH660	Mieo	N/A	2021.10.09	2022.10.08
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2021.09.30	2022.09.29
LISN	R&S	ENV216	101242	2021.09.30	2022.09.29
LISN	EMCO	3810/2NM	23625	2021.09.30	2022.09.29
Temperature & Humidity	HH660	Mieo	N/A	2021.10.09	2022.10.08
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 CE)			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Power Sensor	Keysight	U2021XA	MY55520005	2021.09.30	2022.09.29
			MY55520006	2021.09.30	2022.09.29
			MY56120038	2021.09.30	2022.09.29
			MY56280002	2021.09.30	2022.09.29
Signal Analyzer	Agilent	N9020A	MY51110105	2021.03.04	2022.03.03
Temperature & Humidity	HH660	Mieo	N/A	2021.10.09	2022.10.08



3. EMC EMISSION TEST

3.1 CONDUCTED 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

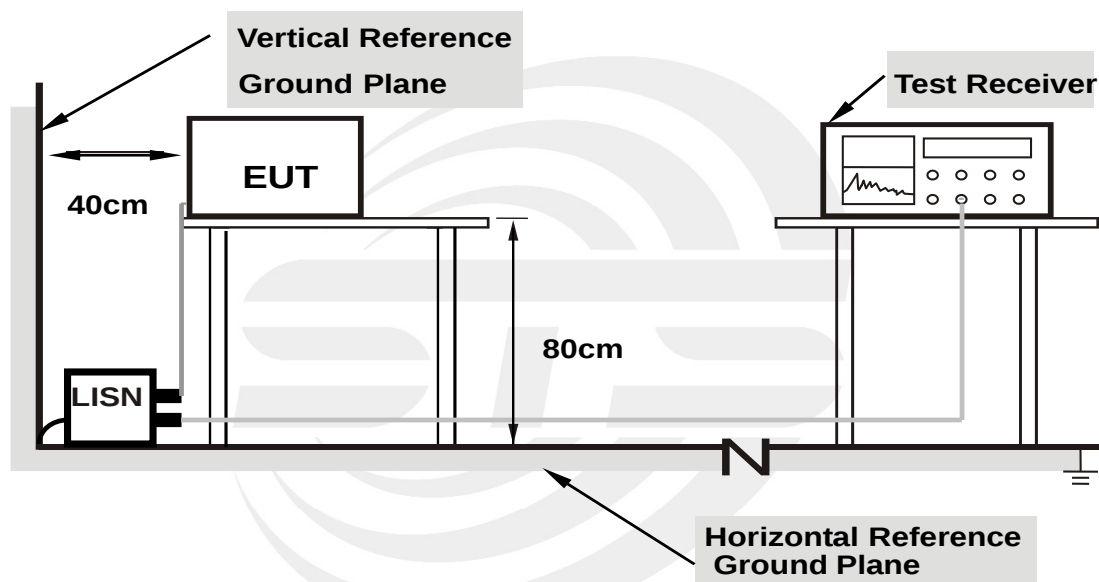
3.1.2 TEST PROCEDURE

- The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 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.
- 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.
- LISN is at least 80 cm from the nearest part of EUT chassis.
- 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 cm from other units and other metal planes support units.

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

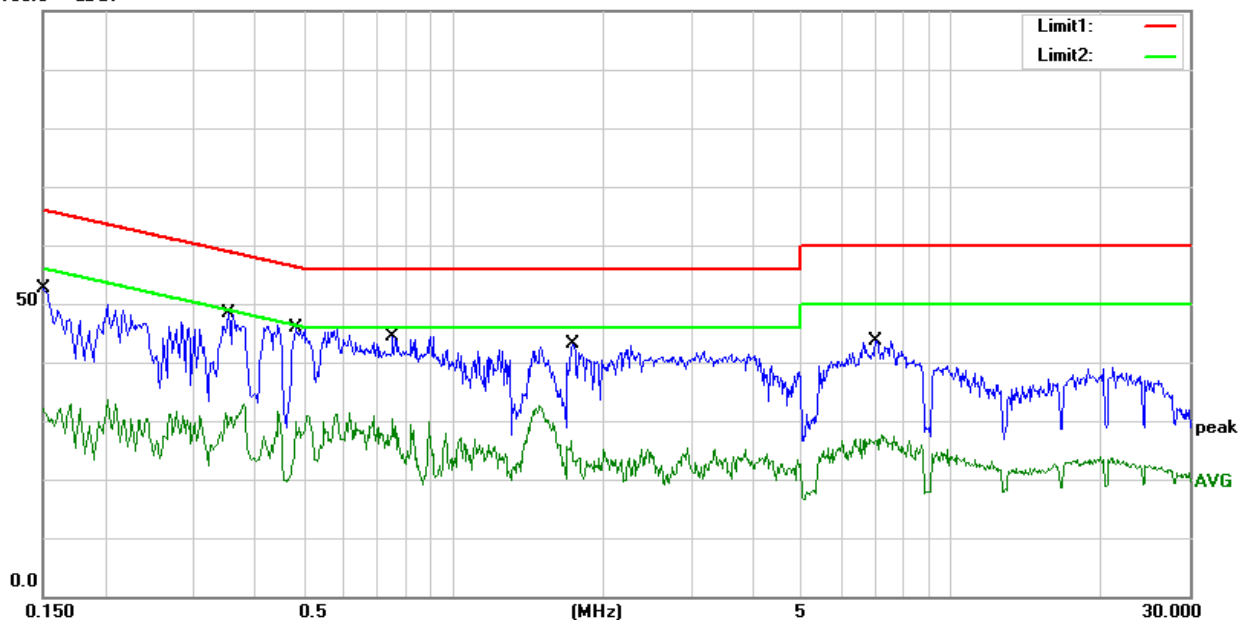
Temperature:	23.9(C)	Relative Humidity:	39%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode :	Mode 9		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	32.40	20.33	52.73	66.00	-13.27	QP
2	0.1500	12.43	20.33	32.76	56.00	-23.24	AVG
3	0.3540	27.79	20.64	48.43	58.87	-10.44	QP
4	0.3540	12.22	20.64	32.86	48.87	-16.01	AVG
5	0.4860	25.44	20.54	45.98	56.24	-10.26	QP
6	0.4860	10.42	20.54	30.96	46.24	-15.28	AVG
7	0.7580	24.05	20.34	44.39	56.00	-11.61	QP
8	0.7580	10.63	20.34	30.97	46.00	-15.03	AVG
9	1.7380	22.73	20.30	43.03	56.00	-12.97	QP
10	1.7380	8.90	20.30	29.20	46.00	-16.80	AVG
11	7.0700	23.07	20.60	43.67	60.00	-16.33	QP
12	7.0700	7.04	20.60	27.64	50.00	-22.36	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit
3. Factor = LISN factor + Cable loss + Limiter (10dB)

100.0 dBuV



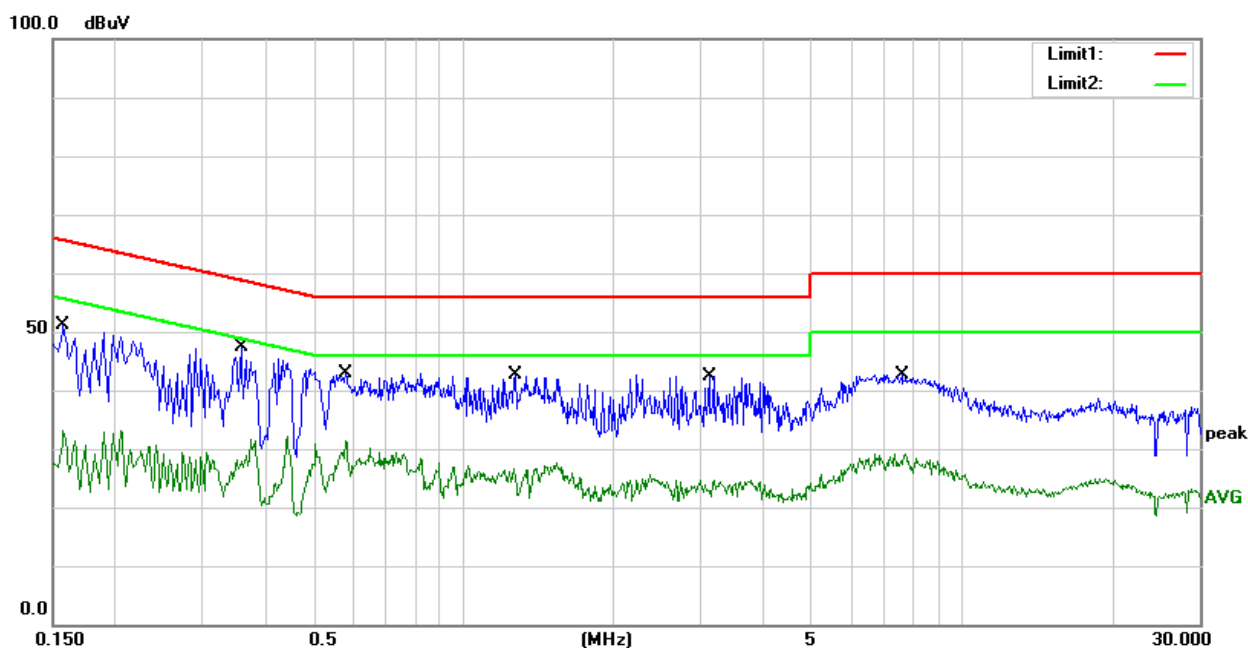


Temperature:	23.9(C)	Relative Humidity:	39%RH
Test Voltage	AC 120V/60Hz	Phase:	N
Test Mode	Mode 9		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1580	30.75	20.33	51.08	65.57	-14.49	QP
2	0.1580	12.87	20.33	33.20	55.57	-22.37	AVG
3	0.3580	26.73	20.63	47.36	58.77	-11.41	QP
4	0.3580	10.95	20.63	31.58	48.77	-17.19	AVG
5	0.5820	22.46	20.46	42.92	56.00	-13.08	QP
6	0.5820	10.80	20.46	31.26	46.00	-14.74	AVG
7	1.2700	22.42	20.30	42.72	56.00	-13.28	QP
8	1.2700	6.93	20.30	27.23	46.00	-18.77	AVG
9	3.1180	22.05	20.35	42.40	56.00	-13.60	QP
10	3.1180	4.36	20.35	24.71	46.00	-21.29	AVG
11	7.5980	21.92	20.70	42.62	60.00	-17.38	QP
12	7.5980	8.55	20.70	29.25	50.00	-20.75	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) - Limit
3. Factor = LISN factor + Cable loss + Limiter (10dB)





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 limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microvolt/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).

LIMITS OF RESTRICTED FREQUENCY BANDS

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

Note: In case the emission radiated emission above 1000MHz fall within the restricted band the restricted frequency bands, the peak limit is 74 dBuV/m.

**LIMITS OF EMISSIONS OUTSIDE OF THE FREQUENCY BANDS**

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.

Note: dBuV/m(at 3M) = EIRP(dBm) + 95.2.

Peak Limit = -27dBm/MHz + 95.2 = 68.2 dBuV/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 at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree 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 polarization 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 QuasiPeak detector mode will be re-measured.
- e. If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was 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 pretest to three orthogonal axis. The worst case emissions were reported.

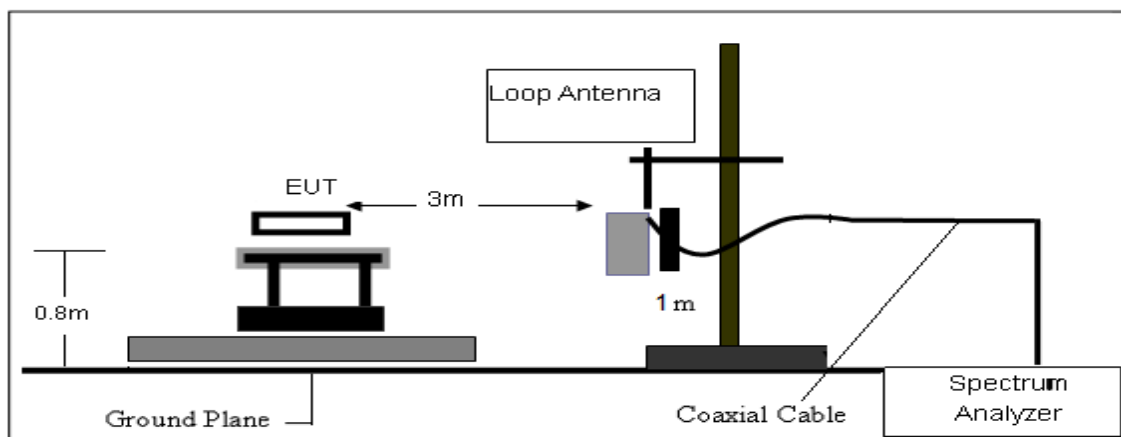
3.2.2 DEVIATION FROM TEST STANDARD

No deviation

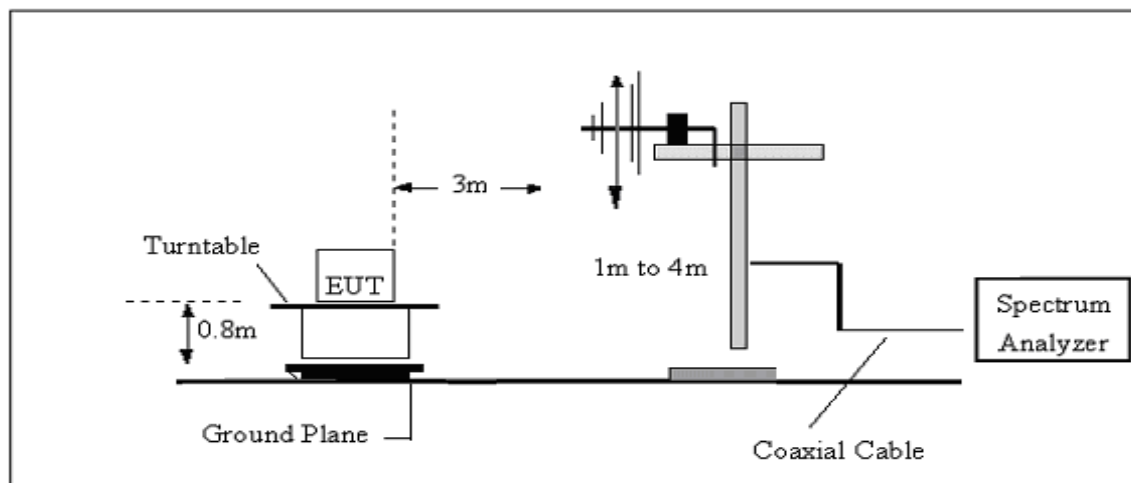


3.2.3 TEST SETUP

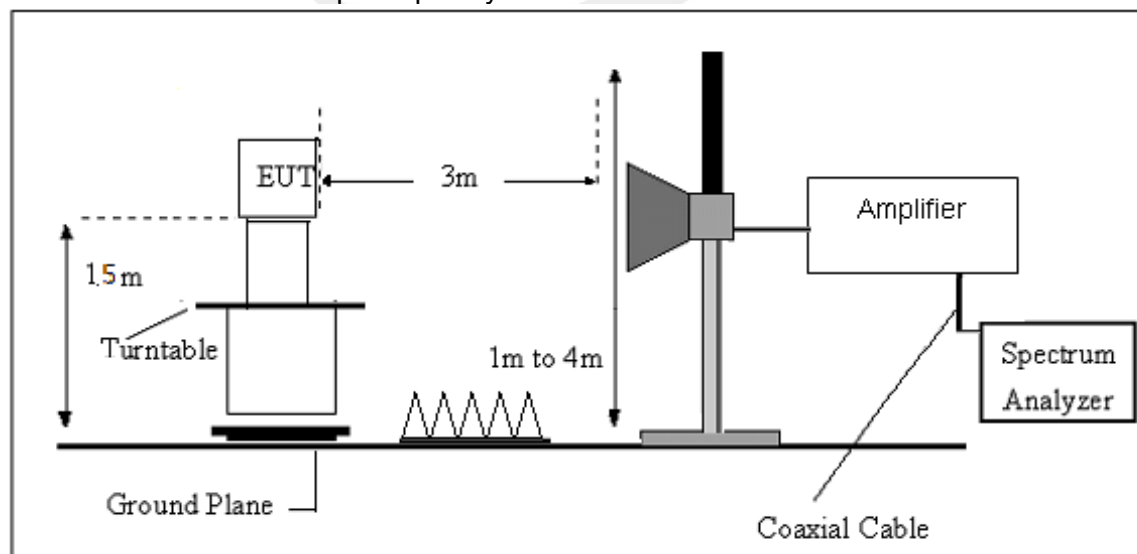
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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

$$\text{Factor} = \text{AF} + \text{CL} - \text{AG}$$

**3.2.6 TEST RESULTS (Between 9KHz – 30 MHz)**

Temperature:	23.1(C)	Relative Humidity:	60%RH
Test Voltage :	DC 3.7V	Polarization :	--
Test Mode :	TX Mode		

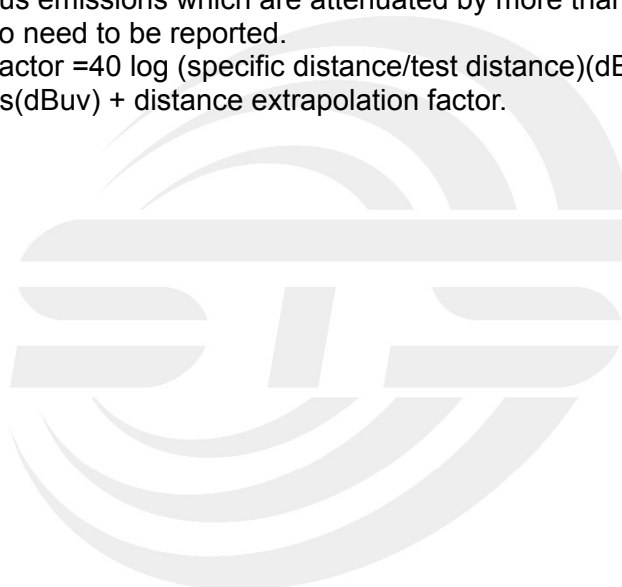
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

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 = $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor.



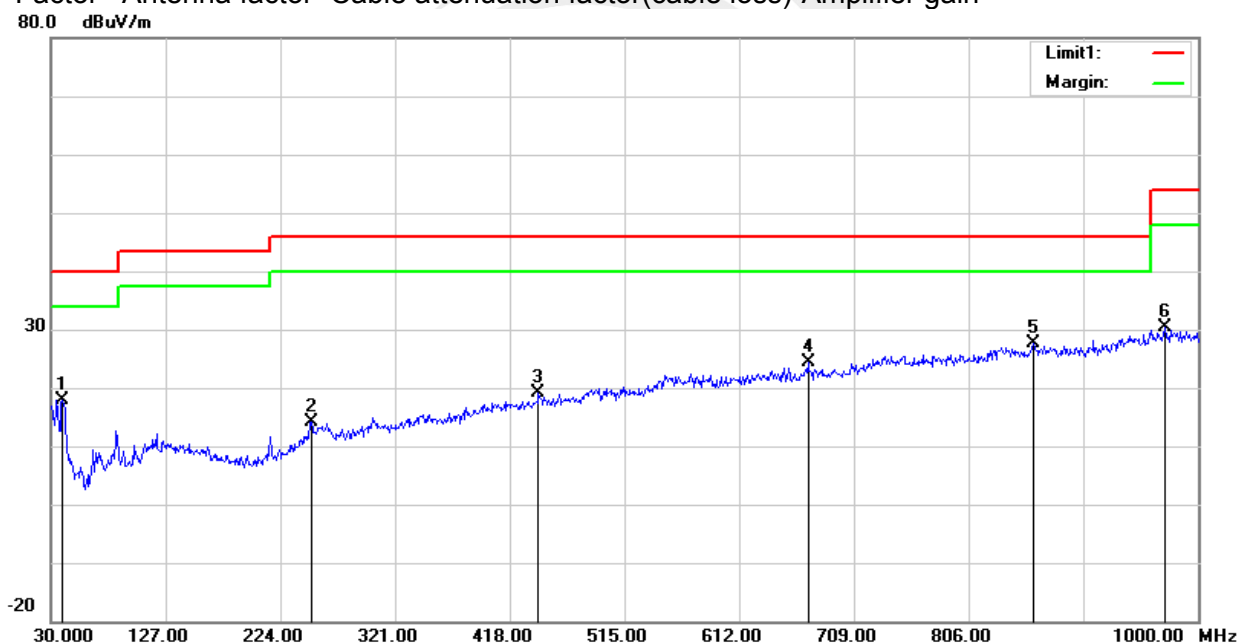
**3.2.7 TEST RESULTS (Between 30MHz – 1GHz)**

Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	DC 3.7V	Polarization:	Horizontal
Test Mode	Mode 1~8(Mode 1 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	39.7000	35.77	-17.88	17.89	40.00	-22.11	QP
2	250.1900	30.32	-16.10	14.22	46.00	-31.78	QP
3	442.2500	29.20	-9.99	19.21	46.00	-26.79	QP
4	670.2000	28.91	-4.58	24.33	46.00	-21.67	QP
5	861.2900	28.00	-0.43	27.57	46.00	-18.43	QP
6	971.8700	28.32	2.13	30.45	54.00	-23.55	QP

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain



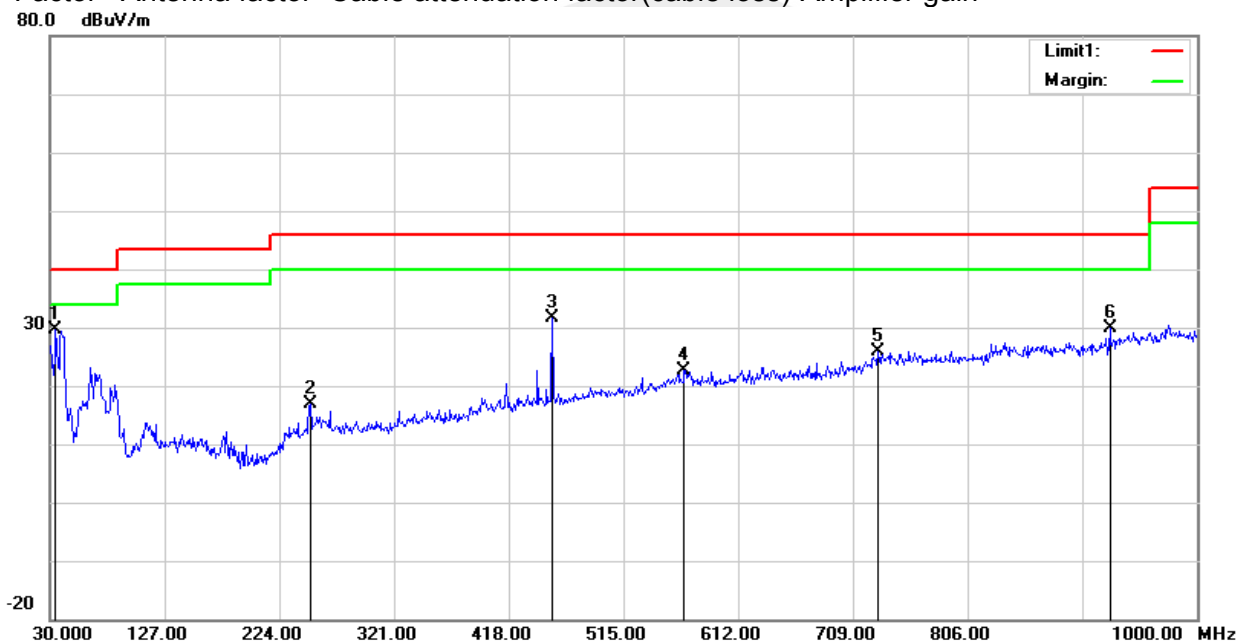


Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	DC 3.7V	Polarization:	Vertical
Test Mode	Mode 1~8(Mode 1 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.8500	44.99	-15.34	29.65	40.00	-10.35	QP
2	250.1900	32.95	-16.10	16.85	46.00	-29.15	QP
3	454.8600	41.19	-9.57	31.62	46.00	-14.38	QP
4	566.4100	28.32	-5.57	22.75	46.00	-23.25	QP
5	730.3400	28.28	-2.46	25.82	46.00	-20.18	QP
6	926.2800	29.59	0.34	29.93	46.00	-16.07	QP

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain





3.2.8 TEST RESULTS (Above 1000 MHz)

U-NII Band 1 5150-5250MHz

Frequency (MHz)	Reading (dBuV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11n20/ 5180 MHz)										
3250.96	44.09	44.70	6.70	28.20	-9.80	34.29	68.20	-33.91	Pk	Vertical
3250.96	41.29	44.70	6.70	28.20	-9.80	31.49	54.00	-22.51	AV	Vertical
3260.13	44.32	44.70	6.70	28.20	-9.80	34.52	74.00	-39.48	Pk	Horizontal
3260.13	41.57	44.70	6.70	28.20	-9.80	31.77	54.00	-22.23	AV	Horizontal
3983.86	39.31	44.20	7.90	29.70	-6.60	32.71	74.00	-41.29	Pk	Vertical
3983.86	36.70	44.20	7.90	29.70	-6.60	30.10	54.00	-23.90	AV	Vertical
3982.50	40.06	44.20	7.90	29.70	-6.60	33.46	74.00	-40.54	Pk	Horizontal
3982.50	35.65	44.20	7.90	29.70	-6.60	29.05	54.00	-24.95	AV	Horizontal
7231.10	36.74	43.50	11.40	35.50	3.40	40.14	68.20	-28.06	Pk	Vertical
7231.10	33.64	43.50	11.40	35.50	3.40	37.04	54.00	-16.96	AV	Vertical
7229.95	37.67	43.50	11.40	35.50	3.40	41.07	68.20	-27.13	Pk	Horizontal
7229.95	33.63	43.50	11.40	35.50	3.40	37.03	54.00	-16.97	AV	Horizontal
10360.15	40.11	44.50	13.80	38.80	8.10	48.21	68.20	-19.99	Pk	Vertical
10360.15	36.43	44.50	13.80	38.80	8.10	44.53	54.00	-9.47	AV	Vertical
10360.39	39.27	44.50	13.80	38.80	8.10	47.37	68.20	-20.83	Pk	Horizontal
10360.39	35.76	44.50	13.80	38.80	8.10	43.86	54.00	-10.14	AV	Horizontal
11033.32	32.88	43.60	14.30	39.50	10.20	43.08	74.00	-30.92	Pk	Vertical
11033.32	30.64	43.60	14.30	39.50	10.20	40.84	54.00	-13.16	AV	Vertical
11024.68	33.97	43.60	14.30	39.50	10.20	44.17	74.00	-29.83	Pk	Horizontal
11024.68	30.03	43.60	14.30	39.50	10.20	40.23	54.00	-13.77	AV	Horizontal
13294.25	32.42	42.60	15.90	38.90	12.20	44.62	74.00	-29.38	Pk	Vertical
13294.25	29.95	42.60	15.90	38.90	12.20	42.15	54.00	-11.85	AV	Vertical
13288.78	31.69	42.60	15.90	38.90	12.20	43.89	74.00	-30.11	Pk	Horizontal
13288.78	28.56	42.60	15.90	38.90	12.20	40.76	54.00	-13.24	AV	Horizontal
Mid Channel (802.11n20/ 5200 MHz)										
3262.59	44.69	44.70	6.70	28.20	-9.80	34.89	74.00	-39.11	Pk	Vertical
3262.59	41.62	44.70	6.70	28.20	-9.80	31.82	54.00	-22.18	AV	Vertical
3259.09	44.33	44.70	6.70	28.20	-9.80	34.53	68.20	-33.67	Pk	Horizontal
3259.09	41.40	44.70	6.70	28.20	-9.80	31.60	54.00	-22.40	AV	Horizontal
3990.06	39.42	44.20	7.90	29.70	-6.60	32.82	74.00	-41.18	Pk	Vertical
3990.06	36.66	44.20	7.90	29.70	-6.60	30.06	54.00	-23.94	AV	Vertical
3985.52	39.88	44.20	7.90	29.70	-6.60	33.28	74.00	-40.72	Pk	Horizontal
3985.52	35.99	44.20	7.90	29.70	-6.60	29.39	54.00	-24.61	AV	Horizontal
7223.83	37.40	43.50	11.40	35.50	3.40	40.80	68.20	-27.40	Pk	Vertical
7223.83	34.53	43.50	11.40	35.50	3.40	37.93	54.00	-16.07	AV	Vertical
7222.53	36.81	43.50	11.40	35.50	3.40	40.21	68.20	-27.99	Pk	Horizontal
7222.53	34.56	43.50	11.40	35.50	3.40	37.96	54.00	-16.04	AV	Horizontal
10400.04	38.97	44.50	13.80	38.80	8.10	47.07	68.20	-21.13	Pk	Vertical
10400.04	35.97	44.50	13.80	38.80	8.10	44.07	54.00	-9.93	AV	Vertical
10400.24	39.93	44.50	13.80	38.80	8.10	48.03	68.20	-20.17	Pk	Horizontal
10400.24	36.23	44.50	13.80	38.80	8.10	44.33	54.00	-9.67	AV	Horizontal
11029.57	33.69	43.60	14.30	39.50	10.20	43.89	74.00	-30.11	Pk	Vertical
11029.57	29.98	43.60	14.30	39.50	10.20	40.18	54.00	-13.82	AV	Vertical
11035.58	33.71	43.60	14.30	39.50	10.20	43.91	74.00	-30.09	Pk	Horizontal
11035.58	30.41	43.60	14.30	39.50	10.20	40.61	54.00	-13.39	AV	Horizontal
13297.59	32.21	42.60	15.90	38.90	12.20	44.41	74.00	-29.59	Pk	Vertical
13297.59	29.85	42.60	15.90	38.90	12.20	42.05	54.00	-11.95	AV	Vertical
13283.81	31.87	42.60	15.90	38.90	12.20	44.07	74.00	-29.93	Pk	Horizontal
13283.81	29.93	42.60	15.90	38.90	12.20	42.13	54.00	-11.87	AV	Horizontal



High Channel (802.11n20/ 5240 MHz)										
3263.31	44.51	44.70	6.70	28.20	-9.80	34.71	74.00	-39.29	Pk	Vertical
3263.31	41.25	44.70	6.70	28.20	-9.80	31.45	54.00	-22.55	AV	Vertical
3263.78	43.93	44.70	6.70	28.20	-9.80	34.13	74.00	-39.87	Pk	Horizontal
3263.78	42.18	44.70	6.70	28.20	-9.80	32.38	54.00	-21.62	AV	Horizontal
3992.00	39.33	44.20	7.90	29.70	-6.60	32.73	74.00	-41.27	Pk	Vertical
3992.00	37.04	44.20	7.90	29.70	-6.60	30.44	54.00	-23.56	AV	Vertical
3995.48	38.94	44.20	7.90	29.70	-6.60	32.34	74.00	-41.66	Pk	Horizontal
3995.48	35.94	44.20	7.90	29.70	-6.60	29.34	54.00	-24.66	AV	Horizontal
7226.76	37.67	43.50	11.40	35.50	3.40	41.07	68.20	-27.13	Pk	Vertical
7226.76	33.69	43.50	11.40	35.50	3.40	37.09	54.00	-16.91	AV	Vertical
7233.85	36.96	43.50	11.40	35.50	3.40	40.36	68.20	-27.84	Pk	Horizontal
7233.85	34.68	43.50	11.40	35.50	3.40	38.08	54.00	-15.92	AV	Horizontal
10480.20	39.03	44.50	13.80	38.80	8.10	47.13	68.20	-21.07	Pk	Vertical
10480.20	36.26	44.50	13.80	38.80	8.10	44.36	54.00	-9.64	AV	Vertical
10480.38	39.71	44.50	13.80	38.80	8.10	47.81	68.20	-20.39	Pk	Horizontal
10480.38	36.92	44.50	13.80	38.80	8.10	45.02	54.00	-8.98	AV	Horizontal
11022.38	33.08	43.60	14.30	39.50	10.20	43.28	74.00	-30.72	Pk	Vertical
11022.38	31.00	43.60	14.30	39.50	10.20	41.20	54.00	-12.80	AV	Vertical
11020.06	33.12	43.60	14.30	39.50	10.20	43.32	74.00	-30.68	Pk	Horizontal
11020.06	30.42	43.60	14.30	39.50	10.20	40.62	54.00	-13.38	AV	Horizontal
13288.82	32.92	42.60	15.90	38.90	12.20	45.12	74.00	-28.88	Pk	Vertical
13288.82	30.00	42.60	15.90	38.90	12.20	42.20	54.00	-11.80	AV	Vertical
13283.90	31.55	42.60	15.90	38.90	12.20	43.75	74.00	-30.25	Pk	Horizontal
13283.90	29.87	42.60	15.90	38.90	12.20	42.07	54.00	-11.93	AV	Horizontal

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40) the worst case is 802.11n (HT-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.



U-NII Band 2A 5250-5350MHz

Frequency (MHz)	Reading (dBuV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11n20/ 5260 MHz)										
3254.14	44.72	44.70	6.70	28.20	-9.80	34.92	68.20	-33.28	Pk	Vertical
3254.14	41.40	44.70	6.70	28.20	-9.80	31.60	54.00	-22.40	AV	Vertical
3254.53	43.93	44.70	6.70	28.20	-9.80	34.13	68.20	-34.07	Pk	Horizontal
3254.53	41.51	44.70	6.70	28.20	-9.80	31.71	54.00	-22.29	AV	Horizontal
3986.59	39.49	44.20	7.90	29.70	-6.60	32.89	74.00	-41.11	Pk	Vertical
3986.59	36.13	44.20	7.90	29.70	-6.60	29.53	54.00	-24.47	AV	Vertical
3982.92	39.25	44.20	7.90	29.70	-6.60	32.65	74.00	-41.35	Pk	Horizontal
3982.92	36.38	44.20	7.90	29.70	-6.60	29.78	54.00	-24.22	AV	Horizontal
7226.27	37.03	43.50	11.40	35.50	3.40	40.43	68.20	-27.77	Pk	Vertical
7226.27	33.95	43.50	11.40	35.50	3.40	37.35	54.00	-16.65	AV	Vertical
7220.77	37.58	43.50	11.40	35.50	3.40	40.98	68.20	-27.22	Pk	Horizontal
7220.77	34.09	43.50	11.40	35.50	3.40	37.49	54.00	-16.51	AV	Horizontal
10520.31	39.91	44.50	13.90	38.80	8.20	48.11	68.20	-20.09	Pk	Vertical
10520.31	36.10	44.50	13.90	38.80	8.20	44.30	54.00	-9.70	AV	Vertical
10520.19	39.45	44.50	13.90	38.80	8.20	47.65	68.20	-20.55	Pk	Horizontal
10520.19	36.71	44.50	13.90	38.80	8.20	44.91	54.00	-9.09	AV	Horizontal
11023.56	32.87	43.60	14.30	39.50	10.20	43.07	74.00	-30.93	Pk	Vertical
11023.56	30.04	43.60	14.30	39.50	10.20	40.24	54.00	-13.76	AV	Vertical
11023.65	33.56	43.60	14.30	39.50	10.20	43.76	74.00	-30.24	Pk	Horizontal
11023.65	30.34	43.60	14.30	39.50	10.20	40.54	54.00	-13.46	AV	Horizontal
13281.08	32.70	42.60	15.90	38.90	12.20	44.90	74.00	-29.10	Pk	Vertical
13281.08	28.57	42.60	15.90	38.90	12.20	40.77	54.00	-13.23	AV	Vertical
13286.40	32.95	42.60	15.90	38.90	12.20	45.15	74.00	-28.85	Pk	Horizontal
13286.40	29.68	42.60	15.90	38.90	12.20	41.88	54.00	-12.12	AV	Horizontal
Mid Channel (802.11n20/ 5300 MHz)										
3262.06	44.50	44.70	6.70	28.20	-9.80	34.70	74.00	-39.30	Pk	Vertical
3262.06	40.88	44.70	6.70	28.20	-9.80	31.08	54.00	-22.92	AV	Vertical
3260.40	43.83	44.70	6.70	28.20	-9.80	34.03	74.00	-39.97	Pk	Horizontal
3260.40	41.23	44.70	6.70	28.20	-9.80	31.43	54.00	-22.57	AV	Horizontal
3982.00	39.74	44.20	7.90	29.70	-6.60	33.14	74.00	-40.86	Pk	Vertical
3982.00	36.93	44.20	7.90	29.70	-6.60	30.33	54.00	-23.67	AV	Vertical
3997.18	39.84	44.20	7.90	29.70	-6.60	33.24	74.00	-40.76	Pk	Horizontal
3997.18	36.76	44.20	7.90	29.70	-6.60	30.16	54.00	-23.84	AV	Horizontal
7232.59	37.22	43.50	11.40	35.50	3.40	40.62	68.20	-27.58	Pk	Vertical
7232.59	34.30	43.50	11.40	35.50	3.40	37.70	54.00	-16.30	AV	Vertical
7233.45	37.63	43.50	11.40	35.50	3.40	41.03	68.20	-27.17	Pk	Horizontal
7233.45	33.84	43.50	11.40	35.50	3.40	37.24	54.00	-16.76	AV	Horizontal
10600.12	39.74	44.50	13.80	38.80	8.10	47.84	74.00	-26.16	Pk	Vertical
10600.12	35.95	44.50	13.80	38.80	8.10	44.05	54.00	-9.95	AV	Vertical
10599.99	39.80	44.50	13.80	38.80	8.10	47.90	68.20	-20.30	Pk	Horizontal
10599.99	36.56	44.50	13.80	38.80	8.10	44.66	54.00	-9.34	AV	Horizontal
11033.95	33.56	43.60	14.30	39.50	10.20	43.76	74.00	-30.24	Pk	Vertical
11033.95	30.43	43.60	14.30	39.50	10.20	40.63	54.00	-13.37	AV	Vertical
11022.42	33.79	43.60	14.30	39.50	10.20	43.99	74.00	-30.01	Pk	Horizontal
11022.42	30.01	43.60	14.30	39.50	10.20	40.21	54.00	-13.79	AV	Horizontal
13281.89	31.97	42.60	15.90	38.90	12.20	44.17	74.00	-29.83	Pk	Vertical
13281.89	29.16	42.60	15.90	38.90	12.20	41.36	54.00	-12.64	AV	Vertical
13295.96	32.20	42.60	15.90	38.90	12.20	44.40	74.00	-29.60	Pk	Horizontal
13295.96	28.55	42.60	15.90	38.90	12.20	40.75	54.00	-13.25	AV	Horizontal



High Channel (802.11n20/ 5320 MHz)										
3259.42	44.93	44.70	6.70	28.20	-9.80	35.13	68.20	-33.07	Pk	Vertical
3259.42	41.96	44.70	6.70	28.20	-9.80	32.16	54.00	-21.84	AV	Vertical
3245.55	44.47	44.70	6.70	28.20	-9.80	34.67	68.20	-33.53	Pk	Horizontal
3245.55	42.11	44.70	6.70	28.20	-9.80	32.31	54.00	-21.69	AV	Horizontal
3999.50	39.41	44.20	7.90	29.70	-6.60	32.81	74.00	-41.19	Pk	Vertical
3999.50	36.70	44.20	7.90	29.70	-6.60	30.10	54.00	-23.90	AV	Vertical
3987.34	39.07	44.20	7.90	29.70	-6.60	32.47	74.00	-41.53	Pk	Horizontal
3987.34	36.26	44.20	7.90	29.70	-6.60	29.66	54.00	-24.34	AV	Horizontal
7218.20	37.42	43.50	11.40	35.50	3.40	40.82	68.20	-27.38	Pk	Vertical
7218.20	34.83	43.50	11.40	35.50	3.40	38.23	54.00	-15.77	AV	Vertical
7226.93	37.68	43.50	11.40	35.50	3.40	41.08	68.20	-27.12	Pk	Horizontal
7226.93	33.54	43.50	11.40	35.50	3.40	36.94	54.00	-17.06	AV	Horizontal
10639.98	39.08	44.50	13.80	38.80	8.10	47.18	74.00	-26.82	Pk	Vertical
10639.98	36.14	44.50	13.80	38.80	8.10	44.24	54.00	-9.76	AV	Vertical
10640.36	39.94	44.50	13.80	38.80	8.10	48.04	74.00	-25.96	Pk	Horizontal
10640.36	36.06	44.50	13.80	38.80	8.10	44.16	54.00	-9.84	AV	Horizontal
11030.23	33.34	43.60	14.30	39.50	10.20	43.54	74.00	-30.46	Pk	Vertical
11030.23	30.78	43.60	14.30	39.50	10.20	40.98	54.00	-13.02	AV	Vertical
11035.34	32.70	43.60	14.30	39.50	10.20	42.90	74.00	-31.10	Pk	Horizontal
11035.34	29.96	43.60	14.30	39.50	10.20	40.16	54.00	-13.84	AV	Horizontal
13290.04	32.96	42.70	18.00	37.10	12.40	45.36	74.00	-28.64	Pk	Vertical
13290.04	29.32	42.70	18.00	37.10	12.40	41.72	54.00	-12.28	AV	Vertical
13293.48	32.44	42.70	18.00	37.10	12.40	44.84	74.00	-29.16	Pk	Horizontal
13293.48	28.76	42.70	18.00	37.10	12.40	41.16	54.00	-12.84	AV	Horizontal

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40) the worst case is 802.11n (HT-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.



U-NII Band 2C 5470-5725MHz

Frequency (MHz)	Reading (dBuV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11n20/ 5500 MHz)										
3245.56	45.15	44.70	6.70	28.20	-9.80	35.35	68.20	-32.85	Pk	Vertical
3245.56	41.18	44.70	6.70	28.20	-9.80	31.38	54.00	-22.62	AV	Vertical
3253.08	44.77	44.70	6.70	28.20	-9.80	34.97	68.20	-33.23	Pk	Horizontal
3253.08	41.55	44.70	6.70	28.20	-9.80	31.75	54.00	-22.25	AV	Horizontal
3992.01	38.76	44.20	7.90	29.70	-6.60	32.16	74.00	-41.84	Pk	Vertical
3992.01	36.66	44.20	7.90	29.70	-6.60	30.06	54.00	-23.94	AV	Vertical
3986.15	39.76	44.20	7.90	29.70	-6.60	33.16	74.00	-40.84	Pk	Horizontal
3986.15	36.06	44.20	7.90	29.70	-6.60	29.46	54.00	-24.54	AV	Horizontal
7221.25	36.72	43.50	11.40	35.50	3.40	40.12	68.20	-28.08	Pk	Vertical
7221.25	34.40	43.50	11.40	35.50	3.40	37.80	54.00	-16.20	AV	Vertical
7222.75	37.61	43.50	11.40	35.50	3.40	41.01	68.20	-27.19	Pk	Horizontal
7222.75	34.28	43.50	11.40	35.50	3.40	37.68	54.00	-16.32	AV	Horizontal
10355.33	39.83	44.50	13.80	38.80	8.10	47.93	68.20	-20.27	Pk	Vertical
10355.33	37.10	44.50	13.80	38.80	8.10	45.20	54.00	-8.80	AV	Vertical
10348.16	39.22	44.50	13.80	38.80	8.10	47.32	68.20	-20.88	Pk	Horizontal
10348.16	36.22	44.50	13.80	38.80	8.10	44.32	54.00	-9.68	AV	Horizontal
11000.40	33.68	43.60	14.30	39.50	10.20	43.88	74.00	-30.12	Pk	Vertical
11000.40	29.87	43.60	14.30	39.50	10.20	40.07	54.00	-13.93	AV	Vertical
11000.12	32.76	43.60	14.30	39.50	10.20	42.96	74.00	-31.04	Pk	Horizontal
11000.12	31.17	43.60	14.30	39.50	10.20	41.37	54.00	-12.63	AV	Horizontal
13297.55	32.27	42.60	15.90	38.90	12.20	44.47	74.00	-29.53	Pk	Vertical
13297.55	29.05	42.60	15.90	38.90	12.20	41.25	54.00	-12.75	AV	Vertical
13294.92	32.62	42.60	15.90	38.90	12.20	44.82	74.00	-29.18	Pk	Horizontal
13294.92	29.46	42.60	15.90	38.90	12.20	41.66	54.00	-12.34	AV	Horizontal
Mid Channel (802.11n20/ 5580 MHz)										
3253.88	43.83	44.70	6.70	28.20	-9.80	34.03	68.20	-34.17	Pk	Vertical
3253.88	41.60	44.70	6.70	28.20	-9.80	31.80	54.00	-22.20	AV	Vertical
3253.27	44.32	44.70	6.70	28.20	-9.80	34.52	68.20	-33.68	Pk	Horizontal
3253.27	41.13	44.70	6.70	28.20	-9.80	31.33	54.00	-22.67	AV	Horizontal
3982.16	39.28	44.20	7.90	29.70	-6.60	32.68	74.00	-41.32	Pk	Vertical
3982.16	36.76	44.20	7.90	29.70	-6.60	30.16	54.00	-23.84	AV	Vertical
3984.59	39.72	44.20	7.90	29.70	-6.60	33.12	74.00	-40.88	Pk	Horizontal
3984.59	37.01	44.20	7.90	29.70	-6.60	30.41	54.00	-23.59	AV	Horizontal
7234.09	37.49	43.50	11.40	35.50	3.40	40.89	68.20	-27.31	Pk	Vertical
7234.09	33.68	43.50	11.40	35.50	3.40	37.08	54.00	-16.92	AV	Vertical
7227.16	37.65	43.50	11.40	35.50	3.40	41.05	68.20	-27.15	Pk	Horizontal
7227.16	34.93	43.50	11.40	35.50	3.40	38.33	54.00	-15.67	AV	Horizontal
10391.32	38.89	44.50	13.80	38.80	8.10	46.99	68.20	-21.21	Pk	Vertical
10391.32	36.75	44.50	13.80	38.80	8.10	44.85	54.00	-9.15	AV	Vertical
10388.11	39.71	44.50	13.80	38.80	8.10	47.81	68.20	-20.39	Pk	Horizontal
10388.11	36.05	44.50	13.80	38.80	8.10	44.15	54.00	-9.85	AV	Horizontal
11160.35	33.31	43.60	14.30	39.50	10.20	43.51	74.00	-30.49	Pk	Vertical
11160.35	30.66	43.60	14.30	39.50	10.20	40.86	54.00	-13.14	AV	Vertical
11160.02	33.05	43.60	14.30	39.50	10.20	43.25	74.00	-30.75	Pk	Horizontal
11160.02	30.61	43.60	14.30	39.50	10.20	40.81	54.00	-13.19	AV	Horizontal
13291.91	32.64	42.60	15.90	38.90	12.20	44.84	74.00	-29.16	Pk	Vertical
13291.91	29.69	42.60	15.90	38.90	12.20	41.89	54.00	-12.11	AV	Vertical
13282.35	32.36	42.60	15.90	38.90	12.20	44.56	74.00	-29.44	Pk	Horizontal
13282.35	28.58	42.60	15.90	38.90	12.20	40.78	54.00	-13.22	AV	Horizontal



High Channel (802.11n20/ 5700 MHz)										
3262.73	44.09	44.70	6.70	28.20	-9.80	34.29	74.00	-39.71	Pk	Vertical
3262.73	40.86	44.70	6.70	28.20	-9.80	31.06	54.00	-22.94	AV	Vertical
3261.19	44.63	44.70	6.70	28.20	-9.80	34.83	74.00	-39.17	Pk	Horizontal
3261.19	41.83	44.70	6.70	28.20	-9.80	32.03	54.00	-21.97	AV	Horizontal
3999.61	39.30	44.20	7.90	29.70	-6.60	32.70	74.00	-41.30	Pk	Vertical
3999.61	36.14	44.20	7.90	29.70	-6.60	29.54	54.00	-24.46	AV	Vertical
3987.69	39.20	44.20	7.90	29.70	-6.60	32.60	74.00	-41.40	Pk	Horizontal
3987.69	35.69	44.20	7.90	29.70	-6.60	29.09	54.00	-24.91	AV	Horizontal
7230.81	37.01	43.50	11.40	35.50	3.40	40.41	68.20	-27.79	Pk	Vertical
7230.81	33.92	43.50	11.40	35.50	3.40	37.32	54.00	-16.68	AV	Vertical
7222.59	36.68	43.50	11.40	35.50	3.40	40.08	68.20	-28.12	Pk	Horizontal
7222.59	34.39	43.50	11.40	35.50	3.40	37.79	54.00	-16.21	AV	Horizontal
10467.52	39.49	44.50	13.80	38.80	8.10	47.59	68.20	-20.61	Pk	Vertical
10467.52	37.11	44.50	13.80	38.80	8.10	45.21	54.00	-8.79	AV	Vertical
10468.39	39.78	44.50	13.80	38.80	8.10	47.88	68.20	-20.32	Pk	Horizontal
10468.39	35.98	44.50	13.80	38.80	8.10	44.08	54.00	-9.92	AV	Horizontal
11400.32	33.80	43.60	14.30	39.50	10.20	44.00	74.00	-30.00	Pk	Vertical
11400.32	29.70	43.60	14.30	39.50	10.20	39.90	54.00	-14.10	AV	Vertical
11400.09	33.08	43.60	14.30	39.50	10.20	43.28	74.00	-30.72	Pk	Horizontal
11400.09	29.78	43.60	14.30	39.50	10.20	39.98	54.00	-14.02	AV	Horizontal
13289.13	32.21	42.60	15.90	38.90	12.20	44.41	74.00	-29.59	Pk	Vertical
13289.13	28.89	42.60	15.90	38.90	12.20	41.09	54.00	-12.91	AV	Vertical
13295.03	31.95	42.60	15.90	38.90	12.20	44.15	74.00	-29.85	Pk	Horizontal
13279.96	29.85	42.60	15.90	38.90	12.20	42.05	54.00	-11.95	AV	Horizontal

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40) the worst case is 802.11n (HT-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.



U-NII Band 3(5.725-5.850) GHz

Frequency (MHz)	Reading (dBuV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Corrected Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11n20/ 5745 MHz)										
3245.32	44.74	44.70	6.70	28.20	-9.80	34.94	68.20	-33.26	Pk	Vertical
3245.32	40.80	44.70	6.70	28.20	-9.80	31.00	54.00	-23.00	AV	Vertical
3254.38	44.50	44.70	6.70	28.20	-9.80	34.70	68.20	-33.50	Pk	Horizontal
3254.38	42.20	44.70	6.70	28.20	-9.80	32.40	54.00	-21.60	AV	Horizontal
3991.01	39.42	44.20	7.90	29.70	-6.60	32.82	74.00	-41.18	Pk	Vertical
3991.01	35.91	44.20	7.90	29.70	-6.60	29.31	54.00	-24.69	AV	Vertical
3999.43	39.22	44.20	7.90	29.70	-6.60	32.62	74.00	-41.38	Pk	Horizontal
3999.43	36.39	44.20	7.90	29.70	-6.60	29.79	54.00	-24.21	AV	Horizontal
7217.97	37.43	43.50	11.40	35.50	3.40	40.83	68.20	-27.37	Pk	Vertical
7217.97	34.13	43.50	11.40	35.50	3.40	37.53	54.00	-16.47	AV	Vertical
7232.41	37.80	43.50	11.40	35.50	3.40	41.20	68.20	-27.00	Pk	Horizontal
7232.41	34.52	43.50	11.40	35.50	3.40	37.92	54.00	-16.08	AV	Horizontal
10508.62	40.20	44.50	13.90	38.80	8.20	48.40	68.20	-19.80	Pk	Vertical
10508.62	37.08	44.50	13.90	38.80	8.20	45.28	54.00	-8.72	AV	Vertical
10516.29	39.44	44.50	13.90	38.80	8.20	47.64	68.20	-20.56	Pk	Horizontal
10516.29	37.07	44.50	13.90	38.80	8.20	45.27	54.00	-8.73	AV	Horizontal
11490.19	33.22	43.60	14.30	39.50	10.20	43.42	74.00	-30.58	Pk	Vertical
11490.19	30.25	43.60	14.30	39.50	10.20	40.45	54.00	-13.55	AV	Vertical
11490.36	33.86	43.60	14.30	39.50	10.20	44.06	74.00	-29.94	Pk	Horizontal
11490.36	29.96	43.60	14.30	39.50	10.20	40.16	54.00	-13.84	AV	Horizontal
13280.69	31.99	42.60	15.90	38.90	12.20	44.19	74.00	-29.81	Pk	Vertical
13280.69	29.80	42.60	15.90	38.90	12.20	42.00	54.00	-12.00	AV	Vertical
13295.69	32.02	42.60	15.90	38.90	12.20	44.22	74.00	-29.78	Pk	Horizontal
13295.69	28.91	42.60	15.90	38.90	12.20	41.11	54.00	-12.89	AV	Horizontal
Mid Channel (802.11n20/ 5785 MHz)										
3250.33	44.75	44.70	6.70	28.20	-9.80	34.95	68.20	-33.25	Pk	Vertical
3250.33	40.94	44.70	6.70	28.20	-9.80	31.14	54.00	-22.86	AV	Vertical
3261.81	43.96	44.70	6.70	28.20	-9.80	34.16	74.00	-39.84	Pk	Horizontal
3261.81	41.47	44.70	6.70	28.20	-9.80	31.67	54.00	-22.33	AV	Horizontal
3982.75	39.68	44.20	7.90	29.70	-6.60	33.08	74.00	-40.92	Pk	Vertical
3982.75	37.04	44.20	7.90	29.70	-6.60	30.44	54.00	-23.56	AV	Vertical
3999.98	39.74	44.20	7.90	29.70	-6.60	33.14	74.00	-40.86	Pk	Horizontal
3999.98	35.86	44.20	7.90	29.70	-6.60	29.26	54.00	-24.74	AV	Horizontal
7222.53	37.59	43.50	11.40	35.50	3.40	40.99	68.20	-27.21	Pk	Vertical
7222.53	34.56	43.50	11.40	35.50	3.40	37.96	54.00	-16.04	AV	Vertical
7221.02	37.80	43.50	11.40	35.50	3.40	41.20	68.20	-27.00	Pk	Horizontal
7221.02	34.44	43.50	11.40	35.50	3.40	37.84	54.00	-16.16	AV	Horizontal
10598.94	38.95	44.50	13.80	38.80	8.10	47.05	68.20	-21.15	Pk	Vertical
10598.94	35.87	44.50	13.80	38.80	8.10	43.97	54.00	-10.03	AV	Vertical
10589.75	38.87	44.50	13.80	38.80	8.10	46.97	68.20	-21.23	Pk	Horizontal
10589.75	37.00	44.50	13.80	38.80	8.10	45.10	54.00	-8.90	AV	Horizontal
11570.27	33.45	43.60	14.30	39.50	10.20	43.65	74.00	-30.35	Pk	Vertical
11570.27	30.04	43.60	14.30	39.50	10.20	40.24	54.00	-13.76	AV	Vertical
11570.39	33.56	43.60	14.30	39.50	10.20	43.76	74.00	-30.24	Pk	Horizontal
11570.39	30.88	43.60	14.30	39.50	10.20	41.08	54.00	-12.92	AV	Horizontal
13290.52	31.80	42.60	15.90	38.90	12.20	44.00	74.00	-30.00	Pk	Vertical
13290.52	28.89	42.60	15.90	38.90	12.20	41.09	54.00	-12.91	AV	Vertical
13297.77	32.93	42.60	15.90	38.90	12.20	45.13	74.00	-28.87	Pk	Horizontal
13297.77	29.89	42.60	15.90	38.90	12.20	42.09	54.00	-11.91	AV	Horizontal



High Channel (802.11n20/ 5825 MHz)										
3262.50	44.09	44.70	6.70	28.20	-9.80	34.29	74.00	-39.71	Pk	Vertical
3262.50	41.31	44.70	6.70	28.20	-9.80	31.51	54.00	-22.49	AV	Vertical
3262.14	44.95	44.70	6.70	28.20	-9.80	35.15	74.00	-38.85	Pk	Horizontal
3262.14	41.97	44.70	6.70	28.20	-9.80	32.17	54.00	-21.83	AV	Horizontal
3992.44	38.90	44.20	7.90	29.70	-6.60	32.30	74.00	-41.70	Pk	Vertical
3992.44	36.55	44.20	7.90	29.70	-6.60	29.95	54.00	-24.05	AV	Vertical
3988.68	39.54	44.20	7.90	29.70	-6.60	32.94	74.00	-41.06	Pk	Horizontal
3988.68	36.01	44.20	7.90	29.70	-6.60	29.41	54.00	-24.59	AV	Horizontal
7235.57	37.47	43.50	11.40	35.50	3.40	40.87	68.20	-27.33	Pk	Vertical
7235.57	34.90	43.50	11.40	35.50	3.40	38.30	54.00	-15.70	AV	Vertical
7228.13	37.11	43.50	11.40	35.50	3.40	40.51	68.20	-27.69	Pk	Horizontal
7228.13	34.56	43.50	11.40	35.50	3.40	37.96	54.00	-16.04	AV	Horizontal
10637.99	39.00	44.50	13.80	38.80	8.10	47.10	74.00	-26.90	Pk	Vertical
10637.99	36.20	44.50	13.80	38.80	8.10	44.30	54.00	-9.70	AV	Vertical
10640.38	39.85	44.50	13.80	38.80	8.10	47.95	74.00	-26.05	Pk	Horizontal
10640.38	36.44	44.50	13.80	38.80	8.10	44.54	54.00	-9.46	AV	Horizontal
11650.42	32.84	43.60	14.30	39.50	10.20	43.04	74.00	-30.96	Pk	Vertical
11650.42	29.98	43.60	14.30	39.50	10.20	40.18	54.00	-13.82	AV	Vertical
11650.12	32.96	43.60	14.30	39.50	10.20	43.16	74.00	-30.84	Pk	Horizontal
11650.12	30.77	43.60	14.30	39.50	10.20	40.97	54.00	-13.03	AV	Horizontal
13281.98	31.90	42.70	18.00	37.10	12.40	44.30	74.00	-29.70	Pk	Vertical
13281.98	28.95	42.70	18.00	37.10	12.40	41.35	54.00	-12.65	AV	Vertical
13289.49	32.94	42.70	18.00	37.10	12.40	45.34	74.00	-28.66	Pk	Horizontal
13289.49	29.05	42.70	18.00	37.10	12.40	41.45	54.00	-12.55	AV	Horizontal

Remark:

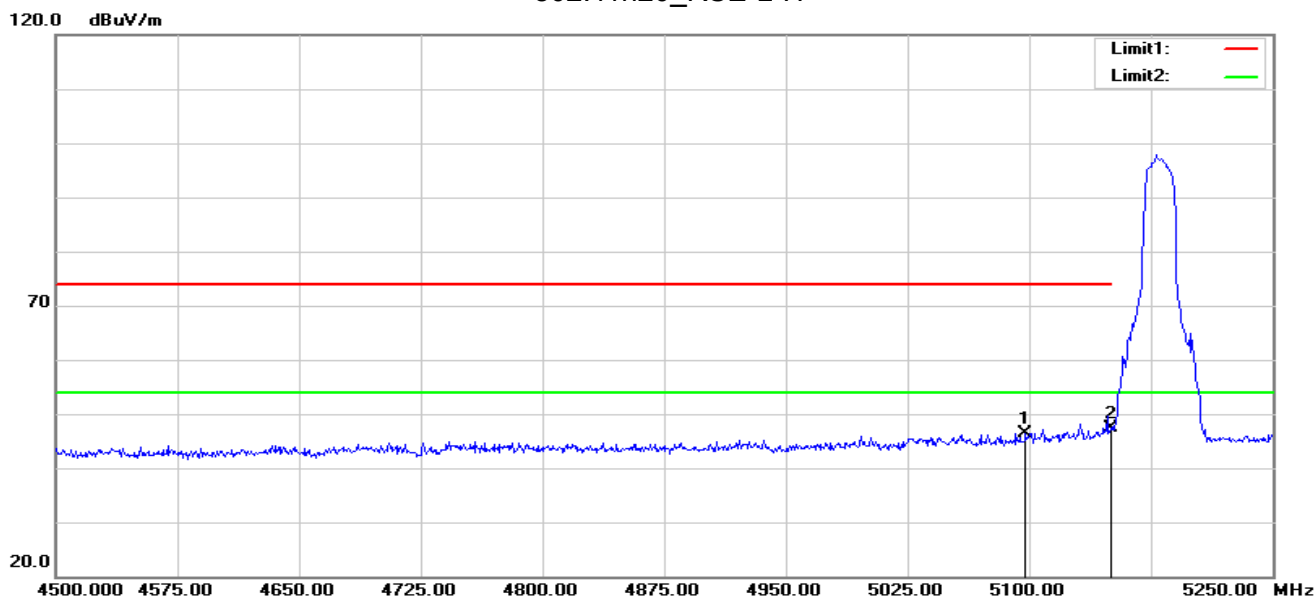
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40) the worst case is 802.11n (HT-20).
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.



3.2.9 RESTRICTED FREQUENCY BANDS AND BAND EDGE

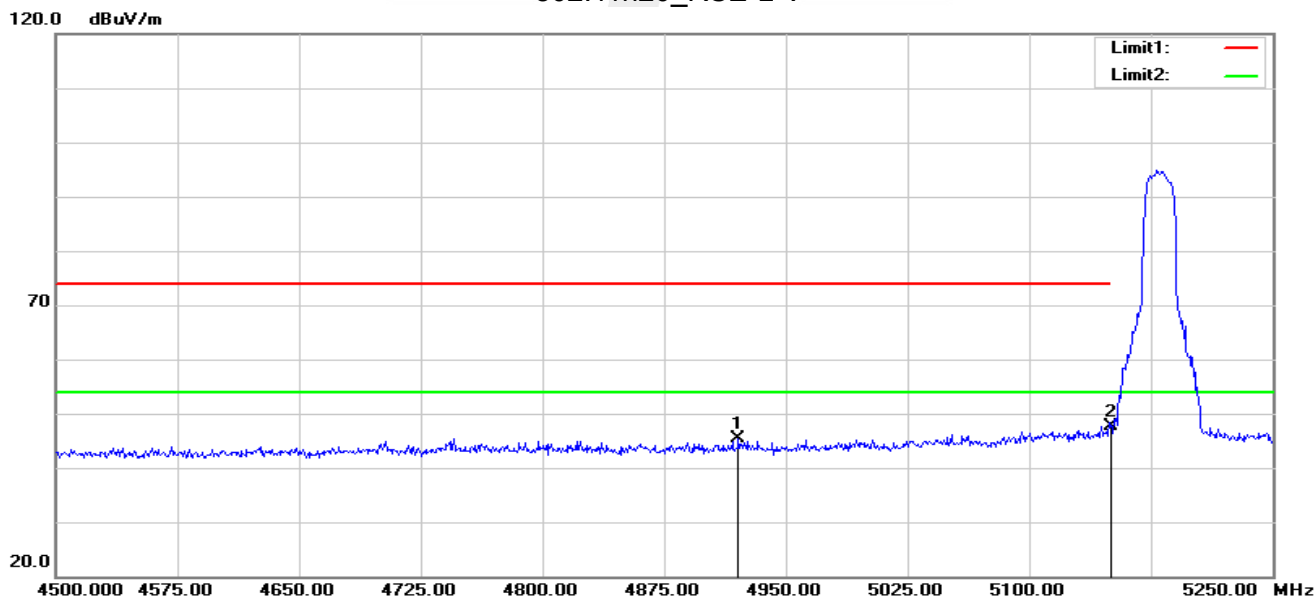
U-NII Band 1 5150-5250MHz

802.11n20_RSE-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5097.750	52.18	-5.75	46.43	74.00	-27.57	peak
2	5150.000	53.18	-5.73	47.45	74.00	-26.55	peak

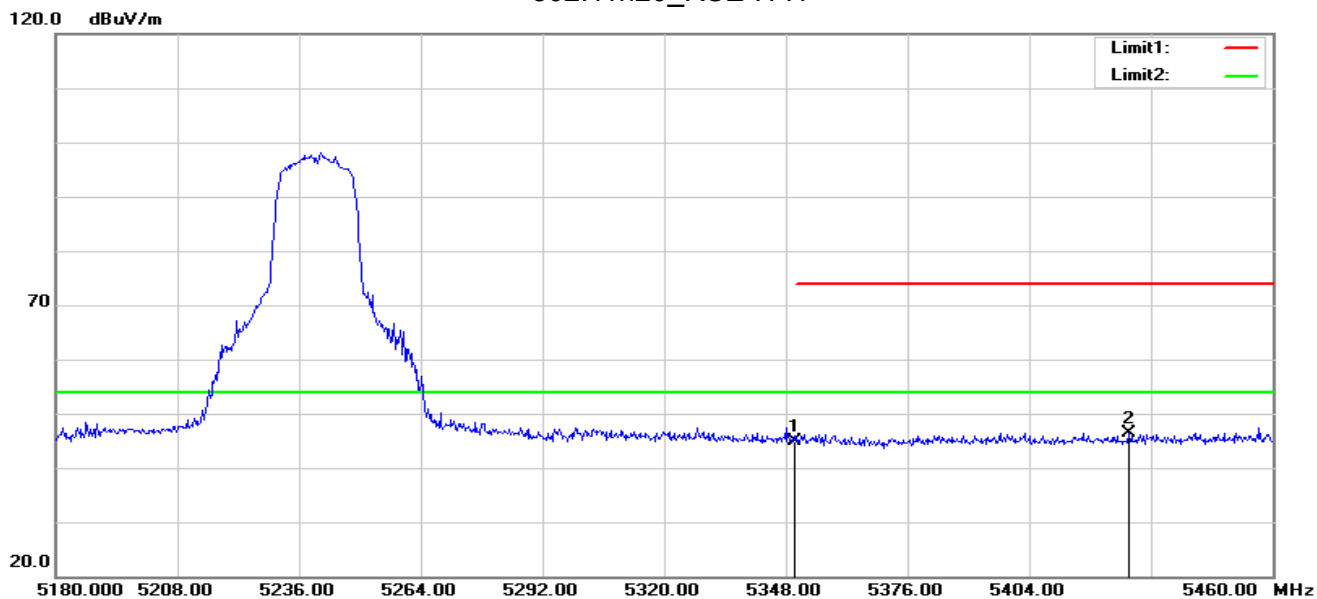
802.11n20_RSE-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.750	52.02	-6.71	45.31	74.00	-28.69	peak
2	5150.000	53.31	-5.73	47.58	74.00	-26.42	peak

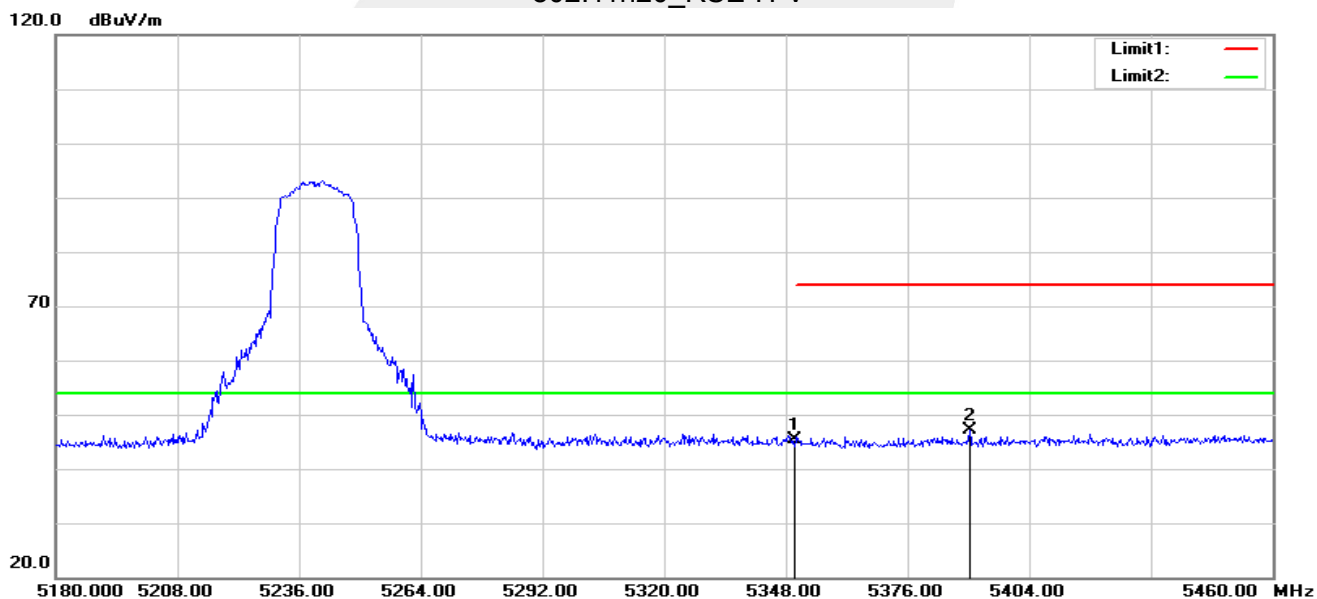


802.11n20_RSE-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	50.17	-5.23	44.94	74.00	-29.06	peak
2	5426.960	51.56	-5.19	46.37	74.00	-27.63	peak

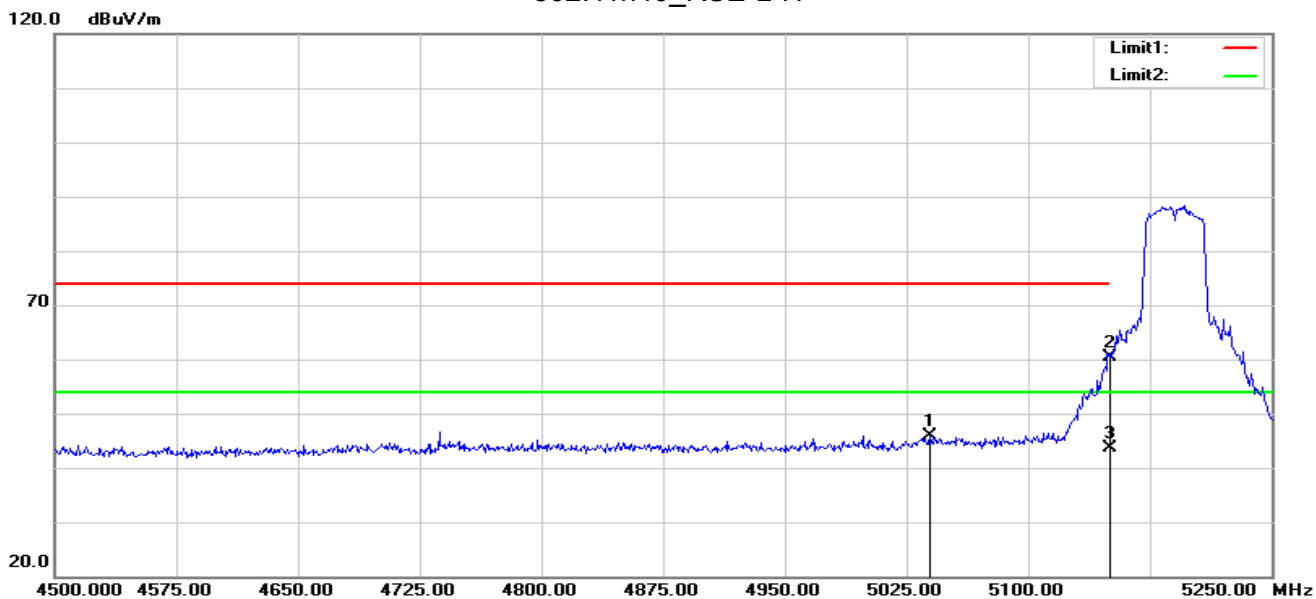
802.11n20_RSE-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	50.51	-5.23	45.28	74.00	-28.72	peak
2	5390.280	52.44	-5.25	47.19	74.00	-26.81	peak

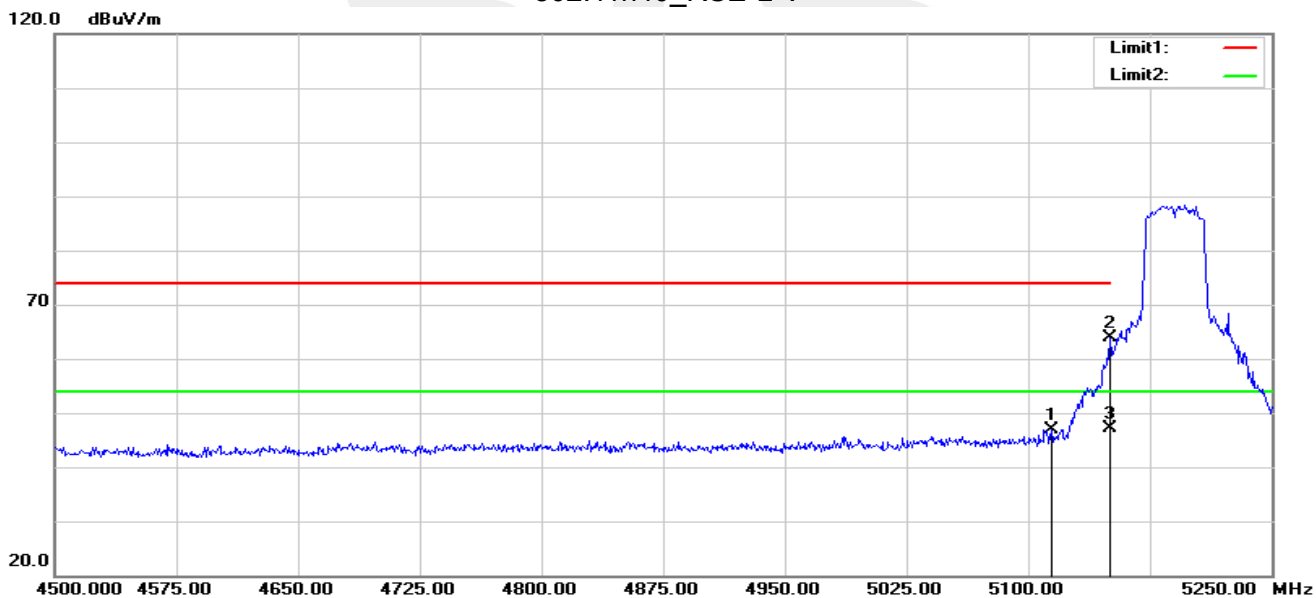


802.11n40_RSE-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5039.250	51.96	-6.01	45.95	74.00	-28.05	peak
2	5150.000	66.23	-5.73	60.50	74.00	-13.50	peak
3	5150.000	49.48	-5.73	43.75	54.00	-10.25	AVG

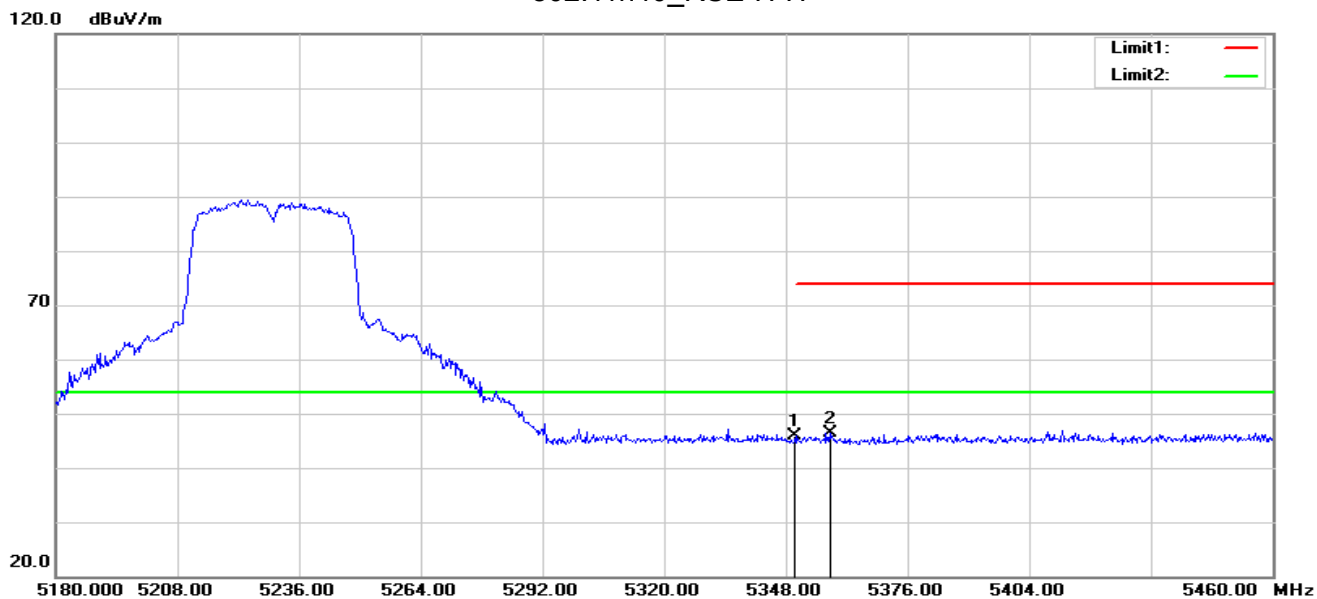
802.11n40_RSE-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5114.250	52.62	-5.74	46.88	74.00	-27.12	peak
2	5150.000	69.54	-5.73	63.81	74.00	-10.19	peak
3	5150.000	52.79	-5.73	47.06	54.00	-6.94	AVG

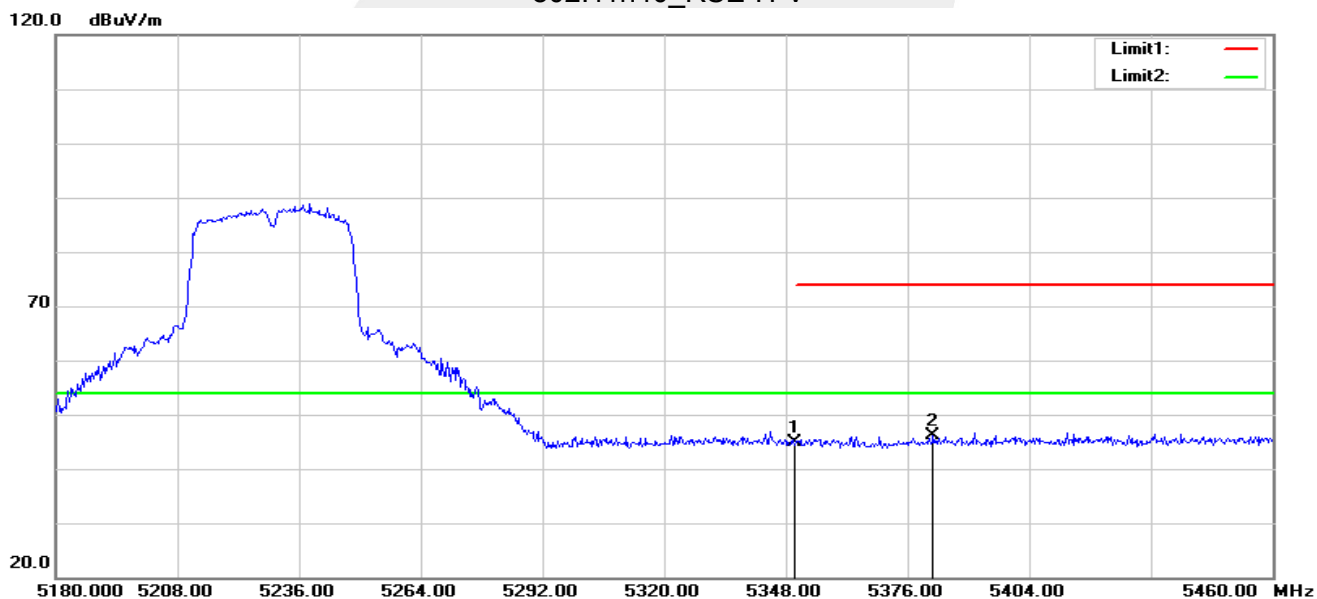


802.11n40_RSE-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	51.19	-5.23	45.96	74.00	-28.04	peak
2	5358.080	51.53	-5.23	46.30	74.00	-27.70	peak

802.11n40_RSE-H-V



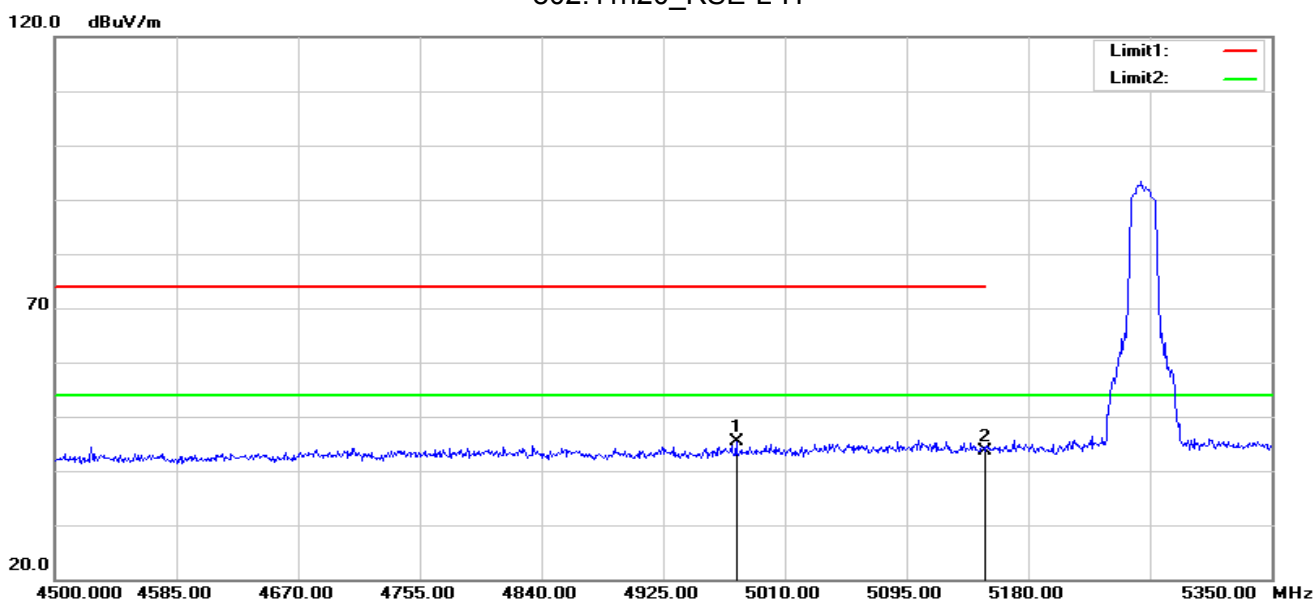
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	50.03	-5.23	44.80	74.00	-29.20	peak
2	5381.880	51.39	-5.24	46.15	74.00	-27.85	peak

Note: All modes have been tested. Only the worst mode shown in the report.



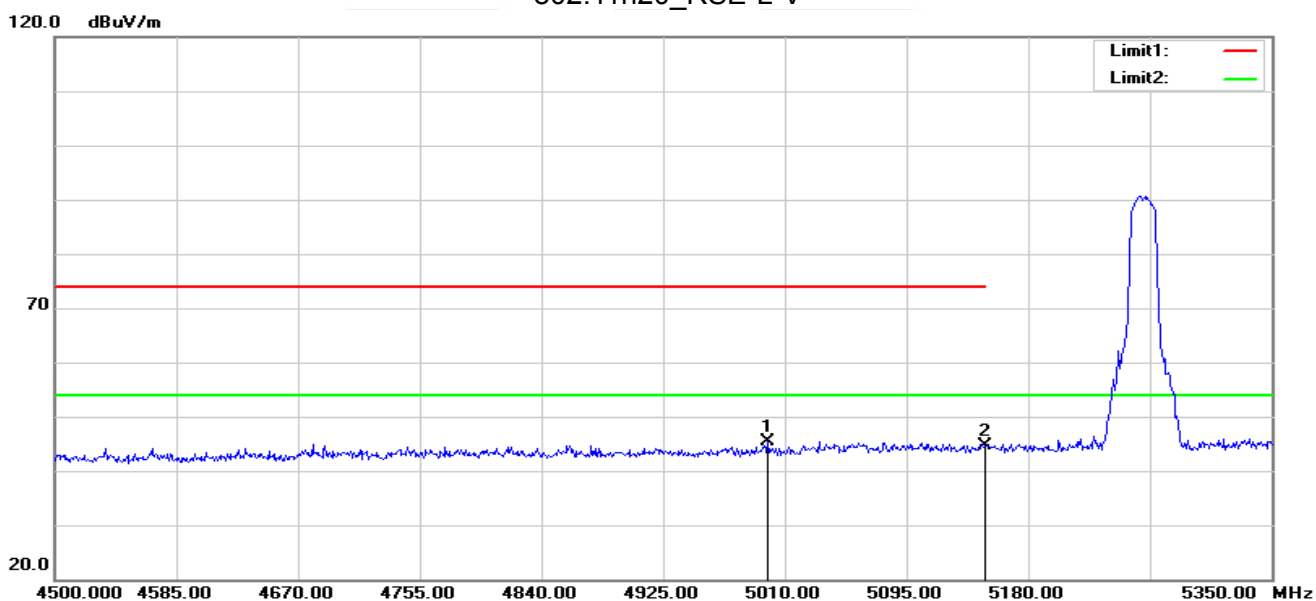
U-NII Band 2A 5250-5350MHz

802.11n20_RSE-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4976.000	51.68	-6.35	45.33	74.00	-28.67	peak
2	5150.000	49.38	-5.73	43.65	74.00	-30.35	peak

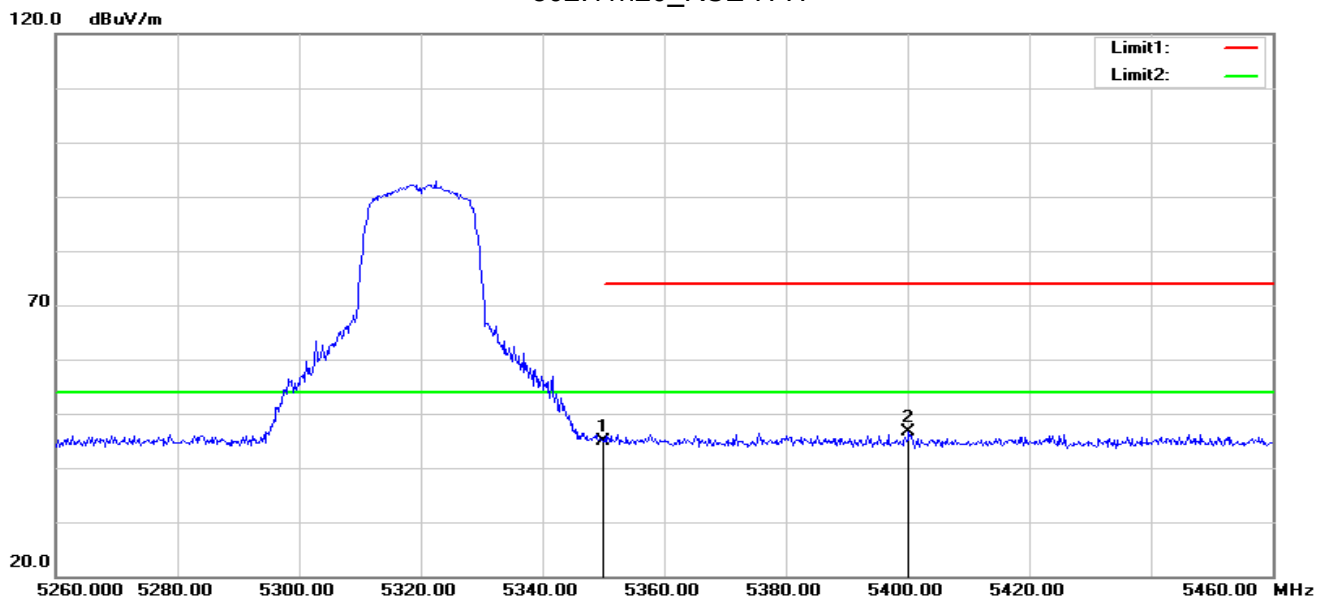
802.11n20_RSE-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4998.100	51.51	-6.20	45.31	74.00	-28.69	peak
2	5150.000	50.27	-5.73	44.54	74.00	-29.46	peak

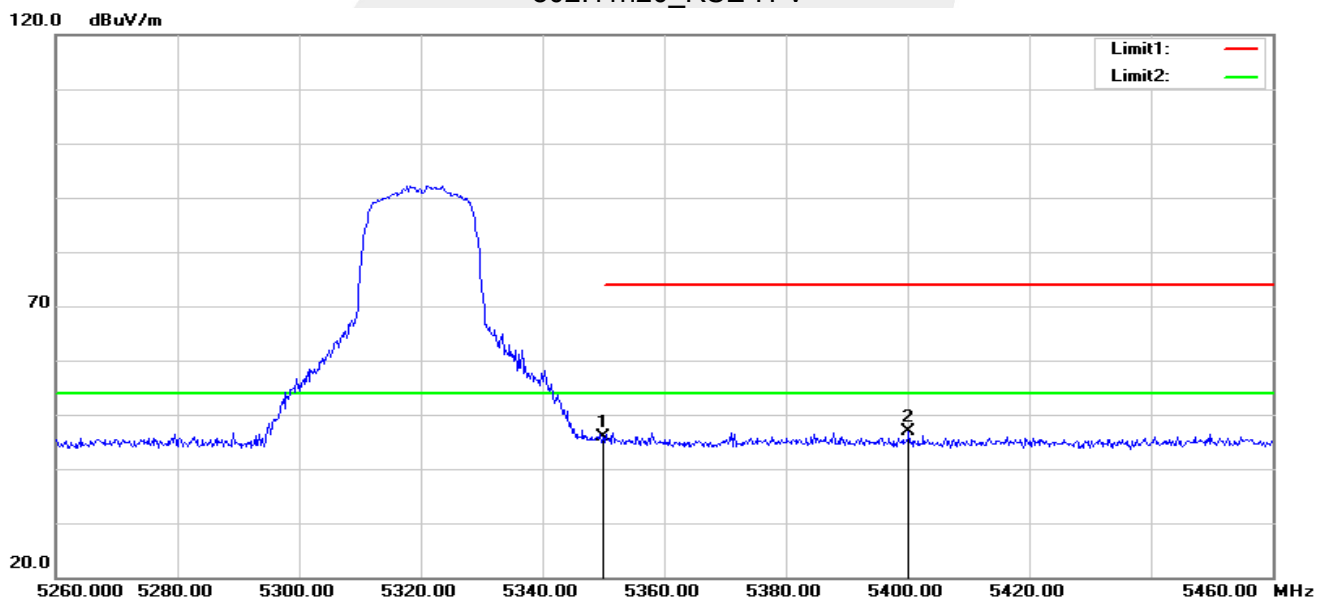


802.11n20_RSE-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	49.99	-5.23	44.76	74.00	-29.24	peak
2	5400.200	51.82	-5.25	46.57	74.00	-27.43	peak

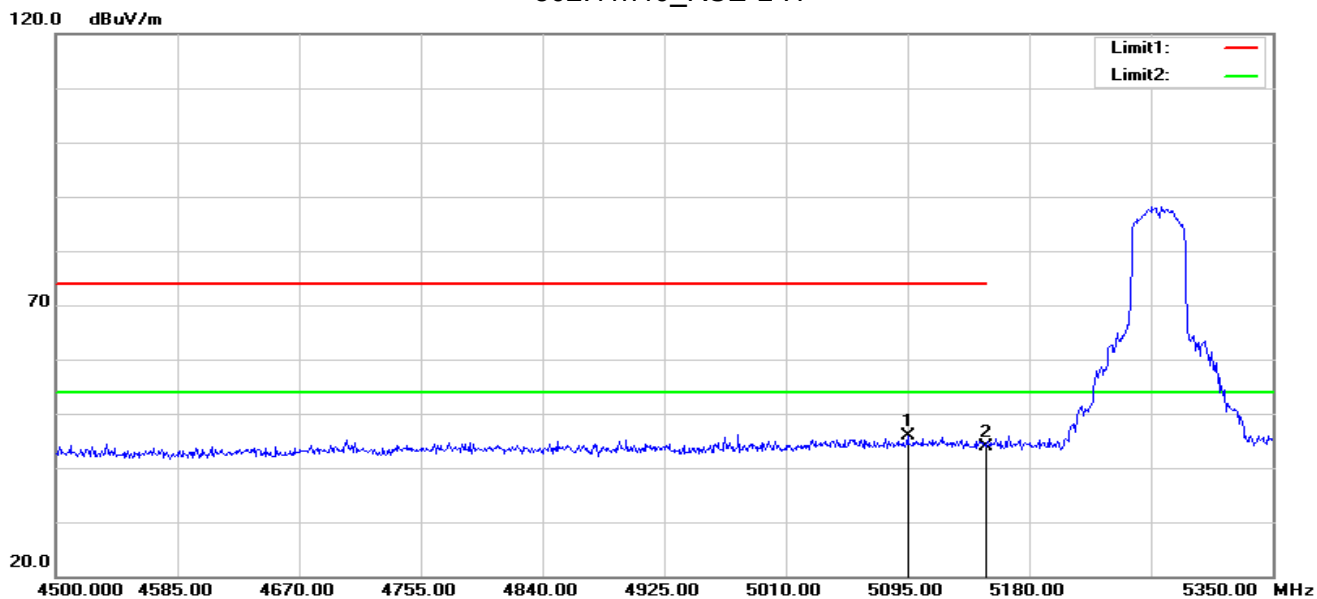
802.11n20_RSE-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	51.20	-5.23	45.97	74.00	-28.03	peak
2	5400.200	52.13	-5.25	46.88	74.00	-27.12	peak

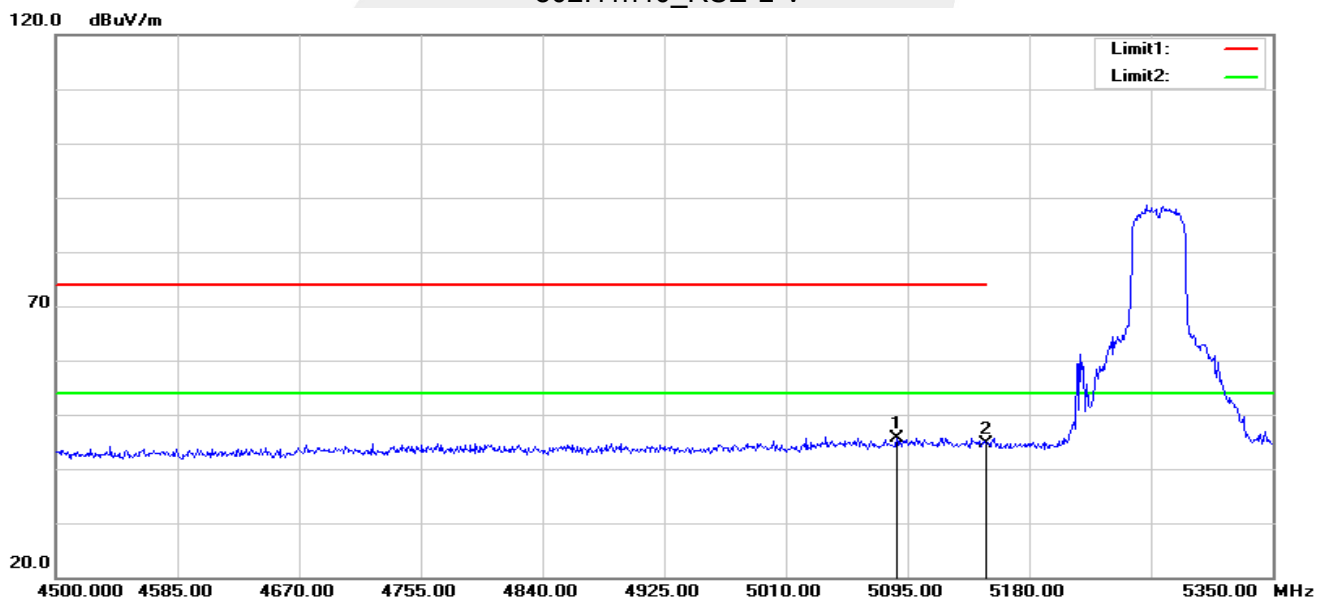


802.11n40_RSE-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5095.000	51.54	-5.76	45.78	74.00	-28.22	peak
2	5150.000	49.72	-5.73	43.99	74.00	-30.01	peak

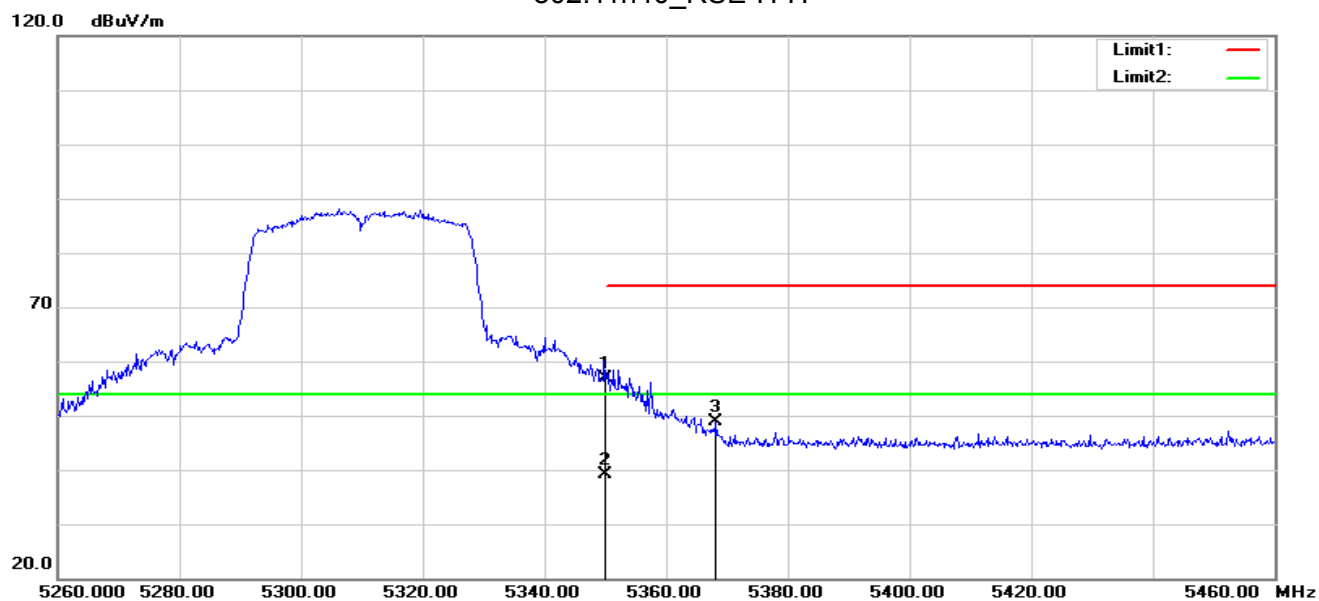
802.11n40_RSE-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5087.350	51.46	-5.80	45.66	74.00	-28.34	peak
2	5150.000	50.36	-5.73	44.63	74.00	-29.37	peak

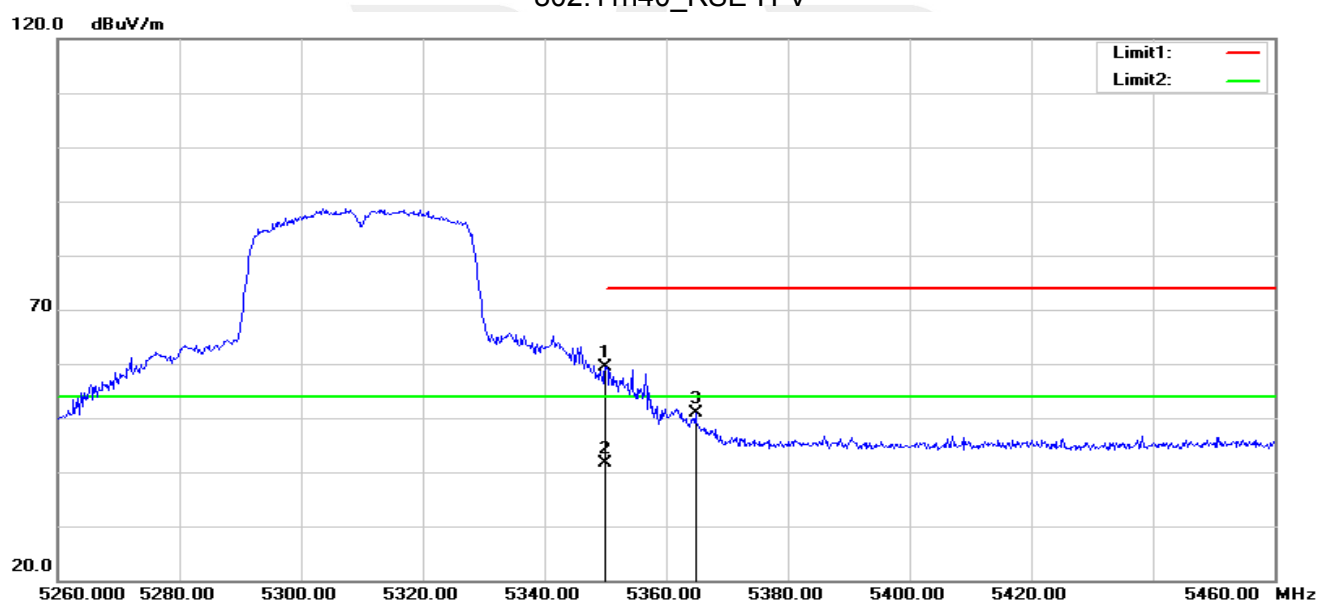


802.11n40_RSE-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	62.14	-5.23	56.91	74.00	-17.09	peak
2	5350.000	44.38	-5.23	39.15	54.00	-14.85	AVG
3	5368.200	54.15	-5.24	48.91	74.00	-25.09	peak

802.11n40_RSE-H-V



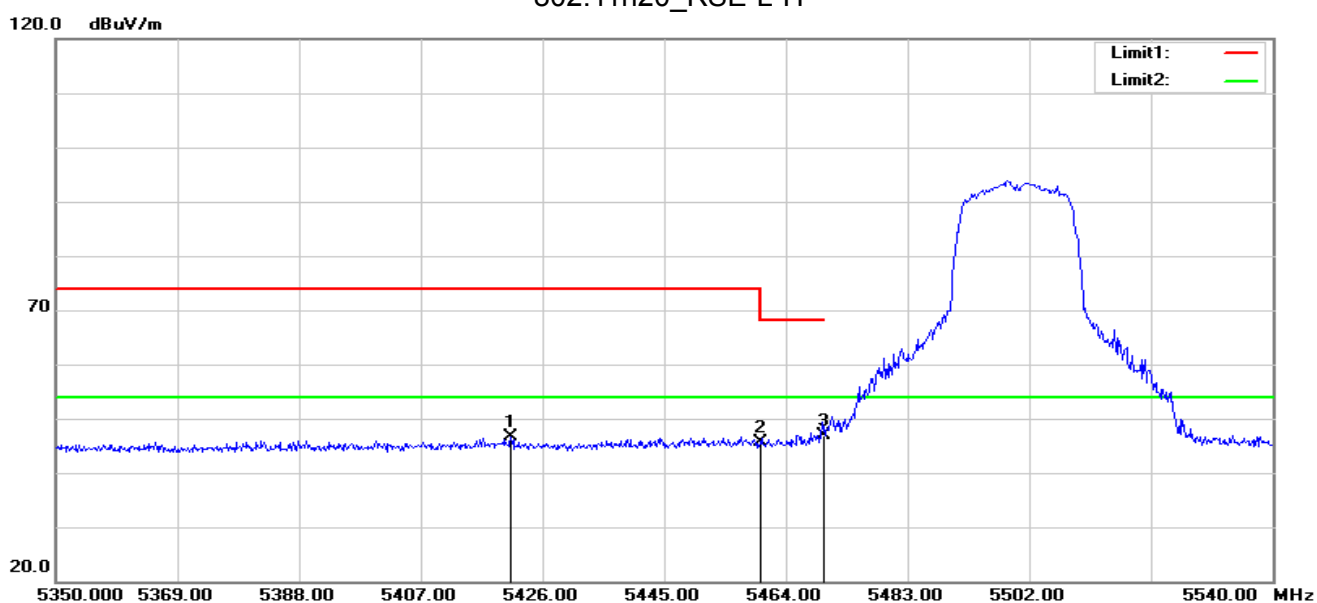
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	64.62	-5.23	59.39	74.00	-14.61	peak
2	5350.000	46.86	-5.23	41.63	54.00	-12.37	AVG
3	5364.800	56.03	-5.24	50.79	74.00	-23.21	peak

Note: All modes have been tested. Only the worst mode shown in the report.



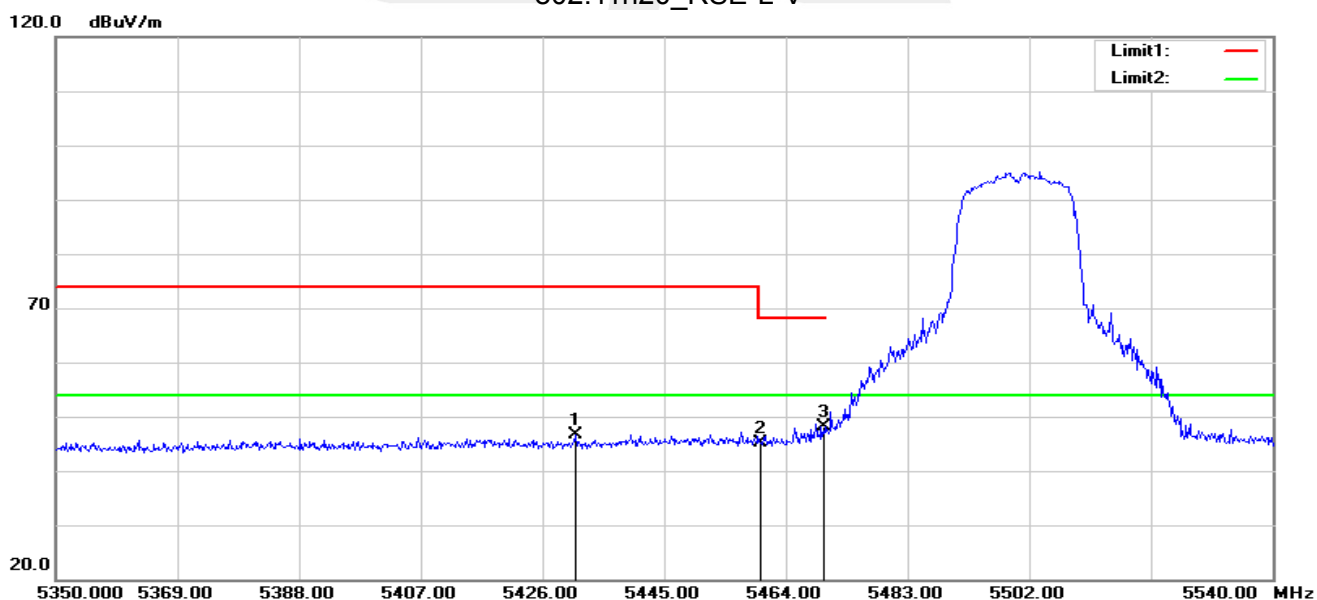
U-NII Band 2C 5470-5725MHz

802.11n20_RSE-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5421.060	51.80	-5.20	46.60	74.00	-27.40	peak
2	5460.000	50.63	-5.11	45.52	68.20	-22.68	peak
3	5470.000	52.04	-5.09	46.95	68.20	-21.25	peak

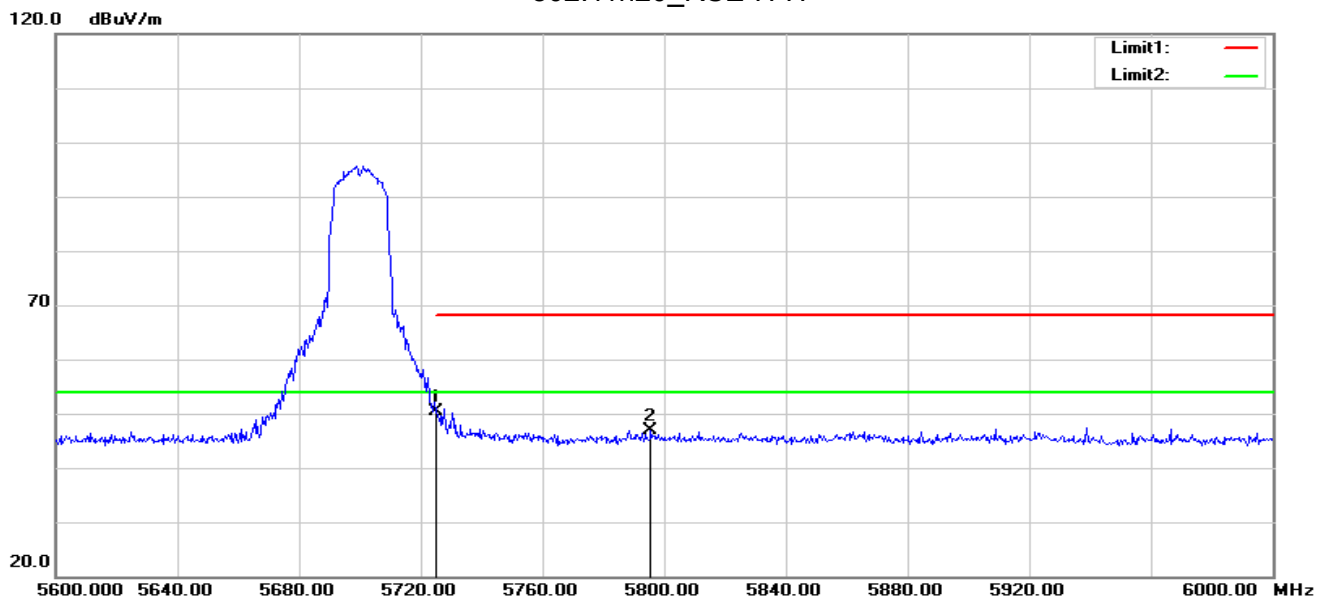
802.11n20_RSE-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5431.130	51.91	-5.18	46.73	74.00	-27.27	peak
2	5460.000	50.13	-5.11	45.02	68.20	-23.18	peak
3	5470.000	53.22	-5.09	48.13	68.20	-20.07	peak

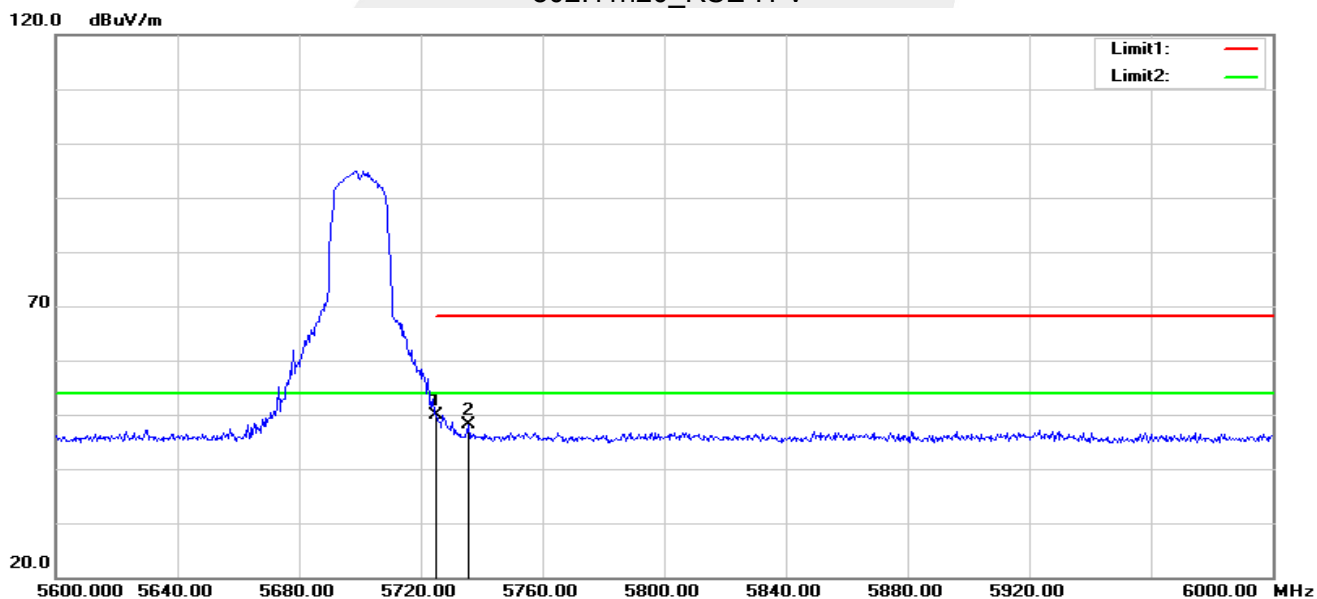


802.11n20_RSE-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	54.90	-4.57	50.33	68.20	-17.87	peak
2	5795.600	51.26	-4.34	46.92	68.20	-21.28	peak

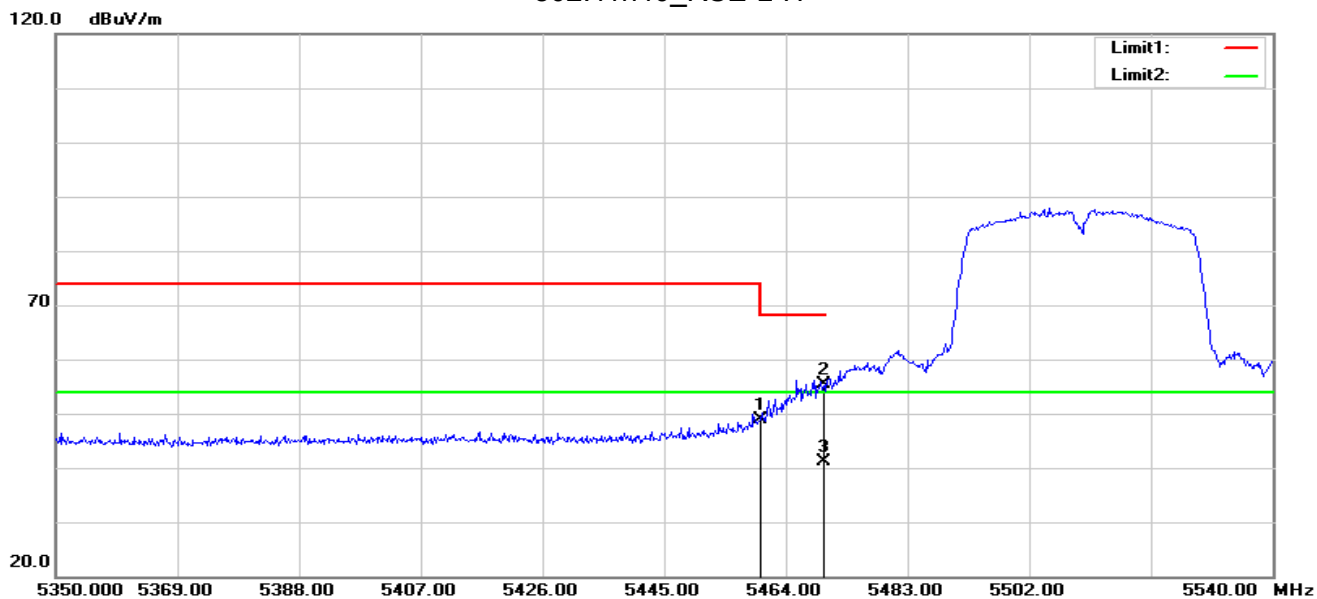
802.11n20_RSE-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	54.43	-4.57	49.86	68.20	-18.34	peak
2	5735.600	52.67	-4.54	48.13	68.20	-20.07	peak

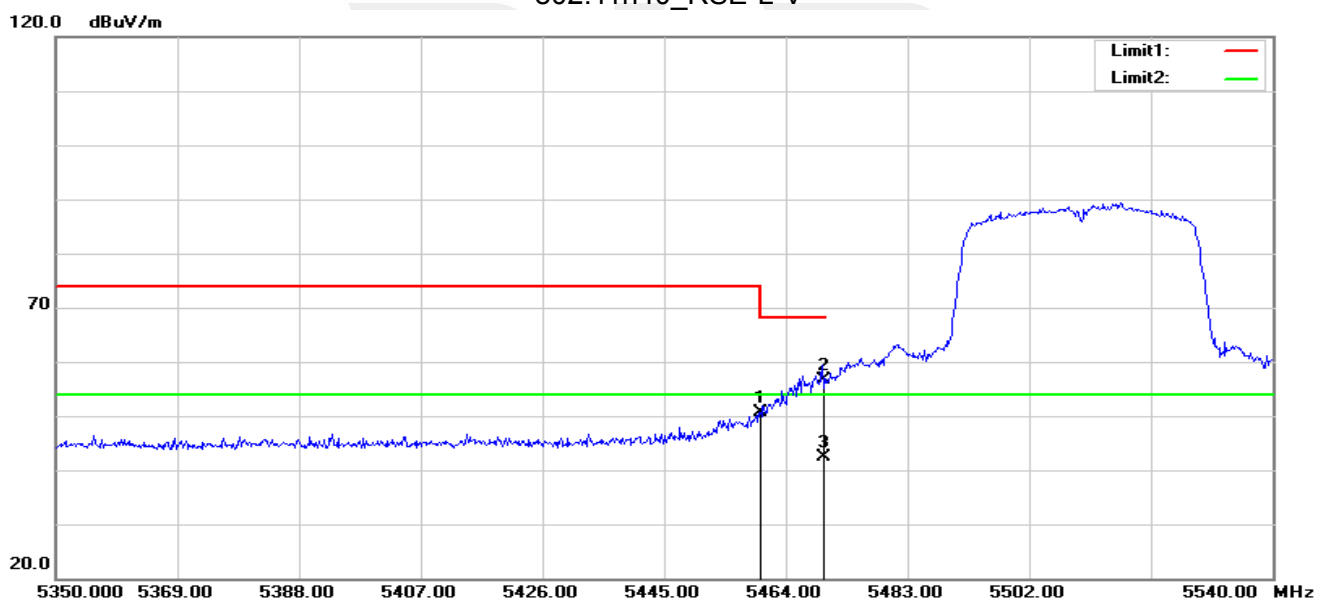


802.11n40_RSE-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5460.000	54.10	-5.11	48.99	68.20	-19.21	peak
2	5470.000	60.57	-5.09	55.48	68.20	-12.72	peak
3	5470.000	46.31	-5.09	41.22	54.00	-12.78	AVG

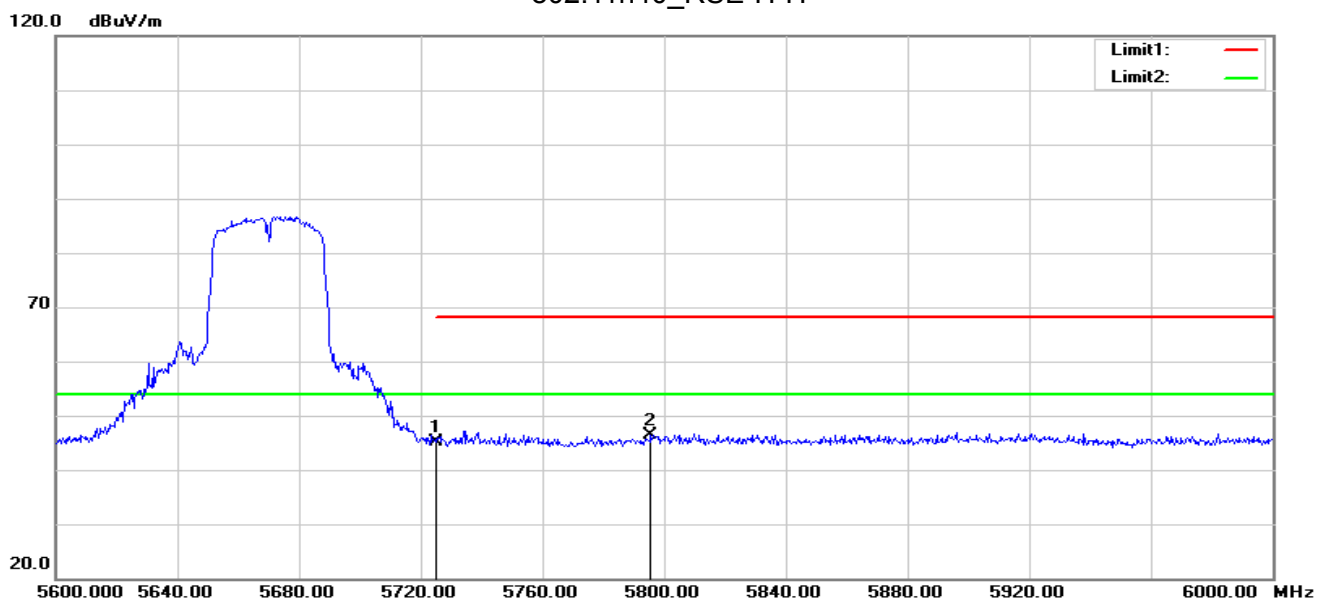
802.11n40_RSE-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5460.000	55.72	-5.11	50.61	68.20	-17.59	peak
2	5470.000	61.83	-5.09	56.74	68.20	-11.46	peak
3	5470.000	47.57	-5.09	42.48	54.00	-11.52	AVG

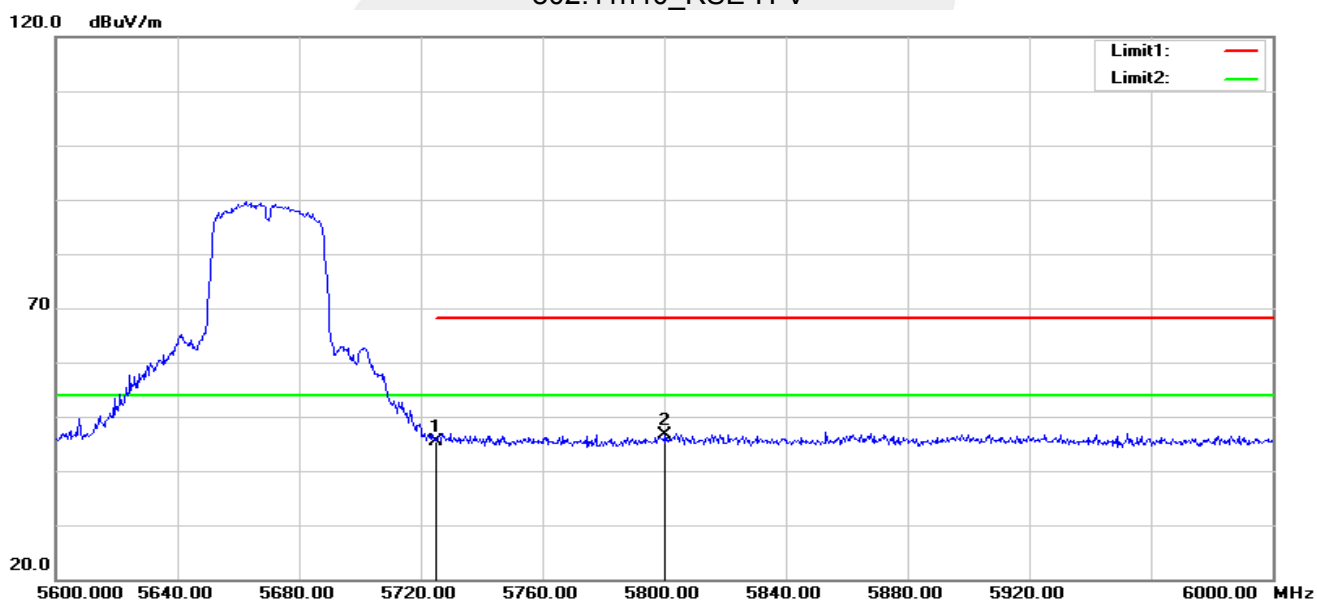


802.11n40_RSE-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	49.71	-4.57	45.14	68.20	-23.06	peak
2	5795.600	50.63	-4.34	46.29	68.20	-21.91	peak

802.11n40_RSE-H-V



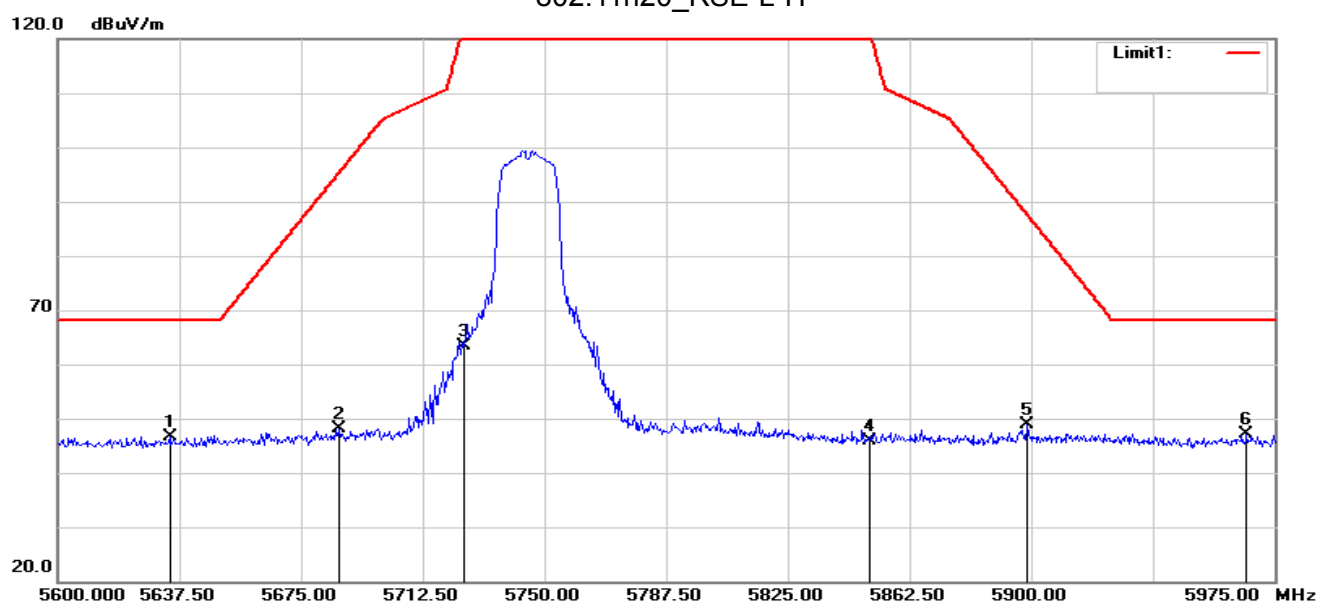
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	50.07	-4.57	45.50	68.20	-22.70	peak
2	5800.400	50.93	-4.32	46.61	68.20	-21.59	peak

Note: All modes have been tested. Only the worst mode shown in the report.



U-NII Band 3(5.725-5.85 GHz)

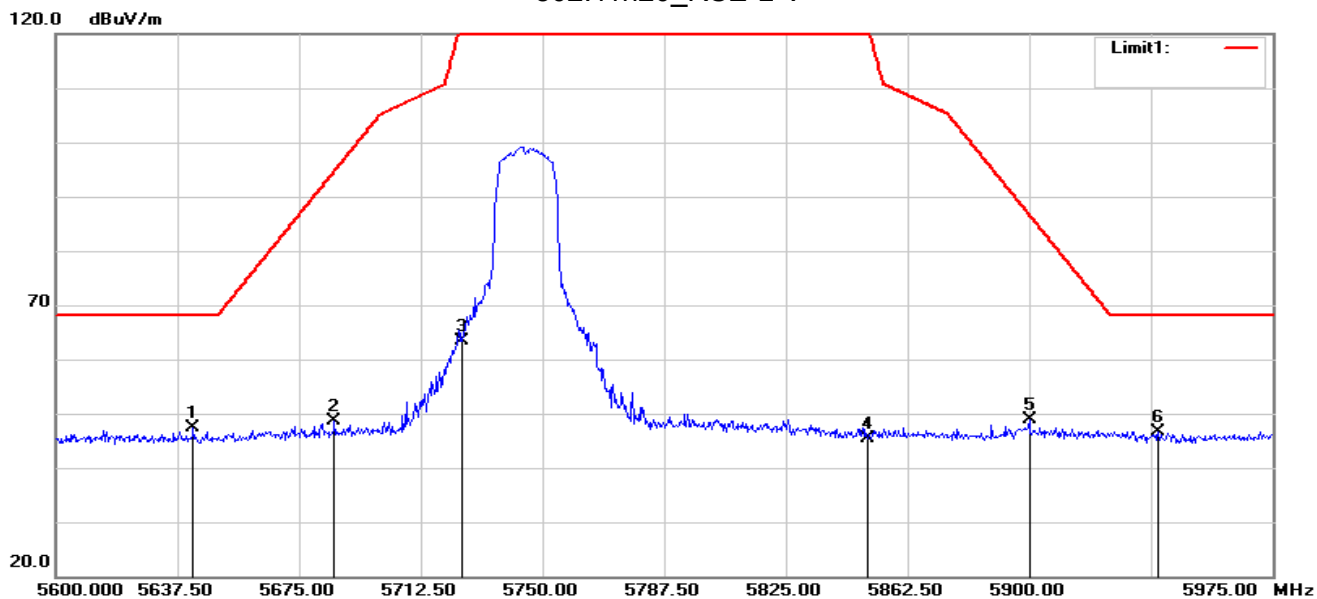
802.11n20_RSE-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5634.500	51.40	-4.68	46.72	68.20	-21.48	peak
2	5686.625	52.80	-4.66	48.14	95.30	-47.16	peak
3	5725.000	67.86	-4.57	63.29	122.20	-58.91	peak
4	5850.000	49.97	-4.10	45.87	122.20	-76.33	peak
5	5898.875	52.70	-3.88	48.82	87.53	-38.71	peak
6	5966.375	51.10	-3.99	47.11	68.20	-21.09	peak



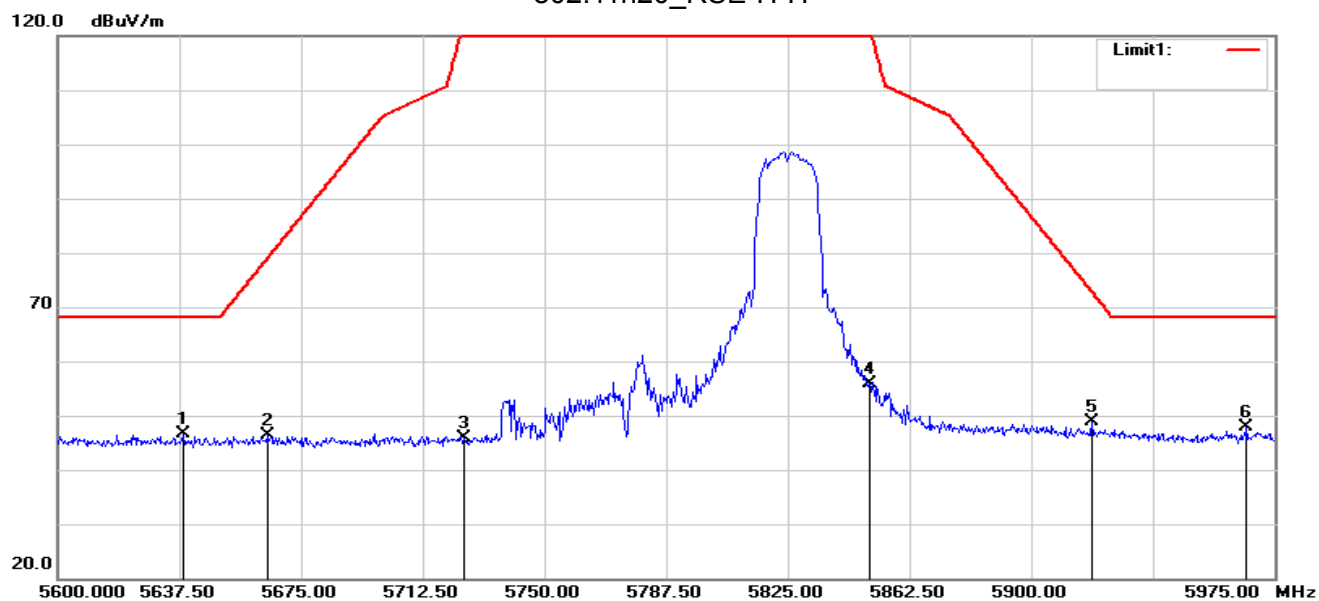
802.11n20_RSE-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5642.375	51.98	-4.68	47.30	68.20	-20.90	peak
2	5685.875	53.40	-4.66	48.74	94.75	-46.01	peak
3	5725.000	68.01	-4.57	63.44	122.20	-58.76	peak
4	5850.000	49.57	-4.10	45.47	122.20	-76.73	peak
5	5900.000	52.78	-3.88	48.90	86.70	-37.80	peak
6	5939.750	50.58	-3.95	46.63	68.20	-21.57	peak



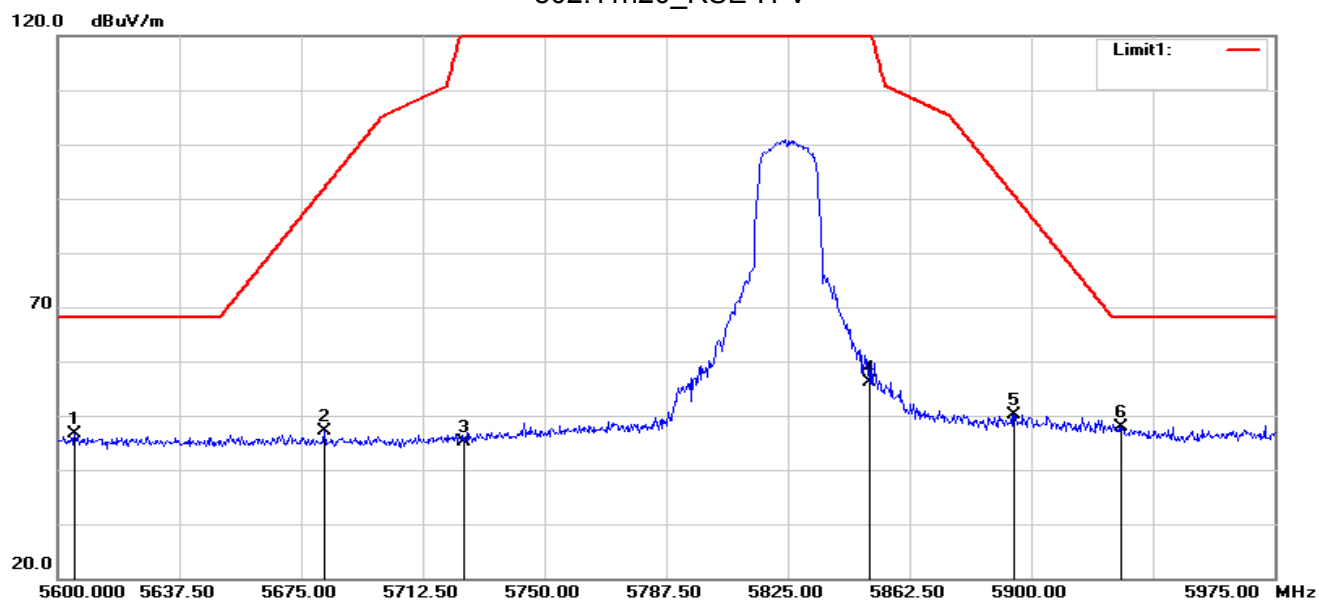
802.11n20_RSE-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5638.625	51.25	-4.69	46.56	68.20	-21.64	peak
2	5664.500	51.18	-4.68	46.50	78.93	-32.43	peak
3	5725.000	50.47	-4.57	45.90	122.20	-76.30	peak
4	5850.000	59.92	-4.10	55.82	122.20	-66.38	peak
5	5918.750	52.80	-3.91	48.89	72.83	-23.94	peak
6	5966.375	51.90	-3.99	47.91	68.20	-20.29	peak



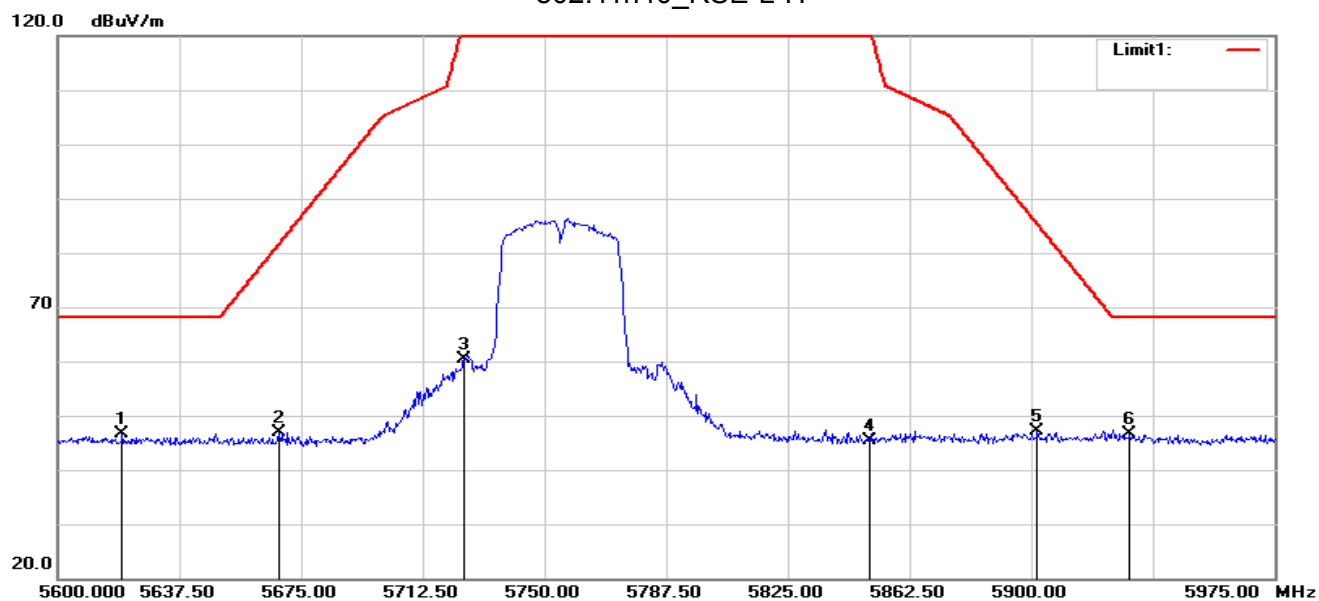
802.11n20_RSE-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5605.250	51.32	-4.70	46.62	68.20	-21.58	peak
2	5682.125	51.84	-4.67	47.17	91.97	-44.80	peak
3	5725.000	49.59	-4.57	45.02	122.20	-77.18	peak
4	5850.000	60.17	-4.10	56.07	122.20	-66.13	peak
5	5894.750	54.11	-3.90	50.21	90.59	-40.38	peak
6	5927.750	51.84	-3.93	47.91	68.20	-20.29	peak



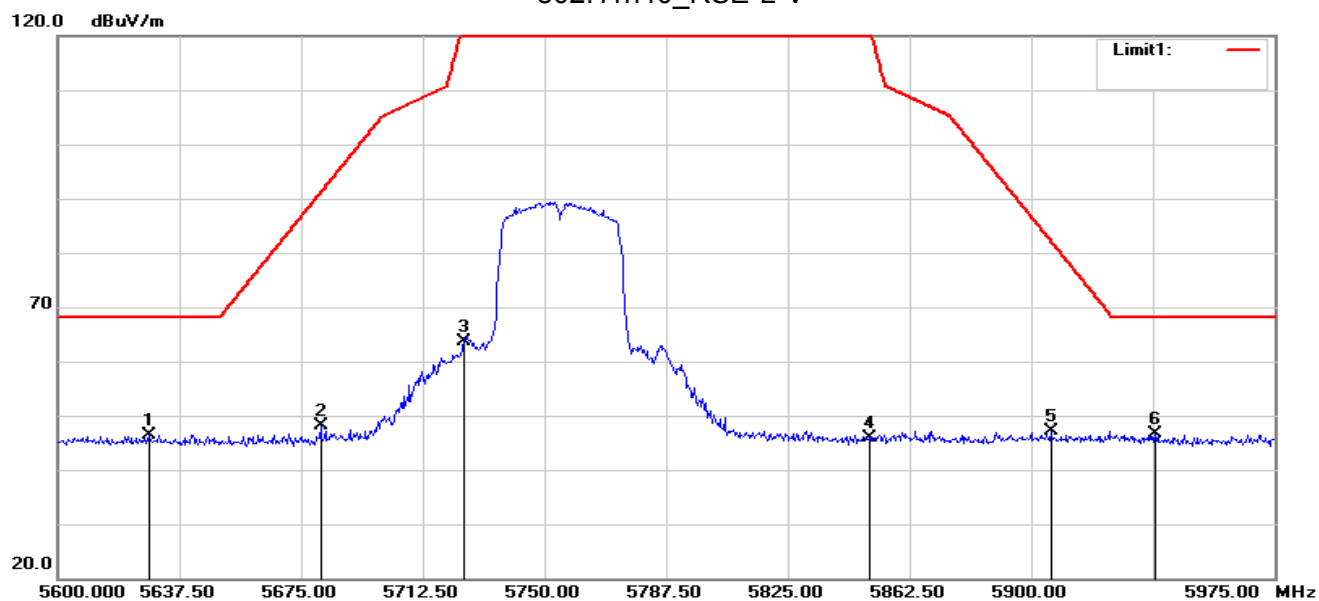
802.11n40_RSE-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5619.875	51.22	-4.69	46.53	68.20	-21.67	peak
2	5668.250	51.51	-4.67	46.84	81.70	-34.86	peak
3	5725.000	65.02	-4.57	60.45	122.20	-61.75	peak
4	5850.000	49.42	-4.10	45.32	122.20	-76.88	peak
5	5901.875	51.09	-3.89	47.20	85.31	-38.11	peak
6	5930.375	50.44	-3.93	46.51	68.20	-21.69	peak



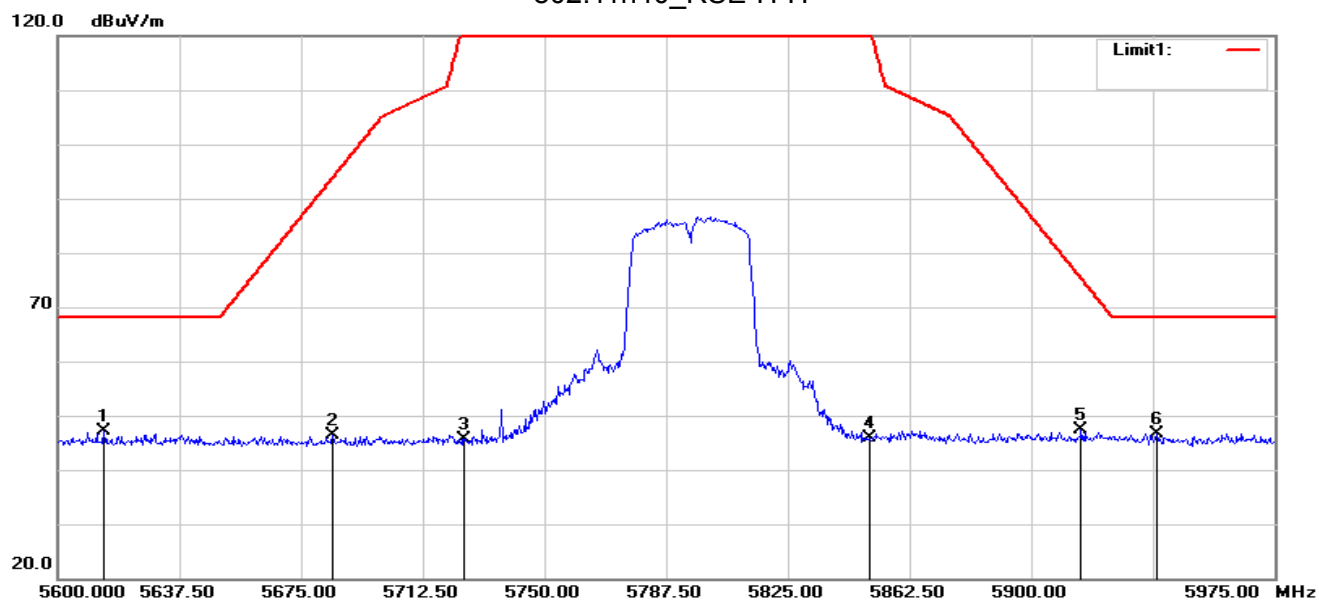
802.11n40_RSE-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5628.125	51.17	-4.69	46.48	68.20	-21.72	peak
2	5681.000	52.79	-4.67	48.12	91.14	-43.02	peak
3	5725.000	68.31	-4.57	63.74	122.20	-58.46	peak
4	5850.000	49.95	-4.10	45.85	122.20	-76.35	peak
5	5906.000	50.93	-3.89	47.04	82.26	-35.22	peak
6	5938.250	50.68	-3.95	46.73	68.20	-21.47	peak



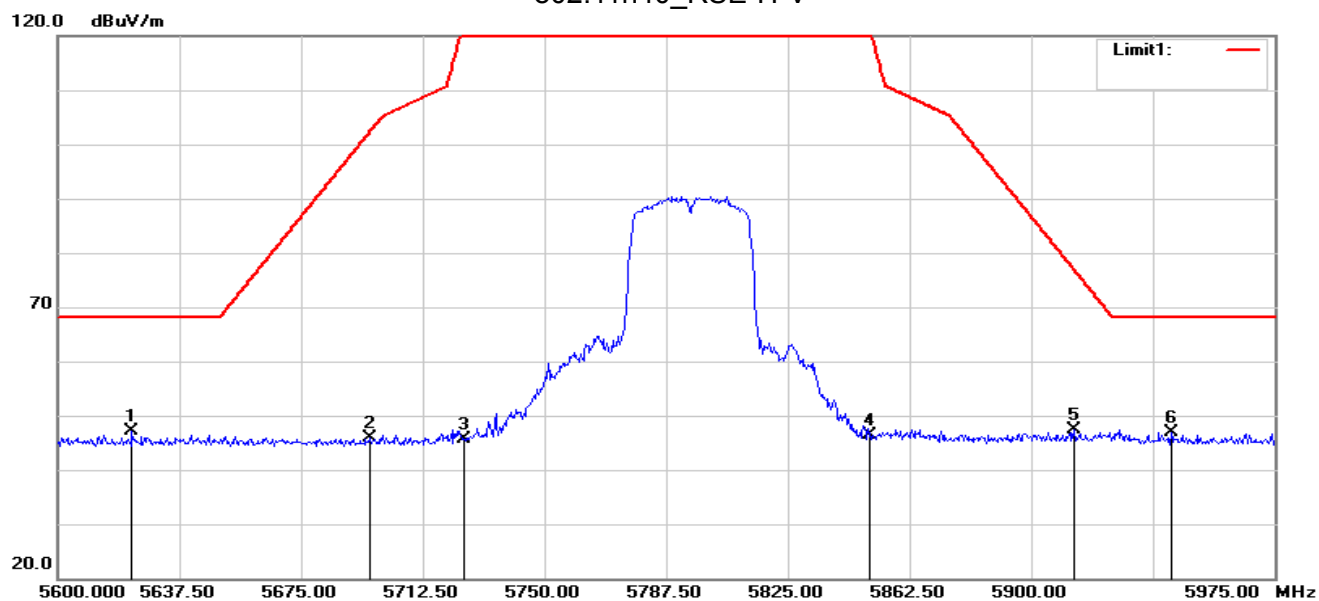
802.11n40_RSE-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5614.250	51.73	-4.70	47.03	68.20	-21.17	peak
2	5684.750	51.10	-4.66	46.44	93.92	-47.48	peak
3	5725.000	50.13	-4.57	45.56	122.20	-76.64	peak
4	5850.000	49.94	-4.10	45.84	122.20	-76.36	peak
5	5915.375	51.37	-3.91	47.46	75.32	-27.86	peak
6	5938.625	50.69	-3.95	46.74	68.20	-21.46	peak



802.11n40_RSE-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5622.875	51.88	-4.69	47.19	68.20	-21.01	peak
2	5696.375	50.51	-4.67	45.84	102.52	-56.68	peak
3	5725.000	50.22	-4.57	45.65	122.20	-76.55	peak
4	5850.000	50.38	-4.10	46.28	122.20	-75.92	peak
5	5913.125	51.23	-3.90	47.33	76.99	-29.66	peak
6	5943.125	50.94	-3.95	46.99	68.20	-21.21	peak

Note: All modes have been tested. Only the worst mode shown in the report.



4. POWER SPECTRAL DENSITY TEST

4.1 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.

4.2 TEST PROCEDURE

1. The setting follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set span to encompass the EBW
3. Set RBW = 1MHz.
4. Set the VBW > =3MHz.
5. Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)
6. Sweep time = auto.
7. Detector = power averaging (rms), if available. Otherwise, use sample detector mode
8. Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 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.



**4.6 TEST RESULTS**

5150-5250MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11n20					
5180	-0.749	0.069	-0.680	11	PASS
5200	-1.258	0.069	-1.189	11	PASS
5240	-2.100	0.069	-2.031	11	PASS
802.11n40					
5190	-4.743	0.239	-4.504	11	PASS
5230	-5.140	0.239	-4.901	11	PASS

5250-5350MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11n20					
5260	-2.114	0.069	-2.045	11	PASS
5300	-3.118	0.069	-3.049	11	PASS
5320	-4.193	0.069	-4.124	11	PASS
802.11n40					
5270	-5.547	0.168	-5.379	11	PASS
5310	-7.291	0.168	-7.123	11	PASS

5470-5725MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11n20					
5500	-5.978	0.059	-5.919	11	PASS
5580	-5.725	0.059	-5.666	11	PASS
5700	-3.456	0.059	-3.397	11	PASS
802.11n40					
5510	-8.109	0.160	-7.949	11	PASS
5550	-8.351	0.160	-8.191	11	PASS
5670	-7.491	0.160	-7.331	11	PASS



5725-5850MHz						
Frequency	Use RBW 510KHz direct measurement Direct measurement Power Density (dBm)	Convert to RBW 500KHz direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm/500KHz)	Result
802.11n20						
5745	-6.347	-6.433	0.089	-6.344	30	PASS
5785	-5.724	-5.810	0.089	-5.721	30	PASS
5825	-4.417	-4.503	0.089	-4.414	30	PASS
802.11n40						
5755	-9.680	-9.766	0.129	-9.637	30	PASS
5795	-8.798	-8.884	0.129	-8.755	30	PASS

Note: 1. RB conversion formula: $10 \cdot \log(500\text{KHz}/\text{RBW})$

2. Test plots see Attachment A.



5. BANDWIDTH MEASUREMENT

5.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

5.1.1 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 $\geq$ 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%.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 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.

**5.1.5 TEST RESULTS**

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5180	19.66	Pass
5200	19.88	Pass
5240	19.73	Pass
802.11n(HT40)		
5190	40.81	Pass
5230	40.76	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5260	19.89	Pass
5300	19.80	Pass
5320	19.82	Pass
802.11n(HT40)		
5270	43.07	Pass
5310	43.11	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5500	19.88	Pass
5580	19.71	Pass
5700	19.71	Pass
802.11n(HT40)		
5510	40.93	Pass
5550	41.63	Pass
5670	40.57	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5745	19.66	Pass
5785	19.82	Pass
5825	19.63	Pass
802.11n(HT40)		
5755	40.36	Pass
5795	39.73	Pass

Test plot see Attachment B.

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

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

5.2.1 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 $\geq 3 \cdot$ 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.

5.2.2 DEVIATION FROM STANDARD

No deviation.

5.2.3 TEST SETUP



5.2.4 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.

**5.2.5 TEST RESULTS**

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5180	17.56	Pass
5200	17.55	Pass
5240	17.55	Pass
802.11n(HT40)		
5190	35.98	Pass
5230	35.96	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5260	17.57	Pass
5300	17.57	Pass
5320	17.56	Pass
802.11n(HT40)		
5270	35.99	Pass
5310	36.01	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5500	17.57	Pass
5580	17.57	Pass
5700	17.56	Pass
802.11n(HT40)		
5510	35.96	Pass
5550	35.96	Pass
5670	35.98	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5745	17.57	Pass
5785	17.54	Pass
5825	17.54	Pass
802.11n(HT40)		
5755	35.96	Pass
5795	35.96	Pass

Test plot See Attachment B.

5.3 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.

5.3.1 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) $\geq 3 \times$ 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.

5.3.2 DEVIATION FROM STANDARD

No deviation.

5.3.3 TEST SETUP



5.3.4 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.

**5.3.5 TEST RESULTS**

Frequency (MHz)	6dB Bandwidth (MHz)	Pass/Fail
802.11n(HT20)		
5745	16.65	Pass
5785	15.71	Pass
5825	16.09	Pass
802.11n(HT40)		
5755	35.16	Pass
5795	35.15	Pass

Test plots see Attachment C.





6. MAXIMUM CONDUCTED OUTPUT POWER

6.1 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.

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

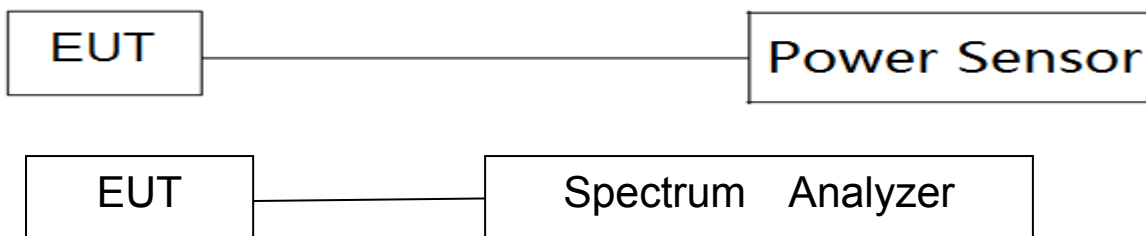
6.2 TEST PROCEDURE

The EUT was directly connected to the Power Sensor&PC

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 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.



6.6 TEST RESULTS

U-NII Band 1 (5.15-5.25GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11n(HT20)					
36	5180	10.33	0.069	10.40	23.98
40	5200	9.97	0.069	10.04	23.98
48	5240	8.39	0.069	8.46	23.98
802.11n(HT40)					
38	5190	9.36	0.239	9.60	23.98
46	5230	8.68	0.239	8.92	23.98

U-NII Band 2A(5.25-5.35GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11n(HT20)					
52	5260	8.05	0.069	8.12	23.98
60	5300	6.33	0.069	6.40	23.97
64	5320	5.46	0.069	5.53	23.97
802.11n(HT40)					
54	5270	7.21	0.168	7.38	23.98
62	5310	6.04	0.168	6.21	23.98

U-NII Band 2C(5.47-5.725GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11n(HT20)					
100	5500	3.60	0.059	3.66	23.98
116	5580	3.84	0.059	3.90	23.95
140	5700	6.04	0.059	6.10	23.95
802.11n(HT40)					
102	5510	3.54	0.160	3.70	23.98
110	5550	3.63	0.160	3.79	23.98
134	5670	5.01	0.160	5.17	23.98



U-NII Band 3 (5.725-5.85GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11n(HT20)					
149	5745	6.44	0.089	6.53	30.00
157	5785	7.55	0.089	7.64	30.00
165	5825	8.53	0.089	8.62	30.00
802.11n(HT40)					
151	5755	6.62	0.129	6.75	30.00
159	5795	7.63	0.129	7.76	30.00





Duty Cycle

U-NII Band 1				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
n20	1.308	1.329	98.42%	0.069
n40	0.646	0.682	94.64%	0.239
U-NII Band 2A				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
n20	1.314	1.335	98.43%	0.069
n40	0.662	0.689	96.21%	0.168
U-NII Band 2C				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
n20	1.320	1.338	98.65%	0.059
n40	0.655	0.679	96.38%	0.160
U-NII Band 3				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
n20	1.311	1.338	97.98%	0.089
n40	0.658	0.678	97.06%	0.129





U-NII Band 1-n20



U-NII Band 1-n40



U-NII Band 2A-n20



U-NII Band 2A-n40



U-NII Band 2C-n20



U-NII Band 2C-n40



U-NII Band 3-n20



U-NII Band 3-n40





7. AUTOMATICALLY DISCONTINUE TRANSMISSION

7.1 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.

7.2 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





8. ANTENNA REQUIREMENT

8.1 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.

8.2 EUT ANTENNA

The EUT antenna is PIFA 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.

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