



RADIO TEST REPORT

Report No.:STS2108163W25

Issued for

SHENZHEN PUDU TECHNOLOGY CO., LTD.

Room 501, Building A, Block 1, Phase 1, Shenzhen
International Inno Valley, Dashi 1st Road, Nanshan District,
Shenzhen, China

Product Name:	FlashBot
Brand Name:	PUDU
Model Name:	FBBDR1
Series Model:	N/A
FCC ID:	2AXDW-FBBDR1
Test Standard:	FCC Part 15.407

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TEST RESULT CERTIFICATION

Applicant's Name..... : SHENZHEN PUDU TECHNOLOGY CO., LTD.
Address : Room 501, Building A, Block 1, Phase 1, Shenzhen International
Inno Valley, Dashi 1st Road, Nanshan District, Shenzhen, China
Manufacturer's Name : SHENZHEN PUDU TECHNOLOGY CO., LTD.
Address : Room 501, Building A, Block 1, Phase 1, Shenzhen International
Inno Valley, Dashi 1st Road, Nanshan District, Shenzhen, China

Product Description

Product Name..... : FlashBot
Brand Name : PUDU
Model Name : FBBDR1
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 : 25 Aug. 2021

Date (s) of performance of tests : 25 Aug. 2021 ~ 22 Sept. 2021

Date of Issue..... : 22 Sept. 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	22 Sept. 2021	STS2108163W25	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	$\pm 0.68\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.988\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 2.84\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 4.39\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 5.10\text{dB}$
6	All emissions, radiated >6G	$\pm 5.48\text{dB}$
7	Conducted Emission (9KHz-150KHz)	$\pm 2.79\text{dB}$
8	Conducted Emission (150KHz-30MHz)	$\pm 2.80\text{dB}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	FlashBot								
Trade Name	PUDU								
Model Name	FBBDR1								
Series Model	N/A								
Model Difference	N/A								
Product Description	The EUT is a FlashBot <table><tr><td>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 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 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 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>16.641 dBm</td></tr></table> More details of EUT technical specification, please refer to the User Manual.	Operation Frequency:	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 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 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 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	Modulation Type:	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	Antenna Designation:	Please refer to the Note 3.	Max.Output Power(Conducted):	16.641 dBm
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Modulation Type:	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								
Antenna Designation:	Please refer to the Note 3.								
Max.Output Power(Conducted):	16.641 dBm								
Test Channel	Please refer to the Note 2.								
Input	DC 29.4V, 3.5A								
Battery	Rated Voltage: 25.41V Charge Limit Voltage:29.4V Capacity: 15300mAh								
Hardware version number	V3								
Software version number	V8.1.0.12								
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	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		
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 G_{ANT} dBi, being driven by NANT transmitter outputs of equal power. Directional gain is to be computed as follows:

(i) If any transmit signals are correlated with each other,

$$\text{Directional gain} = G_{ANT} + 10 \log(NANT) \text{ dBi}$$

(ii) If all transmit signals are completely uncorrelated with each other,

$$\text{Directional gain} = G_{ANT}$$

Antenna number: 2

Antenna A gain : 4.01dBi

Antenna B gain : 4.01dBi

MIMO technology Directional gain=7.02dBi

$$G_{ANT} + 10 \log(NANT) \text{ dBi}$$

$$\text{Directional gain} = 4.01 + 10 \log 2 = 7.02 \text{ dBi}$$

Ant	Brand	Model Name	Ant Type	Connector	Gain (dBi)	NOTE
A	PUDU	FBBDR1	FPC Antenna	N/A	ANT A : 4.01dBi ANT B: 4.01dBi MIMO: 7.02dBi	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 802.11a 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 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 25: 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.

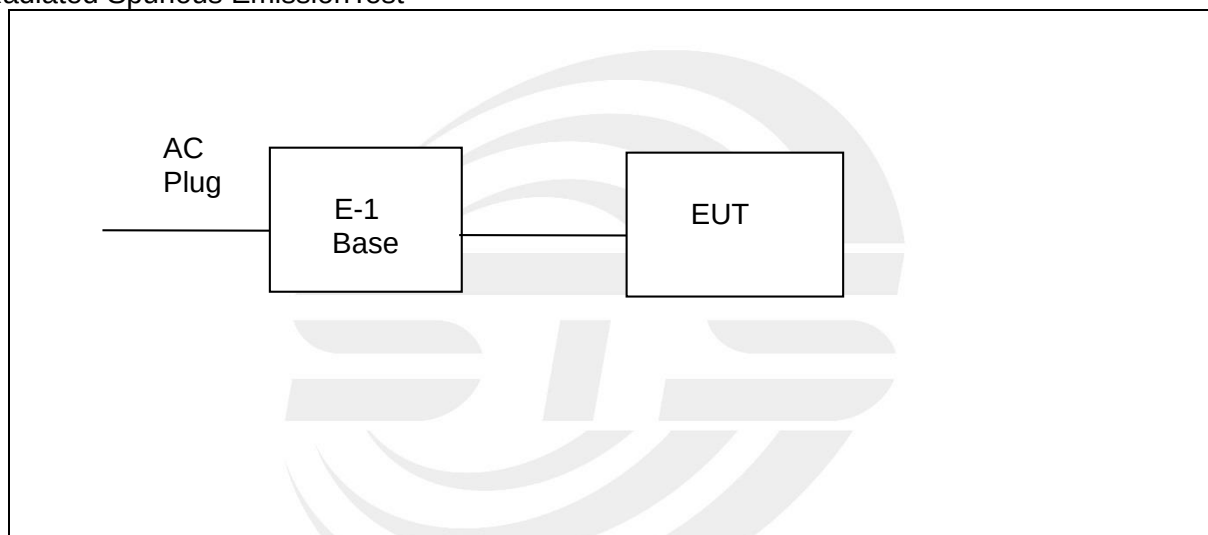
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	ANT_A Power Class	ANT_B Power Class	Software For Testing
WIFI(5G)	U-NII-1 (5150MHz-5250MHz)	802.11a	ANT A: 4.01 ANT B: 4.01 MIMO A+B: 7.02	60	60	RFTestTool
		802.11n(HT20)		60	60	
		802.11n(HT40)		60	60	
		802.11ac(VHT20)		60	60	
		802.11ac(VHT40)		60	60	
		802.11ac(VHT80)		60	60	
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	ANT_A Power Class	ANT_B Power Class	Software For Testing
WIFI(5G)	U-NII-2A (5250MHz-5350MHz)	802.11a	ANT A: 4.01 ANT B: 4.01 MIMO A+B: 7.02	60	60	RFTestTool
		802.11n(HT20)		60	60	
		802.11n(HT40)		60	60	
		802.11ac(VHT20)		60	60	
		802.11ac(VHT40)		60	60	
		802.11ac(VHT80)		60	60	
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	ANT_A Power Class	ANT_B Power Class	Software For Testing
WIFI(5G)	U-NII-2C (5470MHz-5725MHz)	802.11a	ANT A: 4.01 ANT B: 4.01 MIMO A+B: 7.02	50	50	RFTestTool
		802.11n(HT20)		50	50	
		802.11n(HT40)		50	50	
		802.11ac(VHT20)		50	50	
		802.11ac(VHT40)		50	50	
		802.11ac(VHT80)		50	50	



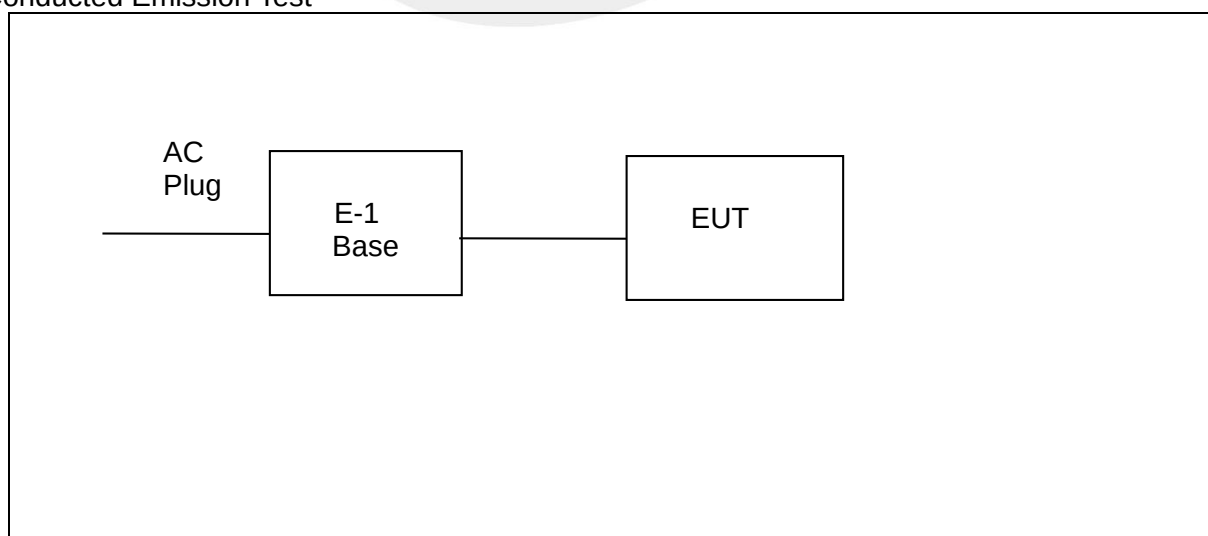
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	ANT_A Power Class	ANT_B Power Class	Software For Testing
WIFI(5G)	U-NII-3 (5725MHz-5895MHz)	802.11a	ANT A: 4.01 ANT B: 4.01 MIMO A+B: 7.02	50	50	RFTesTool
		802.11n(HT20)		50	50	
		802.11n(HT40)		50	50	
		802.11ac(VHT20)		50	50	
		802.11ac(VHT40)		50	50	
		802.11ac(VHT80)		50	50	

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious EmissionTest



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
E-1	Base	PUDU Charging Pile	WS1	N/A	N/A

Support units

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

Note:

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



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	2020.10.12	2021.10.11
Signal Analyzer	R&S	FSV 40-N	101823	2020.10.10	2021.10.09
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	2019.10.15	2021.10.14
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier(0.1M-3 GHz)	EM	EM330	060665	2020.10.12	2021.10.11
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2020.10.12	2021.10.11
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2020.10.10	2021.10.09
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
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	2020.10.12	2021.10.11
LISN	R&S	ENV216	101242	2020.10.12	2021.10.11
LISN	EMCO	3810/2NM	23625	2020.10.12	2021.10.11
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 CE)			



RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
MIMO Power measurement test Set	Keysight	U2021XA	MY55520005	2020.10.10	2021.10.09
			MY55520006	2020.10.10	2021.10.09
			MY56120038	2020.10.10	2021.10.09
			MY56280002	2020.10.10	2021.10.09
Signal Analyzer	Agilent	N9020A	MY51110105	2021.03.04	2022.03.03
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Test SW	FARAD	LZ-RF /LzRf-3A3			





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

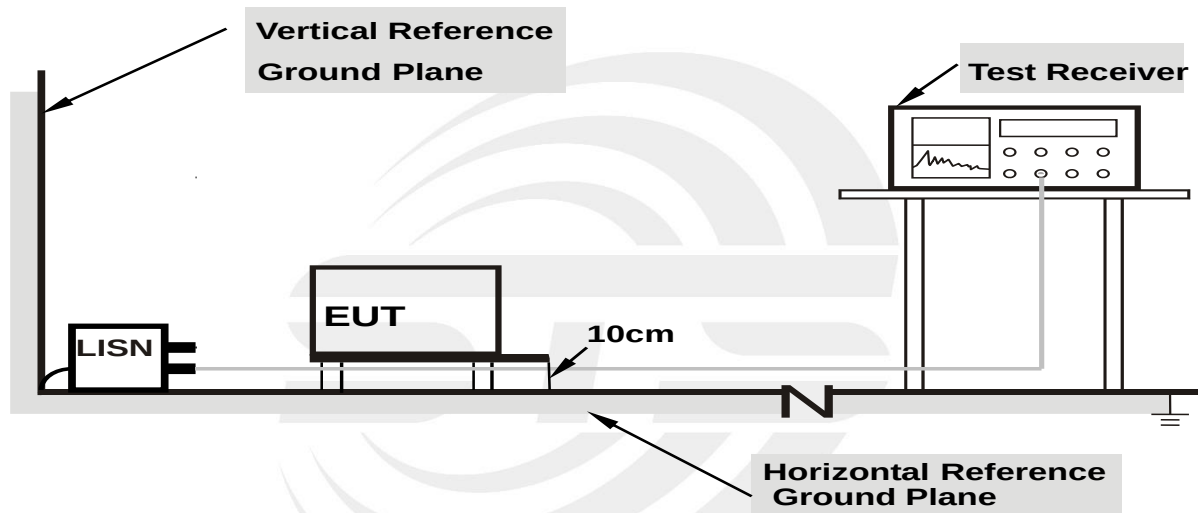
3.1.2 TEST PROCEDURE

- The EUT is 0.1 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.

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

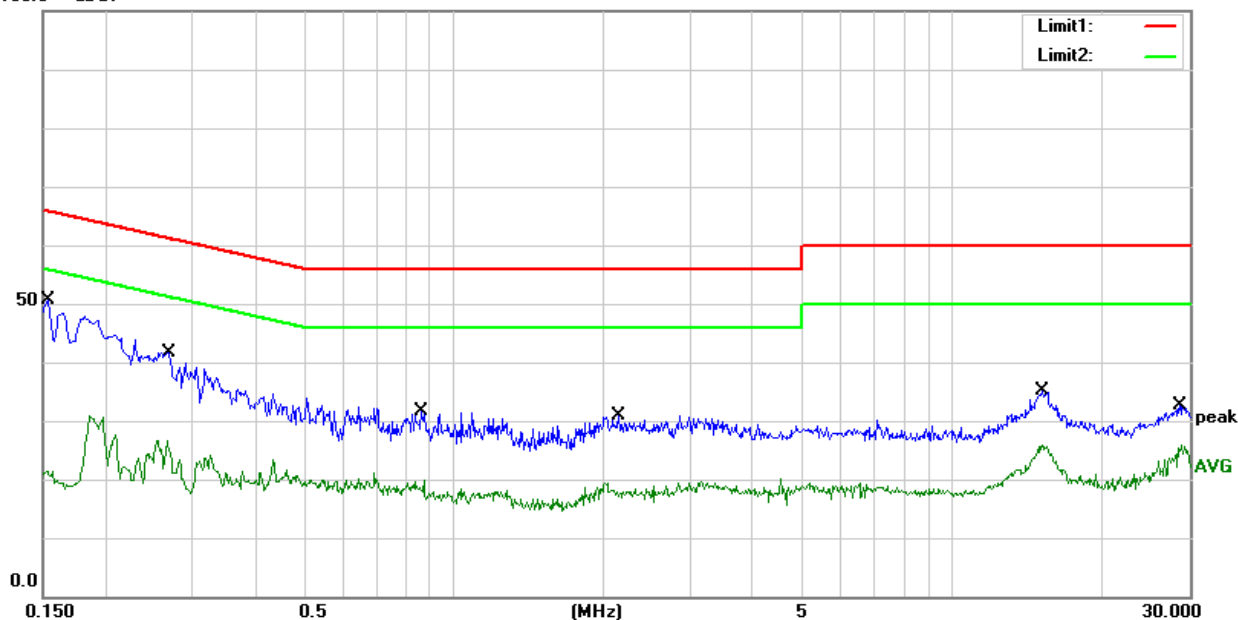
Temperature:	25.2(C)	Relative Humidity:	62%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode :	Mode 25		

No.	Frequency (MHz)	Reading (dBUV)	Correct Factor(dB)	Result (dBUV)	Limit (dBUV)	Margin (dB)	Remark
1	0.1540	50.74	0.00	50.74	65.78	-15.04	QP
2	0.1540	21.46	0.00	21.46	55.78	-34.32	AVG
3	0.2700	41.70	0.00	41.70	61.12	-19.42	QP
4	0.2700	26.54	0.00	26.54	51.12	-24.58	AVG
5	0.8620	31.74	0.00	31.74	56.00	-24.26	QP
6	0.8620	19.77	0.00	19.77	46.00	-26.23	AVG
7	2.1460	30.96	0.00	30.96	56.00	-25.04	QP
8	2.1460	18.47	0.00	18.47	46.00	-27.53	AVG
9	15.1580	35.18	0.00	35.18	60.00	-24.82	QP
10	15.1580	25.79	0.00	25.79	50.00	-24.21	AVG
11	28.7100	32.56	0.00	32.56	60.00	-27.44	QP
12	28.7100	25.85	0.00	25.85	50.00	-24.15	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



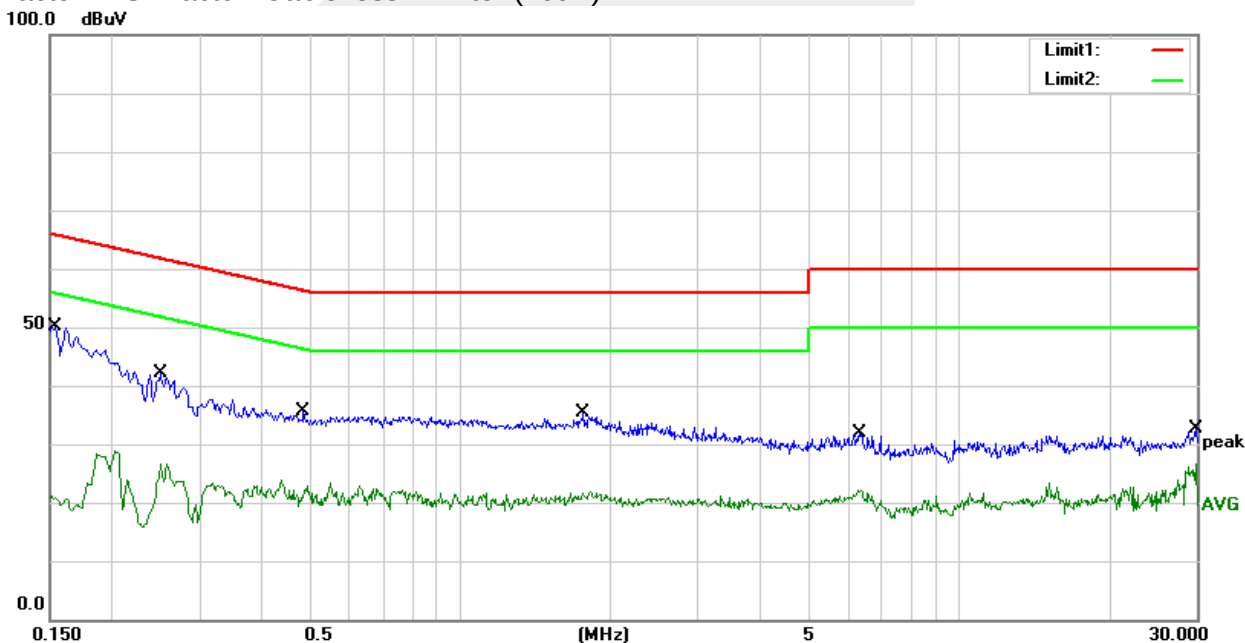


Temperature:	25.2(C)	Relative Humidity:	62%RH
Test Voltage	AC 120V/60Hz	Phase:	N
Test Mode	Mode 25		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1540	50.17	0.00	50.17	65.78	-15.61	QP
2	0.1540	21.11	0.00	21.11	55.78	-34.67	AVG
3	0.2500	42.20	0.00	42.20	61.76	-19.56	QP
4	0.2500	26.55	0.00	26.55	51.76	-25.21	AVG
5	0.4860	35.53	0.00	35.53	56.24	-20.71	QP
6	0.4860	22.82	0.00	22.82	46.24	-23.42	AVG
7	1.7700	35.29	0.00	35.29	56.00	-20.71	QP
8	1.7700	21.74	0.00	21.74	46.00	-24.26	AVG
9	6.3300	31.79	0.00	31.79	60.00	-28.21	QP
10	6.3300	22.09	0.00	22.09	50.00	-27.91	AVG
11	29.9060	32.66	0.00	32.66	60.00	-27.34	QP
12	29.9060	26.67	0.00	26.67	50.00	-23.33	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 (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).

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) + 95.3.

Peak Limit = -27dBm/MHz + 95.3 = 68.3 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 0.1 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 0.1 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.

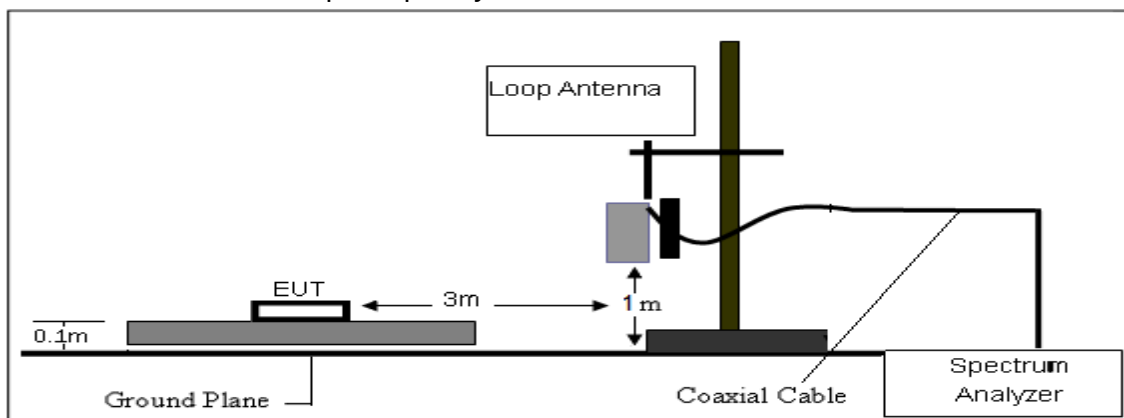
3.2.2 DEVIATION FROM TEST STANDARD

No deviation

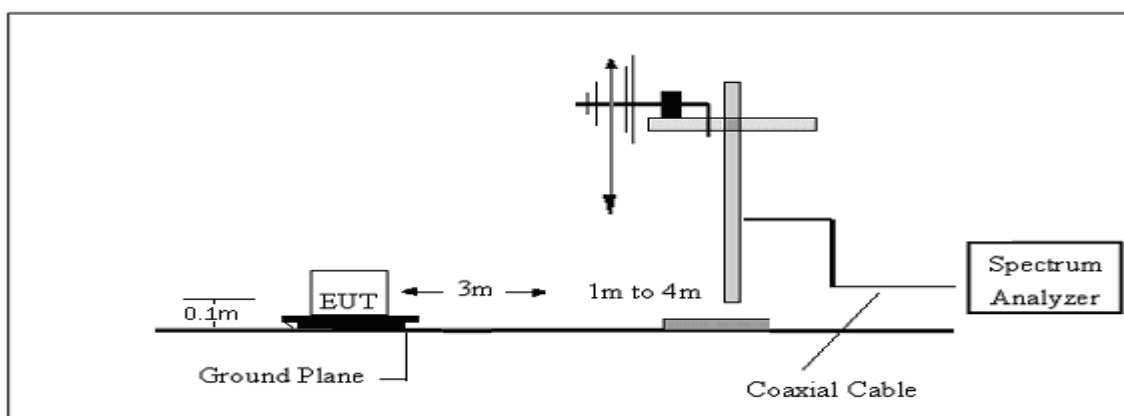


3.2.3 TEST SETUP

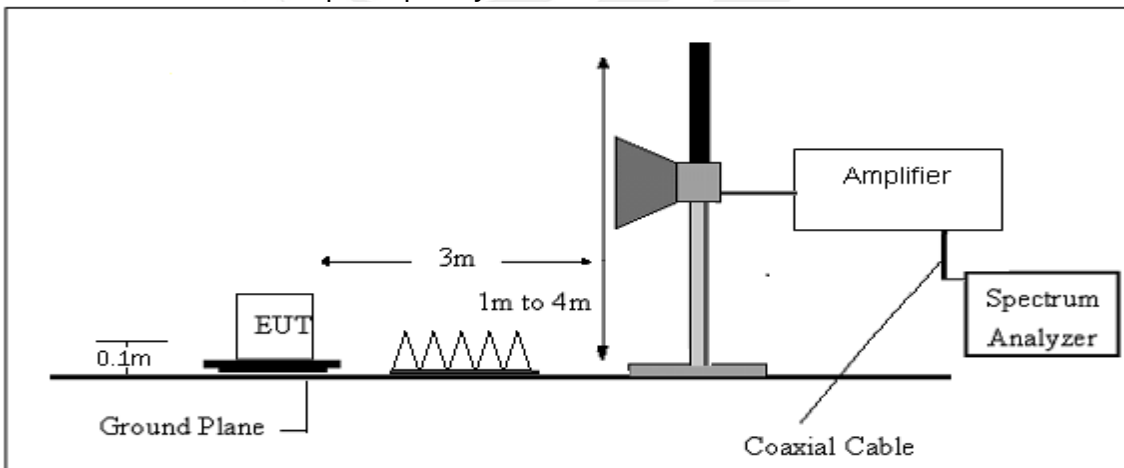
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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 25.41V	Polarization :	--
Test Mode:	TX Mode		

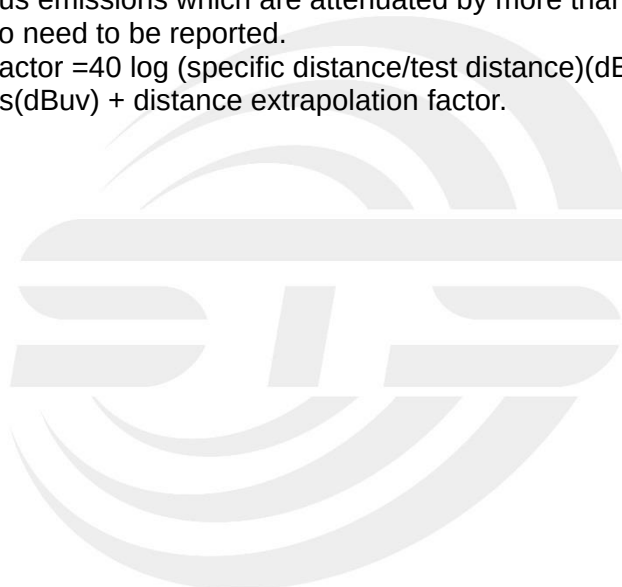
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

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

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



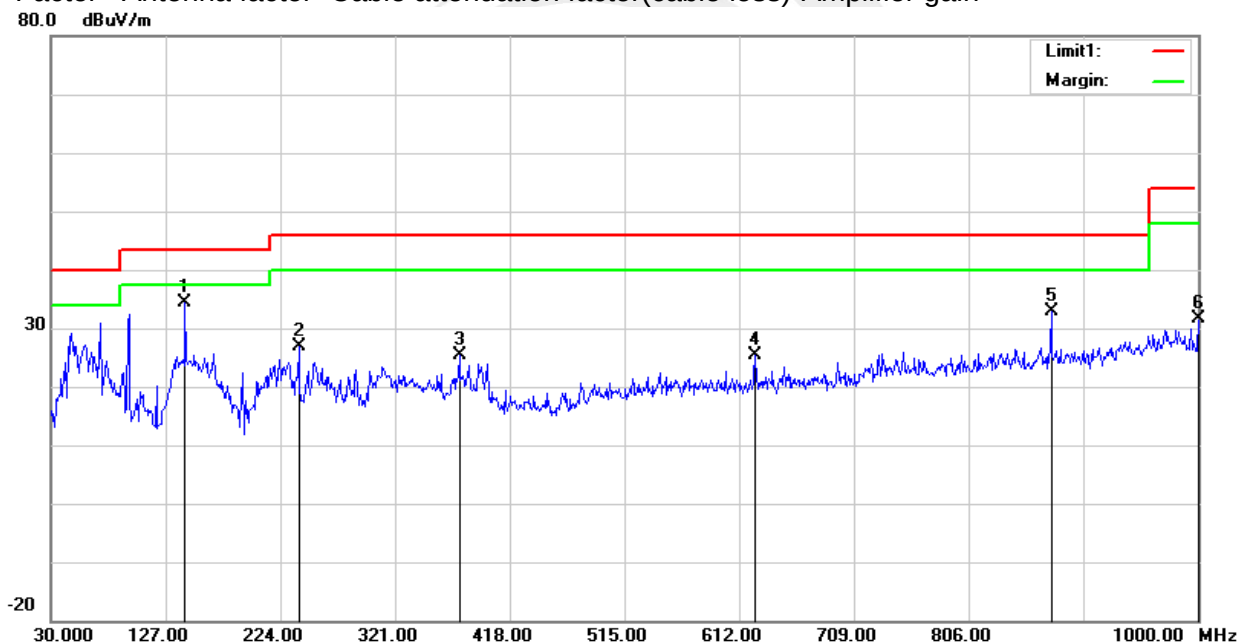
**3.2.7 TEST RESULTS (Between 30MHz – 1GHz)**

Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	DC 25.41V	Polarization:	Horizontal
Test Mode	Mode 1~24(Mode 19 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	143.4900	52.71	-18.23	34.48	43.50	-9.02	QP
2	239.5200	45.01	-18.10	26.91	46.00	-19.09	QP
3	375.3200	37.75	-12.37	25.38	46.00	-20.62	QP
4	625.5800	30.74	-5.25	25.49	46.00	-20.51	QP
5	875.8400	33.41	-0.61	32.80	46.00	-13.20	QP
6	1000.0000	29.66	2.04	31.70	54.00	-22.30	QP

Remark:

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



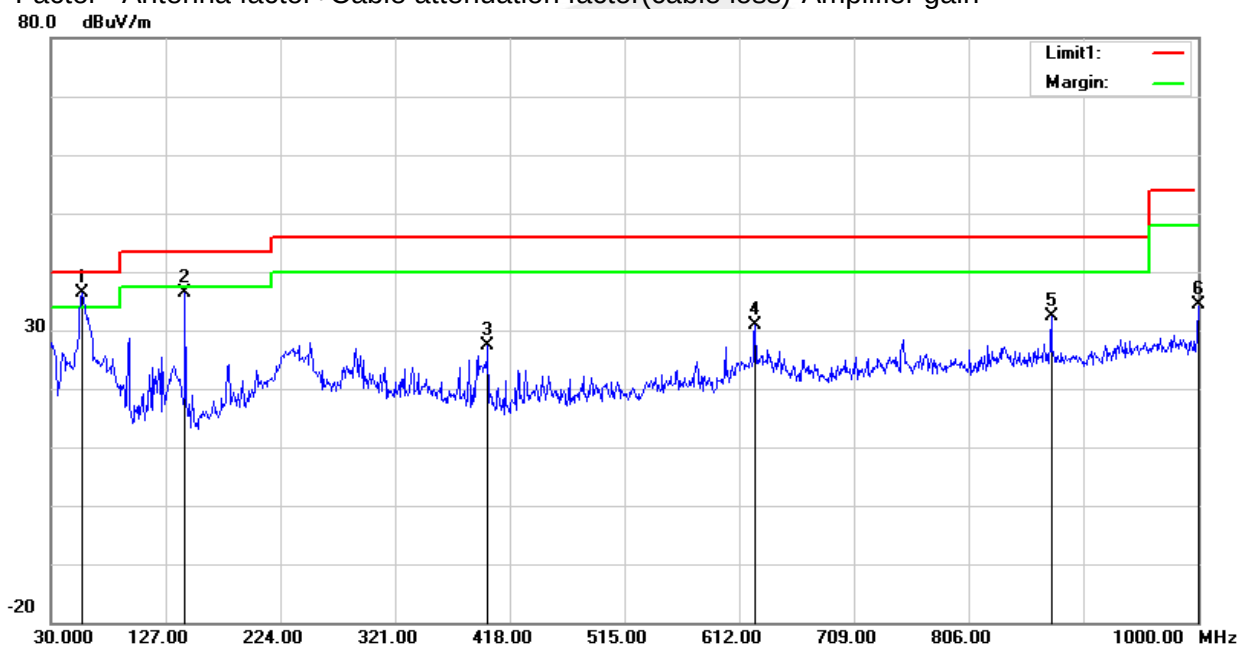


Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	DC 25.41V	Polarization:	Vertical
Test Mode	Mode 1~24(Mode 19 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	56.1900	61.62	-25.30	36.32	40.00	-3.68	QP
2	143.4900	54.58	-18.23	36.35	43.50	-7.15	QP
3	399.5700	38.62	-11.16	27.46	46.00	-18.54	QP
4	625.5800	36.16	-5.25	30.91	46.00	-15.09	QP
5	875.8400	32.95	-0.61	32.34	46.00	-13.66	QP
6	1000.0000	32.34	2.04	34.38	54.00	-19.62	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-1 5150-5250MHz

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 (802.11n(HT40)/ 5190 MHz)										
3262.80	45.20	44.70	6.70	28.20	-9.80	35.40	74.00	-38.60	Pk	Vertical
3262.80	41.07	44.70	6.70	28.20	-9.80	31.27	54.00	-22.73	AV	Vertical
3261.39	45.18	44.70	6.70	28.20	-9.80	35.38	74.00	-38.62	Pk	Horizontal
3261.39	41.95	44.70	6.70	28.20	-9.80	32.15	54.00	-21.85	AV	Horizontal
4002.73	39.50	44.20	7.90	29.70	-6.60	32.90	74.00	-41.10	Pk	Vertical
4002.73	36.45	44.20	7.90	29.70	-6.60	29.85	54.00	-24.15	AV	Vertical
4006.28	39.26	44.20	7.90	29.70	-6.60	32.66	74.00	-41.34	Pk	Horizontal
4006.28	36.21	44.20	7.90	29.70	-6.60	29.61	54.00	-24.39	AV	Horizontal
7241.78	37.28	43.50	11.40	35.50	3.40	40.68	68.20	-27.52	Pk	Vertical
7241.78	34.14	43.50	11.40	35.50	3.40	37.54	54.00	-16.46	AV	Vertical
7247.54	37.71	43.50	11.40	35.50	3.40	41.11	68.20	-27.09	Pk	Horizontal
7247.54	33.67	43.50	11.40	35.50	3.40	37.07	54.00	-16.93	AV	Horizontal
10379.97	38.92	44.50	13.80	38.80	8.10	47.02	68.20	-21.18	Pk	Vertical
10379.97	37.02	44.50	13.80	38.80	8.10	45.12	54.00	-8.88	AV	Vertical
10380.18	39.56	44.50	13.80	38.80	8.10	47.66	68.20	-20.54	Pk	Horizontal
10380.18	36.81	44.50	13.80	38.80	8.10	44.91	54.00	-9.09	AV	Horizontal
11056.40	33.82	43.60	14.30	39.50	10.20	44.02	74.00	-29.98	Pk	Vertical
11056.40	29.94	43.60	14.30	39.50	10.20	40.14	54.00	-13.86	AV	Vertical
11052.06	33.35	43.60	14.30	39.50	10.20	43.55	74.00	-30.45	Pk	Horizontal
11052.06	30.73	43.60	14.30	39.50	10.20	40.93	54.00	-13.07	AV	Horizontal
13316.41	32.52	42.60	15.90	38.90	12.20	44.72	74.00	-29.28	Pk	Vertical
13316.41	30.06	42.60	15.90	38.90	12.20	42.26	54.00	-11.74	AV	Vertical
13314.69	31.91	42.60	15.90	38.90	12.20	44.11	74.00	-29.89	Pk	Horizontal
13314.69	29.34	42.60	15.90	38.90	12.20	41.54	54.00	-12.46	AV	Horizontal
High Channel (802.11n(HT40)/ 5230 MHz)										
3247.67	43.94	44.70	6.70	28.20	-9.80	34.14	68.20	-34.06	Pk	Vertical
3247.67	40.84	44.70	6.70	28.20	-9.80	31.04	54.00	-22.96	AV	Vertical
3244.67	44.87	44.70	6.70	28.20	-9.80	35.07	68.20	-33.13	Pk	Horizontal
3244.67	41.55	44.70	6.70	28.20	-9.80	31.75	54.00	-22.25	AV	Horizontal
3984.30	38.80	44.20	7.90	29.70	-6.60	32.20	74.00	-41.80	Pk	Vertical
3984.30	36.10	44.20	7.90	29.70	-6.60	29.50	54.00	-24.50	AV	Vertical
3984.08	39.80	44.20	7.90	29.70	-6.60	33.20	74.00	-40.80	Pk	Horizontal
3984.08	35.96	44.20	7.90	29.70	-6.60	29.36	54.00	-24.64	AV	Horizontal
7212.19	36.80	43.50	11.40	35.50	3.40	40.20	68.20	-28.00	Pk	Vertical
7212.19	34.73	43.50	11.40	35.50	3.40	38.13	54.00	-15.87	AV	Vertical
7216.39	37.19	43.50	11.40	35.50	3.40	40.59	68.20	-27.61	Pk	Horizontal
7216.39	34.24	43.50	11.40	35.50	3.40	37.64	54.00	-16.36	AV	Horizontal
10460.15	39.59	44.50	13.80	38.80	8.10	47.69	68.20	-20.51	Pk	Vertical
10460.15	36.04	44.50	13.80	38.80	8.10	44.14	54.00	-9.86	AV	Vertical
10460.29	39.31	44.50	13.80	38.80	8.10	47.41	68.20	-20.79	Pk	Horizontal
10460.29	36.87	44.50	13.80	38.80	8.10	44.97	54.00	-9.03	AV	Horizontal
11006.55	33.68	43.60	14.30	39.50	10.20	43.88	74.00	-30.12	Pk	Vertical
11006.55	31.08	43.60	14.30	39.50	10.20	41.28	54.00	-12.72	AV	Vertical
11008.75	33.37	43.60	14.30	39.50	10.20	43.57	74.00	-30.43	Pk	Horizontal
11008.75	30.90	43.60	14.30	39.50	10.20	41.10	54.00	-12.90	AV	Horizontal
13257.13	32.78	42.60	15.90	38.90	12.20	44.98	74.00	-29.02	Pk	Vertical
13257.13	28.82	42.60	15.90	38.90	12.20	41.02	54.00	-12.98	AV	Vertical
13264.08	32.77	42.60	15.90	38.90	12.20	44.97	74.00	-29.03	Pk	Horizontal
13264.08	29.77	42.60	15.90	38.90	12.20	41.97	54.00	-12.03	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 802.11n (HT-40).
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-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 (802.11ac(VHT40)/ 5270 MHz)										
3267.55	43.97	44.70	6.70	28.20	-9.80	34.17	68.20	-34.03	Pk	Vertical
3267.55	42.16	44.70	6.70	28.20	-9.80	32.36	54.00	-21.64	AV	Vertical
3265.95	45.19	44.70	6.70	28.20	-9.80	35.39	74.00	-38.61	Pk	Horizontal
3265.95	41.14	44.70	6.70	28.20	-9.80	31.34	54.00	-22.66	AV	Horizontal
3998.24	39.22	44.20	7.90	29.70	-6.60	32.62	74.00	-41.38	Pk	Vertical
3998.24	36.38	44.20	7.90	29.70	-6.60	29.78	54.00	-24.22	AV	Vertical
3993.80	39.83	44.20	7.90	29.70	-6.60	33.23	74.00	-40.77	Pk	Horizontal
3993.80	35.71	44.20	7.90	29.70	-6.60	29.11	54.00	-24.89	AV	Horizontal
7235.40	37.03	43.50	11.40	35.50	3.40	40.43	68.20	-27.77	Pk	Vertical
7235.40	33.57	43.50	11.40	35.50	3.40	36.97	54.00	-17.03	AV	Vertical
7245.02	37.27	43.50	11.40	35.50	3.40	40.67	68.20	-27.53	Pk	Horizontal
7245.02	34.62	43.50	11.40	35.50	3.40	38.02	54.00	-15.98	AV	Horizontal
10379.92	39.23	44.50	13.80	38.80	8.10	47.33	68.20	-20.87	Pk	Vertical
10379.92	35.76	44.50	13.80	38.80	8.10	43.86	54.00	-10.14	AV	Vertical
10379.90	39.11	44.50	13.80	38.80	8.10	47.21	68.20	-20.99	Pk	Horizontal
10379.90	36.19	44.50	13.80	38.80	8.10	44.29	54.00	-9.71	AV	Horizontal
11049.47	33.11	43.60	14.30	39.50	10.20	43.31	74.00	-30.69	Pk	Vertical
11049.47	31.04	43.60	14.30	39.50	10.20	41.24	54.00	-12.76	AV	Vertical
11044.43	33.31	43.60	14.30	39.50	10.20	43.51	74.00	-30.49	Pk	Horizontal
11044.43	31.18	43.60	14.30	39.50	10.20	41.38	54.00	-12.62	AV	Horizontal
13324.63	32.52	42.60	15.90	38.90	12.20	44.72	74.00	-29.28	Pk	Vertical
13324.63	28.64	42.60	15.90	38.90	12.20	40.84	54.00	-13.16	AV	Vertical
13305.96	32.81	42.60	15.90	38.90	12.20	45.01	74.00	-28.99	Pk	Horizontal
13305.96	28.94	42.60	15.90	38.90	12.20	41.14	54.00	-12.86	AV	Horizontal
High Channel (802.11ac(VHT40)/ 5310 MHz)										
3249.07	44.89	44.70	6.70	28.20	-9.80	35.09	68.20	-33.11	Pk	Vertical
3249.07	40.98	44.70	6.70	28.20	-9.80	31.18	54.00	-22.82	AV	Vertical
3254.35	44.42	44.70	6.70	28.20	-9.80	34.62	68.20	-33.58	Pk	Horizontal
3254.35	41.25	44.70	6.70	28.20	-9.80	31.45	54.00	-22.55	AV	Horizontal
3984.06	39.23	44.20	7.90	29.70	-6.60	32.63	74.00	-41.37	Pk	Vertical
3984.06	35.79	44.20	7.90	29.70	-6.60	29.19	54.00	-24.81	AV	Vertical
3982.98	39.28	44.20	7.90	29.70	-6.60	32.68	74.00	-41.32	Pk	Horizontal
3982.98	36.14	44.20	7.90	29.70	-6.60	29.54	54.00	-24.46	AV	Horizontal
7205.14	37.35	43.50	11.40	35.50	3.40	40.75	68.20	-27.45	Pk	Vertical
7205.14	34.32	43.50	11.40	35.50	3.40	37.72	54.00	-16.28	AV	Vertical
7210.41	36.48	43.50	11.40	35.50	3.40	39.88	68.20	-28.32	Pk	Horizontal
7210.41	34.88	43.50	11.40	35.50	3.40	38.28	54.00	-15.72	AV	Horizontal
10460.60	39.75	44.50	13.80	38.80	8.10	47.85	68.20	-20.35	Pk	Vertical
10460.60	36.00	44.50	13.80	38.80	8.10	44.10	54.00	-9.90	AV	Vertical
10460.26	38.97	44.50	13.80	38.80	8.10	47.07	68.20	-21.13	Pk	Horizontal
10460.26	36.93	44.50	13.80	38.80	8.10	45.03	54.00	-8.97	AV	Horizontal
10999.73	33.30	43.60	14.30	39.50	10.20	43.50	74.00	-30.50	Pk	Vertical
10999.73	29.77	43.60	14.30	39.50	10.20	39.97	54.00	-14.03	AV	Vertical
11012.24	33.32	43.60	14.30	39.50	10.20	43.52	74.00	-30.48	Pk	Horizontal
11012.24	29.69	43.60	14.30	39.50	10.20	39.89	54.00	-14.11	AV	Horizontal
13267.26	32.04	42.60	15.90	38.90	12.20	44.24	74.00	-29.76	Pk	Vertical
13267.26	29.90	42.60	15.90	38.90	12.20	42.10	54.00	-11.90	AV	Vertical
13271.39	32.13	42.60	15.90	38.90	12.20	44.33	74.00	-29.67	Pk	Horizontal
13271.39	28.75	42.60	15.90	38.90	12.20	40.95	54.00	-13.05	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-40).
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-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 (802.11ac(VHT40)/ 5510 MHz)										
3260.56	43.87	44.70	6.70	28.20	-9.80	34.07	74.00	-39.93	Pk	Vertical
3260.56	42.21	44.70	6.70	28.20	-9.80	32.41	54.00	-21.59	AV	Vertical
3264.89	43.90	44.70	6.70	28.20	-9.80	34.10	74.00	-39.90	Pk	Horizontal
3264.89	41.40	44.70	6.70	28.20	-9.80	31.60	54.00	-22.40	AV	Horizontal
3988.33	39.05	44.20	7.90	29.70	-6.60	32.45	74.00	-41.55	Pk	Vertical
3988.33	36.44	44.20	7.90	29.70	-6.60	29.84	54.00	-24.16	AV	Vertical
4000.88	38.96	44.20	7.90	29.70	-6.60	32.36	74.00	-41.64	Pk	Horizontal
4000.88	36.95	44.20	7.90	29.70	-6.60	30.35	54.00	-23.65	AV	Horizontal
7244.35	36.77	43.50	11.40	35.50	3.40	40.17	68.20	-28.03	Pk	Vertical
7244.35	33.91	43.50	11.40	35.50	3.40	37.31	54.00	-16.69	AV	Vertical
7232.60	36.55	43.50	11.40	35.50	3.40	39.95	68.20	-28.25	Pk	Horizontal
7232.60	34.89	43.50	11.40	35.50	3.40	38.29	54.00	-15.71	AV	Horizontal
10379.26	39.51	44.50	13.80	38.80	8.10	47.61	68.20	-20.59	Pk	Vertical
10379.26	36.77	44.50	13.80	38.80	8.10	44.87	54.00	-9.13	AV	Vertical
10378.95	38.92	44.50	13.80	38.80	8.10	47.02	68.20	-21.18	Pk	Horizontal
10378.95	36.25	44.50	13.80	38.80	8.10	44.35	54.00	-9.65	AV	Horizontal
11052.54	33.26	43.60	14.30	39.50	10.20	43.46	74.00	-30.54	Pk	Vertical
11052.54	29.84	43.60	14.30	39.50	10.20	40.04	54.00	-13.96	AV	Vertical
11047.64	34.11	43.60	14.30	39.50	10.20	44.31	74.00	-29.69	Pk	Horizontal
11047.64	30.60	43.60	14.30	39.50	10.20	40.80	54.00	-13.20	AV	Horizontal
13304.44	32.97	42.60	15.90	38.90	12.20	45.17	74.00	-28.83	Pk	Vertical
13304.44	29.08	42.60	15.90	38.90	12.20	41.28	54.00	-12.72	AV	Vertical
13311.70	32.78	42.60	15.90	38.90	12.20	44.98	74.00	-29.02	Pk	Horizontal
13311.70	29.04	42.60	15.90	38.90	12.20	41.24	54.00	-12.76	AV	Horizontal
Mid Channel (802.11ac(VHT40)/ 5550 MHz)										
3238.70	45.01	44.70	6.70	28.20	-9.80	35.21	68.20	-32.99	Pk	Vertical
3238.70	41.84	44.70	6.70	28.20	-9.80	32.04	54.00	-21.96	AV	Vertical
3238.66	43.93	44.70	6.70	28.20	-9.80	34.13	68.20	-34.07	Pk	Horizontal
3238.66	40.57	44.70	6.70	28.20	-9.80	30.77	54.00	-23.23	AV	Horizontal
3966.81	38.52	44.20	7.90	29.70	-6.60	31.92	74.00	-42.08	Pk	Vertical
3966.81	36.49	44.20	7.90	29.70	-6.60	29.89	54.00	-24.11	AV	Vertical
3972.19	38.93	44.20	7.90	29.70	-6.60	32.33	74.00	-41.67	Pk	Horizontal
3972.19	36.62	44.20	7.90	29.70	-6.60	30.02	54.00	-23.98	AV	Horizontal
7182.13	37.62	43.50	11.40	35.50	3.40	41.02	68.20	-27.18	Pk	Vertical
7182.13	34.42	43.50	11.40	35.50	3.40	37.82	54.00	-16.18	AV	Vertical
7188.79	37.60	43.50	11.40	35.50	3.40	41.00	68.20	-27.20	Pk	Horizontal
7188.79	34.52	43.50	11.40	35.50	3.40	37.92	54.00	-16.08	AV	Horizontal
10344.29	38.93	44.50	13.80	38.80	8.10	47.03	68.20	-21.17	Pk	Vertical
10344.29	36.07	44.50	13.80	38.80	8.10	44.17	54.00	-9.83	AV	Vertical
10344.21	38.55	44.50	13.80	38.80	8.10	46.65	68.20	-21.55	Pk	Horizontal
10344.21	36.07	44.50	13.80	38.80	8.10	44.17	54.00	-9.83	AV	Horizontal
10959.94	33.24	43.60	14.30	39.50	10.20	43.44	74.00	-30.56	Pk	Vertical
10959.94	29.60	43.60	14.30	39.50	10.20	39.80	54.00	-14.20	AV	Vertical
10970.37	33.16	43.60	14.30	39.50	10.20	43.36	74.00	-30.64	Pk	Horizontal
10970.37	30.30	43.60	14.30	39.50	10.20	40.50	54.00	-13.50	AV	Horizontal
13226.79	32.18	42.60	15.90	38.90	12.20	44.38	68.20	-23.82	Pk	Vertical
13226.79	29.03	42.60	15.90	38.90	12.20	41.23	54.00	-12.77	AV	Vertical
13222.77	31.50	42.60	15.90	38.90	12.20	43.70	68.20	-24.50	Pk	Horizontal
13222.77	28.55	42.60	15.90	38.90	12.20	40.75	54.00	-13.25	AV	Horizontal



High Channel (802.11ac(VHT40)/ 5670 MHz)										
3232.22	44.11	44.70	6.70	28.20	-9.80	34.31	68.20	-33.89	Pk	Vertical
3232.22	41.79	44.70	6.70	28.20	-9.80	31.99	54.00	-22.01	AV	Vertical
3239.78	44.68	44.70	6.70	28.20	-9.80	34.88	68.20	-33.32	Pk	Horizontal
3239.78	41.18	44.70	6.70	28.20	-9.80	31.38	54.00	-22.62	AV	Horizontal
3970.78	39.62	44.20	7.90	29.70	-6.60	33.02	74.00	-40.98	Pk	Vertical
3970.78	35.56	44.20	7.90	29.70	-6.60	28.96	54.00	-25.04	AV	Vertical
3974.90	38.98	44.20	7.90	29.70	-6.60	32.38	74.00	-41.62	Pk	Horizontal
3974.90	35.68	44.20	7.90	29.70	-6.60	29.08	54.00	-24.92	AV	Horizontal
7186.47	37.39	43.50	11.40	35.50	3.40	40.79	68.20	-27.41	Pk	Vertical
7186.47	34.48	43.50	11.40	35.50	3.40	37.88	54.00	-16.12	AV	Vertical
7180.13	36.52	43.50	11.40	35.50	3.40	39.92	68.20	-28.28	Pk	Horizontal
7180.13	33.80	43.50	11.40	35.50	3.40	37.20	54.00	-16.80	AV	Horizontal
10425.08	39.86	44.50	13.80	38.80	8.10	47.96	68.20	-20.24	Pk	Vertical
10425.08	36.68	44.50	13.80	38.80	8.10	44.78	54.00	-9.22	AV	Vertical
10425.09	39.27	44.50	13.80	38.80	8.10	47.37	68.20	-20.83	Pk	Horizontal
10425.09	35.61	44.50	13.80	38.80	8.10	43.71	54.00	-10.29	AV	Horizontal
10974.25	33.80	43.60	14.30	39.50	10.20	44.00	74.00	-30.00	Pk	Vertical
10974.25	30.32	43.60	14.30	39.50	10.20	40.52	54.00	-13.48	AV	Vertical
10971.59	33.68	43.60	14.30	39.50	10.20	43.88	74.00	-30.12	Pk	Horizontal
10971.59	29.65	43.60	14.30	39.50	10.20	39.85	54.00	-14.15	AV	Horizontal
13223.83	31.37	42.60	15.90	38.90	12.20	43.57	68.20	-24.63	Pk	Vertical
13223.83	29.54	42.60	15.90	38.90	12.20	41.74	54.00	-12.26	AV	Vertical
13211.04	32.57	42.60	15.90	38.90	12.20	44.77	68.20	-23.43	Pk	Horizontal
13211.04	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-40).
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-3(5.725-5.850) GHz

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 (802.11n(HT40)/ 5755 MHz)										
3252.83	43.99	44.70	6.70	28.20	-9.80	34.19	68.20	-34.01	Pk	Vertical
3252.83	41.58	44.70	6.70	28.20	-9.80	31.78	54.00	-22.22	AV	Vertical
3264.82	45.00	44.70	6.70	28.20	-9.80	35.20	74.00	-38.80	Pk	Horizontal
3264.82	40.83	44.70	6.70	28.20	-9.80	31.03	54.00	-22.97	AV	Horizontal
3992.95	39.70	44.20	7.90	29.70	-6.60	33.10	74.00	-40.90	Pk	Vertical
3992.95	36.75	44.20	7.90	29.70	-6.60	30.15	54.00	-23.85	AV	Vertical
3982.62	39.35	44.20	7.90	29.70	-6.60	32.75	74.00	-41.25	Pk	Horizontal
3982.62	35.90	44.20	7.90	29.70	-6.60	29.30	54.00	-24.70	AV	Horizontal
7229.49	36.68	43.50	11.40	35.50	3.40	40.08	68.20	-28.12	Pk	Vertical
7229.49	33.43	43.50	11.40	35.50	3.40	36.83	54.00	-17.17	AV	Vertical
7236.15	37.64	43.50	11.40	35.50	3.40	41.04	68.20	-27.16	Pk	Horizontal
7236.15	34.76	43.50	11.40	35.50	3.40	38.16	54.00	-15.84	AV	Horizontal
10359.94	39.97	44.50	13.80	38.80	8.10	48.07	68.20	-20.13	Pk	Vertical
10359.94	36.68	44.50	13.80	38.80	8.10	44.78	54.00	-9.22	AV	Vertical
10360.21	39.22	44.50	13.80	38.80	8.10	47.32	68.20	-20.88	Pk	Horizontal
10360.21	35.73	44.50	13.80	38.80	8.10	43.83	54.00	-10.17	AV	Horizontal
11034.61	33.69	43.60	14.30	39.50	10.20	43.89	74.00	-30.11	Pk	Vertical
11034.61	30.82	43.60	14.30	39.50	10.20	41.02	54.00	-12.98	AV	Vertical
11035.45	33.04	43.60	14.30	39.50	10.20	43.24	74.00	-30.76	Pk	Horizontal
11035.45	30.50	43.60	14.30	39.50	10.20	40.70	54.00	-13.30	AV	Horizontal
13288.00	32.47	42.60	15.90	38.90	12.20	44.67	74.00	-29.33	Pk	Vertical
13288.00	29.17	42.60	15.90	38.90	12.20	41.37	54.00	-12.63	AV	Vertical
13287.11	31.89	42.60	15.90	38.90	12.20	44.09	74.00	-29.91	Pk	Horizontal
13287.11	29.70	42.60	15.90	38.90	12.20	41.90	54.00	-12.10	AV	Horizontal
High Channel (802.11n(HT40)/ 5795 MHz)										
3241.31	44.27	44.70	6.70	28.20	-9.80	34.47	68.20	-33.73	Pk	Vertical
3241.31	41.80	44.70	6.70	28.20	-9.80	32.00	54.00	-22.00	AV	Vertical
3246.18	44.23	44.70	6.70	28.20	-9.80	34.43	68.20	-33.77	Pk	Horizontal
3246.18	41.00	44.70	6.70	28.20	-9.80	31.20	54.00	-22.80	AV	Horizontal
3960.16	38.70	44.20	7.90	29.70	-6.60	32.10	74.00	-41.90	Pk	Vertical
3960.16	36.70	44.20	7.90	29.70	-6.60	30.10	54.00	-23.90	AV	Vertical
3967.09	38.88	44.20	7.90	29.70	-6.60	32.28	74.00	-41.72	Pk	Horizontal
3967.09	36.08	44.20	7.90	29.70	-6.60	29.48	54.00	-24.52	AV	Horizontal
7195.54	36.91	43.50	11.40	35.50	3.40	40.31	68.20	-27.89	Pk	Vertical
7195.54	33.55	43.50	11.40	35.50	3.40	36.95	54.00	-17.05	AV	Vertical
7198.00	36.82	43.50	11.40	35.50	3.40	40.22	68.20	-27.98	Pk	Horizontal
7198.00	33.66	43.50	11.40	35.50	3.40	37.06	54.00	-16.94	AV	Horizontal
10426.22	38.56	44.50	13.80	38.80	8.10	46.66	68.20	-21.54	Pk	Vertical
10426.22	36.24	44.50	13.80	38.80	8.10	44.34	54.00	-9.66	AV	Vertical
10426.37	39.82	44.50	13.80	38.80	8.10	47.92	68.20	-20.28	Pk	Horizontal
10426.37	35.64	44.50	13.80	38.80	8.10	43.74	54.00	-10.26	AV	Horizontal
10971.30	33.31	43.60	14.30	39.50	10.20	43.51	74.00	-30.49	Pk	Vertical
10971.30	30.07	43.60	14.30	39.50	10.20	40.27	54.00	-13.73	AV	Vertical
10977.62	33.76	43.60	14.30	39.50	10.20	43.96	74.00	-30.04	Pk	Horizontal
10977.62	30.13	43.60	14.30	39.50	10.20	40.33	54.00	-13.67	AV	Horizontal
13225.90	32.67	42.60	15.90	38.90	12.20	44.87	68.20	-23.33	Pk	Vertical
13225.90	29.43	42.60	15.90	38.90	12.20	41.63	54.00	-12.37	AV	Vertical
13215.57	31.47	42.60	15.90	38.90	12.20	43.67	68.20	-24.53	Pk	Horizontal
13215.57	29.84	42.60	15.90	38.90	12.20	42.04	54.00	-11.96	AV	Horizontal

Remark:

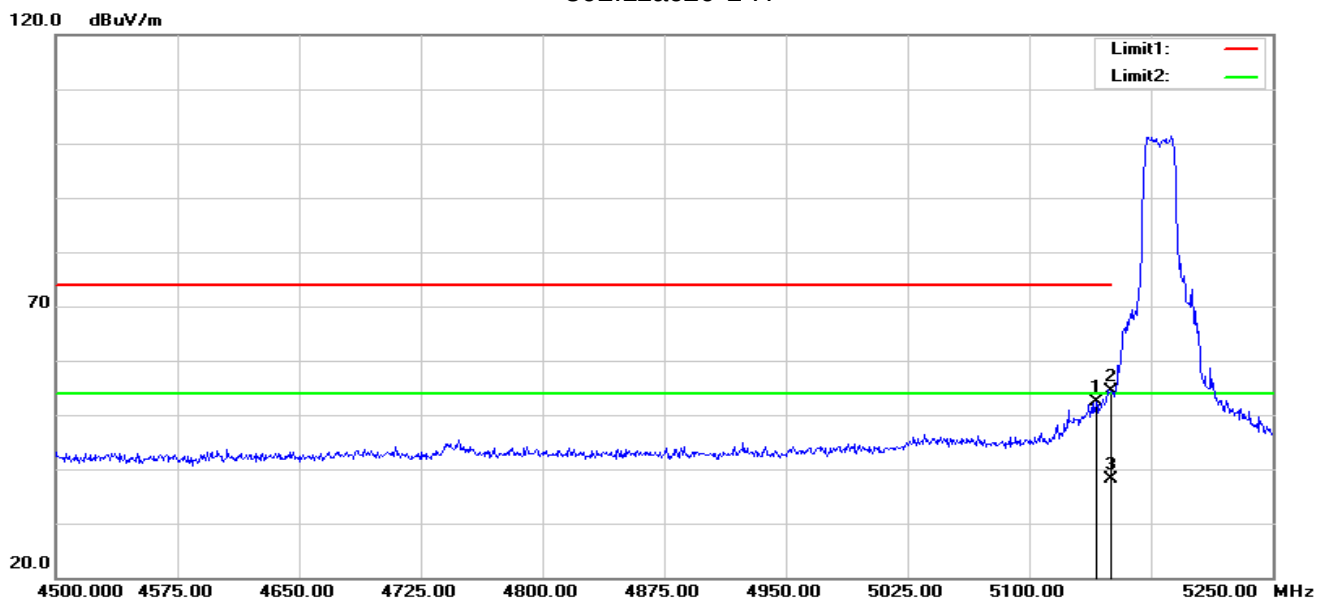
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a, 802.11n (HT-20), 802.11n (HT-40), 802.11ac (VHT-20), 802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11n (HT-40).
3. The frequency emission of peak points that did not show above the forms are at least 20dB below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



3.2.9 RESTRICTED FREQUENCY BANDS AND BAND EDGE

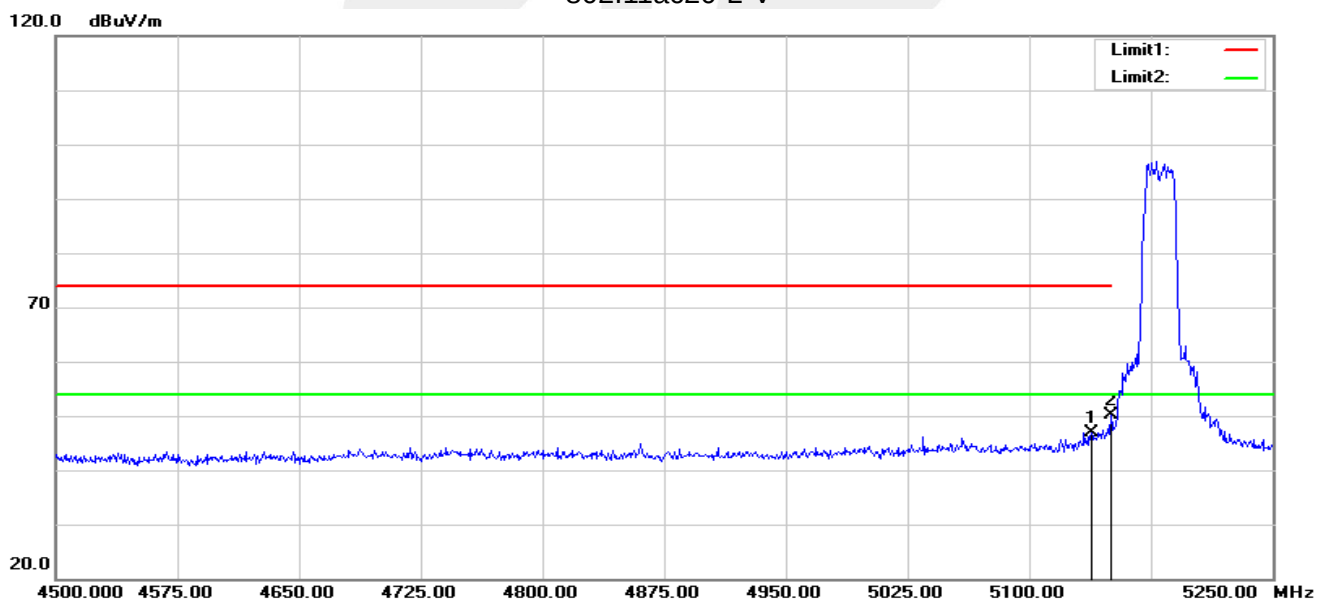
U-NII-1 5150-5250MHz

802.11ac20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5141.250	58.21	-5.74	52.47	74.00	-21.53	peak
2	5150.000	60.08	-5.73	54.35	74.00	-19.65	peak
3	5150.000	43.78	-5.73	38.05	54.00	-15.95	AVG

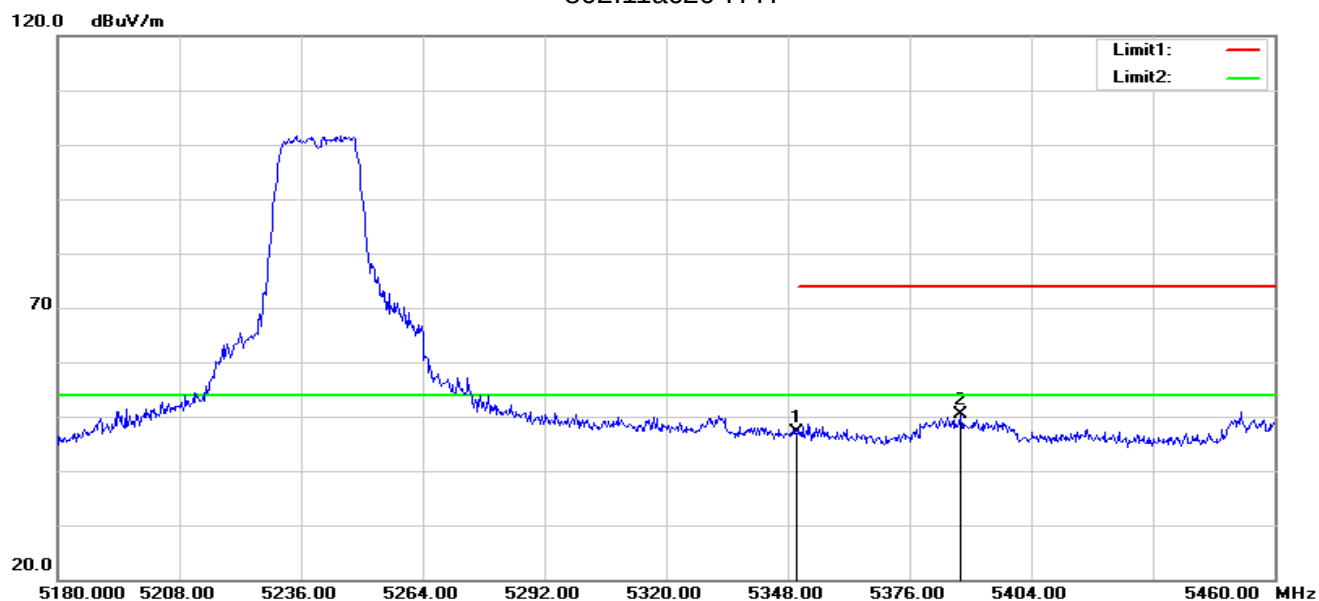
802.11ac20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5138.250	52.74	-5.74	47.00	74.00	-27.00	peak
2	5150.000	55.83	-5.73	50.10	74.00	-23.90	peak

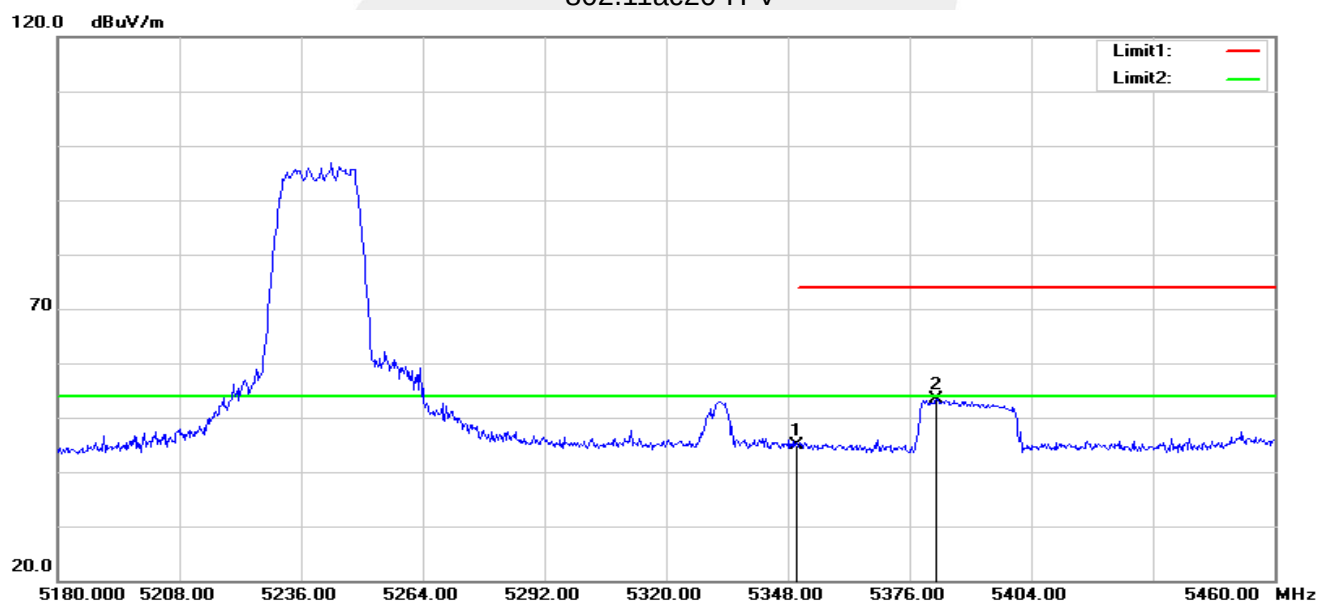


802.11ac20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	52.42	-5.23	47.19	74.00	-26.81	peak
2	5387.760	55.71	-5.25	50.46	74.00	-23.54	peak

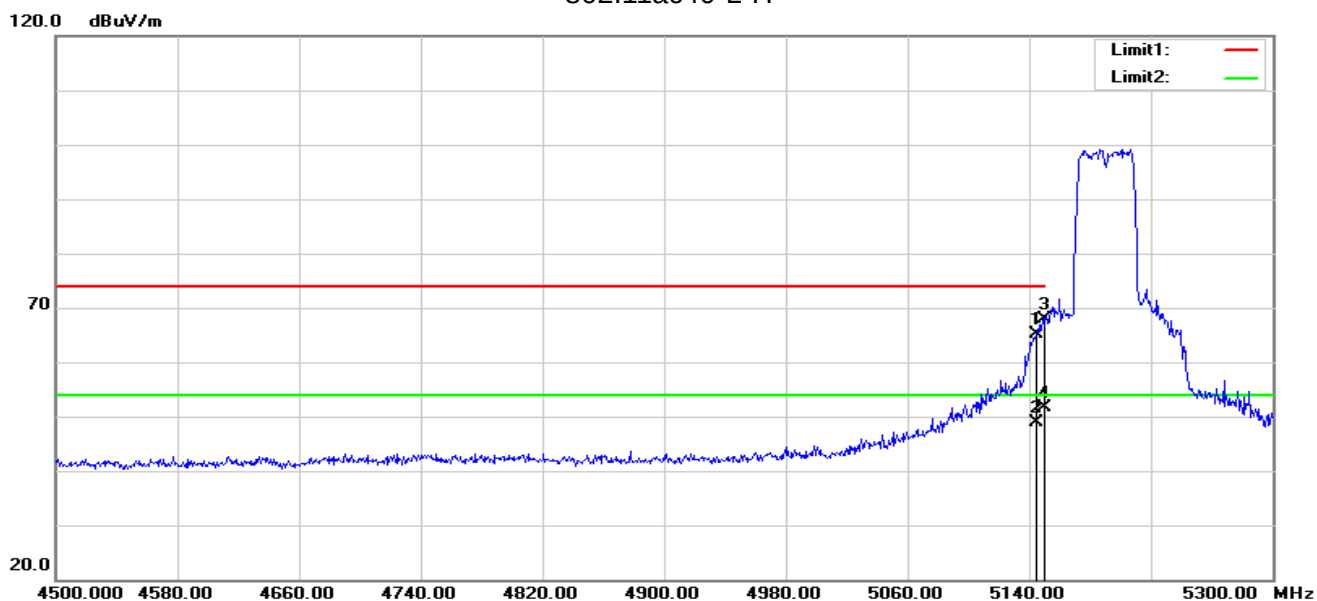
802.11ac20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	50.08	-5.23	44.85	74.00	-29.15	peak
2	5382.160	58.55	-5.24	53.31	74.00	-20.69	peak

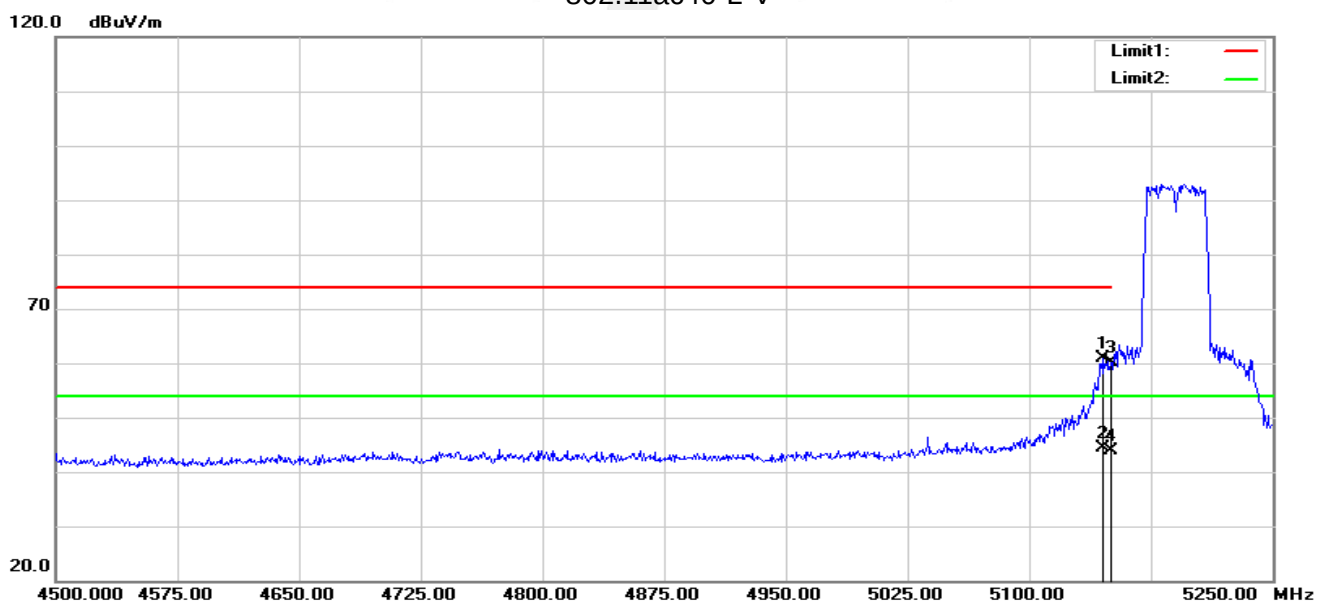


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5144.800	70.84	-5.73	65.11	74.00	-8.89	peak
2	5144.800	54.54	-5.73	48.81	54.00	-5.19	AVG
3	5150.000	73.58	-5.73	67.85	74.00	-6.15	peak
4	5150.000	57.28	-5.73	51.55	54.00	-2.45	AVG

802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5145.750	66.52	-5.73	60.79	74.00	-13.21	peak
2	5145.750	50.22	-5.73	44.49	54.00	-9.51	AVG
3	5150.000	65.96	-5.73	60.23	74.00	-13.77	peak
4	5150.000	49.66	-5.73	43.93	54.00	-10.07	AVG

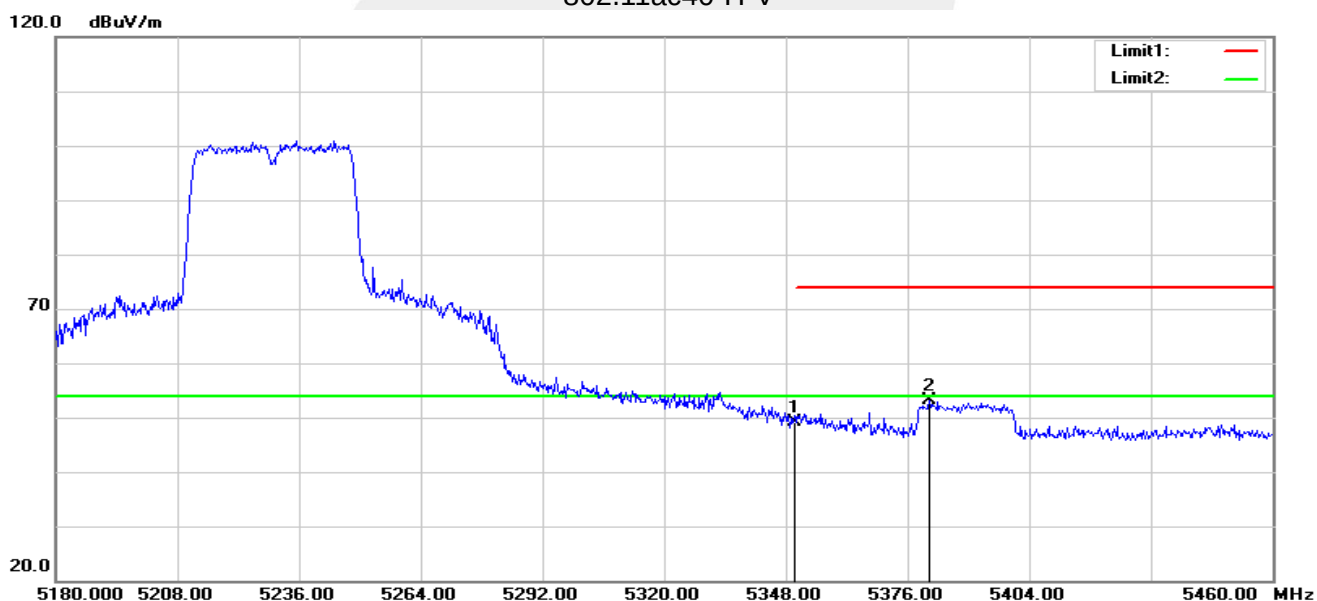


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	53.77	-5.23	48.54	74.00	-25.46	peak
2	5386.920	56.07	-5.24	50.83	74.00	-23.17	peak

802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	54.35	-5.23	49.12	74.00	-24.88	peak
2	5381.040	58.34	-5.25	53.09	74.00	-20.91	peak

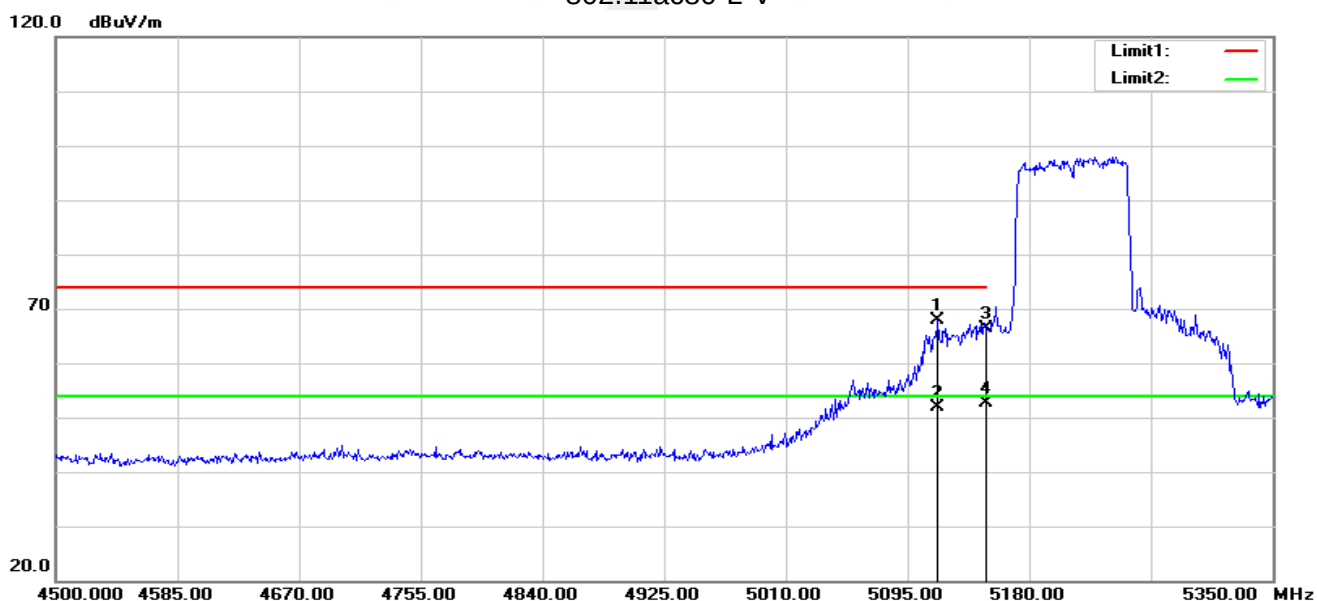


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5115.400	70.99	-5.74	65.25	74.00	-8.75	peak
2	5115.400	54.53	-5.74	48.79	54.00	-5.21	AVG
3	5150.000	70.28	-5.73	64.55	74.00	-9.45	peak
4	5150.000	58.44	-5.73	52.71	54.00	-1.29	AVG

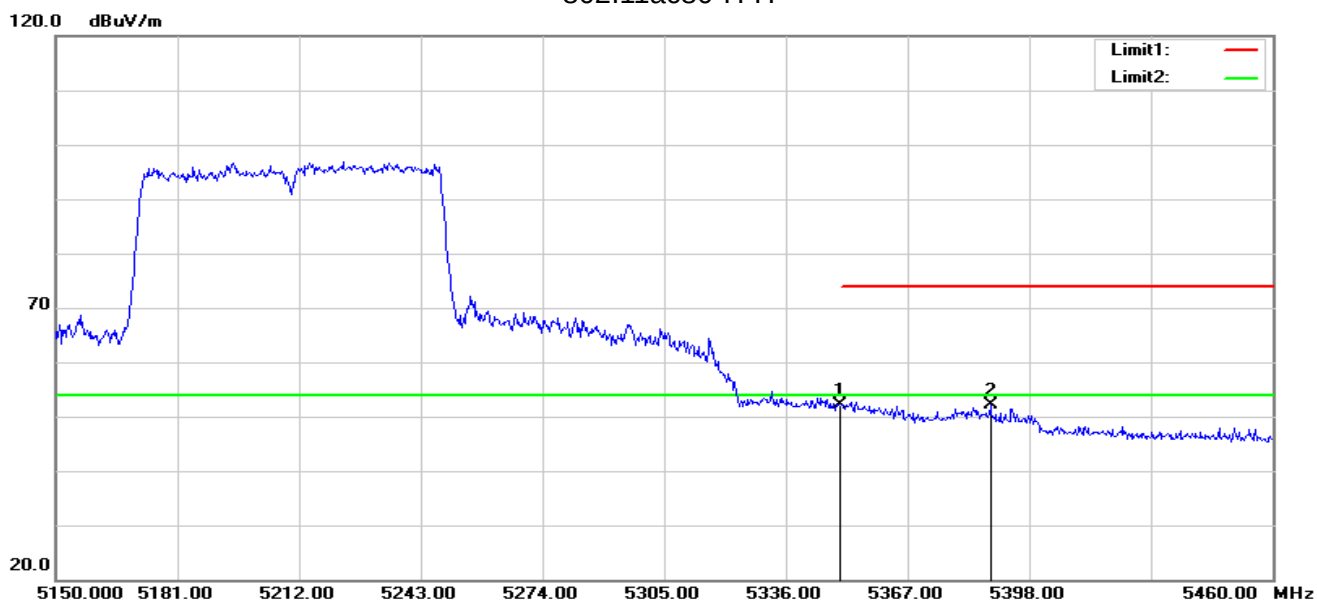
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5116.250	73.69	-5.74	67.95	74.00	-6.05	peak
2	5116.250	57.70	-5.74	51.96	54.00	-2.04	AVG
3	5150.000	72.01	-5.73	66.28	74.00	-7.72	peak
4	5150.000	58.38	-5.73	52.65	54.00	-1.35	AVG

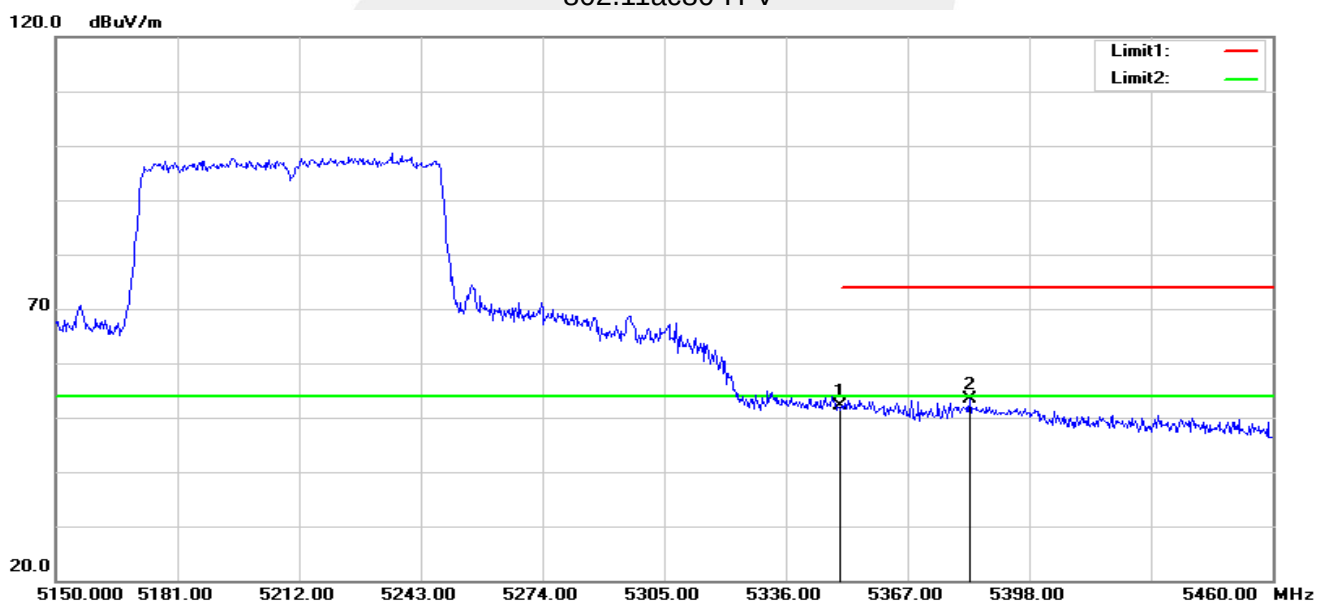


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	57.26	-5.23	52.03	74.00	-21.97	peak
2	5388.080	57.38	-5.25	52.13	74.00	-21.87	peak

802.11ac80-H-V



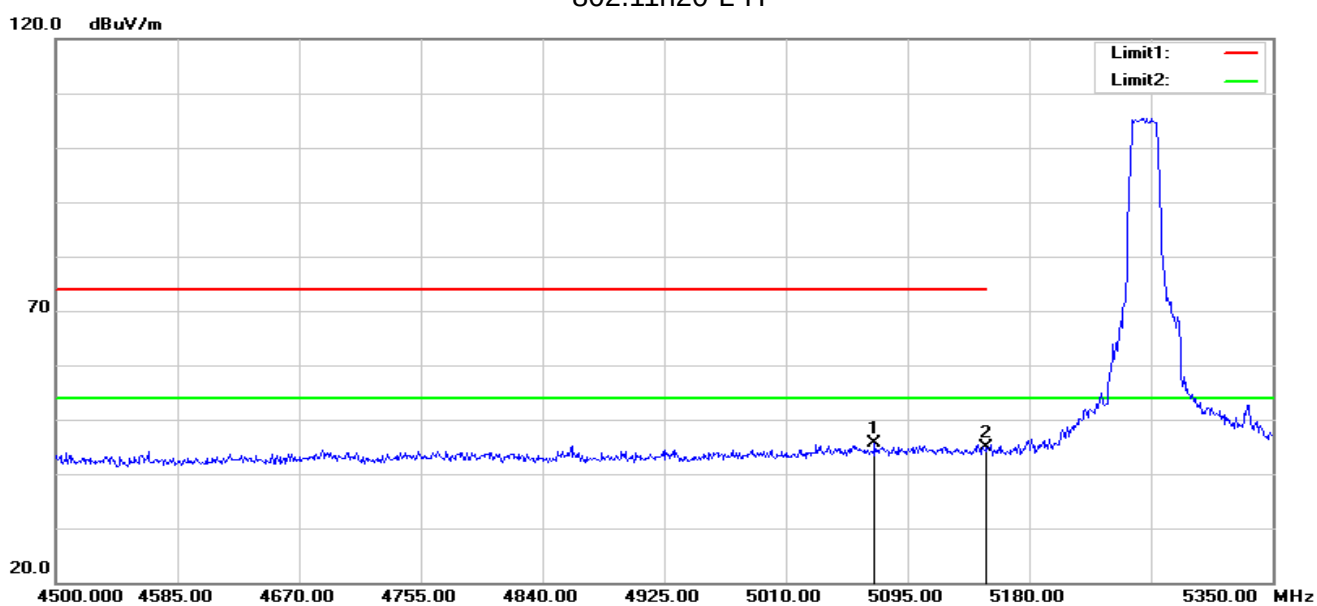
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	57.34	-5.23	52.11	74.00	-21.89	peak
2	5382.810	58.72	-5.24	53.48	74.00	-20.52	peak

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



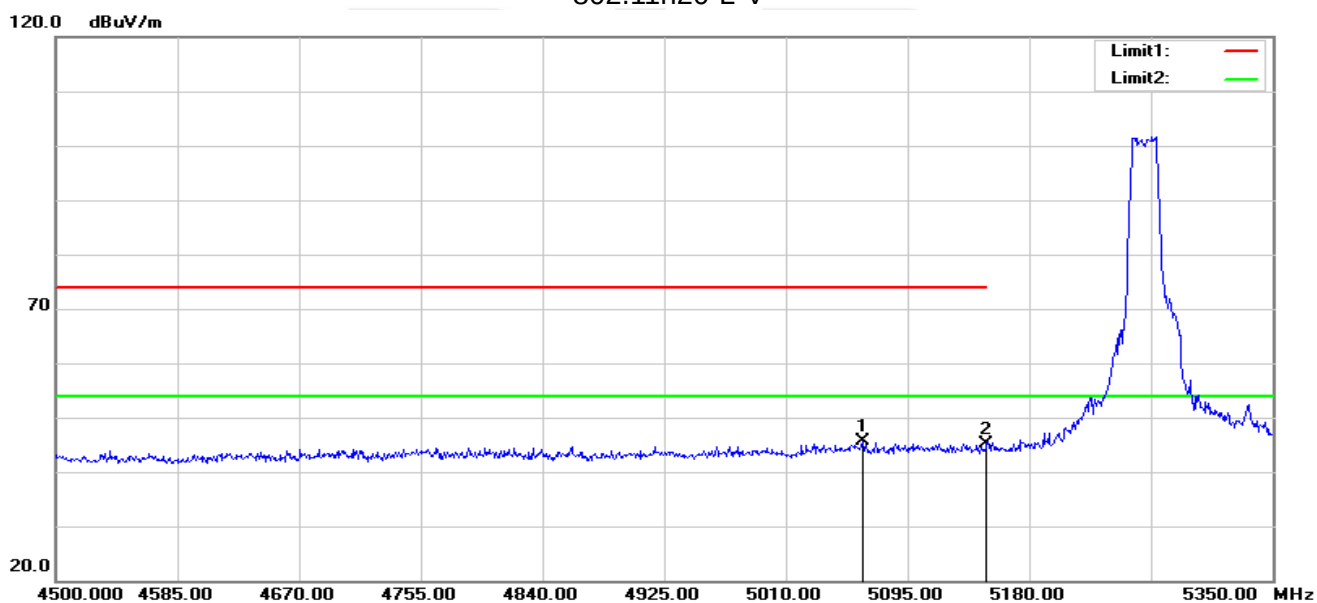
U-NII-2A 5250-5350MHz

802.11n20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5072.050	51.37	-5.86	45.51	74.00	-28.49	peak
2	5150.000	50.51	-5.73	44.78	74.00	-29.22	peak

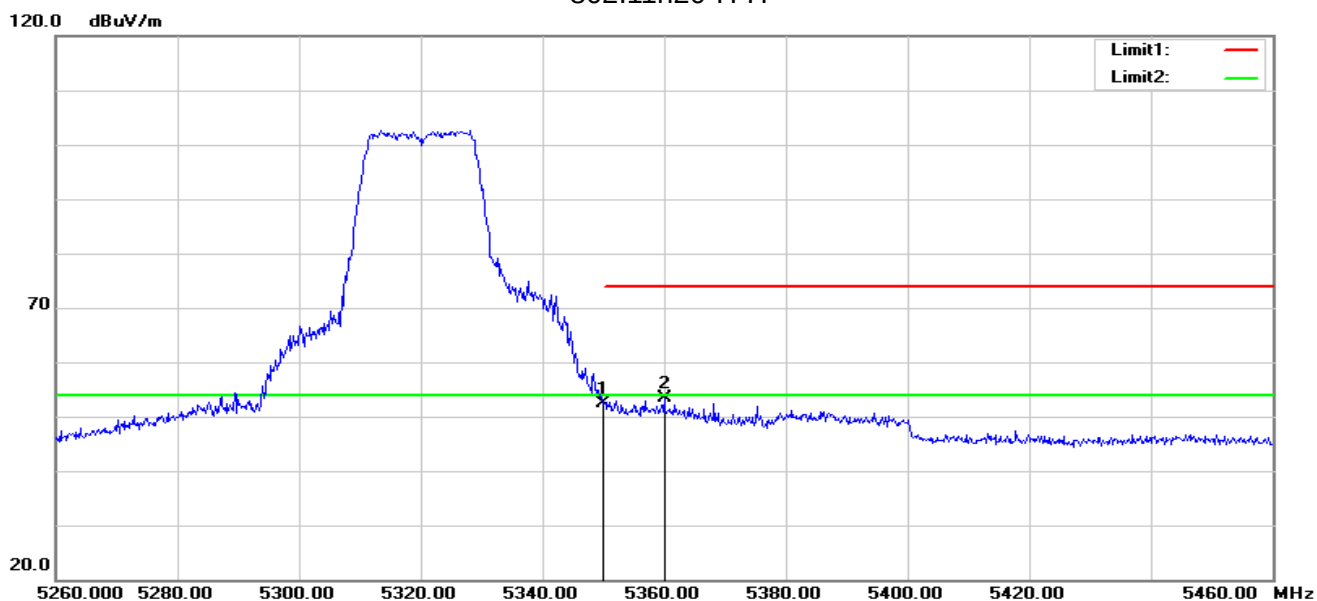
802.11n20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5063.550	51.42	-5.90	45.52	74.00	-28.48	peak
2	5150.000	50.93	-5.73	45.20	74.00	-28.80	peak

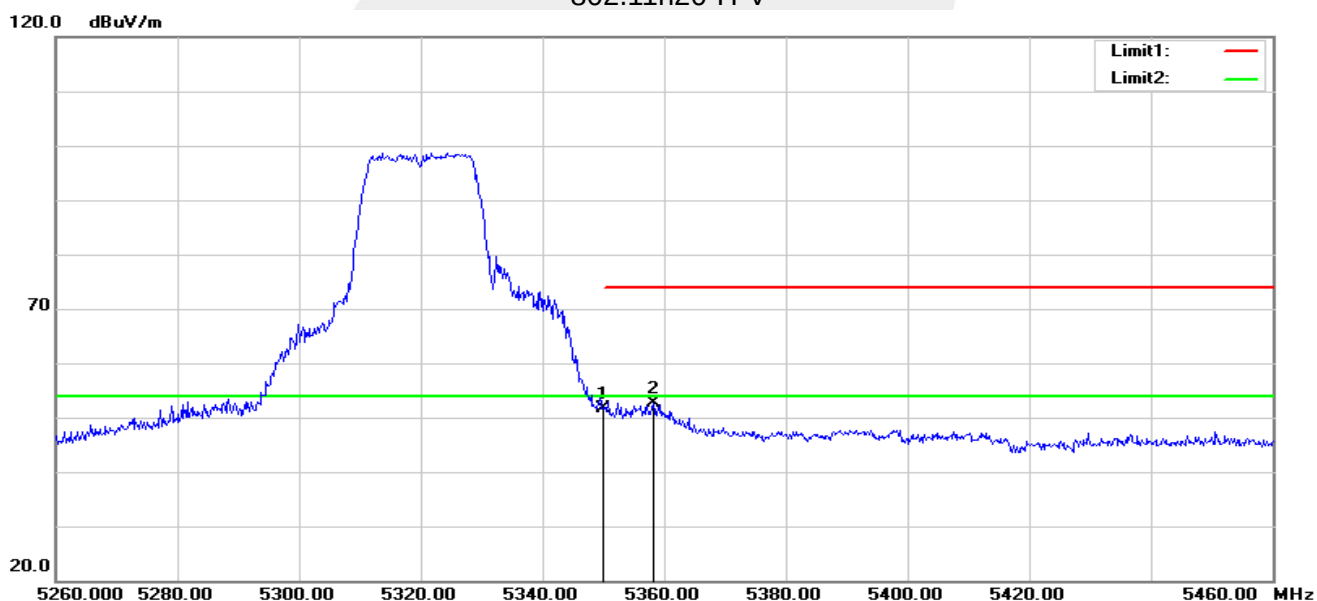


802.11n20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	57.49	-5.23	52.26	74.00	-21.74	peak
2	5360.000	58.52	-5.23	53.29	74.00	-20.71	peak

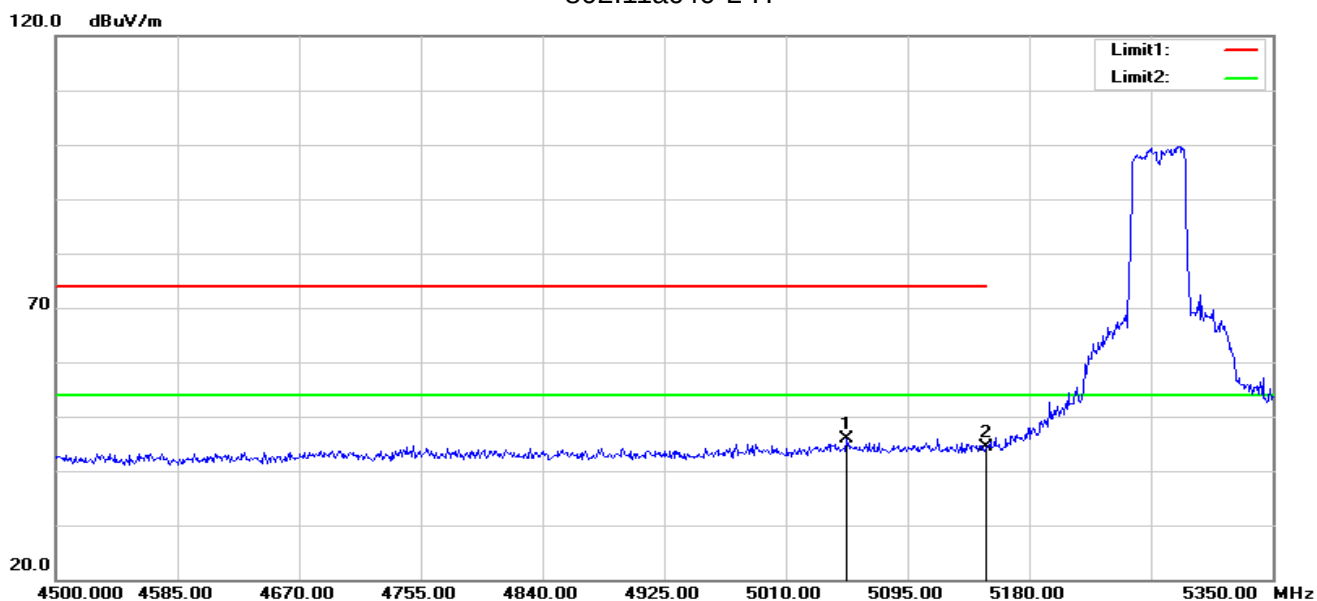
802.11n20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	56.83	-5.23	51.60	74.00	-22.40	peak
2	5358.200	57.93	-5.23	52.70	74.00	-21.30	peak

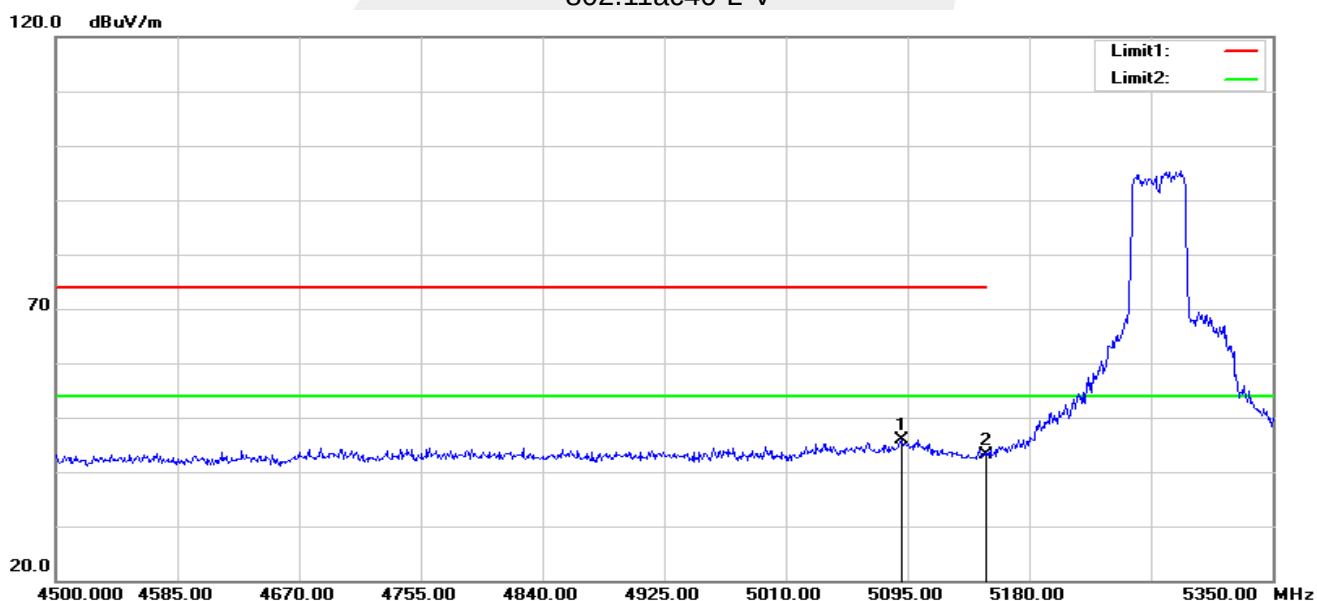


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5052.500	51.89	-5.96	45.93	74.00	-28.07	peak
2	5150.000	50.09	-5.73	44.36	74.00	-29.64	peak

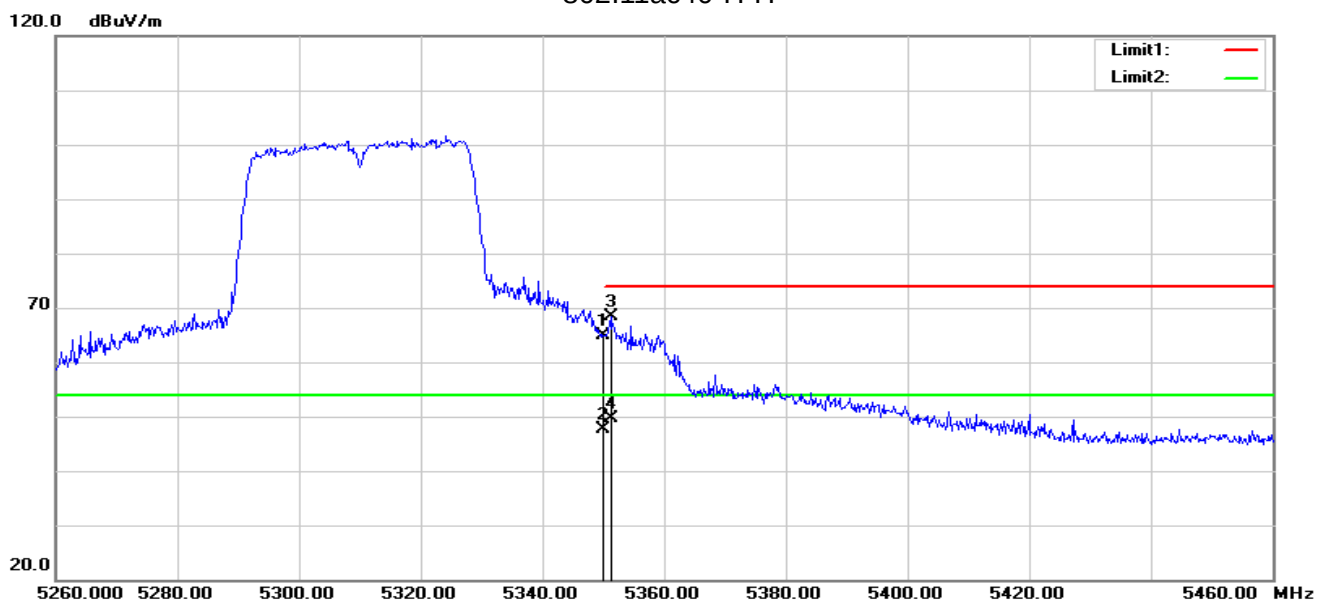
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5090.750	51.74	-5.78	45.96	74.00	-28.04	peak
2	5150.000	48.97	-5.73	43.24	74.00	-30.76	peak

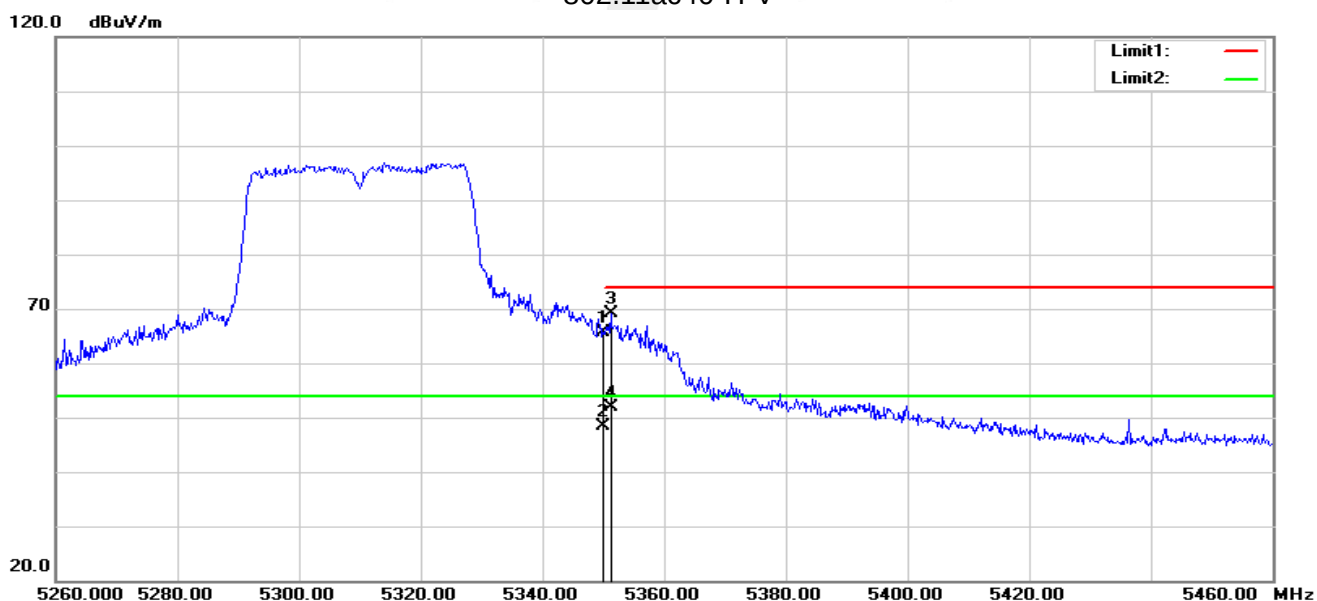


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	70.08	-5.23	64.85	74.00	-9.15	peak
2	5350.000	52.88	-5.23	47.65	54.00	-6.35	AVG
3	5351.200	73.65	-5.23	68.42	74.00	-5.58	peak
4	5351.200	54.91	-5.23	49.68	54.00	-4.32	AVG

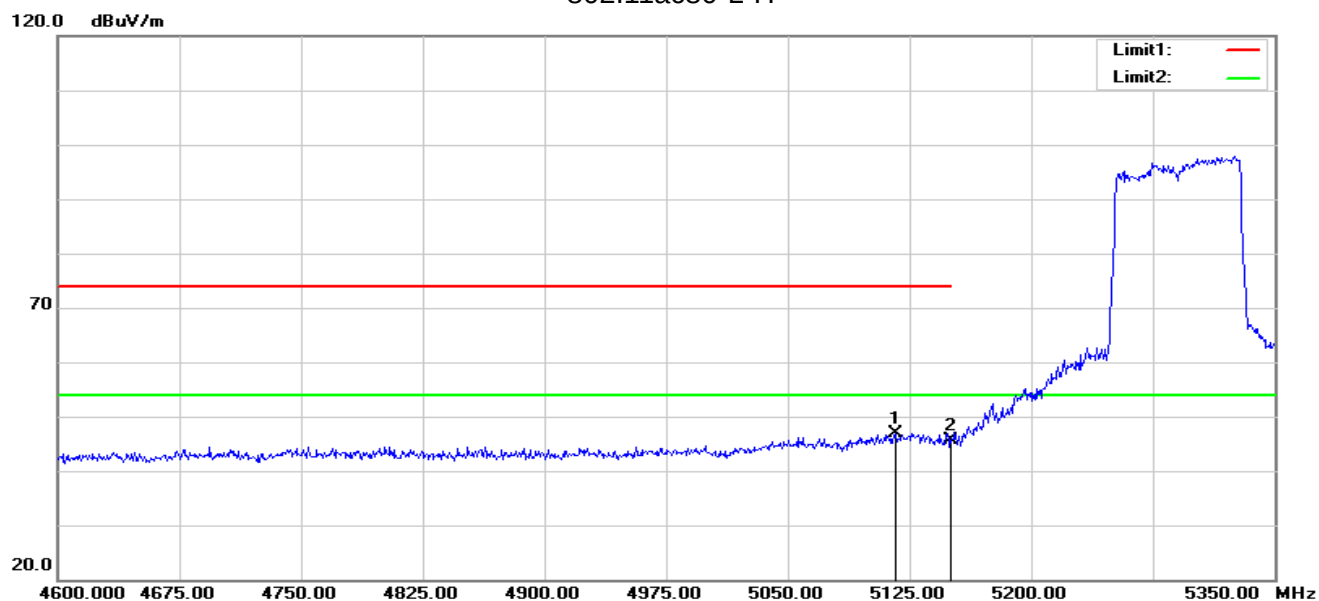
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	70.79	-5.23	65.56	74.00	-8.44	peak
2	5350.000	53.55	-5.23	48.32	54.00	-5.68	AVG
3	5351.200	74.46	-5.23	69.23	74.00	-4.77	peak
4	5351.200	57.18	-5.23	51.95	54.00	-2.05	AVG

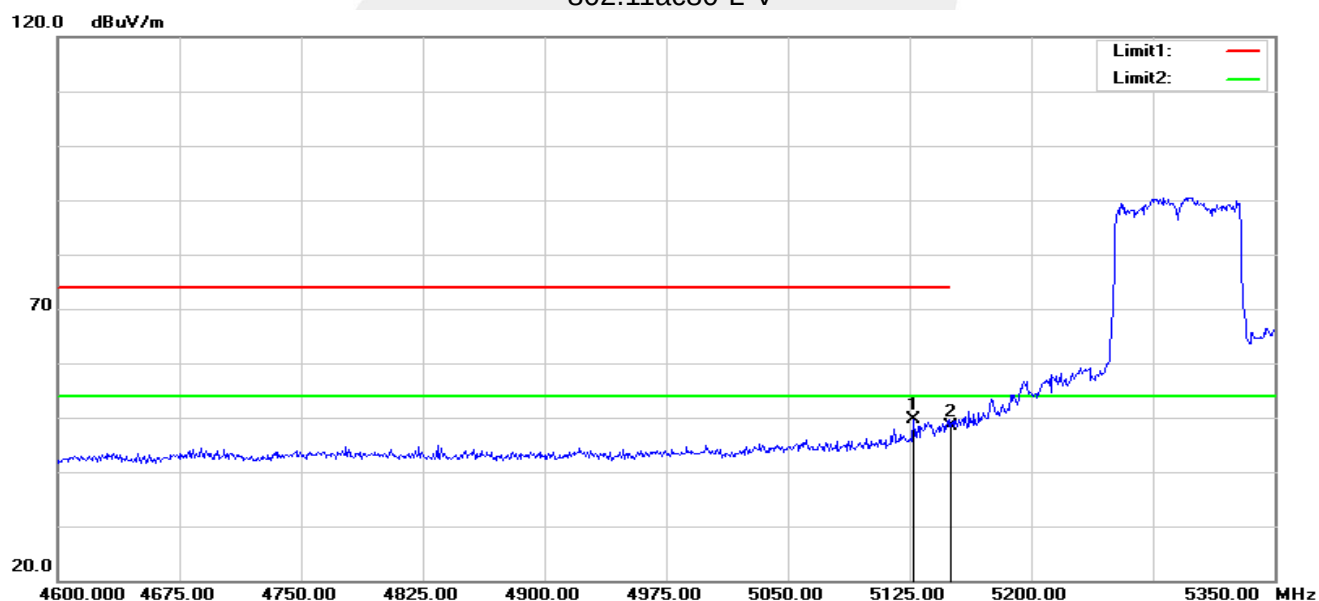


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5116.000	52.66	-5.74	46.92	74.00	-27.08	peak
2	5150.000	51.25	-5.73	45.52	74.00	-28.48	peak

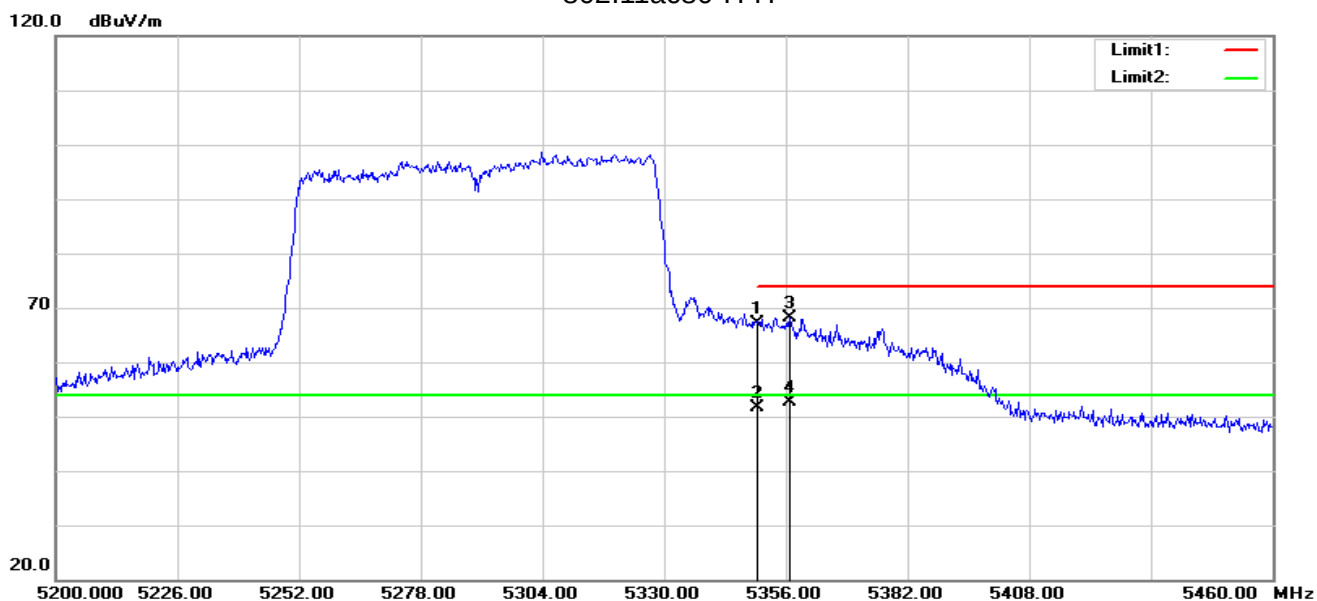
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5127.250	55.40	-5.74	49.66	74.00	-24.34	peak
2	5150.000	54.21	-5.73	48.48	74.00	-25.52	peak

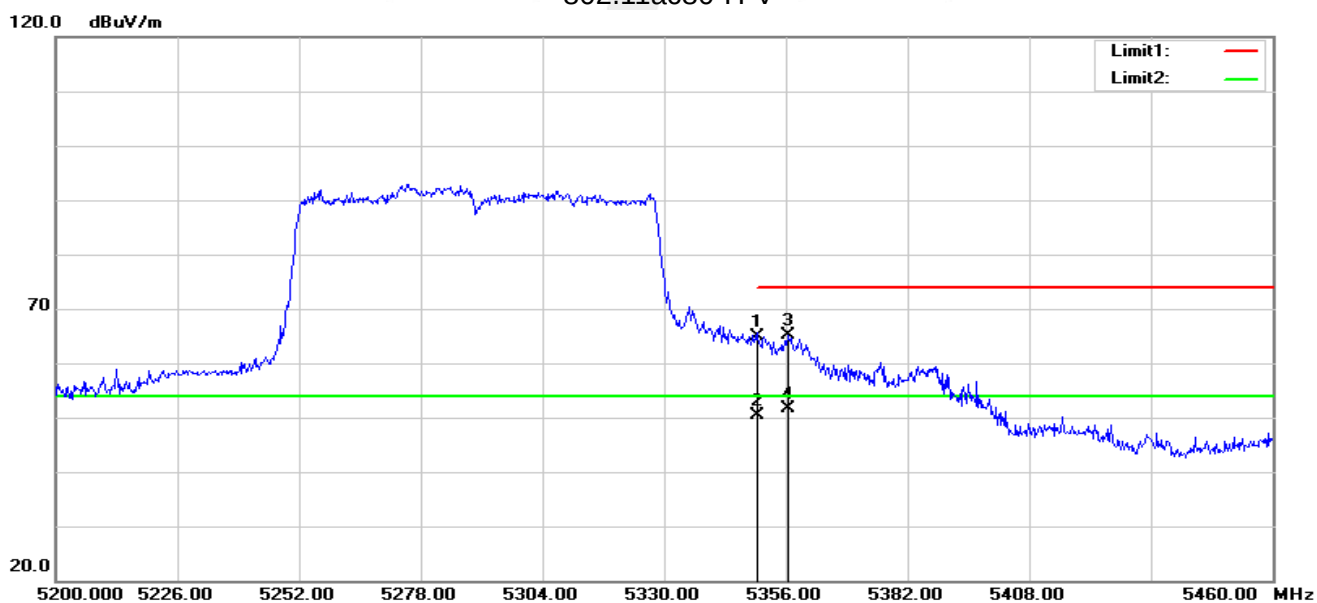


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	72.32	-5.23	67.09	74.00	-6.91	peak
2	5350.000	56.86	-5.23	51.63	54.00	-2.37	AVG
3	5356.780	73.42	-5.23	68.19	74.00	-5.81	peak
4	5356.780	57.90	-5.23	52.67	54.00	-1.33	AVG

802.11ac80-H-V



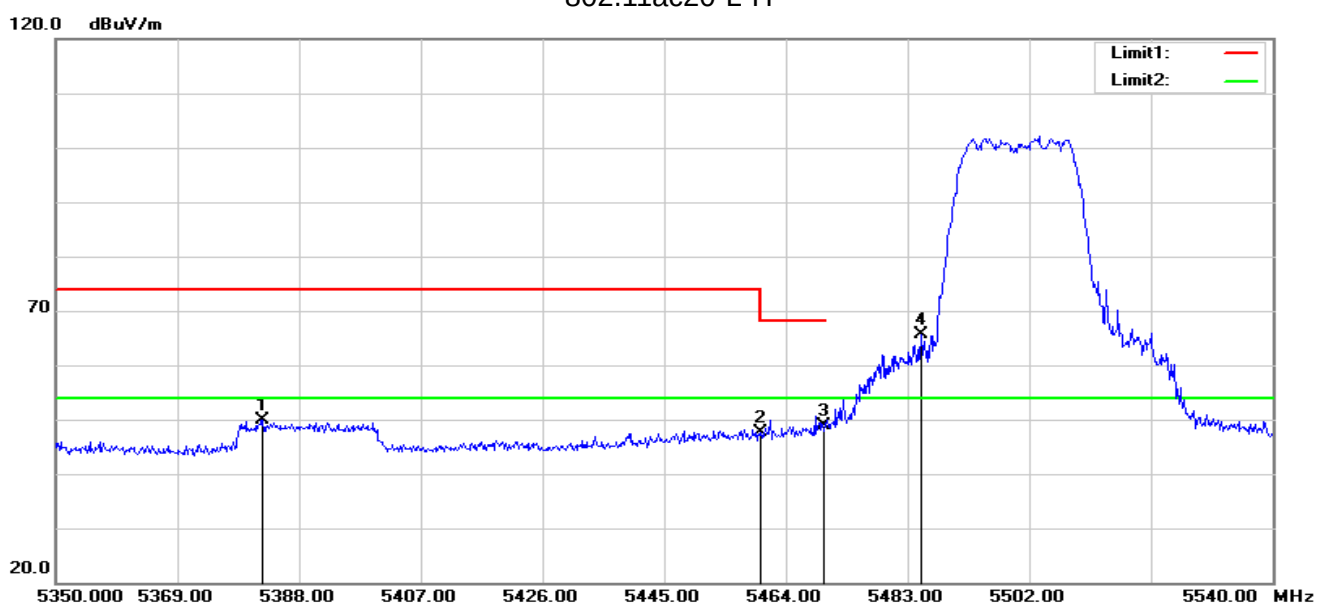
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	70.02	-5.23	64.79	74.00	-9.21	peak
2	5350.000	55.55	-5.23	50.32	54.00	-3.68	AVG
3	5356.520	70.48	-5.23	65.25	74.00	-8.75	peak
4	5356.520	56.87	-5.23	51.64	54.00	-2.36	AVG

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



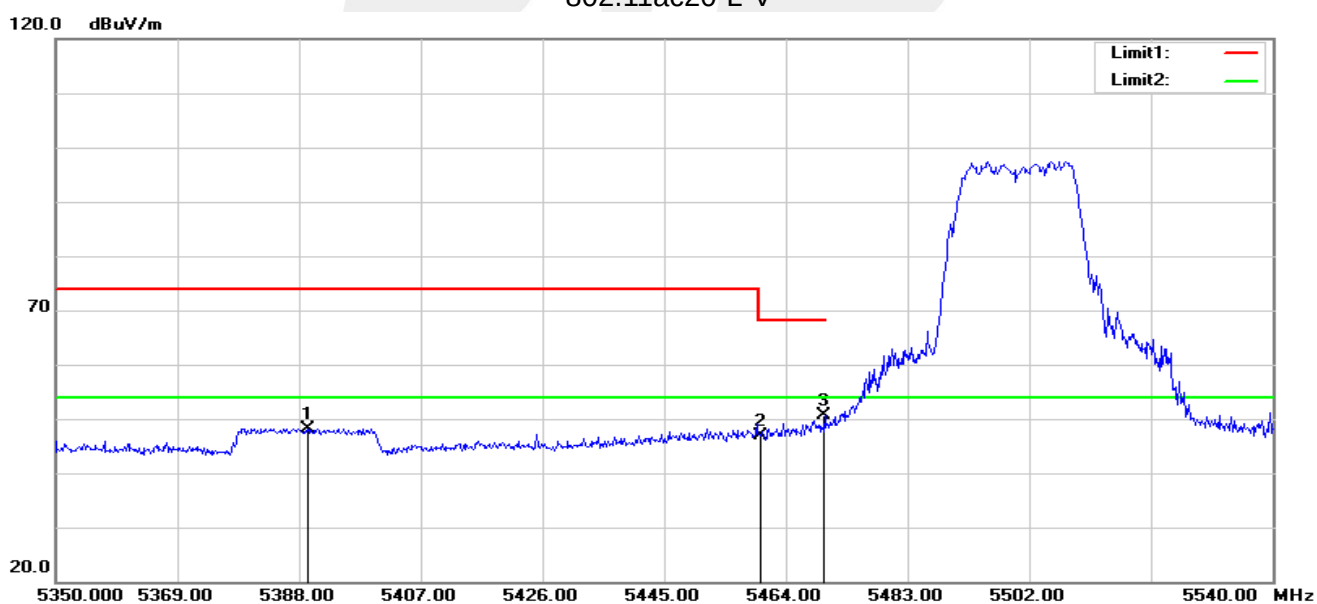
U-NII-2C 5470-5725MHz

802.11ac20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5382.300	55.04	-5.24	49.80	74.00	-24.20	peak
2	5460.000	52.63	-5.11	47.52	68.20	-20.68	peak
3	5470.000	53.90	-5.09	48.81	68.20	-19.39	peak
4	5485.090	70.57	-5.05	65.52			peak

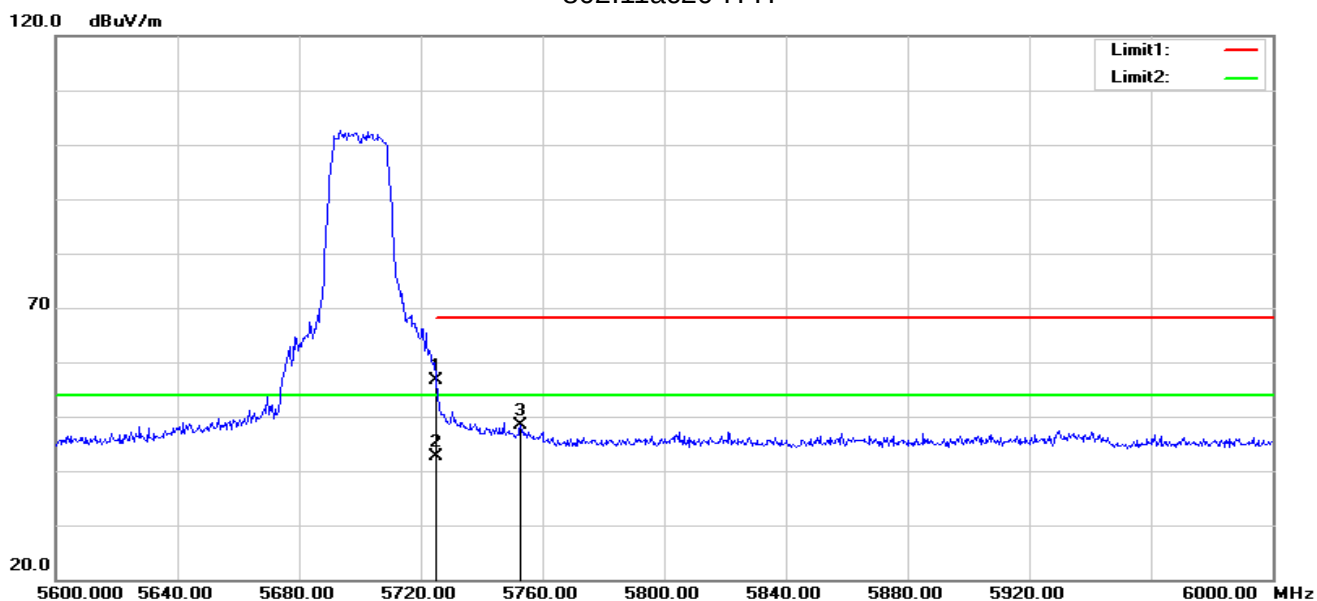
802.11ac20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5389.330	53.50	-5.25	48.25	74.00	-25.75	peak
2	5460.000	52.09	-5.11	46.98	68.20	-21.22	peak
3	5470.000	55.79	-5.09	50.70	68.20	-17.50	peak

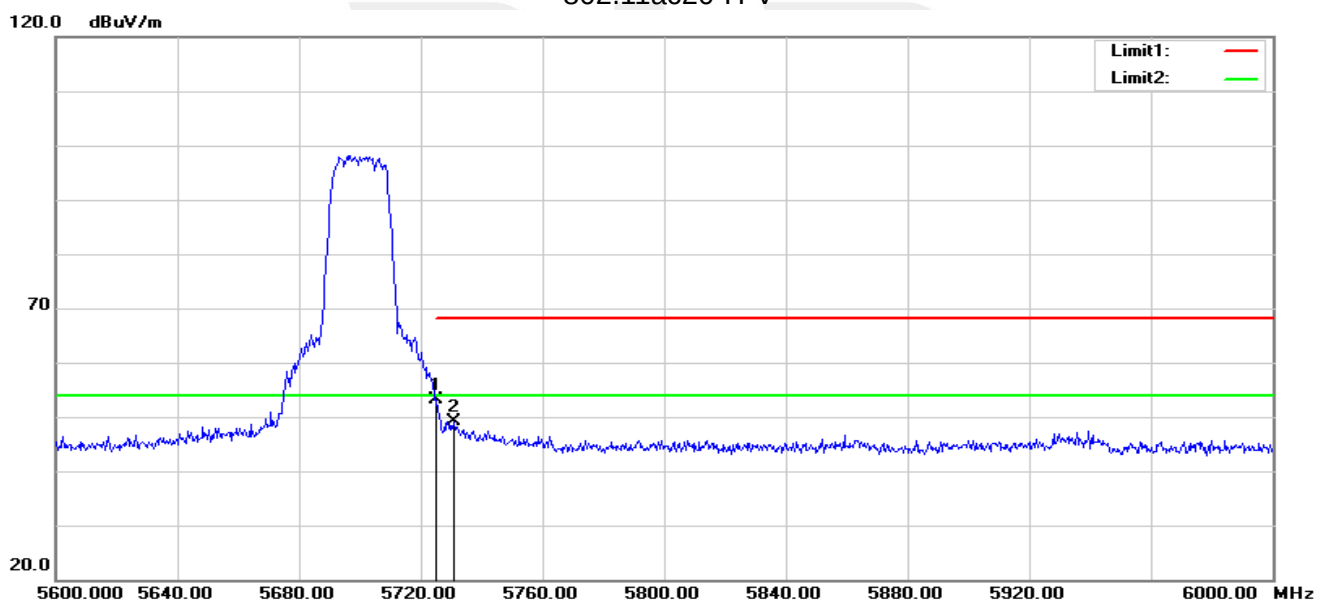


802.11ac20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	61.19	-4.57	56.62	68.20	-11.58	peak
2	5725.000	47.22	-4.57	42.65	54.00	-11.35	AVG
3	5752.800	52.92	-4.48	48.44	68.20	-19.76	peak

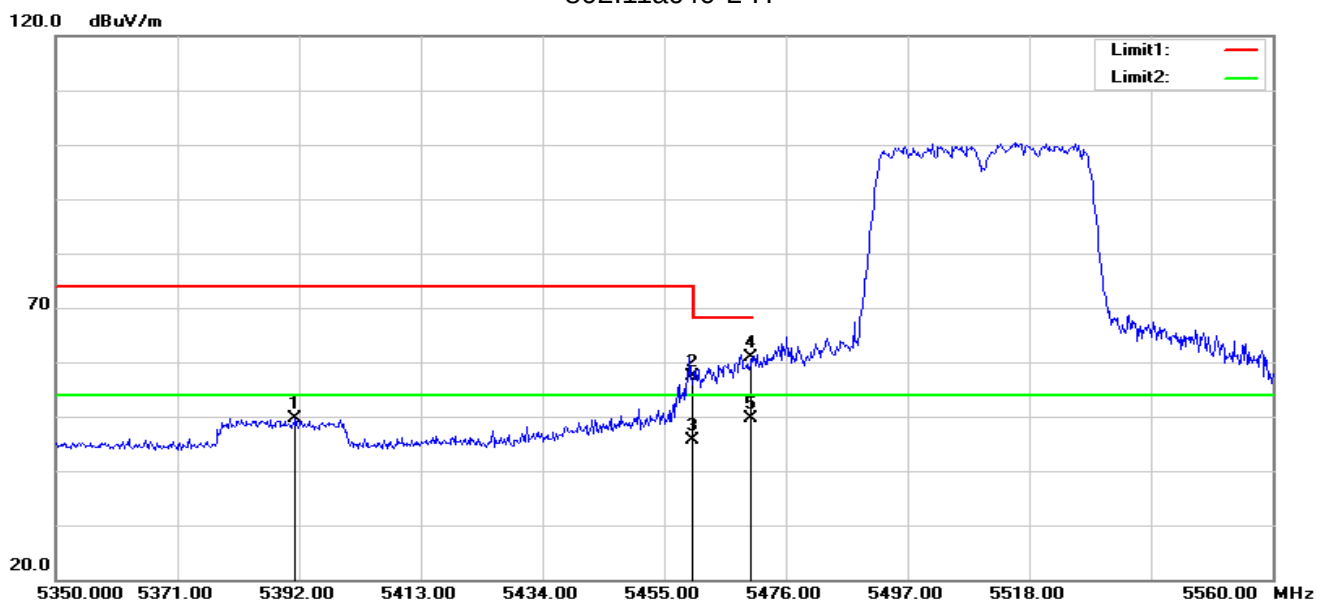
802.11ac20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	57.81	-4.57	53.24	68.20	-14.96	peak
2	5730.800	53.65	-4.55	49.10	68.20	-19.10	peak

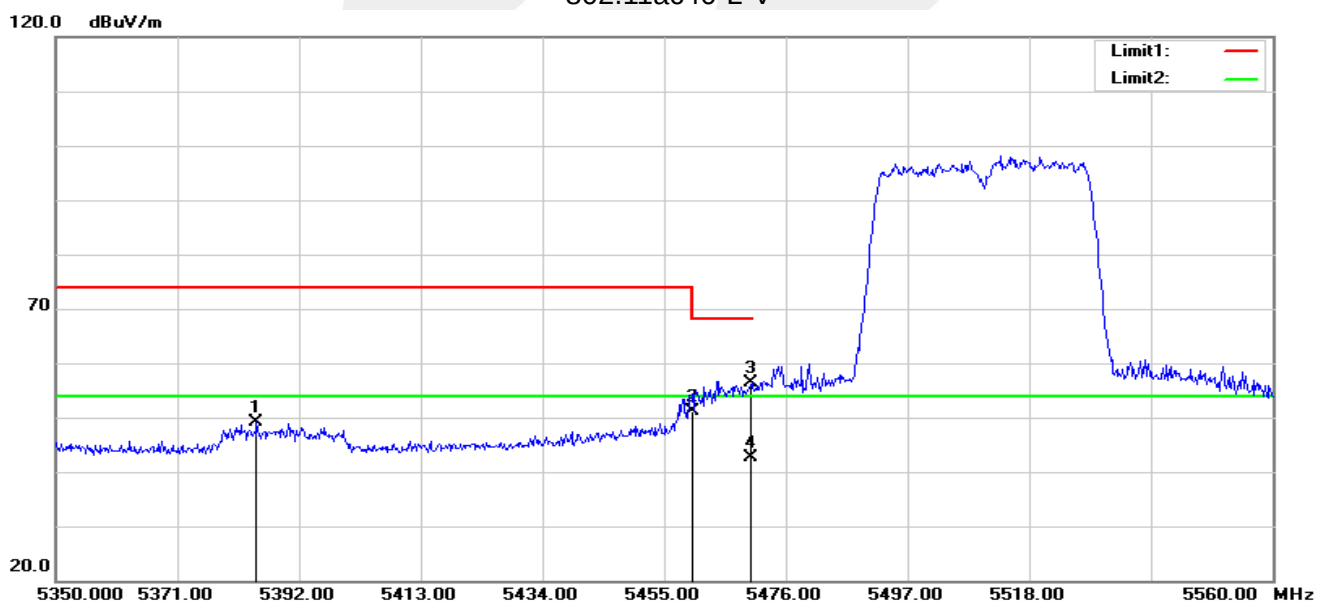


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5391.370	54.76	-5.25	49.51	74.00	-24.49	peak
2	5460.000	62.52	-5.11	57.41	68.20	-10.79	peak
3	5460.000	50.76	-5.11	45.65	54.00	-8.35	AVG
4	5470.000	66.05	-5.09	60.96	68.20	-7.24	peak
5	5470.000	54.77	-5.09	49.68	54.00	-4.32	AVG

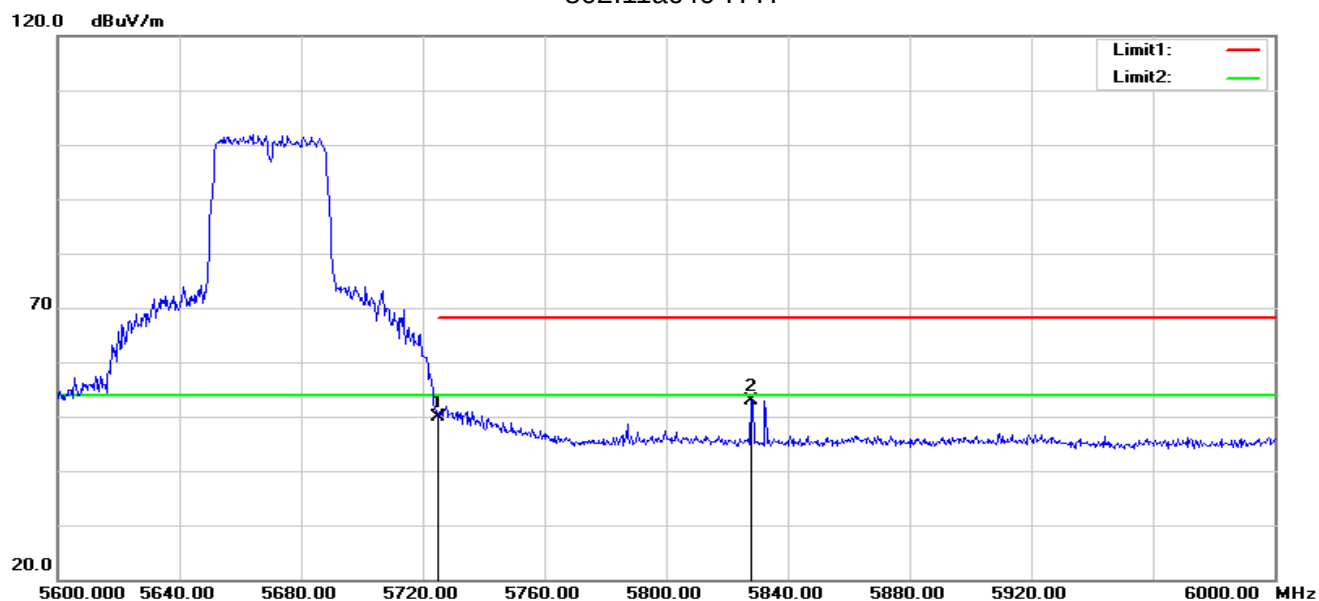
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5384.650	54.45	-5.24	49.21	74.00	-24.79	peak
2	5460.000	56.34	-5.11	51.23	68.20	-16.97	peak
3	5470.000	61.48	-5.09	56.39	68.20	-11.81	peak
4	5470.000	47.74	-5.09	42.65	54.00	-11.35	AVG

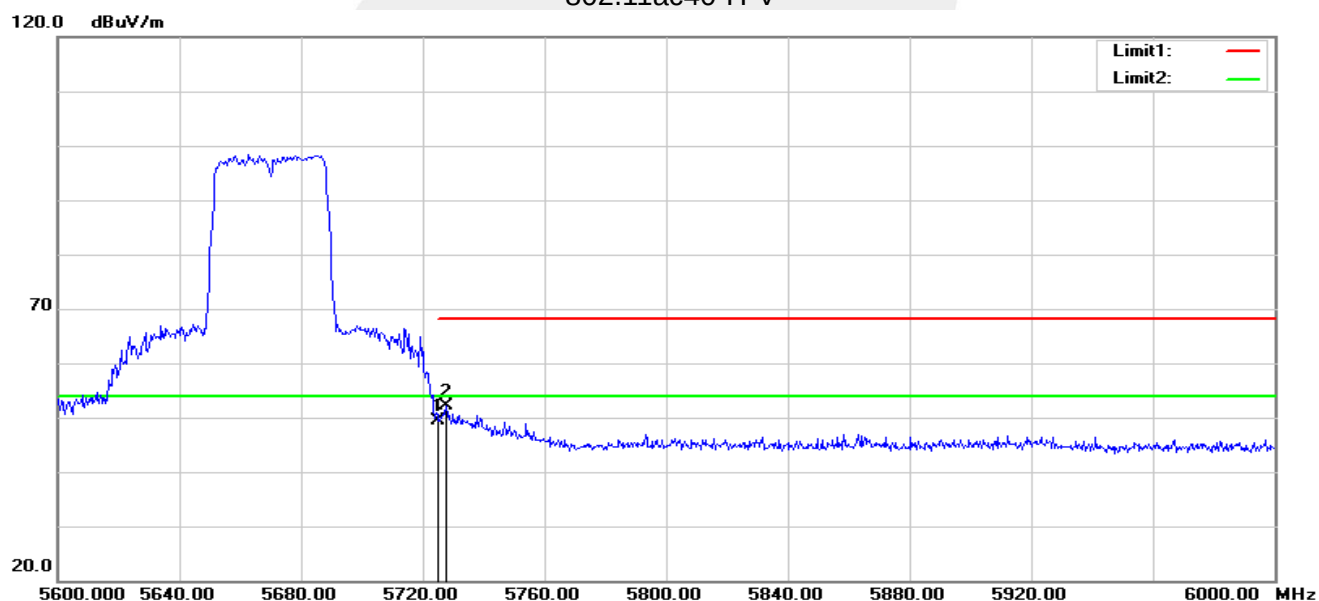


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	54.47	-4.57	49.90	68.20	-18.30	peak
2	5828.000	57.20	-4.20	53.00	68.20	-15.20	peak

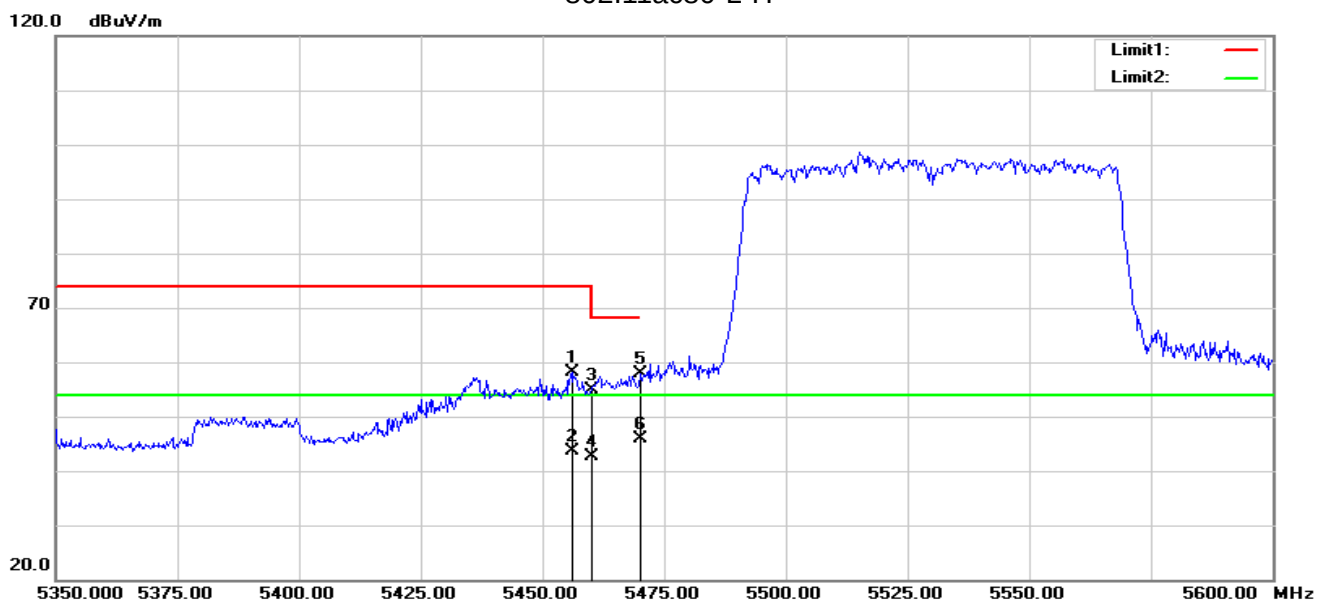
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	53.89	-4.57	49.32	68.20	-18.88	peak
2	5727.600	56.76	-4.57	52.19	68.20	-16.01	peak

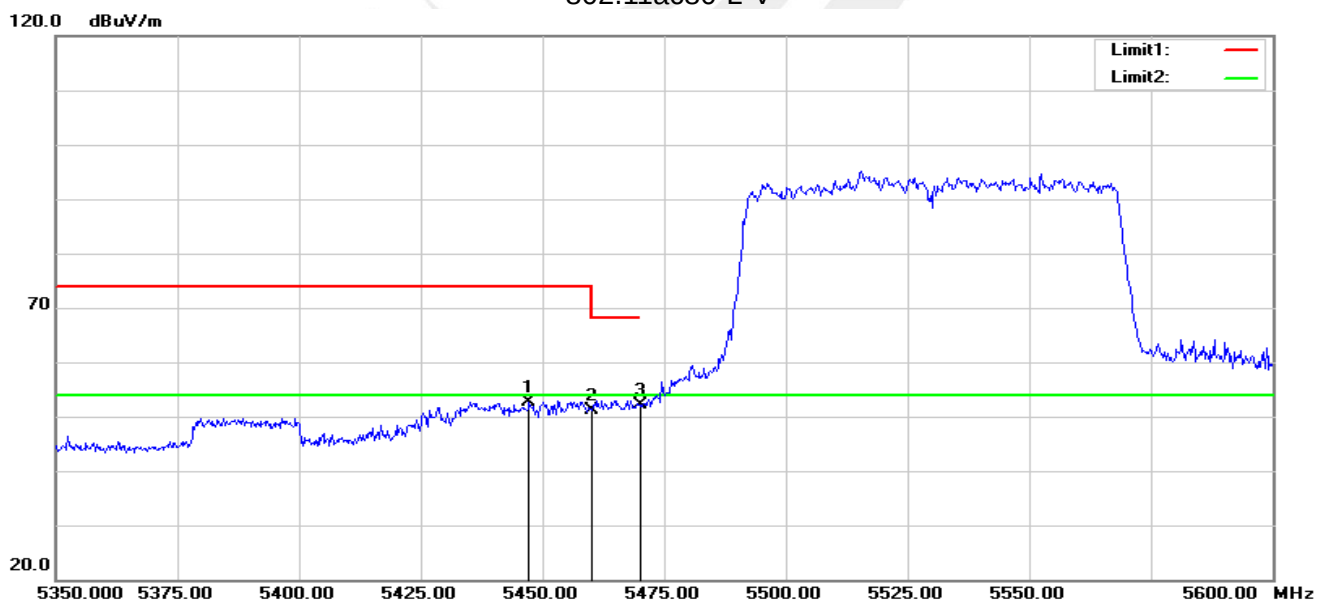


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5456.250	63.30	-5.13	58.17	74.00	-15.83	peak
2	5456.250	48.78	-5.13	43.65	54.00	-10.35	AVG
3	5460.000	59.90	-5.11	54.79	68.20	-13.41	peak
4	5460.000	47.80	-5.11	42.69	54.00	-11.31	AVG
5	5470.000	62.86	-5.09	57.77	68.20	-10.43	peak
6	5470.000	51.07	-5.09	45.98	54.00	-8.02	AVG

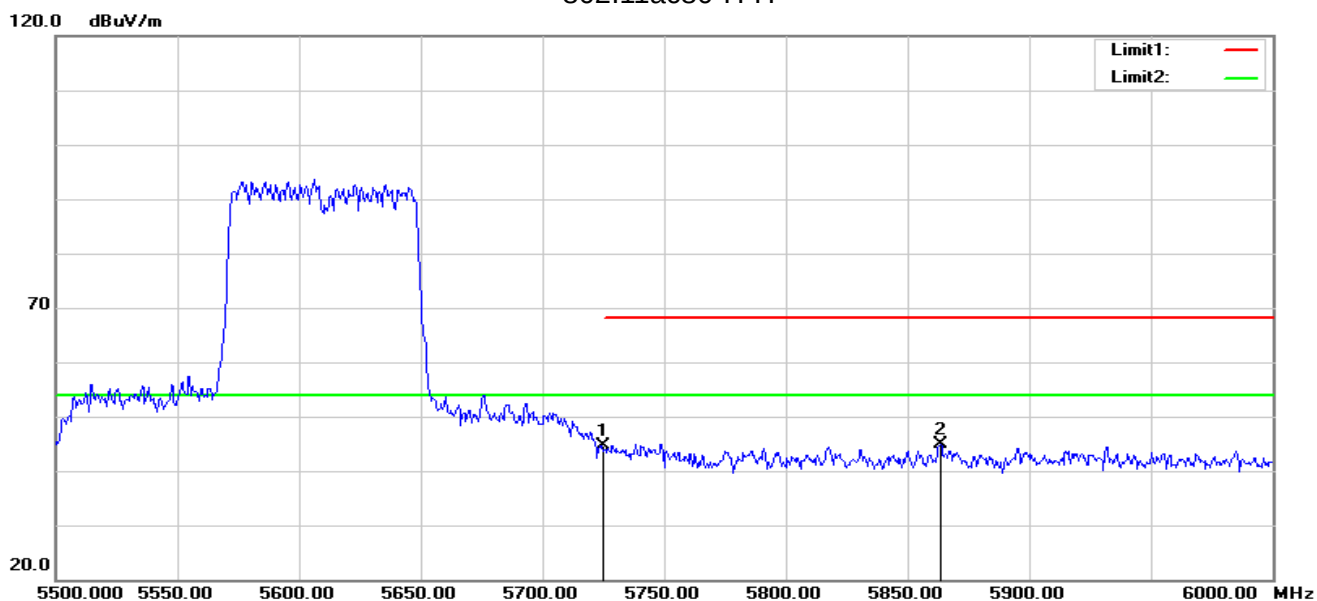
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5447.250	57.88	-5.14	52.74	74.00	-21.26	peak
2	5460.000	56.21	-5.11	51.10	68.20	-17.10	peak
3	5470.000	57.23	-5.09	52.14	68.20	-16.06	peak

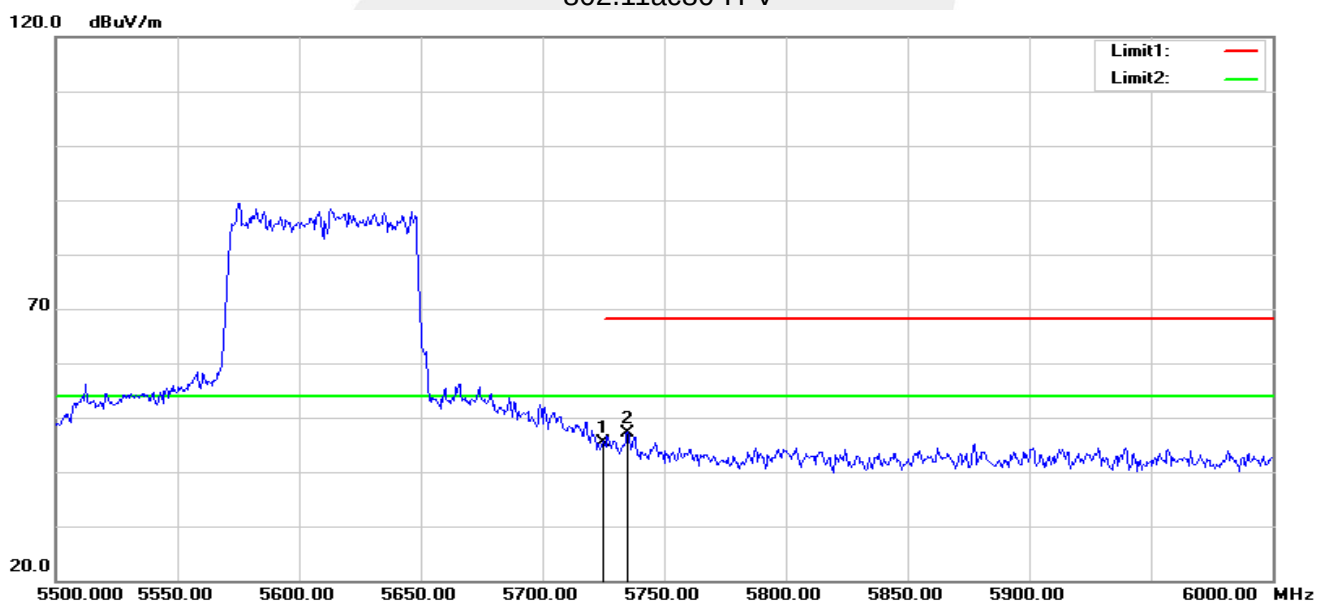


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	49.14	-4.57	44.57	68.20	-23.63	peak
2	5863.500	48.92	-4.04	44.88	68.20	-23.32	peak

802.11ac80-H-V



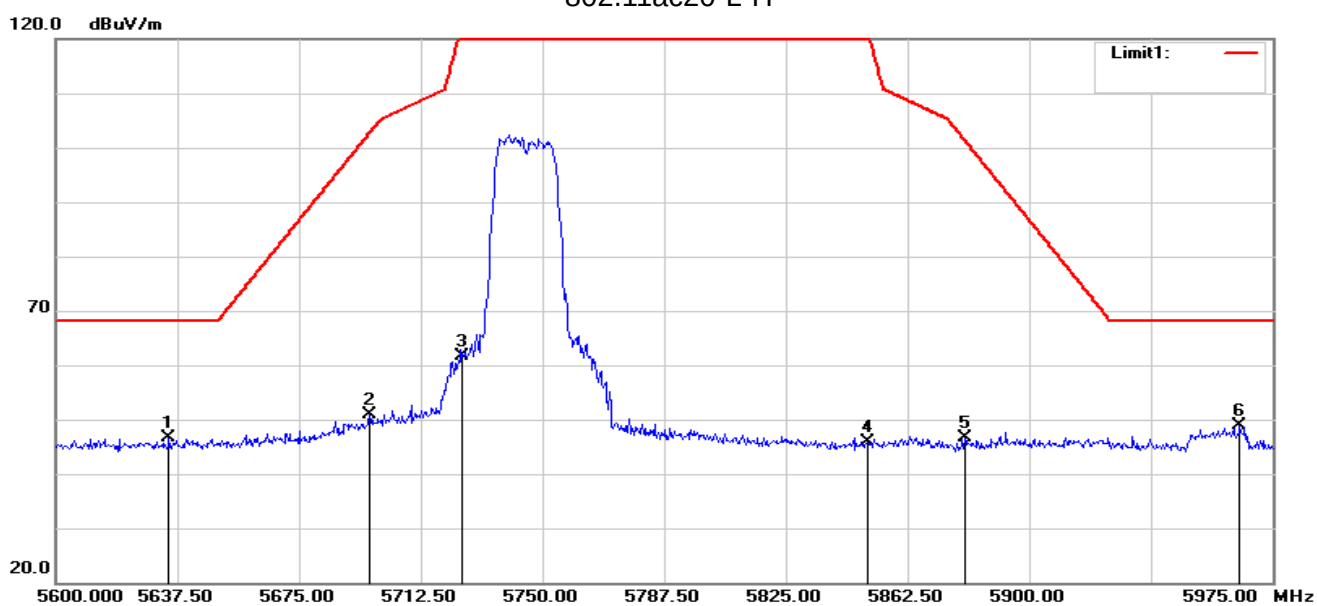
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	50.07	-4.57	45.50	68.20	-22.70	peak
2	5735.000	51.79	-4.54	47.25	68.20	-20.95	peak

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



U-NII-3(5.725-5.85 GHz)

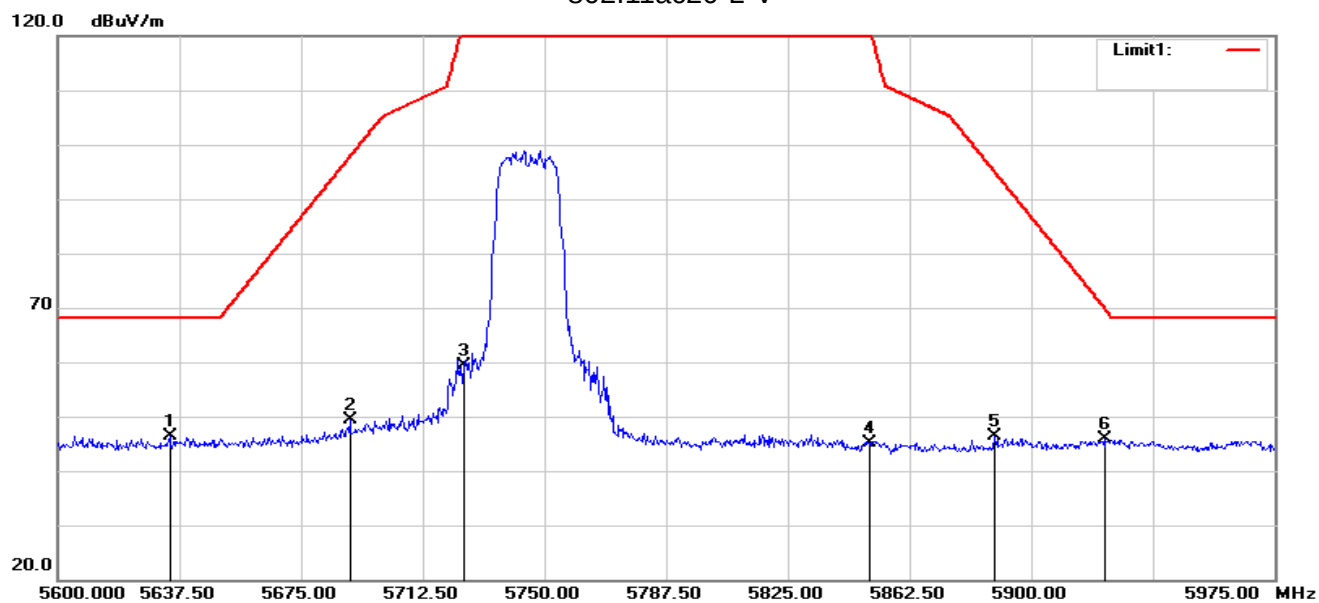
802.11ac20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5634.875	51.32	-4.68	46.64	68.20	-21.56	peak
2	5696.750	55.67	-4.67	51.00	102.80	-51.80	peak
3	5725.000	66.13	-4.57	61.56	122.20	-60.64	peak
4	5850.000	49.97	-4.10	45.87	122.20	-76.33	peak
5	5880.125	50.61	-3.97	46.64	101.41	-54.77	peak
6	5964.875	52.78	-3.99	48.79	68.20	-19.41	peak



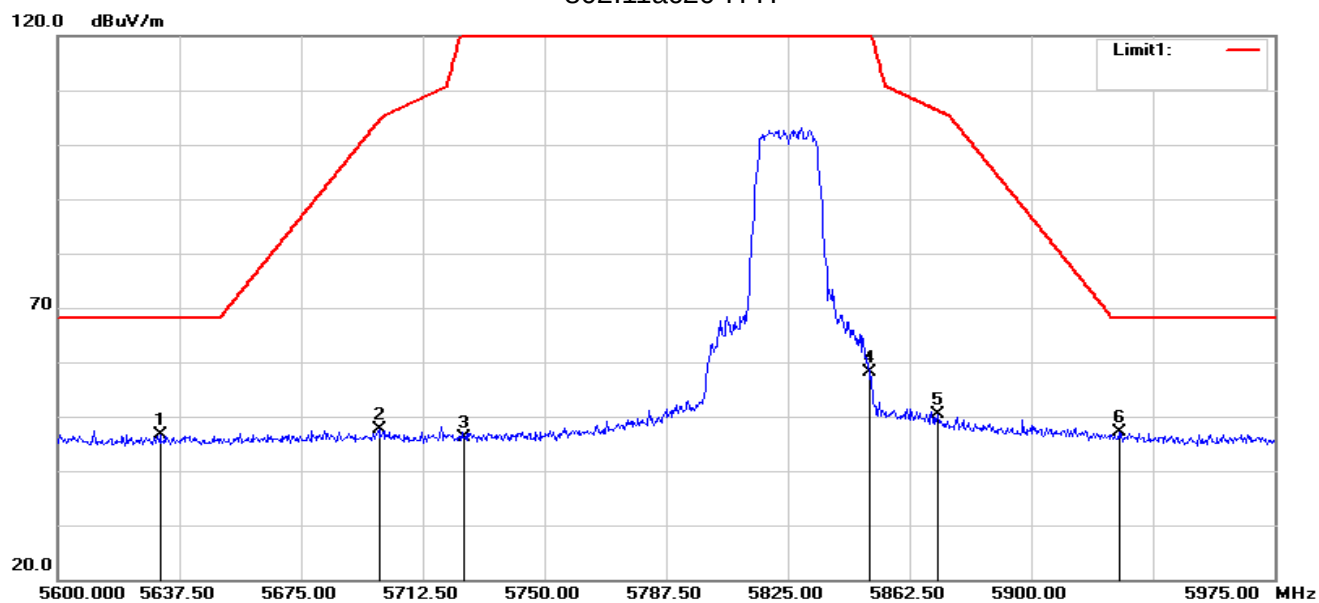
802.11ac20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5634.500	51.01	-4.68	46.33	68.20	-21.87	peak
2	5690.000	54.05	-4.67	49.38	97.80	-48.42	peak
3	5725.000	64.03	-4.57	59.46	122.20	-62.74	peak
4	5850.000	49.12	-4.10	45.02	122.20	-77.18	peak
5	5888.750	50.40	-3.93	46.47	95.03	-48.56	peak
6	5922.875	49.69	-3.92	45.77	69.77	-24.00	peak



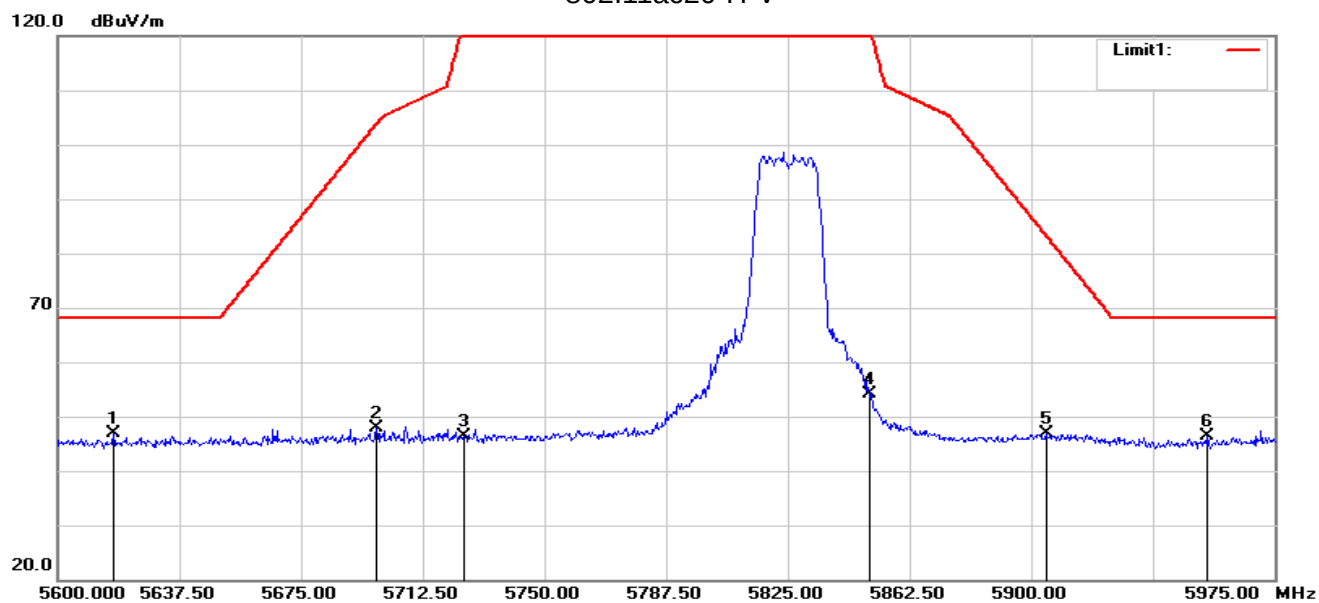
802.11ac20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5631.500	51.31	-4.69	46.62	68.20	-21.58	peak
2	5699.000	52.20	-4.66	47.54	104.46	-56.92	peak
3	5725.000	50.79	-4.57	46.22	122.20	-75.98	peak
4	5850.000	62.11	-4.10	58.01	122.20	-64.19	peak
5	5871.125	54.30	-4.01	50.29	106.28	-55.99	peak
6	5927.000	51.00	-3.93	47.07	68.20	-21.13	peak



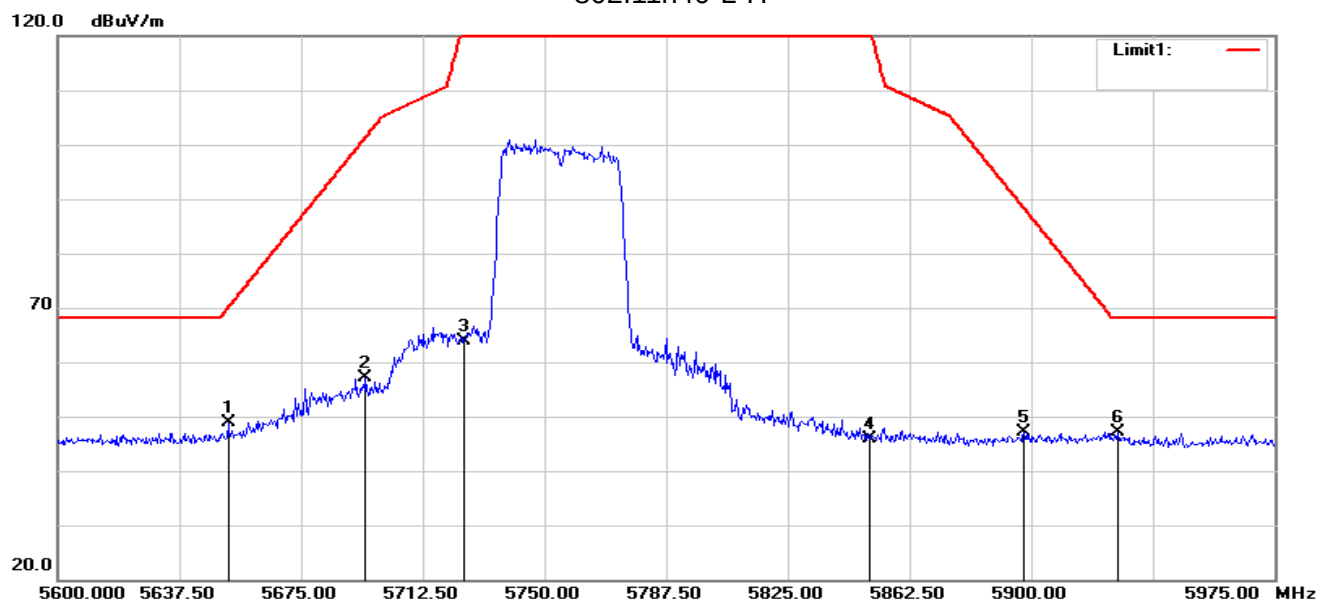
802.11ac20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5617.250	51.50	-4.69	46.81	68.20	-21.39	peak
2	5698.250	52.48	-4.66	47.82	103.91	-56.09	peak
3	5725.000	51.01	-4.57	46.44	122.20	-75.76	peak
4	5850.000	58.23	-4.10	54.13	122.20	-68.07	peak
5	5904.500	50.66	-3.88	46.78	83.37	-36.59	peak
6	5954.375	50.31	-3.97	46.34	68.20	-21.86	peak



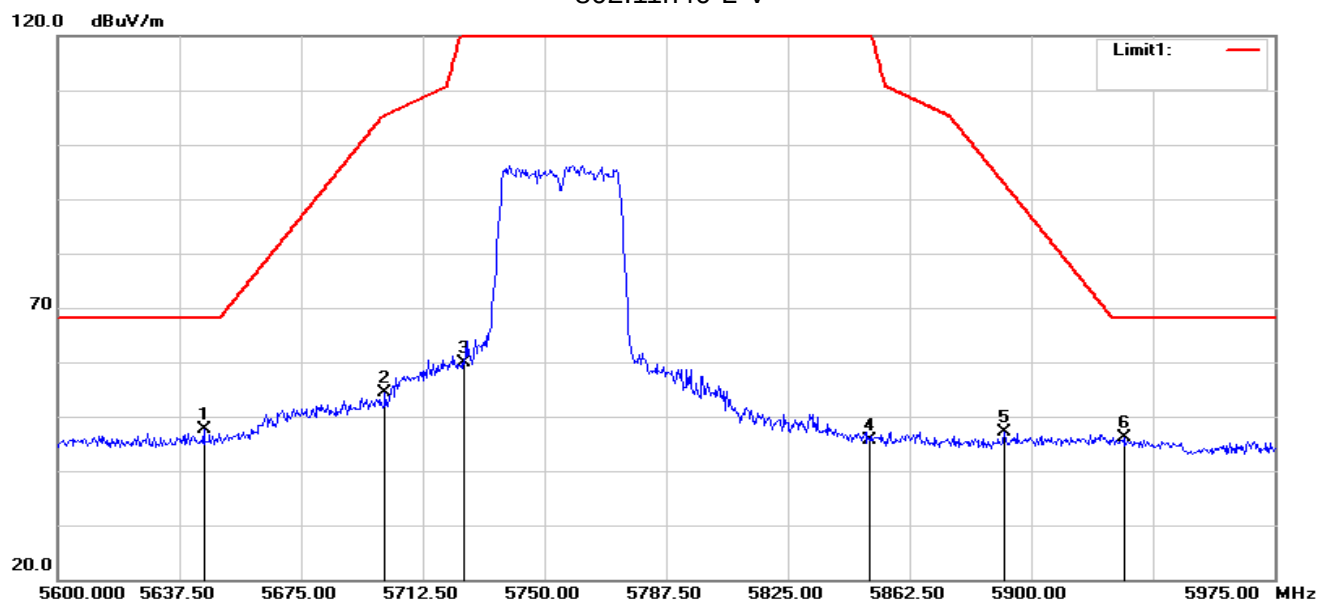
802.11n40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5652.500	53.62	-4.68	48.94	70.05	-21.11	peak
2	5694.875	61.72	-4.66	57.06	101.41	-44.35	peak
3	5725.000	68.50	-4.57	63.93	122.20	-58.27	peak
4	5850.000	49.94	-4.10	45.84	122.20	-76.36	peak
5	5897.750	51.07	-3.89	47.18	88.37	-41.19	peak
6	5926.625	51.17	-3.93	47.24	68.20	-20.96	peak



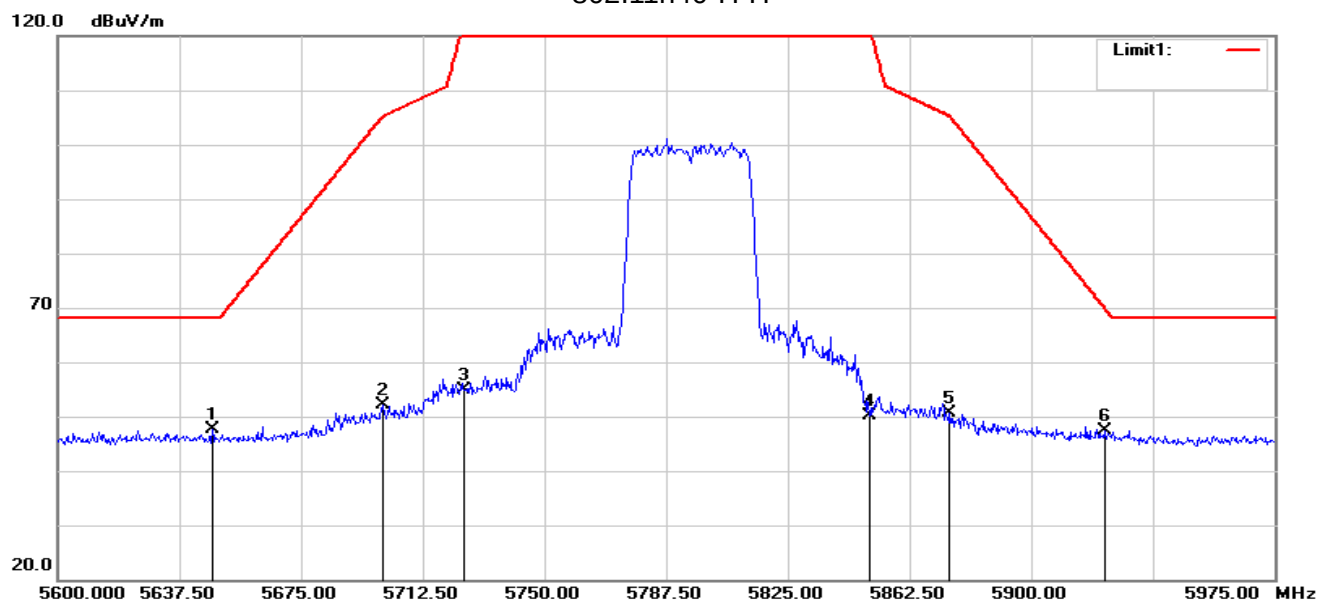
802.11n40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5645.000	52.22	-4.68	47.54	68.20	-20.66	peak
2	5700.875	58.94	-4.66	54.28	105.45	-51.17	peak
3	5725.000	64.40	-4.57	59.83	122.20	-62.37	peak
4	5850.000	49.69	-4.10	45.59	122.20	-76.61	peak
5	5891.750	51.12	-3.91	47.21	92.81	-45.60	peak
6	5928.500	49.98	-3.92	46.06	68.20	-22.14	peak



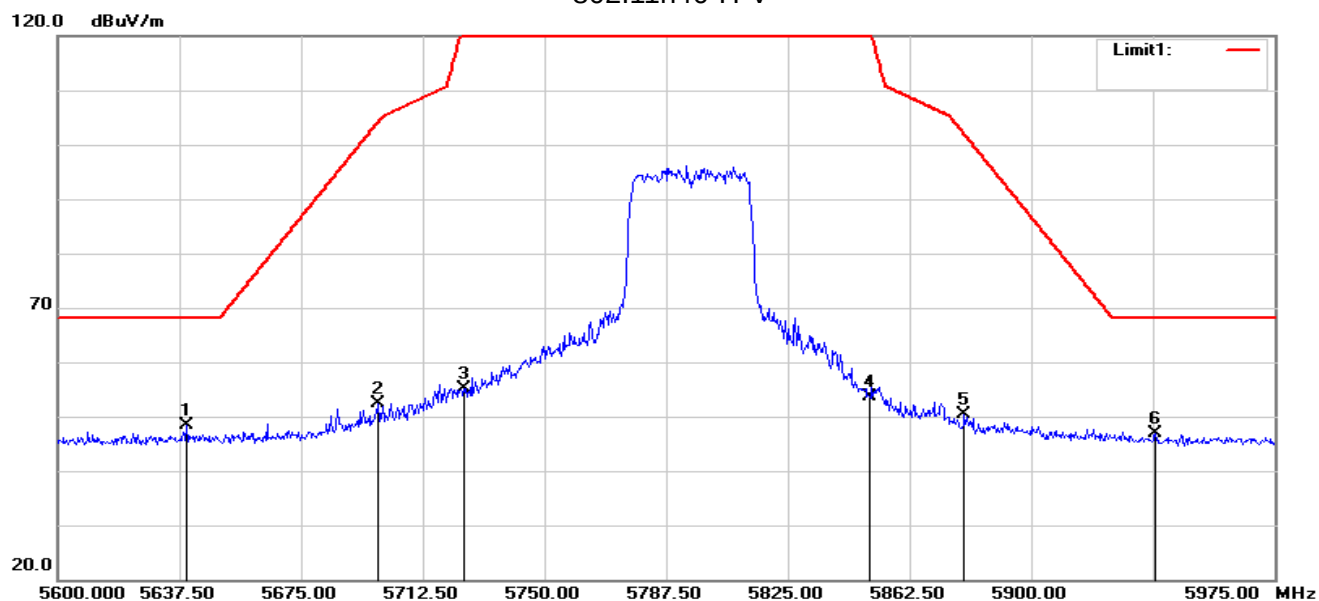
802.11n40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5647.625	52.27	-4.68	47.59	68.20	-20.61	peak
2	5700.125	56.68	-4.66	52.02	105.23	-53.21	peak
3	5725.000	59.33	-4.57	54.76	122.20	-67.44	peak
4	5850.000	54.33	-4.10	50.23	122.20	-71.97	peak
5	5874.875	54.68	-3.99	50.69	105.23	-54.54	peak
6	5922.500	51.20	-3.91	47.29	70.05	-22.76	peak



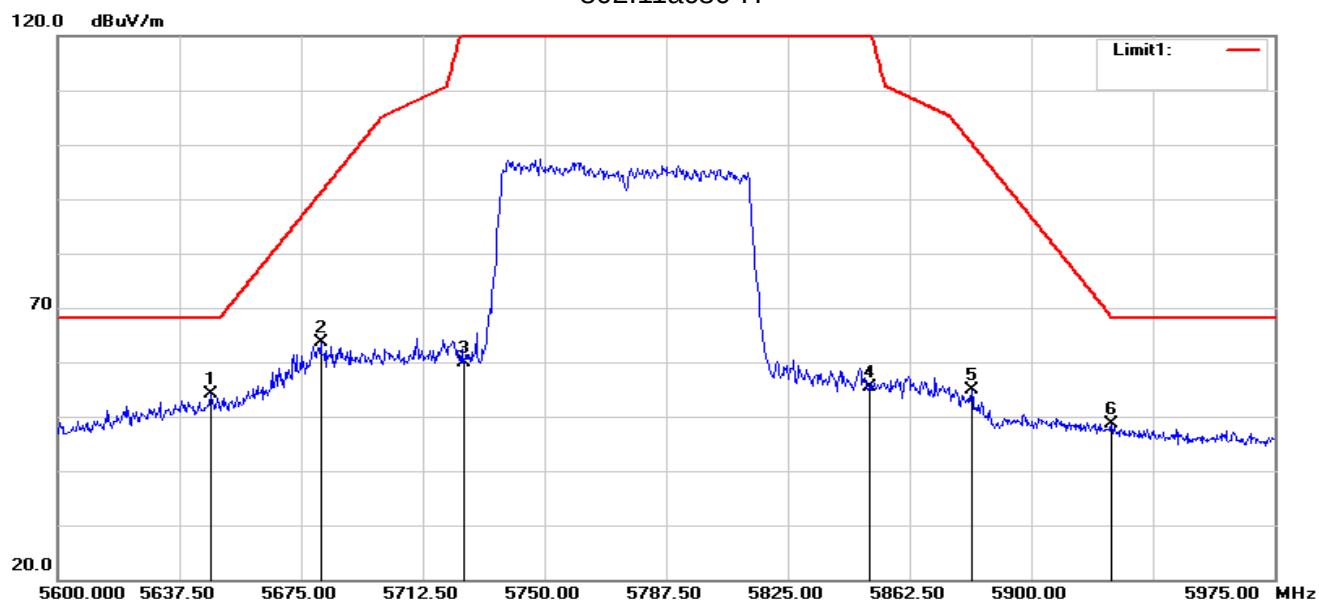
802.11n40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5639.750	52.97	-4.69	48.28	68.20	-19.92	peak
2	5698.625	56.98	-4.66	52.32	104.18	-51.86	peak
3	5725.000	59.74	-4.57	55.17	122.20	-67.03	peak
4	5850.000	57.80	-4.10	53.70	122.20	-68.50	peak
5	5879.375	54.37	-3.97	50.40	101.96	-51.56	peak
6	5938.250	50.89	-3.95	46.94	68.20	-21.26	peak



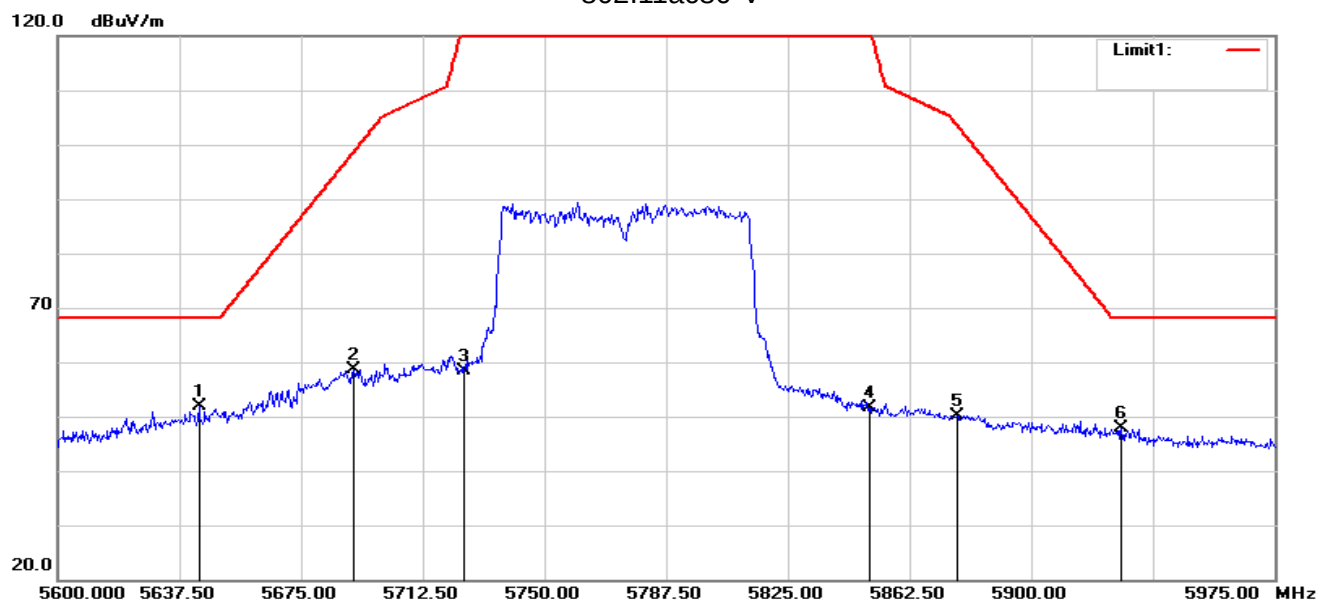
802.11ac80-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5647.250	58.69	-4.68	54.01	68.20	-14.19	peak
2	5681.000	68.40	-4.67	63.73	91.14	-27.41	peak
3	5725.000	64.37	-4.57	59.80	122.20	-62.40	peak
4	5850.000	59.58	-4.10	55.48	122.20	-66.72	peak
5	5881.625	58.93	-3.96	54.97	100.30	-45.33	peak
6	5924.750	52.60	-3.92	48.68	68.39	-19.71	peak



802.11ac80-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5643.500	56.68	-4.68	52.00	68.20	-16.20	peak
2	5691.125	63.27	-4.66	58.61	98.63	-40.02	peak
3	5725.000	62.84	-4.57	58.27	122.20	-63.93	peak
4	5850.000	55.70	-4.10	51.60	122.20	-70.60	peak
5	5877.125	54.23	-3.98	50.25	103.63	-53.38	peak
6	5927.750	51.88	-3.93	47.95	68.20	-20.25	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 $\geq$ 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 Ant_A Power Density (dBm)	Direct measurement Ant_B Power Density (dBm)	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								
5180	1.747	1.288	0.061	1.808	1.349	--	11	PASS
5200	1.601	0.685	0.061	1.662	0.746	--	11	PASS
5240	1.112	0.081	0.061	1.173	0.142	--	11	PASS
802.11n20								
5180	1.653	1.128	0.065	1.718	1.193	4.474	9.98	PASS
5200	1.420	0.549	0.065	1.485	0.614	4.082	9.98	PASS
5240	0.658	-0.346	0.065	0.723	-0.281	3.260	9.98	PASS
802.11n40								
5190	-1.024	-1.803	0.243	-0.781	-1.560	1.857	9.98	PASS
5230	-1.616	-2.504	0.243	-1.373	-2.261	1.216	9.98	PASS
802.11ac20								
5180	1.789	0.789	0.065	1.854	0.854	4.393	9.98	PASS
5200	0.830	0.341	0.065	0.895	0.406	3.667	9.98	PASS
5240	0.868	-0.496	0.065	0.933	-0.431	3.314	9.98	PASS
802.11ac40								
5190	-1.064	-1.492	0.146	-0.918	-1.346	1.884	9.98	PASS
5230	-1.512	-2.559	0.146	-1.366	-2.413	1.152	9.98	PASS
802.11ac80								
5210	-4.436	-5.593	0.347	-4.089	-5.246	-1.619	9.98	PASS



5250-5350MHz								
Frequency	Direct measurement Ant_A Power Density (dBm)	Direct measurement Ant_B Power Density (dBm)	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								
5260	0.807	-0.451	0.073	0.880	-0.378	--	11	PASS
5300	0.099	-1.272	0.073	0.172	-1.199	--	11	PASS
5320	-0.475	-1.547	0.073	-0.402	-1.474	--	11	PASS
802.11n20								
5260	0.673	-0.708	0.078	0.751	-0.630	3.125	9.98	PASS
5300	-0.441	-1.604	0.078	-0.363	-1.526	2.105	9.98	PASS
5320	-1.059	-2.377	0.078	-0.981	-2.299	1.420	9.98	PASS
802.11n40								
5270	-2.207	-3.139	0.180	-2.027	-2.959	0.542	9.98	PASS
5310	-2.993	-4.493	0.180	-2.813	-4.313	-0.488	9.98	PASS
802.11ac20								
5260	0.373	-0.890	0.065	0.438	-0.825	2.862	9.98	PASS
5300	-0.301	-1.637	0.065	-0.236	-1.572	2.157	9.98	PASS
5320	-0.676	-2.164	0.065	-0.611	-2.099	1.718	9.98	PASS
802.11ac40								
5270	-2.042	-3.372	0.191	-1.851	-3.181	0.545	9.98	PASS
5310	-3.099	-4.098	0.191	-2.908	-3.907	-0.368	9.98	PASS
802.11ac80								
5290	-6.504	-7.302	0.348	-6.156	-6.954	-3.527	9.98	PASS



5470-5725MHz								
Frequency	Direct measurement Ant_A Power Density (dBm)	Direct measurement Ant_B Power Density (dBm)	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								
5500	-1.810	-2.434	0.086	-1.724	-2.348	--	11	PASS
5580	-1.068	-2.552	0.086	-0.982	-2.466	--	11	PASS
5700	-0.771	-1.798	0.086	-0.685	-1.712	--	11	PASS
802.11n20								
5500	-1.918	-2.633	0.078	-1.840	-2.555	0.828	9.98	PASS
5580	-2.041	-3.271	0.078	-1.963	-3.193	0.476	9.98	PASS
5700	-1.007	-2.151	0.078	-0.929	-2.073	1.547	9.98	PASS
802.11n40								
5510	-4.094	-4.929	0.130	-3.964	-4.799	-1.351	9.98	PASS
5550	-4.342	-5.418	0.130	-4.212	-5.288	-1.706	9.98	PASS
5670	-3.990	-5.098	0.130	-3.860	-4.968	-1.368	9.98	PASS
802.11ac20								
5500	-1.613	-2.919	0.065	-1.548	-2.854	0.858	9.98	PASS
5580	-1.849	-2.676	0.065	-1.784	-2.611	0.832	9.98	PASS
5700	-1.324	-2.459	0.065	-1.259	-2.394	1.220	9.98	PASS
802.11ac40								
5510	-4.057	-5.200	0.192	-3.865	-5.008	-1.389	9.98	PASS
5550	-3.869	-5.232	0.192	-3.677	-5.040	-1.295	9.98	PASS
5670	-4.100	-5.059	0.192	-3.908	-4.867	-1.351	9.98	PASS
802.11ac80								
5530	-7.549	-8.584	0.389	-7.160	-8.195	-4.637	9.98	PASS
5610	-7.369	-8.276	0.389	-6.980	-7.887	-4.400	9.98	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)	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	-1.842	-2.212	-1.928	-2.298	0.049	-1.879	-2.249	--	30	PASS
5785	-1.410	-1.837	-1.496	-1.923	0.049	-1.447	-1.874	--	30	PASS
5825	-1.062	-1.556	-1.148	-1.642	0.049	-1.099	-1.593	--	30	PASS
802.11n20										
5745	-2.287	-2.687	-2.373	-2.773	0.039	-2.334	-2.734	0.481	28.98	PASS
5785	-2.263	-2.103	-2.349	-2.189	0.039	-2.310	-2.150	0.781	28.98	PASS
5825	-1.940	-2.264	-2.026	-2.350	0.039	-1.987	-2.311	0.864	28.98	PASS
802.11n40										
5755	-4.234	-4.680	-4.320	-4.766	0.167	-4.153	-4.599	-1.360	28.98	PASS
5795	-4.066	-4.407	-4.152	-4.493	0.167	-3.985	-4.326	-1.142	28.98	PASS
802.11ac20										
5745	-2.333	-2.212	-2.419	-2.298	0.077	-2.342	-2.221	0.730	28.98	PASS
5785	-1.609	-2.243	-1.695	-2.329	0.077	-1.618	-2.252	1.087	28.98	PASS
5825	-1.940	-2.066	-2.026	-2.152	0.077	-1.949	-2.075	0.999	28.98	PASS
802.11ac40										
5755	-4.158	-4.393	-4.244	-4.479	0.167	-4.077	-4.312	-1.183	28.98	PASS
5795	-3.638	-4.035	-3.724	-4.121	0.167	-3.557	-3.954	-0.741	28.98	PASS
802.11ac80										
5775	-7.393	-8.105	-7.479	-8.191	0.385	-7.094	-7.806	-4.425	28.98	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
802.11a		
5180	21.07	Pass
5200	21.00	Pass
5240	21.00	Pass
802.11n(HT20)		
5180	21.07	Pass
5200	21.00	Pass
5240	21.00	Pass
802.11n(HT40)		
5190	21.07	Pass
5230	21.00	Pass
802.11ac(VHT20)		
5180	21.07	Pass
5200	21.00	Pass
5240	21.00	Pass
802.11ac(VHT40)		
5190	21.07	Pass
5230	21.00	Pass
802.11ac(VHT80)		
5210	80.83	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5260	20.95	Pass
5300	20.97	Pass
5320	20.88	Pass
802.11n(HT20)		
5260	21.29	Pass
5300	21.31	Pass
5320	21.25	Pass
802.11n(HT40)		
5270	39.60	Pass
5310	39.52	Pass
802.11ac(VHT20)		
5260	21.61	Pass
5300	21.22	Pass
5320	21.22	Pass
802.11ac(VHT40)		
5270	39.71	Pass
5310	39.49	Pass
802.11ac(VHT80)		
5290	80.91	Pass



Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5500	20.95	Pass
5580	20.89	Pass
5700	21.15	Pass
802.11n(HT20)		
5500	21.41	Pass
5580	21.46	Pass
5700	21.41	Pass
802.11n(HT40)		
5510	39.56	Pass
5550	39.55	Pass
5670	39.34	Pass
802.11ac(VHT20)		
5500	21.24	Pass
5580	21.57	Pass
5700	21.52	Pass
802.11ac(VHT40)		
5510	39.59	Pass
5550	39.73	Pass
5670	39.61	Pass
802.11ac(VHT80)		
5530	80.74	Pass
5610	80.99	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	21.00	Pass
5785	21.03	Pass
5825	20.97	Pass
802.11n(HT20)		
5745	21.41	Pass
5785	21.38	Pass
5825	21.48	Pass
802.11n(HT40)		
5755	39.58	Pass
5795	39.77	Pass
802.11ac(VHT20)		
5745	21.16	Pass
5785	21.40	Pass
5825	21.50	Pass
802.11ac(VHT40)		
5755	39.65	Pass
5795	39.43	Pass
802.11ac(VHT80)		
5775	81.17	Pass

Note:

1. Test plot see Attachment B
2. ANT A Power > ANT B Power, Both ANT A and B have been test, Only show the worst data of ANT A.

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
802.11a		
5180	21.07	Pass
5200	21.00	Pass
5240	21.00	Pass
802.11n(HT20)		
5180	21.07	Pass
5200	21.00	Pass
5240	21.00	Pass
802.11n(HT40)		
5190	21.07	Pass
5230	21.00	Pass
802.11ac(VHT20)		
5180	21.07	Pass
5200	21.00	Pass
5240	21.00	Pass
802.11ac(VHT40)		
5190	21.07	Pass
5230	21.00	Pass
802.11ac(VHT80)		
5210	80.83	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5260	20.95	Pass
5300	20.97	Pass
5320	20.88	Pass
802.11n(HT20)		
5260	21.29	Pass
5300	21.31	Pass
5320	21.25	Pass
802.11n(HT40)		
5270	39.60	Pass
5310	39.52	Pass
802.11ac(VHT20)		
5260	21.61	Pass
5300	21.22	Pass
5320	21.22	Pass
802.11ac(VHT40)		
5270	39.71	Pass
5310	39.49	Pass
802.11ac(VHT80)		
5290	80.91	Pass



Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5500	20.95	Pass
5580	20.89	Pass
5700	21.15	Pass
802.11n(HT20)		
5500	21.41	Pass
5580	21.46	Pass
5700	21.41	Pass
802.11n(HT40)		
5510	39.56	Pass
5550	39.55	Pass
5670	39.34	Pass
802.11ac(VHT20)		
5500	21.24	Pass
5580	21.57	Pass
5700	21.52	Pass
802.11ac(VHT40)		
5510	39.59	Pass
5550	39.73	Pass
5670	39.61	Pass
802.11ac(VHT80)		
5530	80.74	Pass
5610	80.99	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5745	21.00	Pass
5785	21.03	Pass
5825	20.97	Pass
802.11n(HT20)		
5745	21.41	Pass
5785	21.38	Pass
5825	21.48	Pass
802.11n(HT40)		
5755	39.58	Pass
5795	39.77	Pass
802.11ac(VHT20)		
5745	21.16	Pass
5785	21.40	Pass
5825	21.50	Pass
802.11ac(VHT40)		
5755	39.65	Pass
5795	39.43	Pass
802.11ac(VHT80)		
5775	81.17	Pass

Note:

1. Test plot see Attachment B
2. ANT A Power > ANT B Power, Both ANT A and B have been test, Only show the worst data of ANT A.

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
802.11a		
5745	21.00	Pass
5785	21.03	Pass
5825	20.97	Pass
802.11n(HT20)		
5745	21.41	Pass
5785	21.38	Pass
5825	21.48	Pass
802.11n(HT40)		
5755	39.58	Pass
5795	39.77	Pass
802.11ac(VHT20)		
5745	21.16	Pass
5785	21.40	Pass
5825	21.50	Pass
802.11ac(VHT40)		
5755	39.65	Pass
5795	39.43	Pass
802.11ac(VHT80)		
5775	81.17	Pass

Note:

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

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	

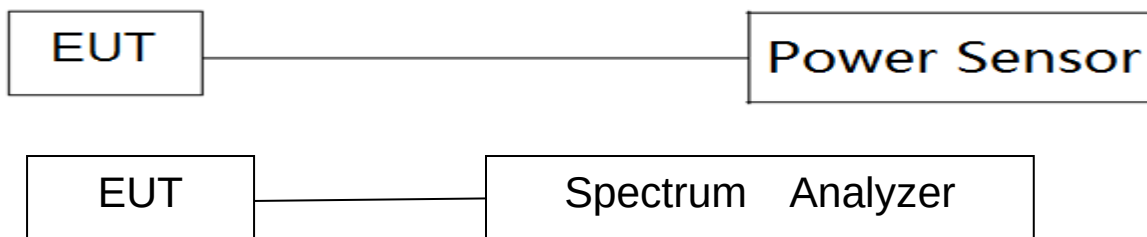
6.2 TEST PROCEDURE

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-1 (5.15-5.25GHz)								
Test Channel	Frequency (MHz)	Direct measurement Ant A_AV Power (dBm)	Direct measurement Ant B_AV Power (dBm)	Duty cycle factor (dB)	Final Ant_A AV Power (dBm)	Final Ant_B AV Power (dBm)	AV Power Total (dBm)	LIMIT (dBm)
802.11a								
36	5180	13.40	12.43	0.061	13.46	12.49	--	23.98
40	5200	13.37	12.38	0.061	13.43	12.44	--	23.98
48	5240	13.10	11.94	0.061	13.16	12.00	--	23.98
802.11n(HT20)								
36	5180	13.38	12.31	0.065	13.44	12.37	15.95	22.96
40	5200	13.20	12.20	0.065	13.26	12.26	15.80	22.96
48	5240	12.96	11.82	0.065	13.02	11.88	15.50	22.96
802.11n(HT40)								
38	5190	13.65	12.42	0.243	13.89	12.66	16.33	22.96
46	5230	13.35	11.90	0.243	13.59	12.14	15.94	22.96
802.11ac(VHT20)								
36	5180	13.32	12.29	0.065	13.38	12.35	15.91	22.96
40	5200	13.21	11.86	0.065	13.27	11.92	15.66	22.96
48	5240	12.91	11.65	0.065	12.97	11.71	15.40	22.96
802.11ac(VHT40)								
38	5190	13.56	12.35	0.146	13.71	12.50	16.15	22.96
46	5230	13.35	12.02	0.146	13.50	12.17	15.89	22.96
802.11ac(VHT80)								
42	5210	12.78	11.81	0.347	13.13	12.16	15.68	22.96



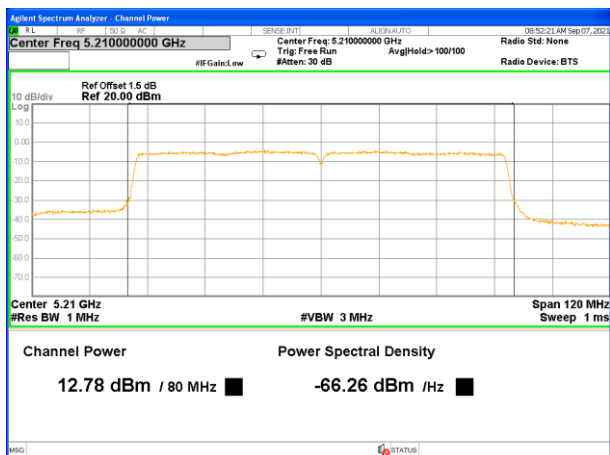
U-NII-2A(5.25-5.35GHz)								
Test Channel	Frequency (MHz)	Direct measurement Ant A_AV Power (dBm)	Direct measurement Ant B_AV Power (dBm)	Duty cycle factor (dB)	Final Ant_A AV Power (dBm)	Final Ant_B AV Power (dBm)	AV Power Total (dBm)	LIMIT (dBm)
802.11a								
52	5260	12.68	12.08	0.073	12.75	12.15	--	23.98
60	5300	12.38	11.54	0.073	12.45	11.61	--	23.98
64	5320	12.20	11.40	0.073	12.27	11.47	--	23.98
802.11n(HT20)								
52	5260	12.81	11.94	0.078	12.89	12.02	15.49	22.96
60	5300	12.39	11.42	0.078	12.47	11.50	15.02	22.96
64	5320	12.11	11.23	0.078	12.19	11.31	14.78	22.96
802.11n(HT40)								
54	5270	13.00	12.11	0.180	13.18	12.29	15.77	22.96
62	5310	12.56	11.65	0.180	12.74	11.83	15.32	22.96
802.11ac(VHT20)								
52	5260	12.82	11.93	0.065	12.88	11.99	15.47	22.96
60	5300	12.38	11.50	0.065	12.44	11.56	15.04	22.96
64	5320	12.16	11.14	0.065	12.22	11.20	14.75	22.96
802.11ac(VHT40)								
54	5270	13.00	12.14	0.191	13.19	12.33	15.79	22.96
62	5310	12.56	11.70	0.191	12.75	11.89	15.35	22.96
802.11ac(VHT80)								
58	5290	11.30	10.03	0.348	11.65	10.38	14.07	22.96



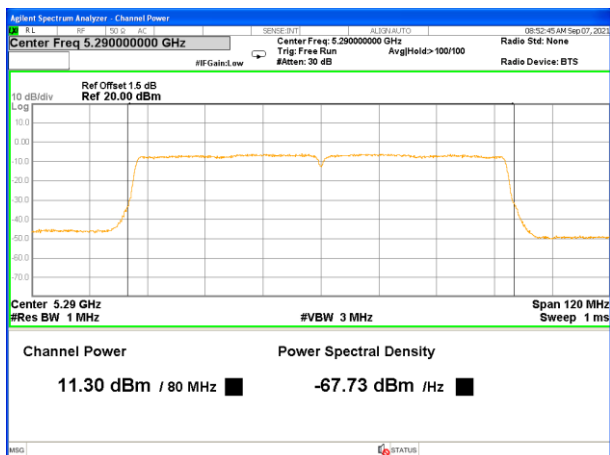
U-NII-2C(5.47-5.725GHz)								
Test Channel	Frequency (MHz)	Direct measurement Ant A_AV Power (dBm)	Direct measurement Ant B_AV Power (dBm)	Duty cycle factor (dB)	Final Ant_A AV Power (dBm)	Final Ant_B AV Power (dBm)	AV Power Total (dBm)	LIMIT (dBm)
802.11a								
100	5500	11.76	11.94	0.086	11.85	12.03	--	23.98
116	5580	11.36	11.30	0.086	11.45	11.39	--	23.98
140	5700	11.34	11.37	0.086	11.43	11.46	--	23.98
802.11n(HT20)								
100	5500	11.79	11.86	0.078	11.87	11.94	14.91	22.96
116	5580	11.38	11.23	0.078	11.46	11.31	14.39	22.96
140	5700	11.24	11.17	0.078	11.32	11.25	14.29	22.96
802.11n(HT40)								
102	5510	12.06	12.21	0.130	12.19	12.34	15.28	22.96
110	5550	11.88	11.69	0.130	12.01	11.82	14.93	22.96
134	5670	11.39	11.60	0.130	11.52	11.73	14.64	22.96
802.11ac(VHT20)								
100	5500	11.87	11.88	0.065	11.93	11.94	14.95	22.96
116	5580	11.33	11.27	0.065	11.39	11.33	14.37	22.96
140	5700	11.26	11.18	0.065	11.32	11.24	14.30	22.96
802.11ac(VHT40)								
102	5510	12.04	12.18	0.192	12.23	12.37	15.31	22.96
110	5550	11.86	11.70	0.192	12.05	11.89	14.98	22.96
134	5670	11.40	11.58	0.192	11.59	11.77	14.69	22.96
802.11ac(VHT80)								
106	5530	10.04	9.10	0.389	10.43	9.49	12.99	22.96
122	5610	10.10	9.13	0.389	10.49	9.52	13.04	22.96



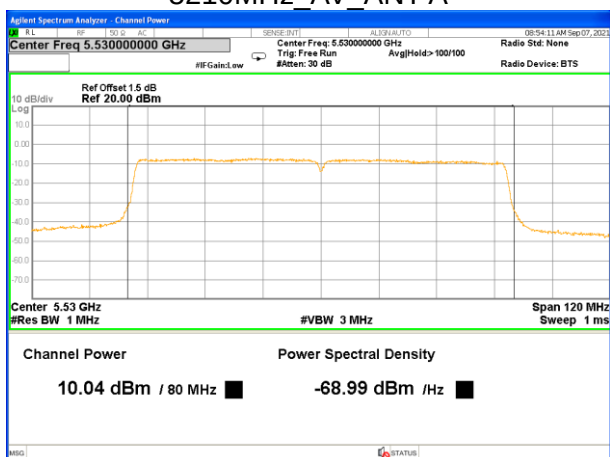
U-NII-3 (5.725-5.85GHz)								
Test Channel	Frequency (MHz)	Direct measurement Ant A_AV Power (dBm)	Direct measurement Ant B_AV Power (dBm)	Duty cycle factor (dB)	Final Ant_A AV Power (dBm)	Final Ant_B AV Power (dBm)	AV Power Total (dBm)	LIMIT (dBm)
802.11a								
149	5745	13.07	12.52	0.049	13.12	12.57	--	30.00
157	5785	13.16	12.83	0.049	13.21	12.88	--	30.00
165	5825	13.48	13.12	0.049	13.53	13.17	--	30.00
802.11n(HT20)								
149	5745	12.90	12.33	0.039	12.94	12.37	15.673	28.98
157	5785	13.19	12.62	0.039	13.23	12.66	15.963	28.98
165	5825	13.38	13.14	0.039	13.42	13.18	16.311	28.98
802.11n(HT40)								
151	5755	13.40	12.91	0.167	13.57	13.08	16.340	28.98
159	5795	13.72	13.19	0.167	13.89	13.36	16.641	28.98
802.11ac(VHT20)								
149	5745	12.93	12.36	0.077	13.01	12.44	15.742	28.98
157	5785	13.10	12.68	0.077	13.18	12.76	15.983	28.98
165	5825	13.41	13.03	0.077	13.49	13.11	16.312	28.98
802.11ac(VHT40)								
151	5755	13.45	12.73	0.167	13.62	12.90	16.282	28.98
159	5795	13.66	13.23	0.167	13.83	13.40	16.627	28.98
802.11ac(VHT80)								
155	5775	12.60	12.32	0.385	12.99	12.71	15.858	28.98



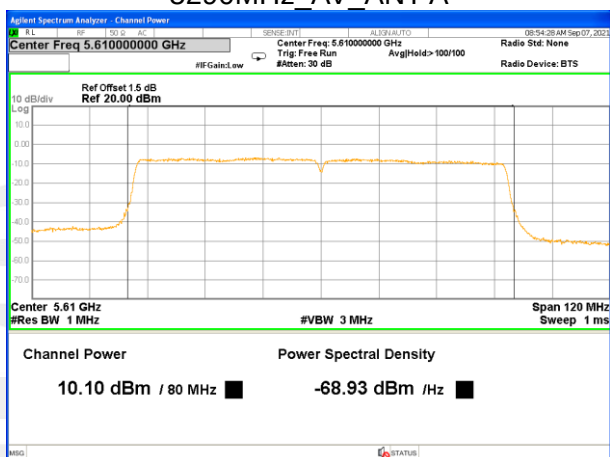
5210MHz_AV_ANT A



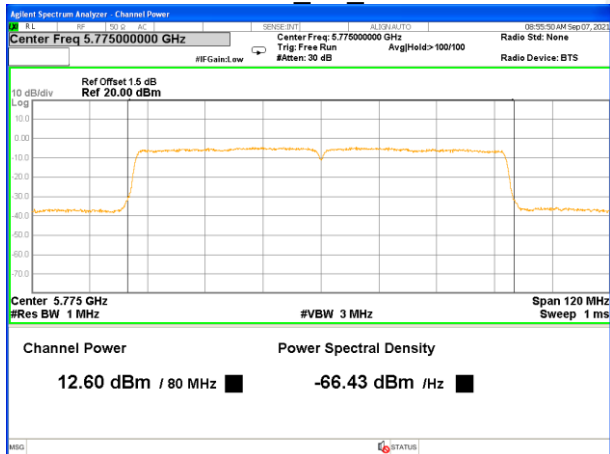
5290MHz_AV_ANT A



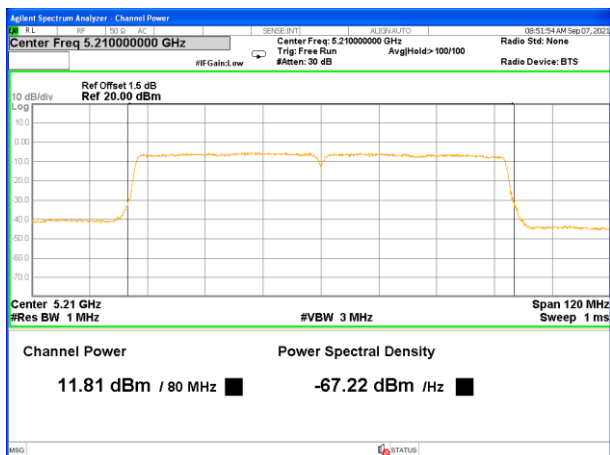
5530MHz_AV_ANT A



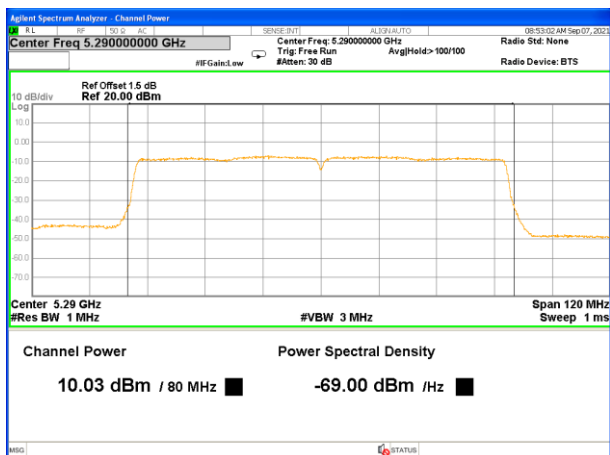
5610MHz_AV_ANT A



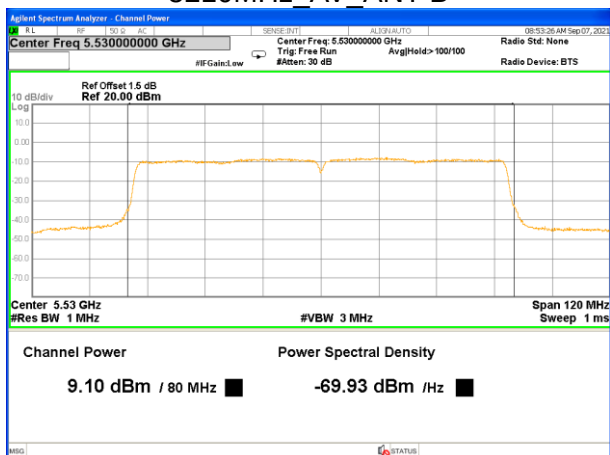
5775MHz_AV_ANT A



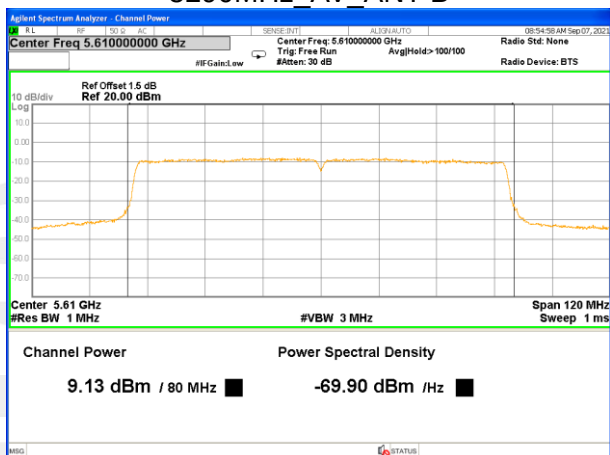
5210MHz_AV_ANT B



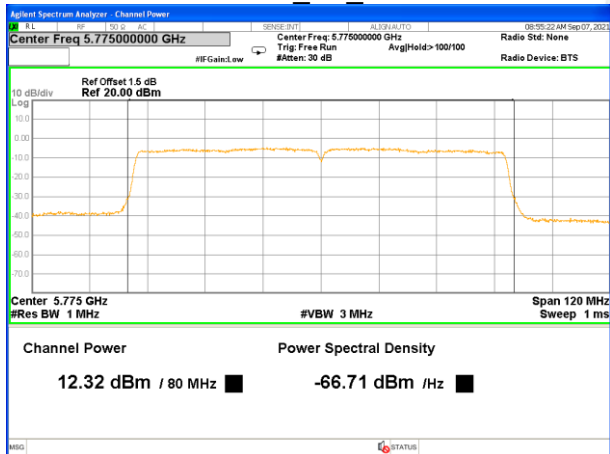
5290MHz_AV_ANT B



5530MHz_AV_ANT B



5610MHz_AV_ANT B

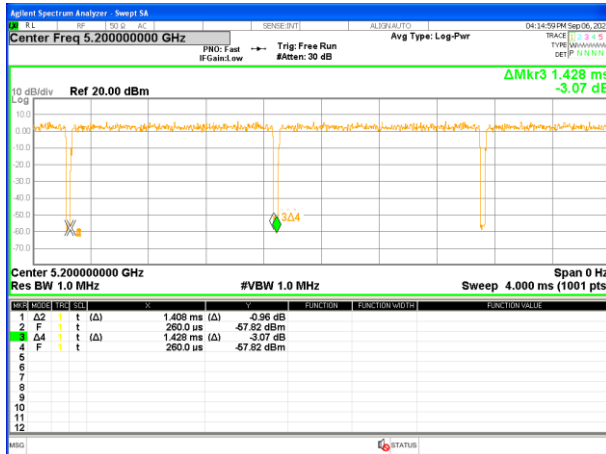


5775MHz_AV_ANT B

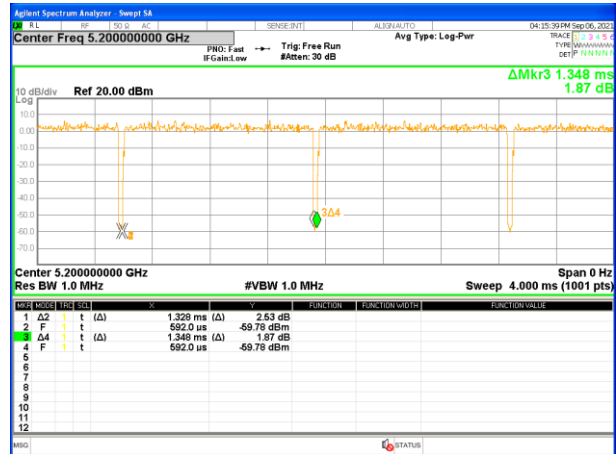


Duty cycle

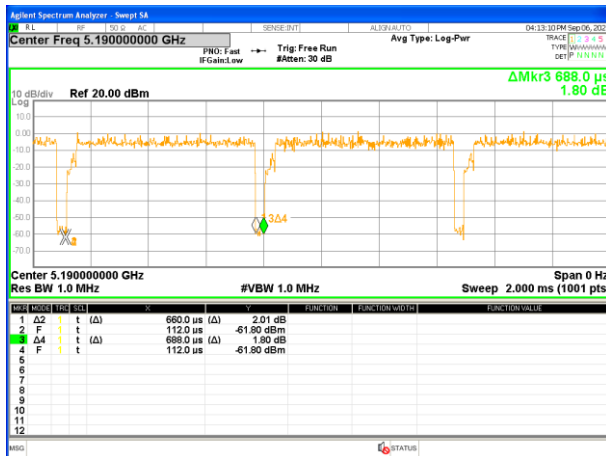
U-NII-1				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.408	1.428	98.60%	0.061
n20	1.328	1.348	98.52%	0.065
n40	0.660	0.698	94.56%	0.243
ac20	1.332	1.352	98.52%	0.065
ac40	0.672	0.695	96.69%	0.146
ac80	0.337	0.365	92.33%	0.347
U-NII-2A				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.412	1.436	98.33%	0.073
n20	1.324	1.348	98.22%	0.078
n40	0.662	0.690	95.94%	0.180
ac20	1.332	1.352	98.52%	0.065
ac40	0.666	0.696	95.69%	0.191
ac80	0.336	0.364	92.31%	0.348
U-NII-2C				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.408	1.436	98.05%	0.086
n20	1.324	1.348	98.22%	0.078
n40	0.656	0.676	97.04%	0.130
ac20	1.336	1.356	98.53%	0.065
ac40	0.664	0.694	95.68%	0.192
ac80	0.331	0.362	91.44%	0.389
U-NII-3				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.416	1.432	98.88%	0.049
n20	1.336	1.348	99.11%	0.039
n40	0.662	0.688	96.22%	0.167
ac20	1.336	1.360	98.24%	0.077
ac40	0.664	0.690	96.23%	0.167
ac80	0.334	0.365	91.51%	0.385



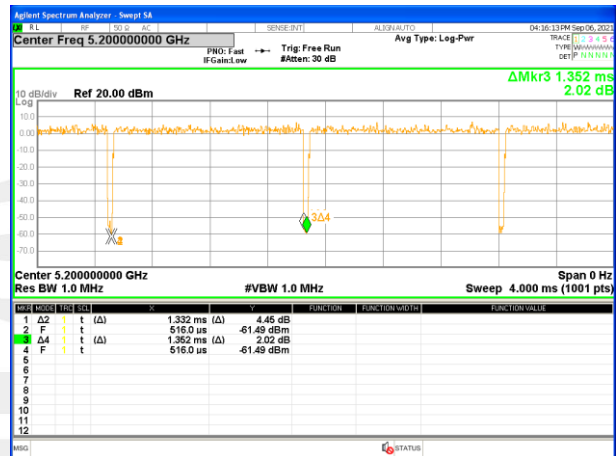
U-NII-1-a20



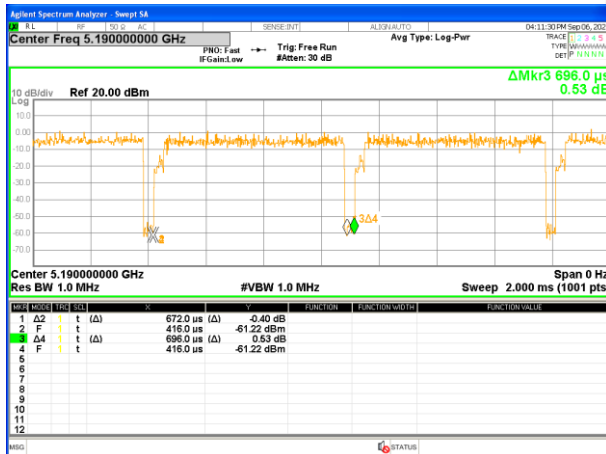
U-NII-1-n20



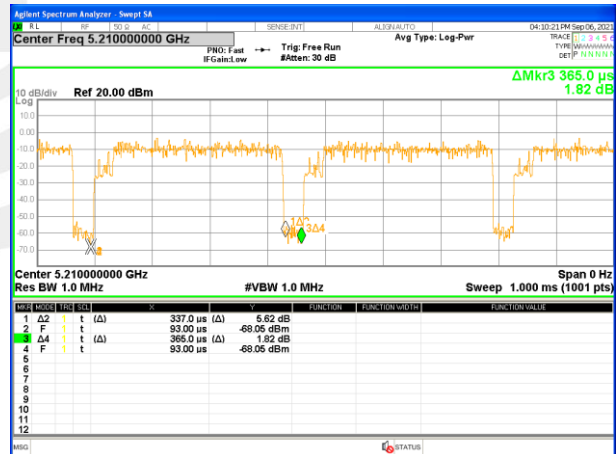
U-NII-1-n40



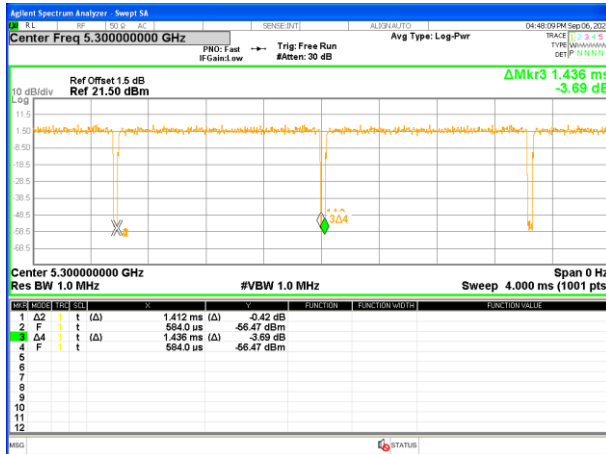
U-NII-1-ac20



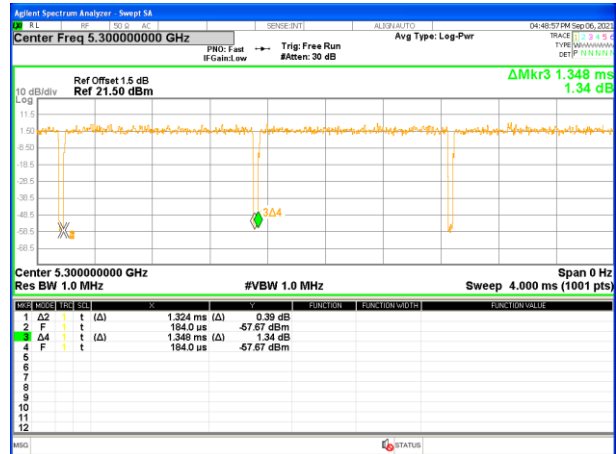
U-NII-1-ac40



U-NII-1-ac80



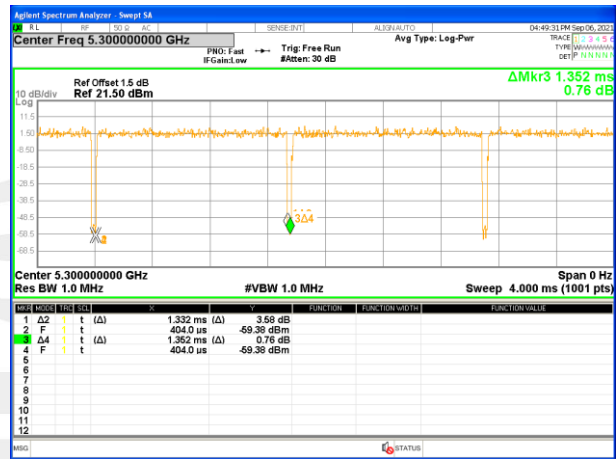
U-NII-2A-a20



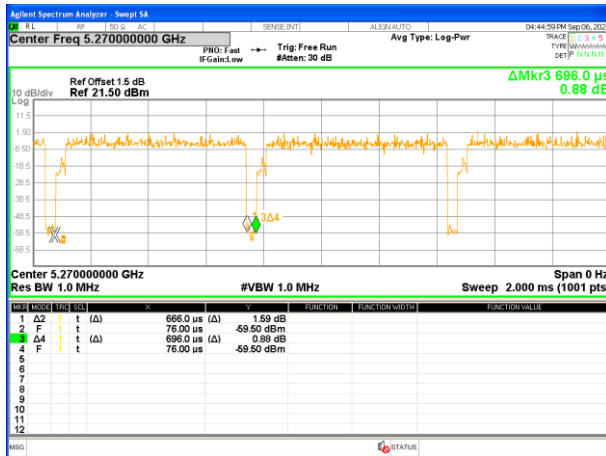
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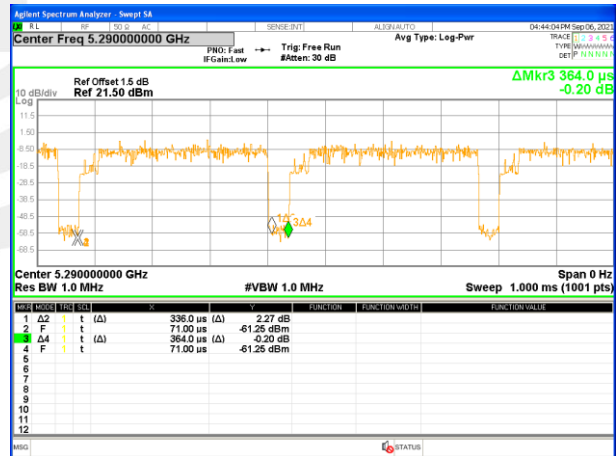
U-NII-2A-n40



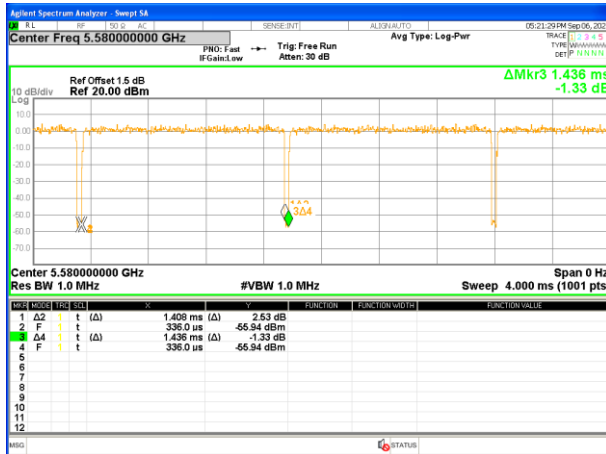
U-NII-2A-ac20



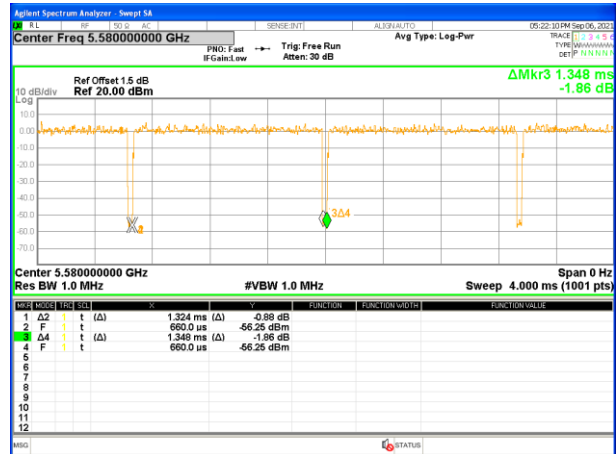
U-NII-2A-ac40



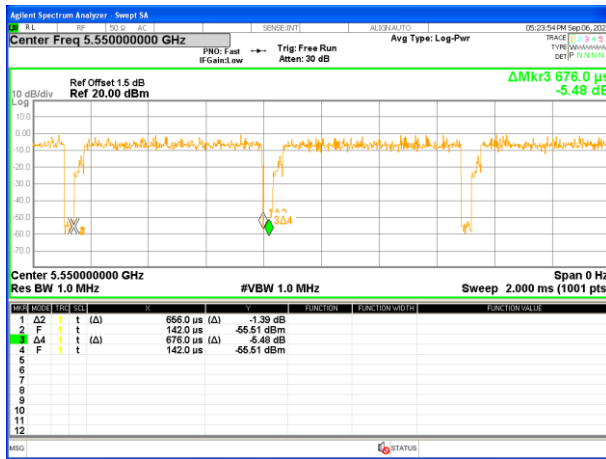
U-NII-2A-ac80



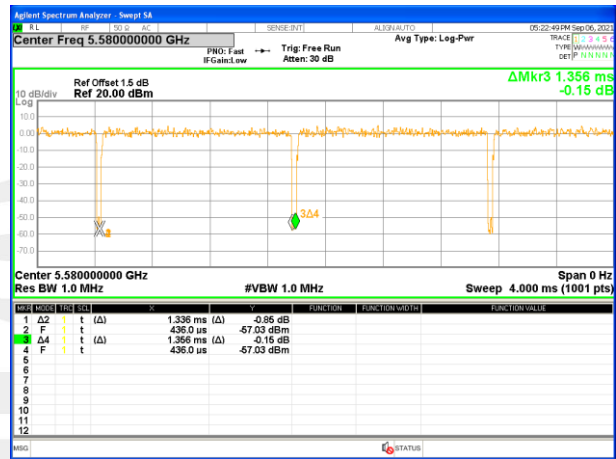
U-NII-2C-a20



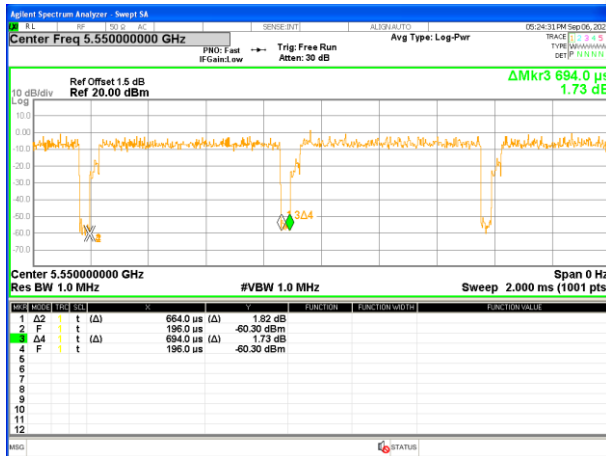
U-NII-2C-n20



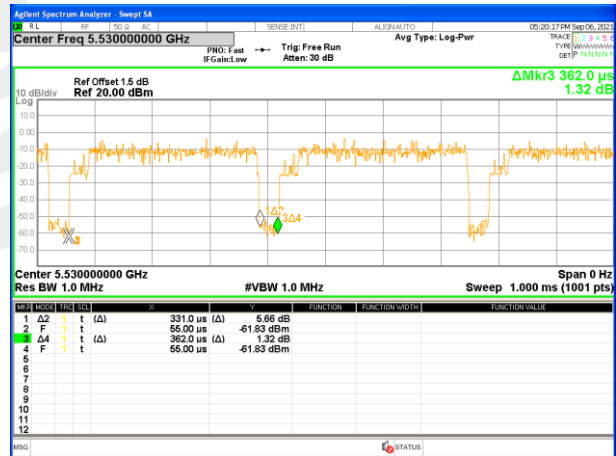
U-NII-2C-n40



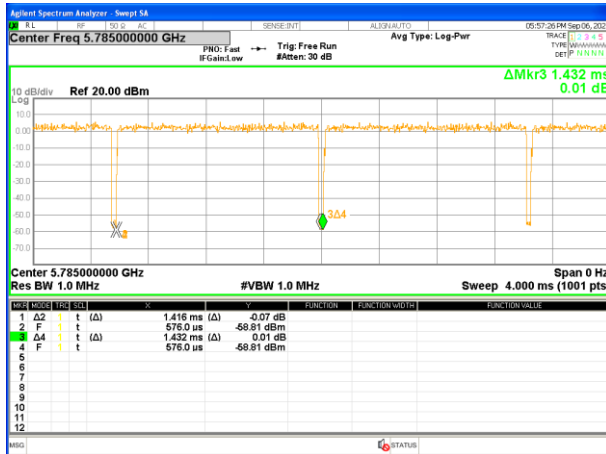
U-NII-2C-ac20



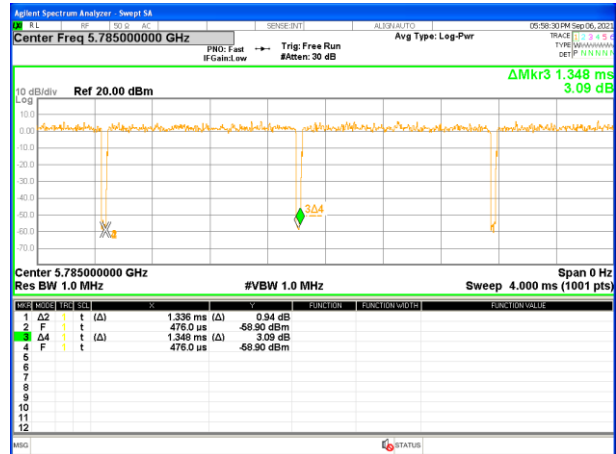
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U-NII-2C-ac80



U-NII-3-a20



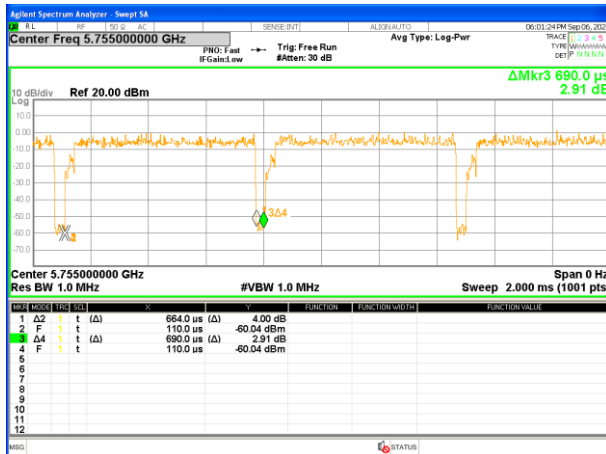
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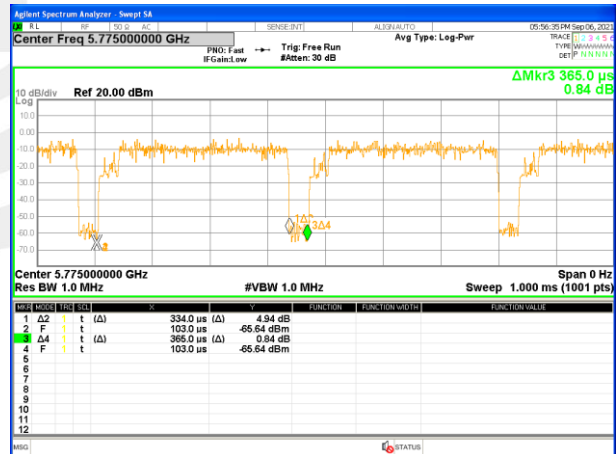
U-NII-3-n40



U-NII-3-ac20



U-NII-3-ac40



U-NII-3-ac80

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 FPC 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※※※※※

