

TEST REPORT

Reference No..... : WTX19X12087485R1W-1
FCC ID : VVXLM842
Applicant : LM Technologies Ltd.
Address : Camrose House, 2A Camrose Avenue, Edgware, London
Product Name : LM842 WiFi and Bluetooth 5.0 Dual Mode Combination USB Adapter
Test Model. : LM842
Standards : FCC Part 15.247
Date of Receipt sample : Jun.29, 2020
Date of Test..... : Jun.29, 2020 to Jul.08, 2020
Date of Issue : Jul.08, 2020
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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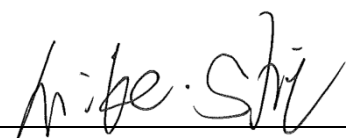
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Report version

Version No.	Date of issue	Description
Rev.00	Jul.08, 2020	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: LM Technologies Ltd.
Address of applicant: Camrose House, 2A Camrose Avenue, Edgware, London

Manufacturer: LM Technologies Ltd.
Address of manufacturer: Camrose House, 2A Camrose Avenue, Edgware, London

General Description of EUT	
Product Name:	LM842 WiFi and Bluetooth 5.0 Dual Mode Combination USB Adapter
Brand Name:	LM Technologies
Model No.:	LM842
Adding Model(s):	842-8420, 842-8421, 842-8422, 842-8423, 842-8424, 842-8425, 842-8426, 842-8427, 842-8428, 842-8429
Rated Voltage:	DC 5V
Power Adapter:	/
Software Version:	/
Hardware Version:	/
<i>Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model LM842, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Support Standards:	802.11a, 802.11n(HT20) , 802.11n-HT40, 802.11ac-VH80
Frequency Range:	5150-5250MHz, 5725-5850MHz
RF Output Power (Max.):	5150-5250MHz:13.71dBm (Conducted) 5725-5850MHz:13.15dBm (Conducted)
Type of Modulation:	BPSK, QPSK, 16QAM, 64QAM, 256QAM
Data Rate:	6-54Mbps, up to 200Mbps
Type of Antenna:	ANT A: Integral Antenna ANT B: External Antenna
Antenna Gain:	ANT A: 3.77dBi ANT B: 3dBi

1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.407: General technical requirements.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

KDB789033 D02 v02r01: GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, KDB789033 D02 v02r01. The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

1.4 Table for parameters of Test Software setting

Use “REALTEK 11ac 8822CU USB WLAN NIC Massproduction Kit” and follow the instructions given by the manufacturer, you can start to test. During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Mode	Ant.	Test Frequency (MHz)												
		NCB: 20MHz												
		5180	5200	5240	5260	5300	5320	5500	5580	5700	5720	5745	5785	5825
802.11a 6Mbps	ANT 1	70	70	70	/	/	/	/	/	/	/	60	60	60
	ANT 2	62	62	62	/	/	/	/	/	/	/	55	55	55
802.11n-HT20 MCS0	ANT 1	70	70	70	/	/	/	/	/	/	/	60	60	60
	ANT 2	62	62	62	/	/	/	/	/	/	/	55	55	55
Mode	Ant.	NCB: 40MHz												
		5190	5230	5270	5310	5510	5550	5670	5710	5755	5795			
802.11n-HT40 MCS0	ANT 1	72	72	/	/	/	/	/	/	/	/	70	70	
	ANT 2	64	64	/	/	/	/	/	/	/	/	81	81	
Mode	Ant.	NCB: 80MHz												
		5210	5290	5530	5610	5690	5775							
802.11ac-VH80 MCS0/Nss2	ANT 1	72	/	/	/	/	/	/	/	/	/	66		
	ANT 2	64	/	/	/	/	/	/	/	/	/	81		

1.5 EUT Operating during test

EUT was programmed to be in continuously transmitting mode. During the test, EUT operation to normal function and programs under Android were executed.

1.6 Test Facility

FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.7 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, with a duty cycle equal to 100%, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	802.11a	5180MHz,5200MHz,5240MHz, 5745MHz, 5785MHz,5825MHz
TM2	802.11n-HT20	5180MHz,5200MHz,5240MHz,5745MHz, 5785MHz,5825MHz
TM3	802.11n-HT40	5190MHz,5230MHz, 5755MHz,5795MHz
TM4	802.11ac-VH80	5210MHz ,5775 MHz

Test Conditions	
Temperature:	22~25 °C
Relative Humidity:	50~55 %.
ATM Pressure:	1019 mbar

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB extension cable	1.2	Shielded	With Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E445	/

1.8 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	$\pm 0.42\text{dB}$
Occupied Bandwidth	Conducted	$\pm 1.5\%$
Power Spectral Density	Conducted	$\pm 1.8\text{dB}$
Conducted Spurious Emission	Conducted	$\pm 2.17\text{dB}$
Conducted Emissions	Conducted	9-150kHz $\pm 3.74\text{dB}$
		0.15-30MHz $\pm 3.34\text{dB}$
Transmitter Spurious Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$
		6-18GHz $\pm 3.92\text{dB}$

1.9 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2020-04-28	2021-04-27
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2020-04-28	2021-04-27
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2020-04-28	2021-04-27
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2020-04-28	2021-04-27
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2020-04-28	2021-04-27
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
SEMT-1042	Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2019-05-05	2021-05-04
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2020-04-28	2021-04-27
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2020-04-28	2021-04-27
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2020-04-28	2021-04-27
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2020-04-28	2021-04-27
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2020-04-28	2021-04-27
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2020-04-28	2021-04-27
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2019-05-05	2021-05-04
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2020-04-28	2021-04-27
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2020-04-28	2021-04-27
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2020-04-28	2021-04-27
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2020-03-17	2021-03-16
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2020-03-17	2021-03-16
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2020-03-17	2021-03-16
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2020-03-17	2021-03-16
SEMT-C005	Cable	Zheng DI	1M0RFC	/	2020-03-17	2021-03-16
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2020-03-17	2021-03-16

Software List			
Description	Manufacturer	Model	Version
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission)*	Farad	EZ-EMC	RA-03A1

*Remark: indicates software version used in the compliance certification testing

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§15.203; §15.405	Antenna Requirement	Compliant
§15.207; §15.407(b)(6)	Conducted Emission	N/A
§15.407(a)(1),(2)	Power Spectral Density	N/A
§15.407(e)	Emission Bandwidth and Occupied Bandwidth	N/A
§15.407(a)(1),(2)	Maximum Conducted Output Power	N/A
§15.407(b)(1),(2),(3),(4)	Undesirable emission	N/A
§15.205; §15.407(b)(1),(2),(3)	Radiated Emission	Compliant
§15.407(g)	Frequency Stability	N/A
§15.407(h)	Dynamic Frequency Selection (DFS)	N/A

N/A: not applicable

Note: Report is for C2PC only. The test data includes RF Exposure and Radiated Emission. Those not tested mark with N/A (not effected by the C2PC).

3. RF Exposure

3.1 Standard Applicable

According to §1.1307 and §2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the MPE Report.

4. Antenna Requirement

4.1 Standard Applicable

According to FCC Part 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

4.2 Evaluation Information

This product has integral antenna and External antenna, fulfill the requirement of this section.

5. Radiated Spurious Emissions

5.1 Standard Applicable

According to §15.407(b), 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.

According to §15.407(b)(6), Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

According to §15.407(b)(7), The provisions of §15.205 apply to intentional radiators operating under this section.
789033 D02 v02r01 General UNII Test Procedures New Rules v01

If radiated measurements are performed, field strength is then converted to EIRP as follows:

$$\text{EIRP} = ((E \cdot d)^2) / 30$$

where:

- E is the field strength in V/m;
- d is the measurement distance in meters;
- EIRP is the equivalent isotropically radiated power in watts.

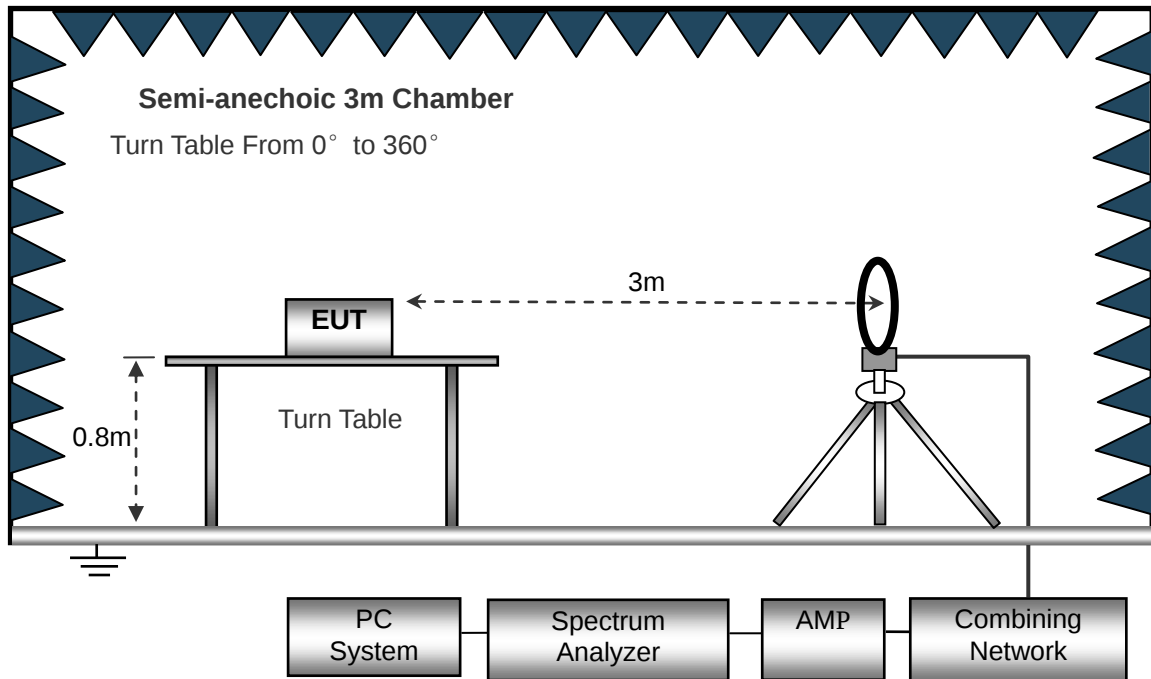
5.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.407(b)(6) and FCC Part 15.209 Limit..

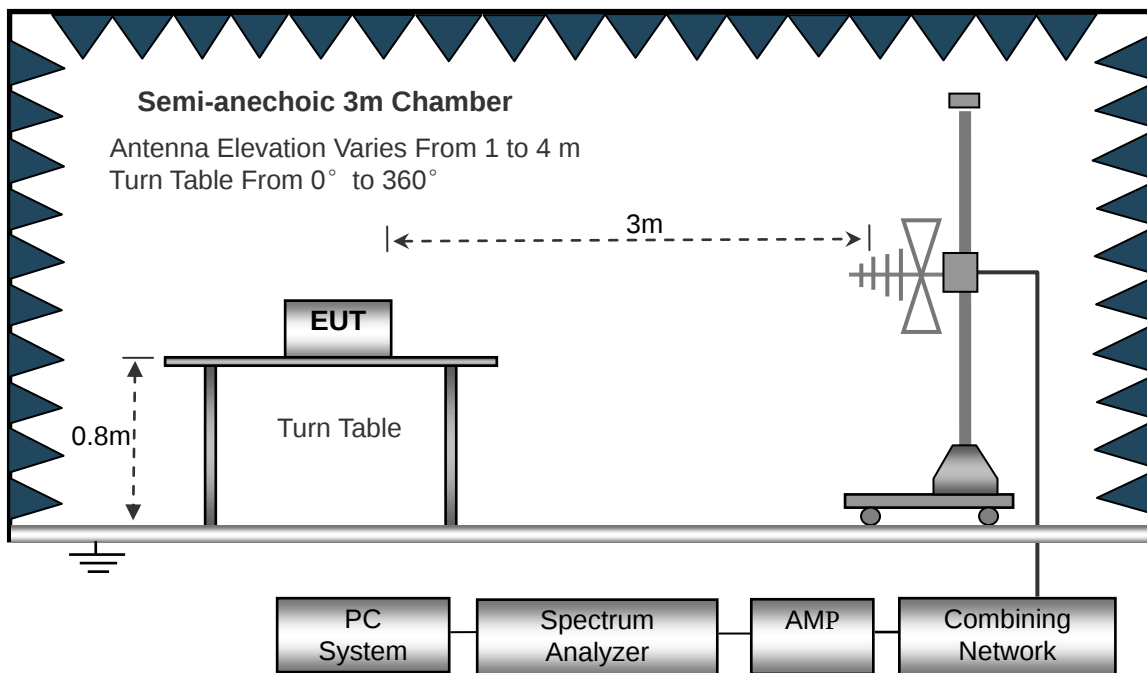
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

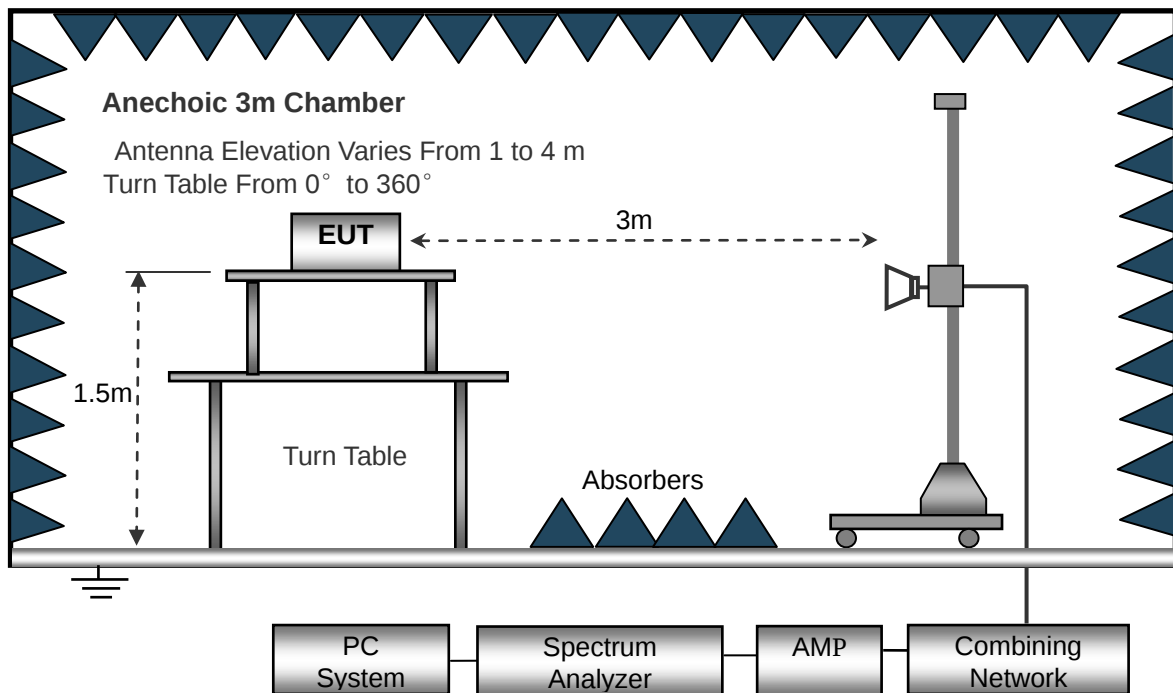
The test setup for emission measurement below 30MHz..



The test setup for emission measurement from 30 MHz to 1 GHz..



The test setup for emission measurement above 1 GHz..



5.3 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

5.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

5.5 Summary of Test Results/Plots

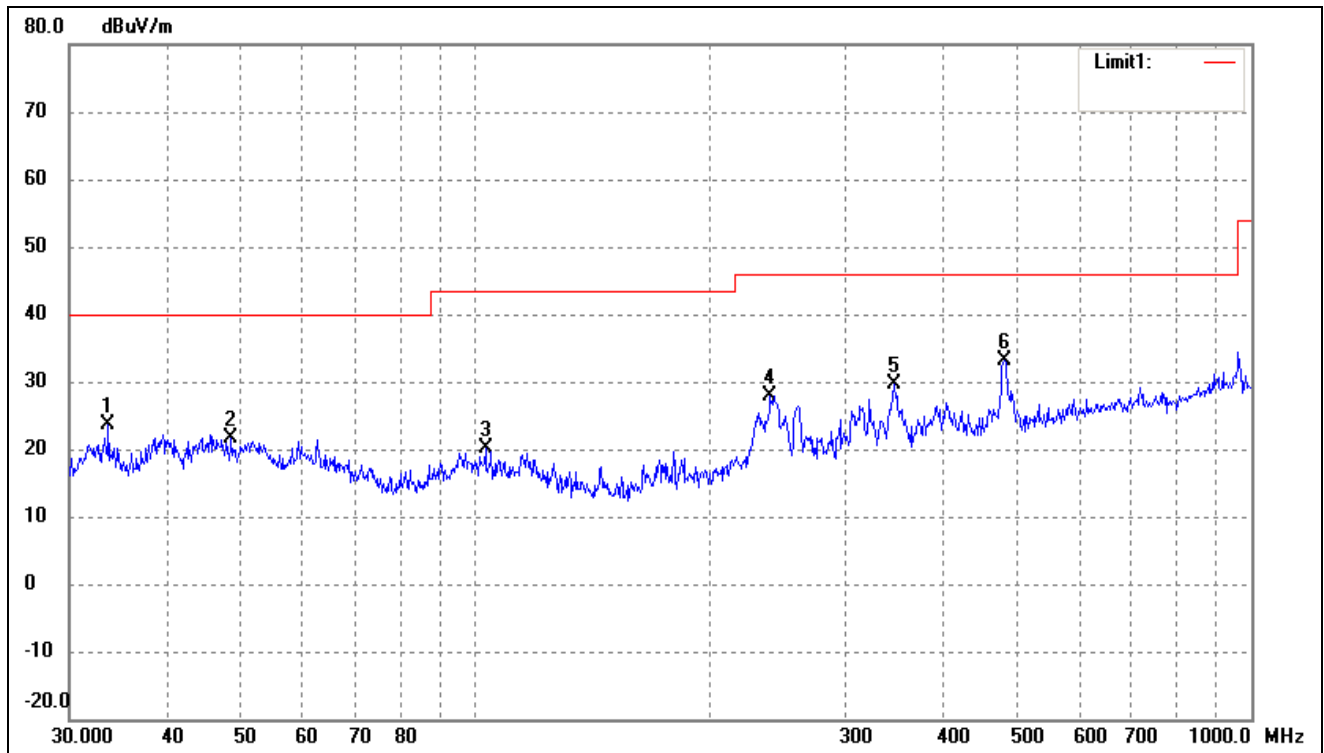
Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

➤ Spurious Emission From 30 MHz to 1 GHz

➤ Worst case Antenna A

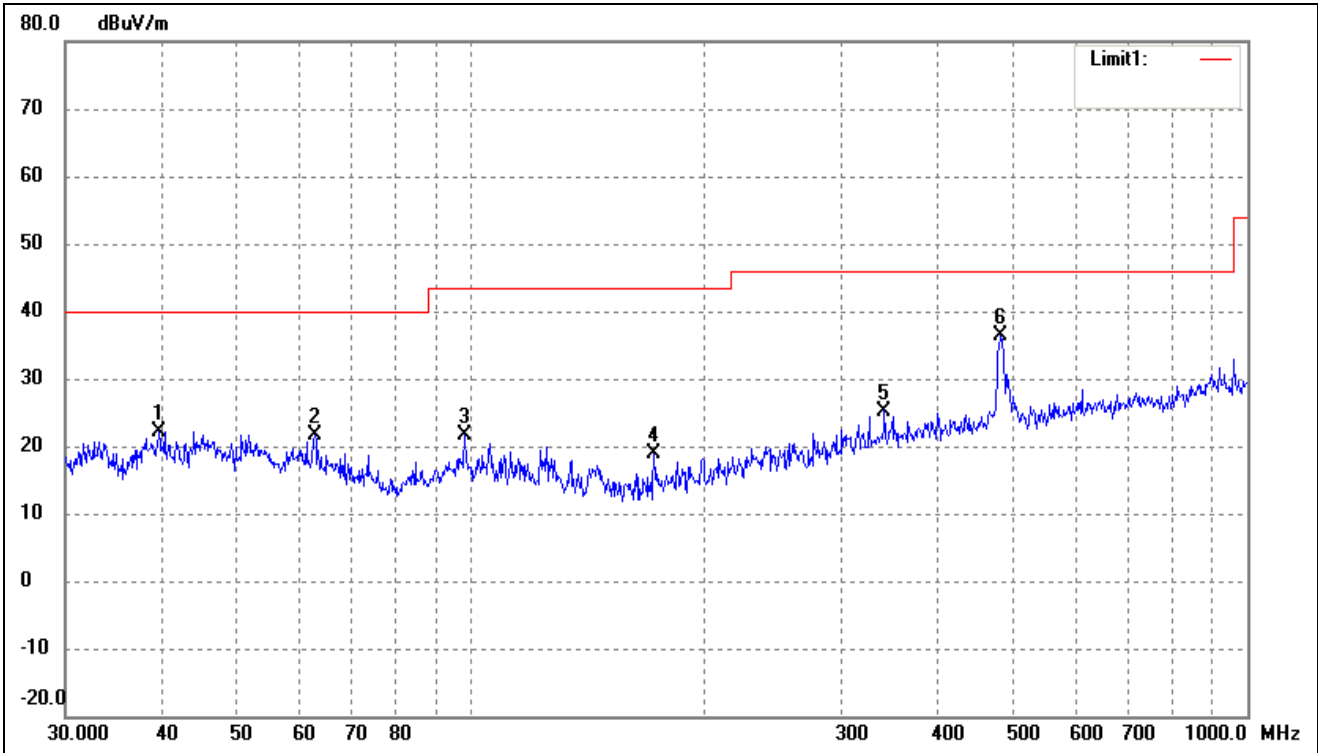
➤ 5150-5250MHz

802.11a			
Test Channel	5180MHz(Worst case)	Polarity:	Horizontal



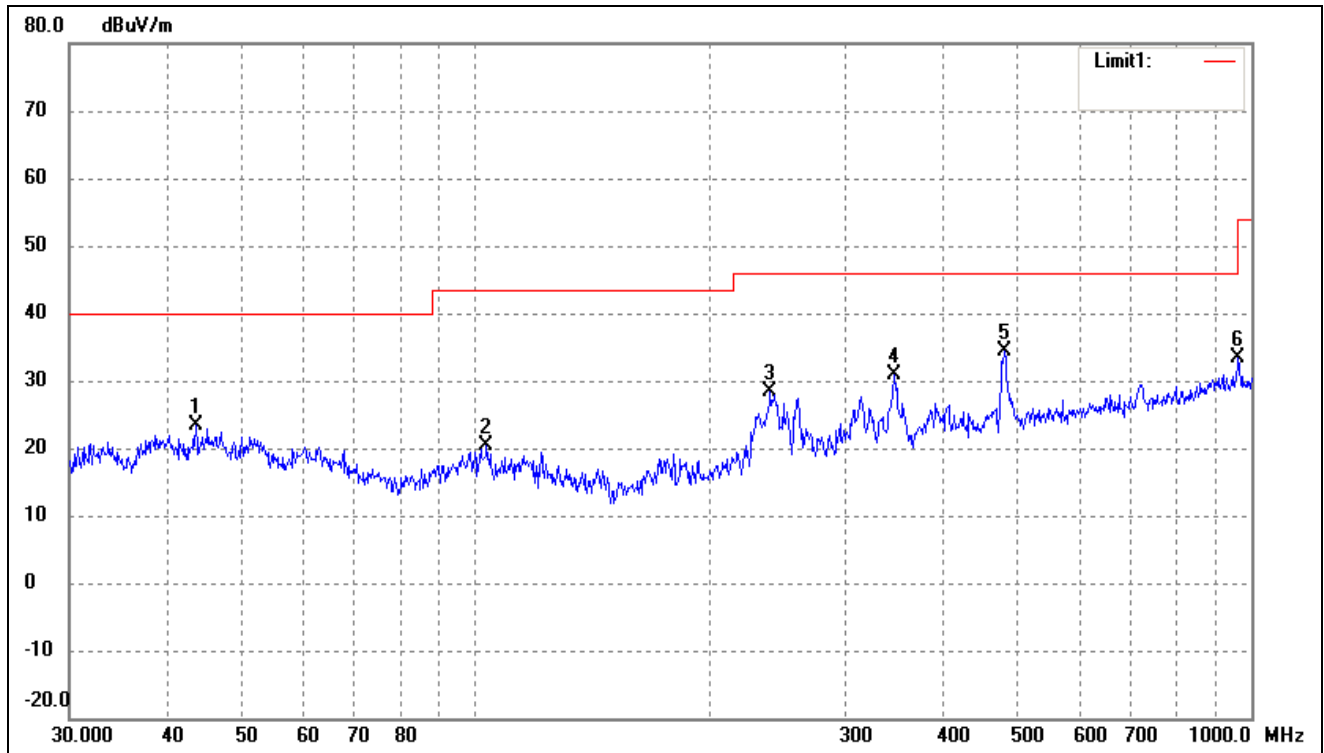
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.6803	37.46	-13.94	23.52	40.00	-16.48	-	-	peak
2	48.5016	33.34	-11.61	21.73	40.00	-18.27	-	-	peak
3	103.0800	33.57	-13.32	20.25	43.50	-23.25	-	-	peak
4	239.9874	39.39	-11.42	27.97	46.00	-18.03	-	-	peak
5	346.8092	37.26	-7.63	29.63	46.00	-16.37	-	-	peak
6	480.5276	37.88	-4.64	33.24	46.00	-12.76	-	-	peak

802.11a			
Test Channel	5180MHz(Worst case)	Polarity:	Vertical



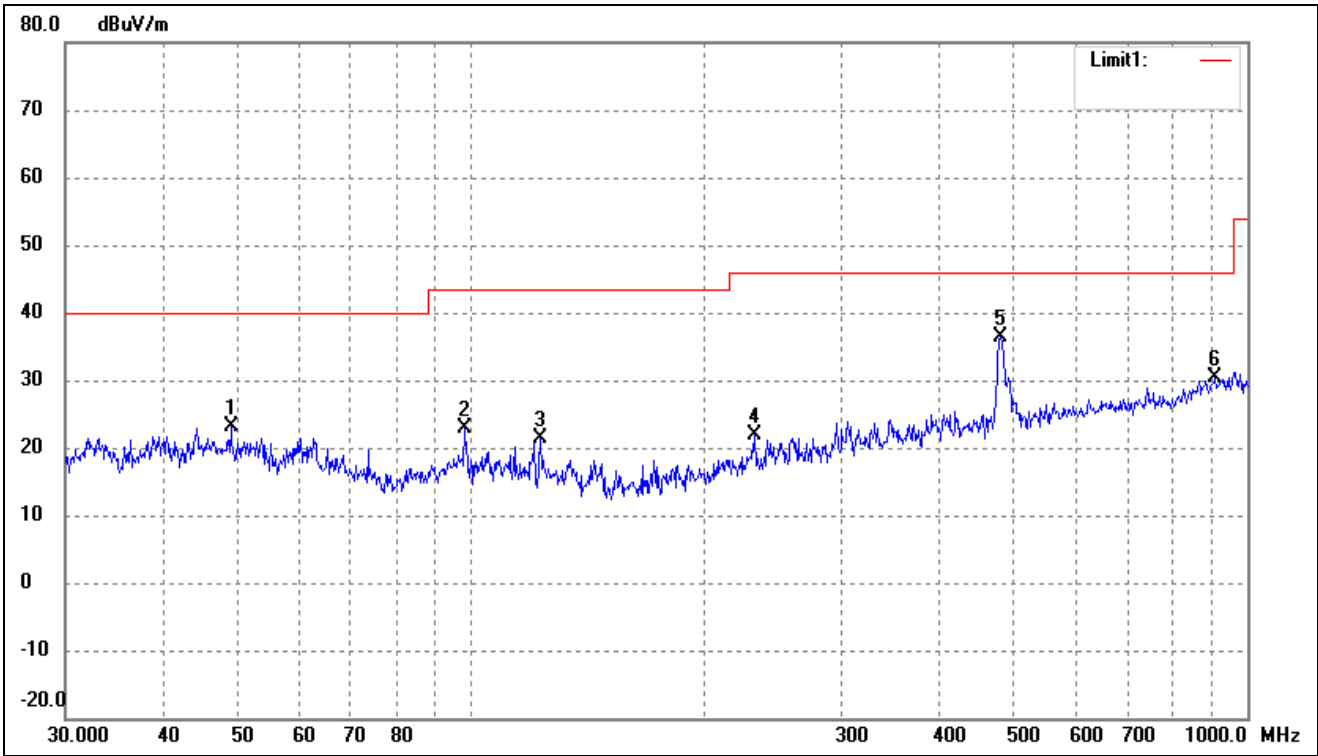
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	39.5757	34.27	-12.14	22.13	40.00	-17.87	-	-	peak
2	62.8708	35.18	-13.53	21.65	40.00	-18.35	-	-	peak
3	98.1419	35.33	-13.62	21.71	43.50	-21.79	-	-	peak
4	171.9946	33.85	-14.88	18.97	43.50	-24.53	-	-	peak
5	340.7817	33.25	-8.00	25.25	46.00	-20.75	-	-	peak
6	480.5276	40.94	-4.64	36.30	46.00	-9.70	-	-	peak

802.11n-HT40			
Test Channel	5190MHz(worst case)	Polarity:	Horizontal



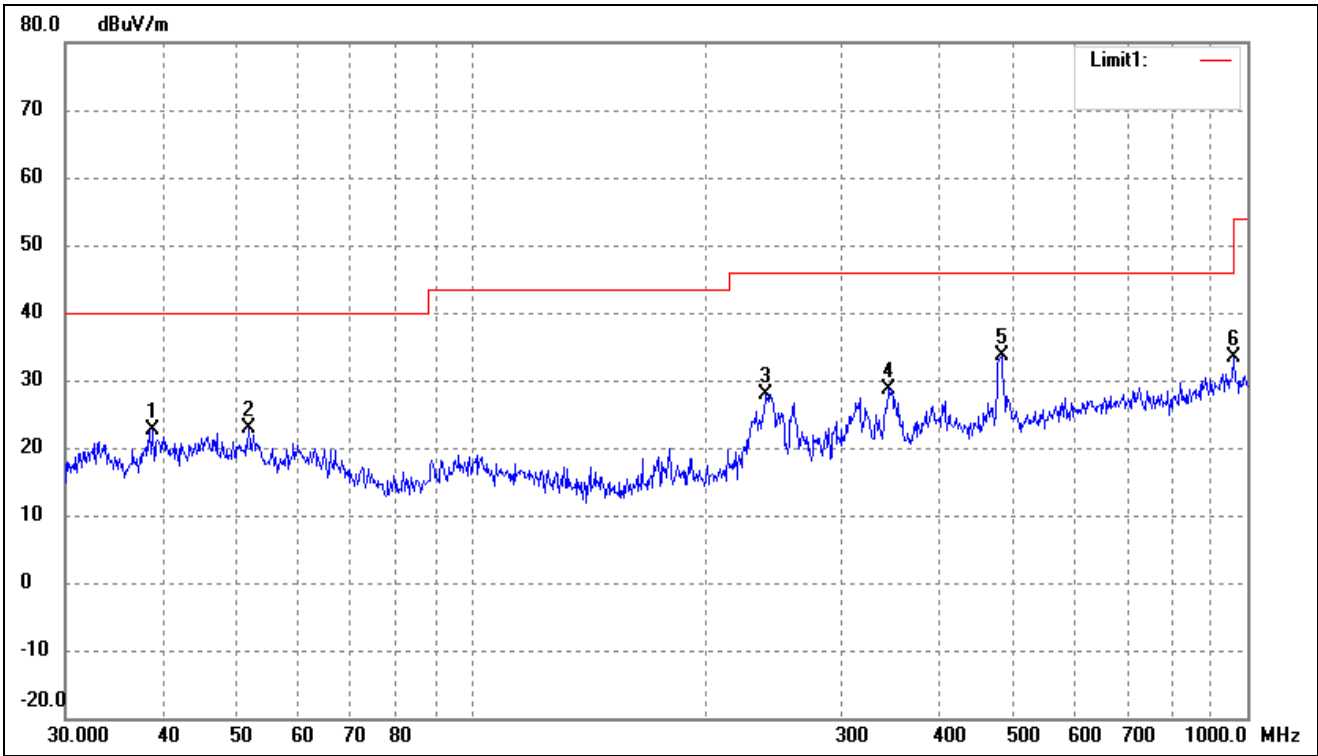
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	43.6585	35.19	-11.84	23.35	40.00	-16.65	-	-	peak
2	103.4421	33.60	-13.31	20.29	43.50	-23.21	-	-	peak
3	239.9874	39.79	-11.42	28.37	46.00	-17.63	-	-	peak
4	346.8092	38.46	-7.63	30.83	46.00	-15.17	-	-	peak
5	480.5276	39.03	-4.64	34.39	46.00	-11.61	-	-	peak
6	962.1623	31.92	1.41	33.33	54.00	-20.67	-	-	peak

802.11n-HT40			
Test Channel	5190MHz(worst case)	Polarity:	Vertical



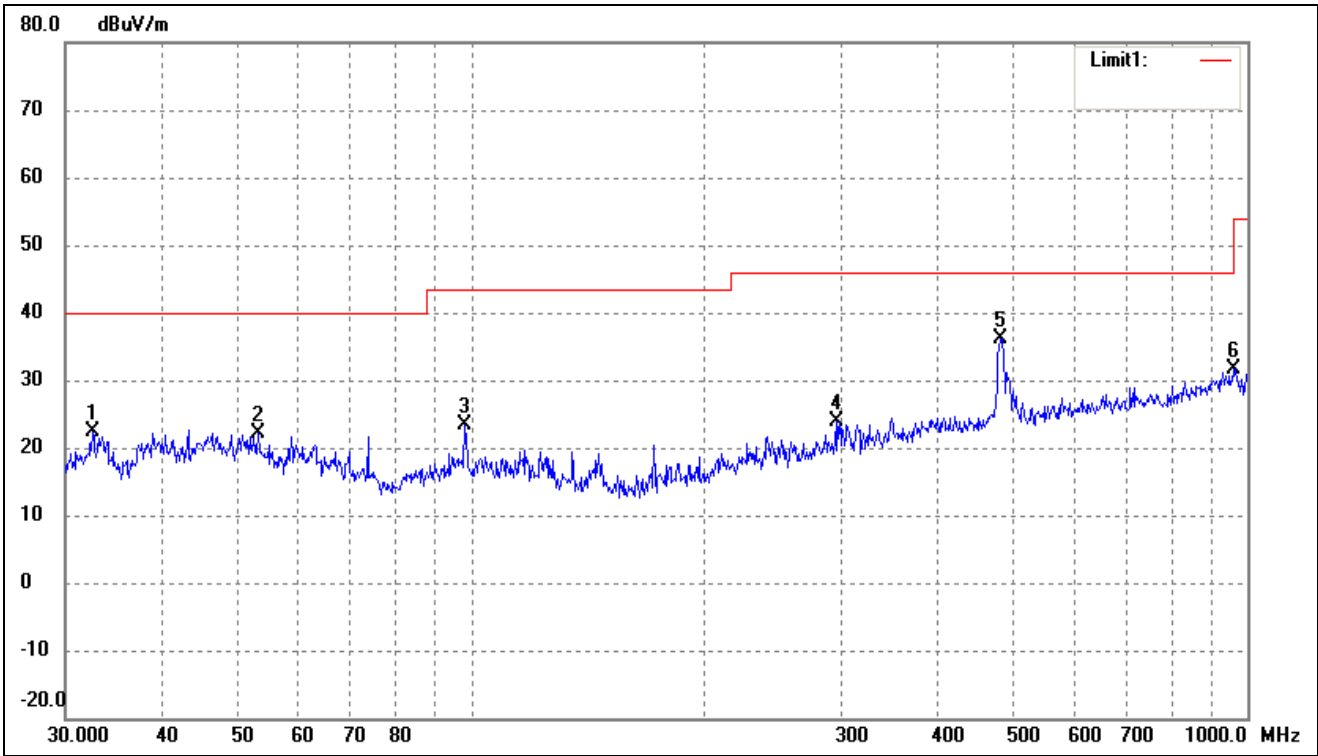
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	49.0145	34.63	-11.59	23.04	40.00	-16.96	-	-	peak
2	98.1419	36.50	-13.62	22.88	43.50	-20.62	-	-	peak
3	122.8340	36.42	-15.05	21.37	43.50	-22.13	-	-	peak
4	231.7179	33.58	-11.81	21.77	46.00	-24.23	-	-	peak
5	480.5276	40.90	-4.64	36.26	46.00	-9.74	-	-	peak
6	909.6667	28.63	1.67	30.30	46.00	-15.70	-	-	peak

802.11ac-HT80			
Test Channel	5210MHz(worst case)	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	38.8879	34.94	-12.40	22.54	40.00	-17.46	-	-	peak
2	51.6616	34.78	-12.00	22.78	40.00	-17.22	-	-	peak
3	239.9874	39.26	-11.42	27.84	46.00	-18.16	-	-	peak
4	344.3855	36.37	-7.77	28.60	46.00	-17.40	-	-	peak
5	482.2156	38.13	-4.59	33.54	46.00	-12.46	-	-	peak
6	958.7943	31.92	1.40	33.32	46.00	-12.68	-	-	peak

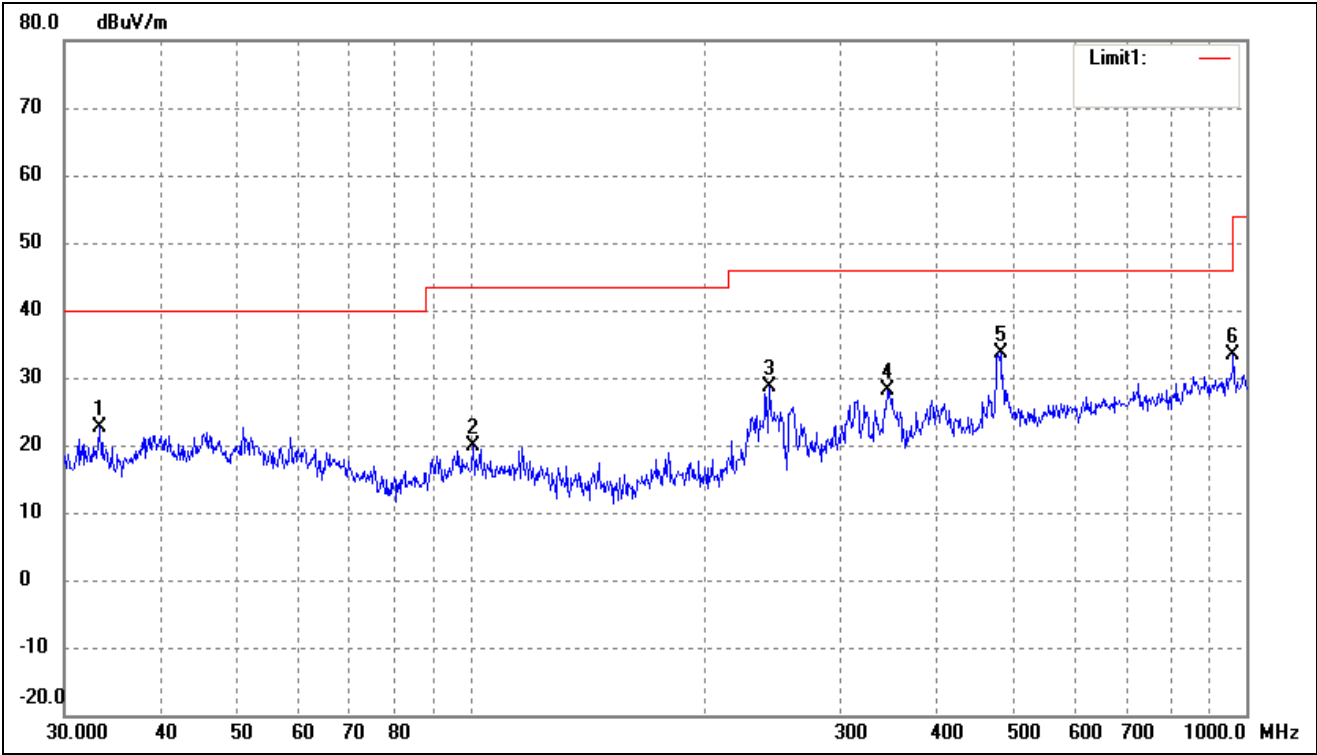
802.11ac-HT80			
Test Channel	5210MHz(worst case)	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	32.5198	36.29	-14.01	22.28	40.00	-17.72	-	-	peak
2	53.1313	34.50	-12.41	22.09	40.00	-17.91	-	-	peak
3	98.1419	37.06	-13.62	23.44	43.50	-20.06	-	-	peak
4	295.1469	33.18	-9.27	23.91	46.00	-22.09	-	-	peak
5	480.5276	40.86	-4.64	36.22	46.00	-9.78	-	-	peak
6	958.7943	30.19	1.40	31.59	46.00	-14.41	-	-	peak

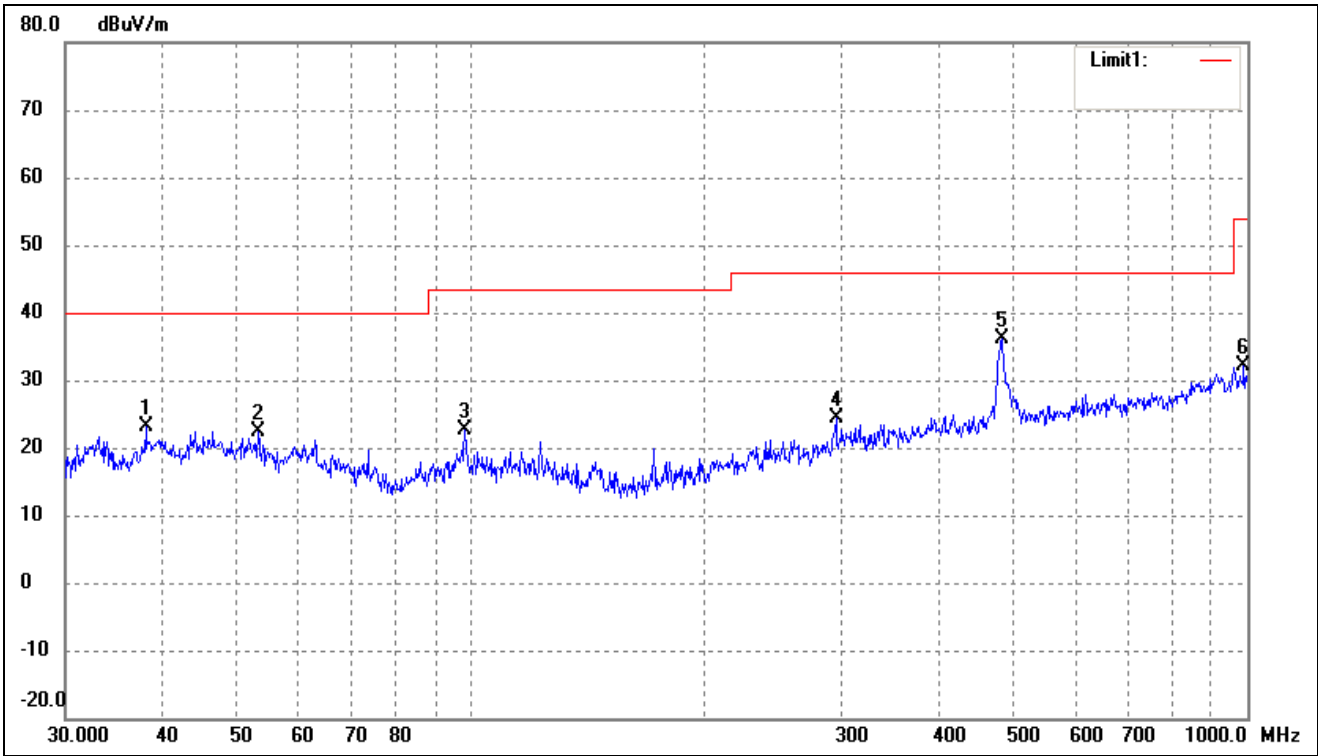
➤ Antenna A: 5725-5850MHz

802.11a			
Test Channel	5745MHz(worst case)	Polarity:	Horizontal



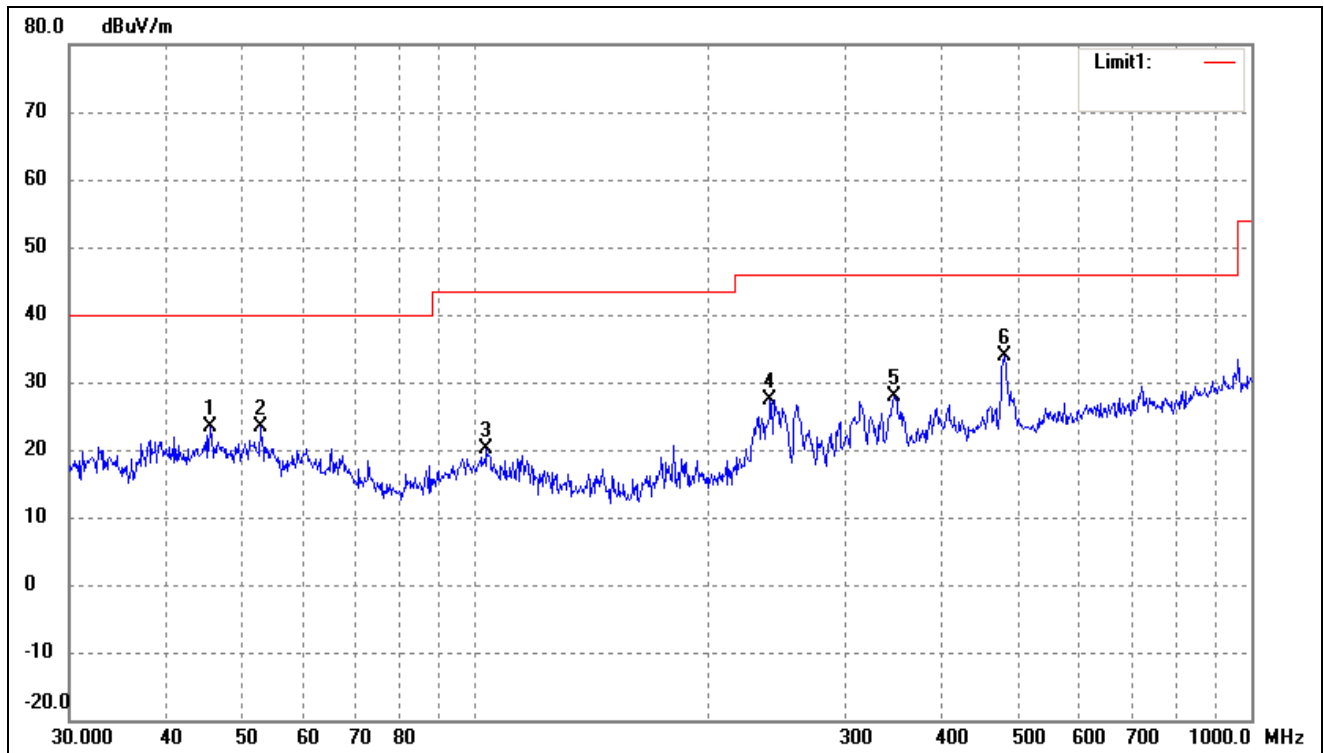
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	33.3279	36.50	-13.97	22.53	40.00	-17.47	-	-	peak
2	100.9340	33.10	-13.32	19.78	43.50	-23.72	-	-	peak
3	243.3772	39.87	-11.26	28.61	46.00	-17.39	-	-	peak
4	345.5952	35.84	-7.70	28.14	46.00	-17.86	-	-	peak
5	482.2156	38.23	-4.59	33.64	46.00	-12.36	-	-	peak
6	962.1623	31.90	1.41	33.31	54.00	-20.69	-	-	peak

802.11a			
Test Channel	5745MHz(worst case)	Polarity:	Vertical



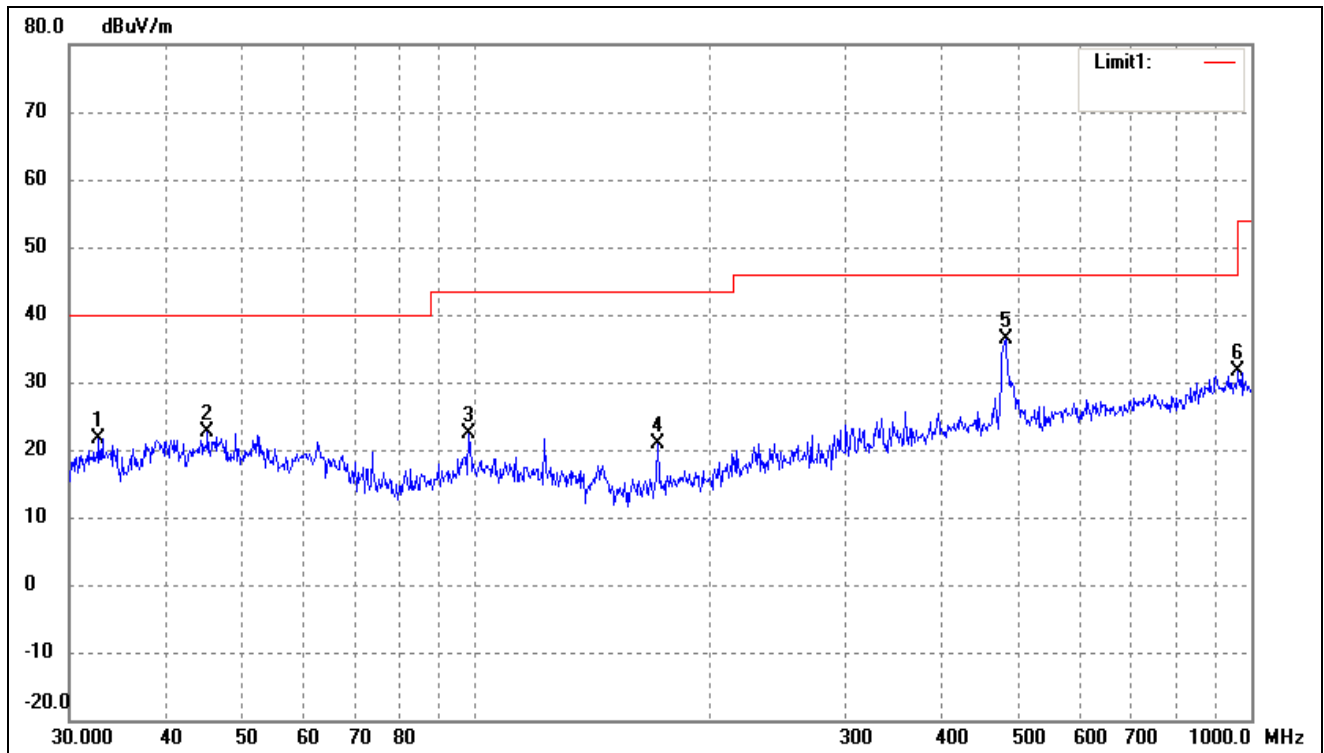
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	38.0783	35.95	-12.71	23.24	40.00	-16.76	-	-	peak
2	53.1313	34.84	-12.41	22.43	40.00	-17.57	-	-	peak
3	98.1419	36.36	-13.62	22.74	43.50	-20.76	-	-	peak
4	295.1469	33.68	-9.27	24.41	46.00	-21.59	-	-	peak
5	482.2156	40.64	-4.59	36.05	46.00	-9.95	-	-	peak
6	989.5355	30.46	1.71	32.17	54.00	-21.83	-	-	peak

802.11n-HT40			
Test Channel	5755MHz(worst case)	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	45.5348	35.20	-11.77	23.43	40.00	-16.57	-	-	peak
2	52.9453	35.73	-12.36	23.37	40.00	-16.63	-	-	peak
3	103.4421	33.50	-13.31	20.19	43.50	-23.31	-	-	peak
4	239.9874	38.77	-11.42	27.35	46.00	-18.65	-	-	peak
5	346.8092	35.56	-7.63	27.93	46.00	-18.07	-	-	peak
6	480.5276	38.52	-4.64	33.88	46.00	-12.12	-	-	peak

802.11n-HT40			
Test Channel	5755MHz(worst case)	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	32.7486	35.59	-14.00	21.59	40.00	-18.41	-	-	peak
2	45.2166	34.43	-11.79	22.64	40.00	-17.36	-	-	peak
3	98.1419	36.06	-13.62	22.44	43.50	-21.06	-	-	peak
4	171.9946	35.88	-14.88	21.00	43.50	-22.50	-	-	peak
5	482.2156	40.85	-4.59	36.26	46.00	-9.74	-	-	peak
6	962.1623	30.26	1.41	31.67	54.00	-22.33	-	-	peak

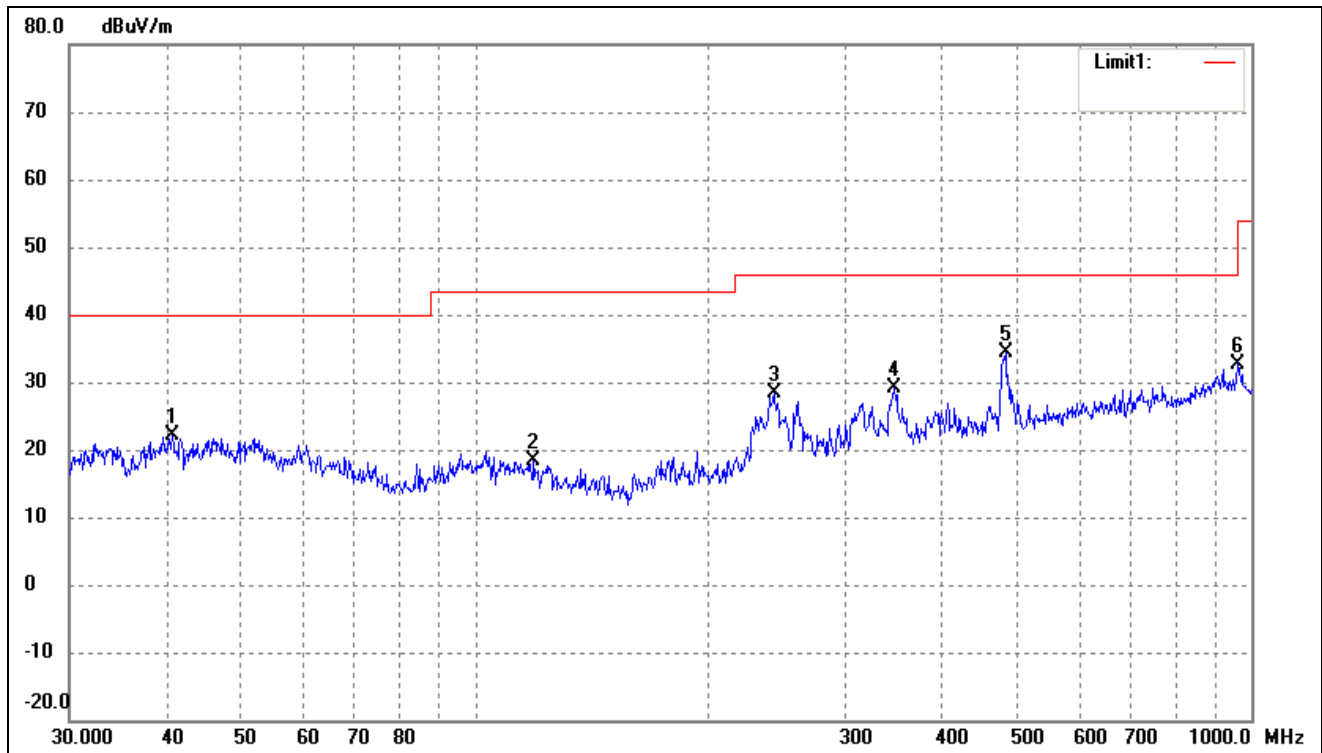
802.11ac-HT80

Test Channel

5775MHz(worst case)

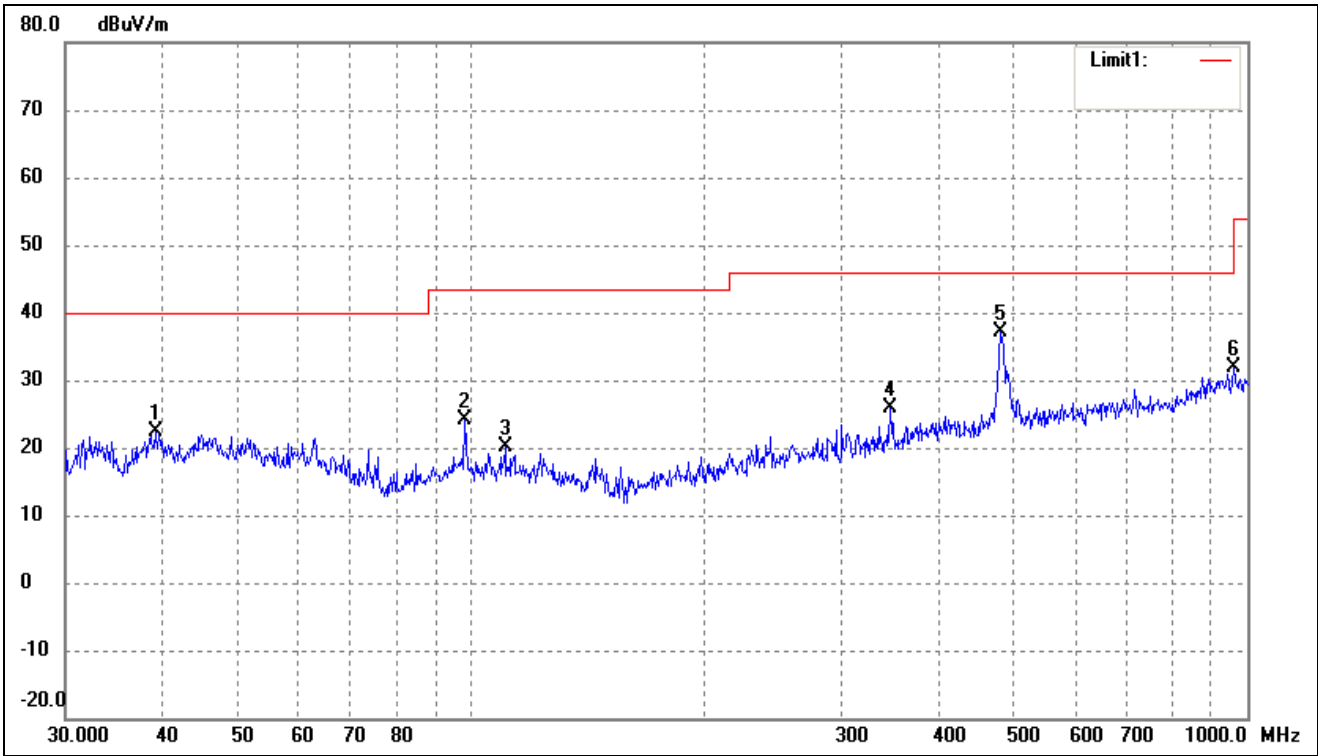
Polarity:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	40.7016	34.13	-11.96	22.17	40.00	-17.83	-	-	peak
2	119.0180	32.64	-14.20	18.44	43.50	-25.06	-	-	peak
3	242.5253	39.69	-11.29	28.40	46.00	-17.60	-	-	peak
4	346.8092	36.65	-7.63	29.02	46.00	-16.98	-	-	peak
5	482.2156	38.95	-4.59	34.36	46.00	-11.64	-	-	peak
6	962.1623	31.34	1.41	32.75	54.00	-21.25	-	-	peak

802.11ac-HT80			
Test Channel	5775MHz(worst case)	Polarity:	Vertical

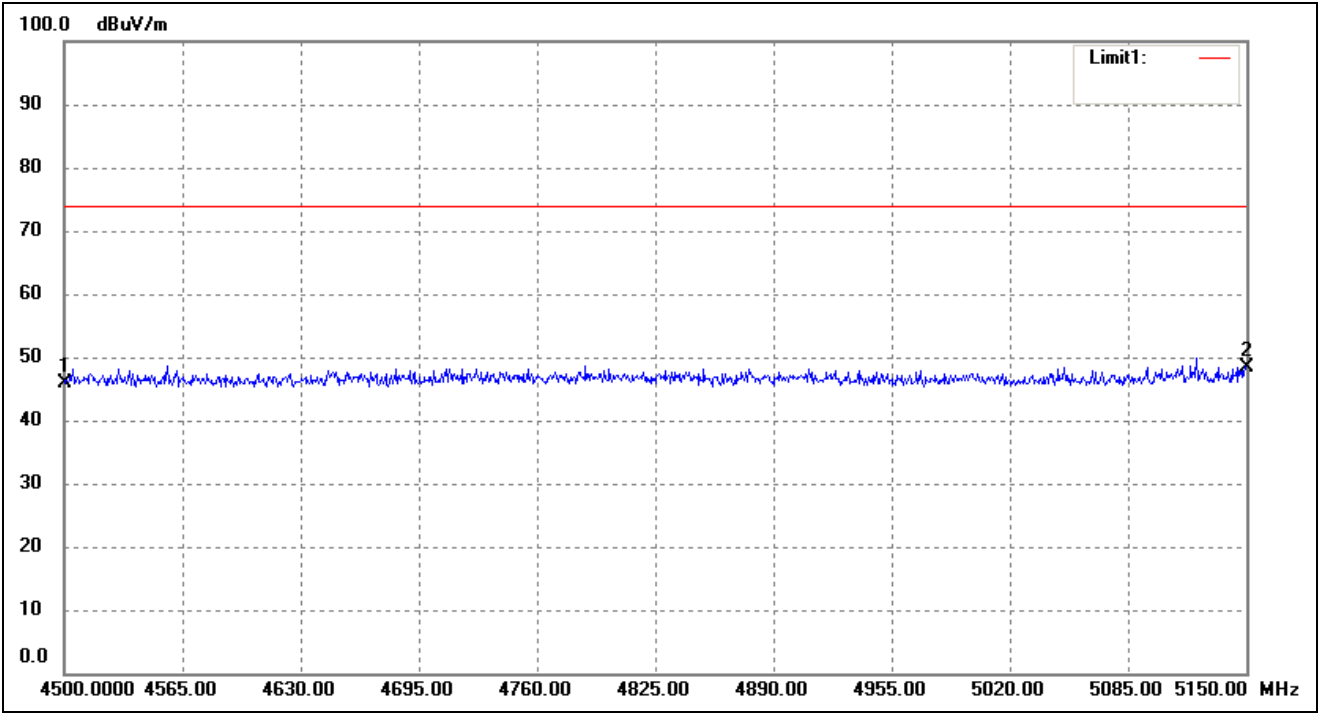


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	39.1616	34.62	-12.30	22.32	40.00	-17.68	-	-	peak
2	98.1419	37.78	-13.62	24.16	43.50	-19.34	-	-	peak
3	110.5687	33.53	-13.36	20.17	43.50	-23.33	-	-	peak
4	346.8092	33.57	-7.63	25.94	46.00	-20.06	-	-	peak
5	480.5276	41.73	-4.64	37.09	46.00	-8.91	-	-	peak
6	962.1623	30.53	1.41	31.94	54.00	-22.06	-	-	peak

Remark: ‘-’ Means’ the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

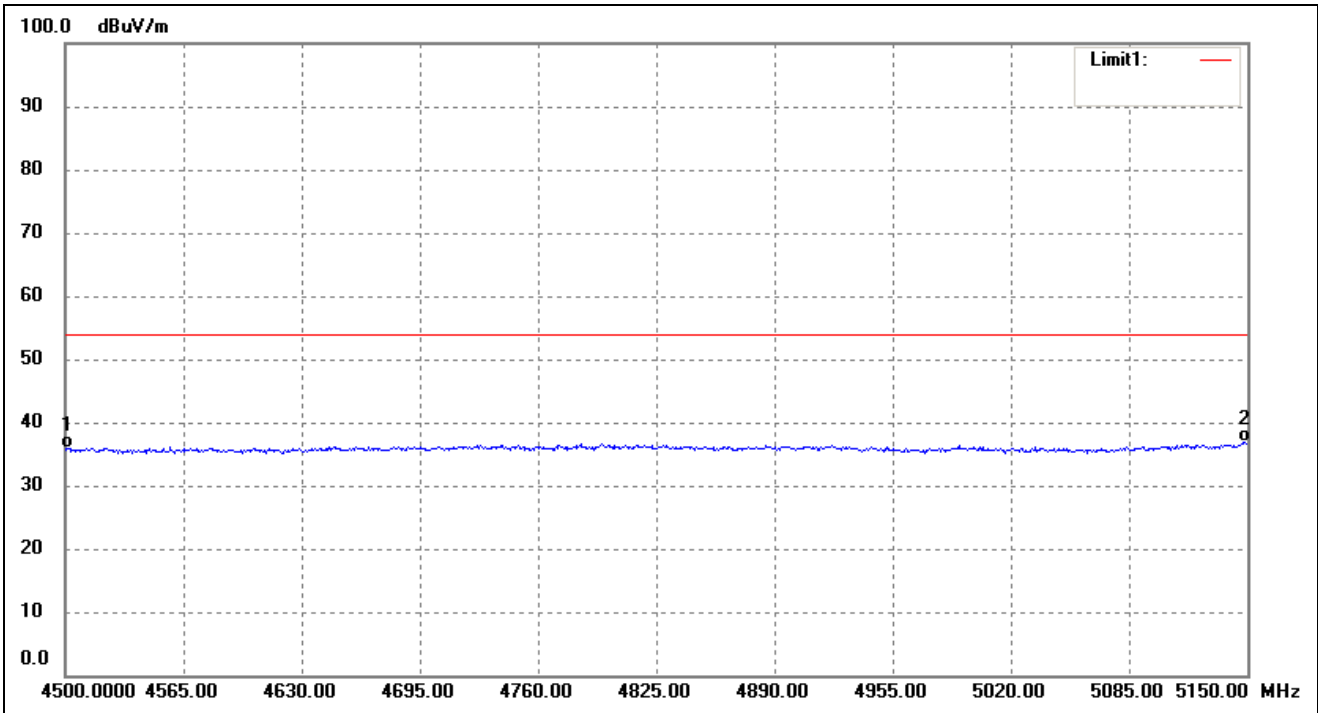
- Spurious Emission above 1GHz
- Worst case at 802.11a
- Antenna A

802.11a- Restricted Bandedge			
Test Channel	band 5.15-5.25GHz	Polarity:	Vertical(worst case)



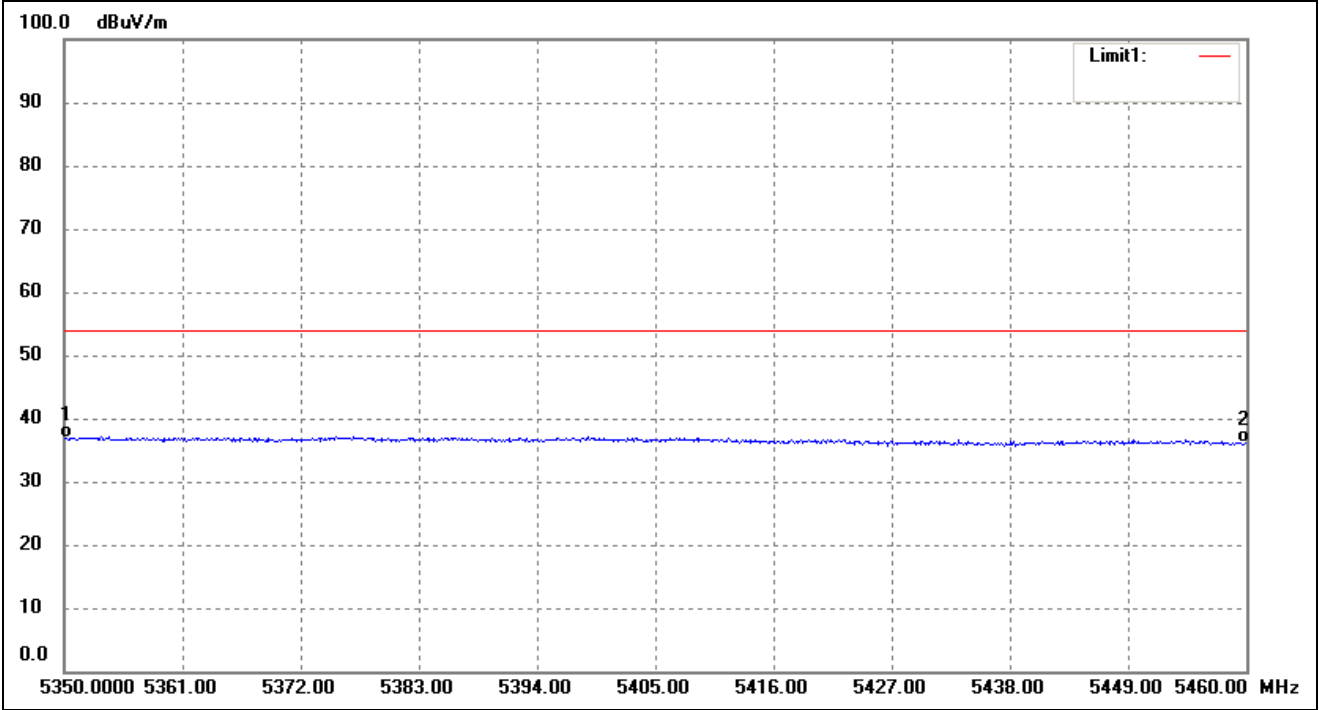
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	4500.000	50.69	-4.71	45.98	74.00	-28.02	-	-	peak
2	5150.000	52.65	-4.32	48.33	74.00	-25.67	-	-	peak

802.11a- Restricted Bandedge			
Test Channel	band 5.35-5.46GHz	Polarity:	Vertical(worst case)



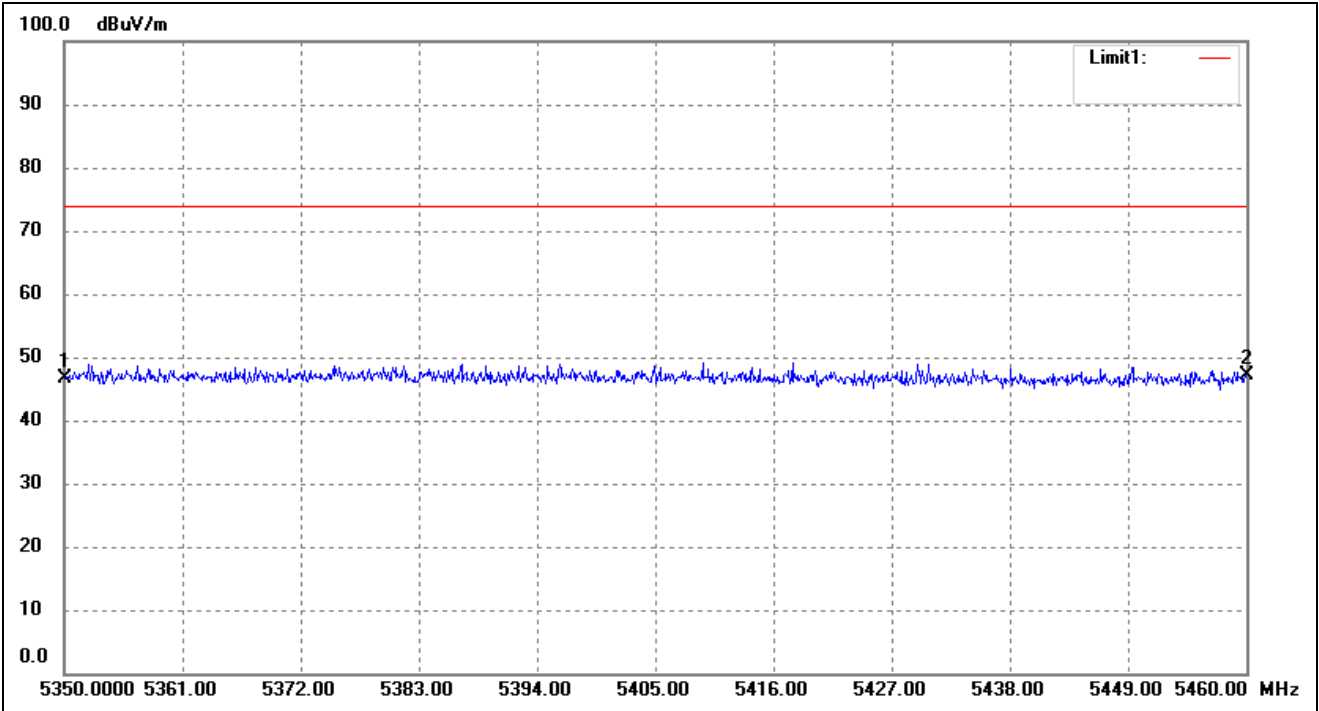
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	4500.000	40.50	-4.71	35.79	54.00	-18.21	-	-	AVG
2	5150.000	41.12	-4.32	36.80	54.00	-17.20	-	-	AVG

802.11a- Restricted Bandedge			
Test Channel	band 5.35-5.46GHz	Polarity:	Vertical(worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5350.000	41.14	-4.21	36.93	54.00	-17.07	-	-	AVG
2	5460.000	40.35	-4.16	36.19	54.00	-17.81	-	-	AVG

802.11a- Restricted Bandedge			
Test Channel	band 5.35-5.46GHz	Polarity:	Vertical(worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5350.000	50.84	-4.21	46.63	74.00	-27.37	-	-	peak
2	5460.000	51.37	-4.16	47.21	74.00	-26.79	-	-	peak

Note: The Restricted Bandedge was tested in Horizontal /Vertical and the worst case position data was reported.

Remark: ‘-’ Means’ the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

- For the frequency band 5.15-5.25GHz, 5.725-5.850GHz (802.11a)
Worst case
- Antenna A& Antenna B
- Harmonics And Spurious Emissions

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5180MHz)							
10360	57.24	7.11	64.35	74	-9.65	H	PK
15540	39.29	8.22	47.51	54	-6.49	H	AV
10360	58.94	7.11	66.05	74	-7.95	V	PK
15540	37.75	8.22	45.97	54	-8.03	V	AV
Middle Channel (5200MHz)							
10400	57.56	7.22	64.78	74	-9.22	H	PK
15600	35.42	8.67	44.09	54	-9.91	H	AV
10400	57.11	7.22	64.33	74	-9.67	V	PK
15600	38.16	8.67	46.83	54	-7.17	V	AV
High Channel (5240MHz)							
10480	55.74	7.69	63.43	74	-10.57	H	PK
15720	38.98	8.93	47.91	54	-6.09	H	AV
10480	60.31	7.69	68.00	74	-6.00	V	PK
15720	39.46	8.93	48.39	54	-5.61	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5745MHz)							
11490	57.27	9.45	66.72	74	-7.28	H	PK
17235	34.91	10.36	45.27	54	-8.73	H	AV
11490	55.37	9.45	64.82	74	-9.18	V	PK
17235	36.25	10.36	46.61	54	-7.39	V	AV
Middle Channel (5785MHz)							
11570	57.87	9.62	67.49	74	-6.51	H	PK
17355	36.61	10.67	47.28	54	-6.72	H	AV
11570	57.53	9.62	67.15	74	-6.85	V	PK
17355	36.09	10.67	46.76	54	-7.24	V	AV
High Channel (5825MHz)							
11650	55.96	9.84	65.80	74	-8.20	H	PK
17475	33.17	10.95	44.12	54	-9.88	H	AV
11650	55.24	9.84	65.08	74	-8.92	V	PK
17475	36.62	10.95	47.57	54	-6.43	V	AV

➤ Out of Band edge for 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-35.74	-27
Highest	Above 5350	-42.68	-27
Note: the data just list the worst cases			

➤ Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-37.39	-27
	5715 to 5725	-40.45	-17
Highest	5850 to 5860	-40.56	-17
	Above 5860	-43.49	-27
Note: the data just list the worst cases			

➤ For the frequency band 5.15-5.25GHz, 5.725-5.850GHz (802.11HT20)

➤ Antenna A & Antenna B

➤ Harmonics And Spurious Emissions

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5180MHz)							
10360	56.42	7.11	63.53	74	-10.47	H	PK
15540	39.72	8.22	47.94	54	-6.06	H	AV
10360	60.47	7.11	67.58	74	-6.42	V	PK
15540	38.43	8.22	46.65	54	-7.35	V	AV
Middle Channel (5200MHz)							
10400	59.86	7.22	67.08	74	-6.92	H	PK
15600	35.71	8.67	44.38	54	-9.62	H	AV
10400	57.40	7.22	64.62	74	-9.38	V	PK
15600	37.04	8.67	45.71	54	-8.29	V	AV
High Channel (5240MHz)							
10480	55.21	7.69	62.90	74	-11.10	H	PK
15720	39.25	8.93	48.18	54	-5.82	H	AV
10480	60.20	7.69	67.89	74	-6.11	V	PK
15720	38.00	8.93	46.93	54	-7.07	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5745MHz)							
11490	57.47	9.45	66.92	74	-7.08	H	PK
17235	36.69	10.36	47.05	54	-6.95	H	AV
11490	55.31	9.45	64.76	74	-9.24	V	PK
17235	36.40	10.36	46.76	54	-7.24	V	AV
Middle Channel (5785MHz)							
11570	57.03	9.62	66.65	74	-7.35	H	PK
17355	35.19	10.67	45.86	54	-8.14	H	AV
11570	56.45	9.62	66.07	74	-7.93	V	PK
17355	37.21	10.67	47.88	54	-6.12	V	AV
High Channel (5825MHz)							
11650	55.23	9.84	65.07	74	-8.93	H	PK
17475	34.84	10.95	45.79	54	-8.21	H	AV
11650	57.01	9.84	66.85	74	-7.15	V	PK
17475	36.64	10.95	47.59	54	-6.41	V	AV

➤ Out of Band edge for 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-32.14	-27
Highest	Above 5350	-37.76	-27
Note: the data just list the worst cases			

➤ Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-46.34	-27
	5715 to 5725	-34.78	-17
Highest	5850 to 5860	-35.70	-17
	Above 5860	-41.45	-27
Note: the data just list the worst cases			

- For the frequency band 5.15-5.25GHz5.725-5.850GHz (802.11n HT40)
- Antenna A & Antenna B
- Harmonics And Spurious Emissions

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5190MHz)							
10380	59.19	7.25	66.44	74	-7.56	H	PK
15570	37.51	8.33	45.84	54	-8.16	H	AV
10380	59.44	7.25	66.69	74	-7.31	V	PK
15570	38.80	8.33	47.13	54	-6.87	V	AV
High Channel (5230MHz)							
10460	57.34	7.54	64.88	74	-9.12	H	PK
15690	39.47	8.86	48.33	54	-5.67	H	AV
10460	60.81	7.54	68.35	74	-5.65	V	PK
15690	37.43	8.86	46.29	54	-7.71	V	AV

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel (5755MHz)							
11510	55.60	9.65	65.25	74	-8.75	H	PK
17265	36.81	10.87	47.68	54	-6.32	H	AV
11510	57.22	9.65	66.87	74	-7.13	V	PK
17265	36.34	10.87	47.21	54	-6.79	V	AV
High Channel (5795MHz)							
11590	55.62	9.81	65.43	74	-8.57	H	PK
17385	33.77	10.89	44.66	54	-9.34	H	AV
11590	57.74	9.81	67.55	74	-6.45	V	PK
17385	36.69	10.89	47.58	54	-6.42	V	AV

- Out of Band edge 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-36.79	-27
Highest	Above 5350	-40.55	-27
Note: the data just list the worst cases			

➤ Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-40.25	-27
	5715 to 5725	-40.65	-17
Highest	5850 to 5860	-42.88	-17
	Above 5860	-40.54	-27
Note: the data just list the worst cases			

Note: this EUT was tested in the low, high channel and the worst case position data was reported.

➤ For the frequency band 5.15-5.25GHz, 5.725-5.850GHz (802.11ac VHT80)

➤ Antenna A & Antenna B

➤ Harmonics And Spurious Emissions



Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
5210MHz							
10420	58.48	7.33	65.81	74	-8.19	H	PK
15630	36.17	8.75	44.92	54	-9.08	H	AV
10420	57.39	7.33	64.72	74	-9.28	V	PK
15630	36.15	8.75	44.90	54	-9.10	V	AV



Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
5775MHz							
11550	56.52	9.54	66.06	74	-7.94	H	PK
17325	37.91	10.59	48.50	54	-5.50	H	AV
11550	56.72	9.54	66.26	74	-7.74	V	PK
17325	34.40	10.59	44.99	54	-9.01	V	AV

➤ Out of Band edge for 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-32.37	-27
Highest	Above 5350	-31.81	-27
Note: the data just list the worst cases			

➤ Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-43.81	-27
	5715 to 5725	-31.45	-17
Highest	5850 to 5860	-29.63	-17
	Above 5860	-39.04	-27
Note: the data just list the worst cases			

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

******* END OF REPORT *******