



FCC PART 15.407

TEST REPORT

For

Fibocom Wireless Inc.

1101, Tower A, Building 6, Shenzhen International, Innovation Valley, Dashi 1st Rd,
Nanshan, Shenzhen, China

FCC ID: ZMQSQ808NA

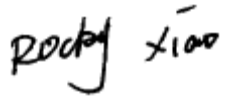
Report Type: Class II Permissive Change Report	Product Name: LTE Module
Report Number: XMDN210630-26287E-00D	
Report Date: 2021-07-26	
Reviewed By:	Rocky Xiao RF Engineer 
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		LTE Module
EUT Model:		SQ808-NA
Operation Frequency:		5180-5240MHz(802.11a/n ht20/ac vht20) 5190-5230 MHz(802.11n ht40/ac vht40) 5210 MHz(802.11ac vht80) 5260-5320MHz(802.11a/n ht20/ac vht20) 5270-5310 MHz(802.11n ht40/ac vht40) 5290 MHz(802.11ac vht80) 5500-5720MHz(802.11a/n ht20/ac vht20) 5510-5670 MHz(802.11n ht40/ac vht40) 5530-5690 MHz(802.11ac vht80) 5745-5825MHz(802.11a/n ht20/ac vht20) 5755-5795 MHz(802.11n ht40/ac vht40) 5775 MHz(802.11ac vht80)
Modulation Type:		OFDM
Antenna Gain▲:		2.2 dBi(Max)
Host Name:		Smart POS Terminal
Host Model:		AXIUM EX6000
Host Rated Input Voltage:		DC 3.85V from battery or DC 5V from adapter
Adapter#1 Information:	Model:	SW-0983
	Input:	100-240Vac 50/60Hz 0.5A
	Output:	5.0Vdc 2.0A
Adapter#2 Information:	Model:	A8-050200U-US3
	Input:	100-240Vac 50/60Hz 0.35A
	Output:	5.0Vdc 2.0A
Serial Number:		XMDN210630-26287E-RF-S1
EUT Received Date:		2021.06.30
EUT Received Status:		Good

Note: this Host have two configuration: with Scanner Reader or without Scanner Reader, the different of the two configuration please refer to Declaration Letter which was provided by manufacturer.

Per pre-test of FCC Part 15B test, the adapter#1 + With Scanner Reader was the worst, and was performed the test items in this report.

Objective

This type approval report is prepared on behalf of **Fibocom Wireless Inc.** in accordance with Part 2-Subpart J, Part 15-Subparts A, and E of the Federal Communications Commission's rules.

The tests were performed in order to determine compliance with FCC Rules Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

This is Class II Permissive Change report for the purpose of built in this Module into the host, the host FCC ID: XKB-EX6CL4GWB, and other change as below:

Change the module's Antennas.

Therefore, AC line conducted emissions, radiation spurious emissions was retested and output power was verified for this report.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB, 200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1 °C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1093	RF Exposure	Compliance
FCC§15.203	Antenna Requirement	Compliance
FCC§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance
FCC§15.205& §15.209 &§15.407(b)	Undesirable Emission& Restricted Bands	Compliance
FCC§15.407(b)	Out Of Band Emissions	Compliance*
FCC§15.407(a) (e)	Emission Bandwidth	Compliance*
FCC§15.407(a)	Conducted Transmitter Output Power	Compliance*
FCC§15.407 (a)	Power Spectral Density	Compliance*
FCC§15.407 (h)	DFS	Compliance*

Compliance*: Please refer to the module original report: ZR/2020/6002805, which was issued by SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system support 802.11a/n ht20/n ht40/ac vht20/ac vht40/ac vht80, the vht20/vht40 were reduced since the identical parameters with 802.11n ht20 and ht40.

For 5150~5250 MHz band, 7 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
42	5210	/	/

For 802.11a, 802.11n ht20,802.11ac vht20 channel 36, 40 and 48 was tested, for 802.11n ht40, 802.11ac vht40 channel 38, 46 were tested, for 802.11ac vht80, channel 42 was tested.

For 5250~5350 MHz band, 7 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300
54	5270	62	5310
56	5280	64	5320
58	5290	/	/

For 802.11a, 802.11n ht20,802.11ac vht20 channel 52, 56 and 64 was tested, for 802.11n ht40, 802.11ac vht40 channel 54, 62 were tested, for 802.11ac vht80, channel 58 was tested.

For 5470~5725 MHz band, 20 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	122	5610
102	5510	124	5620
104	5520	126	5630
106	5530	128	5640
108	5540	132	5660
110	5550	134	5670
112	5560	136	5680
116	5580	138	5690
118	5590	140	5700
120	5600	144	5720

For 802.11a, 802.11n ht20,802.11ac vht20 channel 100, 120 and 140 was tested, for 802.11n ht40, 802.11ac vht40 channel 102, 118, 134 were tested, for 802.11ac vht80, channel 106,122 was tested.

For 5725~5850MHz band, 8 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785
151	5755	159	5795
153	5765	161	5805
155	5775	165	5825

For 802.11a, 802.11n ht20, 802.11ac vht20 channel 149, 157 and 165 was tested, for 802.11n ht40, 802.11ac vht40 channel 151, 159 were tested, for 802.11ac vht80, channel 155 was tested.

EUT Exercise Software

The software “QRCT3.exe” was used for testing, which was provided by Manufacturer. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates, bandwidths, and modulations. The maximum power was configured as below table, that provided by the Manufacturer▲:

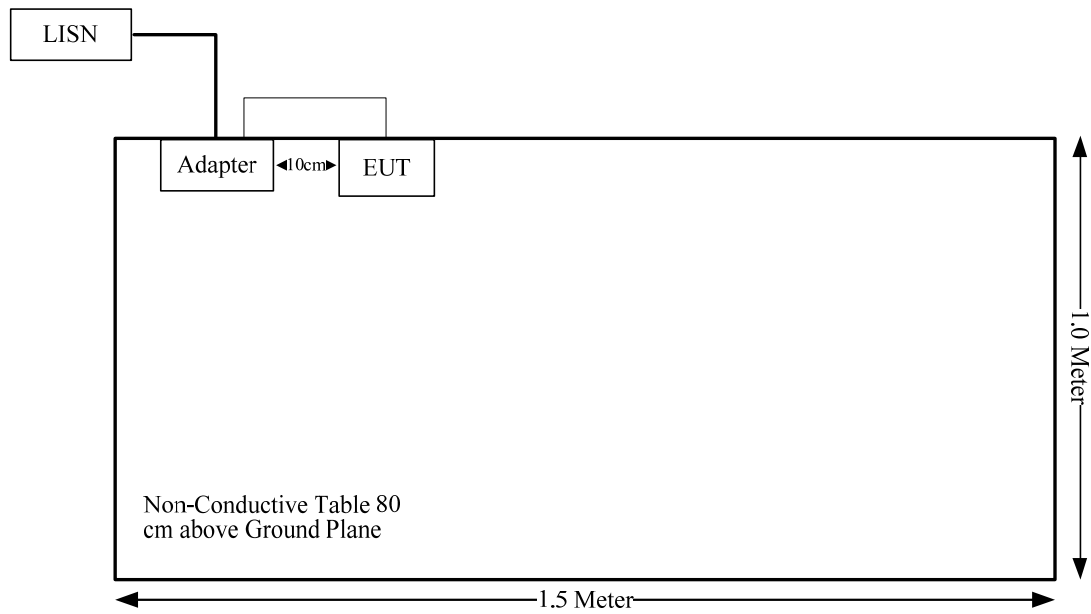
Band	Test Mode	Channel	Test Frequency (MHz)	Data Rate	Power level Setting
5150 - 5250 MHz	802.11a	Low	5180	6Mbps	18
		Middle	5200	6Mbps	18
		High	5240	6Mbps	18
	802.11n ht20	Low	5180	MCS0	15
		Middle	5200	MCS0	15
		High	5240	MCS0	15
	802.11n ht40	Low	5190	MCS0	13
		High	5230	MCS0	13
	802.11ac vht80	Middle	5210	MCS0	13
5250 - 5350 MHz	802.11a	Low	5260	6Mbps	18
		Middle	5280	6Mbps	18
		High	5320	6Mbps	18
	802.11n ht20	Low	5260	MCS0	15
		Middle	5280	MCS0	15
		High	5320	MCS0	15
	802.11n ht40	Low	5270	MCS0	13
		High	5310	MCS0	13
	802.11ac vht80	Middle	5290	MCS0	13
5470 - 5725 MHz	802.11a	Low	5500	6Mbps	17
		Middle	5600	6Mbps	17
		High	5700	6Mbps	16
	802.11n ht20	Low	5500	MCS0	16
		Middle	5600	MCS0	16
		High	5700	MCS0	15
	802.11n ht40	Low	5510	MCS0	16
		Middle	5590	MCS0	16
		High	5670	MCS0	16
	802.11ac vht80	Low	5530	MCS0	15
		Middle	5610	MCS0	16
5725 - 5850 MHz	802.11a	Low	5745	6Mbps	16
		Middle	5785	6Mbps	15
		High	5825	6Mbps	15
	802.11n ht20	Low	5745	MCS0	15
		Middle	5785	MCS0	14
		High	5825	MCS0	15
	802.11n ht40	Low	5755	MCS0	16
		High	5795	MCS0	16
	802.11ac vht80	Middle	5775	MCS0	15

Equipment Modifications

No modification was made to the EUT.

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	Yes	No	1.2	Adapter	EUT

Block Diagram of Test Setup

FCC §15.407 (f) & §1.1310 & §2.1093- RF Exposure

Applicable Standard

According to subpart 15.407(f) and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Measurement Result

Compliance. Please refer to the SAR report: XMDN210630-26287E-20A.

FCC §15.203- ANTENNA REQUIREMENT

Applicable Standard

According to FCC§ 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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.
- c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

Antenna Connector Construction

The EUT has one internal antenna arrangement, fulfill the requirement of this section. Please refer to below information and the EUT photos:

Antenna Type	input impedance (Ohm)	Antenna Gain /Frequency Range
FPC	50	2.2 dBi/5150-5850 MHz

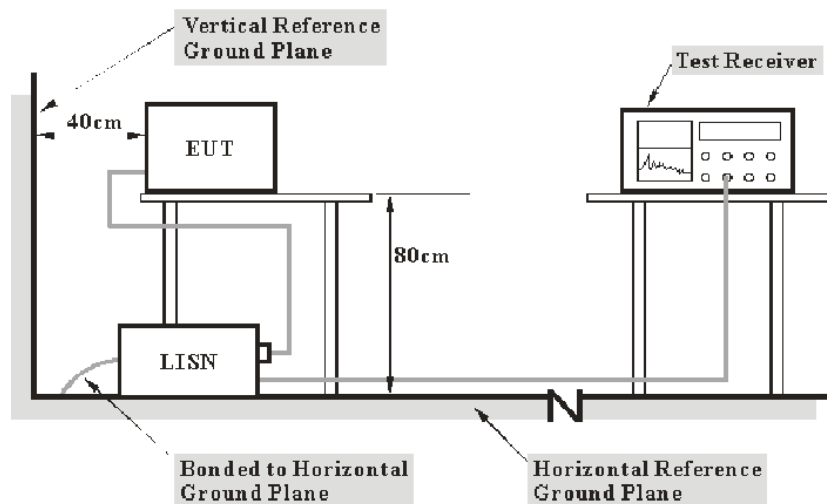
Result: Compliance.

FCC §15.207(a)– CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a), §15.407(b) (6).

EUT Setup



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

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to the main lisn with a 120 V/60 Hz AC power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R : reading voltage amplitude

A_c : attenuation caused by cable loss

VDF: voltage division factor of AMN

C_f : Correction Factor

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV 216	101614	2020-09-12	2021-09-12
R&S	EMI Test Receiver	ESCI	101121	2021-07-06	2022-07-05
MICRO-COAX	Coaxial Cable	C-NJNJ-50	C-0200-01	2020-09-05	2021-09-05
R&S	Test Software	EMC32	Version 9.10.00	N/A	N/A

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

During the conducted emission test, the adapter was connected to the first LISN.

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase (“hot”) line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

Test Data

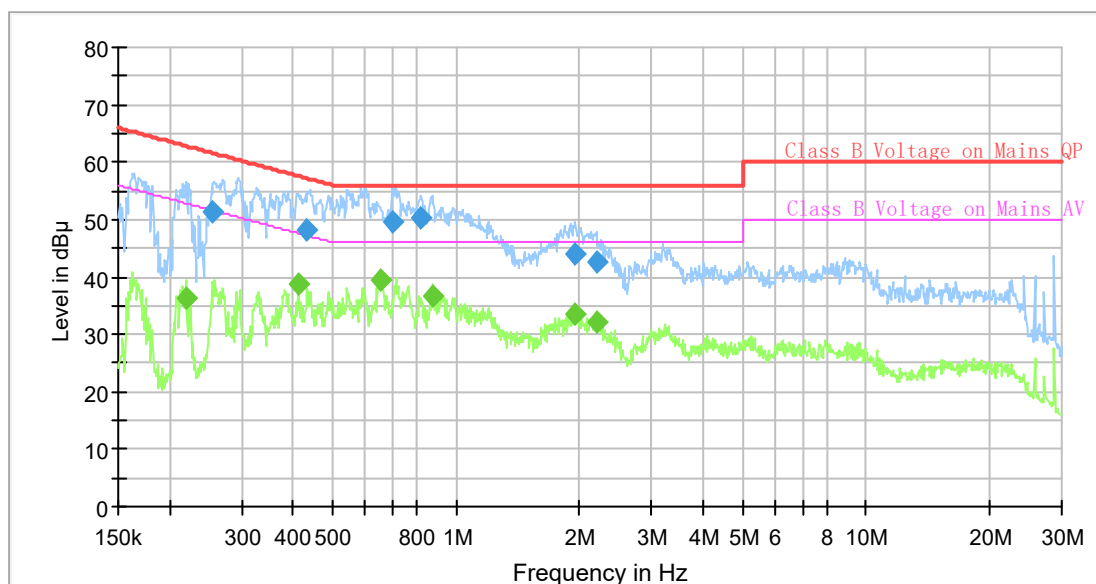
Environmental Conditions

Temperature:	27.3°C
Relative Humidity:	54%
ATM Pressure:	100.1kPa
Test by:	Walker Chen
Test Date:	2021-07-17

Test Result: Compliance

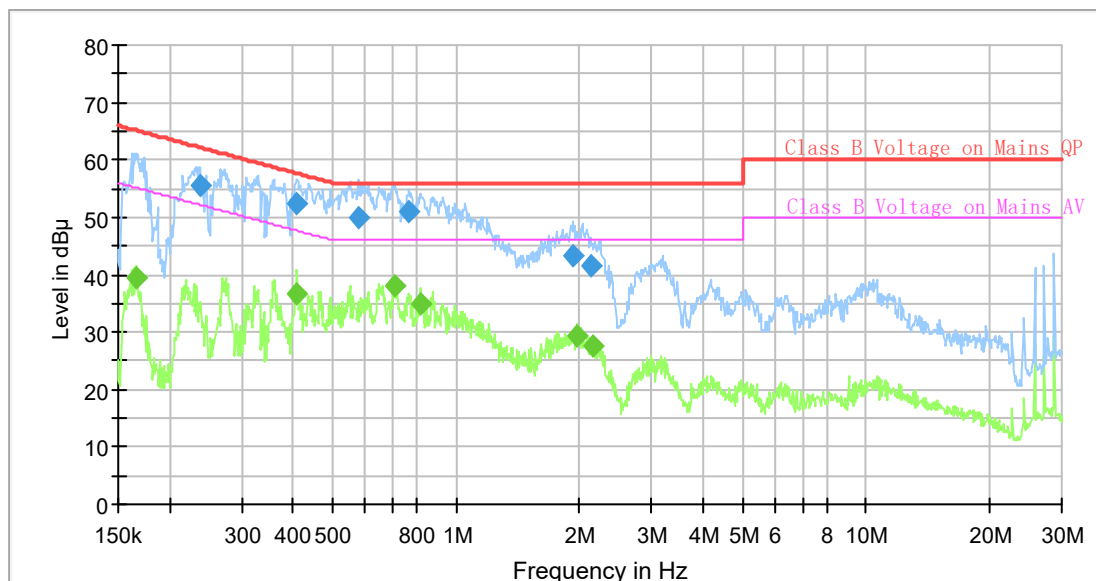
Test Mode: Transmitting

AC120 V, 60 Hz, Line:



Final Result

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.219135	---	36.42	52.85	16.43	9.000	L1	9.6
0.253237	51.52	---	61.65	10.13	9.000	L1	9.6
0.410805	---	38.77	47.63	8.86	9.000	L1	9.6
0.429665	48.34	---	57.26	8.92	9.000	L1	9.6
0.653250	---	39.60	46.00	6.40	9.000	L1	9.6
0.697009	49.70	---	56.00	6.30	9.000	L1	9.6
0.821710	50.18	---	56.00	5.82	9.000	L1	9.7
0.872391	---	36.69	46.00	9.31	9.000	L1	9.7
1.957100	44.08	---	56.00	11.92	9.000	L1	9.7
1.957100	---	33.58	46.00	12.42	9.000	L1	9.7
2.194990	---	32.02	46.00	13.98	9.000	L1	9.7
2.194990	42.58	---	56.00	13.42	9.000	L1	9.7

AC120 V, 60 Hz, Neutral:**Final Result**

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.166563	---	39.62	55.13	15.51	9.000	N	9.6
0.237339	55.41	---	62.19	6.78	9.000	N	9.6
0.408761	---	36.58	47.67	11.09	9.000	N	9.6
0.408761	52.37	---	57.67	5.30	9.000	N	9.6
0.576671	49.87	---	56.00	6.13	9.000	N	9.6
0.711054	---	37.94	46.00	8.06	9.000	N	9.6
0.770122	50.91	---	56.00	5.09	9.000	N	9.6
0.817621	---	34.82	46.00	11.18	9.000	N	9.6
1.928035	43.20	---	56.00	12.80	9.000	N	9.6
1.966886	---	29.41	46.00	16.59	9.000	N	9.6
2.130277	41.68	---	56.00	14.32	9.000	N	9.6
2.162391	---	27.61	46.00	18.39	9.000	N	9.6

FCC §15.209, §15.205 , §15.407(b) –UNWANTED EMISSION

Applicable Standard

FCC §15.407; §15.209; §15.205;

(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.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufac vhturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufac vhturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

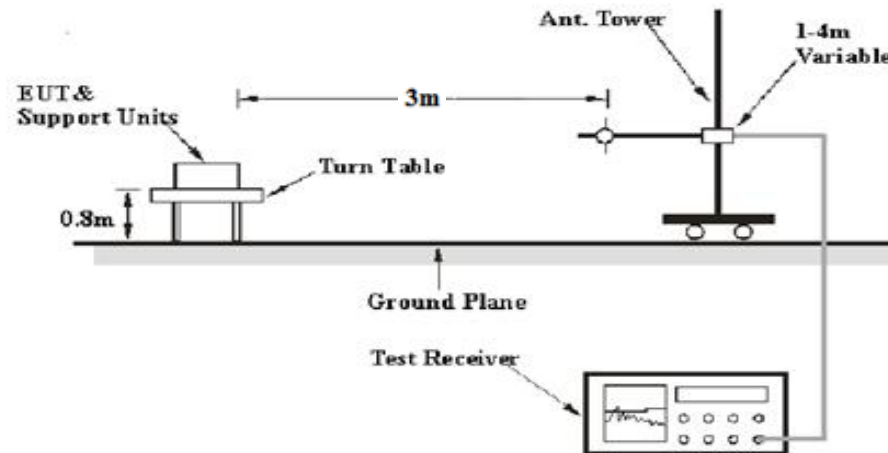
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(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.

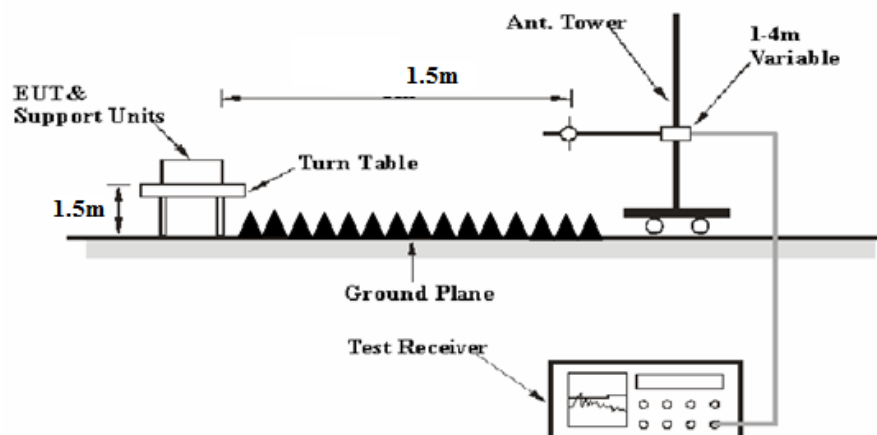
(7) The provisions of §15.205 apply to intentional radiators operating under this section.

EUT Setup

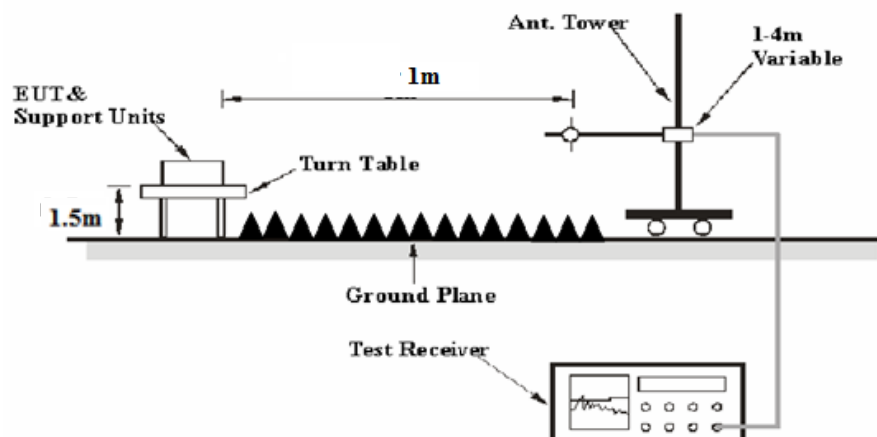
Below 1 GHz:



1-26.5 GHz:



26.5-40 GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site A, above 1GHz tests were performed in the 3 meters chamber test site B, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.407 limits.

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.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

30-1000MHz:

Measurement	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 40GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

During the radiated emission test, the adapter was connected to the first AC floor outlet.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: $E [dB\mu V/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.

According to C63.10, the above 1G test result shall be extrapolated to the specified distance using an extrapolation fac vhtor of 20dB/decade from 3m to 1.5m or 1m

Distance extrapolation fac vhtor = $20 \log (\text{specific distance } [3m]/\text{test distance } [1.5m])$ dB= 6.02 dB
or

Distance extrapolation fac vhtor = $20 \log (\text{specific distance } [3m]/\text{test distance } [1m])$ dB= 9.54 dB

All emissions under the average limit and under the noise floor have not recorded in the report.

Corrected Amplitude & Margin Calculation

For the range 30MHz-1GHz, the Corrected Amplitude is calculated by adding the Antenna Fac vhtor and Cable Loss, and subtrac vhting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Fac vhtor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

For the range 1GHz-40GHz, Test performed at 1.5m or 1m, the Corrected Amplitude is calculated by adding the Antenna Fac vhtor and Cable Loss, and subtrac vhting the Amplifier Gain from the Meter Reading and the Distance extrapolation fac vhtor. The basic equation is as follows:

$$\begin{aligned} &\text{Corrected Amplitude} \\ &= \text{Meter Reading} + \text{Antenna Fac vhtor} + \text{Cable Loss} - \text{Amplifier Gain} - \text{Distance extrapolation fac vhtor} \end{aligned}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiation Below 1GHz Test					
Sunol Sciences	Antenna	JB3	A060611-2	2020-08-25	2023-08-25
R&S	EMI Test Receiver	ESCI	100224	2020-09-12	2021-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-02	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0530-01	2020-09-24	2021-09-24
Sonoma	Amplifier	310N	185914	2020-10-13	2021-10-13
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Radiation Above 1GHz Test					
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2020-12-05	2023-12-04
Ducommun Technologies	Horn Antenna	ARH-2823-02	1007726-01 1302	2020-12-05	2023-12-04
R&S	Spectrum Analyzer	FSV40	101474	2021-07-06	2022-07-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2021-07-06	2022-07-05
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2021-06-27	2022-06-26
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	2020-09-05	2021-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2021-06-27	2022-06-26
Sinoscite	Bandstop Filters	BSF5150-5850MN-0899-003	0899003	2021-05-06	2022-05-05
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Mini Circuits	High Pass Filter	VHF-6010+	31118	2021-06-16	2022-06-15

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

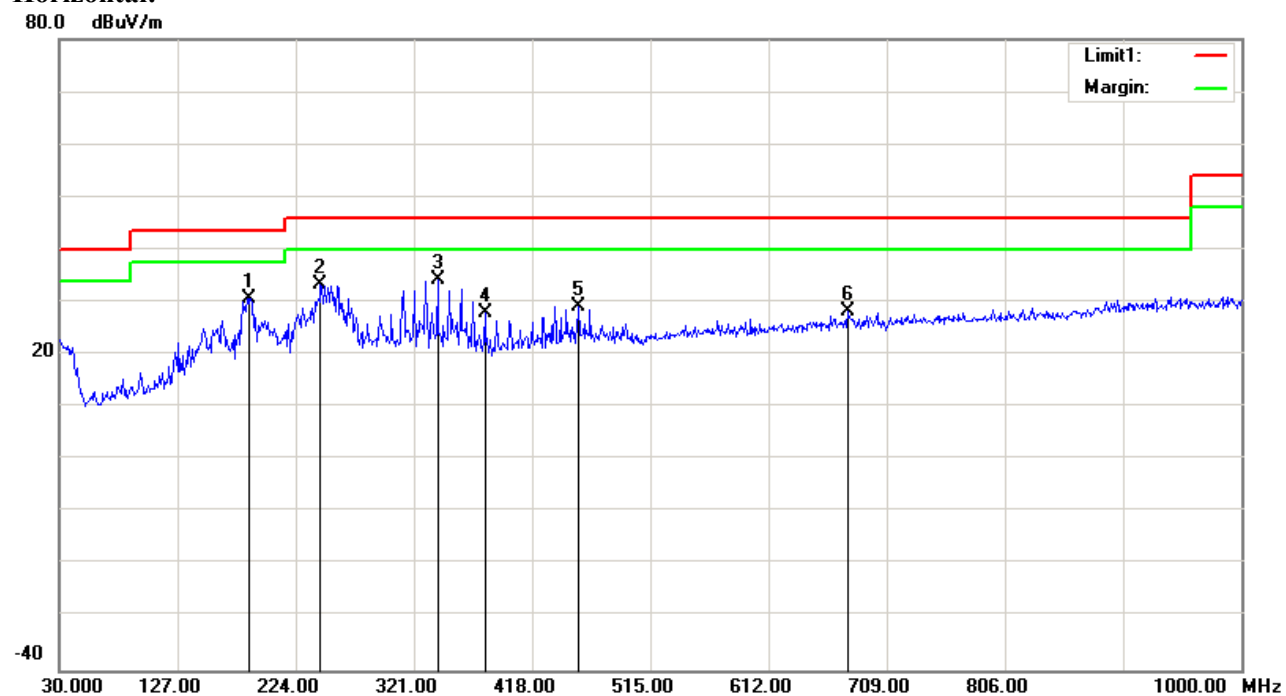
Environmental Conditions

Test Items	Radiation Below 1GHz	Radiation Above 1GHz
Temperature:	26.2°C	28.4 °C
Relative Humidity:	52%	25 %
ATM Pressure:	100.3 kPa	100.1 kPa
Tester:	Burt Hu	Jeremy Liang
Test Date:	2021-07-21	2021-07-17

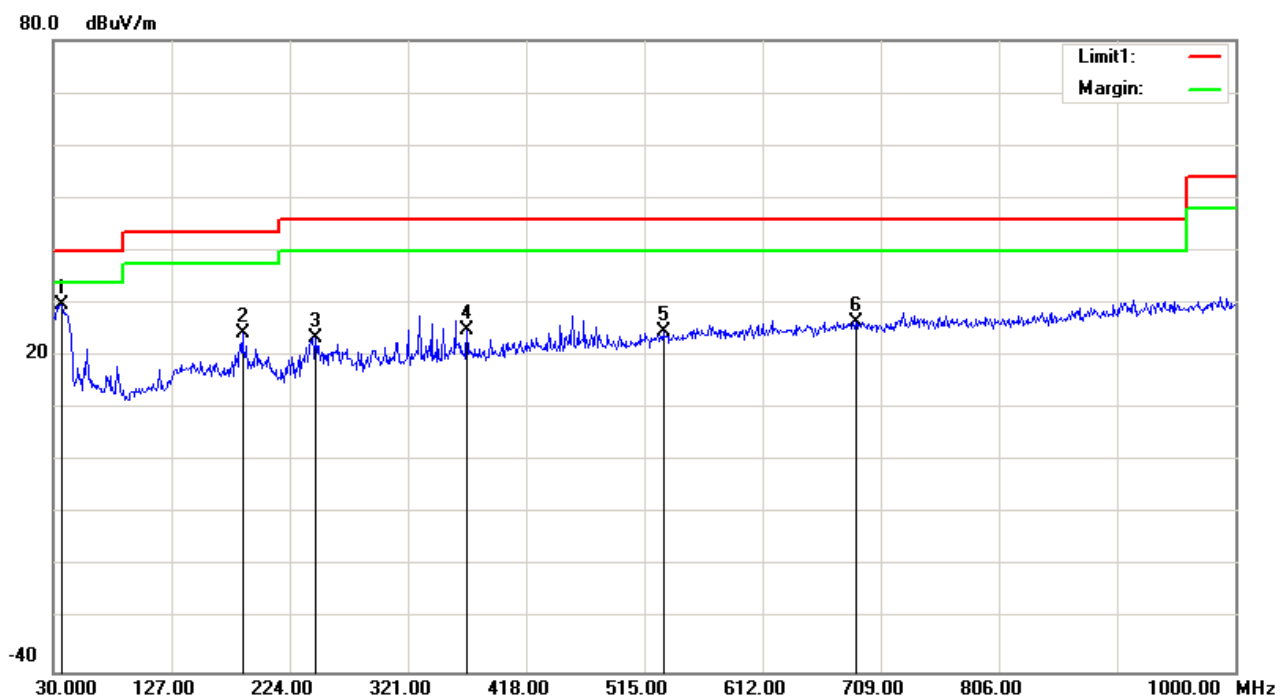
Test Mode: Transmitting

1) Below 1GHz(802.11n20 5700 MHz was the worst):

Horizontal:



Frequency (MHz)	Receiver Reading (dB μ V)	Detector	Correction Factor (dB/m)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
185.2000	40.79	peak	-10.12	30.67	43.50	12.83
244.3700	43.16	peak	-9.83	33.33	46.00	12.67
340.4000	40.86	peak	-6.75	34.11	46.00	11.89
379.2000	33.92	peak	-5.87	28.05	46.00	17.95
455.8300	33.40	peak	-4.12	29.28	46.00	16.72
676.9900	28.19	peak	0.08	28.27	46.00	17.73

Vertical:

Frequency (MHz)	Receiver Reading (dB μ V)	Detector	Correction Factor (dB/m)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
36.7900	37.26	peak	-7.63	29.63	40.00	10.37
185.2000	34.38	peak	-10.12	24.26	43.50	19.24
245.3400	33.26	peak	-9.88	23.38	46.00	22.62
369.5000	30.85	peak	-5.96	24.89	46.00	21.11
530.5200	26.96	peak	-2.44	24.52	46.00	21.48
688.6300	26.29	peak	0.17	26.46	46.00	19.54

**2) 1GHz-40GHz:
5150-5250MHz
802.11a**

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5180 MHz										
5180.00	65.28	PK	H	33.59	3.58	0.00	102.45	96.43	N/A	N/A
5180.00	56.15	AV	H	33.59	3.58	0.00	93.32	87.3	N/A	N/A
5180.00	75.29	PK	V	33.59	3.58	0.00	112.46	106.44	N/A	N/A
5180.00	66.14	AV	V	33.59	3.58	0.00	103.31	97.29	N/A	N/A
5150.00	38.67	PK	V	33.54	3.56	0.00	75.77	69.75	74.00	4.25
5150.00	16.88	AV	V	33.54	3.56	0.00	53.98	47.96	54.00	6.04
10360.00	33.89	PK	V	38.17	6.29	25.46	52.89	46.87	68.20	21.33
15540.00	34.12	PK	V	38.06	8.85	24.27	56.76	50.74	74.00	23.26
15540.00	22.02	AV	V	38.06	8.85	24.27	44.66	38.64	54.00	15.36
Middle Channel: 5200 MHz										
5200.00	65.71	PK	H	33.62	3.60	0.00	102.93	96.91	N/A	N/A
5200.00	55.68	AV	H	33.62	3.60	0.00	92.90	86.88	N/A	N/A
5200.00	74.38	PK	V	33.62	3.60	0.00	111.60	105.58	N/A	N/A
5200.00	64.27	AV	V	33.62	3.60	0.00	101.49	95.47	N/A	N/A
10400.00	34.26	PK	V	38.18	6.32	25.46	53.30	47.28	68.20	20.92
15600.00	34.18	PK	V	38.00	8.83	24.31	56.70	50.68	74.00	23.32
15600.00	22.64	AV	V	38.00	8.83	24.31	45.16	39.14	54.00	14.86
High Channel: 5240 MHz										
5240.00	62.93	PK	H	33.68	3.52	0.00	100.13	94.11	N/A	N/A
5240.00	53.24	AV	H	33.68	3.52	0.00	90.44	84.42	N/A	N/A
5240.00	73.57	PK	V	33.68	3.52	0.00	110.77	104.75	N/A	N/A
5240.00	63.87	AV	V	33.68	3.52	0.00	101.07	95.05	N/A	N/A
5350.00	27.65	PK	V	33.86	3.52	0.00	65.03	59.01	74.00	14.99
5350.00	14.62	AV	V	33.86	3.52	0.00	52.00	45.98	54.00	8.02
10480.00	34.03	PK	V	38.20	6.37	25.47	53.13	47.11	68.20	21.09
15720.00	34.63	PK	V	37.88	8.79	24.39	56.91	50.89	74.00	23.11
15720.00	22.48	AV	V	37.88	8.79	24.39	44.76	38.74	54.00	15.26

802.11n ht20:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5180 MHz										
5180.00	63.82	PK	H	33.59	3.58	0.00	100.99	94.97	N/A	N/A
5180.00	53.98	AV	H	33.59	3.58	0.00	91.15	85.13	N/A	N/A
5180.00	73.19	PK	V	33.59	3.58	0.00	110.36	104.34	N/A	N/A
5180.00	63.81	AV	V	33.59	3.58	0.00	100.98	94.96	N/A	N/A
5150.00	30.51	PK	V	33.54	3.56	0.00	67.61	61.59	74.00	12.41
5150.00	15.26	AV	V	33.54	3.56	0.00	52.36	46.34	54.00	7.66
10360.00	33.87	PK	V	38.17	6.29	25.46	52.87	46.85	68.20	21.35
15540.00	34.35	PK	V	38.06	8.85	24.27	56.99	50.97	74.00	23.03
15540.00	22.16	AV	V	38.06	8.85	24.27	44.80	38.78	54.00	15.22
Middle Channel: 5200 MHz										
5200.00	60.35	PK	H	33.62	3.60	0.00	97.57	91.55	N/A	N/A
5200.00	50.78	AV	H	33.62	3.60	0.00	88.00	81.98	N/A	N/A
5200.00	71.58	PK	V	33.62	3.60	0.00	108.80	102.78	N/A	N/A
5200.00	62.01	AV	V	33.62	3.60	0.00	99.23	93.21	N/A	N/A
10400.00	34.31	PK	V	38.18	6.32	25.46	53.35	47.33	68.20	20.87
15600.00	34.65	PK	V	38.00	8.83	24.31	57.17	51.15	74.00	22.85
15600.00	22.15	AV	V	38.00	8.83	24.31	44.67	38.65	54.00	15.35
High Channel: 5240 MHz										
5240.00	60.53	PK	H	33.68	3.52	0.00	97.73	91.71	N/A	N/A
5240.00	50.94	AV	H	33.68	3.52	0.00	88.14	82.12	N/A	N/A
5240.00	71.25	PK	V	33.68	3.52	0.00	108.45	102.43	N/A	N/A
5240.00	60.92	AV	V	33.68	3.52	0.00	98.12	92.1	N/A	N/A
5350.00	25.66	PK	V	33.86	3.52	0.00	63.04	57.02	74.00	16.98
5350.00	14.62	AV	V	33.86	3.52	0.00	52.00	45.98	54.00	8.02
10480.00	33.97	PK	V	38.20	6.37	25.47	53.07	47.05	68.20	21.15
15720.00	34.16	PK	V	37.88	8.79	24.39	56.44	50.42	74.00	23.58
15720.00	22.05	AV	V	37.88	8.79	24.39	44.33	38.31	54.00	15.69

802.11n ht40:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5190 MHz										
5190.00	60.96	PK	H	33.60	3.59	0.00	98.15	92.13	N/A	N/A
5190.00	50.23	AV	H	33.60	3.59	0.00	87.42	81.4	N/A	N/A
5190.00	68.52	PK	V	33.60	3.59	0.00	105.71	99.69	N/A	N/A
5190.00	58.92	AV	V	33.60	3.59	0.00	96.11	90.09	N/A	N/A
5150.00	39.71	PK	V	33.54	3.56	0.00	76.81	70.79	74.00	3.21
5150.00	17.28	AV	V	33.54	3.56	0.00	54.38	48.36	54.00	5.64
10380.00	33.78	PK	V	38.18	6.31	25.46	52.81	46.79	68.20	21.41
15570.00	34.15	PK	V	38.03	8.84	24.29	56.73	50.71	74.00	23.29
15570.00	22.61	AV	V	38.03	8.84	24.29	45.19	39.17	54.00	14.83
High Channel: 5230 MHz										
5230.00	63.83	PK	H	33.67	3.54	0.00	101.04	95.02	N/A	N/A
5230.00	54.16	AV	H	33.67	3.54	0.00	91.37	85.35	N/A	N/A
5230.00	70.09	PK	V	33.67	3.54	0.00	107.30	101.28	N/A	N/A
5230.00	61.35	AV	V	33.67	3.54	0.00	98.56	92.54	N/A	N/A
5350.00	26.32	PK	V	33.86	3.52	0.00	63.70	57.68	74.00	16.32
5350.00	14.65	AV	V	33.86	3.52	0.00	52.03	46.01	54.00	7.99
10460.00	34.16	PK	V	38.19	6.36	25.47	53.24	47.22	68.20	20.98
15690.00	34.17	PK	V	37.91	8.80	24.37	56.51	50.49	74.00	23.51
15690.00	22.36	AV	V	37.91	8.80	24.37	44.70	38.68	54.00	15.32

802.11ac vht80:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (Db)	Amplifier Gain (Db)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (Db)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (Db/m)						
Middle Channel: 5210 MHz										
5210.00	59.35	PK	H	33.64	3.58	0.00	96.57	90.55	N/A	N/A
5210.00	50.12	AV	H	33.64	3.58	0.00	87.34	81.32	N/A	N/A
5210.00	66.59	PK	V	33.64	3.58	0.00	103.81	97.79	N/A	N/A
5210.00	57.44	AV	V	33.64	3.58	0.00	94.66	88.64	N/A	N/A
5150.00	35.86	PK	V	33.54	3.56	0.00	72.96	66.94	74.00	7.06
5150.00	19.65	AV	V	33.54	3.56	0.00	56.75	50.73	54.00	3.27
5350.00	25.35	PK	V	33.86	3.52	0.00	62.73	56.71	74.00	17.29
5350.00	16.31	AV	V	33.86	3.52	0.00	53.69	47.67	54.00	6.33
10420.00	34.16	PK	V	38.18	6.33	25.47	53.20	47.18	68.20	21.02
15630.00	34.25	PK	V	37.97	8.82	24.33	56.71	50.69	74.00	23.31
15630.00	22.41	AV	V	37.97	8.82	24.33	44.87	38.85	54.00	15.15

5250-5350MHz**802.11a**

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5260 MHz										
5260.00	62.13	PK	H	33.72	3.49	0.00	99.34	93.32	N/A	N/A
5260.00	52.52	AV	H	33.72	3.49	0.00	89.73	83.71	N/A	N/A
5260.00	73.56	PK	V	33.72	3.49	0.00	110.77	104.75	N/A	N/A
5260.00	63.65	AV	V	33.72	3.49	0.00	100.86	94.84	N/A	N/A
5150.00	25.43	PK	V	33.54	3.56	0.00	62.53	56.51	74.00	17.49
5150.00	14.79	AV	V	33.54	3.56	0.00	51.89	45.87	54.00	8.13
10520.00	33.96	PK	V	38.21	6.39	25.47	53.09	47.07	68.20	21.13
15780.00	34.85	PK	V	37.82	8.76	24.42	57.01	50.99	74.00	23.01
15780.00	22.47	AV	V	37.82	8.76	24.42	44.63	38.61	54.00	15.39
Middle Channel: 5280 MHz										
5280.00	61.45	PK	H	33.75	3.45	0.00	98.65	92.63	N/A	N/A
5280.00	51.14	AV	H	33.75	3.45	0.00	88.34	82.32	N/A	N/A
5280.00	70.85	PK	V	33.75	3.45	0.00	108.05	102.03	N/A	N/A
5280.00	60.35	AV	V	33.75	3.45	0.00	97.55	91.53	N/A	N/A
10560.00	34.67	PK	V	38.24	6.40	25.47	53.84	47.82	68.20	20.38
15840.00	34.26	PK	V	37.76	8.74	24.46	56.30	50.28	74.00	23.72
15840.00	22.30	AV	V	37.76	8.74	24.46	44.34	38.32	54.00	15.68
High Channel: 5320 MHz										
5320.00	61.43	PK	H	33.81	3.45	0.00	98.69	92.67	N/A	N/A
5320.00	50.95	AV	H	33.81	3.45	0.00	88.21	82.19	N/A	N/A
5320.00	70.86	PK	V	33.81	3.45	0.00	108.12	102.1	N/A	N/A
5320.00	59.97	AV	V	33.81	3.45	0.00	97.23	91.21	N/A	N/A
5350.00	27.51	PK	V	33.86	3.52	0.00	64.89	58.87	74.00	15.13
5350.00	14.15	AV	V	33.86	3.52	0.00	51.53	45.51	54.00	8.49
10640.00	33.45	PK	V	38.28	6.43	25.46	52.70	46.68	74.00	27.32
10640.00	21.78	AV	V	38.28	6.43	25.46	41.03	35.01	54.00	18.99
15960.00	34.76	PK	V	37.64	8.70	24.54	56.56	50.54	74.00	23.46
15960.00	22.19	AV	V	37.64	8.70	24.54	43.99	37.97	54.00	16.03

802.11n ht20:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5260 MHz										
5260.00	56.71	PK	H	33.72	3.49	0.00	93.92	87.9	N/A	N/A
5260.00	47.12	AV	H	33.72	3.49	0.00	84.33	78.31	N/A	N/A
5260.00	67.93	PK	V	33.72	3.49	0.00	105.14	99.12	N/A	N/A
5260.00	58.23	AV	V	33.72	3.49	0.00	95.44	89.42	N/A	N/A
5150.00	26.92	PK	V	33.54	3.56	0.00	64.02	58	74.00	16.00
5150.00	14.65	AV	V	33.54	3.56	0.00	51.75	45.73	54.00	8.27
10520.00	34.25	PK	V	38.21	6.39	25.47	53.38	47.36	68.20	20.84
15780.00	34.64	PK	V	37.82	8.76	24.42	56.80	50.78	74.00	23.22
15780.00	22.58	AV	V	37.82	8.76	24.42	44.74	38.72	54.00	15.28
Middle Channel: 5280 MHz										
5280.00	60.15	PK	H	33.75	3.45	0.00	97.35	91.33	N/A	N/A
5280.00	49.82	AV	H	33.75	3.45	0.00	87.02	81	N/A	N/A
5280.00	69.18	PK	V	33.75	3.45	0.00	106.38	100.36	N/A	N/A
5280.00	59.36	AV	V	33.75	3.45	0.00	96.56	90.54	N/A	N/A
10560.00	34.25	PK	V	38.24	6.40	25.47	53.42	47.4	68.20	20.80
15840.00	34.76	PK	V	37.76	8.74	24.46	56.80	50.78	74.00	23.22
15840.00	22.56	AV	V	37.76	8.74	24.46	44.60	38.58	54.00	15.42
High Channel: 5320 MHz										
5320.00	57.81	PK	H	33.81	3.45	0.00	95.07	89.05	N/A	N/A
5320.00	48.15	AV	H	33.81	3.45	0.00	85.41	79.39	N/A	N/A
5320.00	68.74	PK	V	33.81	3.45	0.00	106.00	99.98	N/A	N/A
5320.00	58.09	AV	V	33.81	3.45	0.00	95.35	89.33	N/A	N/A
5350.00	27.02	PK	V	33.86	3.52	0.00	64.40	58.38	74.00	15.62
5350.00	14.76	AV	V	33.86	3.52	0.00	52.14	46.12	54.00	7.88
10640.00	34.26	PK	V	38.28	6.43	25.46	53.51	47.49	74.00	26.51
10640.00	22.15	AV	V	38.28	6.43	25.46	41.40	35.38	54.00	18.62
15960.00	34.63	PK	V	37.64	8.70	24.54	56.43	50.41	74.00	23.59
15960.00	22.13	AV	V	37.64	8.70	24.54	43.93	37.91	54.00	16.09

802.11n ht40:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5270 MHz										
5270.00	61.22	PK	H	33.73	3.47	0.00	98.42	92.4	N/A	N/A
5270.00	51.47	AV	H	33.73	3.47	0.00	88.67	82.65	N/A	N/A
5270.00	68.81	PK	V	33.73	3.47	0.00	106.01	99.99	N/A	N/A
5270.00	59.62	AV	V	33.73	3.47	0.00	96.82	90.8	N/A	N/A
5150.00	26.84	PK	V	33.54	3.56	0.00	63.94	57.92	74.00	16.08
5150.00	14.28	AV	V	33.54	3.56	0.00	51.38	45.36	54.00	8.64
10540.00	34.23	PK	V	38.22	6.40	25.47	53.38	47.36	68.20	20.84
15810.00	34.21	PK	V	37.79	8.75	24.44	56.31	50.29	74.00	23.71
15810.00	22.61	AV	V	37.79	8.75	24.44	44.71	38.69	54.00	15.31
High Channel: 5310 MHz										
5310.00	58.42	PK	H	33.80	3.43	0.00	95.65	89.63	N/A	N/A
5310.00	50.12	AV	H	33.80	3.43	0.00	87.35	81.33	N/A	N/A
5310.00	66.61	PK	V	33.80	3.43	0.00	103.84	97.82	N/A	N/A
5310.00	58.21	AV	V	33.80	3.43	0.00	95.44	89.42	N/A	N/A
5350.00	34.73	PK	V	33.86	3.52	0.00	72.11	66.09	74.00	7.91
5350.00	17.42	AV	V	33.86	3.52	0.00	54.80	48.78	54.00	5.22
10620.00	33.89	PK	V	38.27	6.43	25.47	53.12	47.1	74.00	26.90
10620.00	21.63	AV	V	38.27	6.43	25.47	40.86	34.84	54.00	19.16
15930.00	34.63	PK	V	37.67	8.71	24.52	56.49	50.47	74.00	23.53
15930.00	22.57	AV	V	37.67	8.71	24.52	44.43	38.41	54.00	15.59

802.11ac vht80:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (Db)	Amplifier Gain (Db)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (Db)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (Db/m)						
Middle Channel: 5290 MHz										
5290.00	54.28	PK	H	33.76	3.43	0.00	91.47	85.45	N/A	N/A
5290.00	45.16	AV	H	33.76	3.43	0.00	82.35	76.33	N/A	N/A
5290.00	63.31	PK	V	33.76	3.43	0.00	100.50	94.48	N/A	N/A
5290.00	54.23	AV	V	33.76	3.43	0.00	91.42	85.4	N/A	N/A
5150.00	25.62	PK	V	33.54	3.56	0.00	62.72	56.7	74.00	17.30
5150.00	14.77	AV	V	33.54	3.56	0.00	51.87	45.85	54.00	8.15
5350.00	30.16	PK	V	33.86	3.52	0.00	67.54	61.52	74.00	12.48
5350.00	15.36	AV	V	33.86	3.52	0.00	52.74	46.72	54.00	7.28
10580.00	34.26	PK	V	38.25	6.41	25.47	53.45	47.43	68.20	20.77
15870.00	34.15	PK	V	37.73	8.73	24.48	56.13	50.11	74.00	23.89
15870.00	22.23	AV	V	37.73	8.73	24.48	44.21	38.19	54.00	15.81

5470-5725MHz**802.11a**

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5500 MHz										
5500.00	61.37	PK	H	34.10	3.54	0.00	99.01	92.99	N/A	N/A
5500.00	51.28	AV	H	34.10	3.54	0.00	88.92	82.9	N/A	N/A
5500.00	70.77	PK	V	34.10	3.54	0.00	108.41	102.39	N/A	N/A
5500.00	59.68	AV	V	34.10	3.54	0.00	97.32	91.3	N/A	N/A
5470.00	33.07	PK	V	34.05	3.56	0.00	70.68	64.66	68.20	3.54
11000.00	33.96	PK	V	38.50	6.57	25.45	53.58	47.56	74.00	26.44
11000.00	21.46	AV	V	38.50	6.57	25.45	41.08	35.06	54.00	18.94
16500.00	34.16	PK	V	38.20	8.63	24.27	56.72	50.7	68.20	17.50
Middle Channel: 5600 MHz										
5600.00	59.27	PK	H	34.14	3.57	0.00	96.98	90.96	N/A	N/A
5600.00	50.11	AV	H	34.14	3.57	0.00	87.82	81.8	N/A	N/A
5600.00	66.34	PK	V	34.14	3.57	0.00	104.05	98.03	N/A	N/A
5600.00	56.97	AV	V	34.14	3.57	0.00	94.68	88.66	N/A	N/A
11200.00	34.58	PK	V	38.70	6.58	25.47	54.39	48.37	74.00	25.63
11200.00	22.61	AV	V	38.70	6.58	25.47	42.42	36.4	54.00	17.60
16800.00	34.69	PK	V	39.40	8.68	24.08	58.69	52.67	68.20	15.53
High Channel: 5700 MHz										
5700.00	60.62	PK	H	34.18	3.68	0.00	98.48	92.46	N/A	N/A
5700.00	50.56	AV	H	34.18	3.68	0.00	88.42	82.4	N/A	N/A
5700.00	67.63	PK	V	34.18	3.68	0.00	105.49	99.47	N/A	N/A
5700.00	57.65	AV	V	34.18	3.68	0.00	95.51	89.49	N/A	N/A
5725.00	32.16	PK	V	34.19	3.69	0.00	70.04	64.02	68.20	4.18
11400.00	33.78	PK	V	38.90	6.59	25.50	53.77	47.75	74.00	26.25
11400.00	21.54	AV	V	38.90	6.59	25.50	41.53	35.51	54.00	18.49
17100.00	34.28	PK	V	40.78	8.75	23.85	59.96	53.94	68.20	14.26

802.11n ht20:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5500 MHz										
5500.00	60.14	PK	H	34.10	3.54	0.00	97.78	91.76	N/A	N/A
5500.00	50.32	AV	H	34.10	3.54	0.00	87.96	81.94	N/A	N/A
5500.00	66.89	PK	V	34.10	3.54	0.00	104.53	98.51	N/A	N/A
5500.00	56.21	AV	V	34.10	3.54	0.00	93.85	87.83	N/A	N/A
5470.00	26.81	PK	V	34.05	3.56	0.00	64.42	58.4	68.20	9.80
11000.00	33.56	PK	V	38.50	6.57	25.45	53.18	47.16	74.00	26.84
11000.00	21.85	AV	V	38.50	6.57	25.45	41.47	35.45	54.00	18.55
16500.00	34.16	PK	V	38.20	8.63	24.27	56.72	50.7	68.20	17.50
Middle Channel: 5600 MHz										
5600.00	57.33	PK	H	34.14	3.57	0.00	95.04	89.02	N/A	N/A
5600.00	48.02	AV	H	34.14	3.57	0.00	85.73	79.71	N/A	N/A
5600.00	64.58	PK	V	34.14	3.57	0.00	102.29	96.27	N/A	N/A
5600.00	54.37	AV	V	34.14	3.57	0.00	92.08	86.06	N/A	N/A
11200.00	34.66	PK	V	38.70	6.58	25.47	54.47	48.45	74.00	25.55
11200.00	22.59	AV	V	38.70	6.58	25.47	42.40	36.38	54.00	17.62
16800.00	34.15	PK	V	39.40	8.68	24.08	58.15	52.13	68.20	16.07
High Channel: 5700 MHz										
5700.00	58.22	PK	H	34.18	3.68	0.00	96.08	90.06	N/A	N/A
5700.00	48.52	AV	H	34.18	3.68	0.00	86.38	80.36	N/A	N/A
5700.00	65.69	PK	V	34.18	3.68	0.00	103.55	97.53	N/A	N/A
5700.00	56.12	AV	V	34.18	3.68	0.00	93.98	87.96	N/A	N/A
5725.00	32.03	PK	V	34.19	3.69	0.00	69.91	63.89	68.20	4.31
11400.00	34.61	PK	V	38.90	6.59	25.50	54.60	48.58	74.00	25.42
11400.00	22.14	AV	V	38.90	6.59	25.50	42.13	36.11	54.00	17.89
17100.00	35.26	PK	V	40.78	8.75	23.85	60.94	54.92	68.20	13.28

802.11n ht40:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5510 MHz										
5510.00	56.09	PK	H	34.10	3.54	0.00	93.73	87.71	N/A	N/A
5510.00	46.11	AV	H	34.10	3.54	0.00	83.75	77.73	N/A	N/A
5510.00	64.47	PK	V	34.10	3.54	0.00	102.11	96.09	N/A	N/A
5510.00	54.36	AV	V	34.10	3.54	0.00	92.00	85.98	N/A	N/A
5470.00	35.99	PK	V	34.05	3.56	0.00	73.60	67.58	68.20	0.62
11020.00	33.79	PK	V	38.52	6.57	25.45	53.43	47.41	74.00	26.59
11020.00	21.54	AV	V	38.52	6.57	25.45	41.18	35.16	54.00	18.84
16530.00	34.26	PK	V	38.32	8.64	24.25	56.97	50.95	68.20	17.25
Middle Channel: 5590 MHz										
5590.00	59.16	PK	H	34.14	3.57	0.00	96.87	90.85	N/A	N/A
5590.00	50.12	AV	H	34.14	3.57	0.00	87.83	81.81	N/A	N/A
5590.00	68.65	PK	V	34.14	3.57	0.00	106.36	100.34	N/A	N/A
5590.00	58.02	AV	V	34.14	3.57	0.00	95.73	89.71	N/A	N/A
11180.00	34.76	PK	V	38.68	6.58	25.47	54.55	48.53	74.00	25.47
11180.00	22.59	AV	V	38.68	6.58	25.47	42.38	36.36	54.00	17.64
16770.00	34.17	PK	V	39.28	8.68	24.10	58.03	52.01	68.20	16.19
High Channel: 5670 MHz										
5670.00	53.24	PK	H	34.17	3.65	0.00	91.06	85.04	N/A	N/A
5670.00	42.89	AV	H	34.17	3.65	0.00	80.71	74.69	N/A	N/A
5670.00	62.59	PK	V	34.17	3.65	0.00	100.41	94.39	N/A	N/A
5670.00	52.36	AV	V	34.17	3.65	0.00	90.18	84.16	N/A	N/A
5725.00	27.34	PK	V	34.19	3.69	0.00	65.22	59.2	68.20	9.00
11340.00	34.52	PK	V	38.84	6.58	25.49	54.45	48.43	74.00	25.57
11340.00	22.43	AV	V	38.84	6.58	25.49	42.36	36.34	54.00	17.66
17010.00	34.16	PK	V	40.26	8.72	23.94	59.20	53.18	68.20	15.02

802.11ac vht80:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5530 MHz										
5530.00	54.89	PK	H	34.11	3.55	0.00	92.55	86.53	N/A	N/A
5530.00	45.62	AV	H	34.11	3.55	0.00	83.28	77.26	N/A	N/A
5530.00	61.41	PK	V	34.11	3.55	0.00	99.07	93.05	N/A	N/A
5530.00	52.41	AV	V	34.11	3.55	0.00	90.07	84.05	N/A	N/A
5470.00	33.26	PK	V	34.05	3.56	0.00	70.87	64.85	68.20	3.35
11060.00	34.69	PK	V	38.56	6.57	25.46	54.36	48.34	74.00	25.66
11060.00	22.58	AV	V	38.56	6.57	25.46	42.25	36.23	54.00	17.77
16590.00	34.78	PK	V	38.56	8.65	24.21	57.78	51.76	68.20	16.44
High Channel: 5610 MHz										
5610.00	54.26	PK	H	34.14	3.58	0.00	91.98	85.96	N/A	N/A
5610.00	45.13	AV	H	34.14	3.58	0.00	82.85	76.83	N/A	N/A
5610.00	60.49	PK	V	34.14	3.58	0.00	98.21	92.19	N/A	N/A
5610.00	51.42	AV	V	34.14	3.58	0.00	89.14	83.12	N/A	N/A
5725.00	27.33	PK	V	34.19	3.69	0.00	65.21	59.19	68.20	9.01
11220.00	34.15	PK	V	38.72	6.58	25.48	53.97	47.95	74.00	26.05
11220.00	22.65	AV	V	38.72	6.58	25.48	42.47	36.45	54.00	17.55
16830.00	34.85	PK	V	39.52	8.69	24.06	59.00	52.98	68.20	15.22

5725-5850MHz
802.11a

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5745 MHz										
5745.00	60.91	PK	H	34.20	3.69	0.00	98.80	92.78	N/A	N/A
5745.00	51.12	AV	H	34.20	3.69	0.00	89.01	82.99	N/A	N/A
5745.00	64.03	PK	V	34.20	3.69	0.00	101.92	95.9	N/A	N/A
5745.00	54.86	AV	V	34.20	3.69	0.00	92.75	86.73	N/A	N/A
5725.00	37.38	PK	V	34.19	3.69	0.00	75.26	69.24	122.20	52.96
5720.00	27.72	PK	V	34.19	3.69	0.00	65.60	59.58	110.80	51.22
5700.00	27.27	PK	V	34.18	3.68	0.00	65.13	59.11	105.20	46.09
5650.00	26.35	PK	V	34.16	3.63	0.00	64.14	58.12	68.20	10.08
11490.00	33.47	PK	V	38.99	6.59	25.51	53.54	47.52	74.00	26.48
11490.00	21.58	AV	V	38.99	6.59	25.51	41.65	35.63	54.00	18.37
17235.00	34.62	PK	V	41.56	8.78	23.72	61.24	55.22	68.20	12.98
Middle Channel: 5785 MHz										
5785.00	60.24	PK	H	34.21	3.71	0.00	98.16	92.14	N/A	N/A
5785.00	51.44	AV	H	34.21	3.71	0.00	89.36	83.34	N/A	N/A
5785.00	63.78	PK	V	34.21	3.71	0.00	101.70	95.68	N/A	N/A
5785.00	54.26	AV	V	34.21	3.71	0.00	92.18	86.16	N/A	N/A
11570.00	34.96	PK	V	39.00	6.61	25.46	55.11	49.085	74.00	24.92
11570.00	22.63	AV	V	39.00	6.61	25.46	42.78	36.76	54.00	17.24
17355.00	34.74	PK	V	42.26	8.81	23.60	62.21	56.19	68.20	12.01
High Channel: 5825 MHz										
5825.00	61.03	PK	H	34.23	3.73	0.00	98.99	92.97	N/A	N/A
5825.00	51.32	AV	H	34.23	3.73	0.00	89.28	83.26	N/A	N/A
5825.00	61.82	PK	V	34.23	3.73	0.00	99.78	93.76	N/A	N/A
5825.00	51.52	AV	V	34.23	3.73	0.00	89.48	83.46	N/A	N/A
5850.00	29.12	PK	V	34.24	3.75	0.00	67.11	61.09	122.20	61.11
5855.00	27.55	PK	V	34.24	3.75	0.00	65.54	59.52	110.80	51.28
5875.00	27.15	PK	V	34.25	3.77	0.00	65.17	59.15	105.20	46.05
5925.00	26.31	PK	V	34.27	3.80	0.00	64.38	58.36	68.20	9.84
11650.00	34.16	PK	V	39.00	6.64	25.41	54.39	48.37	74.00	25.63
11650.00	22.35	AV	V	39.00	6.64	25.41	42.58	36.56	54.00	17.44
17475.00	34.26	PK	V	42.96	8.84	23.48	62.58	56.56	68.20	11.64

802.11n ht20:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5745 MHz										
5745.00	59.07	PK	H	34.20	3.69	0.00	96.96	90.94	N/A	N/A
5745.00	49.63	AV	H	34.20	3.69	0.00	87.52	81.5	N/A	N/A
5745.00	63.44	PK	V	34.20	3.69	0.00	101.33	95.31	N/A	N/A
5745.00	54.09	AV	V	34.20	3.69	0.00	91.98	85.96	N/A	N/A
5725.00	33.68	PK	V	34.19	3.69	0.00	71.56	65.54	122.20	56.66
5720.00	29.81	PK	V	34.19	3.69	0.00	67.69	61.67	110.80	49.13
5700.00	27.49	PK	V	34.18	3.68	0.00	65.35	59.33	105.20	45.87
5650.00	26.36	PK	V	34.16	3.63	0.00	64.15	58.13	68.20	10.07
11490.00	33.94	PK	V	38.99	6.59	25.51	54.01	47.99	74.00	26.01
11490.00	21.89	AV	V	38.99	6.59	25.51	41.96	35.94	54.00	18.06
17235.00	34.54	PK	V	41.56	8.78	23.72	61.16	55.14	68.20	13.06
Middle Channel: 5785 MHz										
5785.00	59.24	PK	H	34.21	3.71	0.00	97.16	91.14	N/A	N/A
5785.00	50.22	AV	H	34.21	3.71	0.00	88.14	82.12	N/A	N/A
5785.00	61.71	PK	V	34.21	3.71	0.00	99.63	93.61	N/A	N/A
5785.00	51.32	AV	V	34.21	3.71	0.00	89.24	83.22	N/A	N/A
11570.00	34.26	PK	V	39.00	6.61	25.46	54.41	48.39	74.00	25.61
11570.00	22.59	AV	V	39.00	6.61	25.46	42.74	36.72	54.00	17.28
17355.00	34.18	PK	V	42.26	8.81	23.60	61.65	55.63	68.20	12.57
High Channel: 5825 MHz										
5825.00	58.23	PK	H	34.23	3.73	0.00	96.19	90.17	N/A	N/A
5825.00	49.32	AV	H	34.23	3.73	0.00	87.28	81.26	N/A	N/A
5825.00	59.46	PK	V	34.23	3.73	0.00	97.42	91.4	N/A	N/A
5825.00	49.85	AV	V	34.23	3.73	0.00	87.81	81.79	N/A	N/A
5850.00	30.45	PK	V	34.24	3.75	0.00	68.44	62.42	122.20	59.78
5855.00	26.71	PK	V	34.24	3.75	0.00	64.70	58.68	110.80	52.12
5875.00	27.30	PK	V	34.25	3.77	0.00	65.32	59.3	105.20	45.90
5925.00	26.39	PK	V	34.27	3.80	0.00	64.46	58.44	68.20	9.76
11650.00	34.26	PK	V	39.00	6.64	25.41	54.49	48.47	74.00	25.53
11650.00	22.15	AV	V	39.00	6.64	25.41	42.38	36.36	54.00	17.64
17475.00	34.75	PK	V	42.96	8.84	23.48	63.07	57.05	68.20	11.15

802.11n ht40:

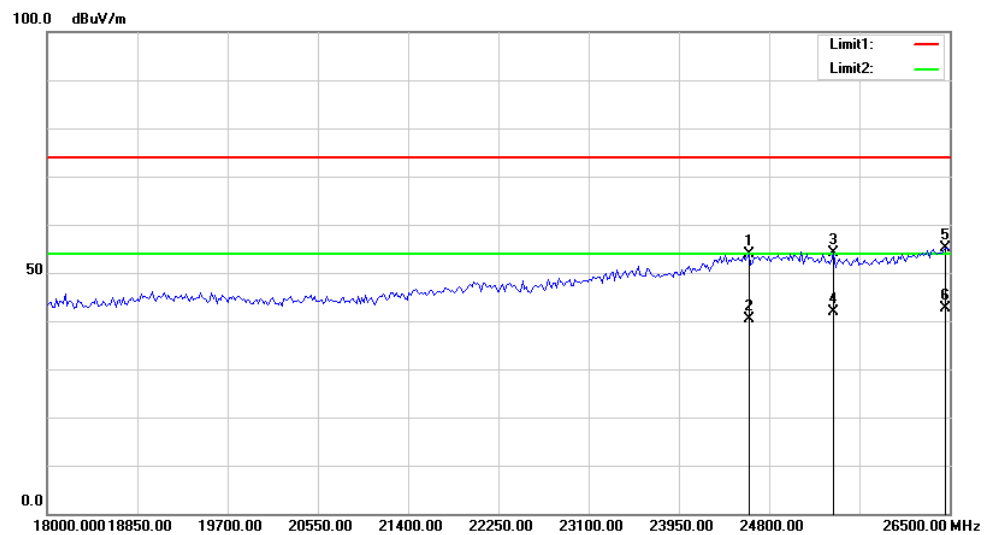
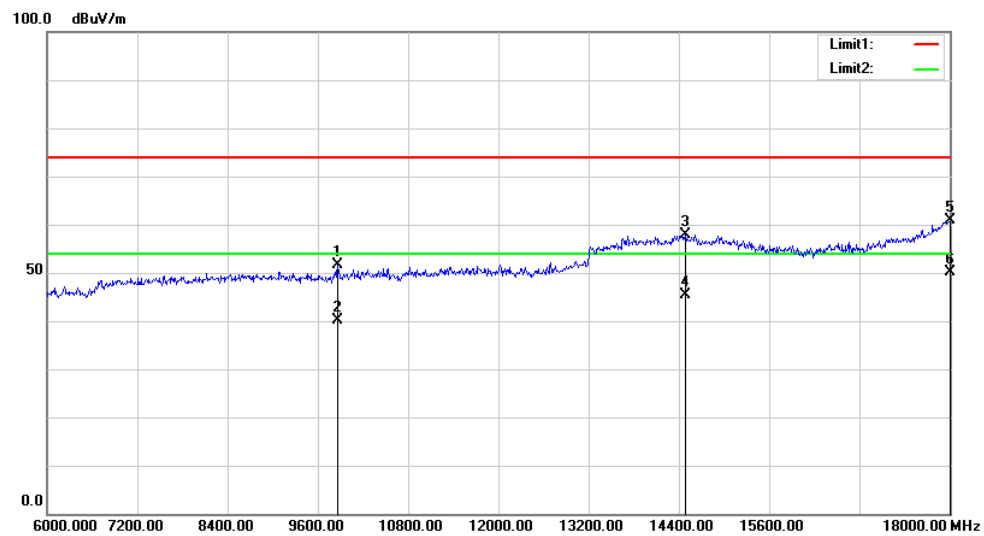
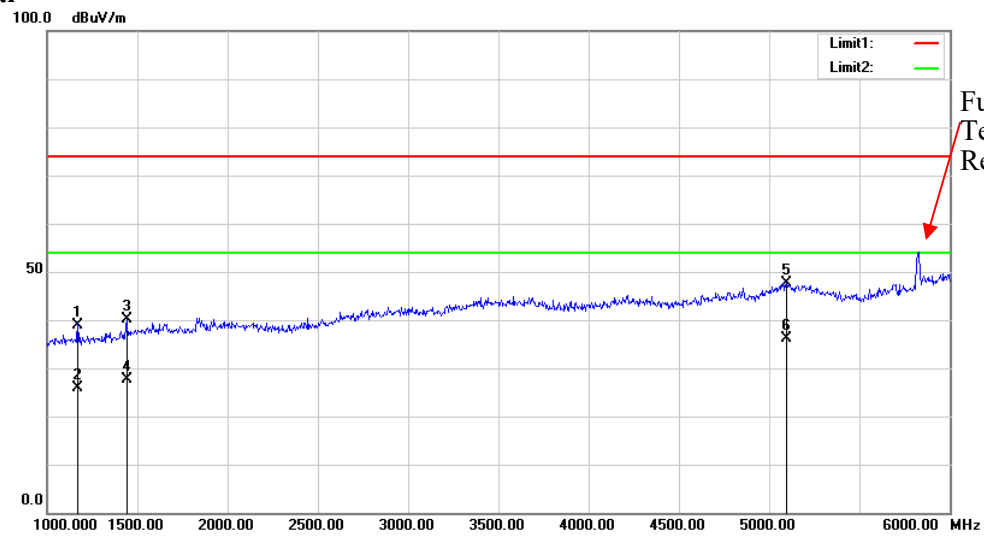
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (dB/m)						
Low Channel: 5755 MHz										
5755.00	58.02	PK	H	34.20	3.70	0.00	95.92	89.9	N/A	N/A
5755.00	49.35	AV	H	34.20	3.70	0.00	87.25	81.23	N/A	N/A
5755.00	62.61	PK	V	34.20	3.70	0.00	100.51	94.49	N/A	N/A
5755.00	53.62	AV	V	34.20	3.70	0.00	91.52	85.5	N/A	N/A
5725.00	38.29	PK	V	34.19	3.69	0.00	76.17	70.15	122.20	52.05
5720.00	36.65	PK	V	34.19	3.69	0.00	74.53	68.51	110.80	42.29
5700.00	30.25	PK	V	34.18	3.68	0.00	68.11	62.09	105.20	43.11
5650.00	27.66	PK	V	34.16	3.63	0.00	65.45	59.43	68.20	8.77
11510.00	34.16	PK	V	39.00	6.59	25.50	54.25	48.23	74.00	25.77
11510.00	22.03	AV	V	39.00	6.59	25.50	42.12	36.1	54.00	17.90
17265.00	34.58	PK	V	41.74	8.79	23.69	61.42	55.4	68.20	12.80
High Channel: 5795 MHz										
5795.00	56.48	PK	H	34.22	3.71	0.00	94.41	88.39	N/A	N/A
5795.00	47.36	AV	H	34.22	3.71	0.00	85.29	79.27	N/A	N/A
5795.00	60.31	PK	V	34.22	3.71	0.00	98.24	92.22	N/A	N/A
5795.00	51.47	AV	V	34.22	3.71	0.00	89.40	83.38	N/A	N/A
5850.00	29.41	PK	V	34.24	3.75	0.00	67.40	61.38	122.20	60.82
5855.00	27.34	PK	V	34.24	3.75	0.00	65.33	59.31	110.80	51.49
5875.00	27.13	PK	V	34.25	3.77	0.00	65.15	59.13	105.20	46.07
5925.00	26.35	PK	V	34.27	3.80	0.00	64.42	58.4	68.20	9.80
11590.00	33.42	PK	V	39.00	6.62	25.45	53.59	47.57	74.00	26.43
11590.00	21.85	AV	V	39.00	6.62	25.45	42.02	36	54.00	18.00
17385.00	34.16	PK	V	42.43	8.82	23.57	61.84	55.82	68.20	12.38

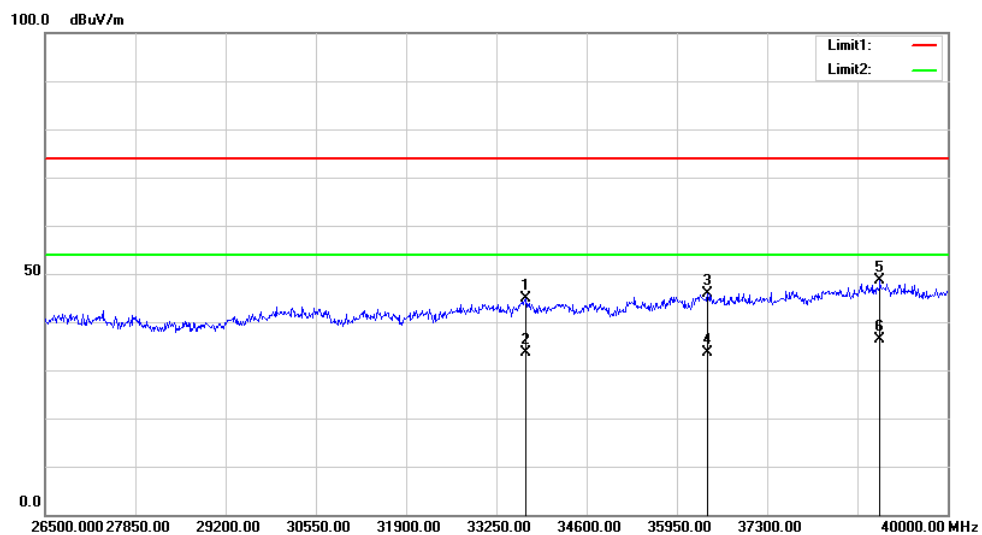
802.11ac vht80:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (Db)	Amplifier Gain (Db)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (Db)
	Reading (dBμV)	Detector	Polar (H/V)	Fac vhtor (Db/m)						
Middle Channel: 5775 MHz										
5775.00	52.65	PK	H	34.21	3.70	0.00	90.56	84.54	N/A	N/A
5775.00	43.26	AV	H	34.21	3.70	0.00	81.17	75.15	N/A	N/A
5775.00	57.42	PK	V	34.21	3.70	0.00	95.33	89.31	N/A	N/A
5775.00	46.88	AV	V	34.21	3.70	0.00	84.79	78.77	N/A	N/A
5725.00	27.71	PK	V	34.19	3.69	0.00	65.59	59.57	122.20	62.63
5720.00	30.92	PK	V	34.19	3.69	0.00	68.80	62.78	110.80	48.02
5700.00	26.13	PK	V	34.18	3.68	0.00	63.99	57.97	105.20	47.23
5650.00	26.47	PK	V	34.16	3.63	0.00	64.26	58.24	68.20	9.96
5850.00	28.52	PK	V	34.24	3.75	0.00	66.51	60.49	122.20	61.71
5855.00	28.07	PK	V	34.24	3.75	0.00	66.06	60.04	110.80	50.76
5875.00	27.28	PK	V	34.25	3.77	0.00	65.30	59.28	105.20	45.92
5925.00	27.31	PK	V	34.27	3.80	0.00	65.38	59.36	68.20	8.84
11550.00	34.62	PK	V	39.00	6.61	25.48	54.75	48.73	74.00	25.27
11550.00	22.14	AV	V	39.00	6.61	25.48	42.27	36.25	54.00	17.75
17325.00	34.28	PK	V	42.09	8.80	23.63	61.54	55.52	68.20	12.68

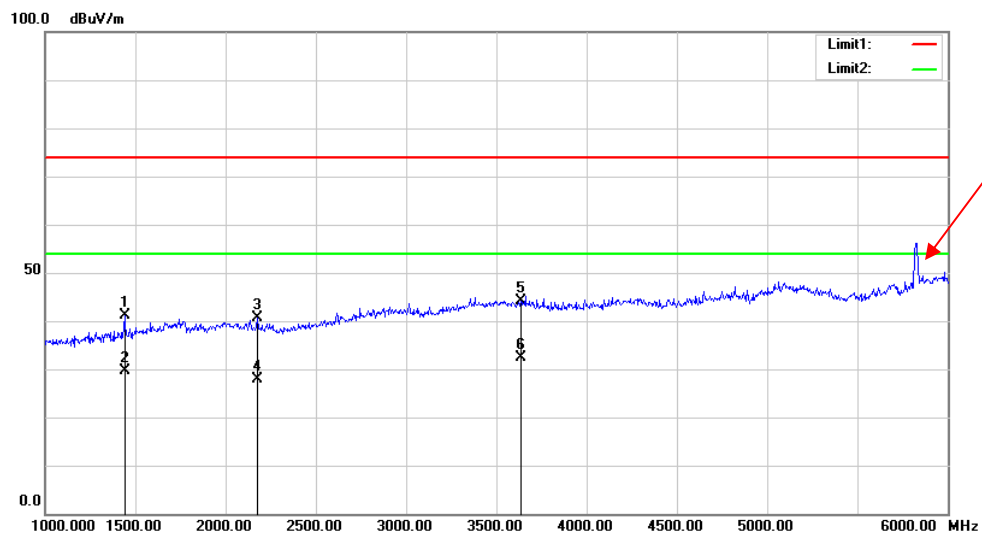
Test Plots(802.11a 5825 MHz was the worst)

Horizontal

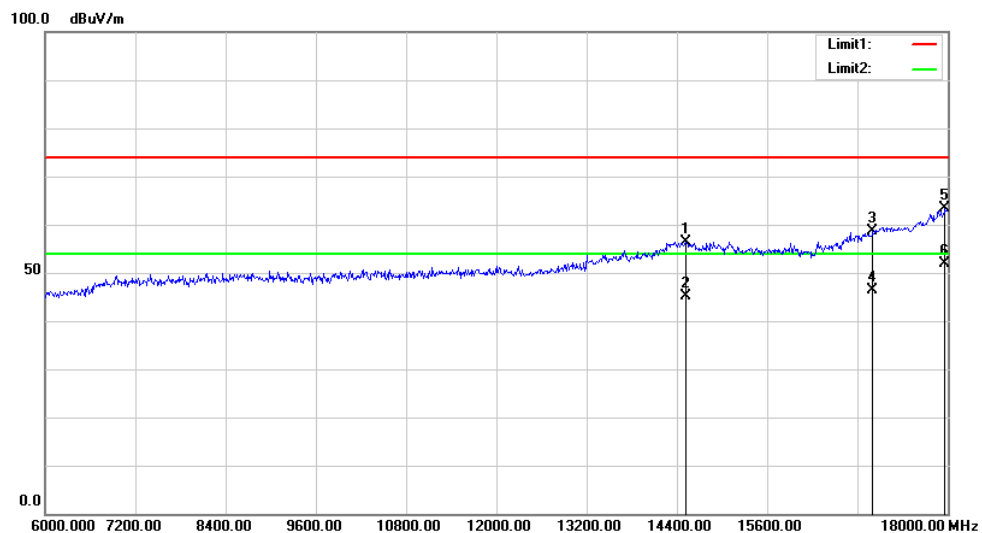


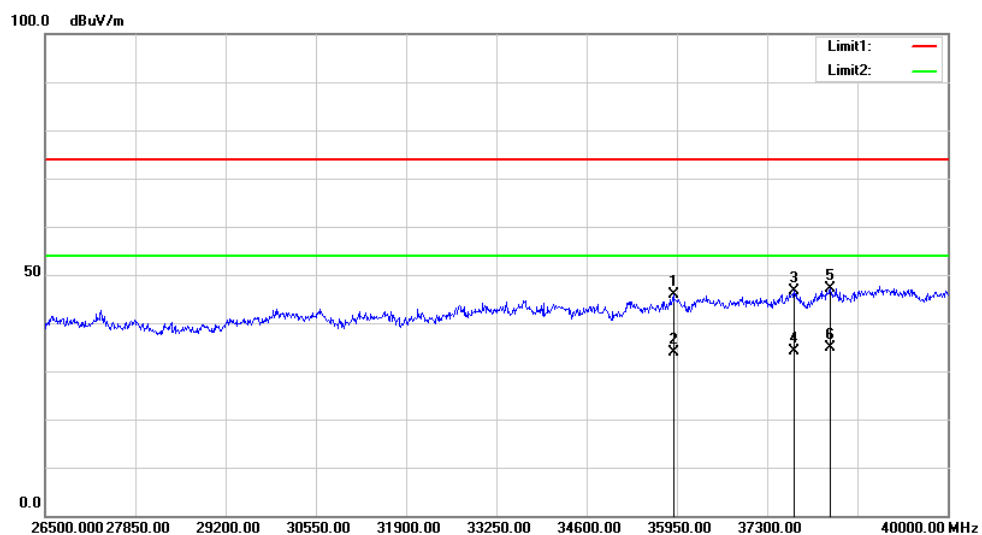
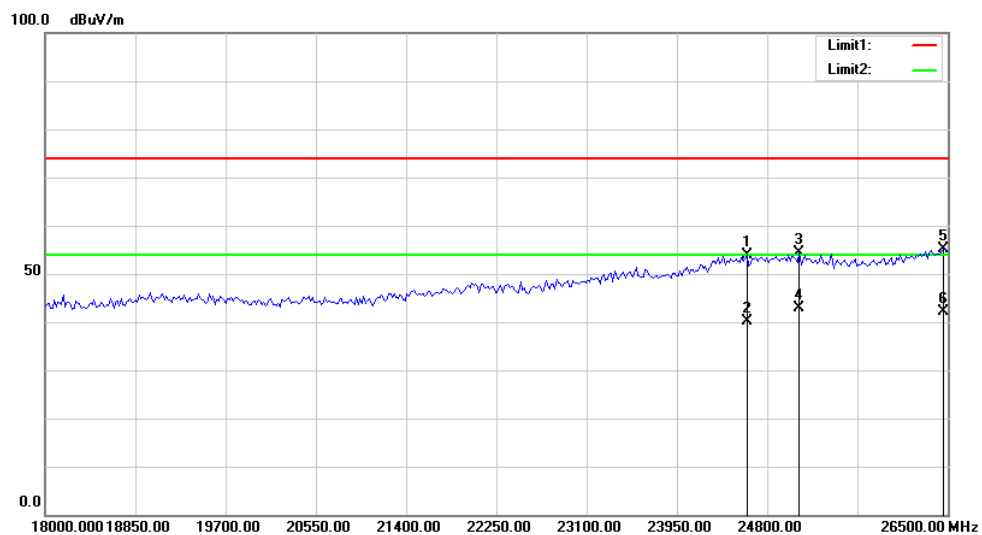


Vertical:



Fundamental
Test with Band
Rejection Filter





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