RF TEST REPORT

Applicant	ID TECH
FCC ID	WQJ-IDCL-51
Brand	ID TECH
Product	AC100
Model	IDCL-51/IDCL-51-TC
Report No.	RXA1702-0042RF01R1
Issue Date	September 27, 2017

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2017)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Performed by: Xianqing Li *Approved by: Kai Xu*

TA Technology (Shanghai) Co., Ltd.

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TABLE OF CONTENT

Summary of measurement results

Number	Summary of measurements of results	Clause in FCC rules	Verdict
1	Maximum peak conducted output power	15.407(a)	PASS
2	Occupied bandwidth	15.407(e)	PASS
3	Frequency stability	15.407(g)	PASS
4	Maximum power spectral density	15.407(a)	PASS
5	Unwanted Emissions	15.407(b)	PASS
6	Conducted Emissions	15.207	PASS
Date of Testing: April 22, 2016~ May 4, 2016 and June 28, 2017 ~ July 13, 2017			

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of TA technology (shanghai) co., Ltd).The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by any government agencies.

1.2. Test facility

CNAS (accreditation number:L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (recognition number is 428261)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-10766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
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2. General Description of Equipment under Test

Client Information

Applicant	ID TECH
Applicant address	10721 Walker Street, Cypress, CA, 90630
Manufacturer	ID TECH
Manufacturer address	10721 Walker Street, Cypress, CA, 90630

General information

EUT Description	
Model:	IDCL-51/IDCL-51-TC
Designation Number	CN1179
SN:	617T000007
Hardware Version:	80144301
Software Version:	ID TECH AC100 V1.00
Power Supply:	AC Power Supply
Antenna Type:	Internal Antenna
Antenna Gain:	3.3dBi
Test Mode:	U-NII-1(5150MHz-5250MHz) U-NII-3(5725MHz-5850MHz)
Modulation Type:	802.11a: OFDM
Max. Conducted Power	802.11a: 3.48 dBm
Operating Frequency Range(s)	U-NII-1: 5150-5250MHz U-NII-3: 5725MHz-5850MHz
EUT Accessory	
Adapter	Manufacture:BSY Model : BSYH050200UU Input: 100-240Vac 50/60Hz 0.4A Output: 5.0Vdc 2.0A
Note: The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details.	

3. Test Information

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC CFR47 Part 15E (2017) Unlicensed National Information Infrastructure Devices

ANSI C63.10 (2013)

KDB789033 D02 General UNII Test Procedures New Rules v01r04

KDB 662911 D01 Multiple Transmitter Output v02r01

4. Test Configuration

IDCL-51/IDCL-51-TC (RXA1702-0042RF01R1) is a variant model of IDCL-51 (RXA1604-0066RF03). Test items tested see the table below. The detailed product change description please refers to the ANNEX B.

Test items	Modes/Modulation	
	Original (RXA1604-0066RF03)	Variant (RXA1702-0042RF01R1)
Peak Power Output –Conducted	pass	Refer to the Original
Occupied bandwidth	pass	pass
Frequency stability	pass	pass
Power spectral density	pass	pass
Unwanted Emissions	pass	pass
Conducted Emissions	pass	pass

The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on the all configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Band		Data Rate
802.11a	U-NII-1	6 Mbps
	U-NII-3	54 Mbps

5. Test Case Results

5.1. Peak Power Output –Conducted

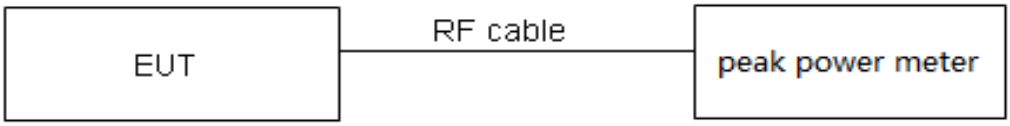
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the peak power meter through an external attenuator and a known loss cable. The EUT is max power transmission with proper modulation. We use Maximum Peak Conducted Output Power Level Method in KDB789033 for this test

Test Setup



Limits

Rule FCC Part 15.407(a)

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.44 dB.

Test Results

Network Standards	Channel/ Frequency (MHz)	Peak Output Power (dBm)		Limit(dBm)	Conclusion
		6M	54M		
U-NII-1 802.11a	36/5180	11.63	11.01	30.00	PASS
	40/5200	11.51	10.87	30.00	PASS
	48/5240	11.19	10.58	30.00	PASS
U-NII-3 802.11a	149/5745	12.13	11.39	30.00	PASS
	157/5785	12.35	11.92	30.00	PASS
	161/5805	12.11	12.73	30.00	PASS

5.2. Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

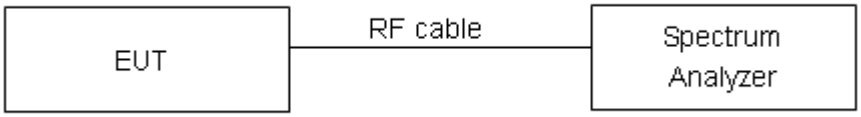
The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

Set RBW ≈1% OCB kHz, VBW ≥ 3 × RBW, 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 26 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

Use the 99 % power bandwidth function of the instrument

Test Setup



Limits

Rule FCC Part 15.407(e)

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 936 Hz.

Test Results:

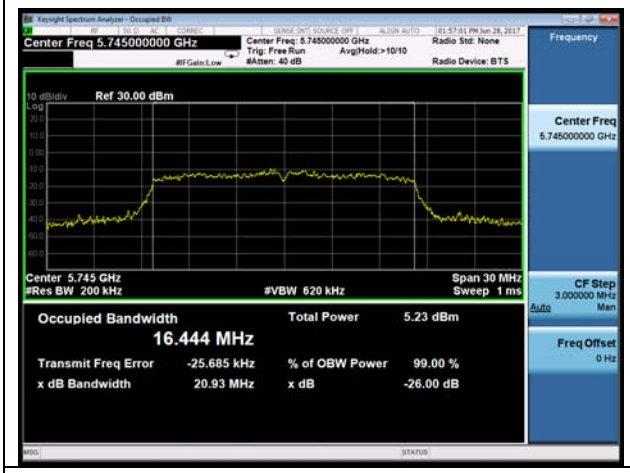
Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Limit (kHz)	Conclusion
U-NII-1 802.11a	5180	16.410	18.57	500	PASS
	5220	16.415	19.10	500	PASS
	5240	16.455	18.56	500	PASS
Network Standards	**Carrier frequency (MHz)**	**99% bandwidth (MHz)**	**Minimum 6 dB bandwidth (MHz)**	**Limit (kHz)**	**Limit (kHz)**
U-NII-3 802.11a	5745	16.444	15.66	500	PASS
	5785	16.414	15.70	500	PASS
	5825	16.448	15.40	500	PASS

U-NII-1 802.11a Carrier frequency (MHz): 5180

U-NII-1 802.11a Carrier frequency (MHz): 5200

U-NII-1 802.11a Carrier frequency (MHz):5240

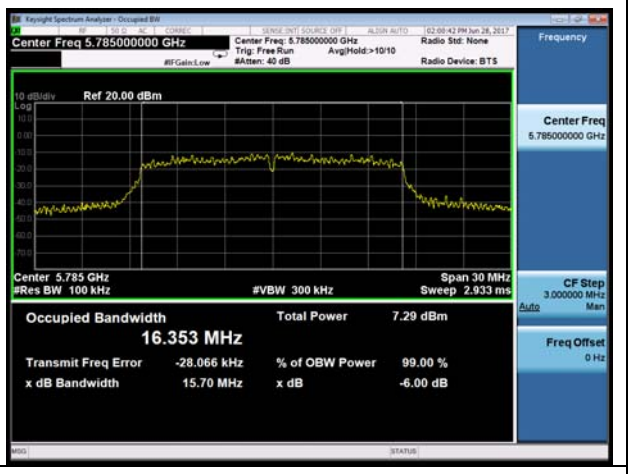
U-NII-3 802.11a Carrier frequency (MHz): 5745
99% bandwidth



U-NII-3 802.11a Carrier frequency (MHz): 5745
Minimum 6 dB bandwidth

U-NII-3 802.11a Carrier frequency (MHz): 5785
99% bandwidth

U-NII-3 802.11a Carrier frequency (MHz): 5785
Minimum 6 dB bandwidth



U-NII-3 802.11a Carrier frequency (MHz): 5825
99% bandwidth

U-NII-3 802.11a Carrier frequency (MHz): 5825
Minimum 6 dB bandwidth

5.3. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. Frequency stability with respect to ambient temperature

a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies shown in 5.6.

b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.

c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).

d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.

e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.

f) While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

g) Measure the frequency at each of frequencies specified in 5.6.

h) Switch OFF the EUT but do not switch OFF the oscillator heater.

i) Lower the chamber temperature by not more that 10 C, and allow the temperature inside the chamber to stabilize.

j) Repeat step f) through step i) down to the lowest specified temperature.

2. Frequency stability when varying supply voltage

Unless otherwise specified, these tests shall be made at ambient room temperature (+15 C to +25 C). An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

a) Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.

b) Tune the EUT to one of the number of frequencies required in 5.6. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
c) Measure the frequency at each of the frequencies specified in 5.6.
d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 936Hz

Test Results

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
5.00	-20	5200.008475	5200.005233	5199.995989	5199.990172
5.00	-10	5199.999006	5199.999454	5199.992742	5199.988990
5.00	0	5199.992669	5199.998175	5199.986501	5199.982401
5.00	10	5199.987854	5199.997695	5199.981082	5199.974908
5.00	20	5199.982084	5199.996217	5199.972971	5199.969696
5.00	30	5199.976813	5199.989726	5199.965807	5199.967640
5.00	40	5199.967816	5199.986548	5199.956797	5199.966369
5.00	50	5199.958450	5199.986226	5199.948069	5199.958552
4.50	20	5199.950703	5199.984671	5199.943661	5199.956959
5.50	20	5199.943080	5199.975807	5199.940973	5199.954709
MHz		-0.056920	-0.024193	-0.059027	-0.045291
PPM		-10.946073	-4.652543	-11.351258	-8.709718

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
5.00	-20	5784.996448	5784.990517	5784.989668	5784.979999
5.00	-10	5784.989377	5784.982963	5784.989431	5784.971029
5.00	0	5784.982127	5784.975618	5784.989024	5784.970071
5.00	10	5784.977441	5784.971193	5784.979725	5784.963500
5.00	20	5784.970325	5784.962388	5784.971259	5784.963467
5.00	30	5784.967589	5784.958291	5784.969795	5784.958155
5.00	40	5784.957652	5784.954838	5784.967120	5784.952818
5.00	50	5784.951514	5784.951034	5784.962441	5784.943570
4.50	20	5784.949307	5784.944131	5784.957051	5784.937358
5.50	20	5784.943585	5784.943482	5784.954088	5784.936925
MHz		-0.056415	-0.056518	-0.045912	-0.063075
PPM		-9.751965	-9.769693	-7.936355	-10.903129

5.4. Power Spectral Density

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

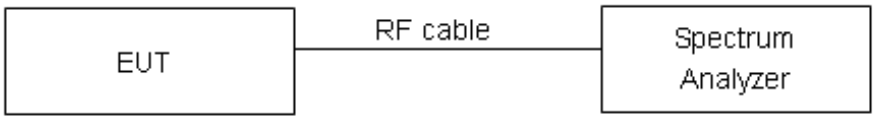
The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

Set RBW = 1 MHz, VBW =3MHz on spectrum analyzer for U-NII-1

Set RBW = 510 MHz, VBW =1.5MHz on spectrum analyzer for U-NII-3

The conducted PSD is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Test setup



Limits

Rule FCC Part 15.407(a)(3)/ Part 15.407(a)(1)

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 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.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmittingantennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum powerspectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Frequency Bands/MHz	Limits
U-NII-1	17dBm/MHz
U-NII-3	30dBm/500kHz

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.75dB.

Test Results:

Network Standards	Channel Number	Power Spectral Density (dBm / MHz)	Limit (dBm / MHz)	Conclusion
U-NII-1 802.11a	36	-6.955	17	PASS
	44	-6.818	17	PASS
	48	-7.226	17	PASS
Network Standards	**Channel Number**	**Power Spectral Density (dBm/500kHz)**	**Limit (dBm/500kHz)**	**Conclusion**
U-NII-3 802.11a	149	-15.131	30	PASS
	157	-13.078	30	PASS
	165	-12.681	30	PASS

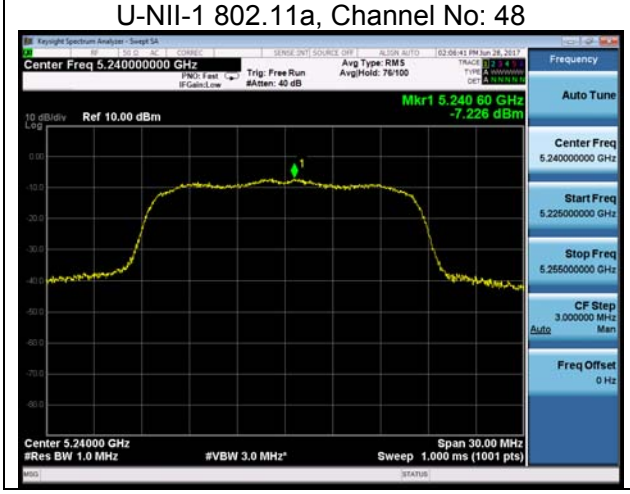
U-NII-1 802.11a, Channel No: 36

U-NII-3 802.11a, Channel No: 149

U-NII-1 802.11a, Channel No: 40

U-NII-3 802.11a, Channel No: 157

U-NII-1 802.11a, Channel No: 48



U-NII-3 802.11a, Channel No: 165

5.5. Unwanted Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

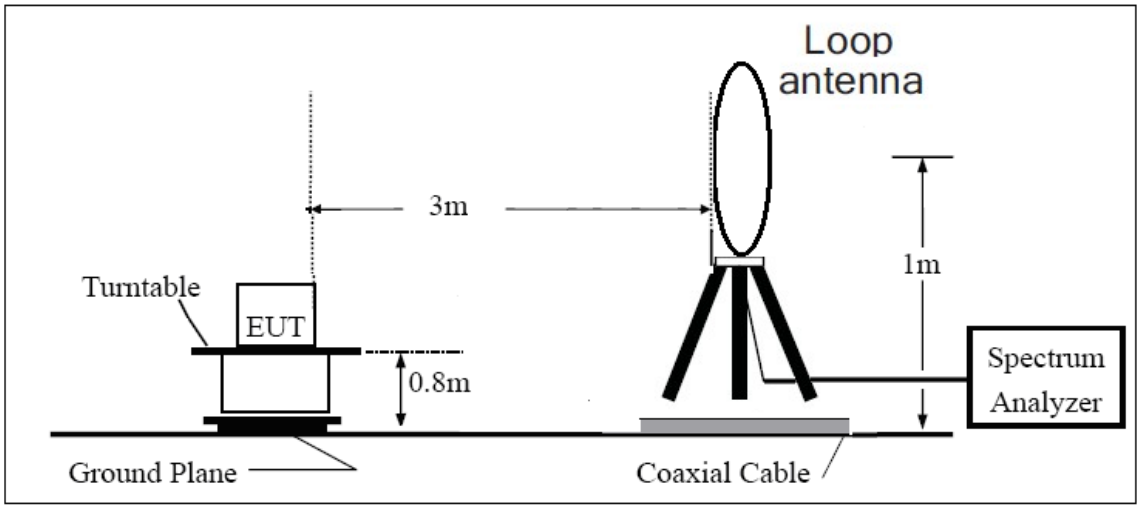
The test set-up was made in accordance to the general provisions of ANSI C63.10-2013. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.
Sweep the whole frequency band range from 9kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.
Set the spectrum analyzer in the following:
Below 1GHz (detector: Peak and Quasi-Peak)
RBW=100kHz / VBW=300kHz / Sweep=AUTO
Above 1GHz (detector: Peak):
(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

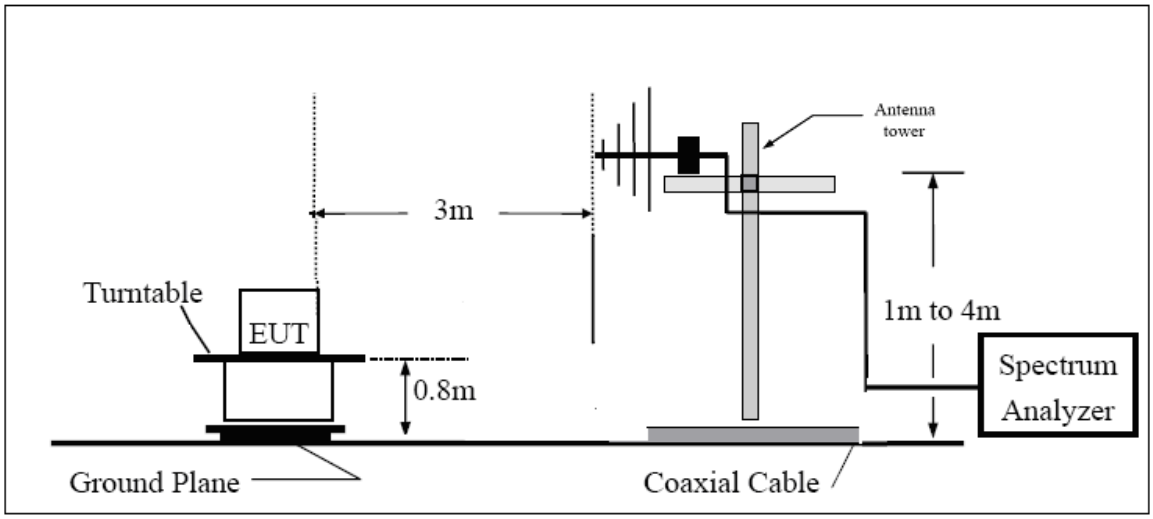
The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

The test is in transmitting mode.

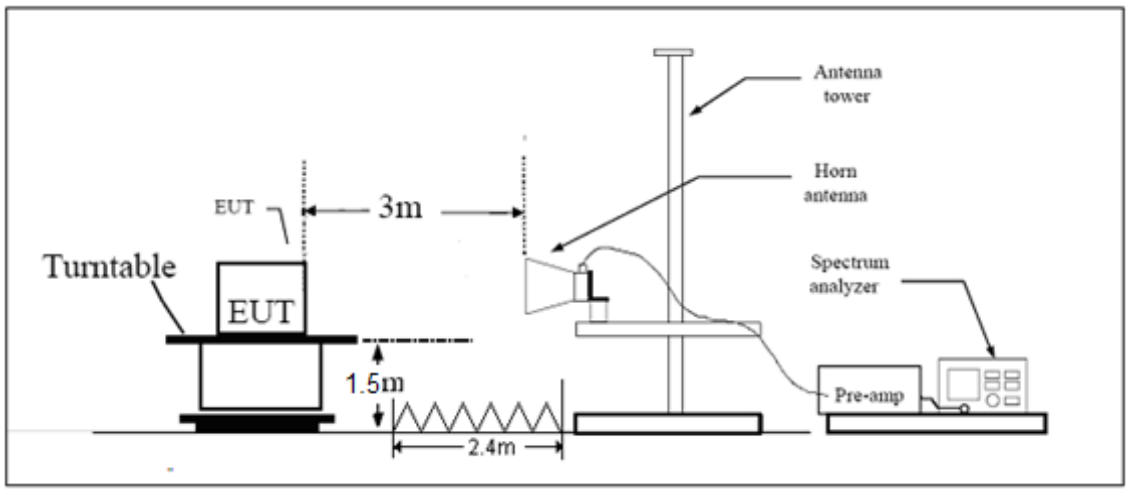
9KHz~~~30MHz



30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

(1) For transmitters operating in the 5725-5850 MHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17dBm/MHz (78.3dBμV/m); for frequencies 10MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27dBm/MHz(68.3dBμV/m).

Note: The following formula is used to convert the EIRP to field strength.

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts)

EIRP (dBm)	Field Strength at 3m (dBμV/m)
-17	78.3
- 27	68.3

(2) For transmitters operating in the 5.15-5.35 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(68.3dBμV/m).

(3) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table.

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

(4) Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]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	([2])
13.36 - 13.41			

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

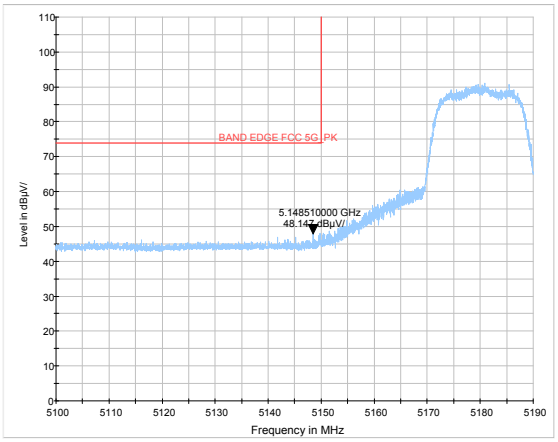
Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
1GHz-26.5G	3.68 dB
26.5G-40GHz	4.76dB

Test Results:

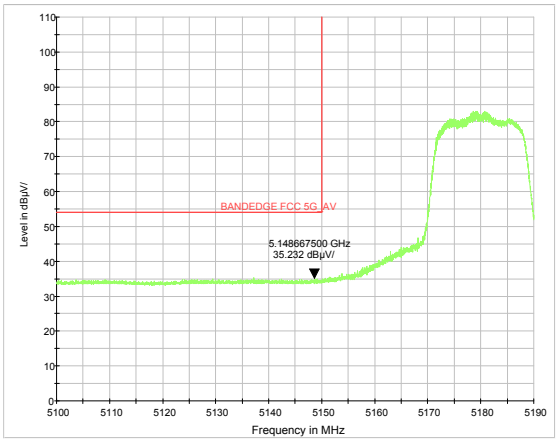
PASS

The signal beyond the limit is carrier.

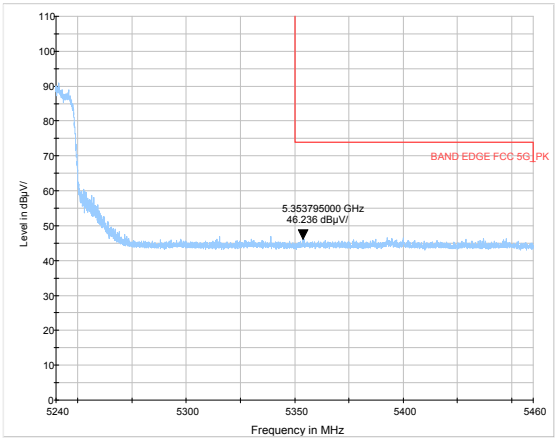
802.11a-Channel 36: Peak



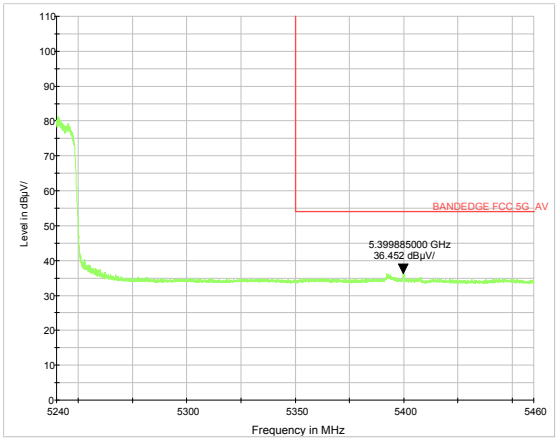
802.11a-Channel 36: Average



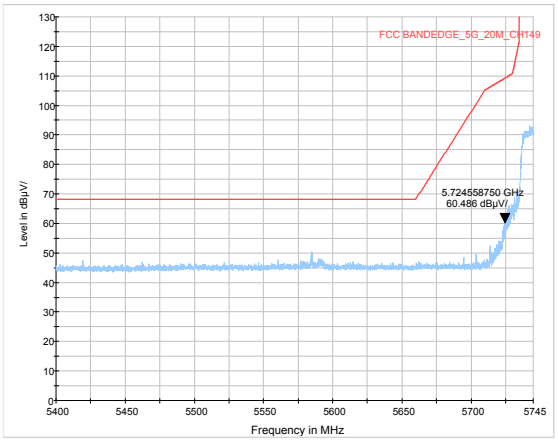
802.11a-Channel 48: Peak



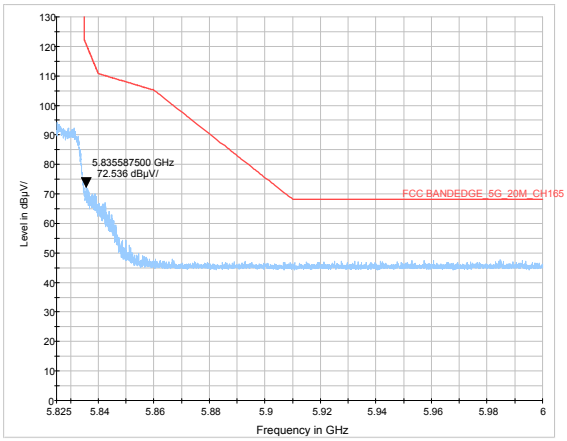
802.11a-Channel 48: Average



802.11a-Channel 149: Peak



802.11a-Channel 165: Peak



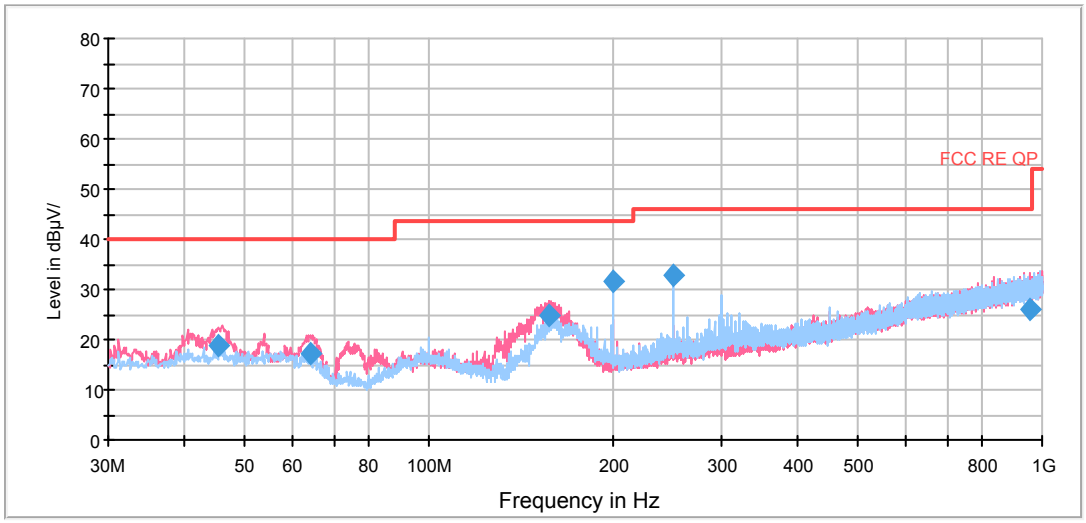
Result of RE

Test result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, and 9KHz-30MHz, the emissions more than 20 dB below the permissible value are not reported.

Continuous TX mode:

FCC RE 0.03-1GHz QP Class B



Radiates Emission from 30MHz to 1GHz

802.11a CH36

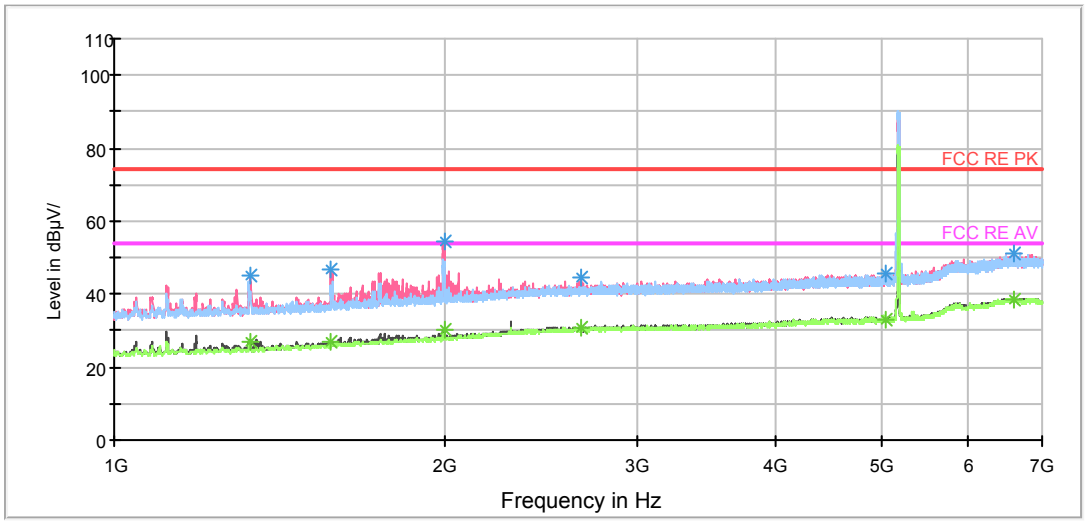
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1328.500000	44.9	100.0	V	188.0	52.4	-7.5	29.1	74
1576.750000	46.9	100.0	V	149.0	52.9	-6.0	27.1	74
1997.500000	54.7	100.0	V	300.0	58.3	-3.6	19.3	74
2659.000000	44.7	100.0	V	188.0	45.5	-0.8	29.3	74
5046.250000	45.7	100.0	V	149.0	43.9	1.8	28.3	74
6591.250000	51.3	100.0	V	0.0	43.9	7.4	22.7	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1328.500000	27.1	100.0	V	188.0	34.6	-7.5	26.9	54
1576.750000	26.9	100.0	V	149.0	32.9	-6.0	27.1	54
1997.500000	30.2	100.0	V	300.0	33.8	-3.6	23.8	54
2659.000000	30.7	100.0	V	188.0	31.5	-0.8	23.3	54
5047.000000	32.8	100.0	V	0.0	31.0	1.8	21.2	54
6589.750000	38.6	100.0	V	0.0	31.1	7.5	15.4	54

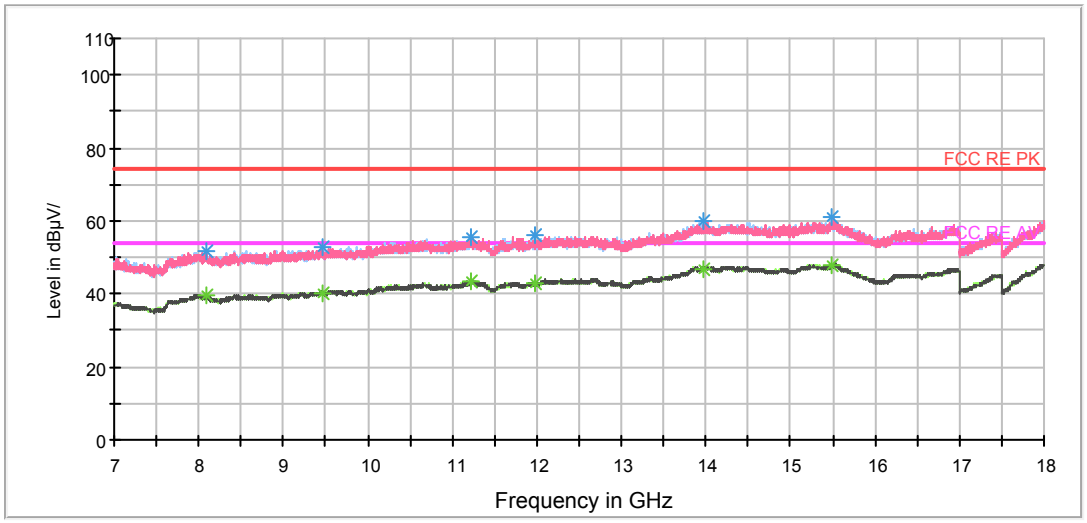
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

FCC RE 1G-18GHz PK+AV Class B



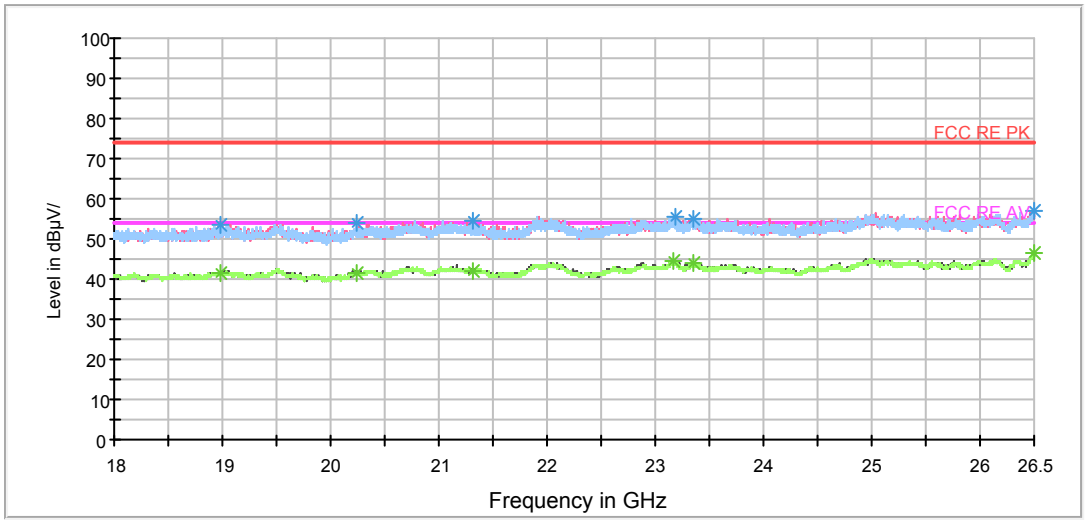
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 7GHz

FCC RE 1G-18GHz PK+AV Class B



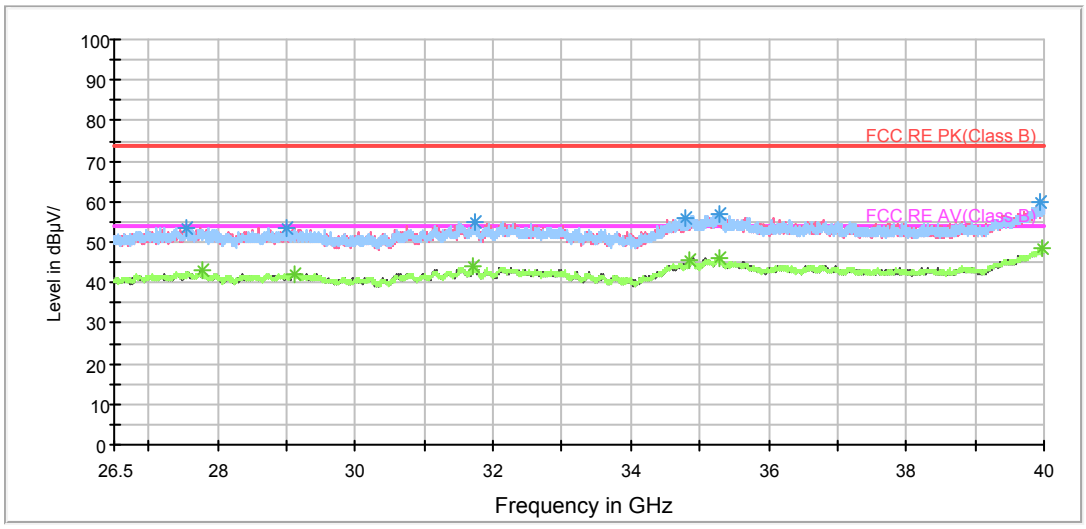
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

802.11a CH40

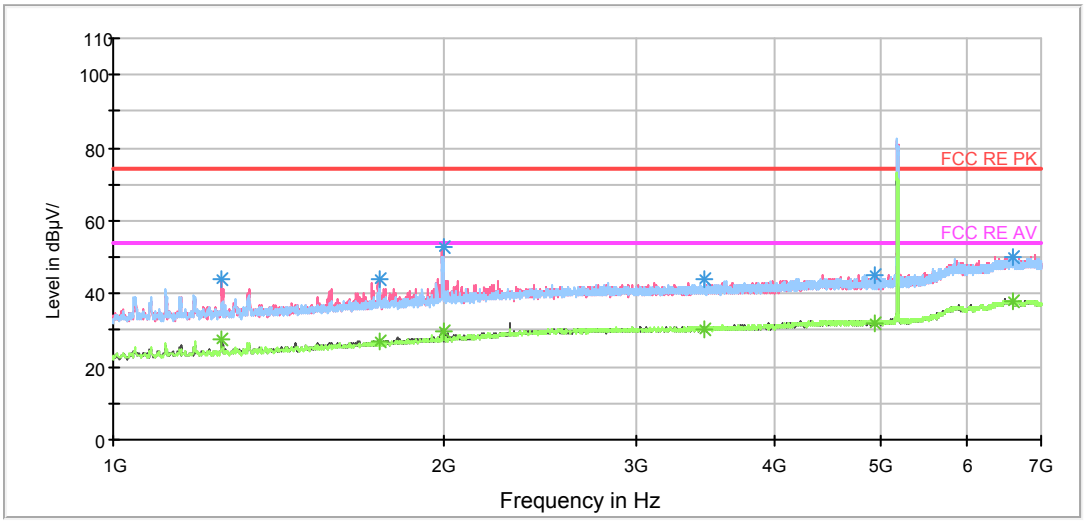
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1255.750000	44.1	100.0	V	232.0	51.9	-7.8	29.9	74
1746.250000	44.1	100.0	V	354.0	49.1	-5.0	29.9	74
1999.000000	52.9	100.0	V	350.0	56.5	-3.6	21.1	74
3456.250000	44.0	100.0	H	194.0	44.0	0.0	30.0	74
4930.750000	45.2	100.0	H	5.0	43.6	1.6	28.8	74
6592.750000	49.9	100.0	H	154.0	42.5	7.4	24.1	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1255.750000	27.6	100.0	V	232.0	35.4	-7.8	26.4	54
1746.250000	26.7	100.0	V	354.0	31.7	-5.0	27.3	54
1999.000000	29.7	100.0	V	350.0	33.3	-3.6	24.3	54
3456.250000	30.4	100.0	V	356.0	30.4	0.0	23.6	54
4930.750000	32.1	100.0	H	5.0	30.5	1.6	21.9	54
6592.750000	38.0	100.0	V	335.0	30.6	7.4	16.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

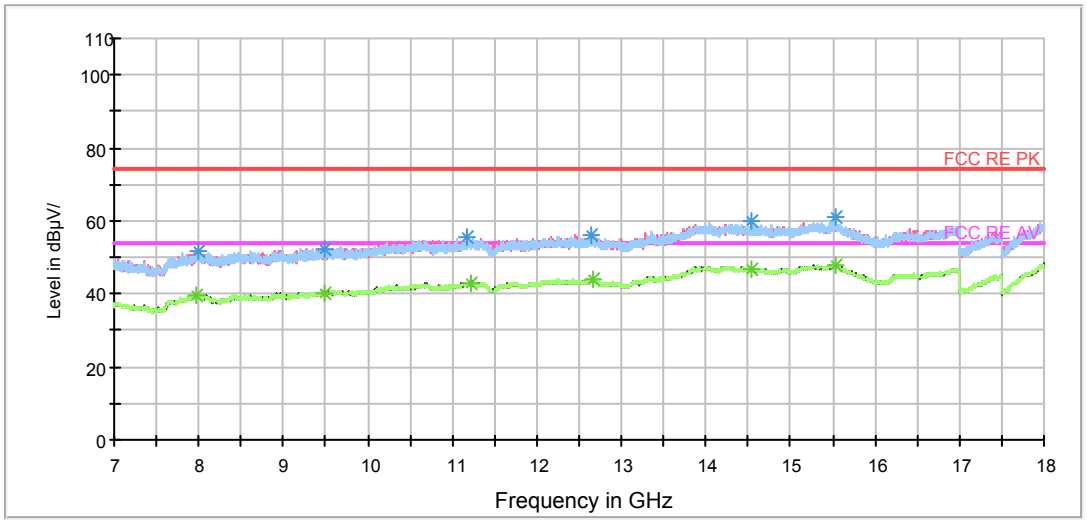
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

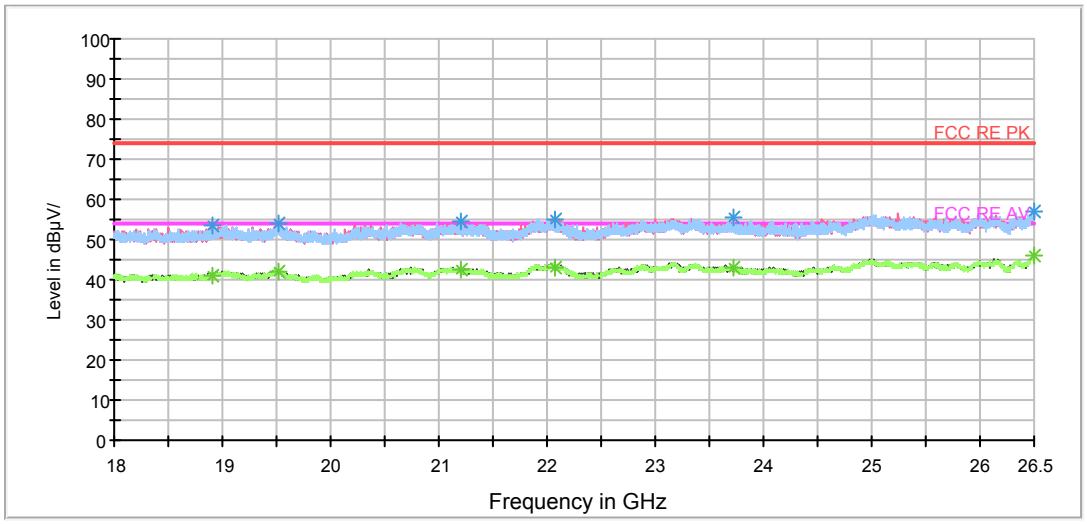
Radiates Emission from 1GHz to 7GHz

FCC RE 1G-18GHz PK+AV Class B



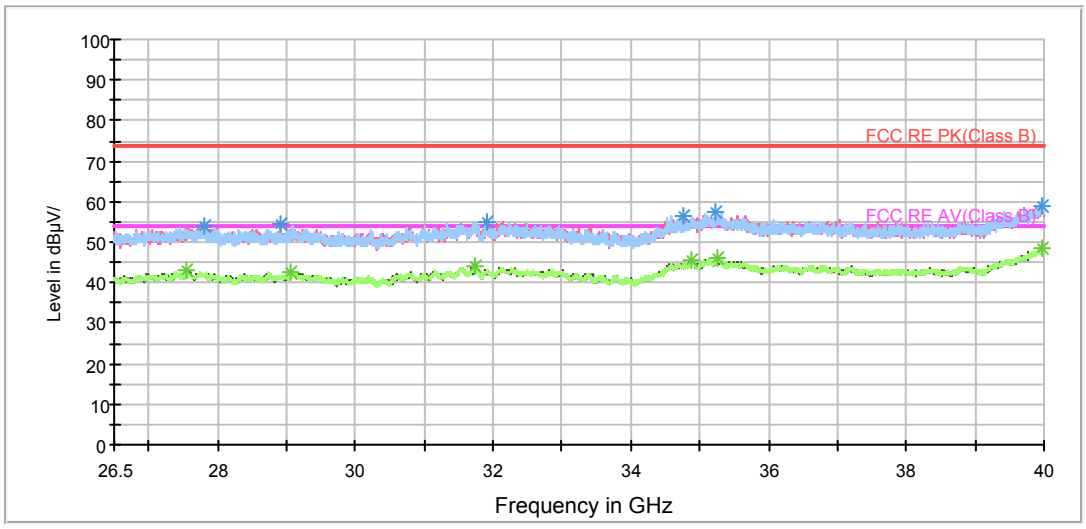
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

802.11a CH48

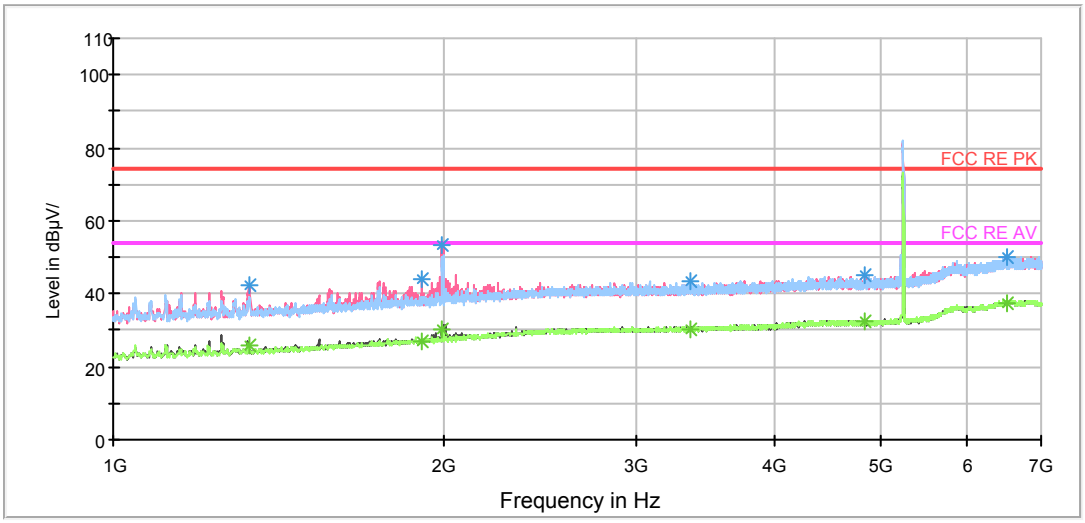
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1328.500000	42.1	100.0	V	151.0	49.6	-7.5	31.9	74
1912.000000	44.0	100.0	V	151.0	47.9	-3.9	30.0	74
1995.250000	53.1	100.0	V	350.0	56.7	-3.6	20.9	74
3361.000000	43.2	100.0	H	0.0	43.3	-0.1	30.8	74
4839.250000	44.9	100.0	V	297.0	43.1	1.8	29.1	74
6504.250000	50.0	100.0	V	124.0	42.7	7.3	24.0	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1328.500000	25.9	100.0	H	1.0	33.4	-7.5	28.1	54
1912.000000	27.0	100.0	V	151.0	30.9	-3.9	27.0	54
1995.250000	30.0	100.0	V	350.0	33.6	-3.6	24.0	54
3361.000000	30.4	100.0	H	0.0	30.5	-0.1	23.6	54
4839.250000	32.4	100.0	H	10.0	30.6	1.8	21.6	54
6504.250000	37.6	100.0	H	16.0	30.3	7.3	16.4	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

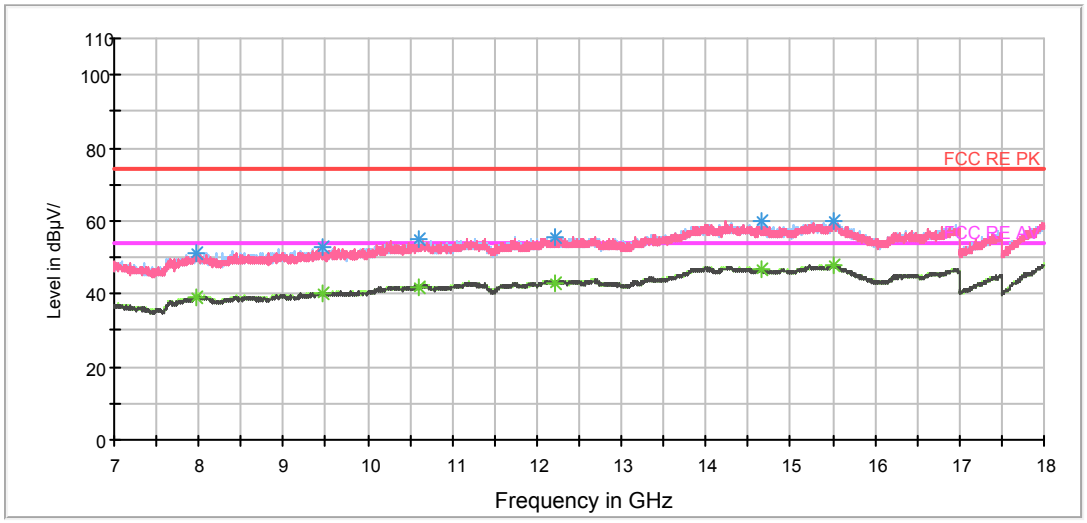
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

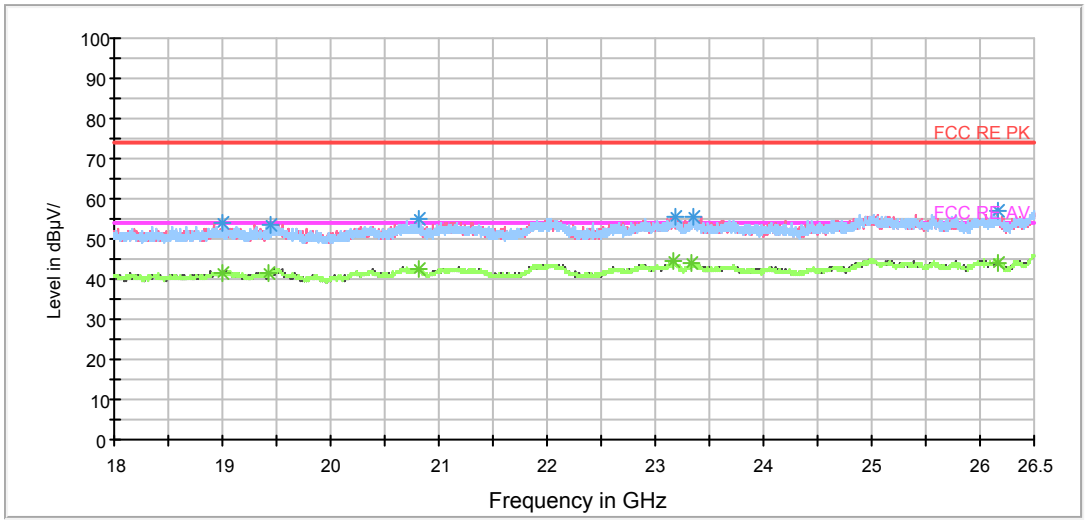
Radiates Emission from 1GHz to 7GHz

FCC RE 1G-18GHz PK+AV Class B



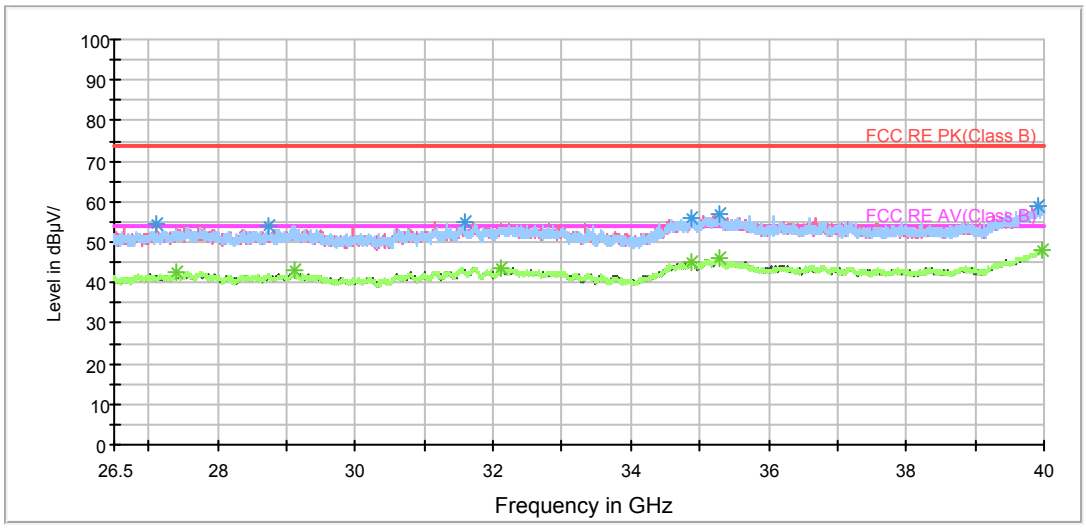
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

802.11a CH149

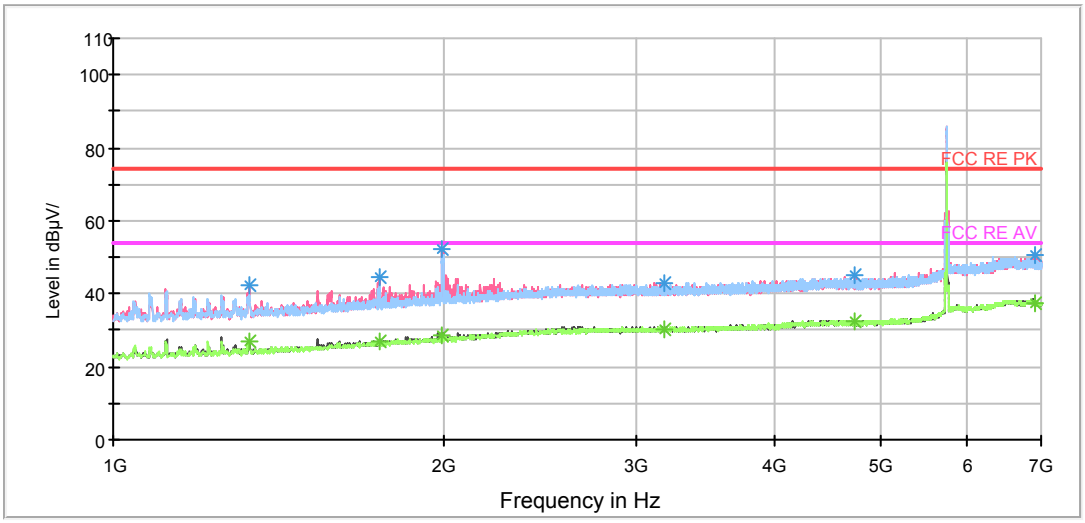
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1331.500000	42.1	100.0	V	180.0	49.6	-7.5	31.9	74
1745.500000	44.6	100.0	V	0.0	49.6	-5.0	29.4	74
1993.750000	52.2	100.0	V	352.0	55.8	-3.6	21.8	74
3175.750000	43.0	100.0	H	112.0	43.2	-0.2	31.0	74
4732.000000	45.1	100.0	V	0.0	43.5	1.6	28.9	74
6901.000000	50.4	100.0	V	180.0	43.1	7.3	23.6	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1331.500000	27.0	100.0	V	180.0	34.5	-7.5	27.0	54
1745.500000	26.8	100.0	V	0.0	31.8	-5.0	27.2	54
1993.750000	28.8	100.0	V	352.0	32.4	-3.6	25.2	54
3175.750000	30.3	100.0	V	0.0	30.5	-0.2	23.7	54
4732.000000	32.2	100.0	V	0.0	30.6	1.6	21.8	54
6901.000000	37.6	100.0	V	180.0	30.3	7.3	16.4	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

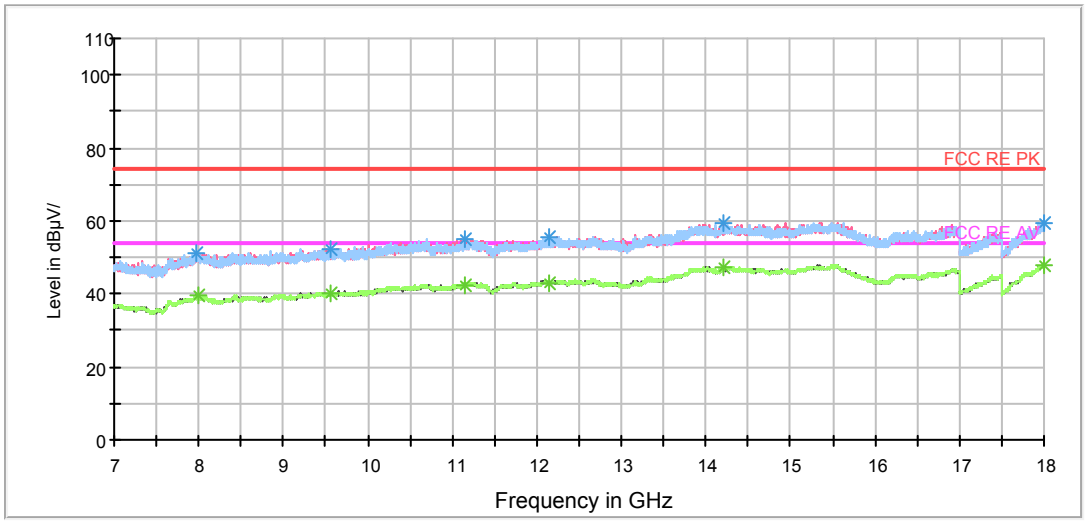
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

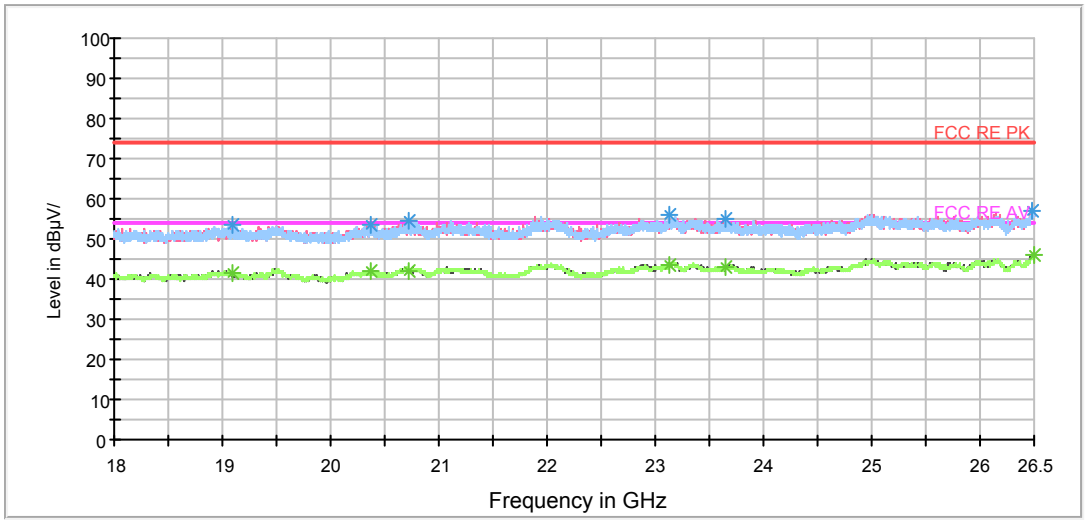
Radiates Emission from 1GHz to 7GHz

FCC RE 1G-18GHz PK+AV Class B



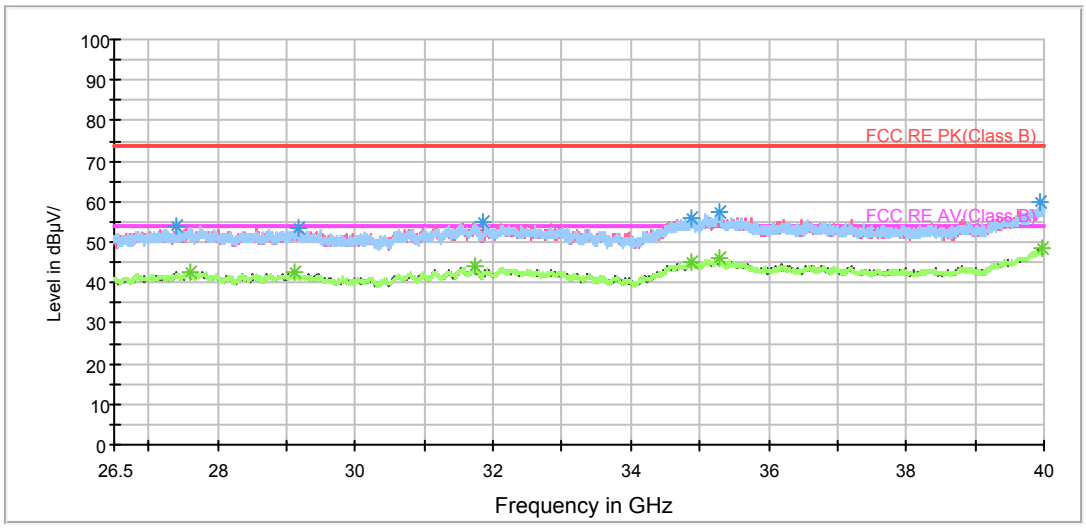
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

802.11a CH157

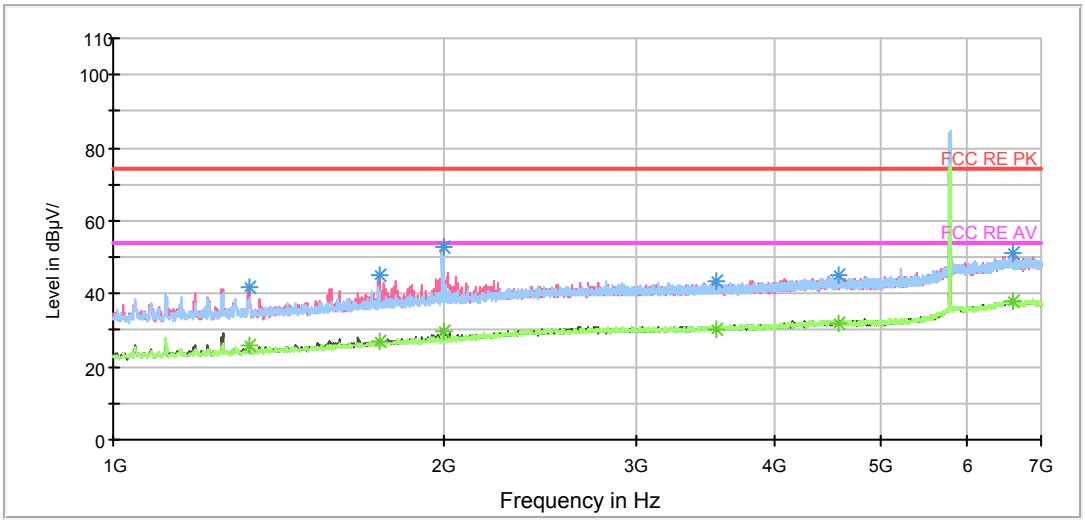
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1328.500000	41.6	100.0	V	165.0	49.1	-7.5	32.4	74
1745.500000	45.0	100.0	V	340.0	50.0	-5.0	29.0	74
1998.250000	53.0	100.0	V	348.0	56.6	-3.6	21.0	74
3541.750000	43.3	100.0	V	0.0	43.2	0.1	30.7	74
4583.500000	44.9	100.0	H	0.0	43.2	1.7	29.1	74
6597.250000	51.0	100.0	H	207.0	43.6	7.4	23.0	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1328.500000	25.7	100.0	V	165.0	33.2	-7.5	28.3	54
1745.500000	26.7	100.0	V	340.0	31.7	-5.0	27.3	54
1998.250000	29.6	100.0	V	348.0	33.2	-3.6	24.4	54
3541.750000	30.3	100.0	H	28.0	30.2	0.1	23.7	54
4583.500000	32.1	100.0	H	0.0	30.4	1.7	21.9	54
6597.250000	37.8	100.0	V	359.0	30.4	7.4	16.2	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

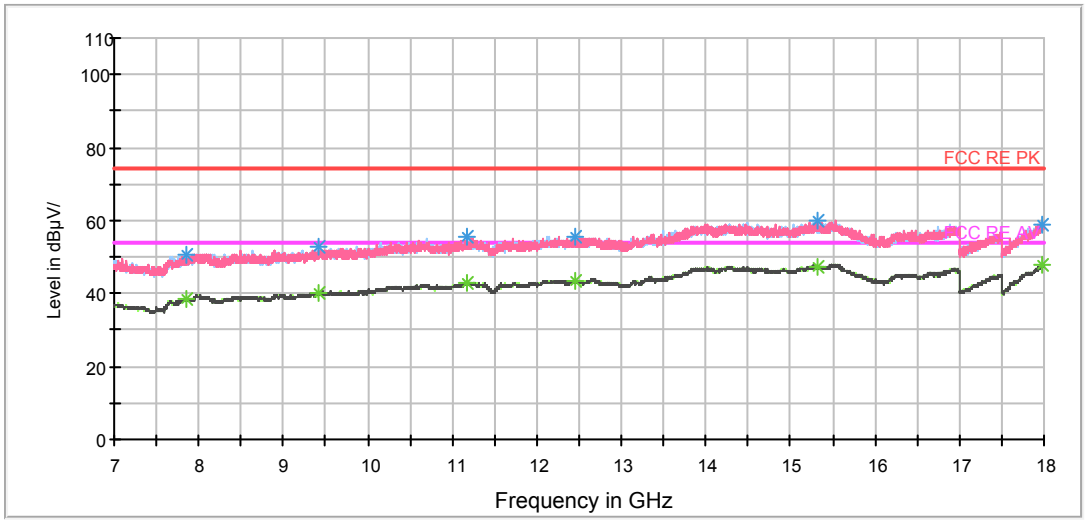
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

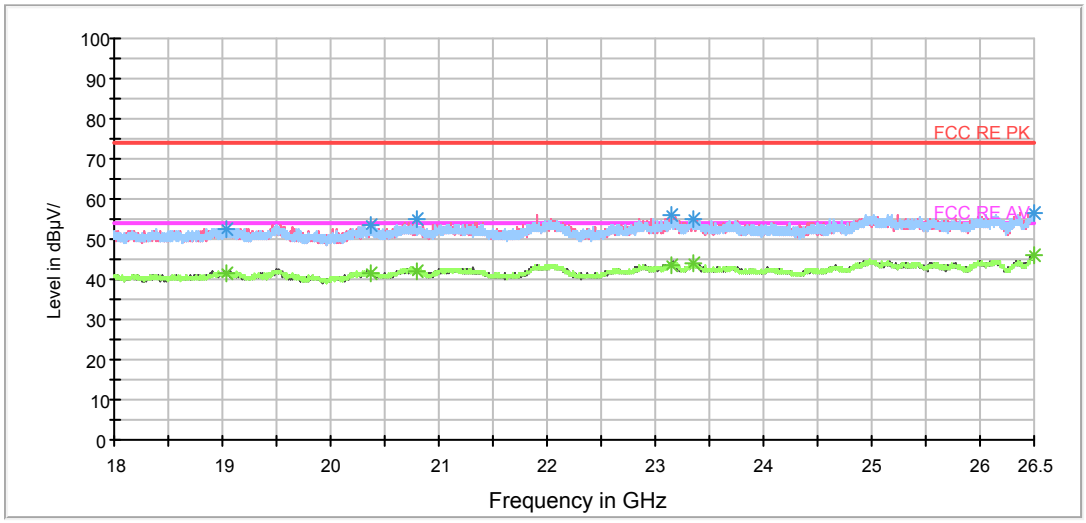
Radiates Emission from 1GHz to 7GHz

FCC RE 1G-18GHz PK+AV Class B



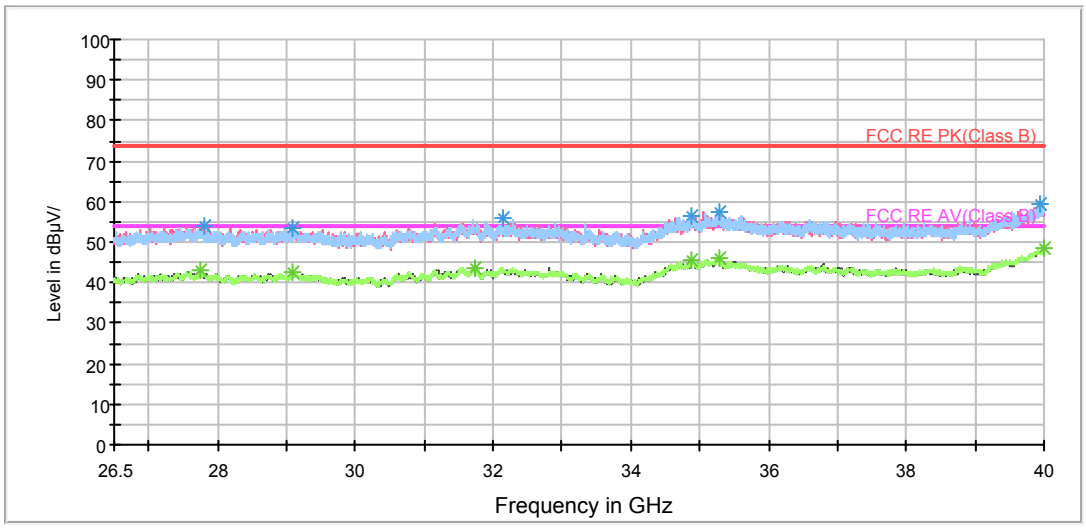
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

802.11a CH165

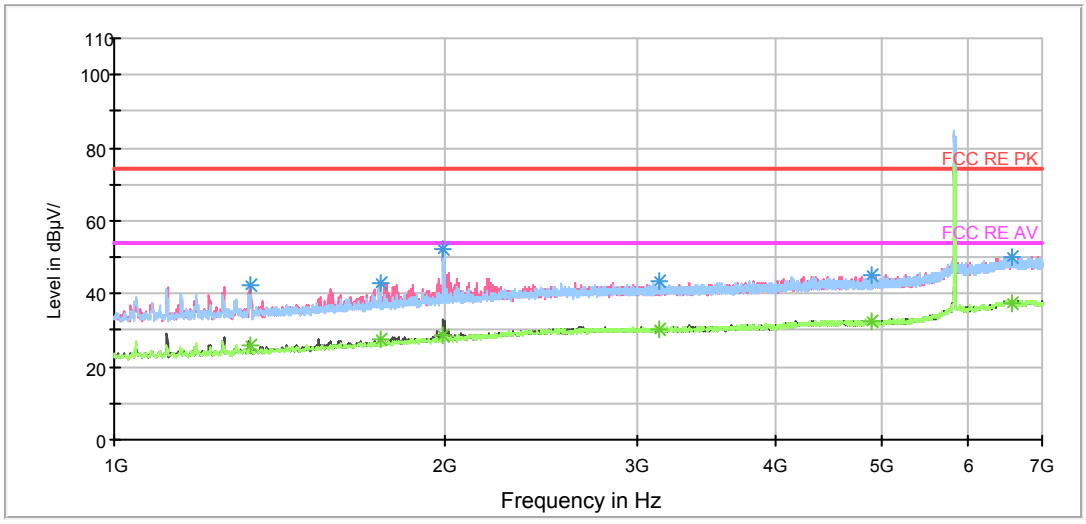
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1330.750000	42.1	100.0	V	166.0	49.6	-7.5	31.9	74
1748.500000	43.0	100.0	V	358.0	48.0	-5.0	31.0	74
1990.750000	52.5	100.0	V	350.0	56.1	-3.6	21.5	74
3138.250000	43.5	100.0	H	36.0	43.8	-0.3	30.5	74
4895.500000	44.9	100.0	V	335.0	43.1	1.8	29.1	74
6579.250000	50.2	100.0	V	111.0	42.8	7.4	23.8	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1330.750000	25.9	100.0	V	166.0	33.4	-7.5	28.1	54
1748.500000	27.4	100.0	V	358.0	32.4	-5.0	26.6	54
1990.750000	28.4	100.0	V	350.0	32.0	-3.6	25.6	54
3138.250000	30.4	100.0	H	36.0	30.7	-0.3	23.6	54
4895.500000	32.4	100.0	H	0.0	30.6	1.8	21.6	54
6579.250000	37.6	100.0	V	111.0	30.2	7.4	16.4	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

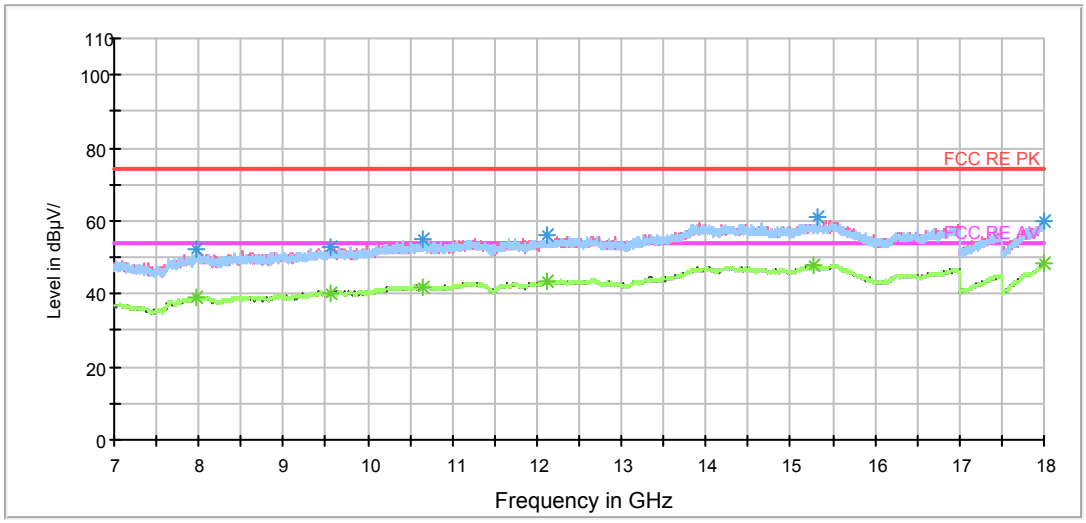
FCC RE 1G-18GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

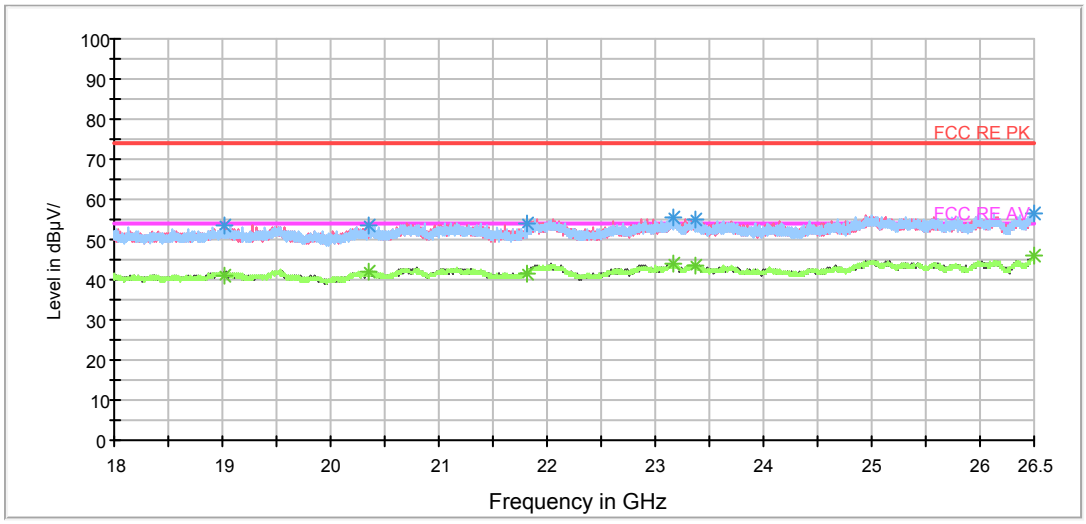
Radiates Emission from 1GHz to 7GHz

FCC RE 1G-18GHz PK+AV Class B



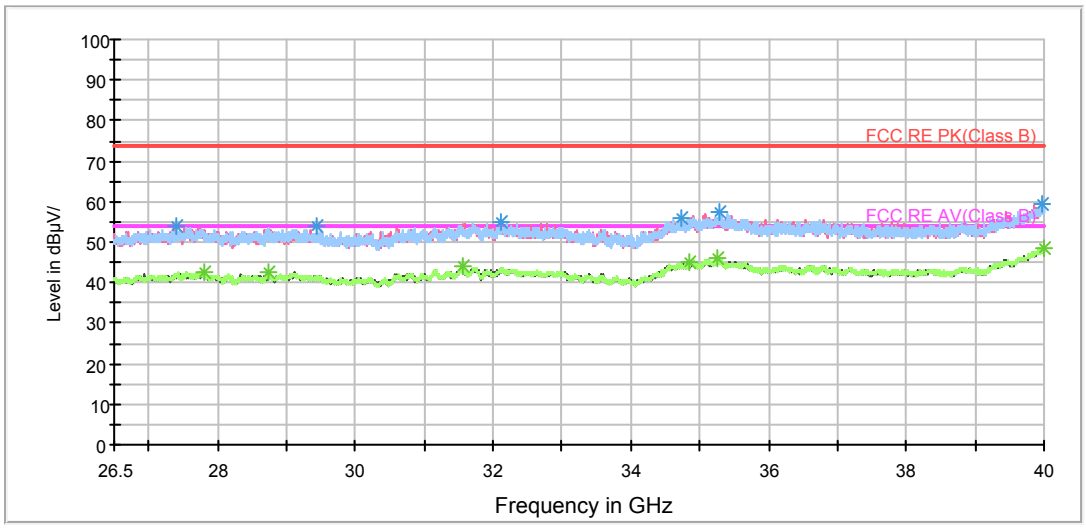
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

5.6. Conducted Emission

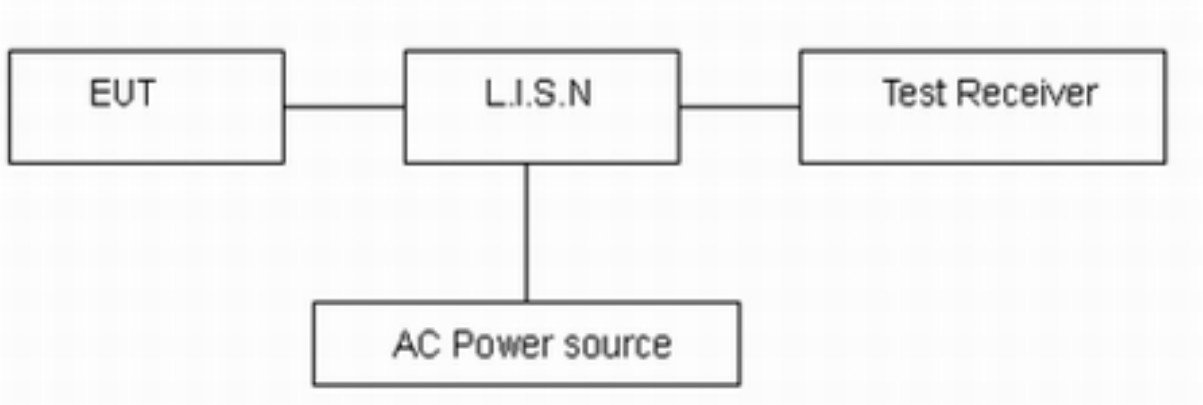
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

The EUT IS placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10-2013.Connect the AC power line of the EUT to the LISN Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9kHz, VBW is set to 30kHz The measurement result should include both L line and N line.
The test is in transmitting mode.

Test Setup



Note: AC Power source is used to change the voltage 110V/60Hz.

Limits

Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

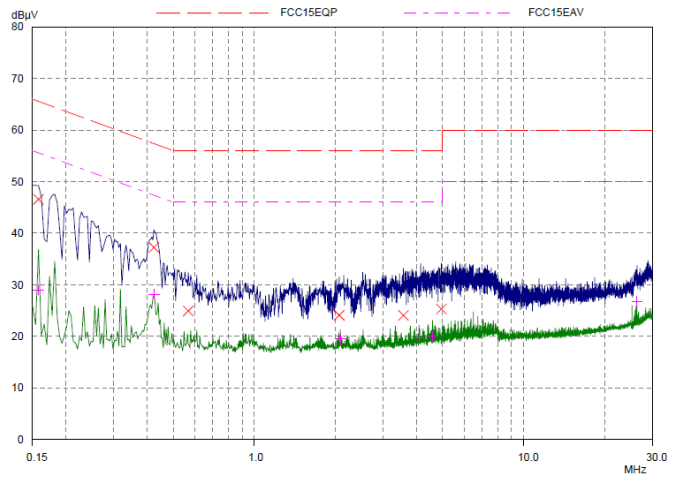
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U= 2.69 dB.

Test Results:

Following plots, Blue trace uses the peak detection, Green trace uses the average detection.

U-NII-1, 802.11a, Channel No: 36, L Line

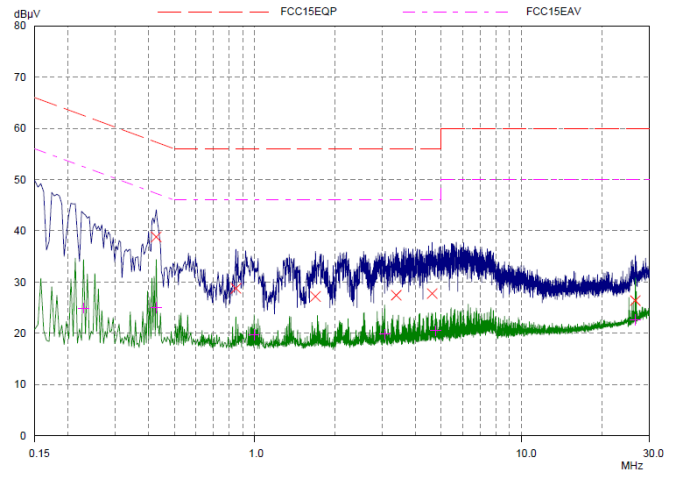


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.15781	46.59	65.58	18.99	L1	gnd
0.42343	37.26	57.38	20.12	L1	gnd
0.56796	24.93	56.00	31.07	L1	gnd
2.06406	24.11	56.00	31.89	L1	gnd
3.57187	24.06	56.00	31.94	L1	gnd
4.94296	25.30	56.00	30.70	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.15781	29.02	55.58	26.56	L1	gnd
0.42343	28.19	47.38	19.19	L1	gnd
2.08359	19.53	46.00	26.47	L1	gnd
4.08359	19.77	46.00	26.23	L1	gnd
4.57968	19.99	46.00	26.01	L1	gnd
26.31015	26.72	50.00	23.28	L1	gnd

U-NII-1, 802.11a, Channel No: 36, N Line

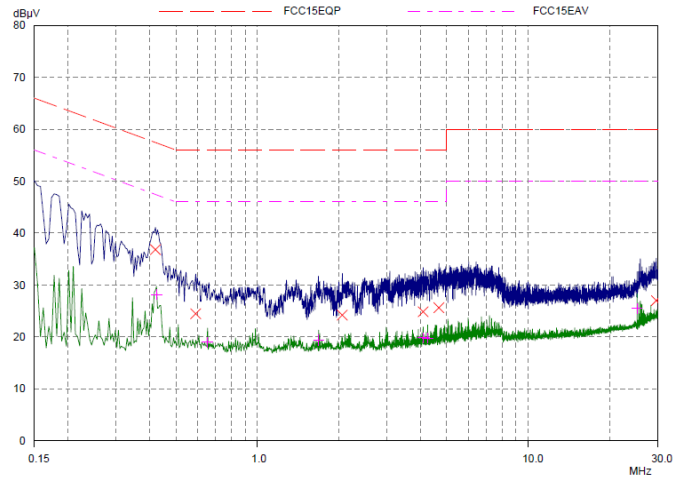


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.42734	38.82	57.30	18.48	N	gnd
0.84921	28.78	56.00	27.22	N	gnd
1.68906	27.19	56.00	28.81	N	gnd
3.38828	27.43	56.00	28.57	N	gnd
4.61875	27.77	56.00	28.23	N	gnd
26.68515	26.38	60.00	33.62	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.22812	24.93	52.52	27.59	N	gnd
0.42734	25.02	47.30	22.28	N	gnd
0.99375	19.72	46.00	26.28	N	gnd
3.06796	19.83	46.00	26.17	N	gnd
4.75937	20.51	46.00	25.49	N	gnd
26.68515	22.64	50.00	27.36	N	gnd

U-NII-1, 802.11a, Channel No: 40, L Line

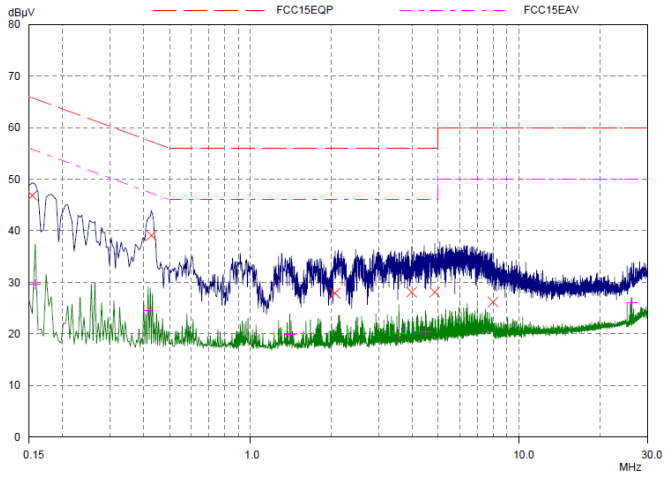


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.41953	36.83	57.46	20.63	L1	gnd
0.5914	24.47	56.00	31.53	L1	gnd
2.05625	24.21	56.00	31.79	L1	gnd
4.0875	24.86	56.00	31.14	L1	gnd
4.67734	25.65	56.00	30.35	L1	gnd
29.69687	27.01	60.00	32.99	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.42343	28.19	47.38	19.19	L1	gnd
0.6539	19.00	46.00	27.00	L1	gnd
1.68125	19.34	46.00	26.66	L1	gnd
4.0875	19.84	46.00	26.16	L1	gnd
4.24765	19.80	46.00	26.20	L1	gnd
25.22812	25.50	50.00	24.50	L1	gnd

U-NII-1, 802.11a, Channel No: 40, N Line

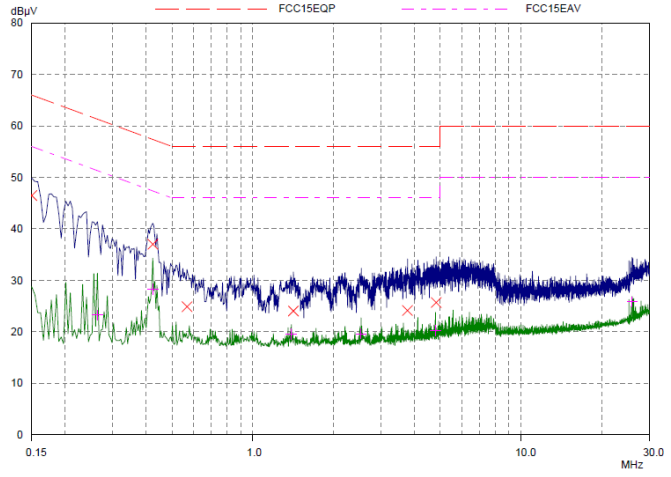


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.1539	46.84	65.79	18.95	N	gnd
0.42734	39.08	57.30	18.22	N	gnd
2.06406	27.91	56.00	28.09	N	gnd
3.97812	28.09	56.00	27.91	N	gnd
4.84921	28.07	56.00	27.93	N	gnd
8.00156	26.20	60.00	33.80	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.15781	29.59	55.58	25.99	N	gnd
0.41562	24.48	47.54	23.06	N	gnd
1.4	19.93	46.00	26.07	N	gnd
3.56796	20.06	46.00	25.94	N	gnd
4.47812	20.47	46.00	25.53	N	gnd
26.30625	26.04	50.00	23.96	N	gnd

U-NII-1, 802.11a, Channel No: 48, L Line

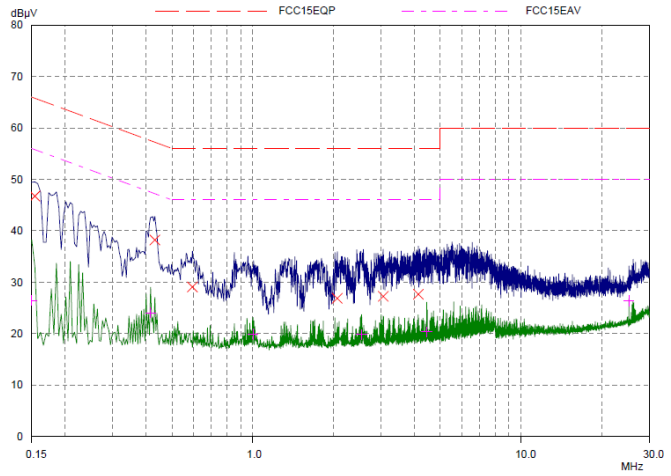


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.15	46.47	66.00	19.53	L1	gnd
0.42343	37.02	57.38	20.36	L1	gnd
0.56796	24.87	56.00	31.13	L1	gnd
1.41562	24.04	56.00	31.96	L1	gnd
3.77109	24.13	56.00	31.87	L1	gnd
4.82578	25.68	56.00	30.32	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.26328	23.26	51.33	28.07	L1	gnd
0.42343	28.25	47.38	19.13	L1	gnd
1.39218	19.57	46.00	26.43	L1	gnd
2.53281	19.60	46.00	26.40	L1	gnd
4.79453	20.19	46.00	25.81	L1	gnd
25.92734	25.83	50.00	24.17	L1	gnd

U-NII-1, 802.11a, Channel No: 48, N Line

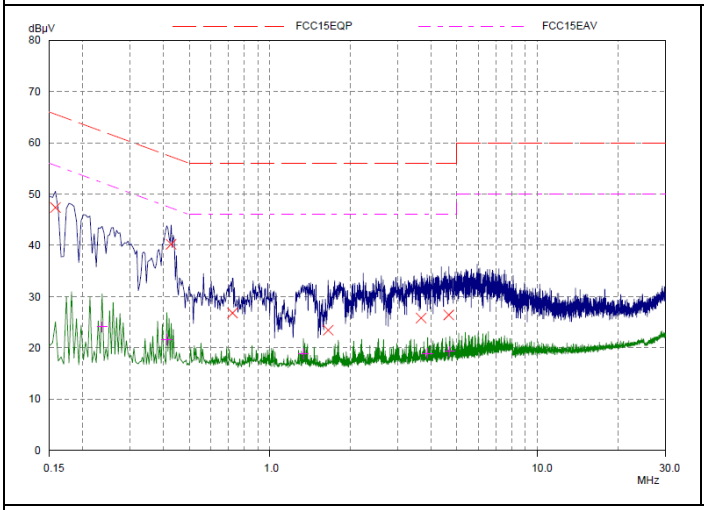


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.1539	46.74	65.79	19.05	N	gnd
0.43125	38.21	57.23	19.02	N	gnd
0.59531	29.07	56.00	26.93	N	gnd
2.06406	26.87	56.00	29.13	N	gnd
3.06015	27.25	56.00	28.75	N	gnd
4.13828	27.66	56.00	28.34	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.15	26.47	56.00	29.53	N	gnd
0.41562	24.06	47.54	23.48	N	gnd
1.00156	19.92	46.00	26.08	N	gnd
2.54453	19.82	46.00	26.18	N	gnd
4.45078	20.33	46.00	25.67	N	gnd
25.22812	26.37	50.00	23.63	N	gnd

U-NII-3, 802.11a, Channel No: 149, L Line

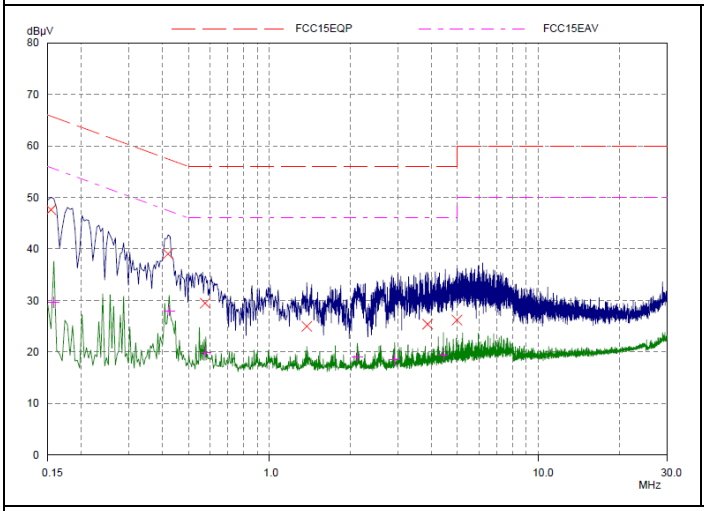


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.15781	47.36	65.58	18.22	L1	gnd
0.42734	40.19	57.30	17.11	L1	gnd
0.72421	26.80	56.00	29.20	L1	gnd
1.65	23.45	56.00	32.55	L1	gnd
3.67343	25.83	56.00	30.17	L1	gnd
4.66171	26.42	56.00	29.58	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.23593	24.09	52.24	28.15	L1	gnd
0.41171	21.58	47.61	26.03	L1	gnd
1.33359	18.87	46.00	27.13	L1	gnd
3.88046	18.95	46.00	27.05	L1	gnd
4.69687	19.33	46.00	26.67	L1	gnd

U-NII-3, 802.11a, Channel No: 149, N Line

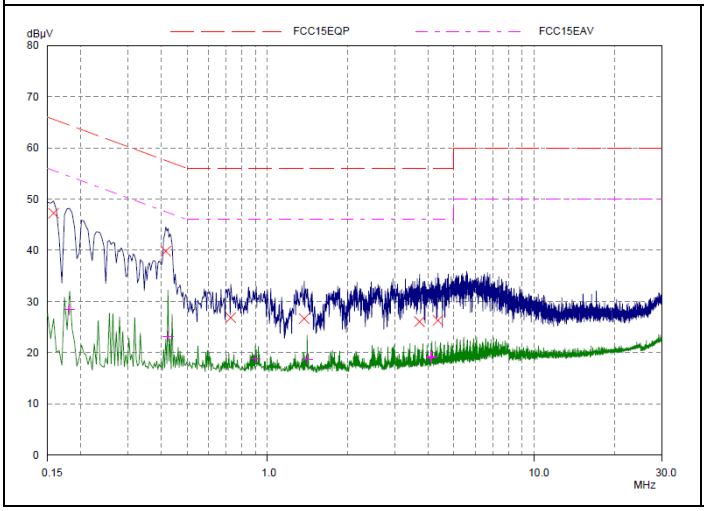


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.1539	47.60	65.79	18.19	N	gnd
0.41953	39.03	57.46	18.43	N	gnd
0.57578	29.47	56.00	26.53	N	gnd
1.37656	24.97	56.00	31.03	N	gnd
3.86875	25.38	56.00	30.62	N	gnd
4.97812	26.19	56.00	29.81	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.15781	29.62	55.58	25.96	N	gnd
0.42343	27.99	47.38	19.39	N	gnd
0.57968	19.96	46.00	26.04	N	gnd
2.11875	18.98	46.00	27.02	N	gnd
2.91953	18.52	46.00	27.48	N	gnd
4.43125	19.45	46.00	26.55	N	gnd

U-NII-3, 802.11a, Channel No: 157, L Line

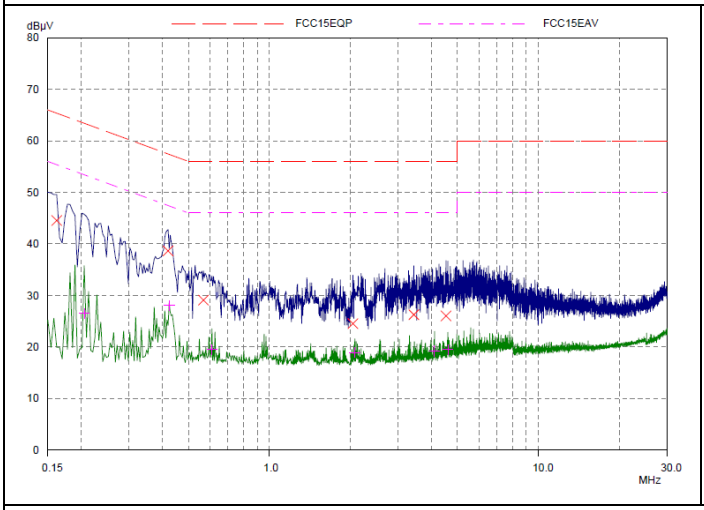


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.15781	47.25	65.58	18.33	L1	gnd
0.41562	39.80	57.54	17.74	L1	gnd
0.72812	26.84	56.00	29.16	L1	gnd
1.37265	26.64	56.00	29.36	L1	gnd
3.7125	26.06	56.00	29.94	L1	gnd
4.35312	26.31	56.00	29.69	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.18125	28.48	54.43	25.95	L1	gnd
0.42343	23.20	47.38	24.18	L1	gnd
0.9	18.82	46.00	27.18	L1	gnd
1.40781	18.73	46.00	27.27	L1	gnd
4.10703	19.09	46.00	26.91	L1	gnd
4.13046	19.17	46.00	26.83	L1	gnd

U-NII-3, 802.11a, Channel No: 157, N Line

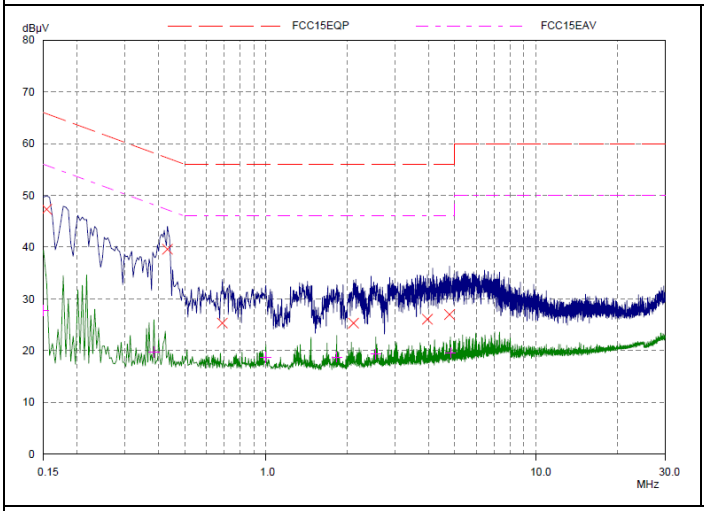


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.16171	44.53	65.38	20.85	N	gnd
0.41953	38.67	57.46	18.79	N	gnd
0.56796	29.08	56.00	26.92	N	gnd
2.04062	24.52	56.00	31.48	N	gnd
3.43906	26.26	56.00	29.74	N	gnd
4.5289	26.02	56.00	29.98	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.20468	26.50	53.42	26.92	N	gnd
0.42343	28.05	47.38	19.33	N	gnd
0.61093	19.46	46.00	26.54	N	gnd
2.07578	18.91	46.00	27.09	N	gnd
4.10703	19.23	46.00	26.77	N	gnd
4.60312	19.47	46.00	26.53	N	gnd

U-NII-3, 802.11a, Channel No: 161, L Line

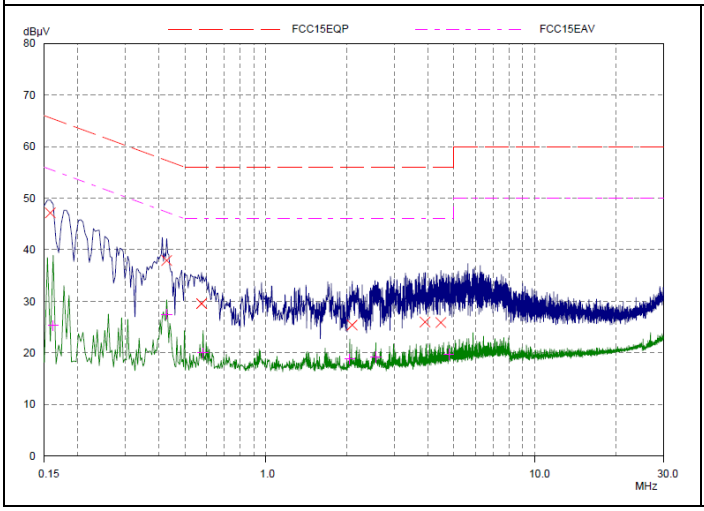


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.1539	47.32	65.79	18.47	L1	gnd
0.43125	39.61	57.23	17.62	L1	gnd
0.68906	25.33	56.00	30.67	L1	gnd
2.10703	25.31	56.00	30.69	L1	gnd
3.95859	26.07	56.00	29.93	L1	gnd
4.7789	26.97	56.00	29.03	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.15	27.78	56.00	28.22	L1	gnd
0.38437	19.76	48.18	28.42	L1	gnd
0.99765	18.65	46.00	27.35	L1	gnd
1.82578	18.73	46.00	27.27	L1	gnd
2.54843	19.29	46.00	26.71	L1	gnd
4.81406	19.61	46.00	26.39	L1	gnd

U-NII-3, 802.11a, Channel No: 161, N Line



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.15781	47.15	65.58	18.43	N	gnd
0.42734	37.92	57.30	19.38	N	gnd
0.57578	29.57	56.00	26.43	N	gnd
2.0914	25.40	56.00	30.60	N	gnd
3.9	25.99	56.00	30.01	N	gnd
4.4664	25.90	56.00	30.10	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.16171	25.32	55.38	30.06	N	gnd
0.42734	27.49	47.30	19.81	N	gnd
0.58359	20.02	46.00	25.98	N	gnd
2.04843	18.82	46.00	27.18	N	gnd
2.56015	19.20	46.00	26.80	N	gnd
4.7789	19.74	46.00	26.26	N	gnd

6. Main Test Instruments

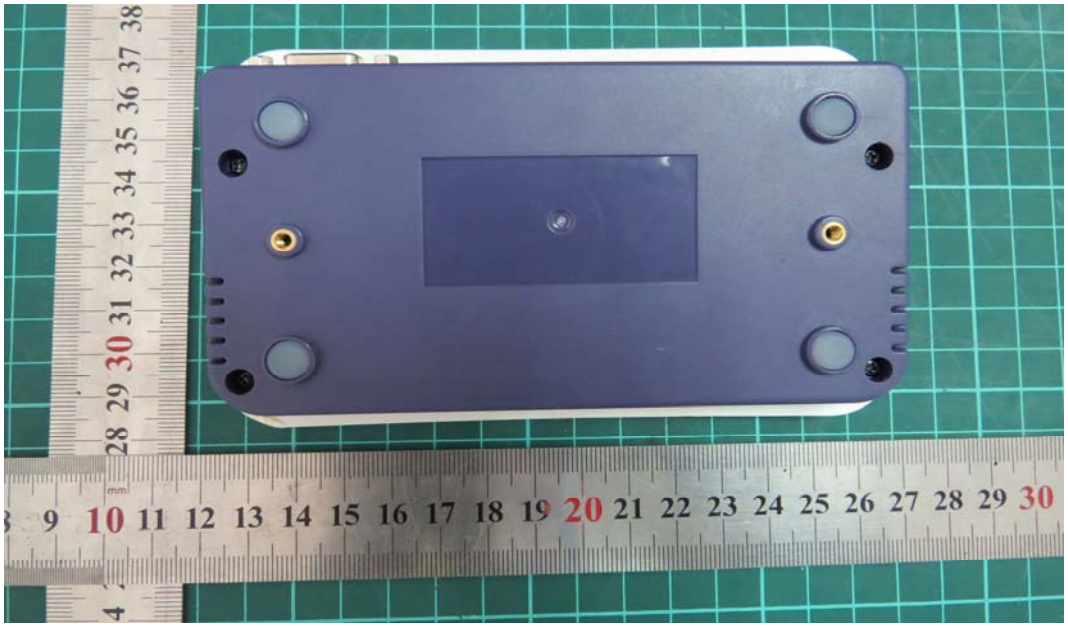
Name	Type	Manufacturer	Serial Number	Calibration Date	Expiration Time
EMI Test Receiver	ESCI	R&S	100948	2015-05-22	2016-05-21
EMI Test Receiver	ESCI	R&S	100948	2017-05-20	2018-05-19
Loop Antenna	FMZB1519	SCHWARZBECK	1519-047	2014-02-29	2017-02-28
Loop Antenna	FMZB1519	SCHWARZBECK	1519-047	2017-02-18	2020-02-17
TRILOG Broadband Antenna	VULB 9163	Schwarzbeck	9163-201	2014-12-06	2017-12-05
Double Ridged Waveguide Horn Antenna	HF907	R&S	100126	2014-12-06	2017-12-05
Standard Gain Horn	3160-09	ETS-Lindgren	00102644	2015-01-30	2018-01-29
EMI Test Receiver	ESCS30	R&S	100138	2015-12-17	2016-12-16
EMI Test Receiver	ESCS30	R&S	100138	2016-12-16	2017-12-15
LISN	ENV216	R&S	101171	2013-12-18	2016-12-17
LISN	ENV216	R&S	101171	2016-12-16	2017-12-15
Spectrum Analyzer	N9010A	Agilent	MY47191109	2015-05-22	2016-05-21
Spectrum Analyzer	N9010A	Agilent	MY47191109	2017-05-20	2018-05-19
Spectrum Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
Spectrum Analyzer	FSV30	R&S	100815	2016-12-16	2017-12-15
RF Cable	SMA 15cm	Agilent	0001	2016-03-07	2016-06-06
RF Cable	SMA 15cm	Agilent	0001	2017-04-03	2017-07-02
Broadband Horn Antenna	BBHA9170	Schwarzbeck	MRTSUE06024	2016-01-05	2017-01-04
Broadband Horn Antenna	BBHA9170	Schwarzbeck	MRTSUE06024	2016-11-24	2019-11-23

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

ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance

Front Side

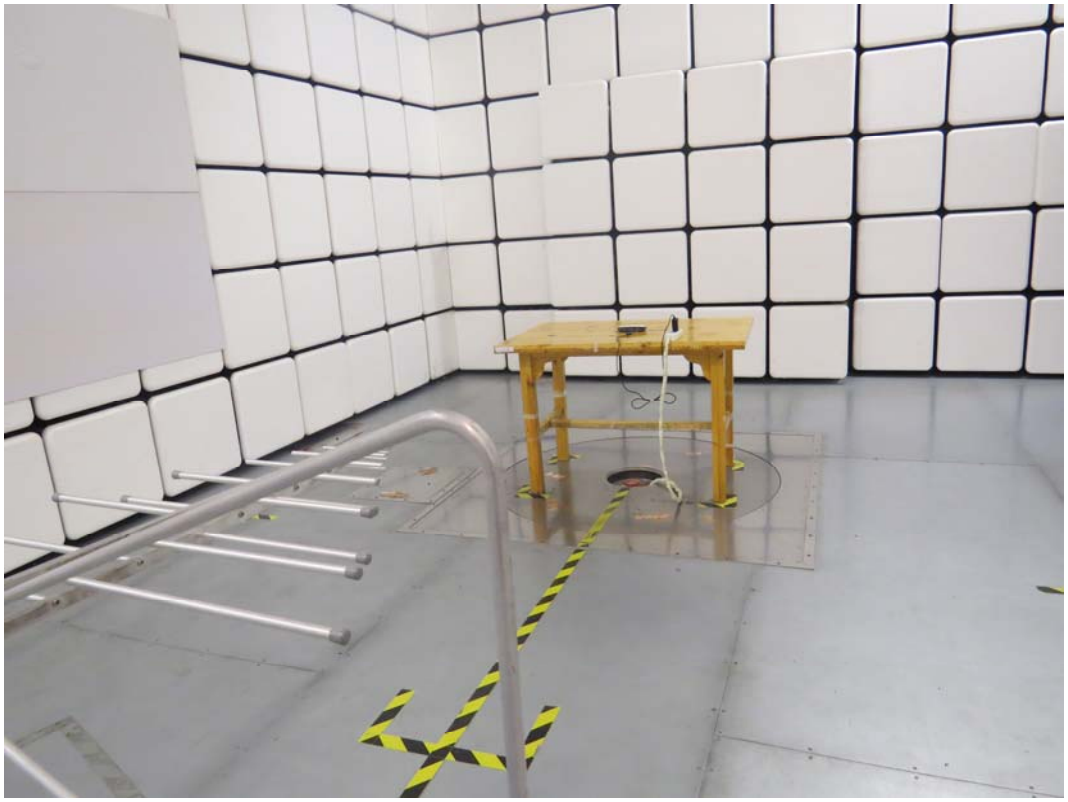


Back Side

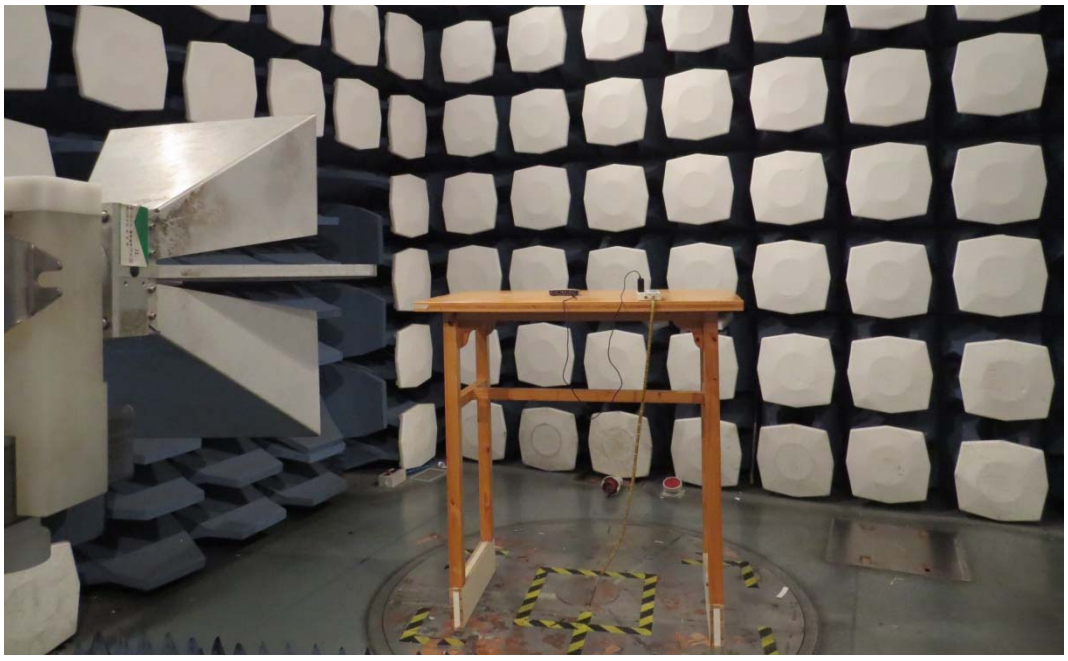
a: EUT

Picture 1 EUT

A.2 Test Setup

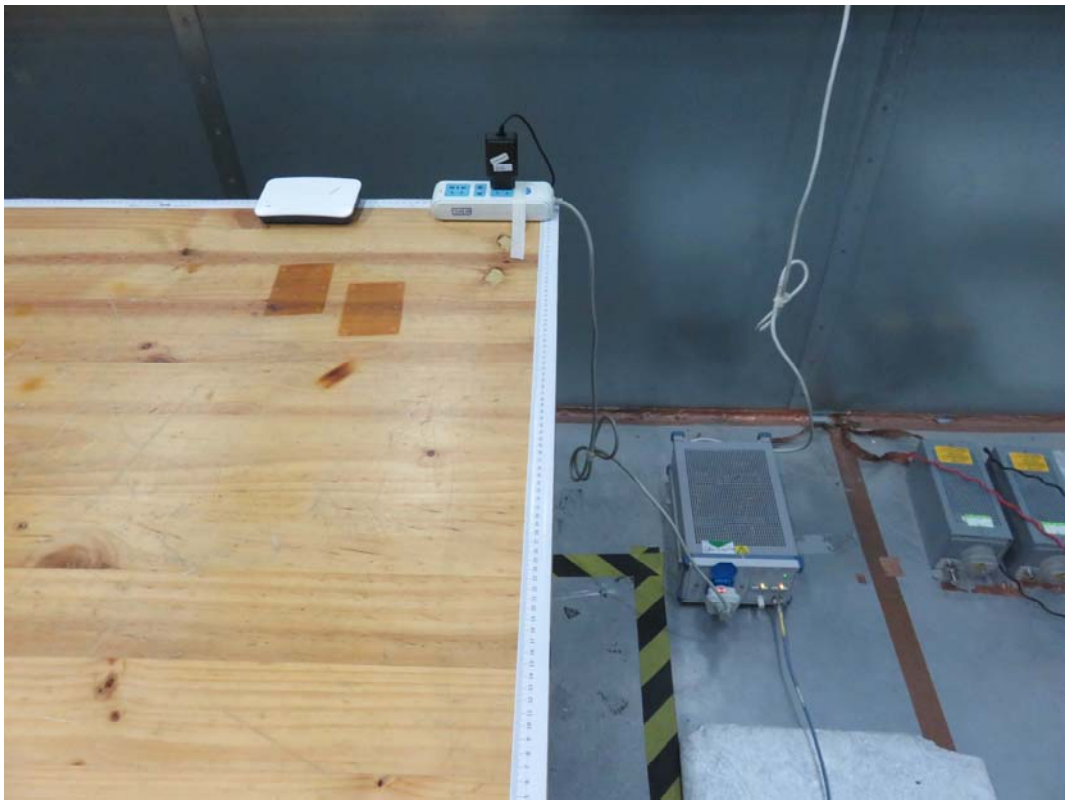


30MHz-1GHz



Above 1GHz

Picture 2 Radiated Emission Test Setup



Picture 3 Conducted Emission Test Setup

ANNEX B: Product Change Description

ID TECH

Date: August 22, 2017
Federal Communications Commission
Authorization and Evaluation Devision
7435 Oakland Mills Road
Columbia, MD 21046

Attn: OET Dept.

Ref: FCC Class II Permissive change for FCC ID: WQJ-IDCL-51
Original Grant Date: 06/15/2016
Applicant: ID TECH

Dear Examiner,

This is to request a Class II permissive change for FCC ID: WQJ-IDCL-51, originally granted on 06/15/2016.
There are no hardware or RF parameters changes. Except below:

1. Battery changes

Because the market purpose, the coin battery changeds.

The battery change only by manufacture.

2. RTC changes

Because the market purpose, the RTC changes to internal MCU.

The RTC change only by manufacture.

Sincerely,

Print name: Lewis Lin

Company: ID TECH