


FCC PART 15.247 TEST REPORT

For

Chengdu Vantron Technology, Ltd.

No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China 610045

FCC ID: 2AAGEVTTAB-5081N

Report Type: Original Report	Product Name: Tablet Computer
Report Number: RSC181119003-0C	
Report Date: 2019-01-15	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The **Chengdu Vantron Technology, Ltd.**, model number: **VT-TABLET-5081-N** (**FCC ID: 2AAGEVTTAB-5081N**) or the "EUT" as referred to in this report was the **Tablet Computer**. The highest operating frequency is 5850MHz.

Mechanical Description of EUT

The EUT was measured approximately: 235 mm (L) x 153 mm (W) x 21 mm (H).
Rated input voltage: DC 3.8V rechargeable Li-ion battery or DC 5V from adapter

Adapter Information

Manufacturer: Anthin

Model: APS318-0530

Input: AC 100-220V; 50/60Hz

Output: DC 5V, 3A

Note: The products, test model: VT-TABLET-5081-N, multiple model: ETAB-8-VAN-02-B, their difference only in model number. So we selected model VT-TABLET-5081-N to test.

**All measurement and test data in this report was gathered from final production sample, serial number: 181119003/01 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2018-11-19, and EUT conformed to test requirement.*

Objective

This report is prepared on behalf of **Chengdu Vantron Technology, Ltd.** in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: 2AAGEVTTAB-5081N

FCC Part 15C DSS submissions with FCC ID: 2AAGEVTTAB-5081N

FCC Part 15E NII submissions with FCC ID: 2AAGEVTTAB-5081N

Measurement Uncertainty

Item			Uncertainty
AC power line conducted emission			2.93 dB
Radiated Emission(Field Strength)	30MHz-200MHz	H	4.63 dB
		V	4.88 dB
	200MHz-1GHz	H	5.02 dB
		V	6.06 dB
	1GHz-6GHz		4.51 dB
	6GHz-18GHz		4.49 dB
	18GHz-40GHz		5.48 dB

Test Methodology

All measurements contained in this report were conducted with:

1. ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
2. KDB558074 D01 DTS Meas Guidance v05.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Chengdu) to collect test data is located on the No. 5040, Huilongwan Plaza No. 1 Shawan Road Jinniu District Chengdu, Sichuan, 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. : 910975, the FCC Designation No. : CN1186.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0005.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured in testing mode, which was provided by manufacturer.

For Wi-Fi mode, 802.11b, 802.11g, and 802.11n-HT20 mode, 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	-	-

EUT were tested with Channel 1, 6 and 11.

For Bluetooth LE mode, 40 channels are provided for testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2442
1	2404
...
...
..	...	38	2478
19	2440	39	2480

EUT was tested with channel 0, 19 and 39.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

The worst condition (maximum power with maximum duty cycle) was setting by the software as following table:

Test Mode	Test Software Version	RF test tool		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	CCK 1M	CCK 1M	CCK 1M
	Power Level Setting Antenna	Default	Default	Default
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	OFDM 6M	OFDM 6M	OFDM 6M
	Power Level Setting Antenna	Default	Default	Default
802.11n-HT20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting Antenna	Default	Default	Default
BLE	Test Frequency	2402MHz	2440MHz	2480MHz
	Data Rate	Default	Default	Default
	Power Level Setting	Default	Default	Default

Support Equipment List and Details

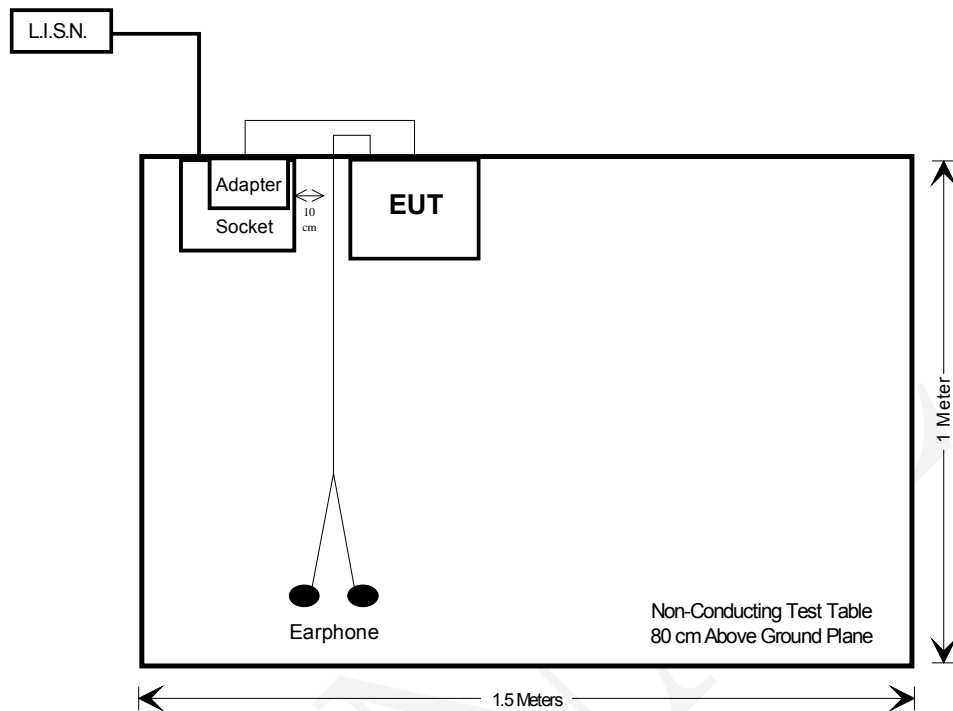
Manufacturer	Description	Model	Serial Number
HUAWEI	Earphone	P9	None

External I/O Cable

Cable Description	Length (m)	From	To
Unshielded Power Cable	1.2	Adapter	EUT
Unshielded Earphone Cable	1.0	EUT	Earphone

Block Diagram of Test Setup

Conducted Emissions



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 & §1.1310 & §2.1093	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance*
§15.247(b)(3)	Maximum conducted output power	Compliance*
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance*
§15.247(e)	Power Spectral Density	Compliance*

Compliance*: The tablet computer, model number: VT-TABLET-5081-N, ETAB-8-VAN-02-B are identical to the granted product, model number: VT-TABLET-5081, ETAB-8-VAN-01-FNQ (FCC ID: 2AAGEVTTABLET-5081).

They are identical (such as external enclosure material, main board, layout of PCB, schematics, board layout, and internal structures etc.), except for the following differences:

1. Based on the original, these functions (NFC, GPS, Wireless charging and Fingerprint identification) and their corresponding major hardware were removed.
2. Replaced the original battery (UTG PL5758105-2P 3.7V 10000mAh 37Wh) with UTC PL528292 3.8V 6200mAh.

Based on the above changes, there is no influence on RF conducted. Therefore, the RF conducted was not tested and the test data were referred to the granted product, FCC ID: 2AAGEVTTABLET-5081, report no.: RSC181119002-0C.

TEST EQUIPMENTS LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emission					
Rohde & Schwarz	EMI Test Receiver	ESCS 30	836858/0016	2018-04-18	2019-04-19
Rohde & Schwarz	L.I.S.N.	ENV216	100018	2018-04-18	2019-04-19
HP	RF Limiter	11947A	3107A01270	2018-08-13	2019-08-12
Unknown	Conducted Cable	L-E003	000003	2018-11-02	2019-11-01
Rohde & Schwarz	EMC32	EMC32	V 8.52.0	N/A	N/A
Radiated Emission					
EMCT	Semi-Anechoic Chamber	966	001	2017-05-18	2020-05-17
Sonoma	Pre-Amplifier	310N	186684	2018-08-24	2019-08-23
Rohde & Schwarz	Spectrum Analyzer	FSU26	20083	2018-05-09	2019-05-08
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2018-04-18	2019-04-17
A.H. Systems, Inc	Amplifier	PAM-0118P	467	2018-10-19	2019-10-18
EM Electronics	RF Pre-Amplifier	EM18G40	060725	2018-03-28	2019-03-27
SUNOL SCIENCES	Broadband Antenna	JB3	A121808	2017-05-19	2020-05-18
ETS	Horn Antenna	3115	003-6076	2017-05-19	2020-05-18
A.H. Systems, Inc	Horn Antenna	SAS-574	510	2017-05-19	2020-05-18
INMET	Attenuator	18N-6dB	64671	2018-10-27	2019-10-26
Sinoscite.,Co Ltd	Reject Band Filter	BSF 2402-2480MN	0898-005	2018-11-10	2019-11-09
Unknown	RF Cable (below 1GHz)	L-E005	000005	2018-10-27	2019-10-26
Unknown	RF Cable (below 1GHz)	T-E128	000128	2018-11-10	2019-11-09
Unknown	RF Cable (below 1GHz)	T-E129	000129	2018-11-10	2019-11-09
Unknown	RF Cable (above 1GHz)	T-E069	000069	2018-11-10	2019-11-09
Micro-coax	RF Cable (above 1GHz)	T-E209	MFR 64639 2310	2018-03-14	2019-03-13
Rohde & Schwarz	EMC32	EMC32	V 8.52.0	N/A	N/A

* **Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

FCC §15.247 (I) & §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

According to §15.247(i) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v06:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Measurement Result

For 2.4 G Wi-Fi mode

The current and the original are identical (such as external enclosure material, main board, layout of PCB, schematics, board layout, and internal structures etc.), except for the following differences:

1. Based on the original, these functions (NFC, GPS, Wireless charging and Fingerprint identification) and their corresponding major hardware were removed.
2. Replaced the original battery (UTG PL5758105-2P 3.7V 10000mAh 37Wh) with UTC PL528292 3.8V 6200mAh.

Based on the above changes, there is no influence on SAR occurred and it was not tested, and the test data were referred to the granted product, FCC ID: 2AAGEVTTABLET-5081, SAR Report RSC181123050-20.

For BLE mode

The max conducted power including tune-up tolerance is 4.5 dBm (3.16mW).

$[(\text{max. power of channel, mW})/(\text{min. test separation distance, mm})][\sqrt{f(\text{GHz})}]$
 $= 2.82/5 \cdot (\sqrt{2.48}) = 0.9 < 3.0$

So the stand-alone SAR evaluation is not necessary.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Connector Construction

The EUT has one WIFI/BT antenna, which are permanently attached and fulfill the requirement of this section. Please refer to the EUT photos.

RF Module	Manufacturer	Antenna Model	Antenna Gain	Antenna Type
2.4G WLAN	shenzhen bogesi communication technology co.,ltd	WCC-005A	3dBi	FPC Antenna
5G WLAN				
Bluetooth				

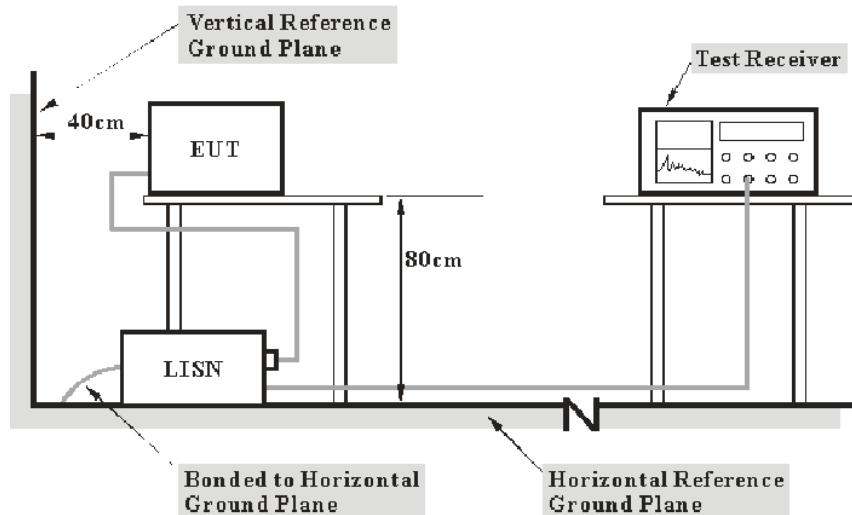
Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

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 AC 120V/60Hz.

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

Test Procedure

During the conducted emission test, the adapter was connected to the first L.I.S.N.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

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 Data

Test Environment Conditions

Temperature:	21 °C
Relative Humidity:	56 %
ATM Pressure:	95.7 kPa

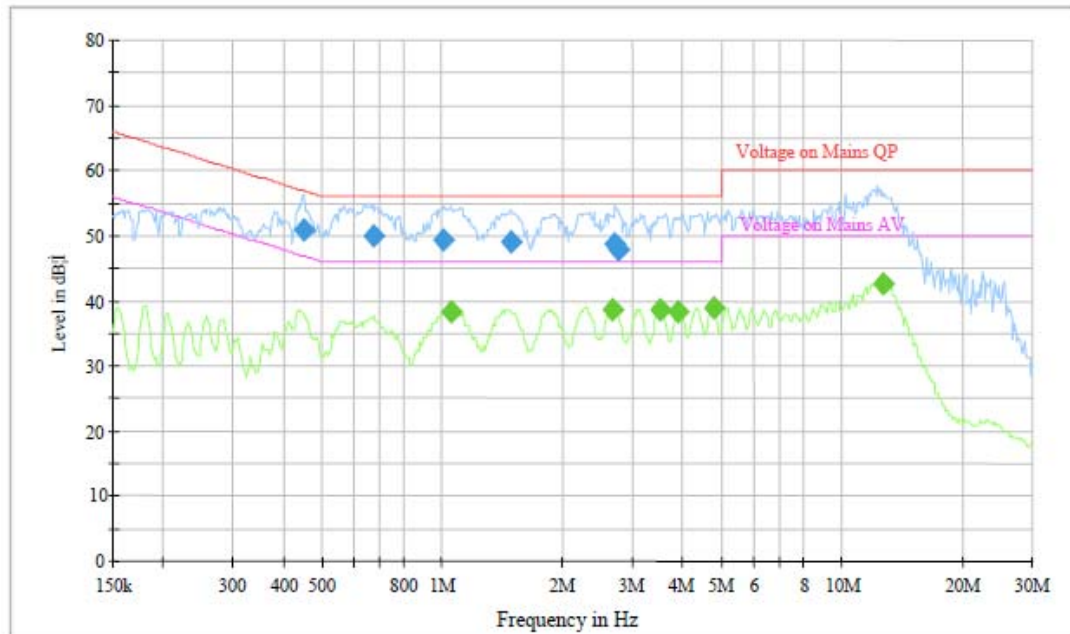
The testing was performed by Tom Tang on 2018-12-20.

Test Mode: Transmitting

Wi-Fi Mode

802.11n20-Low channel - Worst Case

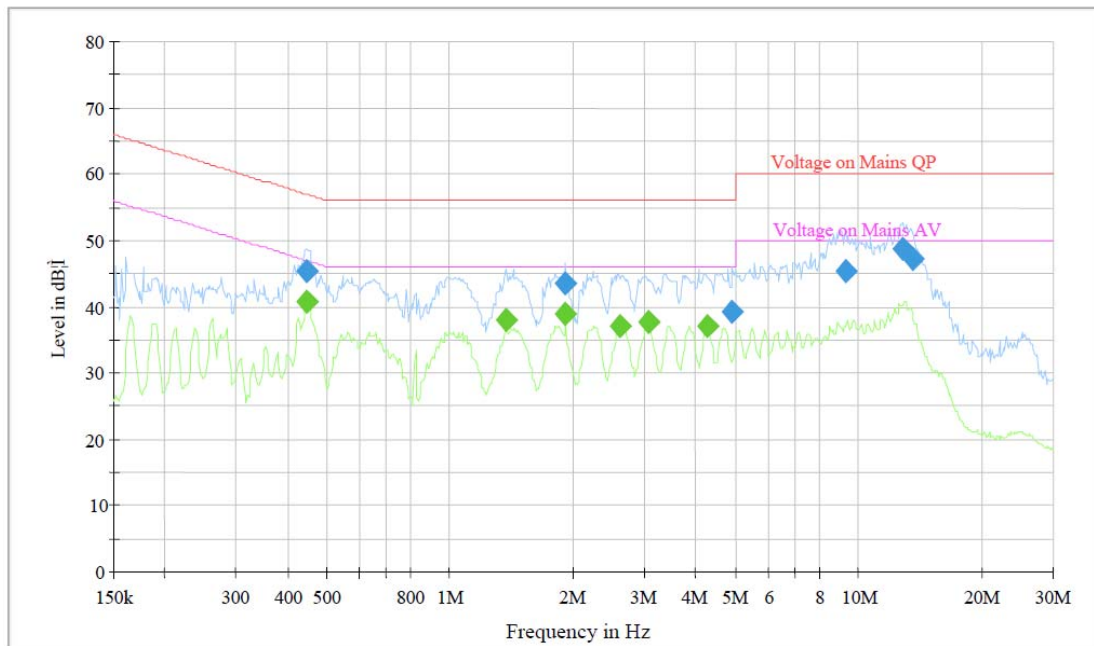
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.450448	50.7	9.000	L1	19.7	6.2	56.9
0.670921	49.9	9.000	L1	19.8	6.1	56.0
1.007300	49.2	9.000	L1	19.7	6.8	56.0
1.488418	49.2	9.000	L1	19.7	6.8	56.0
2.705607	48.6	9.000	L1	19.7	7.4	56.0
2.771062	47.9	9.000	L1	19.7	8.1	56.0

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.056628	38.3	9.000	L1	19.7	7.7	46.0
2.662831	38.7	9.000	L1	19.7	7.3	46.0
3.519348	38.6	9.000	L1	19.7	7.4	46.0
3.903455	38.3	9.000	L1	19.7	7.7	46.0
4.763898	38.9	9.000	L1	19.7	7.1	46.0
12.694276	42.7	9.000	L1	20.0	7.3	50.0

AC120 V, 60 Hz, Neutral:



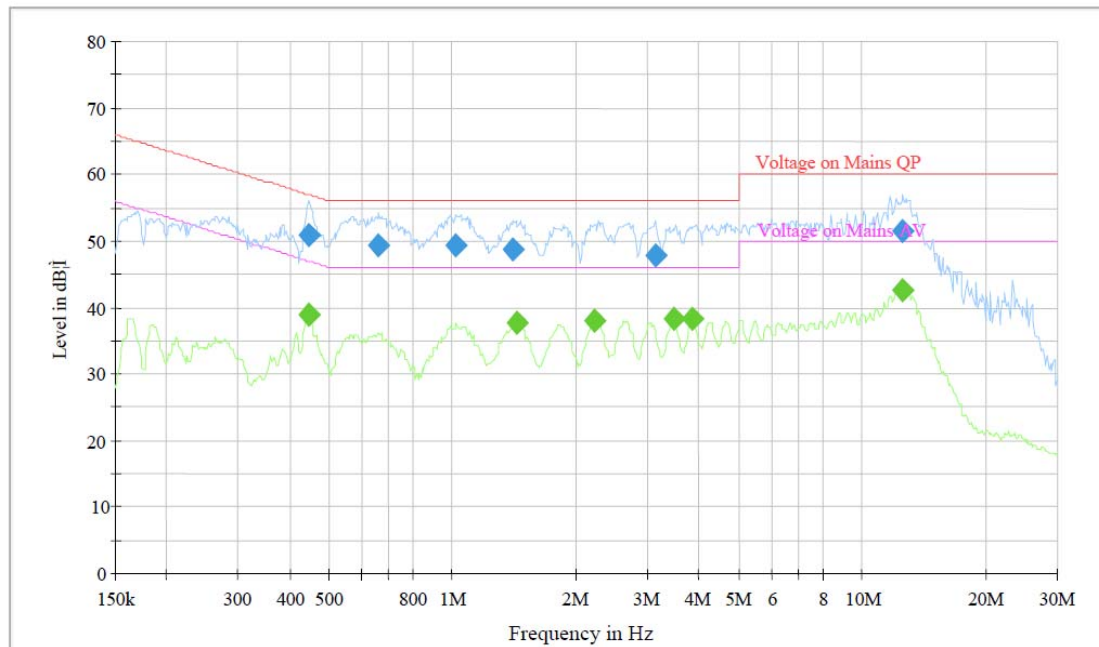
Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.446873	45.4	9.000	N	19.8	11.5	56.9
1.920710	43.5	9.000	N	19.8	12.5	56.0
4.918182	39.2	9.000	N	19.9	16.8	56.0
9.303518	45.3	9.000	N	20.0	14.7	60.0
12.898197	48.8	9.000	N	20.1	11.2	60.0
13.638064	47.1	9.000	N	20.1	12.9	60.0

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.446873	40.9	9.000	N	19.8	6.0	46.9
1.374420	38.1	9.000	N	19.8	7.9	46.0
1.920710	38.9	9.000	N	19.8	7.1	46.0
2.620732	37.1	9.000	N	19.9	8.9	46.0
3.049107	37.6	9.000	N	19.9	8.4	46.0
4.261034	37.0	9.000	N	19.9	9.0	46.0

BLE Mode

Low channel-worst case

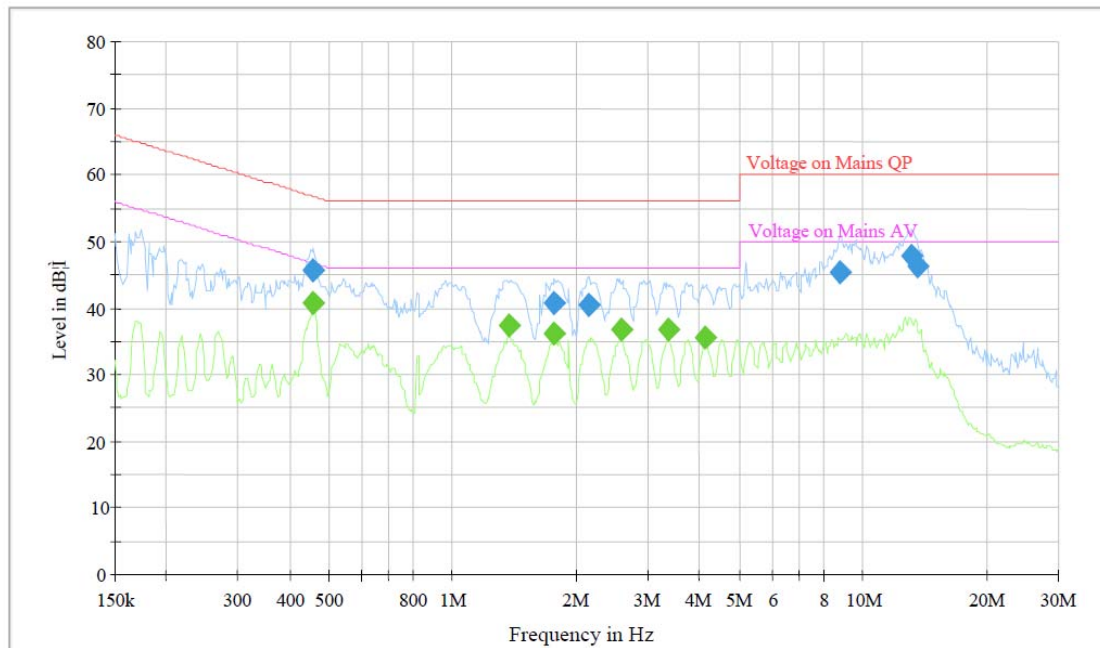
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.446873	51.0	9.000	L1	19.7	5.9	56.9
0.660314	49.4	9.000	L1	19.8	6.6	56.0
1.023481	49.4	9.000	L1	19.7	6.6	56.0
1.407671	48.7	9.000	L1	19.7	7.3	56.0
3.122873	47.8	9.000	L1	19.7	8.2	56.0
12.593528	51.6	9.000	L1	20.0	8.4	60.0

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.446873	38.9	9.000	L1	19.7	8.0	46.9
1.430284	37.8	9.000	L1	19.7	8.2	46.0
2.216927	38.1	9.000	L1	19.7	7.9	46.0
3.463707	38.2	9.000	L1	19.7	7.8	46.0
3.841741	38.2	9.000	L1	19.7	7.8	46.0
12.493579	42.5	9.000	L1	20.0	7.5	50.0

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.457684	45.5	9.000	N	19.8	11.2	56.7
1.773603	40.9	9.000	N	19.8	15.1	56.0
2.147382	40.5	9.000	N	19.8	15.5	56.0
8.798800	45.4	9.000	N	20.0	14.6	60.0
13.210237	47.7	9.000	N	20.1	12.3	60.0
13.638064	46.4	9.000	N	20.1	13.6	60.0

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.457684	40.9	9.000	N	19.8	5.8	46.7
1.374420	37.3	9.000	N	19.8	8.7	46.0
1.773603	36.2	9.000	N	19.8	9.8	46.0
2.579298	36.7	9.000	N	19.9	9.3	46.0
3.355051	36.8	9.000	N	19.9	9.2	46.0
4.127365	35.6	9.000	N	19.9	10.4	46.0

Note:

- 1) Correction Factor = LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
- 2) Corrected Amplitude = Reading + Correction Factor
- 3) Margin = Limit – Corrected Amplitude

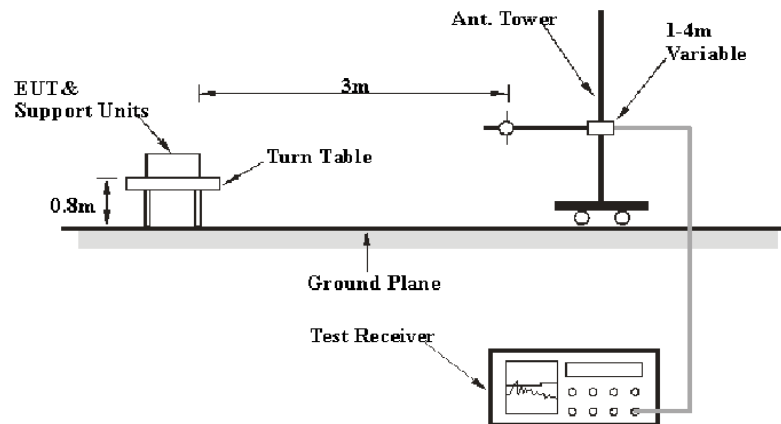
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

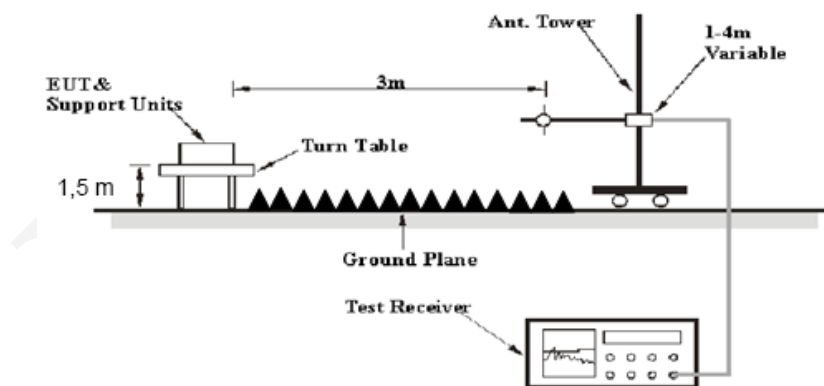
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 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.

The adapter was connected to AC 120V/60Hz.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP

Frequency Range	RBW	Video B/W	Duty Cycle	Measurement
Above 1 GHz	1MHz	3 MHz	Any	PK
	1MHz	10Hz	>98%	AV
	1MHz	1/T	<98%	AV

Note: T is Transmission Duration

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

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

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

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

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:

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

Test Data

Test Environment Conditions

Temperature:	21°C
Relative Humidity:	61 %
ATM Pressure:	94.0 kPa

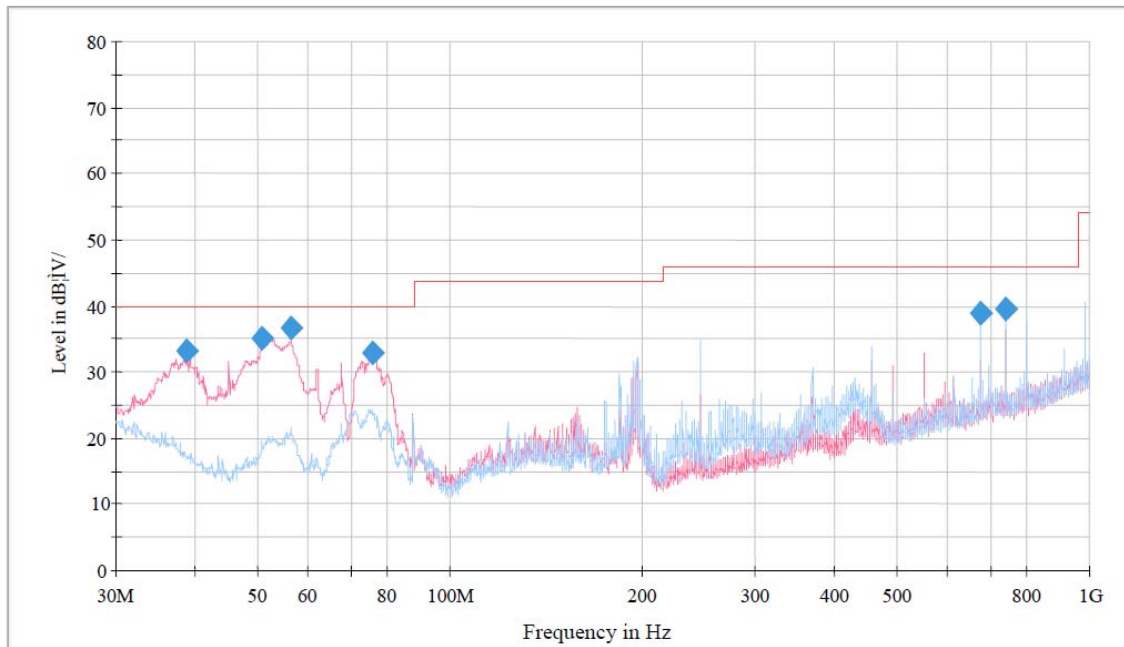
The testing was performed by Tom Tang on 2018-12-18

Test Mode: Transmitting

Wi-Fi Mode

30 MHz to 1 GHz

802.11n20-Low channel - Worst Case



Frequency (MHz)	QuasicPeak (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
38.730000	33.4	100.0	V	351.0	-10.1	6.6	40.0
50.733750	35.1	100.0	V	0.0	-16.7	4.9	40.0
56.432500	36.6	100.0	V	3.0	-17.1	*3.4	40.0
75.590000	33.0	100.0	V	195.0	-16.4	7.0	40.0
676.747500	39.0	100.0	H	115.0	-3.3	7.0	46.0
738.342500	39.6	100.0	H	210.0	-2.8	6.4	46.0

**Within measurement uncertainty!*

1 GHz-25 GHz

802.11b Mode

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBμV	PK/AV	H/V	(dB/m)	dB	dB	dBμV/m	dBμV/m	dB
Frequency: 2412MHz									
2412	67.73	PK	H	28.74	3.07	0.00	99.54	N/A	N/A
2412	62.70	AV	H	28.74	3.07	0.00	94.51	N/A	N/A
2412	71.88	PK	V	28.74	3.07	0.00	103.69	N/A	N/A
2412	67.32	AV	V	28.74	3.07	0.00	99.13	N/A	N/A
2390	29.37	PK	V	28.67	3.06	0.00	61.10	74.00	12.90
2390	16.61	AV	V	28.67	3.06	0.00	48.34	54.00	5.66
4824	55.56	PK	V	33.91	4.36	44.72	49.11	74.00	24.89
4824	50.43	AV	V	33.91	4.36	44.72	43.98	54.00	10.02
7236	55.08	PK	V	36.43	5.42	44.00	52.93	74.00	21.07
7236	48.49	AV	V	36.43	5.42	44.00	46.34	54.00	7.66
Frequency: 2437MHz									
2437	68.39	PK	H	28.81	3.09	0.00	100.29	N/A	N/A
2437	63.35	AV	H	28.81	3.09	0.00	95.25	N/A	N/A
2437	71.93	PK	V	28.81	3.09	0.00	103.83	N/A	N/A
2437	67.26	AV	V	28.81	3.09	0.00	99.16	N/A	N/A
4874	56.27	PK	V	34.05	4.39	44.72	49.99	74.00	24.01
4874	51.94	AV	V	34.05	4.39	44.72	45.66	54.00	8.34
7311	54.99	PK	V	36.54	5.44	44.20	52.77	74.00	21.23
7311	48.43	AV	V	36.54	5.44	44.20	46.21	54.00	7.79
Frequency: 2462MHz									
2462	69.34	PK	H	28.89	3.10	0.00	101.33	N/A	N/A
2462	64.57	AV	H	28.89	3.10	0.00	96.56	N/A	N/A
2462	71.59	PK	V	28.89	3.10	0.00	103.58	N/A	N/A
2462	66.83	AV	V	28.89	3.10	0.00	98.82	N/A	N/A
2483.5	29.22	PK	V	28.95	3.12	0.00	61.29	74.00	12.71
2483.5	17.14	AV	V	28.95	3.12	0.00	49.21	54.00	4.79
4924	57.32	PK	V	34.19	4.42	44.71	51.22	74.00	22.78
4924	53.04	AV	V	34.19	4.42	44.71	46.94	54.00	7.06
7386	55.19	PK	V	36.64	5.46	44.40	52.89	74.00	21.11
7386	48.04	AV	V	36.64	5.46	44.40	45.74	54.00	8.26

802.11g Mode

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBμV	PK/AV	H/V	(dB/m)	dB	dB	dBμV/m	dBμV/m	dB
Frequency: 2412MHz									
2412	67.99	PK	H	28.74	3.07	0.00	99.80	N/A	N/A
2412	57.88	AV	H	28.74	3.07	0.00	89.69	N/A	N/A
2412	71.54	PK	V	28.74	3.07	0.00	103.35	N/A	N/A
2412	61.54	AV	V	28.74	3.07	0.00	93.35	N/A	N/A
2390	36.38	PK	V	28.67	3.06	0.00	68.11	74.00	5.89
2390	19.84	AV	V	28.67	3.06	0.00	51.57	54.00	*2.43
4824	52.27	PK	V	33.91	4.36	44.72	45.82	74.00	28.18
4824	39.38	AV	V	33.91	4.36	44.72	32.93	54.00	21.07
7236	58.01	PK	V	36.43	5.42	44.00	55.86	74.00	18.14
7236	43.94	AV	V	36.43	5.42	44.00	41.79	54.00	12.21
Frequency: 2437MHz									
2437	69.29	PK	H	28.81	3.09	0.00	101.19	N/A	N/A
2437	59.38	AV	H	28.81	3.09	0.00	91.28	N/A	N/A
2437	71.77	PK	V	28.81	3.09	0.00	103.67	N/A	N/A
2437	61.75	AV	V	28.81	3.09	0.00	93.65	N/A	N/A
4874	53.36	PK	V	34.05	4.39	44.72	47.08	74.00	26.92
4874	40.12	AV	V	34.05	4.39	44.72	33.84	54.00	20.16
7311	57.96	PK	V	36.54	5.44	44.20	55.74	74.00	18.26
7311	42.53	AV	V	36.54	5.44	44.20	40.31	54.00	13.69
Frequency: 2462MHz									
2462	70.88	PK	H	28.89	3.10	0.00	102.87	N/A	N/A
2462	61.00	AV	H	28.89	3.10	0.00	92.99	N/A	N/A
2462	72.25	PK	V	28.89	3.10	0.00	104.24	N/A	N/A
2462	62.23	AV	V	28.89	3.10	0.00	94.22	N/A	N/A
2483.5	37.78	PK	V	28.95	3.12	0.00	69.85	74.00	*4.15
2483.5	18.91	AV	V	28.95	3.12	0.00	50.98	54.00	*3.02
4924	55.08	PK	V	34.19	4.42	44.71	48.98	74.00	25.02
4924	41.37	AV	V	34.19	4.42	44.71	35.27	54.00	18.73
7386	57.74	PK	V	36.64	5.46	44.40	55.44	74.00	18.56
7386	41.74	AV	V	36.64	5.46	44.40	39.44	54.00	14.56

*Within measurement uncertainty!

802.11n-HT20 Mode

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBμV	PK/AV	H/V	(dB/m)	dB	dB	dBμV/m	dBμV/m	dB
Frequency: 2412MHz									
2412	67.13	PK	H	28.74	3.07	0.00	98.94	N/A	N/A
2412	55.76	AV	H	28.74	3.07	0.00	87.57	N/A	N/A
2412	70.35	PK	V	28.74	3.07	0.00	102.16	N/A	N/A
2412	59.13	AV	V	28.74	3.07	0.00	90.94	N/A	N/A
2390	36.17	PK	V	28.67	3.06	0.00	67.90	74.00	6.10
2390	18.28	AV	V	28.67	3.06	0.00	50.01	54.00	*3.99
4824	50.77	PK	V	33.91	4.36	44.72	44.32	74.00	29.68
4824	38.40	AV	V	33.91	4.36	44.72	31.95	54.00	22.05
7236	54.99	PK	V	36.43	5.42	44.00	52.84	74.00	21.16
7236	38.42	AV	V	36.43	5.42	44.00	36.27	54.00	17.73
Frequency: 2437MHz									
2437	67.60	PK	H	28.81	3.09	0.00	99.50	N/A	N/A
2437	56.81	AV	H	28.81	3.09	0.00	88.71	N/A	N/A
2437	70.26	PK	V	28.81	3.09	0.00	102.16	N/A	N/A
2437	59.22	AV	V	28.81	3.09	0.00	91.12	N/A	N/A
4874	51.20	PK	V	34.05	4.39	44.72	44.92	74.00	29.08
4874	38.94	AV	V	34.05	4.39	44.72	32.66	54.00	21.34
7311	54.25	PK	V	36.54	5.44	44.20	52.03	74.00	21.97
7311	38.03	AV	V	36.54	5.44	44.20	35.81	54.00	18.19
Frequency: 2462MHz									
2462	68.43	PK	H	28.89	3.10	0.00	100.42	N/A	N/A
2462	58.23	AV	H	28.89	3.10	0.00	90.22	N/A	N/A
2462	70.02	PK	V	28.89	3.10	0.00	102.01	N/A	N/A
2462	59.62	AV	V	28.89	3.10	0.00	91.61	N/A	N/A
2483.5	31.51	PK	V	28.95	3.12	0.00	63.58	74.00	10.42
2483.5	17.62	AV	V	28.95	3.12	0.00	49.69	54.00	*4.31
4924	51.74	PK	V	34.19	4.42	44.71	45.64	74.00	28.36
4924	39.80	AV	V	34.19	4.42	44.71	33.70	54.00	20.30
7386	53.40	PK	V	36.64	5.46	44.40	51.10	74.00	22.90
7386	37.99	AV	V	36.64	5.46	44.40	35.69	54.00	18.31

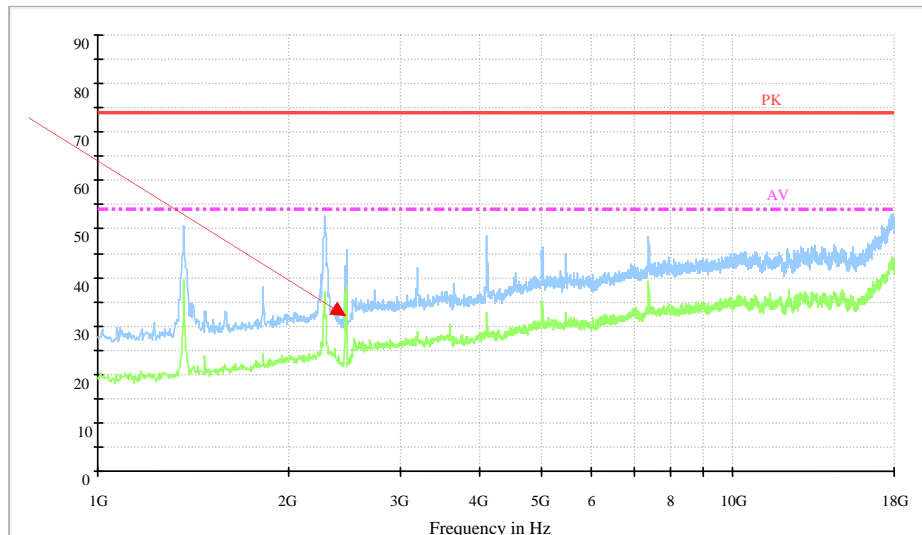
Other non-harmonic spurious Emission-worst case (802.11g Mode: High Channel)

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBμV	PK/AV	H/V	dB(1/m)	dB	dB	dBμV/m	dBμV/m	dB
1367	69.95	PK	V	24.68	2.31	43.51	53.43	74.00	20.57
1367	59.79	AV	V	24.68	2.31	43.51	43.27	54.00	10.73
2281	68.48	PK	V	28.34	2.98	43.87	55.93	74.00	18.07
2281	55.73	AV	V	28.34	2.98	43.87	43.18	54.00	10.82
3193	64.21	PK	V	31.06	3.52	44.32	54.47	74.00	19.53
3193	46.61	AV	V	31.06	3.52	44.32	36.87	54.00	17.13
4101	58.26	PK	V	32.76	4.00	44.61	50.41	74.00	23.59
4101	43.46	AV	V	32.76	4.00	44.61	35.61	54.00	18.39
1367	67.86	PK	H	24.68	2.31	43.51	51.34	74.00	22.66
1367	57.41	AV	H	24.68	2.31	43.51	40.89	54.00	13.11
2281	66.11	PK	H	28.34	2.98	43.87	53.56	74.00	20.44
2281	51.28	AV	H	28.34	2.98	43.87	38.73	54.00	15.27
3193	53.20	PK	H	31.06	3.52	44.32	43.46	74.00	30.54
3193	40.02	AV	H	31.06	3.52	44.32	30.28	54.00	23.72
4101	56.52	PK	H	32.76	4.00	44.61	48.67	74.00	25.33
4101	42.65	AV	H	32.76	4.00	44.61	34.80	54.00	19.20

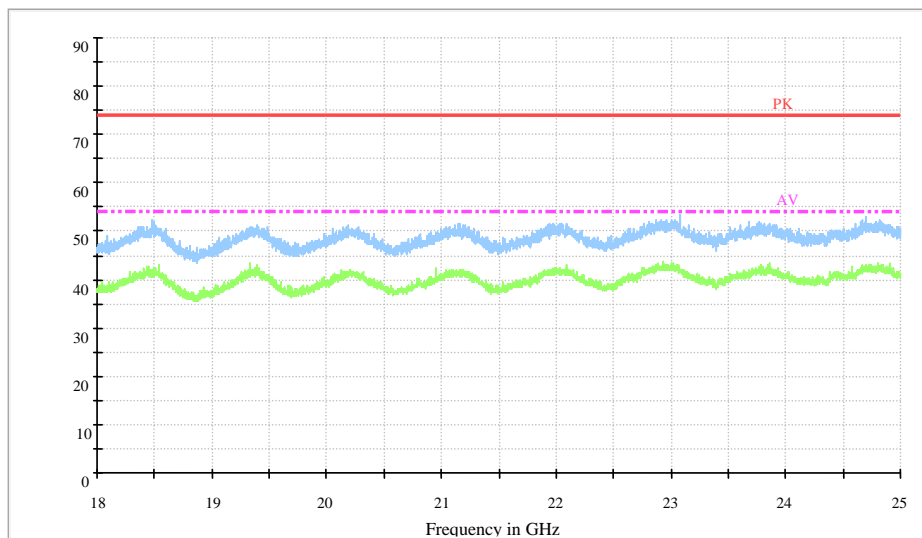
Please refer to the below pre-scan plot of worst case:

802.11g Mode: High Channel_Horizontal_1GHz-18GHz

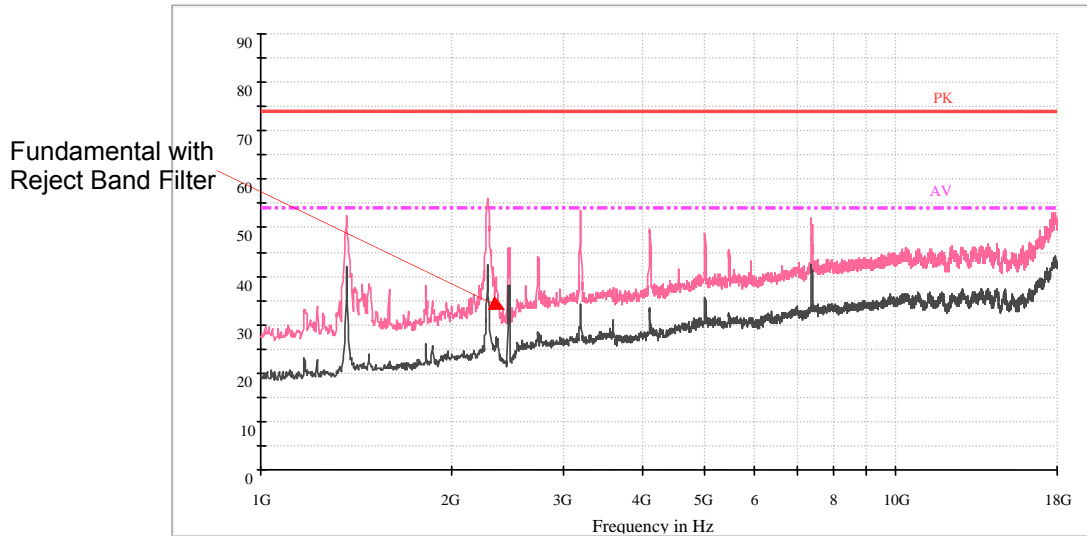
Fundamental with
Reject Band Filter



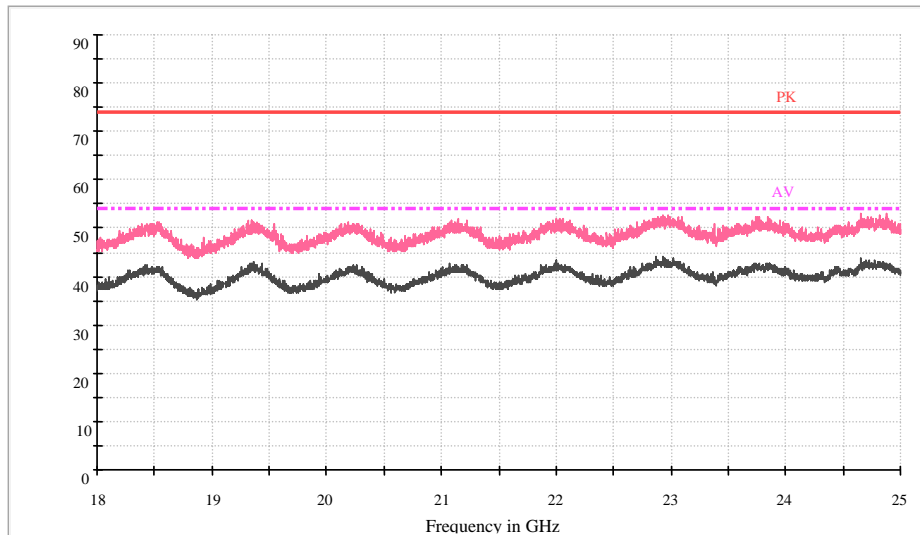
802.11g Mode: High Channel_Horizontal_18GHz-25GHz



802.11g Mode: High Channel_Vertical_1GHz-18GHz



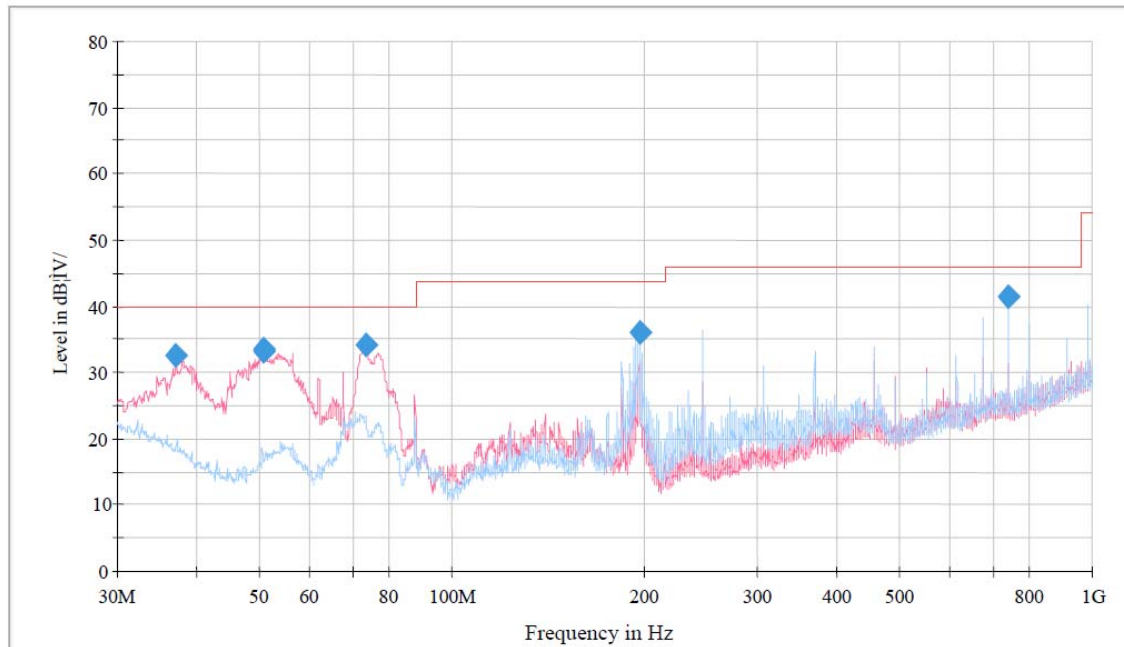
802.11g Mode: High Channel_Vertical_18GHz-25GHz



BLE Mode

30 MHz to 1 GHz

Low channel-worst case



**Within measurement uncertainty!*

1 GHz-25 GHz

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBμV	PK/AV	H/V	(dB/m)	dB	dB	dBμV/m	dBμV/m	dB
Frequency: 2402MHz									
2402	59.06	PK	H	28.71	3.06	0.00	90.83	N/A	N/A
2402	54.21	AV	H	28.71	3.06	0.00	85.98	N/A	N/A
2402	64.40	PK	V	28.71	3.06	0.00	96.17	N/A	N/A
2402	59.55	AV	V	28.71	3.06	0.00	91.32	N/A	N/A
2390	28.71	PK	V	28.67	3.06	0.00	60.44	74.00	13.56
2390	15.79	AV	V	28.67	3.06	0.00	47.52	54.00	6.48
4804	52.51	PK	V	33.85	4.35	44.73	45.98	74.00	28.02
4804	41.09	AV	V	33.85	4.35	44.73	34.56	54.00	19.44
7206	47.98	PK	V	36.39	5.41	43.92	45.86	74.00	28.14
7206	35.50	AV	V	36.39	5.41	43.92	33.38	54.00	20.62
Frequency: 2440MHz									
2440	61.23	PK	H	28.82	3.09	0.00	93.14	N/A	N/A
2440	56.48	AV	H	28.82	3.09	0.00	88.39	N/A	N/A
2440	67.60	PK	V	28.82	3.09	0.00	99.51	N/A	N/A
2440	62.87	AV	V	28.82	3.09	0.00	94.78	N/A	N/A
4880	53.34	PK	V	34.06	4.40	44.72	47.08	74.00	26.92
4880	42.96	AV	V	34.06	4.40	44.72	36.70	54.00	17.30
7320	48.51	PK	V	36.55	5.44	44.22	46.28	74.00	27.72
7320	36.25	AV	V	36.55	5.44	44.22	34.02	54.00	19.98
Frequency: 2480MHz									
2480	62.26	PK	H	28.94	3.12	0.00	94.32	N/A	N/A
2480	57.61	AV	H	28.94	3.12	0.00	89.67	N/A	N/A
2480	69.75	PK	V	28.94	3.12	0.00	101.81	N/A	N/A
2480	65.20	AV	V	28.94	3.12	0.00	97.26	N/A	N/A
2483.5	31.83	PK	V	28.95	3.12	0.00	63.90	74.00	10.10
2483.5	19.26	AV	V	28.95	3.12	0.00	51.33	54.00	*2.67
4960	53.86	PK	V	34.29	4.44	44.71	47.88	74.00	26.12
4960	43.89	AV	V	34.29	4.44	44.71	37.91	54.00	16.09
7440	48.29	PK	V	36.72	5.48	44.54	45.95	74.00	28.05
7440	36.01	AV	V	36.72	5.48	44.54	33.67	54.00	20.33

**Within measurement uncertainty!*

Other non-harmonic spurious Emission-worst case (High Channel)

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Measurement	Polar	Factor					
MHz	dBμV	PK/AV	H/V	dB(1/m)	dB	dB	dBμV/m	dBμV/m	dB
1367	69.70	PK	V	24.68	2.31	43.51	53.18	74.00	20.82
1367	60.00	AV	V	24.68	2.31	43.51	43.48	54.00	10.52
2281	66.66	PK	V	28.34	2.98	43.87	54.11	74.00	19.89
2281	57.88	AV	V	28.34	2.98	43.87	45.33	54.00	8.67
3193	61.75	PK	V	31.06	3.52	44.32	52.01	74.00	21.99
3193	56.06	AV	V	31.06	3.52	44.32	46.32	54.00	7.68
4101	57.28	PK	V	32.76	4.00	44.61	49.43	74.00	24.57
4101	43.75	AV	V	32.76	4.00	44.61	35.90	54.00	18.10
1367	66.93	PK	H	24.68	2.31	43.51	50.41	74.00	23.59
1367	56.70	AV	H	24.68	2.31	43.51	40.18	54.00	13.82
2281	66.42	PK	H	28.34	2.98	43.87	53.87	74.00	20.13
2281	52.56	AV	H	28.34	2.98	43.87	40.01	54.00	13.99
3193	53.52	PK	H	31.06	3.52	44.32	43.78	74.00	30.22
3193	40.39	AV	H	31.06	3.52	44.32	30.65	54.00	23.35
4101	56.06	PK	H	32.76	4.00	44.61	48.21	74.00	25.79
4101	45.28	AV	H	32.76	4.00	44.61	37.43	54.00	16.57

Note:

Corrected Amplitude = Corrected Factor + Reading

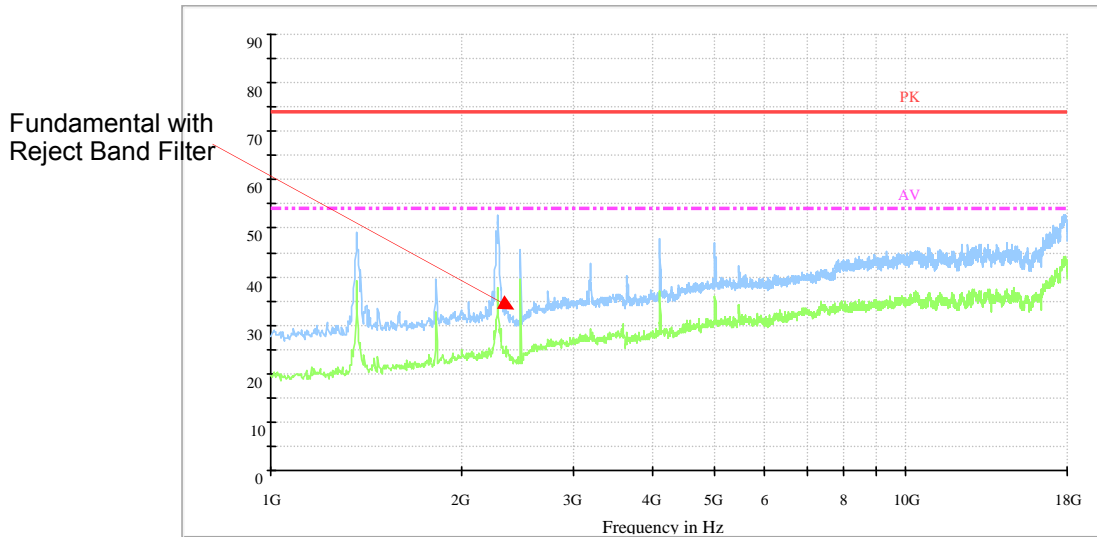
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor

Margin = Limit- Corr. Amplitude

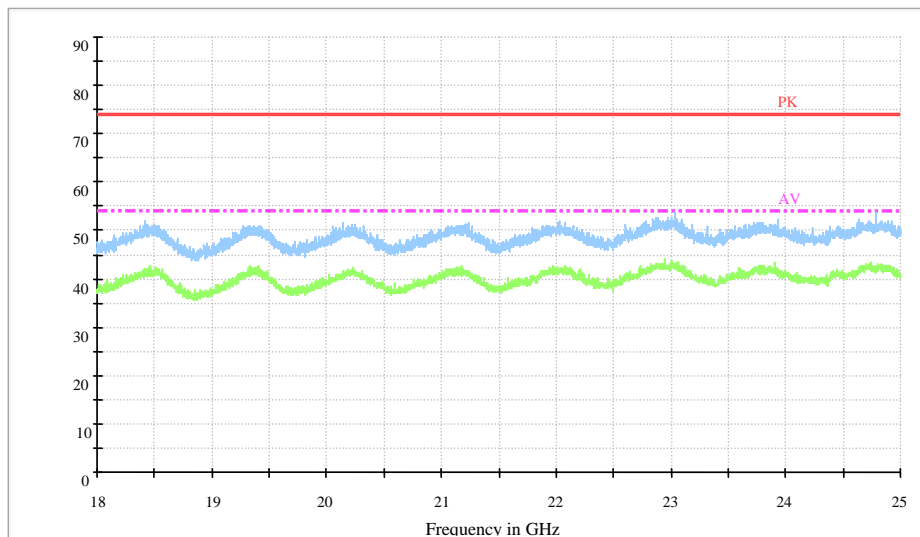
Spurious emissions more than 20 dB below the limit were not reported.

Please refer to the below pre-scan plot of worst case:

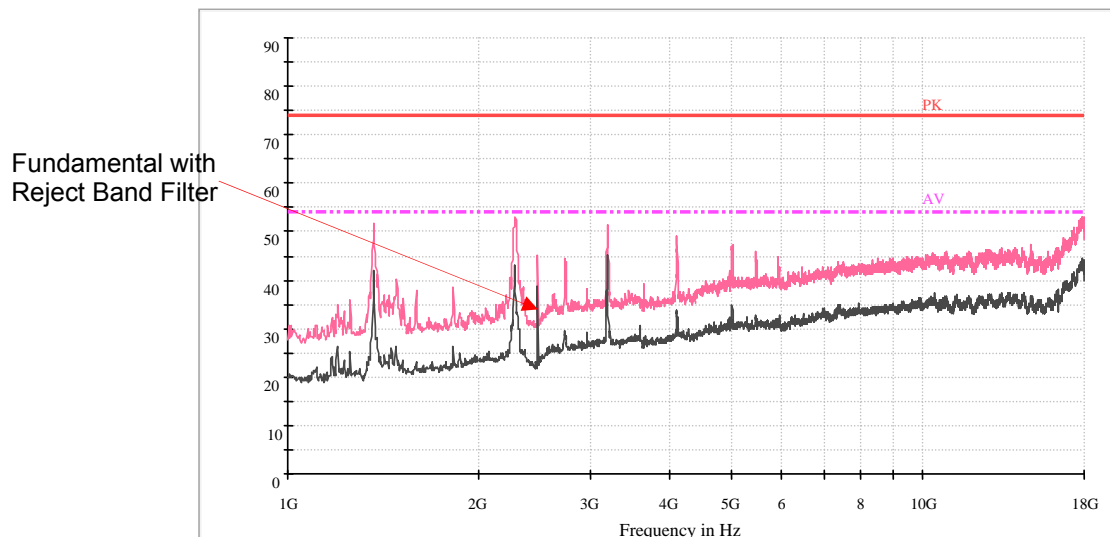
High Channel_Horizontal_1GHz-18GHz



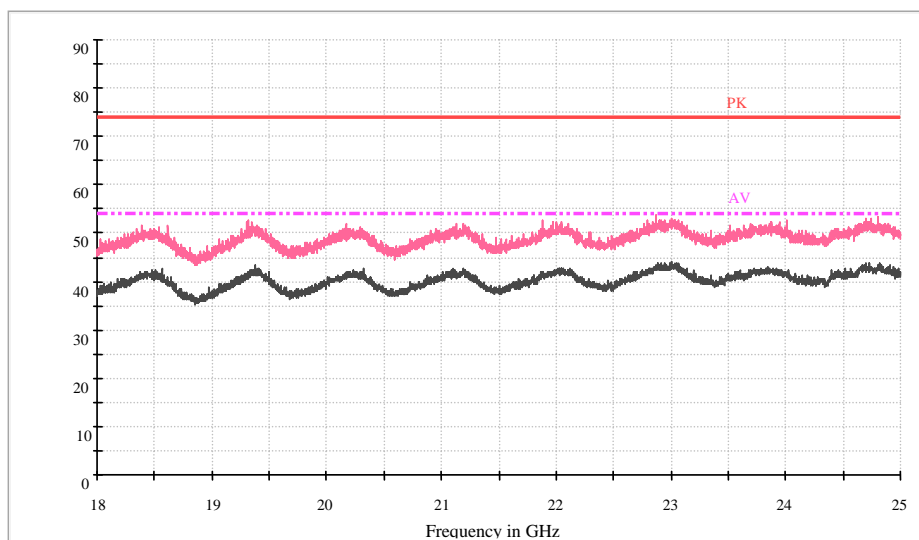
High Channel_Horizontal_18GHz-25GHz



High Channel_Vertical_1GHz-18GHz



High Channel_Vertical_18GHz-25GHz



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