TEST REPORT

Applicant Name :	INFINIX MOBILITY LIMITED
Address :	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONG KONG
Report Number :	RA230116-02640E-RF-00B
FCC ID:	2AIZN-X678B

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type:	Mobile Phone
Model No.:	X678B
Multiple Model(s) No.:	N/A
Trade Mark:	Infinix
Date Received:	2023/01/16
Report Date:	2023/03/09

Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Nick Fang

EMC Engineer

Approved By:

Candy Li

EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★ ".
Shenzhen Accurate Technology Co., Ltd. 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 an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.
This report cannot be reproduced except in full, without prior written approval of the Company. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RA230116-02640E-RF-00B	Original Report	2023/03/09

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	BLE: 2402-2480MHz Wi-Fi: 2412-2472MHz
Maximum Conducted Output Power	BLE 1M/2M_Peak Power: -3.17dBm Wi-Fi_Average Power: 13.74dBm(802.11b),8.24dBm(802.11g),8.15dBm(802.11n20),8.30dBm(802.11n40)
Modulation Technique	BLE: GFSK Wi-Fi: DSSS, OFDM
Antenna Specification*	ANT1 (MAIN ANT): -1dBi; ANT2 (AUX ANT): 1dBi (provided by the applicant)
Voltage Range	DC 3.87V from battery or DC 5V/11V/4~21V from adapter
Sample serial number	1Z0S for Conducted and Radiated Emissions Test 1Z0T for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition
Adapter information	Model: U680XSA Input: AC 100-240V, 50/60Hz, 2.0A Output: DC 5.0V, 2.0A or 11.0V, 6.2A or 4.0-21.0V, 3.25A, 68.0W Max

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission's rules.

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

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 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Line Conducted emission		2.72dB
Emissions, Radiated	30MHz - 1GHz	4.28dB
	1GHz- 18GHz	4.98dB
	18GHz- 26.5GHz	5.06dB
Temperature		1℃
Humidity		6%
Supply voltages		0.4%

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

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISEDC), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

For 2.4GHz Wi-Fi mode, total 13 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472
7	2442	/	/

802.11b, 802.11g and 802.11n-HT20 mode was tested with Channel 1, 7 and 13.
802.11n-HT40 mode was tested with Channel 3, 7 and 11.

For BLE 1M/2M mode, 40 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2442
1	2404	21	2444
2	2406	22	2446
3	2408	23	2448
4	2410	24	2450
5	2412	25	2452
6	2414	26	2454
7	2416	27	2456
8	2418	28	2458
9	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

EUT was tested with Channel 0, 19 and 39.

Note : The EUT has two antennas for BT and Wi-Fi, according to the manufacturer, the two antennas can’t transmit simultaneously.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

EUT was tested in engineering mode.

The device was tested with the worst case was performed as below:

Mode	Data rate	Power Level*	
		MAIN ANT	AUX ANT
BLE	1Mbps/2Mbps	Default	Default
802.11b	1Mbps	20.5	20.5
802.11g	6Mbps	14	15
802.11n-HT20	MCS0	14	15
802.11n-HT40	MCS0	14	15

Note: the power level was provided by applicant.

Duty cycle

Test Result: Compliant. Please refer to the Appendix Wi-Fi and Appendix BLE.

Support Equipment List and Details

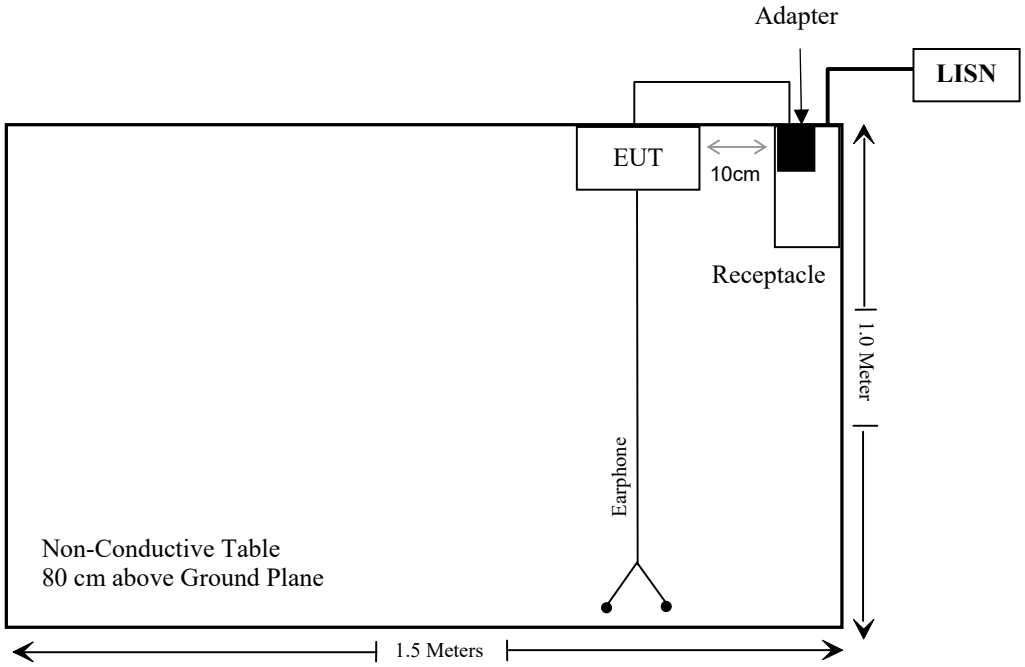
Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

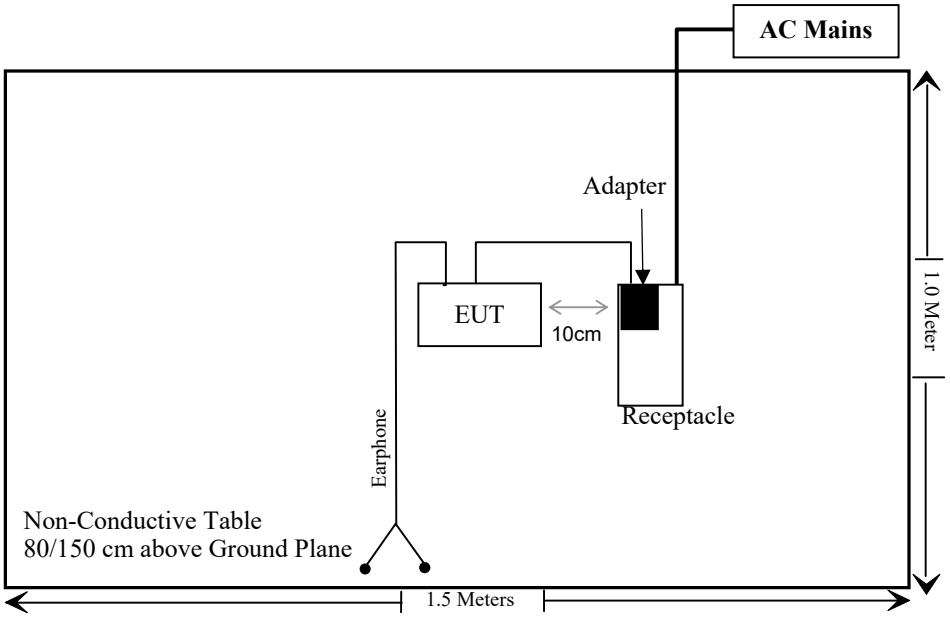
Cable Description	Length (m)	From Port	To
Un-shielding Detachable USB Cable	1.0	EUT	Adapter

Block Diagram of Test Setup

For conducted emission:



For Radiated Emissions:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1) & §2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Emission Bandwidth & Occupied Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted emission test					
Rohde& Schwarz	EMI Test Receiver	ESCI	100784	2022/11/25	2023/11/24
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2022/11/25	2023/11/24
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2022/12/07	2023/12/06
Unknown	RF Coaxial Cable	No.17	N0350	2022/11/25	2023/11/24
Conducted Emission Test Software: e3 19821b (V9)					
Radiated emission test					
Rohde& Schwarz	Test Receiver	ESR	102725	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2022/11/25	2023/11/24
SONOMA INSTRUMENT	Amplifier	310 N	186131	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2022/11/08	2023/11/07
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2022/11/30	2025/11/29
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2022/12/26	2025/12/25
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.11	N1000	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.12	N040	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.13	N300	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.14	N800	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.15	N600	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.16	N650	2022/11/25	2023/11/24
Wainwright	High Pass Filter	WHKX3.6/18G-10SS	5	2022/11/25	2023/11/24

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101590	2022/11/25	2023/11/24
Tonscend	RF Control Unit	JS0806-2	19G8060182	2022/10/24	2023/10/23
Agilent	USB wideband power sensor	U2021XA	MY54250003	2022/06/27	2023/06/26
WEINSCHEL	10dB Attenuator	5324	AU 3842	2022/11/25	2023/11/24
HP	20dB Attenuator	8491A	53857	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101948	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.31	RF-01	Each time	

*** Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§15.247 (i), §1.1307 (b) (1) & §2.1093 – RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), 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.

a) According to KDB 447498 D01 General RF Exposure Guidance

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:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

Measurement Result

For worst case:

For BLE:

Frequency (MHz)	Maximum Tune-up power		Calculated Distance (mm)	Calculated Value	Threshold (1-g SAR)	SAR Test Exclusion
	(dBm)	(mW)				
2402-2480	-3.0	0.5	5	0.16	3.0	**Yes**

Result: No Standalone SAR test is required

For Wi-Fi mode, please refer to SAR report: RA230116-02640E-SA

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

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has two internal antenna arrangement, which was permanently attached, the antenna gain for MAIN ANT is-1dBi and AUX ANT is 1dBi, fulfill the requirement of this section. Please refer to the EUT photos.

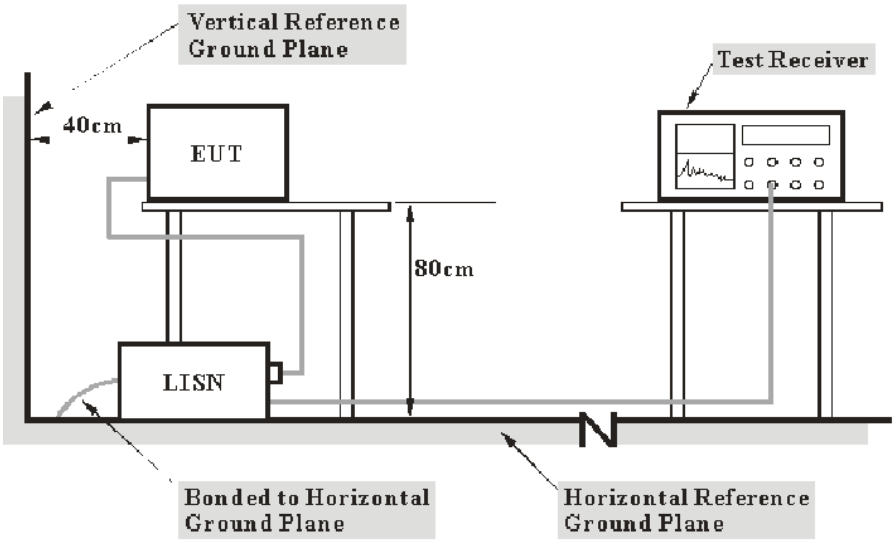
Result: Compliant.

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.

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 outlet of the LISN.

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

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

Transd Factor & Margin Calculation

The Transd factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

Factor = LISN VDF + Cable Loss

The "**Over limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

Over Limit = Level – Limit
Level = Read Level + Factor

Test Data

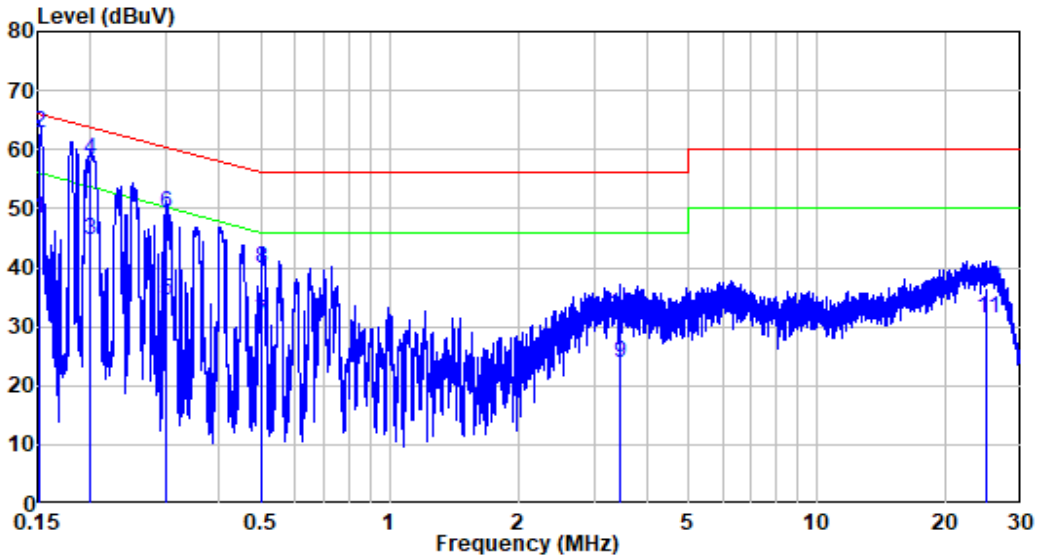
Environmental Conditions

Temperature:	23 ℃
Relative Humidity:	52%
ATM Pressure:	101.0 kPa

The testing was performed by Lipa Wu on 2023-02-03.

EUT operation mode: Transmitting (Worst case is MAIN ANT, 802.11b, low channel)

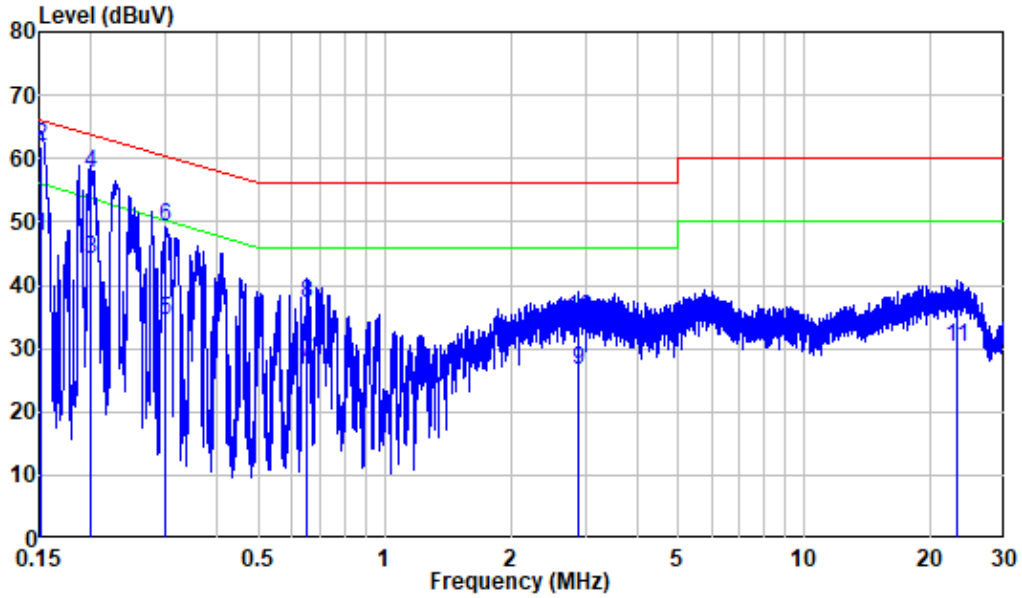
AC 120V/60 Hz, Line



Site : Shielding Room
Condition: Line
Job No. : RA230116-02640E-RF
Mode : 2.4G Wifi
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.151	9.90	38.41	48.31	55.94	-7.63	Average
2	0.151	9.90	52.77	62.67	65.94	-3.27	QP
3	0.200	9.90	34.68	44.58	53.61	-9.03	Average
4	0.200	9.90	48.22	58.12	63.61	-5.49	QP
5	0.301	9.86	24.61	34.47	50.22	-15.75	Average
6	0.301	9.86	39.49	49.35	60.22	-10.87	QP
7	0.504	9.80	20.98	30.78	46.00	-15.22	Average
8	0.504	9.80	30.06	39.86	56.00	-16.14	QP
9	3.465	9.93	13.96	23.89	46.00	-22.11	Average
10	3.465	9.93	22.12	32.05	56.00	-23.95	QP
11	24.906	10.10	21.15	31.25	50.00	-18.75	Average
12	24.906	10.10	26.41	36.51	60.00	-23.49	QP

AC 120V/60 Hz, Neutral



Site : Shielding Room
Condition: Neutral
Job No. : RA230116-02640E-RF
Mode : 2.4G Wifi
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.152	9.80	38.00	47.80	55.90	-8.10	Average
2	0.152	9.80	52.08	61.88	65.90	-4.02	QP
3	0.200	9.80	34.14	43.94	53.62	-9.68	Average
4	0.200	9.80	48.00	57.80	63.62	-5.82	QP
5	0.301	9.84	24.59	34.43	50.21	-15.78	Average
6	0.301	9.84	39.44	49.28	60.21	-10.93	QP
7	0.654	9.83	17.82	27.65	46.00	-18.35	Average
8	0.654	9.83	27.44	37.27	56.00	-18.73	QP
9	2.883	9.83	16.86	26.69	46.00	-19.31	Average
10	2.883	9.83	25.00	34.83	56.00	-21.17	QP
11	22.988	10.20	19.86	30.06	50.00	-19.94	Average
12	22.988	10.20	25.09	35.29	60.00	-24.71	QP

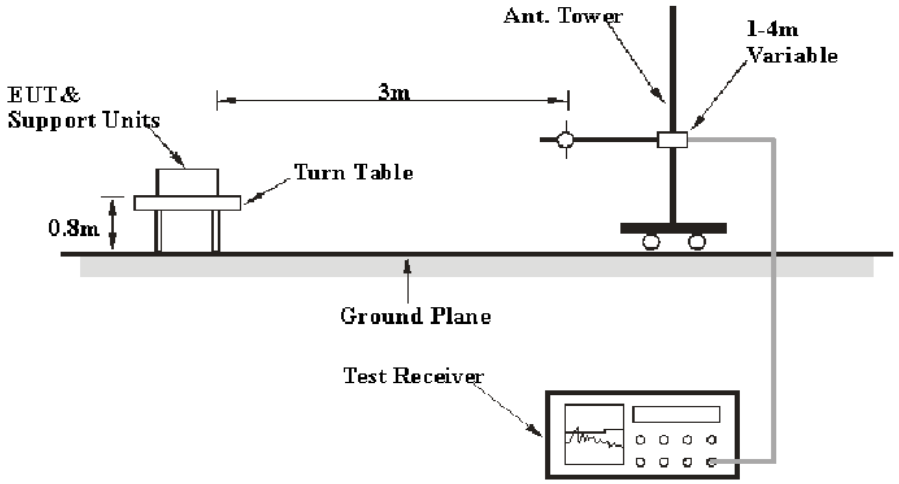
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

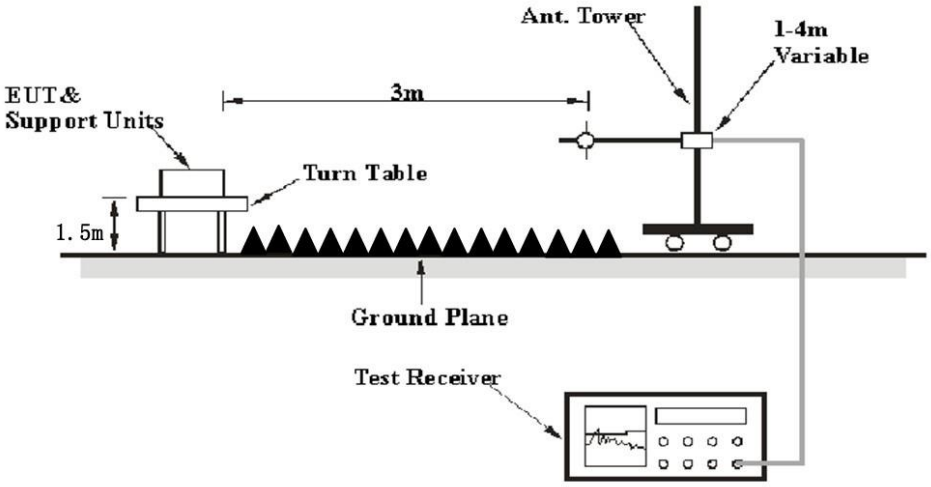
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1 GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters 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.

EMI Test Receiver & Spectrum Analyzer Setup

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz Note 1	/	Average
	1MHz	＞1/T Note 2	/	Average

Note 1: when duty cycle is no less than 98%
Note 2: when duty cycle is less than 98%

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.

Factor & Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

Factor = Antenna Factor + Cable Loss - Amplifier Gain

The "**Over Limit/Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

Over Limit/Margin = Level / Corrected Amplitude – Limit
Level / Corrected Amplitude = Read Level + Factor

Test Data

Environmental Conditions

Temperature:	24~25.5℃
Relative Humidity:	52~57%
ATM Pressure:	101.0 kPa

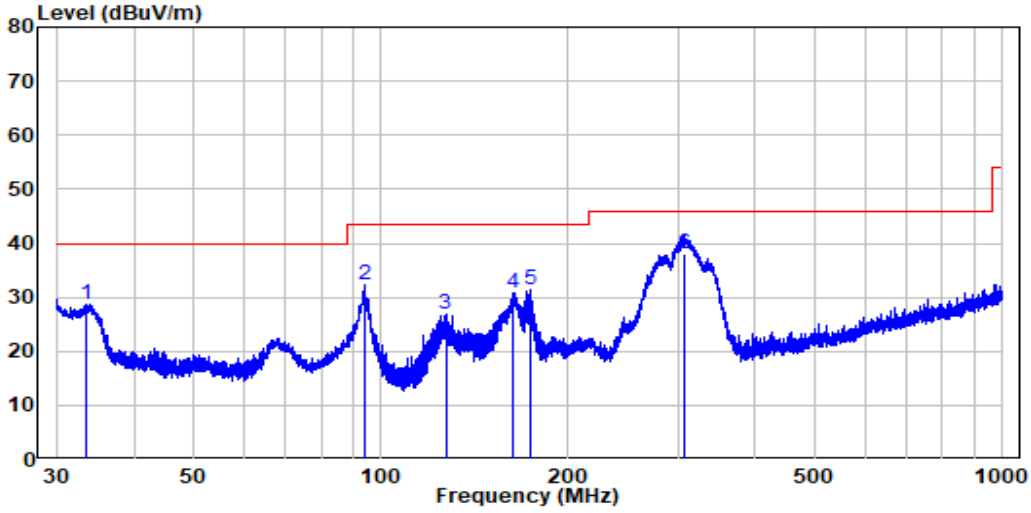
The testing was performed by Jimi Zheng on 2023-02-03 for below 1GHz and Level Li on 2023-01-29 for above 1GHz.

EUT operation mode: Transmitting (Pre-scan in the X,Y and Z axes of orientation, the worst case X-axes of orientation was recorded)

30MHz-1GHz: *(Worst case is MAIN ANT, 802.11b, low channel)*

Note: When the test result of peak was less than the limit of QP more than 6dB, just peak value were recorded.

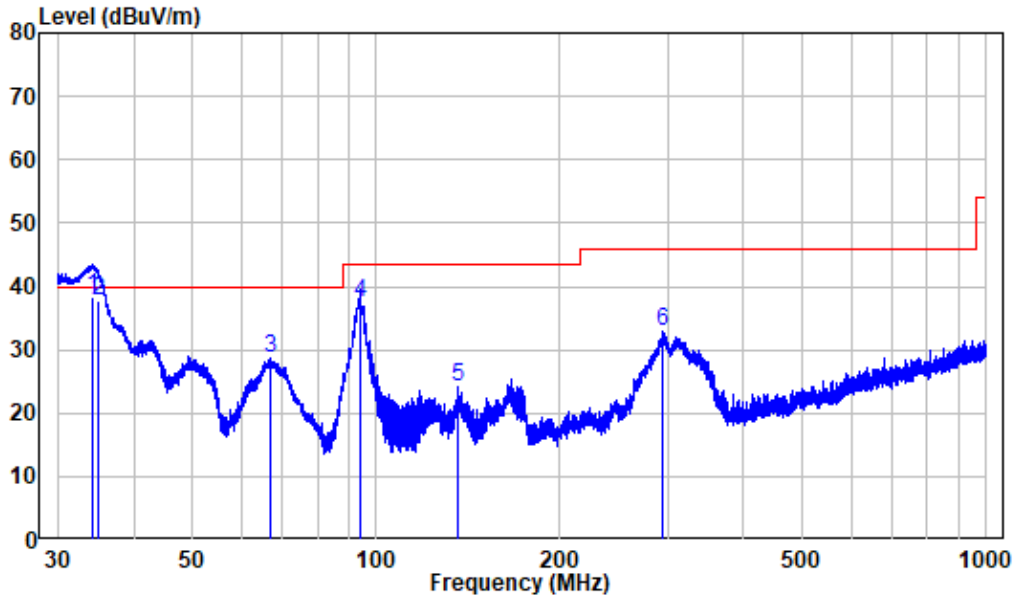
Horizontal:



Site : chamber
Condition: 3m HORIZONTAL
Job No. : RA230116-02640E-RF
Test Mode: 2.4G WIFI

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	33.504	-11.93	40.65	28.72	40.00	-11.28	Peak
2	94.304	-12.63	44.80	32.17	43.50	-11.33	Peak
3	126.995	-14.55	41.38	26.83	43.50	-16.67	Peak
4	162.825	-14.29	44.99	30.70	43.50	-12.80	Peak
5	173.585	-13.22	44.73	31.51	43.50	-11.99	Peak
6	306.888	-8.99	47.09	38.10	46.00	-7.90	QP

Vertical



Site : chamber
Condition: 3m VERTICAL
Job No. : RA230116-02640E-RF
Test Mode: 2.4G WIFI

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.156	-11.80	50.10	38.30	40.00	-1.70	QP
2	34.989	-11.54	49.40	37.86	40.00	-2.14	QP
3	66.791	-13.26	41.86	28.60	40.00	-11.40	Peak
4	94.304	-12.63	50.10	37.47	43.50	-6.03	QP
5	135.744	-15.06	39.08	24.02	43.50	-19.48	Peak
6	294.501	-9.27	42.05	32.78	46.00	-13.22	Peak

1-25 GHz:

BLE 1M:

MAIN ANT:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
Low Channel 2402MHz									
2310	62.15	PK	258	1.4	H	-7.24	54.91	74	-19.09
2310	48.64	AV	258	1.4	H	-7.24	41.40	54	-12.60
2310	62.02	PK	261	1.8	V	-7.24	54.78	74	-19.22
2310	48.53	AV	261	1.8	V	-7.24	41.29	54	-12.71
2390	65.34	PK	129	2	H	-7.22	58.12	74	-15.88
2390	50.13	AV	129	2	H	-7.22	42.91	54	-11.09
2390	65.22	PK	202	2.1	V	-7.22	58.00	74	-16.00
2390	49.99	AV	202	2.1	V	-7.22	42.77	54	-11.23
4804	57.99	PK	128	1.7	H	-3.51	54.48	74	-19.52
4804	43.57	AV	128	1.7	H	-3.51	40.06	54	-13.94
4804	58.11	PK	157	2.2	V	-3.51	54.60	74	-19.40
4804	43.70	AV	157	2.2	V	-3.51	40.19	54	-13.81
Middle Channel 2440MHz									
4880	58.08	PK	245	2	H	-3.38	54.7	74	-19.30
4880	43.69	AV	245	2	H	-3.38	40.31	54	-13.69
4880	58.22	PK	213	2.2	V	-3.38	54.84	74	-19.16
4880	43.77	AV	213	2.2	V	-3.38	40.39	54	-13.61
High Channel 2480MHz									
2483.5	66.03	PK	45	1.2	H	-7.20	58.83	74	-15.17
2483.5	50.78	AV	45	1.2	H	-7.20	43.58	54	-10.42
2483.5	65.91	PK	351	1.8	V	-7.20	58.71	74	-15.29
2483.5	50.67	AV	351	1.8	V	-7.20	43.47	54	-10.53
2500	63.42	PK	46	1.5	H	-7.18	56.24	74	-17.76
2500	50.18	AV	46	1.5	H	-7.18	43	54	-11.00
2500	63.27	PK	313	2	V	-7.18	56.09	74	-17.91
2500	50.10	AV	313	2	V	-7.18	42.92	54	-11.08
4960	57.30	PK	342	2.3	H	-3.01	54.29	74	-19.71
4960	42.87	AV	342	2.3	H	-3.01	39.86	54	-14.14
4960	57.53	PK	140	1.1	V	-3.01	54.52	74	-19.48
4960	43.04	AV	140	1.1	V	-3.01	40.03	54	-13.97

AUX ANT:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
Low Channel 2402MHz									
2310	61.25	PK	311	2.5	H	-7.24	54.01	74	-19.99
2310	48.70	AV	311	2.5	H	-7.24	41.46	54	-12.54
2310	61.12	PK	43	2.1	V	-7.24	53.88	74	-20.12
2310	48.61	AV	43	2.1	V	-7.24	41.37	54	-12.63
2390	65.29	PK	95	1.2	H	-7.22	58.07	74	-15.93
2390	50.12	AV	95	1.2	H	-7.22	42.90	54	-11.10
2390	65.15	PK	266	1.7	V	-7.22	57.93	74	-16.07
2390	50.01	AV	266	1.7	V	-7.22	42.79	54	-11.21
4804	58.13	PK	10	1.8	H	-3.51	54.62	74	-19.38
4804	43.56	AV	10	1.8	H	-3.51	40.05	54	-13.95
4804	58.28	PK	312	1.1	V	-3.51	54.77	74	-19.23
4804	43.71	AV	312	1.1	V	-3.51	40.20	54	-13.80
Middle Channel 2440MHz									
4880	58.08	PK	282	1.3	H	-3.38	54.7	74	-19.30
4880	43.69	AV	282	1.3	H	-3.38	40.31	54	-13.69
4880	58.23	PK	79	2	V	-3.38	54.85	74	-19.15
4880	43.80	AV	79	2	V	-3.38	40.42	54	-13.58
High Channel 2480MHz									
2483.5	66.11	PK	142	2.5	H	-7.20	58.91	74	-15.09
2483.5	50.82	AV	142	2.5	H	-7.20	43.62	54	-10.38
2483.5	66.00	PK	153	1.4	V	-7.20	58.8	74	-15.20
2483.5	50.73	AV	153	1.4	V	-7.20	43.53	54	-10.47
2500	63.36	PK	283	1.9	H	-7.18	56.18	74	-17.82
2500	50.25	AV	283	1.9	H	-7.18	43.07	54	-10.93
2500	63.22	PK	14	2.4	V	-7.18	56.04	74	-17.96
2500	50.14	AV	14	2.4	V	-7.18	42.96	54	-11.04
4960	57.37	PK	15	1.2	H	-3.01	54.36	74	-19.64
4960	42.99	AV	15	1.2	H	-3.01	39.98	54	-14.02
4960	57.53	PK	213	2.4	V	-3.01	54.52	74	-19.48
4960	43.12	AV	213	2.4	V	-3.01	40.11	54	-13.89

BLE 2M:

MAIN ANT:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
Low Channel 2402MHz									
2310	61.85	PK	282	1.8	H	-7.24	54.61	74	-19.39
2310	48.94	AV	282	1.8	H	-7.24	41.70	54	-12.30
2310	61.76	PK	328	2.2	V	-7.24	54.52	74	-19.48
2310	49.82	AV	328	2.2	V	-7.24	42.58	54	-11.42
2390	65.09	PK	188	1.1	H	-7.22	57.87	74	-16.13
2390	50.45	AV	188	1.1	H	-7.22	43.23	54	-10.77
2390	64.98	PK	32	1.1	V	-7.22	57.76	74	-16.24
2390	50.37	AV	32	1.1	V	-7.22	43.15	54	-10.85
4804	58.00	PK	169	2	H	-3.51	54.49	74	-19.51
4804	44.09	AV	169	2	H	-3.51	40.58	54	-13.42
4804	57.83	PK	49	2	V	-3.51	54.32	74	-19.68
4804	43.86	AV	49	2	V	-3.51	40.35	54	-13.65
Middle Channel 2440MHz									
4880	57.82	PK	352	2.2	H	-3.38	54.44	74	-19.56
4880	43.96	AV	352	2.2	H	-3.38	40.58	54	-13.42
4880	57.68	PK	319	2	V	-3.38	54.3	74	-19.70
4880	43.85	AV	319	2	V	-3.38	40.47	54	-13.53
High Channel 2480MHz									
2483.5	65.92	PK	100	2	H	-7.20	58.72	74	-15.28
2483.5	51.19	AV	100	2	H	-7.20	43.99	54	-10.01
2483.5	65.73	PK	180	2.2	V	-7.20	58.53	74	-15.47
2483.5	51.07	AV	180	2.2	V	-7.20	43.87	54	-10.13
2500	63.42	PK	61	1.7	H	-7.18	56.24	74	-17.76
2500	50.48	AV	61	1.7	H	-7.18	43.3	54	-10.70
2500	63.29	PK	31	2.2	V	-7.18	56.11	74	-17.89
2500	50.34	AV	31	2.2	V	-7.18	43.16	54	-10.84
4960	57.30	PK	87	1.3	H	-3.01	54.29	74	-19.71
4960	43.07	AV	87	1.3	H	-3.01	40.06	54	-13.94
4960	57.45	PK	102	2.4	V	-3.01	54.44	74	-19.56
4960	43.24	AV	102	2.4	V	-3.01	40.23	54	-13.77

AUX ANT:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
Low Channel 2402MHz									
2310	61.34	PK	357	1	H	-7.24	54.10	74	-19.90
2310	49.05	AV	357	1	H	-7.24	41.81	54	-12.19
2310	61.22	PK	81	1.1	V	-7.24	53.98	74	-20.02
2310	48.93	AV	81	1.1	V	-7.24	41.69	54	-12.31
2390	65.18	PK	315	2.3	H	-7.22	57.96	74	-16.04
2390	50.45	AV	315	2.3	H	-7.22	43.23	54	-10.77
2390	65.04	PK	9	1.7	V	-7.22	57.82	74	-16.18
2390	50.33	AV	9	1.7	V	-7.22	43.11	54	-10.89
4804	57.98	PK	201	2.2	H	-3.51	54.47	74	-19.53
4804	43.86	AV	201	2.2	H	-3.51	40.35	54	-13.65
4804	57.82	PK	164	1.5	V	-3.51	54.31	74	-19.69
4804	43.73	AV	164	1.5	V	-3.51	40.22	54	-13.78
Middle Channel 2440MHz									
4880	57.99	PK	79	1.9	H	-3.38	54.61	74	-19.39
4880	43.96	AV	79	1.9	H	-3.38	40.58	54	-13.42
4880	57.83	PK	148	1.7	V	-3.38	54.45	74	-19.55
4880	43.79	AV	148	1.7	V	-3.38	40.41	54	-13.59
High Channel 2480MHz									
2483.5	66.14	PK	136	1.9	H	-7.20	58.94	74	-15.06
2483.5	51.19	AV	136	1.9	H	-7.20	43.99	54	-10.01
2483.5	66.00	PK	38	2.2	V	-7.20	58.8	74	-15.20
2483.5	51.07	AV	38	2.2	V	-7.20	43.87	54	-10.13
2500	63.46	PK	297	1.9	H	-7.18	56.28	74	-17.72
2500	50.55	AV	297	1.9	H	-7.18	43.37	54	-10.63
2500	63.34	PK	188	1.2	V	-7.18	56.16	74	-17.84
2500	50.41	AV	188	1.2	V	-7.18	43.23	54	-10.77
4960	57.37	PK	176	2	H	-3.01	54.36	74	-19.64
4960	43.14	AV	176	2	H	-3.01	40.13	54	-13.87
4960	57.23	PK	79	2.3	V	-3.01	54.22	74	-19.78
4960	43.02	AV	79	2.3	V	-3.01	40.01	54	-13.99

Wi-Fi:

MAIN ANT:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11b									
Low Channel 2412MHz									
2310	61.84	PK	168	1.4	H	-7.24	54.60	74	-19.40
2310	48.27	AV	168	1.4	H	-7.24	41.03	54	-12.97
2310	61.72	PK	83	1.5	V	-7.24	54.48	74	-19.52
2310	48.14	AV	83	1.5	V	-7.24	40.90	54	-13.10
2390	65.10	PK	217	2.1	H	-7.22	57.88	74	-16.12
2390	50.79	AV	217	2.1	H	-7.22	43.57	54	-10.43
2390	64.63	PK	206	1.9	V	-7.22	57.41	74	-16.59
2390	50.15	AV	206	1.9	V	-7.22	42.93	54	-11.07
4824	60.64	PK	22	1.7	H	-3.52	57.12	74	-16.88
4824	49.05	AV	22	1.7	H	-3.52	45.53	54	-8.47
4824	63.61	PK	32	2	V	-3.52	60.09	74	-13.91
4824	55.92	AV	32	2	V	-3.52	52.40	54	-1.60
Middle Channel 2442MHz									
4884	59.37	PK	17	2.1	H	-3.36	56.01	74	-17.99
4884	45.94	AV	17	2.1	H	-3.36	42.58	54	-11.42
4884	61.98	PK	347	1.7	V	-3.36	58.62	74	-15.38
4884	53.51	AV	347	1.7	V	-3.36	50.15	54	-3.85
High Channel 2472MHz									
2483.5	69.49	PK	246	2.3	H	-7.20	62.29	74	-11.71
2483.5	59.62	AV	246	2.3	H	-7.20	52.42	54	-1.58
2483.5	67.46	PK	284	1	V	-7.20	60.26	74	-13.74
2483.5	56.83	AV	284	1	V	-7.20	49.63	54	-4.37
2500	63.25	PK	174	2.5	H	-7.18	56.07	74	-17.93
2500	50.16	AV	174	2.5	H	-7.18	42.98	54	-11.02
2500	63.12	PK	259	2.4	V	-7.18	55.94	74	-18.06
2500	50.05	AV	259	2.4	V	-7.18	42.87	54	-11.13
4944	59.36	PK	238	1.3	H	-3.07	56.29	74	-17.71
4944	45.92	AV	238	1.3	H	-3.07	42.85	54	-11.15
4944	62.01	PK	85	1.1	V	-3.07	58.94	74	-15.06
4944	54.50	AV	85	1.1	V	-3.07	51.43	54	-2.57

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11g									
Low Channel 2412MHz									
2310	61.87	PK	108	1.4	H	-7.24	54.63	74	-19.37
2310	48.94	AV	108	1.4	H	-7.24	41.70	54	-12.30
2310	61.76	PK	305	1.5	V	-7.24	54.52	74	-19.48
2310	48.83	AV	305	1.5	V	-7.24	41.59	54	-12.41
2390	64.79	PK	167	1.3	H	-7.22	57.57	74	-16.43
2390	51.15	AV	167	1.3	H	-7.22	43.93	54	-10.07
2390	64.62	PK	222	2	V	-7.22	57.40	74	-16.60
2390	50.84	AV	222	2	V	-7.22	43.62	54	-10.38
4824	58.61	PK	149	2.1	H	-3.52	55.09	74	-18.91
4824	44.22	AV	149	2.1	H	-3.52	40.70	54	-13.30
4824	59.14	PK	32	1.5	V	-3.52	55.62	74	-18.38
4824	44.45	AV	32	1.5	V	-3.52	40.93	54	-13.07
Middle Channel 2442MHz									
4884	58.06	PK	155	1.2	H	-3.36	54.7	74	-19.30
4884	43.94	AV	155	1.2	H	-3.36	40.58	54	-13.42
4884	58.43	PK	221	1.9	V	-3.36	55.07	74	-18.93
4884	44.10	AV	221	1.9	V	-3.36	40.74	54	-13.26
High Channel 2472MHz									
2483.5	78.42	PK	221	1.5	H	-7.20	71.22	74	-2.78
2483.5	58.70	AV	221	1.5	H	-7.20	51.5	54	-2.50
2483.5	75.87	PK	117	2.4	V	-7.20	68.67	74	-5.33
2483.5	56.18	AV	117	2.4	V	-7.20	48.98	54	-5.02
2500	63.37	PK	288	1.4	H	-7.18	56.19	74	-17.81
2500	50.89	AV	288	1.4	H	-7.18	43.71	54	-10.29
2500	63.22	PK	272	1.4	V	-7.18	56.04	74	-17.96
2500	50.74	AV	272	1.4	V	-7.18	43.56	54	-10.44
4944	57.87	PK	220	1.8	H	-3.07	54.80	74	-19.20
4944	43.49	AV	220	1.8	H	-3.07	40.42	54	-13.58
4944	58.20	PK	256	1.9	V	-3.07	55.13	74	-18.87
4944	43.62	AV	256	1.9	V	-3.07	40.55	54	-13.45

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11n20									
Low Channel 2412MHz									
2310	62.03	PK	244	2.3	H	-7.24	54.79	74	-19.21
2310	49.17	AV	244	2.3	H	-7.24	41.93	54	-12.07
2310	61.92	PK	4	1.5	V	-7.24	54.68	74	-19.32
2310	49.05	AV	4	1.5	V	-7.24	41.81	54	-12.19
2390	65.41	PK	112	1.1	H	-7.22	58.19	74	-15.81
2390	51.25	AV	112	1.1	H	-7.22	44.03	54	-9.97
2390	65.13	PK	213	1	V	-7.22	57.91	74	-16.09
2390	51.07	AV	213	1	V	-7.22	43.85	54	-10.15
4824	58.54	PK	63	1.4	H	-3.52	55.02	74	-18.98
4824	44.27	AV	63	1.4	H	-3.52	40.75	54	-13.25
4824	59.01	PK	232	1.3	V	-3.52	55.49	74	-18.51
4824	44.53	AV	232	1.3	V	-3.52	41.01	54	-12.99
Middle Channel 2442MHz									
4884	58.27	PK	224	1.2	H	-3.36	54.91	74	-19.09
4884	44.05	AV	224	1.2	H	-3.36	40.69	54	-13.31
4884	58.66	PK	94	1.7	V	-3.36	55.3	74	-18.70
4884	44.24	AV	94	1.7	V	-3.36	40.88	54	-13.12
High Channel 2472MHz									
2483.5	78.50	PK	341	1.2	H	-7.20	71.3	74	-2.70
2483.5	59.63	AV	341	1.2	H	-7.20	52.43	54	-1.57
2483.5	76.99	PK	155	1.5	V	-7.20	69.79	74	-4.21
2483.5	57.67	AV	155	1.5	V	-7.20	50.47	54	-3.53
2500	63.49	PK	67	2.1	H	-7.18	56.31	74	-17.69
2500	51.26	AV	67	2.1	H	-7.18	44.08	54	-9.92
2500	63.32	PK	242	1.6	V	-7.18	56.14	74	-17.86
2500	51.14	AV	242	1.6	V	-7.18	43.96	54	-10.04
4944	58.02	PK	165	2.3	H	-3.07	54.95	74	-19.05
4944	43.57	AV	165	2.3	H	-3.07	40.50	54	-13.50
4944	58.28	PK	110	1.6	V	-3.07	55.21	74	-18.79
4944	43.80	AV	110	1.6	V	-3.07	40.73	54	-13.27

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11n40									
Low Channel 2422MHz									
2310	61.85	PK	270	1.4	H	-7.24	54.61	74	-19.39
2310	50.03	AV	270	1.4	H	-7.24	42.79	54	-11.21
2310	61.74	PK	317	2.2	V	-7.24	54.50	74	-19.50
2310	49.91	AV	317	2.2	V	-7.24	42.67	54	-11.33
2390	73.94	PK	63	2	H	-7.22	66.72	74	-7.28
2390	54.05	AV	63	2	H	-7.22	46.83	54	-7.17
2390	71.09	PK	351	2.3	V	-7.22	63.87	74	-10.13
2390	52.52	AV	351	2.3	V	-7.22	45.30	54	-8.70
4844	58.62	PK	95	1.4	H	-3.54	55.08	74	-18.92
4844	44.43	AV	95	1.4	H	-3.54	40.89	54	-13.11
4844	58.95	PK	39	1.1	V	-3.54	55.41	74	-18.59
4844	44.70	AV	39	1.1	V	-3.54	41.16	54	-12.84
Middle Channel 2442MHz									
4884	58.45	PK	253	2.1	H	-3.36	55.09	74	-18.91
4884	44.38	AV	253	2.1	H	-3.36	41.02	54	-12.98
4884	57.87	PK	188	1.1	V	-3.36	54.51	74	-19.49
4884	44.64	AV	188	1.1	V	-3.36	41.28	54	-12.72
High Channel 2462MHz									
2483.5	76.60	PK	53	1.7	H	-7.20	69.4	74	-4.60
2483.5	57.74	AV	53	1.7	H	-7.20	50.54	54	-3.46
2483.5	74.13	PK	94	1.3	V	-7.20	66.93	74	-7.07
2483.5	55.38	AV	94	1.3	V	-7.20	48.18	54	-5.82
2500	63.21	PK	224	1.2	H	-7.18	56.03	74	-17.97
2500	51.80	AV	224	1.2	H	-7.18	44.62	54	-9.38
2500	63.07	PK	331	1.9	V	-7.18	55.89	74	-18.11
2500	51.65	AV	331	1.9	V	-7.18	44.47	54	-9.53
4924	58.33	PK	61	1.5	H	-3.16	55.17	74	-18.83
4924	44.31	AV	61	1.5	H	-3.16	41.15	54	-12.85
4924	58.75	PK	159	2.5	V	-3.16	55.59	74	-18.41
4924	44.54	AV	159	2.5	V	-3.16	41.38	54	-12.62

AUX ANT:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11b									
Low Channel 2412MHz									
2310	61.27	PK	204	1.8	H	-7.24	54.03	74	-19.97
2310	48.04	AV	204	1.8	H	-7.24	40.80	54	-13.20
2310	61.40	PK	254	1.2	V	-7.24	54.16	74	-19.84
2310	48.16	AV	254	1.2	V	-7.24	40.92	54	-13.08
2390	65.15	PK	63	2.3	H	-7.22	57.93	74	-16.07
2390	49.90	AV	63	2.3	H	-7.22	42.68	54	-11.32
2390	65.49	PK	136	1.5	V	-7.22	58.27	74	-15.73
2390	50.32	AV	136	1.5	V	-7.22	43.10	54	-10.90
4824	61.57	PK	327	1.2	H	-3.52	58.05	74	-15.95
4824	52.45	AV	327	1.2	H	-3.52	48.93	54	-5.07
4824	60.64	PK	262	2.1	V	-3.52	57.12	74	-16.88
4824	50.08	AV	262	2.1	V	-3.52	46.56	54	-7.44
Middle Channel 2442MHz									
4884	60.34	PK	308	2.1	H	-3.36	56.98	74	-17.02
4884	49.75	AV	308	2.1	H	-3.36	46.39	54	-7.61
4884	59.99	PK	11	1.6	V	-3.36	56.63	74	-17.37
4884	47.87	AV	11	1.6	V	-3.36	44.51	54	-9.49
High Channel 2472MHz									
2483.5	66.58	PK	3	2.2	H	-7.20	59.38	74	-14.62
2483.5	55.31	AV	3	2.2	H	-7.20	48.11	54	-5.89
2483.5	68.13	PK	156	1.8	V	-7.20	60.93	74	-13.07
2483.5	56.59	AV	156	1.8	V	-7.20	49.39	54	-4.61
2500	63.20	PK	212	2	H	-7.18	56.02	74	-17.98
2500	50.05	AV	212	2	H	-7.18	42.87	54	-11.13
2500	63.32	PK	221	1.8	V	-7.18	56.14	74	-17.86
2500	50.16	AV	221	1.8	V	-7.18	42.98	54	-11.02
4944	59.11	PK	354	1.9	H	-3.07	56.04	74	-17.96
4944	46.02	AV	354	1.9	H	-3.07	42.95	54	-11.05
4944	58.78	PK	169	1.9	V	-3.07	55.71	74	-18.29
4944	45.84	AV	169	1.9	V	-3.07	42.77	54	-11.23

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11g									
Low Channel 2412MHz									
2310	61.42	PK	285	1.4	H	-7.24	54.18	74	-19.82
2310	48.93	AV	285	1.4	H	-7.24	41.69	54	-12.31
2310	61.54	PK	174	2	V	-7.24	54.30	74	-19.70
2310	49.05	AV	174	2	V	-7.24	41.81	54	-12.19
2390	65.13	PK	327	1.2	H	-7.22	57.91	74	-16.09
2390	50.94	AV	327	1.2	H	-7.22	43.72	54	-10.28
2390	65.38	PK	177	1.5	V	-7.22	58.16	74	-15.84
2390	51.07	AV	177	1.5	V	-7.22	43.85	54	-10.15
4824	59.70	PK	326	1.8	H	-3.52	56.18	74	-17.82
4824	44.61	AV	326	1.8	H	-3.52	41.09	54	-12.91
4824	59.44	PK	323	1.3	V	-3.52	55.92	74	-18.08
4824	44.38	AV	323	1.3	V	-3.52	40.86	54	-13.14
Middle Channel 2442MHz									
4884	59.31	PK	312	2.5	H	-3.36	55.95	74	-18.05
4884	44.20	AV	312	2.5	H	-3.36	40.84	54	-13.16
4884	59.07	PK	346	2.1	V	-3.36	55.71	74	-18.29
4884	43.96	AV	346	2.1	V	-3.36	40.6	54	-13.40
High Channel 2472MHz									
2483.5	77.07	PK	152	2.1	H	-7.20	69.87	74	-4.13
2483.5	56.80	AV	152	2.1	H	-7.20	49.6	54	-4.40
2483.5	78.73	PK	223	1.4	V	-7.20	71.53	74	-2.47
2483.5	58.04	AV	223	1.4	V	-7.20	50.84	54	-3.16
2500	63.17	PK	43	2.2	H	-7.18	55.99	74	-18.01
2500	51.10	AV	43	2.2	H	-7.18	43.92	54	-10.08
2500	63.39	PK	281	1.2	V	-7.18	56.21	74	-17.79
2500	51.28	AV	281	1.2	V	-7.18	44.1	54	-9.90
4944	58.81	PK	164	2.4	H	-3.07	55.74	74	-18.26
4944	43.69	AV	164	2.4	H	-3.07	40.62	54	-13.38
4944	58.58	PK	159	1.8	V	-3.07	55.51	74	-18.49
4944	43.47	AV	159	1.8	V	-3.07	40.40	54	-13.60

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11n20									
Low Channel 2412MHz									
2310	61.61	PK	295	2.1	H	-7.24	54.37	74	-19.63
2310	49.02	AV	295	2.1	H	-7.24	41.78	54	-12.22
2310	61.74	PK	360	1.5	V	-7.24	54.50	74	-19.50
2310	49.13	AV	360	1.5	V	-7.24	41.89	54	-12.11
2390	65.42	PK	273	2.4	H	-7.22	58.20	74	-15.80
2390	51.04	AV	273	2.4	H	-7.22	43.82	54	-10.18
2390	65.65	PK	306	1.1	V	-7.22	58.43	74	-15.57
2390	51.23	AV	306	1.1	V	-7.22	44.01	54	-9.99
4824	59.58	PK	112	1.8	H	-3.52	56.06	74	-17.94
4824	44.55	AV	112	1.8	H	-3.52	41.03	54	-12.97
4824	59.39	PK	339	1.2	V	-3.52	55.87	74	-18.13
4824	44.33	AV	339	1.2	V	-3.52	40.81	54	-13.19
Middle Channel 2442MHz									
4884	58.36	PK	111	2	H	-3.36	55	74	-19.00
4884	44.27	AV	111	2	H	-3.36	40.91	54	-13.09
4884	59.15	PK	188	1.9	V	-3.36	55.79	74	-18.21
4884	44.04	AV	188	1.9	V	-3.36	40.68	54	-13.32
High Channel 2472MHz									
2483.5	77.42	PK	227	1.7	H	-7.20	70.22	74	-3.78
2483.5	57.09	AV	227	1.7	H	-7.20	49.89	54	-4.11
2483.5	79.20	PK	209	1.5	V	-7.20	72	74	-2.00
2483.5	58.27	AV	209	1.5	V	-7.20	51.07	54	-2.93
2500	63.36	PK	114	2.2	H	-7.18	56.18	74	-17.82
2500	51.24	AV	114	2.2	H	-7.18	44.06	54	-9.94
2500	63.49	PK	127	1.4	V	-7.18	56.31	74	-17.69
2500	51.37	AV	127	1.4	V	-7.18	44.19	54	-9.81
4944	58.87	PK	115	2.5	H	-3.07	55.80	74	-18.20
4944	43.78	AV	115	2.5	H	-3.07	40.71	54	-13.29
4944	58.66	PK	108	1.7	V	-3.07	55.59	74	-18.41
4944	43.59	AV	108	1.7	V	-3.07	40.52	54	-13.48

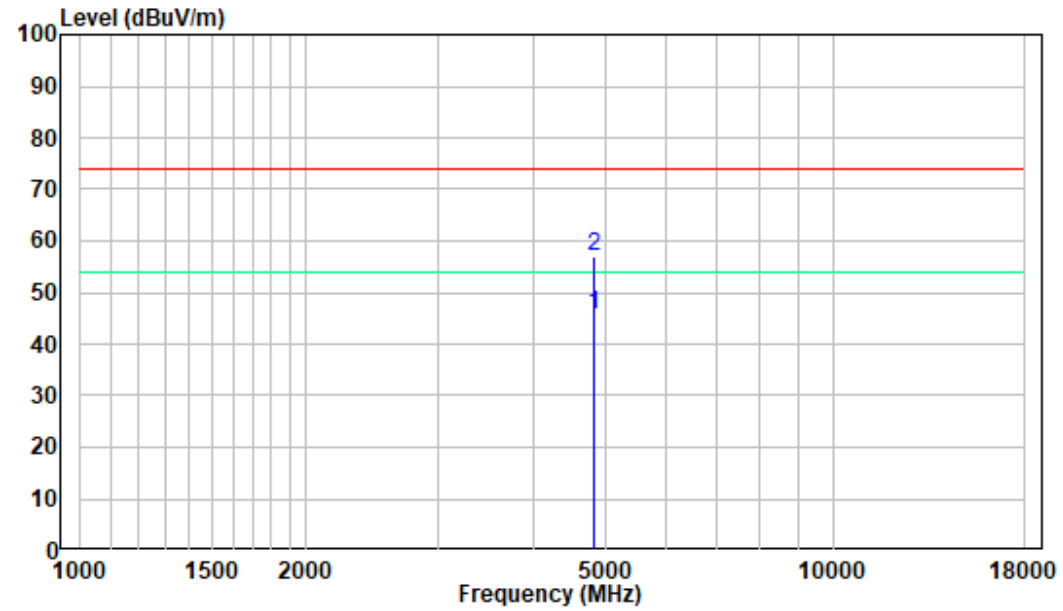
Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11n40									
Low Channel 2422MHz									
2310	62.21	PK	307	1.9	H	-7.24	54.97	74	-19.03
2310	49.63	AV	307	1.9	H	-7.24	42.39	54	-11.61
2310	62.35	PK	25	2.2	V	-7.24	55.11	74	-18.89
2310	49.76	AV	25	2.2	V	-7.24	42.52	54	-11.48
2390	70.67	PK	347	2.1	H	-7.22	63.45	74	-10.55
2390	52.79	AV	347	2.1	H	-7.22	45.57	54	-8.43
2390	72.01	PK	79	2.2	V	-7.22	64.79	74	-9.21
2390	53.64	AV	79	2.2	V	-7.22	46.42	54	-7.58
4844	58.85	PK	322	1.1	H	-3.54	55.31	74	-18.69
4844	44.41	AV	322	1.1	H	-3.54	40.87	54	-13.13
4844	58.63	PK	340	1.6	V	-3.54	55.09	74	-18.91
4844	44.20	AV	340	1.6	V	-3.54	40.66	54	-13.34
Middle Channel 2442MHz									
4884	58.77	PK	188	2.2	H	-3.36	55.41	74	-18.59
4884	44.40	AV	188	2.2	H	-3.36	41.04	54	-12.96
4884	58.58	PK	195	1.5	V	-3.36	55.22	74	-18.78
4884	44.23	AV	195	1.5	V	-3.36	40.87	54	-13.13
High Channel 2462MHz									
2483.5	72.19	PK	2	1.1	H	-7.20	64.99	74	-9.01
2483.5	55.00	AV	2	1.1	H	-7.20	47.8	54	-6.20
2483.5	73.31	PK	236	2	V	-7.20	66.11	74	-7.89
2483.5	55.73	AV	236	2	V	-7.20	48.53	54	-5.47
2500	63.44	PK	23	1.8	H	-7.18	56.26	74	-17.74
2500	51.42	AV	23	1.8	H	-7.18	44.24	54	-9.76
2500	63.56	PK	156	1.2	V	-7.18	56.38	74	-17.62
2500	51.50	AV	156	1.2	V	-7.18	44.32	54	-9.68
4924	58.95	PK	179	1.4	H	-3.16	55.79	74	-18.21
4924	44.66	AV	179	1.4	H	-3.16	41.50	54	-12.50
4924	58.74	PK	259	1.5	V	-3.16	55.58	74	-18.42
4924	44.39	AV	259	1.5	V	-3.16	41.23	54	-12.77

Note:
Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Factor + Reading
Margin = Corrected. Amplitude - Limit
The other spurious emission which is in the noise floor level was not recorded.

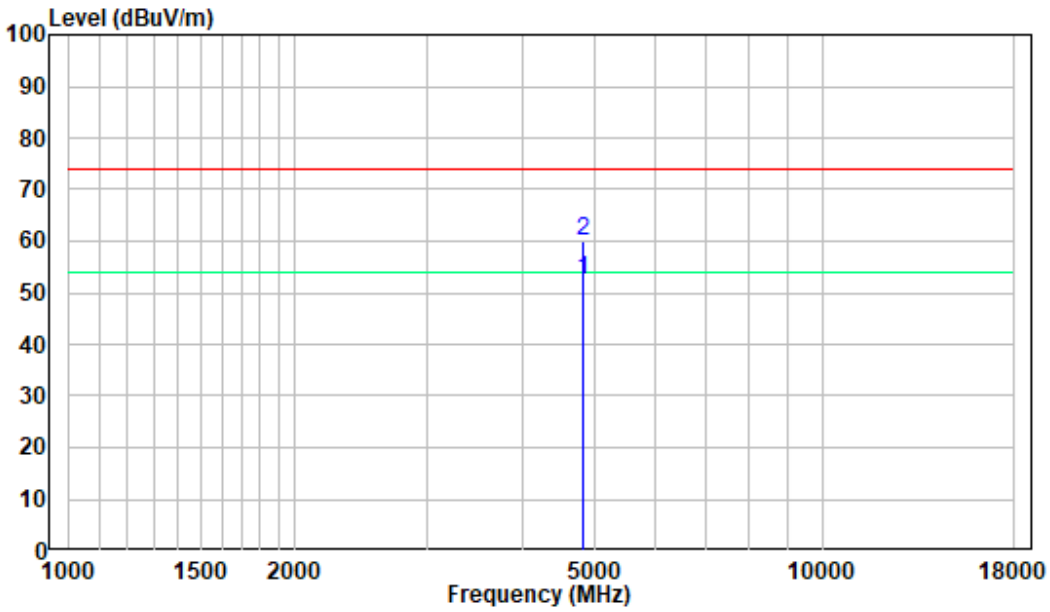
1-18 GHz:

Pre-scan for MAIN ANT, 802.11b, Low Channel

Horizontal



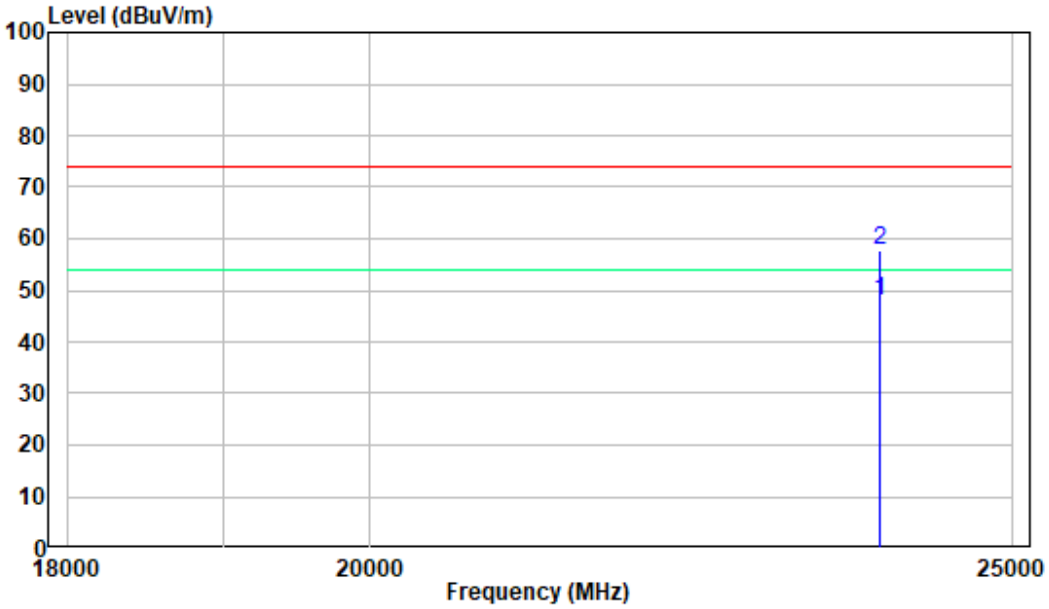
Vertical



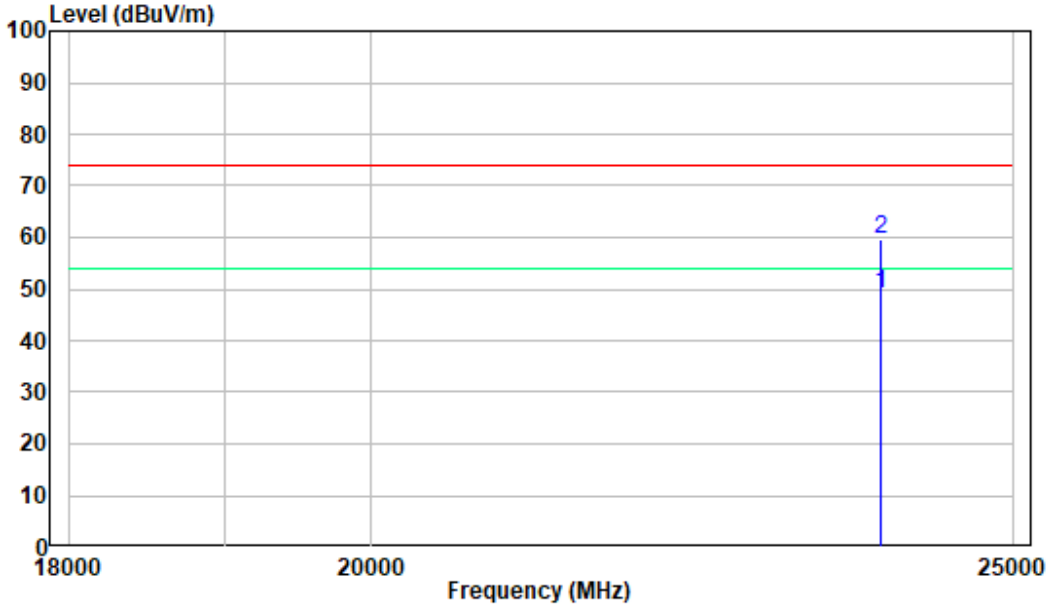
18 -25GHz:

Pre-scan for MAIN ANT, 802.11b, Low Channel

Horizontal



Vertical



FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH & OCCUPIED BANDWIDTH

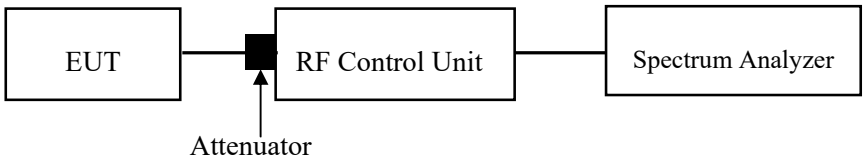
Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.8.1 & Clause 6.9.3

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.



Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	53%
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling on 2023-02-03.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix Wi-Fi and Appendix BLE.

FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

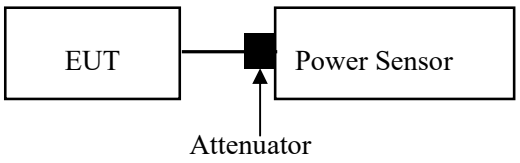
According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

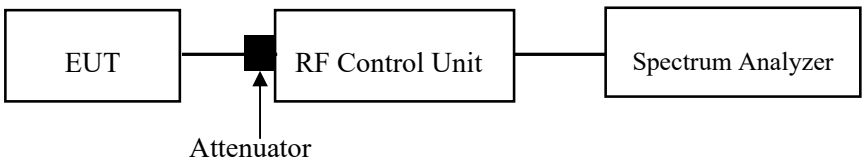
Test Method: ANSI C63.10-2013 Clause 11.9.1.1 for BLE & Clause 11.9.2.3 for Wi-Fi

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.

For Wi-Fi mode:



For BLE mode:



Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	53%
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling on 2023-02-03.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix Wi-Fi and Appendix BLE.

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

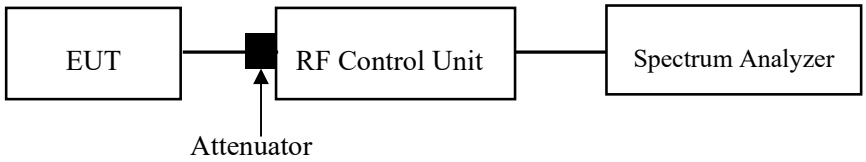
Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.11

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.



Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	53%
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling on 2023-02-03 and 2023-02-22.
EUT operation mode: Transmitting

Test Result: Compliant.

Conducted Band Edge Result:

Please refer to the Appendix Wi-Fi and Appendix BLE.

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.10.2

Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.

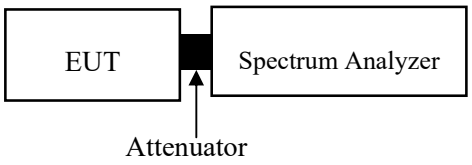
1. Set the RBW to: 3kHz≤ RBW≤100 kHz.
2. Set the VBW ≥ 3×RBW.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Method: ANSI C63.10-2013 Clause 11.10.3 &11.10.5

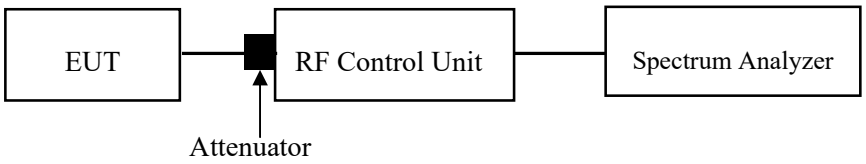
Use this procedure when the maximum average conducted output power in the fundamental emission is used to demonstrate compliance.

1. Measure the duty cycle (*D*) of the transmitter output signal as described in ANSI C63.10-2013 11.6.
2. Set the RBW to: 3kHz≤ RBW≤100 kHz.
3. Set the VBW ≥ 3×RBW.
4. Set the span to 1.5 times the DTS bandwidth.
5. Detector = Power Averaging (rms).
6. Ensure that the number of measurement points in the sweep ≥ [2 × span / RBW].
7. Sweep time = auto couple.
8. Trace mode = trace averaging (rms) mode over a minimum of 100 traces.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level.
11. When the EUT cannot be configured to transmit continuously (i.e.,$D < 98\%$), when sweep triggering/signal gating cannot be used to measure only when the EUT is transmitting at its maximum power control level, and when the transmission duty cycle is constant (i.e., duty cycle variations are less than ±2%), add [10 log (1 / D)], where D is the duty cycle measured in step 1), to the measured PSD to compute the average PSD during the actual transmission time.
12. When the EUT transmits continuously (or with a $D \geqslant 98\%$), step 11 is not required.
13. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

For Wi-Fi mode:



For BLE mode:



Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	53%
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling from 2023-02-03 to 2023-02-28.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix Wi-Fi and Appendix BLE.

APPENDIX Wi-Fi

Appendix A: DTS Bandwidth

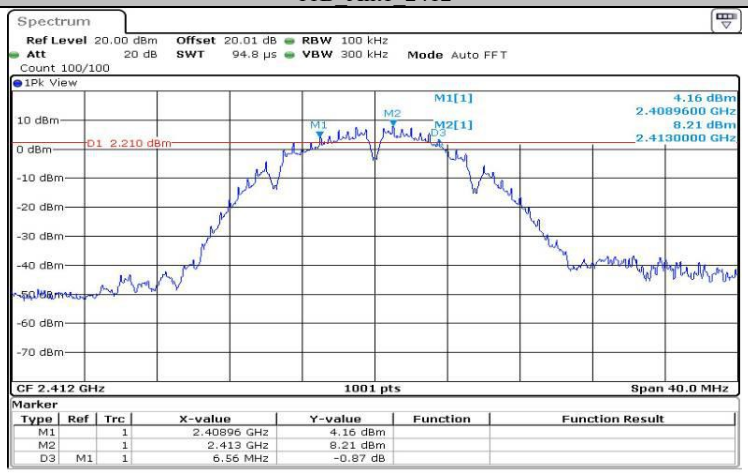
Main Antenna:

Test Result

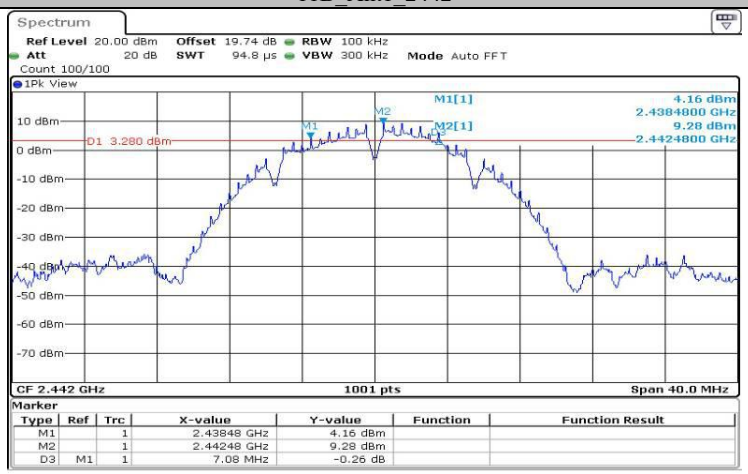
Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	6.56	2408.96	2415.52	0.5	PASS
		2442	7.08	2438.48	2445.56	0.5	PASS
		2472	8.12	2467.44	2475.56	0.5	PASS
11G	Ant1	2412	14.40	2404.48	2418.88	0.5	PASS
		2442	16.32	2433.84	2450.16	0.5	PASS
		2472	16.32	2463.84	2480.16	0.5	PASS
11N20SISO	Ant1	2412	14.76	2404.12	2418.88	0.5	PASS
		2442	17.56	2433.24	2450.80	0.5	PASS
		2472	17.56	2463.20	2480.76	0.5	PASS
11N40SISO	Ant1	2422	33.52	2406.64	2440.16	0.5	PASS
		2442	36.40	2423.84	2460.24	0.5	PASS
		2462	31.92	2444.88	2476.80	0.5	PASS

Test Graphs

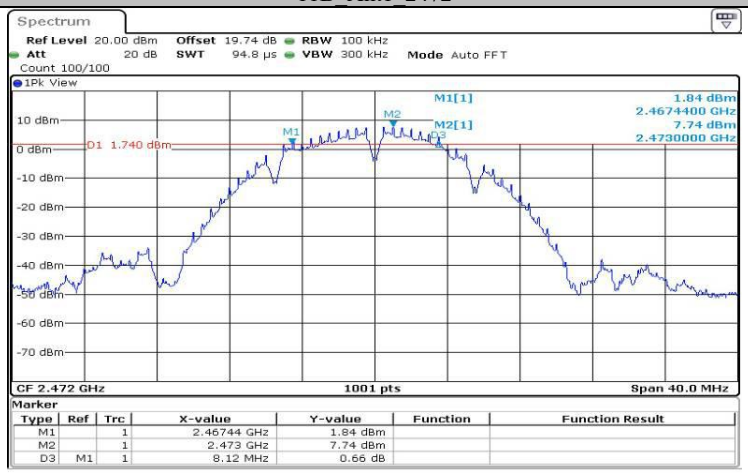
11B_Ant1_2412



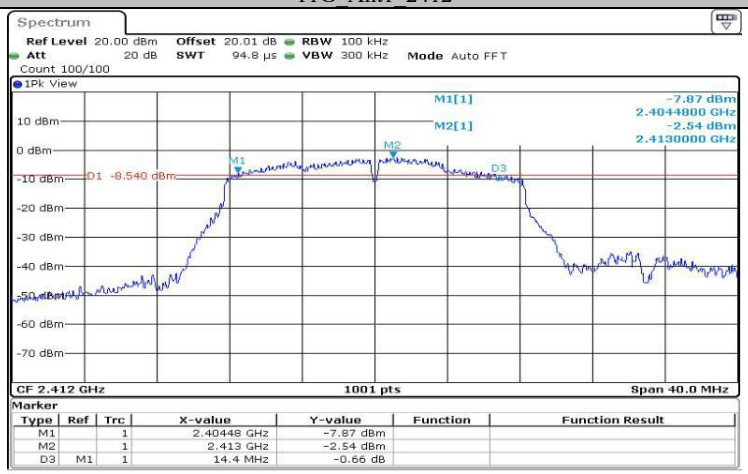
11B_Ant1_2442



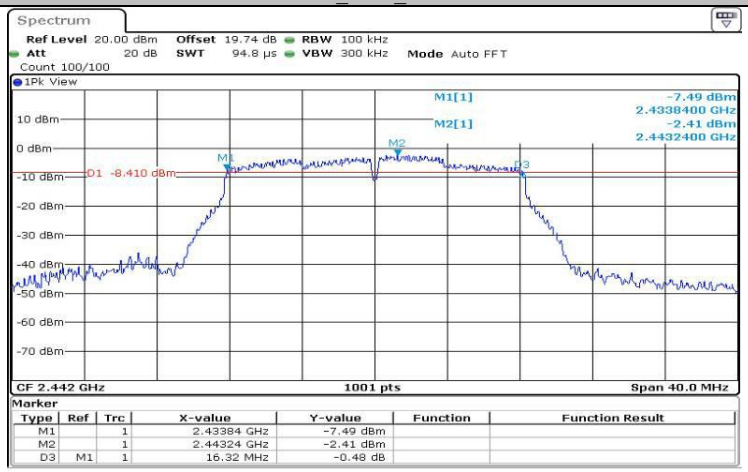
11B_Ant1_2472



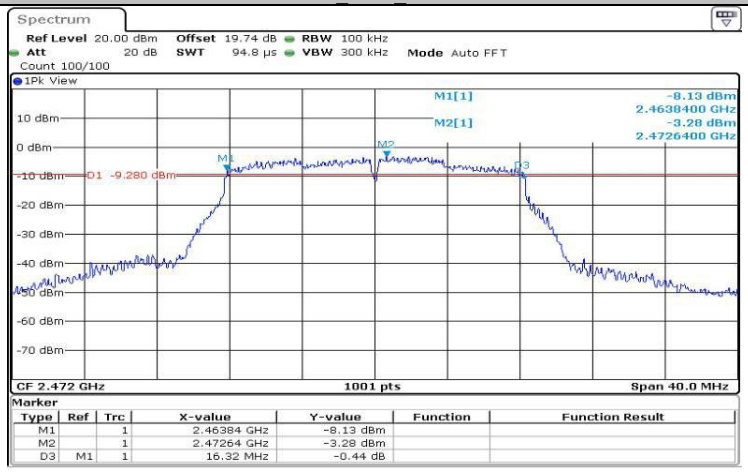
11G_Ant1_2412



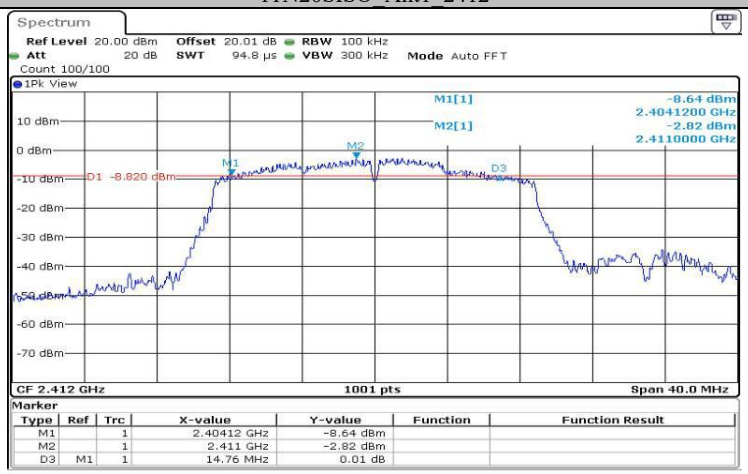
11G_Ant1_2442



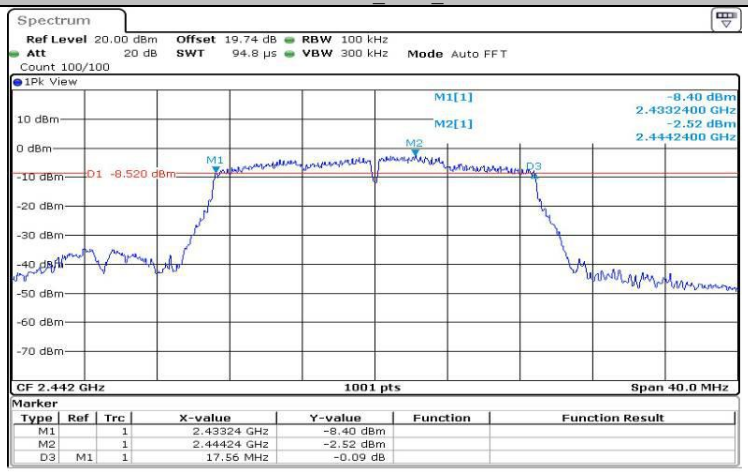
11G_Ant1_2472



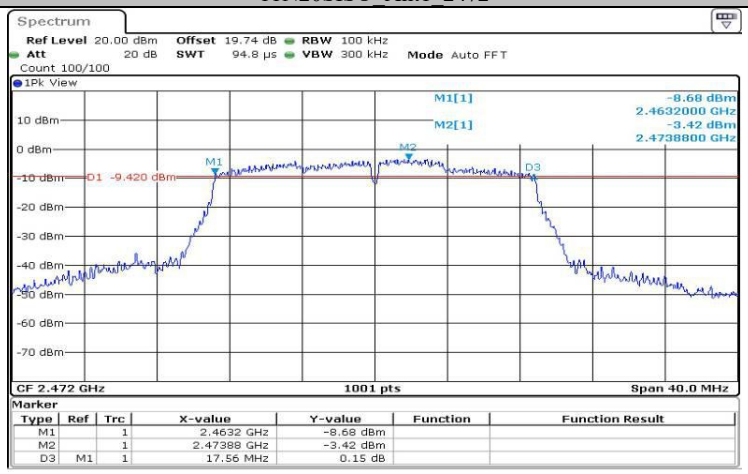
11N20SISO_Ant1_2412



11N20SISO_Ant1_2442

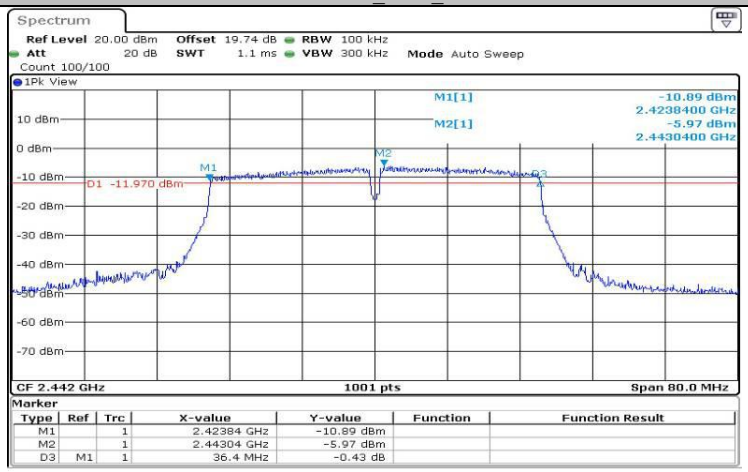


11N20SISO_Ant1_2472



11N40SISO_Ant1_2422

11N40SISO_Ant1_2442



11N40SISO_Ant1_2462

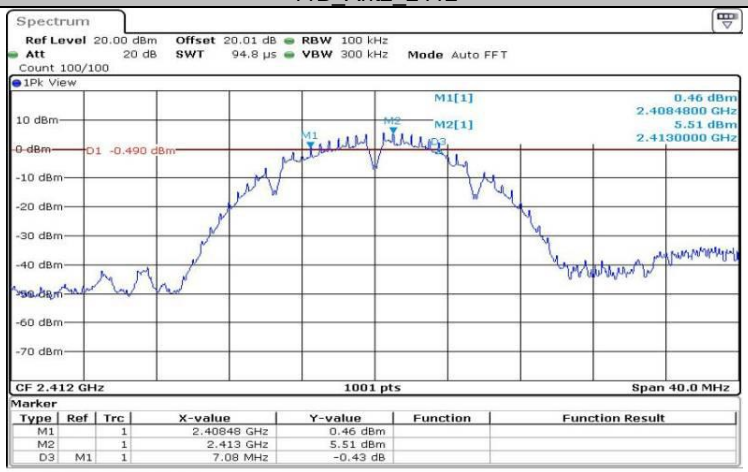
AUX Antenna:

Test Result

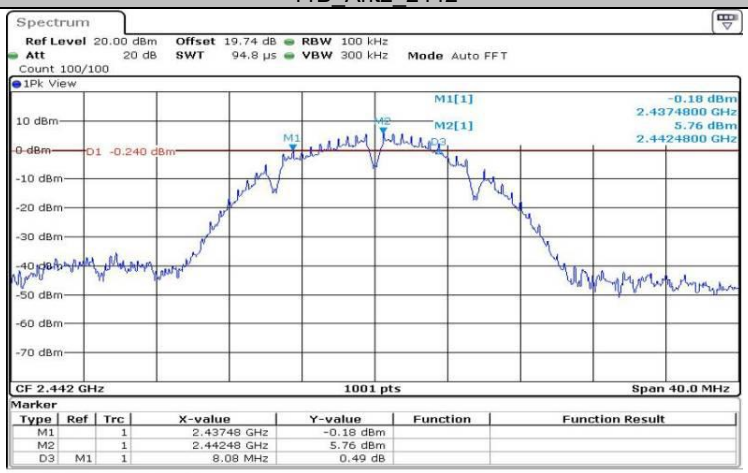
Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant2	2412	7.08	2408.48	2415.56	0.5	PASS
		2442	8.08	2437.48	2445.56	0.5	PASS
		2472	7.04	2468.48	2475.52	0.5	PASS
11G	Ant2	2412	16.32	2403.84	2420.16	0.5	PASS
		2442	16.32	2433.84	2450.16	0.5	PASS
		2472	15.00	2463.88	2478.88	0.5	PASS
11N20SISO	Ant2	2412	17.60	2403.20	2420.80	0.5	PASS
		2442	17.52	2433.24	2450.76	0.5	PASS
		2472	16.64	2463.24	2479.88	0.5	PASS
11N40SISO	Ant2	2422	36.08	2404.08	2440.16	0.5	PASS
		2442	35.04	2424.88	2459.92	0.5	PASS
		2462	34.24	2443.76	2478.00	0.5	PASS

Test Graphs

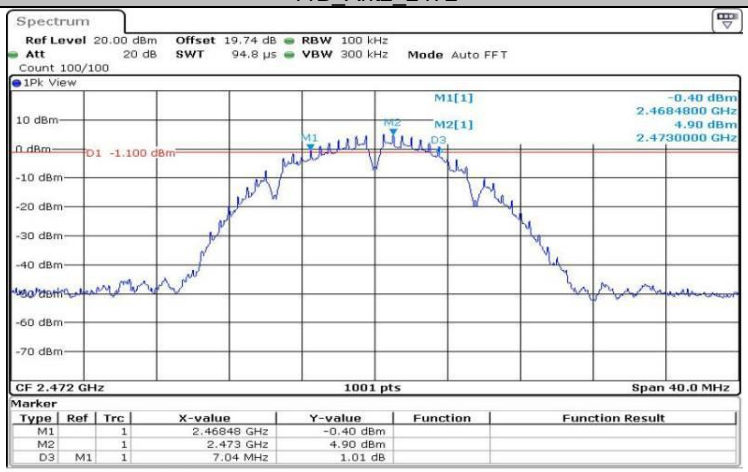
11B_Ant2_2412



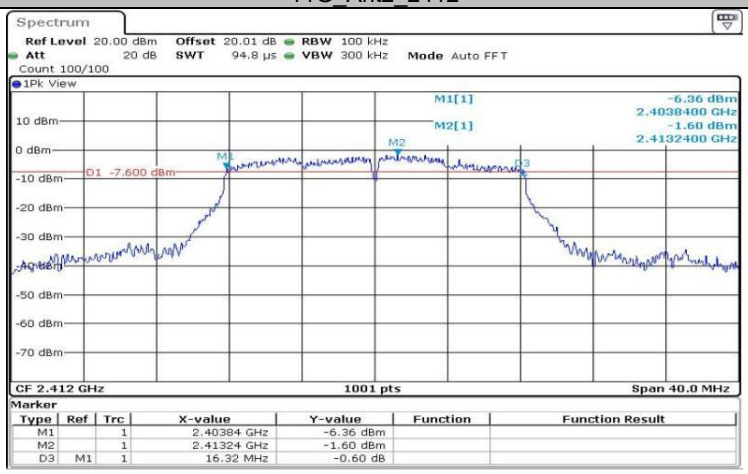
11B_Ant2_2442



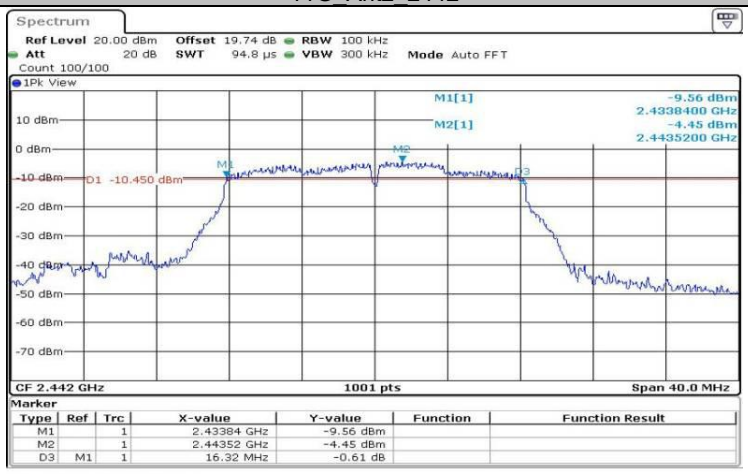
11B_Ant2_2472



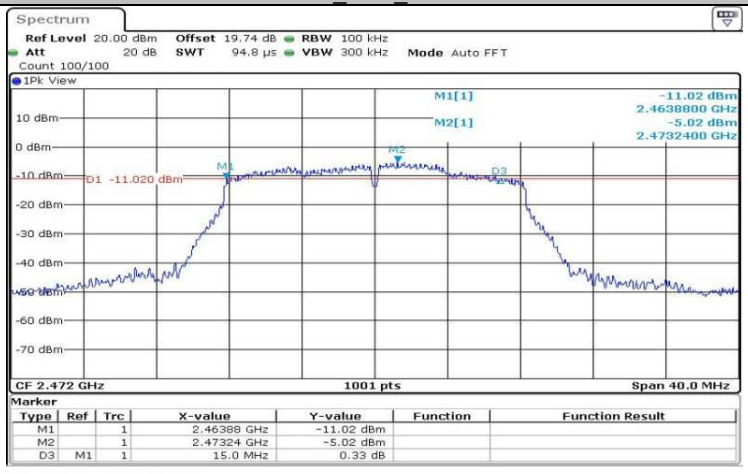
11G_Ant2_2412



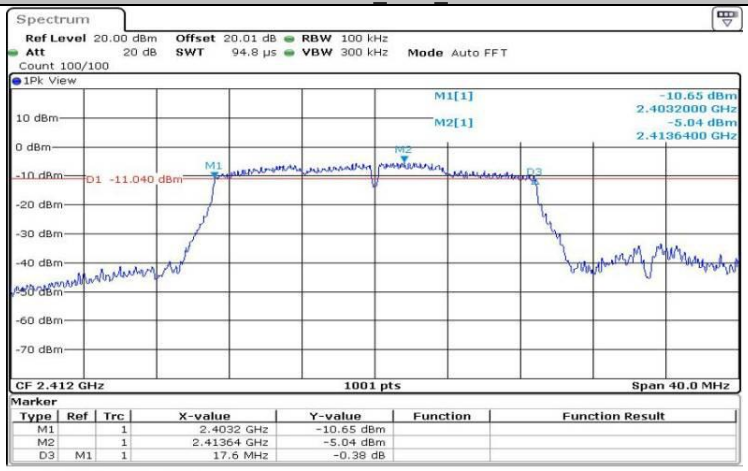
11G_Ant2_2442



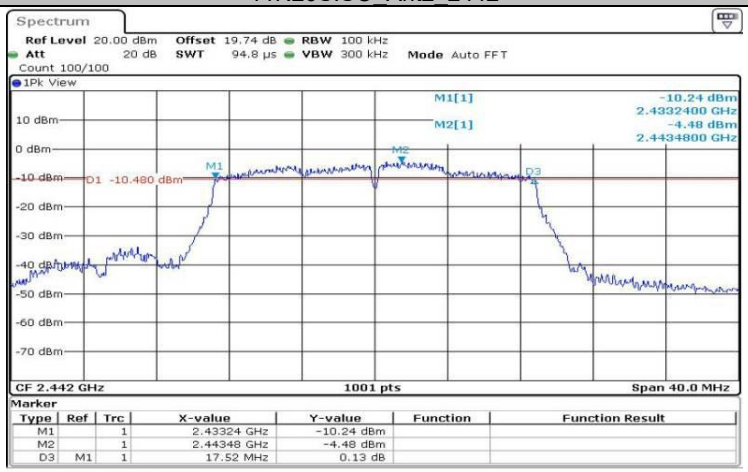
11G_Ant2_2472



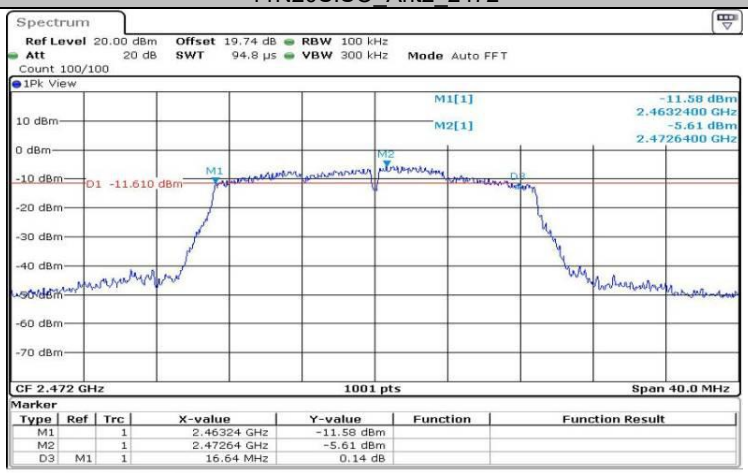
11N20SISO_Ant2_2412



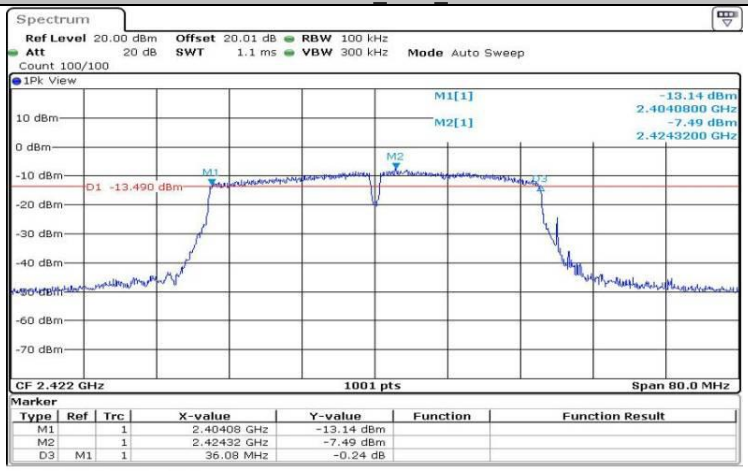
11N20SISO_Ant2_2442



11N20SISO_Ant2_2472



11N40SISO_Ant2_2422



11N40SISO_Ant2_2442

11N40SISO_Ant2_2462

Appendix B: Occupied Channel Bandwidth

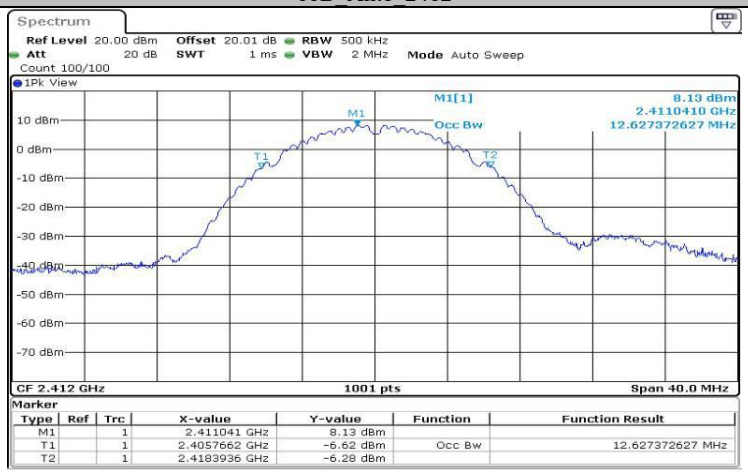
Main Antenna:

Test Result

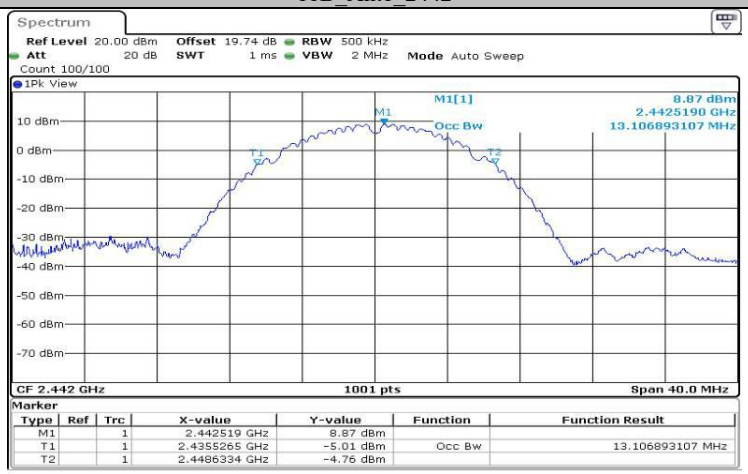
Test Mode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.627	2405.766	2418.394	---	---
		2442	13.107	2435.526	2448.633	---	---
		2472	13.227	2465.247	2478.474	---	---
11G	Ant1	2412	16.823	2403.568	2420.392	---	---
		2442	17.263	2433.409	2450.671	---	---
		2472	17.343	2463.289	2480.631	---	---
11N20SISO	Ant1	2412	17.702	2403.129	2420.831	---	---
		2442	18.142	2432.929	2451.071	---	---
		2472	18.142	2462.929	2481.071	---	---
11N40SISO	Ant1	2422	36.204	2404.258	2440.462	---	---
		2442	36.843	2423.698	2460.541	---	---
		2462	36.204	2443.858	2480.062	---	---

Test Graphs

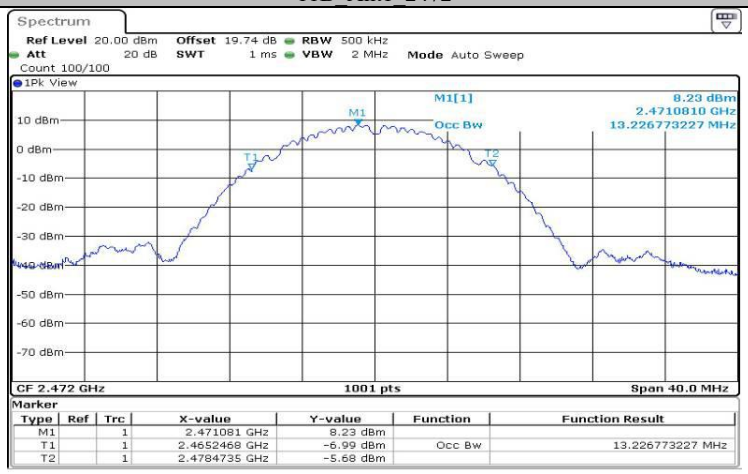
11B_Ant1_2412



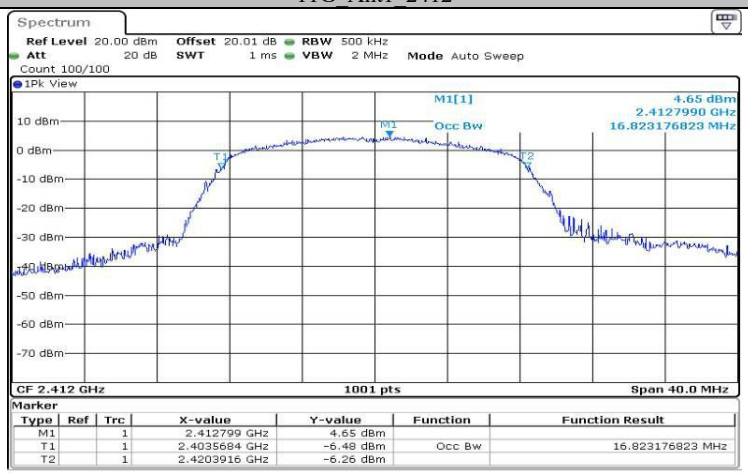
11B_Ant1_2442



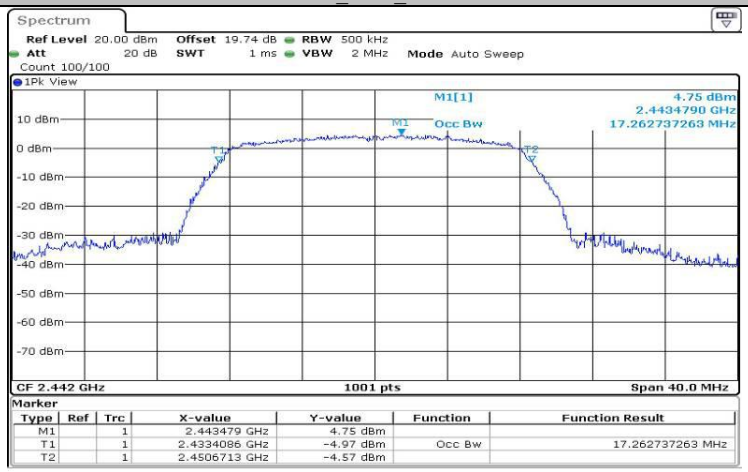
11B_Ant1_2472



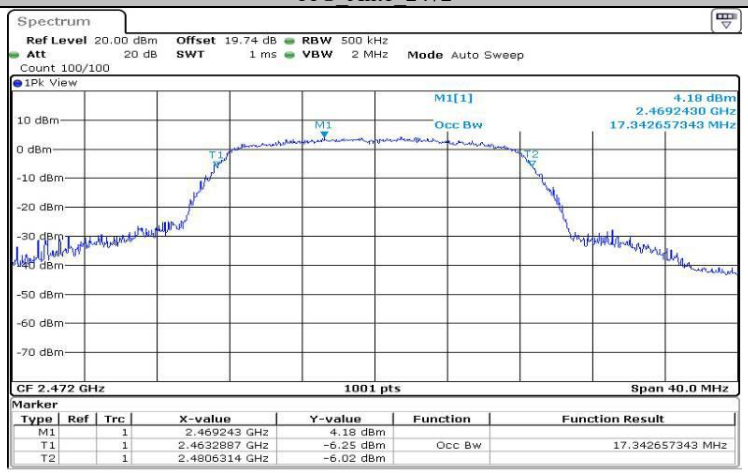
11G_Ant1_2412



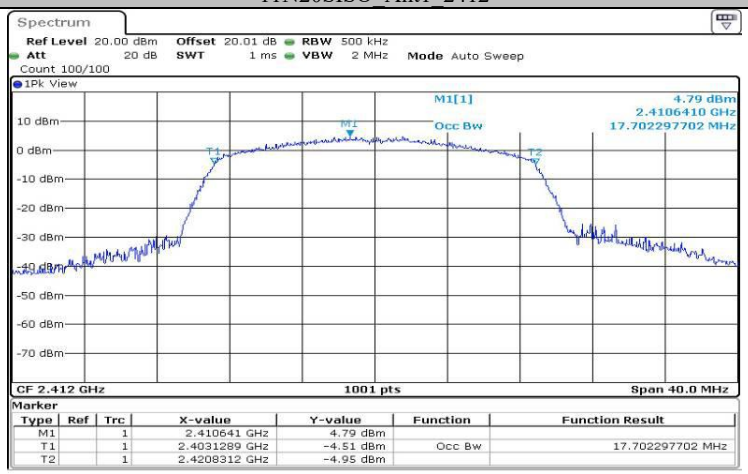
11G_Ant1_2442



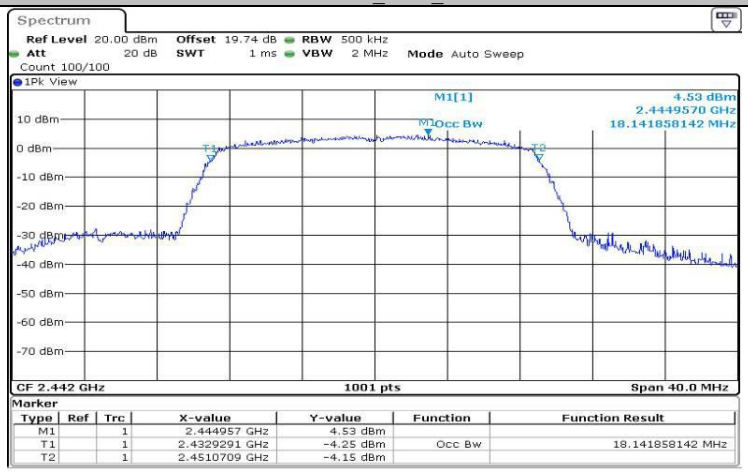
11G_Ant1_2472



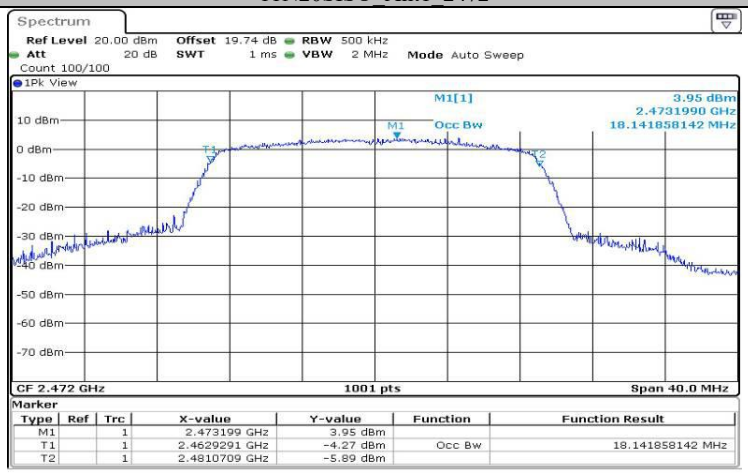
11N20SISO_Ant1_2412



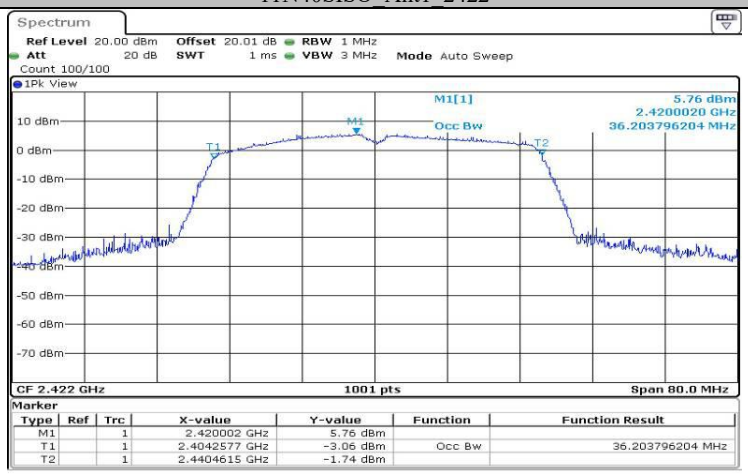
11N20SISO_Ant1_2442



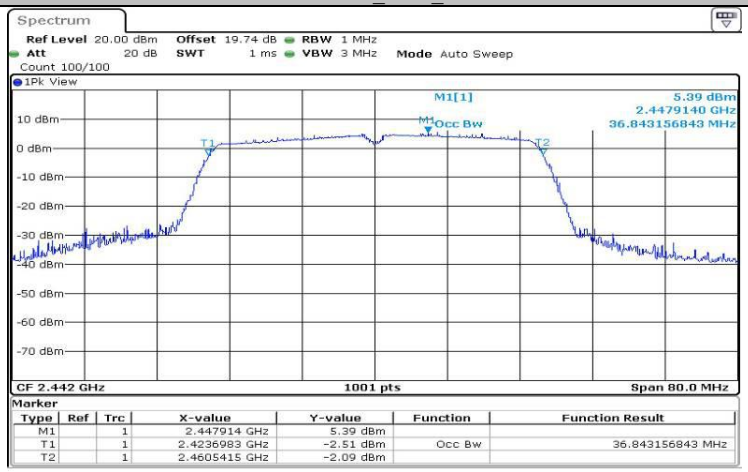
11N20SISO_Ant1_2472



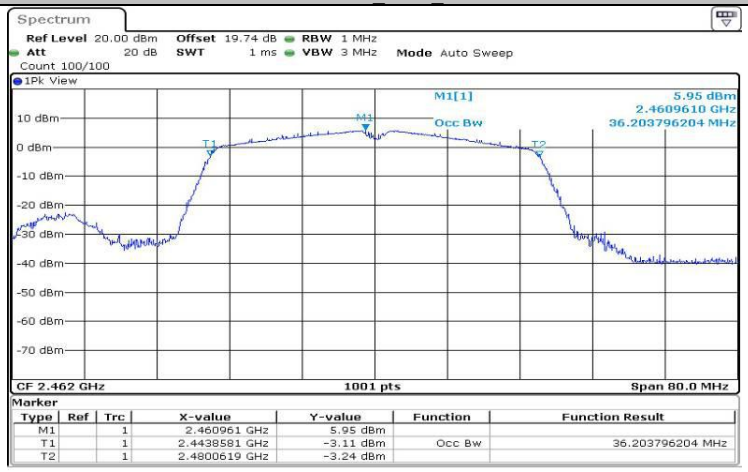
11N40SISO_Ant1_2422



11N40SISO_Ant1_2442



11N40SISO_Ant1_2462



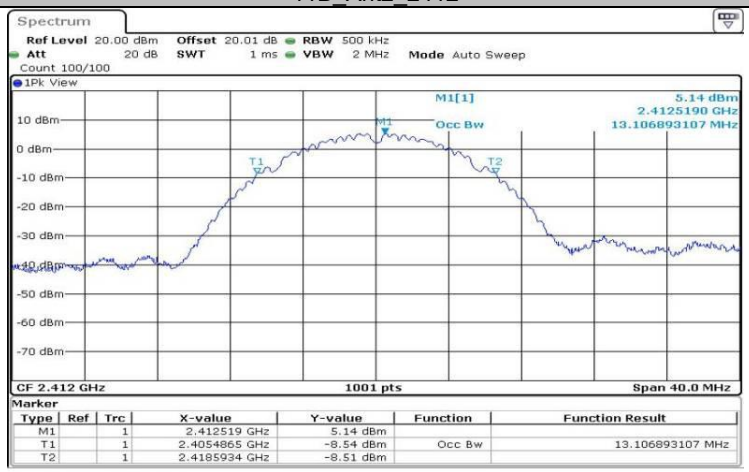
AUX Antenna:

Test Result

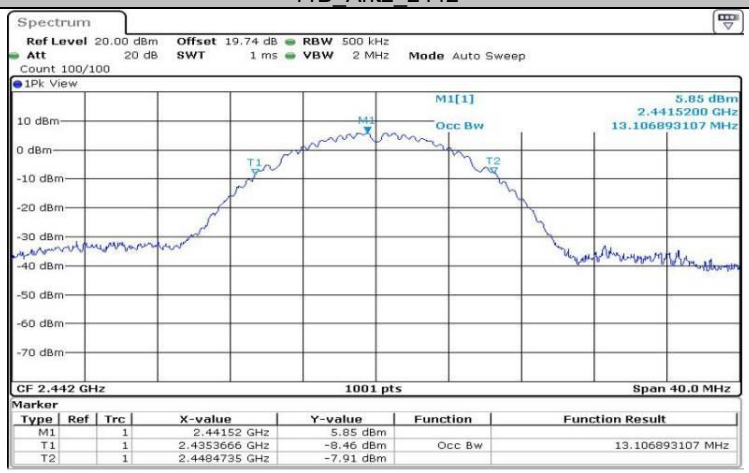
Test Mode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant2	2412	13.107	2405.487	2418.593	---	---
		2442	13.107	2435.367	2448.474	---	---
		2472	12.468	2465.686	2478.154	---	---
11G	Ant2	2412	17.383	2403.289	2420.671	---	---
		2442	17.263	2433.369	2450.631	---	---
		2472	17.063	2463.409	2480.472	---	---
11N20SISO	Ant2	2412	18.142	2402.969	2421.111	---	---
		2442	18.102	2432.969	2451.071	---	---
		2472	17.982	2462.969	2480.951	---	---
11N40SISO	Ant2	2422	36.603	2403.778	2440.382	---	---
		2442	36.364	2423.938	2460.302	---	---
		2462	36.284	2443.379	2479.662	---	---

Test Graphs

11B_Ant2_2412



11B_Ant2_2442



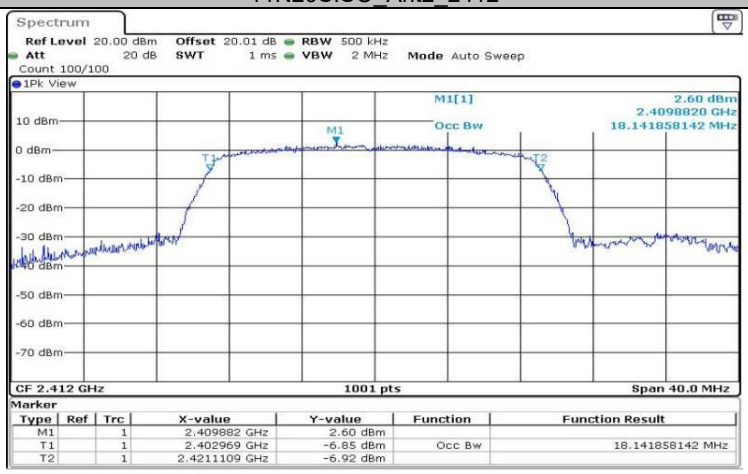
11B_Ant2_2472

11G_Ant2_2412

11G_Ant2_2442

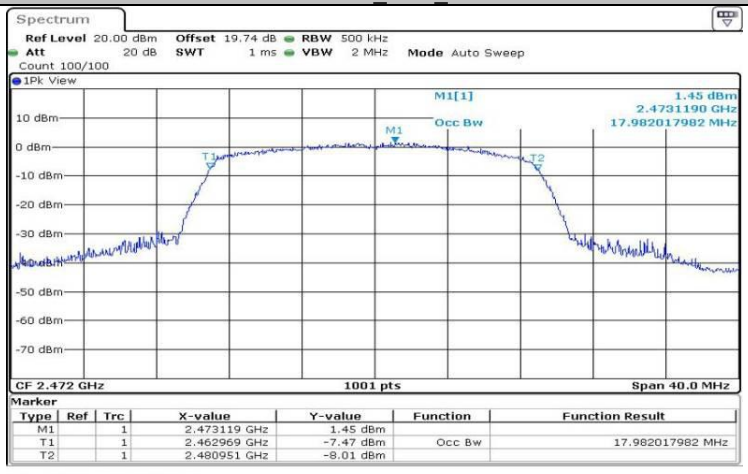
11G_Ant2_2472

11N20SISO_Ant2_2412



11N20SISO_Ant2_2442

11N20SISO_Ant2_2472



11N40SISO_Ant2_2422

11N40SISO_Ant2_2442

11N40SISO_Ant2_2462

Appendix C: Maximum conducted output power

Test Result

Main Antenna:

Test Mode	Antenna	Frequency [MHz]	Average Power [dBm]	Conducted Limit [dBm]	Verdict
11B	Ant1	2412	13.74	≤30.00	PASS
		2442	13.70	≤30.00	PASS
		2472	13.05	≤30.00	PASS
11G	Ant1	2412	7.62	≤30.00	PASS
		2442	8.24	≤30.00	PASS
		2472	7.63	≤30.00	PASS
11N20SISO	Ant1	2412	7.42	≤30.00	PASS
		2442	8.10	≤30.00	PASS
		2472	7.51	≤30.00	PASS
11N40SISO	Ant1	2422	8.30	≤30.00	PASS
		2442	8.27	≤30.00	PASS
		2462	8.13	≤30.00	PASS

Aux Antenna:

Test Mode	Antenna	Frequency [MHz]	Average Power [dBm]	Conducted Limit [dBm]	Verdict
11B	Ant2	2412	13.00	≤30.00	PASS
		2442	13.63	≤30.00	PASS
		2472	12.25	≤30.00	PASS
11G	Ant2	2412	7.70	≤30.00	PASS
		2442	8.20	≤30.00	PASS
		2472	6.95	≤30.00	PASS
11N20SISO	Ant2	2412	7.60	≤30.00	PASS
		2442	8.15	≤30.00	PASS
		2472	6.84	≤30.00	PASS
11N40SISO	Ant2	2422	8.02	≤30.00	PASS
		2442	8.29	≤30.00	PASS
		2462	7.71	≤30.00	PASS

Appendix D: Maximum power spectral density

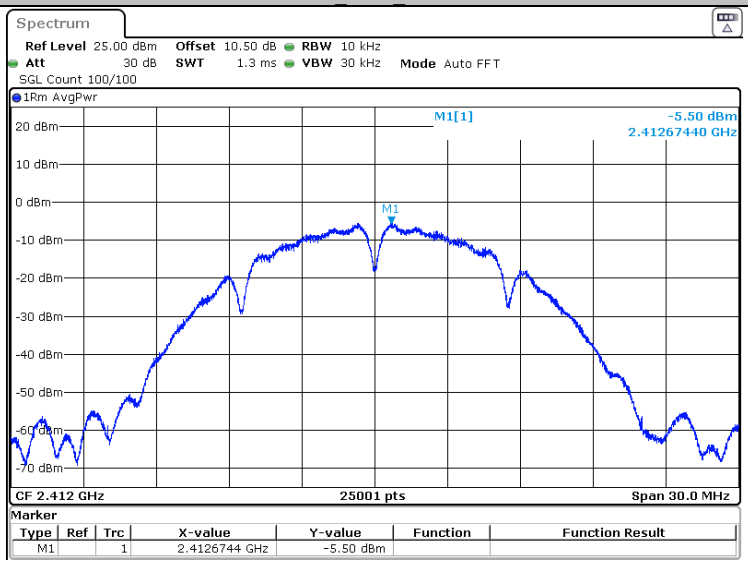
Main Antenna:

Test Result

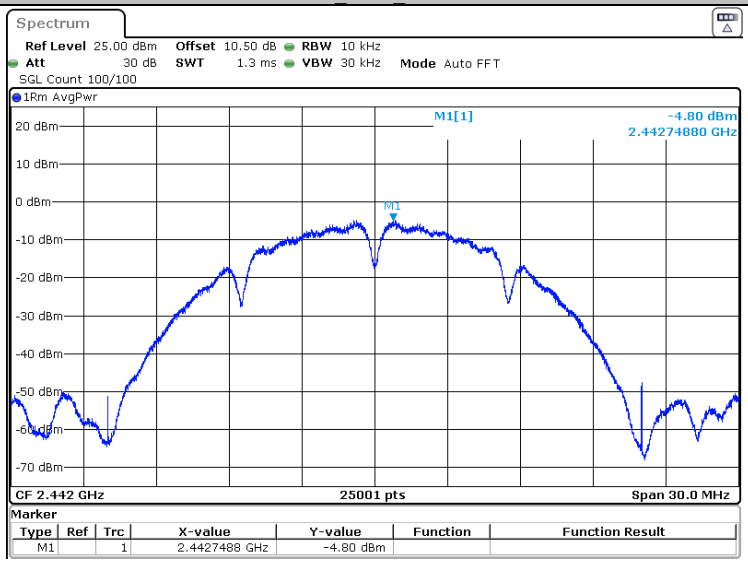
Test Mode	Antenna	Frequency[MHz]	Measured [dBm/10kHz]	Duty Cycle(%)	Result [dBm/10kHz]	Limit[dBm/3kHz]
11B	Ant1	2412	-5.50	100	-5.50	≤8.00
		2442	-4.80	100	-4.80	≤8.00
		2472	-5.25	100	-5.25	≤8.00
11G	Ant1	2412	-14.66	100	-14.66	≤8.00
		2442	-14.43	100	-14.43	≤8.00
		2472	-14.70	100	-14.70	≤8.00
11N20SISO	Ant1	2412	-15.19	100	-15.19	≤8.00
		2442	-14.48	100	-14.48	≤8.00
		2472	-14.61	100	-14.61	≤8.00
11N40SISO	Ant1	2422	-17.16	100	-17.16	≤8.00
		2442	-17.85	100	-17.85	≤8.00
		2462	-16.11	100	-16.11	≤8.00

Test Graphs

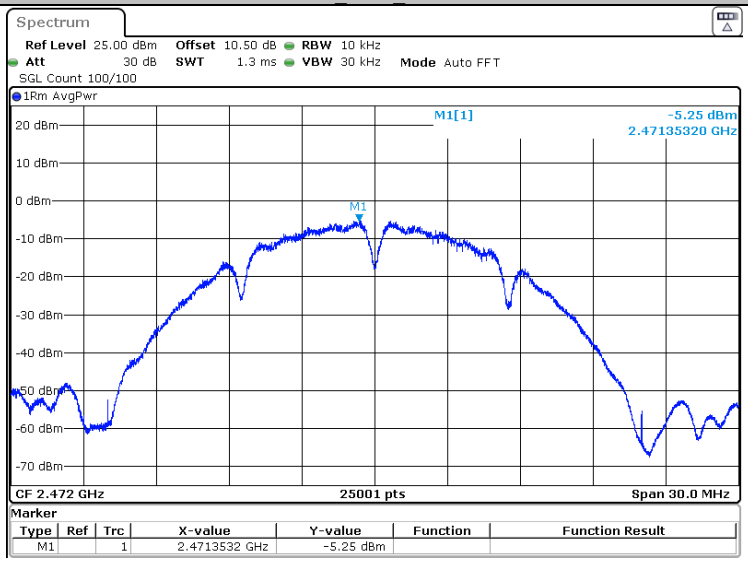
11B_Ant1_2412



11B_Ant1_2442

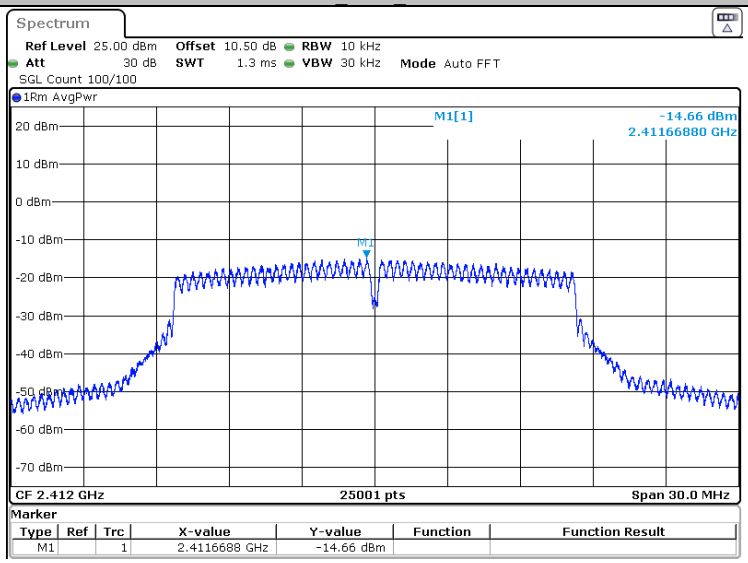


11B_Ant1_2472



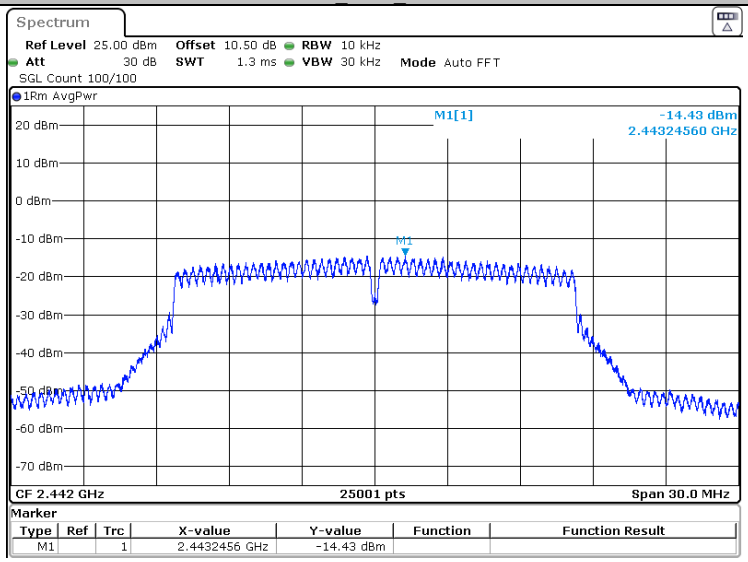
Date: 28.FEB.2023 18:42:48

11G_Ant1_2412



Date: 28.FEB.2023 18:49:52

11G_Ant1_2442



11G_Ant1_2472