FCC RADIO TEST REPORT

FCC ID: 2BBNO-CA701

Sample : CARPLAY

Trade Mark : N/A

Main Model : CA701

Additional Model : Additional model please refer to the page 8

Report No.: 23060629ER-63

Prepared for

Shenzhen jinnaibo Electronic Co., Ltd.

Floor 3, building L, Shasi hi tech park, Shasi Community, Shajing street, Baoan, Shenzhen, China

Prepared by

Global United Technology Services Co. Ltd.

No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

TEST RESULT CERTIFICATION

Applicant	:	Shenzhen jinnaibo Electronic Co., Ltd.
Address	:	Floor 3, building L, Shasi hi tech park, Shasi Community, Shajing street, Baoan, Shenzhen, China
Manufacturer	:	Shenzhen jinnaibo Electronic Co., Ltd.
Address	:	Floor 3, building L, Shasi hi tech park, Shasi Community, Shajing street, Baoan, Shenzhen, China

Product description

Product	:	CARPLAY
Trade Mark	:	N/A
Model Name	:	CA701, Additional model please refer to the page 8
Test Methods	:	FCC Rules and Regulations Part 15 Subpart C Section 15.247 ANSI C63.10: 2013

This device described above has been tested by Global United Technology Services Co. Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test	:	
Date (s) of performance of tests	:	Jun. 06, 2023 ~ Jun. 29, 2023
Date of Issue	:	Jul. 13, 2023
Test Result	:	Pass

Prepared By:		***Date:***	*2023-7-13*
	Project Engineer		
Check By:		***Date:***	*2023-7-13*
	Reviewer		

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1 TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

Item	FCC Rules	Description Of Test	Result
1	FCC Part 15.207	Conducted Emission	N/A
2	FCC Part 15.209(a)	Radiated Emission	Pass
3	FCC Part 15.247(a)(2)	Occupied Bandwidth	Pass
4	FCC Part 15.247(e)	Power Spectral Density	Pass
5	FCC Part 15.247(b)	Peak Output Power	Pass
6	FCC Part 15.247(d)	Out Of Band Emissions	Pass
7	FCC Part 15.247(d)	Conducted Spurious Emission	Pass
8	FCC Part 15.203	Antenna Requirement	Pass

Note:

“N/A” denotes test is not applicable in this Test Report.

1.2 TEST FACILITY

Test Firm	:	Global United Technology Services Co. Ltd.
Address	:	No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC—Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

● **IC —Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

● **NVLAP (LAB CODE: 600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

1.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)
UNI	ANSI	9kHz ~ 150kHz	2.96
		150kHz ~ 30MHz	2.44

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)
UNI	ANSI	9kHz ~ 30MHz	2.50
		30MHz ~ 1000MHz	4.80
		1000MHz ~ 18000MHz	4.13

C. RF Conducted Method:

Item	Measurement Uncertainty
Uncertainty of total RF power, conducted	U_c = ±0.8 dB
Uncertainty of RF power density, conducted	U_c = ±2.6 dB
Uncertainty of spurious emissions, conducted	U_c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U_c = ±2 %

1.4 ENVIRONMENTAL CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (℃)	15 - 35	-20 - 50
Relative humidty range	20 % - 75 %	20 % - 75 %
Pressure range (kPa)	86 - 106	86 - 106
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.		

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product:	CARPLAY
Trade Mark:	N/A
Main Model:	CA701
Additional Model:	CA702, CA703, CA704, CA705, CA706, CA707, CA708, CA709, CA710, CA711, CA712, CA713, CA714, CA715, CA716, CA717, CA718, CA719, CA720, CA721, CA722, CA723, CA724, CA725, CA726, CA727, CA728, CA729, CA730, CA901, CA902, CA903, CA904, CA905, CA906, CA907, CA908, CA909, CA910, CA911, CA912, CA913, CA914, CA915, CA916, CA917, CA918, CA919, CA920, CA921, CA922, CA923, CA924, CA925, CA926, CA927, CA928, CA929, CA930, CA101, CA102, CA103, CA104, CA105, CA106, CA107, CA108, CA109, CLP1, CLP2, CLP3, CLP4, CLP5, CLP6, CLP7, CLP8, CLP9, CLP10, CLP11, CLP12, CLP13, CLP15, LY7C-B, QZ7C-S, LY9C-S, LY9C-B, CL2, AA2, LY7C-ZYZ, QZ7C-01, QZ7C-02, QZ7C-03, QZ7C-05, QZ7C-06, QZ7C-07, QZ7C-08, QZ7C-09, T76, T96, A7, A9, S7, S9, J704, J706, J708, J710, J901, J904, D100, D200, D300, D400, D500, D600, D700, D800, D900
Model Difference:	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: CA701.
Operation Frequency:	802.11b/g/n20:2412~2462MHz 802.11n40: 2422~2452MHz
Number of Channels:	802.11b/g/n20: 11CH 802.11n40: 7CH
Maximum Peak Conducted Output Power:	9.21 dBm
Modulation Type:	CCK, OFDM, DBPSK, DAPSK
Antenna Type:	PCB Antenna
Antenna Gain:	-5.09dBi
Battery:	N/A
Adapter:	N/A
Power Source:	DC 9-26V from car charger

2.2 CARRIER FREQUENCY OF CHANNELS

Channel List for 802.11b/g/n(HT20)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

Channel List for 802.11n(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
03	2422	05	2432	07	2442	09	2452
04	2427	06	2437	08	2447		

2.3 TEST MODE

The EUT was programmed to be in continuously transmitting mode.

Channel List for 802.11b/g/n((HT20)		
Test Channel	EUT Channel	Test Frequency (MHz)
Low	CH01	2412
Middle	CH06	2437
High	CH11	2462

Channel List for 802.11n(40MHz)		
Test Channel	EUT Channel	Test Frequency (MHz)
Low	CH03	2422
Middle	CH06	2437
High	CH09	2452

2.4 DESCRIPTION OF THE TEST MODES

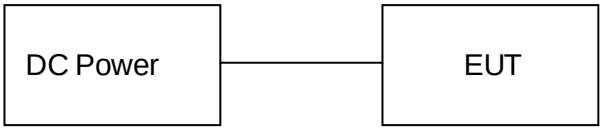
During the measurement the environmental conditions were within the listed ranges:

Voltage	Normal Voltage	DC 24V
	High Voltage	DC 26.4V
	Low Voltage	DC 21.6V
Other	Normal Temperature	24°C
	Relative Humidity	55 %
	Air Pressure	989 hPa

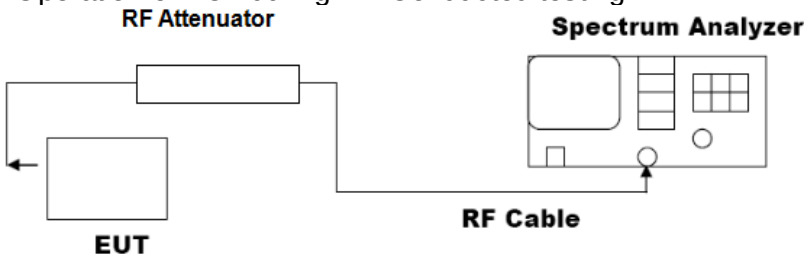
Note: All modes were test at Normal Voltage, High Voltage, and Low Voltage, only the worst results of Normal Voltage was reported in the test report.

2.5 TEST SETUP

Operation of EUT during Radiation testing:



Operation of EUT during RF Conducted testing:



2.6 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model No.	Cable Length(cm)	Remark
1	CARPLAY	CA701	--	EUT
2	Battery	--	--	AE

Note:

1. The support equipment was authorized by Declaration of Confirmation.
2. All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

2.7 MEASUREMENT INSTRUMENTS LIST

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	July 12, 2022	July 11, 2027
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 14, 2023	April 13, 2024
3	LISN	ROHDE & SCHWARZ	ENV216	GTS226	April 14, 2023	April 13, 2024
4	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
6	Thermo meter	JINCHUANG	GSP-8A	GTS642	April 19, 2023	April 18, 2024
7	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	April 14, 2023	April 13, 2024
8	ISN	SCHWARZBECK	NTFM 8158	GTS565	April 14, 2023	April 13, 2024
9	High voltage probe	SCHWARZBECK	TK9420	GTS537	April 14, 2023	April 13, 2024
10	Antenna end assembly	Weinschel	1870A	GTS560	April 14, 2023	April 13, 2024

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	June 23, 2021	June 22, 2024
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 14, 2023	April 13, 2024
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 19, 2023	March 18, 2025
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	April 17, 2023	April 16, 2025
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Coaxial Cable	GTS	N/A	GTS213	April 21, 2023	April 20, 2024
8	Coaxial Cable	GTS	N/A	GTS211	April 21, 2023	April 20, 2024
9	Coaxial cable	GTS	N/A	GTS210	April 21, 2023	April 20, 2024
10	Coaxial Cable	GTS	N/A	GTS212	April 21, 2023	April 20, 2024
11	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 14, 2023	April 13, 2024
12	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 29, 2022	Nov. 28, 2023
13	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 14, 2023	April 13, 2024
14	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 14, 2023	April 13, 2024
15	Horn Antenna (18-26.5GHz)	/	UG-598A/U	GTS664	Oct. 30, 2022	Oct. 29, 2023
16	Horn Antenna (26.5-40GHz)	A.H Systems	SAS-573	GTS665	Oct. 30, 2022	Oct. 29, 2023
17	FSV·Signal Analyzer (10Hz-40GHz)	Keysight	FSV-40-N	GTS666	March 13, 2023	March 12, 2024
18	Amplifier	/	LNA-1000-30S	GTS650	April 14, 2023	April 13, 2024
19	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS668	Dec. 20, 2022	Dec.19, 2023
20	Thermo meter	JINCHUANG	GSP-8A	GTS643	April 19, 2023	April 18, 2024

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	April 14, 2023	April 13, 2024
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 14, 2023	April 13, 2024
3	PSA Series Spectrum Analyzer	Agilent	E4440A	GTS536	April 14, 2023	April 13, 2024
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	April 14, 2023	April 13, 2024
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	April 14, 2023	April 13, 2024
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	April 14, 2023	April 13, 2024
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	April 14, 2023	April 13, 2024
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	April 14, 2023	April 13, 2024
9	Thermo meter	JINCHUANG	GSP-8A	GTS641	April 19, 2023	April 18, 2024

3 CONDUCTED EMISSION

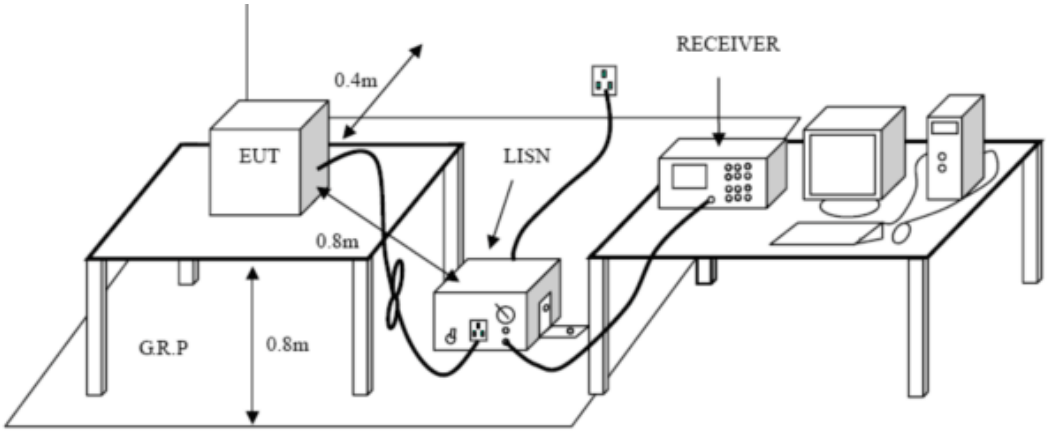
3.1 TEST LIMIT

For unintentional device, according to § 15.207(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dB V)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15~0.50	79	66	66~56*	56~46*
0.50~5.00	73	60	56	46
5.00~30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency.
For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

3.2 TEST SETUP



3.3 TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is placed on a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10: 2013.
2. Support equipment, if needed, was placed as per ANSI C63.10: 2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10: 2013.
4. If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hzpower through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

3.4 TEST RESULT

N/A

Remark:
The EUT is powered by DC power.

4 RADIATED EMISSION

4.1 TEST LIMIT

For unintentional device, according to §15.209(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F (kHz)	-	Quasi-peak	300
0.490MHz-1.705MHz	24000/F (kHz)	-	Quasi-peak	30
1.705MHz-30MHz	30	-	Quasi-peak	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3
		74.0	Peak	3

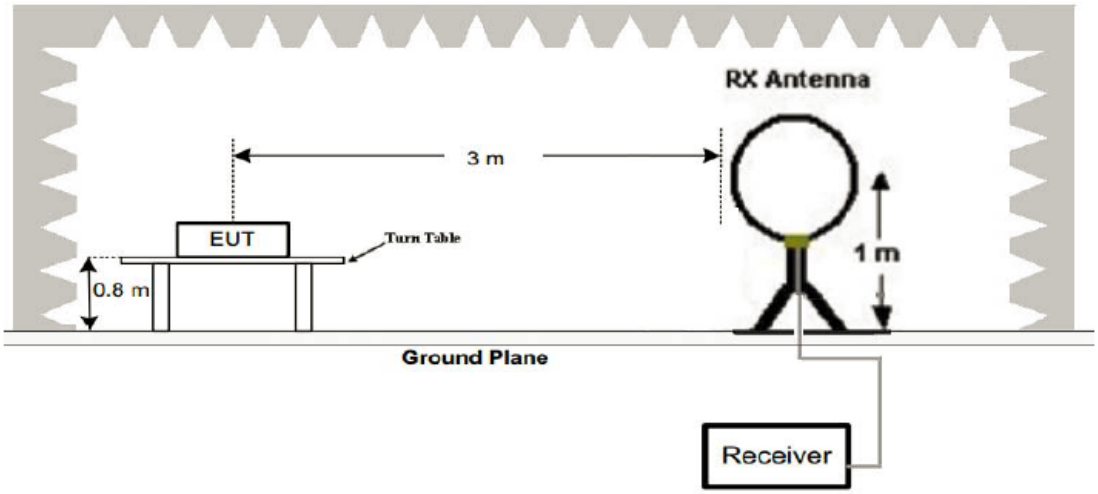
Limit calculation and transfer to 3m distance as showed in the following table:

Frequency (MHz)	**Limit (dBuV/m)**	**Distance (m)**
0.009-0.490	20log(2400/F(KHz))+40log(300/3)	3
0.490-1.705	20log(24000/F(KHz))+40log(30/3)	3
1.705-30.0	69.5	3
30-88	40.0	3
88-216	43.5	3
216-960	46.0	3
Above 960	54.0	3

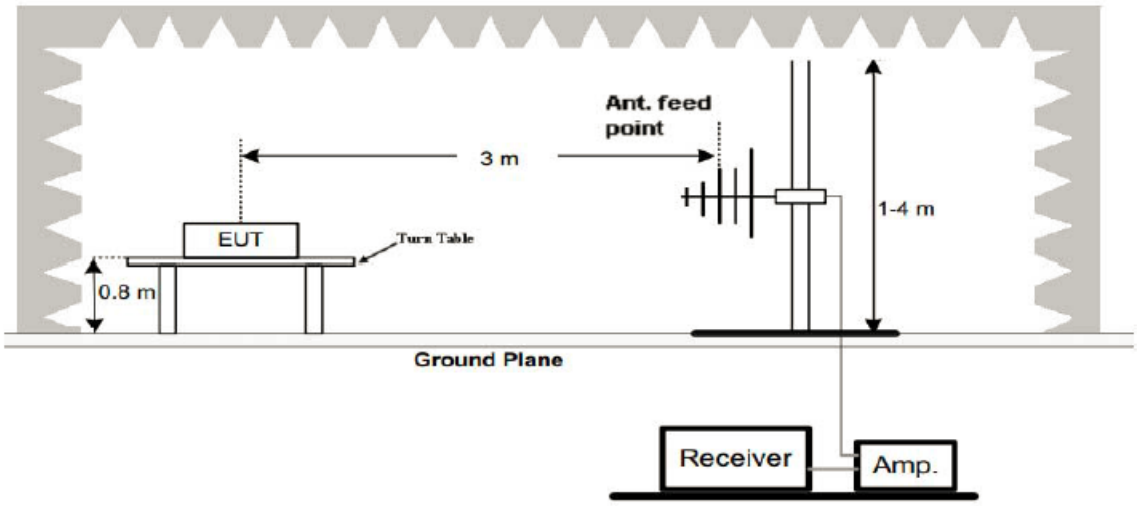
For intentional device, according to §15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 TEST SETUP

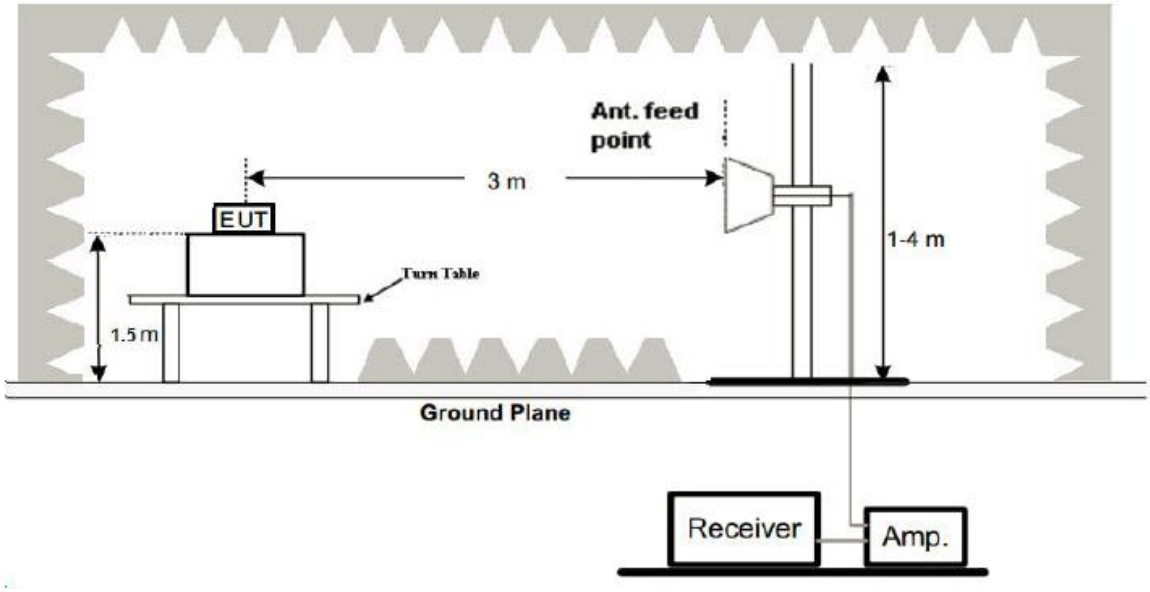
1. Radiated Emission Test-Up Frequency Below 30MHz



2. Radiated Emission Test-Up Frequency 30MHz~1GHz



3. Radiated Emission Test-Up Frequency Above 1GHz



4.3 TEST PROCEDURE

1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The test frequency range from 9kHz to25GHz per FCC PART 15.33(a).

Note: For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4 TEST RESULT

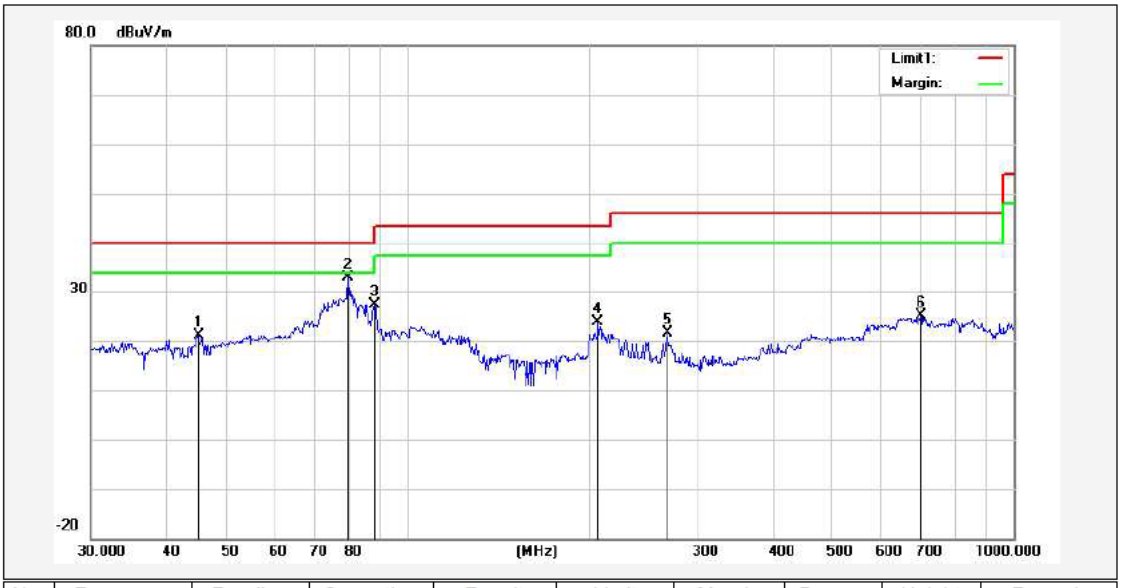
PASS

Remark:

1. All modes were test at Low, Middle, and High channel, only the worst result of 802.11b Low Channel was reported for below 1GHz test.
2. By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “X axis” position was the worst, and test data recorded in this report.

Below 1GHz Test Results:

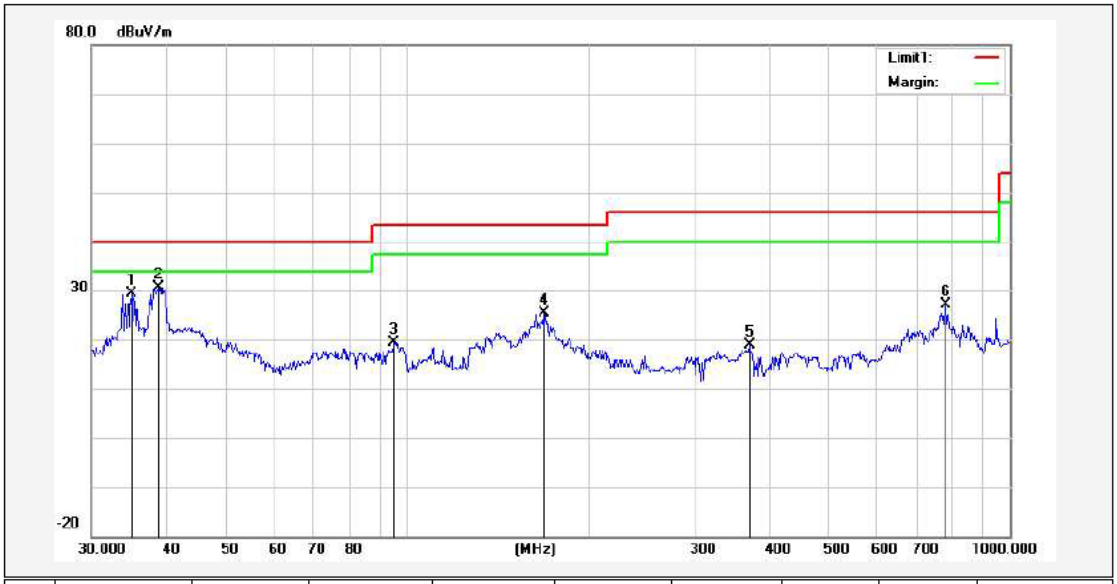
Temperature:	24℃	Relative Humidity:	48%
Test Date:	Jun. 13, 2023	Pressure:	1010hPa
Test Voltage:	DC 24V	Phase:	Horizontal
Test Mode:	Transmitting mode of 802.11b 2412MHz		



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	45.0583	39.32	-18.14	21.18	40.00	-18.82	322	100	peak
2*	79.5207	53.73	-20.79	32.94	40.00	-7.06	353	100	peak
3	88.0327	48.06	-20.76	27.30	43.50	-16.20	98	100	peak
4	205.6750	40.57	-16.72	23.85	43.50	-19.65	104	100	peak
5	267.5455	36.90	-15.26	21.64	46.00	-24.36	196	100	peak
6	701.7610	33.54	-8.49	25.05	46.00	-20.95	271	100	peak

Remark: Absolute Level= Reading Level+ Factor, Margin= Absolute Level – Limit
Factor=Ant. Factor + Cable Loss – Pre-amplifier

Temperature:	24℃	Relative Humidity:	48%
Test Date:	Jun. 13, 2023	Pressure:	1010hPa
Test Voltage:	DC 24V	Phase:	Vertical
Test Mode:	Transmitting mode of 802.11b 2412MHz		



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	34.8823	40.08	-10.78	29.30	40.00	-10.70	101	100	peak
2*	38.6161	44.61	-13.89	30.72	40.00	-9.28	98	100	peak
3	95.0930	39.38	-19.91	19.47	43.50	-24.03	214	100	peak
4	168.4138	42.29	-16.84	25.45	43.50	-18.05	267	100	peak
5	369.4046	32.77	-13.89	18.88	46.00	-27.12	353	100	peak
6	782.3451	34.18	-7.16	27.02	46.00	-18.98	21	100	peak

Remark: Absolute Level= Reading Level+ Factor, Margin= Absolute Level – Limit
Factor=Ant. Factor + Cable Loss – Pre-amplifier

Remark:
1. Radiated emission test from 9KHz to 10th harmonic of fundamental was verified, emission from 9kHz to 30MHz are more than 20dB below the limit, so it was not recorded in this report.
2. * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
3. The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120kHz, 1MHz for measuring above 1GHz, below 30MHz was 10kHz.

Above 1 GHz Test Results:

CH01 of 802.11b Mode (2412MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824	58.55	-3.64	54.91	74	-19.09	PK
4824	50.28	-3.64	46.64	54	-7.36	AV
7236	56.21	-0.95	55.26	74	-18.74	PK
7236	45.88	-0.95	44.93	54	-9.07	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824	58.85	-3.64	55.21	74	-18.79	PK
4824	48.07	-3.64	44.43	54	-9.57	AV
7236	56.26	-0.95	55.31	74	-18.69	PK
7236	45.89	-0.95	44.94	54	-9.06	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH06 of 802.11b Mode (2437MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874	59.22	-3.51	55.71	74	-18.29	PK
4874	48.28	-3.51	44.77	54	-9.23	AV
7311	55.91	-0.82	55.09	74	-18.91	PK
7311	45.95	-0.82	45.13	54	-8.87	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874	59.16	-3.51	55.65	74	-18.35	PK
4874	47.78	-3.51	44.27	54	-9.73	AV
7311	56.02	-0.82	55.2	74	-18.8	PK
7311	45.55	-0.82	44.73	54	-9.27	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH11 of 802.11b Mode (2462MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924	58.85	-3.43	55.42	74	-18.58	PK
4924	48.46	-3.43	45.03	54	-8.97	AV
7386	55.65	-0.75	54.9	74	-19.1	PK
7386	45.77	-0.75	45.02	54	-8.98	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924	64.11	-3.43	60.68	74	-13.32	PK
4924	47.85	-3.43	44.42	54	-9.58	AV
7386	56.47	-0.75	55.72	74	-18.28	PK
7386	45.15	-0.75	44.4	54	-9.6	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH01 of 802.11g Mode (2412MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824	59.16	-3.64	55.52	74	-18.48	PK
4824	47.75	-3.64	44.11	54	-9.89	AV
7236	55.18	-0.95	54.23	74	-19.77	PK
7236	45.57	-0.95	44.62	54	-9.38	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824	58.75	-3.64	55.11	74	-18.89	PK
4824	47.91	-3.64	44.27	54	-9.73	AV
7236	55.56	-0.95	54.61	74	-19.39	PK
7236	44.98	-0.95	44.03	54	-9.97	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH06 of 802.11g Mode (2437MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874	59.22	-3.51	55.71	74	-18.29	PK
4874	47.87	-3.51	44.36	54	-9.64	AV
7311	54.99	-0.82	54.17	74	-19.83	PK
7311	44.85	-0.82	44.03	54	-9.97	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874	58.93	-3.51	55.42	74	-18.58	PK
4874	48.57	-3.51	45.06	54	-8.94	AV
7311	54.98	-0.82	54.16	74	-19.84	PK
7311	45.31	-0.82	44.49	54	-9.51	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH11 of 802.11g Mode (2462MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924	58.92	-3.43	55.49	74	-18.51	PK
4924	48.47	-3.43	45.04	54	-8.96	AV
7386	54.88	-0.75	54.13	74	-19.87	PK
7386	44.99	-0.75	44.24	54	-9.76	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924	59.31	-3.43	55.88	74	-18.12	PK
4924	48.37	-3.43	44.94	54	-9.06	AV
7386	55.23	-0.75	54.48	74	-19.52	PK
7386	45.28	-0.75	44.53	54	-9.47	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH01 of 802.11n/HT20 Mode (2412MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824	59.01	-3.64	55.37	74	-18.63	PK
4824	48.56	-3.64	44.92	54	-9.08	AV
7236	55	-0.95	54.05	74	-19.95	PK
7236	45.33	-0.95	44.38	54	-9.62	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824	59.19	-3.64	55.55	74	-18.45	PK
4824	48.31	-3.64	44.67	54	-9.33	AV
7236	55.06	-0.95	54.11	74	-19.89	PK
7236	45.62	-0.95	44.67	54	-9.33	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH06 of 802.11n/HT20 Mode (2437MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874	58.95	-3.51	55.44	74	-18.56	PK
4874	48.52	-3.51	45.01	54	-8.99	AV
7311	55.85	-0.82	55.03	74	-18.97	PK
7311	44.96	-0.82	44.14	54	-9.86	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874	59.28	-3.51	55.77	74	-18.23	PK
4874	47.89	-3.51	44.38	54	-9.62	AV
7311	55.11	-0.82	54.29	74	-19.71	PK
7311	45.02	-0.82	44.2	54	-9.8	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH11of 802.11n/HT20 Mode (2462MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924	57.88	-3.43	54.45	74	-19.55	PK
4924	48.01	-3.43	44.58	54	-9.42	AV
7386	54.66	-0.75	53.91	74	-20.09	PK
7386	45.57	-0.75	44.82	54	-9.18	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924	58.69	-3.43	55.26	74	-18.74	PK
4924	48.12	-3.43	44.69	54	-9.31	AV
7386	55.59	-0.75	54.84	74	-19.16	PK
7386	45.2	-0.75	44.45	54	-9.55	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH03 of 802.11n/H40 Mode (2422MHz):

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4844	58.02	-3.63	54.39	74	-19.61	PK
4844	48.28	-3.63	44.65	54	-9.35	AV
7266	55.17	-0.94	54.23	74	-19.77	PK
7266	44	-0.94	43.06	54	-10.94	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4844	60.22	-3.63	56.59	74	-17.41	PK
4844	48.96	-3.63	45.33	54	-8.67	AV
7266	54.38	-0.94	53.44	74	-20.56	PK
7266	41.81	-0.94	40.87	54	-13.13	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH06 of 802.11n/H40 Mode (2437MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874	57.89	-3.51	54.38	74	-19.62	PK
4874	48.11	-3.51	44.6	54	-9.4	AV
7311	54.7	-0.82	53.88	74	-20.12	PK
7311	45.22	-0.82	44.4	54	-9.6	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874	58.76	-3.51	55.25	74	-18.75	PK
4874	47.2	-3.51	43.69	54	-10.31	AV
7311	54.96	-0.82	54.14	74	-19.86	PK
7311	45.11	-0.82	44.29	54	-9.71	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH09 of 802.11n/H40 Mode (2452MHz):

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4904	58.85	-3.43	55.42	74	-18.58	PK
4904	47.92	-3.43	44.49	54	-9.51	AV
7356	55.28	-0.75	54.53	74	-19.47	PK
7356	45.01	-0.75	44.26	54	-9.74	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4904	58.18	-3.43	54.75	74	-19.25	PK
4904	48.32	-3.43	44.89	54	-9.11	AV
7356	55.6	-0.75	54.85	74	-19.15	PK
7356	44.12	-0.75	43.37	54	-10.63	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Remark:
1. Measuring frequencies from 1GHz to the 25GHz.
2. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
3. * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
4. The emissions are attenuated more than 20dB below the permissible limits are not recorded in the report.
5. The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120kHz, 1 MHz for measuring above 1GHz, below 30MHz was 10kHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
6. When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20dBuV/m(PK Value) <54dBuV/m(AV Limit), the Average Detected not need to completed.
7. All modes of operation were investigated and the worst-case emissions are reported.

Operation Mode: CH01 of 802.11b Mode (2412MHz)

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2310	56.06	-5.81	50.25	74	-23.75	PK
2310	/	-5.81	/	54	/	AV
2390	64.47	-5.84	58.63	74	-15.37	PK
2390	46.99	-5.84	41.15	54	-12.85	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2310	56.11	-5.81	50.3	74	-23.7	PK
2310	/	-5.81	/	54	/	AV
2390	64.08	-5.84	58.24	74	-15.76	PK
2390	45.89	-5.84	40.05	54	-13.95	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Operation Mode: CH11 of 802.11b Mode (2462MHz)

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	55.79	-5.65	50.14	74	-23.86	PK
2483.5	/	-5.65	/	54	/	AV
2500	56.11	-5.72	50.39	74	-23.61	PK
2500	/	-5.72	/	54	/	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	56.22	-5.65	50.57	74	-23.43	PK
2483.5	/	-5.65	/	54	/	AV
2500	56.28	-5.72	50.56	74	-23.44	PK
2500	/	-5.72	/	54	/	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Operation Mode: CH01 of 802.11g Mode (2412MHz)

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2310	56.32	-5.81	50.51	74	-23.49	PK
2310	/	-5.81	/	54	/	AV
2390	63.86	-5.84	58.02	74	-15.98	PK
2390	46.01	-5.84	40.17	54	-13.83	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2310	55.89	-5.81	50.08	74	-23.92	PK
2310	/	-5.81	/	54	/	AV
2390	63.97	-5.84	58.13	74	-15.87	PK
2390	46.28	-5.84	40.44	54	-13.56	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Operation Mode: CH11 of 802.11g Mode (2462MHz)

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	56.21	-5.65	50.56	74	-23.44	PK
2483.5	/	-5.65	/	54	/	AV
2500	56.26	-5.72	50.54	74	-23.46	PK
2500	/	-5.72	/	54	/	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	55.89	-5.65	50.24	74	-23.76	PK
2483.5	/	-5.65	/	54	/	AV
2500	56.06	-5.72	50.34	74	-23.66	PK
2500	/	-5.72	/	54	/	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Operation Mode: CH01 of 802.11n/HT20 Mode (2412MHz)

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310	56	-5.81	50.19	74	-23.81	PK
2310	/	-5.81	/	54	/	AV
2390	64.55	-5.84	58.71	74	-15.29	PK
2390	45.89	-5.84	40.05	54	-13.95	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310	56.11	-5.81	50.3	74	-23.7	PK
2310	/	-5.81	/	54	/	AV
2390	64.18	-5.84	58.34	74	-15.66	PK
2390	45.92	-5.84	40.08	54	-13.92	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Operation Mode: CH11 of 802.11n/HT20 Mode (2462MHz)

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	56.01	-5.65	50.36	74	-23.64	PK
2483.5	/	-5.65	/	54	/	AV
2500	56.33	-5.72	50.61	74	-23.39	PK
2500	/	-5.72	/	54	/	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	56	-5.65	50.35	74	-23.65	PK
2483.5	/	-5.65	/	54	/	AV
2500	56.56	-5.72	50.84	74	-23.16	PK
2500	/	-5.72	/	54	/	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH03 of 802.11n/H40 Mode (2422MHz)

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310	55.78	-5.81	49.97	74	-24.03	PK
2310	/	-5.81	/	54	/	AV
2390	64.11	-5.84	58.27	74	-15.73	PK
2390	46.02	-5.84	40.18	54	-13.82	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310	56.16	-5.81	50.35	74	-23.65	PK
2310	/	-5.81	/	54	/	AV
2390	63.88	-5.84	58.04	74	-15.96	PK
2390	46.01	-5.84	40.17	54	-13.83	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

CH09 of 802.11n/H40 Mode (2452MHz)

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	56	-5.65	50.35	74	-23.65	PK
2483.5	/	-5.65	/	54	/	AV
2500	56.05	-5.72	50.33	74	-23.67	PK
2500	/	-5.72	/	54	/	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	55.21	-5.65	49.56	74	-24.44	PK
2483.5	/	-5.65	/	54	/	AV
2500	55.26	-5.72	49.54	74	-24.46	PK
2500	/	-5.72	/	54	/	AV
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit						

5 6dB BANDWIDTH

5.1 TEST LIMIT

FCC Part15(15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

5.2 TEST PROCEDURE

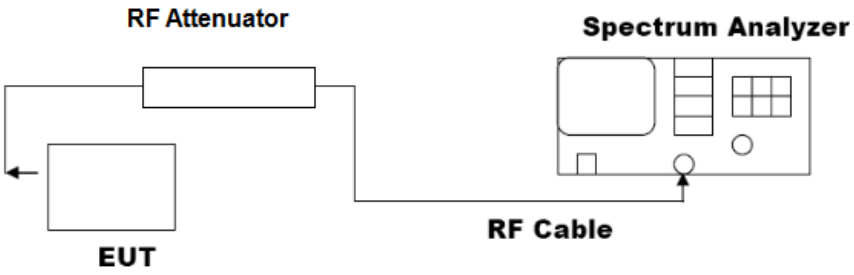
5.2.1 6dB BANDWIDTH MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW≥3×RBW.
4. Set SPA Trace 1 Max hold, then View.

5.2.2 99% OCCUPIED BANDWIDTH

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
   The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

5.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



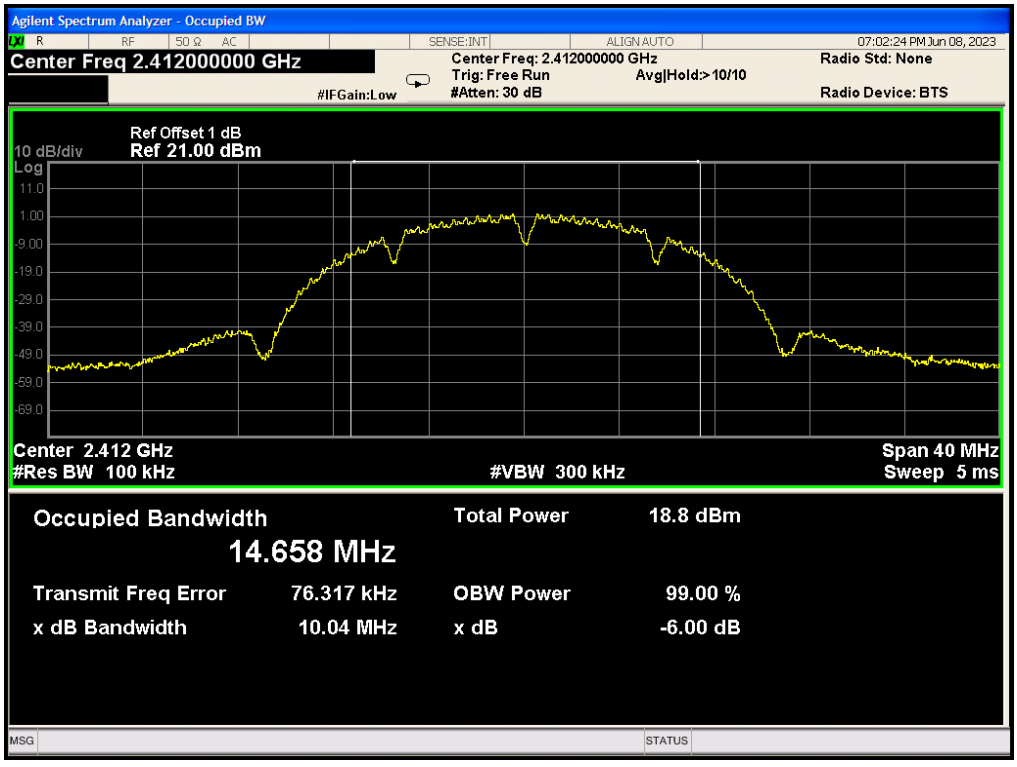
5.4 MEASUREMENT EQUIPMENT USED

The same as described in section 2.7.

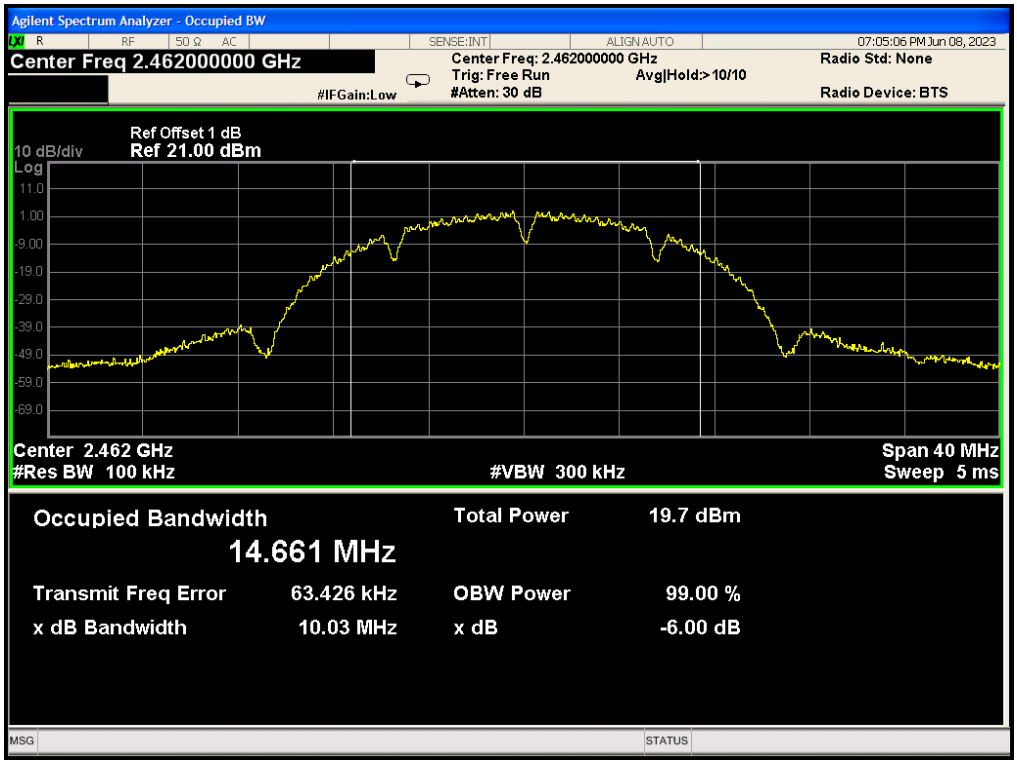
5.5 TEST RESULT

PASS

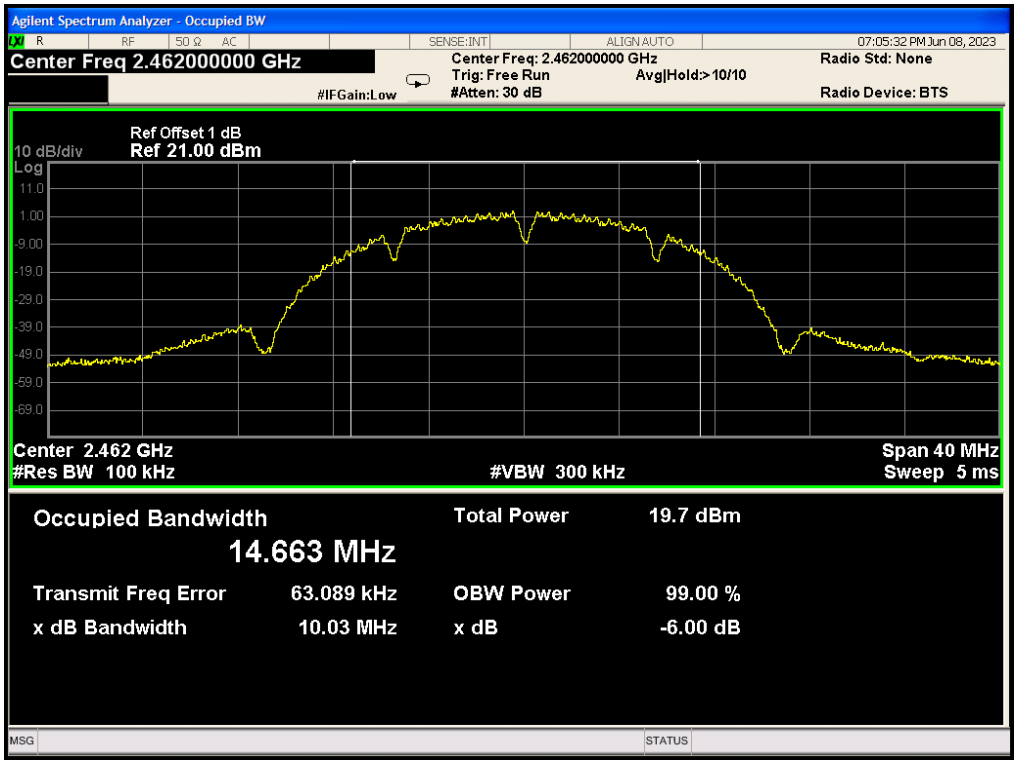
TX 802.11b Mode			
Frequency (MHz)	6dB Bandwidth (MHz)	Channel Separation (kHz)	Result
2412	10.04	>=500	PASS
2437	10.03	>=500	PASS
2462	10.03	>=500	PASS



CH01: 2412MHz

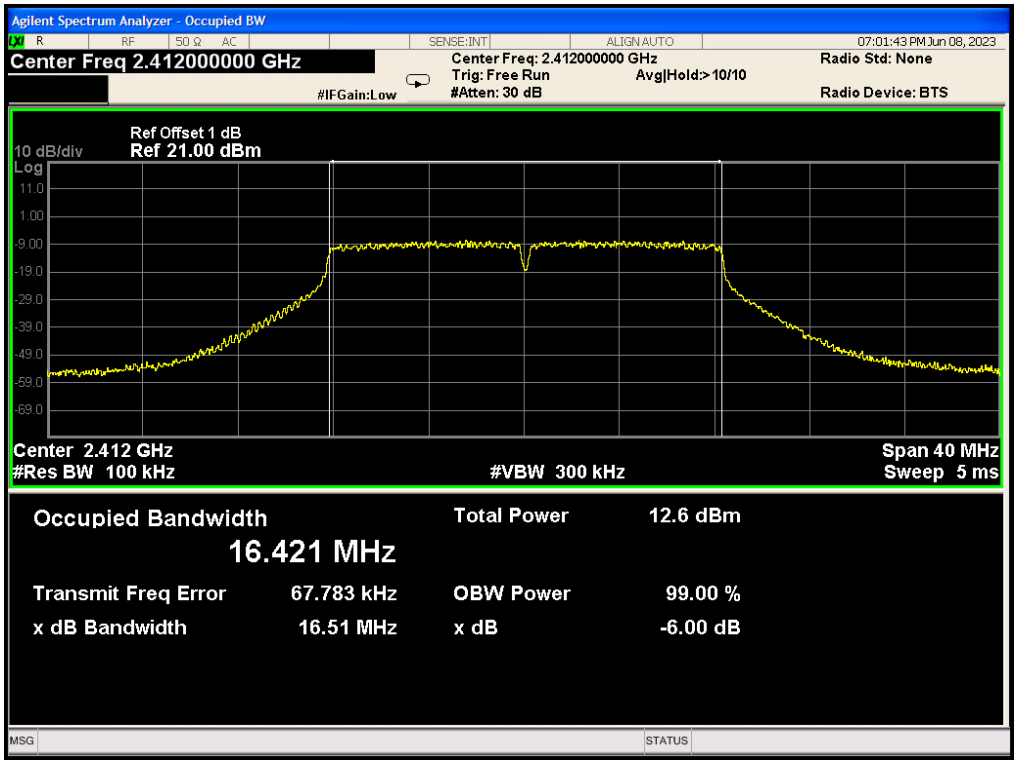


CH06: 2437MHz

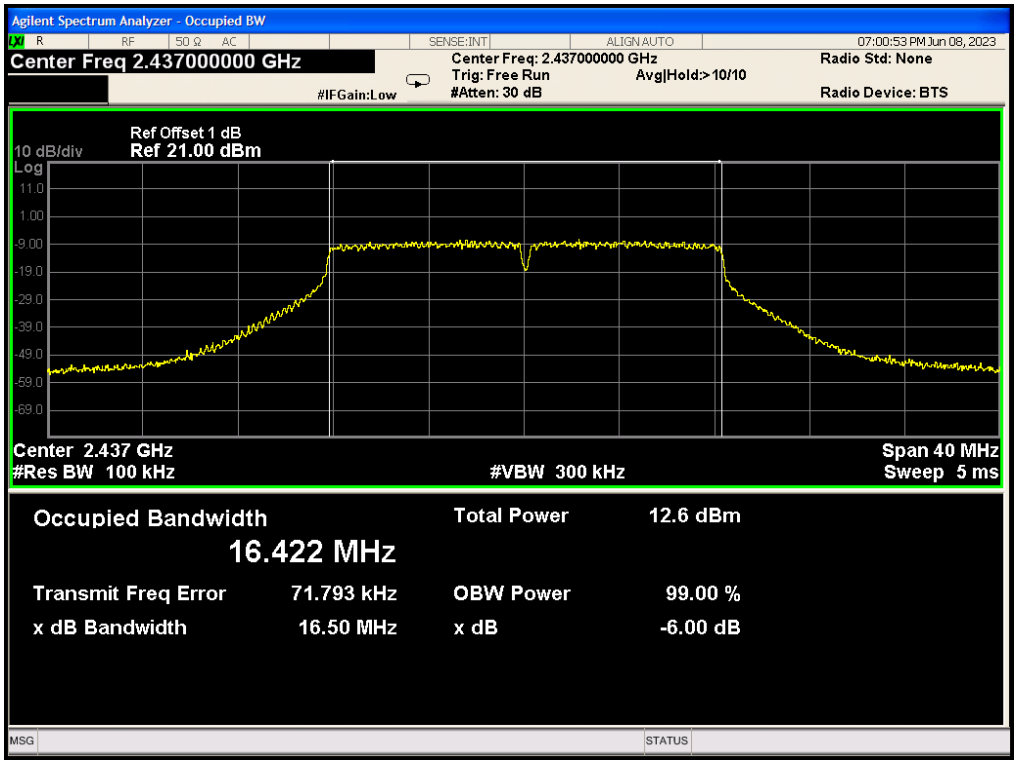


CH11: 2462MHz

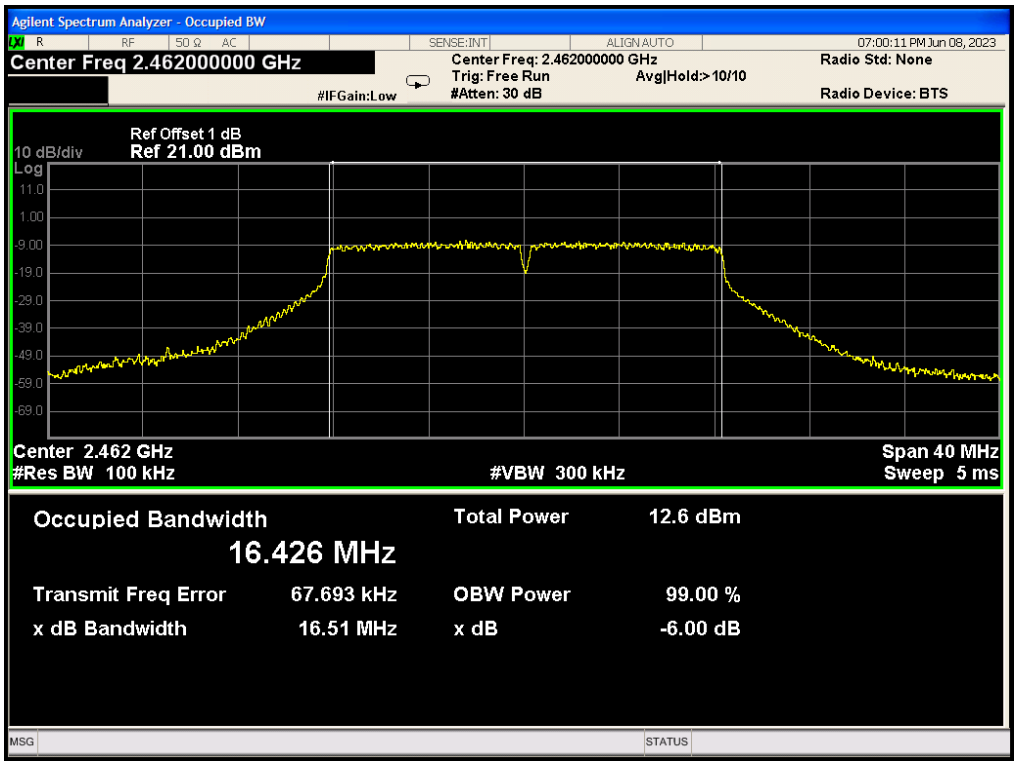
TX 802.11g Mode			
Frequency (MHz)	6dB Bandwidth (MHz)	Channel Separation (kHz)	Result
2412	16.51	>=500	PASS
2437	16.50	>=500	PASS
2462	16.51	>=500	PASS



CH01: 2412MHz

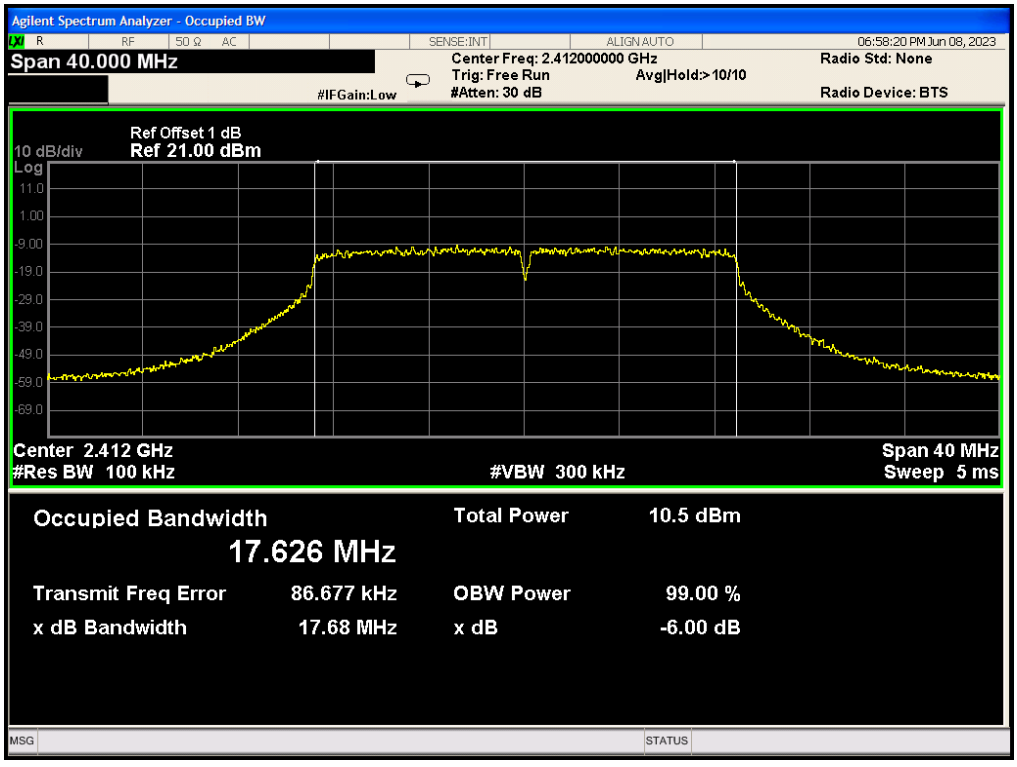


CH06: 2437MHz

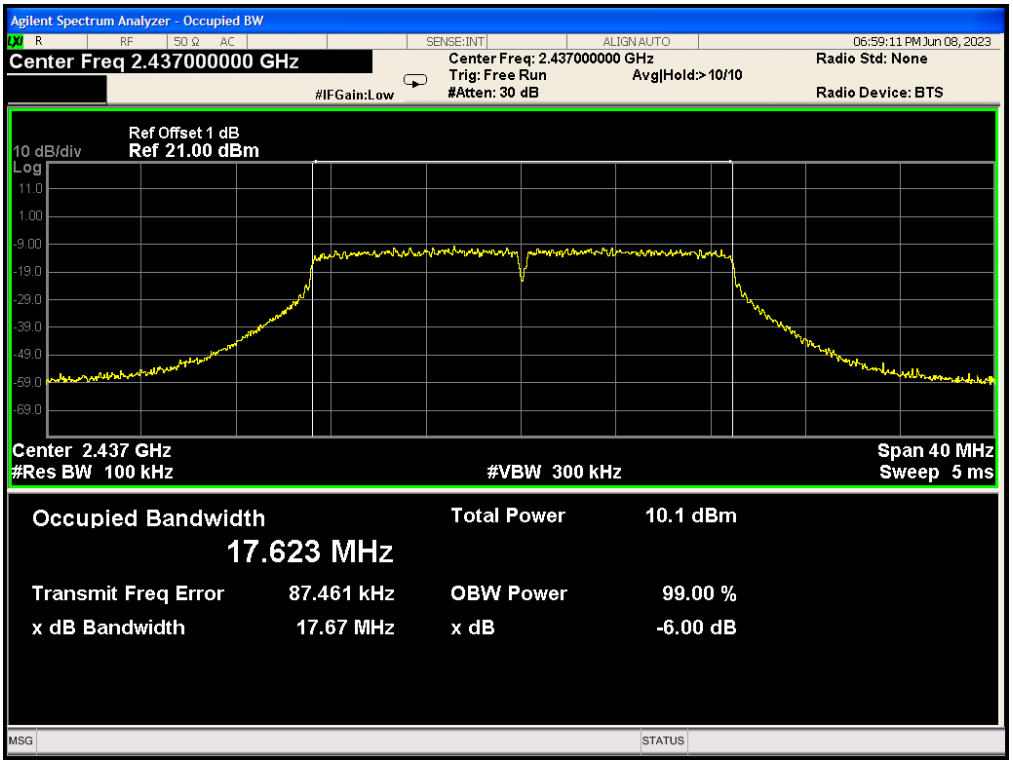


CH11: 2462MHz

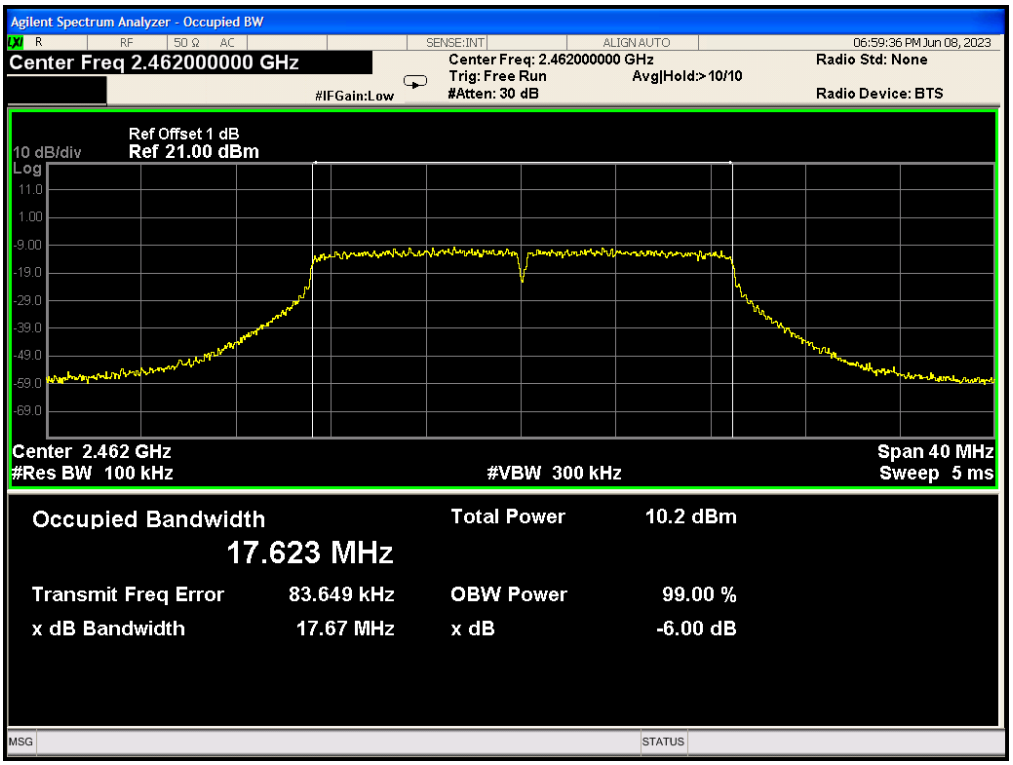
TX 802.11n/HT20 Mode			
Frequency (MHz)	6dB Bandwidth (MHz)	Channel Separation (kHz)	Result
2412	17.68	>=500	PASS
2437	17.67	>=500	PASS
2462	17.67	>=500	PASS



CH01: 2412MHz

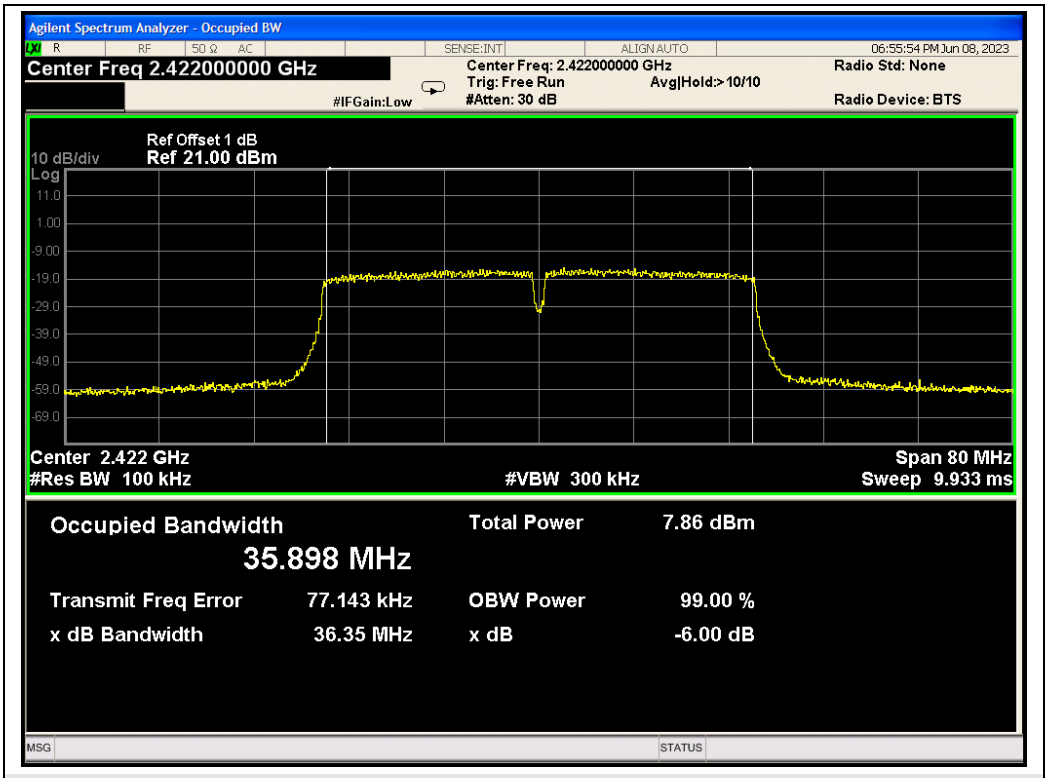


CH06: 2437MHz

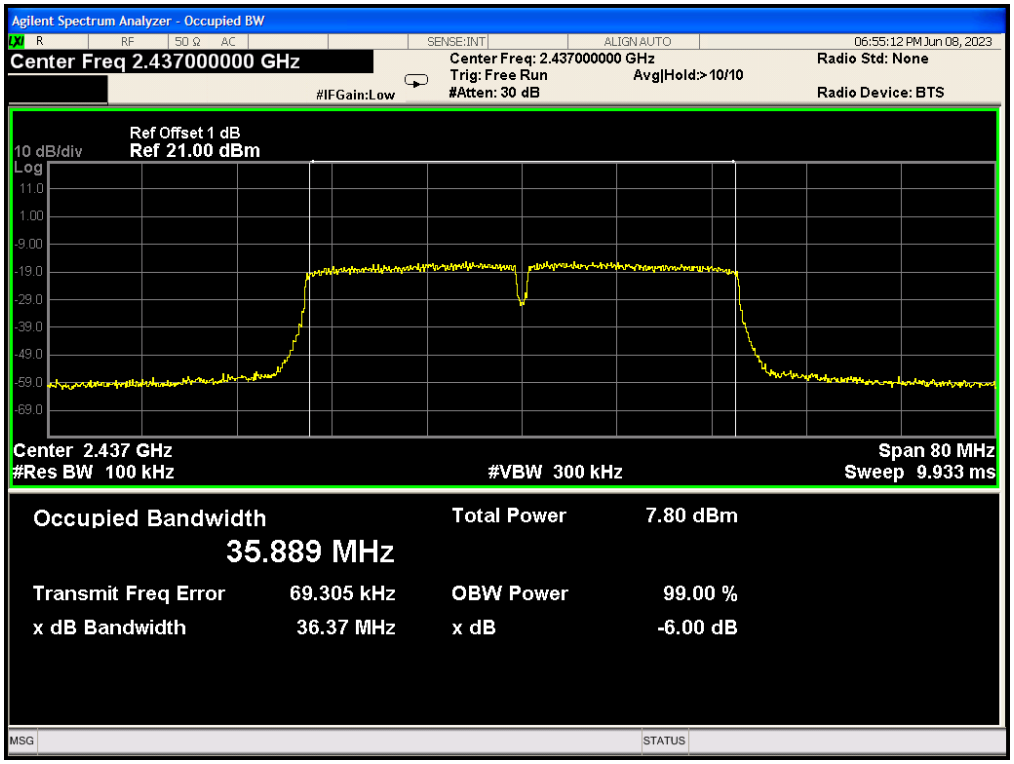


CH11: 2462MHz

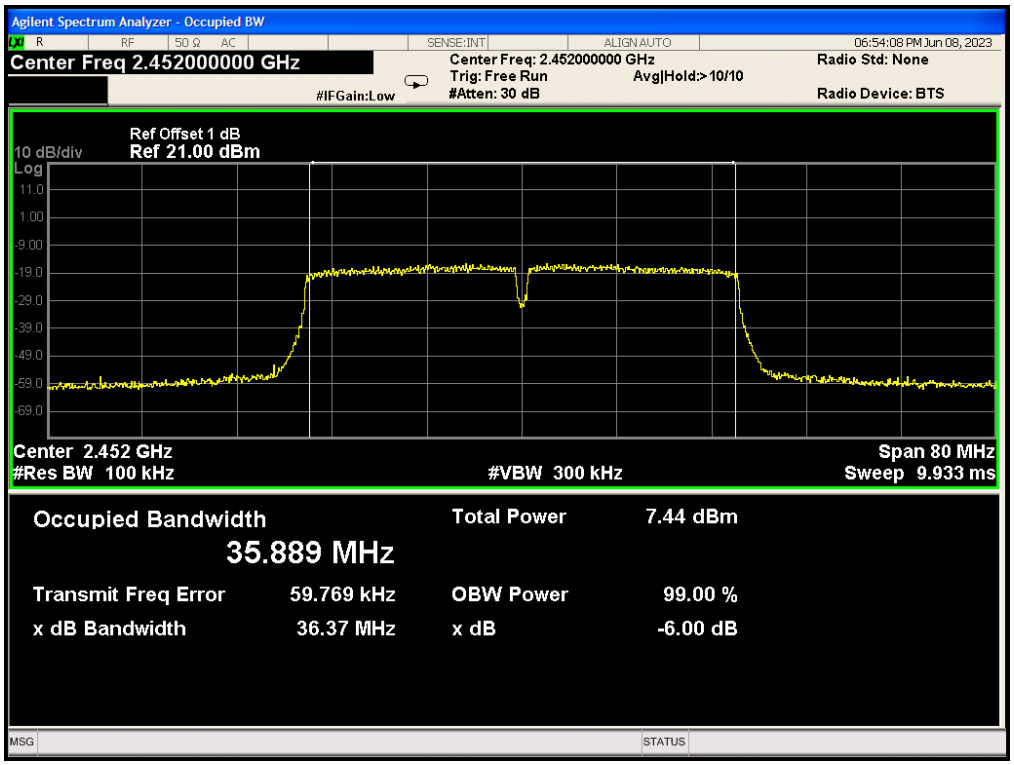
TX 802.11n/HT40 Mode			
Frequency (MHz)	6dB Bandwidth (MHz)	Channel Separation (kHz)	Result
2422	36.35	>=500	PASS
2437	36.37	>=500	PASS
2452	36.37	>=500	PASS



CH03: 2422MHz



CH06: 2437MHz



CH09: 2452MHz

6 POWER SPECTRAL DENSITY

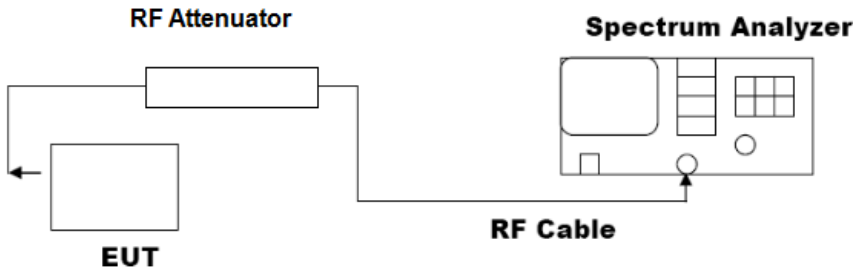
6.1 TEST LIMIT

FCC Part15(15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3kHz)	2400-2483.5	PASS

6.2 TEST PROCEDURE

(1) Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
(2)Set the EUT Work on the top, the middle and the bottom operation frequency individually.
(3)Set SPA Trace 1 Max hold, then View.
Note: The method of AVGPSD-1 in the ANSI C63.10 (2013) item 11.10 was used in this testing.

6.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



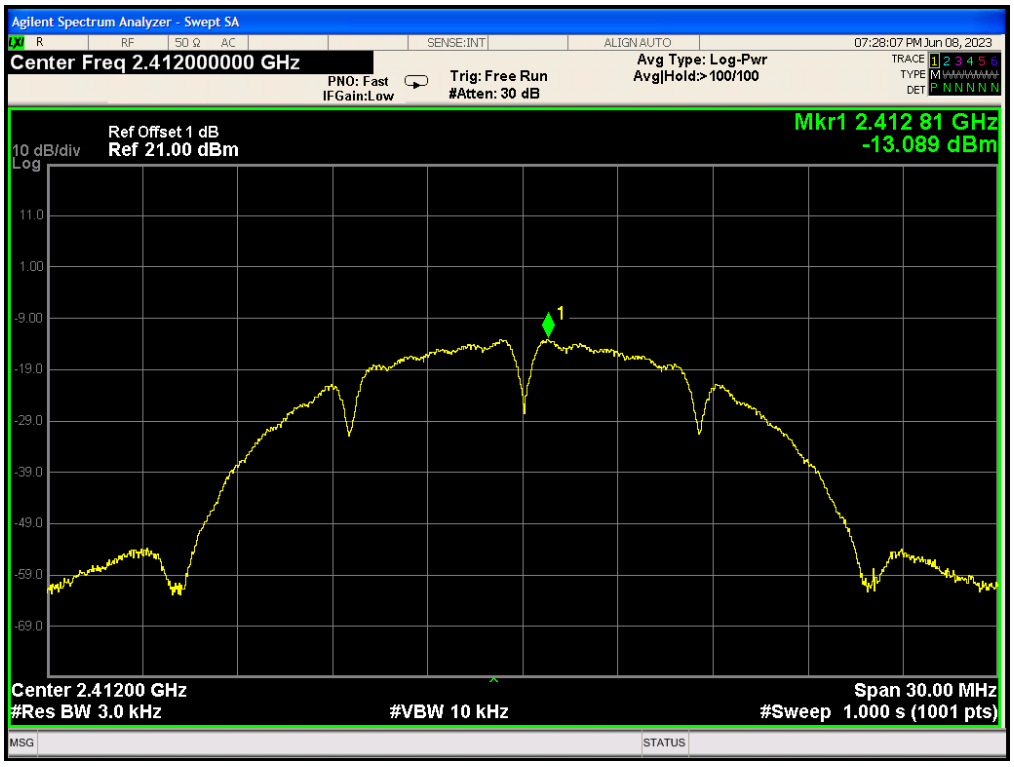
6.4 EQUIPMENT USED

The same as described in section 2.7.

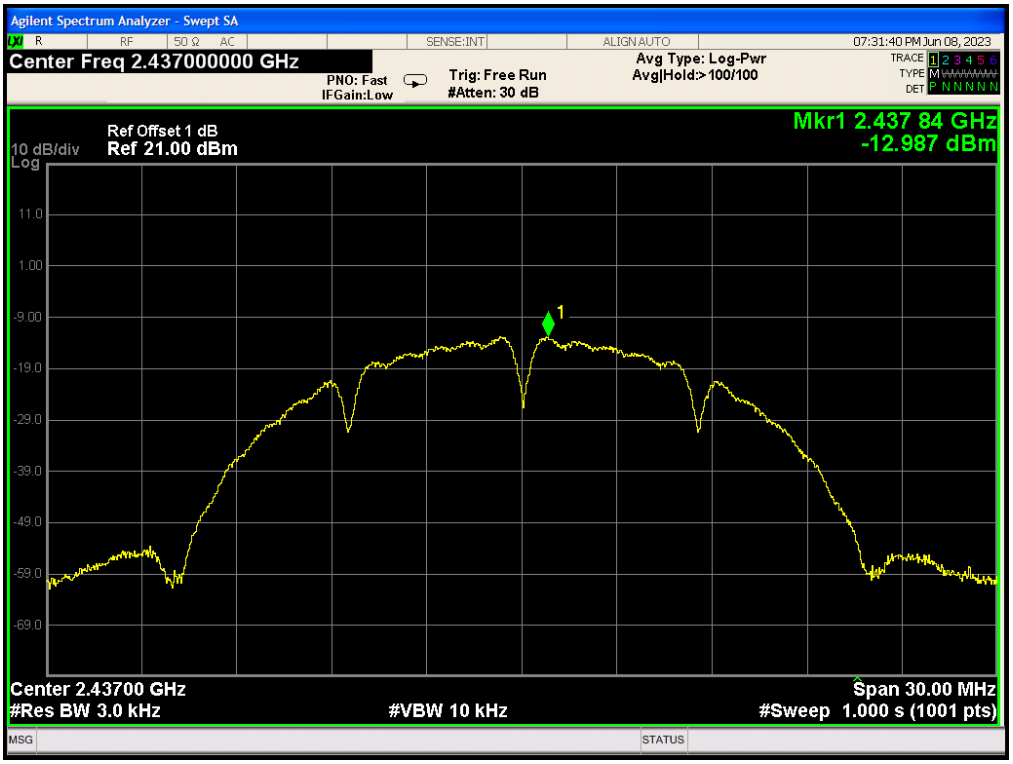
6.5 TEST RESULT

PASS

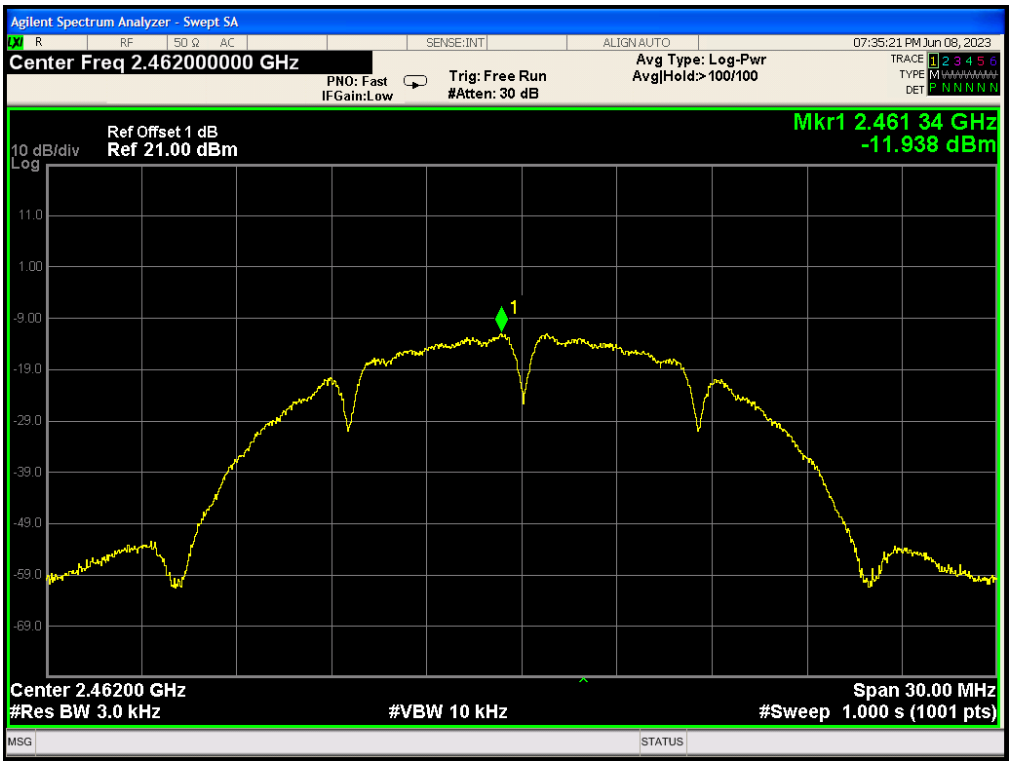
TX 802.11b Mode			
Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-13.089	8	PASS
2437	-12.987	8	PASS
2462	-11.938	8	PASS



CH01: 2412MHz

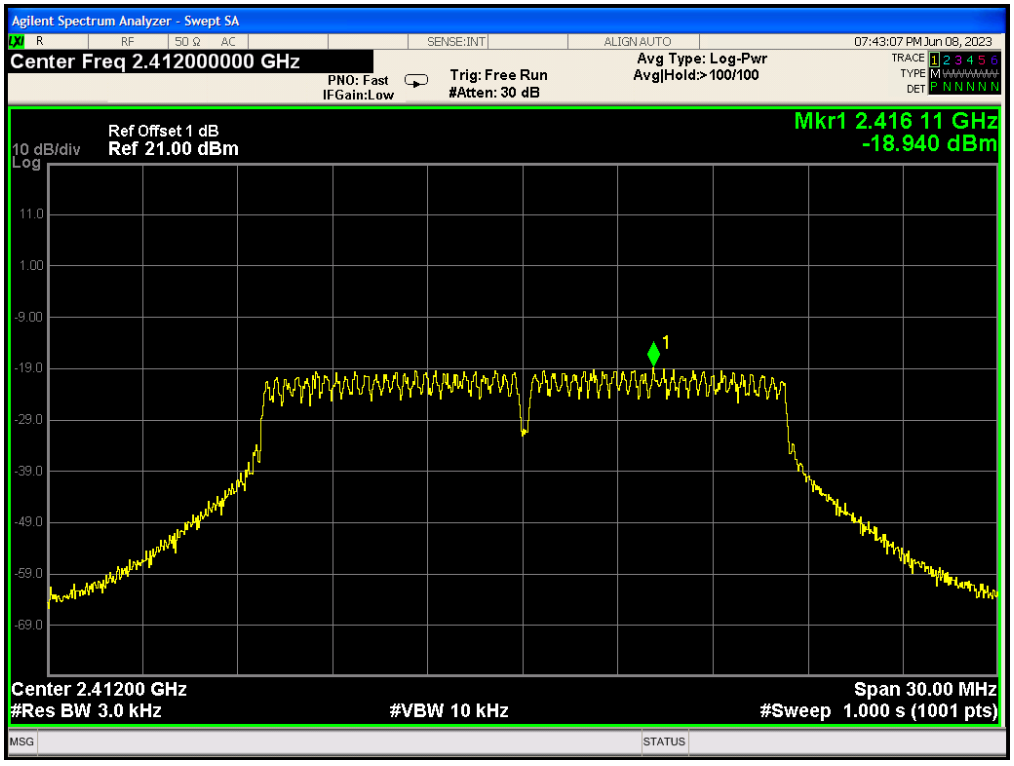


CH06: 2437MHz

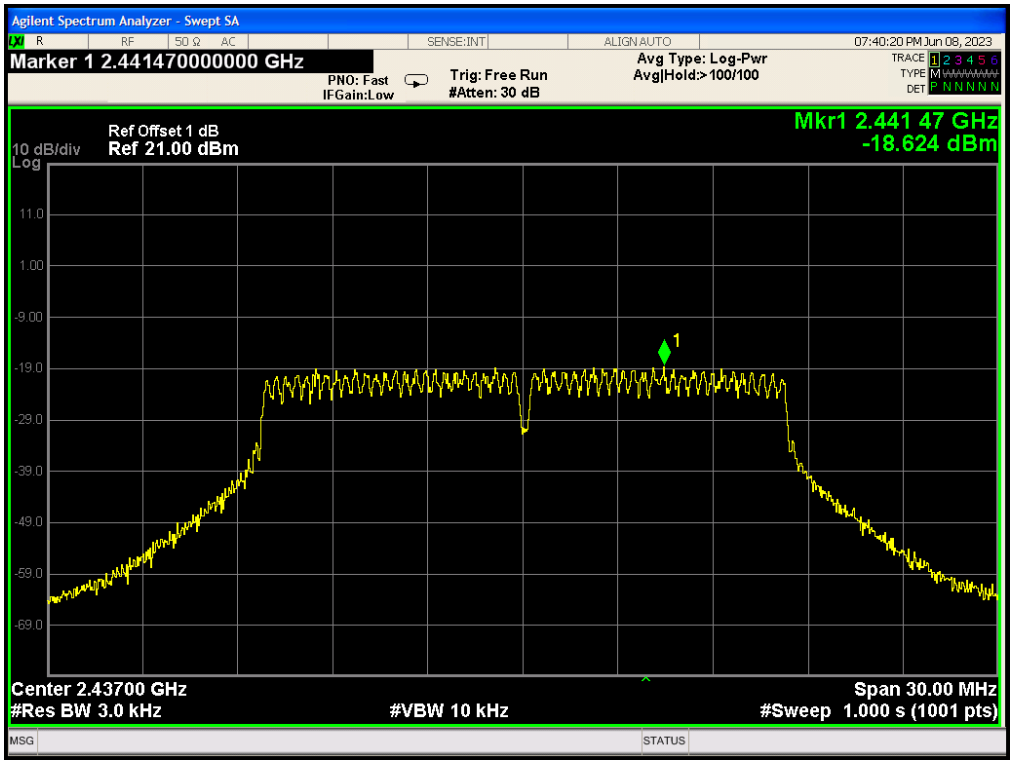


CH11: 2462MHz

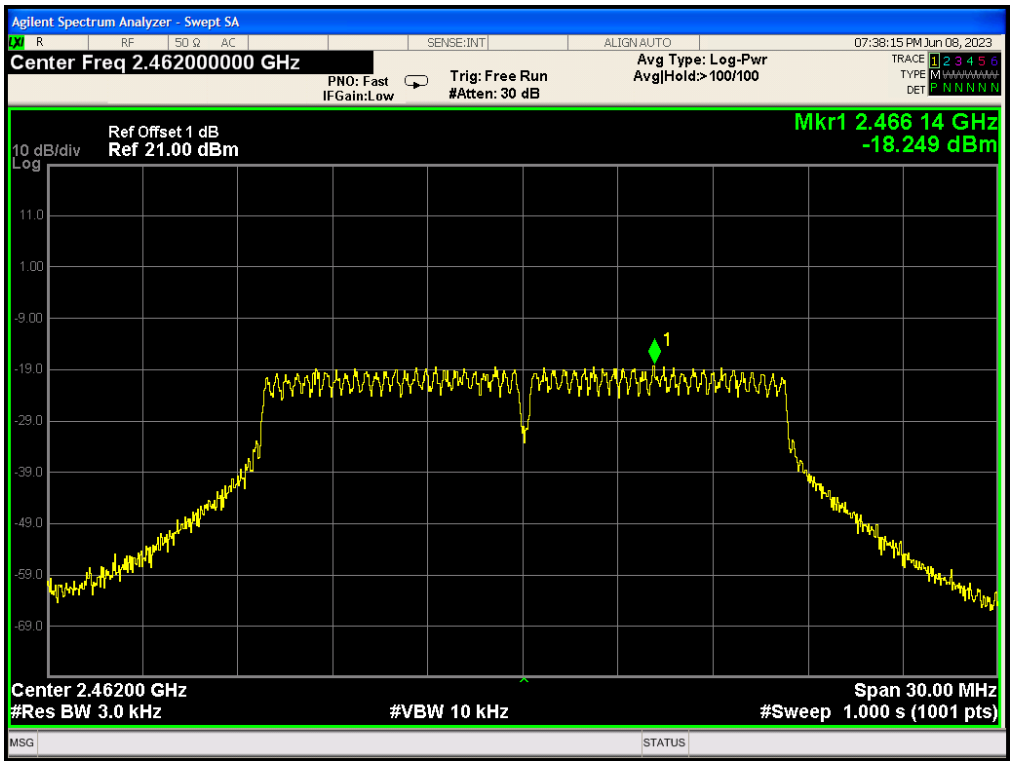
TX 802.11g Mode			
Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-18.940	8	PASS
2437	-18.624	8	PASS
2462	-18.249	8	PASS



CH01: 2412MHz

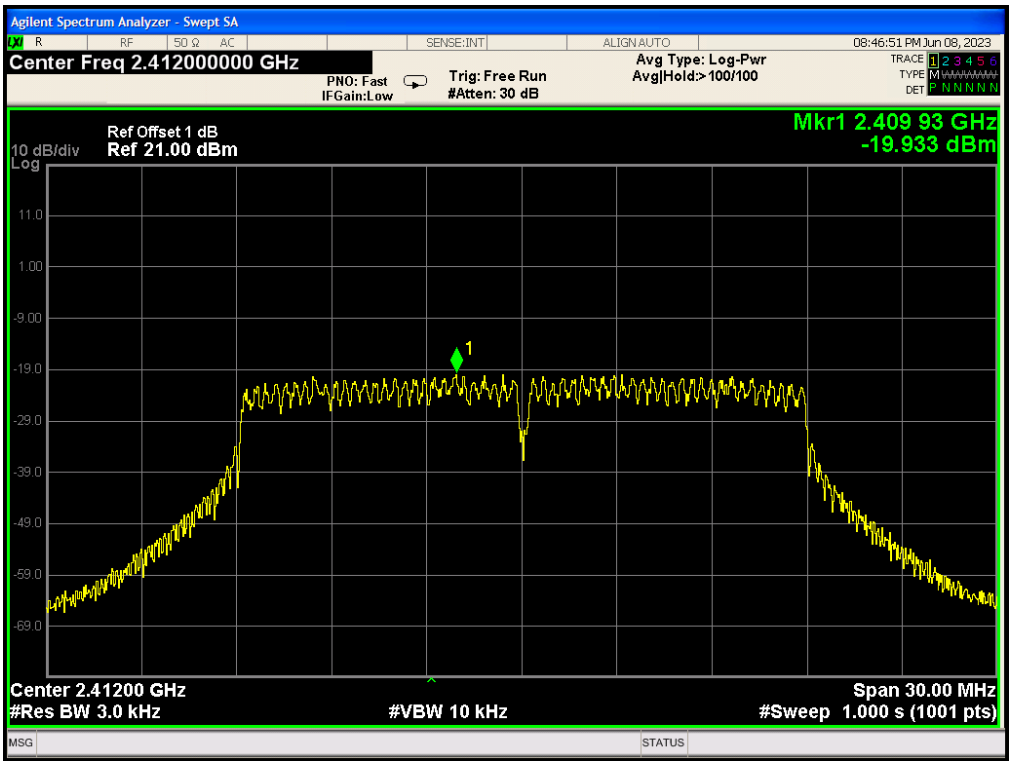


CH06: 2437MHz

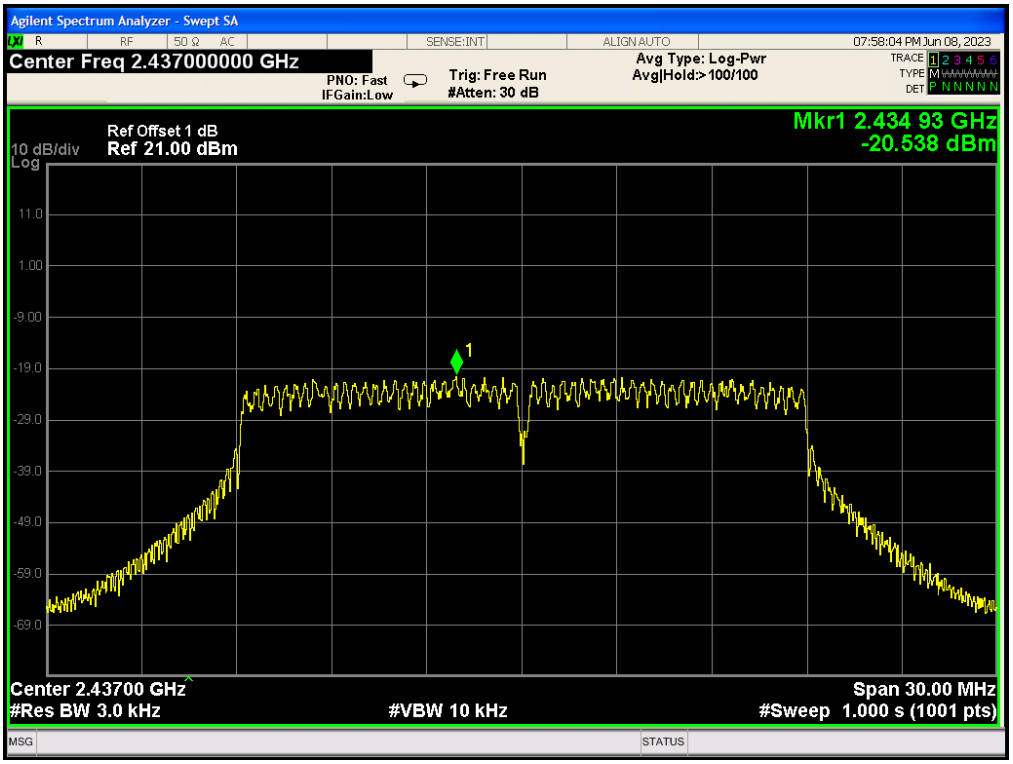


CH11: 2462MHz

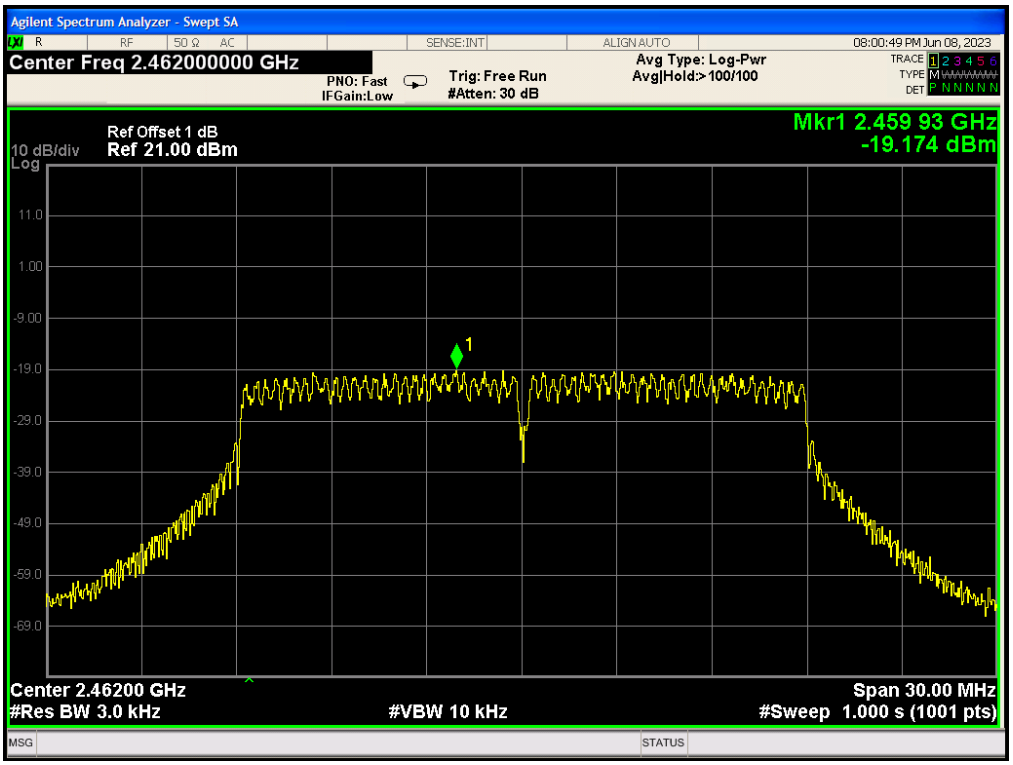
TX 802.11n/HT20 Mode			
Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-19.933	8	PASS
2437	-20.538	8	PASS
2462	-19.174	8	PASS



CH01: 2412MHz

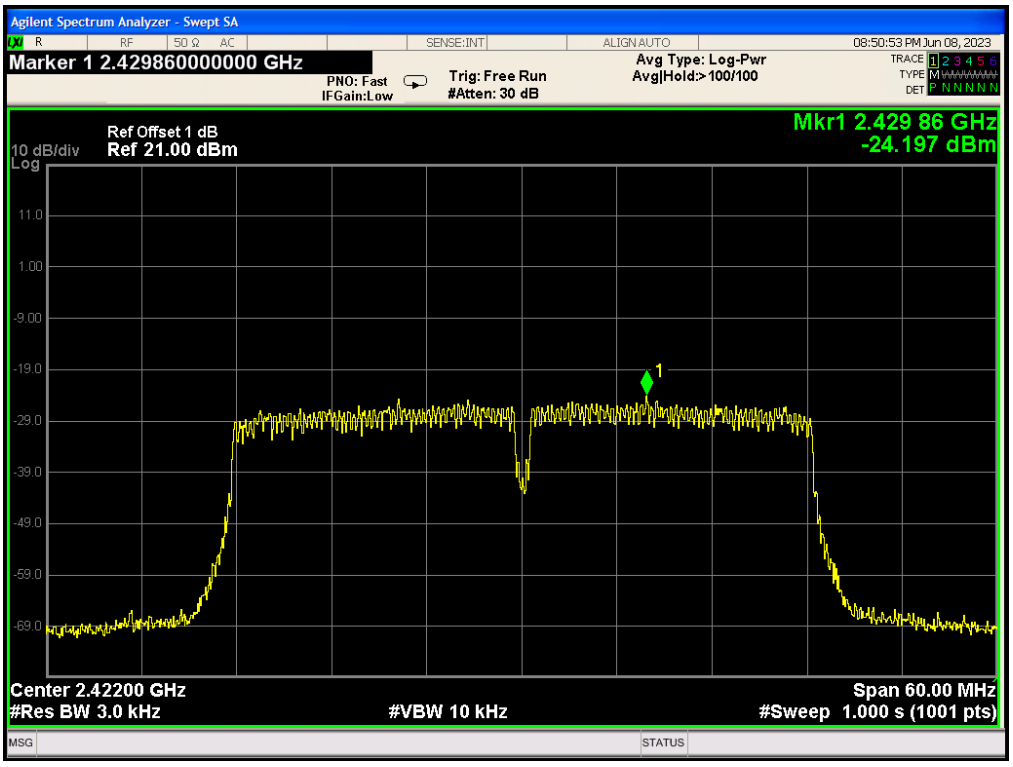


CH06: 2437MHz

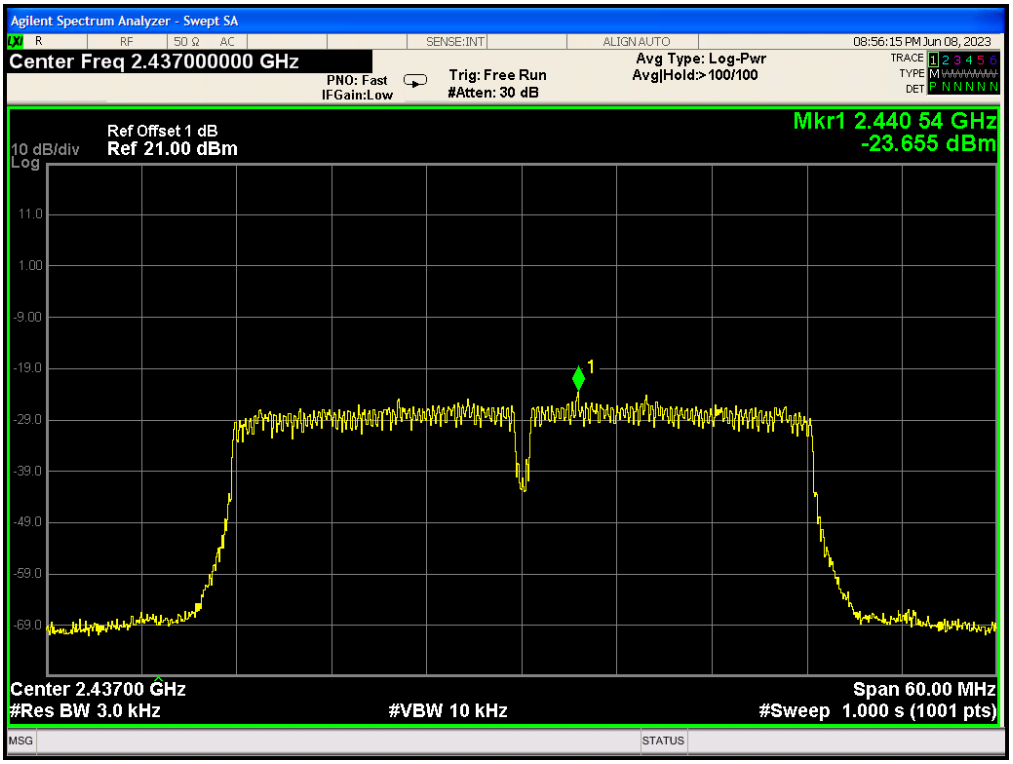


CH11: 2462MHz

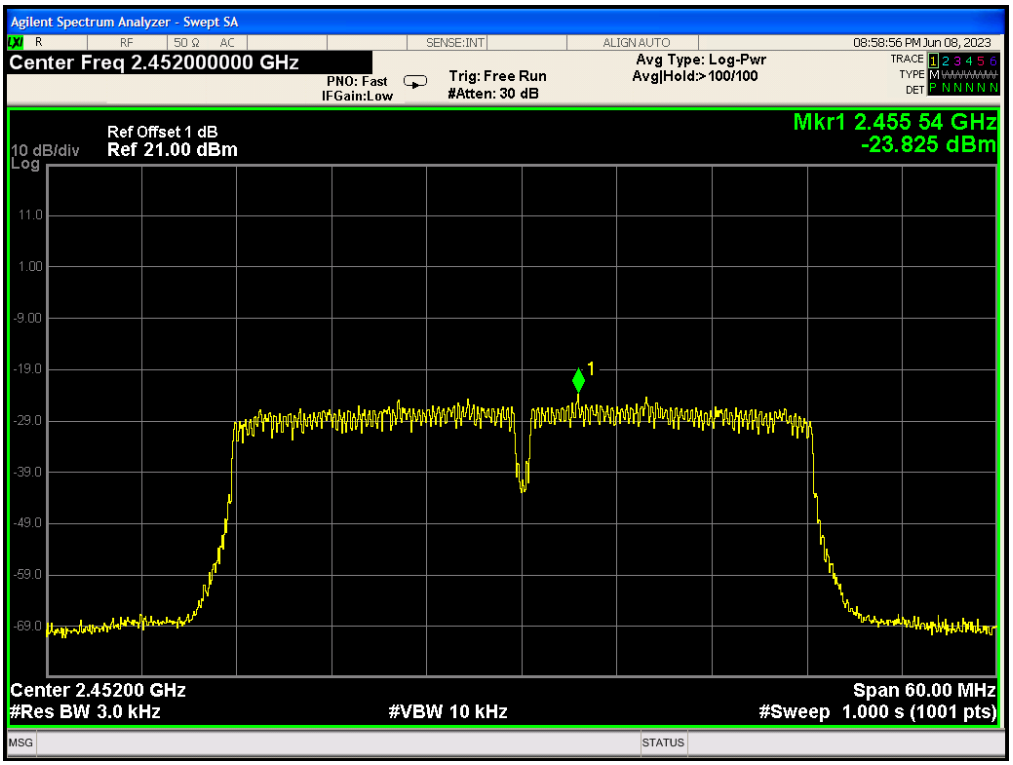
TX 802.11n/HT40 Mode			
Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2422	-24.197	8	PASS
2437	-23.655	8	PASS
2452	-23.825	8	PASS



CH03: 2422MHz



CH06: 2437MHz



CH09: 2452MHz

7 PEAK OUTPUT POWER

7.1 TEST LIMIT

FCC Part15(15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

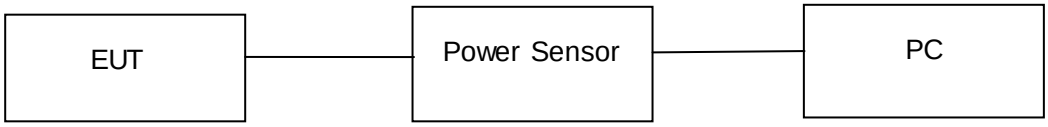
7.2 TEST PROCEDURE

For average power test:

1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

Note：The EUT was tested according to ANSI C63.10 (2013) for compliance to FCC 47CFR 15.247 requirements.

7.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



7.4 EQUIPMENT USED

The same as described in section 2.7.

7.5 TEST RESULT

PASS

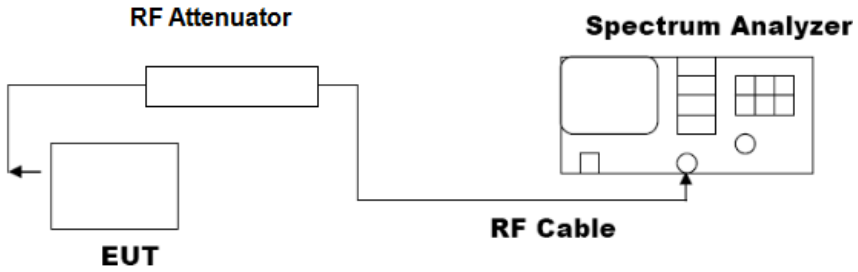
Test Mode	Frequency (MHz)	Maximum Peak Conducted Output Power(dBm)	Limit (dBm)
802.11b	2412	9.21	30
	2437	9.13	30
	2462	9.14	30
802.11g	2412	7.35	30
	2437	7.62	30
	2462	7.14	30
802.11n/HT20	2412	5.93	30
	2437	5.84	30
	2462	5.79	30
802.11n/HT40	2422	3.35	30
	2437	3.22	30
	2452	3.43	30

8 OUT OF BAND EMISSIONS

8.1 TEST LIMIT

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.

8.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



8.3 TEST PROCEDURE

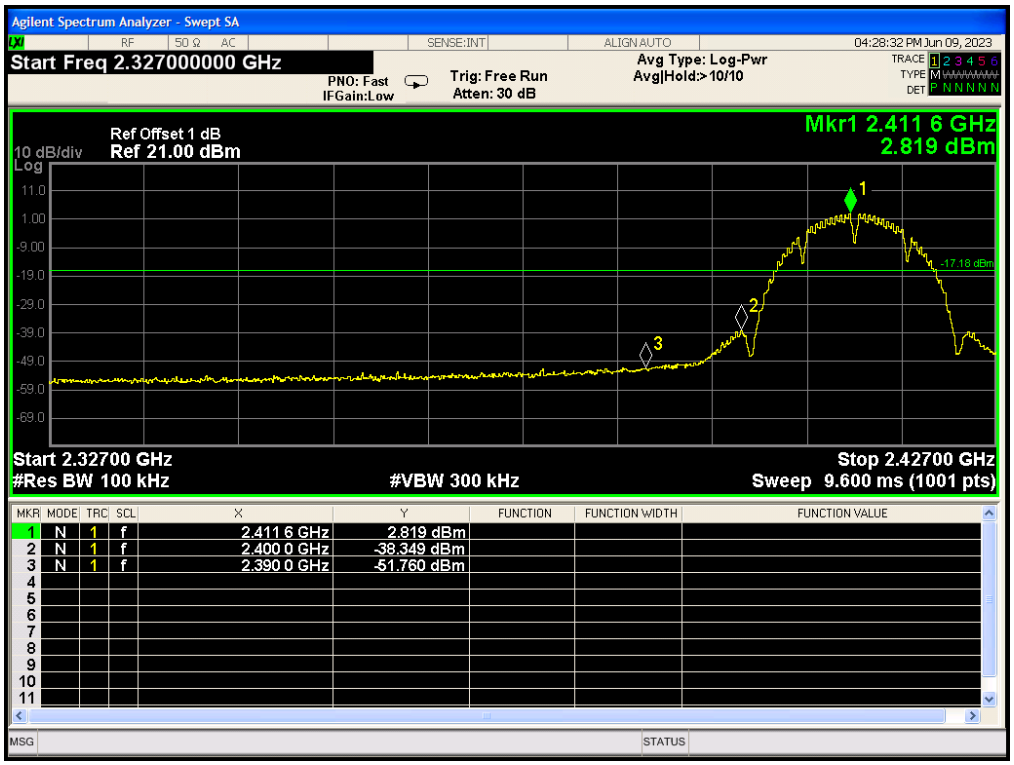
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as TX operation and connect directly to the spectrum analyzer.
3. Based on FCC Part15 C Section 15.247: RBW=100kHz, VBW=300kHz.
4. Set detected by the spectrum analyzer with peak detector.

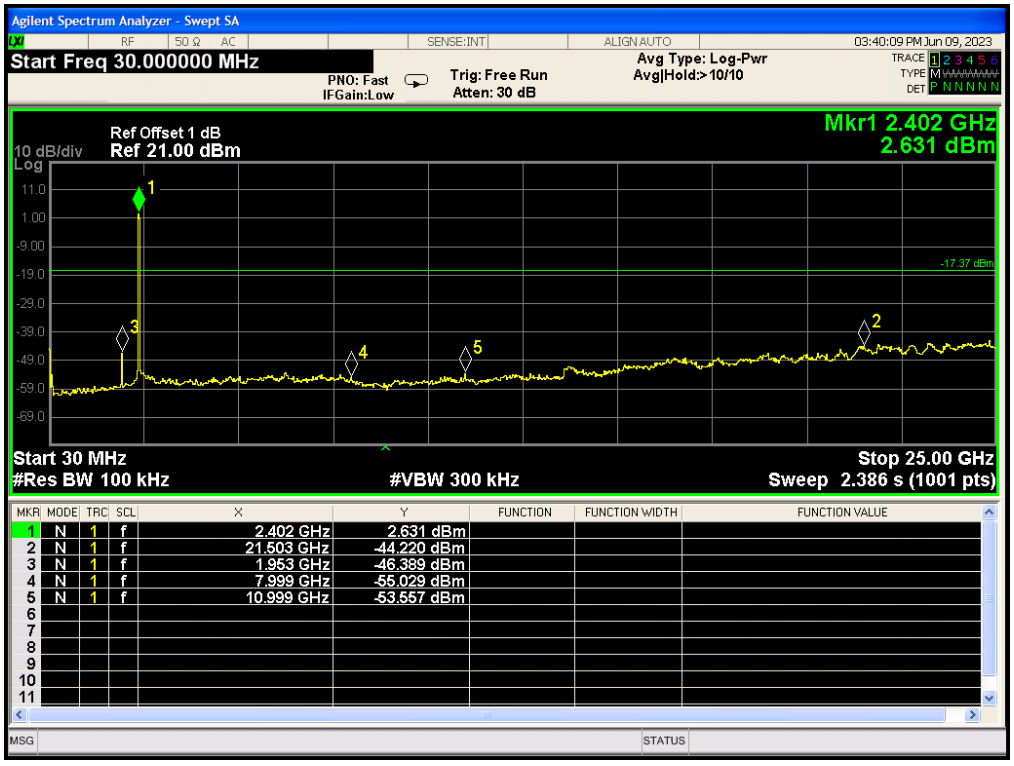
8.4 MEASUREMENT EQUIPMENT USED

The same as described in section 2.7.

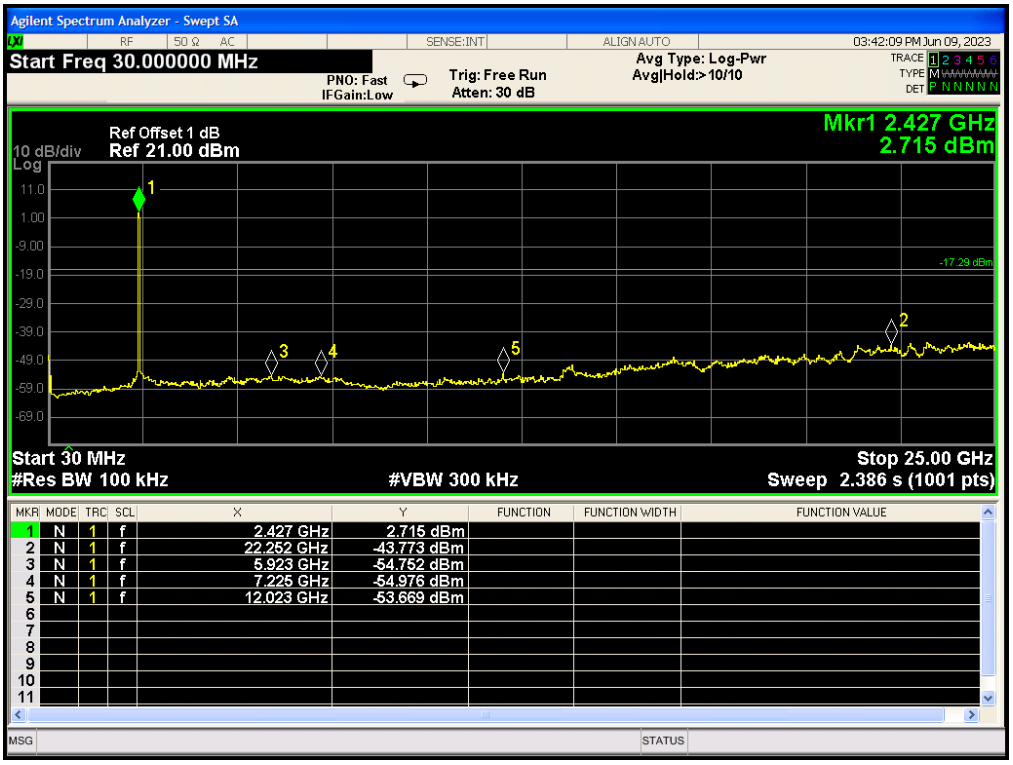
8.5 TEST RESULT

TX 802.11b Mode: CH01: 2412MHz

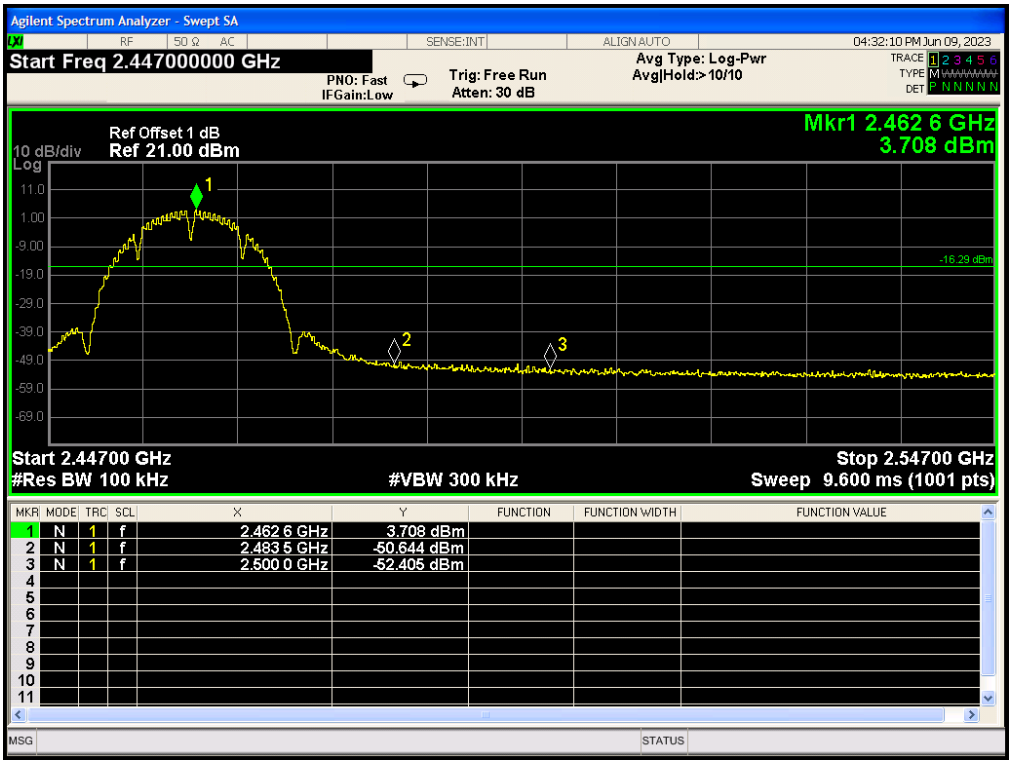


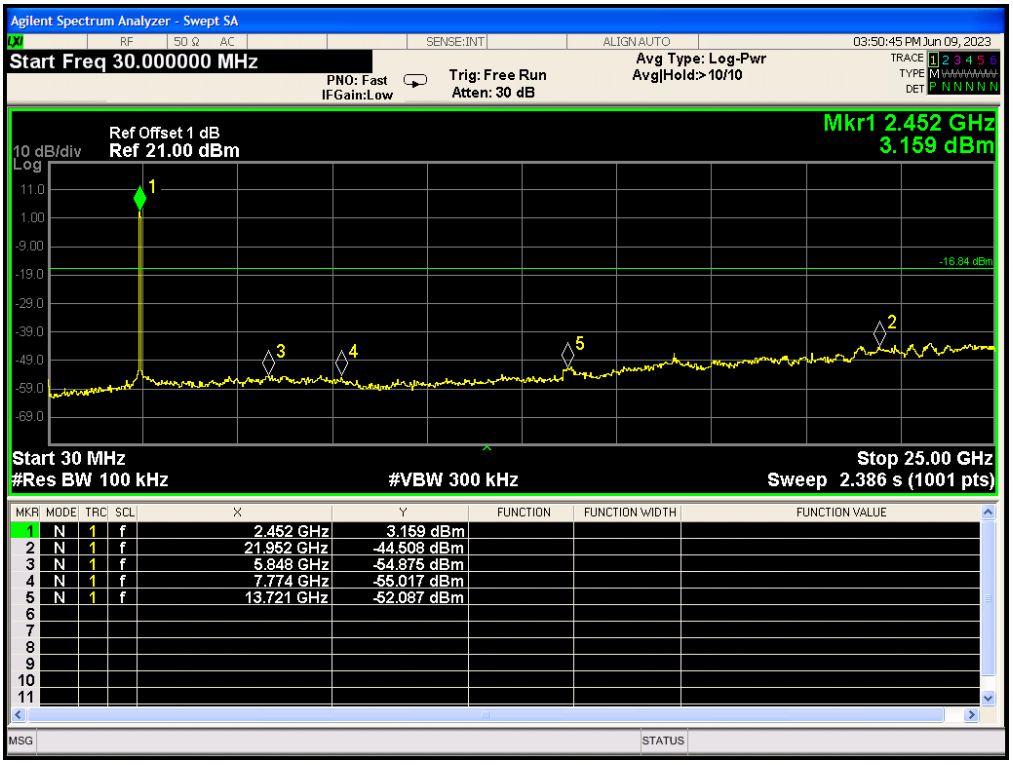


TX 802.11b Mode: CH06: 2437MHz

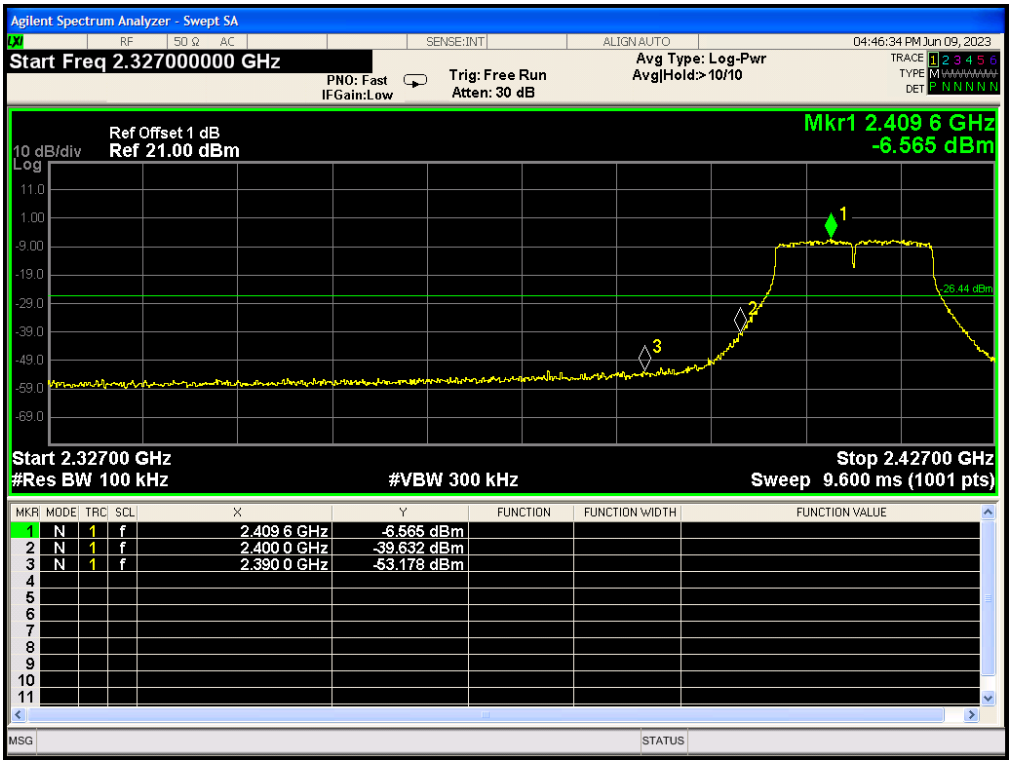


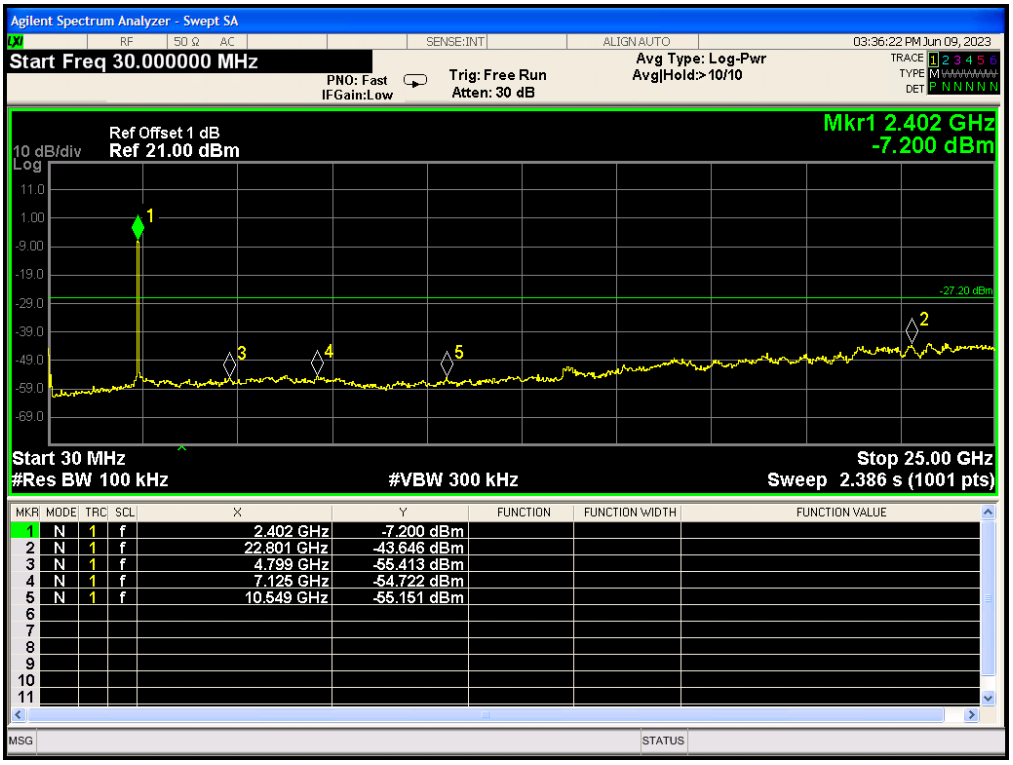
TX 802.11b Mode: CH11: 2462MHz



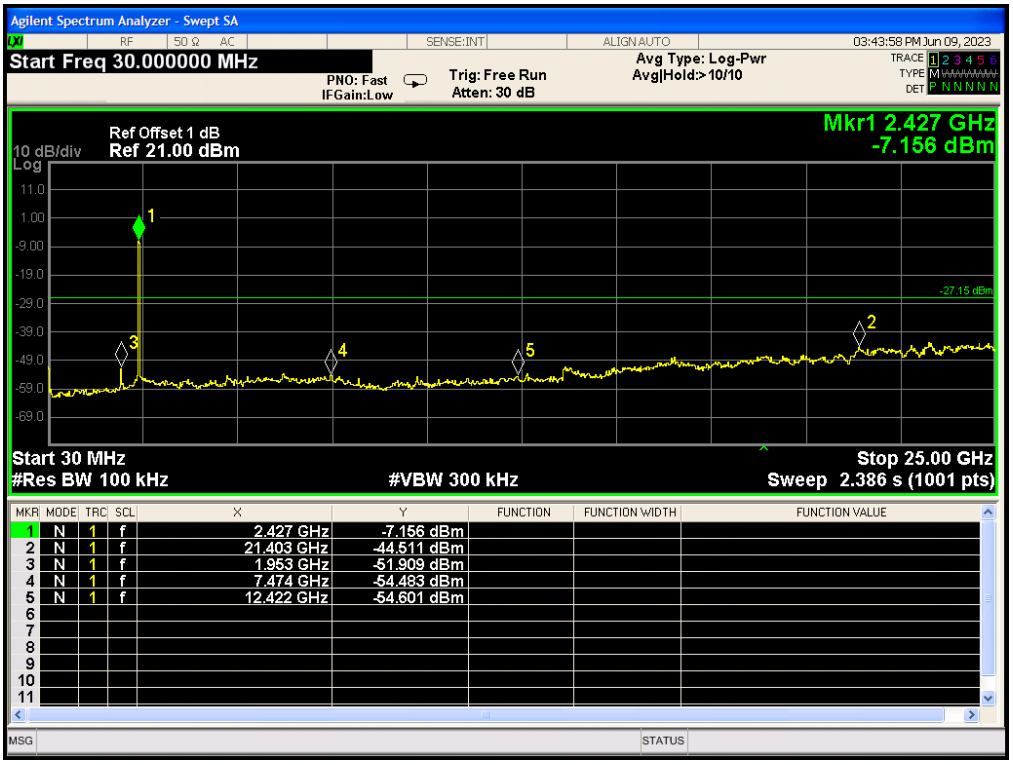


TX 802.11g Mode: CH01: 2412MHz

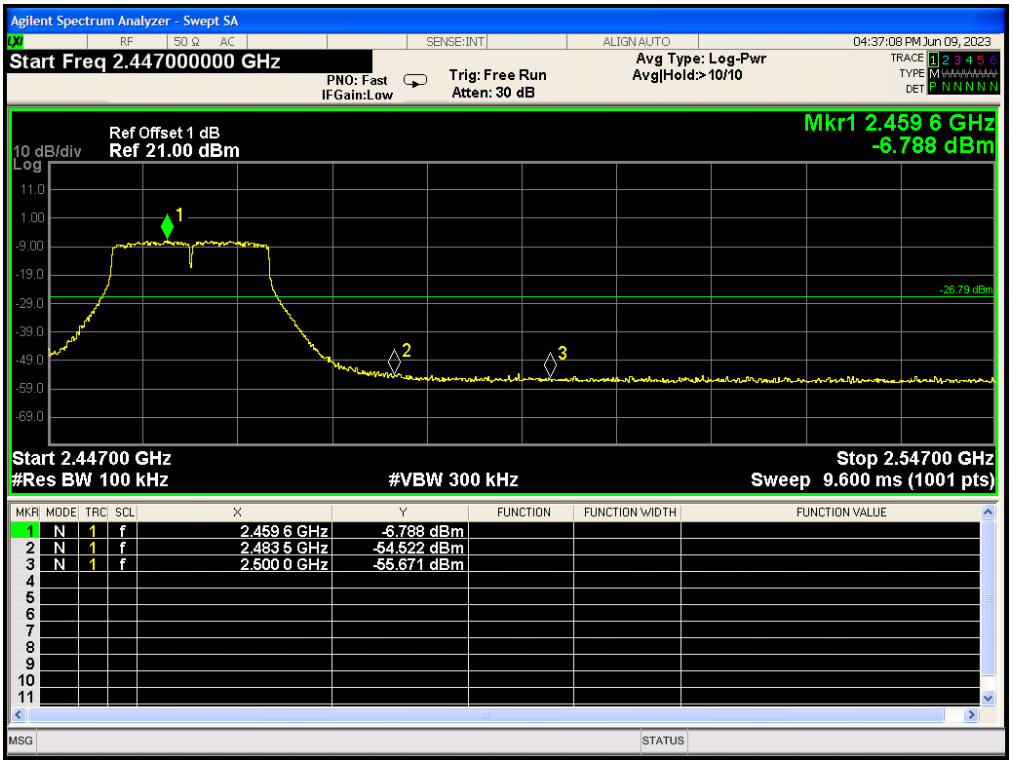


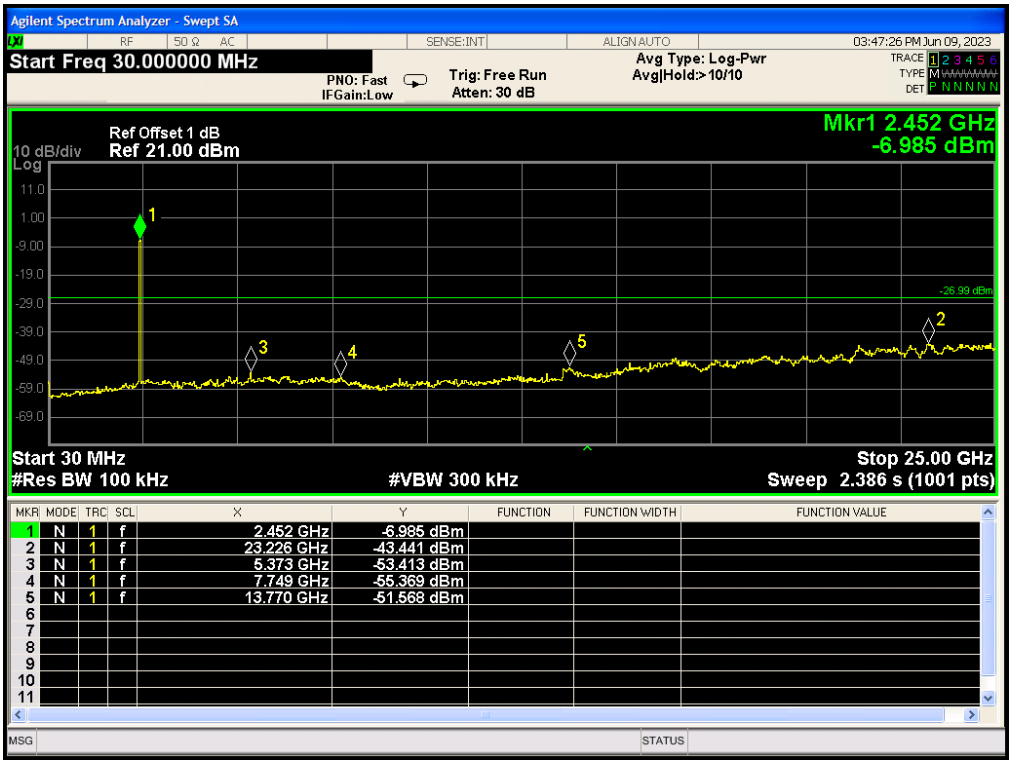


TX 802.11g Mode: CH06: 2437MHz

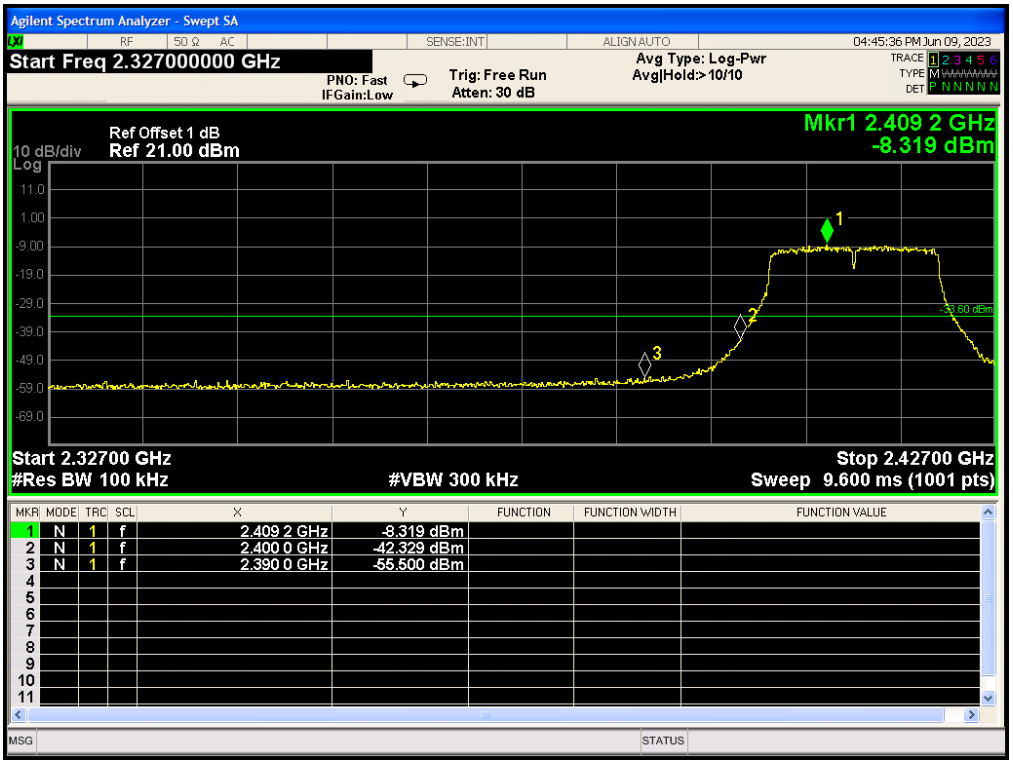


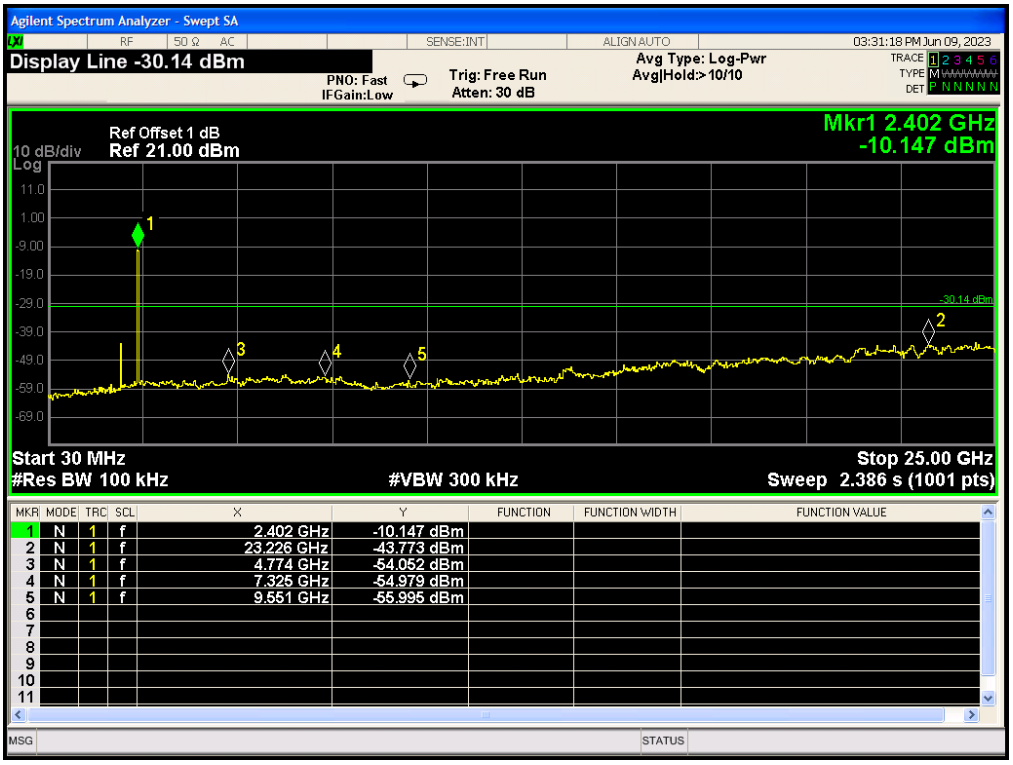
TX 802.11g Mode: CH11: 2462MHz



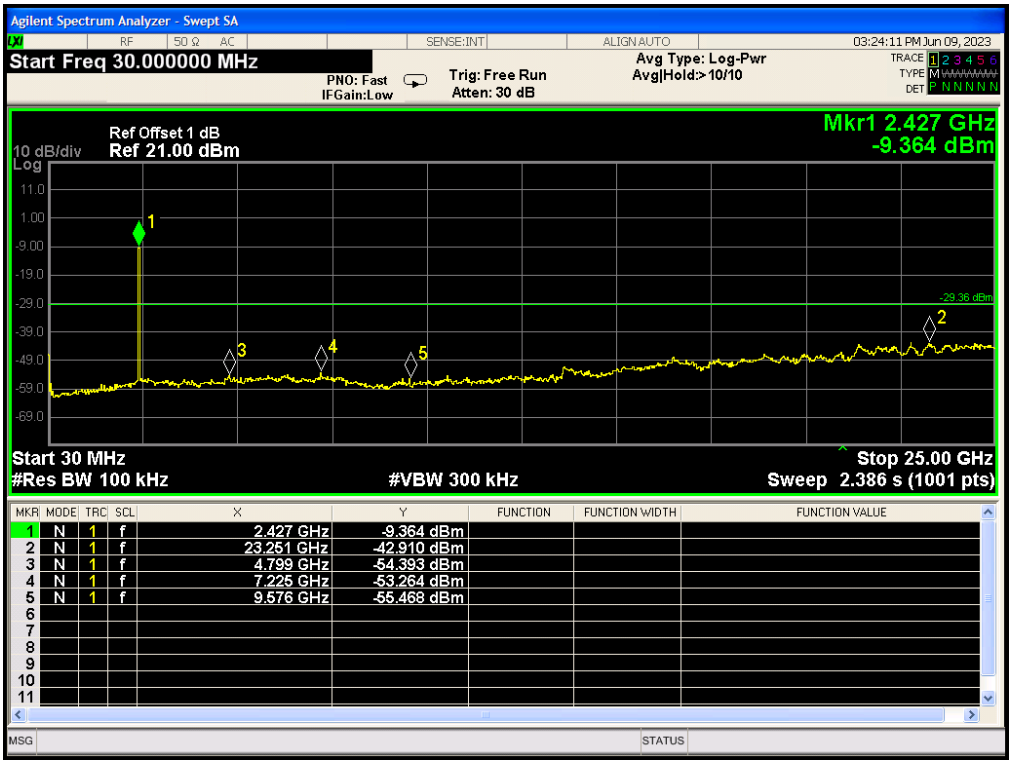


TX 802.11n/HT20 Mode: CH01: 2412MHz

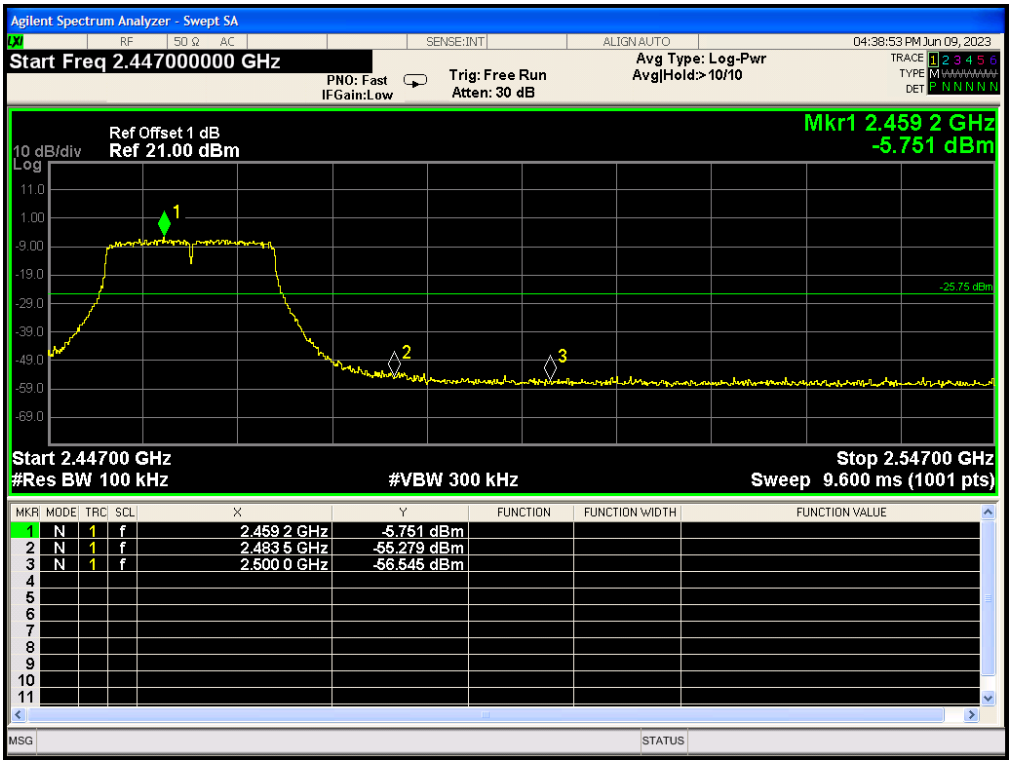


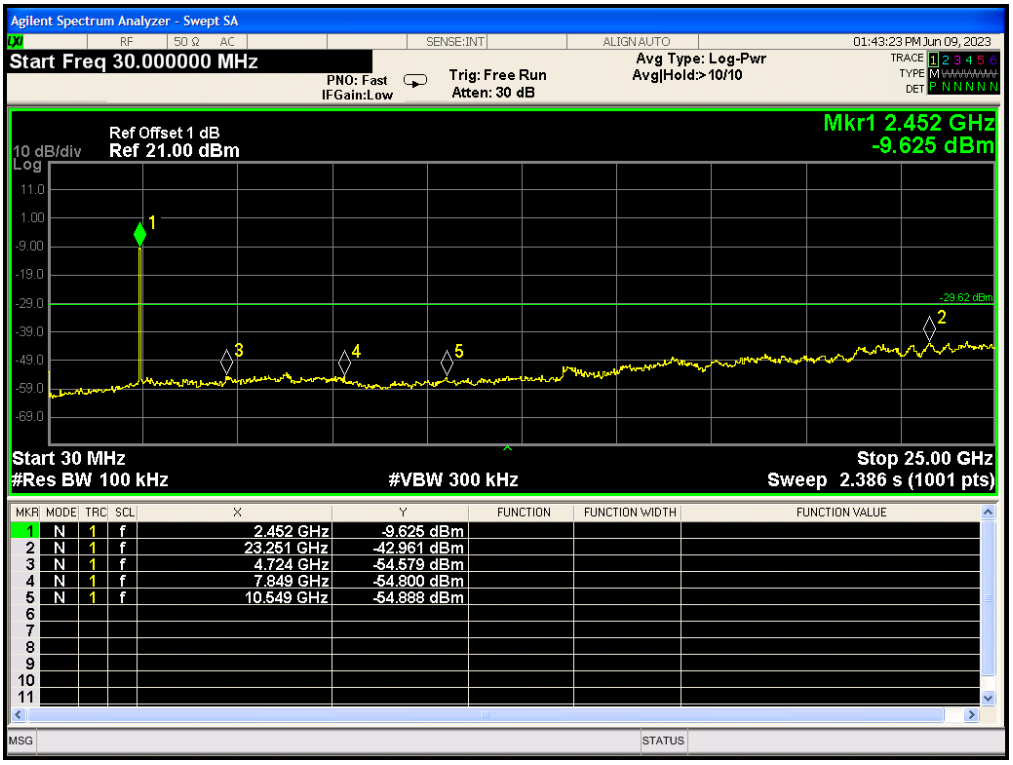


TX 802.11n/HT20 Mode: CH06: 2437MHz

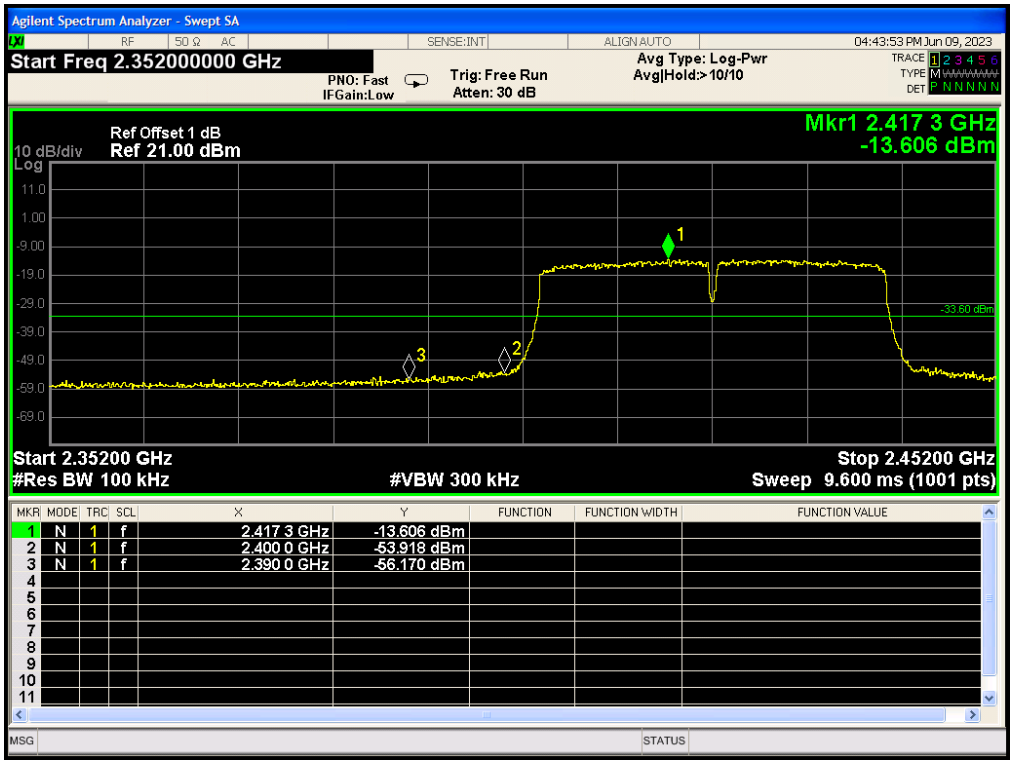


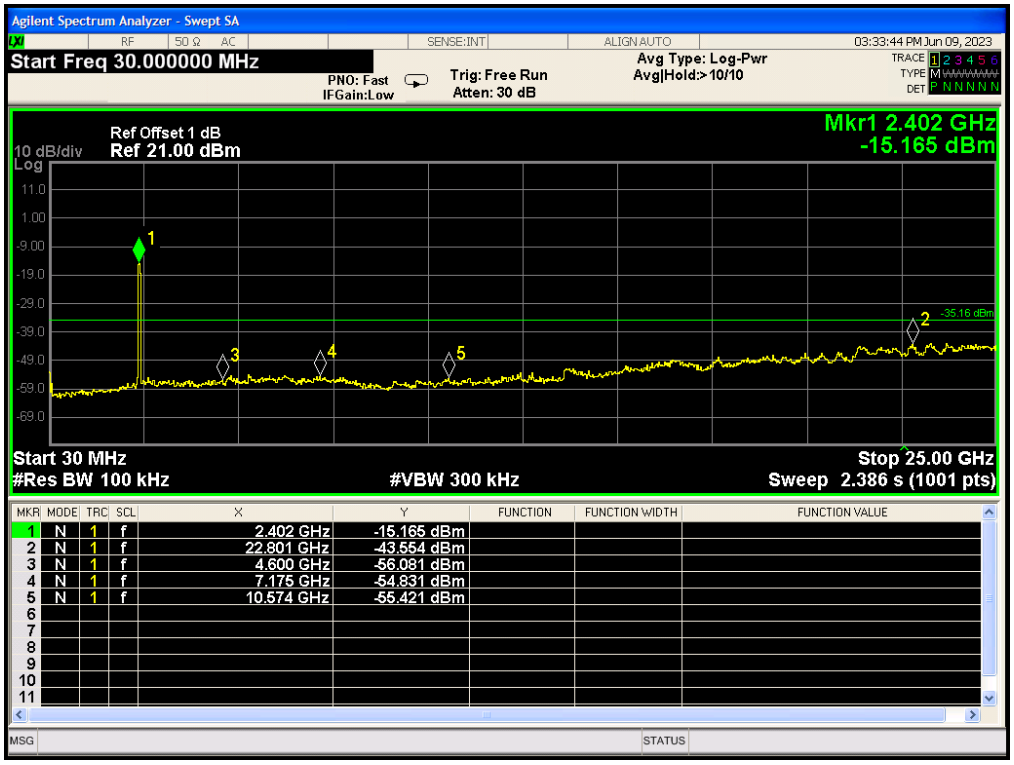
TX 802.11n/HT20 Mode: CH11: 2462MHz



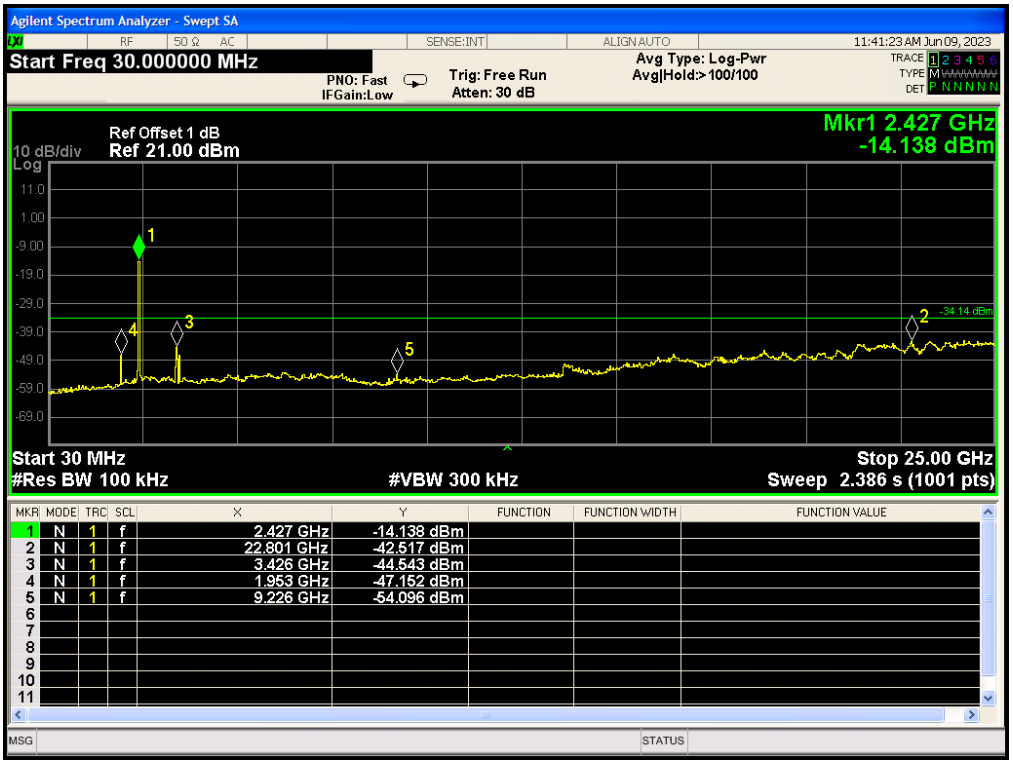


TX 802.11n/HT40 Mode: CH03: 2422MHz

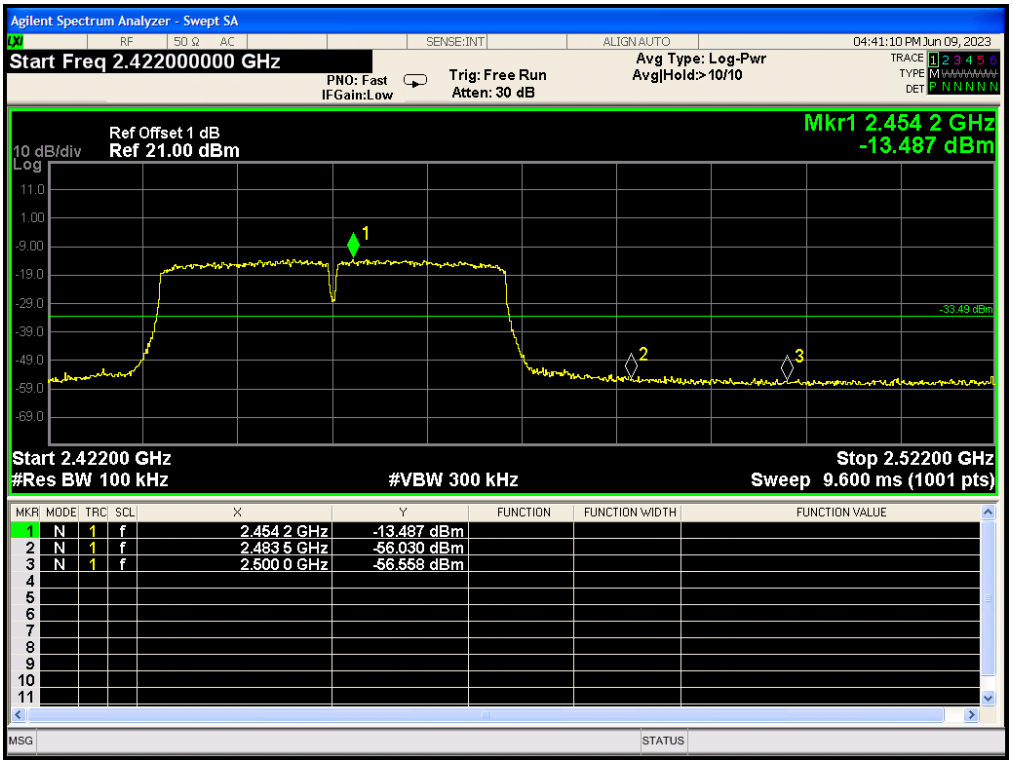


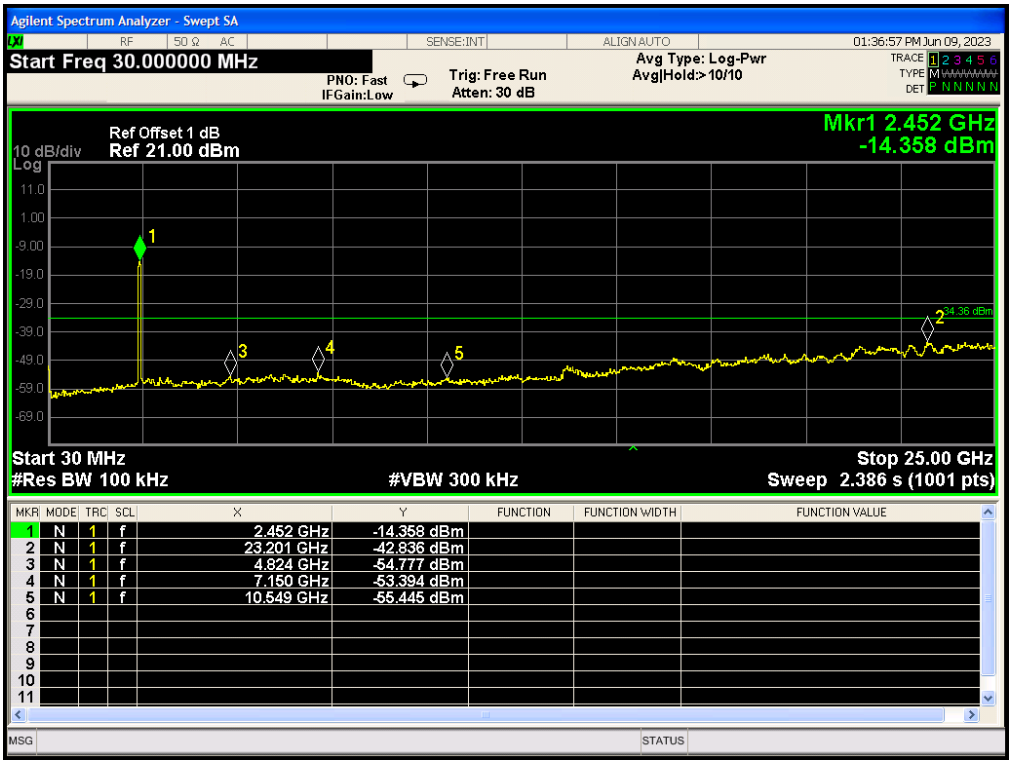


TX 802.11n/HT40 Mode: CH06: 2437MHz



TX 802.11n/HT40 Mode: CH09: 2452MHz



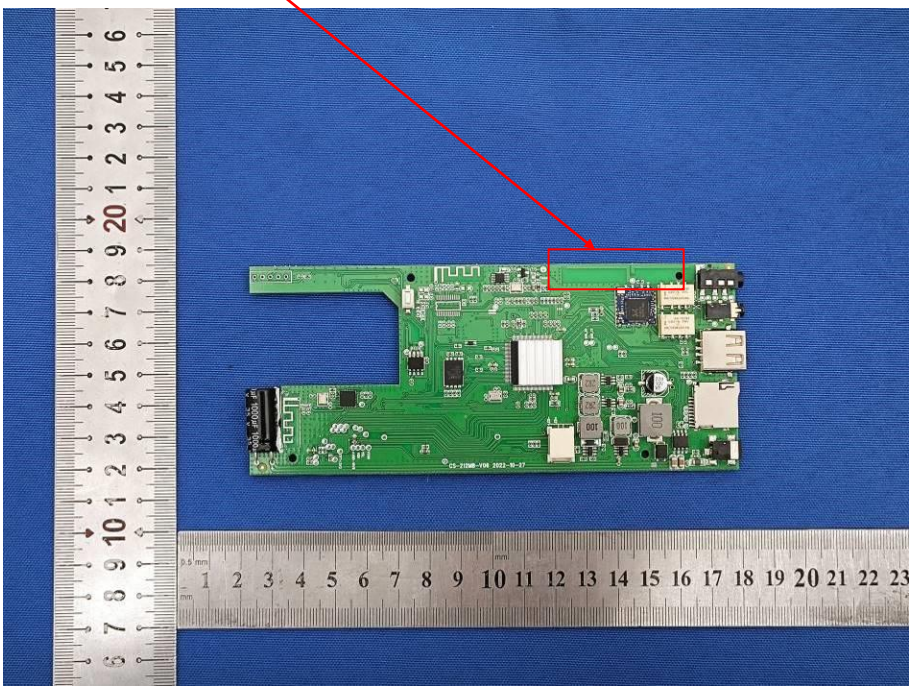


9 ANTENNA REQUIREMENT

Standard Applicable:
For intentional device, according to FCC 47 CFR Section 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.

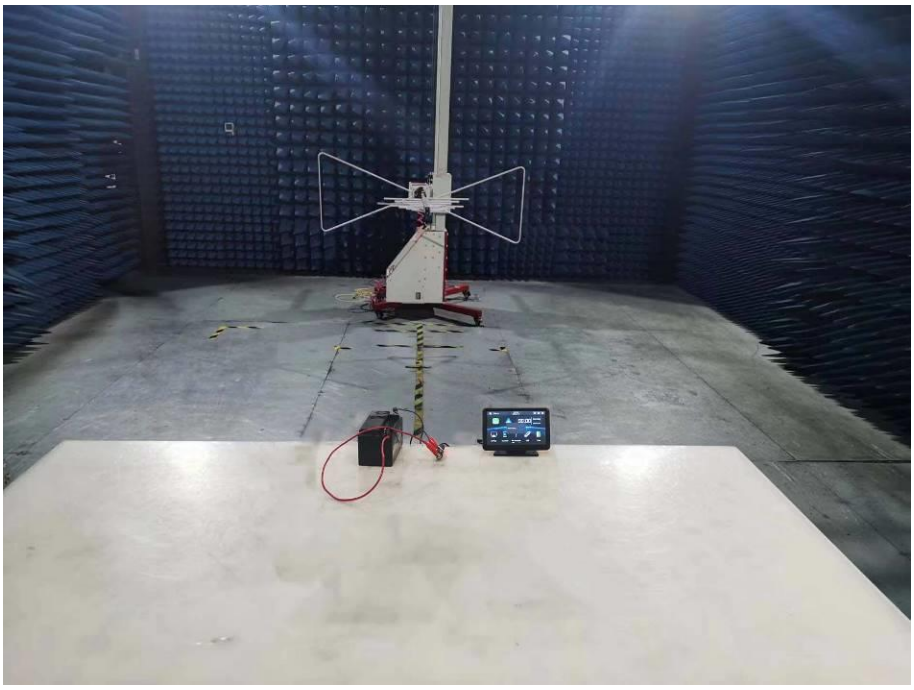
Antenna Connected Construction
The antenna used in this product is a PCB Antenna.

ANTENNA:



10 PHOTO OF TEST

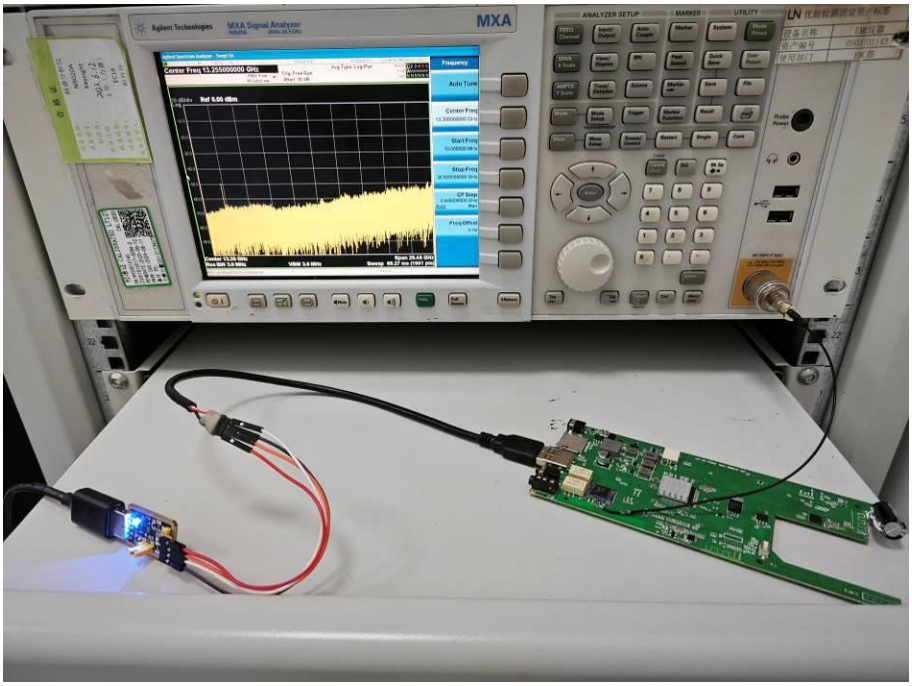
RADIATED EMISSION



30MHz-1000MHz

Above 1GHz

RF Conducted



End of Report