



TEST REPORT

FCC ID: 2BUJ6-QZ01

IC: 35119-QZ01

HVIN: QZ-01-WHT, QZ-01-BLK

Product : Electronic Kitchen Scale
Model Name : QZ-01-WHT, QZ-01-BLK
Brand : N/A
Report No. : NCT260051293E1-1

Prepared for

Qalzy Ltd

128 City Road, London, EC1V 2NX, United Kingdom

Prepared by

Shenzhen NCT Testing Technology Co., Ltd.

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1 TEST RESULT CERTIFICATION

Applicant's name : Qalzy Ltd

Address : 128 City Road, London, EC1V 2NX, United Kingdom

Manufacture's name : CBW BLISS Electronic (Dongguan) Co., Ltd.

Address : Building 1, No. 31, Yuning North Road, Hengli Town, Dongguan City, Guangdong Province

Product name : Electronic Kitchen Scale

Model name : QZ-01-WHT, QZ-01-BLK

Standards : FCC CFR47 Part 15 Section 15.247
RSS-247 Issue 4, July 2025
RSS-Gen Issue 5, Amendment 2, February, 2021

Test procedure : ANSI C63.10:2020

Date of test : Jan. 22, 2026 to Feb. 10, 2026

Date of Issue : Feb. 10, 2026

This device described above has been tested by NCT, 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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Test Engineer:


Keven Wu / Engineer

Technical Manager:


Henry Wang / Manager



Contents

	Page
1 TEST RESULT CERTIFICATION	2
2 TEST SUMMARY	5
2.1 TEST SITE	6
3 GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF E.U.T.	7
3.2 CHANNEL LIST	8
3.3 TEST SETUP CONFIGURATION	9
3.4 TEST MODE	9
4 EQUIPMENT DURING TEST	11
4.1 EQUIPMENTS LIST	11
4.2 MEASUREMENT UNCERTAINTY	13
4.3 DESCRIPTION OF SUPPORT UNITS	13
5 CONDUCTED EMISSION	14
5.1 E.U.T. OPERATION	14
5.2 EUT SETUP	14
5.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	15
5.4 MEASUREMENT PROCEDURE	15
5.5 CONDUCTED EMISSION LIMIT	15
5.6 MEASUREMENT DESCRIPTION	15
5.7 CONDUCTED EMISSION TEST RESULT	15
6 RADIATED SPURIOUS EMISSIONS	18
6.1 EUT OPERATION	18
6.2 TEST SETUP	19
6.3 SPECTRUM ANALYZER SETUP	20
6.4 TEST PROCEDURE	21
6.5 SUMMARY OF TEST RESULTS	23
7 CONDUCT BAND EDGE AND SPURIOUS EMISSIONS MEASUREMENT	31
7.1 TEST SETUP	32

7.2	TEST PROCEDURE	32
7.3	TEST RESULT	32
8	6DB&99% BANDWIDTH MEASUREMENT	42
8.1	TEST SETUP	42
8.2	TEST PROCEDURE	42
8.3	TEST RESULT	42
9	MAXIMUM PEAK OUTPUT POWER	56
9.1	TEST SETUP	56
9.2	TEST PROCEDURE	56
9.3	TEST RESULT	56
10	POWER SPECTRAL DENSITY	58
10.1	TEST SETUP	58
10.2	TEST PROCEDURE	58
10.3	TEST RESULT	58
11	ANTENNA APPLICATION	67
11.1	ANTENNA REQUIREMENT	67
11.2	RESULT	67
12	TEST SETUP PHOTOS AND EUT PHOTOS	68

2 Test Summary

Test Items	Test Requirement	Result
Conduct Emission	FCC part 15.207 RSS-Gen 8.8	PASS
Radiated Spurious Emissions Radiated Band Edge Emission	FCC part 15.205/15.209 RSS-Gen 8.9&8.10	PASS
Conducted Spurious Emission	FCC part 15. 247(d) RSS-247 6.6	PASS
Conduct Band edge	FCC part 15.247(d) RSS-247 6.6	PASS
6dB&99% Bandwidth	FCC part 15.247 (a)(2) RSS-GEN 6.7 RSS-247 6.3.1	PASS
Maximum Peak Output Power	FCC part 15.247 (b)(3) RSS-247 6.3.2	PASS
Power Spectral Density	FCC part 15.247 (e) RSS-247 6.3.1	PASS
Antenna Requirement	FCC part 15.203/15.247 (c) RSS-GEN 6.8	PASS

Remark:

1. "N/A" denotes test is not applicable in this Test Report.

2.1 Test Site

Site Description

EMC Lab. : Accredited by CNAS, 2022-09-27

The certificate is valid until 2028.01.07

The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2017)

The Certificate Registration Number is L8251

Designation Number: CN1347

Test Firm Registration Number: 894804

Accredited by A2LA, June 14, 2023

The Certificate Registration Number is 6837.01

Accredited by Industry Canada, November 09, 2018

The Conformity Assessment Body Identifier is CN0150

Company Number: 30806

Name of Firm : Shenzhen NCT Testing Technology Co., Ltd.

Site Location : A101&2F B2, Fuqiao 6th Area, Xintian Community, Fuhai Street, Baoan District, Shenzhen, People's Republic of China

3 General Information

3.1 General Description of E.U.T.

Product Name	:	Electronic Kitchen Scale
Model Name	:	QZ-01-WHT
Sample ID	:	DM26010160
Sample(s) Status:	:	Engineer sample
Series Model.	:	QZ-01-BLK
Model Different.:	:	All products are identical except the model number and color.
Operating frequency	:	2412-2462MHz for 802.11b/g/n20; 2422-2452MHz for 802.11n40
Number of Channels	:	11 channels for 802.11b/g/n20; 7 channels for 802.11n40;
Type of Modulation	:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n(20)/n(40): DSSS (CCK, DQPSK, DBPSK)+OFDM (QPSK, BPSK, 16-QAM, 64-QAM)
Antenna installation	:	PCB Antenna
Antenna Gain	:	3.18 dBi
Power supply	:	DC 3.7V 2000mAh Li-ion battery*1 or DC 5V for USB port
Battery Information	:	Model: QS505060
Adapter Information	:	N/A
Hardware Version	:	N/A
Software Version	:	N/A
Remark: the Antenna gain is provided by customer from Antenna spec. and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.		

3.2 Channel List

The EUT has been tested under its typical operating condition. Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2020 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The details of test channels and bandwidth were for RF conductive measurement.

Channel List:

Frequency and Channel list for 802.11 b/g/n (HT20/HT40):

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

Frequency and Channel list for 802.11 b/g/n (HT20/HT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	6	2437	11	2462
3	2422	6	2437	9	2452

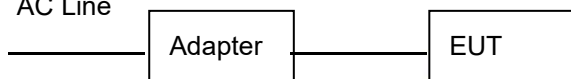
Note:

1. Test of channel was included the lowest, middle and highest frequency in highest data rate and to perform the test, then record on this report.

3.3 Test Setup Configuration

Conducted Emission

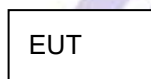
AC Line



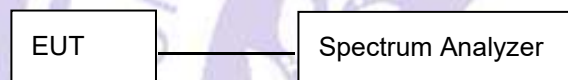
Radiated Emission(30MHz-1GHz)



Radiated Emission(above 1GHz)



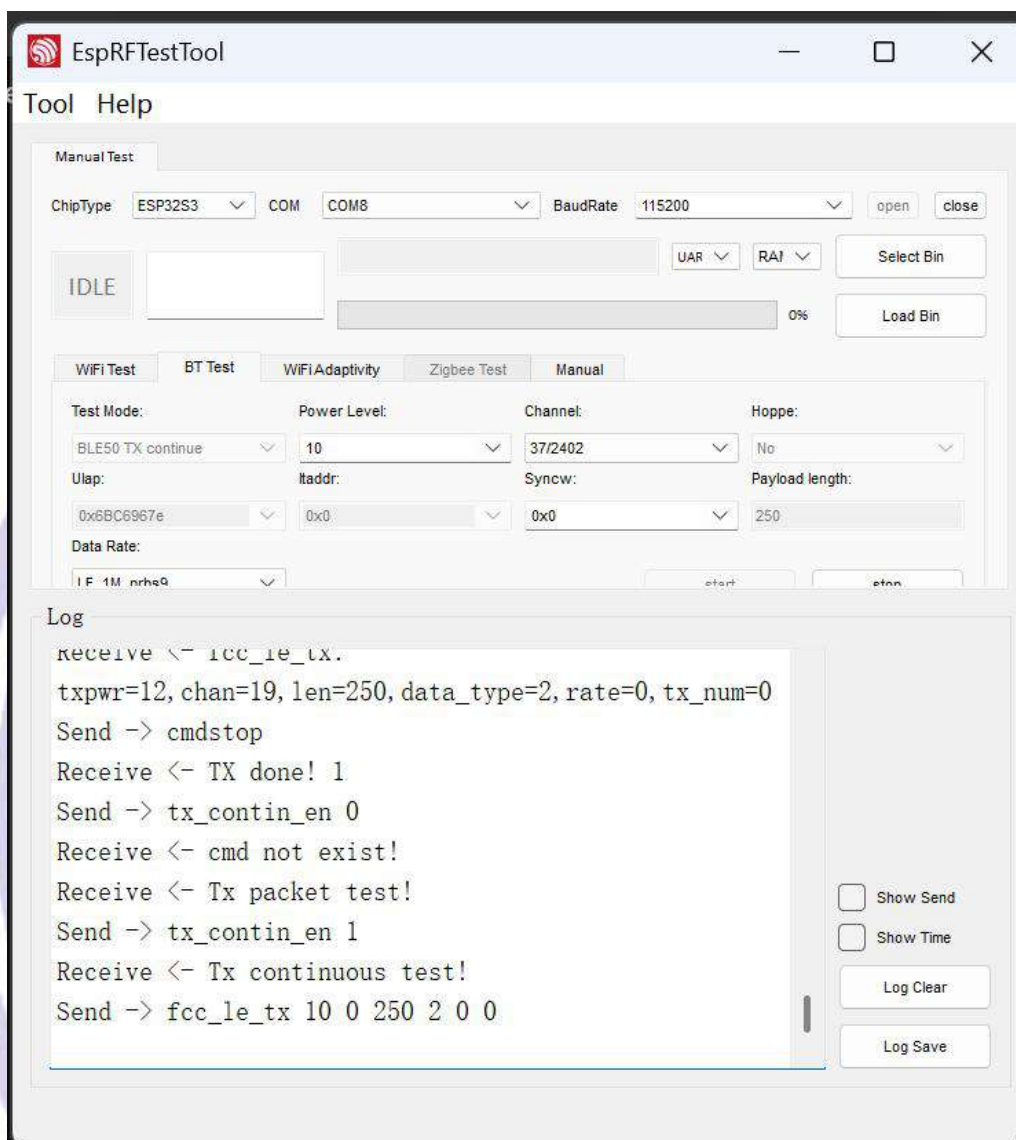
Conducted Spurious



3.4 Test Mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
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Test Software	EspRFTTestTool
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	Channel	Frequency (MHz)
Low Channel	1/3	2412/2422
Mid Channel	6	2437
High Channel	11/9	2462/2452

4 Equipment During Test

4.1 Equipments List

Conducted emission Test Equipment

Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
944 Shielded Room	944 Room	/	EMToni	2025/1/17	2028/1/16
EMI Test Receiver	ESPI	101604	Rohde & Schwarz	2025/6/10	2026/6/09
LISN	ENV 216	102796	Rohde & Schwarz	2025/6/10	2026/6/09
LISN	VN1-13S	004023	CRANAGE	2025/6/10	2026/6/09
Cable	RG223-1500MM	NA	RG	2025/6/10	2026/6/09

Radiated emission & Radio Frequency Test Equipment

Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
966 Shielded Room	966 Room	/	EMToni	2025/1/17	2028/1/16
EMI Test Receiver	ESCI	101178	Rohde & Schwarz	2025/6/10	2026/6/09
Amplifier (30MHz-1GHz)	BBV 9743 B	00374	SCHNWARZBECK	2025/6/10	2026/6/09
Bilog Antenna (30MHz-1GHz)	VULB9162	00473	SCHNWARZBECK	2025/3/08	2026/3/07
Horn antenna (1GHz-18GHz)	BBHA 9120 D	02622	SCHNWARZBECK	2025/3/10	2026/3/09
Preamplifier (1GHz-18GHz)	BBV 9718D	0024	SCHNWARZBECK	2025/6/10	2026/6/09
Spectrum Analyzer (10Hz-40GHz)	FSV 40	100952	Rohde & Schwarz	2025/6/10	2026/6/09
Preamplifier (18GHz-40GHz)	BBV 9721	0056	SCHNWARZBECK	2025/6/10	2026/6/09
Double Ridge Guide Horn Antenna (18GHz-40GHz)	SAS-574	588	A.H.System	2025/3/10	2026/3/09
Loop Antenna (9KHz-30MHz)	FMZB1519B	014	SCHNWARZBECK	2025/6/10	2026/6/09
Amplifier (9KHz-30MHz)	CVP 9222 C	00109	CHNWARZBECK	2025/6/10	2026/6/09

MXG Signal Analyzer	N9020A	MY50510202	Agilent	2025/6/10	2026/6/09
MXG Vector Signal Generator	N5182A	MY50140020	Agilent	2025/6/10	2026/6/09
MXG Analog Signal Generator	N5181A	MY47420919	Agilent	2025/6/10	2026/6/09
Power Sensor	TR1029-2	512364	Techoy	2025/6/10	2026/6/09
RF Swith	TR1029-1	512364	Techoy	2025/6/10	2026/6/09
Cable	DA800-4000MM	NA	DA	2025/6/10	2026/6/09
Cable	DA800-11000MM	NA	DA	2025/6/10	2026/6/09

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	AUDIX	EZ-EMC	Ver.EMC-CON 3A1.1+
2	EMC radiation test system	AUDIX	EZ-EMC	Ver.FA-03A2 RE+
3	RF test system	TACHOY	RFTest	V1.0.0
4	RF communication test system	TACHOY	RFTest	V1.0.0

4.2 Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10 ⁻⁶
Bandwidth	± 1.5 x 10 ⁻⁶
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(9kHz~30MHz)	±4.51dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%	

4.3 Description of Support Units

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	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Electronic Kitchen Scale	N/A	QZ-01-BLK	N/A	EUT
E-2	adapter	HUAWEI	HW-090200CH0	N/A	Auxiliary

Note: (1)The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

5 Conducted Emission

Test Requirement	: FCC CFR 47 Part 15 Section 15.207, RSS-Gen§8.8
Test Method	: ANSI C63.10: 2020
Test Result	: PASS
Frequency Range	: 150kHz to 30MHz
Class/Severity	: Class B

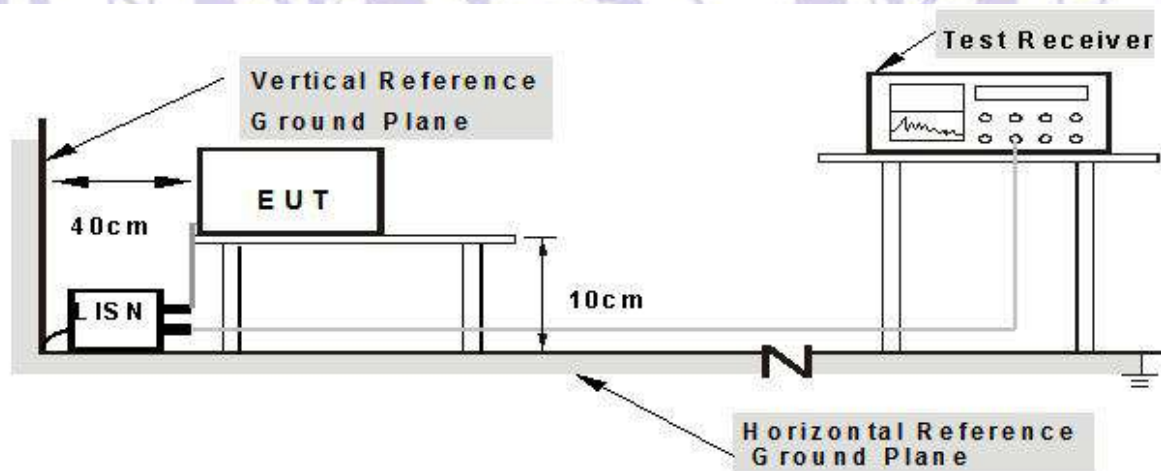
5.1 E.U.T. Operation

Operating Environment :

Temperature	: 25.5 °C
Humidity	: 51 % RH
Atmospheric Pressure	: 101.2kPa

5.2 EUT Setup

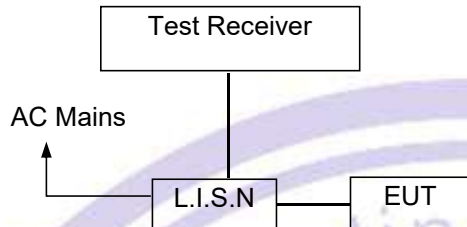
The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2020.



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 10 cm from EUT and at least 10 from other units and other metal planes

5.3 Test SET-UP (Block Diagram of Configuration)



5.4 Measurement Procedure

1. The EUT was placed on a table, which is 0.1m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

5.5 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.6 Measurement Description

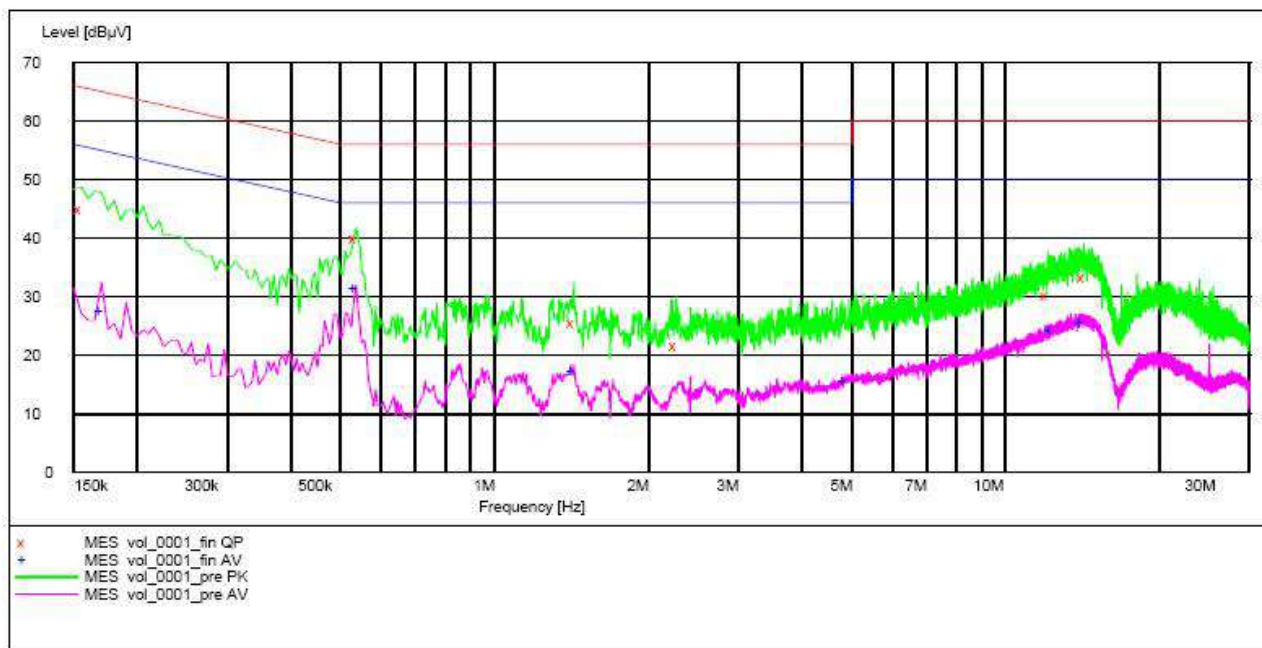
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

5.7 Conducted Emission Test Result

Pass

Conducted emission at both 120V & 240V is assessed, and emission at 120V represents the worst case. All the modulation modes were tested the data of the worst mode (GFSK, Lowest channel) are recorded in the following pages and the others modulation methods do not exceed the limits.

Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test mode:	Charging



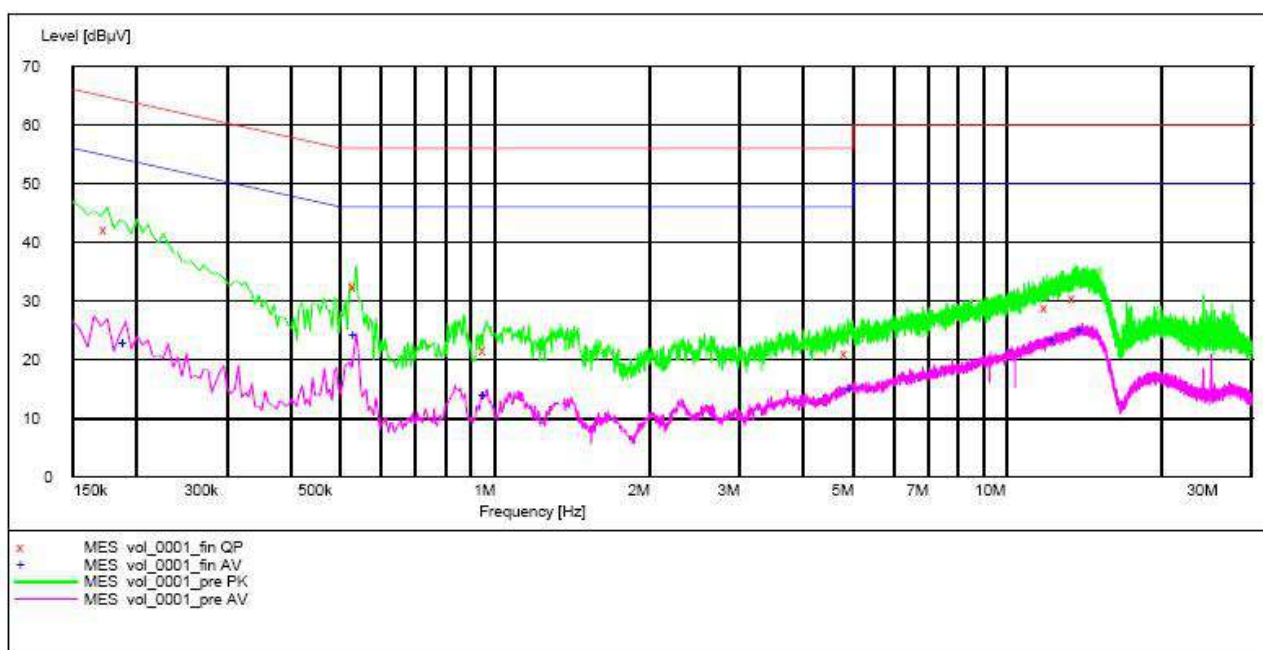
MEASUREMENT RESULT: "vol_0001_fin QP"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.155000	45.10	9.6	65.70	20.60	L1	GND
0.535000	39.90	9.6	56.00	16.10	L1	GND
1.430000	25.50	9.7	56.00	30.50	L1	GND
2.265000	21.60	9.7	56.00	34.40	L1	GND
12.090000	30.30	10.0	60.00	29.70	L1	GND
14.265000	33.30	10.2	60.00	26.70	L1	GND

MEASUREMENT RESULT: "vol_0001_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.170000	27.60	9.6	55.00	27.40	L1	GND
0.535000	31.40	9.6	46.00	14.60	L1	GND
1.430000	17.20	9.7	46.00	28.80	L1	GND
4.865000	15.60	9.7	46.00	30.40	L1	GND
12.295000	24.10	10.0	50.00	25.90	L1	GND
14.145000	25.70	10.2	50.00	24.30	L1	GND

Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test mode:	Charging



MEASUREMENT RESULT: "vol_0001_fin QP"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.175000	42.30	9.6	64.70	22.40	N	GND
0.535000	32.60	9.6	56.00	23.40	N	GND
0.960000	21.70	9.7	56.00	34.30	N	GND
4.885000	21.20	9.7	56.00	34.80	N	GND
11.995000	28.80	10.0	60.00	31.20	N	GND
13.580000	30.50	10.1	60.00	29.50	N	GND

MEASUREMENT RESULT: "vol_0001_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.190000	22.90	9.6	54.00	31.20	N	GND
0.535000	24.20	9.6	46.00	21.80	N	GND
0.960000	13.90	9.7	46.00	32.10	N	GND
4.985000	15.00	9.7	46.00	31.00	N	GND
12.375000	23.30	10.0	50.00	26.70	N	GND
14.040000	24.90	10.1	50.00	25.10	N	GND

6 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.247,
RSS-Gen §8.9, RSS-Gen §8.10

Test Method : ANSI C63.10:2020

Test Result : PASS

Measurement Distance : 3m

Limit : See the follow table

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	20log ^{(2400/F(kHz))} + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log ^{(24000/F(kHz))} + 40
1.705 ~ 30	30	30	100 * 30	20log ⁽³⁰⁾ + 40
30 ~ 88	100	3	100	20log ⁽¹⁰⁰⁾
88 ~ 216	150	3	150	20log ⁽¹⁵⁰⁾
216 ~ 960	200	3	200	20log ⁽²⁰⁰⁾
Above 960	500	3	500	20log ⁽⁵⁰⁰⁾

6.1 EUT Operation

Operating Environment :

Temperature : 23.5 °C

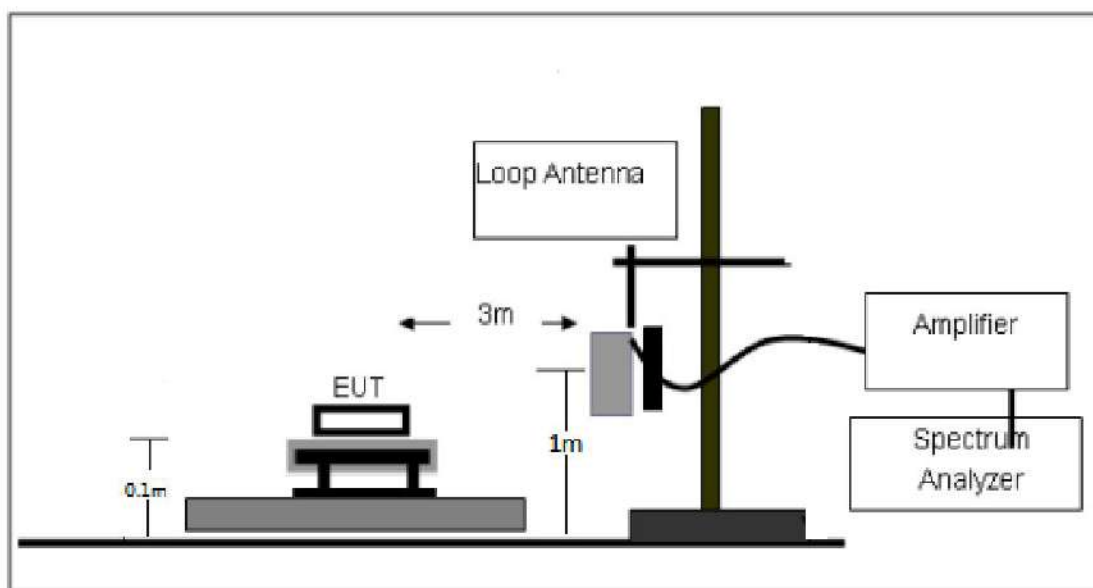
Humidity : 51.1 % RH

Atmospheric Pressure : 101.2kPa

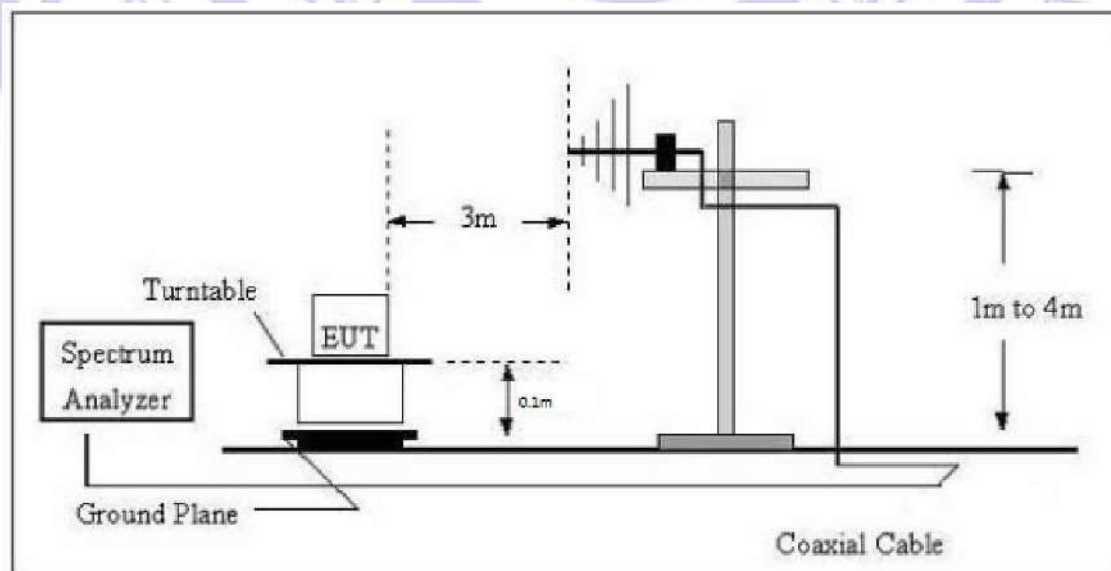
6.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

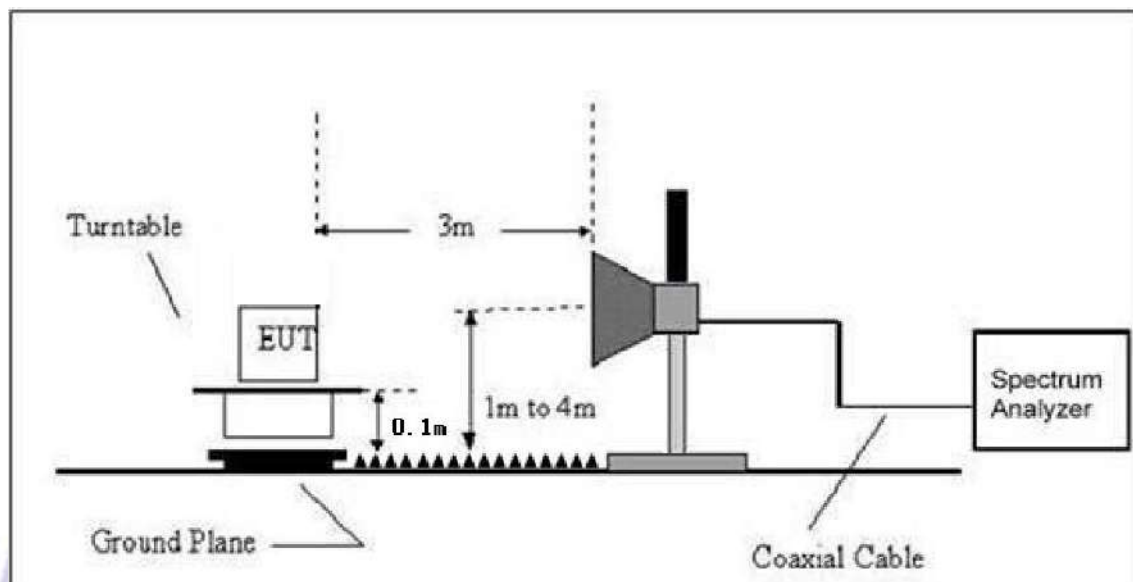
The test setup for emission measurement below 30MHz



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz



6.3 Spectrum Analyzer Setup

	Frequency	Detector	RBW	VBW	Remark
Receiver Setup	Below 30MHz	--	10kHz	10kHz	--
	30MHz ~ 1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value

6.4 Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10-2020.
2. Below 1000MHz, The EUT was placed on a turn table which is 0.1m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 0.1m above ground plane.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.
7. Test Procedure of measurement (For Above 1GHz):
 - 1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).
 - 2) Change the antenna polarization and repeat 1) with vertical polarization.
 - 3) Make a hardcopy of the spectrum.
 - 4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
 - 5) Change the analyser mode to Clear/ Write and found the cone of emission.
 - 6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.
 - 7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.
 - 8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.
8. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

For Average Measurement:

$VBW=10\text{Hz}$, when duty cycle is no less than 98 percent.

$VBW \geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



6.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	>20

Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

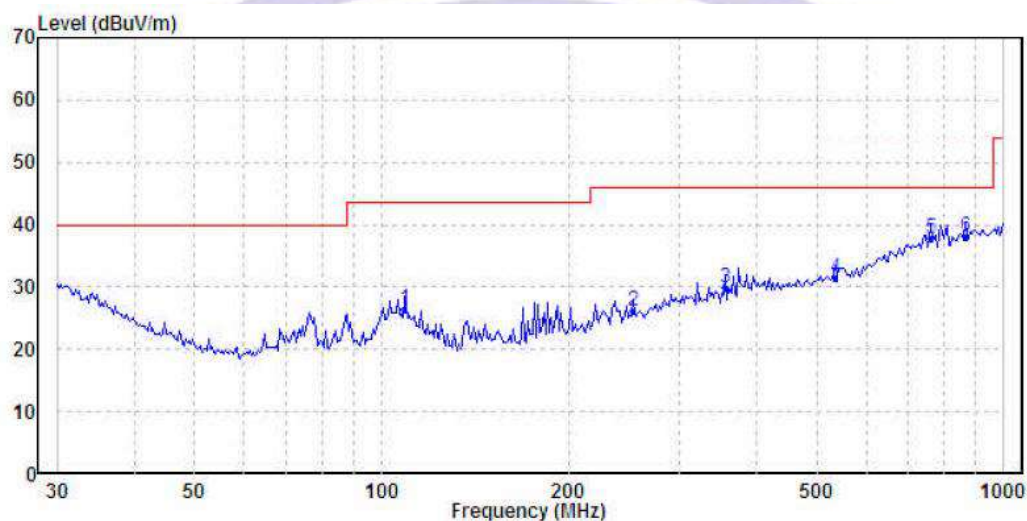
Distance extrapolation factor = $40\log(\text{Specific distance} / \text{test distance})$ (dB);
Limit line = Specific limits (dBuV) + distance extrapolation factor.

Test Frequency: 30MHz ~ 1GHz

Pass.

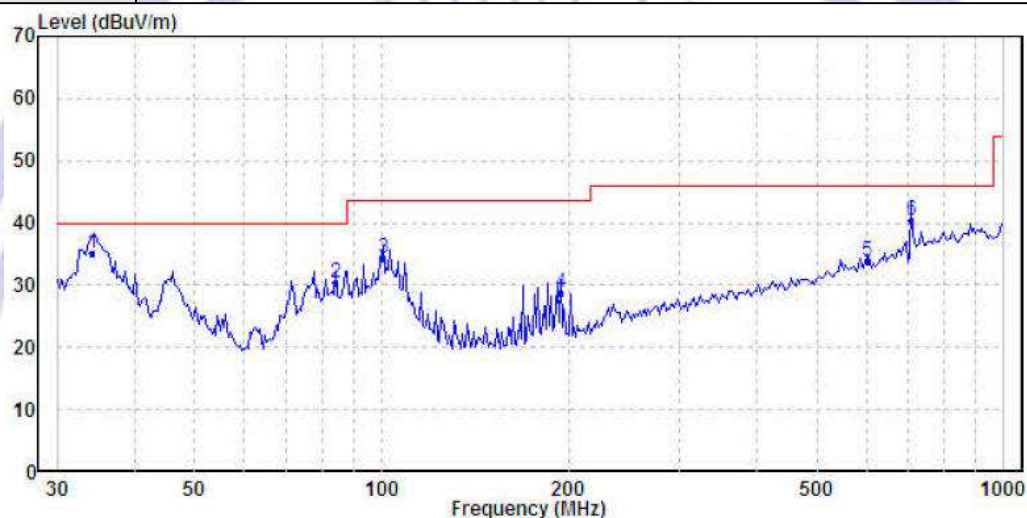
Please refer to the following test plots for the worst test mode (GFSK (CH00: 2402MHz)).

Temperature:	25.1°C	Relative Humidity:	53.6%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 3.7V		



	Freq	Level	Limit	Over		
	MHz	dBuV/m	Line	Limit	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB		
1	109.029	26.51	43.50	-16.99	QP	Horizontal
2	252.948	26.12	46.00	-19.88	QP	Horizontal
3	356.676	29.95	46.00	-16.05	QP	Horizontal
4	535.707	31.45	46.00	-14.55	QP	Horizontal
5	760.704	37.79	46.00	-8.21	QP	Horizontal
6	869.130	38.03	46.00	-7.97	QP	Horizontal

Temperature:	25.1°C	Relative Humidity:	53.6%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 3.7V		



	Freq	Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB		
1	34.276	35.16	40.00	-4.84	QP	Vertical
2	84.110	30.31	40.00	-9.69	QP	Vertical
3	100.229	34.26	43.50	-9.24	QP	Vertical
4	193.773	28.86	43.50	-14.64	QP	Vertical
5	603.539	33.75	46.00	-12.25	QP	Vertical
6	709.182	40.41	46.00	-5.59	QP	Vertical

Test Frequency: From 1GHz to 25GHz

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Low Channel:2412MHz									
V	4824.00	56.32	34.11	5.04	32.44	59.69	74	-14.31	PK
V	4824.00	38.35	34.11	5.04	32.44	41.72	54	-12.28	AV
V	7236.00	47.35	32.57	6.3	35.89	56.97	74	-17.03	PK
V	7236.00	32.21	32.57	6.3	35.89	41.83	54	-12.17	AV
V	9648.00	43.31	32.96	7.56	38.4	56.31	74	-17.69	PK
V	9648.00	29.31	32.96	7.56	38.4	42.31	54	-11.69	AV
V	12060.00	40.05	32.06	8.92	39.01	55.92	74	-18.08	PK
V	12060.00	25.58	32.06	8.92	39.01	41.45	54	-12.55	AV
H	4824.00	55.94	34.11	5.04	32.44	59.31	74	-14.69	PK
H	4824.00	38.31	34.11	5.04	32.44	41.68	54	-12.32	AV
H	7236.00	46.57	32.57	6.3	35.89	56.19	74	-17.81	PK
H	7236.00	33.11	32.57	6.3	35.89	42.73	54	-11.27	AV
H	9648.00	42.27	32.96	7.56	38.4	55.27	74	-18.73	PK
H	9648.00	29.35	32.96	7.56	38.4	42.35	54	-11.65	AV
H	12060.00	40.26	32.06	8.92	39.01	56.13	74	-17.87	PK
H	12060.00	26.9	32.06	8.92	39.01	42.77	54	-11.23	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Middle Channel:2437MHz									
V	4874.00	55.13	34.08	5.08	32.57	58.7	74	-15.3	PK
V	4874.00	38.24	34.08	5.08	32.57	41.81	54	-12.19	AV
V	7311.00	47.26	32.62	6.34	35.95	56.93	74	-17.07	PK
V	7311.00	32.45	32.62	6.34	35.95	42.12	54	-11.88	AV
V	9748.00	43.38	32.93	7.58	38.4	56.43	74	-17.57	PK
V	9748.00	28.87	32.93	7.58	38.4	41.92	54	-12.08	AV
V	12185.00	41.09	31.97	8.89	39.04	57.05	74	-16.95	PK
V	12185.00	26.31	31.97	8.89	39.04	42.27	54	-11.73	AV
H	4874.00	55.12	34.08	5.08	32.57	58.69	74	-15.31	PK
H	4874.00	38.26	34.08	5.08	32.57	41.83	54	-12.17	AV
H	7311.00	47.58	32.62	6.34	35.95	57.25	74	-16.75	PK
H	7311.00	33.29	32.62	6.34	35.95	42.96	54	-11.04	AV
H	9748.00	44.33	32.93	7.58	38.4	57.38	74	-16.62	PK
H	9748.00	28.82	32.93	7.58	38.4	41.87	54	-12.13	AV
H	12185.00	40.18	31.97	8.89	39.04	56.14	74	-17.86	PK
H	12185.00	26.25	31.97	8.89	39.04	42.21	54	-11.79	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
High Channel:2462MHz									
V	4924.00	54.21	34.05	5.14	32.79	58.09	74	-15.91	PK
V	4924.00	37.84	34.05	5.14	32.79	41.72	54	-12.28	AV
V	7386.00	46.93	32.67	6.36	35.99	56.61	74	-17.39	PK
V	7386.00	32.82	32.67	6.36	35.99	42.5	54	-11.5	AV
V	9848.00	43.19	32.89	7.59	38.37	56.26	74	-17.74	PK
V	9848.00	29.11	32.89	7.59	38.37	42.18	54	-11.82	AV
V	12310.00	40.16	31.88	8.82	39.06	56.16	74	-17.84	PK
V	12310.00	26.25	31.88	8.82	39.06	42.25	54	-11.75	AV
H	4924.00	54.79	34.05	5.14	32.79	58.67	74	-15.33	PK
H	4924.00	38.24	34.05	5.14	32.79	42.12	54	-11.88	AV
H	7386.00	46.39	32.67	6.36	35.99	56.07	74	-17.93	PK
H	7386.00	32.43	32.67	6.36	35.99	42.11	54	-11.89	AV
H	9848.00	43.05	32.89	7.59	38.37	56.12	74	-17.88	PK
H	9848.00	28.21	32.89	7.59	38.37	41.28	54	-12.72	AV
H	12310.00	40.18	31.88	8.82	39.06	56.18	74	-17.82	PK
H	12310.00	26.67	31.88	8.82	39.06	42.67	54	-11.33	AV

Note:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. We test all the mode and recorded the worst mode (802.11b) in the report.

Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz

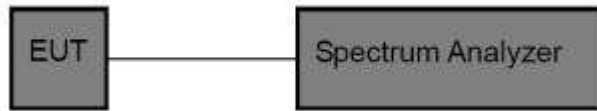
	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Detec tor Type	Result
802.11b	Low Channel: 2412MHz									
	H	2390.00	55.52	35.17	3.48	27.49	51.32	74	PK	PASS
	H	2390.00	42.68	35.17	3.48	27.49	38.48	54	AV	PASS
	V	2390.00	54.89	35.17	3.48	27.49	50.69	74	PK	PASS
	V	2390.00	42.78	35.17	3.48	27.49	38.58	54	AV	PASS
	High Channel: 2462MHz									
	H	2483.50	62.38	35.11	3.56	27.75	58.58	74	PK	PASS
	H	2483.50	47.36	35.11	3.56	27.75	43.56	54	AV	PASS
	V	2483.50	60.47	35.11	3.56	27.75	56.67	74	PK	PASS
	V	2483.50	46.21	35.11	3.56	27.75	42.41	54	AV	PASS
802.11g	Low Channel: 2412MHz									
	H	2390.00	65.32	35.17	3.48	27.49	61.12	74	PK	PASS
	H	2390.00	49.63	35.17	3.48	27.49	45.43	54	AV	PASS
	V	2390.00	64.44	35.17	3.48	27.49	60.24	74	PK	PASS
	V	2390.00	48.81	35.17	3.48	27.49	44.61	54	AV	PASS
	High Channel: 2462MHz									
	H	2483.50	68.24	35.11	3.56	27.75	64.44	74	PK	PASS
	H	2483.50	53.34	35.11	3.56	27.75	49.54	54	AV	PASS
	V	2483.50	65.97	35.11	3.56	27.75	62.17	74	PK	PASS
	V	2483.50	51.63	35.11	3.56	27.75	47.83	54	AV	PASS
Remark:										
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit										

802.11 n20	Low Channel: 2412MHz									
	H	2390.00	64.41	35.17	3.48	27.49	60.21	74	PK	PASS
	H	2390.00	48.75	35.17	3.48	27.49	44.55	54	AV	PASS
	V	2390.00	63.22	35.17	3.48	27.49	59.02	74	PK	PASS
	V	2390.00	47.57	35.17	3.48	27.49	43.37	54	AV	PASS
	High Channel: 2462MHz									
	H	2483.50	68.11	35.11	3.56	27.75	64.31	74	PK	PASS
	H	2483.50	52.85	35.11	3.56	27.75	49.05	54	AV	PASS
	V	2483.50	65.52	35.11	3.56	27.75	61.72	74	PK	PASS
	V	2483.50	50.79	35.11	3.56	27.75	46.99	54	AV	PASS
	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Detec tor Type	Result
802.11 n40	Low Channel: 2422MHz									
	H	2390.00	57.85	35.17	3.48	27.49	53.65	74	PK	PASS
	H	2390.00	44.28	35.17	3.48	27.49	40.08	54	AV	PASS
	V	2390.00	56.69	35.17	3.48	27.49	52.49	74	PK	PASS
	V	2390.00	45.26	35.17	3.48	27.49	41.06	54	AV	PASS
	High Channel: 2452MHz									
	H	2483.50	66.23	35.11	3.56	27.75	62.43	74	PK	PASS
	H	2483.50	49.21	35.11	3.56	27.75	45.41	54	AV	PASS
	V	2483.50	64.06	35.11	3.56	27.75	60.26	74	PK	PASS
	V	2483.50	50.11	35.11	3.56	27.75	46.31	54	AV	PASS
Remark:										
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit										

7 Conduct Band Edge And Spurious Emissions Measurement

- Test Requirement : Section 15.247(d) In addition, radiated emissions which fall in the restricted bands. as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
RSS-247 § 5.5
- Test Method : ANSI C63.10:2020
- Test Limit : Regulation 15.247 (d), 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)).
RSS-247 § 6.6:
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

7.1 Test Setup



7.2 Test Procedure

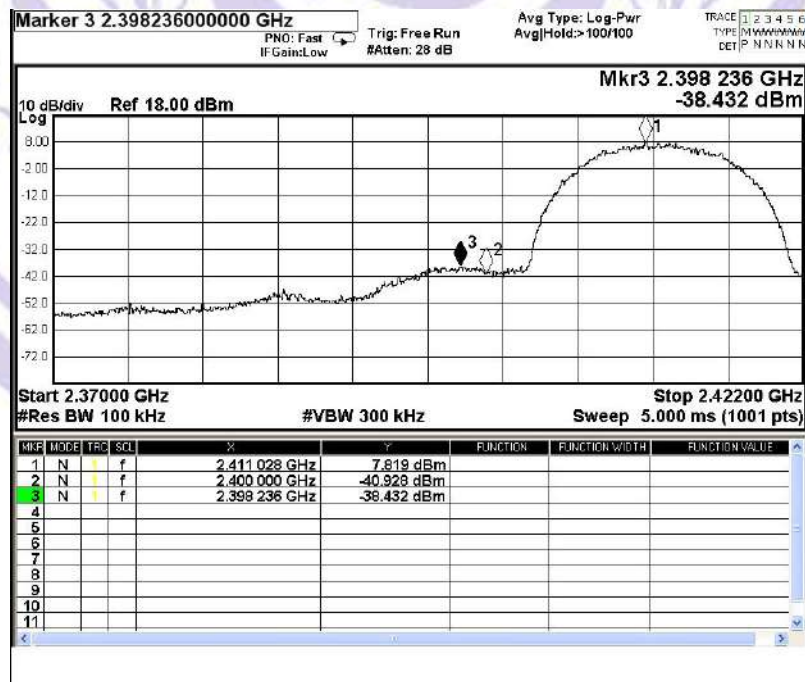
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
Detector function = peak, Trace = max hold

7.3 Test Result

Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Reference level	Limit	The highest conducted band edge emission	Result
[MHz]	[dBm]	[dBm]	[dBm]	
2400 – Lowest Fundamental (2412)	7.819	-12.181	-38.432	PASS

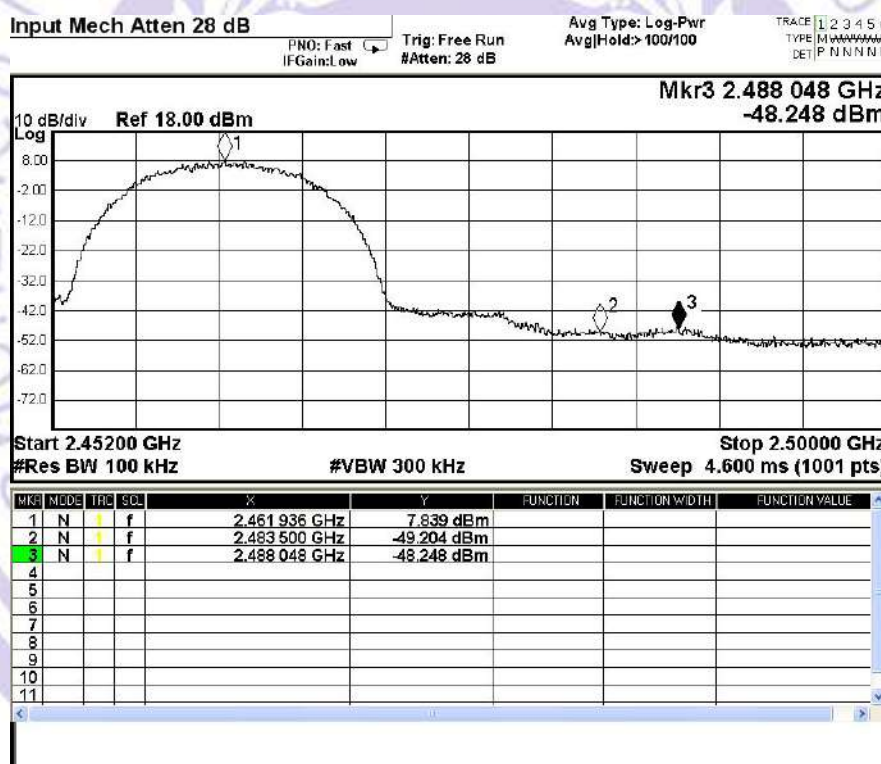
Band-edge Compliance of RF Emissions – Lowest (802.11b)



Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Reference level	Limit	The highest conducted band edge emission	Result
[MHz]	[dBm]	[dBm]	[dBm]	
2483.5 - Highest Fundamental (2462)	7.839	-12.161	-48.248	PASS

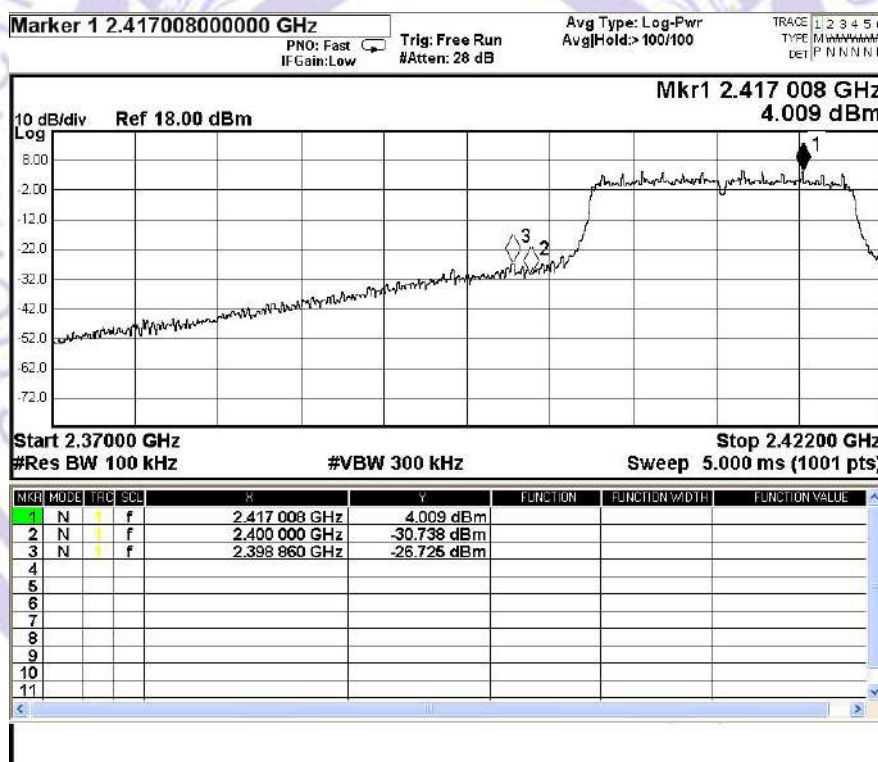
Band-edge Compliance of RF Emissions – Highest (802.11b)



Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Reference level	Limit	The highest conducted band edge emission	Result
[MHz]	[dBm]	[dBm]	[dBm]	
2400 – Lowest Fundamental (2412)	4.009	-15.991	-26.725	PASS

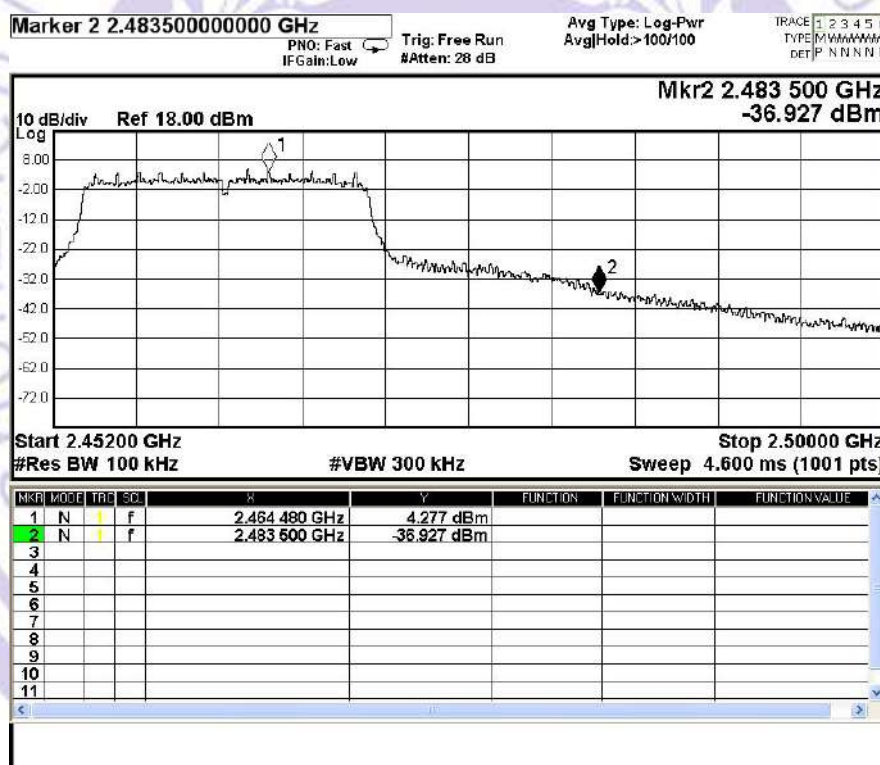
Band-edge Compliance of RF Emissions – Lowest (802.11g)



Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Reference level	Limit	The highest conducted band edge emission	Result
[MHz]	[dBm]	[dBm]	[dBm]	
2483.5 - Highest Fundamental (2462)	4.277	-15.723	-36.927	PASS

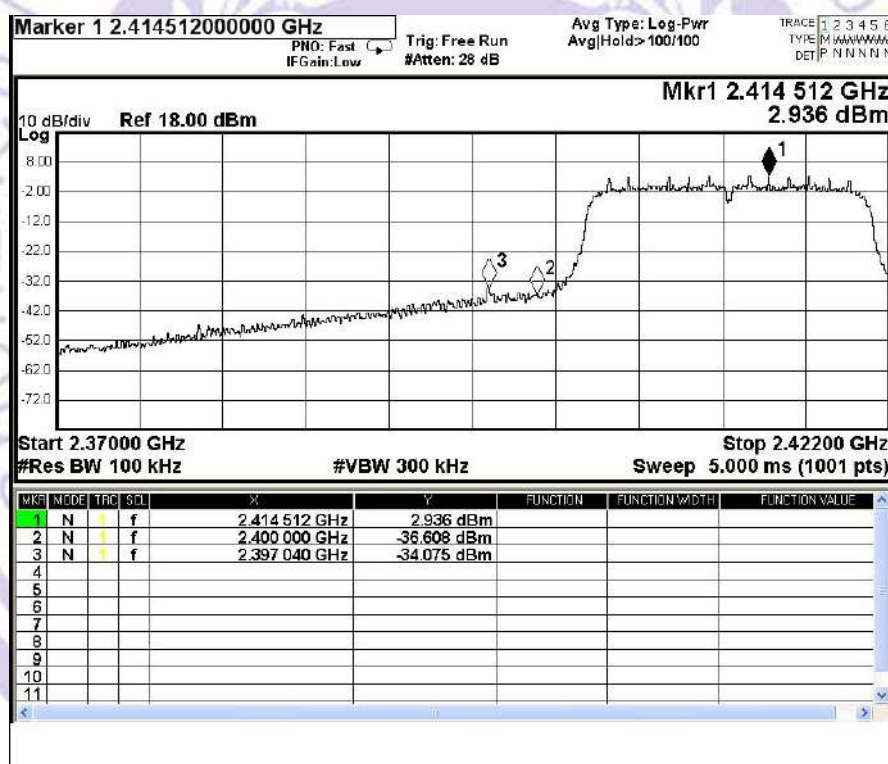
Band-edge Compliance of RF Emissions – Highest (802.11g)



Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Reference level	Limit	The highest conducted band edge emission	Result
[MHz]	[dBm]	[dBm]	[dBm]	
2400 – Lowest Fundamental (2412)	2.936	-17.064	-34.075	PASS

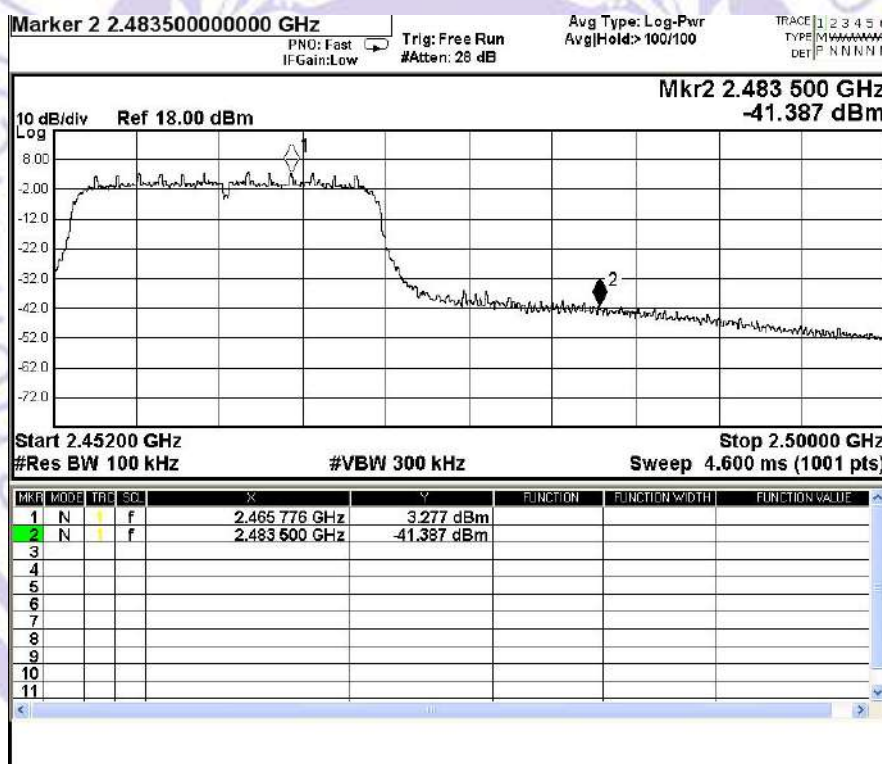
Band-edge Compliance of RF Emissions – Lowest (802.11n20)



Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Reference level	Limit	The highest conducted band edge emission	Result
[MHz]	[dBm]	[dBm]	[dBm]	
2483.5 - Highest Fundamental (2462)	3.277	-16.723	-41.387	PASS

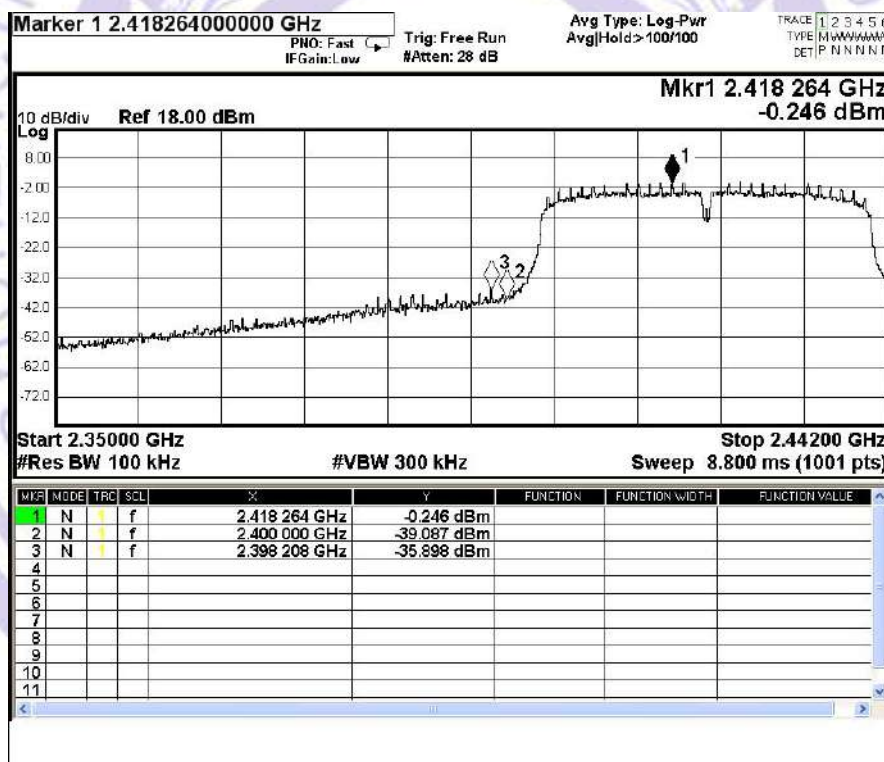
Band-edge Compliance of RF Emissions – Highest (802.11n20)



Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Reference level	Limit	The highest conducted band edge emission	Result
[MHz]	[dBm]	[dBm]	[dBm]	
2400 – Lowest Fundamental (2422)	-0.246	-20.246	-35.898	PASS

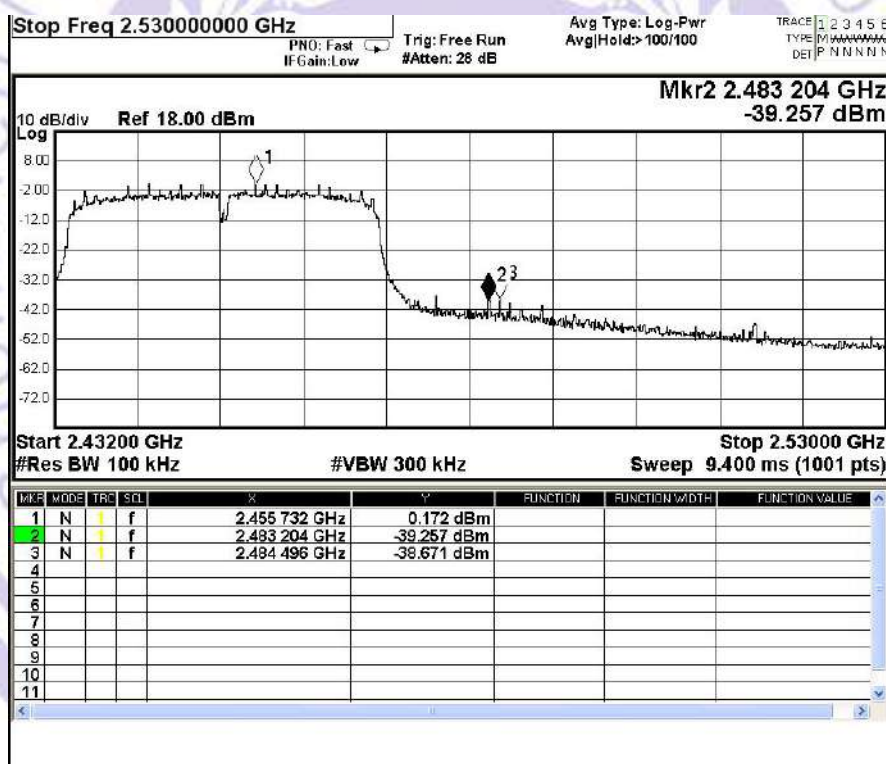
Band-edge Compliance of RF Emissions – Lowest (802.11n40)



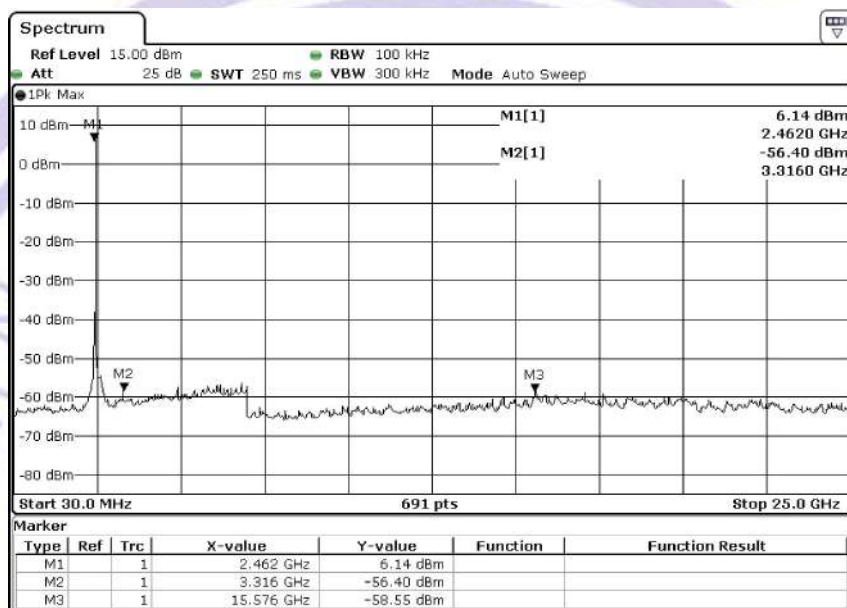
Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Reference level	Limit	The highest conducted band edge emission	Result
[MHz]	[dBm]	[dBm]	[dBm]	
2483.5 - Highest Fundamental (2452)	0.172	-19.828	-38.671	PASS

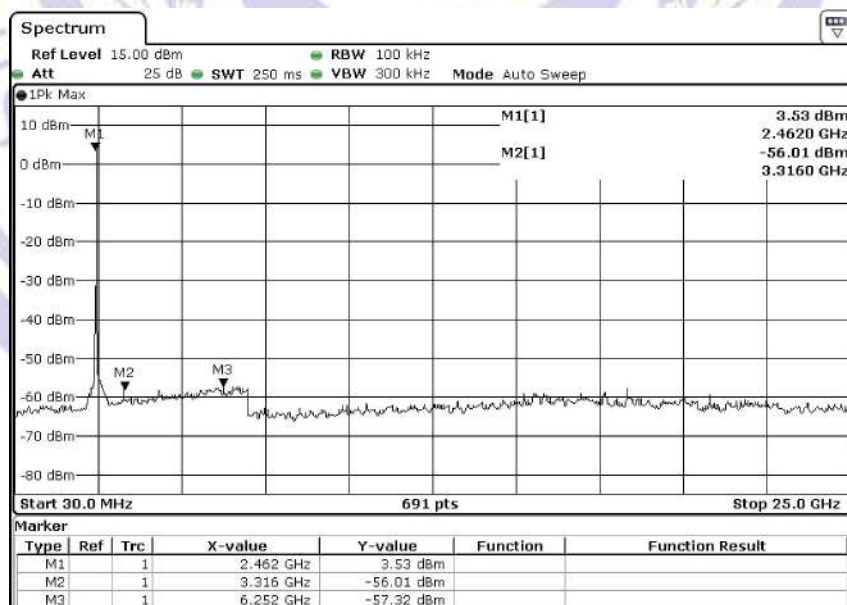
Band-edge Compliance of RF Emissions – Highest (802.11n40)



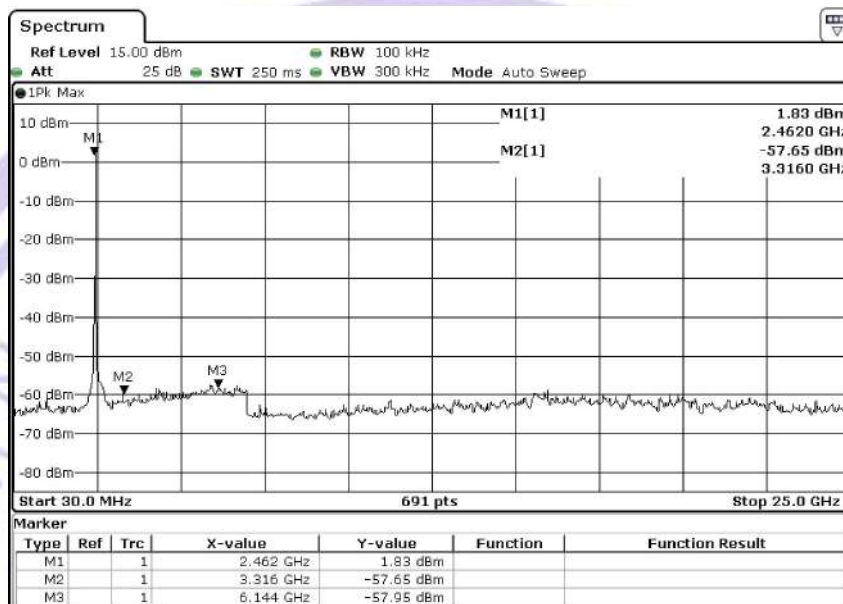
Compliance of RF Emissions – (802.11b 2462MHz) (the worst case)



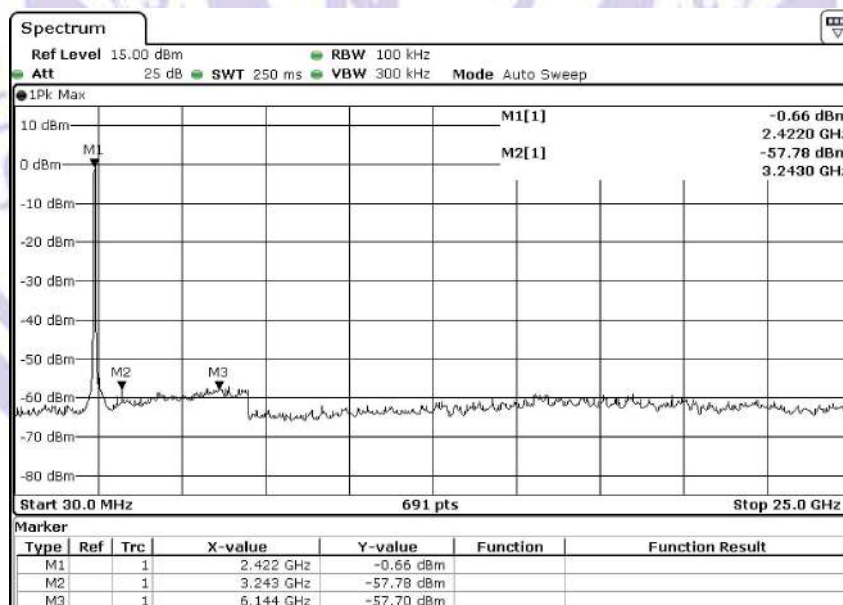
Compliance of RF Emissions – (802.11g 2462MHz) (the worst case)



Compliance of RF Emissions – (802.11n20 2462MHz) (the worst case)



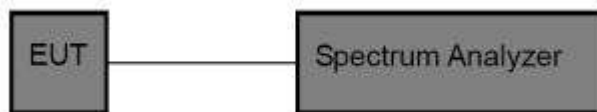
Compliance of RF Emissions – (802.11n40 2422MHz) (the worst case)



8 6dB&99% Bandwidth Measurement

Test Requirement	:	FCC CFR47 Part 15 Section 15.247(a)2, RSS-GEN §6.7, RSS-247 § 6.3.1
Test Method	:	ANSI C63.10:2020
Test Limit		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.

8.1 Test Setup



8.2 Test Procedure

For 6dB Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 1%-5% OBW, VBW $\geq$ 3RBW

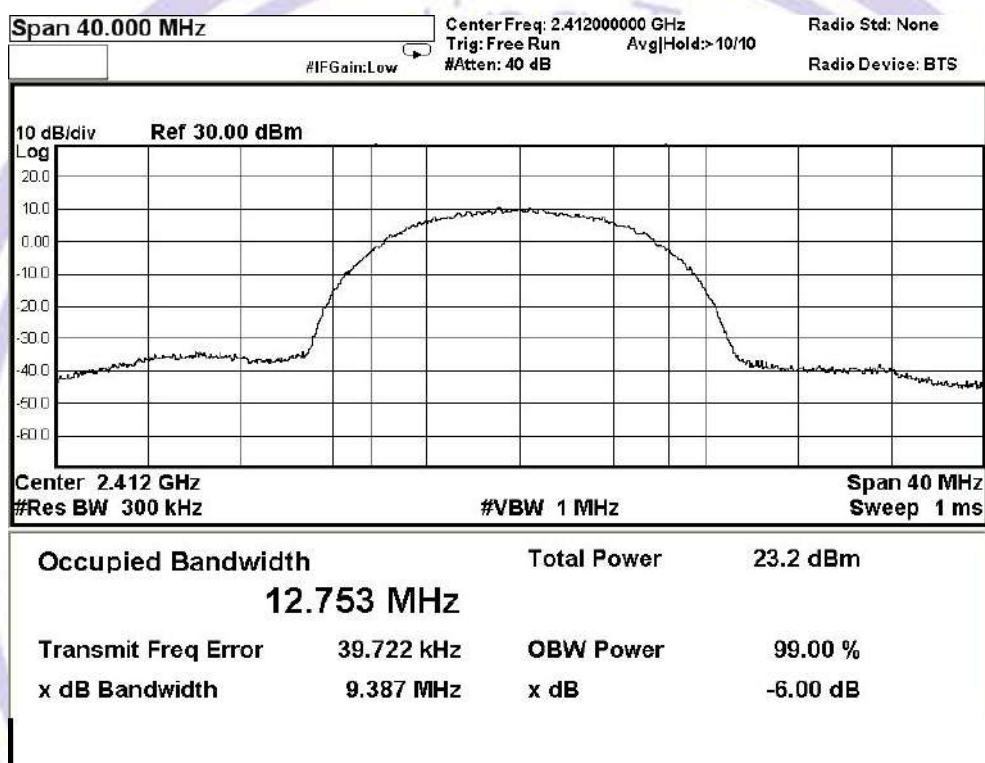
For 99% Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 1%-5% OBW, VBW $\geq$ 3RBW

8.3 Test Result

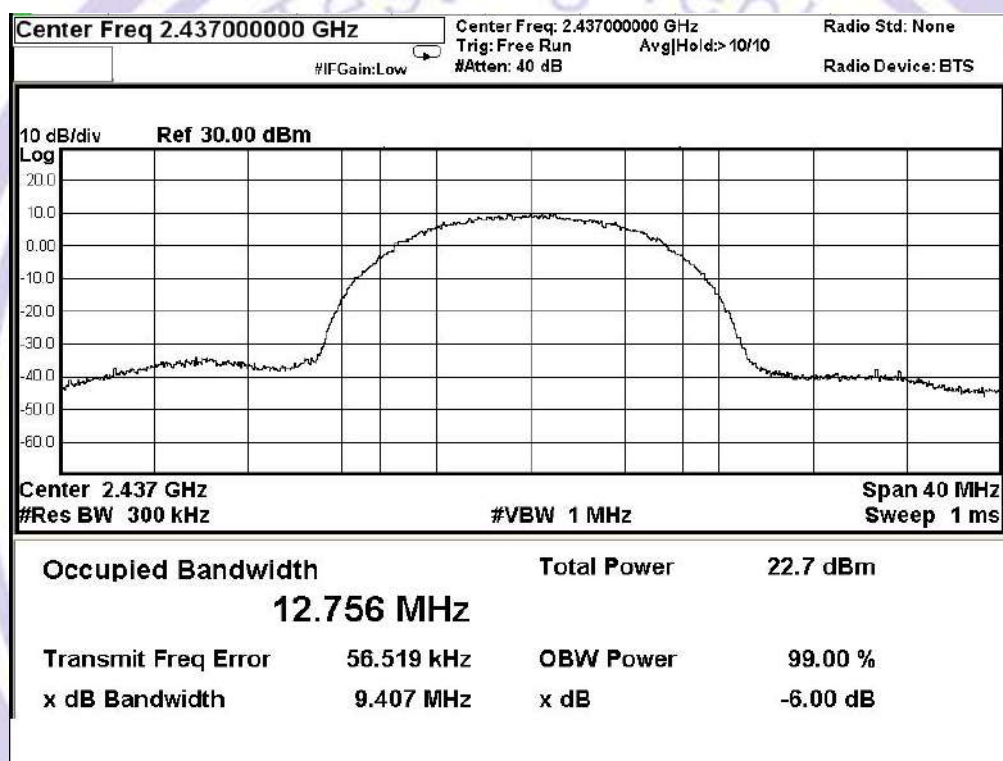
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2412	9.387	12.753

(Lowest Operating Frequency) - (802.11b)



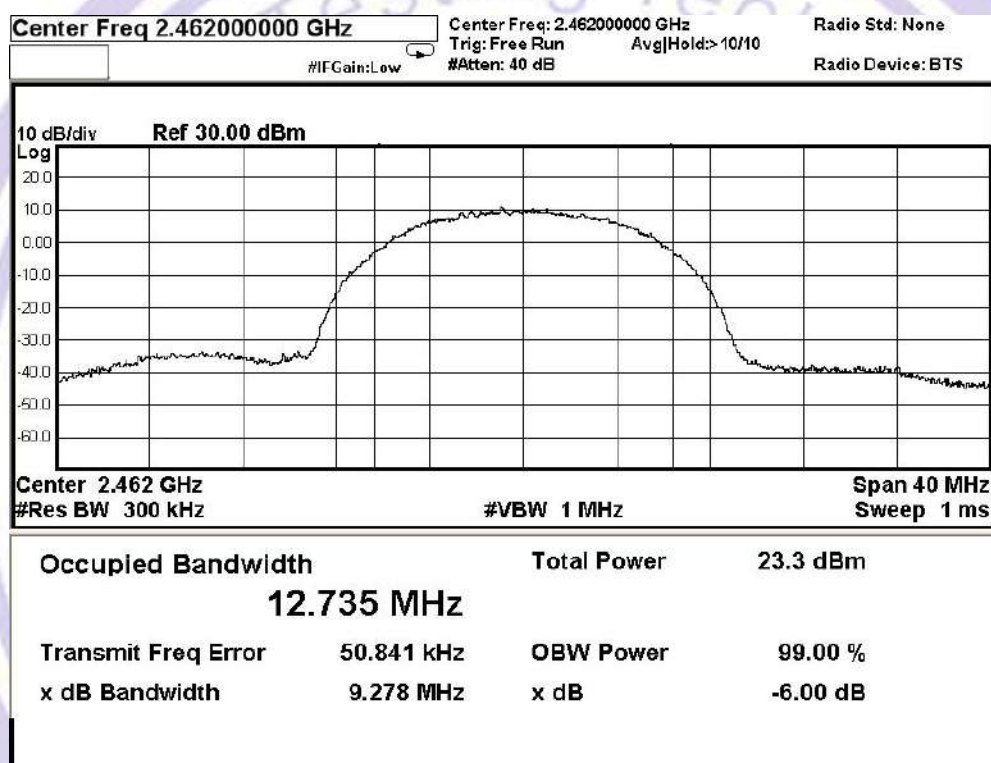
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2437	9.407	12.756

(Middle Operating Frequency) - (80.11b)



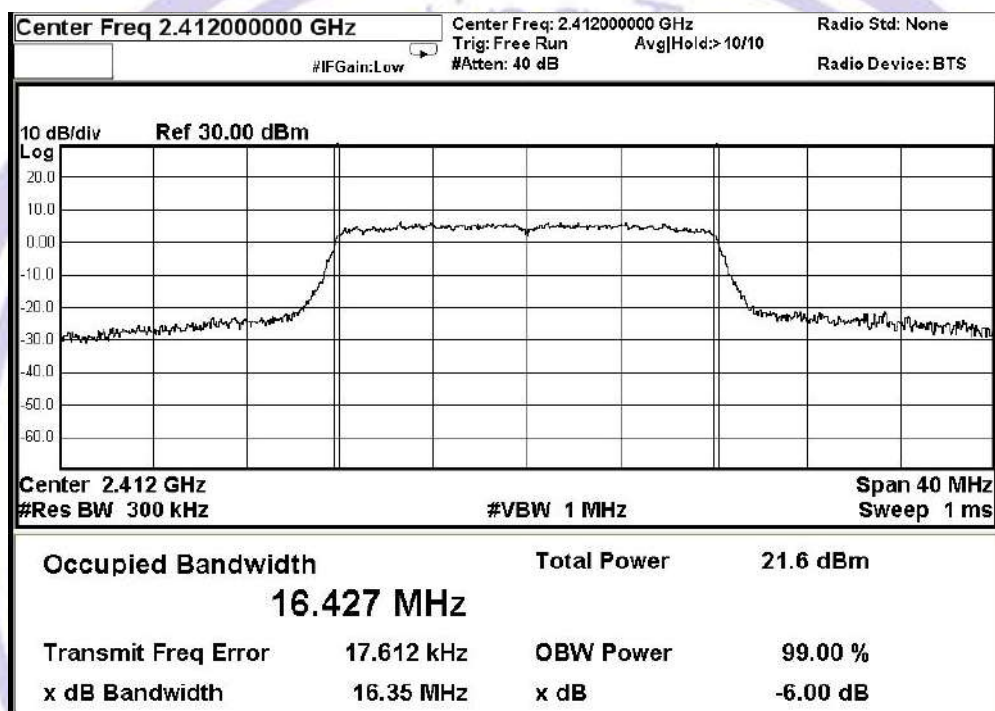
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2462	9.278	12.753

(Highest Operating Frequency) - (802.11b)



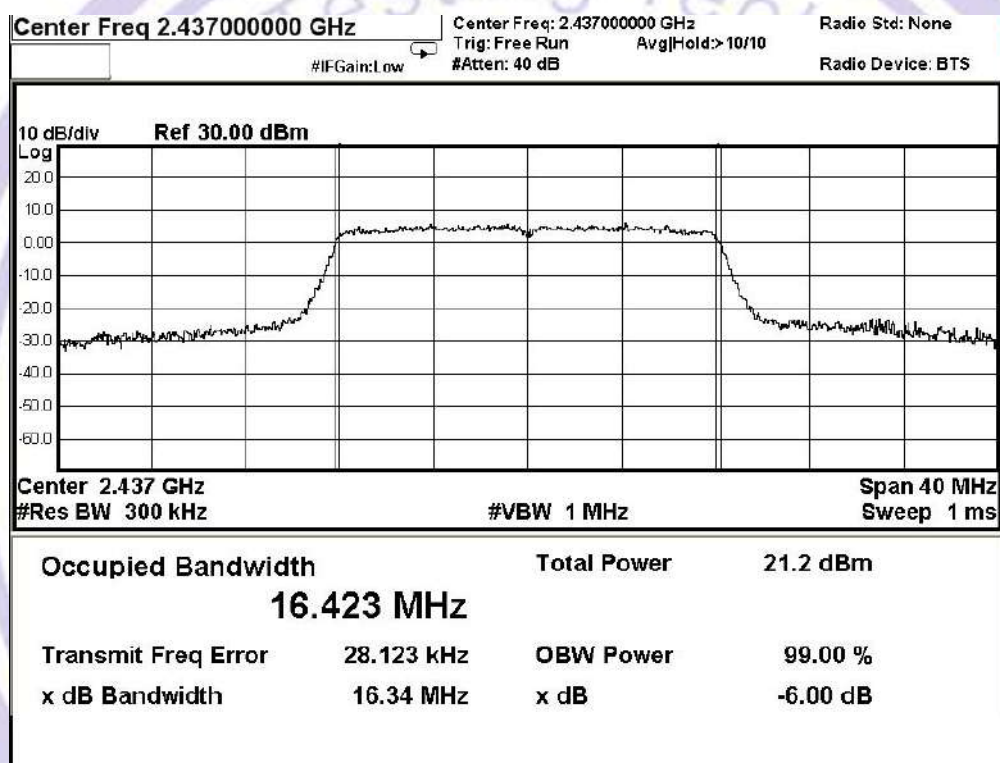
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2412	16.35	16.427

(Lowest Operating Frequency) - (802.11g)



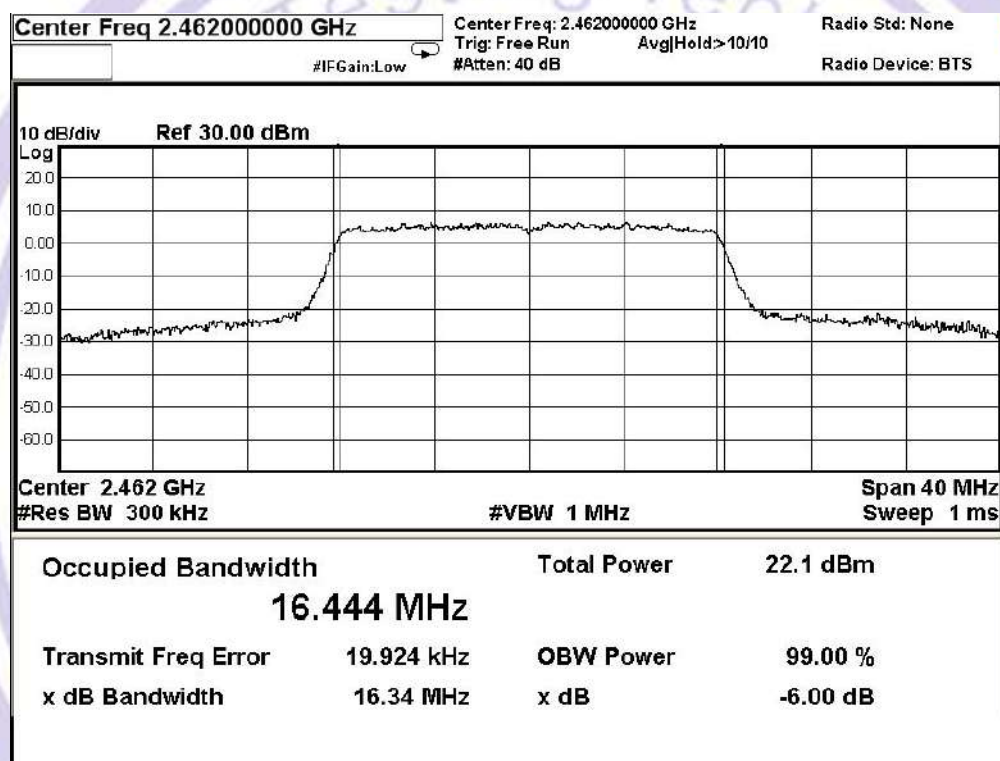
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2437	16.34	16.423

(Middle Operating Frequency) - (80.11g)



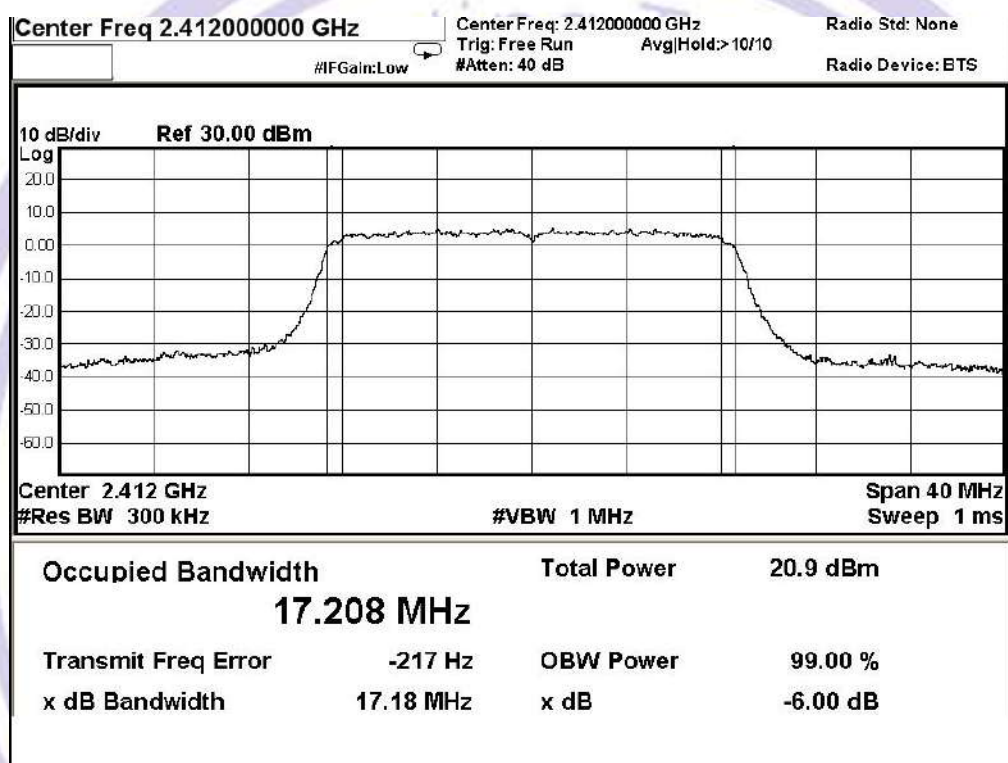
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2462	16.34	16.444

(Highest Operating Frequency) - (802.11g)



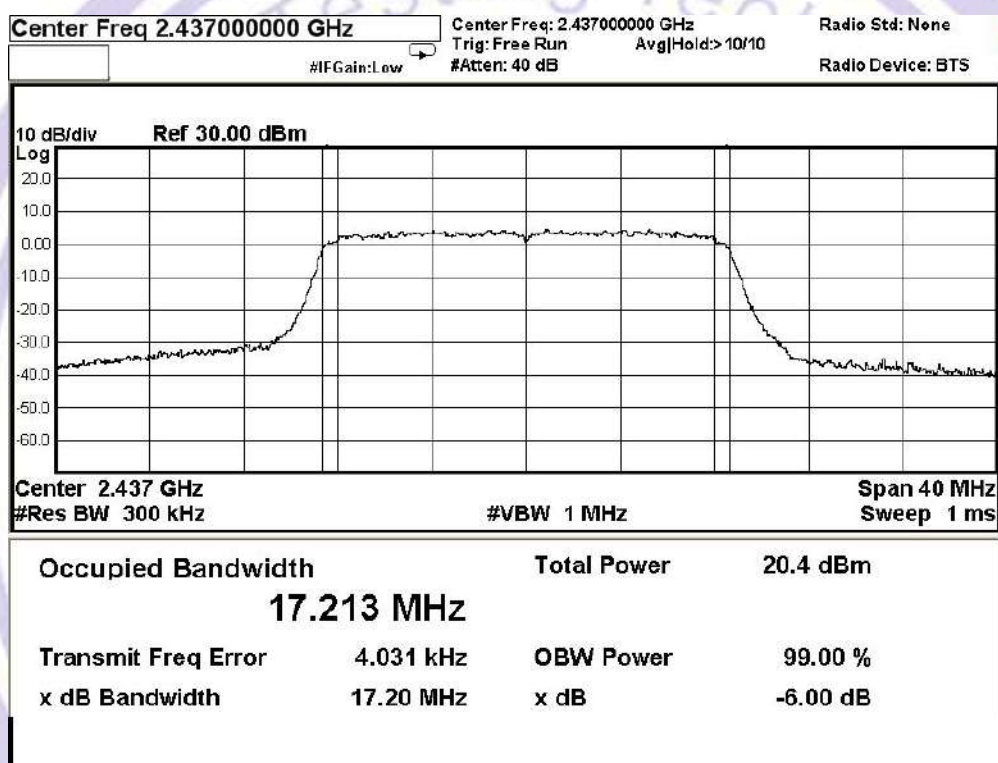
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2412	17.18	17.208

(Lowest Operating Frequency) - (802.11n20)



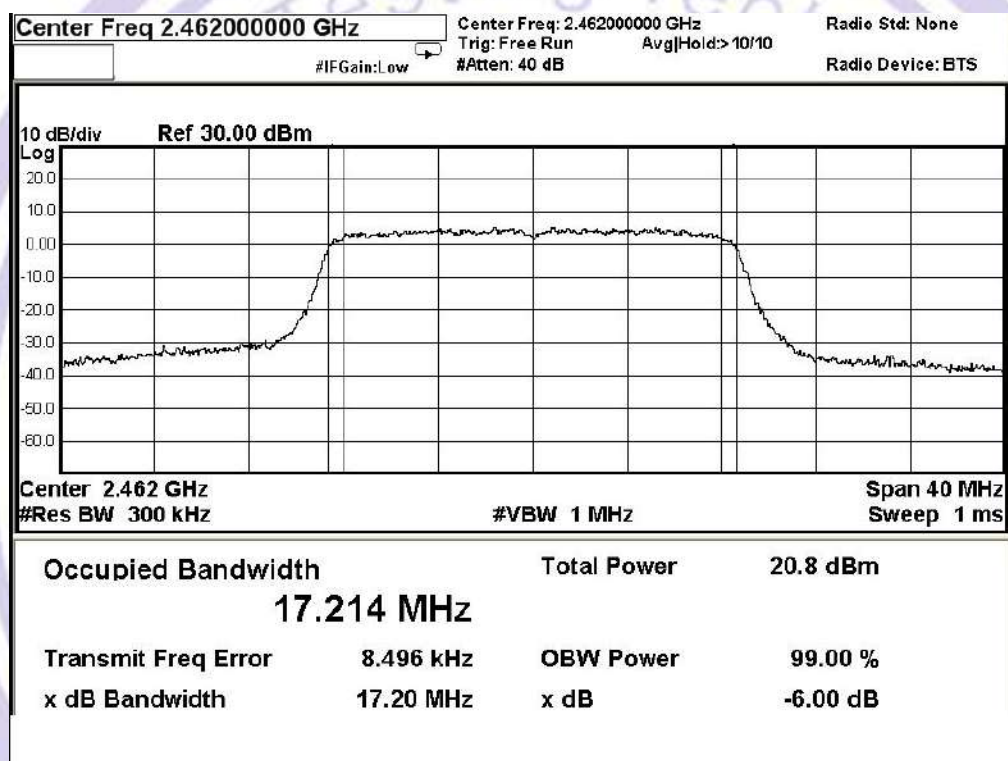
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2437	17.20	17.213

(Middle Operating Frequency) - (80.11n20)



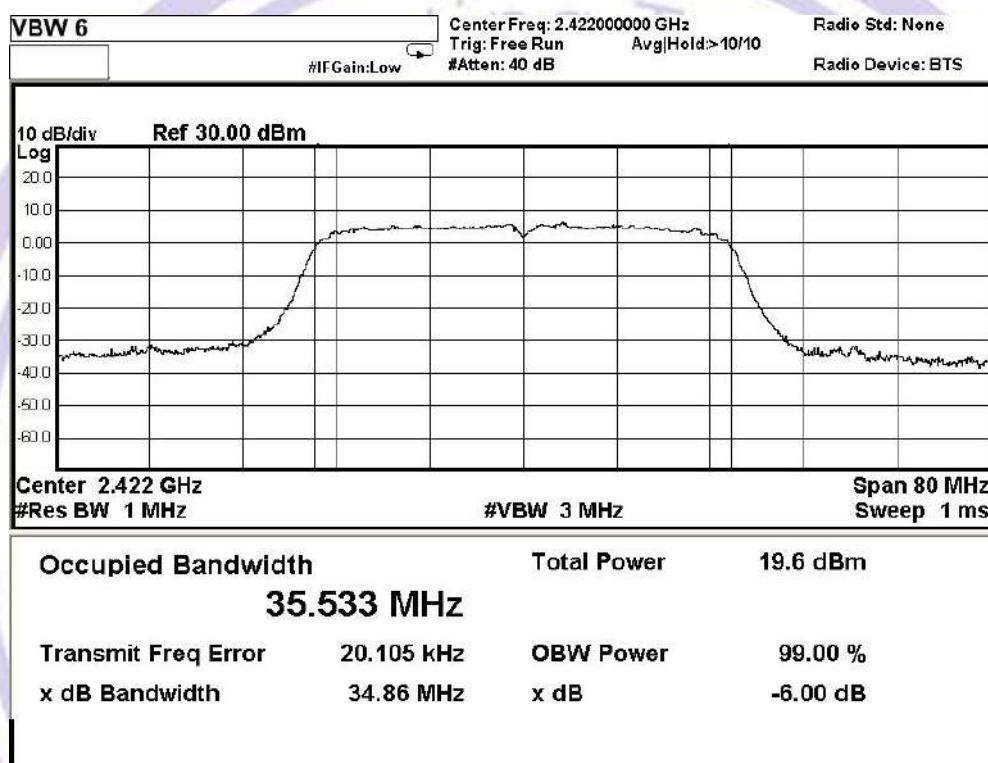
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2462	17.20	17.214

(Highest Operating Frequency) - (802.11n20)



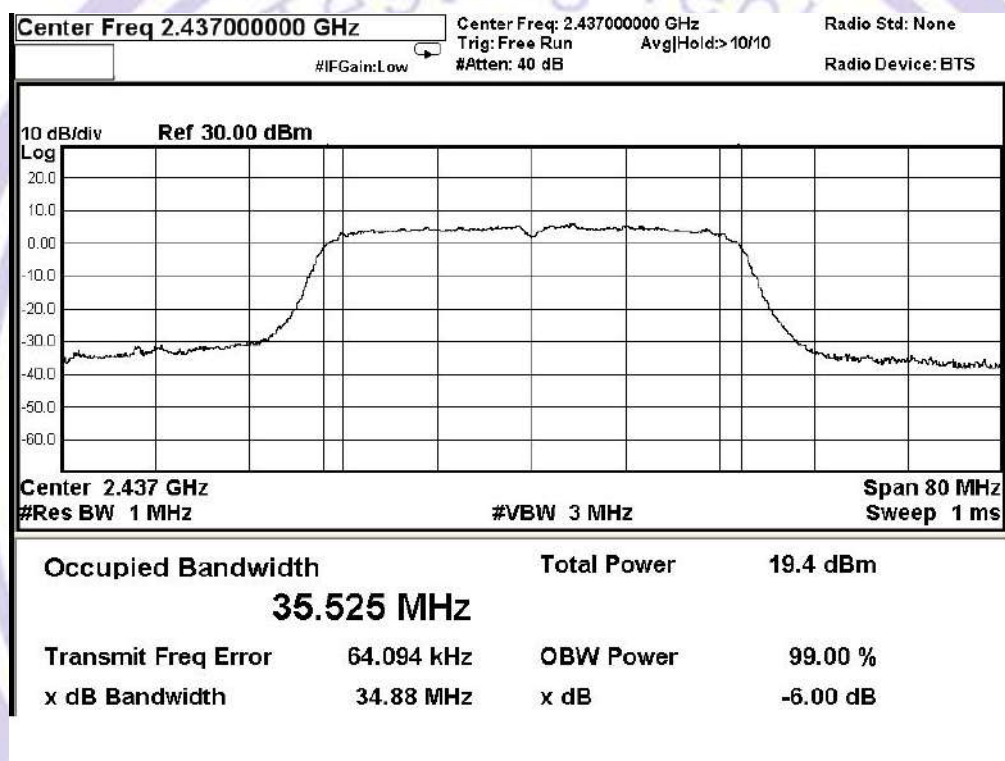
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2422	34.86	35.533

(Lowest Operating Frequency) - (802.11n40)



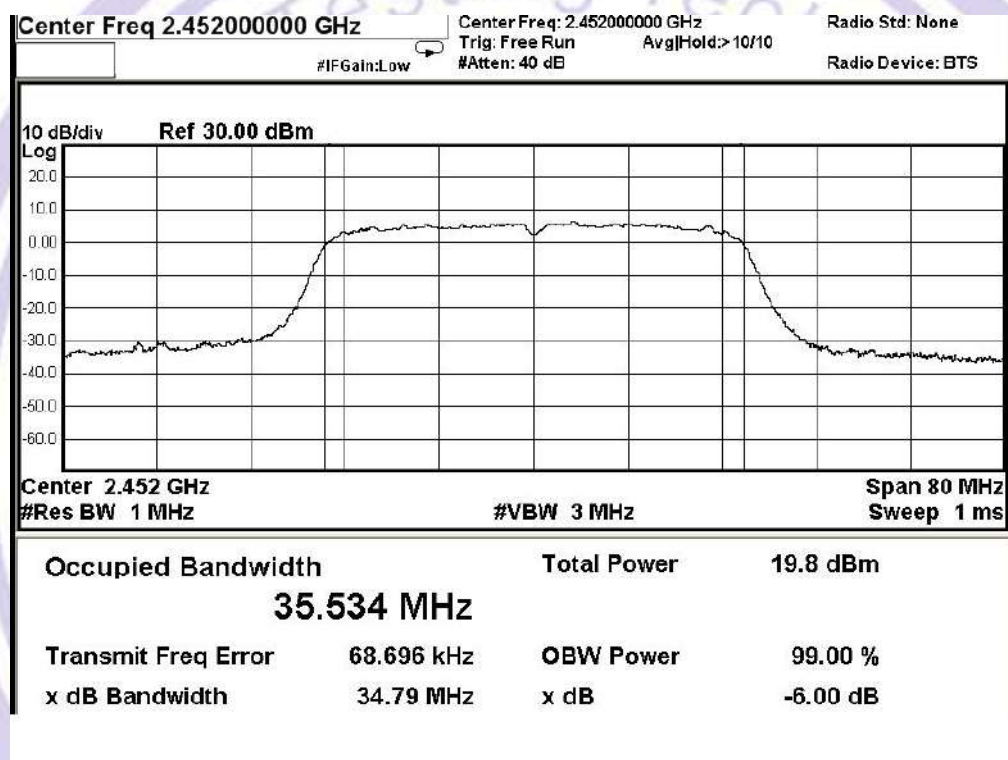
Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2437	34.88	35.525

(Middle Operating Frequency) - (80.11n40)



Fundamental Frequency	6dB Bandwidth	99% Bandwidth
[MHz]	[MHz]	[MHz]
2452	34.79	35.534

(Highest Operating Frequency) - (802.11n40)





9 Maximum Peak Output Power

- Test Requirement : FCC CFR47 Part 15 Section 15.247(b)3, RSS-247 § 6.3.2
- Test Method : ANSI C63.10:2020
- Test Limit : Regulation 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.
- RSS-247 § 6.3.2

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 6.5 a) and b).

9.1 Test Setup



9.2 Test Procedure

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

9.3 Test Result

TX mode (802.11b) (Fundamental Power): Pass					
Channel	Frequency(MHz)	Conducted power(dBm)	Antenna Gain(dBi)	E.I.R.P(dBm)	E.I.R.P (Watt)
1	2412	17.88	3.18	21.06	0.127644
6	2437	18.07	3.18	21.25	0.133352
11	2462	18.95	3.18	22.13	0.163305

TX mode (802.11g) (Fundamental Power): Pass					
Channel	Frequency(MHz)	Conducted power(dBm)	Antenna Gain(dBi)	E.I.R.P(dBm)	E.I.R.P (Watt)
1	2412	17.13	3.18	20.31	0.107399
6	2437	17.06	3.18	20.24	0.105682
11	2462	17.98	3.18	21.16	0.130617

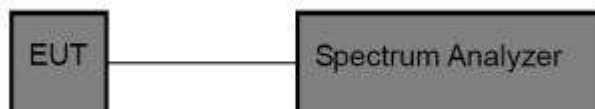
TX mode (802.11n20) (Fundamental Power): Pass					
Channel	Frequency(MHz)	Conducted power(dBm)	Antenna Gain(dBi)	E.I.R.P(dBm)	E.I.R.P (Watt)
1	2412	16.09	3.18	19.27	0.084528
6	2437	15.90	3.18	19.08	0.080910
11	2462	17.13	3.18	20.31	0.107399

TX mode (802.11n40) (Fundamental Power): Pass					
Channel	Frequency(MHz)	Conducted power(dBm)	Antenna Gain(dBi)	E.I.R.P(dBm)	E.I.R.P (Watt)
3	2422	13.07	3.18	16.25	0.042170
6	2437	13.23	3.18	16.41	0.043752
9	2452	13.94	3.18	17.12	0.051523

10 Power Spectral density

Test Requirement	: FCC CFR47 Part 15 Section 15.247(e), RSS-247 §6.3.1
Test Method	: ANSI C63.10:2020
Test Limit	: Regulation 15.247(e) The power spectral density conducted from the intentional radiator to the antenna due to the digital modulation operation of the hybrid system, with the frequency hopping operation turned off, shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. RSS-247 §6.3.1 The transmitter power spectral density conducted from the transmitter 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 6.3.2, The power spectral density shall be determined using the same method as is used to determine the maximum conducted output power.

10.1 Test Setup



10.2 Test Procedure

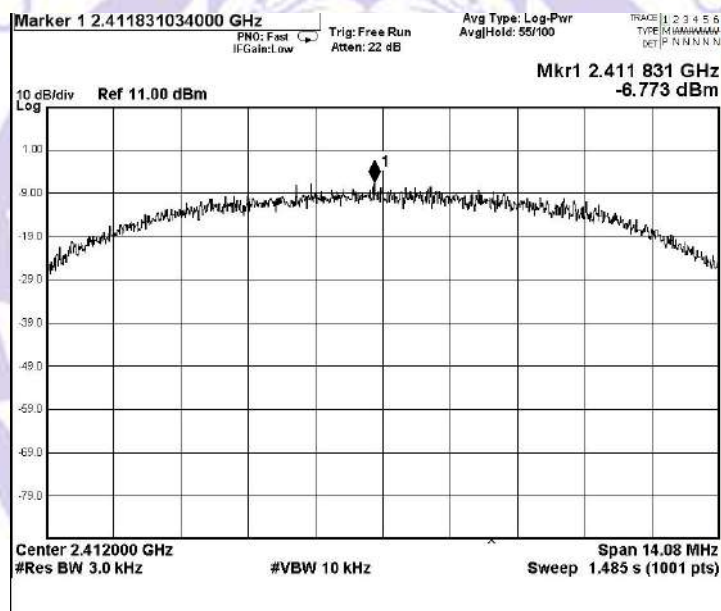
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

10.3 Test Result

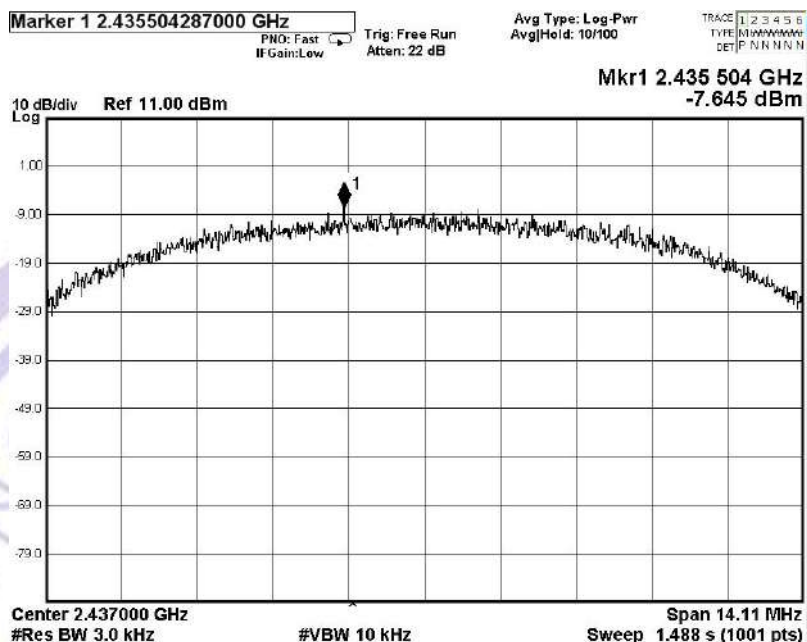
802.11b

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-6.773	8dBm
2437.0	-7.645	8dBm
2462.0	-7.362	8dBm

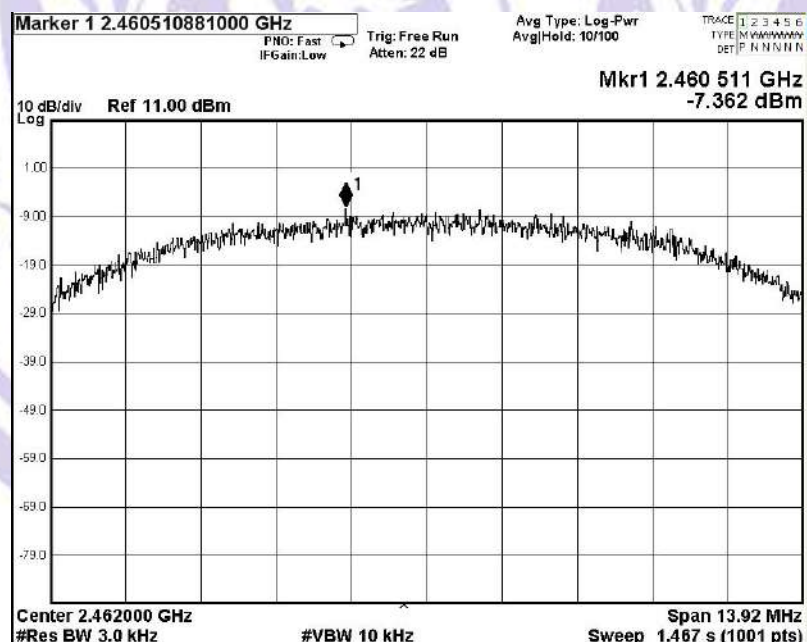
802.11b (2412.0 MHz)



802.11b (2437.0 MHz)



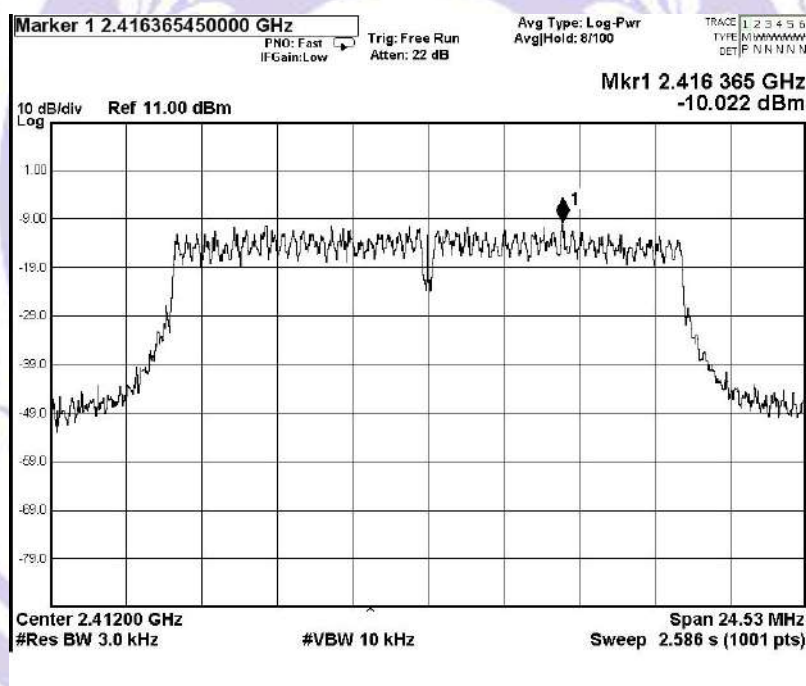
802.11b (2462.0 MHz)



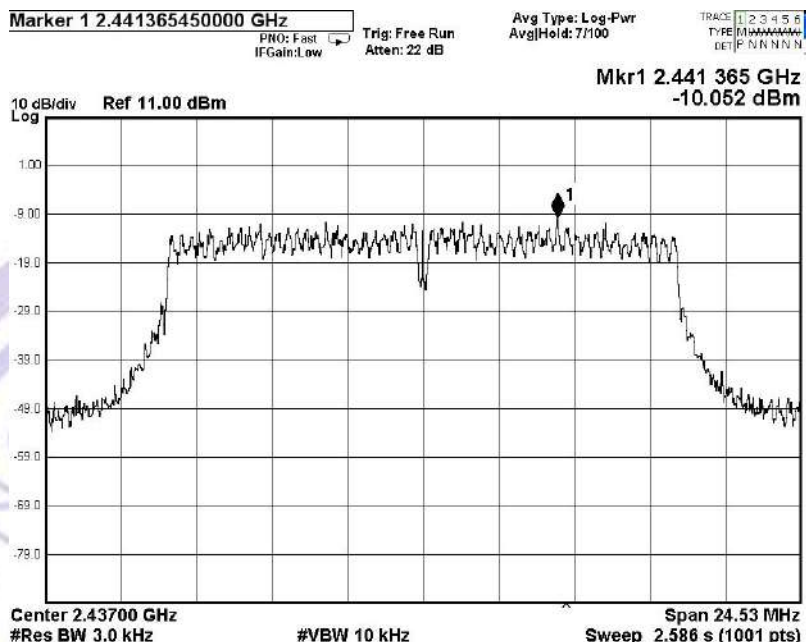
802.11g

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-10.022	8dBm
2437.0	-10.052	8dBm
2462.0	-9.333	8dBm

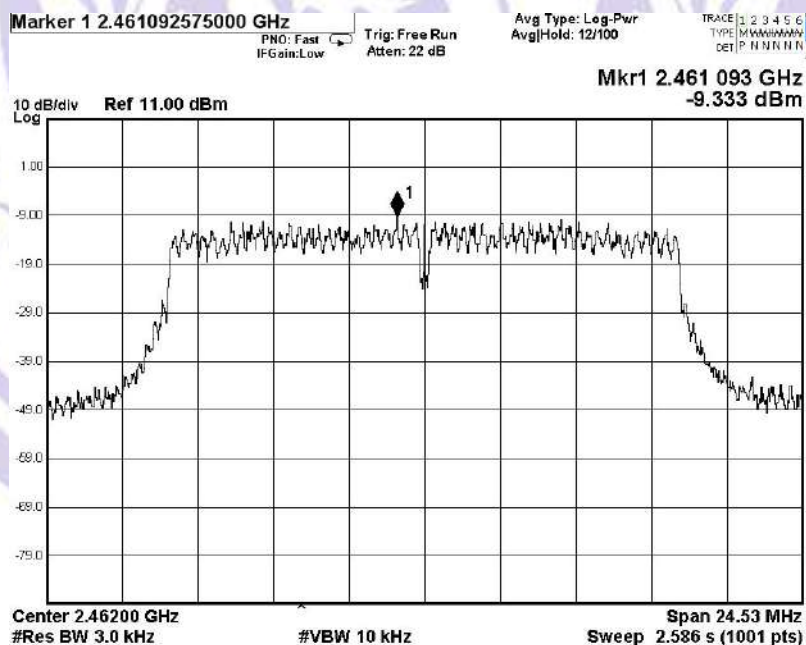
802.11g (2412.0 MHz)



802.11g (2437.0 MHz)



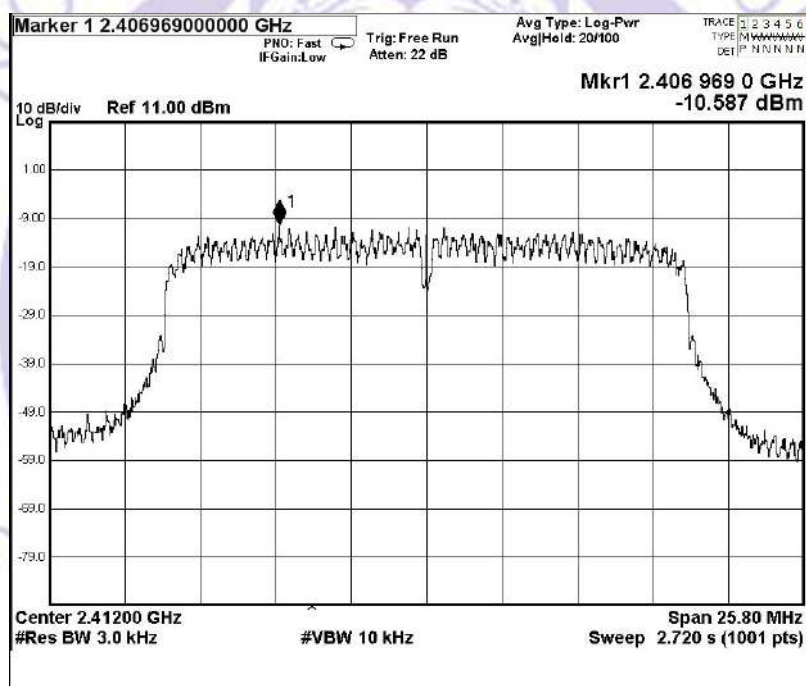
802.11g (2462.0 MHz)



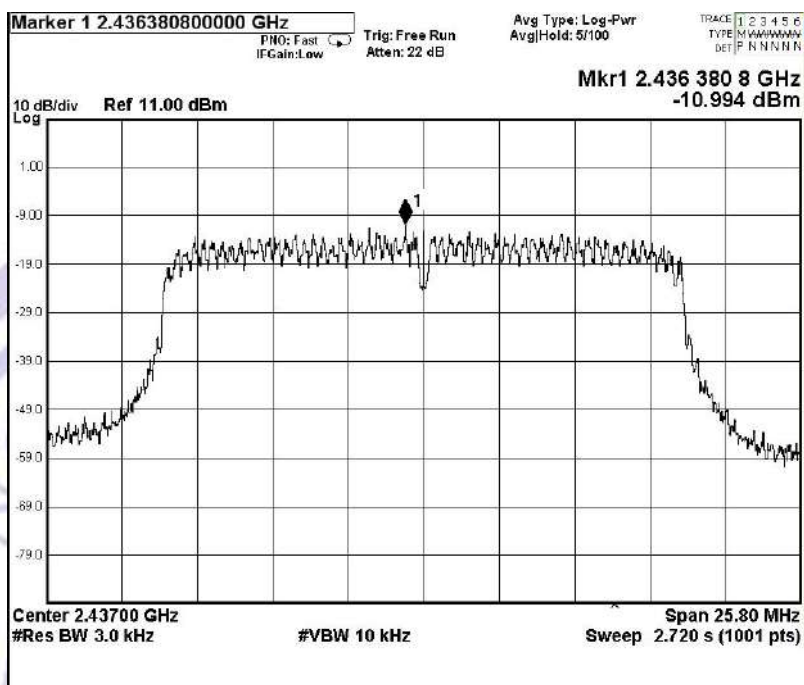
802.11n20

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-10.587	8dBm
2437.0	-10.994	8dBm
2462.0	-10.073	8dBm

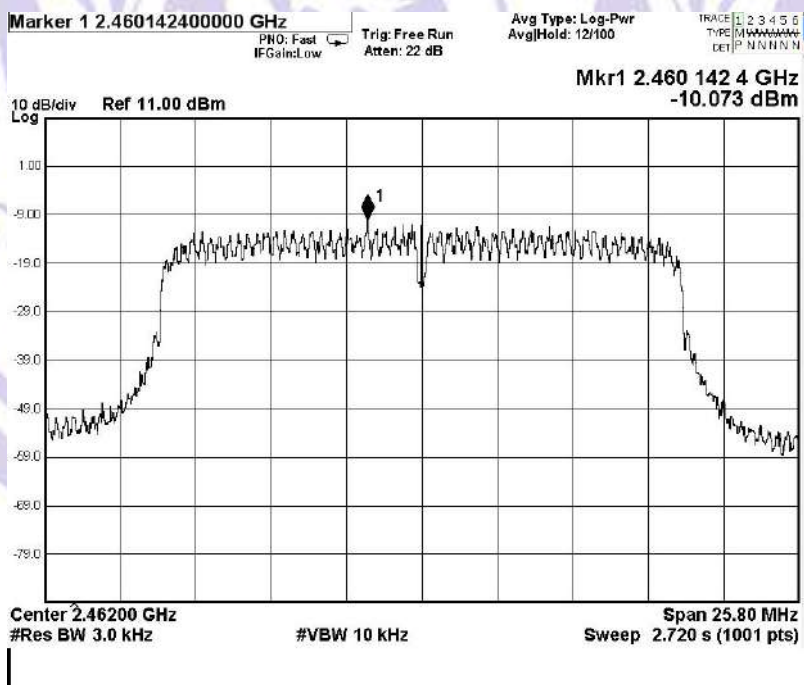
802.11n20 (2412.0 MHz)



802.11n20 (2437.0 MHz)



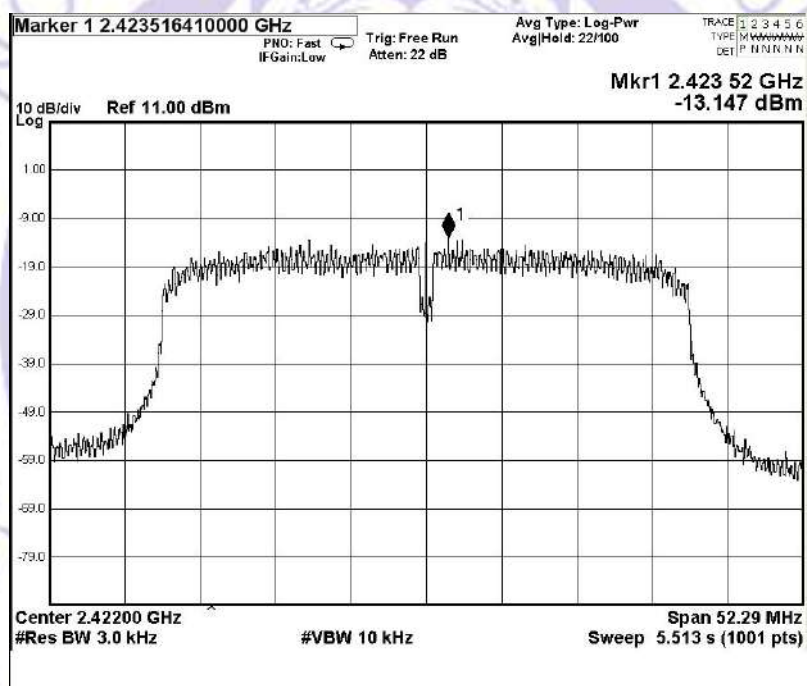
802.11n20 (2462.0 MHz)



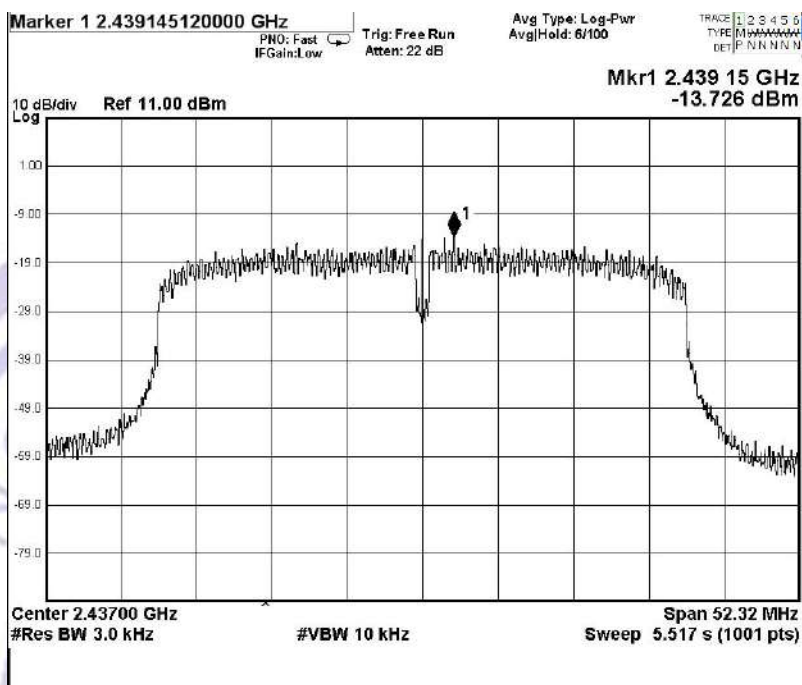
802.11n40

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2422.0	-13.147	8dBm
2437.0	-13.726	8dBm
2452.0	-13.884	8dBm

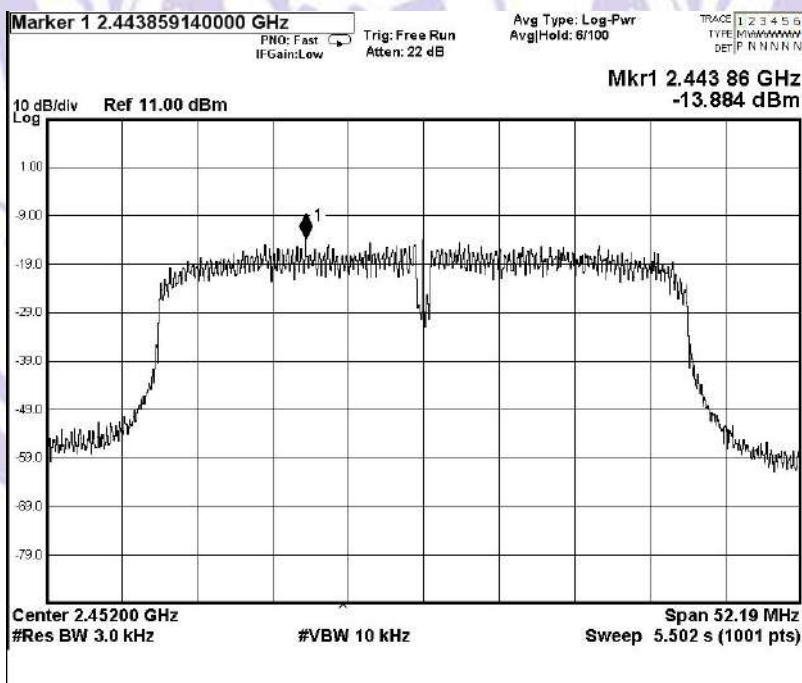
802.11n40 (2422.0 MHz)



802.11n40 (2437.0 MHz)



802.11n40 (2452.0 MHz)



11 Antenna Application

11.1 Antenna Requirement

15.203 requirement:

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

According to RSS-GEN section 6.8

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

11.2 Result

The antenna is PCB Antenna, the best case gain of the antennas is 3.18 dBi, reference to the attachment for details.

12 Test Setup Photos and EUT Photos

Radiated Emission (9KHz-30MHz)



Radiated Emission (30MHz-1000MHz)



Radiated Emission (Above 1000MHz)

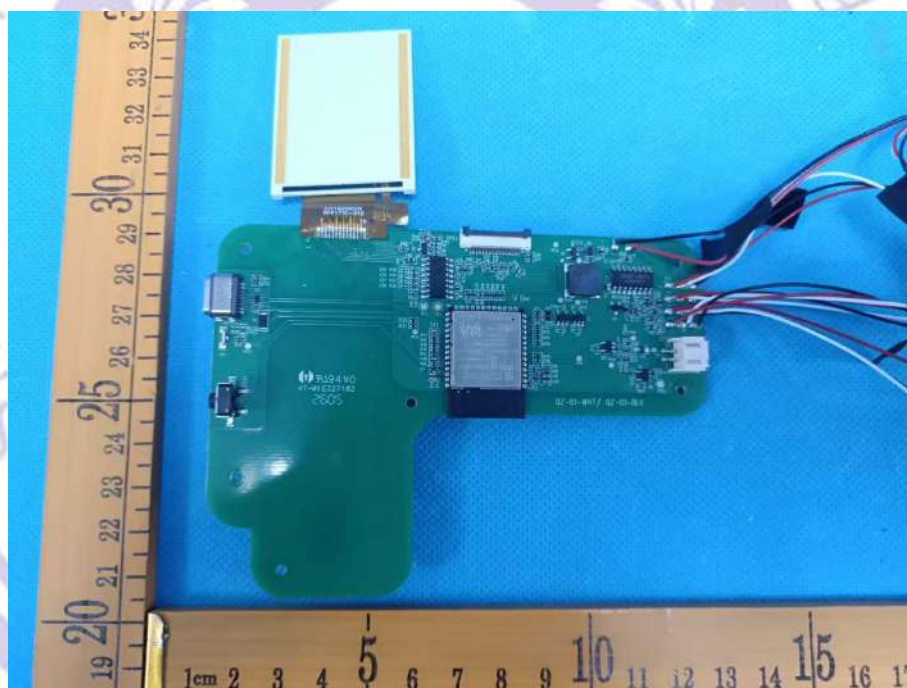
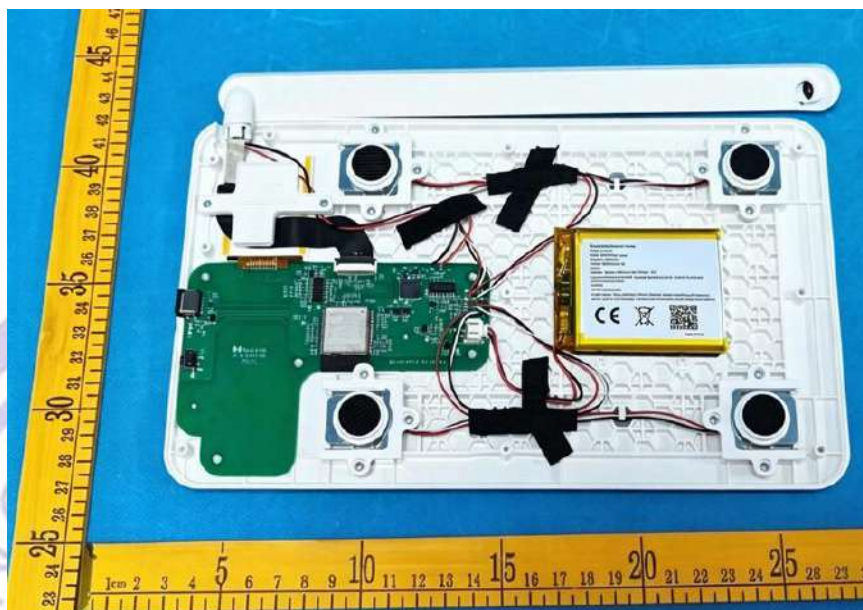


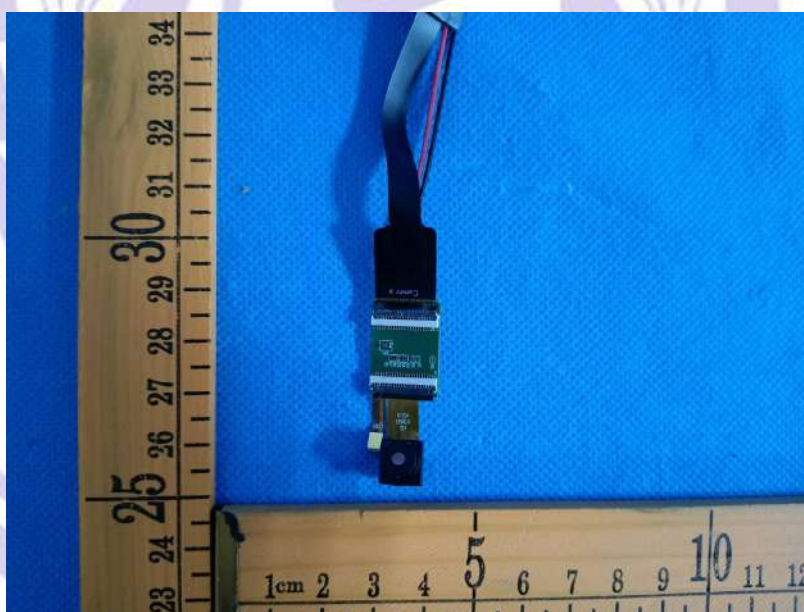
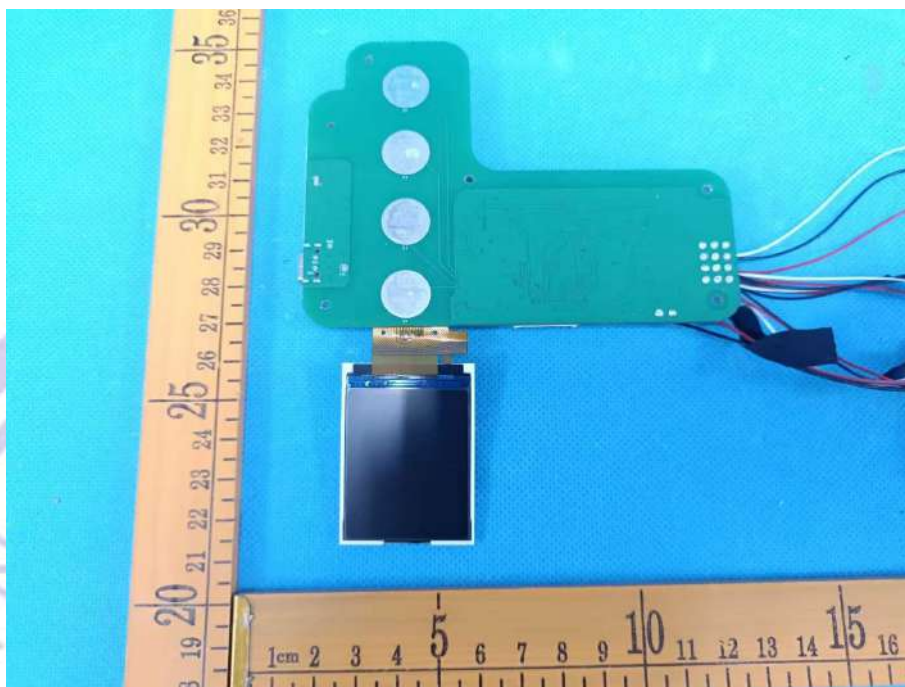
Conducted Emission

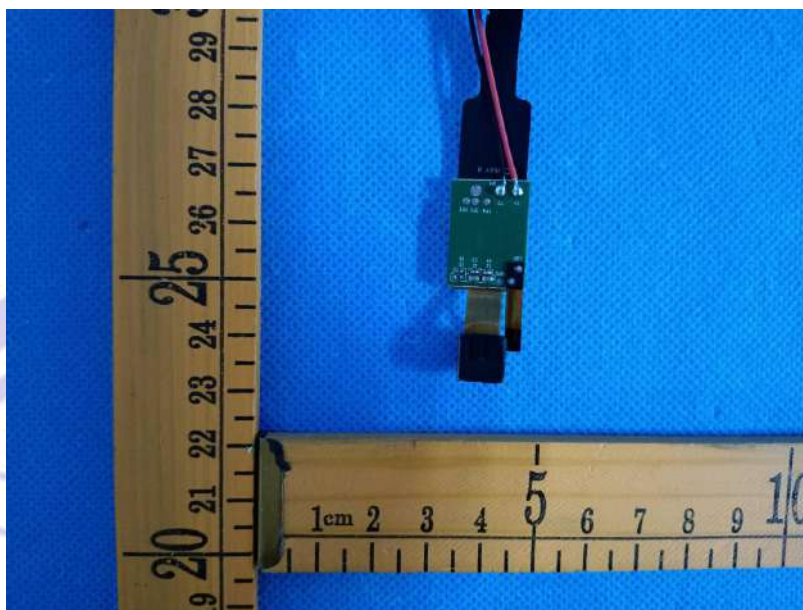


EUT PHOTOGRAPH









*****THE END REPORT*****