



TEST REPORT

Product Name: XPON ONU
FCC ID: 2BDFBM2-4150
Trademark: YOTC
Model Number: M2-4150, M2-4050
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Sample Received Date: Oct. 11, 2023
Sample tested Date: Oct. 11, 2023 to Oct. 20, 2023
Issue Date: Oct. 20, 2023
Report No.: CTB231020024RFX
Test Standards: FCC Part15.247
ANSI C63.10:2013
Test Results: PASS
Remark: This is WIFI-2.4GHz band radio test report.
Compiled by: Reviewed by: Approved by:

Zhou kui

Zhou Kui

Arron Liu

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Bin Mei / Director

Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "*" indicates the testing items were fulfilled by subcontracted lab. "#" indicates the items are not in CNAS accreditation scope.

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(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
CTB231020024RFX	Oct. 20, 2023	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

Test Item	Test Requirement	Test method	Result
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
Radiated Spurious emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS
Band edge and RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)/15.205(a)	ANSI C63.10-2013	PASS
Conducted Peak Output Power	47 CFR Part 15 Subpart C Section 15.247 (b)(3)	ANSI C63.10-2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	ANSI C63.10-2013	PASS
Power Spectral Density	47 CFR Part 15 Subpart C Section 15.247 (e)	ANSI C63.10-2013/ KDB 558074 D01 v05r02	PASS
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203/15.247 (b)	/	PASS
RF Exposure Evaluation	47 CFR Part 15 Subpart C Section 15.247 (i)/1.1310/2.1091	KDB447498D01v06	PASS

Remark:

Test according to ANSI C63.10-2013.

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Item	Uncertainty
Occupancy bandwidth	U=±54.3Hz
Conducted output power Above 1G	U=±1.0dB
Conducted output power below 1G	U=±0.9dB
Power Spectral Density , Conduction	U=±1.0dB
Conduction spurious emissions	U=±2.8dB
Out of band emission	U=±54Hz
3m chamber Radiated spurious emission(9KHz-30MHz)	U=±4.8dB
3m chamber Radiated spurious emission(30MHz-1GHz)	U=±4.3dB
3m chamber Radiated spurious emission(1GHz-18GHz)	U=±4.5dB
3m chamber Radiated spurious emission(1GHz-40GHz)	U=±4.8dB
humidity uncertainty	U=±5.3%
Temperature uncertainty	U=±0.59°C
Supply voltages	U=±3%
Time	U=±5%
Conducted Emission (9KHz-30MHz)	3.2 dB

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	M2-4150, M2-4050
Model Description:	All the model are the same circuit and RF module, only for model name. Test sample model: M2-4150
Wi-Fi Specification:	IEEE 802.11b/g/n
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	WiFi: IEEE 802.11b/g/n 20: 2412-2462MHz/ 11 channel IEEE 802.11n 40: 2422-2452MHz/ 7 channel
Max. RF output power:	WiFi (2.4G) : 16.531dBm
Type of Modulation:	WiFi: DSSS, OFDM, CCK
Antenna installation:	WiFi: External antenna
Antenna Gain:	WiFi (2.4G) : Ant1: 3.34dBi Ant2: 3.34dBi
Ratings:	Input: 100-240V~50/60Hz Output: 12.0V—1.5A

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment

4.3 Support Equipment

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1.	Laptop	DELL	Vostro 5490	N/A	N/A

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

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

4.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

ANT 1, ANT 2

Test mode	Low channel	Middle channel	High channel
Transmitting(802.11b/g/n20)	2412MHz	2437MHz	2462MHz
Transmitting(802.11n40)	2422MHz	2437MHz	2452MHz

MIMO(ANT 1+ANT 2)

Test mode	Low channel	Middle channel	High channel
Transmitting(802.11n20)	2412MHz	2437MHz	2462MHz
Transmitting(802.11n40)	2422MHz	2437MHz	2452MHz

EUT has two Internal Antenna with Max Antenna Gain 0.32dBi on every antenna, CDD device with two spatial streams, according to KDB662911 D01 v02r01,

Directional gain= GANT + Array Gain, where Array Gain is as follows.

1) For power spectral density(PSD) measurements,

Array Gain=10log(NANT/NSS)dB=10log(2/1)=3.01dB,

So the directional gain for PSD is 4.01dBi

2) For power measurements,

The Array gain=0 dB for NANT≤4,

So the directional gain for Power measurements is 1dBi

NOTE: Dutycycle>98%.

Test mode	Rate
802.11b	11M
802.11g	54M
802.11/n20	65M
802.11/n40	65M

4.6 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(DC):	12V
Normal Temperature(°C)	23
Low Temperature(°C)	0
High Temperature(°C)	50

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at 1&2F., Building A, No. 26, Xinhe Road, Xinqiao, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Item	Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	2024.07.05
2	Power Sensor	Agilent	U2021XA	MY56120032	2024.07.05
3	Power Sensor	Agilent	U2021XA	MY56120034	2024.07.05
4	Communication test set	R&S	CMW500	108058	2024.07.05
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	2024.07.05
6	Signal Generator	Agilent	N5181A	MY50140365	2024.07.05
7	Vector signal generator	Agilent	N5182A	MY47420195	2024.07.05
8	Communication test set	Agilent	E5515C	MY50102567	2024.07.06
9	2.4 GHz Filter	Shenxiang	MSF2400-2483.5MS-1154	20181015001	2024.07.05
10	5 GHz Filter	Shenxiang	MSF5150-5850 MS-1155	20181015001	2024.07.06
11	Filter	Xingbo	XBLBQ-DZA120	190821-1-1	2024.07.06
12	BT&WI-FI Automatic test software	Microwave	MTS8000	Ver. 2.0.0.0	/
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	2023.10.30
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	2024.07.05
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	/
16	966 chamber	C.R.T.	966	/	2024.08.11
17	Receiver	R&S	ESPI	100362	2024.07.05
18	Amplifier	HP	8447E	2945A02747	2024.07.05
19	Amplifier	Agilent	8449B	3008A01838	2024.07.05
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	2024.07.08

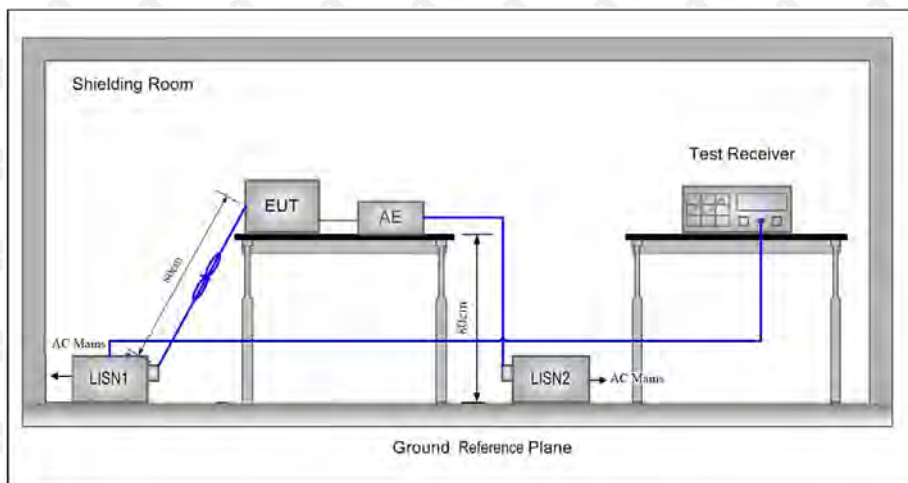
21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	2024.07.08
22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	2024.07.08
24	loop antenna	ZHINAN	ZN30900A	GTS534	/
25	40G Horn antenna	A/H/System	SAS-574	588	2023.10.30
26	Amplifier	AEROFLEX	Aeroflex	097	2023.10.30

Continuous disturbance					
No.	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	LISN	ROHDE&SCHWARZ	ESH3-Z5	100318	2024.07.05
2	Pulse limiter	ROHDE&SCHWARZ	ESH3Z2	357881052	2024.07.05
3	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100428/003	2024.07.05
4	Coaxial cable	ZDECL	Z302S-NJ-SMA J-12M	18091905	2024.07.05
5	ISN	Schwarzbeck	NTFM8158	183	2024.07.05
6	Communication test set	Agilent	E5515C	MY50102567	2024.07.05
7	Communication test set	R&S	CMW500	108058	2024.07.05
8	EZ-EMC	Frad	EMC-con3A1.1	/	/

Radiated emission					
No.	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120 D	01911	2024.07.08
2	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	2024.07.08
3	Amplifier	Agilent	8449B	3008A01838	2024.07.05
4	Amplifier	HP	8447E	2945A02747	2024.07.05
5	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100428/003	2024.07.05
6	Coaxial cable	ETS	RFC-SNS-100-NMS-80 NI	/	2024.07.05
7	Coaxial cable	ETS	RFC-SNS-100-NMS-20 NI	/	2024.07.05
8	Coaxial cable	ETS	RFC-SNS-100-SMS-20 NI	/	2024.07.05
9	Coaxial cable	ETS	RFC-NNS-100-NMS-300 NI	/	2024.07.05
10	Communication test set	Agilent	E5515C	MY50102567	2024.07.05
11	Communication test set	R&S	CMW500	108058	2024.07.05
12	EZ-EMC	Frad	EMC-con3A1.1	/	/

6. AC POWER LINE CONDUCTED EMISSION

6.1 Block Diagram Of Test Setup



6.2 Limit

Table 4 – AC power-line conducted emissions limits

Frequency (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 ^{Note 1}	56 to 46 ^{Note 1}
0.5 - 5	56	46
5 - 30	60	50

Note 1: The level decreases linearly with the logarithm of the frequency.

* Decreasing linearly with the logarithm of the frequency

6.3 Test procedure

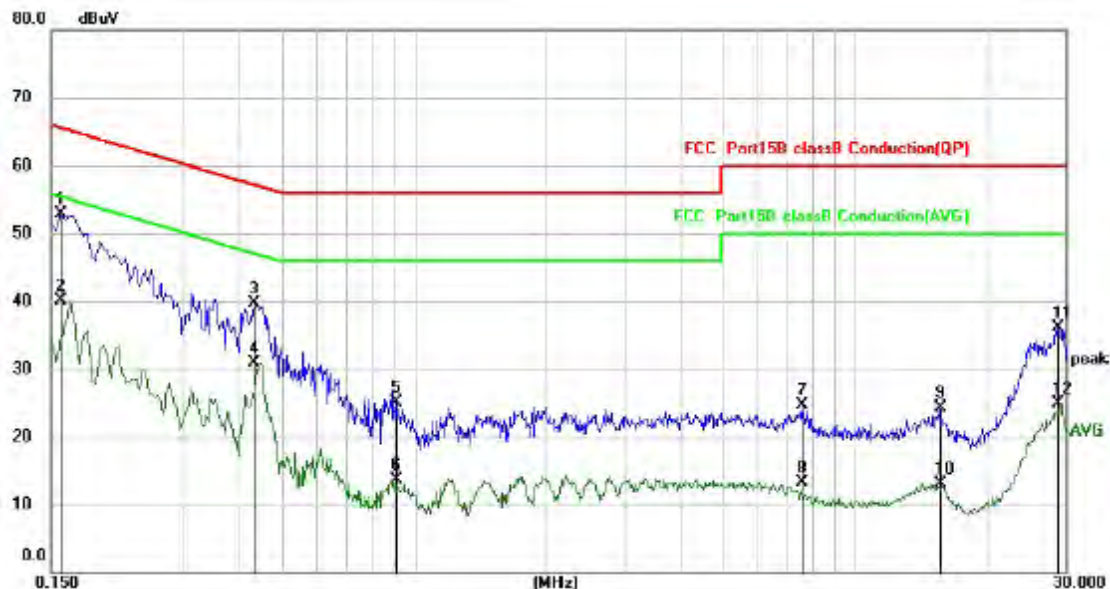
- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane.

This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

6.4 Test Result

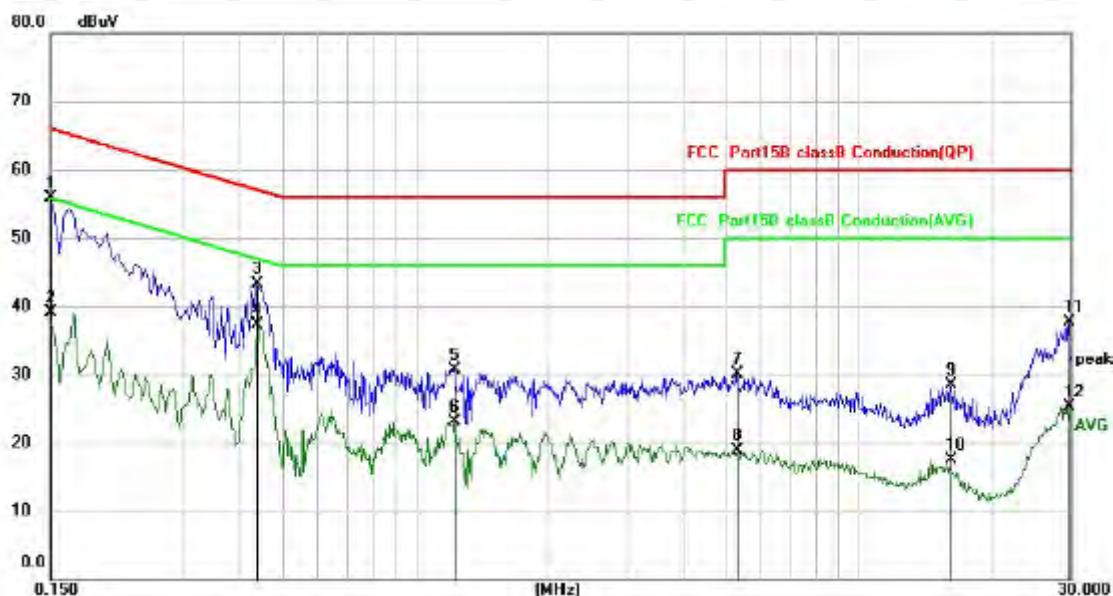
Test Specification: Line
AC 120V 60Hz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	0.1580	42.98	9.95	52.93	65.57	-12.64	QP
2		0.1580	30.09	9.95	40.04	55.57	-15.53	AVG
3		0.4340	29.74	9.98	39.72	57.18	-17.46	QP
4		0.4340	20.94	9.98	30.92	47.18	-16.26	AVG
5		0.9100	15.17	10.01	25.18	56.00	-30.82	QP
6		0.9100	3.73	10.01	13.74	46.00	-32.26	AVG
7		7.6020	14.25	10.53	24.78	60.00	-35.22	QP
8		7.6020	2.76	10.53	13.29	50.00	-36.71	AVG
9		15.4940	13.61	10.74	24.35	60.00	-35.65	QP
10		15.4940	2.43	10.74	13.17	50.00	-36.83	AVG
11		28.8220	24.86	11.34	36.20	60.00	-23.80	QP
12		28.8220	13.55	11.34	24.89	50.00	-25.11	AVG

Remark: Factor = Cable loss + LISN factor, Margin = Measurement – Limit

Test Specification: Neutral
AC 120V 60Hz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1500	46.03	9.95	55.98	66.00	-10.02	QP
2		0.1500	29.20	9.95	39.15	56.00	-16.85	AVG
3		0.4380	33.27	9.98	43.25	57.10	-13.85	QP
4	*	0.4380	27.41	9.98	37.39	47.10	-9.71	AVG
5		1.2220	20.72	10.03	30.75	56.00	-25.25	QP
6		1.2220	13.02	10.03	23.05	46.00	-22.95	AVG
7		5.3100	19.68	10.40	30.08	60.00	-29.92	QP
8		5.3100	8.56	10.40	18.96	50.00	-31.04	AVG
9		16.0780	17.81	10.75	28.56	60.00	-31.44	QP
10		16.0780	6.72	10.75	17.47	50.00	-32.53	AVG
11		29.8340	26.31	11.43	37.74	60.00	-22.26	QP
12		29.8340	13.95	11.43	25.38	50.00	-24.62	AVG

Remark: Factor = Cable loss + LISN factor, Margin = Measurement – Limit

7. RADIATED SPURIOUS EMISSION

7.1 Block Diagram Of Test Setup

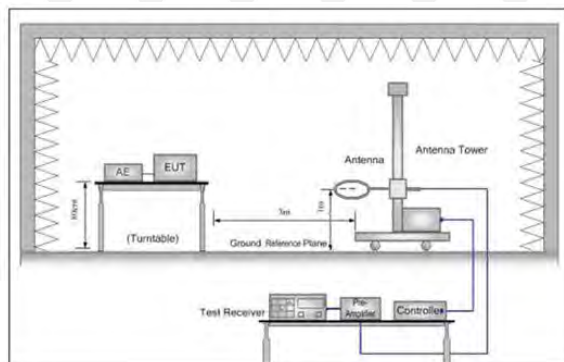


Figure 1. Below 30MHz

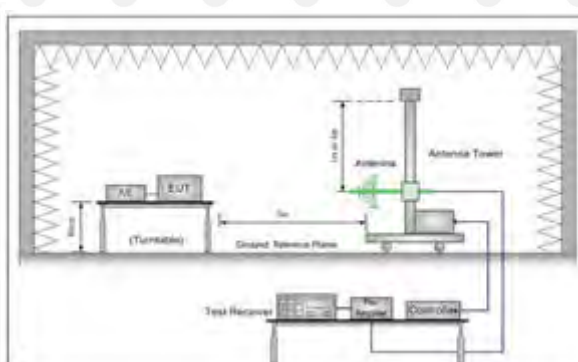


Figure 2. 30MHz to 1GHz

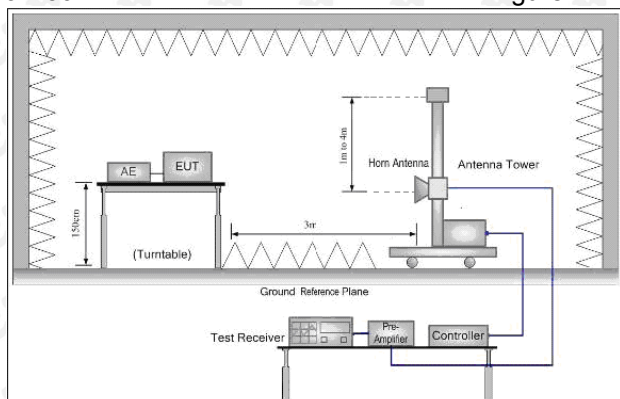


Figure 3. Above 1GHz

7.2 Limit

Spurious Emissions:

Frequency	Field strength (microvolt/meter)	Limit (dB μ V/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F (kHz)	-	-	300
0.490MHz-1.705MHz	24000/F (kHz)	-	-	30
1.705MHz-30MHz	30	-	-	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

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

7.3 Test procedure

Below 1GHz test procedure as below:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota table table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
- h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel
- j. Repeat above procedures until all frequencies measured was complete.

Receiver set:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30KHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30KHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120 kHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

7.4 Test Result

After pre-scanning three directions, the report recorded the worst case

Below 1GHz Test Results:

Antenna polarity: H



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV/m	dB/m	dB	
1		41.4942	33.72	-5.05	28.67	40.00	-11.33	QP
2		144.0819	32.18	-3.89	28.29	43.50	-15.21	QP
3		221.3921	39.02	-7.23	31.79	46.00	-14.21	QP
4		319.9370	40.45	-4.22	36.23	46.00	-9.77	QP
5		466.4165	31.14	-0.70	30.44	46.00	-15.56	QP
6	*	762.0385	34.64	5.71	40.35	46.00	-5.65	QP

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Antenna polarity: V



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	*	39.0243	40.33	-5.03	35.30	40.00	-4.70	QP
2		65.4578	35.21	-7.45	27.76	40.00	-12.24	QP
3		142.8242	38.44	-4.05	34.39	43.50	-9.11	QP
4		273.2339	35.50	-5.90	29.60	46.00	-16.40	QP
5		319.9368	34.07	-4.22	29.85	46.00	-16.15	QP
6	!	768.7481	35.16	5.84	41.00	46.00	-5.00	QP

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

1. The margin of 9K-30MH measurement exceeds 20dB, so the test chart is not included.

2. All modes have been tested, and the test results show that ANT2 b-mode data is the worst, only ANT2 b-mode test chart is put.

Above 1 GHz Test Results:

ANT1 LOW CH1 (802.11b Mode)/2412

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	66.30	-3.64	62.66	74	-11.34	peak
4824	50.92	-3.64	47.28	54	-6.72	AVG
7236	58.39	-0.95	57.44	74	-16.56	peak
7236	45.82	-0.95	44.87	54	-9.13	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	66.22	-3.64	62.58	74	-11.42	peak
4824	47.79	-3.64	44.15	54	-9.85	AVG
7236	57.63	-0.95	56.68	74	-17.32	peak
7236	43.71	-0.95	42.76	54	-11.24	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

ANT1 MID CH6 (802.11b Mode)/2437

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	65.17	-3.51	61.66	74	-12.34	peak
4874	48.07	-3.51	44.56	54	-9.44	AVG
7311	59.92	-0.82	59.10	74	-14.90	peak
7311	43.18	-0.82	42.36	54	-11.64	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	65.35	-3.51	61.84	74	-12.16	peak
4874	47.31	-3.51	43.80	54	-10.20	AVG
7311	57.90	-0.82	57.08	74	-16.92	peak
7311	43.84	-0.82	43.02	54	-10.98	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

ANT1 HIGH CH11 (802.11b Mode)/2462

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	64.58	-3.43	61.15	74	-12.85	peak
4924	47.32	-3.43	43.89	54	-10.11	AVG
7386	58.67	-0.75	57.92	74	-16.08	peak
7386	44.89	-0.75	44.14	54	-9.86	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	63.35	-3.43	59.92	74	-14.08	peak
4924	46.64	-3.43	43.21	54	-10.79	AVG
7386	57.47	-0.75	56.72	74	-17.28	peak
7386	43.20	-0.75	42.45	54	-11.55	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Remark:

- (1). Measuring frequencies from 9KHz to the 25 GHz. The test range is 9K ~10 times the main wave, and other spurious below the limit of 20dB will not be reflected in the 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) Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) 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 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

ANT1 LOW CH1 (802.11g Mode)/2412

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	65.85	-3.64	62.21	74	-11.79	peak
4824	49.76	-3.64	46.12	54	-7.88	AVG
7236	58.69	-0.95	57.74	74	-16.26	peak
7236	43.88	-0.95	42.93	54	-11.07	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	65.02	-3.64	61.38	74	-12.62	peak
4824	49.46	-3.64	45.82	54	-8.18	AVG
7236	58.33	-0.95	57.38	74	-16.62	peak
7236	43.85	-0.95	42.90	54	-11.10	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

ANT1 MID CH6 (802.11g Mode)/2437

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	65.32	-3.51	61.81	74	-12.19	peak
4874	50.12	-3.51	46.61	54	-7.39	AVG
7311	60.19	-0.82	59.37	74	-14.63	peak
7311	43.89	-0.82	43.07	54	-10.93	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	65.52	-3.51	62.01	74	-11.99	peak
4874	48.29	-3.51	44.78	54	-9.22	AVG
7311	57.97	-0.82	57.15	74	-16.85	peak
7311	42.47	-0.82	41.65	54	-12.35	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

ANT1 HIGH CH11 (802.11g Mode)/2462

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	63.18	-3.43	59.75	74	-14.25	peak
4924	45.92	-3.43	42.49	54	-11.51	AVG
7386	58.46	-0.75	57.71	74	-16.29	peak
7386	43.81	-0.75	43.06	54	-10.94	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	62.77	-3.43	59.34	74	-14.66	peak
4924	46.44	-3.43	43.01	54	-10.99	AVG
7386	58.18	-0.75	57.43	74	-16.57	peak
7386	41.78	-0.75	41.03	54	-12.97	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Remark:

- (1). Measuring frequencies from 9KHz to the 25 GHz. The test range is 9K ~10 times the main wave, and other spurious below the limit of 20dB will not be reflected in the 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) Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) 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 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

Above 1GHz ANT1+ANT2 :

LOW CH1 (802.11n/H20 Mode)/2412

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	65.06	-3.64	61.42	74	-12.58	peak
4824	50.93	-3.64	47.29	54	-6.71	AVG
7236	57.45	-0.95	56.50	74	-17.50	peak
7236	44.53	-0.95	43.58	54	-10.42	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor,
Margin = Emission level - Limits

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	65.69	-3.64	62.05	74	-11.95	peak
4824	47.46	-3.64	43.82	54	-10.18	AVG
7236	56.19	-0.95	55.24	74	-18.76	peak
7236	43.39	-0.95	42.44	54	-11.56	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor,
Margin = Emission level - Limits

LOW CH1 (802.11n/H20 Mode)/2437

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	64.51	-3.51	61.00	74	-13.00	peak
4874	50.53	-3.51	47.02	54	-6.98	AVG
7311	59.20	-0.82	58.38	74	-15.62	peak
7311	43.22	-0.82	42.40	54	-11.60	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	64.69	-3.51	61.18	74	-12.82	peak
4874	47.93	-3.51	44.42	54	-9.58	AVG
7311	60.29	-0.82	59.47	74	-14.53	peak
7311	42.41	-0.82	41.59	54	-12.41	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

LOW CH1 (802.11n/H20 Mode)/2462

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	64.03	-3.43	60.60	74	-13.40	peak
4924	47.74	-3.43	44.31	54	-9.69	AVG
7386	59.48	-0.75	58.73	74	-15.27	peak
7386	45.05	-0.75	44.30	54	-9.70	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	62.69	-3.43	59.26	74	-14.74	peak
4924	47.98	-3.43	44.55	54	-9.45	AVG
7386	58.70	-0.75	57.95	74	-16.05	peak
7386	41.45	-0.75	40.70	54	-13.30	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Remark:

- (1). Measuring frequencies from 9KHz to the 25 GHz. The test range is 9K ~10 times the main wave, and other spurious below the limit of 20dB will not be reflected in the 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) Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) 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 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

ANT1+ANT2 LOW CH3 (802.11n/H40 Mode)/2422

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4844	64.75	-3.63	61.12	74	-12.88	peak
4844	47.55	-3.63	43.92	54	-10.08	AVG
7266	59.91	-0.94	58.97	74	-15.03	peak
7266	45.97	-0.94	45.03	54	-8.97	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4844	64.93	-3.63	61.30	74	-12.70	peak
4844	49.29	-3.63	45.66	54	-8.34	AVG
7266	59.11	-0.94	58.17	74	-15.83	peak
7266	45.87	-0.94	44.93	54	-9.07	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

ANT1+ANT2 MID CH6 (802.11n/H40 Mode)/2437

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	64.65	-3.51	61.14	74	-12.86	peak
4874	49.45	-3.51	45.94	54	-8.06	AVG
7311	59.90	-0.82	59.08	74	-14.92	peak
7311	44.04	-0.82	43.22	54	-10.78	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	62.29	-3.51	58.78	74	-15.22	peak
4874	46.51	-3.51	43.00	54	-11.00	AVG
7311	56.66	-0.82	55.84	74	-18.16	peak
7311	43.29	-0.82	42.47	54	-11.53	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

ANT1+ANT2 HIGH CH9 (802.11n/H40 Mode)/2452

Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4904	64.63	-3.43	61.20	74	-12.80	peak
4904	48.69	-3.43	45.26	54	-8.74	AVG
7356	56.51	-0.75	55.76	74	-18.24	peak
7356	43.58	-0.75	42.83	54	-11.17	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor,
Margin = Emission level - Limits

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4904	61.93	-3.43	58.50	74	-15.50	peak
4904	47.86	-3.43	44.43	54	-9.57	AVG
7356	57.68	-0.75	56.93	74	-17.07	peak
7356	42.17	-0.75	41.42	54	-12.58	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor,
Margin = Emission level - Limits

Remark:

- (1). Measuring frequencies from 9KHz to the 25 GHz. The test range is 9K ~10 times the main wave, and other spurious below the limit of 20dB will not be reflected in the 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) Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) 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 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

Restricted bands around fundamental frequency (Radiated)

Operation Mode:

ANT 1 802.11b Mode TX CH Low (2412MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	56.75	-5.81	50.94	74	-23.06	peak
2390	/	-5.81	/	54	/	AVG
2399	65.10	-5.84	59.26	74	-14.74	peak
2399	48.46	-5.84	42.62	54	-11.38	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	57.72	-5.81	51.91	74	-22.09	peak
2390	/	-5.81	/	54	/	AVG
2399	63.35	-5.84	57.51	74	-16.49	peak
2399	46.68	-5.84	40.84	54	-13.16	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

When the peak value is smaller than the AVG limit, AVG is not reflected.

Operation Mode:

ANT1 802.11b Mode TX CH High (2462MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	56.76	-5.65	51.11	74	-22.89	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	56.85	-5.65	51.20	74	-22.80	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

Operation Mode:

ANT1 802.11g Mode TX CH Low (2412MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	57.82	-5.81	52.01	74	-21.99	peak
2390	/	-5.81	/	54	/	AVG
2399	61.64	-5.84	55.80	74	-18.20	peak
2399	45.79	-5.84	39.95	54	-14.05	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	57.31	-5.81	51.50	74	-22.50	peak
2390	/	-5.81	/	54	/	AVG
2399	62.32	-5.84	56.48	74	-17.52	peak
2399	45.48	-5.84	39.64	54	-14.36	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Operation Mode:

ANT1 802.11g Mode TX CH High (2462MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	57.08	-5.65	51.43	74	-22.57	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	58.09	-5.65	52.44	74	-21.56	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

Operation Mode:

ANT1+ANT2 802.11n/H20 Mode TX CH Low (2412MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	57.82	-5.81	52.01	74	-21.99	peak
2390	/	-5.81	/	54	/	AVG
2399	63.49	-5.84	57.65	74	-16.35	peak
2399	48.12	-5.84	42.28	54	-11.72	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	56.58	-5.81	50.77	74	-23.23	peak
2390	/	-5.81	/	54	/	AVG
2399	60.61	-5.84	54.77	74	-19.23	peak
2399	48.21	-5.84	42.37	54	-11.63	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Operation Mode:

ANT1+ANT2 802.11n/H20 Mode TX CH High (2462MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	56.33	-5.65	50.68	74	-23.32	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	57.21	-5.65	51.56	74	-22.44	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

Operation Mode:

ANT1+ANT2 802.11n/H40 Mode TX CH Low (2422MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	58.78	-5.81	52.97	74	-21.03	peak
2390	/	-5.81	/	54	/	AVG
2399	63.16	-5.84	57.32	74	-16.68	peak
2399	46.31	-5.84	40.47	54	-13.53	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor,
Margin = Emission level - Limits

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	58.81	-5.81	53.00	74	-21.00	peak
2390	/	-5.81	/	54	/	AVG
2399	60.42	-5.84	54.58	74	-19.42	peak
2399	46.13	-5.84	40.29	54	-13.71	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor,
Margin = Emission level - Limits

Operation Mode:

ANT1+ANT2 802.11n/H40 Mode TX CH High (2452MHz)

Horizontal

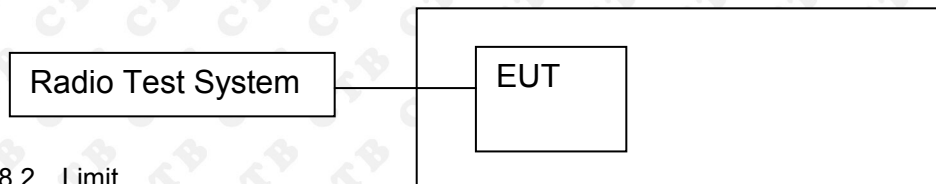
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	56.77	-5.65	51.12	74	-22.88	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	57.57	-5.65	51.92	74	-22.08	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

8. BAND EDGE AND RF CONDUCTED SPURIOUS EMISSIONS

8.1 Block Diagram Of Test Setup



8.2 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. 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)).

8.3 Test procedure

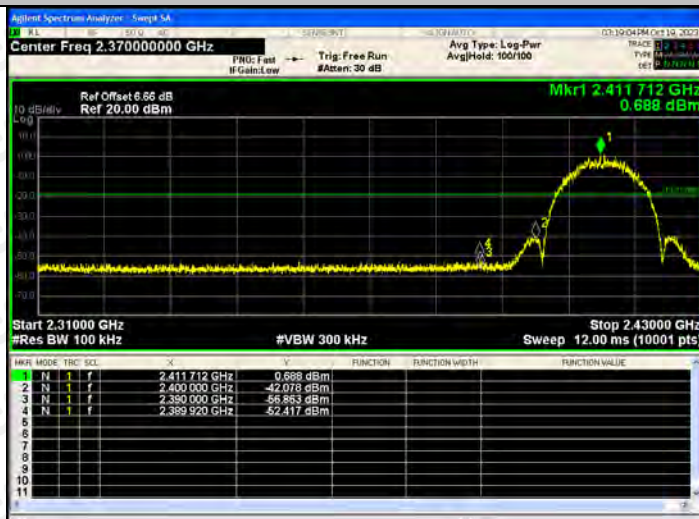
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:
 - Below 30MHz:
 - RBW = 100kHz, VBW = 300kHz, Sweep = auto
 - Detector function = peak, Trace = max hold
 - Above 30MHz:
 - RBW = 100KHz, VBW = 300KHz, Sweep = auto
 - Detector function = peak, Trace = max hold

8.4 Test Result

ANT1:

BAND EDGE Graphs

802.11b/LCH

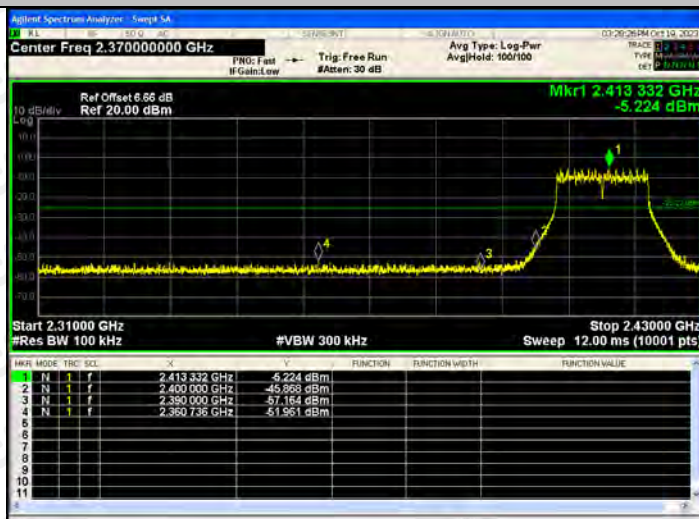


802.11b/HCH

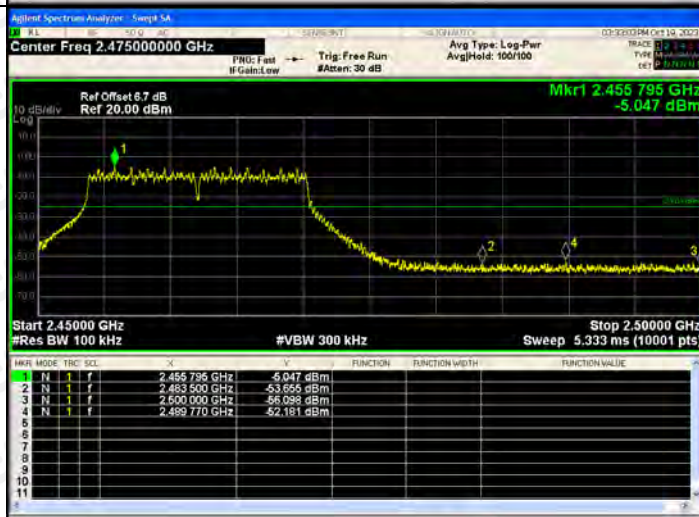


BAND EDGE Graphs

802.11g/LCH

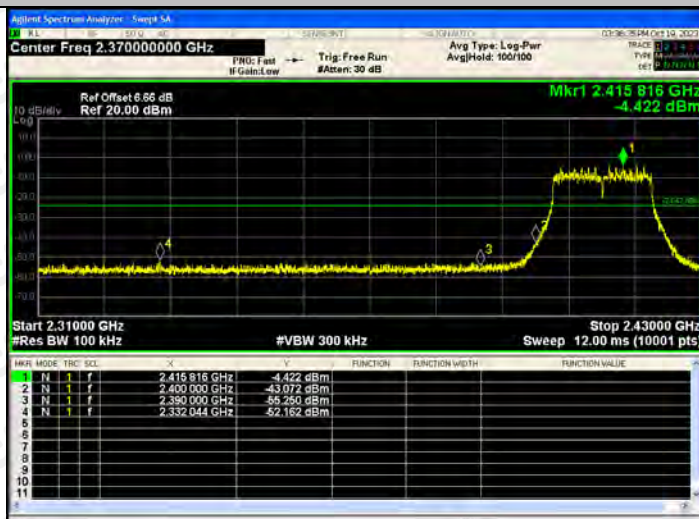


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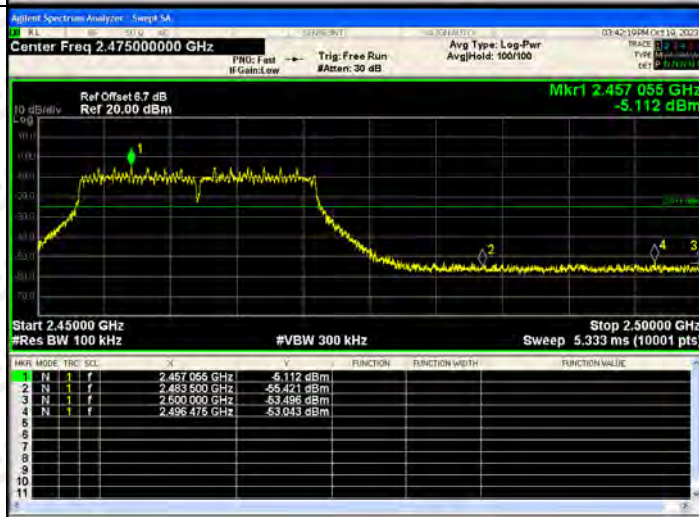


BAND EDGE Graphs

802.11n(HT20)/L
CH

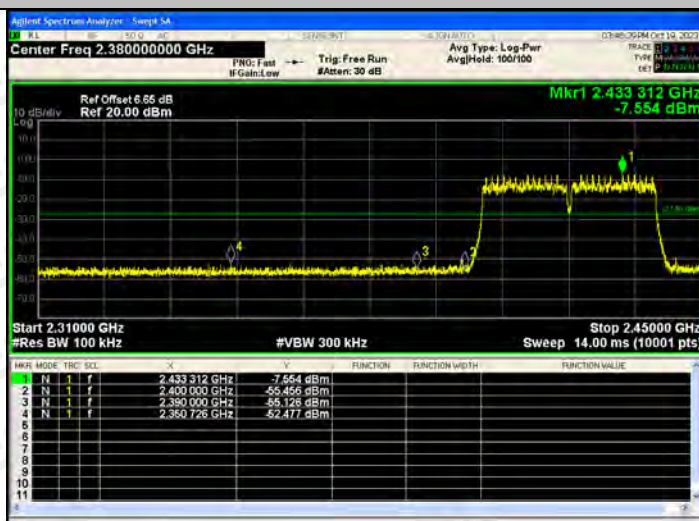


802.11n(HT20)/H
CH

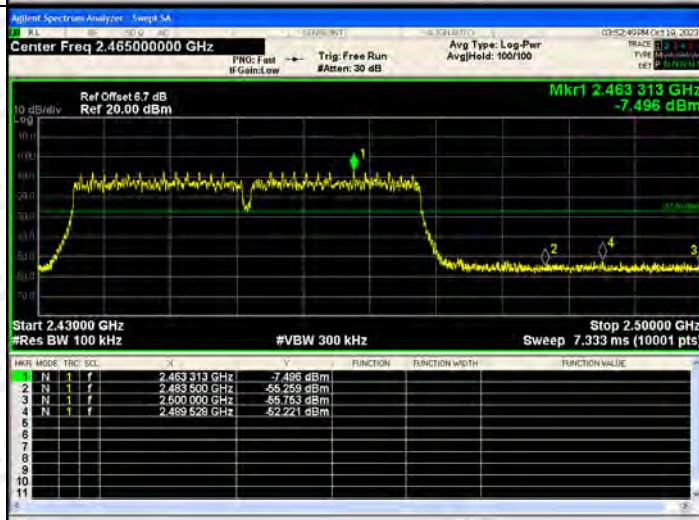


BAND EDGE Graphs

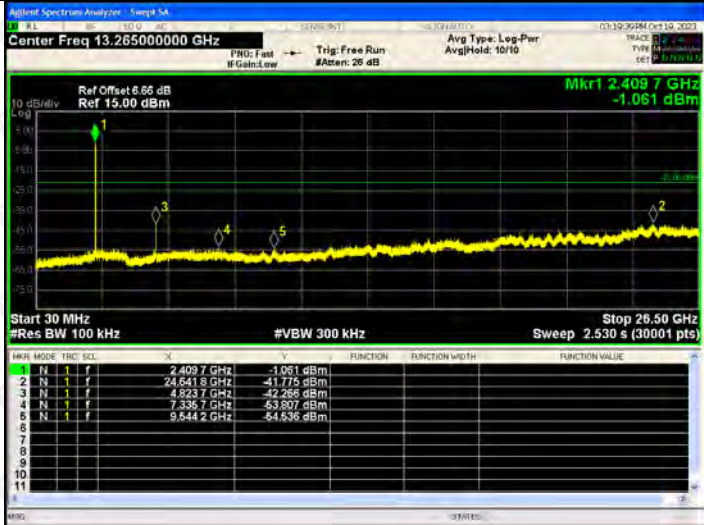
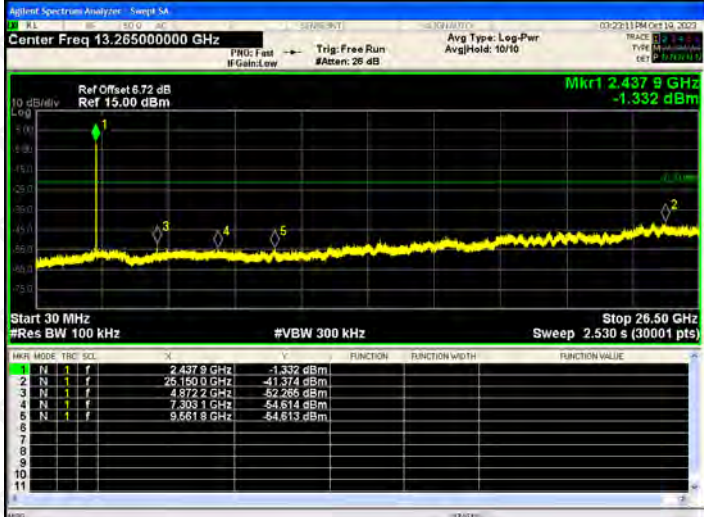
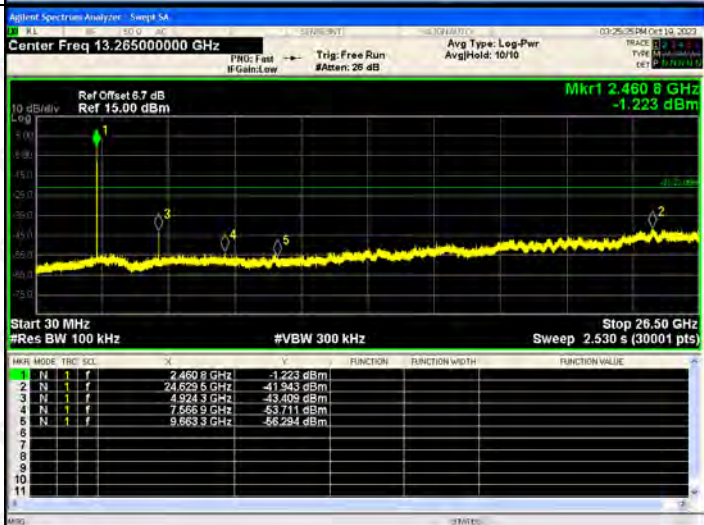
802.11n(HT40)/L
CH



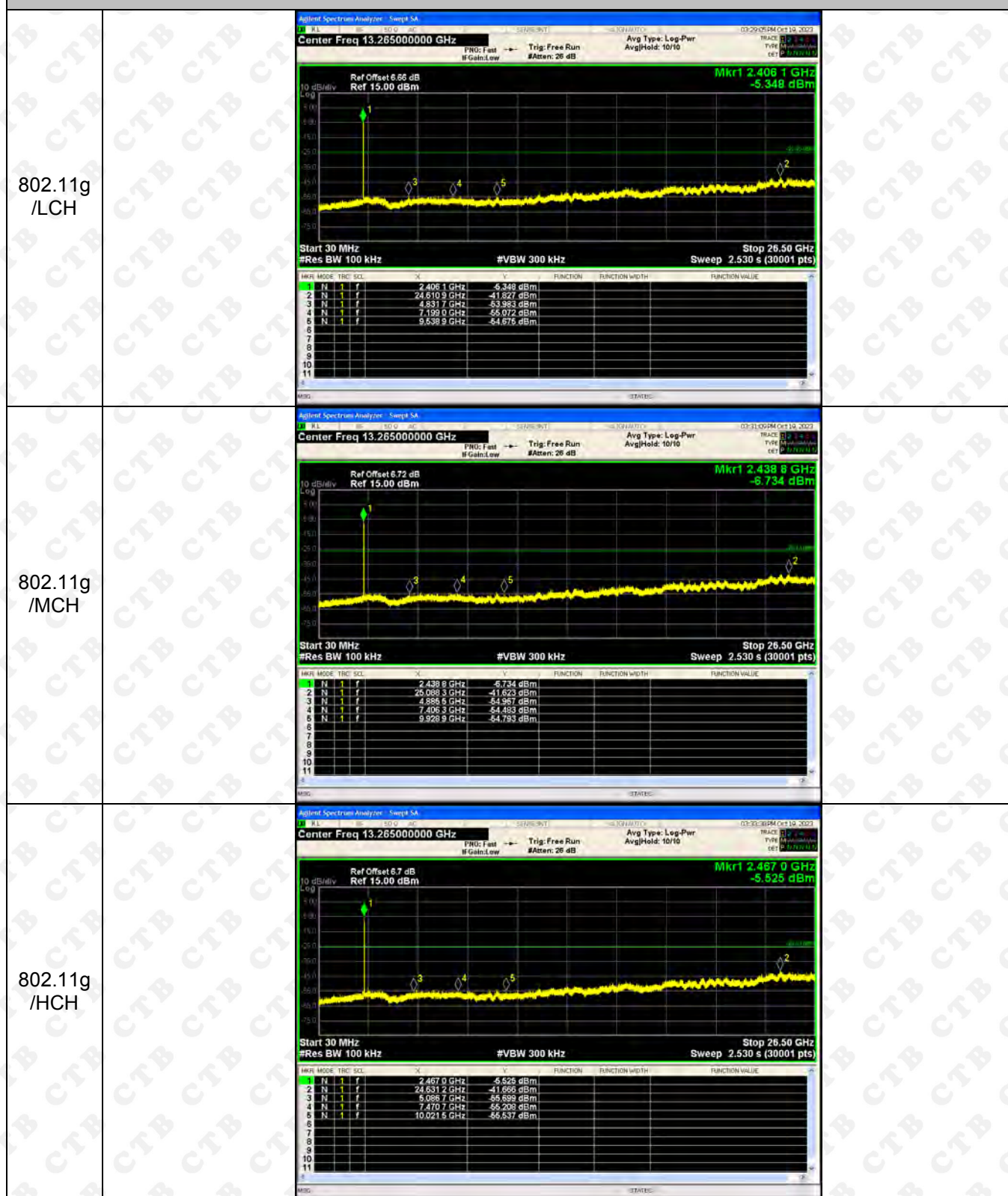
802.11n(HT40)/H
CH



RF Conducted Spurious Emissions Graphs

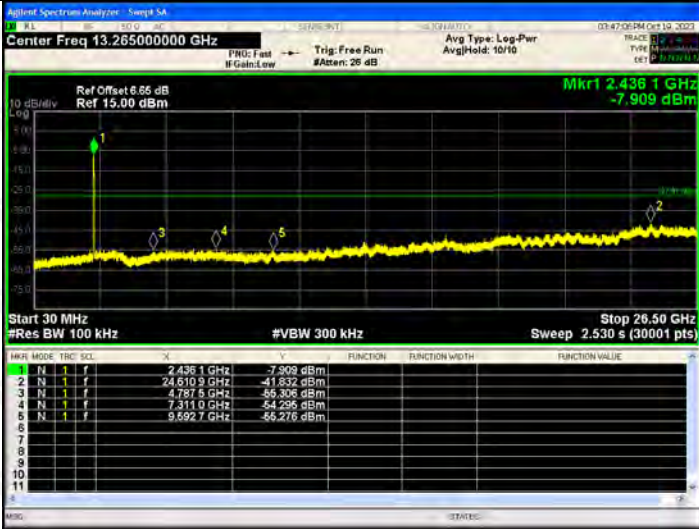
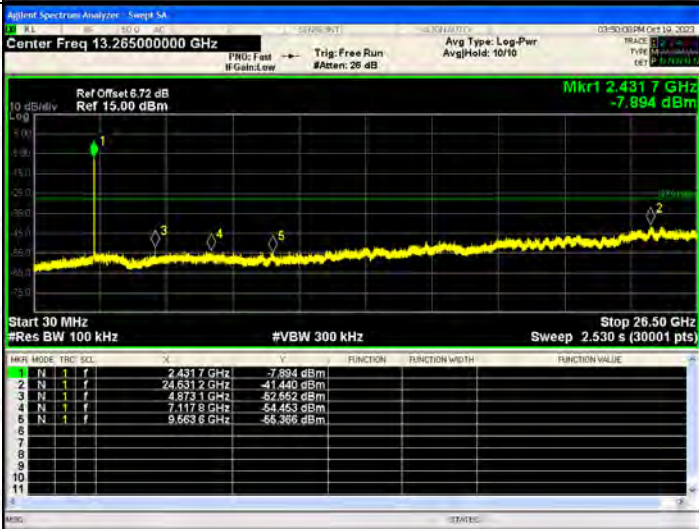
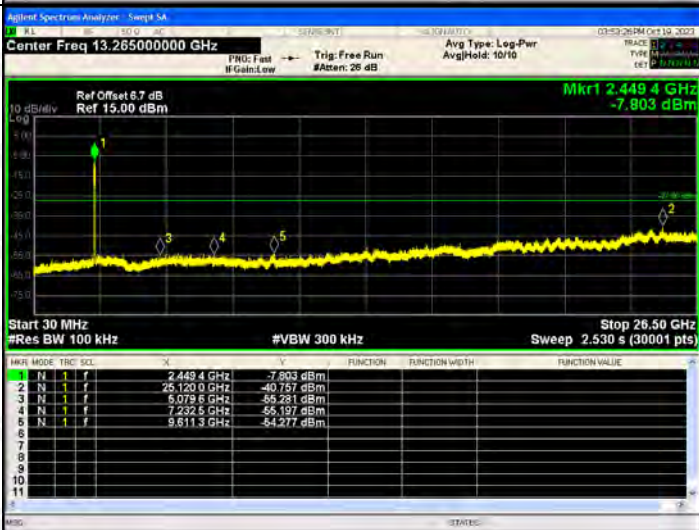
802.11b /LCH	 Agilent Spectrum Analyzer - Sweep 5A Center Freq 13.26500000 GHz Ref Offset 6.66 dB Ref 15.00 dBm Mkr1 2.409 7 GHz -1.061 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><thead><tr><th>Marker</th><th>Freq</th><th>Power</th></tr></thead><tbody><tr><td>1</td><td>2.409 7 GHz</td><td>-1.061 dBm</td></tr><tr><td>2</td><td>2.437 9 GHz</td><td>-1.332 dBm</td></tr><tr><td>3</td><td>2.461 3 GHz</td><td>-41.775 dBm</td></tr><tr><td>4</td><td>4.823 7 GHz</td><td>-42.266 dBm</td></tr><tr><td>5</td><td>7.336 7 GHz</td><td>-53.807 dBm</td></tr><tr><td>6</td><td>9.544 2 GHz</td><td>-54.636 dBm</td></tr></tbody></table>	Marker	Freq	Power	1	2.409 7 GHz	-1.061 dBm	2	2.437 9 GHz	-1.332 dBm	3	2.461 3 GHz	-41.775 dBm	4	4.823 7 GHz	-42.266 dBm	5	7.336 7 GHz	-53.807 dBm	6	9.544 2 GHz	-54.636 dBm
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802.11b /HCH	 Agilent Spectrum Analyzer - Sweep 5A Center Freq 13.26500000 GHz Ref Offset 6.7 dB Ref 15.00 dBm Mkr1 2.460 8 GHz -1.223 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><thead><tr><th>Marker</th><th>Freq</th><th>Power</th></tr></thead><tbody><tr><td>1</td><td>2.460 8 GHz</td><td>-1.223 dBm</td></tr><tr><td>2</td><td>2.462 9 GHz</td><td>-41.843 dBm</td></tr><tr><td>3</td><td>4.824 3 GHz</td><td>-43.409 dBm</td></tr><tr><td>4</td><td>7.556 9 GHz</td><td>-53.711 dBm</td></tr><tr><td>5</td><td>9.663 3 GHz</td><td>-56.294 dBm</td></tr></tbody></table>	Marker	Freq	Power	1	2.460 8 GHz	-1.223 dBm	2	2.462 9 GHz	-41.843 dBm	3	4.824 3 GHz	-43.409 dBm	4	7.556 9 GHz	-53.711 dBm	5	9.663 3 GHz	-56.294 dBm			
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RF Conducted Spurious Emissions Graphs



RF Conducted Spurious Emissions Graphs

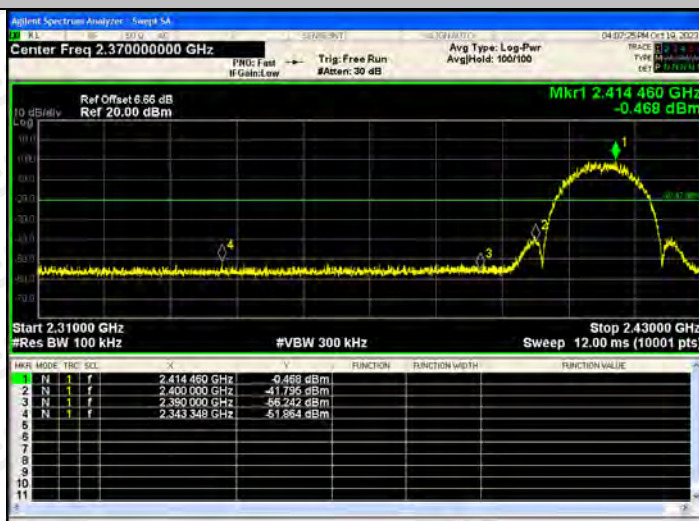
802.11n (HT20)/ LCH	Agilent Spectrum Analyzer - Sweep 5A Center Freq 13.265000000 GHz Ref Offset 6.66 dB Ref 15.00 dBm Mkr1 2.414 9 GHz -4.322 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><tr><th>CH</th><th>F</th><th>P</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>2</td><td>2.414 9 GHz</td><td>-4.322 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>24.702 7 GHz</td><td>-40.995 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>4.823 7 GHz</td><td>-52.977 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>7.223 7 GHz</td><td>-54.621 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>9.565 4 GHz</td><td>-54.859 dBm</td><td></td><td></td><td></td></tr></table>	CH	F	P	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	2	2.414 9 GHz	-4.322 dBm				2	24.702 7 GHz	-40.995 dBm				3	4.823 7 GHz	-52.977 dBm				4	7.223 7 GHz	-54.621 dBm				5	9.565 4 GHz	-54.859 dBm			
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802.11 n(HT20) /MCH	Agilent Spectrum Analyzer - Sweep 5A Center Freq 13.265000000 GHz Ref Offset 6.72 dB Ref 15.00 dBm Mkr1 2.430 8 GHz -5.618 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><tr><th>CH</th><th>F</th><th>P</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>2</td><td>2.430 8 GHz</td><td>-5.618 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>25.064 4 GHz</td><td>-41.219 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>4.879 3 GHz</td><td>-55.489 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>7.481 3 GHz</td><td>-55.012 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>9.599 8 GHz</td><td>-55.239 dBm</td><td></td><td></td><td></td></tr></table>	CH	F	P	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	2	2.430 8 GHz	-5.618 dBm				2	25.064 4 GHz	-41.219 dBm				3	4.879 3 GHz	-55.489 dBm				4	7.481 3 GHz	-55.012 dBm				5	9.599 8 GHz	-55.239 dBm			
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802.11 n(HT20) /HCH	Agilent Spectrum Analyzer - Sweep 5A Center Freq 13.265000000 GHz Ref Offset 6.7 dB Ref 15.00 dBm Mkr1 2.455 5 GHz -5.036 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><tr><th>CH</th><th>F</th><th>P</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>2</td><td>2.455 5 GHz</td><td>-5.036 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>24.622 4 GHz</td><td>-41.878 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>4.922 5 GHz</td><td>-54.539 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>7.459 2 GHz</td><td>-55.078 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>9.598 0 GHz</td><td>-55.037 dBm</td><td></td><td></td><td></td></tr></table>	CH	F	P	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	2	2.455 5 GHz	-5.036 dBm				2	24.622 4 GHz	-41.878 dBm				3	4.922 5 GHz	-54.539 dBm				4	7.459 2 GHz	-55.078 dBm				5	9.598 0 GHz	-55.037 dBm			
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802.11n (HT40)/ LCH	
802.11 n(HT40) /MCH	
802.11 n(HT40) /HCH	

ANT2:

BAND EDGE Graphs

802.11b/LCH

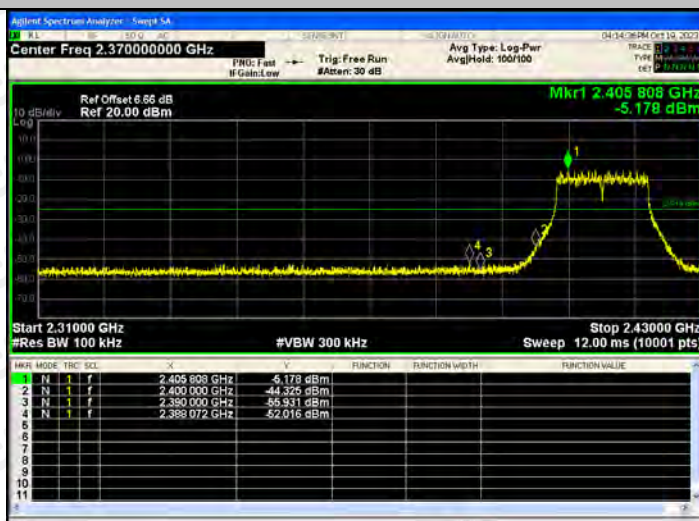


802.11b/HCH

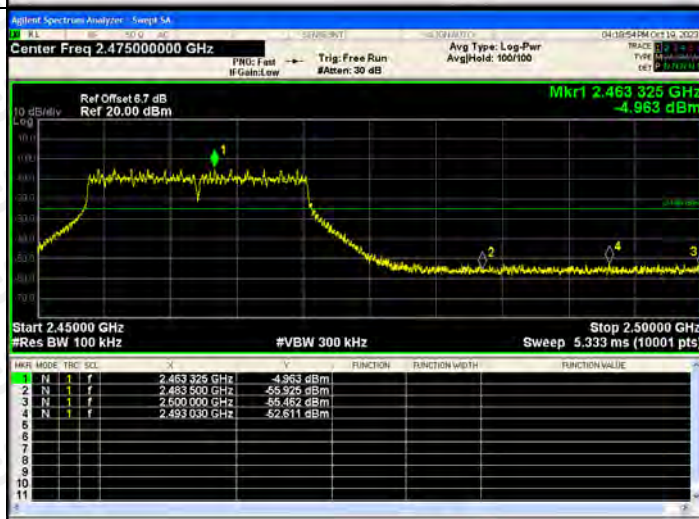


BAND EDGE Graphs

802.11g/LCH

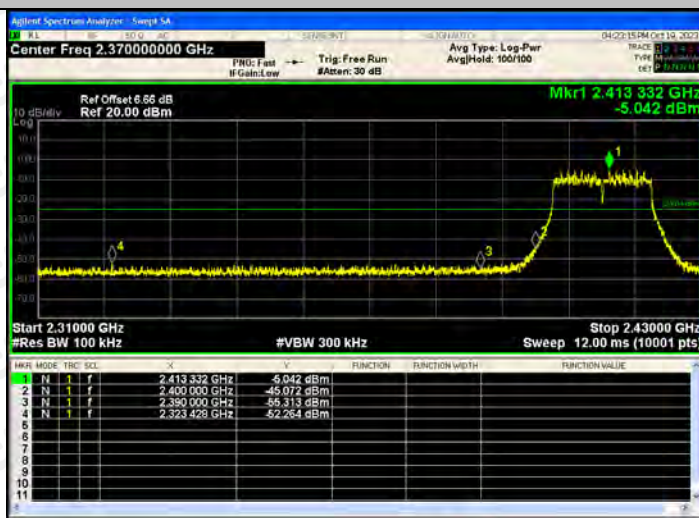


802.11g/HCH

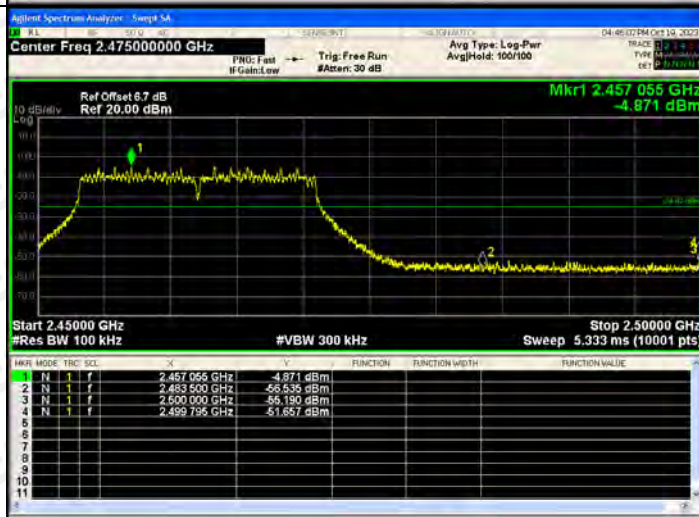


BAND EDGE Graphs

802.11n(HT20)/L
CH

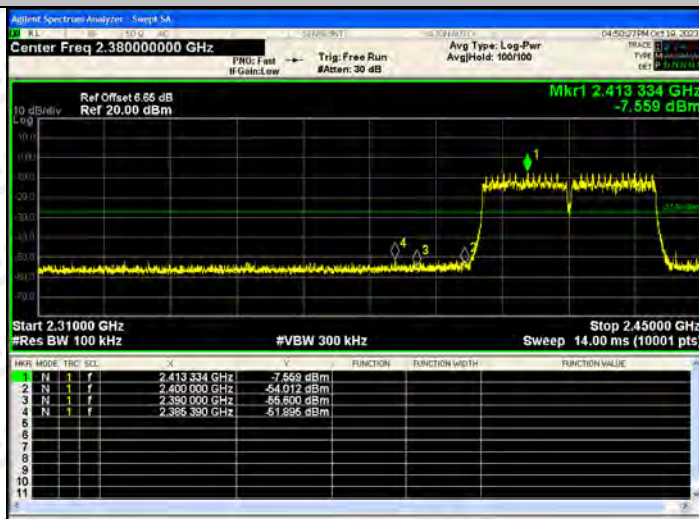


802.11n(HT20)/H
CH



BAND EDGE Graphs

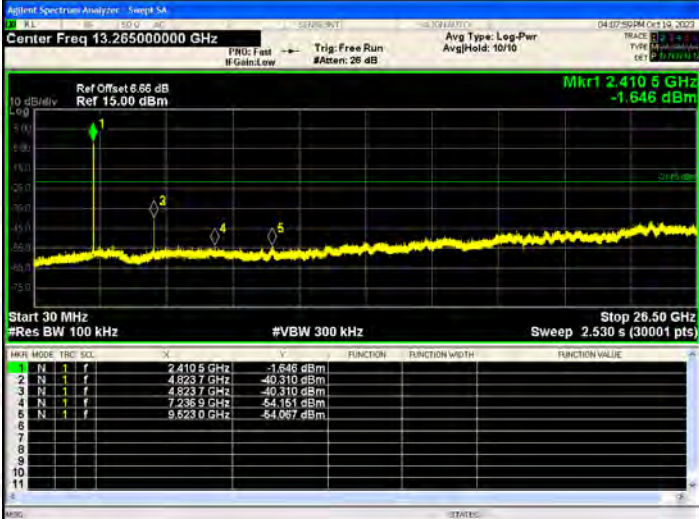
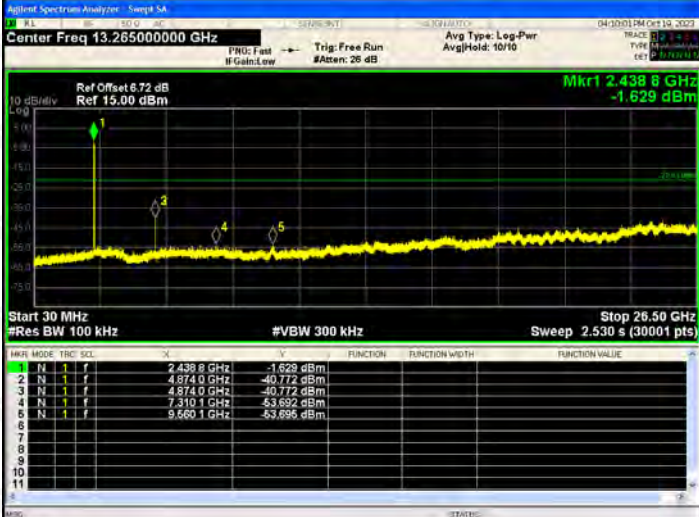
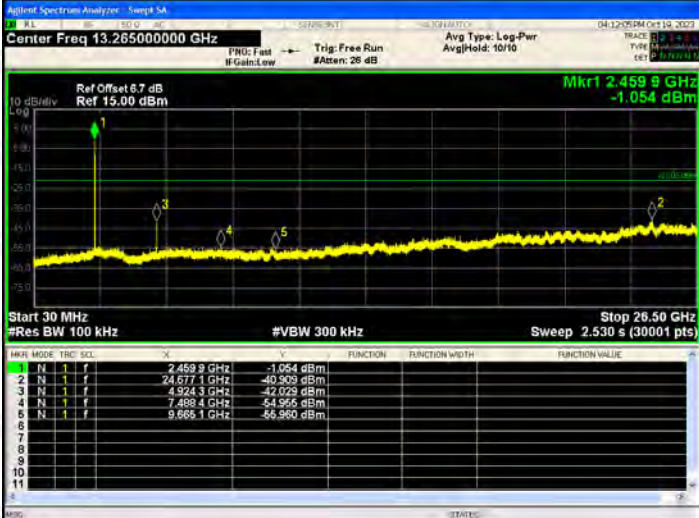
802.11n(HT40)/L
CH



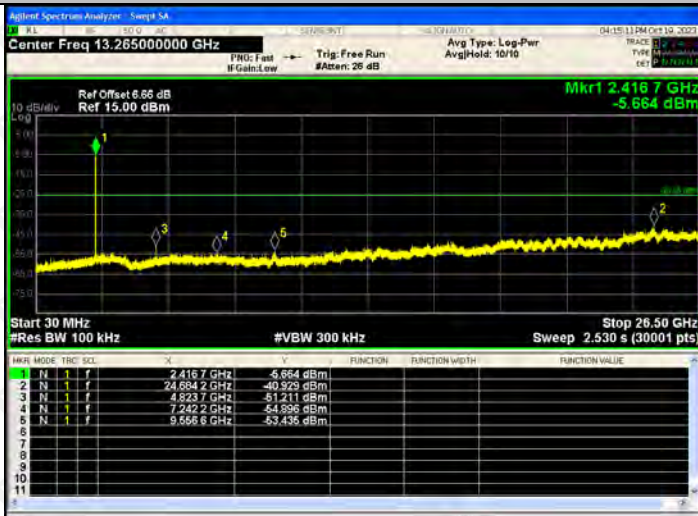
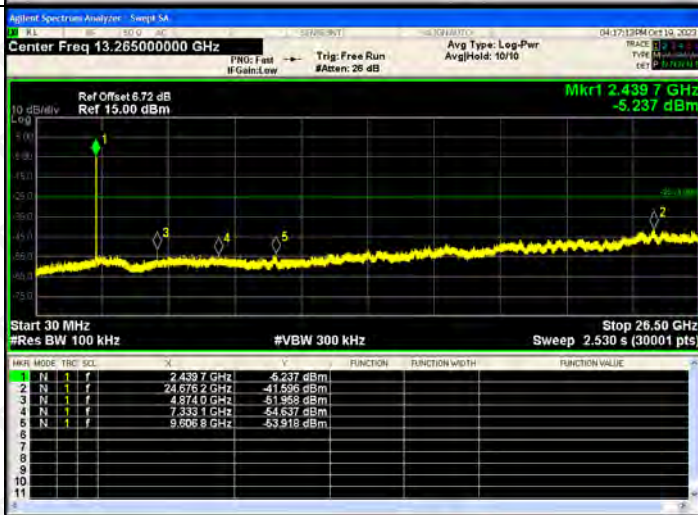
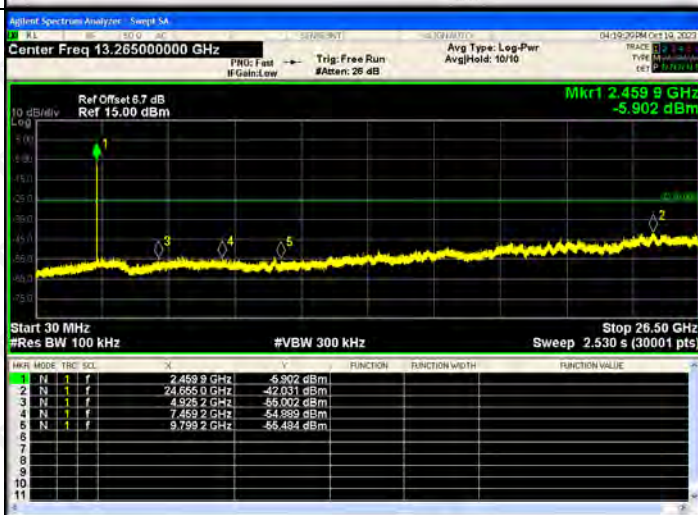
802.11n(HT40)/H
CH



RF Conducted Spurious Emissions Graphs

802.11b /LCH	
802.11b /MCH	
802.11b /HCH	

RF Conducted Spurious Emissions Graphs

802.11g /LCH	 Agilent Spectrum Analyzer - Sweep 5A Center Freq 13.265000000 GHz Ref Offset 6.66 dB Ref 15.00 dBm Mkr1 2.416 7 GHz -5.664 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>Freq</th><th>Power</th></tr><tr><td>1</td><td>N</td><td>2.416 7 GHz</td><td>-5.664 dBm</td></tr><tr><td>2</td><td>N</td><td>2.4684 2 GHz</td><td>-40.929 dBm</td></tr><tr><td>3</td><td>N</td><td>4.823 7 GHz</td><td>-51.211 dBm</td></tr><tr><td>4</td><td>N</td><td>7.242 2 GHz</td><td>-54.896 dBm</td></tr><tr><td>5</td><td>N</td><td>9.556 6 GHz</td><td>-53.135 dBm</td></tr></table>	Mkr	Mode	Freq	Power	1	N	2.416 7 GHz	-5.664 dBm	2	N	2.4684 2 GHz	-40.929 dBm	3	N	4.823 7 GHz	-51.211 dBm	4	N	7.242 2 GHz	-54.896 dBm	5	N	9.556 6 GHz	-53.135 dBm
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802.11g /MCH	 Agilent Spectrum Analyzer - Sweep 5A Center Freq 13.265000000 GHz Ref Offset 6.72 dB Ref 15.00 dBm Mkr1 2.439 7 GHz -5.237 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>Freq</th><th>Power</th></tr><tr><td>1</td><td>N</td><td>2.439 7 GHz</td><td>-5.237 dBm</td></tr><tr><td>2</td><td>N</td><td>2.4676 2 GHz</td><td>-41.596 dBm</td></tr><tr><td>3</td><td>N</td><td>4.874 0 GHz</td><td>-51.958 dBm</td></tr><tr><td>4</td><td>N</td><td>7.333 1 GHz</td><td>-54.637 dBm</td></tr><tr><td>5</td><td>N</td><td>9.508 8 GHz</td><td>-53.918 dBm</td></tr></table>	Mkr	Mode	Freq	Power	1	N	2.439 7 GHz	-5.237 dBm	2	N	2.4676 2 GHz	-41.596 dBm	3	N	4.874 0 GHz	-51.958 dBm	4	N	7.333 1 GHz	-54.637 dBm	5	N	9.508 8 GHz	-53.918 dBm
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2	N	2.4676 2 GHz	-41.596 dBm																						
3	N	4.874 0 GHz	-51.958 dBm																						
4	N	7.333 1 GHz	-54.637 dBm																						
5	N	9.508 8 GHz	-53.918 dBm																						
802.11g /HCH	 Agilent Spectrum Analyzer - Sweep 5A Center Freq 13.265000000 GHz Ref Offset 6.7 dB Ref 15.00 dBm Mkr1 2.459 9 GHz -5.902 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>Freq</th><th>Power</th></tr><tr><td>1</td><td>N</td><td>2.459 9 GHz</td><td>-5.902 dBm</td></tr><tr><td>2</td><td>N</td><td>2.4666 0 GHz</td><td>-42.031 dBm</td></tr><tr><td>3</td><td>N</td><td>4.926 2 GHz</td><td>-56.002 dBm</td></tr><tr><td>4</td><td>N</td><td>7.459 2 GHz</td><td>-54.889 dBm</td></tr><tr><td>5</td><td>N</td><td>9.799 2 GHz</td><td>-55.494 dBm</td></tr></table>	Mkr	Mode	Freq	Power	1	N	2.459 9 GHz	-5.902 dBm	2	N	2.4666 0 GHz	-42.031 dBm	3	N	4.926 2 GHz	-56.002 dBm	4	N	7.459 2 GHz	-54.889 dBm	5	N	9.799 2 GHz	-55.494 dBm
Mkr	Mode	Freq	Power																						
1	N	2.459 9 GHz	-5.902 dBm																						
2	N	2.4666 0 GHz	-42.031 dBm																						
3	N	4.926 2 GHz	-56.002 dBm																						
4	N	7.459 2 GHz	-54.889 dBm																						
5	N	9.799 2 GHz	-55.494 dBm																						

RF Conducted Spurious Emissions Graphs

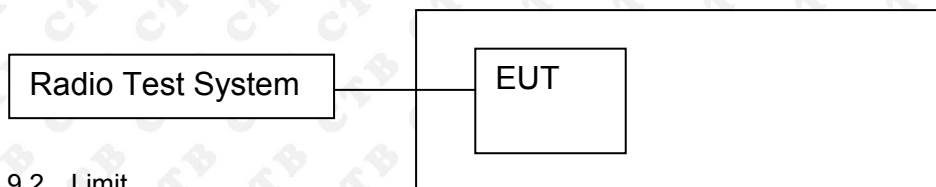
802.11n (HT20)/ LCH	
802.11 n(HT20) /MCH	
802.11 n(HT20) /HCH	

RF Conducted Spurious Emissions Graphs



9. COUDUCTED OUTPUT POWER

9.1 Block Diagram Of Test Setup



9.2 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

9.3 Test procedure

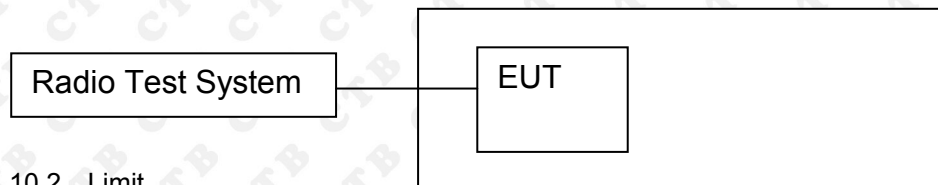
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak. Channel power function is used
3. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

9.4 Test Result

Mode	Channel.	Maximum Peak Power [dBm] ant 1	Maximum Peak Power [dBm] ant 2	Total Power Peak Output Power(dBm)	Limit[dBm]
802.11b	LCH	14.724	14.599	/	30
	MCH	14.881	14.597	/	30
	HCH	14.742	14.63	/	30
802.11g	LCH	13.211	13.383	/	30
	MCH	13.264	13.304	/	30
	HCH	13.369	13.467	/	30
802.11n(HT20)	LCH	13.884	13.125	16.531	30
	MCH	12.867	13.211	16.053	30
	HCH	13.165	13.31	16.248	30
802.11n(HT40)	LCH	13.054	13.161	16.118	30
	MCH	13.23	13.308	16.279	30
	HCH	13.179	13.206	16.203	30

10. 6DB OCCUPIED BANDWIDTH

10.1 Block Diagram Of Test Setup



10.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

10.3 Test procedure

1. Rem1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

10.4 Test Result

ANT1:

Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	10.321	500	PASS
	MCH	9.334	500	PASS
	HCH	9.725	500	PASS
802.11g	LCH	16.413	500	PASS
	MCH	16.402	500	PASS
	HCH	16.414	500	PASS
802.11n(HT20)	LCH	17.586	500	PASS
	MCH	17.584	500	PASS
	HCH	17.583	500	PASS
802.11n(HT40)	LCH	36.189	500	PASS
	MCH	36.264	500	PASS
	HCH	36.229	500	PASS

ANT2:

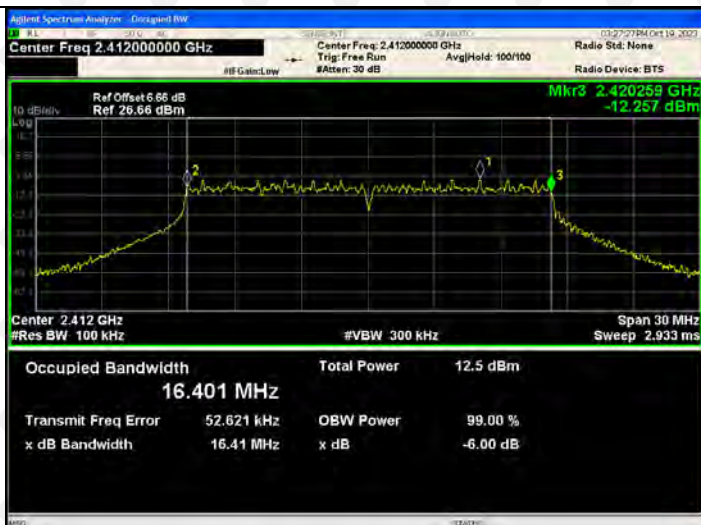
Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	9.239	500	PASS
	MCH	9.251	500	PASS
	HCH	9.106	500	PASS
802.11g	LCH	16.406	500	PASS
	MCH	16.407	500	PASS
	HCH	16.401	500	PASS
802.11n(HT20)	LCH	17.54	500	PASS
	MCH	17.578	500	PASS
	HCH	17.637	500	PASS
802.11n(HT40)	LCH	36.272	500	PASS
	MCH	36.239	500	PASS
	HCH	36.227	500	PASS

ANT1:

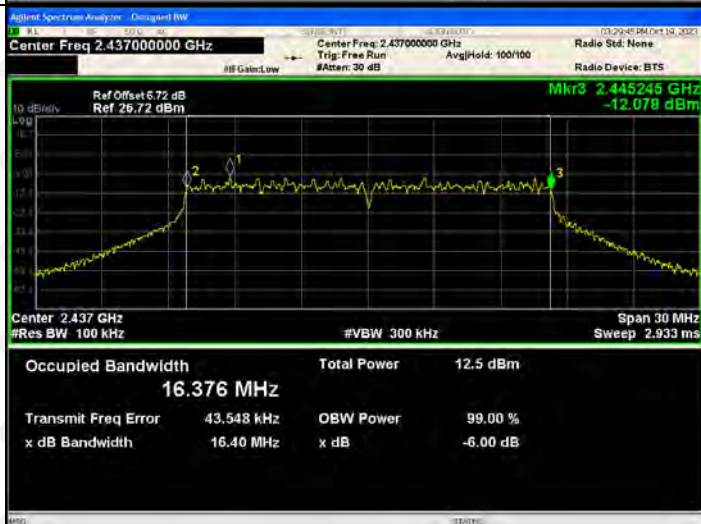
Test Graph:

Graphs	
802.11b /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.412000000 GHz Center Freq: 2.412000000 GHz Trig: Free Run Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset: 6.66 dB Ref: 26.66 dBm Mkr3: 2.417244 GHz -7.0303 dBm Center: 2.412 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 15.380 MHz Total Power: 16.2 dBm Transmit Freq Error: 83.958 kHz OBW Power: 99.00 % x dB Bandwidth: 10.32 MHz x dB: -6.00 dB
802.11b /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset: 6.72 dB Ref: 26.72 dBm Mkr3: 2.44176 GHz -7.4526 dBm Center: 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 15.416 MHz Total Power: 16.4 dBm Transmit Freq Error: 93.286 kHz OBW Power: 99.00 % x dB Bandwidth: 9.334 MHz x dB: -6.00 dB
802.11b/HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset: 6.7 dB Ref: 26.70 dBm Mkr3: 2.466918 GHz -8.4018 dBm Center: 2.462 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 15.342 MHz Total Power: 16.5 dBm Transmit Freq Error: 54.960 kHz OBW Power: 99.00 % x dB Bandwidth: 9.725 MHz x dB: -6.00 dB

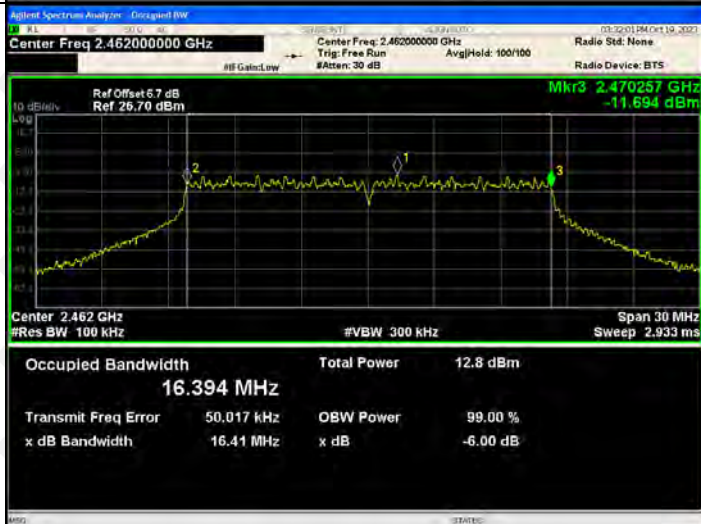
802.11g/LCH

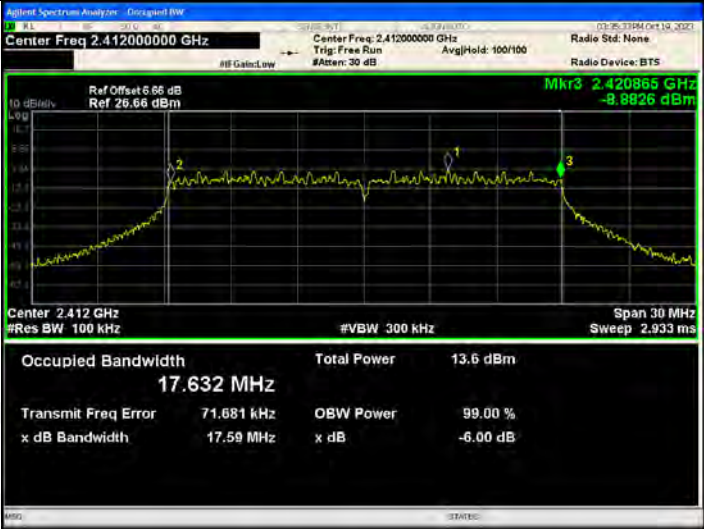
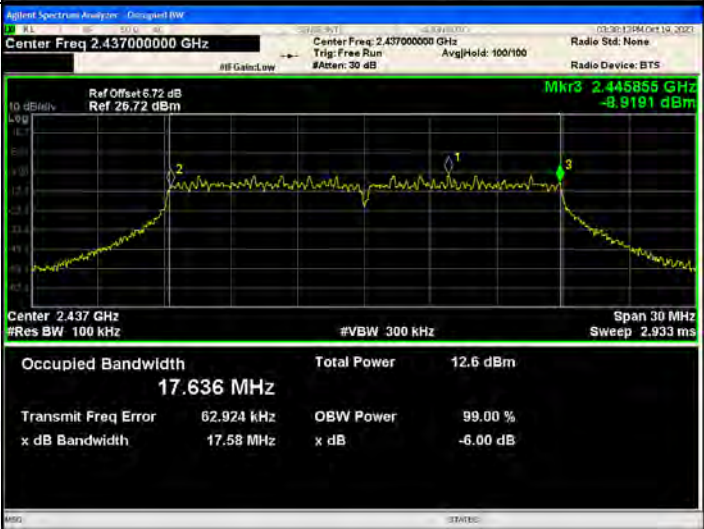


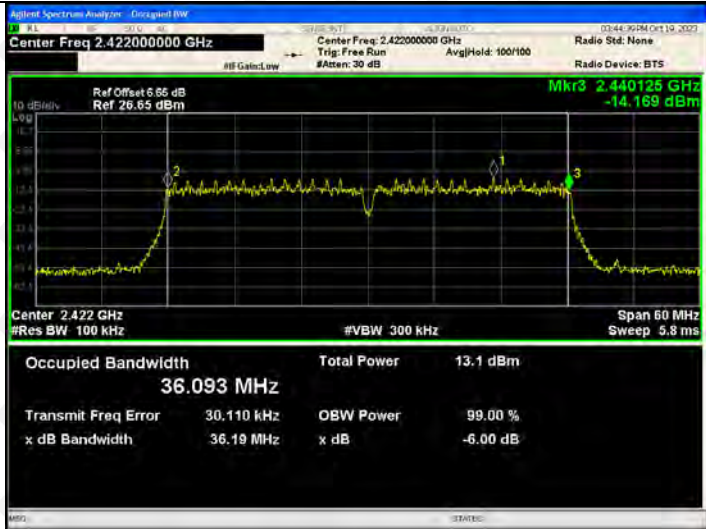
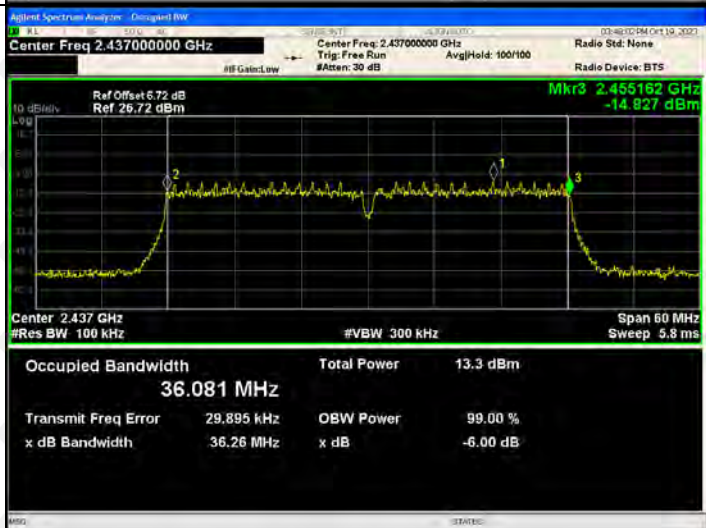
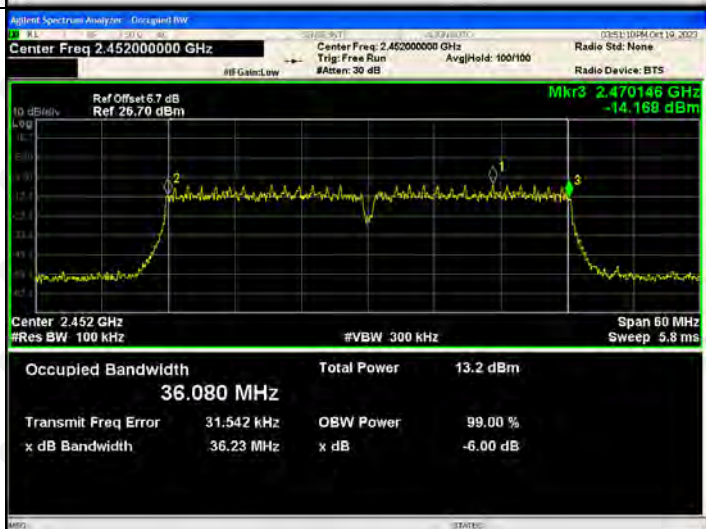
802.11g/MCH



802.11g/HCH



802.11n(HT20)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 6.66 dB Ref 26.66 dBm Mkr3 2.420865 GHz -8.8926 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.632 MHz Total Power 13.6 dBm Transmit Freq Error 71.681 kHz OBW Power 99.00 % x dB Bandwidth 17.58 MHz x dB -6.00 dB
802.11n(HT20)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 6.72 dB Ref 26.72 dBm Mkr3 2.445855 GHz -8.9191 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.636 MHz Total Power 12.6 dBm Transmit Freq Error 62.924 kHz OBW Power 99.00 % x dB Bandwidth 17.58 MHz x dB -6.00 dB
802.11n(HT20)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 6.7 dB Ref 26.70 dBm Mkr3 2.470859 GHz -9.1663 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.631 MHz Total Power 12.7 dBm Transmit Freq Error 67.241 kHz OBW Power 99.00 % x dB Bandwidth 17.58 MHz x dB -6.00 dB

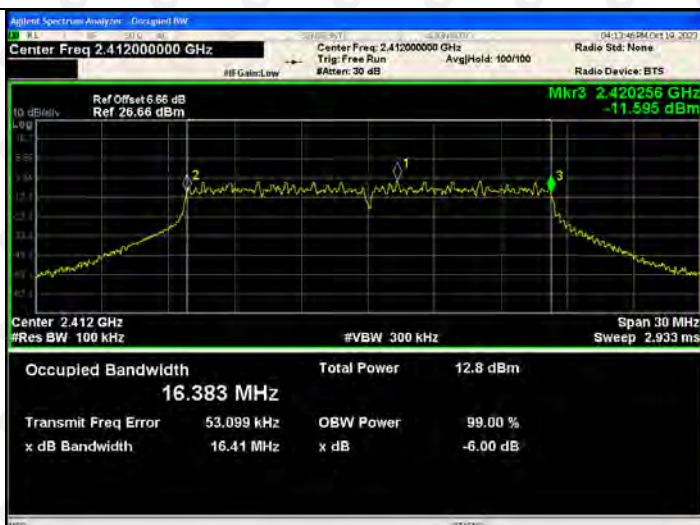
802.11n(HT40)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.42200000 GHz Ref Offset: 6.65 dB Ref: 26.65 dBm Mkr3: 2.440125 GHz -14.169 dBm Center: 2.422 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms <table><tr><td>Occupied Bandwidth</td><td>Total Power</td><td>13.1 dBm</td></tr><tr><td>36.093 MHz</td><td></td><td></td></tr><tr><td>Transmit Freq Error</td><td>OBW Power</td><td>99.00 %</td></tr><tr><td>30.110 kHz</td><td>x dB</td><td>-6.00 dB</td></tr><tr><td>x dB Bandwidth</td><td></td><td></td></tr><tr><td>36.19 MHz</td><td></td><td></td></tr></table>	Occupied Bandwidth	Total Power	13.1 dBm	36.093 MHz			Transmit Freq Error	OBW Power	99.00 %	30.110 kHz	x dB	-6.00 dB	x dB Bandwidth			36.19 MHz		
Occupied Bandwidth	Total Power	13.1 dBm																	
36.093 MHz																			
Transmit Freq Error	OBW Power	99.00 %																	
30.110 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
36.19 MHz																			
802.11n(HT40)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Ref Offset: 6.72 dB Ref: 26.72 dBm Mkr3: 2.455162 GHz -14.927 dBm Center: 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms <table><tr><td>Occupied Bandwidth</td><td>Total Power</td><td>13.3 dBm</td></tr><tr><td>36.081 MHz</td><td></td><td></td></tr><tr><td>Transmit Freq Error</td><td>OBW Power</td><td>99.00 %</td></tr><tr><td>29.895 kHz</td><td>x dB</td><td>-6.00 dB</td></tr><tr><td>x dB Bandwidth</td><td></td><td></td></tr><tr><td>36.26 MHz</td><td></td><td></td></tr></table>	Occupied Bandwidth	Total Power	13.3 dBm	36.081 MHz			Transmit Freq Error	OBW Power	99.00 %	29.895 kHz	x dB	-6.00 dB	x dB Bandwidth			36.26 MHz		
Occupied Bandwidth	Total Power	13.3 dBm																	
36.081 MHz																			
Transmit Freq Error	OBW Power	99.00 %																	
29.895 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
36.26 MHz																			
802.11n(HT40)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.45200000 GHz Ref Offset: 6.7 dB Ref: 26.70 dBm Mkr3: 2.470146 GHz -14.168 dBm Center: 2.452 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms <table><tr><td>Occupied Bandwidth</td><td>Total Power</td><td>13.2 dBm</td></tr><tr><td>36.080 MHz</td><td></td><td></td></tr><tr><td>Transmit Freq Error</td><td>OBW Power</td><td>99.00 %</td></tr><tr><td>31.542 kHz</td><td>x dB</td><td>-6.00 dB</td></tr><tr><td>x dB Bandwidth</td><td></td><td></td></tr><tr><td>36.23 MHz</td><td></td><td></td></tr></table>	Occupied Bandwidth	Total Power	13.2 dBm	36.080 MHz			Transmit Freq Error	OBW Power	99.00 %	31.542 kHz	x dB	-6.00 dB	x dB Bandwidth			36.23 MHz		
Occupied Bandwidth	Total Power	13.2 dBm																	
36.080 MHz																			
Transmit Freq Error	OBW Power	99.00 %																	
31.542 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
36.23 MHz																			

ANT2:

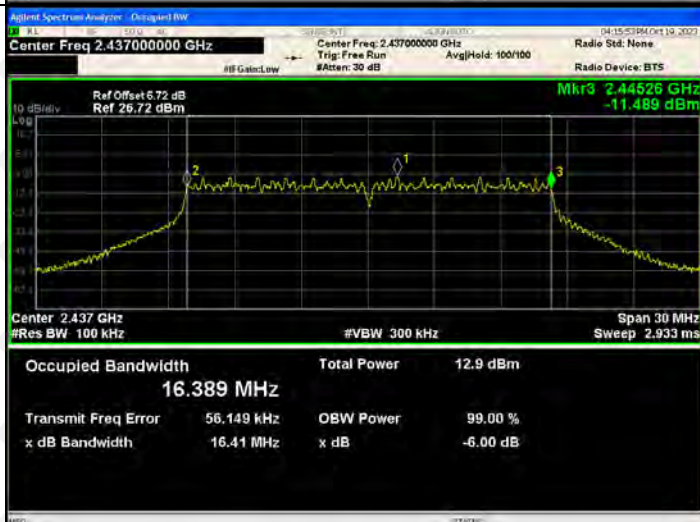
Test Graph:

Graphs	
802.11b /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 6.66 dB Ref 26.66 dBm Mkr3 2.416869 GHz -5.4330 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 15.405 MHz Total Power 16.2 dBm Transmit Freq Error 49.528 kHz OBW Power 99.00 % x dB Bandwidth 9.239 MHz x dB -6.00 dB
802.11b /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 6.72 dB Ref 26.72 dBm Mkr3 2.441689 GHz -5.2447 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 15.272 MHz Total Power 16.4 dBm Transmit Freq Error 63.139 kHz OBW Power 99.00 % x dB Bandwidth 9.251 MHz x dB -6.00 dB
802.11b/HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 6.7 dB Ref 26.70 dBm Mkr3 2.466574 GHz -4.5693 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 15.220 MHz Total Power 16.4 dBm Transmit Freq Error 20.898 kHz OBW Power 99.00 % x dB Bandwidth 9.106 MHz x dB -6.00 dB

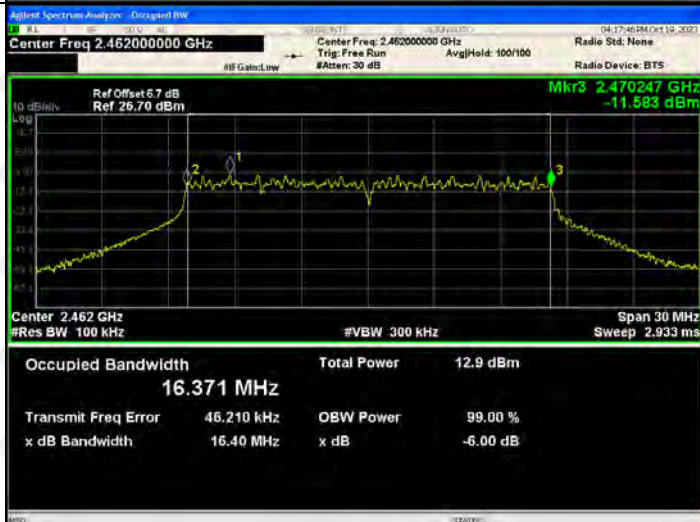
802.11g/LCH

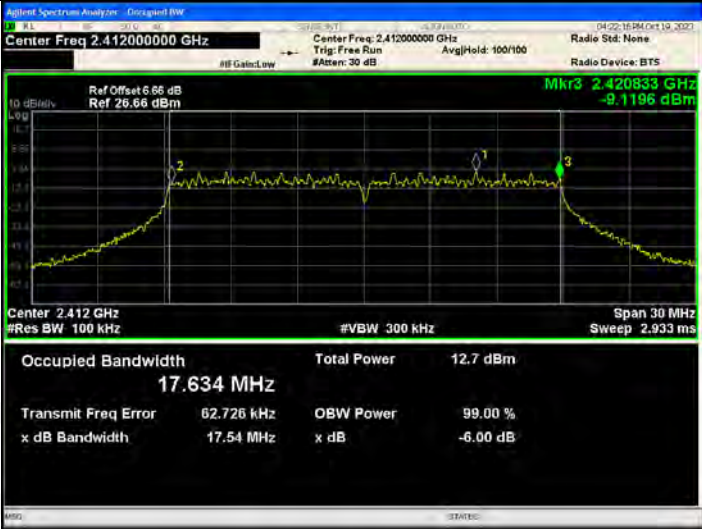
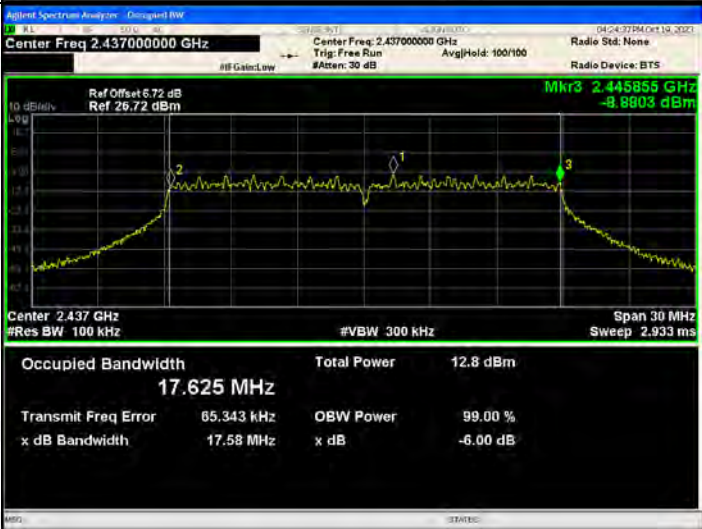


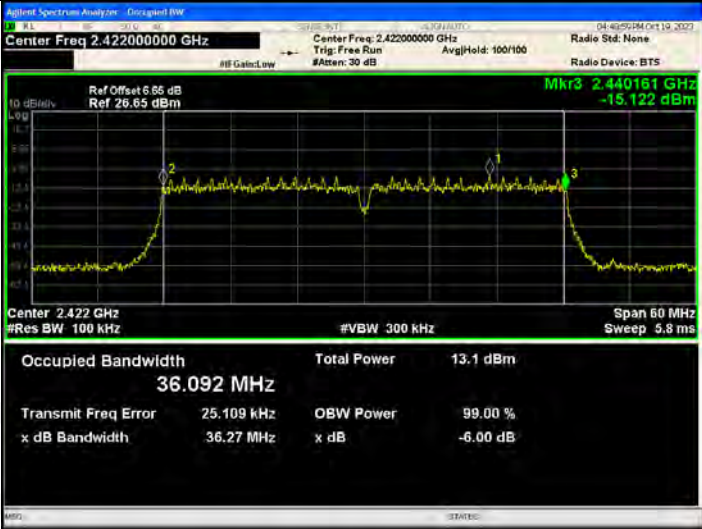
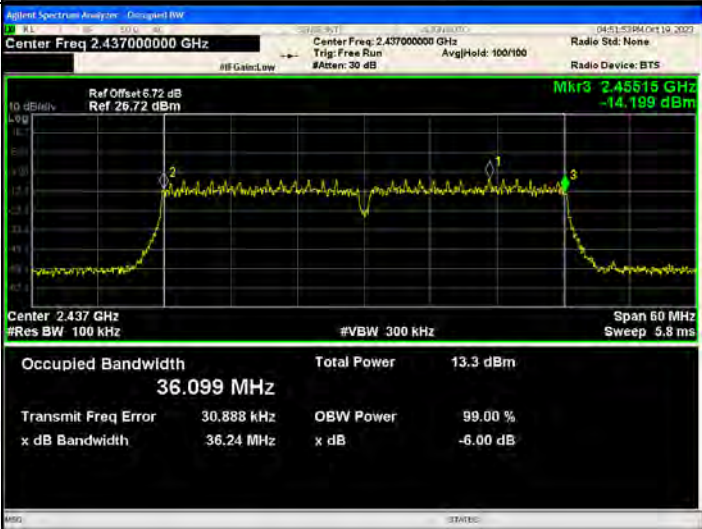
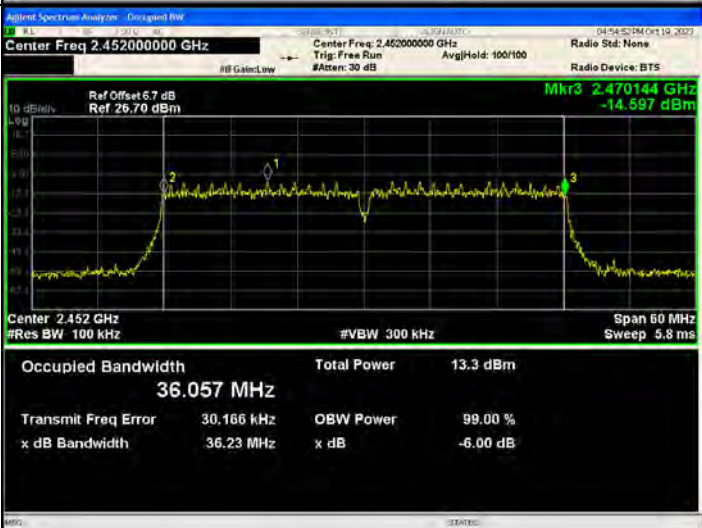
802.11g/MCH



802.11g/HCH

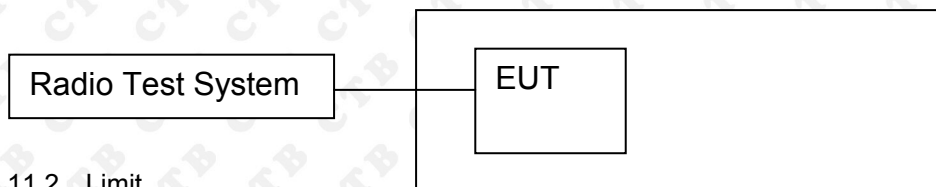


802.11n(HT20)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 6.66 dB Ref 26.66 dBm Occupied Bandwidth 17.634 MHz Total Power 12.7 dBm Transmit Freq Error 82.726 kHz OBW Power 99.00 % x dB Bandwidth 17.54 MHz x dB -6.00 dB
802.11n(HT20)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 6.72 dB Ref 26.72 dBm Occupied Bandwidth 17.625 MHz Total Power 12.8 dBm Transmit Freq Error 85.343 kHz OBW Power 99.00 % x dB Bandwidth 17.58 MHz x dB -6.00 dB
802.11n(HT20)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 6.7 dB Ref 26.70 dBm Occupied Bandwidth 17.636 MHz Total Power 12.9 dBm Transmit Freq Error 59.924 kHz OBW Power 99.00 % x dB Bandwidth 17.64 MHz x dB -6.00 dB

802.11n(HT40)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.42200000 GHz Ref Offset: 6.65 dB Ref: 26.65 dBm Mkr3: 2.440161 GHz -15.122 dBm Center: 2.422 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms Occupied Bandwidth: 36.092 MHz Total Power: 13.1 dBm Transmit Freq Error: 25.109 kHz OBW Power: 99.00 % x dB Bandwidth: 36.27 MHz x dB: -6.00 dB
802.11n(HT40)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Ref Offset: 6.72 dB Ref: 26.72 dBm Mkr3: 2.45515 GHz -14.199 dBm Center: 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms Occupied Bandwidth: 36.099 MHz Total Power: 13.3 dBm Transmit Freq Error: 30.888 kHz OBW Power: 99.00 % x dB Bandwidth: 36.24 MHz x dB: -6.00 dB
802.11n(HT40)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.45200000 GHz Ref Offset: 6.7 dB Ref: 26.70 dBm Mkr3: 2.470144 GHz -14.597 dBm Center: 2.452 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms Occupied Bandwidth: 36.057 MHz Total Power: 13.3 dBm Transmit Freq Error: 30.166 kHz OBW Power: 99.00 % x dB Bandwidth: 36.23 MHz x dB: -6.00 dB

11. POWER SPECTRAL DENSITY

11.1 Block Diagram Of Test Setup



11.2 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

11.3 Test procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = Peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

11.4 Test Result

Mode	Channel.	Power Spectral Density [dBm /3KHz] ANT 1	Power Spectral Density [dBm /3KHz] ANT 2	Power Spectral Density [dBm /3KHz] Total	Limit(dBm)
802.11b	LCH	-3.069	-9.743	/	8
	MCH	0.46	-13.99	/	8
	HCH	-3.862	-4.555	/	8
802.11g	LCH	-20.312	-20.301	/	8
	MCH	-20.567	-20.293	/	8
	HCH	-20.245	-20.659	/	8
802.11n(H T20)	LCH	-18.508	-19.467	-15.951	8
	MCH	-19.947	-19.489	-16.702	8
	HCH	-19.423	-20.238	-16.801	8
802.11n(H T40)	LCH	-21.998	-21.922	-18.950	8
	MCH	-22.226	-22.223	-19.214	8
	HCH	-22.467	-22.042	-19.239	8

ANT1: Test Graph

Graphs

802.11b /LCH

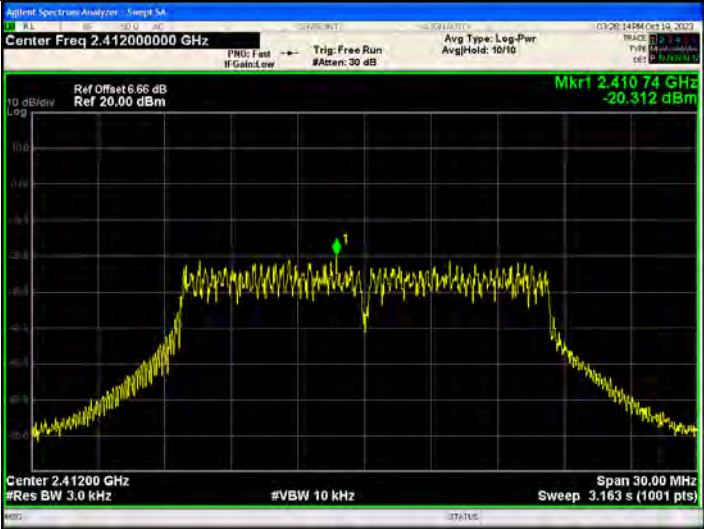


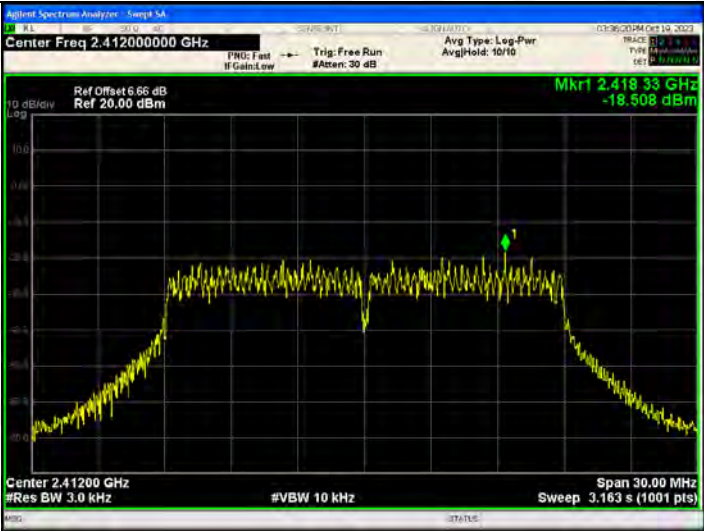
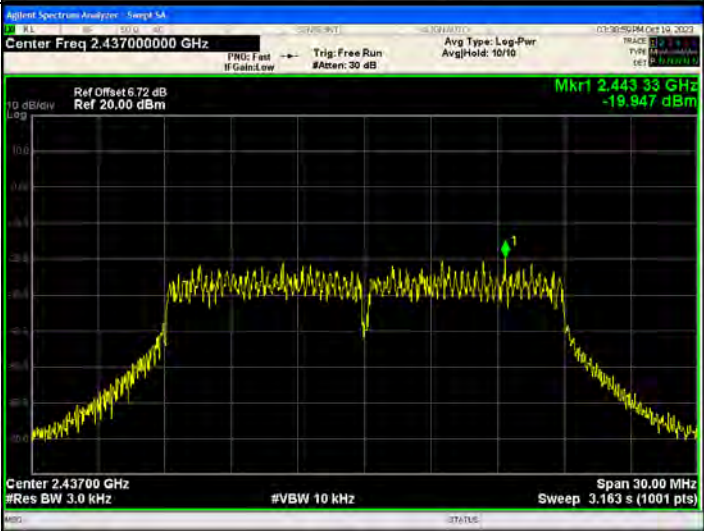
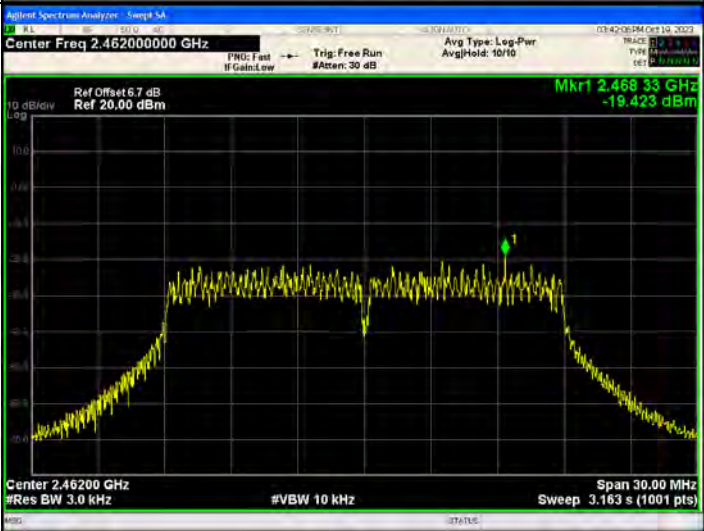
802.11b /MCH

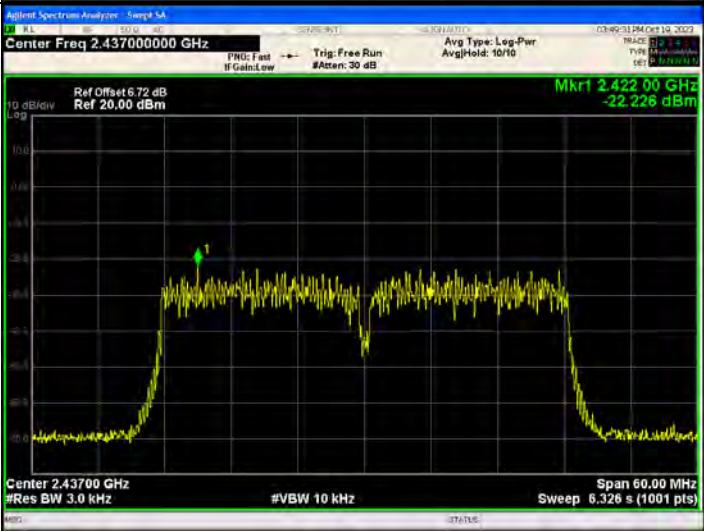
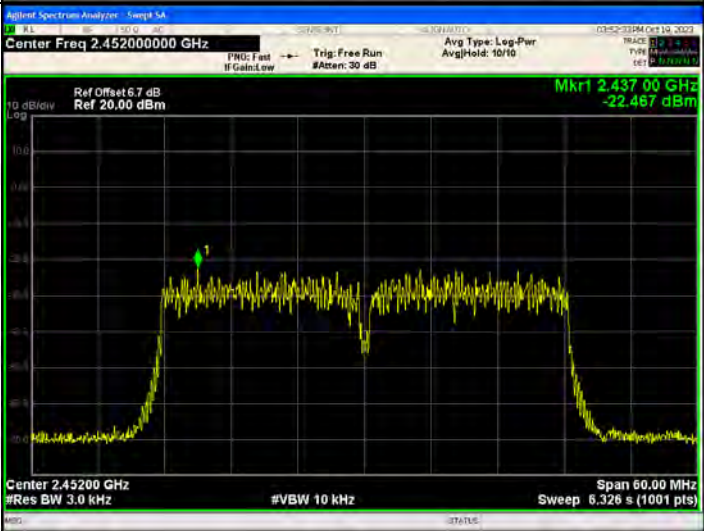


802.11b/HCH



802.11g/LCH	
802.11g/MCH	
802.11g/HCH	

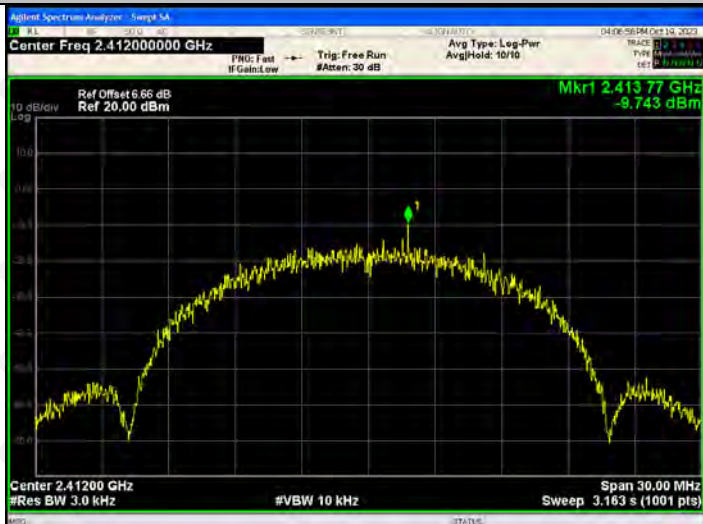
802.11n(HT20)/LC H	
802.11n(HT20)/MC H	
802.11n(HT20)/HC H	

802.11n(HT40)/LC H	
802.11n(HT40)/MC H	
802.11n(HT40)/HC H	

ANT 2: Test Graph

Graphs

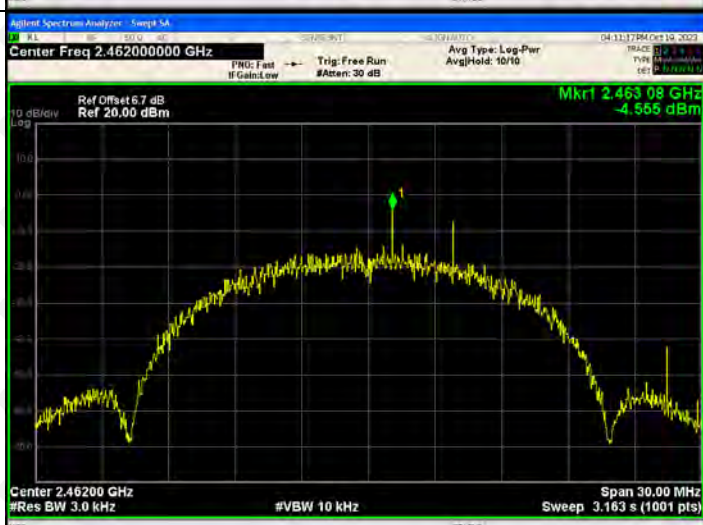
802.11b /LCH

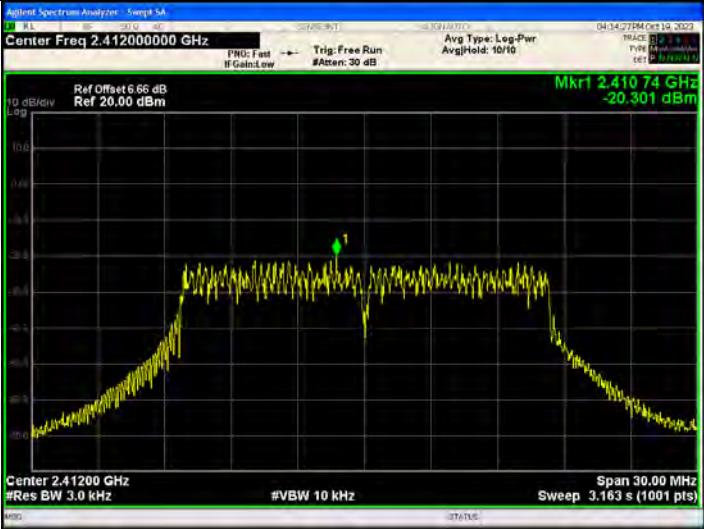


802.11b /MCH

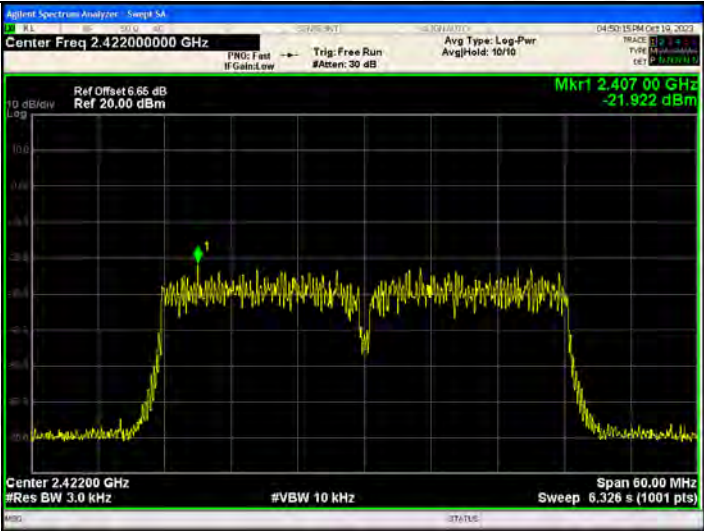
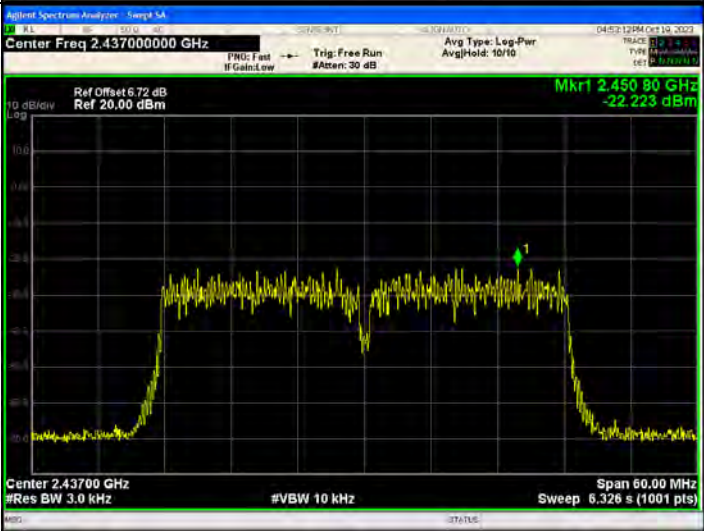
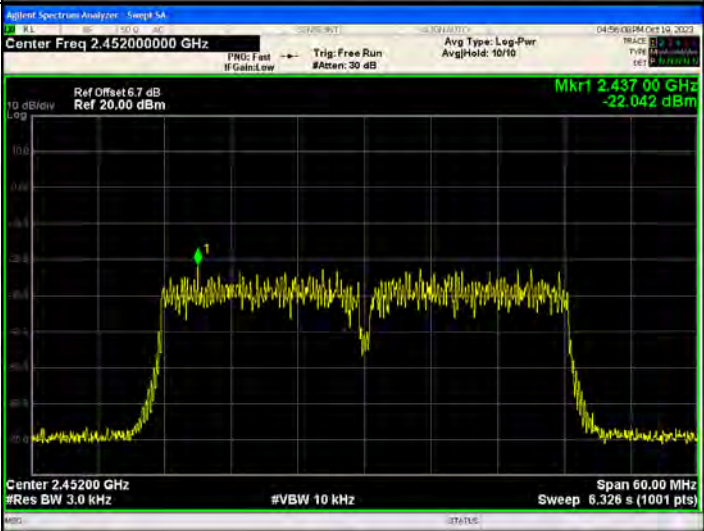


802.11b/HCH



802.11g/LCH	
802.11g/MCH	
802.11g/HCH	

802.11n(HT20)/LC H	
802.11n(HT20)/MC H	
802.11n(HT20)/HC H	

802.11n(HT40)/LC H	
802.11n(HT40)/MC H	
802.11n(HT40)/HC H	

12. 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(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

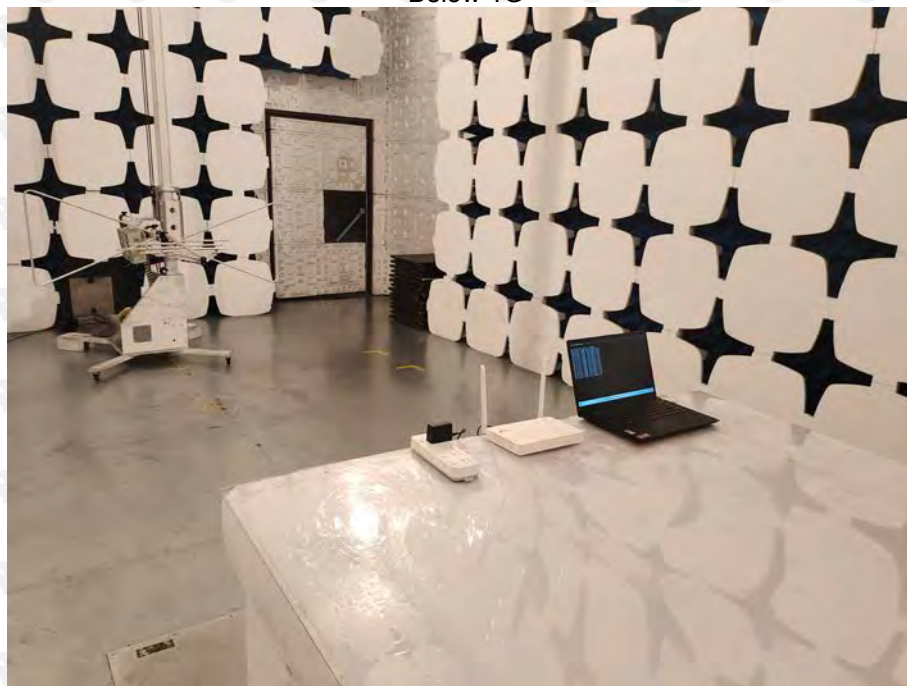
EUT Antenna:

The antenna is External antenna and no consideration of replacement. The best case gain of the antenna is 3.34dBi.

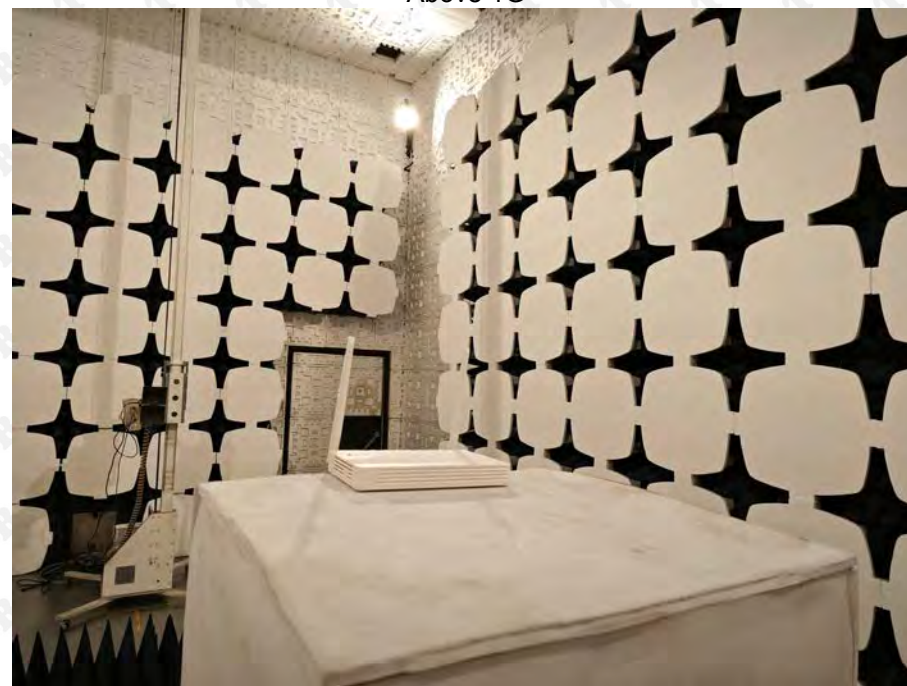
13. EUT TEST SETUP PHOTOGRAPHS

Radiated Emission

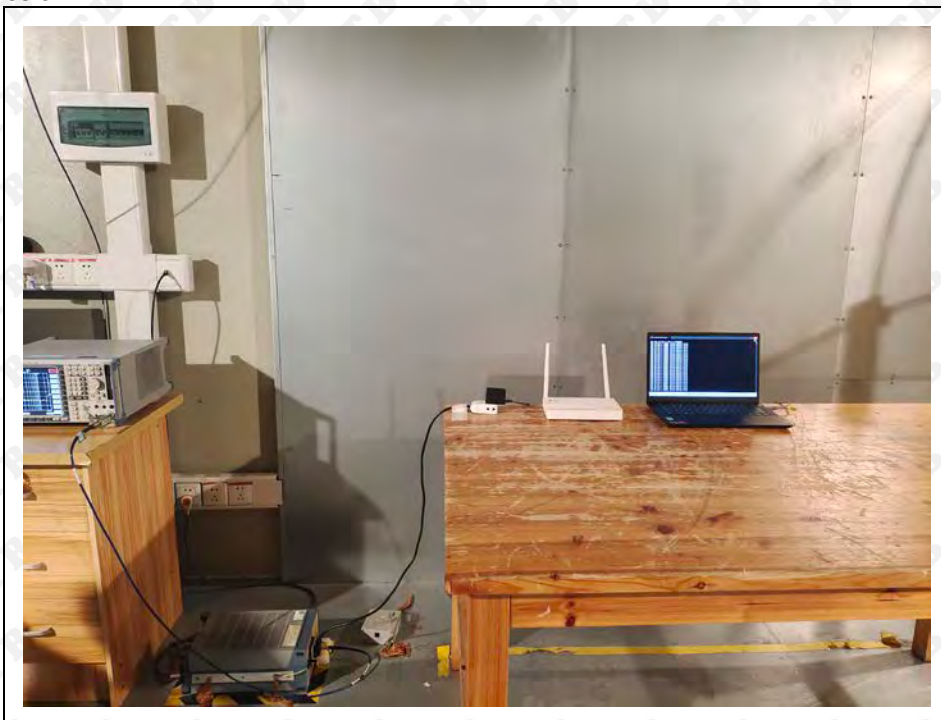
Below 1G



Above 1G



Conducted Emission



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