

# TEST REPORT

Product Name: Laptop  
FCC ID: 2BGQN-P10  
Trademark: HUWINST  
Model Number: P10, P11, P12, P156, Z10, Z11, H10, H12, D156  
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Sample Received Date: May. 06, 2024  
Sample tested Date: May. 06, 2024 to May. 25, 2024  
Issue Date: May. 25, 2024  
Report No.: CTB240525001RF  
Test Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247  
ANSI C63.10:2013  
Test Results: PASS  
Remark: This is WIFI-2.4GHZ band radio test report.

Compiled by:

Reviewed by:

Approved by:

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Arron Liu



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Arron Liu

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
CTB240525001RF	May. 25, 2024	Original	Valid

## 2. TEST SUMMARY

The Product has been tested according to the following specifications:

Test Item	Test Requirement	Test method	Result
<b>AC Power Line Conducted Emission</b>	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
<b>Radiated Spurious emissions</b>	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS
<b>Band edge and RF Conducted Spurious Emissions</b>	47 CFR Part 15 Subpart C Section 15.247(d)/15.205(a)	ANSI C63.10-2013	PASS
<b>Conducted Peak Output Power</b>	47 CFR Part 15 Subpart C Section 15.247 (b)(3)	ANSI C63.10-2013	PASS
<b>6dB Occupied Bandwidth</b>	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	ANSI C63.10-2013	PASS
<b>Power Spectral Density</b>	47 CFR Part 15 Subpart C Section 15.247 (e)	ANSI C63.10-2013/ KDB 558074 D01 v05r02	PASS
<b>Antenna Requirement</b>	47 CFR Part 15 Subpart C Section 15.203/15.247 (b)	/	PASS
<b>RF Exposure Evaluation</b>	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℃
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):	P10, P11, P12, P156, Z10, Z11, H10, H12, D156
Model Description:	All the model are the same circuit and RF module, only different for model name. Test sample model: P10
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): 17.093dBm
Type of Modulation:	WiFi: DSSS, OFDM
Antenna installation:	WiFi: FPC antenna
Antenna Gain:	WiFi (2.4G): Ant1: 3.17dBi Ant2: 3.17dBi
Ratings:	DC 5V charging from adapter DC 3.7V by battery

##### 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/TypeNo.	SeriesNo.	Note
1	Monitor	DELL	SE2218HV	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 3.17dBi 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)=3.01dBi,  
 So the directional gain for PSD is 6.18dBi.

2) For power measurements,  
 The Array gain=0 dB for NANT≤4,  
 So the directional gain for Power measurements is 3.17dBi

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):	3.7V
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, Xinh 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

No.	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	A.14.16	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	V3.5.80	2024.07.05
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2024.07.05
6	Signal Generator	Agilent	N5181A	MY50140365	A.01.60	2024.07.05
7	Vector signal generator	Agilent	N5182A	MY47420195	A.01.87	2024.07.05
8	Communication test set	Agilent	E5515C	MY50102567	B.19.07 (E1962B)	2024.07.06
9	2.4 GHz Filter	Shenxiang	MSF2400-24 83.5MS-1154	20181015001	/	2024.07.05
10	5 GHz Filter	Shenxiang	MSF5150-58 50MS-1155	20181015001	/	2024.07.06
11	Filter	Xingbo	XBLBQ-DZA 120	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	/	2024.10.30
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	RF_ATTEN_7 (104489/003)	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	/	2024.10.30
26	Amplifier	AEROFLEX	Aeroflex	097	/	2024.07.05
27	Power Metter	KEYSIGHT	N1912AP	N/A	A.05.00	2024.07.05

#### Continuous disturbance

No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware Version	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	V4.42.SP3	2024.07.05
4	Coaxial cable	ZDECL	Z302S-NJ-SM AJ-12M	18091905	/	2024.07.05
5	ISN	Schwarzbeck	NTFM8158	183	/	2024.07.05
6	Communication test set	Agilent	E5515C	MY50102567	B.19.07 (E1962B)	2024.07.05
7	Communication test set	R&S	CMW500	108058	V3.5.80	2024.07.05
8	EZ-EMC	Frad	EMC-con3A1.1	/	/	/

#### Radiated emission

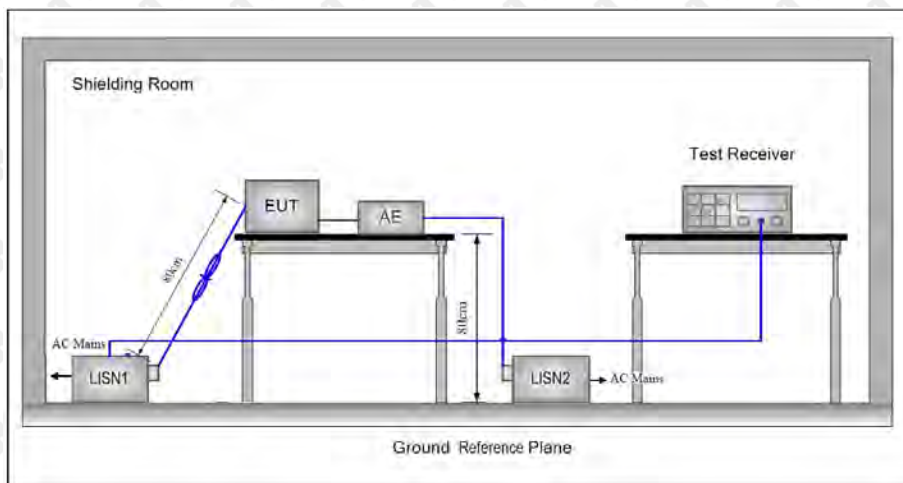
No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware Version	Calibrated until
1	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120 D	01911	/	2024.07.08
2	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	/	2024.07.08
3	Amplifier	Agilent	8449B	3008A01838	/	2024.07.05
4	Amplifier	HP	8447E	2945A02747	/	2024.07.05
5	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100428/003	V4.42.SP3	2024.07.05
6	Coaxial cable	ETS	RFC-SNS-100-N MS-80 NI	/	/	2024.07.05
7	Coaxial cable	ETS	RFC-SNS-100-N MS-20 NI	/	/	2024.07.05
8	Coaxial cable	ETS	RFC-SNS-100-S MS-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	B.19.07 (E1962B)	2024.07.05
11	Communication test set	R&S	CMW500	108058	V3.5.80	2024.07.05



12	EZ-EMC	Frad	EMC-con3A1.1	/	/	/
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## 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 (dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 <sup>Note 1</sup>	56 to 46 <sup>Note 1</sup>
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

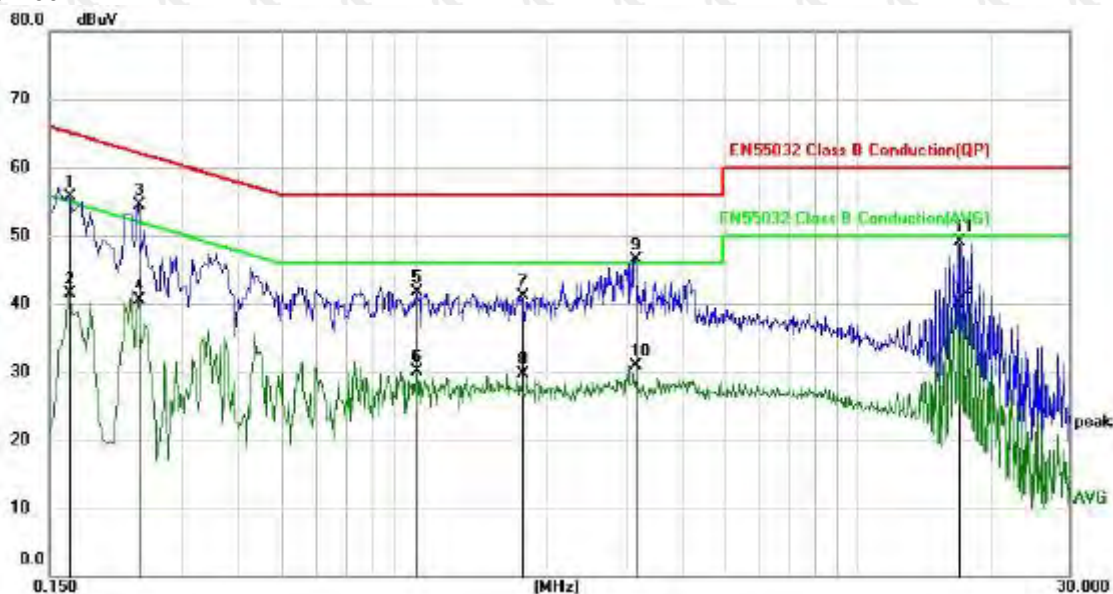
- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50 $\Omega$ /50 $\mu$ H + 5 $\Omega$  linear impedance. The power cables of all other units of the 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

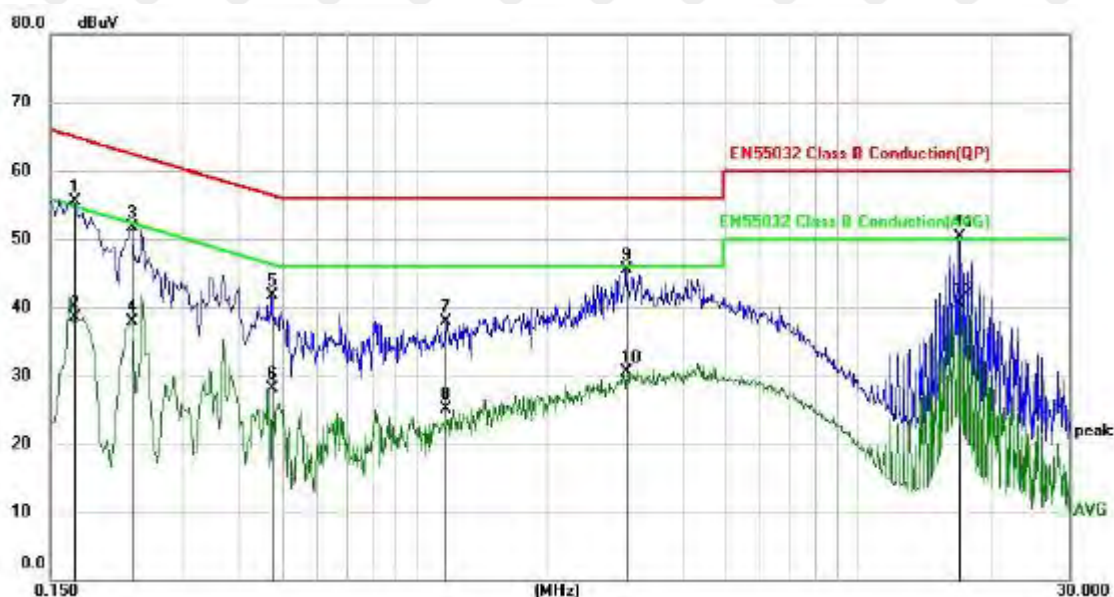
Test Specification: Line  
AC 120V 60Hz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV	dBuV	dB	
1		0.1660	45.81	9.95	55.76	65.16	-9.40	QP
2		0.1660	31.59	9.95	41.54	55.16	-13.62	AVG
3	*	0.2380	44.49	9.95	54.44	62.17	-7.73	QP
4		0.2380	30.57	9.95	40.52	52.17	-11.65	AVG
5		1.0100	31.70	10.01	41.71	56.00	-14.29	QP
6		1.0100	20.09	10.01	30.10	46.00	-15.90	AVG
7		1.7500	31.06	10.07	41.13	56.00	-14.87	QP
8		1.7500	19.55	10.07	29.62	46.00	-16.38	AVG
9		3.1420	36.34	10.20	46.54	56.00	-9.46	QP
10		3.1420	20.66	10.20	30.86	46.00	-15.14	AVG
11		16.8860	38.39	10.76	49.15	60.00	-10.85	QP
12		16.8860	29.26	10.76	40.02	50.00	-9.98	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	*	0.1700	45.64	9.95	55.59	64.96	-9.37	QP
2		0.1700	28.50	9.95	38.45	54.96	-16.51	AVG
3		0.2300	41.76	9.95	51.71	62.45	-10.74	QP
4		0.2300	27.97	9.95	37.92	52.45	-14.53	AVG
5		0.4740	31.66	9.99	41.65	56.44	-14.79	QP
6		0.4740	18.02	9.99	28.01	46.44	-18.43	AVG
7		1.1740	27.80	10.02	37.82	56.00	-18.18	QP
8		1.1740	15.05	10.02	25.07	46.00	-20.93	AVG
9		2.9940	35.41	10.19	45.60	56.00	-10.40	QP
10		2.9940	20.27	10.19	30.46	46.00	-15.54	AVG
11		16.8860	39.55	10.76	50.31	60.00	-9.69	QP
12		16.8860	29.73	10.76	40.49	50.00	-9.51	AVG

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

## 7. RADIATED SPURIOUS EMISSION

### 7.1 Block Diagram Of Test Setup

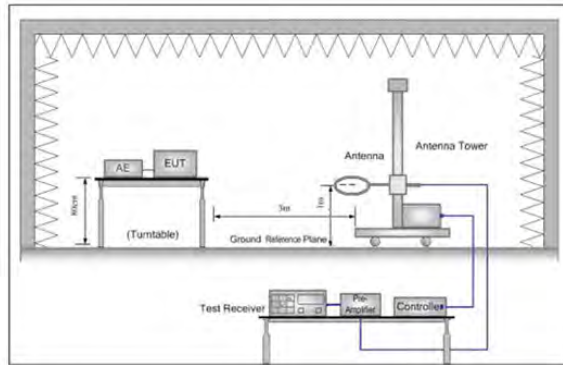


Figure 1. Below 30MHz

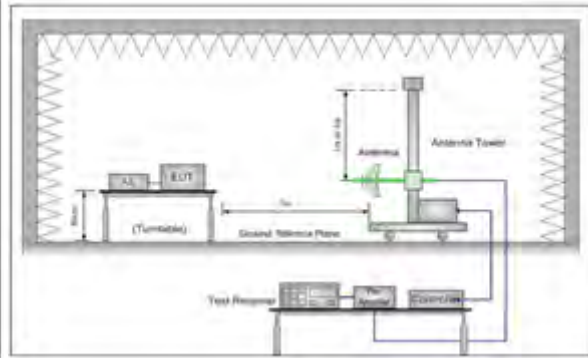


Figure 2. 30MHz to 1GHz

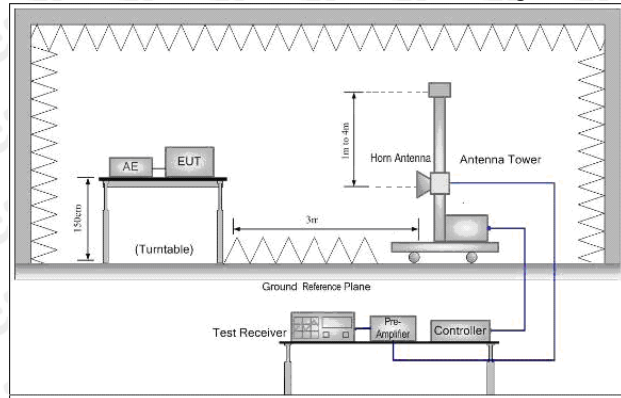


Figure 3. Above 1GHz

### 7.2 Limit

Spurious Emissions:

Frequency	Field strength (microvolt/meter)	Limit (dB $\mu$ 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. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		48.1626	34.79	-6.30	28.49	40.00	-11.51	QP
2		154.5493	36.16	-3.33	32.83	43.50	-10.67	QP
3		235.4033	43.92	-7.07	36.85	46.00	-9.15	QP
4		570.6100	34.34	1.87	36.21	46.00	-9.79	QP
5	*	789.2338	33.02	6.22	39.24	46.00	-6.76	QP
6		1000.000	30.02	7.87	37.89	54.00	-16.11	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	*	32.7486	40.01	-6.47	33.54	40.00	-6.46	QP
2		44.1202	35.61	-5.54	30.07	40.00	-9.93	QP
3		84.4054	34.55	-9.49	25.06	40.00	-14.94	QP
4		151.8632	38.09	-3.24	34.85	43.50	-8.65	QP
5		241.6763	39.96	-6.99	32.97	46.00	-13.03	QP
6		602.2814	31.52	2.67	34.19	46.00	-11.81	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 (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
4824	64.20	-3.64	60.56	74	-13.44	peak
4824	49.54	-3.64	45.90	54	-8.10	AVG
7236	57.86	-0.95	56.91	74	-17.09	peak
7236	45.62	-0.95	44.67	54	-9.33	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
4824	65.68	-3.64	62.04	74	-11.96	peak
4824	47.47	-3.64	43.83	54	-10.17	AVG
7236	57.96	-0.95	57.01	74	-16.99	peak
7236	44.91	-0.95	43.96	54	-10.04	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 (MHz)	Meter Reading (dBμV)	ingFactor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detecto Type
4874	64.19	-3.51	60.68	74	-13.32	peak
4874	50.20	-3.51	46.69	54	-7.31	AVG
7311	60.03	-0.82	59.21	74	-14.79	peak
7311	44.72	-0.82	43.90	54	-10.10	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	ingFactor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detecto Type
4874	62.83	-3.51	59.32	74	-14.68	peak
4874	48.90	-3.51	45.39	54	-8.61	AVG
7311	58.34	-0.82	57.52	74	-16.48	peak
7311	44.08	-0.82	43.26	54	-10.74	AVG

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

ANT1 HIGH CH11 (802.11b Mode)/2462

Horizontal:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detected Type
4924	64.68	-3.43	61.25	74	-12.75	peak
4924	47.97	-3.43	44.54	54	-9.46	AVG
7386	59.99	-0.75	59.24	74	-14.76	peak
7386	44.50	-0.75	43.75	54	-10.25	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detected Type
4924	62.93	-3.43	59.50	74	-14.50	peak
4924	46.57	-3.43	43.14	54	-10.86	AVG
7386	57.26	-0.75	56.51	74	-17.49	peak
7386	43.10	-0.75	42.35	54	-11.65	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier. Emission level  
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 (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824	65.37	-3.64	61.73	74	-12.27	peak
4824	49.84	-3.64	46.20	54	-7.80	AVG
7236	58.17	-0.95	57.22	74	-16.78	peak
7236	46.42	-0.95	45.47	54	-8.53	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
4824	65.15	-3.64	61.51	74	-12.49	peak
4824	49.44	-3.64	45.80	54	-8.20	AVG
7236	57.82	-0.95	56.87	74	-17.13	peak
7236	43.99	-0.95	43.04	54	-10.96	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 (MHz)	Meter Reading (dBμV)	Correction Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detection Type
4874	65.38	-3.51	61.87	74	-12.13	peak
4874	49.32	-3.51	45.81	54	-8.19	AVG
7311	57.91	-0.82	57.09	74	-16.91	peak
7311	44.80	-0.82	43.98	54	-10.02	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Correction Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detection Type
4874	65.36	-3.51	61.85	74	-12.15	peak
4874	48.59	-3.51	45.08	54	-8.92	AVG
7311	59.11	-0.82	58.29	74	-15.71	peak
7311	42.71	-0.82	41.89	54	-12.11	AVG

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



ANT1 HIGH CH11 (802.11g Mode)/2462

Horizontal:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detected Type
4924	62.73	-3.43	59.30	74	-14.70	peak
4924	47.52	-3.43	44.09	54	-9.91	AVG
7386	59.50	-0.75	58.75	74	-15.25	peak
7386	44.82	-0.75	44.07	54	-9.93	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detected Type
4924	62.59	-3.43	59.16	74	-14.84	peak
4924	46.66	-3.43	43.23	54	-10.77	AVG
7386	58.06	-0.75	57.31	74	-16.69	peak
7386	41.37	-0.75	40.62	54	-13.38	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier. Emission level  
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 (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824	65.33	-3.64	61.69	74	-12.31	peak
4824	48.46	-3.64	44.82	54	-9.18	AVG
7236	57.29	-0.95	56.34	74	-17.66	peak
7236	44.13	-0.95	43.18	54	-10.82	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
4824	65.08	-3.64	61.44	74	-12.56	peak
4824	47.55	-3.64	43.91	54	-10.09	AVG
7236	56.92	-0.95	55.97	74	-18.03	peak
7236	43.28	-0.95	42.33	54	-11.67	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 (MHz)	Meter Reading (dBμV)	Correction Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detection Type
4874	65.76	-3.51	62.25	74	-11.75	peak
4874	48.12	-3.51	44.61	54	-9.39	AVG
7311	59.48	-0.82	58.66	74	-15.34	peak
7311	44.62	-0.82	43.80	54	-10.20	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Correction Factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detection Type
4874	63.82	-3.51	60.31	74	-13.69	peak
4874	48.48	-3.51	44.97	54	-9.03	AVG
7311	58.02	-0.82	57.20	74	-16.80	peak
7311	45.00	-0.82	44.18	54	-9.82	AVG

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

LOW CH1 (802.11n/H20 Mode)/2462

Horizontal:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detect Type
4924	63.01	-3.43	59.58	74	-14.42	peak
4924	47.25	-3.43	43.82	54	-10.18	AVG
7386	59.50	-0.75	58.75	74	-15.25	peak
7386	45.10	-0.75	44.35	54	-9.65	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detect Type
4924	62.58	-3.43	59.15	74	-14.85	peak
4924	47.23	-3.43	43.80	54	-10.20	AVG
7386	58.13	-0.75	57.38	74	-16.62	peak
7386	43.65	-0.75	42.90	54	-11.10	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier. Emission level  
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 (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4844	63.37	-3.63	59.74	74	-14.26	peak
4844	49.43	-3.63	45.80	54	-8.20	AVG
7266	57.52	-0.94	56.58	74	-17.42	peak
7266	46.68	-0.94	45.74	54	-8.26	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4844	64.40	-3.63	60.77	74	-13.23	peak
4844	48.00	-3.63	44.37	54	-9.63	AVG
7266	58.97	-0.94	58.03	74	-15.97	peak
7266	45.26	-0.94	44.32	54	-9.68	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 (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
4874	63.32	-3.51	59.81	74	-14.19	peak
4874	47.85	-3.51	44.34	54	-9.66	AVG
7311	59.27	-0.82	58.45	74	-15.55	peak
7311	45.18	-0.82	44.36	54	-9.64	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
4874	62.29	-3.51	58.78	74	-15.22	peak
4874	46.45	-3.51	42.94	54	-11.06	AVG
7311	56.64	-0.82	55.82	74	-18.18	peak
7311	43.32	-0.82	42.50	54	-11.50	AVG

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

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

Horizontal:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Correction Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
4904	64.76	-3.43	61.33	74	-12.67	peak
4904	49.20	-3.43	45.77	54	-8.23	AVG
7356	55.72	-0.75	54.97	74	-19.03	peak
7356	43.10	-0.75	42.35	54	-11.65	AVG

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

Vertical:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Correction Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
4904	64.40	-3.43	60.97	74	-13.03	peak
4904	47.83	-3.43	44.40	54	-9.60	AVG
7356	57.14	-0.75	56.39	74	-17.61	peak
7356	42.47	-0.75	41.72	54	-12.28	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier. Emission level  
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)	(dB $\mu$ V)	(dB)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)	
2390	56.68	-5.81	50.87	74	-23.13	peak
2390	/	-5.81	/	54	/	AVG
2399	64.86	-5.84	59.02	74	-14.98	peak
2399	49.75	-5.84	43.91	54	-10.09	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)	(dB $\mu$ V)	(dB)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)	
2390	57.75	-5.81	51.94	74	-22.06	peak
2390	/	-5.81	/	54	/	AVG
2399	62.68	-5.84	56.84	74	-17.16	peak
2399	47.84	-5.84	42.00	54	-12.00	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)	(dB $\mu$ V)	(dB)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)	
2483.5	57.05	-5.65	51.40	74	-22.60	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)	(dB $\mu$ V)	(dB)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)	
2483.5	56.82	-5.65	51.17	74	-22.83	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	58.54	-5.81	52.73	74	-21.27	peak
2390	/	-5.81	/	54	/	AVG
2399	63.03	-5.84	57.19	74	-16.81	peak
2399	46.28	-5.84	40.44	54	-13.56	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	56.03	-5.81	50.22	74	-23.78	peak
2390	/	-5.81	/	54	/	AVG
2399	62.04	-5.84	56.20	74	-17.80	peak
2399	47.17	-5.84	41.33	54	-12.67	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	56.35	-5.65	50.70	74	-23.30	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/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	56.91	-5.81	51.10	74	-22.90	peak
2390	/	-5.81	/	54	/	AVG
2399	62.18	-5.84	56.34	74	-17.66	peak
2399	47.89	-5.84	42.05	54	-11.95	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	57.50	-5.81	51.69	74	-22.31	peak
2390	/	-5.81	/	54	/	AVG
2399	59.95	-5.84	54.11	74	-19.89	peak
2399	46.84	-5.84	41.00	54	-13.00	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	57.24	-5.65	51.59	74	-22.41	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	56.25	-5.65	50.60	74	-23.40	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	58.68	-5.81	52.87	74	-21.13	peak
2390	/	-5.81	/	54	/	AVG
2399	62.71	-5.84	56.87	74	-17.13	peak
2399	46.73	-5.84	40.89	54	-13.11	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	58.35	-5.81	52.54	74	-21.46	peak
2390	/	-5.81	/	54	/	AVG
2399	61.41	-5.84	55.57	74	-18.43	peak
2399	45.27	-5.84	39.43	54	-14.57	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	57.74	-5.65	52.09	74	-21.91	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:

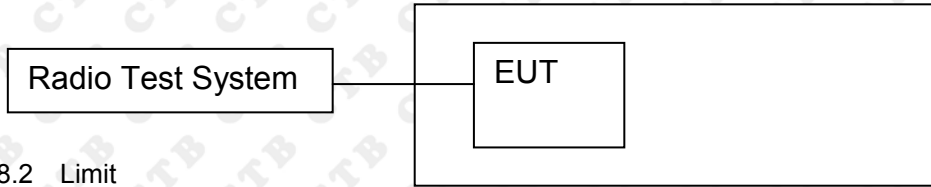
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	55.70	-5.65	50.05	74	-23.95	peak
2483.5	/	-5.65	/	54	/	AVG

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

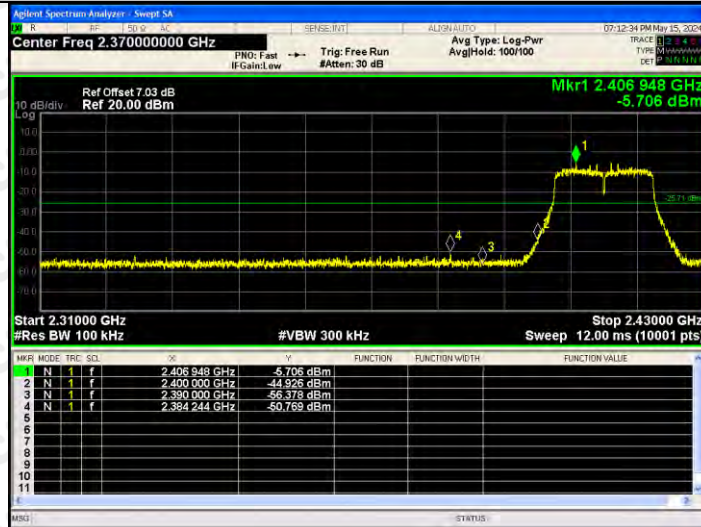


8.4 Test Result  
ANT1:

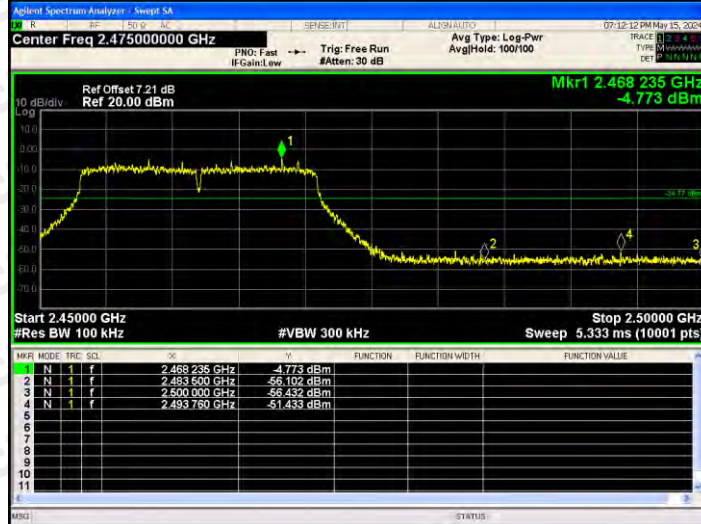


## BAND EDGE Graphs

802.11g/LCH

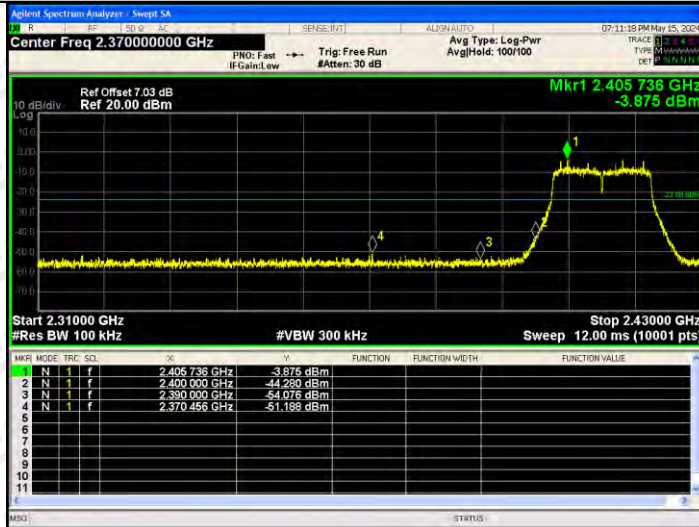


802.11g/HCH

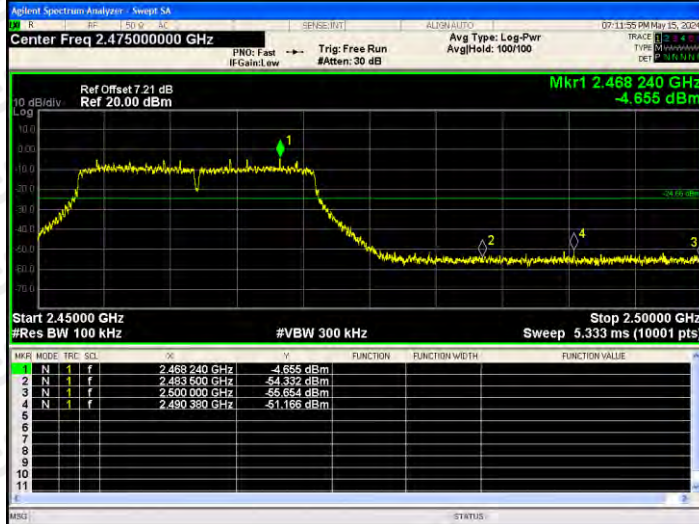


## BAND EDGE Graphs

802.11n(HT20)/L  
CH

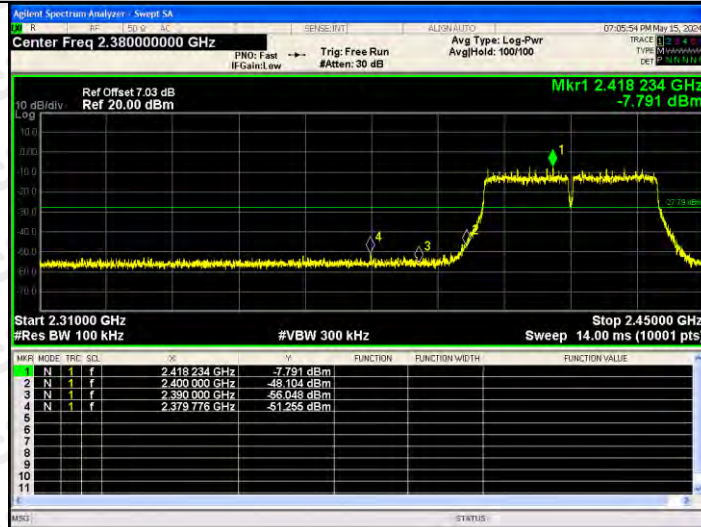


802.11n(HT20)/H  
CH

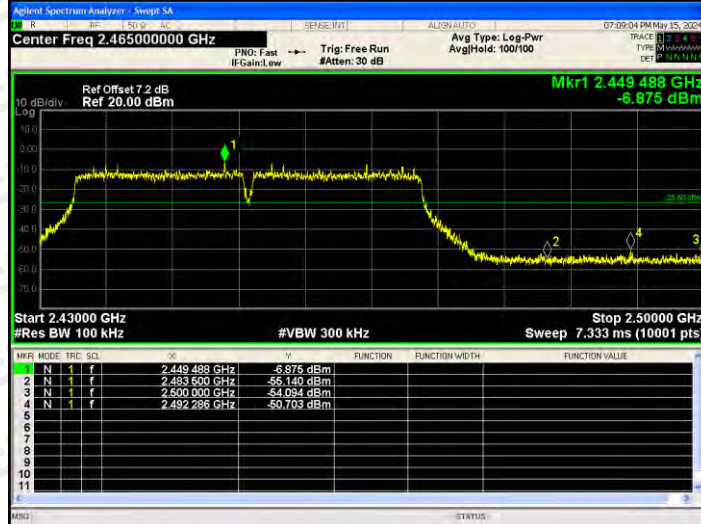


## BAND EDGE Graphs

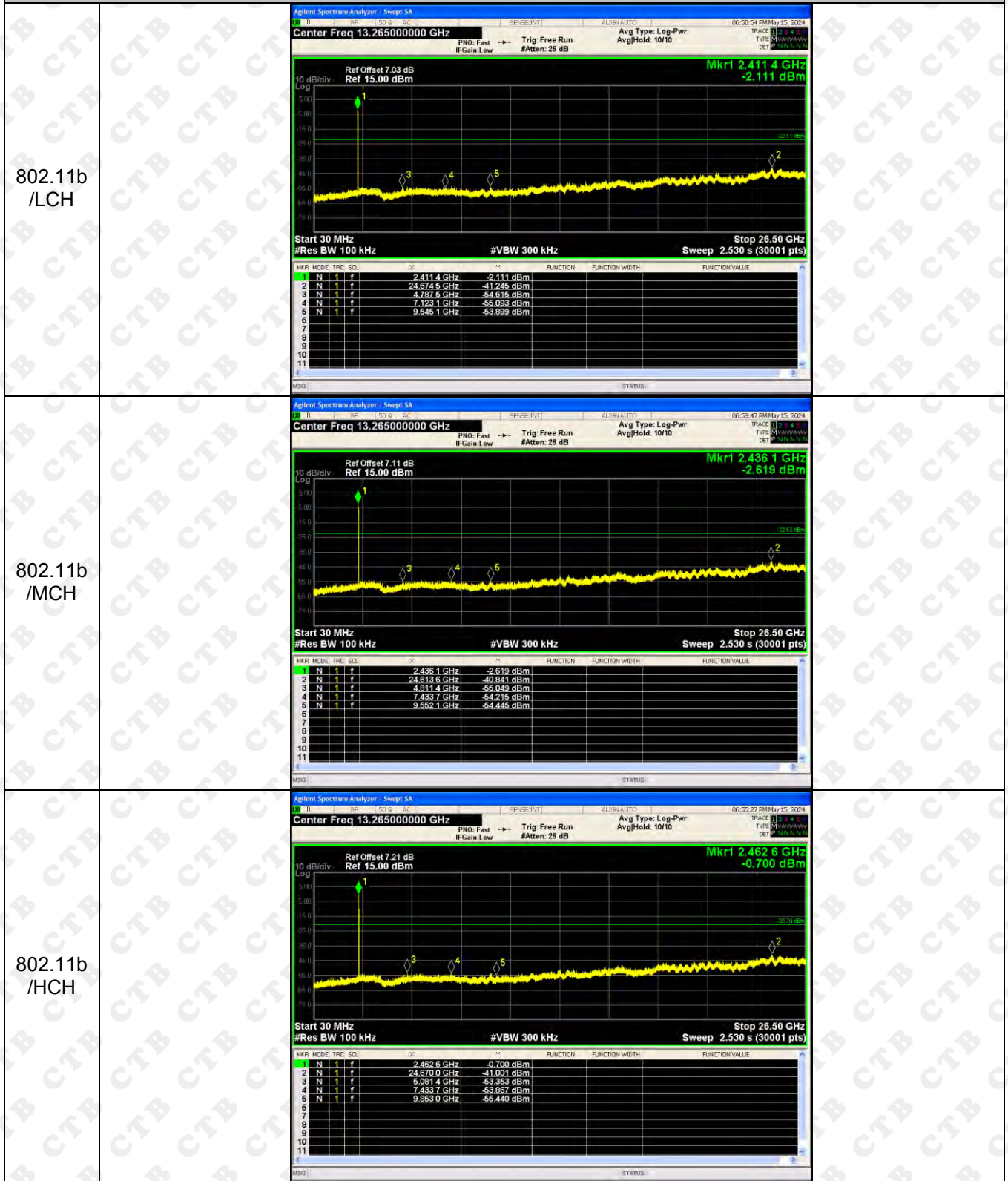
802.11n(HT40)/L  
CH



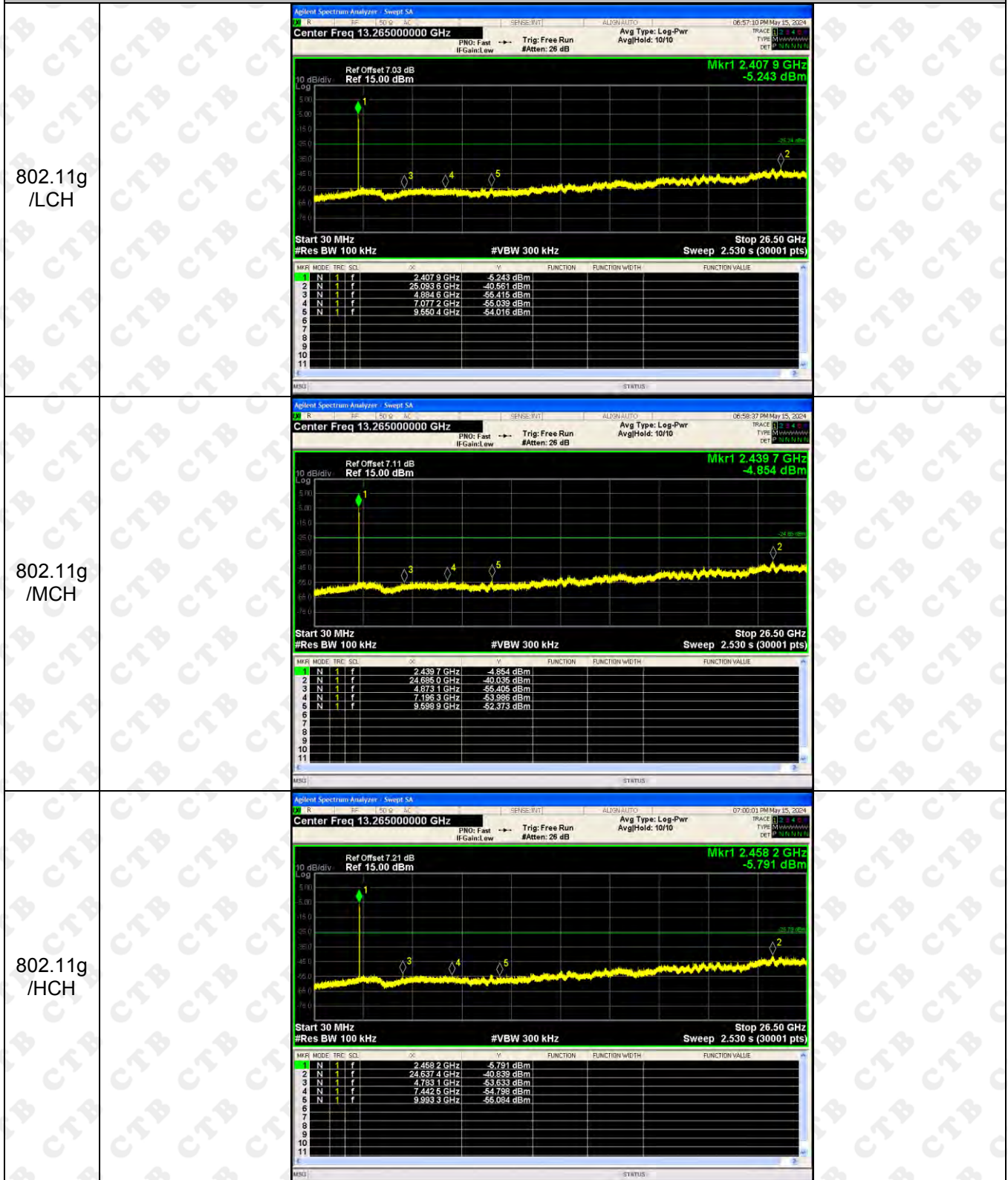
802.11n(HT40)/H  
CH



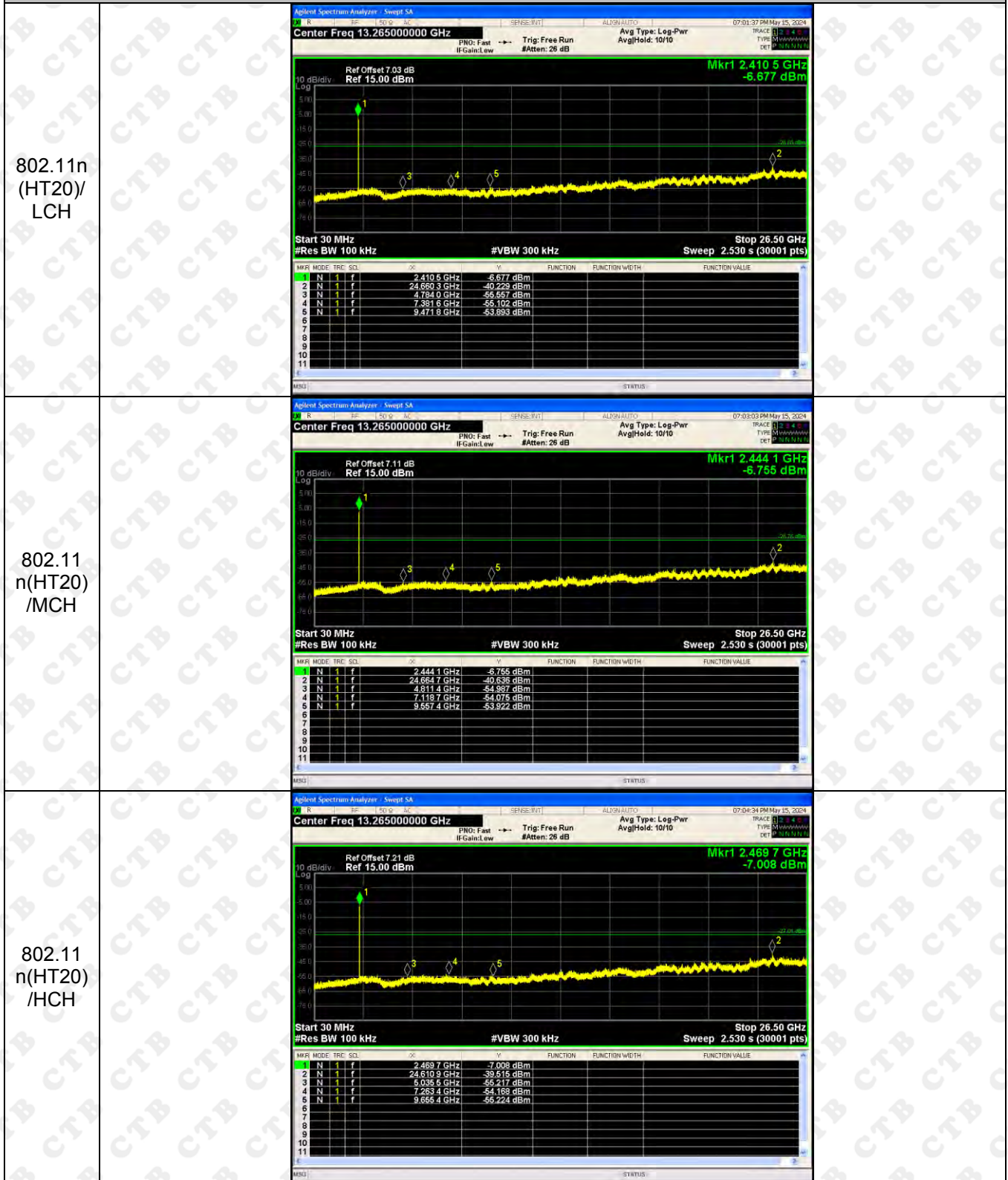
RF Conducted Spurious Emissions Graphs

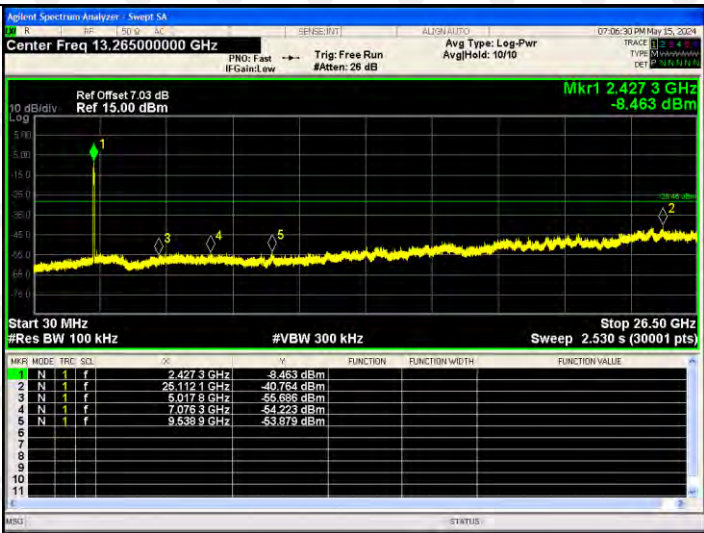
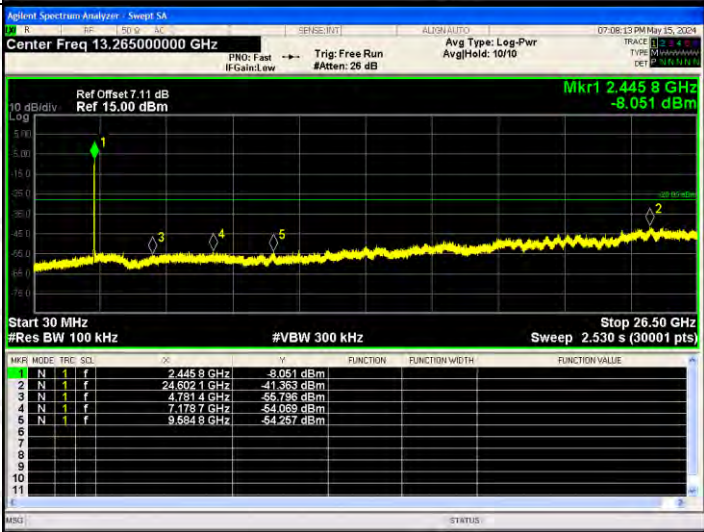
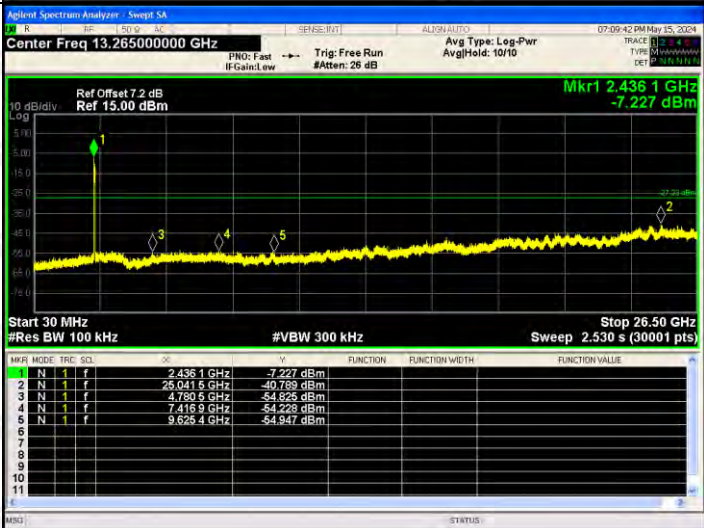


## RF Conducted Spurious Emissions Graphs



## RF Conducted Spurious Emissions Graphs



<p>802.11n (HT40)/ LCH</p>	 <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SOL</th> <th>F</th> <th>dBm</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.4273 GHz</td> <td>-8.463 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>26.1121 GHz</td> <td>-40.764 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>1</td> <td>f</td> <td>5.0119 GHz</td> <td>-56.636 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>1</td> <td>f</td> <td>7.0753 GHz</td> <td>-54.223 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>N</td> <td>1</td> <td>f</td> <td>9.6389 GHz</td> <td>-53.879 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SOL	F	dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.4273 GHz	-8.463 dBm				2	N	1	f	26.1121 GHz	-40.764 dBm				3	N	1	f	5.0119 GHz	-56.636 dBm				4	N	1	f	7.0753 GHz	-54.223 dBm				5	N	1	f	9.6389 GHz	-53.879 dBm				
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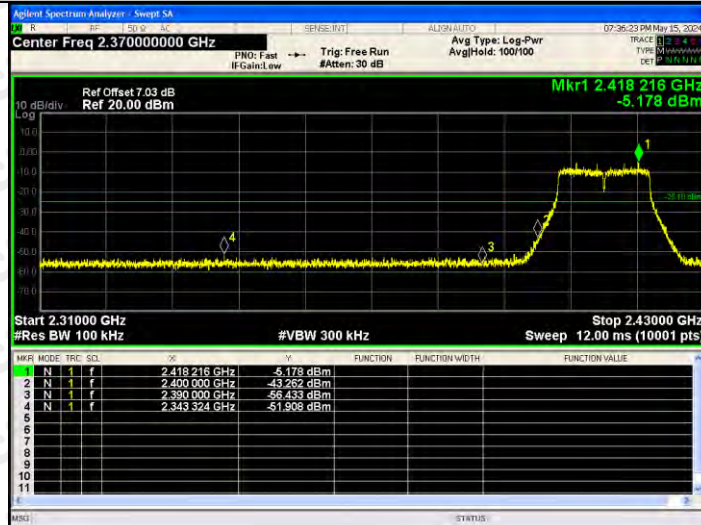


ANT2:

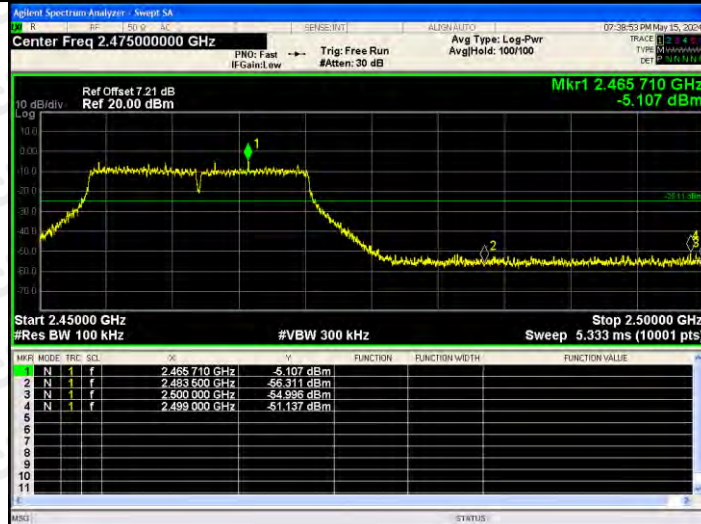


## BAND EDGE Graphs

802.11g/LCH

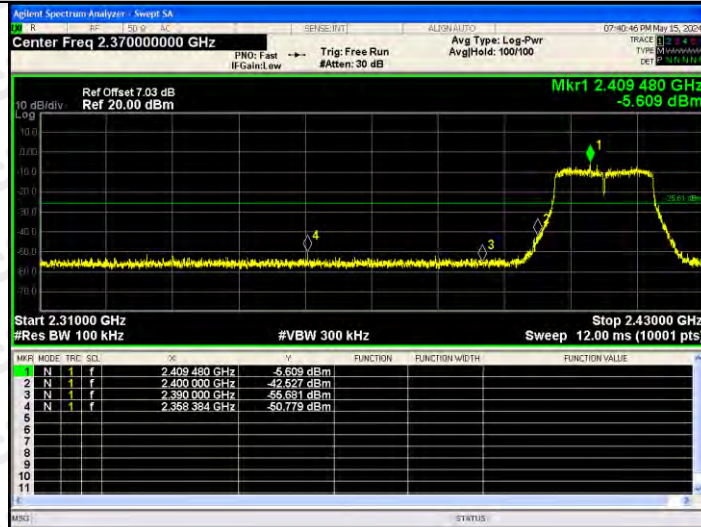


802.11g/HCH

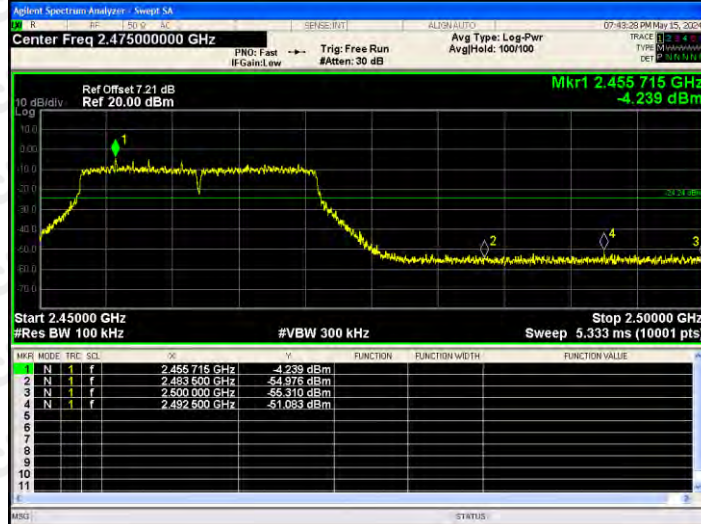


## BAND EDGE Graphs

802.11n(HT20)/L  
CH

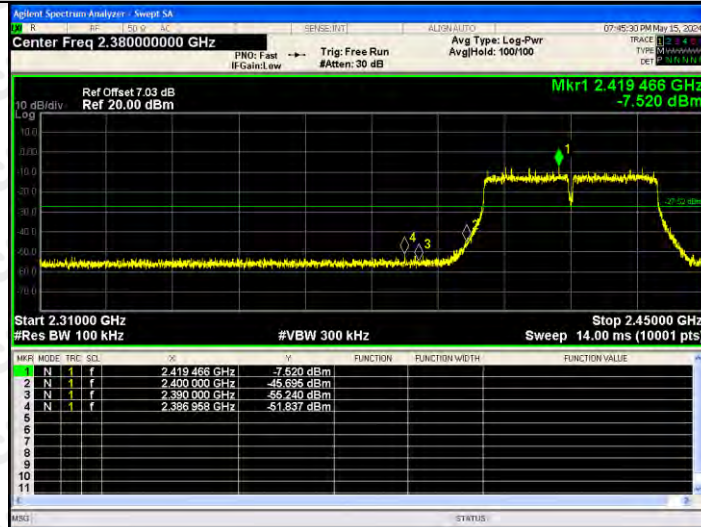


802.11n(HT20)/H  
CH

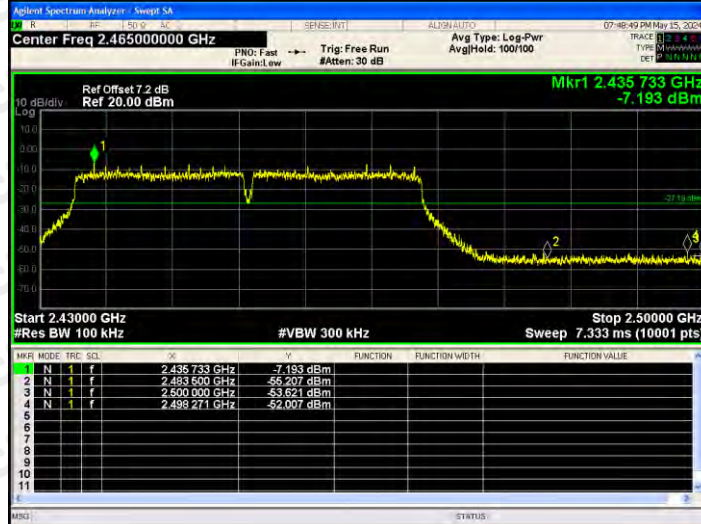


## BAND EDGE Graphs

802.11n(HT40)/L  
CH



802.11n(HT40)/H  
CH



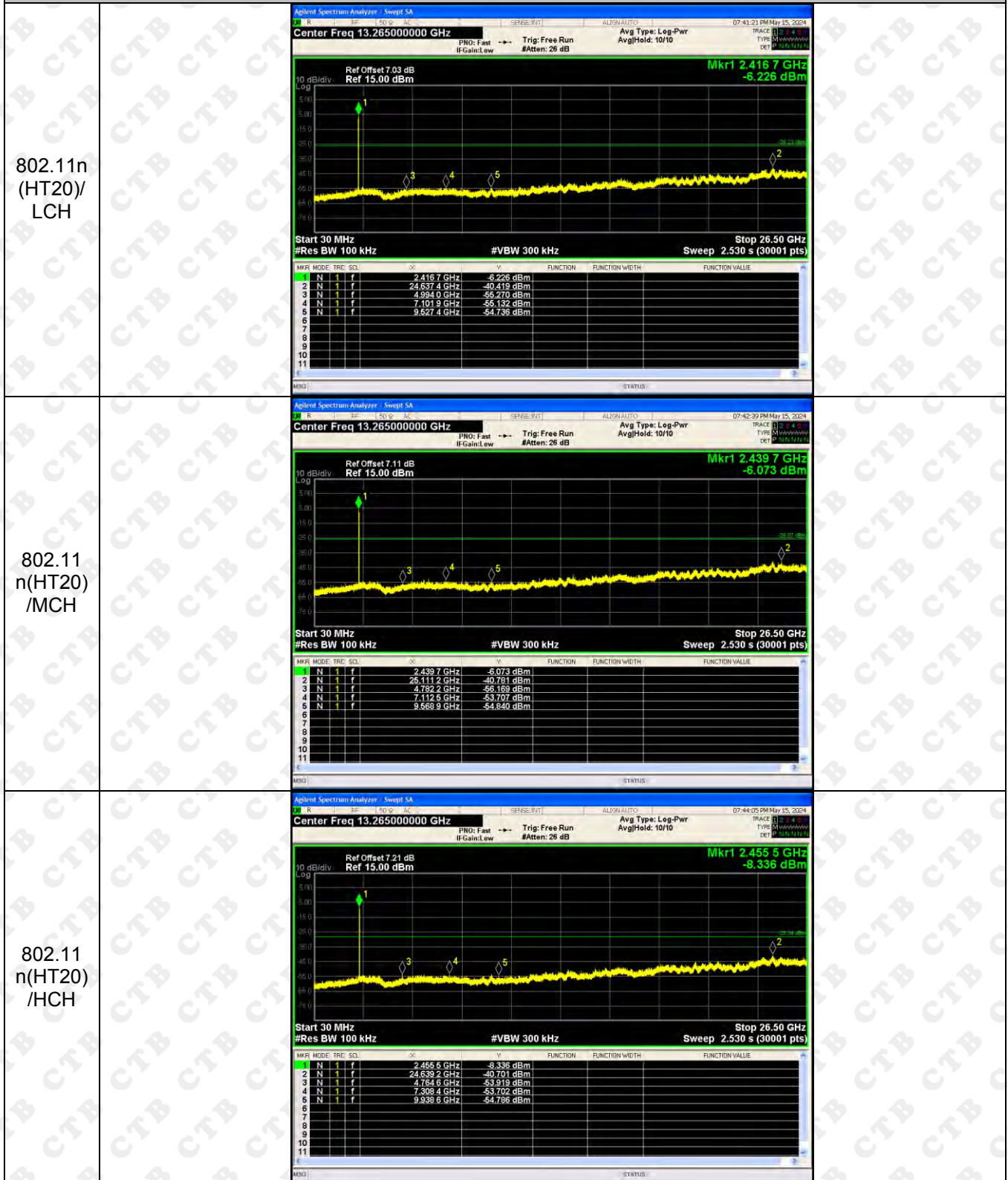
## RF Conducted Spurious Emissions Graphs



## RF Conducted Spurious Emissions Graphs

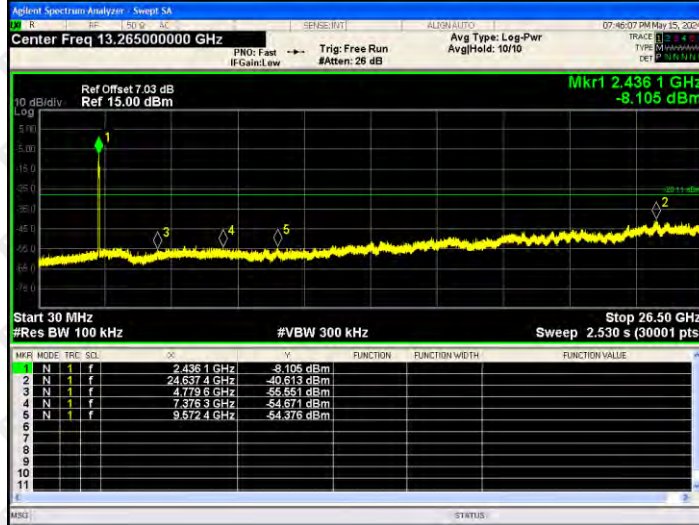


## RF Conducted Spurious Emissions Graphs

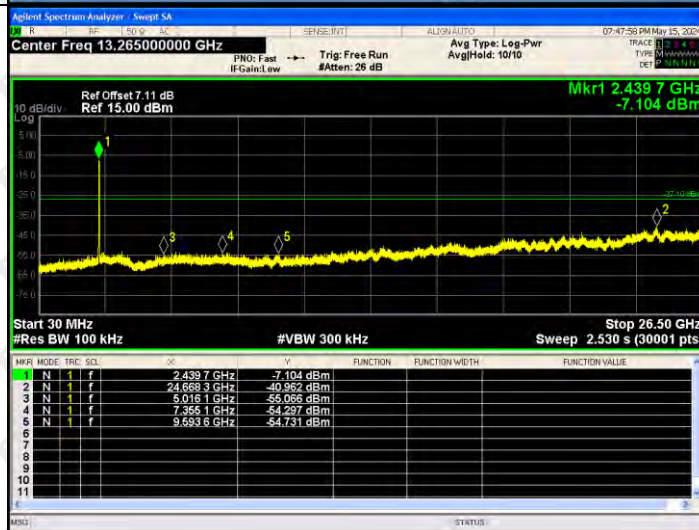


## RF Conducted Spurious Emissions Graphs

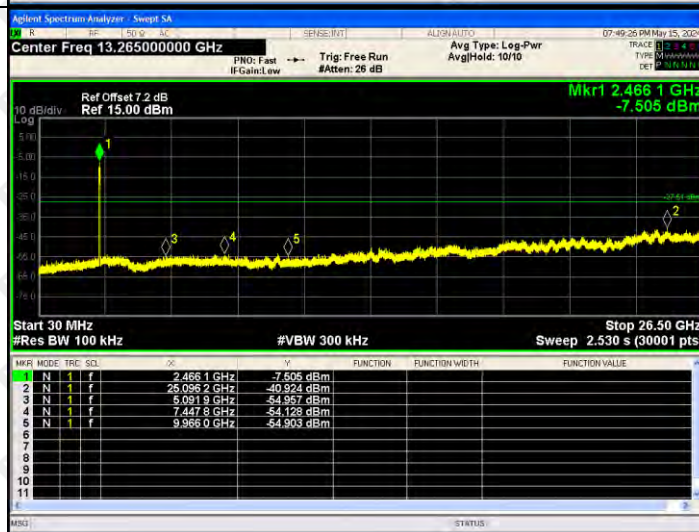
802.11  
n(HT40)  
/LCH



802.11  
n(HT40)  
/MCH



802.11  
n(HT40)  
/HCH





## 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)	Maximum Conducted Output Power	1 watt or 30dBm	2400-2483.5	PASS

### 9.3 Test procedure

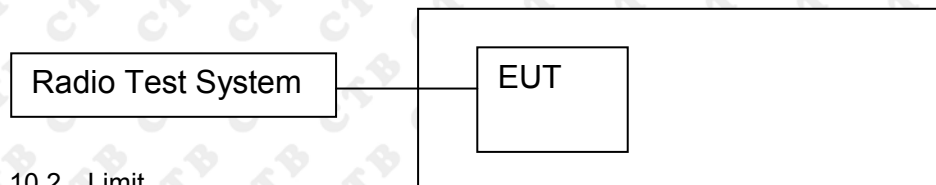
1. The EUT was directly connected to the Power meter

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	14.222	15.052	/	30
	MCH	14.813	15.071	/	30
	HCH	14.698	14.889	/	30
802.11g	LCH	13.809	13.521	/	30
	MCH	14.087	13.767	/	30
	HCH	14.03	13.612	/	30
802.11n(HT20)	LCH	13.866	13.308	16.606	30
	MCH	14.038	14.127	17.093	30
	HCH	14.038	13.522	16.798	30
802.11n(HT40)	LCH	13.448	13.458	16.463	30
	MCH	13.817	13.809	16.823	30
	HCH	13.733	13.797	16.775	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)  $\geq 3 \times$  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	10.035	500	<b>PASS</b>
	MCH	10.262	500	<b>PASS</b>
	HCH	10.179	500	<b>PASS</b>
802.11g	LCH	16.384	500	<b>PASS</b>
	MCH	16.367	500	<b>PASS</b>
	HCH	16.398	500	<b>PASS</b>
802.11n(HT20)	LCH	17.08	500	<b>PASS</b>
	MCH	17.553	500	<b>PASS</b>
	HCH	16.924	500	<b>PASS</b>
802.11n(HT40)	LCH	35.569	500	<b>PASS</b>
	MCH	35.943	500	<b>PASS</b>
	HCH	35.756	500	<b>PASS</b>

ANT2:

Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	10.165	500	<b>PASS</b>
	MCH	9.808	500	<b>PASS</b>
	HCH	10.037	500	<b>PASS</b>
802.11g	LCH	16.357	500	<b>PASS</b>
	MCH	16.357	500	<b>PASS</b>
	HCH	16.394	500	<b>PASS</b>
802.11n(HT20)	LCH	16.934	500	<b>PASS</b>
	MCH	17.259	500	<b>PASS</b>
	HCH	17.311	500	<b>PASS</b>
802.11n(HT40)	LCH	35.807	500	<b>PASS</b>
	MCH	35.526	500	<b>PASS</b>
	HCH	35.523	500	<b>PASS</b>

ANT1:  
Test Graph:

Graphs	
<p>802.11b /LCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.41200000 GHz</p> <p>Center Freq: 2.41200000 GHz</p> <p>Trig: Free Run #Atten: 30 dB Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 7.03 dB Ref 27.03 dBm</p> <p>Mkr3 2.418973 GHz -6.6437 dBm</p> <p>Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 14.848 MHz Total Power 15.8 dBm</p> <p>Transmit Freq Error -44.085 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 10.04 MHz x dB -6.00 dB</p>
<p>802.11b /MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz</p> <p>Trig: Free Run #Atten: 30 dB Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 7.11 dB Ref 27.11 dBm</p> <p>Mkr3 2.442133 GHz -6.8596 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 14.851 MHz Total Power 16.3 dBm</p> <p>Transmit Freq Error 1.447 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 10.26 MHz x dB -6.00 dB</p>
<p>802.11b/HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Center Freq: 2.46200000 GHz</p> <p>Trig: Free Run #Atten: 30 dB Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 7.21 dB Ref 27.21 dBm</p> <p>Mkr3 2.466985 GHz -6.5849 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 14.828 MHz Total Power 16.1 dBm</p> <p>Transmit Freq Error -104.53 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 10.18 MHz x dB -6.00 dB</p>

<p>802.11g/LCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.41200000 GHz</p> <p>Center Freq: 2.41200000 GHz</p> <p>Trig: Free Run #Atten: 30 dB Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>10 dB/div Ref Offset 7.03 dB Ref 27.03 dBm</p> <p>Mkr3 2.420176 GHz -11.815 dBm</p> <p>Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 16.431 MHz Total Power 12.8 dBm</p> <p>Transmit Freq Error -16.297 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.38 MHz x dB -6.00 dB</p>
<p>802.11g/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz</p> <p>Trig: Free Run #Atten: 30 dB Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>10 dB/div Ref Offset 7.11 dB Ref 27.11 dBm</p> <p>Mkr3 2.445158 GHz -9.8987 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 16.454 MHz Total Power 13.0 dBm</p> <p>Transmit Freq Error -24.906 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.37 MHz x dB -6.00 dB</p>
<p>802.11g/HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Center Freq: 2.46200000 GHz</p> <p>Trig: Free Run #Atten: 30 dB Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>10 dB/div Ref Offset 7.21 dB Ref 27.21 dBm</p> <p>Mkr3 2.470163 GHz -9.9939 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 16.466 MHz Total Power 12.8 dBm</p> <p>Transmit Freq Error -35.314 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.40 MHz x dB -6.00 dB</p>

<p>802.11n(HT20)/LC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.41200000 GHz</p> <p>Center Freq: 2.41200000 GHz</p> <p>Trig: Free Run</p> <p>#Atten: 30 dB</p> <p>Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.03 dB</p> <p>Ref: 27.03 dBm</p> <p>Mkr3 2.420519 GHz</p> <p>-10.312 dBm</p> <p>Center 2.412 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz</p> <p>Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>12.8 dBm</td> </tr> <tr> <td colspan="3">17.621 MHz</td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table>	Occupied Bandwidth	Total Power	12.8 dBm	17.621 MHz			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	x dB	-6.00 dB
Occupied Bandwidth	Total Power	12.8 dBm											
17.621 MHz													
Transmit Freq Error	OBW Power	99.00 %											
x dB Bandwidth	x dB	-6.00 dB											
<p>802.11n(HT20)/MC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz</p> <p>Trig: Free Run</p> <p>#Atten: 30 dB</p> <p>Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.11 dB</p> <p>Ref: 27.11 dBm</p> <p>Mkr3 2.445756 GHz</p> <p>-10.530 dBm</p> <p>Center 2.437 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz</p> <p>Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>13.1 dBm</td> </tr> <tr> <td colspan="3">17.614 MHz</td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table>	Occupied Bandwidth	Total Power	13.1 dBm	17.614 MHz			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	x dB	-6.00 dB
Occupied Bandwidth	Total Power	13.1 dBm											
17.614 MHz													
Transmit Freq Error	OBW Power	99.00 %											
x dB Bandwidth	x dB	-6.00 dB											
<p>802.11n(HT20)/HC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Center Freq: 2.46200000 GHz</p> <p>Trig: Free Run</p> <p>#Atten: 30 dB</p> <p>Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.21 dB</p> <p>Ref: 27.21 dBm</p> <p>Mkr3 2.470436 GHz</p> <p>-10.919 dBm</p> <p>Center 2.462 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz</p> <p>Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>13.0 dBm</td> </tr> <tr> <td colspan="3">17.636 MHz</td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table>	Occupied Bandwidth	Total Power	13.0 dBm	17.636 MHz			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	x dB	-6.00 dB
Occupied Bandwidth	Total Power	13.0 dBm											
17.636 MHz													
Transmit Freq Error	OBW Power	99.00 %											
x dB Bandwidth	x dB	-6.00 dB											



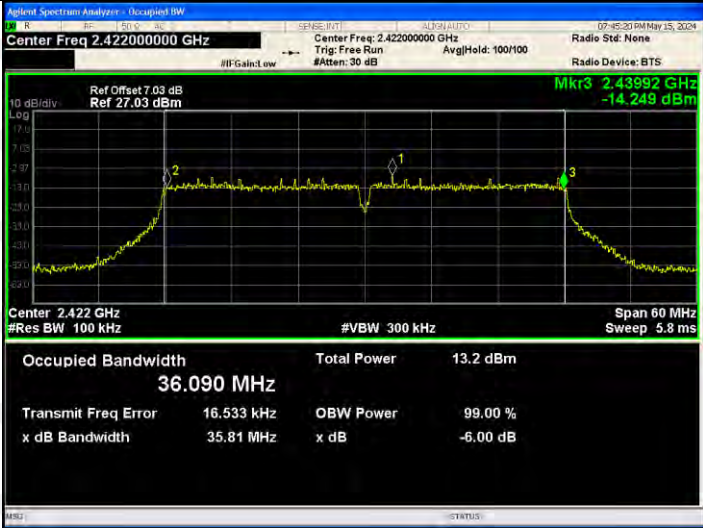

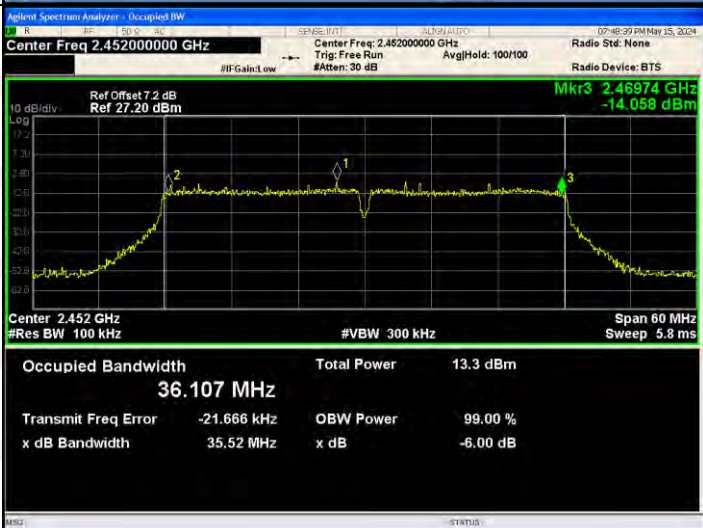
<p>802.11n(HT40)/LC H</p>		
<p>802.11n(HT40)/MC H</p>		
<p>802.11n(HT40)/HC H</p>		

ANT2:  
Test Graph:



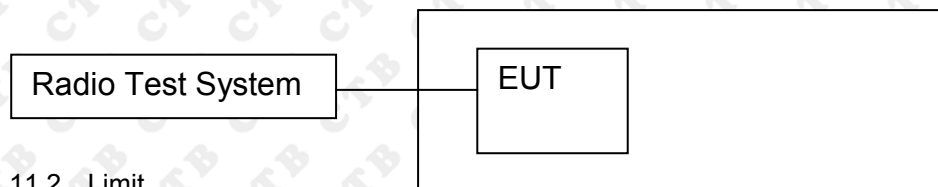
<p>802.11g/LCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.41200000 GHz</p> <p>Center Freq: 2.41200000 GHz</p> <p>Trig: Free Run #Atten: 30 dB AvgHld: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.03 dB Ref: 27.03 dBm</p> <p>Mkr3 2.420156 GHz -10.310 dBm</p> <p>Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 16.464 MHz Total Power 12.5 dBm</p> <p>Transmit Freq Error -22.999 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.36 MHz x dB -6.00 dB</p>
<p>802.11g/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz</p> <p>Trig: Free Run #Atten: 30 dB AvgHld: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.11 dB Ref: 27.11 dBm</p> <p>Mkr3 2.445167 GHz -10.587 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 16.443 MHz Total Power 12.7 dBm</p> <p>Transmit Freq Error -11.375 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.36 MHz x dB -6.00 dB</p>
<p>802.11g/HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Center Freq: 2.46200000 GHz</p> <p>Trig: Free Run #Atten: 30 dB AvgHld: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.21 dB Ref: 27.21 dBm</p> <p>Mkr3 2.470167 GHz -11.247 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 16.466 MHz Total Power 12.5 dBm</p> <p>Transmit Freq Error -30.005 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.39 MHz x dB -6.00 dB</p>

<p>802.11n(HT20)/LC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.41200000 GHz</p> <p>Center Freq: 2.41200000 GHz</p> <p>Trig: Free Run #Atten: 30 dB AvgHld: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.03 dB Ref: 27.03 dBm</p> <p>Mkr3 2.42045 GHz -10.176 dBm</p> <p>Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>12.4 dBm</td> </tr> <tr> <td>17.618 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-16.498 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>16.93 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	12.4 dBm	17.618 MHz			Transmit Freq Error	OBW Power	99.00 %	-16.498 kHz	x dB	-6.00 dB	x dB Bandwidth			16.93 MHz		
Occupied Bandwidth	Total Power	12.4 dBm																	
17.618 MHz																			
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x dB Bandwidth																			
16.93 MHz																			
<p>802.11n(HT20)/MC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz</p> <p>Trig: Free Run #Atten: 30 dB AvgHld: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.11 dB Ref: 27.11 dBm</p> <p>Mkr3 2.445622 GHz -11.891 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>13.2 dBm</td> </tr> <tr> <td>17.611 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-8.015 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>17.26 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	13.2 dBm	17.611 MHz			Transmit Freq Error	OBW Power	99.00 %	-8.015 kHz	x dB	-6.00 dB	x dB Bandwidth			17.26 MHz		
Occupied Bandwidth	Total Power	13.2 dBm																	
17.611 MHz																			
Transmit Freq Error	OBW Power	99.00 %																	
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x dB Bandwidth																			
17.26 MHz																			
<p>802.11n(HT20)/HC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Center Freq: 2.46200000 GHz</p> <p>Trig: Free Run #Atten: 30 dB AvgHld: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.21 dB Ref: 27.21 dBm</p> <p>Mkr3 2.470635 GHz -12.230 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>12.6 dBm</td> </tr> <tr> <td>17.618 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-19.969 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>17.31 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	12.6 dBm	17.618 MHz			Transmit Freq Error	OBW Power	99.00 %	-19.969 kHz	x dB	-6.00 dB	x dB Bandwidth			17.31 MHz		
Occupied Bandwidth	Total Power	12.6 dBm																	
17.618 MHz																			
Transmit Freq Error	OBW Power	99.00 %																	
-19.969 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
17.31 MHz																			

<p>802.11n(HT40)/LC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.42200000 GHz</p> <p>Center Freq: 2.42200000 GHz</p> <p>Trig: Free Run</p> <p>#Atten: 30 dB</p> <p>Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.03 dB</p> <p>Ref: 27.03 dBm</p> <p>Mkr3 2.43992 GHz</p> <p>-14.249 dBm</p> <p>Center 2.422 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 60 MHz</p> <p>Sweep 5.8 ms</p> <p>Occupied Bandwidth 36.090 MHz</p> <p>Total Power 13.2 dBm</p> <p>Transmit Freq Error 16.533 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.81 MHz</p> <p>x dB -6.00 dB</p>
<p>802.11n(HT40)/MC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz</p> <p>Trig: Free Run</p> <p>#Atten: 30 dB</p> <p>Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.11 dB</p> <p>Ref: 27.11 dBm</p> <p>Mkr3 2.454761 GHz</p> <p>-12.453 dBm</p> <p>Center 2.437 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 60 MHz</p> <p>Sweep 5.8 ms</p> <p>Occupied Bandwidth 36.095 MHz</p> <p>Total Power 13.3 dBm</p> <p>Transmit Freq Error -1.772 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.53 MHz</p> <p>x dB -6.00 dB</p>
<p>802.11n(HT40)/HC H</p>	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.45200000 GHz</p> <p>Center Freq: 2.45200000 GHz</p> <p>Trig: Free Run</p> <p>#Atten: 30 dB</p> <p>Avg/Hold: 100/100</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset: 7.2 dB</p> <p>Ref: 27.20 dBm</p> <p>Mkr3 2.46974 GHz</p> <p>-14.059 dBm</p> <p>Center 2.452 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 60 MHz</p> <p>Sweep 5.8 ms</p> <p>Occupied Bandwidth 36.107 MHz</p> <p>Total Power 13.3 dBm</p> <p>Transmit Freq Error -21.666 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.52 MHz</p> <p>x dB -6.00 dB</p>

### 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.

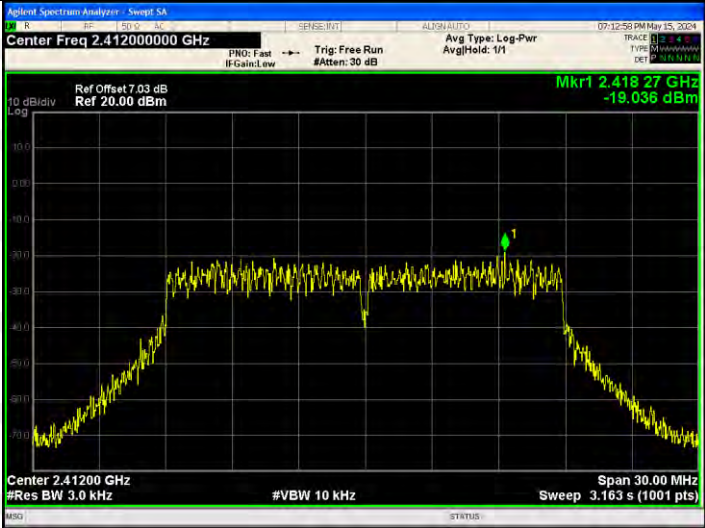


11.4 Test Result

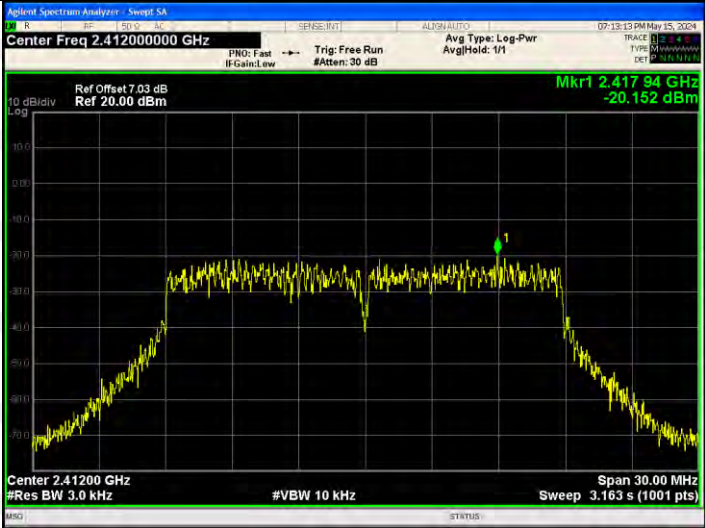


Mode	Channel.	Power Spectral Density [dBm /3KHz] ANT 1	Power Spectral Density [dBm /3KHz] ANT 2	Power Spectral Density [dBm /3KHz]Total	Limit(dBm)
802.11b	LCH	-17.13	-14.512	/	8
	MCH	-15.898	-15.898	/	8
	HCH	-16.176	-15.715	/	8
802.11g	LCH	-19.036	-22.266	/	8
	MCH	-19.821	-22.072	/	8
	HCH	-20.12	-22.384	/	8
802.11n(H T20)	LCH	-20.152	-22.356	-18.105	7.82
	MCH	-19.143	-22.206	-17.400	7.82
	HCH	-19.507	-21.392	-17.338	7.82
802.11n(H T40)	LCH	-22.947	-24.427	-20.614	7.82
	MCH	-22.204	-24.677	-20.257	7.82
	HCH	-21.726	-24.383	-19.844	7.82

**ANT1:  
Test Graph**

Graphs	
802.11b /LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.41200000 GHz Ref Offset 7.03 dB Ref 20.00 dBm Mkr1 2.412 48 GHz -17.130 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>
802.11b /MCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.437000000 GHz Ref Offset 7.11 dB Ref 20.00 dBm Mkr1 2.437 48 GHz -15.998 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>
802.11b/HCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.462000000 GHz Ref Offset 7.21 dB Ref 20.00 dBm Mkr1 2.462 75 GHz -16.176 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>



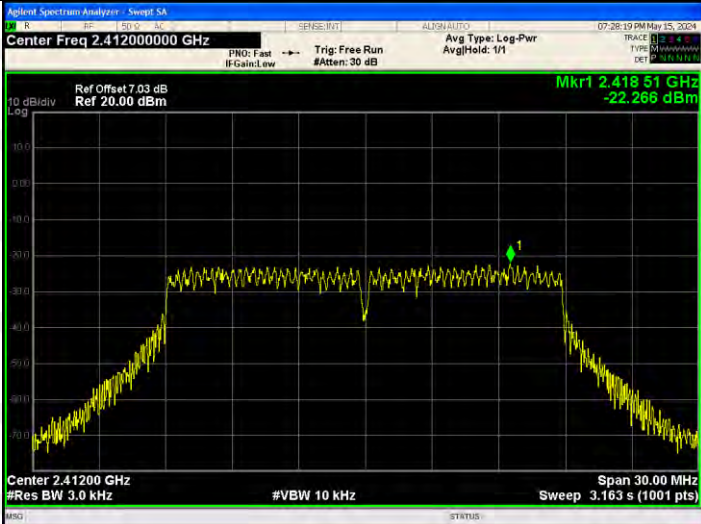
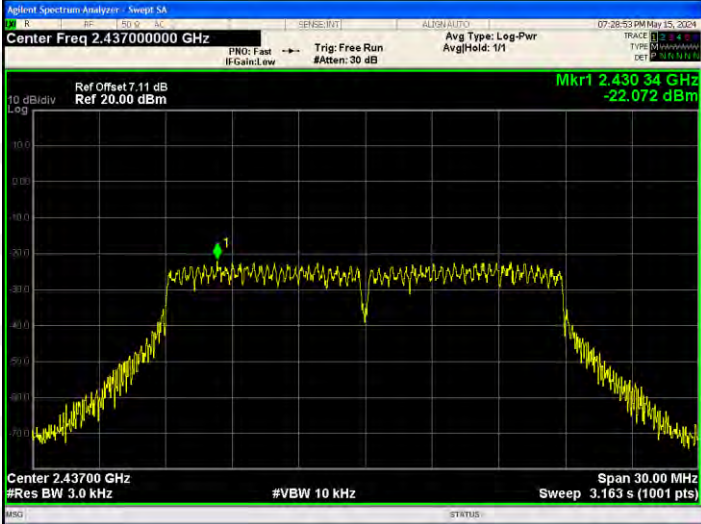
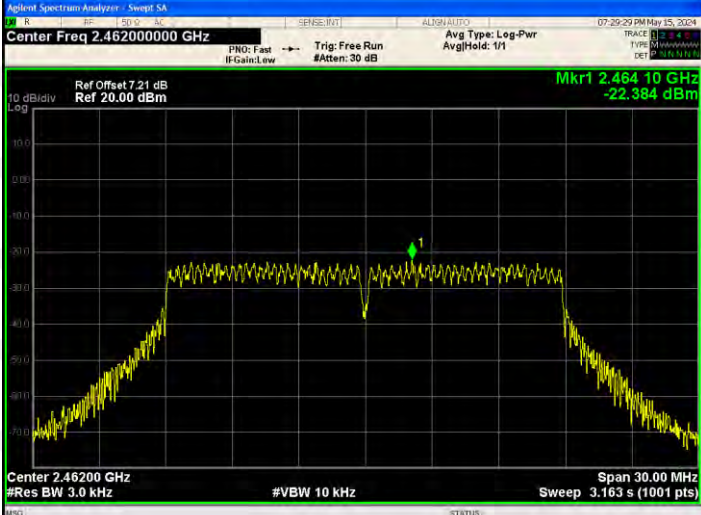
<p>802.11g/LCH</p>		
<p>802.11g/MCH</p>		
<p>802.11g/HCH</p>		

<p>802.11n(HT20)/LC H</p>		
<p>802.11n(HT20)/MC H</p>		
<p>802.11n(HT20)/HC H</p>		

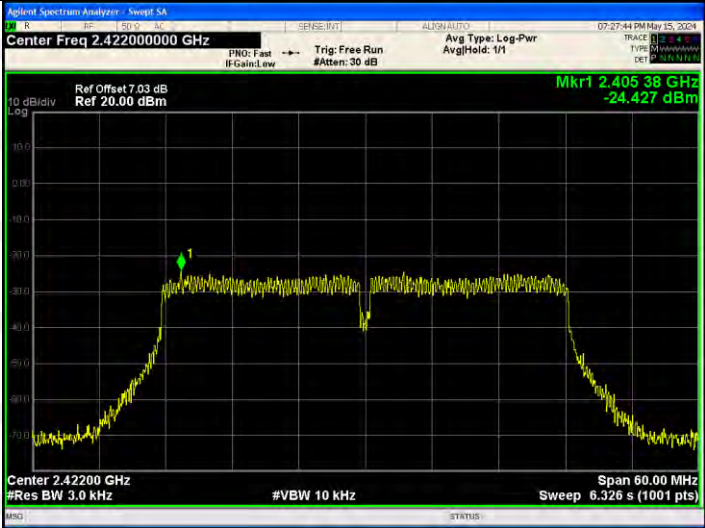
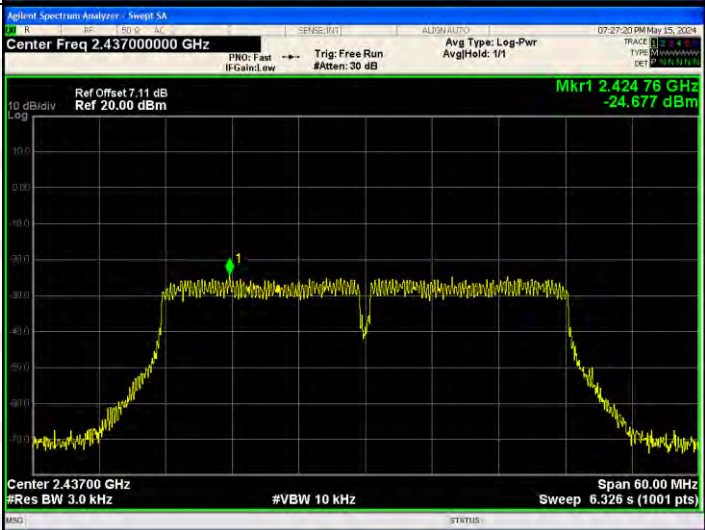

<p>802.11n(HT40)/LC H</p>	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.42200000 GHz Ref Offset 7.03 dB Ref 20.00 dBm Mkr1 2.43976 GHz -22.947 dBm Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)</p>
<p>802.11n(HT40)/MC H</p>	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.43700000 GHz Ref Offset 7.11 dB Ref 20.00 dBm Mkr1 2.44108 GHz -22.204 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)</p>
<p>802.11n(HT40)/HC H</p>	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.45200000 GHz Ref Offset 7.2 dB Ref 20.00 dBm Mkr1 2.45608 GHz -21.726 dBm Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)</p>

ANT 2:  
Test Graph

Graphs	
802.11b /LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.412000000 GHz Ref Offset 7.03 dB Ref 20.00 dBm Mkr1 2.410 20 GHz -14.512 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>
802.11b /MCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.437000000 GHz Ref Offset 7.11 dB Ref 20.00 dBm Mkr1 2.437 48 GHz -15.998 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>
802.11b/HCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.462000000 GHz Ref Offset 7.21 dB Ref 20.00 dBm Mkr1 2.462 75 GHz -15.715 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>

<p>802.11g/LCH</p>		
<p>802.11g/MCH</p>		
<p>802.11g/HCH</p>		

<p>802.11n(HT20)/LC H</p>		
<p>802.11n(HT20)/MC H</p>		
<p>802.11n(HT20)/HC H</p>		

<p>802.11n(HT40)/LC H</p>	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.42200000 GHz</p> <p>Ref Offset 7.03 dB Ref 20.00 dBm</p> <p>Mkr1 2.405 38 GHz -24.427 dBm</p> <p>Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz</p> <p>Span 60.00 MHz Sweep 6.326 s (1001 pts)</p>
<p>802.11n(HT40)/MC H</p>	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.43700000 GHz</p> <p>Ref Offset 7.11 dB Ref 20.00 dBm</p> <p>Mkr1 2.424 76 GHz -24.677 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz</p> <p>Span 60.00 MHz Sweep 6.326 s (1001 pts)</p>
<p>802.11n(HT40)/HC H</p>	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.45200000 GHz</p> <p>Ref Offset 7.2 dB Ref 20.00 dBm</p> <p>Mkr1 2.439 76 GHz -24.383 dBm</p> <p>Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz</p> <p>Span 60.00 MHz Sweep 6.326 s (1001 pts)</p>

## 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 FPC antenna and no consideration of replacement. The best case gain of the antenna is Ant1: 3.17dBi, Ant2: 3.17dBi.



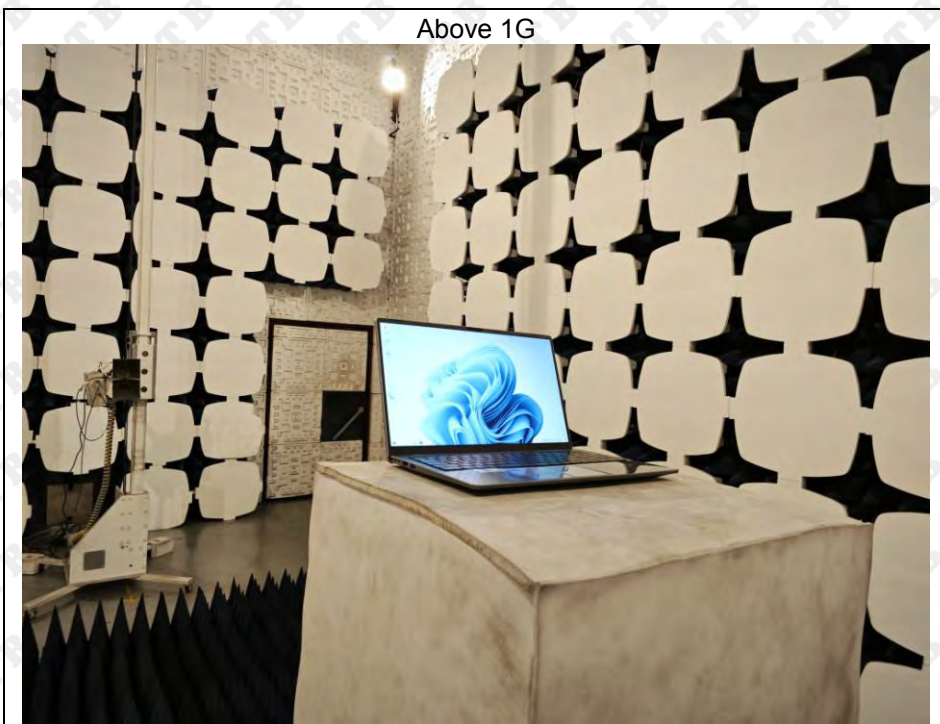
### 13. EUT TEST SETUP PHOTOGRAPHS

#### Radiated Emission

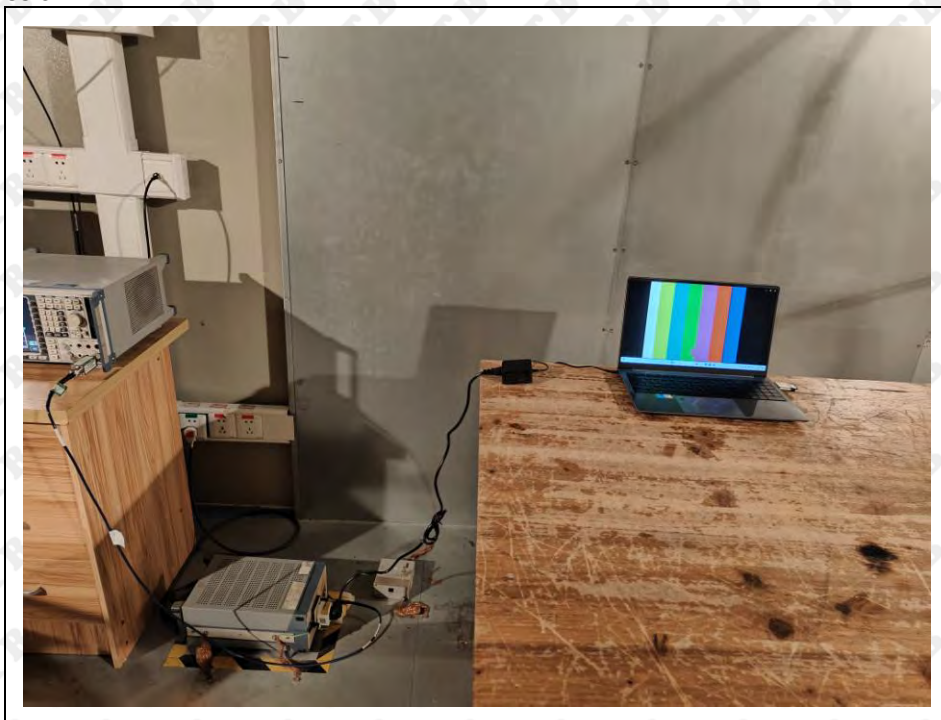
Below 1G



Above 1G



## Conducted Emission



※※※※ END OF REPORT ※※※※