



TEST REPORT

Product Name: Industrial Router
FCC ID: 2BMNY-FW70WIFI
Trademark: N/A
Model Number: FW70-WIFI
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Sample Received Date: Nov. 22, 2024
Sample tested Date: Nov. 22, 2024 to Dec. 09, 2024
Issue Date: Dec. 09, 2024
Report No.: CTB24112202401RF01
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.

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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
CTB24112202401RF01	Dec. 09, 2024	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):	FW70-WIFI
Model Description:	N/A
Wi-Fi Specification:	IEEE 802.11b/g/n
Hardware Version:	fw70_v12_20180725
Software Version:	V3.1.20240130
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): 17.070dBm
Type of Modulation:	WiFi: DSSS, OFDM
Antenna installation:	WiFi: Sucker Antenna
Antenna Gain:	WiFi (2.4G): Ant1: -3.5627dBi Ant2: -3.5627dBi
Ratings:	Input : 100-240V~50/60Hz Output: DC 12V 1.0A

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	Laptop	DELL	Vostro 5490	N/A	AE

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 -3.5627dBi 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)=-1.78135dB,

So the directional gain for PSD is -5.34405dBi

2) For power measurements,

The Array gain=0 dB for NANT≤4,

So the directional gain for Power measurements is -3.5627dBi

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(AC):	120
Normal Temperature(°C)	23
Low Temperature(°C)	0



High Temperature(°C)	50
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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, Xinghe 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	2025/6/28
2	Power Sensor	Agilent	U2021XA	MY56120032	/	2025/6/28
3	Power Sensor	Agilent	U2021XA	MY56120034	/	2025/6/28
4	Communication test set	R&S	CMW500	108058	V3.5.80	2025/6/28
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2025/6/28
6	Signal Generator	Agilent	N5181A	MY50140365	A.01.60	2025/6/28
7	Vector signal generator	Agilent	N5182A	MY47420195	A.01.87	2025/6/28
8	Communication test set	Agilent	E5515C	MY50102567	B.19.07 (E1962B)	2025/6/28
9	2.4 GHz Filter	Shenxiang	MSF2400-24 83.5MS-1154	20181015001	/	2025/6/30
10	5 GHz Filter	Shenxiang	MSF5150-58 50MS-1155	20181015001	/	2025/6/30
11	Filter	Xingbo	XBLBQ-DZA 120	190821-1-1	/	2025/6/30
12	BT&WI-FI Automatic test software	Microwave	MTS8310	Ver. 2.0.0.0	/	/
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	/	2025/6/28
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	/	2025/6/28
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	/	/
16	966 chamber	C.R.T.	966	/	/	2027/6/21
17	Receiver	R&S	ESPI	100362	RF_ATTEN_7 (104489/003)	2025/6/28
18	Amplifier	HP	8447E	2945A02747	/	2025/6/28
19	Amplifier	Agilent	8449B	3008A01838	/	2025/6/28
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	/	2025/6/28
21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	/	2025/6/28

22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2025/6/28
24	loop antenna	ZHINAN	ZN30900A	GTS534	/	/
25	40G Horn antenna	A/H/System	SAS-574	588	/	2025/6/28
26	Amplifier	AEROFLEX	Aeroflex	097	/	2025/6/28
27	Power Metter	KEYSIGHT	N1912AP	N/A	A.05.00	2025/6/28

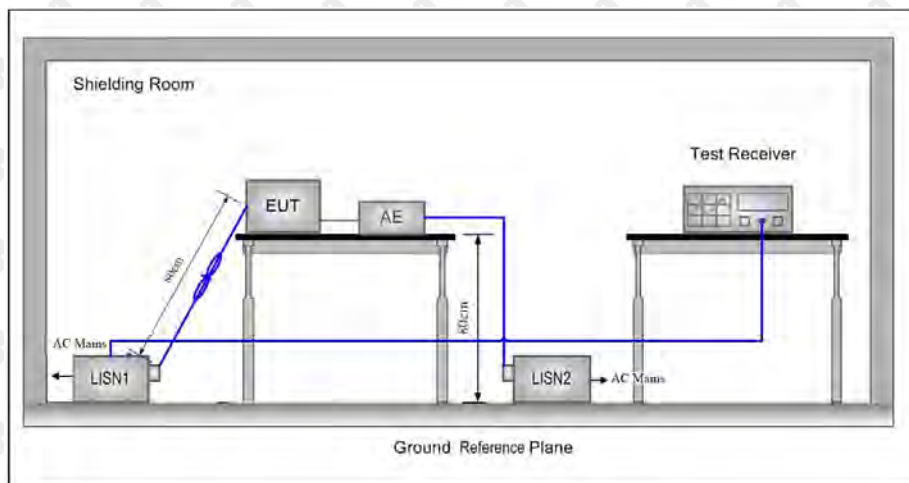
Continuous disturbance						
No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware version	Calibrated until
1	843 Shield Room	C/ R/ T	843	/	/	2027/6/21
2	AMN	ROHDE&SCHWARZ	ESH3-Z5	831551852	/	2025/6/30
3	Pulse limiter	ROHDE&SCHWARZ	ESH3Z2	357881052	/	2025/6/28
4	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100428	V4.42.SP3	2025/6/30
5	Coaxial cable	ZDECL	Z302S	18091904	/	2025/6/30
6	ISN	Schwarzbeck	NTFM8158	183	/	2025/6/30
7	Voltage sensor	Schwarzbeck	TK 9420	01189	/	2025/10/25
8	EZ-EMC	Frad	EMC-con3A1.1	/	/	/
9	Current Probe	FCC	F-52B	199453	/	2025/5/27
10	Communication test set	R&S	CMW500	108058	B.19.07 (E1962B)	2025/6/28
11	Communication test set	Agilent	E5515C	MY50102567	V3.5.80	2025/6/28

Radiated emission(No.2 Chamber)						
No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware version	Calibrated until
1	966 Chamber	C/ R/ T	966	/	/	2026/11/14
2	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120 D	01911	/	2026/7/07
3	Broadband Antenna	Schwarzbeck	VULB 9168	1471	/	2025/7/06
4	Amplifier	Agilent	8449B	3008A01838	/	2025/6/30
5	Preamplifier	Schwarzbeck	BBV 9743 B	00500	/	2025/5/23
6	EMI TEST RECEIVER	R&S	ESCI7	100861	/	2025/10/25
7	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2025/6/28
8	EMI test software	Farad	EZ-EMC	/	Ver. FARAD-3A1+	/
9	Coaxial cable	Rosenberg	8m	/	/	2025/10/25

10	Coaxial cable	Times	2m	/	/	2025/10/25
11	Coaxial cable	Times	2m	/	/	2025/10/25
12	Coaxial cable	Times	1m	/	/	2025/10/25
13	loop antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2025/6/29
14	Communication test set	R&S	CMW500	108058	B.19.07 (E1962B)	2025/6/28
15	Communication test set	Agilent	E5515C	MY50102567	V3.5.80	2025/6/28

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

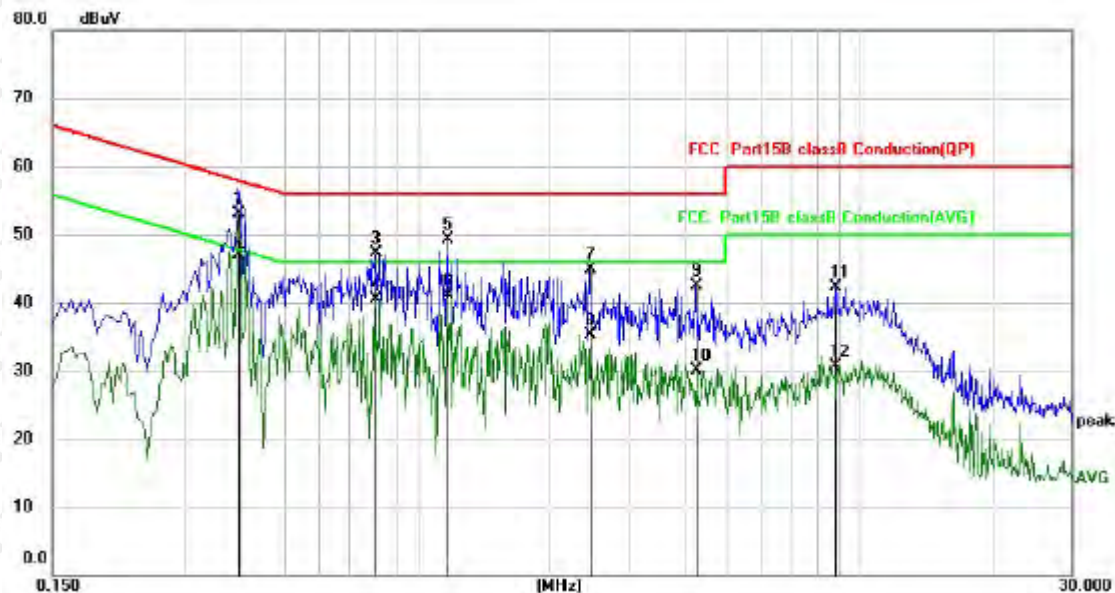
- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a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

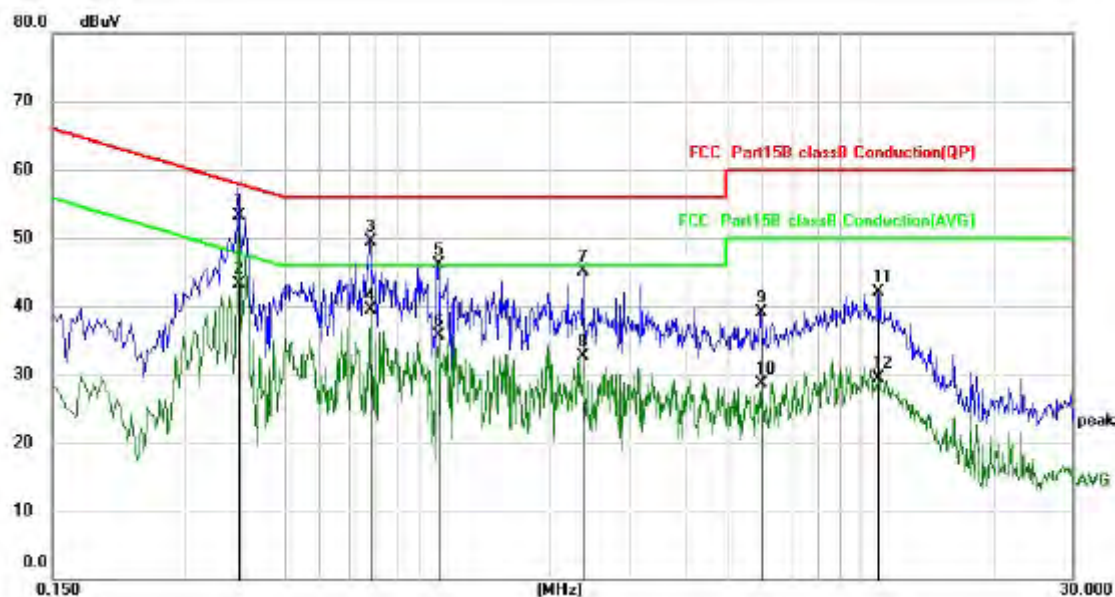
Test Specification: Line
AC 120V 60Hz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.3940	42.56	10.57	53.13	57.98	-4.85	QP
2	*	0.3940	36.47	10.57	47.04	47.98	-0.94	AVG
3		0.8059	36.60	10.80	47.40	56.00	-8.60	QP
4		0.8059	29.73	10.80	40.53	46.00	-5.47	AVG
5		1.1780	38.24	11.06	49.30	56.00	-6.70	QP
6		1.1780	30.07	11.06	41.13	46.00	-4.87	AVG
7		2.4500	33.18	11.68	44.86	56.00	-11.14	QP
8		2.4500	23.64	11.68	35.32	46.00	-10.68	AVG
9		4.2580	30.52	12.08	42.60	56.00	-13.40	QP
10		4.2580	18.09	12.08	30.17	46.00	-15.83	AVG
11		8.7780	29.14	13.12	42.26	60.00	-17.74	QP
12		8.7780	17.65	13.12	30.77	50.00	-19.23	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	*	0.3940	42.75	10.57	53.32	57.98	-4.66	QP
2		0.3940	32.66	10.57	43.23	47.98	-4.75	AVG
3		0.7820	38.79	10.78	49.57	56.00	-6.43	QP
4		0.7820	28.77	10.78	39.55	46.00	-6.45	AVG
5		1.1140	35.07	11.02	46.09	56.00	-9.91	QP
6		1.1140	24.77	11.02	35.79	46.00	-10.21	AVG
7		2.3620	33.49	11.66	45.15	56.00	-10.85	QP
8		2.3620	21.10	11.66	32.76	46.00	-13.24	AVG
9		5.9420	26.54	12.57	39.11	60.00	-20.89	QP
10		5.9420	16.21	12.57	28.78	50.00	-21.22	AVG
11		10.9060	28.85	13.26	42.11	60.00	-17.89	QP
12		10.9060	16.25	13.26	29.51	50.00	-20.49	AVG

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

7. RADIATED SPURIOUS EMISSION

7.1 Block Diagram Of Test Setup

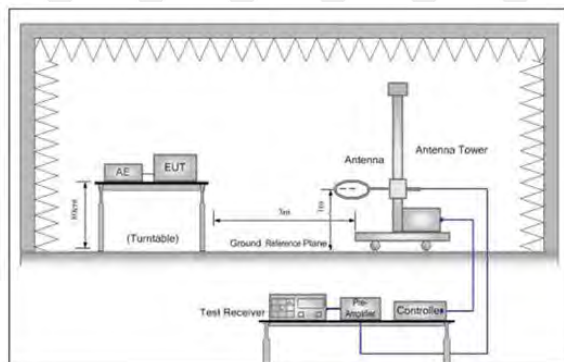


Figure 1. Below 30MHz

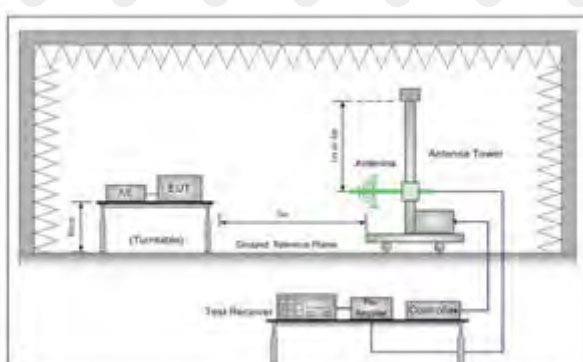


Figure 2. 30MHz to 1GHz

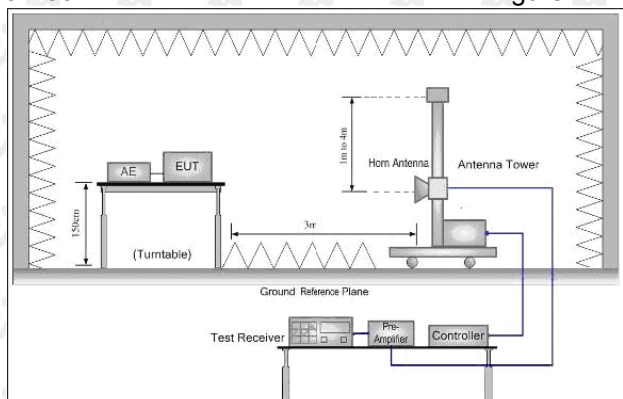


Figure 3. Above 1GHz

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:

- 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.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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:

- 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).
- Test the EUT in the lowest channel ,the middle channel ,the Highest channel
- 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

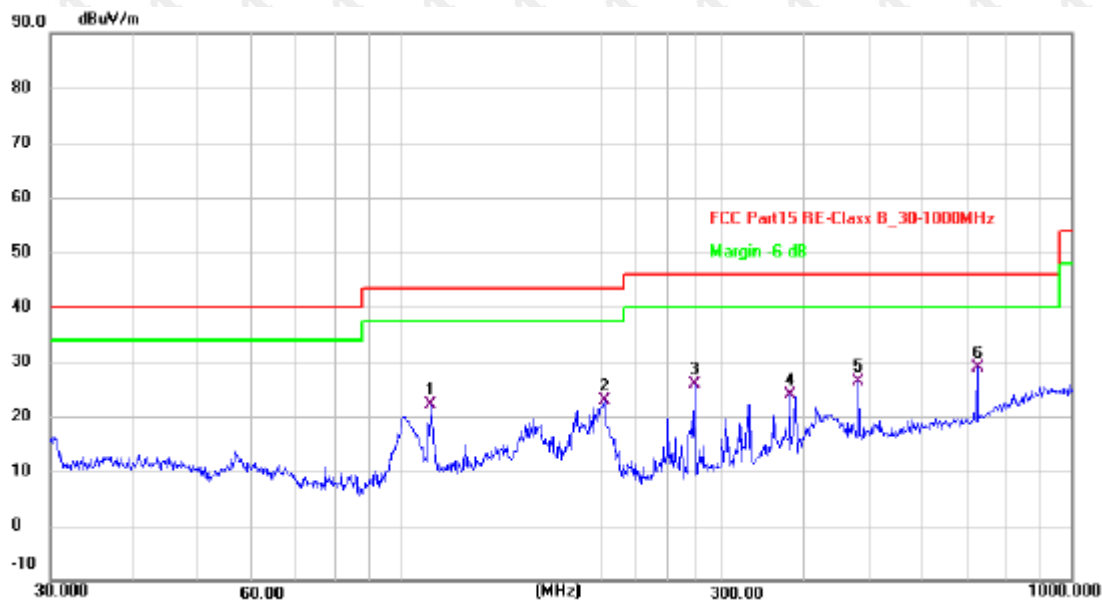
The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

7.4 Test Result

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

Below 1GHz Test Results:

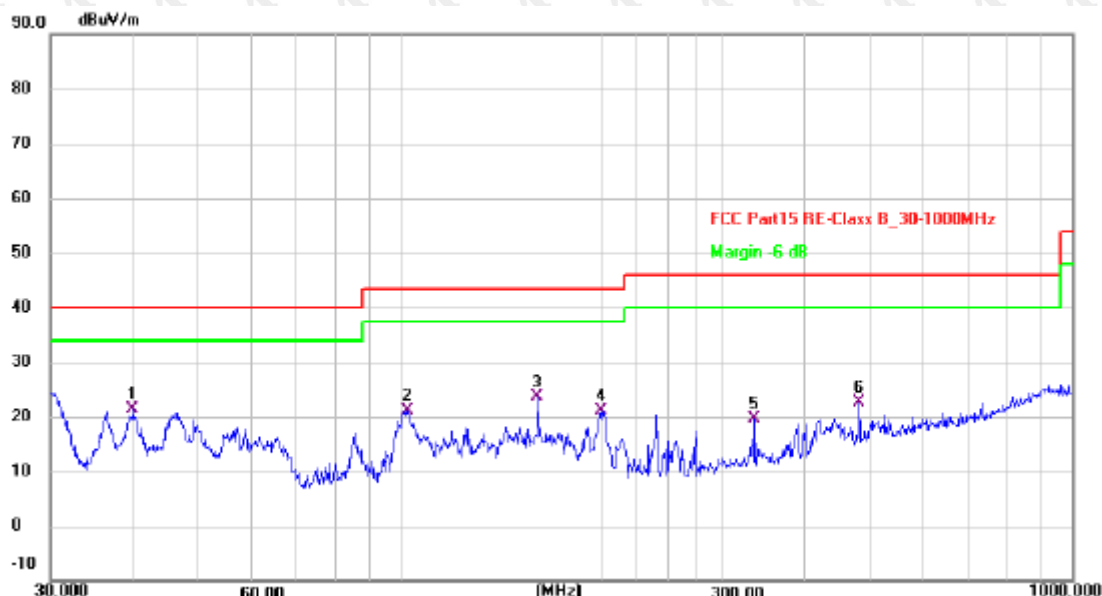
Antenna polarity: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	110.9571	39.07	-16.96	22.11	43.50	-21.39	QP
2	201.3930	39.88	-17.03	22.85	43.50	-20.65	QP
3	274.1939	40.94	-15.14	25.80	46.00	-20.20	QP
4	379.9141	36.69	-12.69	24.00	46.00	-22.00	QP
5	480.5276	36.24	-9.89	26.35	46.00	-19.65	QP
6 *	724.2611	33.68	-4.77	28.91	46.00	-17.09	QP

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

Antenna polarity: V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	39.8542	34.06	-12.62	21.44	40.00	-18.56	QP
2	102.3597	38.83	-17.81	21.02	43.50	-22.48	QP
3	159.7844	36.97	-13.29	23.68	43.50	-19.82	QP
4	198.5880	38.22	-17.04	21.18	43.50	-22.32	QP
5	336.0352	32.88	-13.29	19.59	46.00	-26.41	QP
6	480.5276	32.55	-9.89	22.66	46.00	-23.34	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	65.09	-3.64	61.45	74	-12.55	peak
4824	49.01	-3.64	45.37	54	-8.63	AVG
7236	58.79	-0.95	57.84	74	-16.16	peak
7236	44.84	-0.95	43.89	54	-10.11	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)	
4824	65.34	-3.64	61.70	74	-12.30	peak
4824	49.02	-3.64	45.38	54	-8.62	AVG
7236	56.72	-0.95	55.77	74	-18.23	peak
7236	45.34	-0.95	44.39	54	-9.61	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	63.99	-3.51	60.48	74	-13.52	peak
4874	49.08	-3.51	45.57	54	-8.43	AVG
7311	58.45	-0.82	57.63	74	-16.37	peak
7311	44.95	-0.82	44.13	54	-9.87	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	62.98	-3.51	59.47	74	-14.53	peak
4874	48.33	-3.51	44.82	54	-9.18	AVG
7311	59.53	-0.82	58.71	74	-15.29	peak
7311	43.75	-0.82	42.93	54	-11.07	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	64.64	-3.43	61.21	74	-12.79	peak
4924	47.48	-3.43	44.05	54	-9.95	AVG
7386	59.11	-0.75	58.36	74	-15.64	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	65.03	-3.43	61.60	74	-12.40	peak
4924	47.05	-3.43	43.62	54	-10.38	AVG
7386	57.15	-0.75	56.40	74	-17.60	peak
7386	42.99	-0.75	42.24	54	-11.76	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	64.70	-3.64	61.06	74	-12.94	peak
4824	49.31	-3.64	45.67	54	-8.33	AVG
7236	58.84	-0.95	57.89	74	-16.11	peak
7236	45.29	-0.95	44.34	54	-9.66	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	65.59	-3.64	61.95	74	-12.05	peak
4824	48.55	-3.64	44.91	54	-9.09	AVG
7236	56.66	-0.95	55.71	74	-18.29	peak
7236	45.64	-0.95	44.69	54	-9.31	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	64.95	-3.51	61.44	74	-12.56	peak
4874	49.52	-3.51	46.01	54	-7.99	AVG
7311	60.34	-0.82	59.52	74	-14.48	peak
7311	43.27	-0.82	42.45	54	-11.55	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	63.11	-3.51	59.60	74	-14.40	peak
4874	48.87	-3.51	45.36	54	-8.64	AVG
7311	60.37	-0.82	59.55	74	-14.45	peak
7311	44.39	-0.82	43.57	54	-10.43	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	62.73	-3.43	59.30	74	-14.70	peak
4924	46.15	-3.43	42.72	54	-11.28	AVG
7386	59.41	-0.75	58.66	74	-15.34	peak
7386	43.09	-0.75	42.34	54	-11.66	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	62.76	-3.43	59.33	74	-14.67	peak
4924	46.66	-3.43	43.23	54	-10.77	AVG
7386	56.47	-0.75	55.72	74	-18.28	peak
7386	42.98	-0.75	42.23	54	-11.77	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	63.65	-3.64	60.01	74	-13.99	peak
4824	50.24	-3.64	46.60	54	-7.40	AVG
7236	57.29	-0.95	56.34	74	-17.66	peak
7236	46.38	-0.95	45.43	54	-8.57	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	64.57	-3.64	60.93	74	-13.07	peak
4824	49.29	-3.64	45.65	54	-8.35	AVG
7236	56.68	-0.95	55.73	74	-18.27	peak
7236	43.83	-0.95	42.88	54	-11.12	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	64.63	-3.51	61.12	74	-12.88	peak
4874	48.14	-3.51	44.63	54	-9.37	AVG
7311	58.68	-0.82	57.86	74	-16.14	peak
7311	43.86	-0.82	43.04	54	-10.96	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	65.77	-3.51	62.26	74	-11.74	peak
4874	49.02	-3.51	45.51	54	-8.49	AVG
7311	60.15	-0.82	59.33	74	-14.67	peak
7311	43.03	-0.82	42.21	54	-11.79	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	64.20	-3.43	60.77	74	-13.23	peak
4924	46.10	-3.43	42.67	54	-11.33	AVG
7386	57.37	-0.75	56.62	74	-17.38	peak
7386	42.79	-0.75	42.04	54	-11.96	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	64.61	-3.43	61.18	74	-12.82	peak
4924	46.87	-3.43	43.44	54	-10.56	AVG
7386	56.46	-0.75	55.71	74	-18.29	peak
7386	42.92	-0.75	42.17	54	-11.83	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	65.18	-3.63	61.55	74	-12.45	peak
4844	48.23	-3.63	44.60	54	-9.40	AVG
7266	60.48	-0.94	59.54	74	-14.46	peak
7266	45.88	-0.94	44.94	54	-9.06	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	64.97	-3.63	61.34	74	-12.66	peak
4844	48.01	-3.63	44.38	54	-9.62	AVG
7266	58.97	-0.94	58.03	74	-15.97	peak
7266	44.01	-0.94	43.07	54	-10.93	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	62.36	-3.51	58.85	74	-15.15	peak
4874	48.49	-3.51	44.98	54	-9.02	AVG
7311	59.05	-0.82	58.23	74	-15.77	peak
7311	44.08	-0.82	43.26	54	-10.74	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	56.64	-0.82	55.82	74	-18.18	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	64.37	-3.43	60.94	74	-13.06	peak
4904	47.22	-3.43	43.79	54	-10.21	AVG
7356	56.94	-0.75	56.19	74	-17.81	peak
7356	41.51	-0.75	40.76	54	-13.24	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	63.42	-3.43	59.99	74	-14.01	peak
4904	47.71	-3.43	44.28	54	-9.72	AVG
7356	59.19	-0.75	58.44	74	-15.56	peak
7356	42.10	-0.75	41.35	54	-12.65	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	58.04	-5.81	52.23	74	-21.77	peak
2390	/	-5.81	/	54	/	AVG
2399	64.97	-5.84	59.13	74	-14.87	peak
2399	48.18	-5.84	42.34	54	-11.66	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	57.67	-5.81	51.86	74	-22.14	peak
2390	/	-5.81	/	54	/	AVG
2399	61.66	-5.84	55.82	74	-18.18	peak
2399	45.89	-5.84	40.05	54	-13.95	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	57.64	-5.65	51.99	74	-22.01	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	56.94	-5.65	51.29	74	-22.71	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	58.85	-5.81	53.04	74	-20.96	peak
2390	/	-5.81	/	54	/	AVG
2399	62.62	-5.84	56.78	74	-17.22	peak
2399	46.64	-5.84	40.80	54	-13.20	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	56.01	-5.81	50.20	74	-23.80	peak
2390	/	-5.81	/	54	/	AVG
2399	61.67	-5.84	55.83	74	-18.17	peak
2399	45.64	-5.84	39.80	54	-14.20	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	56.82	-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						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	58.16	-5.65	52.51	74	-21.49	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	56.58	-5.81	50.77	74	-23.23	peak
2390	/	-5.81	/	54	/	AVG
2399	63.73	-5.84	57.89	74	-16.11	peak
2399	47.28	-5.84	41.44	54	-12.56	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	56.20	-5.81	50.39	74	-23.61	peak
2390	/	-5.81	/	54	/	AVG
2399	61.44	-5.84	55.60	74	-18.40	peak
2399	46.44	-5.84	40.60	54	-13.40	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	56.76	-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	55.52	-5.65	49.87	74	-24.13	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	57.39	-5.81	51.58	74	-22.42	peak
2390	/	-5.81	/	54	/	AVG
2399	63.45	-5.84	57.61	74	-16.39	peak
2399	46.55	-5.84	40.71	54	-13.29	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	58.76	-5.81	52.95	74	-21.05	peak
2390	/	-5.81	/	54	/	AVG
2399	61.78	-5.84	55.94	74	-18.06	peak
2399	45.22	-5.84	39.38	54	-14.62	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

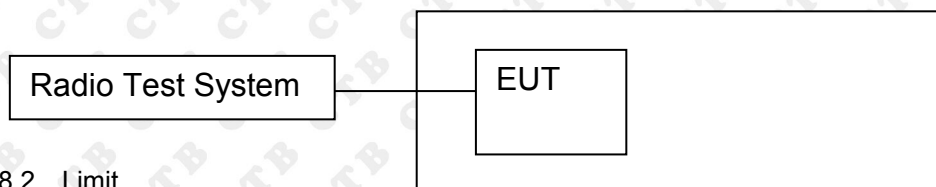
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	56.65	-5.65	51.00	74	-23.00	peak
2483.5	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	57.61	-5.65	51.96	74	-22.04	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

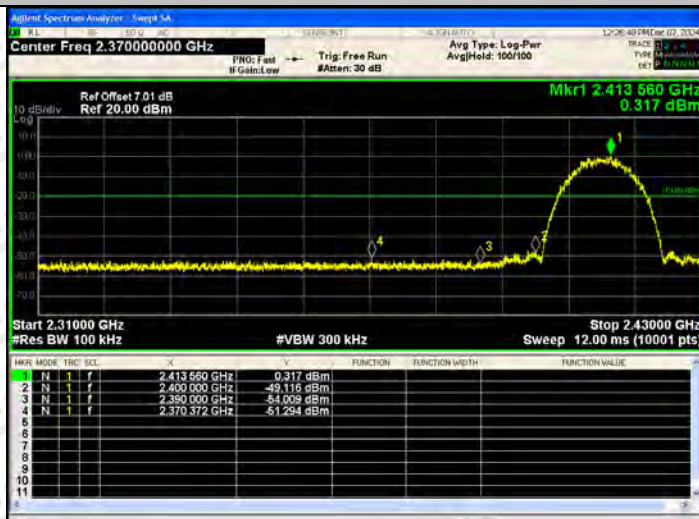
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:
Below 30MHz:
RBW = 100kHz, VBW = 300kHz, Sweep = auto
Detector function = peak, Trace = max hold
Above 30MHz:
RBW = 100KHz, VBW = 300KHz, Sweep = auto
Detector function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

8.4 Test Result

ANT1:

BAND EDGE Graphs

802.11b/LCH

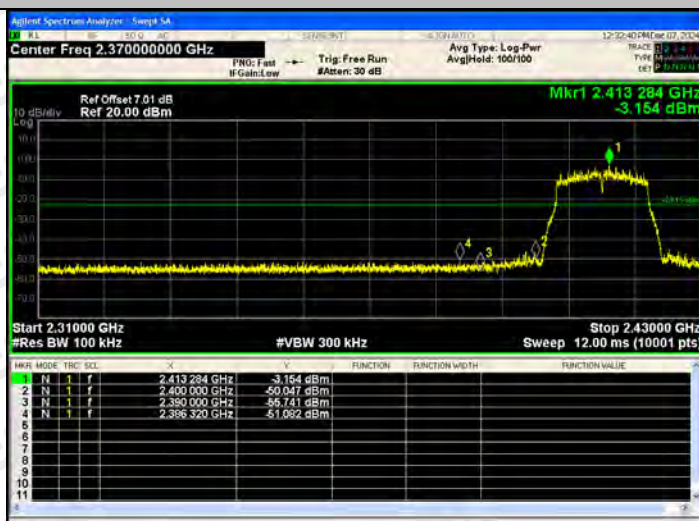


802.11b/HCH



BAND EDGE Graphs

802.11g/LCH

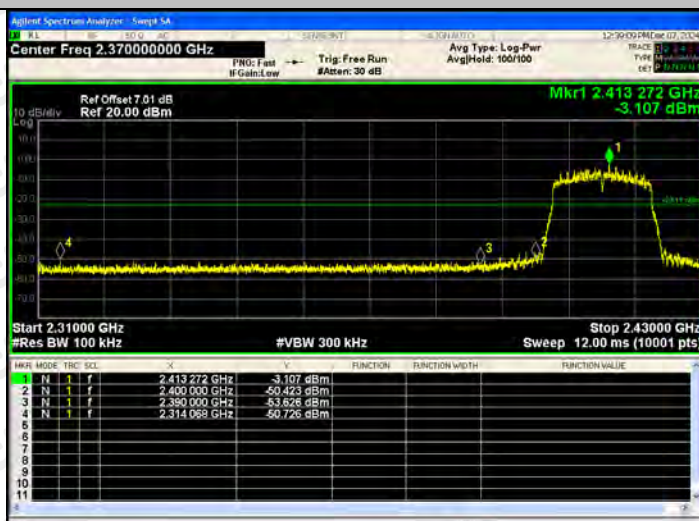


802.11g/HCH

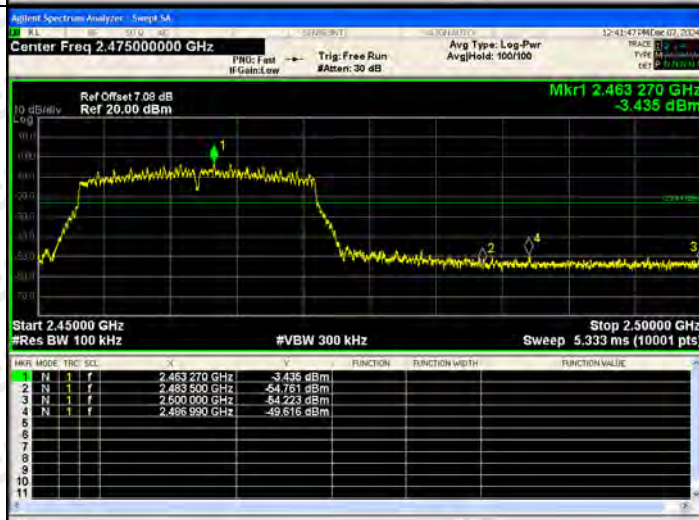


BAND EDGE Graphs

802.11n(HT20)/L
CH

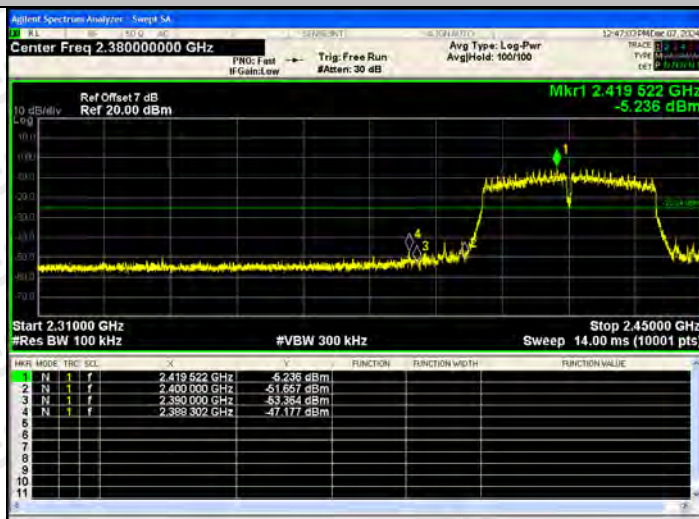


802.11n(HT20)/H
CH

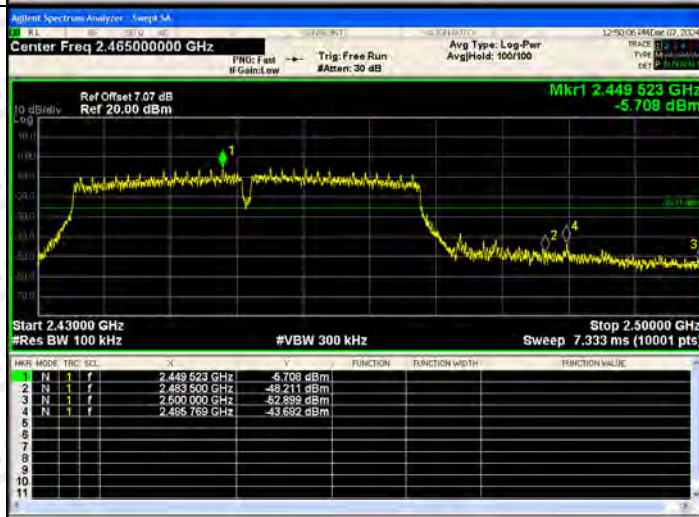


BAND EDGE Graphs

802.11n(HT40)/L
CH



802.11n(HT40)/H
CH



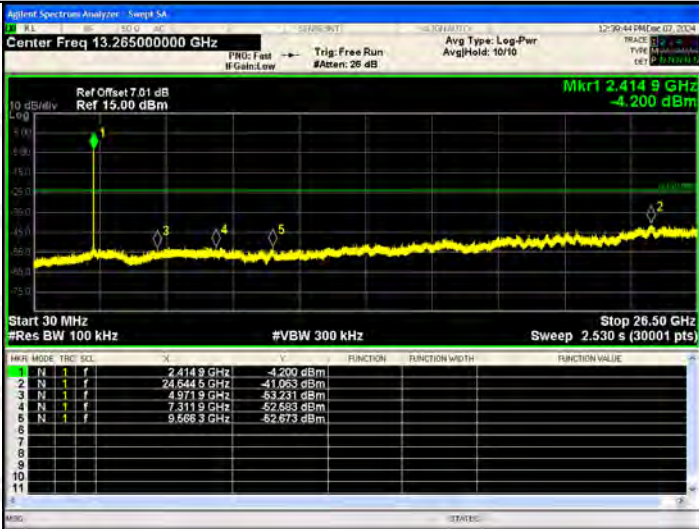
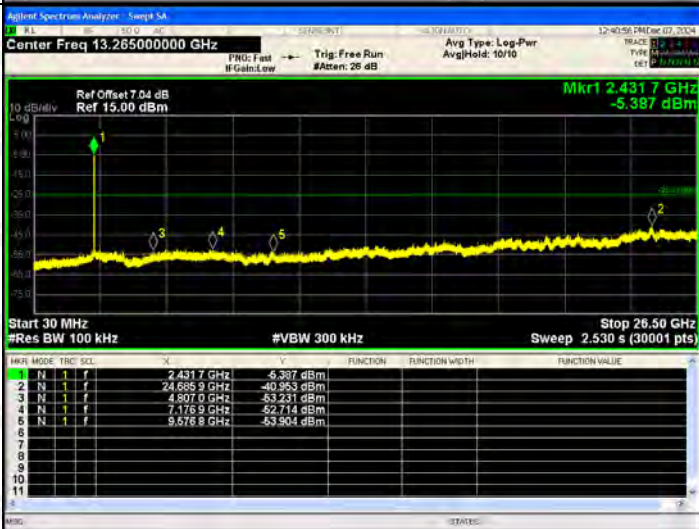
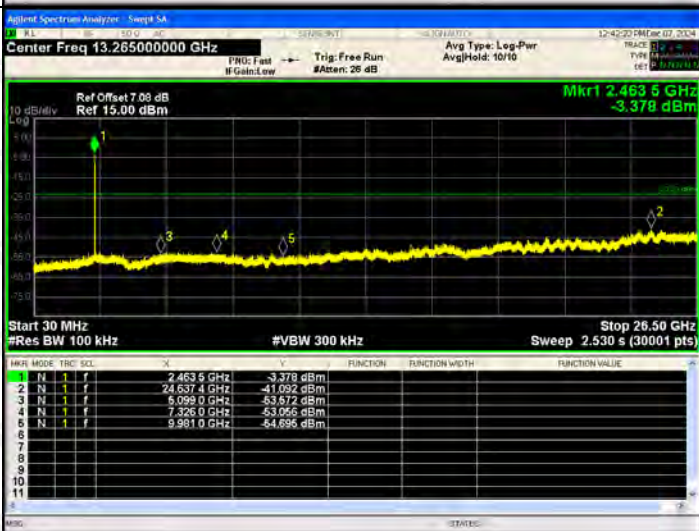
RF Conducted Spurious Emissions Graphs

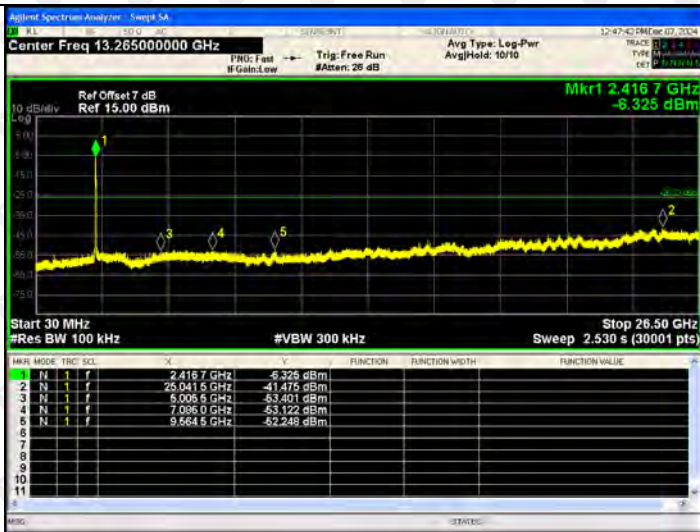
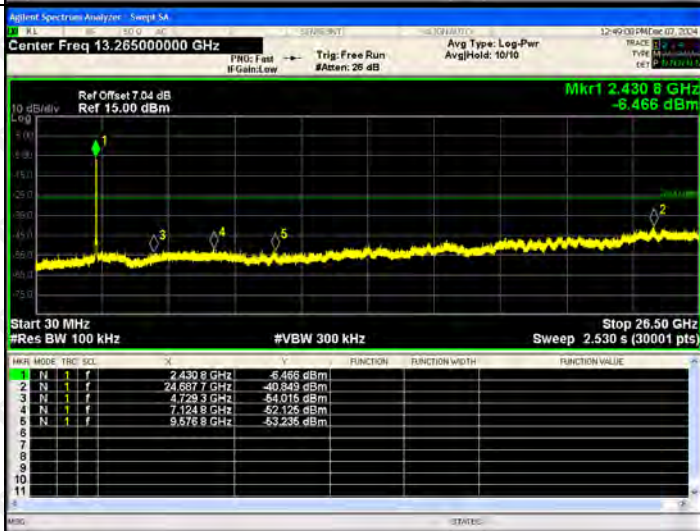
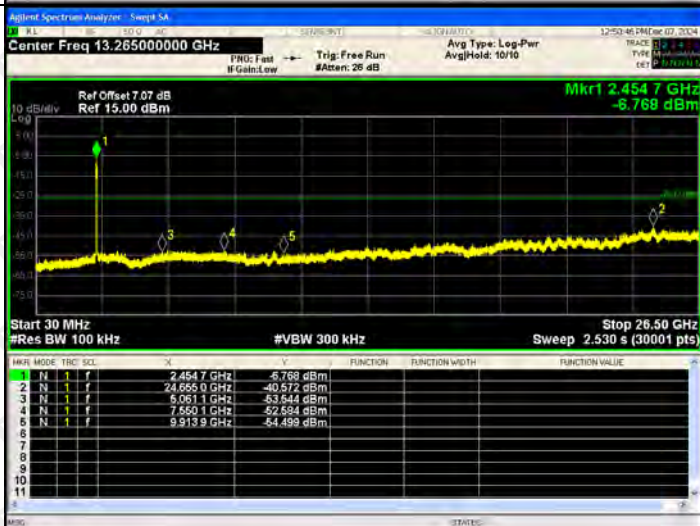


RF Conducted Spurious Emissions Graphs



RF Conducted Spurious Emissions Graphs

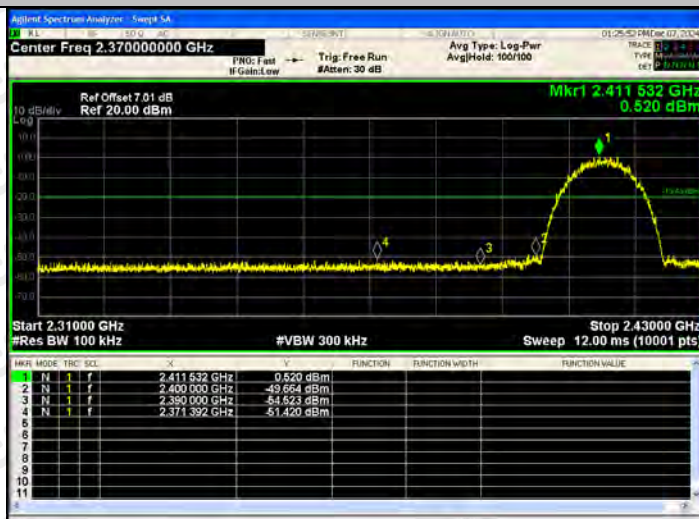
802.11n (HT20)/ LCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 13.265000000 GHz PRF: Fast #Gain: Low Trig: Free Run #Atten: 26 dB Avg Type: Log-Pwr Avg/Hold: 10/10 Ref Offset 7.01 dB Ref 15.00 dBm Mkr1 2.414 9 GHz -4.200 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) Mkr Mode TRG: SCL 2 N 1 f 2.414 9 GHz -4.200 dBm 2 N 1 f 24.644 5 GHz -41.063 dBm 3 N 1 f 4.971 9 GHz -53.231 dBm 4 N 1 f 7.311 9 GHz -52.853 dBm 5 N 1 f 9.668 3 GHz -52.873 dBm
802.11n(HT20)/ MCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 13.265000000 GHz PRF: Fast #Gain: Low Trig: Free Run #Atten: 26 dB Avg Type: Log-Pwr Avg/Hold: 10/10 Ref Offset 7.04 dB Ref 15.00 dBm Mkr1 2.431 7 GHz -5.387 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) Mkr Mode TRG: SCL 2 N 1 f 2.431 7 GHz -5.387 dBm 2 N 1 f 24.689 9 GHz -40.953 dBm 3 N 1 f 4.807 0 GHz -53.231 dBm 4 N 1 f 7.176 9 GHz -52.714 dBm 5 N 1 f 9.576 8 GHz -53.504 dBm
802.11n(HT20)/ HCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 13.265000000 GHz PRF: Fast #Gain: Low Trig: Free Run #Atten: 26 dB Avg Type: Log-Pwr Avg/Hold: 10/10 Ref Offset 7.06 dB Ref 15.00 dBm Mkr1 2.463 5 GHz -3.378 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) Mkr Mode TRG: SCL 2 N 1 f 2.463 5 GHz -3.378 dBm 2 N 1 f 24.637 4 GHz -41.052 dBm 3 N 1 f 5.099 0 GHz -53.672 dBm 4 N 1 f 7.326 0 GHz -53.056 dBm 5 N 1 f 9.901 0 GHz -54.896 dBm

802.11n (HT40)/ LCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 13.265000000 GHz Ref Offset 7.0 dB Ref 15.00 dBm Mkr1 2.4167 GHz -6.325 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><tr><th>MARK</th><th>MODE</th><th>TRC</th><th>SQL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.4167 GHz</td><td>-6.325 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>25.0415 GHz</td><td>-41.475 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>5.0085 GHz</td><td>-53.401 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>7.0980 GHz</td><td>-53.122 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>9.5645 GHz</td><td>-52.249 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRC	SQL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.4167 GHz	-6.325 dBm				2	N	1	f	25.0415 GHz	-41.475 dBm				3	N	1	f	5.0085 GHz	-53.401 dBm				4	N	1	f	7.0980 GHz	-53.122 dBm				5	N	1	f	9.5645 GHz	-52.249 dBm			
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802.11 n(HT40) /MCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 13.265000000 GHz Ref Offset 7.0 dB Ref 15.00 dBm Mkr1 2.4308 GHz -6.466 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.530 s (30001 pts) <table><tr><th>MARK</th><th>MODE</th><th>TRC</th><th>SQL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.4308 GHz</td><td>-6.466 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>24.6877 GHz</td><td>-40.849 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>4.7293 GHz</td><td>-54.015 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>7.1248 GHz</td><td>-52.126 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>9.5768 GHz</td><td>-53.236 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRC	SQL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.4308 GHz	-6.466 dBm				2	N	1	f	24.6877 GHz	-40.849 dBm				3	N	1	f	4.7293 GHz	-54.015 dBm				4	N	1	f	7.1248 GHz	-52.126 dBm				5	N	1	f	9.5768 GHz	-53.236 dBm			
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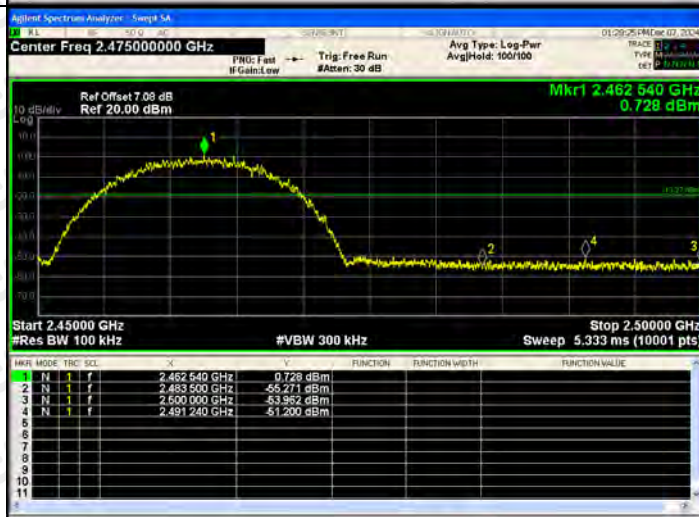
ANT2:

BAND EDGE Graphs

802.11b/LCH

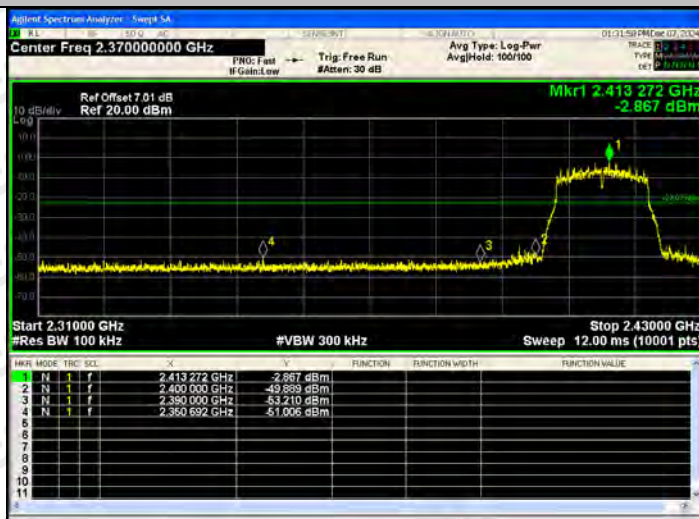


802.11b/HCH



BAND EDGE Graphs

802.11g/LCH

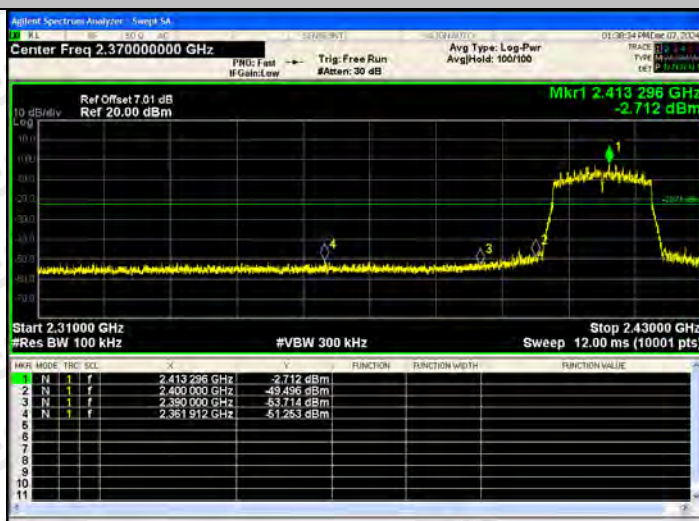


802.11g/HCH

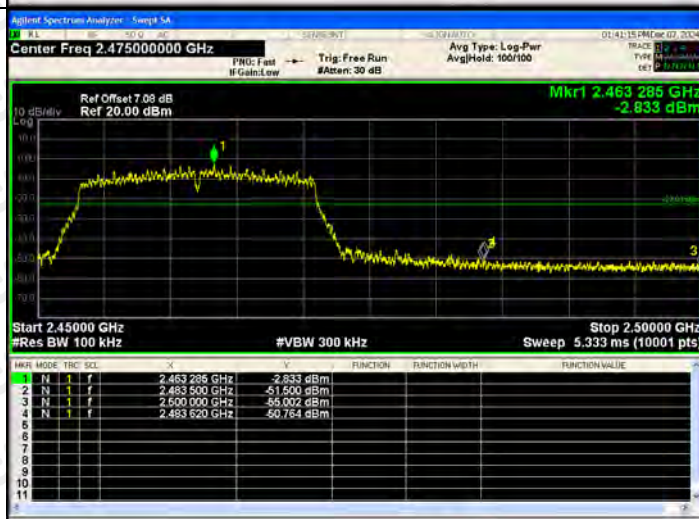


BAND EDGE Graphs

802.11n(HT20)/L
CH

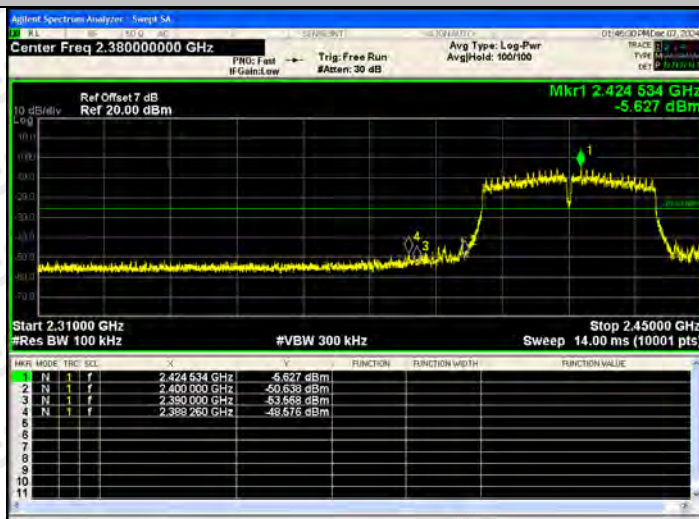


802.11n(HT20)/H
CH



BAND EDGE Graphs

802.11n(HT40)/L
CH



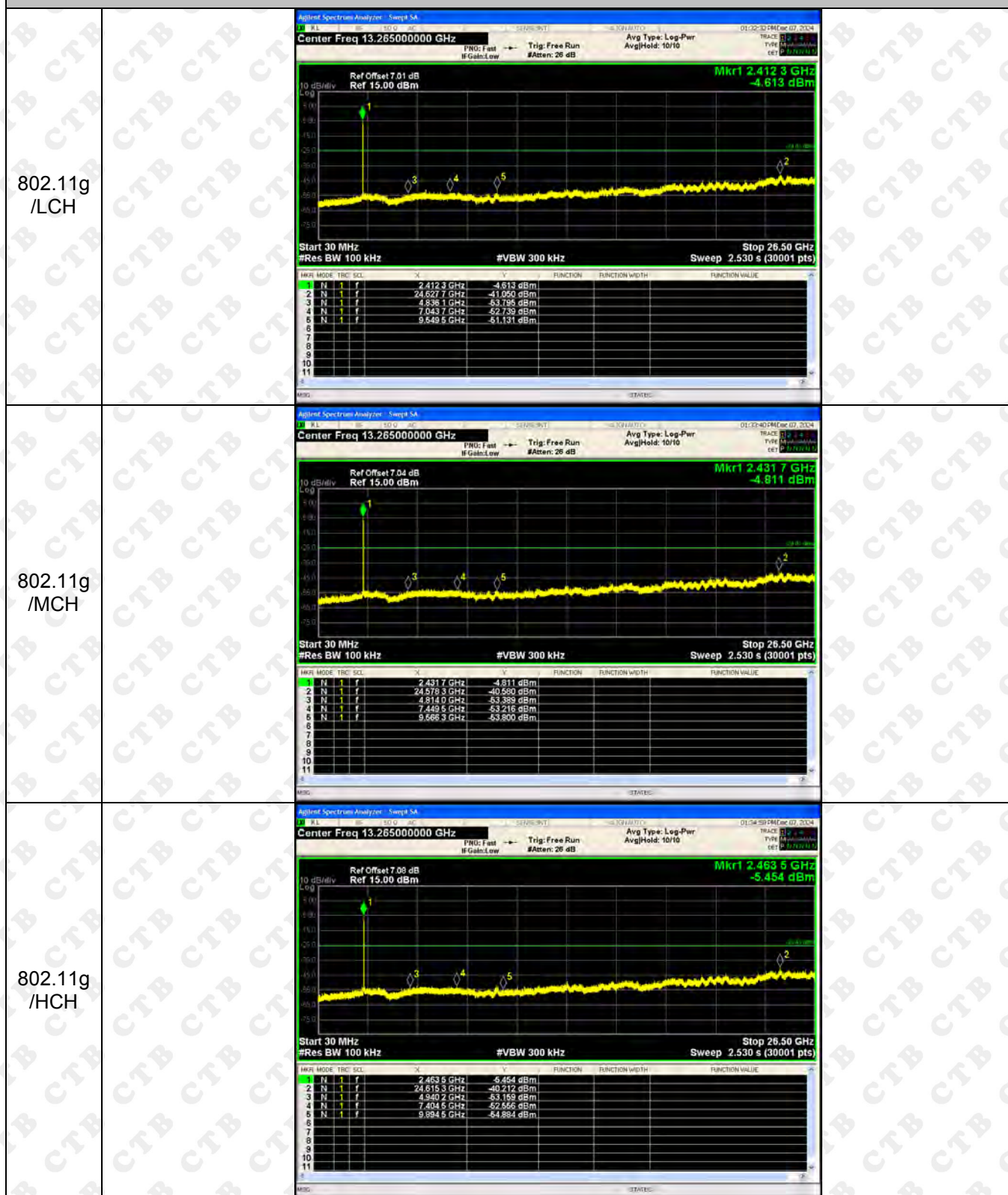
802.11n(HT40)/H
CH



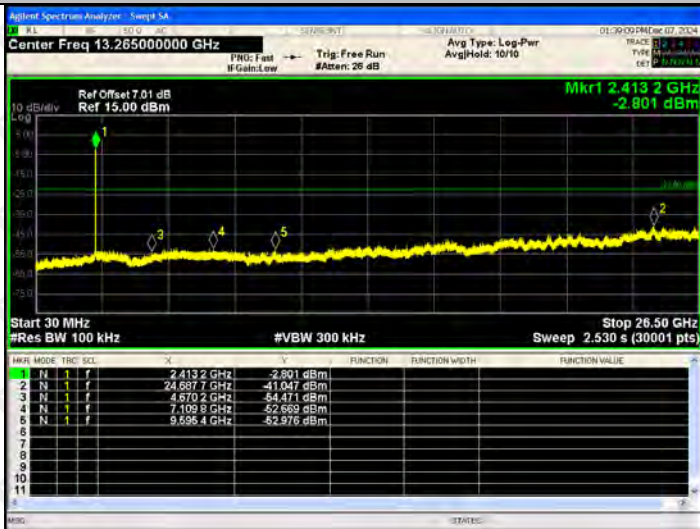
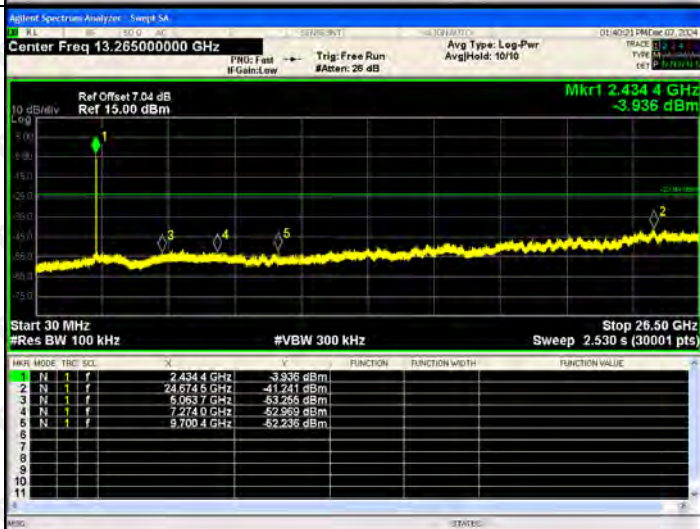
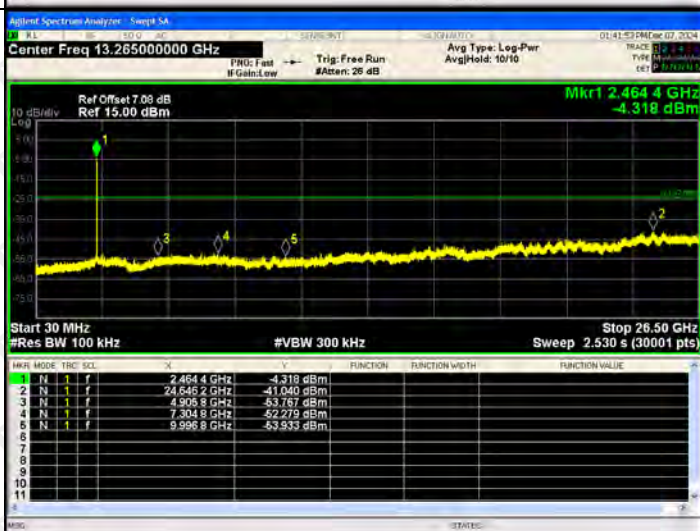
RF Conducted Spurious Emissions Graphs



RF Conducted Spurious Emissions Graphs



RF Conducted Spurious Emissions Graphs

802.11n (HT20)/ LCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 13.265000000 GHz Ref Offset 7.01 dB Ref 15.00 dBm Mkr1 2.413 2 GHz -2.801 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>2.4132 GHz</td><td>-2.801 dBm</td></tr><tr><td>2</td><td>24.6877 GHz</td><td>-41.047 dBm</td></tr><tr><td>3</td><td>4.6702 GHz</td><td>-54.471 dBm</td></tr><tr><td>4</td><td>7.1998 GHz</td><td>-52.859 dBm</td></tr><tr><td>5</td><td>9.5984 GHz</td><td>-52.976 dBm</td></tr></tbody></table>	Marker	Freq	Power	1	2.4132 GHz	-2.801 dBm	2	24.6877 GHz	-41.047 dBm	3	4.6702 GHz	-54.471 dBm	4	7.1998 GHz	-52.859 dBm	5	9.5984 GHz	-52.976 dBm
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802.11 n(HT20) /MCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 13.265000000 GHz Ref Offset 7.04 dB Ref 15.00 dBm Mkr1 2.434 4 GHz -3.936 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>2.4344 GHz</td><td>-3.936 dBm</td></tr><tr><td>2</td><td>24.6745 GHz</td><td>-41.241 dBm</td></tr><tr><td>3</td><td>5.0637 GHz</td><td>-53.255 dBm</td></tr><tr><td>4</td><td>7.2740 GHz</td><td>-52.959 dBm</td></tr><tr><td>5</td><td>9.7004 GHz</td><td>-52.235 dBm</td></tr></tbody></table>	Marker	Freq	Power	1	2.4344 GHz	-3.936 dBm	2	24.6745 GHz	-41.241 dBm	3	5.0637 GHz	-53.255 dBm	4	7.2740 GHz	-52.959 dBm	5	9.7004 GHz	-52.235 dBm
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4	7.2740 GHz	-52.959 dBm																	
5	9.7004 GHz	-52.235 dBm																	
802.11 n(HT20) /HCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 13.265000000 GHz Ref Offset 7.06 dB Ref 15.00 dBm Mkr1 2.464 4 GHz -4.318 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>2.4644 GHz</td><td>-4.318 dBm</td></tr><tr><td>2</td><td>24.6482 GHz</td><td>-41.040 dBm</td></tr><tr><td>3</td><td>4.9088 GHz</td><td>-53.787 dBm</td></tr><tr><td>4</td><td>7.3048 GHz</td><td>-52.279 dBm</td></tr><tr><td>5</td><td>9.9988 GHz</td><td>-53.935 dBm</td></tr></tbody></table>	Marker	Freq	Power	1	2.4644 GHz	-4.318 dBm	2	24.6482 GHz	-41.040 dBm	3	4.9088 GHz	-53.787 dBm	4	7.3048 GHz	-52.279 dBm	5	9.9988 GHz	-53.935 dBm
Marker	Freq	Power																	
1	2.4644 GHz	-4.318 dBm																	
2	24.6482 GHz	-41.040 dBm																	
3	4.9088 GHz	-53.787 dBm																	
4	7.3048 GHz	-52.279 dBm																	
5	9.9988 GHz	-53.935 dBm																	

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

9.3 Test procedure

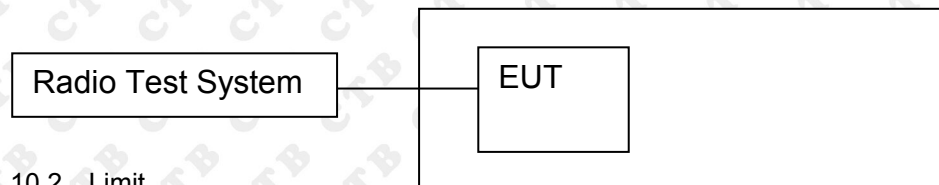
1. The EUT was directly connected to the Power meter

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	14.189	13.895	/	30
	MCH	14.252	14.062	/	30
	HCH	14.19	13.869	/	30
802.11g	LCH	14.108	14.431	/	30
	MCH	14.04	14.354	/	30
	HCH	13.994	14.335	/	30
802.11n(HT20)	LCH	13.859	14.203	17.045	30
	MCH	13.859	14.182	17.034	30
	HCH	13.835	14.088	16.974	30
802.11n(HT40)	LCH	14.168	13.92	17.056	30
	MCH	14.222	13.892	17.070	30
	HCH	14.219	13.789	17.020	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	9.382	500	PASS
	MCH	10.067	500	PASS
	HCH	9.2	500	PASS
802.11g	LCH	15.713	500	PASS
	MCH	15.071	500	PASS
	HCH	15.069	500	PASS
802.11n(HT20)	LCH	15.125	500	PASS
	MCH	15.136	500	PASS
	HCH	15.133	500	PASS
802.11n(HT40)	LCH	35.117	500	PASS
	MCH	35.162	500	PASS
	HCH	35.153	500	PASS

ANT2:

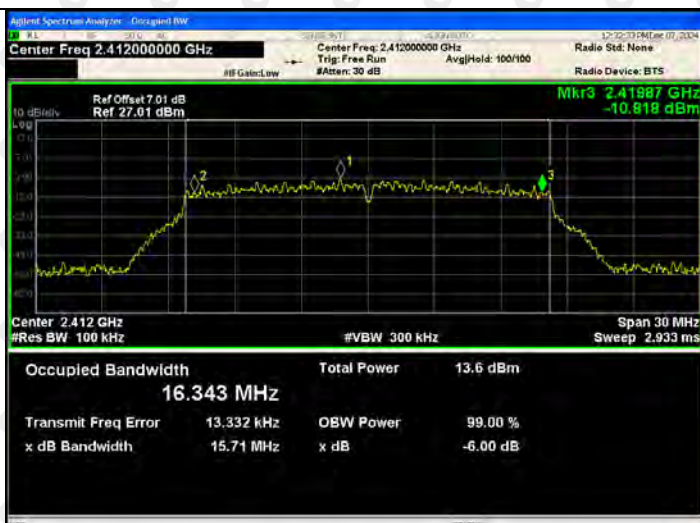
Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	9.031	500	PASS
	MCH	9.352	500	PASS
	HCH	8.266	500	PASS
802.11g	LCH	13.881	500	PASS
	MCH	15.117	500	PASS
	HCH	15.411	500	PASS
802.11n(HT20)	LCH	15.115	500	PASS
	MCH	15.611	500	PASS
	HCH	15.989	500	PASS
802.11n(HT40)	LCH	35.117	500	PASS
	MCH	35.144	500	PASS
	HCH	35.161	500	PASS

ANT1:

Test Graph:

Graphs	
802.11b /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.416731 GHz -7.0813 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 14.026 MHz Total Power 17.1 dBm Transmit Freq Error 40.013 kHz OBW Power 99.00 % x dB Bandwidth 9.382 MHz x dB -6.00 dB
802.11b /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset 7.04 dB Ref 27.04 dBm Mkr3 2.442024 GHz -7.0719 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 14.051 MHz Total Power 16.9 dBm Transmit Freq Error -9.269 kHz OBW Power 99.00 % x dB Bandwidth 10.07 MHz x dB -6.00 dB
802.11b/HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Ref Offset 7.08 dB Ref 27.08 dBm Mkr3 2.466719 GHz -7.3092 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 14.054 MHz Total Power 16.9 dBm Transmit Freq Error 118.54 kHz OBW Power 99.00 % x dB Bandwidth 9.200 MHz x dB -6.00 dB

802.11g/LCH

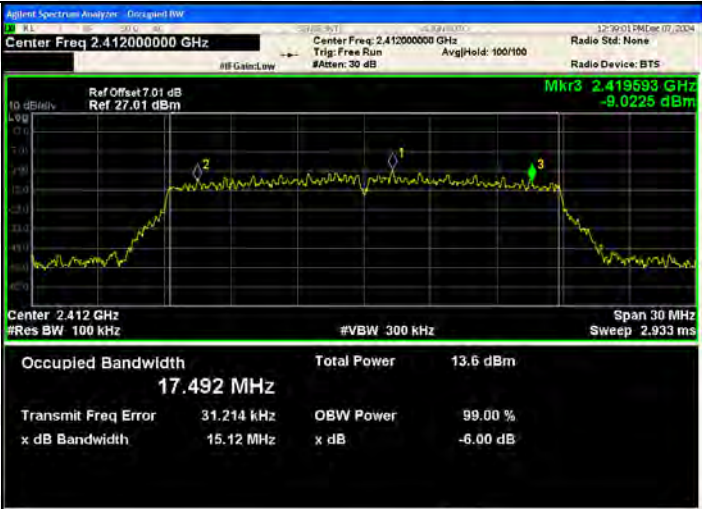
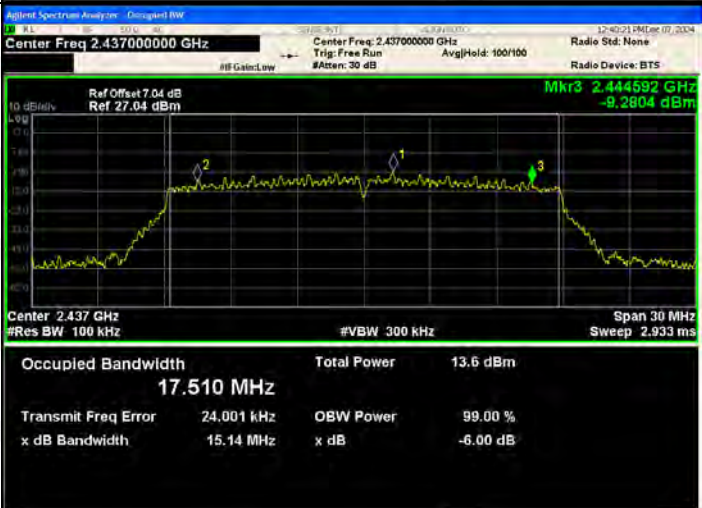
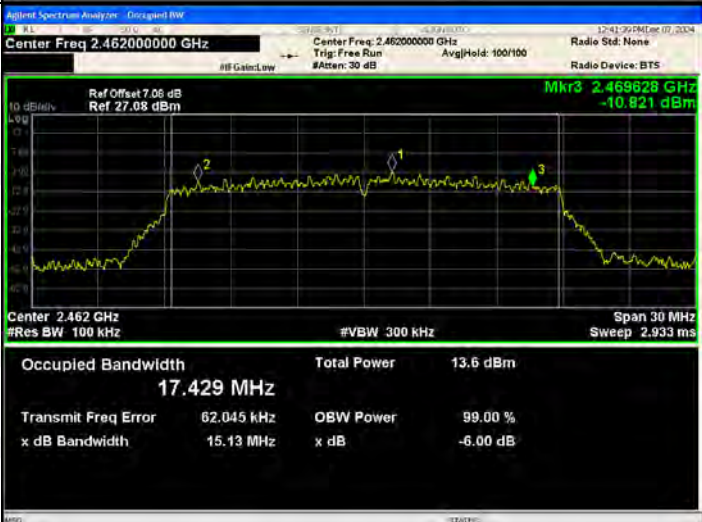


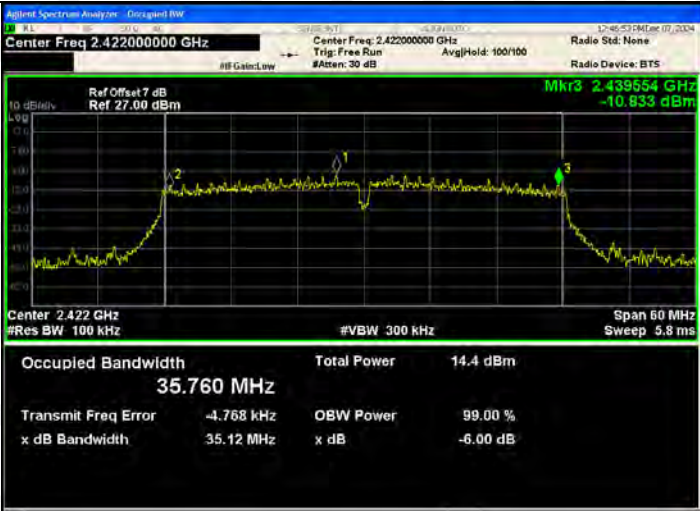
802.11g/MCH



802.11g/HCH



802.11n(HT20)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.412000000 GHz Ref Offset: 7.01 dB Ref: 27.01 dBm Mkr3: 2.419593 GHz -9.0225 dBm Center: 2.412 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.492 MHz Total Power: 13.6 dBm Transmit Freq Error: 31.214 kHz OBW Power: 99.00 % x dB Bandwidth: 15.12 MHz x dB: -6.00 dB
802.11n(HT20)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.437000000 GHz Ref Offset: 7.04 dB Ref: 27.04 dBm Mkr3: 2.444592 GHz -9.2804 dBm Center: 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.510 MHz Total Power: 13.6 dBm Transmit Freq Error: 24.001 kHz OBW Power: 99.00 % x dB Bandwidth: 15.14 MHz x dB: -6.00 dB
802.11n(HT20)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.462000000 GHz Ref Offset: 7.06 dB Ref: 27.06 dBm Mkr3: 2.469628 GHz -10.921 dBm Center: 2.462 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.429 MHz Total Power: 13.6 dBm Transmit Freq Error: 62.045 kHz OBW Power: 99.00 % x dB Bandwidth: 15.13 MHz x dB: -6.00 dB

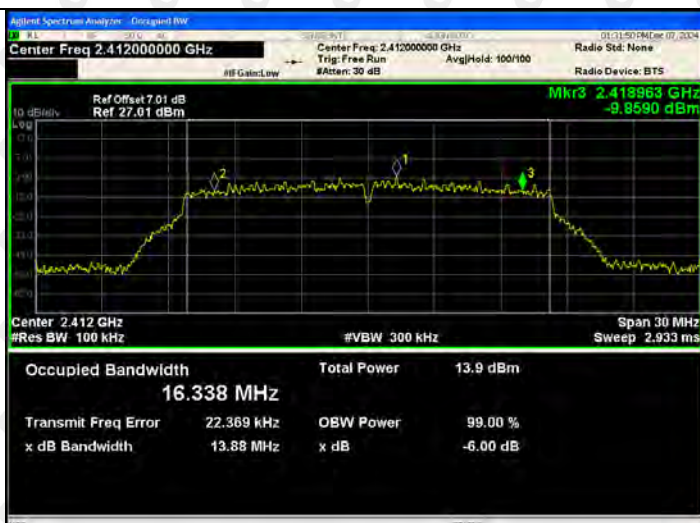
802.11n(HT40)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.42200000 GHz Ref Offset: 7 dB Ref: 27.00 dBm Mkr3: 2.439554 GHz -10.933 dBm Center: 2.422 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms Occupied Bandwidth: 35.760 MHz Total Power: 14.4 dBm Transmit Freq Error: -4.768 kHz OBW Power: 99.00 % x dB Bandwidth: 35.12 MHz x dB: -6.00 dB
802.11n(HT40)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Ref Offset: 7.04 dB Ref: 27.04 dBm Mkr3: 2.454551 GHz -10.303 dBm Center: 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms Occupied Bandwidth: 35.840 MHz Total Power: 14.5 dBm Transmit Freq Error: -30.419 kHz OBW Power: 99.00 % x dB Bandwidth: 35.16 MHz x dB: -6.00 dB
802.11n(HT40)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.45200000 GHz Ref Offset: 7.07 dB Ref: 27.07 dBm Mkr3: 2.469648 GHz -14.249 dBm Center: 2.452 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 60 MHz Sweep: 5.8 ms Occupied Bandwidth: 35.799 MHz Total Power: 14.4 dBm Transmit Freq Error: 71.830 kHz OBW Power: 99.00 % x dB Bandwidth: 35.15 MHz x dB: -6.00 dB

ANT2:

Test Graph:

Graphs	
802.11b /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Center Freq: 2.41200000 GHz Trig: Free Run #Att: 30 dB Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.416803 GHz -7.8071 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 13.958 MHz Total Power 16.9 dBm Transmit Freq Error 87.175 kHz OBW Power 99.00 % x dB Bandwidth 9.031 MHz x dB -6.00 dB
802.11b /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Center Freq: 2.43700000 GHz Trig: Free Run #Att: 30 dB Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset 7.04 dB Ref 27.04 dBm Mkr3 2.441693 GHz -7.4642 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 13.935 MHz Total Power 17.0 dBm Transmit Freq Error 17.063 kHz OBW Power 99.00 % x dB Bandwidth 9.352 MHz x dB -6.00 dB
802.11b/HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Center Freq: 2.46200000 GHz Trig: Free Run #Att: 30 dB Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset 7.06 dB Ref 27.06 dBm Mkr3 2.4663 GHz -5.9657 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 13.956 MHz Total Power 16.7 dBm Transmit Freq Error 166.87 kHz OBW Power 99.00 % x dB Bandwidth 8.266 MHz x dB -6.00 dB

802.11g/LCH

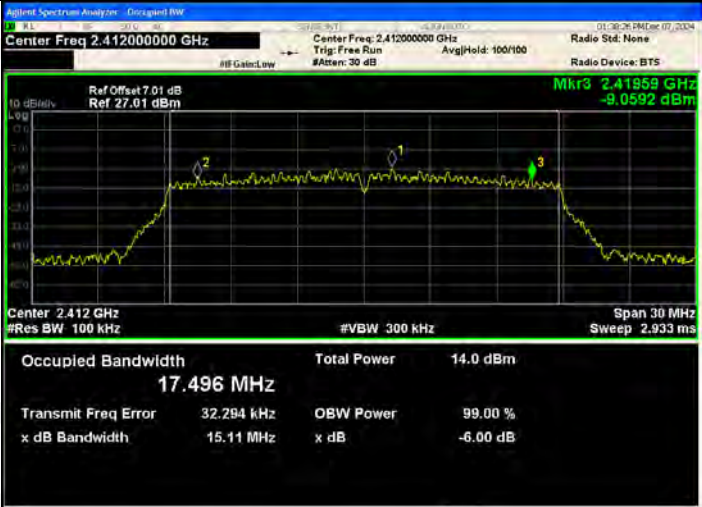
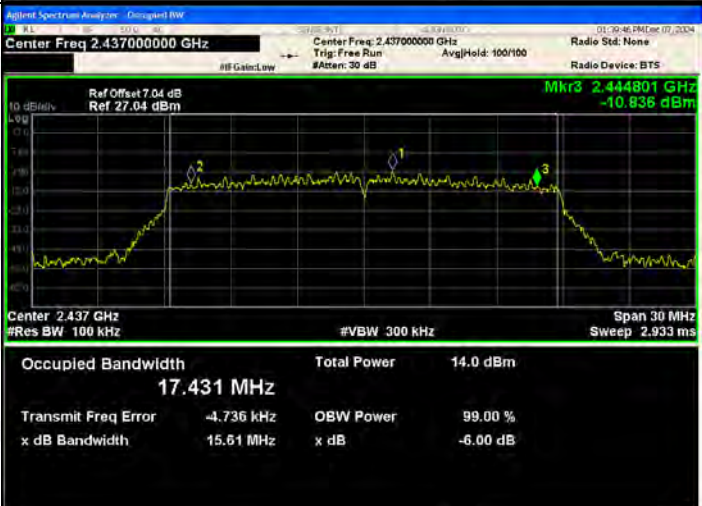
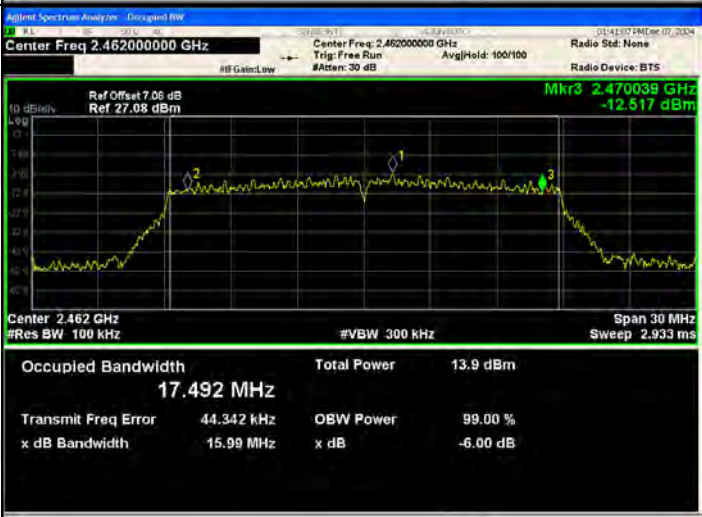


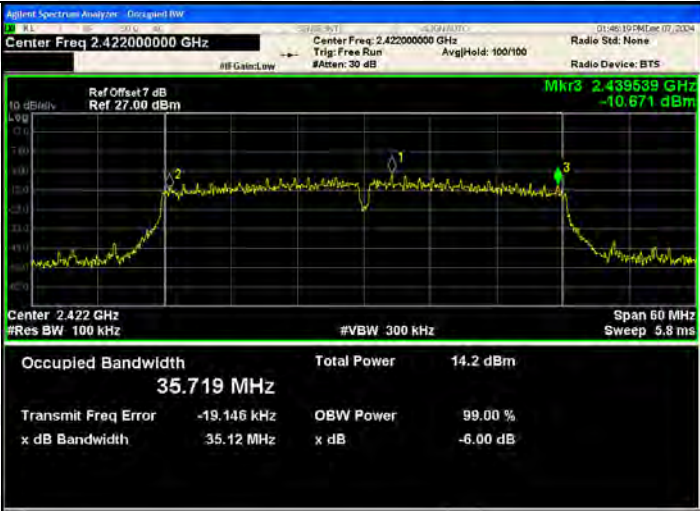
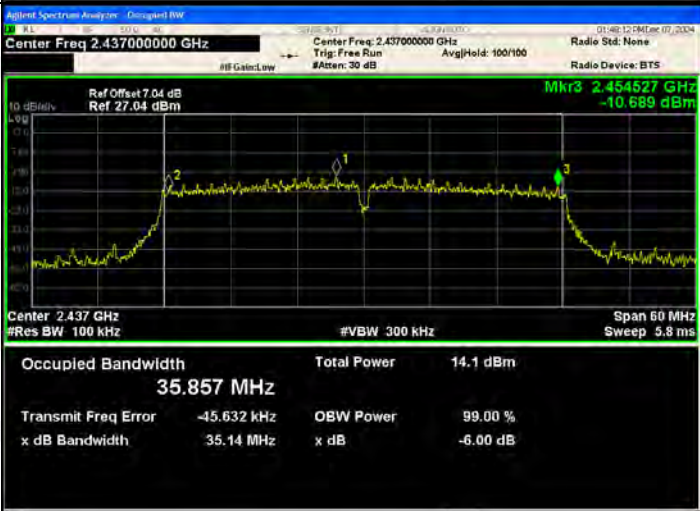
802.11g/MCH



802.11g/HCH

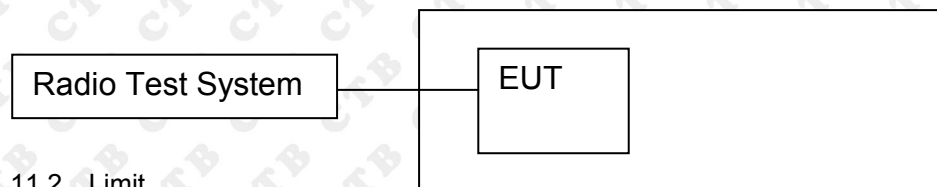


802.11n(HT20)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.41859 GHz -9.0592 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.496 MHz Total Power 14.0 dBm Transmit Freq Error 32.294 kHz OBW Power 99.00 % x dB Bandwidth 15.11 MHz x dB -6.00 dB
802.11n(HT20)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 7.04 dB Ref 27.04 dBm Mkr3 2.444801 GHz -10.836 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.431 MHz Total Power 14.0 dBm Transmit Freq Error -4.736 kHz OBW Power 99.00 % x dB Bandwidth 15.51 MHz x dB -6.00 dB
802.11n(HT20)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 7.06 dB Ref 27.06 dBm Mkr3 2.470039 GHz -12.517 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.492 MHz Total Power 13.9 dBm Transmit Freq Error 44.342 kHz OBW Power 99.00 % x dB Bandwidth 15.99 MHz x dB -6.00 dB

802.11n(HT40)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.42200000 GHz Ref Offset: 7 dB Ref: 27.00 dBm Occupied Bandwidth: 35.719 MHz Total Power: 14.2 dBm Transmit Freq Error: -19.146 kHz x dB Bandwidth: 35.12 MHz OBW Power: 99.00 % x dB: -6.00 dB
802.11n(HT40)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Ref Offset: 7.04 dB Ref: 27.04 dBm Occupied Bandwidth: 35.857 MHz Total Power: 14.1 dBm Transmit Freq Error: -45.632 kHz x dB Bandwidth: 35.14 MHz OBW Power: 99.00 % x dB: -6.00 dB
802.11n(HT40)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.45200000 GHz Ref Offset: 7.07 dB Ref: 27.07 dBm Occupied Bandwidth: 35.826 MHz Total Power: 14.0 dBm Transmit Freq Error: 45.660 kHz x dB Bandwidth: 35.16 MHz OBW Power: 99.00 % 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	-13.838	-14.148	/	8
	MCH	-13.798	-14.243	/	8
	HCH	-14.003	-14.374	/	8
802.11g	LCH	-19.929	-20.114	/	8
	MCH	-19.773	-20.04	/	8
	HCH	-19.497	-19.618	/	8
802.11n(H T20)	LCH	-20.235	-18.853	-16.479	8
	MCH	-17.986	-18.541	-15.244	8
	HCH	-18.952	-18.939	-15.935	8
802.11n(H T40)	LCH	-20.147	-22.643	-18.208	8
	MCH	-22.412	-21.933	-19.156	8
	HCH	-21.146	-22.392	-18.714	8

ANT1: Test Graph

Graphs

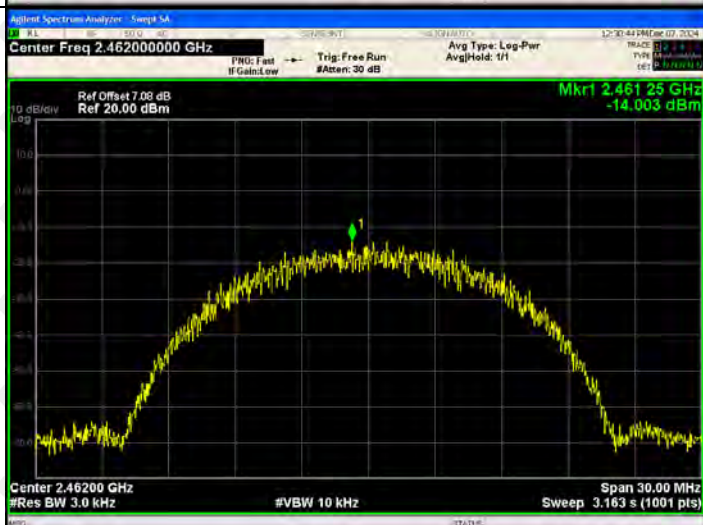
802.11b /LCH

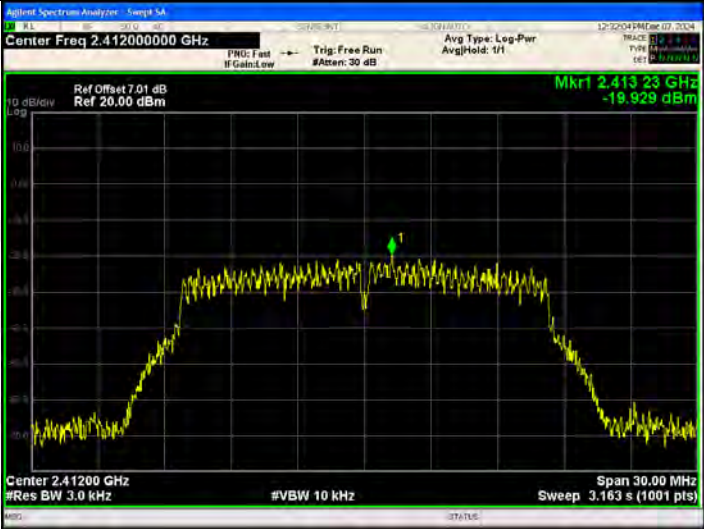


802.11b /MCH

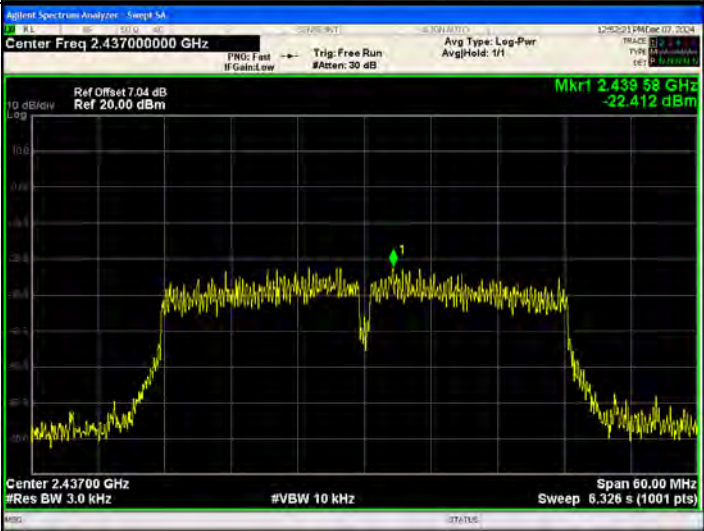
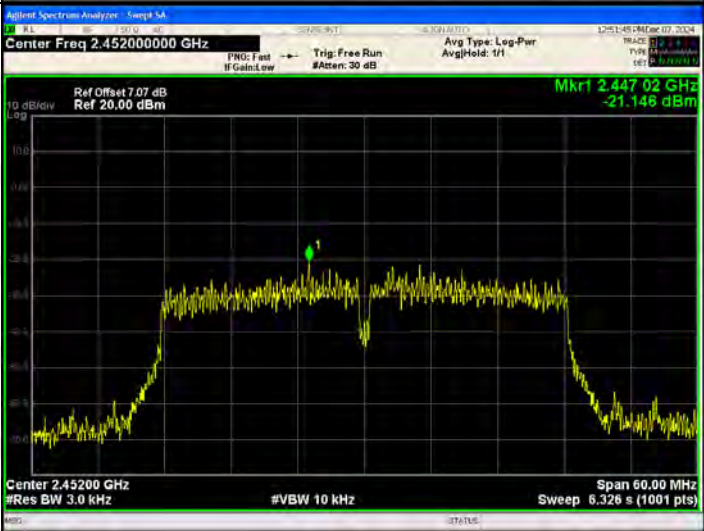


802.11b/HCH



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	

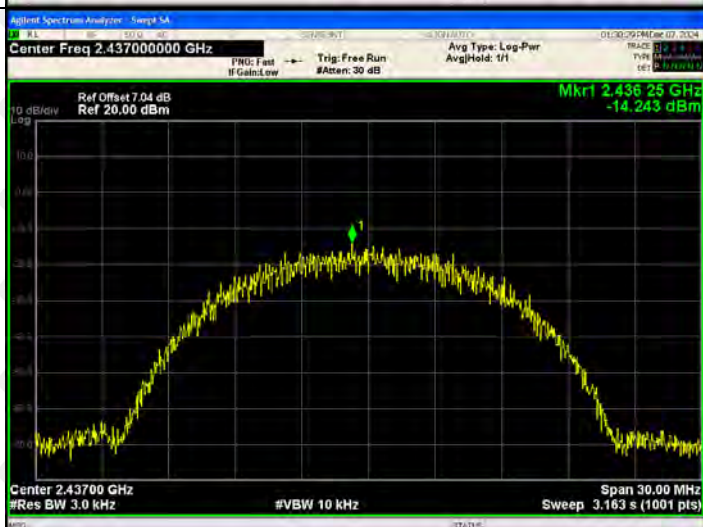
ANT 2: Test Graph

Graphs

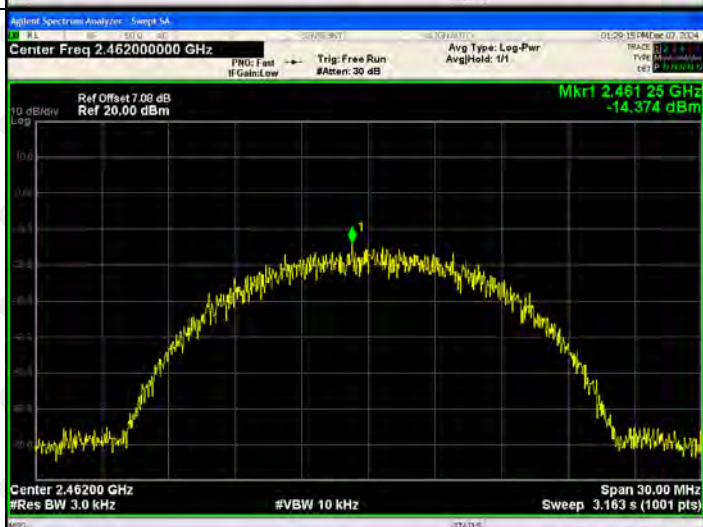
802.11b /LCH

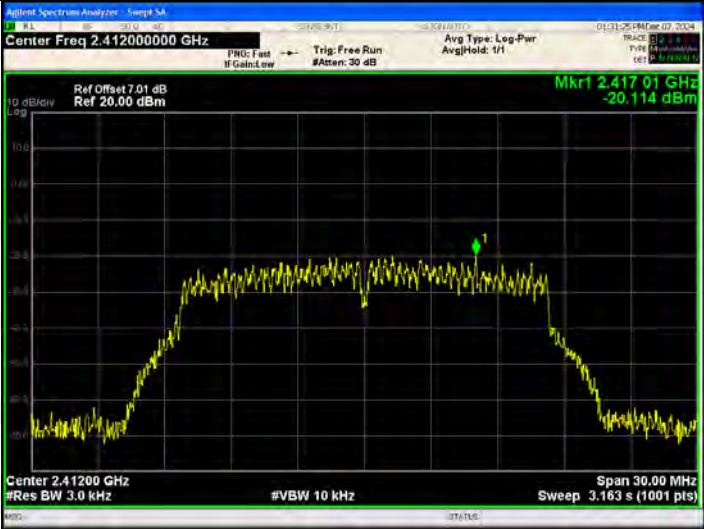


802.11b /MCH

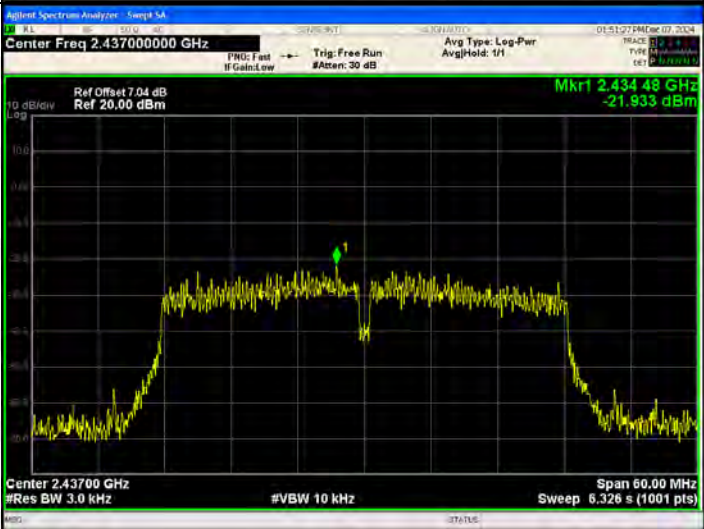


802.11b/HCH



802.11g/LCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.41200000 GHz Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.417 01 GHz -20.114 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)
802.11g/MCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.43700000 GHz Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.431 99 GHz -20.040 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)
802.11g/HCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.46200000 GHz Ref Offset 7.08 dB Ref 20.00 dBm Mkr1 2.463 62 GHz -19.618 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)

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

802.11n(HT40)/LC H	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.42200000 GHz Ref Offset 7 dB Ref 20.00 dBm Mkr1 2.419 48 GHz -22.643 dBm Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)
802.11n(HT40)/MC H	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.43700000 GHz Ref Offset 7.04 dB Ref 20.00 dBm Mkr1 2.434 48 GHz -21.933 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)
802.11n(HT40)/HC H	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.45200000 GHz Ref Offset 7.07 dB Ref 20.00 dBm Mkr1 2.447 02 GHz -22.392 dBm Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)

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.

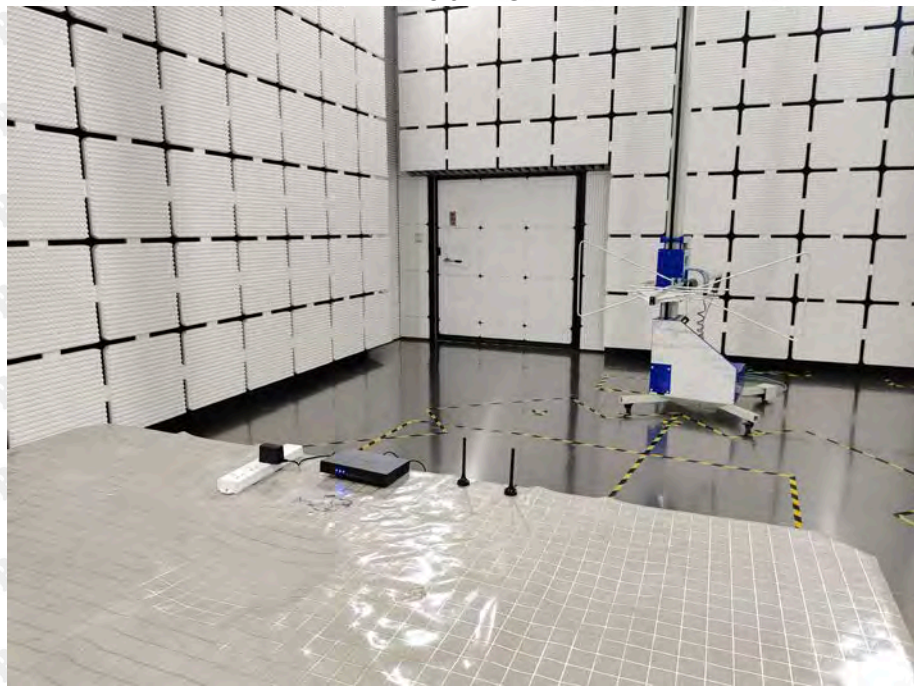
EUT Antenna:

The antenna is Sucker Antenna and no consideration of replacement. The best case gain of the antenna is -3.5627dBi.

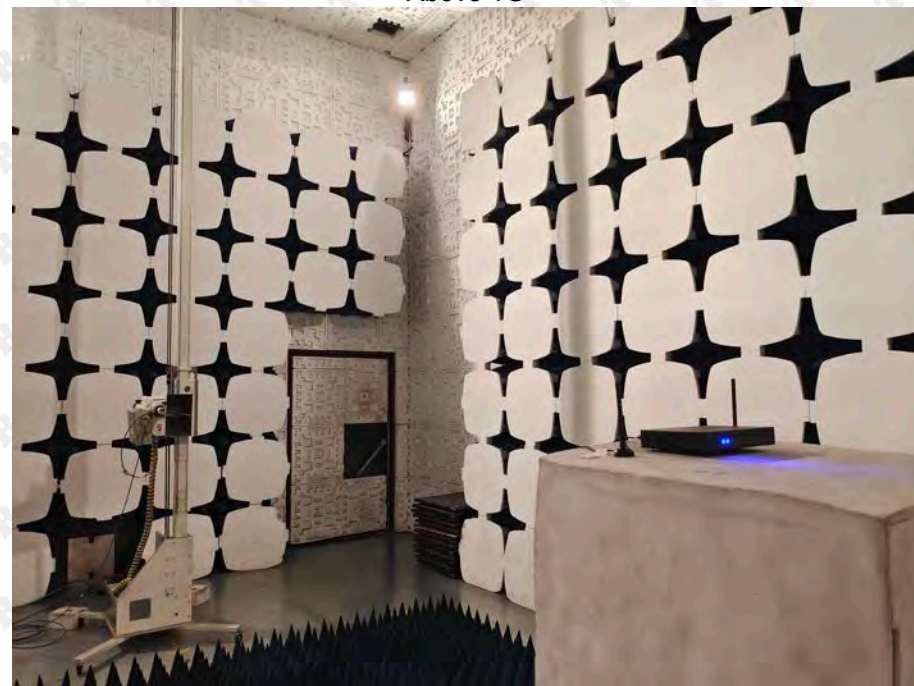
13. EUT TEST SETUP PHOTOGRAPHS

Radiated Emission

Below 1G



Above 1G



Conducted Emission



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