

TEST REPORT

Test item description: Water Pump
FCC ID: 2BW4I-H3-50R1
Trademark(s): N/A
Model/Type reference: H3-50R1, H2-32R1
Applicant's name: PRODN INTELLIGENT PUMP (ANHUI) CO., LTD.
Address: No.1128 Nanchiyi Road, Anhui Xinwu Economic Development Zone, Wanzhi District, Wuhu City, Anhui, China
Manufacturer: PRODN INTELLIGENT PUMP (ANHUI) CO., LTD.
Address: No.1128 Nanchiyi Road, Anhui Xinwu Economic Development Zone, Wanzhi District, Wuhu City, Anhui, China
Prepared By: Shenzhen CTB Testing Technology Co., Ltd.
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Sample Received Date: Jun. 22. 2026
Sample tested Date: Jun. 22. 2026 to Jul. 06, 2026
Issue Date: Jul. 06, 2026
Report No.: CTB26062203702RF01
Test Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247
ANSI C63.10:2020
Test Results: PASS
Remark: This is WIFI-2.4GHz band radio test report.

Compiled by:

Reviewed by:

Approved by:

Kai Chen

Martin Feng



Kai Chen

Martin Feng

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. The tested sample(s) and the sample information are provided by the applicant. The authenticity, accuracy, and completeness of the provided information are the sole responsibility of the applicant. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The result decision rules of our laboratory are based solely on the direct comparison between the actual measured values of test results and the standard limits, without considering the measurement uncertainty. "★" 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
CTB26062203702RF01	Jul. 06, 2026	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 C63.10-2020	PASS
Radiated Spurious emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2020	PASS
Band edge and RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)/15.205(a)	ANSI C63.10-2020	PASS
Conducted Peak Output Power	47 CFR Part 15 Subpart C Section 15.247 (b)(3)	ANSI C63.10-2020	PASS
6dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	ANSI C63.10-2020	PASS
Power Spectral Density	47 CFR Part 15 Subpart C Section 15.247 (e)	ANSI C63.10-2020/ KDB 558074 D05v02	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 C63.10-2020

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(18GHz-40GHz)	U=±3.4dB
Humidity uncertainty	U=±5.3%
Temperature uncertainty	U=±0.59°C
Supply voltages	U=±3%
Time	U=±5%

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model/Type reference:	H3-50R1, H2-32R1
Model Description:	All the model are the same circuit and RF module, only the model names are different. Test sample model: H3-50R1
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
Max. RF output power:	WiFi (2.4G): 16.454dBm
Type of Modulation:	WiFi (2.4G): DSSS, OFDM
Antenna installation:	WiFi (2.4G): PCB antenna
Antenna Gain:	WiFi (2.4G): -0.26dBi
Ratings:	110V-240Vac, 50/60Hz 5.3A

4.2 Test Setup Configuration

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

4.3 Support Equipment

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note

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.

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

NOTE: Duty cycle>98%.

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

4.6 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(AC):	120V
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, Xinxhe 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.

FCC Test Firm Registration Number: CN1276

5.2 Test Instrument Used

No.	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Calibrated Date	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	A.14.16	2026/5/14	2027/5/13
2	Power Sensor	Agilent	U2021XA	MY56120032	/	2026/5/14	2027/5/13
3	Power Sensor	Agilent	U2021XA	MY56120034	/	2026/5/14	2027/5/13
4	Communication test set	R&S	CMW500	108058	V3.5.80	2026/5/14	2027/5/13
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2026/5/14	2027/5/13
6	Signal Generator	Agilent	N5181A	MY50140365	A.01.60	2026/5/14	2027/5/13
7	Vector signal generator	Agilent	N5182A	MY47420195	A.01.87	2026/5/14	2027/5/13
8	Communication test set	Agilent	E5515C	MY50102567	B.19.07 (E1962B)	2026/5/14	2027/5/13
9	2.4 GHz Filter	Shenxiang	MSF2400-2483.5MS-1154	20181015001	/	2026/5/16	2027/5/15
10	5 GHz Filter	Shenxiang	MSF5150-5850 MS-1155	20181015001	/	2026/5/16	2027/5/15
11	Filter	Xingbo	XBLBQ-DZA120	190821-1-1	/	2026/5/16	2027/5/15
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	/	2025/10/20	2026/10/19
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	/	2025/7/13	2026/7/12
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	/	/	/
16	966 chamber	C.R.T.	966	/	/	2024/6/23	2027/6/22
17	Receiver	R&S	ESPI	100362	RF_ATTEN_7 (104489/003)	2026/5/15	2027/5/14
18	Amplifier	HP	8447E	2945A02747	/	2026/5/15	2027/5/14

19	Amplifier	Agilent	8449B	3008A01838	/	2026/5/14	2027/5/13
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	/	2026/5/17	2027/5/16
21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	/	2026/5/15	2027/5/14
22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/	/	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2026/5/17	2027/5/16
24	loop antenna	ZHINAN	ZN30900A	GTS534	/	/	/
25	40G Horn antenna	A/H/System	SAS-574	588	/	2026/6/1	2027/5/31
26	Amplifier	AEROFLEX	Aeroflex	097	/	2026/6/1	2027/5/31
27	Power Meter	KEYSIGHT	N1912AP	N/A	A.05.00	2026/6/1	2027/5/31

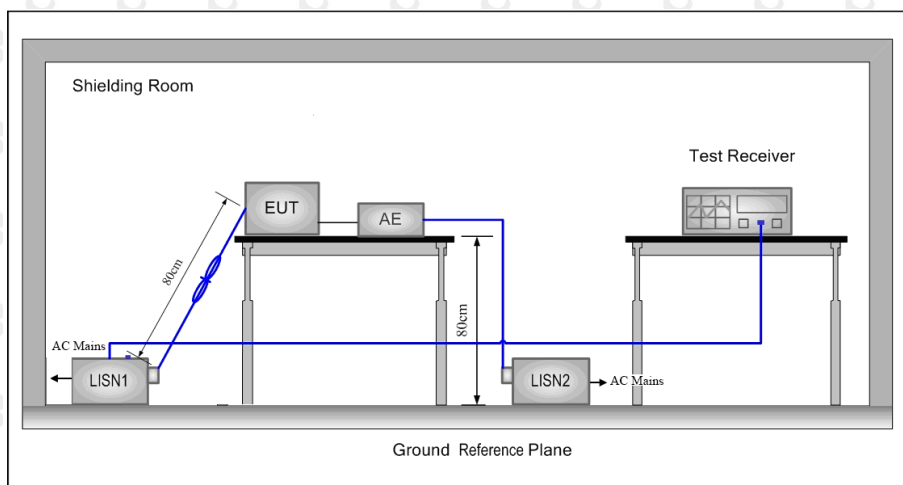
Continuous disturbance							
No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware version	Calibrated Date	Calibrated until
1	843 Shield Room	C/ R/ T	843	/	/	2024/6/22	2027/6/21
2	LISN	ROHDE&SCHWARZ	ESH3-Z5	831551852	/	2026/5/14	2027/5/13
3	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100428	V4.42.SP3	2026/5/15	2027/5/14
4	Coaxial cable	ZDECL	Z302S	18091904	/	2026/5/14	2027/5/13
5	ISN	Schwarzbeck	NTFM8158	183	/	2026/5/18	2027/5/17
6	Voltage sensor	Schwarzbeck	TK 9420	01189	/	2026/5/16	2027/5/15
7	EZ-EMC	Frad	EMC-con3A1.1	/	/	/	/
8	Current Probe	FCC	F-52B	199453	/	2026/5/22	2027/5/21
9	Communication test set	R&S	CMW500	108058	B.19.07 (E1962B)	2026/5/14	2027/5/13
10	Communication test set	Agilent	E5515C	MY50102567	V3.5.80	2026/5/14	2027/5/13

Radiated emission(No.1 Chamber)							
No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware version	Calibrated until	Calibrated until
1	966 Chamber	C/ R/ T	966	/	/	2024/6/23	2027/6/22
2	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120 D	01911	/	2026/5/15	2027/5/14
3	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	/	2026/5/17	2027/5/16
4	Amplifier	Agilent	8449B	3008A01838	/	2026/5/14	2027/5/13
5	Amplifier	HP	8447E	2945A02747	/	2026/5/15	2027/5/14

6	loop antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2026/5/17	2027/5/16
7	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESPI	100362	RF_ATTEN_7 (104489/003)	2026/5/15	2027/5/14
8	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2026/5/14	2027/5/13
9	Coaxial cable	ETS	RFC-SNS-100-NMS-80	/	/	2026/5/14	2027/5/13
10	Coaxial cable	ETS	RFC-SN-100-NMS-20	/	/	2026/5/14	2027/5/13
11	Coaxial cable	ETS	RFC-SNS-100-SMS-20	/	/	2026/5/14	2027/5/13
12	Coaxial cable	ETS	RFC-NNS-100-NMS-300	/	/	2026/5/14	2027/5/13
13	EMI test software	Frad	EZ-EMC	Ver/ FA-03A2 RE	/	/	/
14	Communication test set	R&S	CMW500	108058	B.19.07 (E1962B)	2026/5/14	2027/5/13
15	Communication test set	Agilent	E5515C	MY50102567	V3.5.80	2026/5/14	2027/5/13

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.

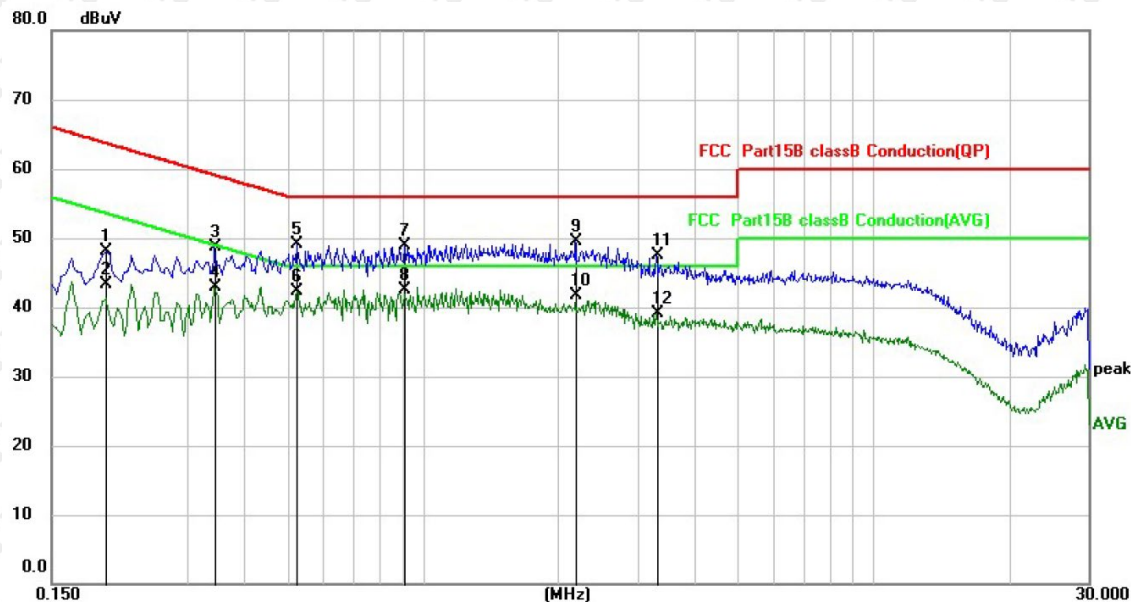
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2020 on conducted measurement.

6.4 Test Result

Test Specification: Line

AC 120V 60Hz

the worst: 802.11b (low channel)

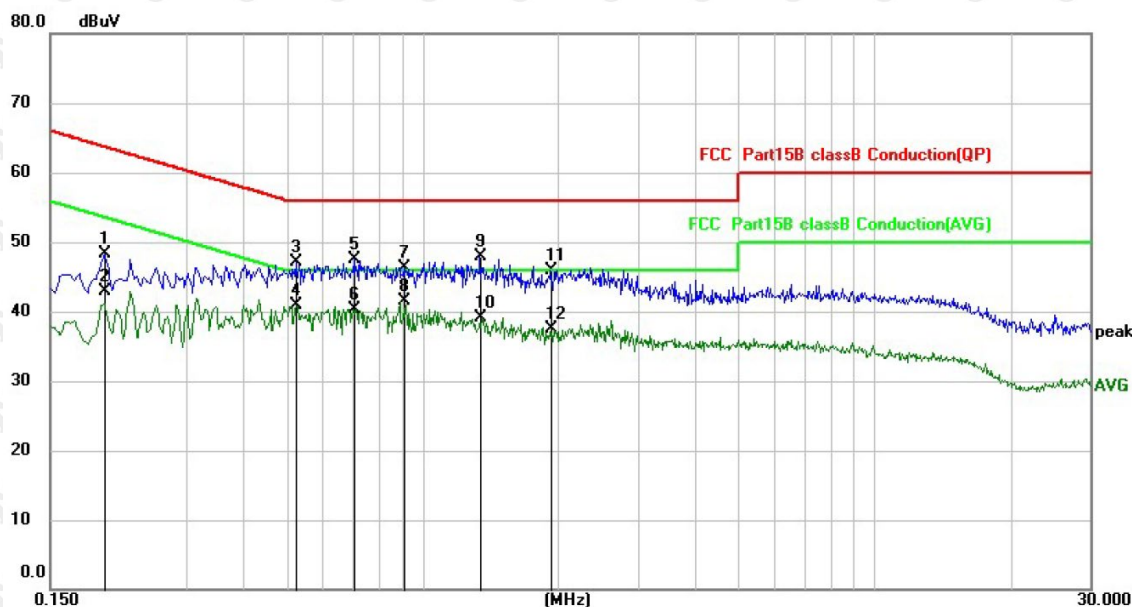


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1980	38.09	10.08	48.17	63.69	-15.52	QP
2		0.1980	33.29	10.08	43.37	53.69	-10.32	AVG
3		0.3460	38.66	10.08	48.74	59.06	-10.32	QP
4		0.3460	32.84	10.08	42.92	49.06	-6.14	AVG
5		0.5260	39.03	10.09	49.12	56.00	-6.88	QP
6		0.5260	32.23	10.09	42.32	46.00	-3.68	AVG
7		0.9100	38.87	10.12	48.99	56.00	-7.01	QP
8	*	0.9100	32.46	10.12	42.58	46.00	-3.42	AVG
9		2.1860	39.33	10.18	49.51	56.00	-6.49	QP
10		2.1860	31.62	10.18	41.80	46.00	-4.20	AVG
11		3.3100	37.37	10.22	47.59	56.00	-8.41	QP
12		3.3100	28.82	10.22	39.04	46.00	-6.96	AVG

Remark:

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

Test Specification: Neutral
AC 120V 60Hz
the worst: 802.11b (low channel)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1980	38.28	10.08	48.36	63.69	-15.33	QP
2		0.1980	32.82	10.08	42.90	53.69	-10.79	AVG
3		0.5260	36.96	10.09	47.05	56.00	-8.95	QP
4		0.5260	30.81	10.09	40.90	46.00	-5.10	AVG
5		0.7060	37.32	10.11	47.43	56.00	-8.57	QP
6		0.7060	30.28	10.11	40.39	46.00	-5.61	AVG
7		0.9100	36.25	10.12	46.37	56.00	-9.63	QP
8	*	0.9100	31.43	10.12	41.55	46.00	-4.45	AVG
9		1.3420	37.67	10.14	47.81	56.00	-8.19	QP
10		1.3420	28.98	10.14	39.12	46.00	-6.88	AVG
11		1.9260	35.78	10.17	45.95	56.00	-10.05	QP
12		1.9260	27.30	10.17	37.47	46.00	-8.53	AVG

Remark:

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

7. RADIATED SPURIOUS EMISSION

7.1 Block Diagram Of Test Setup

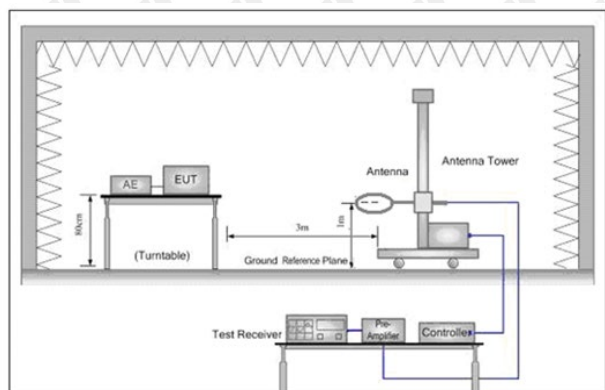


Figure 1. Below 30MHz

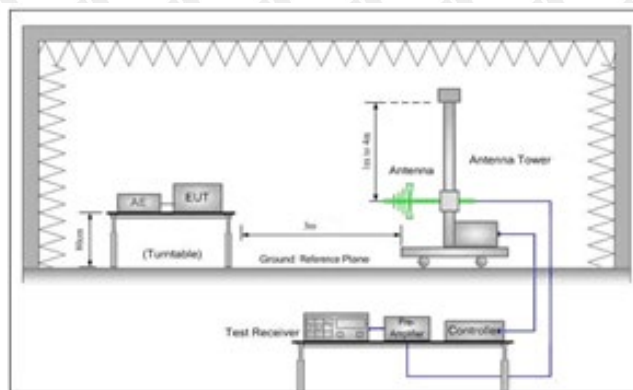


Figure 2. 30MHz to 1GHz

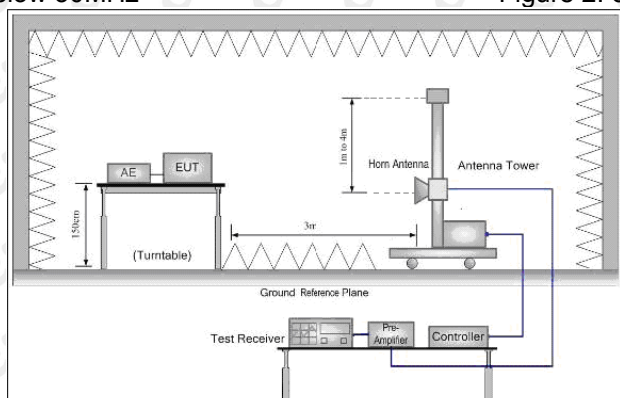


Figure 3. Above 1GHz

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:

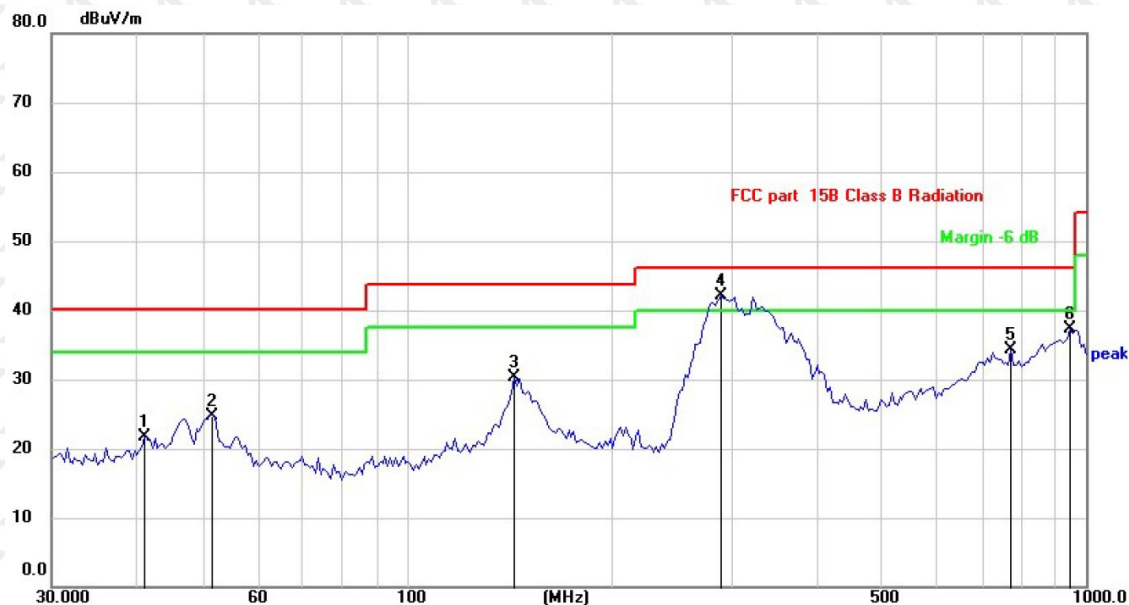
Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30KHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30KHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak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

Remark: If the EUT D is < 98%, then set VBW 1/ T, where T is defined in item a) of 12.2.

7.4 Test Result

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		41.1319	27.56	-5.93	21.63	40.00	-18.37	QP
2		51.6613	31.38	-6.58	24.80	40.00	-15.20	QP
3		144.0817	35.34	-4.98	30.36	43.50	-13.14	QP
4	*	290.5260	44.95	-2.94	42.01	46.00	-3.99	QP
5		775.5167	26.34	8.03	34.37	46.00	-11.63	QP
6		948.7608	28.10	9.30	37.40	46.00	-8.60	QP

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

Antenna polarity: V



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		47.3253	37.24	-6.29	30.95	40.00	-9.05	QP
2		94.5939	32.55	-7.91	24.64	43.50	-18.86	QP
3	*	146.6303	39.42	-4.73	34.69	43.50	-8.81	QP
4		290.5260	35.53	-2.94	32.59	46.00	-13.41	QP
5		364.8987	34.34	-1.47	32.87	46.00	-13.13	QP
6		803.1933	26.66	8.59	35.25	46.00	-10.75	QP

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

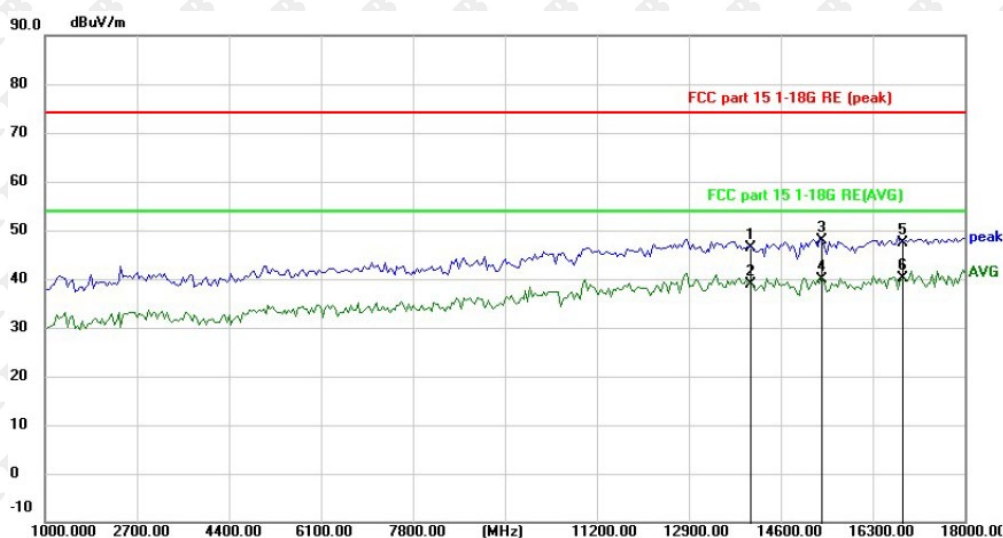
1. The margin of 9k-30MHz measurement exceeds 20dB, so the test chart is not included. Test Mode: 802.11b low channel (the worst)
2. All modes have been tested, and the test results show that b-mode data is the worst, only b-mode test chart is put. Test Mode: 802.11b low channel (the worst)
3. After pre-scanning three directions, the report recorded the worst case Test Mode: 802.11b low channel (the worst)

Above 1 GHz Test Results:

1-18G:

Antenna polarity: H

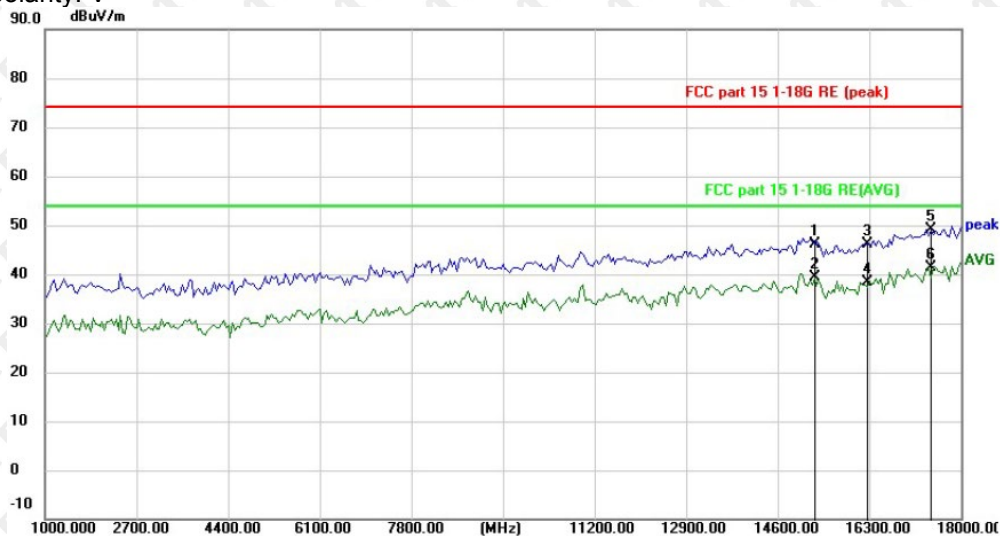
Worst mode : CH6 802.11b /2412



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		14047.500	35.82	10.64	46.46	74.00	-27.54	peak
2		14047.500	28.12	10.64	38.76	54.00	-15.24	AVG
3		15365.000	37.62	10.15	47.77	74.00	-26.23	peak
4		15365.000	29.77	10.15	39.92	54.00	-14.08	AVG
5		16852.500	34.30	13.19	47.49	74.00	-26.51	peak
6	*	16852.500	27.02	13.19	40.21	54.00	-13.79	AVG

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

Antenna polarity: V



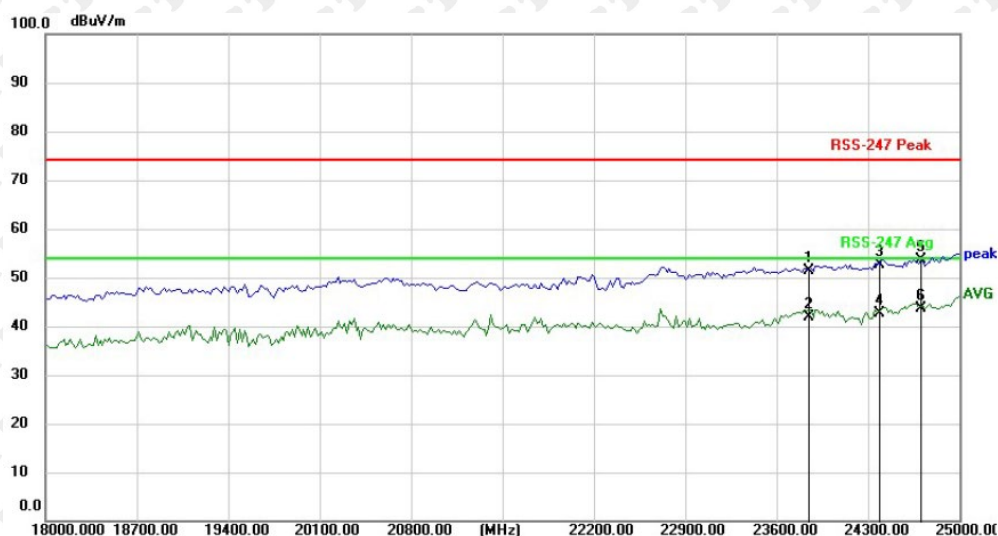
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		15280.000	35.81	10.21	46.02	74.00	-27.98	peak
2		15280.000	29.21	10.21	39.42	54.00	-14.58	AVG
3		16257.500	35.40	10.72	46.12	74.00	-27.88	peak
4		16257.500	27.77	10.72	38.49	54.00	-15.51	AVG
5		17447.500	32.11	17.07	49.18	74.00	-24.82	peak
6	*	17447.500	24.34	17.07	41.41	54.00	-12.59	AVG

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

18-25G:

Antenna polarity: H

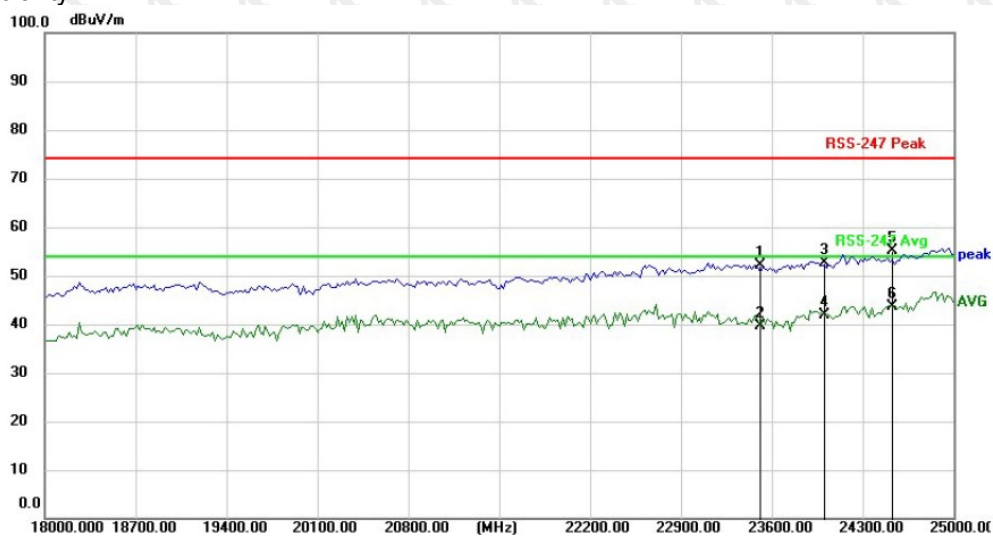
Worst mode : CH1 802.11b /2412



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dB/m	Detector
1		23845.000	59.77	-8.29	51.48	74.00	-22.52 peak
2		23845.000	50.25	-8.29	41.96	54.00	-12.04 AVG
3		24387.500	60.19	-7.47	52.72	74.00	-21.28 peak
4		24387.500	50.22	-7.47	42.75	54.00	-11.25 AVG
5		24702.500	60.58	-6.99	53.59	74.00	-20.41 peak
6	*	24702.500	50.51	-6.99	43.52	54.00	-10.48 AVG

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

Antenna polarity: V



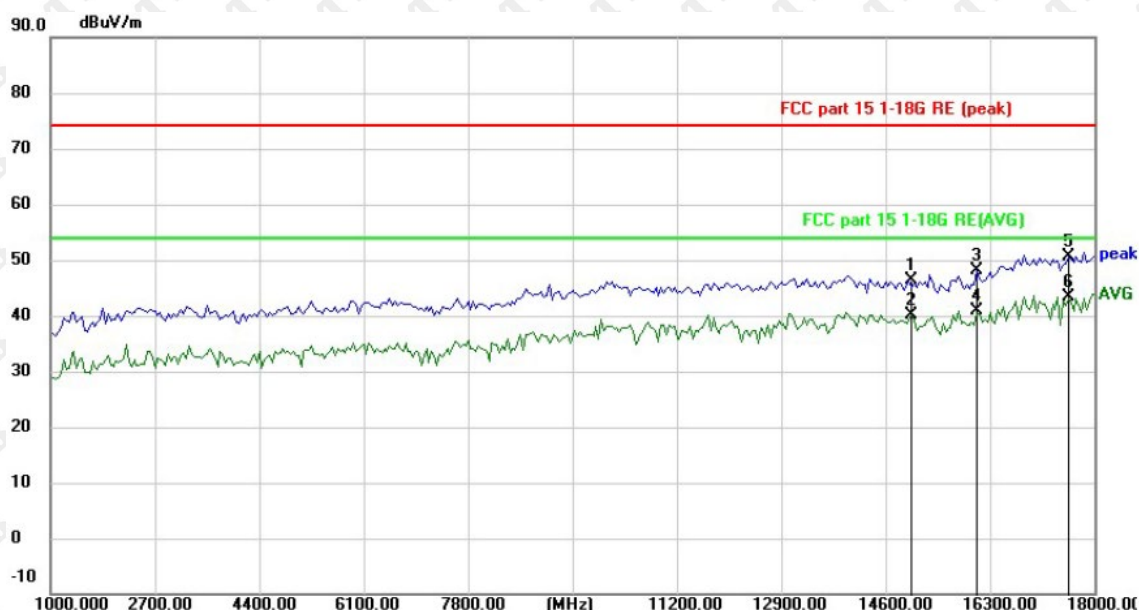
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB	dBuV/m	dB/m	dB
1		23512.500	60.97	-8.79	52.18	74.00	-21.82
2		23512.500	48.52	-8.79	39.73	54.00	-14.27
3		24002.500	60.62	-8.06	52.56	74.00	-21.44
4		24002.500	49.84	-8.06	41.78	54.00	-12.22
5		24527.500	62.46	-7.26	55.20	74.00	-18.80
6	*	24527.500	50.91	-7.26	43.65	54.00	-10.35

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

1-18G:

Antenna polarity: H

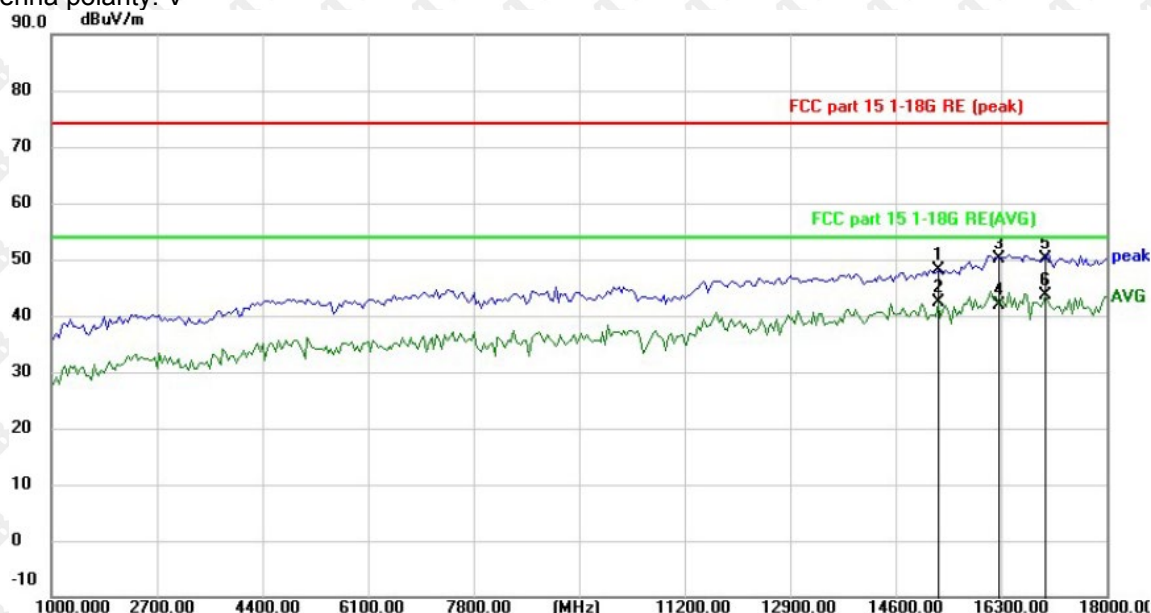
Worst mode : CH6 802.11b /2437



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV/m	dB/m	dB	
1		15025.000	35.88	10.41	46.29	74.00	-27.71	peak
2		15025.000	29.61	10.41	40.02	54.00	-13.98	AVG
3		16087.500	38.08	10.01	48.09	74.00	-25.91	peak
4		16087.500	30.79	10.01	40.80	54.00	-13.20	AVG
5		17575.000	32.66	18.00	50.66	74.00	-23.34	peak
6	*	17575.000	25.41	18.00	43.41	54.00	-10.59	AVG

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

Antenna polarity: V



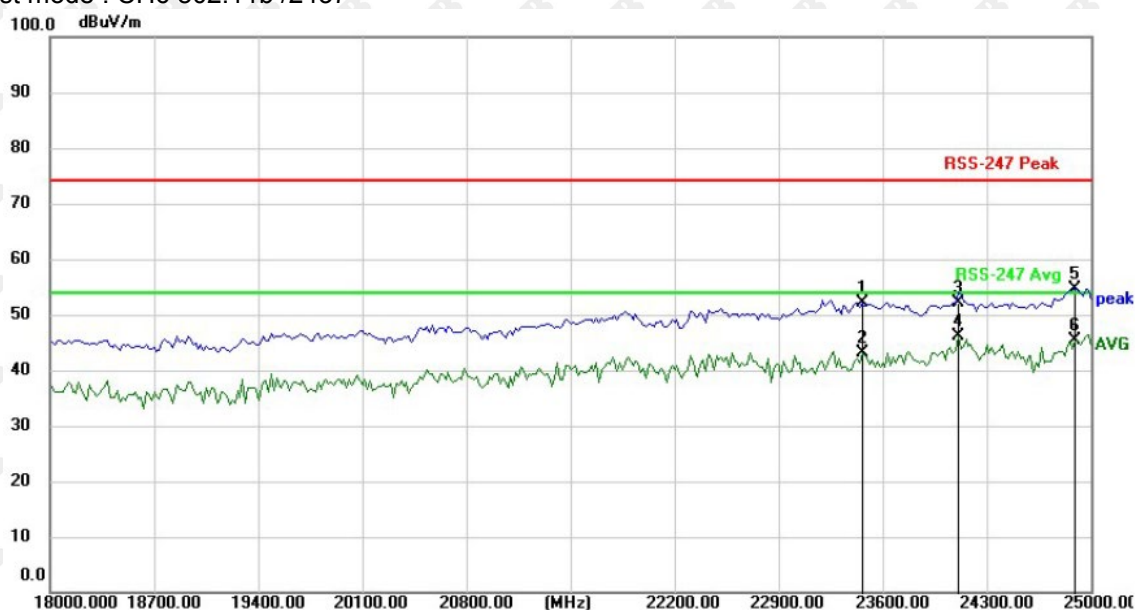
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			
			dBuV	dB	dBuV/m	dB/m	dB	Detector
1		15280.000	37.86	10.21	48.07	74.00	-25.93	peak
2		15280.000	32.21	10.21	42.42	54.00	-11.58	AVG
3		16257.500	39.40	10.72	50.12	74.00	-23.88	peak
4		16257.500	31.26	10.72	41.98	54.00	-12.02	AVG
5		17022.500	36.08	13.96	50.04	74.00	-23.96	peak
6	*	17022.500	29.75	13.96	43.71	54.00	-10.29	AVG

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

18-25G:

Antenna polarity: H

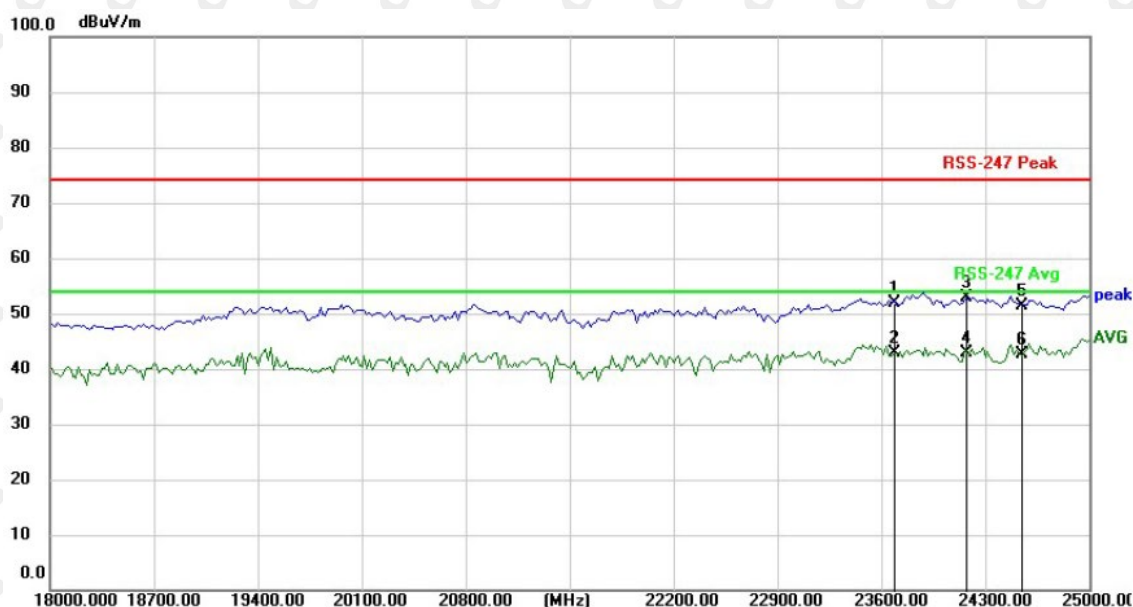
Worst mode : CH6 802.11b /2437



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		23460.000	61.08	-8.87	52.21	74.00	-21.79	peak
2		23460.000	52.10	-8.87	43.23	54.00	-10.77	AVG
3		24107.500	60.01	-7.90	52.11	74.00	-21.89	peak
4	*	24107.500	53.97	-7.90	46.07	54.00	-7.93	AVG
5		24895.000	61.38	-6.70	54.68	74.00	-19.32	peak
6		24895.000	52.01	-6.70	45.31	54.00	-8.69	AVG

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

Antenna polarity: V



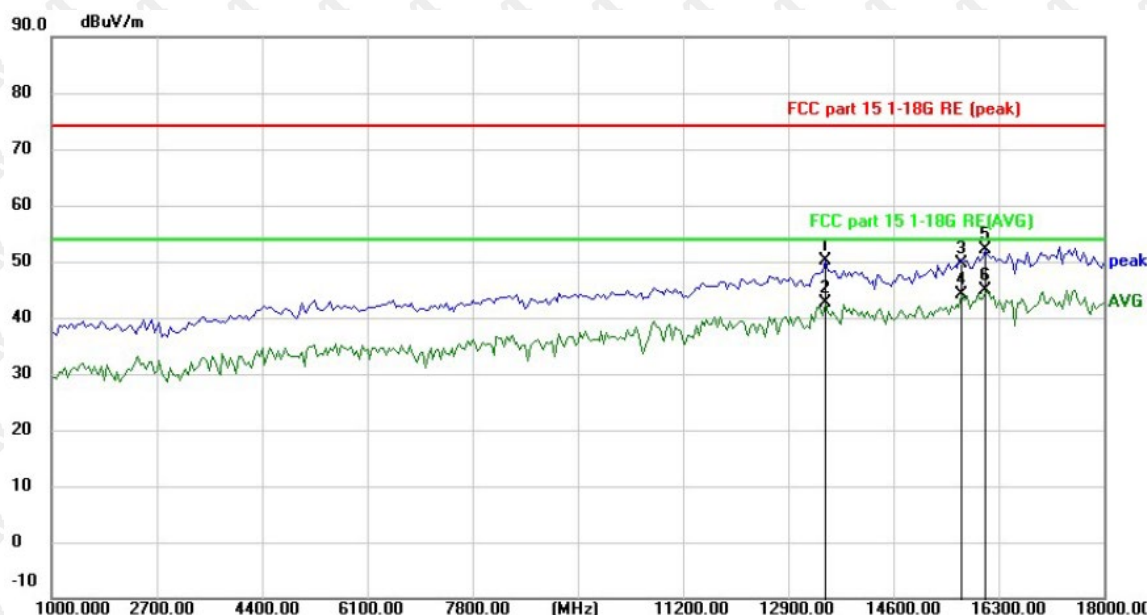
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		23687.500	60.48	-8.53	51.95	74.00	-22.05	peak
2		23687.500	51.33	-8.53	42.80	54.00	-11.20	AVG
3		24177.500	60.60	-7.79	52.81	74.00	-21.19	peak
4	*	24177.500	50.62	-7.79	42.83	54.00	-11.17	AVG
5		24545.000	58.71	-7.23	51.48	74.00	-22.52	peak
6		24545.000	49.87	-7.23	42.64	54.00	-11.36	AVG

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

1-18G:

Antenna polarity: H

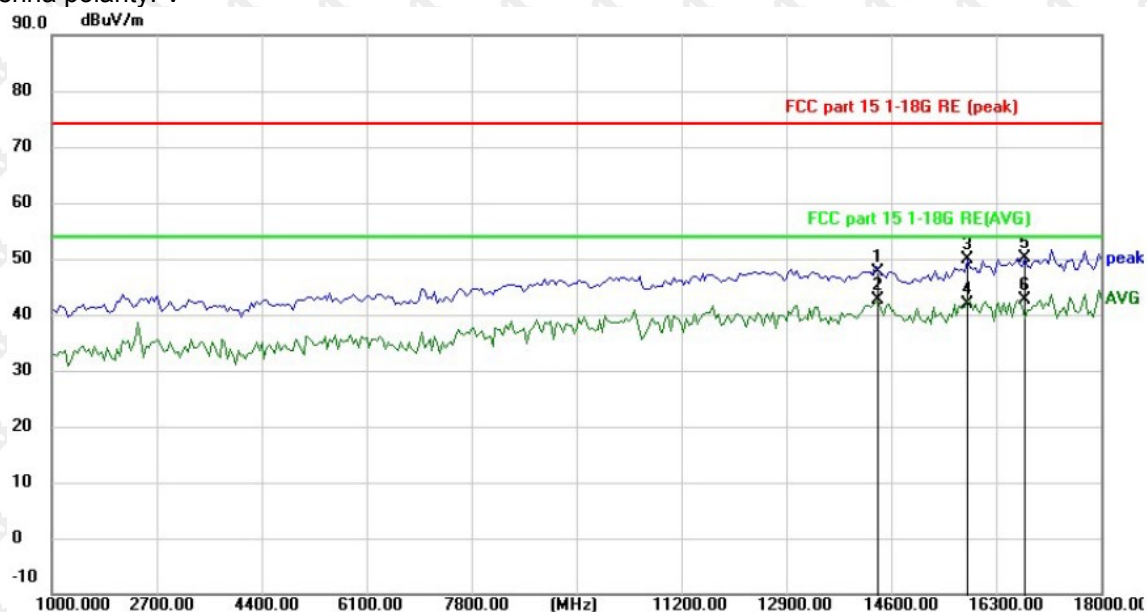
Worst mode : CH11 802.11b /2462



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		13495.000	40.42	9.81	50.23	74.00	-23.77	peak
2		13495.000	32.78	9.81	42.59	54.00	-11.41	AVG
3		15705.000	39.69	9.88	49.57	74.00	-24.43	peak
4		15705.000	34.27	9.88	44.15	54.00	-9.85	AVG
5		16087.500	42.08	10.01	52.09	74.00	-21.91	peak
6	*	16087.500	34.98	10.01	44.99	54.00	-9.01	AVG

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

Antenna polarity: V



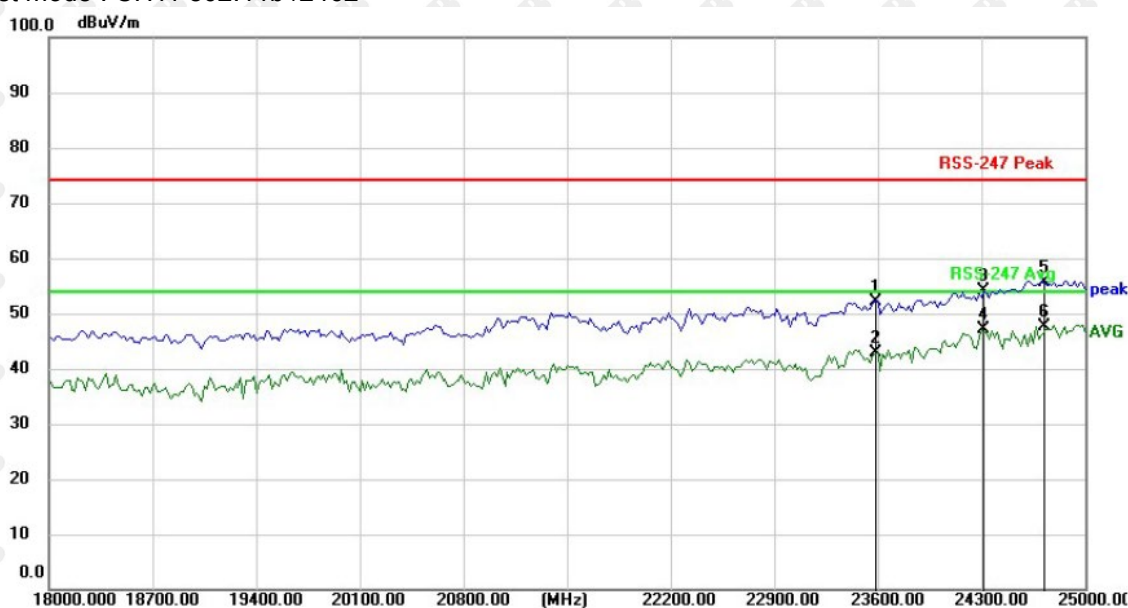
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	dBuV	Factor	ment	dB/m	dB	Detector
1		14387.500	37.09	10.56	47.65	74.00	-26.35	peak
2	*	14387.500	32.17	10.56	42.73	54.00	-11.27	AVG
3		15832.500	40.00	9.78	49.78	74.00	-24.22	peak
4		15832.500	32.14	9.78	41.92	54.00	-12.08	AVG
5		16767.500	37.26	12.84	50.10	74.00	-23.90	peak
6		16767.500	29.89	12.84	42.73	54.00	-11.27	AVG

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

18-25G:

Antenna polarity: H

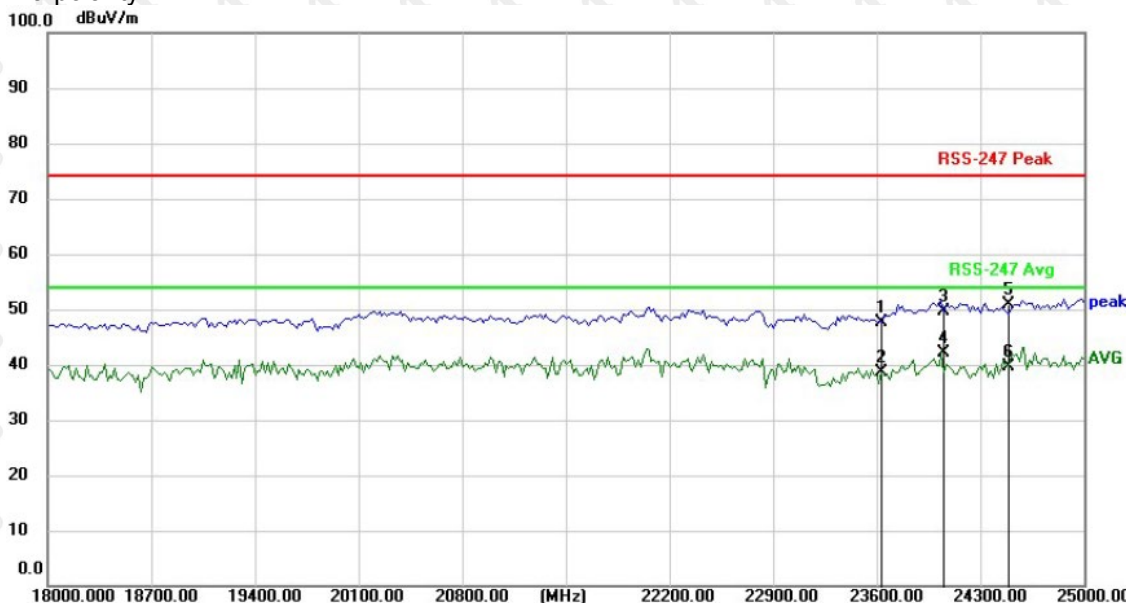
Worst mode : CH11 802.11b /2462



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		23582.500	60.93	-8.69	52.24	74.00	-21.76	peak
2		23582.500	51.48	-8.69	42.79	54.00	-11.21	AVG
3		24317.500	61.60	-7.58	54.02	74.00	-19.98	peak
4		24317.500	54.70	-7.58	47.12	54.00	-6.88	AVG
5		24720.000	62.72	-6.97	55.75	74.00	-18.25	peak
6	*	24720.000	54.62	-6.97	47.65	54.00	-6.35	AVG

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

Antenna polarity: V



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		23635.000	56.20	-8.61	47.59	74.00	-26.41	peak
2		23635.000	47.34	-8.61	38.73	54.00	-15.27	AVG
3		24055.000	57.54	-7.98	49.56	74.00	-24.44	peak
4	*	24055.000	50.01	-7.98	42.03	54.00	-11.97	AVG
5		24492.500	58.31	-7.31	51.00	74.00	-23.00	peak
6		24492.500	46.95	-7.31	39.64	54.00	-14.36	AVG

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

Remark :

(1) Measuring frequencies from 1 GHz to the 25 GHz .

(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.

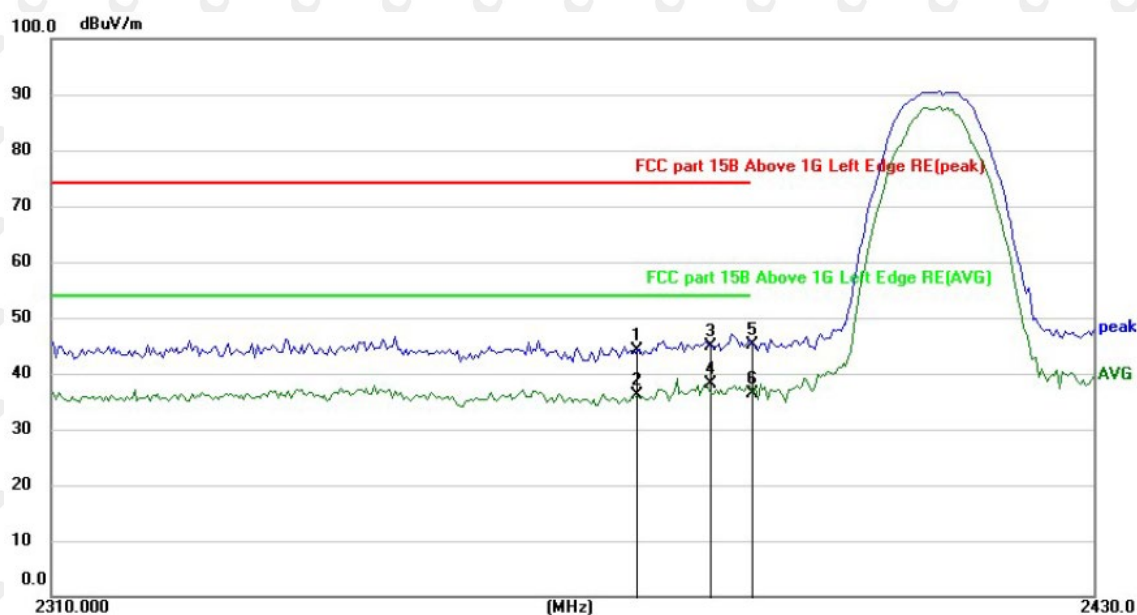
(4) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed

(5)Have tested in three orientations for radiated emissions, Only The worst record is in this report

Restricted bands around fundamental frequency (Radiated)

Antenna polarity: H

Worst mode :CH1 802.11b /2412

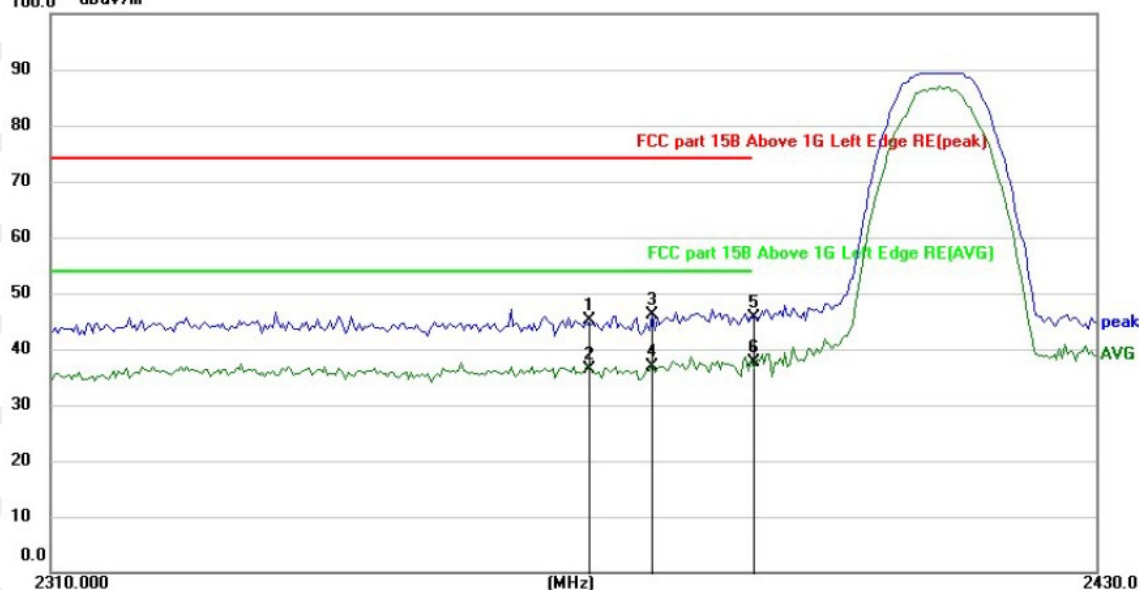


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV/m	dB/m	dB	
1		2376.751	64.00	-19.75	44.25	74.00	-29.75	peak
2		2376.751	55.88	-19.75	36.13	54.00	-17.87	AVG
3		2385.192	64.64	-19.71	44.93	74.00	-29.07	peak
4	*	2385.192	57.73	-19.71	38.02	54.00	-15.98	AVG
5		2390.000	64.78	-19.68	45.10	74.00	-28.90	peak
6		2390.000	55.98	-19.68	36.30	54.00	-17.70	AVG

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

Antenna polarity: V

100.0 dBuV/m

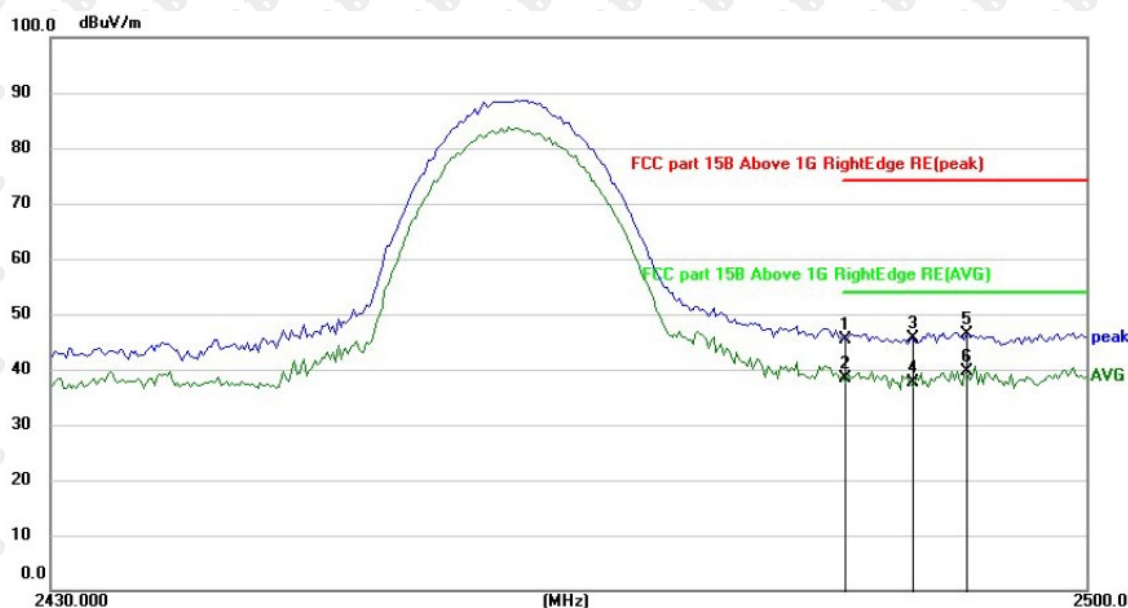


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		2370.741	64.90	-19.79	45.11	74.00	-28.89	peak
2		2370.741	56.06	-19.79	36.27	54.00	-17.73	AVG
3		2378.256	65.79	-19.74	46.05	74.00	-27.95	peak
4		2378.256	56.56	-19.74	36.82	54.00	-17.18	AVG
5		2390.000	65.26	-19.68	45.58	74.00	-28.42	peak
6	*	2390.000	57.25	-19.68	37.57	54.00	-16.43	AVG

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

Antenna polarity: H

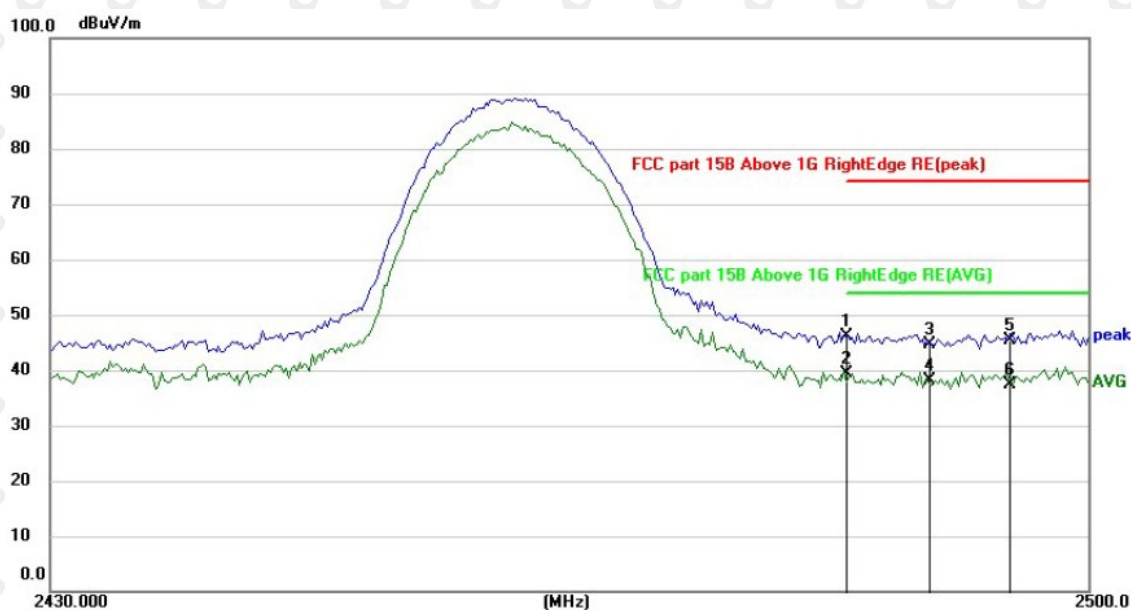
Worst mode :CH11 802.11b /2462



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		2483.500	64.63	-19.15	45.48	74.00	-28.52	peak
2		2483.500	57.60	-19.15	38.45	54.00	-15.55	AVG
3		2488.136	64.88	-19.13	45.75	74.00	-28.25	peak
4		2488.136	56.73	-19.13	37.60	54.00	-16.40	AVG
5		2491.848	65.52	-19.11	46.41	74.00	-27.59	peak
6	*	2491.848	58.62	-19.11	39.51	54.00	-14.49	AVG

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

Antenna polarity: V

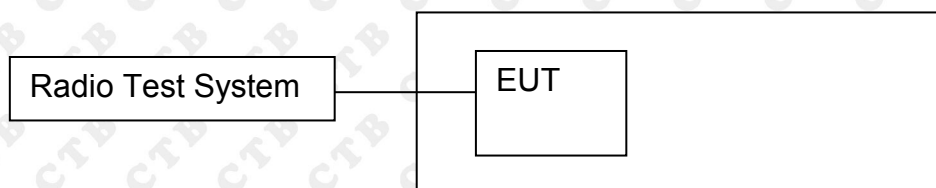


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV/m	dB/m	dB	
1		2483.500	65.39	-19.15	46.24	74.00	-27.76	peak
2	*	2483.500	58.54	-19.15	39.39	54.00	-14.61	AVG
3		2489.196	63.70	-19.12	44.58	74.00	-29.42	peak
4		2489.196	57.16	-19.12	38.04	54.00	-15.96	AVG
5		2494.504	64.41	-19.09	45.32	74.00	-28.68	peak
6		2494.504	56.39	-19.09	37.30	54.00	-16.70	AVG

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

8. BAND EDGE AND RF CONDUCTED SPURIOUS EMISSIONS

8.1 Block Diagram Of Test Setup



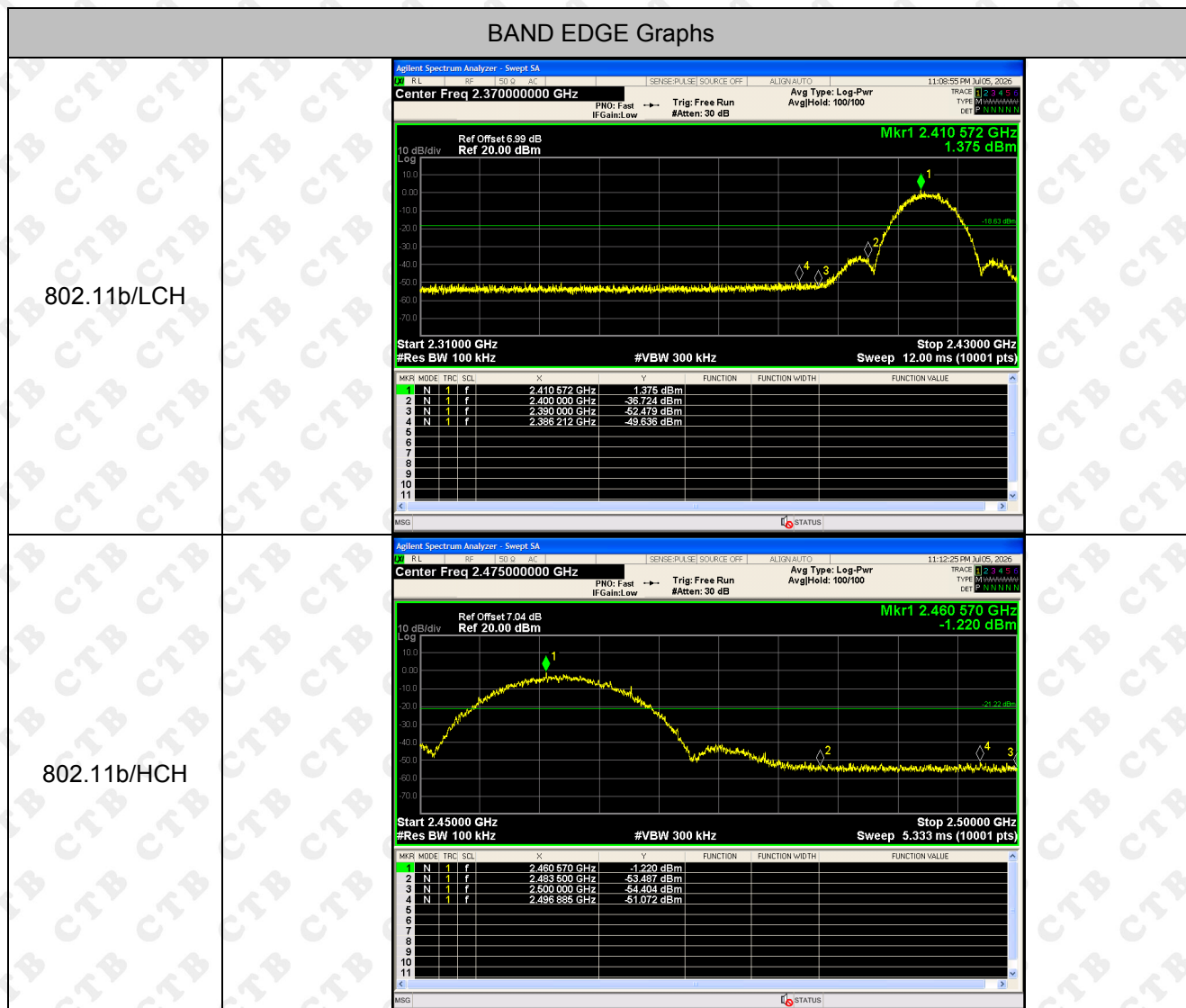
8.2 Limit

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)).

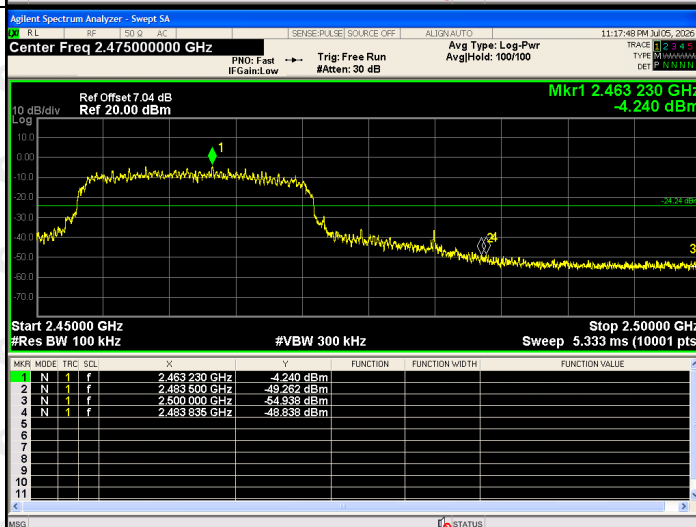
8.3 Test procedure

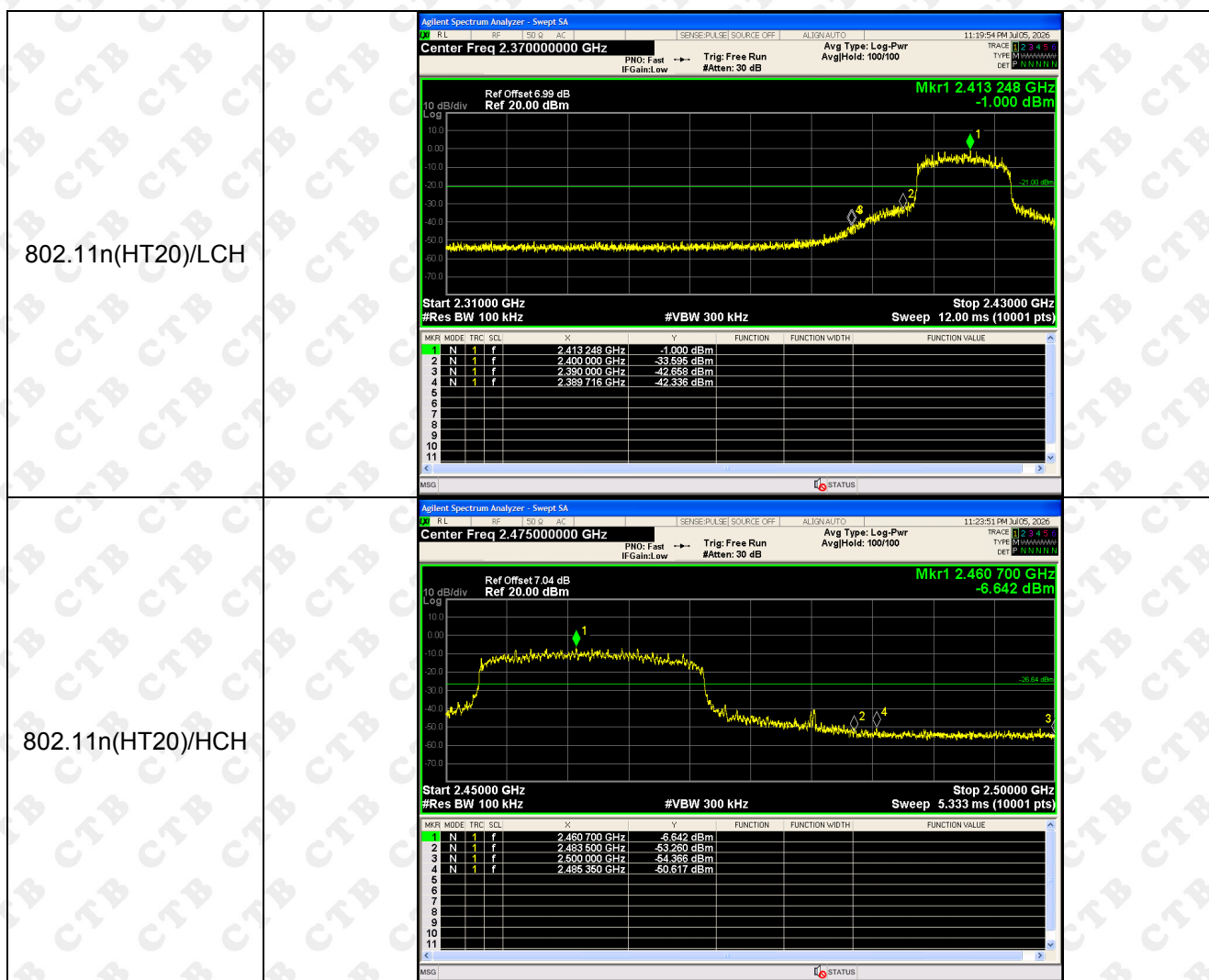
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:
 - Below 30MHz:
 - RBW = 100kHz, VBW = 300kHz, Sweep = auto
 - Detector function = peak, Trace = max hold
 - Above 30MHz:
 - RBW = 100kHz, VBW = 300kHz, Sweep = auto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

8.4 Test Result



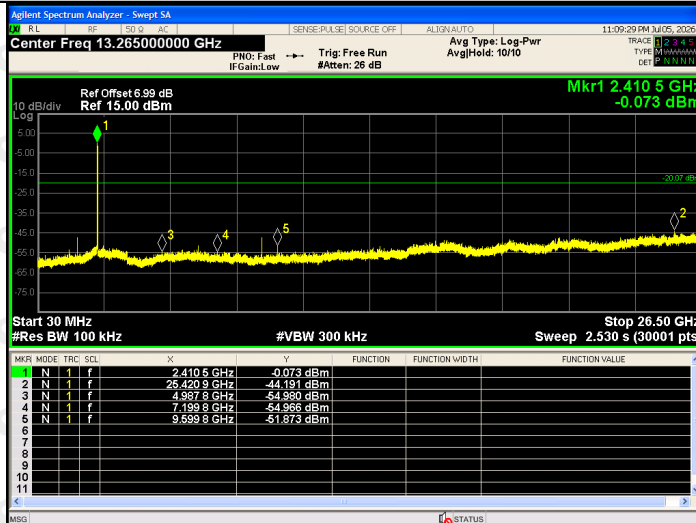
802.11g/LCH



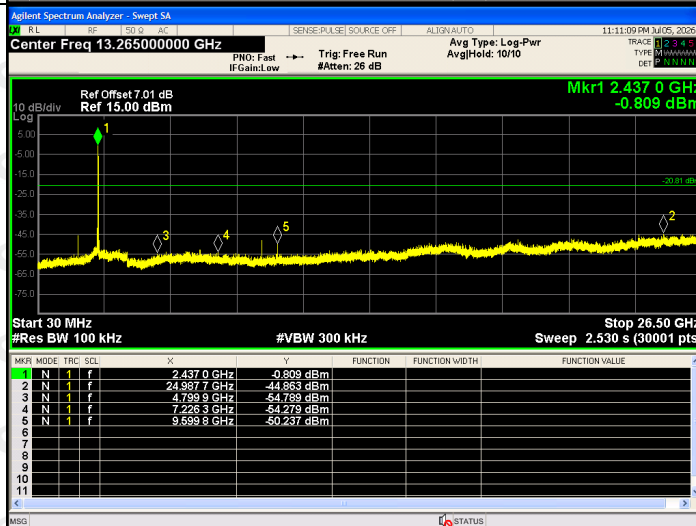


RF Conducted Spurious Emissions Graphs

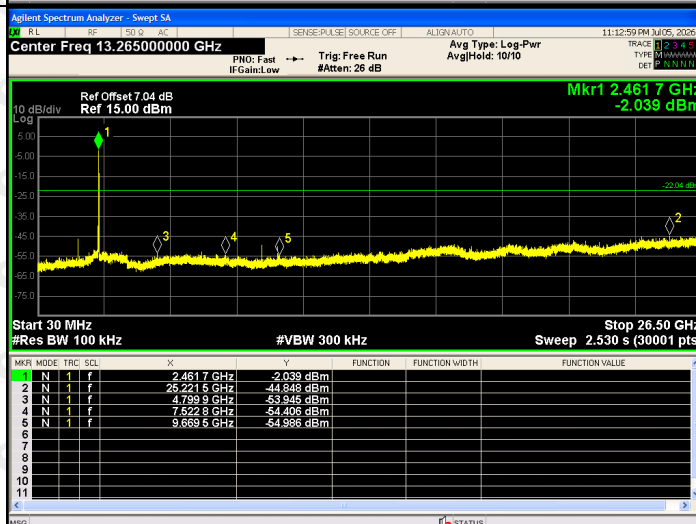
802.11b/LCH



802.11b/MCH

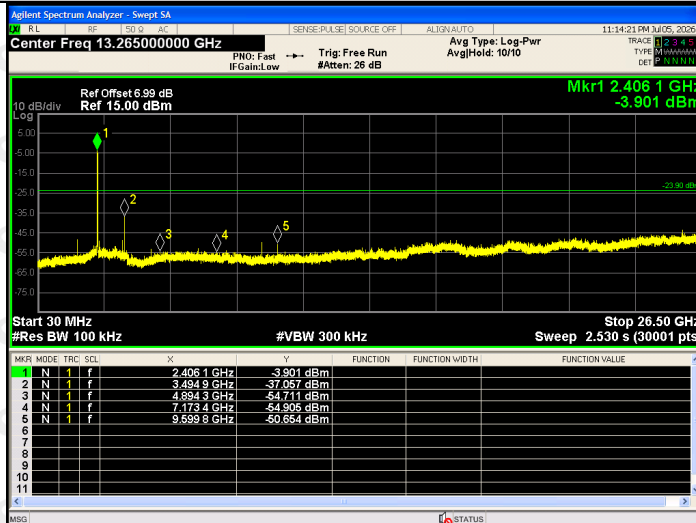


802.11b/HCH

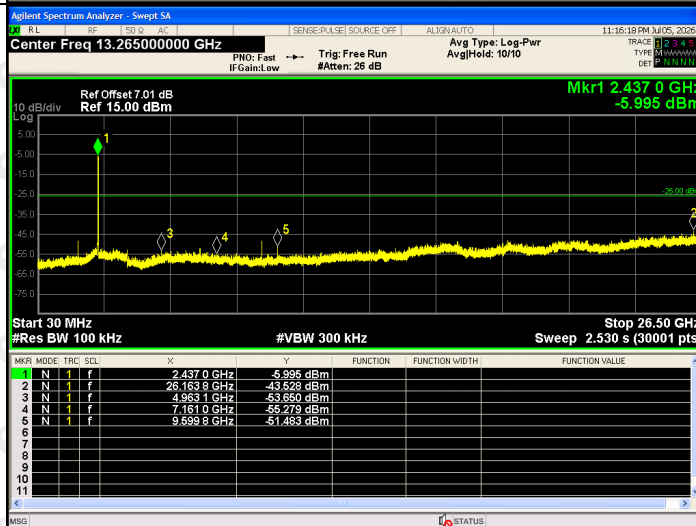


RF Conducted Spurious Emissions Graphs

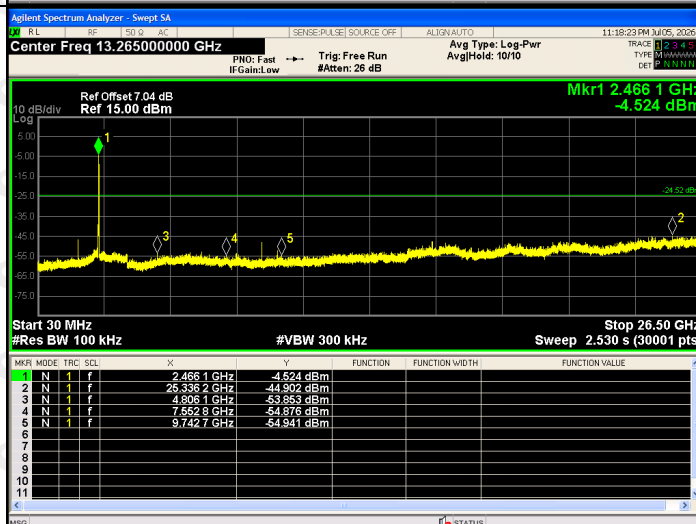
802.11g/LCH



802.11g/MCH

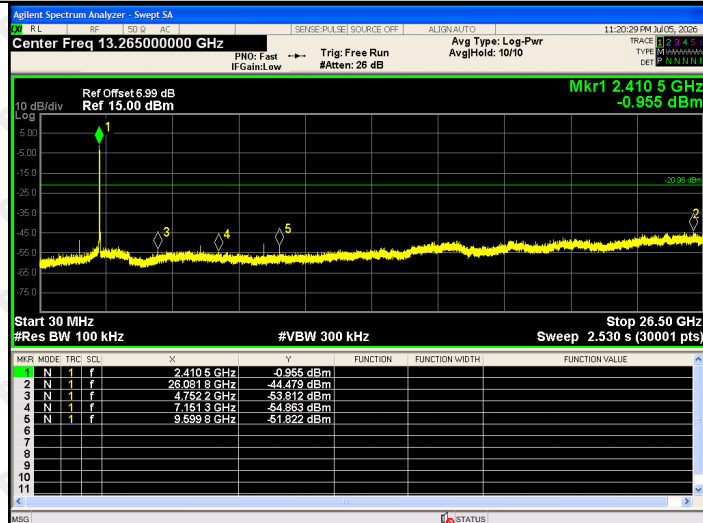


802.11g/HCH

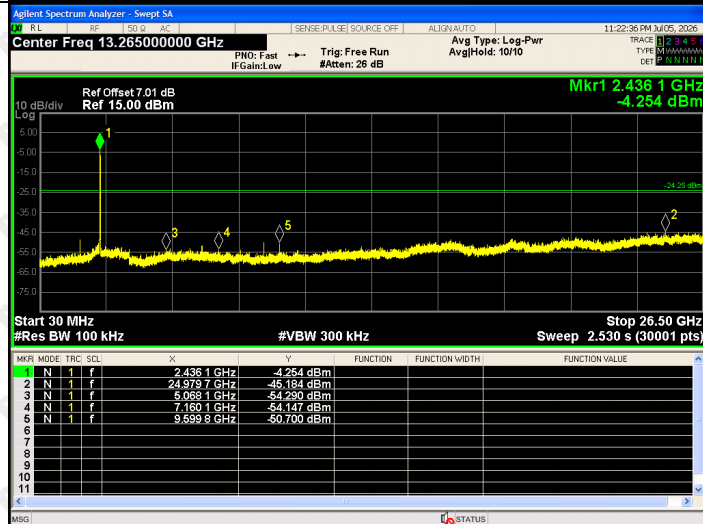


RF Conducted Spurious Emissions Graphs

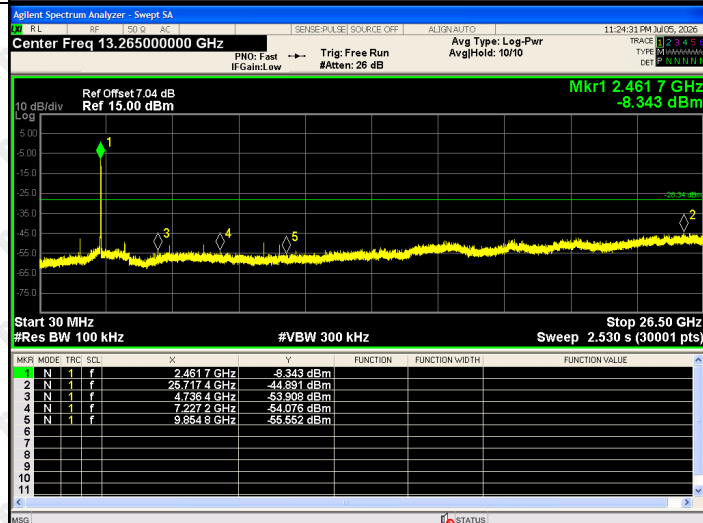
802.11n(HT20)/LCH



802.11n(HT20)/MCH



802.11n(HT20)/HCH



9. CONDUCTED 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

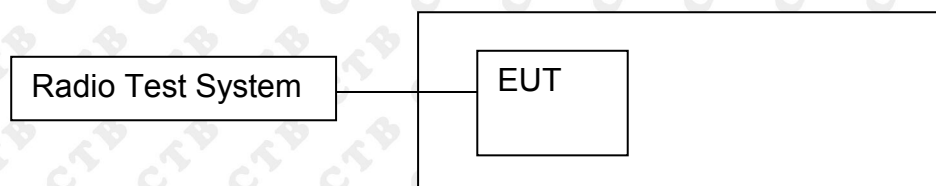
1. The EUT was directly connected to the Power meter

9.4 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
802.11b	LCH	15.8	30	PASS
	MCH	13.916	30	PASS
	HCH	13.182	30	PASS
802.11g	LCH	15.182	30	PASS
	MCH	12.696	30	PASS
	HCH	13.294	30	PASS
802.11n(HT20)	LCH	16.454	30	PASS
	MCH	13.966	30	PASS
	HCH	11.586	30	PASS

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

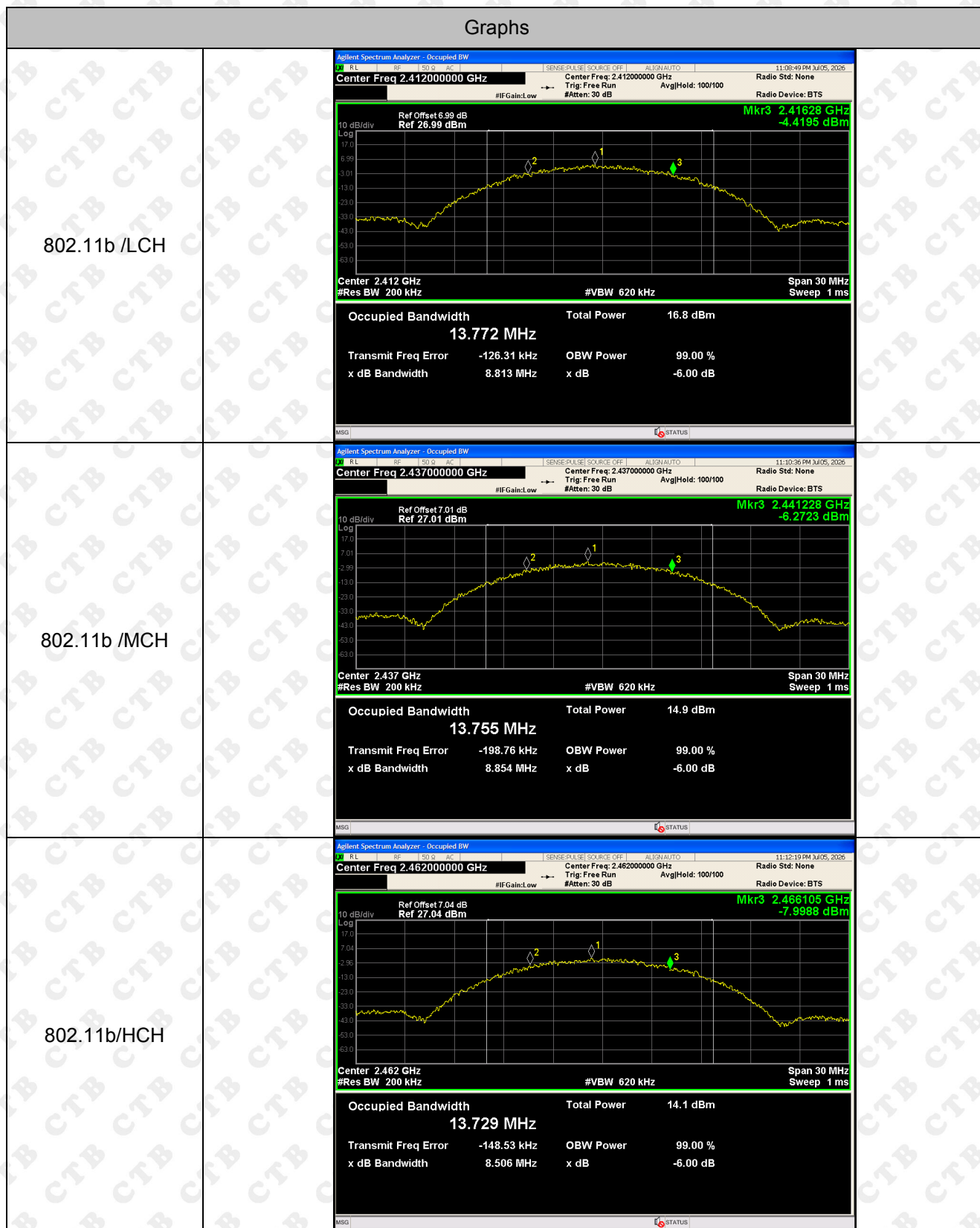
10.3 Test procedure

1. Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 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.

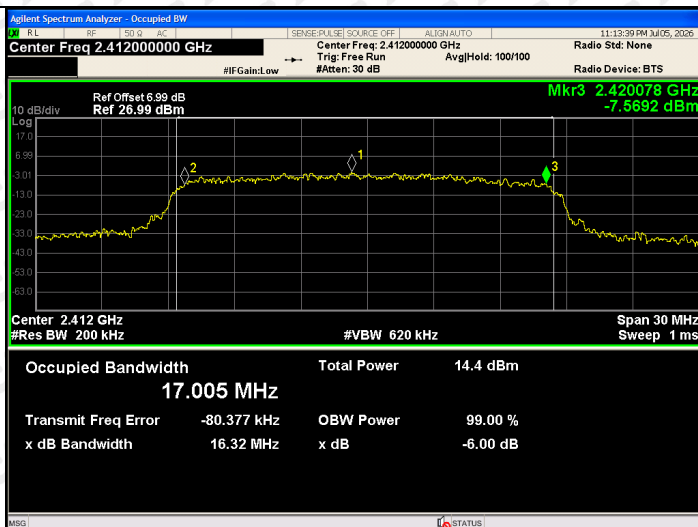
10.4 Test Result

Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	8.813	500	PASS
	MCH	8.854	500	PASS
	HCH	8.506	500	PASS
802.11g	LCH	16.317	500	PASS
	MCH	16.392	500	PASS
	HCH	16.234	500	PASS
802.11n(HT20)	LCH	15.737	500	PASS
	MCH	14.37	500	PASS
	HCH	17.23	500	PASS

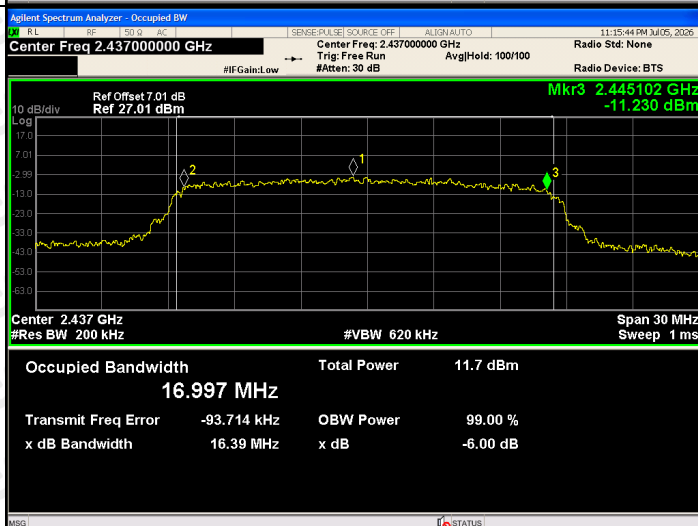
Test Graph:



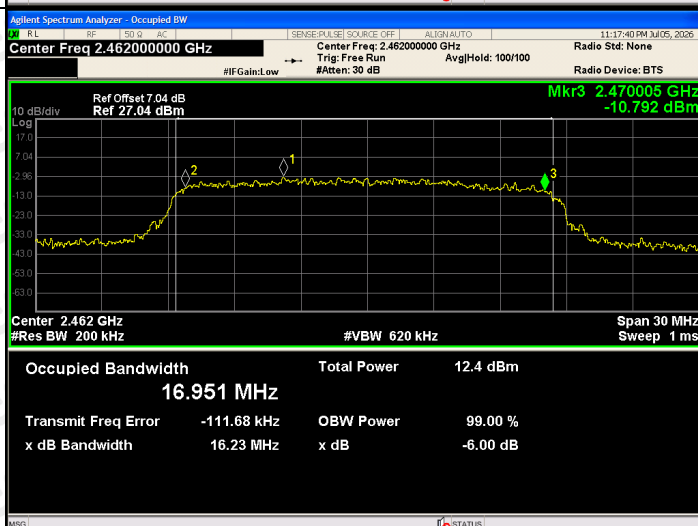
802.11g/LCH

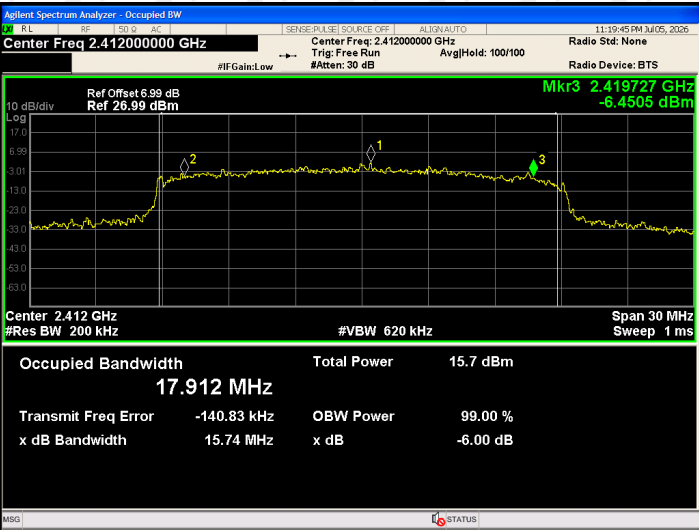
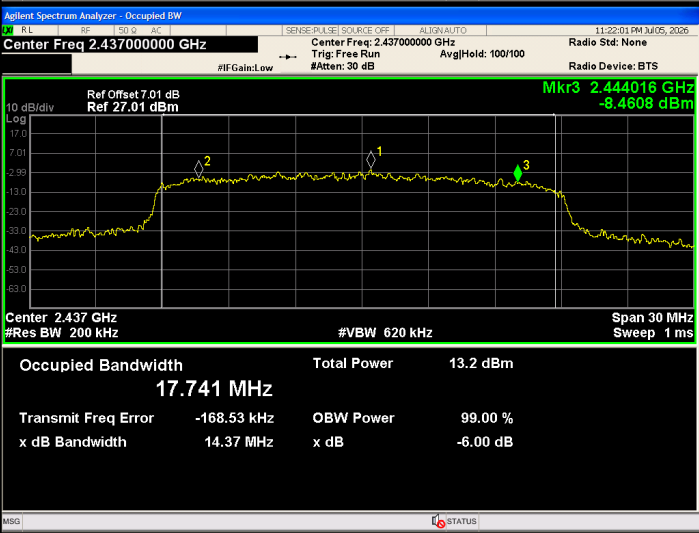
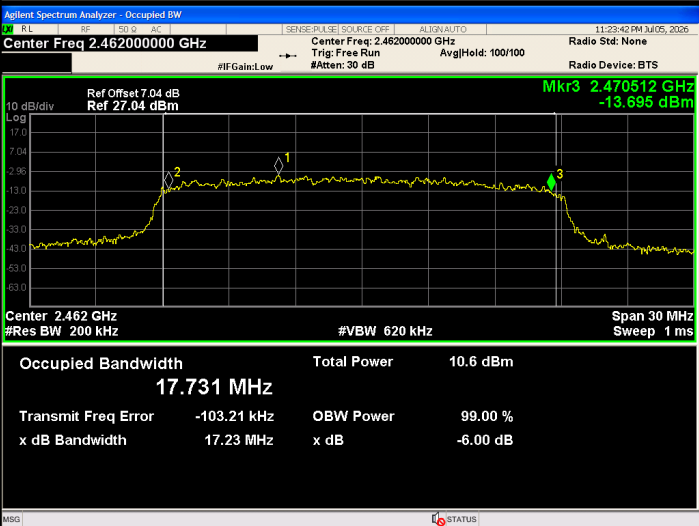


802.11g/MCH



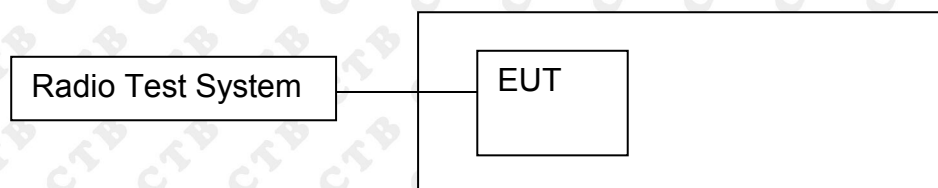
802.11g/HCH



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

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

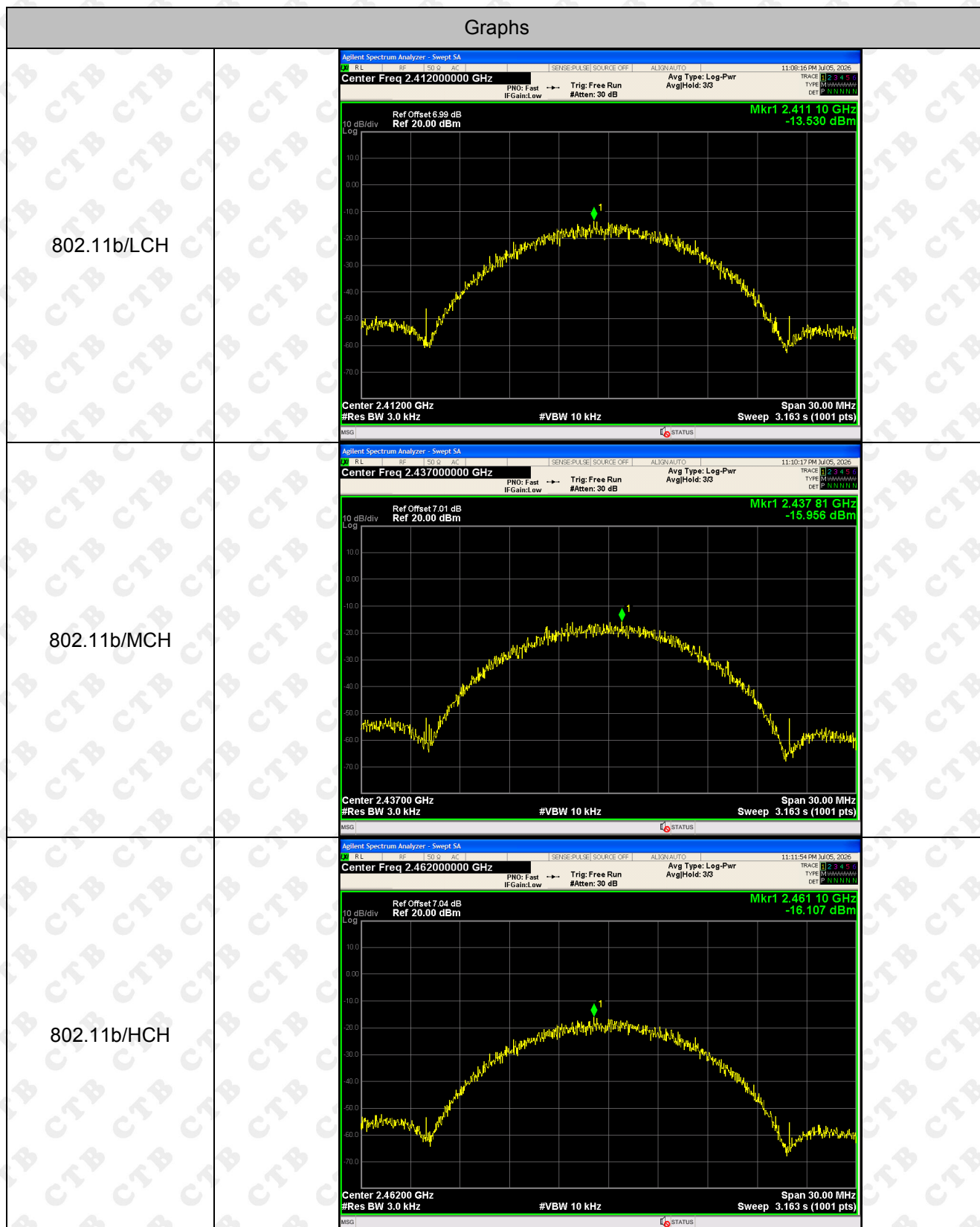
11.3 Test procedure

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.

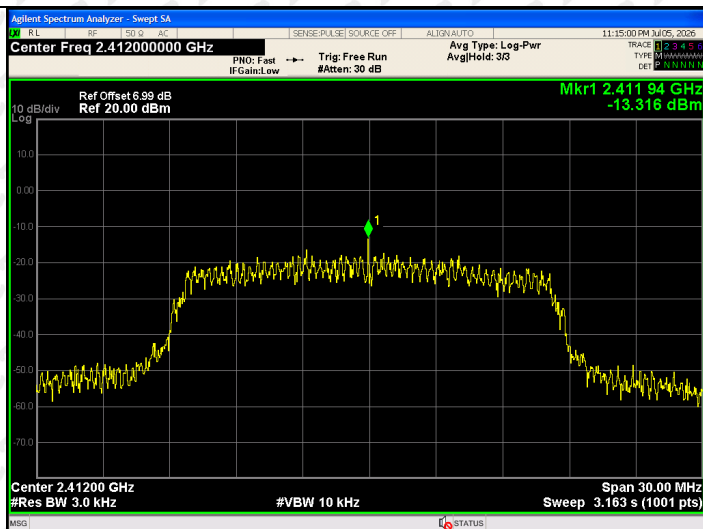
11.4 Test Result

Mode	Channel.	Power Spectral Density [dBm /3kHz]	Limit(8 dBm (in any 3kHz))	Verdict
802.11b	LCH	-13.53	8	PASS
	MCH	-15.956	8	PASS
	HCH	-16.107	8	PASS
802.11g	LCH	-13.316	8	PASS
	MCH	-15.585	8	PASS
	HCH	-17.485	8	PASS
802.11n (HT20)	LCH	-12.291	8	PASS
	MCH	-14.978	8	PASS
	HCH	-18.287	8	PASS

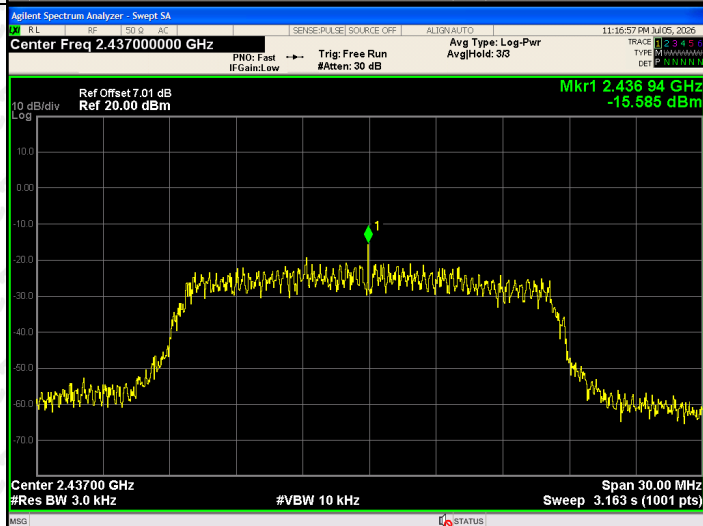
Test Graph



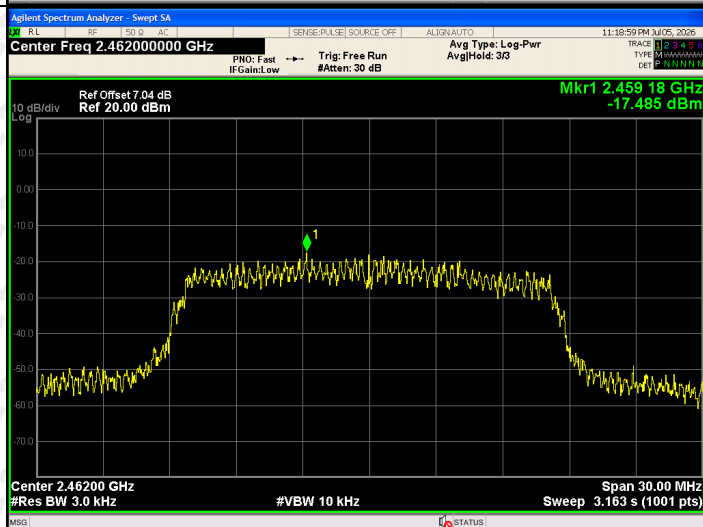
802.11g/LCH

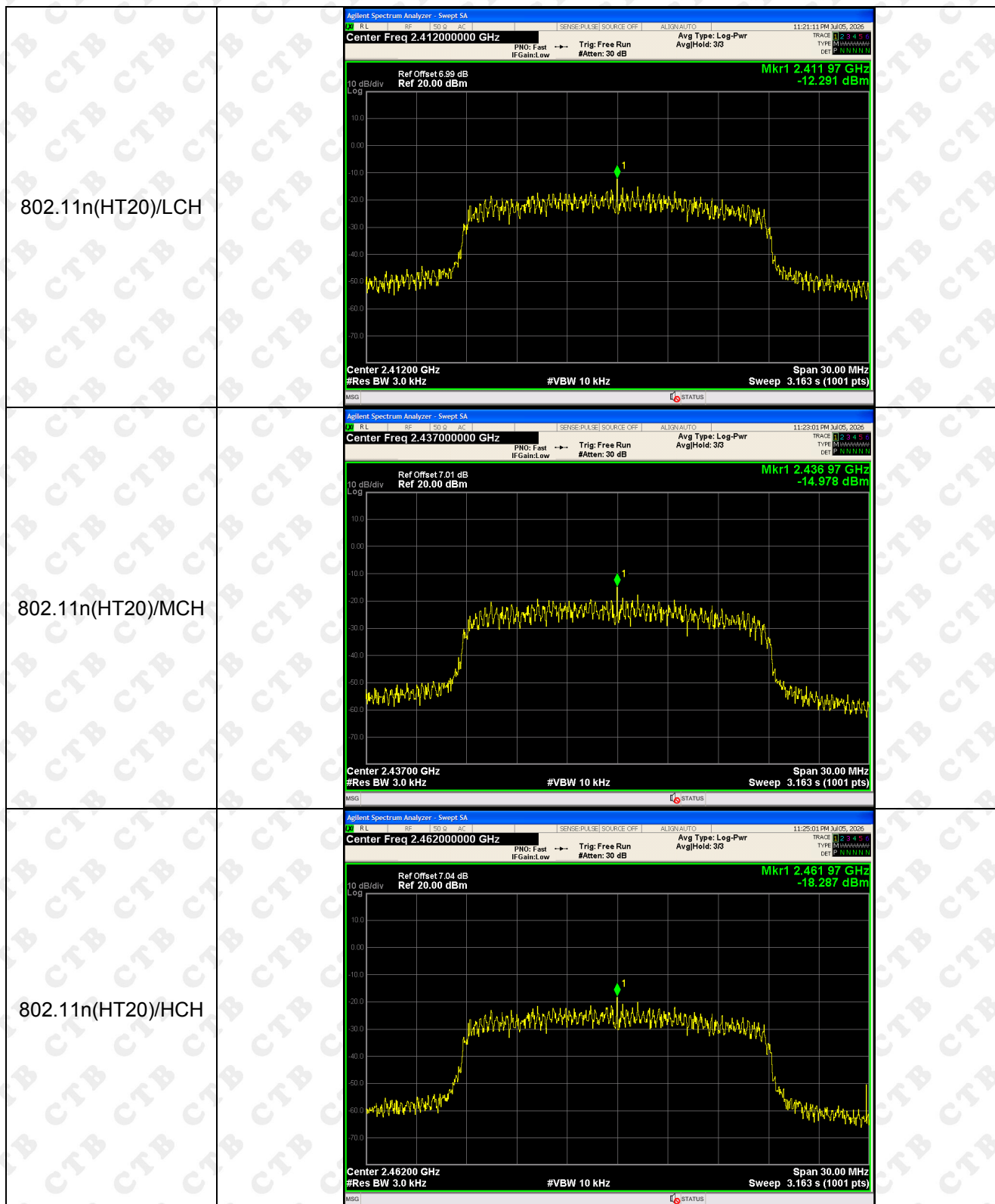


802.11g/MCH



802.11g/HCH





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 PCB antenna and no consideration of replacement. The best case gain of the antenna is -0.26dBi.

13. EUT TEST SETUP PHOTOGRAPHS

Radiated Emission

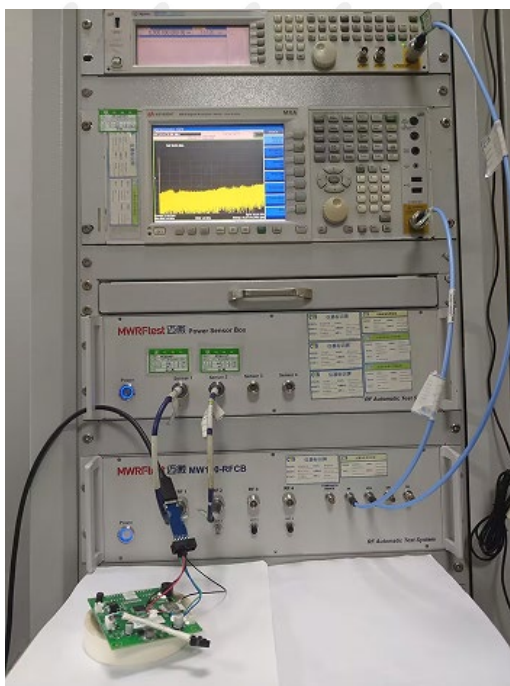
Below 1G



Above 1G



Conducted Emission



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