RADIO TEST REPORT

Product	:	Smart Gateway
Model Name	:	SHC301
FCC ID	:	2AQJEGC01
Test Regulation	:	FCC 47 CFR Part 15 Subpart C (Section 15.247)
Received Date	:	May 28, 2018
Test Date	:	May 29, 2018 ~ July 12, 2018
Issued Date	:	September 17, 2018
Applicant	:	GalaThings Technology Inc. 9F.-6, NO.65, Gaotie 7th Rd., Zhubei City,Hsinchu County 302, Taiwan (R.O.C.)
Issued By	:	Underwriters Laboratories Taiwan Co., Ltd. Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Testing Laboratory
3398

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

REVISION HISTORY

Original Test Report No.: 4788408771-US-R2-V0

Rev.	Test report No.	Date	Page revised	Contents
Original	4788408771-US-R2-V0	Sep. 17, 2018	-	Initial issue

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1. Attestation of Test Results

APPLICANT:	GalaThings Technology Inc. 9F.-6, NO.65, Gaotie 7th Rd., Zhubei City,Hsinchu County 302, Taiwan (R.O.C.)
MANUFACTURER	WHA YU INDUSTRIAL CO., LTD No.326,Sec 2,Kung Tao 5 Road,Hsin Chu City,Taiwan
EUT DESCRIPTION:	Smart Gateway
BRAND:	Mercu
MODEL:	SHC301
SAMPLE STAGE:	Identical Prototype
DATE of TESTED:	May 29, 2018 ~ July 12, 2018

APPLICABLE STANDARDS

STANDARD	Test Results
FCC 47 CFR PART 15 Subpart C (Section 15.247)	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:

Evelyn Lee Date : September 17, 2018
Project Handler

Approve By:

John Cheng Date : September 17, 2018
Project Engineer

2. Summary of Test Results

Summary of Test Results		
FCC Clause	**Test Items**	**Result**
15.247(a)(2)	6dB Bandwidth	PASS
15.247(b)	Conducted Output Power	PASS
15.247(e)	Power Spectral Density	PASS
15.247(d)	Antenna Port Emission	PASS
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS
15.207	AC Power Conducted Emission	PASS
15.203	Antenna Requirement	PASS

Note:
1. For FCC Clause 15.247(d), the Radiated Band Edge test plots were recorded in Appendix I.

3. Test Methodology

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB558074 D01 DTS Meas Guidance v04, KDB414788 D01 Radiated Test Site v01, ANSI C63.10-2013.

4. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398. The full scope of accreditation can be viewed at http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398

5. Measurement Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor k=2.

Test Item	Measurement Frequency Range	K	U(dB)
Conducted disturbance at mains terminals ports	0.15MHz ~ 30MHz	2	2.6
RF Conducted	9 kHz - 40GHz	2	1.0
Radiated disturbance below 30MHz	9 kHz - 30 MHz	2	2.4
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	2	5.5
Radiated disturbance above 1GHz	1GHz ~ 40GHz	2	5.0

6. Equipment under Test

6.1. Description of EUT

Product	Smart Gateway
Brand Name	Mercu
Model Name	SHC301
Operating Frequency	2412MHz ~ 2462MHz
Modulation	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Transfer Rate	802.11b: up to 11 Mbps 802.11g: up to 54 Mbps 802.11n: up to MCS7
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Maximum Output Power	802.11b: 18.37 dBm 802.11g: 20.92 dBm 802.11n (HT20): 20.06 dBm 802.11n (HT40): 18.36 dBm
Normal Voltage	5Vdc (adapter or host equipment)
Hardware Version	N/A
Software Version	N/A

Note:
1. The EUT provides one completed transmitters and one receivers.

Modulation Mode	Tx,Rx Function
802.11b	1TX,1RX
802.11g	1TX,1RX
802.11n (HT20)	1TX,1RX
802.11n (HT40)	1TX,1RX

2. The EUT contains following accessory devices Product Brand Model Description USB Cable

Product	Brand	Model	Description
AC Adapter	PHIHONG	PSAF10A-050Q	I/P: 100-240Vac, 280mA, O/P: 5Vdc, 2000mA
AC Adapter	FLYPOWER	PS10I050K2000UU	I/P: 100-240Vac, 350mA, 50/60Hz O/P: 5Vdc, 2000mA
USB Cable	N/A	N/A	3 meter, non-shielded cable

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

6.2. Channel List

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

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

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz	-	-

6.3. Test Condition

Test Item	Test Site No.	Environmental Condition	Input Power	Tested by
Antenna Port Conducted Measurement	SR4	25°C / 64%RH	120 Vac / 60 Hz	Wayne Chen
Radiated Spurious Emission	966-2	26°C / 60%RH	120 Vac / 60 Hz	Wayne Chen
AC power Line Conducted Emission	SR1	26°C / 54%RH	120 Vac / 60 Hz	Wayne Chen

FCC Test Firm Registration Number: 498077

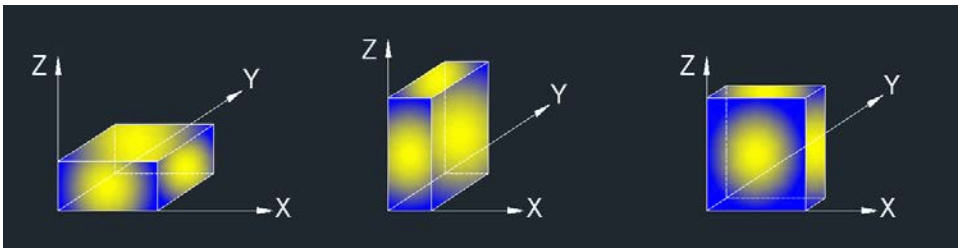
6.4. Description Of Available Antennas

Antenna	Brand Name	Model Name	Antenna Type	Antenna Gain(dBi)
Chain(0)	M.gear	C1920-510002-A(SRF2017850)	PCB	2.9

6.5. Operating Mode and Worst Case of EUT

Test item	Mode	Modulation Technology	Modulation Type	Available Channel	Test Channel	Data Rate
Radiated Emissions (Above 1GHz)	802.11b	DSSS	DBPSK	1 to 11	1,6,11	1.0
	802.11g	OFDM	BPSK	1 to 11	1,6,11	6.0
	802.11n(HT20)	OFDM	BPSK	1 to 11	1,6,11	MCS0
	802.11n(HT40)	OFDM	BPSK	3 to 9	3,6,9	MCS0
Radiated Emissions (Below 1GHz)	802.11g	OFDM	BPSK	1 to 11	11	6.0
AC Power Line Conducted Emission	802.11g	OFDM	BPSK	1 to 11	11	6.0
Antenna Port Conducted Measurement	802.11b	DSSS	DBPSK	1 to 11	1,6,11	1.0
	802.11g	OFDM	BPSK	1 to 11	1,6,11	6.0
	802.11n(HT20)	OFDM	BPSK	1 to 11	1,6,11	MCS0
	802.11n(HT40)	OFDM	BPSK	3 to 9	3,6,9	MCS0

Note:
1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
2. For below 1 GHz radiated emission and AC power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case.
3. X axis, Y axis, Z axis positions:



The fundamental of the EUT was investigated in three orthogonal axes X/Y/Z, it was determined that X axis was worst-case . Therefore, all final radiated testing was performed with the EUT in X axis.

6.6. Duty cycle

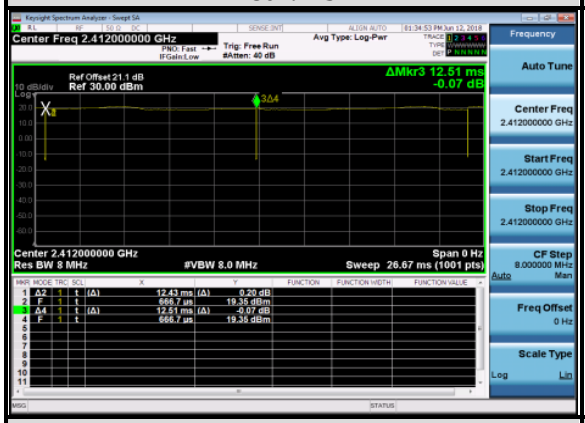
802.11b: Duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11g: Duty cycle =2.074/2.176 = 0.953, Duty factor = 10 * log(1/0.953) = 0.21

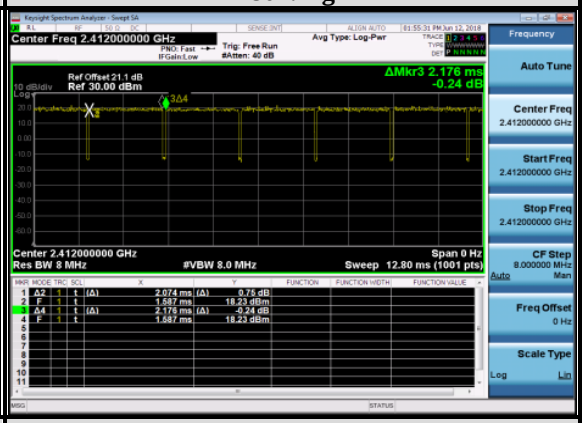
802.11n (HT20): Duty cycle = 1.92/2.023 = 0.949, Duty factor = 10 * log(1/0.949) = 0.23

802.11n (HT40): Duty cycle = 0.9467/1.04 = 0.910, Duty factor = 10 * log(1/0.910) = 0.41

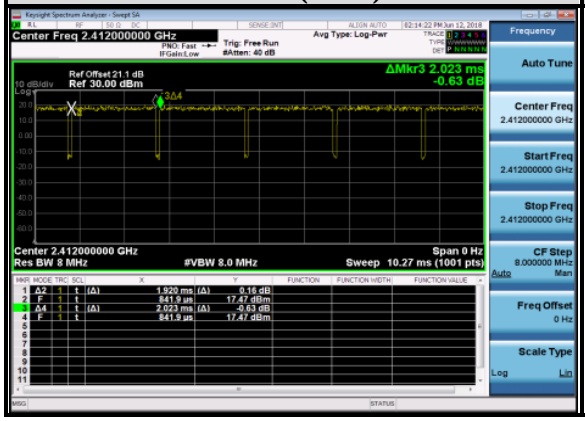
802.11b



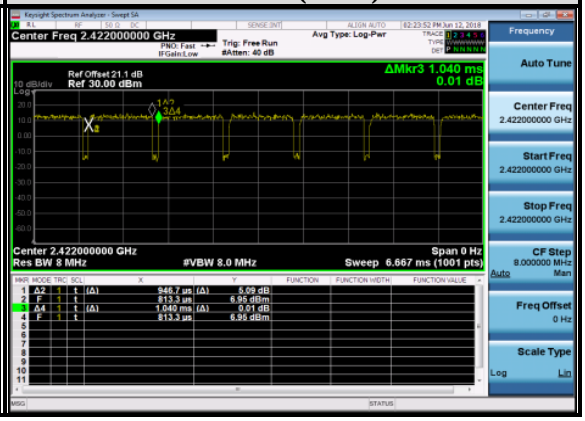
802.11g



802.11n (HT20)



802.11n (HT40)



7. Test Equipment

Test Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Interval**
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070821	Nov. 28, 2017	1 year
Loop Antenna	ETS lindgren	6502	00213440	Dec. 7, 2017	1 year
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	VULB 9168-773 & AT-N0539	Feb. 12, 2018	1 year
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	BBHA 9120D-01686	Jan. 23, 2018	1 year
Horn Antenna(18-40 GHz)	Schwarzbeck	BBHA 9170	BBHA9170750	Jan.12, 2018	1 year
Preamplifier (30-1000 MHz)	EMCI	RMC330E	980404	Jan. 9, 2018	1 year
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980407	Jan. 10, 2018	1 year
Preamplifier (18-40GHz)	EMCI	EMC184040SEE	980408	Mar. 13, 2018	1 year
RF Cable (9 KHz~18 GHz)	UltraPhase & EMC Instrument	A1K50-UP0358-A1K50-1500&EMC106-NM-SM-2500/8000	170111-3&170104/170223	Feb. 1, 2018	1 year
RF Cable (18 GHz~40 GHz)	UltraPhase	K1K50-UP0264-K1K50-500/2500/4000	170214-3/170214-3/170214-1	Feb. 1, 2018	1 year

Test Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Interval**
Antenna Port Conducted Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070834	Nov. 20, 2017	1 year
Power meter	Anrisu	MA2411B	1531202	Dec. 14, 2017	1 year
Power sensor	Anrisu	ML2495A	1645002	Dec. 14, 2017	1 year
AC power Line Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	Nov. 28, 2017	1 year
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	Aug. 2, 2017	1 year
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	July 31, 2017	1 year
Cables	Huber+Suhner	RG 214/U	FCC-BCICF-4_RF	Feb. 1, 2018	1 year

UL Software		
Description	**Name**	**Version**
Radiated measurement	EMC-RI	1.0.0.0
Conducted measurement	Keysight.TestSystem	1.0.0.0
AC power Line Conducted Emission	EZ_EMC	1.1.4.2

8. Description of Test Setup

Support Equipment

Item	Equipment	Brand Name	Model Name	P/N
N/A	N/A	N/A	N/A	N/A

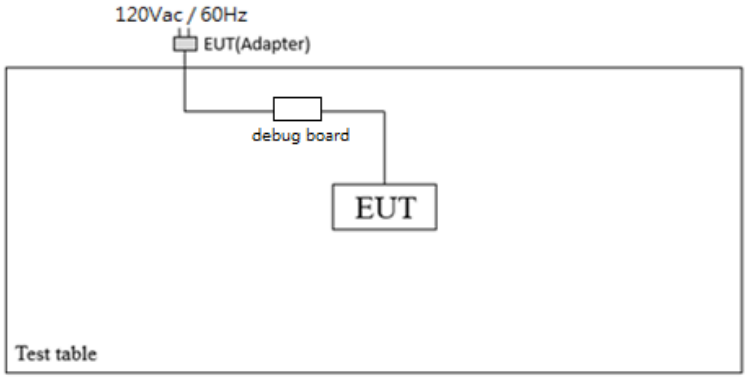
Accessory

Item	Accessory	Brand Name	Model Name	Description
N/A	N/A	N/A	N/A	N/A

Test Setup

The EUT was worked in engineering mode to transmit signal.

Setup Diagram for Test



9. Test Results

9.1. 6 dB Bandwidth

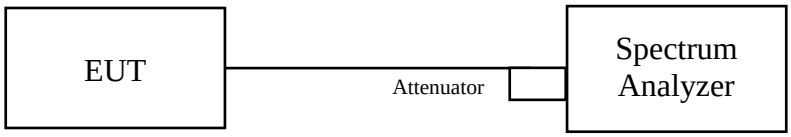
Requirements

The minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

Test Setup



Test Data

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	8.07	0.5	Pass
6	2437	8.07	0.5	Pass
11	2462	8.07	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.12	0.5	Pass
6	2437	15.12	0.5	Pass
11	2462	15.12	0.5	Pass

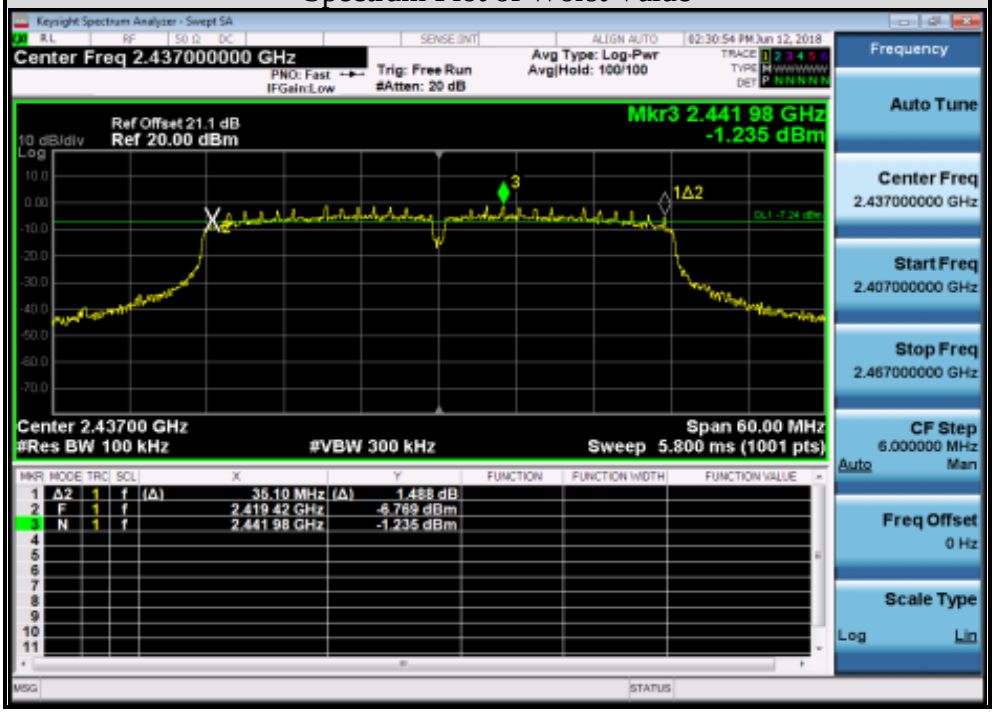
802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.09	0.5	Pass
6	2437	15.09	0.5	Pass
11	2462	15.12	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.04	0.5	Pass
6	2437	35.1	0.5	Pass
9	2452	35.1	0.5	Pass

Spectrum Plot of Worst Value



9.2. Conducted output power

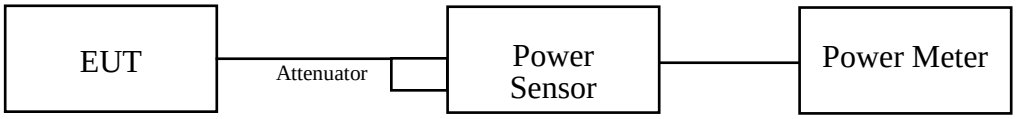
Requirements

For systems using digital modulation in the 2400-2483.5 MHz bands: 1 Watt.

Test Procedure

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Test Setup



Test Data

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	63.83	18.05	30	Pass
6	2437	68.71	18.37	30	Pass
11	2462	58.21	17.65	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	123.59	20.92	30	Pass
6	2437	123.31	20.91	30	Pass
11	2462	118.30	20.73	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	101.39	20.06	30	Pass
6	2437	100.69	20.03	30	Pass
11	2462	92.26	19.65	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	68.55	18.36	30	Pass
6	2437	67.92	18.32	30	Pass
9	2452	66.68	18.24	30	Pass

9.3. Power Spectral Density

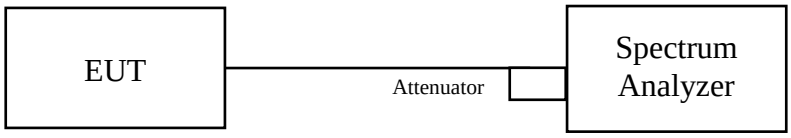
Requirements

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

Test procedure

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

Test Setup



Test Data

802.11b

Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-9.56	8	Pass
6	2437	-6.78	8	Pass
11	2462	-8.298	8	Pass

802.11g

Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-11.251	8	Pass
6	2437	-11.452	8	Pass
11	2462	-12.735	8	Pass

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-12.157	8	Pass
6	2437	-11.468	8	Pass
11	2462	-13.332	8	Pass

802.11n (HT40)

Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
3	2422	-16.62	8	Pass
6	2437	-15.782	8	Pass
9	2452	-17.205	8	Pass

Spectrum Plot of Worst Value

9.4. Conducted Out of Band Emission

Requirements

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.

Test procedure

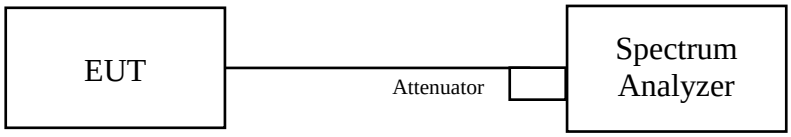
Measurement Procedure REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

Measurement Procedure OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

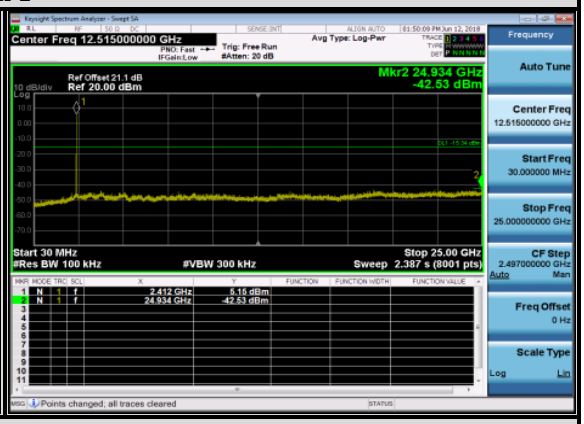
Test Setup



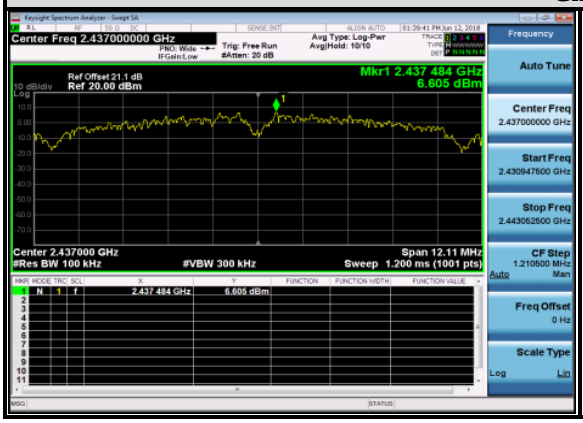
Test Data

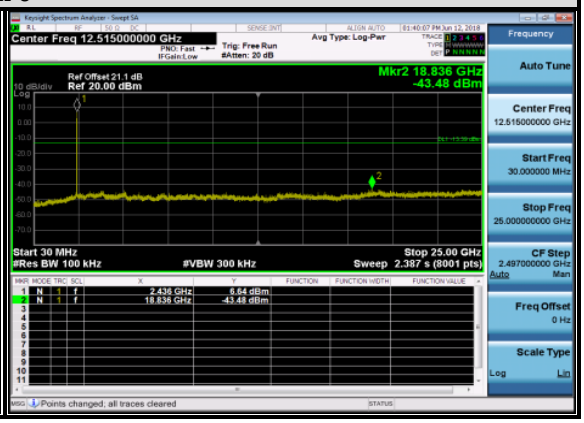
802.11b

Ch 1

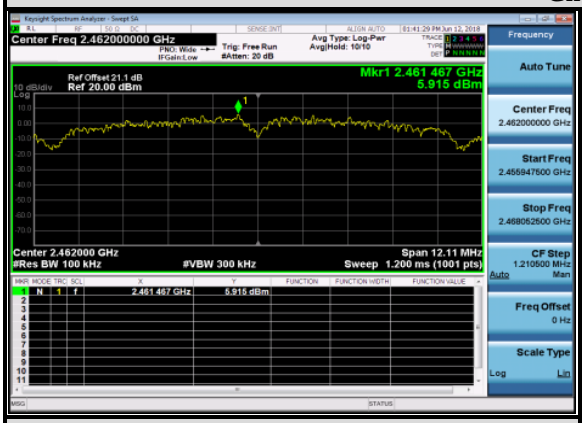


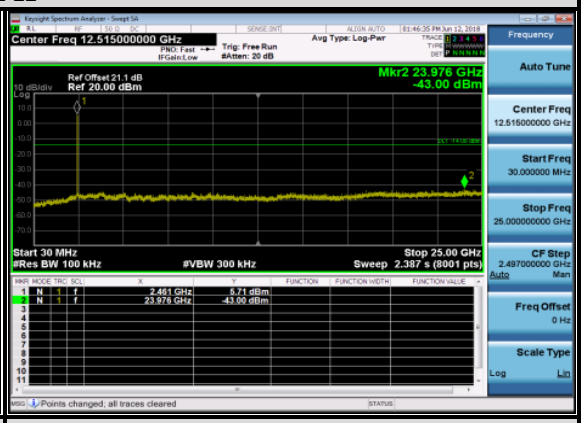
Ch 6



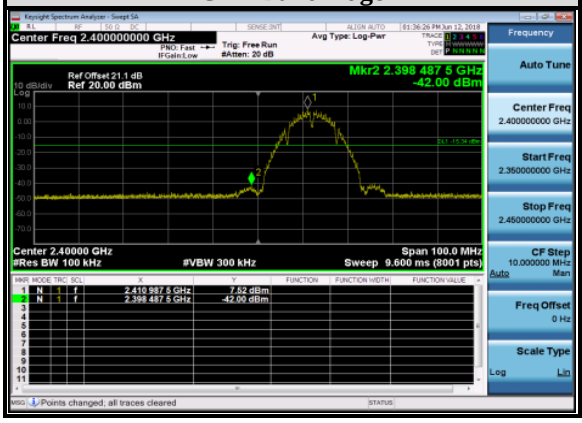


Ch 11

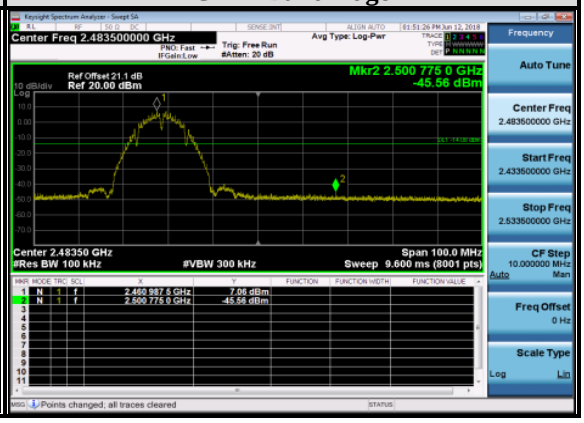




Ch 1 Band Edge

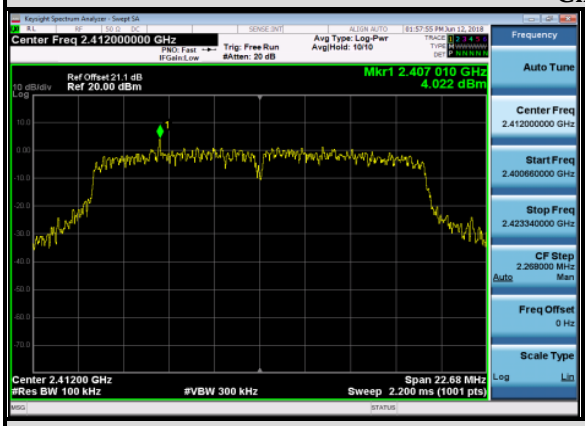


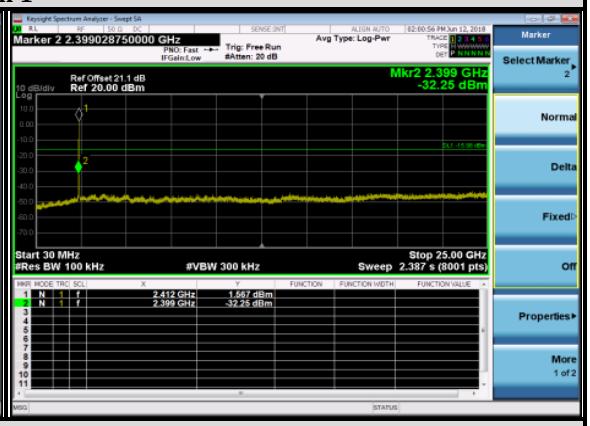
Ch 11 Band Edge



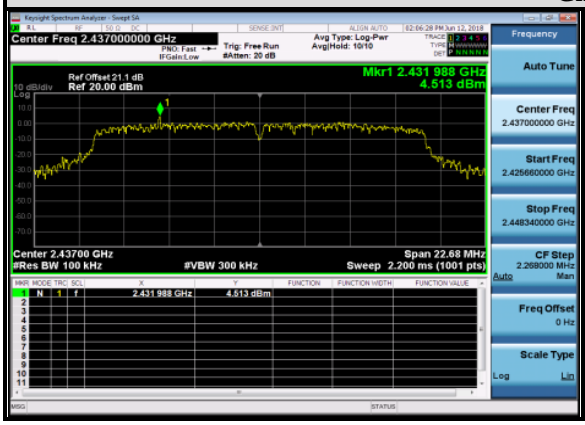
802.11g

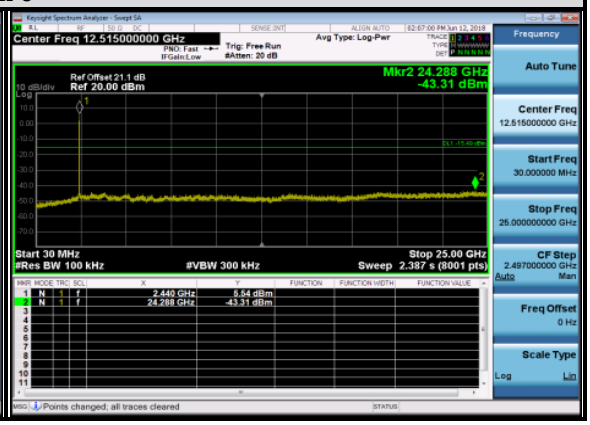
Ch 1



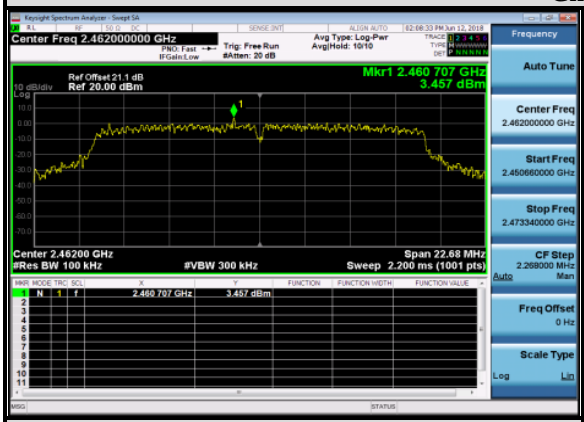


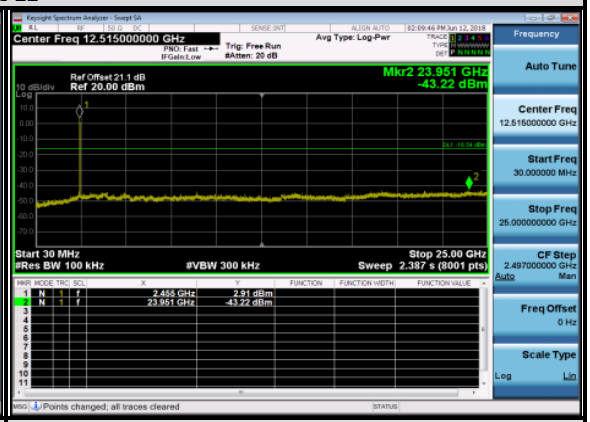
Ch 6



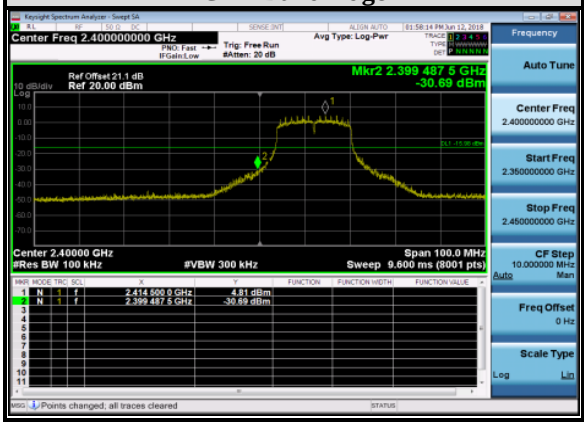


Ch 11

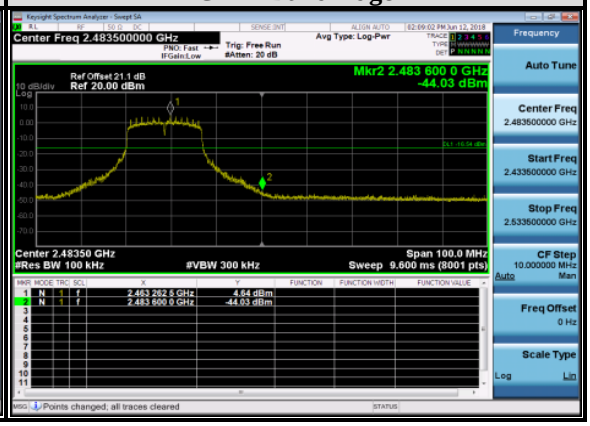




Ch 1 Band Edge

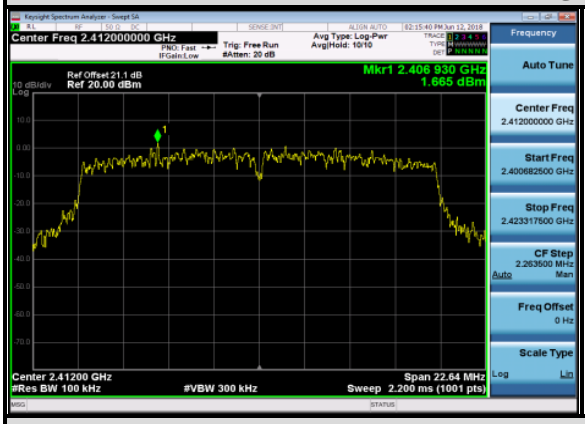


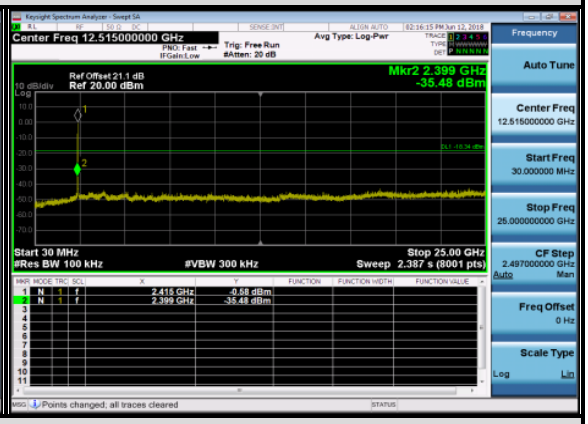
Ch 11 Band Edge



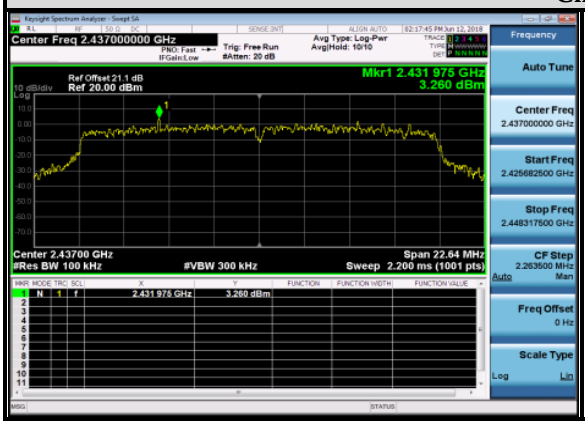
802.11n (HT20)

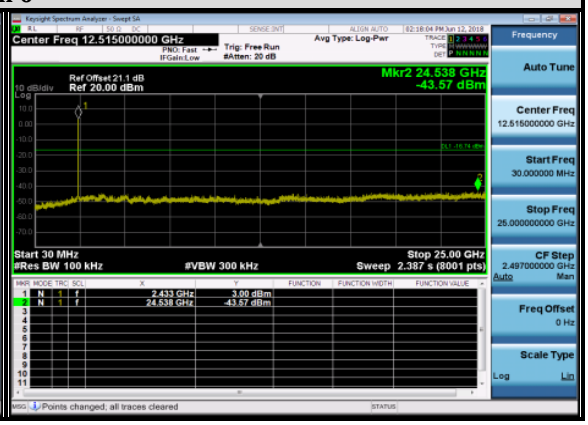
Ch 1



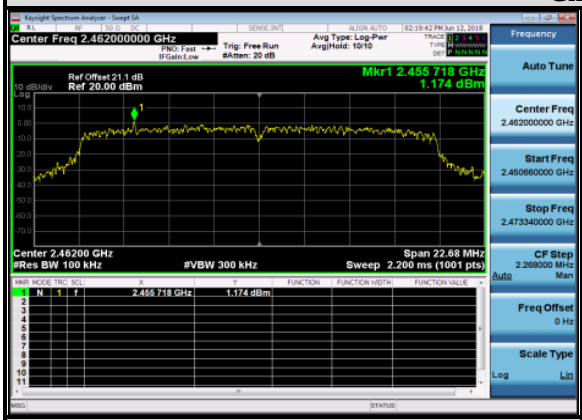


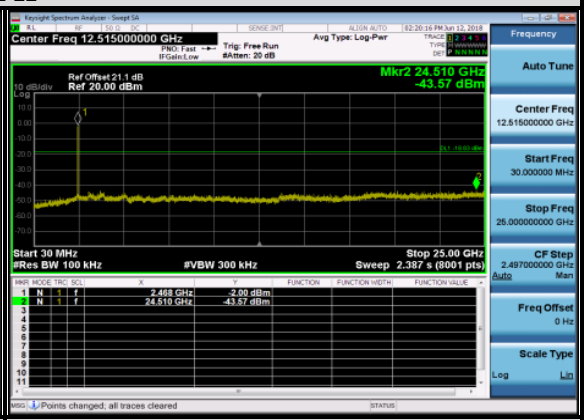
Ch 6



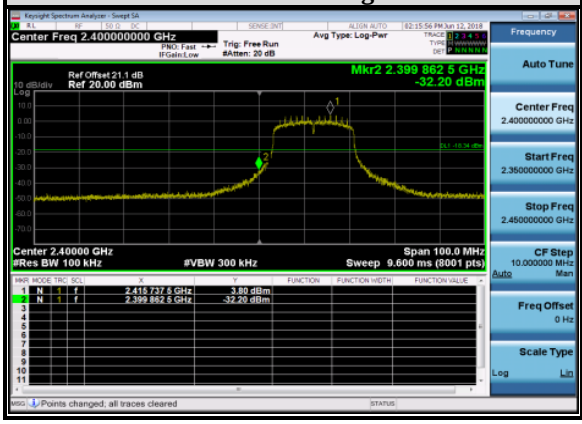


Ch 11

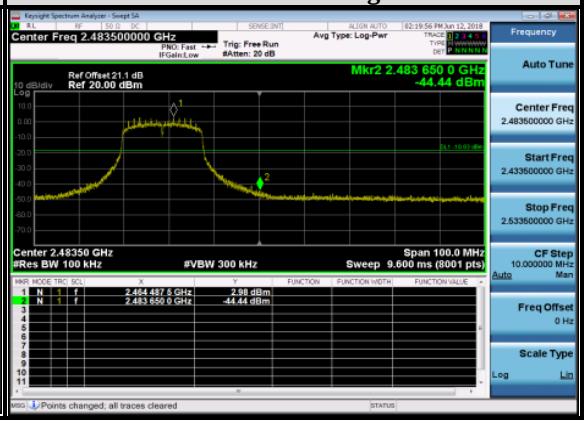




Ch 1 Band Edge



Ch 11 Band Edge

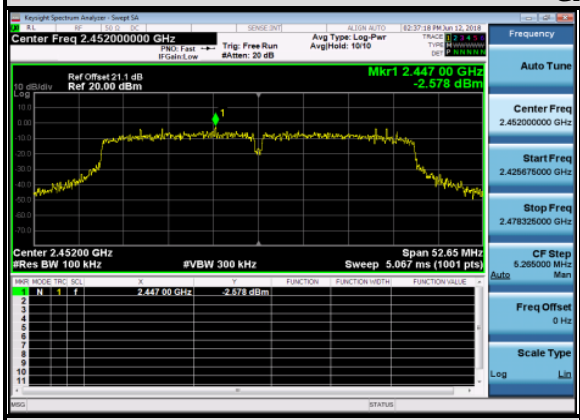


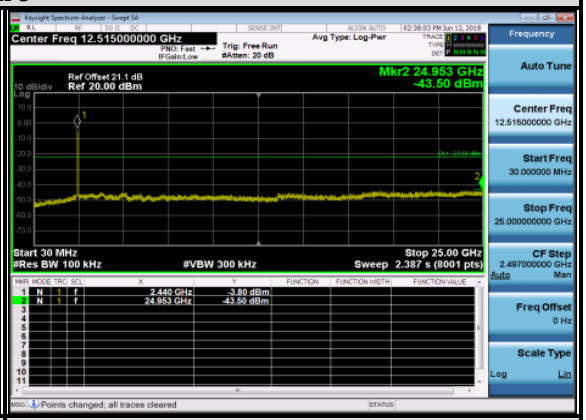
802.11n (HT40)

Ch 3

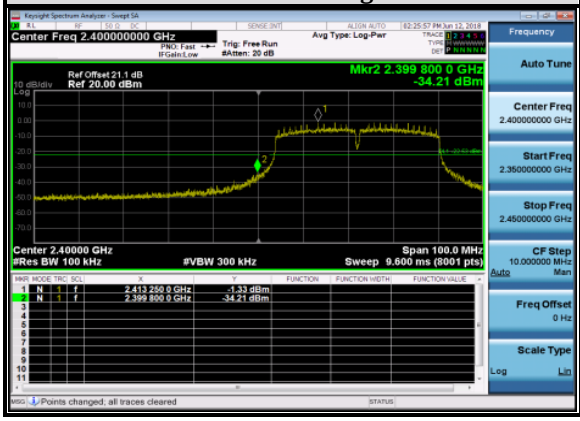
Ch 6

Ch 9

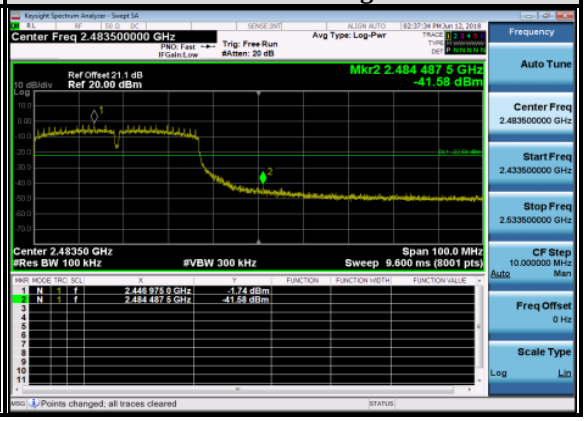




Ch 3 Band Edge



Ch 9 Band Edge



9.5. Radiated Spurious Emission

Requirements

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

Frequency(MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Test Procedures

[For 9 kHz ~ 30 MHz]

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. For measurement below 30MHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

NOTE:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

[For above 30 MHz]

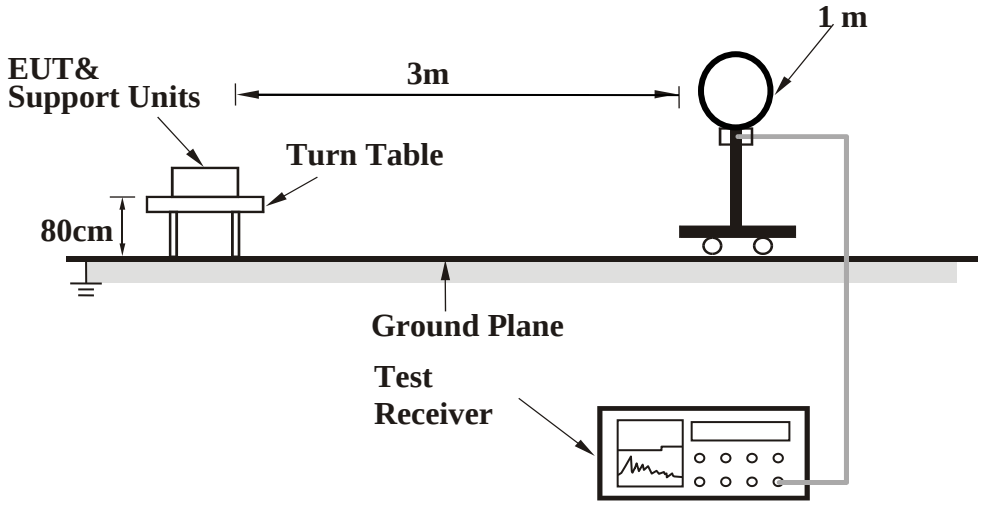
a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

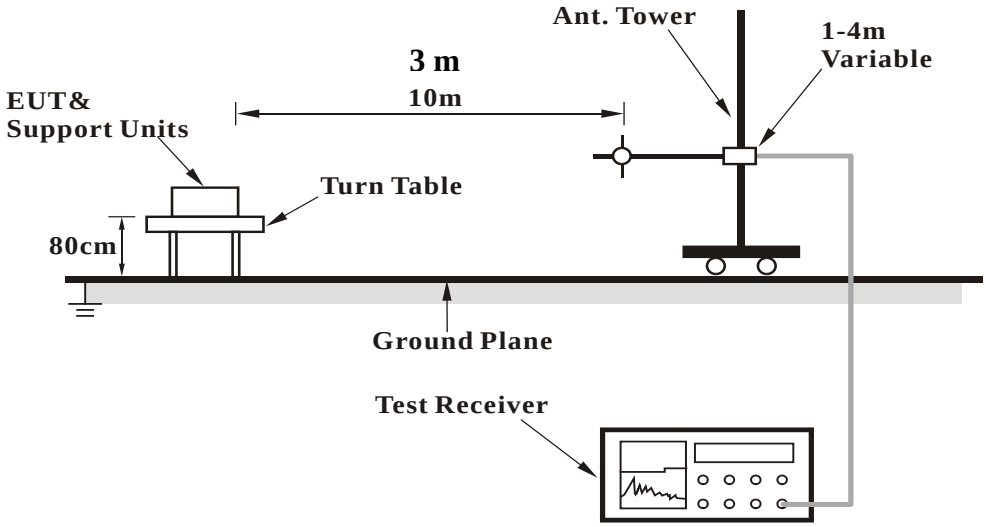
a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
d. All modes of operation were investigated and the worst-case emissions are reported.

Test Setup

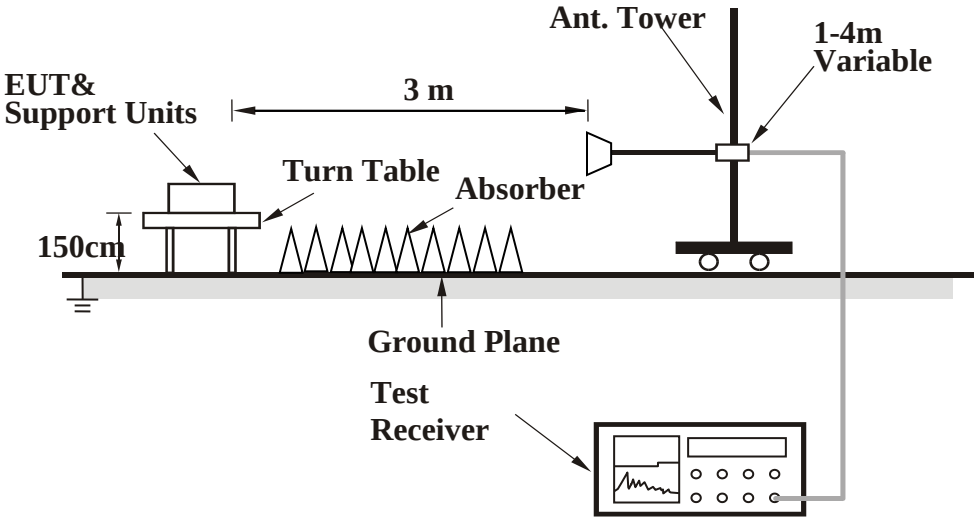
<Frequency Range 9 kHz ~ 30 MHz>



<Frequency Range 30 MHz ~ 1 GHz >



<Frequency Range above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

Test Data

Above 1GHz Data :

802.11b

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	50.74	-8.47	42.27	74.00	-31.73	peak
@2	2411.973	101.40	-8.49	92.91	-	-	peak
3	2390.000	40.53	-8.47	32.06	54.00	-21.94	AVG
@4	2410.993	98.30	-8.49	89.81	-	-	AVG
5	4824.000	48.37	-4.36	44.01	74.00	-29.99	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	53.80	-8.47	45.33	74.00	-28.67	peak
@2	2412.020	105.53	-8.49	97.04	-	-	peak
3	2390.000	43.80	-8.47	35.33	54.00	-18.67	AVG
@4	2411.320	102.76	-8.49	94.27	-	-	AVG
5	4824.000	48.05	-4.36	43.69	74.00	-30.31	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	50.01	-8.47	41.54	74.00	-32.46	peak
@2	2436.973	102.33	-8.50	93.83	-	-	peak
3	2483.500	50.43	-8.55	41.88	74.00	-32.12	peak
4	2390.000	40.17	-8.47	31.70	54.00	-22.30	AVG
@5	2436.007	99.47	-8.50	90.97	-	-	AVG
6	2483.500	40.45	-8.55	31.90	54.00	-22.10	AVG
7	4874.000	50.43	-4.24	46.19	74.00	-27.81	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	52.89	-8.47	44.42	74.00	-29.58	peak
@2	2438.073	106.22	-8.50	97.72	-	-	peak
3	2483.500	52.96	-8.55	44.41	74.00	-29.59	peak
4	2390.000	42.89	-8.47	34.42	54.00	-19.58	AVG
@5	2436.000	103.00	-8.50	94.50	-	-	AVG
6	2483.500	43.99	-8.55	35.44	54.00	-18.56	AVG
7	4874.000	51.07	-4.24	46.83	74.00	-27.17	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
@1	2463.127	102.60	-8.52	94.08	-	-	peak
2	2483.500	51.35	-8.55	42.80	74.00	-31.20	peak
@3	2463.040	99.74	-8.52	91.22	-	-	AVG
4	2483.500	42.85	-8.55	34.30	54.00	-19.70	AVG
5	4924.000	48.29	-4.13	44.16	74.00	-29.84	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
@1	2462.007	106.35	-8.53	97.82	-	-	peak
2	2483.500	53.85	-8.55	45.30	74.00	-28.70	peak
@3	2461.260	103.19	-8.52	94.67	-	-	AVG
4	2483.500	44.81	-8.55	36.26	54.00	-17.74	AVG
5	4924.000	48.10	-4.13	43.97	74.00	-30.03	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	54.50	-8.47	46.03	74.00	-27.97	peak
@2	2409.413	103.03	-8.47	94.56	-	-	peak
3	2390.000	44.18	-8.47	35.71	54.00	-18.29	AVG
@4	2409.240	94.69	-8.47	86.22	-	-	AVG
5	4824.000	46.28	-4.36	41.92	74.00	-32.08	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	60.54	-8.47	52.07	74.00	-21.93	peak
@2	2415.127	107.30	-8.49	98.81	-	-	peak
3	2390.000	49.64	-8.47	41.17	54.00	-12.83	AVG
@4	2414.907	98.84	-8.49	90.35	-	-	AVG
5	4824.000	45.50	-4.36	41.14	74.00	-32.86	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	50.73	-8.47	42.26	74.00	-31.74	peak
@2	2438.747	104.56	-8.50	96.06	-	-	peak
3	2483.500	53.49	-8.55	44.94	74.00	-29.06	peak
4	2390.000	41.06	-8.47	32.59	54.00	-21.41	AVG
@5	2434.387	95.73	-8.49	87.24	-	-	AVG
6	2483.500	41.49	-8.55	32.94	54.00	-21.06	AVG
7	4874.000	48.54	-4.24	44.30	74.00	-29.70	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	52.58	-8.47	44.11	74.00	-29.89	peak
@2	2434.247	107.96	-8.49	99.47	-	-	peak
3	2483.500	54.20	-8.55	45.65	74.00	-28.35	peak
4	2390.000	44.11	-8.47	35.64	54.00	-18.36	AVG
@5	2438.833	99.70	-8.50	91.20	-	-	AVG
6	2483.500	45.09	-8.55	36.54	54.00	-17.46	AVG
7	4874.000	48.06	-4.24	43.82	74.00	-30.18	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
@1	2465.113	104.75	-8.53	96.22	-	-	peak
2	2483.500	60.44	-8.55	51.89	74.00	-22.11	peak
@3	2463.840	96.12	-8.52	87.60	-	-	AVG
4	2483.500	50.58	-8.55	42.03	54.00	-11.97	AVG
5	4924.000	46.44	-4.13	42.31	74.00	-31.69	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
@1	2464.747	108.45	-8.52	99.93	-	-	peak
2	2483.500	66.13	-8.55	57.58	74.00	-16.42	peak
@3	2464.260	99.91	-8.52	91.39	-	-	AVG
4	2483.500	55.98	-8.55	47.43	54.00	-6.57	AVG
5	4924.000	46.02	-4.13	41.89	74.00	-32.11	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

802.11n (HT-20)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	55.53	-8.47	47.06	74.00	-26.94	peak
@2	2415.473	103.97	-8.49	95.48	-	-	peak
3	2390.000	46.06	-8.47	37.59	54.00	-16.41	AVG
@4	2410.393	95.63	-8.48	87.15	-	-	AVG
5	4824.000	45.26	-4.36	40.90	74.00	-33.10	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	53.10	-2.20	50.90	74.00	-23.10	peak
@2	2416.027	103.22	-2.25	100.97	-	-	peak
3	2390.000	45.55	-2.20	43.35	54.00	-10.65	AVG
@4	2415.280	95.18	-2.25	92.93	-	-	AVG
5	4824.000	45.22	-4.36	40.86	74.00	-33.14	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	49.38	-2.20	47.18	74.00	-26.82	peak
@2	2438.567	103.53	-2.28	101.25	-	-	peak
3	2483.500	51.99	-2.37	49.62	74.00	-24.38	peak
4	2390.000	41.19	-2.20	38.99	54.00	-15.01	AVG
@5	2434.287	95.10	-2.27	92.83	-	-	AVG
6	2483.500	41.18	-2.37	38.81	54.00	-15.19	AVG
7	4874.000	46.41	-4.24	42.17	74.00	-31.83	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2390.000	51.84	-2.20	49.64	74.00	-24.36	peak
@2	2435.780	103.89	-2.28	101.61	-	-	peak
3	2483.500	50.45	-2.37	48.08	74.00	-25.92	peak
4	2390.000	41.86	-2.20	39.66	54.00	-14.34	AVG
@5	2435.613	95.50	-2.28	93.22	-	-	AVG
6	2483.500	40.76	-2.37	38.39	54.00	-15.61	AVG
7	4874.000	46.69	-4.24	42.45	74.00	-31.55	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
@1	2463.087	104.47	-2.32	102.15	-	-	peak
2	2483.500	59.66	-2.37	57.29	74.00	-16.71	peak
@3	2460.367	95.78	-2.32	93.46	-	-	AVG
4	2483.500	47.61	-2.37	45.24	54.00	-8.76	AVG
5	4924.000	44.82	-4.13	40.69	74.00	-33.31	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
@1	2457.940	104.57	-2.32	102.25	-	-	peak
2	2483.500	57.13	-2.37	54.76	74.00	-19.24	peak
@3	2459.327	96.08	-2.32	93.76	-	-	AVG
4	2483.500	46.13	-2.37	43.76	54.00	-10.24	AVG
5	4924.000	45.17	-4.13	41.04	74.00	-32.96	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

802.11n (HT-40)

EUT Test Condition		Measurement Detail	
Channel	Channel 3	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2388.540	63.07	-2.19	60.88	74.00	-13.12	peak
2	2390.000	57.29	-2.20	55.09	74.00	-18.91	peak
@3	2423.567	99.11	-2.26	96.85	-	-	peak
4	2390.000	46.57	-2.20	44.37	54.00	-9.63	AVG
@5	2425.233	90.73	-2.26	88.47	-	-	AVG
6	4844.000	45.25	-4.30	40.95	74.00	-33.05	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2389.327	65.95	-2.20	63.75	74.00	-10.25	peak
2	2390.000	56.83	-2.20	54.63	74.00	-19.37	peak
@3	2419.080	99.27	-2.25	97.02	-	-	peak
4	2390.000	47.09	-2.20	44.89	54.00	-9.11	AVG
@5	2414.947	90.87	-2.25	88.62	-	-	AVG
6	4844.000	43.25	-4.30	38.95	74.00	-35.05	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2386.200	60.86	-2.19	58.67	74.00	-15.33	peak
2	2390.000	56.64	-2.20	54.44	74.00	-19.56	peak
@3	2433.447	98.93	-2.28	96.65	-	-	peak
4	2483.500	54.07	-2.37	51.70	74.00	-22.30	peak
5	2483.853	58.08	-2.37	55.71	74.00	-18.29	peak
6	2489.667	57.46	-2.37	55.09	74.00	-18.91	peak
7	2390.000	41.20	-2.20	39.00	54.00	-15.00	AVG
@8	2429.987	88.40	-2.27	86.13	-	-	AVG
9	2483.500	41.79	-2.37	39.42	54.00	-14.58	AVG
10	4874.000	44.03	-4.24	39.79	74.00	-34.21	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
1	2387.293	60.98	-2.20	58.78	74.00	-15.22	peak
2	2390.000	60.97	-2.20	58.77	74.00	-15.23	peak
@3	2440.120	99.92	-2.29	97.63	-	-	peak
4	2483.500	56.26	-2.37	53.89	74.00	-20.11	peak
5	2494.207	57.95	-2.38	55.57	74.00	-18.43	peak
6	2390.000	43.66	-2.20	41.46	54.00	-12.54	AVG
@7	2430.040	91.41	-2.27	89.14	-	-	AVG
8	2483.500	42.24	-2.37	39.87	54.00	-14.13	AVG
9	4874.000	44.14	-4.24	39.90	74.00	-34.10	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 9	**Frequency Range**	1 GHz ~ 25 GHz

Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
@1	2461.527	99.41	-2.32	97.09	-	-	peak
2	2483.500	56.73	-2.37	54.36	74.00	-19.64	peak
3	2484.860	61.85	-2.36	59.49	74.00	-14.51	peak
@4	2459.987	90.91	-2.32	88.59	-	-	AVG
5	2483.500	47.70	-2.37	45.33	54.00	-8.67	AVG
6	4904.000	43.68	-4.16	39.52	74.00	-34.48	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	**Frequency**	**Reading**	**Correct**	**Result**	**Limit**	**Margin**	**Remark**
	(MHz)	**(dBuV/m)**	**dB/m**	**(dBuV/m)**	**(dBuV/m)**	**(dB)**	
@1	2455.107	100.01	-2.31	97.70	-	-	peak
2	2483.500	57.07	-2.37	54.70	74.00	-19.30	peak
3	2484.907	64.02	-2.36	61.66	74.00	-12.34	peak
@4	2455.273	90.51	-2.31	88.20	-	-	AVG
5	2483.500	45.32	-2.37	42.95	54.00	-11.05	AVG
6	4904.000	42.69	-4.16	38.53	74.00	-35.47	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@": Fundamental Frequency.
5. " # ": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

Below 1GHz Data：

9 kHz ~ 30 MHz Data:

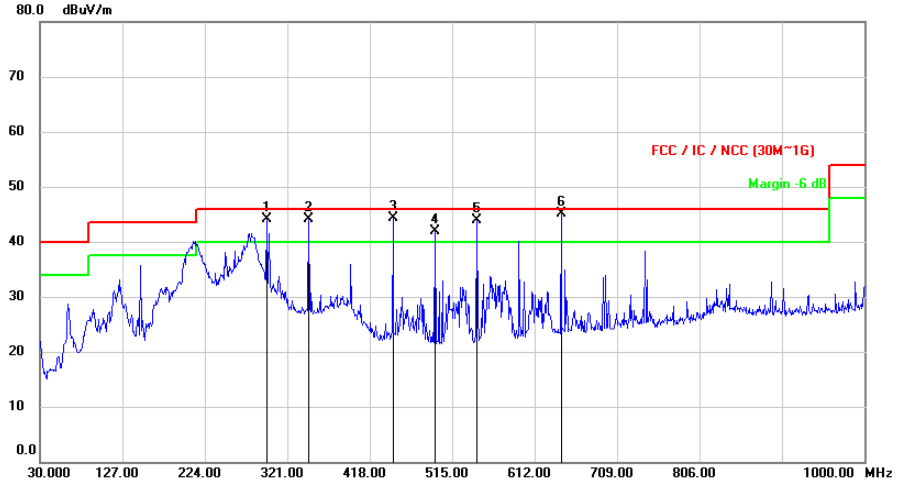
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Data:

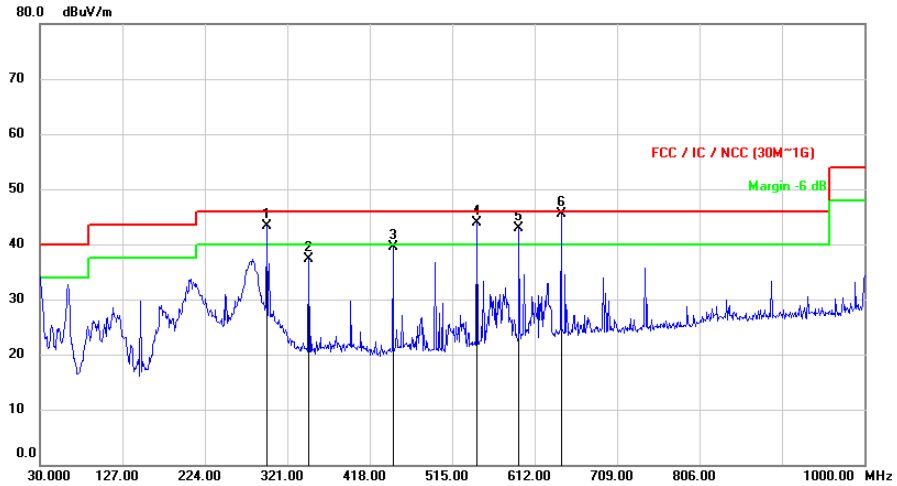
802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	30 MHz ~ 1 GHz

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m							
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	296.9763	58.72	-14.53	44.19	46.00	-1.81	peak
2	346.4786	57.49	-13.46	44.03	46.00	-1.97	peak
3	445.4833	55.10	-10.74	44.36	46.00	-1.64	peak
4	494.9857	51.91	-9.92	41.99	46.00	-4.01	peak
5	544.4880	52.78	-8.94	43.84	46.00	-2.16	peak
6	643.4927	52.01	-6.86	45.15	46.00	-0.85	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	297.0087	57.93	-14.53	43.40	46.00	-2.60	peak
2	346.4786	50.86	-13.46	37.40	46.00	-8.60	peak
3	445.4833	50.23	-10.74	39.49	46.00	-6.51	peak
4	544.4880	52.83	-8.94	43.89	46.00	-2.11	peak
5	593.9903	50.59	-7.60	42.99	46.00	-3.01	peak
6	643.4927	52.45	-6.86	45.59	46.00	-0.41	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. The other emission levels were very low against the limit.

9.6. AC Power Line Conducted Emission

Requirements

Frequency (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

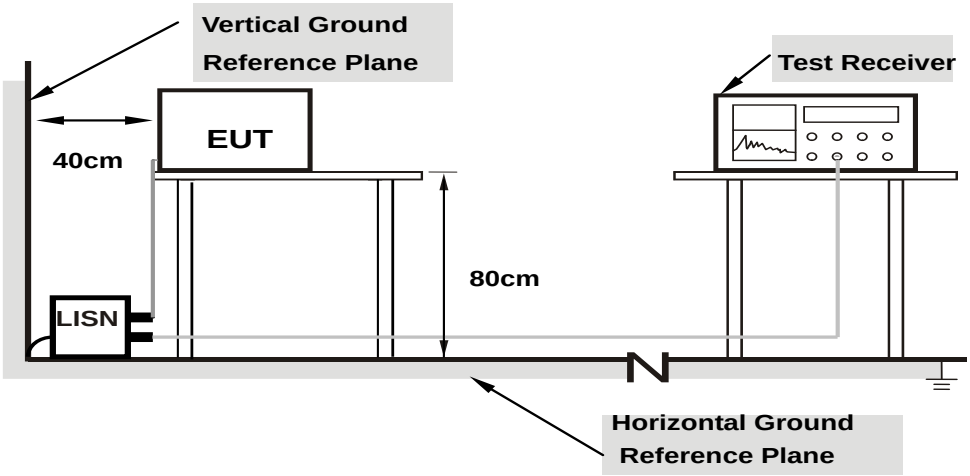
Note:
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Procedures

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

Test Setup



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

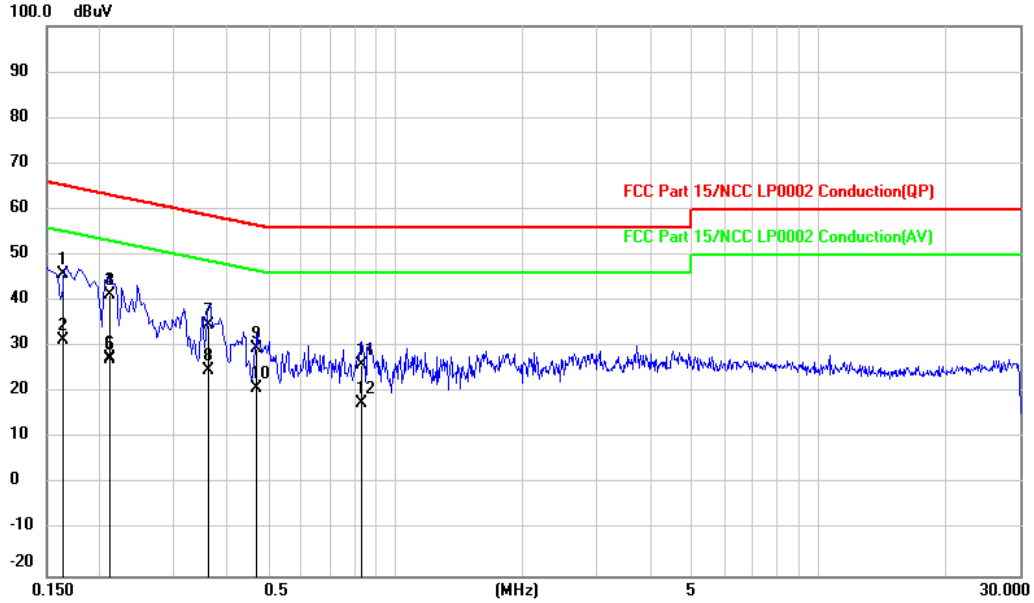
For the actual test configuration, please refer to the attached file (Test Setup Photo).

Test Data

802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	150 kHz ~ 30 MHz

Phase of Power：Line (L)

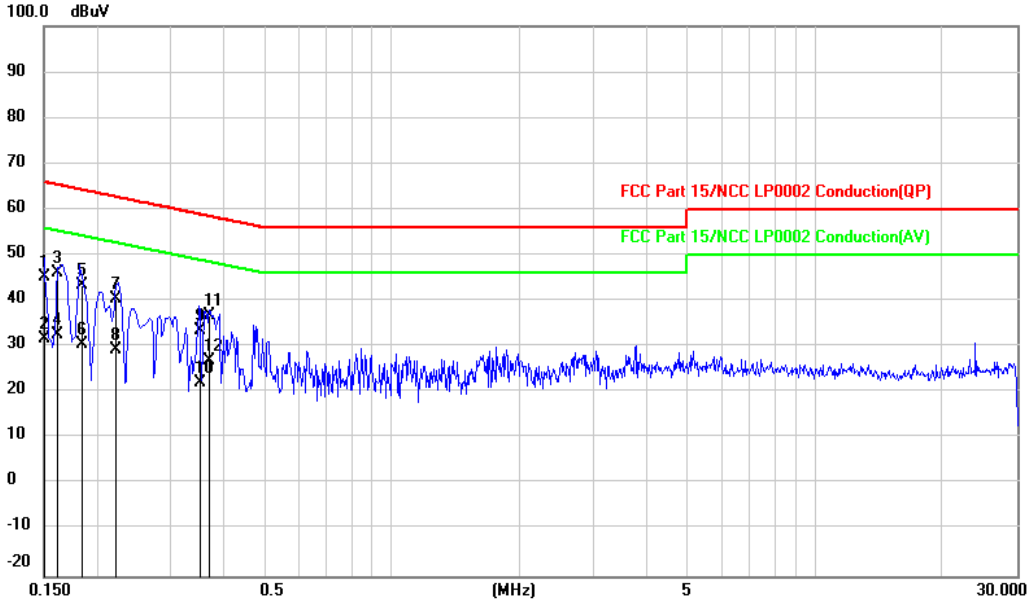


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB	(dBuV)	(dBuV)	(dB)	
1	0.1634	26.15	19.57	45.72	65.29	-19.57	QP
2	0.1634	12.01	19.57	31.58	55.29	-23.71	AVG
3	0.2106	21.63	19.58	41.21	63.18	-21.97	QP
4	0.2106	21.63	19.58	41.21	63.18	-21.97	QP
5	0.2106	7.81	19.58	27.39	53.18	-25.79	AVG
6	0.2106	7.84	19.58	27.42	53.18	-25.76	AVG
7	0.3619	15.14	19.60	34.74	58.68	-23.94	QP
8	0.3619	5.17	19.60	24.77	48.68	-23.91	AVG
9	0.4707	10.13	19.59	29.72	56.50	-26.78	QP
10	0.4707	1.46	19.59	21.05	46.50	-25.45	AVG
11	0.8335	6.38	19.60	25.98	56.00	-30.02	QP
12	0.8335	-1.90	19.60	17.70	46.00	-28.30	AVG

Remarks:

1. Result value (dBuV) = Reading value (dBuV) + Correction Factor (dB)
2. Margin(dB) = Result value (dBuV) - Limit value (dBuV)
3. Correction Factor(dB) = Insertion loss(dB) + Cable loss(dB)
4. The other emission levels were very low against the limit.

Phase of Power：Neutral (N)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB	(dBuV)	(dBuV)	(dB)	
1	0.1510	25.77	19.59	45.36	65.94	-20.58	QP
2	0.1510	12.31	19.59	31.90	55.94	-24.04	AVG
3	0.1617	26.55	19.59	46.14	65.38	-19.24	QP
4	0.1617	13.20	19.59	32.79	55.38	-22.59	AVG
5	0.1850	23.86	19.59	43.45	64.26	-20.81	QP
6	0.1850	11.03	19.59	30.62	54.26	-23.64	AVG
7	0.2211	20.87	19.60	40.47	62.78	-22.31	QP
8	0.2211	9.79	19.60	29.39	52.78	-23.39	AVG
9	0.3534	13.96	19.62	33.58	58.88	-25.30	QP
10	0.3534	2.53	19.62	22.15	48.88	-26.73	AVG
11	0.3686	17.12	19.62	36.74	58.53	-21.79	QP
12	0.3686	7.29	19.62	26.91	48.53	-21.62	AVG

Remarks:

1. Result value (dBuV) = Reading value (dBuV) + Correction Factor (dB)
2. Margin(dB) = Result value (dBuV) - Limit value (dBuV)
3. Correction Factor(dB) = Insertion loss(dB) + Cable loss(dB)
4. The other emission levels were very low against the limit.

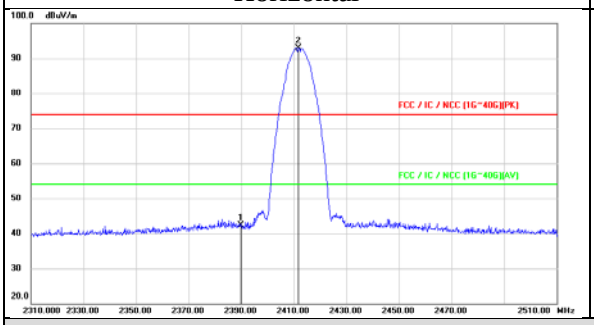
Appendix I Radiated Band Edge Measurement

802.11b

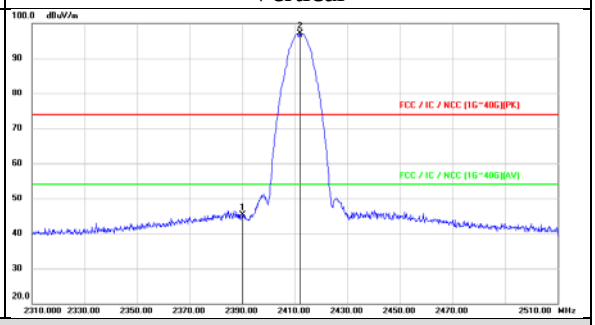
Peak

Ch1

Horizontal

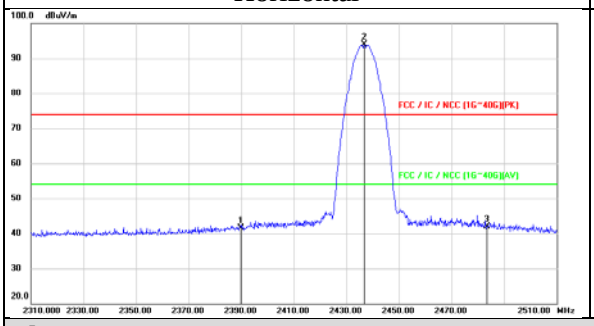


Vertical



Ch6

Horizontal



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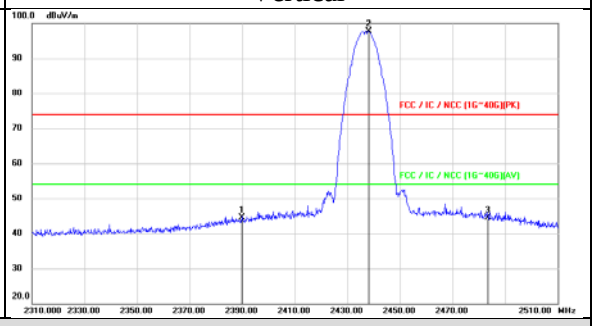
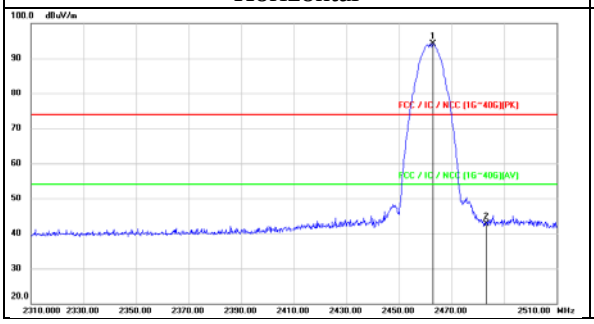


Ch11

Horizontal



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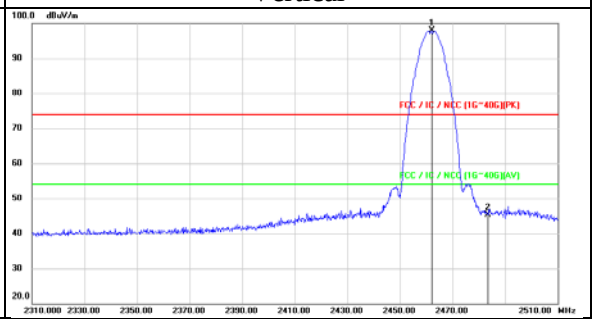
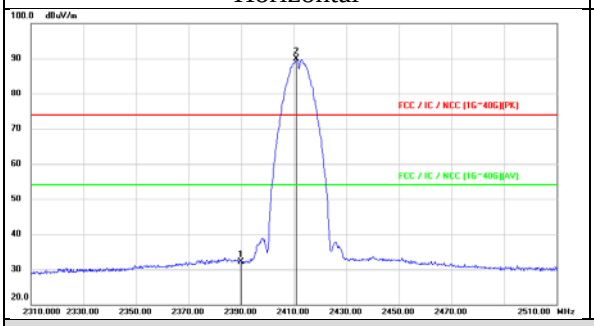


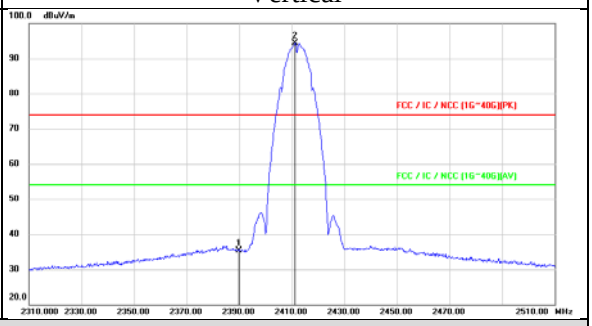
Average

Ch1

Horizontal

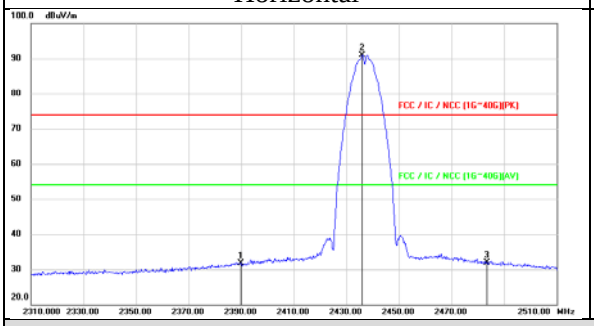


Vertical



Ch6

Horizontal



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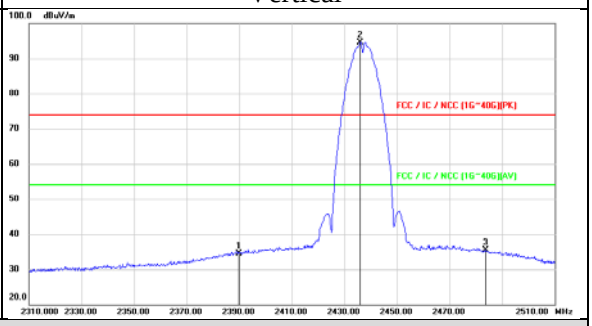
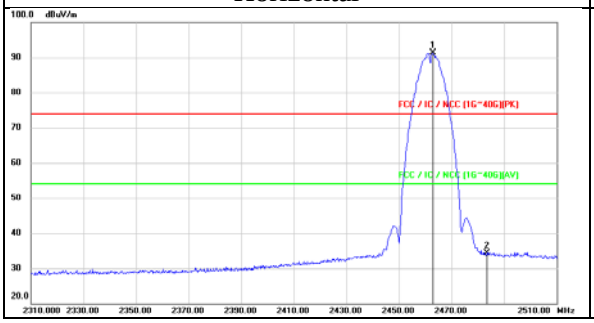
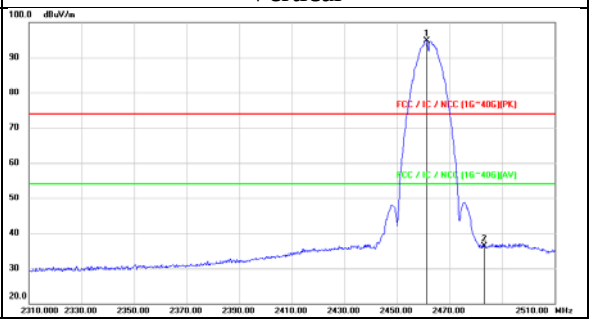


Ch11

Horizontal



Vertical

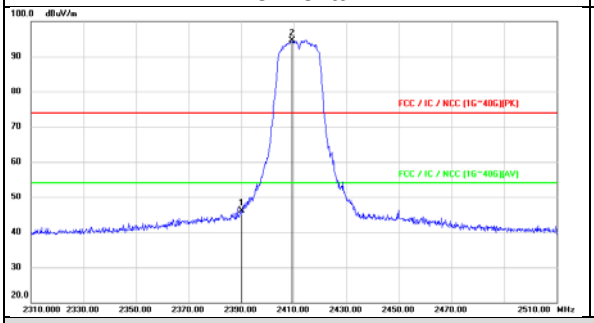


802.11g

Peak

Ch1

Horizontal



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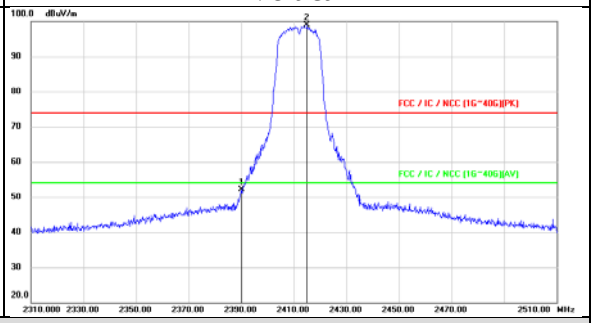
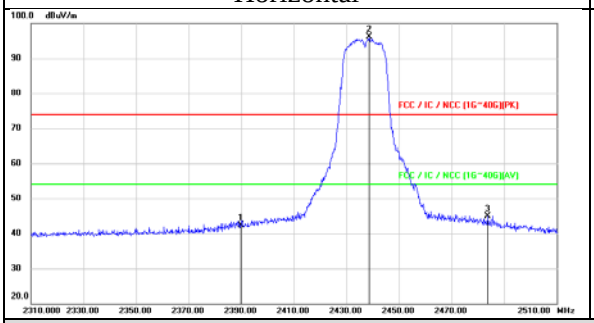


Ch6

Horizontal



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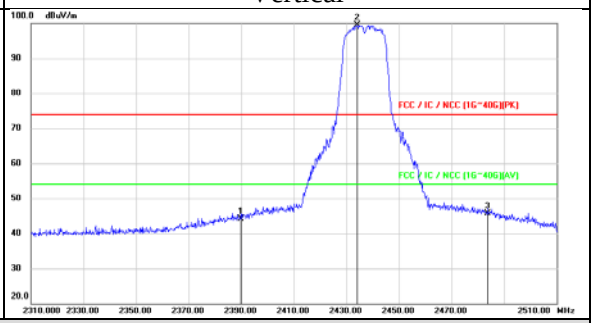
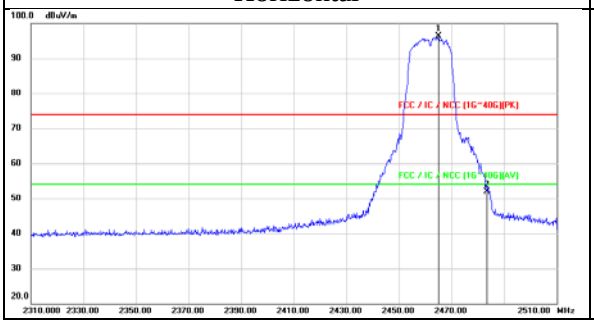


Ch11

Horizontal



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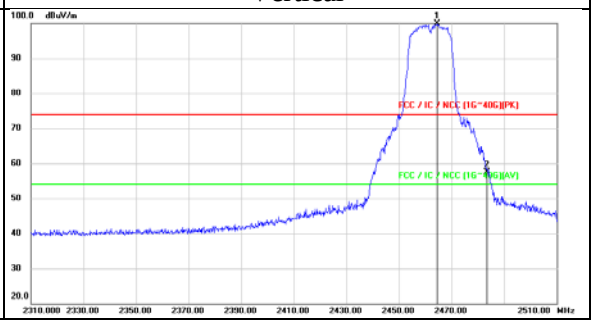
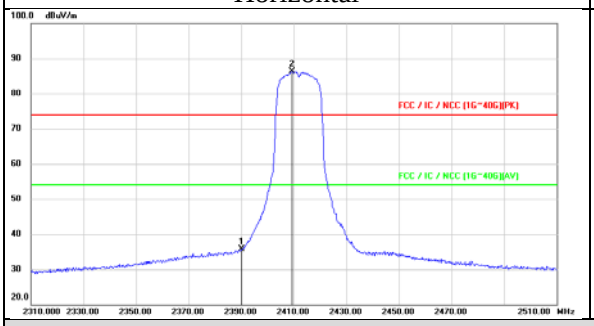


Average

Ch1

Horizontal



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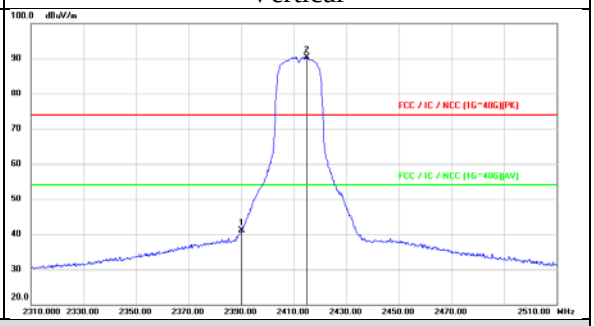

Ch6

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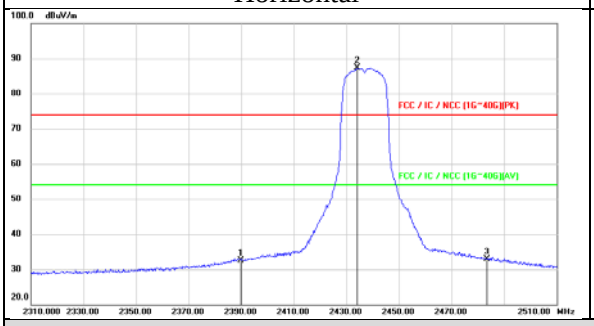

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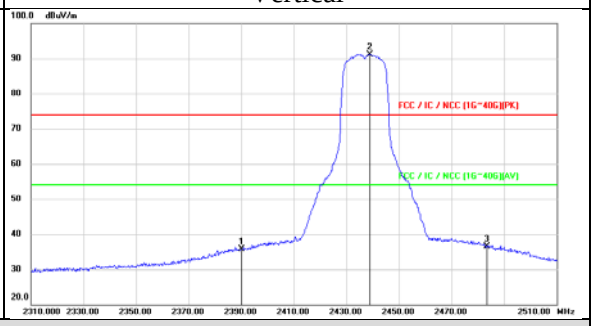
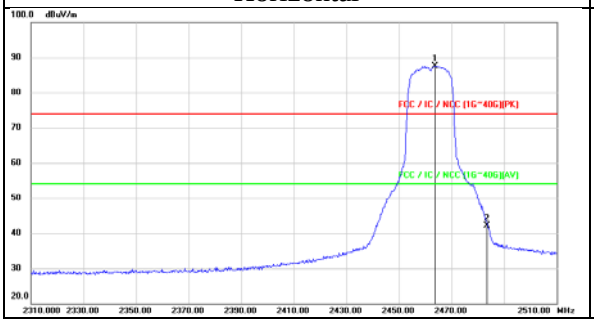


Ch11

Horizontal



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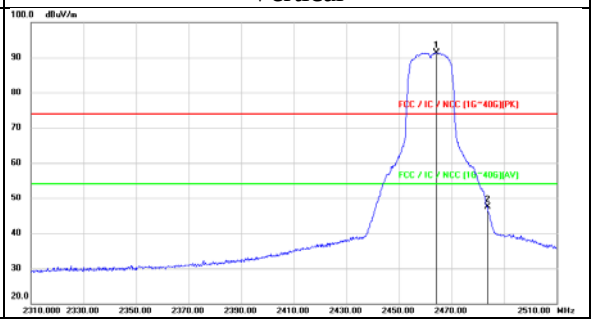
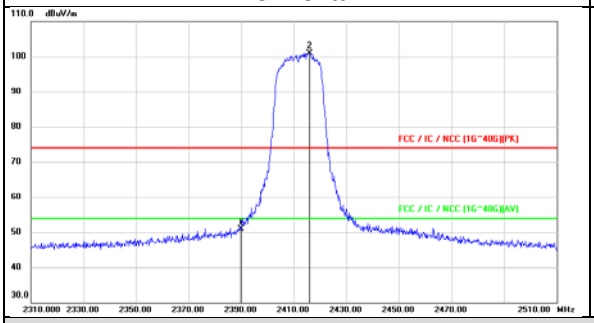


802.11n (HT-20)

Peak

Ch1

Horizontal



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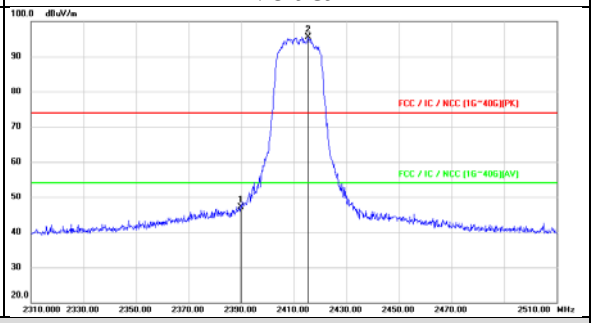
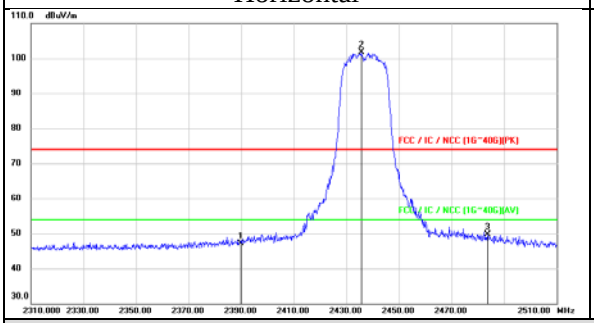


Ch6

Horizontal



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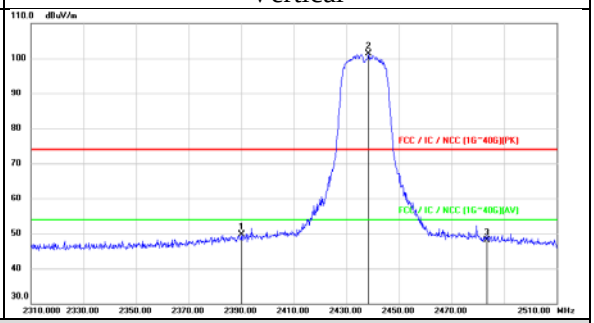
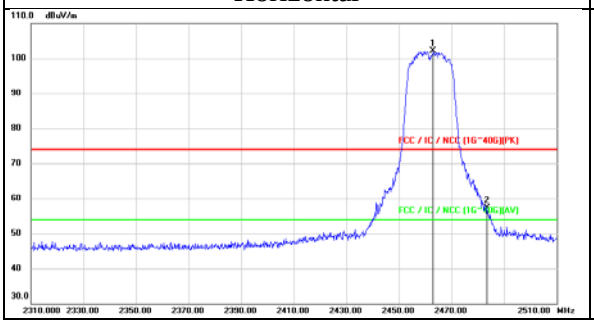


Ch11

Horizontal



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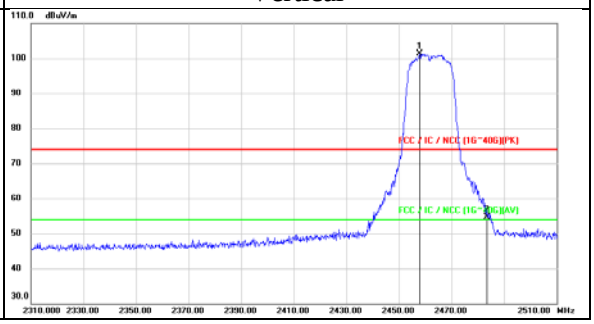
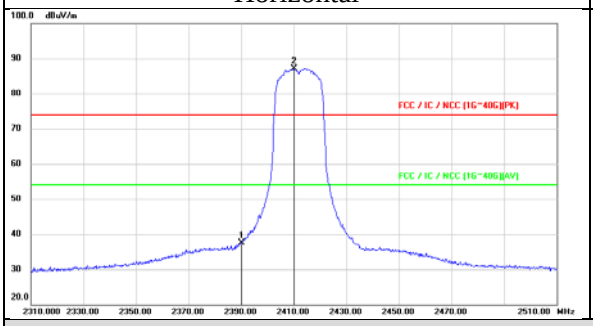


Average

Ch1

Horizontal



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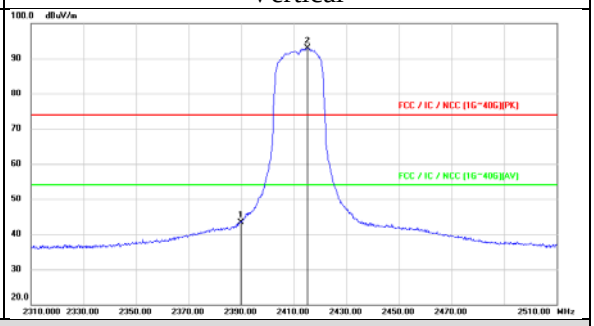
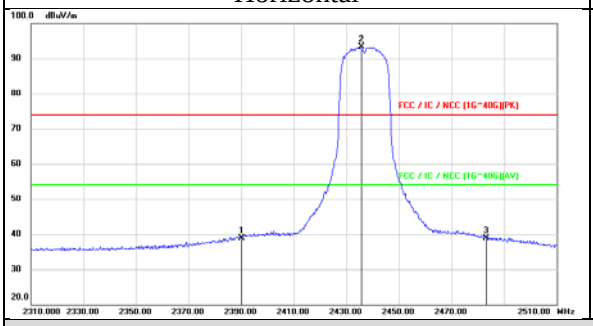


Ch6

Horizontal



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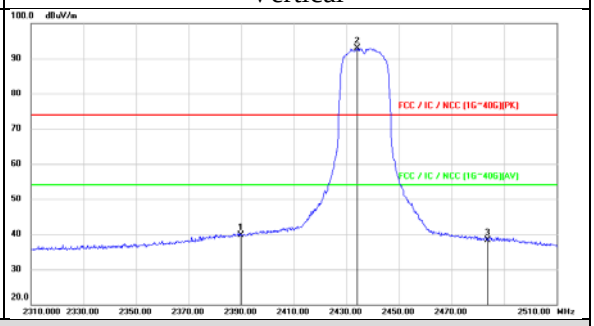
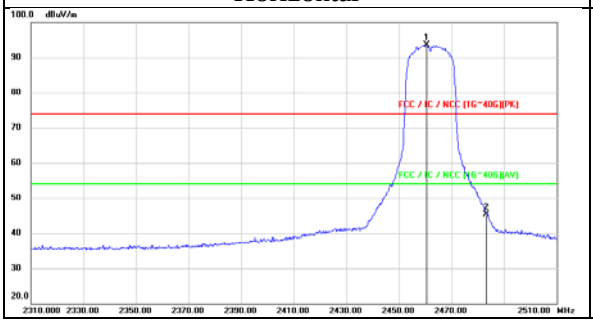
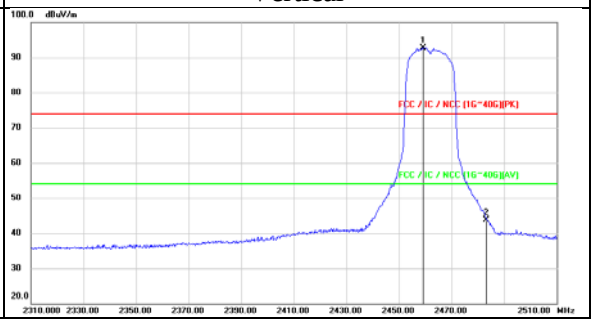


Ch11

Horizontal



Vertical

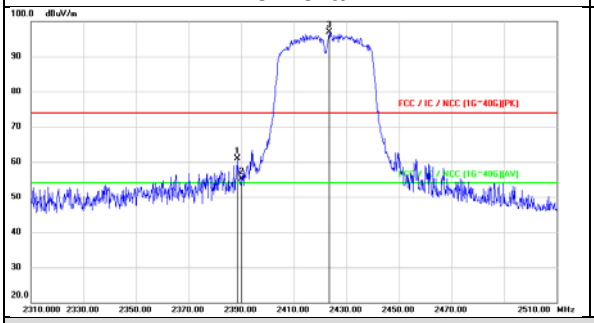


802.11n (HT-40)

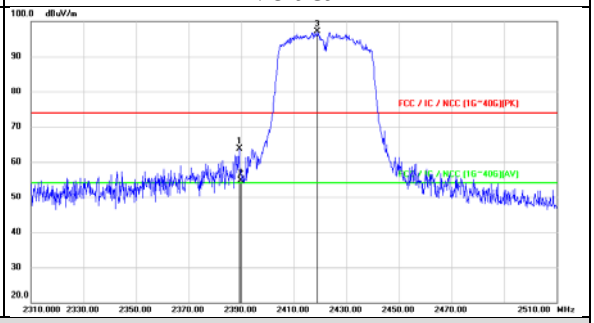
Peak

Ch3

Horizontal

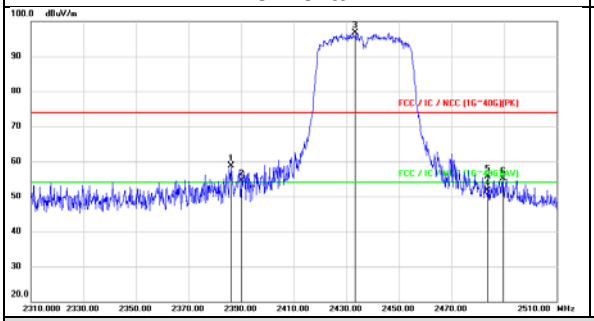


Vertical

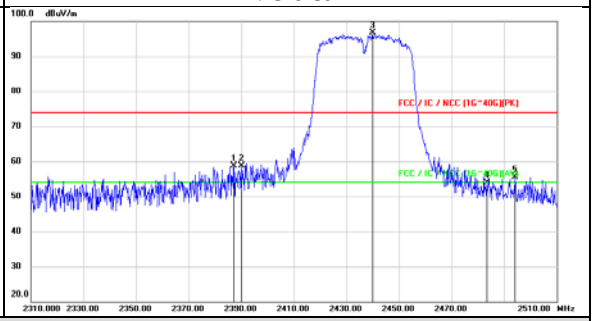


Ch6

Horizontal

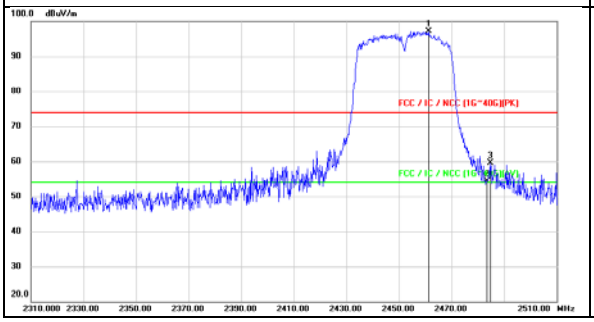


Vertical

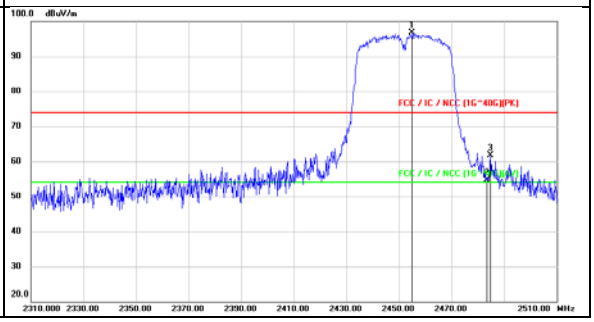


Ch9

Horizontal



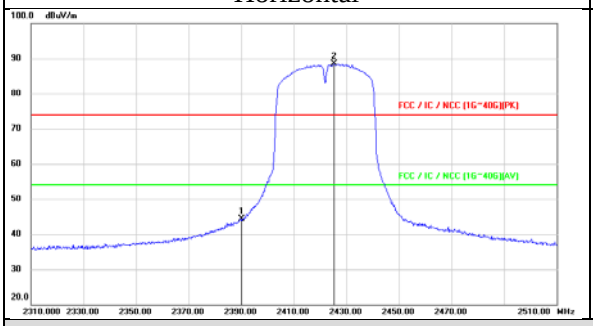
Vertical



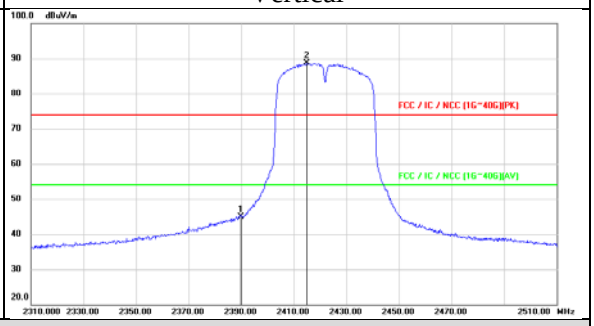
Average

Ch3

Horizontal

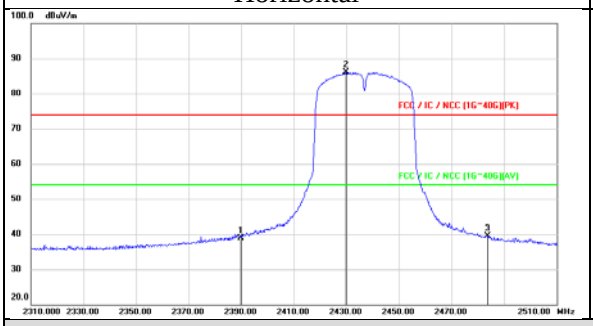


Vertical

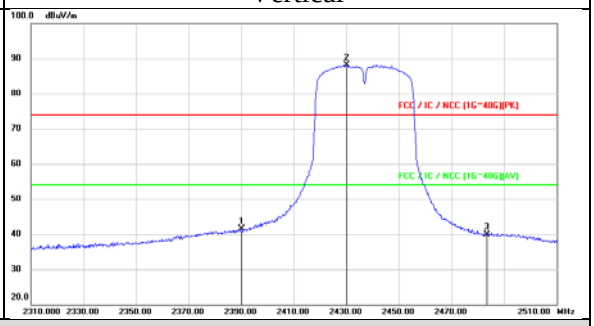


Ch6

Horizontal

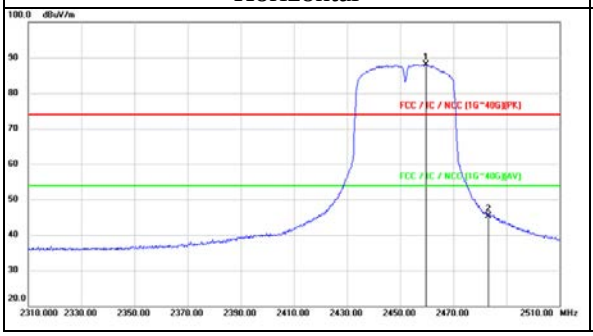
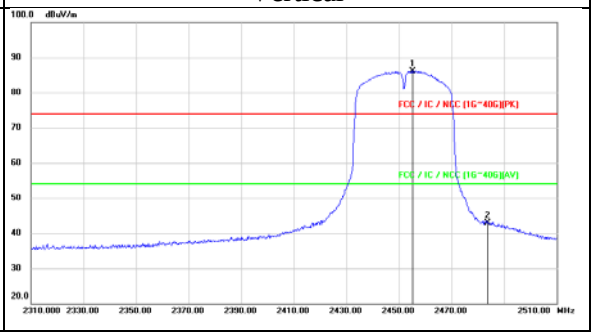


Vertical



Ch9

Horizontal



Vertical