FCC Test Report

Report No.:	RF190107C14-2
FCC ID:	HFSQTA-QCNFA324A
Test Model:	Tx1
Received Date:	Jan. 07, 2019
Test Date:	Feb. 22, 2019 ~ Apr. 01, 2019
Issued Date:	Apr. 03, 2019
Applicant:	Quanta Computer Inc.
Address:	No.188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location (1):	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan, R.O.C.
Test Location (2):	B2F., No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C
FCC Registration / Designation Number:	427177 / TW0011

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF190107C14-2	Original Release	Apr. 03, 2019

1 Certificate of Conformity

Product:	CTL Chromebook Tab Tx1
Brand:	Quanta
Test Model:	Tx1
Sample Status:	Engineering Sample
Applicant:	Quanta Computer Inc.
Test Date:	Feb. 22, 2019 ~ Apr. 01, 2019
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Apr. 03, 2019

Ivonne Wu / Supervisor

Approved by : _____ , **Date:** Apr. 03, 2019

Dylan Chiou / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	**Test Item**	**Result**	**Remarks**
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -14.04 dB at 0.16105 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.22 dB at 2483.52 MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Reference only
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	**Frequency**	**Expended Uncertainty (k=2) (±)**
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	CTL Chromebook Tab Tx1
Brand	Quanta
Test Model	Tx1
Status of EUT	Engineering Sample
Power Supply Rating	5 Vdc or 9 Vdc or 12 Vdc or 15 Vdc (adapter) 3.84 Vdc (battery)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to 300.0 Mbps
Operating Frequency	2412 ~ 2462 MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	113.046 mW
Antenna Type	PIFA antenna with -1.95 dBi gain
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx Function
802.11b	2TX
802.11g	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	hp	TPN-AA07	I/P: 100-240 Vac, 50-60 Hz, 1.4 A O/P: 5 Vdc or 9 Vdc or 12 Vdc, 3 A Power Cord: 1.75 m / 0 core
Battery	SMP	SQU-1706	3.84 Vdc, 8860 mAh
BT/ WLAN Module	Qualcomm Atheros	QCNFA324A	--

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

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G:** Radiated Emission above 1 GHz **RE<1G:** Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
NOTE: "-"means no effect.

Radiated Emission Test (Above 1 GHz):

☒ 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).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1 GHz):

☒ 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).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11g	1 to 11	11	OFDM	BPSK	6.0

Power Line Conducted Emission Test:

☒ 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).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11g	1 to 11	11	OFDM	BPSK	6.0

Bandedge Measurement:

☒ 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).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 11	OFDM	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 9	OFDM	BPSK	13.5

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒ 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).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei
APCM	25 deg. C, 65 % RH	3.84 Vdc	Gavin Wu

3.3 Duty Cycle of Test Signal

802.11b: Duty cycle of test signal is 100 %, duty factor is not required.

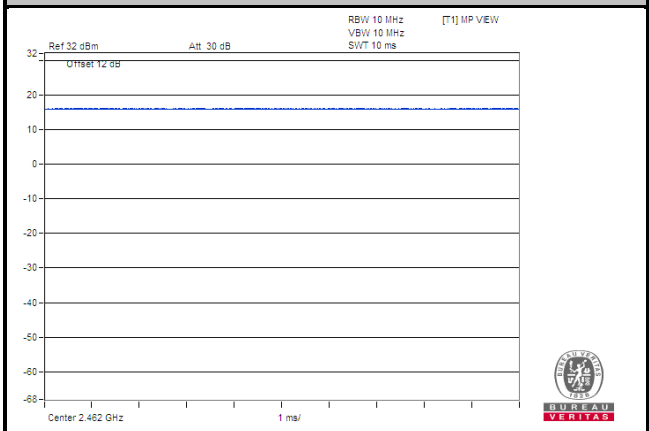
Duty cycle of test signal is < 98 %, duty factor shall be considered.

802.11g: Duty cycle = 2.062/2.177 = 0.947, Duty factor = 10 * log(1/0.947) = 0.24

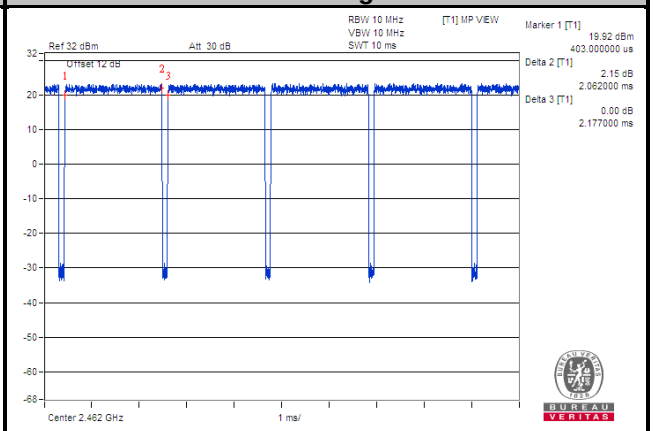
802.11n (HT20): Duty cycle = 0.980/1.097 = 0.893, Duty factor = 10 * log(1/0.893) = 0.49

802.11n (HT40): Duty cycle = 0.492/0.612 = 0.804, Duty factor = 10 * log(1/0.804) = 0.95

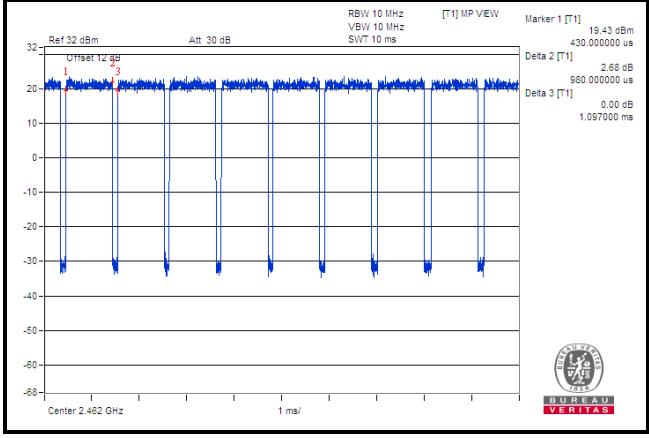
802.11b



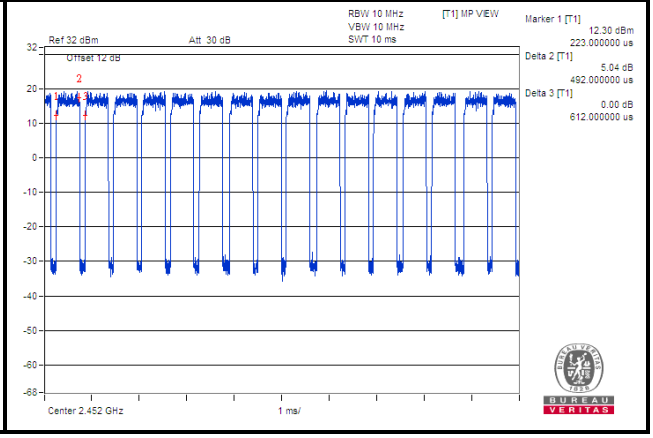
802.11g



802.11n (HT20)



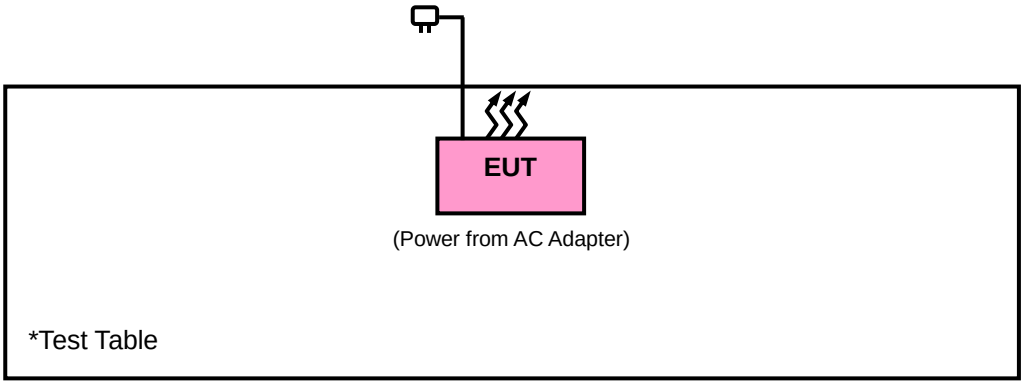
802.11n (HT40)



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 15.247 Meas Guidance v05r01
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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 20 dB below the highest level of the desired power:

Frequencies (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 1000 MHz, 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 20 dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Aug. 20, 2018	Aug. 19, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSV40	100980	Apr. 17, 2018	Apr. 16, 2019
HORN Antenna ETS-Lindgren	3117	00143293	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Nov. 27, 2018	Nov. 26, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 25, 2018	Nov. 24, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019
Loop Antenna	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
Preamplifier Agilent	310N	187226	Jun. 19, 2018	Jun. 18, 2019
Preamplifier Agilent	83017A	MY39501357	Jun. 19, 2018	Jun. 18, 2019
Power Meter Anritsu	ML2495A	1012010	Sep. 05, 2018	Sep. 04, 2019
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2018	Sep. 03, 2019
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 19, 2018	Jun. 18, 2019
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 19, 2018	Jun. 18, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is 7450I-1.

4.1.3 Test Procedures

For Radiated Emission below 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. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

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

For Radiated Emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
f. The test-receiver system was set to peak and average detected 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:

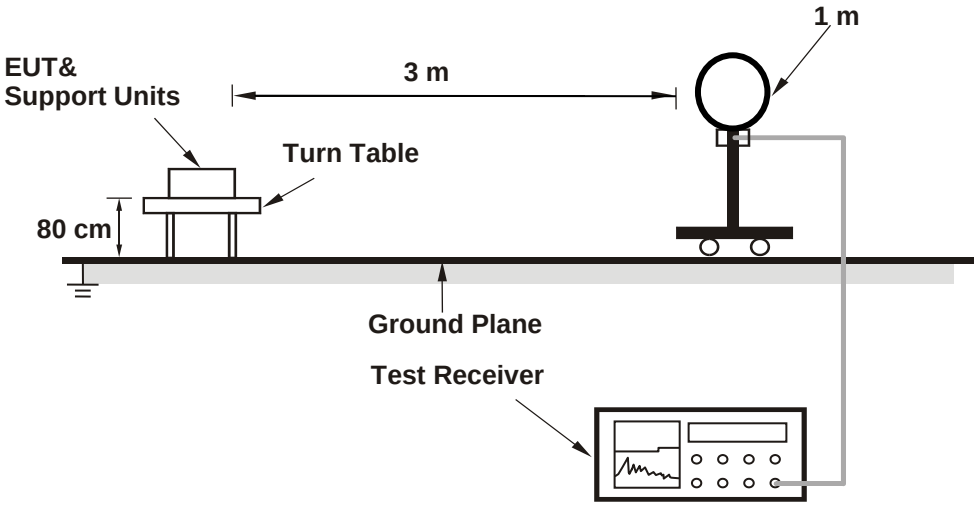
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz. (11b: RBW = 1 MHz, VBW = 100 Hz ; 11g: RBW = 1 MHz, VBW = 1 kHz ;
   11n (HT20): RBW = 1 MHz, VBW = 3 kHz ; 11n (HT40): RBW = 1 MHz, VBW = 3 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

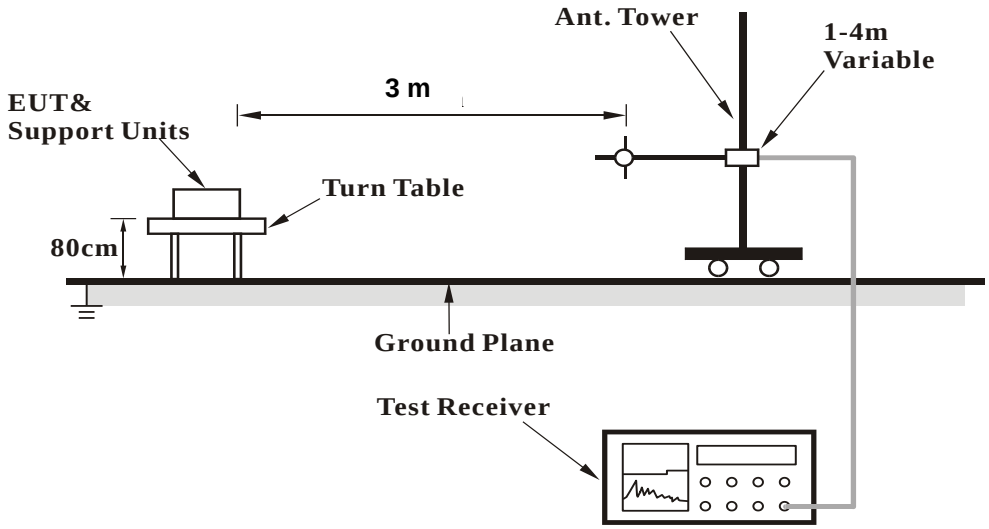
No deviation.

4.1.5 Test Set Up

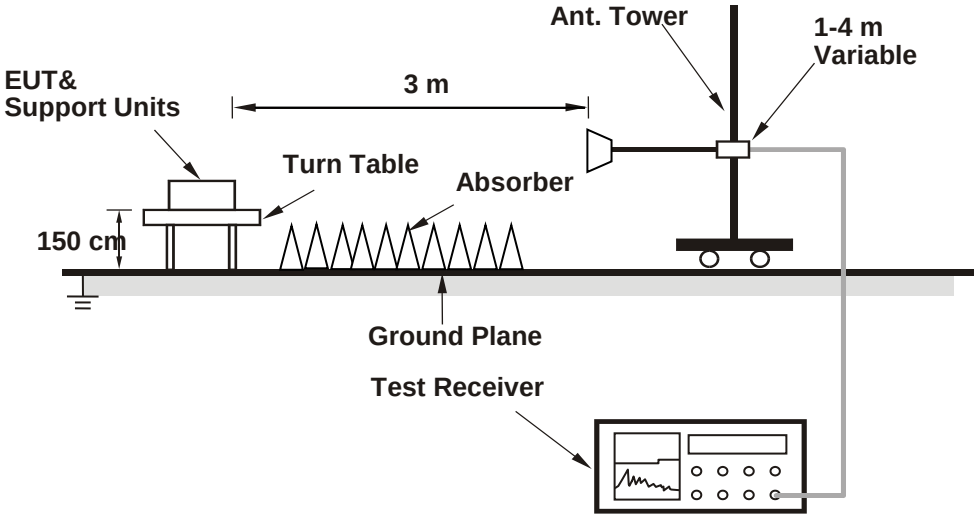
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.6 EUT Operating Conditions

a. Placed the EUT on a testing table.
b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1 GHz Data：

802.11b

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2387.22	42.71	41	54	-11.29	31.8	5.4	35.49	100	131	Average
2387.22	53.09	51.38	74	-20.91	31.8	5.4	35.49	100	131	Peak
2412	98.9	97.13			31.81	5.43	35.47	100	131	Average
2412	101.63	99.86			31.81	5.43	35.47	100	131	Peak
4824	51.6	43.47	54	-2.4	33.97	8.26	34.1	205	210	Average
4824	54.5	46.37	74	-19.5	33.97	8.26	34.1	205	210	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2386.86	41.48	39.77	54	-12.52	31.8	5.4	35.49	250	291	Average
2386.86	52.77	51.06	74	-21.23	31.8	5.4	35.49	250	291	Peak
2412	93.67	91.9			31.81	5.43	35.47	250	291	Average
2412	96.83	95.06			31.81	5.43	35.47	250	291	Peak
4824	45.25	37.12	54	-8.75	33.97	8.26	34.1	149	216	Average
4824	50.46	42.33	74	-23.54	33.97	8.26	34.1	149	216	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.29	42.19	40.48	54	-11.81	31.8	5.4	35.49	100	131	Average
2389.29	53.18	51.47	74	-20.82	31.8	5.4	35.49	100	131	Peak
2437	99.88	98.03			31.85	5.46	35.46	100	131	Average
2437	102.93	101.08			31.85	5.46	35.46	100	131	Peak
2483.96	43.48	41.52	54	-10.52	31.88	5.5	35.42	100	131	Average
2483.96	54.21	52.25	74	-19.79	31.88	5.5	35.42	100	131	Peak
4874	52.36	44.17	54	-1.64	33.98	8.27	34.06	207	208	Average
4874	55.55	47.36	74	-18.45	33.98	8.27	34.06	207	208	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.65	41.14	39.43	54	-12.86	31.8	5.4	35.49	250	291	Average
2389.65	51.66	49.95	74	-22.34	31.8	5.4	35.49	250	291	Peak
2437	94.74	92.89			31.85	5.46	35.46	250	291	Average
2437	97.33	95.48			31.85	5.46	35.46	250	291	Peak
2483.68	42.52	40.56	54	-11.48	31.88	5.5	35.42	250	291	Average
2483.68	53.33	51.37	74	-20.67	31.88	5.5	35.42	250	291	Peak
4874	46.27	38.08	54	-7.73	33.98	8.27	34.06	148	220	Average
4874	50.54	42.35	74	-23.46	33.98	8.27	34.06	148	220	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	99.68	97.75			31.87	5.5	35.44	100	131	Average
2462	102.11	100.18			31.87	5.5	35.44	100	131	Peak
2488.52	43.7	41.69	54	-10.3	31.9	5.53	35.42	100	131	Average
2488.52	54.63	52.62	74	-19.37	31.9	5.53	35.42	100	131	Peak
4924	52.04	43.79	54	-1.96	33.99	8.28	34.02	200	210	Average
4924	55.61	47.36	74	-18.39	33.99	8.28	34.02	200	210	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	94.55	92.62			31.87	5.5	35.44	250	291	Average
2462	97.26	95.33			31.87	5.5	35.44	250	291	Peak
2490.04	42.69	40.68	54	-11.31	31.9	5.53	35.42	250	291	Average
2490.04	54.48	52.47	74	-19.52	31.9	5.53	35.42	250	291	Peak
4924	47.33	39.08	54	-6.67	33.99	8.28	34.02	151	213	Average
4924	51.41	43.16	74	-22.59	33.99	8.28	34.02	151	213	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.92	49.07	47.34	54	-4.93	31.8	5.4	35.47	203	214	Average
2389.92	60.45	58.72	74	-13.55	31.8	5.4	35.47	203	214	Peak
2412	101.53	99.76			31.81	5.43	35.47	100	131	Average
2412	108.76	106.99			31.81	5.43	35.47	100	131	Peak
4824	52.21	44.08	54	-1.79	33.97	8.26	34.1	205	213	Average
4824	63.42	55.29	74	-10.58	33.97	8.26	34.1	205	213	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.83	43.83	42.1	54	-10.17	31.8	5.4	35.47	250	291	Average
2389.83	54.12	52.39	74	-19.88	31.8	5.4	35.47	250	291	Peak
2412	96.66	94.89			31.81	5.43	35.47	250	291	Average
2412	103.22	101.45			31.81	5.43	35.47	250	291	Peak
4824	45.24	37.11	54	-8.76	33.97	8.26	34.1	152	216	Average
4824	53.71	45.58	74	-20.29	33.97	8.26	34.1	152	216	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.65	43.09	41.38	54	-10.91	31.8	5.4	35.49	100	131	Average
2389.65	54.33	52.62	74	-19.67	31.8	5.4	35.49	100	131	Peak
2437	102.57	100.72			31.85	5.46	35.46	100	131	Average
2437	109.8	107.95			31.85	5.46	35.46	100	131	Peak
2484.84	45.09	43.1	54	-8.91	31.88	5.53	35.42	100	131	Average
2484.84	55.33	53.34	74	-18.67	31.88	5.53	35.42	100	131	Peak
4874	52.35	44.16	54	-1.65	33.98	8.27	34.06	207	208	Average
4874	62.77	54.58	74	-11.23	33.98	8.27	34.06	207	208	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.74	41.52	39.81	54	-12.48	31.8	5.4	35.49	250	291	Average
2389.74	52.52	50.81	74	-21.48	31.8	5.4	35.49	250	291	Peak
2437	97.44	95.59			31.85	5.46	35.46	250	291	Average
2437	104.07	102.22			31.85	5.46	35.46	250	291	Peak
2485.36	43.02	41.03	54	-10.98	31.88	5.53	35.42	250	291	Average
2485.36	53.99	52	74	-20.01	31.88	5.53	35.42	250	291	Peak
4874	43.27	35.08	54	-10.73	33.98	8.27	34.06	153	215	Average
4874	53.43	45.24	74	-20.57	33.98	8.27	34.06	153	215	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	101.24	99.31			31.87	5.5	35.44	100	131	Average
2462	108.92	106.99			31.87	5.5	35.44	100	131	Peak
2483.52	52.78	50.82	54	-1.22	31.88	5.5	35.42	242	150	Average
2483.52	62.36	60.4	74	-11.64	31.88	5.5	35.42	242	150	Peak
4924	51.81	43.56	54	-2.19	33.99	8.28	34.02	200	207	Average
4924	63.08	54.83	74	-10.92	33.99	8.28	34.02	200	207	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	96.58	94.65			31.87	5.5	35.44	250	291	Average
2462	103.24	101.31			31.87	5.5	35.44	250	291	Peak
2483.68	47.24	45.28	54	-6.76	31.88	5.5	35.42	250	291	Average
2483.68	58.05	56.09	74	-15.95	31.88	5.5	35.42	250	291	Peak
4924	46.86	38.61	54	-7.14	33.99	8.28	34.02	156	204	Average
4924	58.16	49.91	74	-15.84	33.99	8.28	34.02	156	204	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.92	52.73	51	54	-1.27	31.8	5.4	35.47	203	214	Average
2389.92	65.75	64.02	74	-8.25	31.8	5.4	35.47	203	214	Peak
2412	102.56	100.79			31.81	5.43	35.47	100	131	Average
2412	109.12	107.35			31.81	5.43	35.47	100	131	Peak
4824	52.73	44.6	54	-1.27	33.97	8.26	34.1	205	213	Average
4824	65.13	57	74	-8.87	33.97	8.26	34.1	205	213	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.92	45.72	43.99	54	-8.28	31.8	5.4	35.47	250	291	Average
2389.92	55.76	54.03	74	-18.24	31.8	5.4	35.47	250	291	Peak
2412	97.36	95.59			31.81	5.43	35.47	250	291	Average
2412	104.3	102.53			31.81	5.43	35.47	250	291	Peak
4824	45.55	37.42	54	-8.45	33.97	8.26	34.1	149	216	Average
4824	56.63	48.5	74	-17.37	33.97	8.26	34.1	149	216	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2388.75	43.12	41.41	54	-10.88	31.8	5.4	35.49	100	131	Average
2388.75	53.87	52.16	74	-20.13	31.8	5.4	35.49	100	131	Peak
2437	102.44	100.59			31.85	5.46	35.46	100	131	Average
2437	109.12	107.27			31.85	5.46	35.46	100	131	Peak
2484.96	45.14	43.15	54	-8.86	31.88	5.53	35.42	100	131	Average
2484.96	56.02	54.03	74	-17.98	31.88	5.53	35.42	100	131	Peak
4874	51.94	43.75	54	-2.06	33.98	8.27	34.06	207	209	Average
4874	64.77	56.58	74	-9.23	33.98	8.27	34.06	207	209	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2387.85	41.51	39.8	54	-12.49	31.8	5.4	35.49	250	291	Average
2387.85	52.54	50.83	74	-21.46	31.8	5.4	35.49	250	291	Peak
2437	97.95	96.1			31.85	5.46	35.46	250	291	Average
2437	104.79	102.94			31.85	5.46	35.46	250	291	Peak
2484.84	43.39	41.4	54	-10.61	31.88	5.53	35.42	250	291	Average
2484.84	54.96	52.97	74	-19.04	31.88	5.53	35.42	250	291	Peak
4874	45.21	37.02	54	-8.79	33.98	8.27	34.06	149	212	Average
4874	54.84	46.65	74	-19.16	33.98	8.27	34.06	149	212	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	99.35	97.42			31.87	5.5	35.44	100	131	Average
2462	106.11	104.18			31.87	5.5	35.44	100	131	Peak
2483.6	52.64	50.68	54	-1.36	31.88	5.5	35.42	242	174	Average
2483.6	61.74	59.78	74	-12.26	31.88	5.5	35.42	242	174	Peak
4924	50.6	42.35	54	-3.4	33.99	8.28	34.02	200	210	Average
4924	64.32	56.07	74	-9.68	33.99	8.28	34.02	200	210	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	94.51	92.58			31.87	5.5	35.44	250	291	Average
2462	101.27	99.34			31.87	5.5	35.44	250	291	Peak
2483.52	46.97	45.01	54	-7.03	31.88	5.5	35.42	250	291	Average
2483.52	58.39	56.43	74	-15.61	31.88	5.5	35.42	250	291	Peak
4924	45.1	36.85	54	-8.9	33.99	8.28	34.02	147	218	Average
4924	56.26	48.01	74	-17.74	33.99	8.28	34.02	147	218	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 3	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.56	52.43	50.72	54	-1.57	31.8	5.4	35.49	203	214	Average
2389.56	65.03	63.32	74	-8.97	31.8	5.4	35.49	203	214	Peak
2422	95.52	93.72			31.83	5.43	35.46	100	131	Average
2422	102.68	100.88			31.83	5.43	35.46	100	131	Peak
2484.36	44.13	42.14	54	-9.87	31.88	5.53	35.42	100	131	Average
2484.36	60.03	58.04	74	-13.97	31.88	5.53	35.42	100	131	Peak
4844	47.72	39.57	54	-6.28	33.97	8.26	34.08	215	211	Average
4844	57.06	48.91	74	-16.94	33.97	8.26	34.08	215	211	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.47	44.55	42.84	54	-9.45	31.8	5.4	35.49	250	291	Average
2389.47	61.84	60.13	74	-12.16	31.8	5.4	35.49	250	291	Peak
2422	90.44	88.64			31.83	5.43	35.46	250	291	Average
2422	97.46	95.66			31.83	5.43	35.46	250	291	Peak
2485.24	43.02	41.03	54	-10.98	31.88	5.53	35.42	250	291	Average
2485.24	56.99	55	74	-17.01	31.88	5.53	35.42	250	291	Peak
4844	40.74	32.59	54	-13.26	33.97	8.26	34.08	149	220	Average
4844	50.98	42.83	74	-23.02	33.97	8.26	34.08	149	220	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2422 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.29	46.96	45.25	54	-7.04	31.8	5.4	35.49	100	131	Average
2389.29	63.99	62.28	74	-10.01	31.8	5.4	35.49	100	131	Peak
2437	98.59	96.74			31.85	5.46	35.46	100	131	Average
2437	105.4	103.55			31.85	5.46	35.46	100	131	Peak
2483.76	51.73	49.77	54	-2.27	31.88	5.5	35.42	241	149	Average
2483.76	67.59	65.63	74	-6.41	31.88	5.5	35.42	241	149	Peak
4874	50.56	42.37	54	-3.44	33.98	8.27	34.06	207	209	Average
4874	60.81	52.62	74	-13.19	33.98	8.27	34.06	207	209	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.47	44.16	42.45	54	-9.84	31.8	5.4	35.49	250	291	Average
2389.47	62.44	60.73	74	-11.56	31.8	5.4	35.49	250	291	Peak
2437	93.66	91.81			31.85	5.46	35.46	250	291	Average
2437	100.54	98.69			31.85	5.46	35.46	250	291	Peak
2483.64	46.56	44.6	54	-7.44	31.88	5.5	35.42	250	291	Average
2483.64	61.03	59.07	74	-12.97	31.88	5.5	35.42	250	291	Peak
4874	41.12	32.93	54	-12.88	33.98	8.27	34.06	145	216	Average
4874	51.33	43.14	74	-22.67	33.98	8.27	34.06	145	216	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 9	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2388.3	42.84	41.13	54	-11.16	31.8	5.4	35.49	100	131	Average
2388.3	59.6	57.89	74	-14.4	31.8	5.4	35.49	100	131	Peak
2452	94.77	92.9			31.85	5.46	35.44	100	131	Average
2452	101.32	99.45			31.85	5.46	35.44	100	131	Peak
2484.64	52.04	50.05	54	-1.96	31.88	5.53	35.42	222	131	Average
2484.64	66.82	64.83	74	-7.18	31.88	5.53	35.42	222	131	Peak
4904	46.16	37.94	54	-7.84	33.98	8.28	34.04	198	210	Average
4904	56.79	48.57	74	-17.21	33.98	8.28	34.04	198	210	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.11	41.65	39.94	54	-12.35	31.8	5.4	35.49	250	291	Average
2389.11	56.73	55.02	74	-17.27	31.8	5.4	35.49	250	291	Peak
2452	89.46	87.59			31.85	5.46	35.44	250	291	Average
2452	96.2	94.33			31.85	5.46	35.44	250	291	Peak
2483.6	47.3	45.34	54	-6.7	31.88	5.5	35.42	250	291	Average
2483.6	62.7	60.74	74	-11.3	31.88	5.5	35.42	250	291	Peak
4904	39.37	31.15	54	-14.63	33.98	8.28	34.04	150	214	Average
4904	49.76	41.54	74	-24.24	33.98	8.28	34.04	150	214	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2452 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

9 kHz ~ 30 MHz Data:

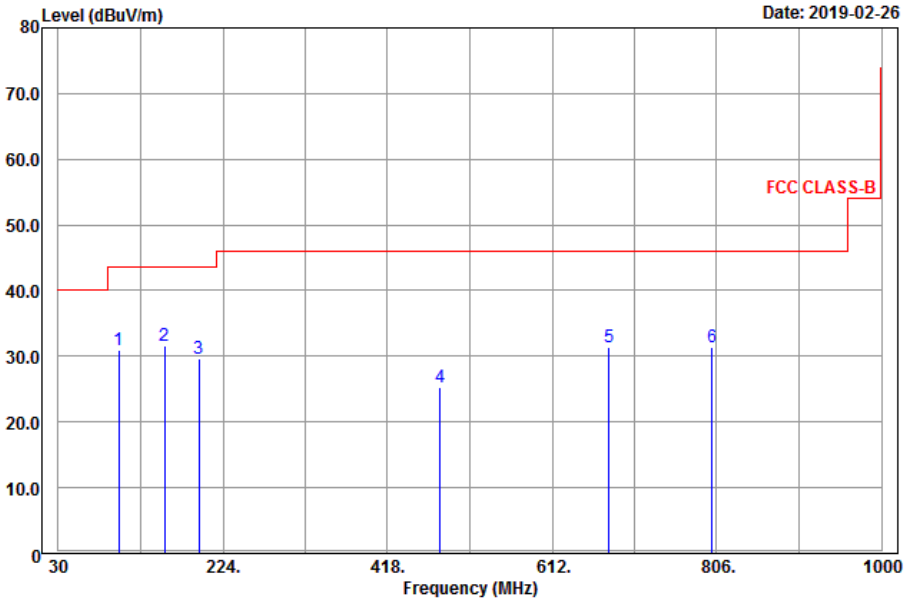
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

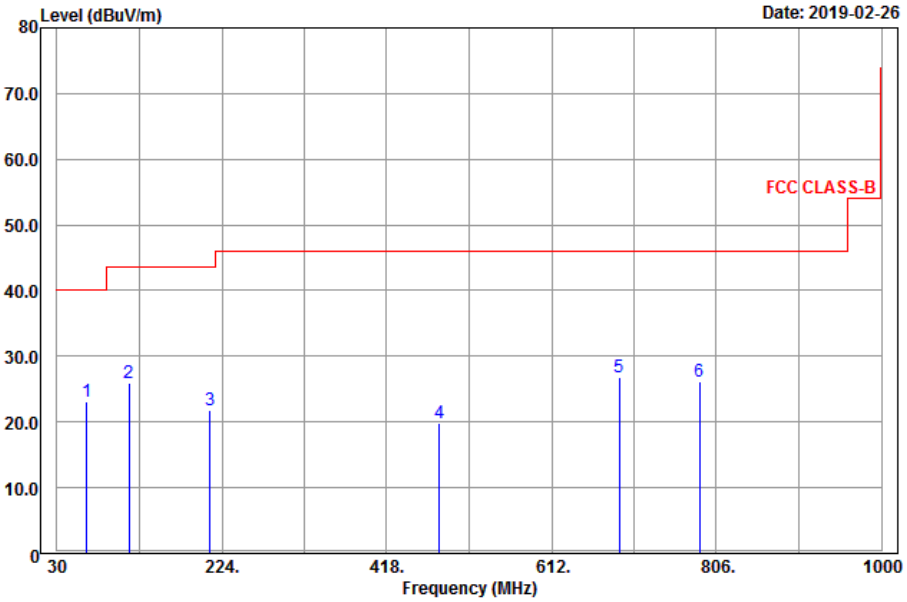
802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Karl Lee

Horizontal



Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
101.55	30.87	49.51	43.5	-12.63	12.34	1.28	32.26	126	344	Peak
155.01	31.57	53.76	43.5	-11.93	8.56	1.52	32.27	127	149	Peak
195.51	29.69	49.39	43.5	-13.81	10.97	1.61	32.28	137	162	Peak
479.9	25.26	38.75	46	-20.74	16.07	2.56	32.12	106	117	Peak
679.4	31.48	41.63	46	-14.52	18.91	3.05	32.11	135	287	Peak
800.5	31.49	39.9	46	-14.51	20.33	3.32	32.06	130	78	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
64.83	23.13	42.36	40	-16.87	12.09	0.9	32.22	146	277	Peak
114.78	26.02	45.57	43.5	-17.48	11.42	1.28	32.25	130	134	Peak
209.82	21.72	41.18	43.5	-21.78	11.15	1.65	32.26	107	12	Peak
479.9	19.75	33.24	46	-26.25	16.07	2.56	32.12	194	125	Peak
691.3	26.72	36.66	46	-19.28	19.11	3.05	32.1	130	243	Peak
786.5	26.26	34.87	46	-19.74	20.2	3.27	32.08	187	154	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value.
2. The emission levels of other frequencies were very low against the limit.

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	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 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCS 30	100288	Jan. 03, 2019	Jan. 02, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

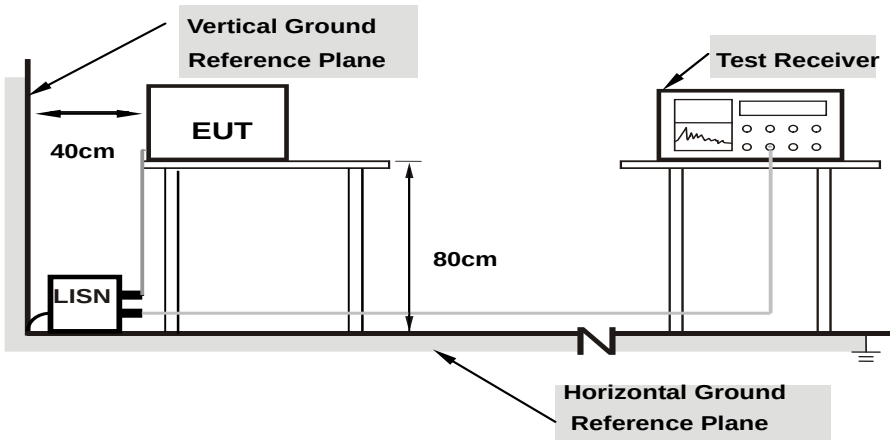
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling 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 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 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).

4.2.6 EUT Operating Conditions

a. Placed the EUT on a testing table.
b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

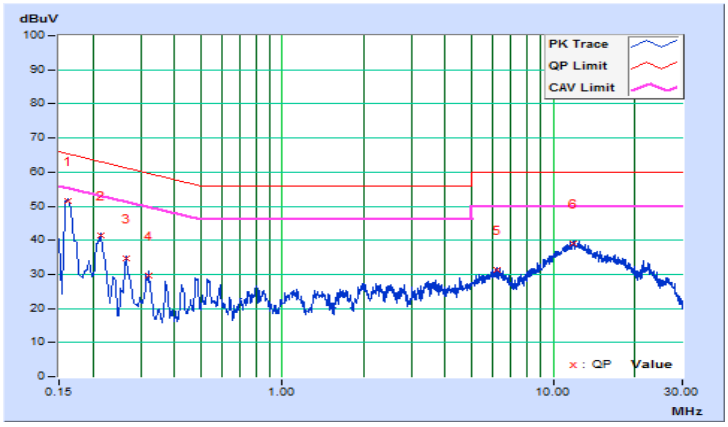
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Thomas Wei	Test Date	2019/3/27

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16105	9.84	41.53	26.83	51.37	36.67	65.41	55.41	-14.04	-18.74
2	0.21400	9.85	31.62	15.87	41.47	25.72	63.05	53.05	-21.58	-27.33
3	0.26600	9.86	24.72	10.70	34.58	20.56	61.24	51.24	-26.66	-30.68
4	0.32203	9.87	19.89	2.76	29.76	12.63	59.65	49.65	-29.89	-37.02
5	6.17339	10.07	21.13	7.29	31.20	17.36	60.00	50.00	-28.80	-32.64
6	11.83415	10.18	29.02	13.98	39.20	24.16	60.00	50.00	-20.80	-25.84

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

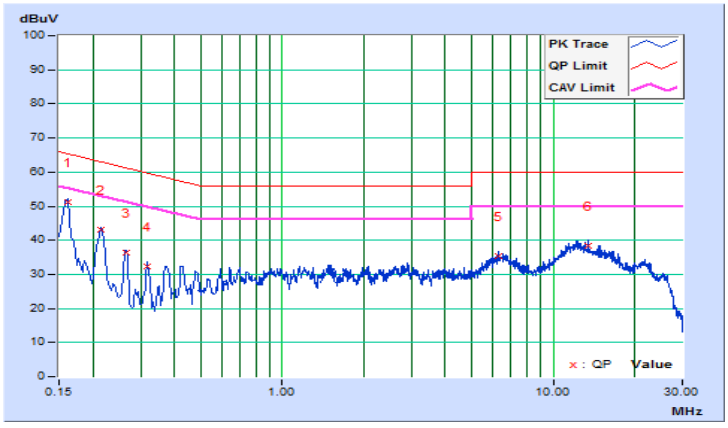


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Thomas Wei	Test Date	2019/3/28

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16148	9.82	41.40	26.86	51.22	36.68	65.39	55.39	-14.17	-18.71
2	0.21406	9.84	33.18	18.73	43.02	28.57	63.05	53.05	-20.03	-24.48
3	0.26429	9.85	26.46	13.05	36.31	22.90	61.30	51.30	-24.99	-28.40
4	0.31781	9.86	22.41	8.50	32.27	18.36	59.76	49.76	-27.49	-31.40
5	6.28600	10.06	25.42	11.58	35.48	21.64	60.00	50.00	-24.52	-28.36
6	13.51400	10.22	28.11	14.17	38.33	24.39	60.00	50.00	-21.67	-25.61

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

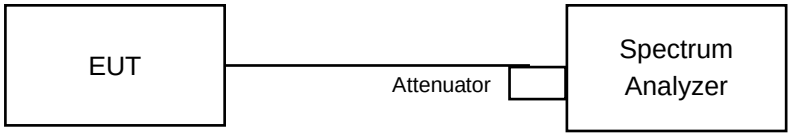


4.3 6 dB Bandwidth Measurement

4.3.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100 kHz
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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Results

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.09	7.59	0.5	Pass
6	2437	8.09	7.59	0.5	Pass
11	2462	8.09	8.09	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.13	15.15	0.5	Pass
6	2437	15.14	15.14	0.5	Pass
11	2462	15.15	15.35	0.5	Pass

802.11n (HT20)

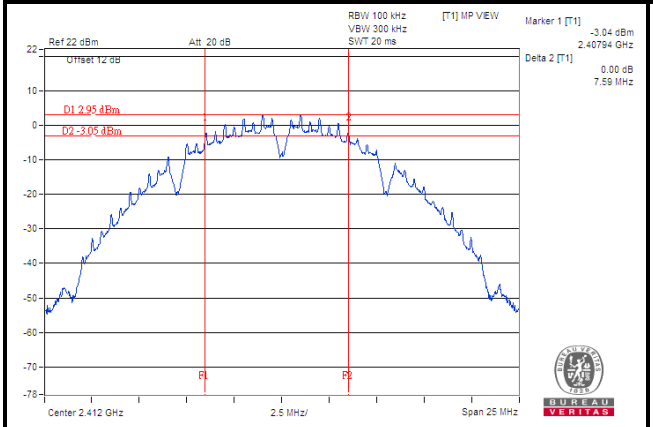
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.16	15.15	0.5	Pass
6	2437	15.15	15.14	0.5	Pass
11	2462	15.16	15.15	0.5	Pass

802.11n (HT40)

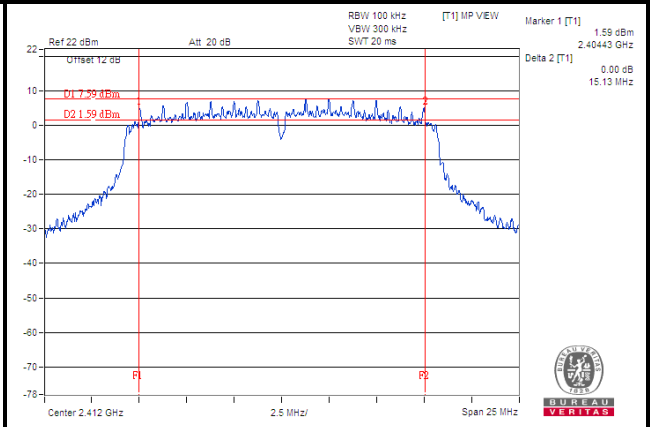
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.17	35.17	0.5	Pass
6	2437	35.14	35.17	0.5	Pass
9	2452	35.15	35.16	0.5	Pass

Spectrum Plot of Worst Value

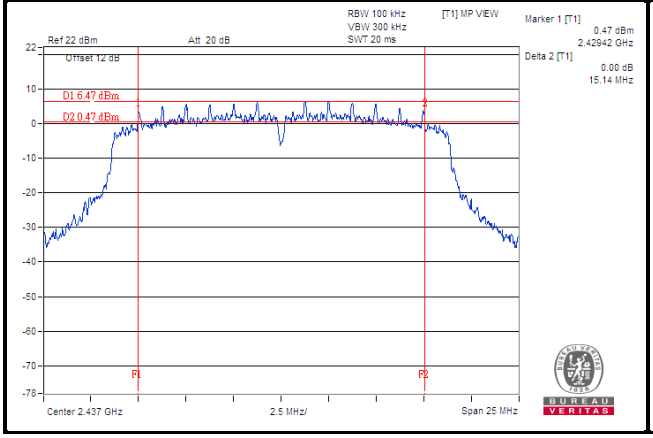
802.11b



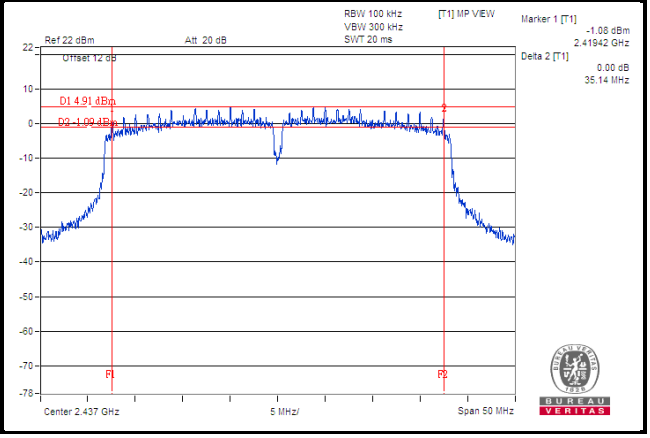
802.11g



802.11n (HT20)

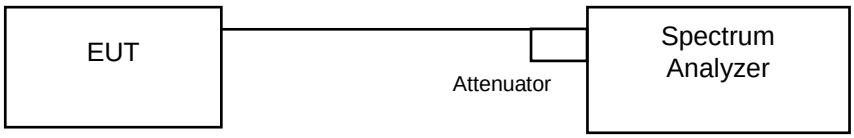


802.11n (HT40)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1 % to 5 % of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to PEAK. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.4.4 Deviation from Test Standard

No deviation.

4.4.5 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.4.6 Test Results

802.11b

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
1	2412	13.02	13.02	Pass
6	2437	13.02	13.02	Pass
11	2462	13.02	13.02	Pass

802.11g

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
1	2412	16.26	16.32	Pass
6	2437	16.26	16.32	Pass
11	2462	16.26	16.32	Pass

802.11n (HT20)

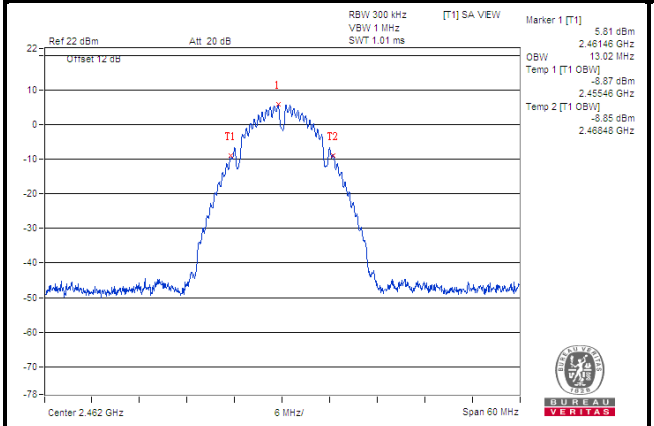
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
1	2412	17.46	17.40	Pass
6	2437	17.46	17.40	Pass
11	2462	17.46	17.40	Pass

802.11n (HT40)

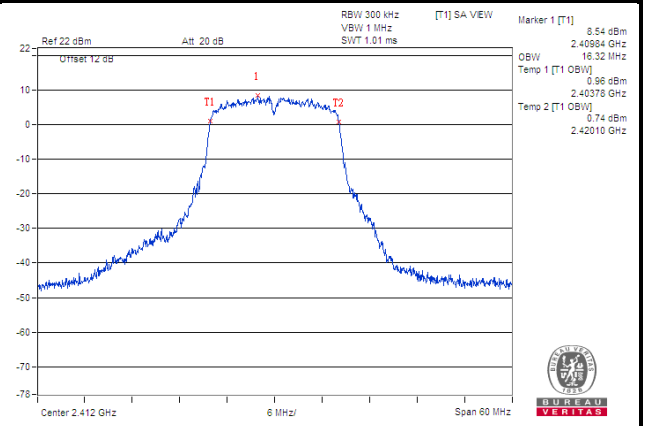
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
3	2422	36.00	35.94	Pass
6	2437	35.88	35.94	Pass
9	2452	35.88	35.88	Pass

Spectrum Plot of Worst Value

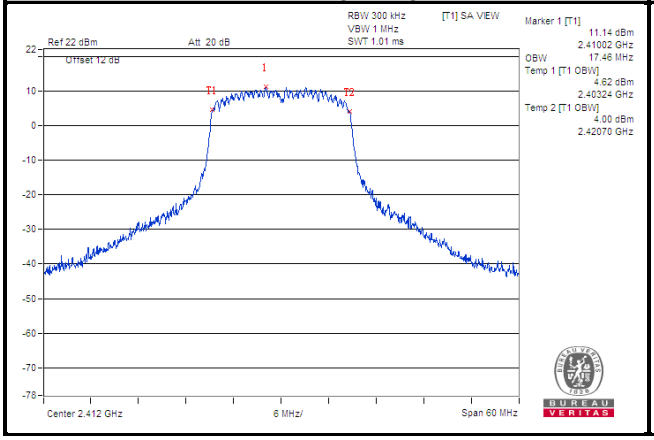
802.11b



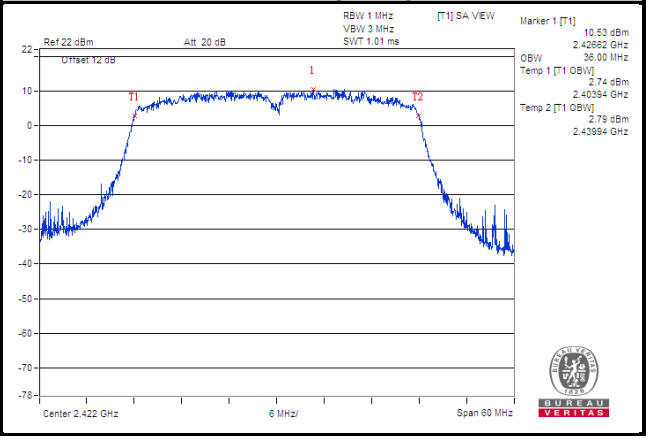
802.11g



802.11n (HT20)



802.11n (HT40)



4.5 Conducted Output Power Measurement

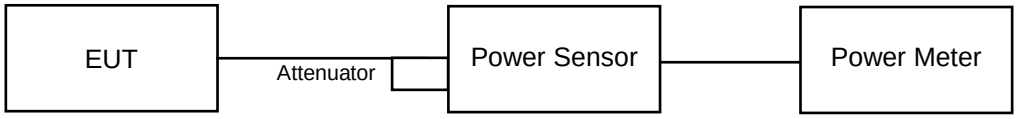
4.5.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)
Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20 MHz channel widths with NANT ≥ 5.

For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

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.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.5.7 Test Results

802.11b

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.50	13.61	51.145	17.09	30	Pass
6	2437	15.30	14.22	60.308	17.80	30	Pass
11	2462	15.12	13.77	56.332	17.51	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	17.72	15.65	95.884	19.82	30	Pass
6	2437	18.27	16.42	110.996	20.45	30	Pass
11	2462	17.80	15.97	99.793	19.99	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	17.85	16.52	105.829	20.25	30	Pass
6	2437	18.02	16.96	113.046	20.53	30	Pass
11	2462	17.66	16.71	105.226	20.22	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.82	15.92	99.618	19.98	30	Pass
6	2437	18.17	16.08	106.166	20.26	30	Pass
9	2452	17.76	15.77	97.461	19.89	30	Pass

4.6 Power Spectral Density Measurement

4.6.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8 dBm.

4.6.2 Test Setup

4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 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.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.6.7 Test Results

802.11b

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3 kHz)	10 log (N=2) dB	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
0	1	2412	-10.65	3.01	-7.64	8	Pass
	6	2437	-9.59	3.01	-6.58	8	Pass
	11	2462	-9.82	3.01	-6.81	8	Pass
1	1	2412	-7.91	3.01	-4.90	8	Pass
	6	2437	-11.59	3.01	-8.58	8	Pass
	11	2462	-12.00	3.01	-8.99	8	Pass

NOTE:

1. Directional gain = -1.95 dBi + 10log(2) = 1.06 dBi < 6 dBi, so the limit no need to be reduced.
2. Method 2) c) of power density measurement of KDB 662911 is using for calculating total power density.

802.11g

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3 kHz)	10 log (N=2) dB	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
0	1	2412	-7.30	3.01	-4.29	8	Pass
	6	2437	-7.25	3.01	-4.24	8	Pass
	11	2462	-7.76	3.01	-4.75	8	Pass
1	1	2412	-9.13	3.01	-6.12	8	Pass
	6	2437	-9.07	3.01	-6.06	8	Pass
	11	2462	-10.39	3.01	-7.38	8	Pass

NOTE:

1. Directional gain = -1.95 dBi + 10log(2) = 1.06 dBi < 6 dBi, so the limit no need to be reduced.
2. Method 2) c) of power density measurement of KDB 662911 is using for calculating total power density.

802.11n (HT20)

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3 kHz)	10 log (N=2) dB	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
0	1	2412	-6.57	3.01	-3.56	8	Pass
	6	2437	-6.73	3.01	-3.72	8	Pass
	11	2462	-8.15	3.01	-5.14	8	Pass
1	1	2412	-7.15	3.01	-4.14	8	Pass
	6	2437	-8.12	3.01	-5.11	8	Pass
	11	2462	-8.99	3.01	-5.98	8	Pass

NOTE:

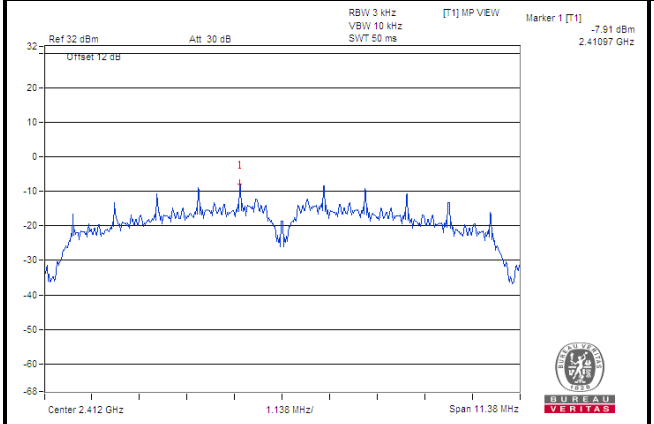
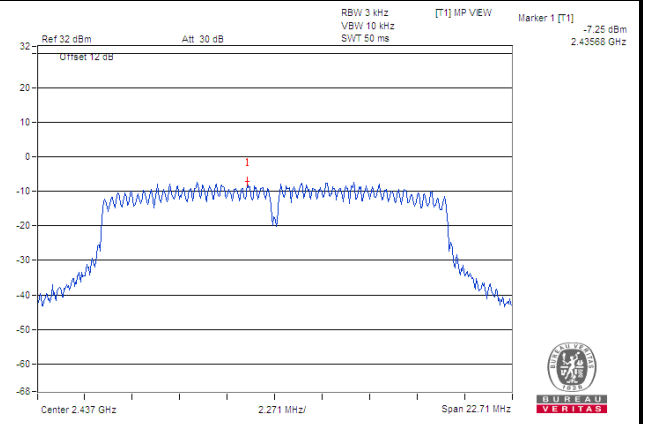
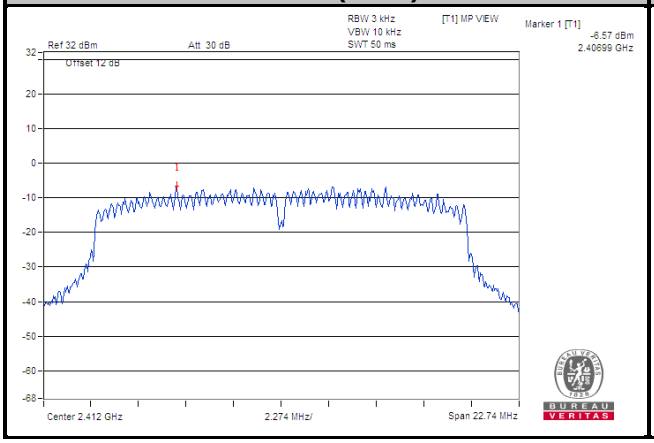
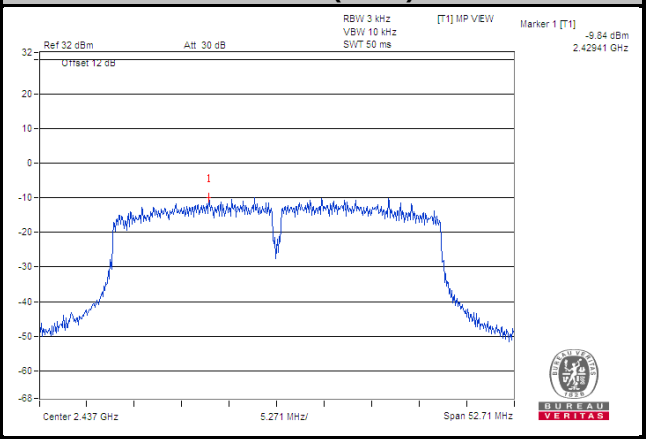
1. Directional gain = -1.95 dBi + 10log(2) = 1.06 dBi < 6 dBi, so the limit no need to be reduced.
2. Method 2) c) of power density measurement of KDB 662911 is using for calculating total power density.

802.11n (HT40)

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3 kHz)	10 log (N=2) dB	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
0	3	2422	-12.13	3.01	-9.12	8	Pass
	6	2437	-9.84	3.01	-6.83	8	Pass
	9	2452	-12.73	3.01	-9.72	8	Pass
1	3	2422	-14.54	3.01	-11.53	8	Pass
	6	2437	-11.67	3.01	-8.66	8	Pass
	9	2452	-15.70	3.01	-12.69	8	Pass

NOTE:

1. Directional gain = -1.95 dBi + 10log(2) = 1.06 dBi < 6 dBi, so the limit no need to be reduced.
2. Method 2) c) of power density measurement of KDB 662911 is using for calculating total power density.

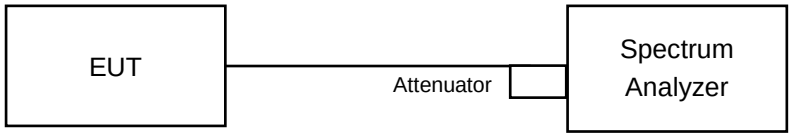
Spectrum Plot of Worst Value	
802.11b	**802.11g**
	
802.11n (HT20)	**802.11n (HT40)**
	

4.7 Conducted Out of Band Emission Measurement

4.7.1 Limits of Conducted Out of Band Emission Measurement

Below -20 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 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.

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.7.7 Test Results

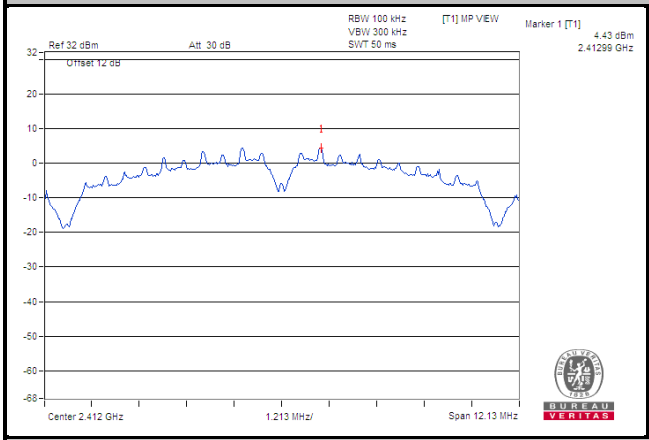
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.

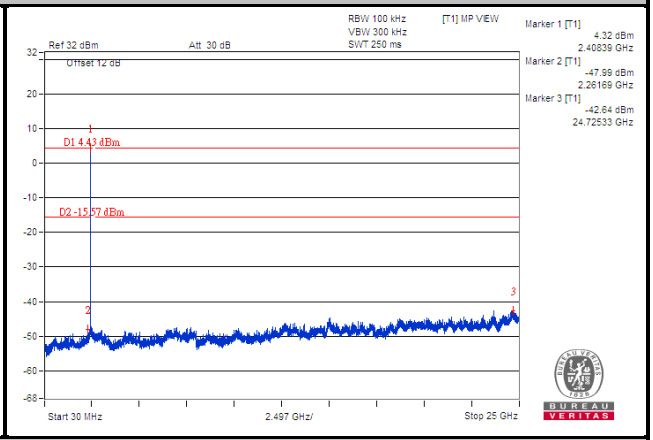
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20 dB offset below D1. It shows compliance with the requirement.

802.11b

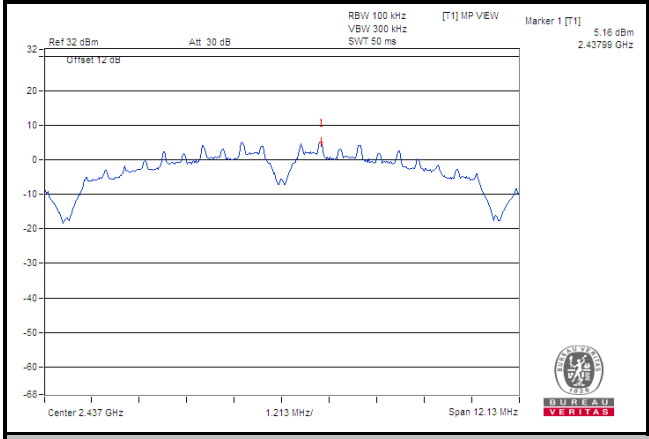
CHAIN 0

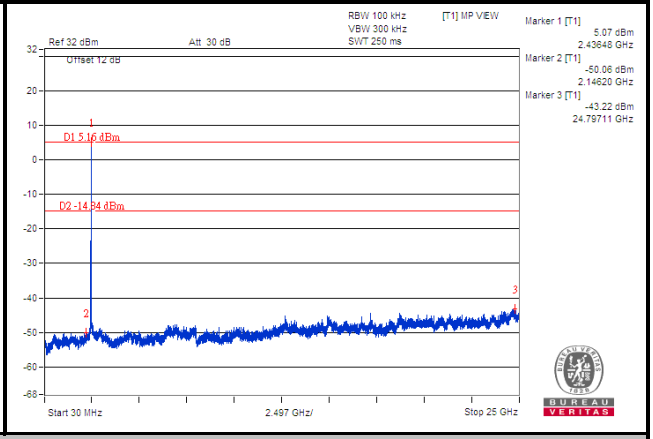
Ch 1



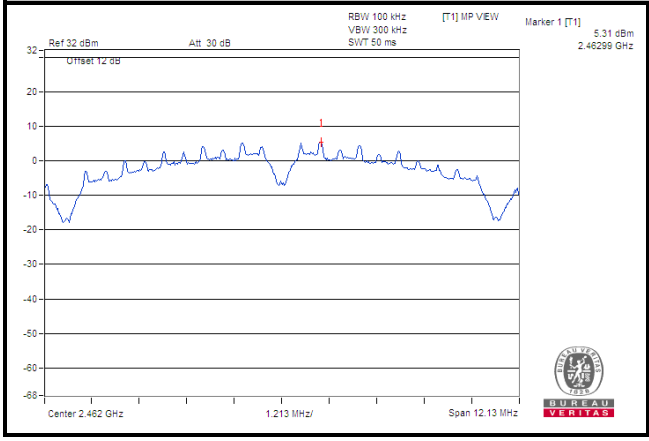


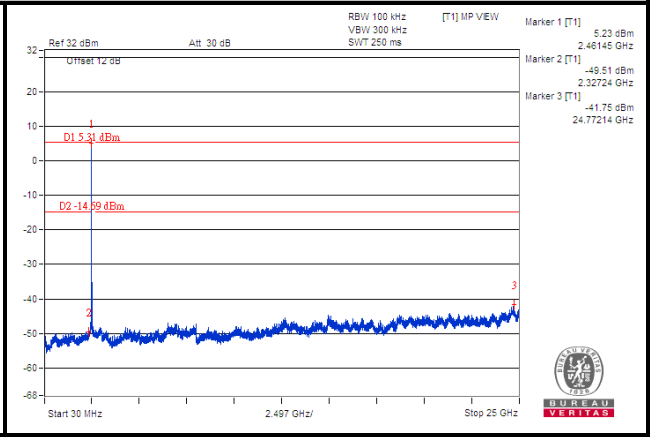
Ch 6

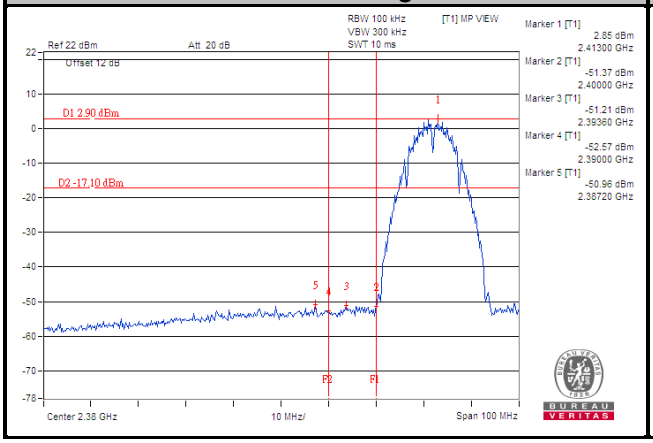
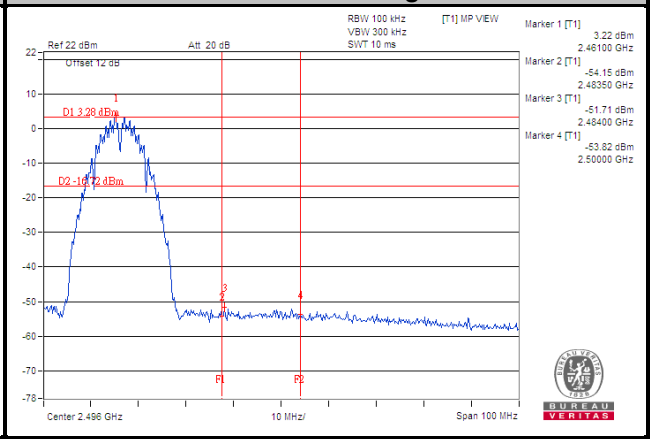




Ch 11

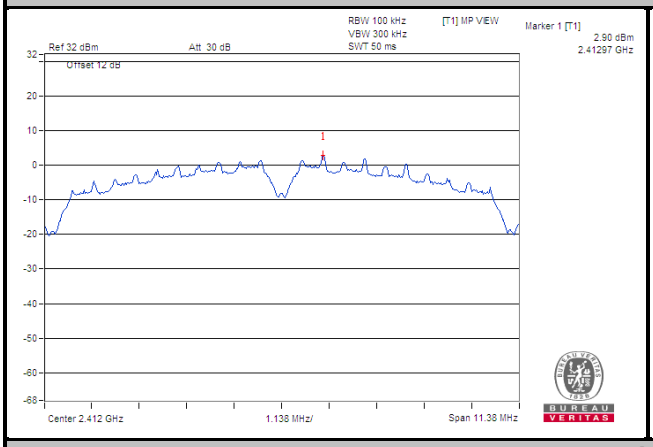


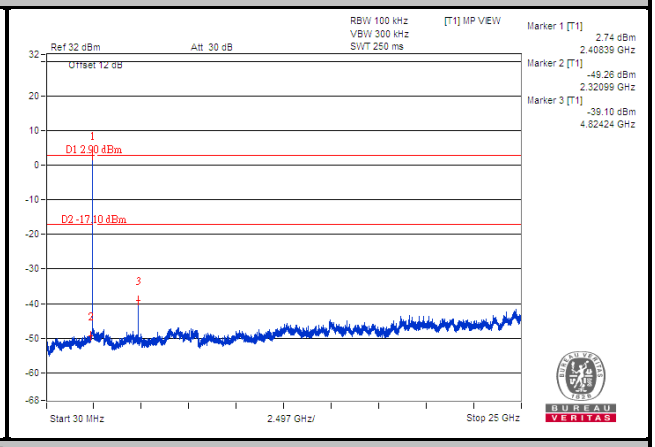


Ch 1 Band Edge	Ch 11 Band Edge
	

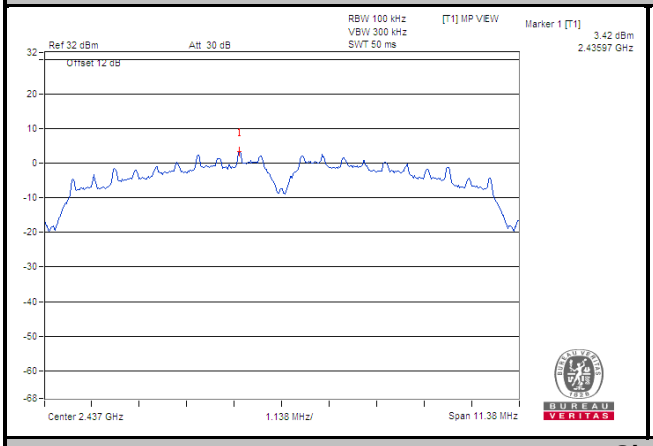
CHAIN 1

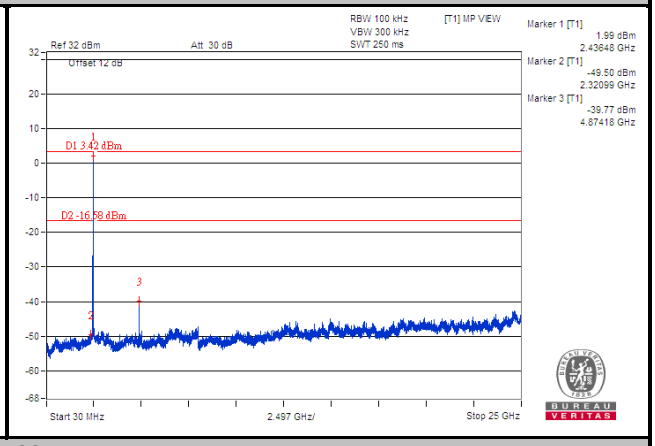
Ch 1



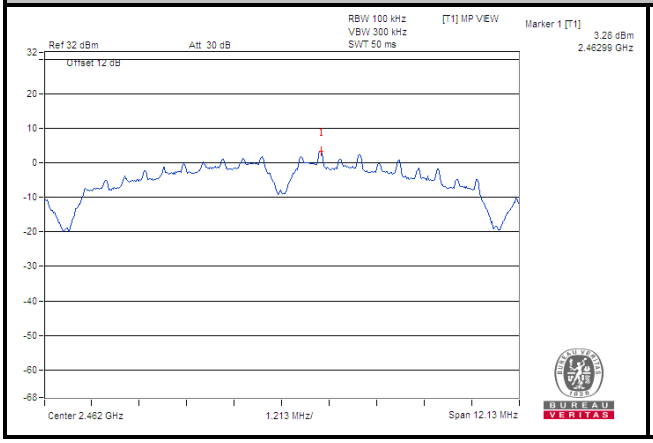


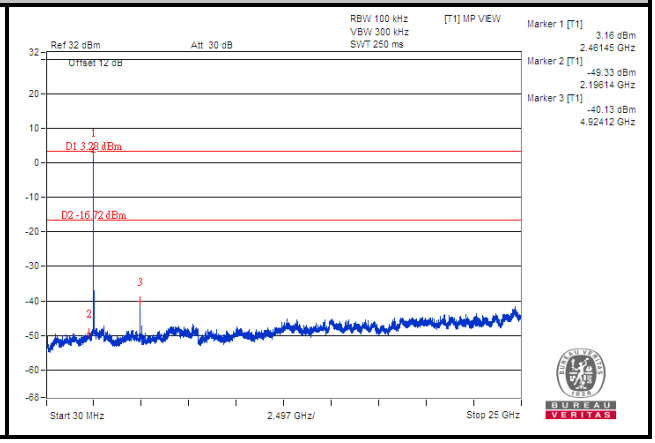
Ch 6

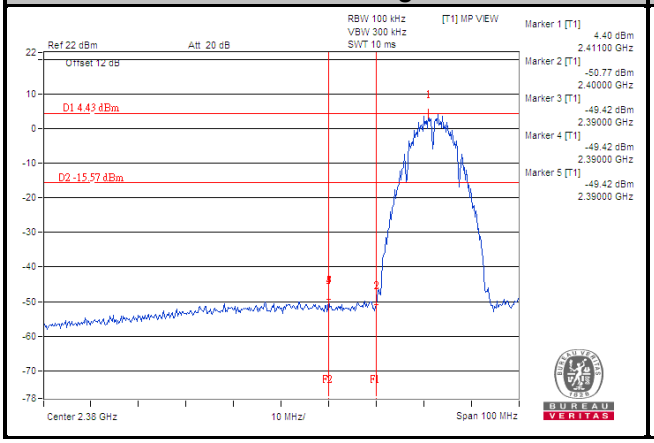
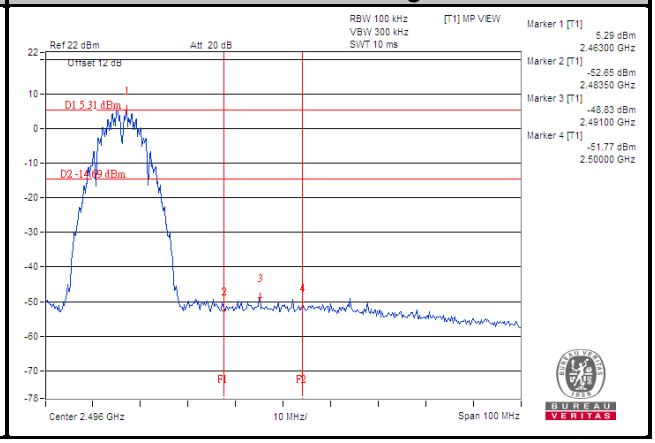




Ch 11



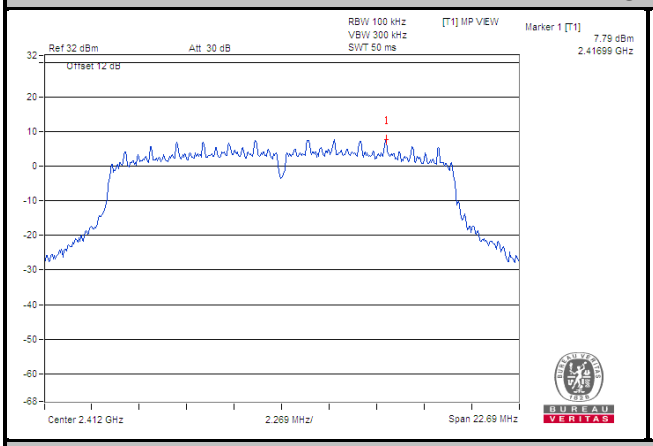


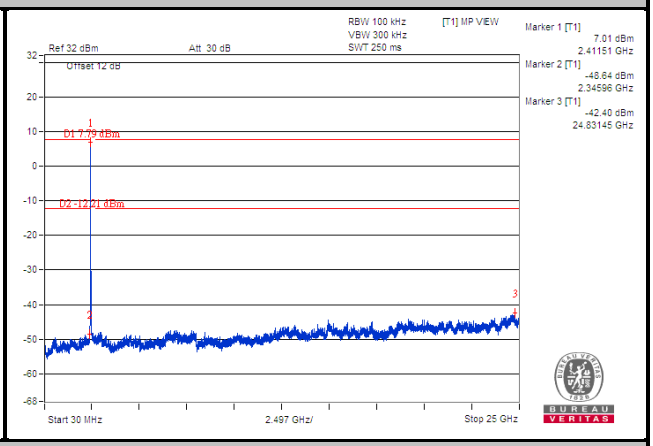
Ch 1 Band Edge	Ch 11 Band Edge
	

802.11g

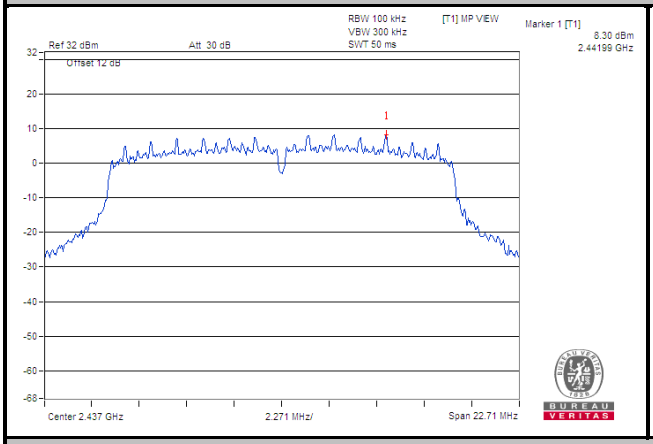
CHAIN 0

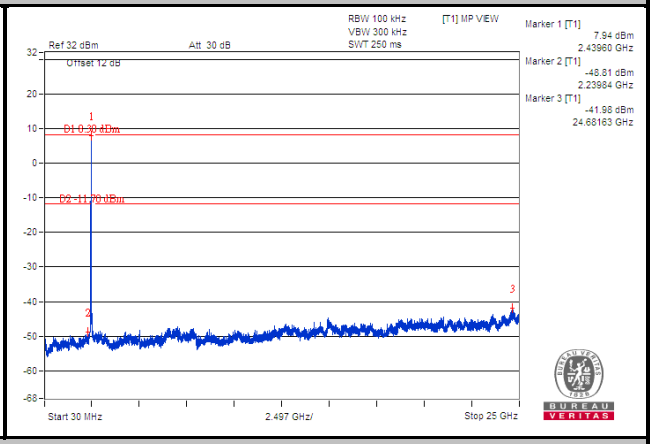
Ch 1



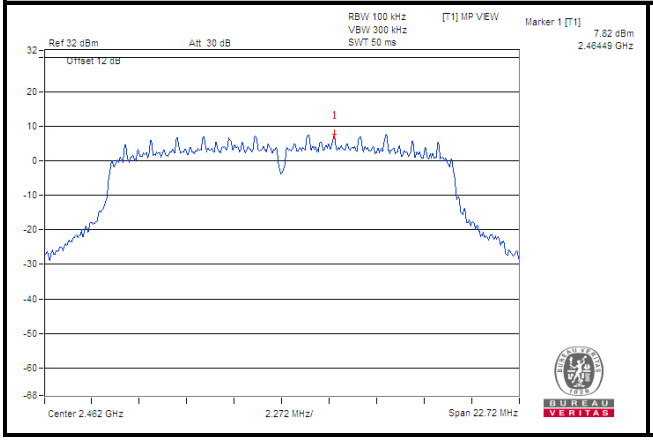


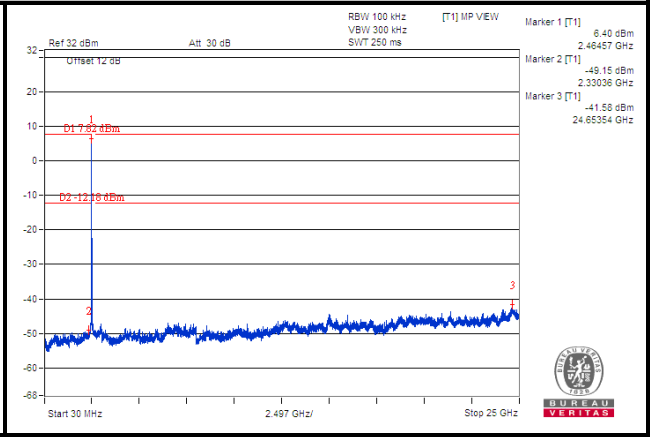
Ch 6

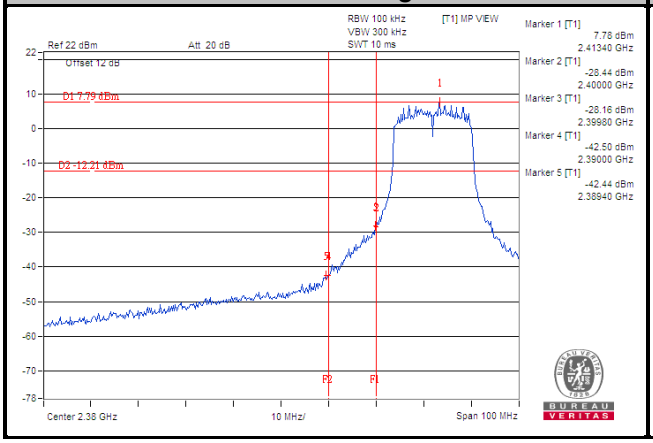
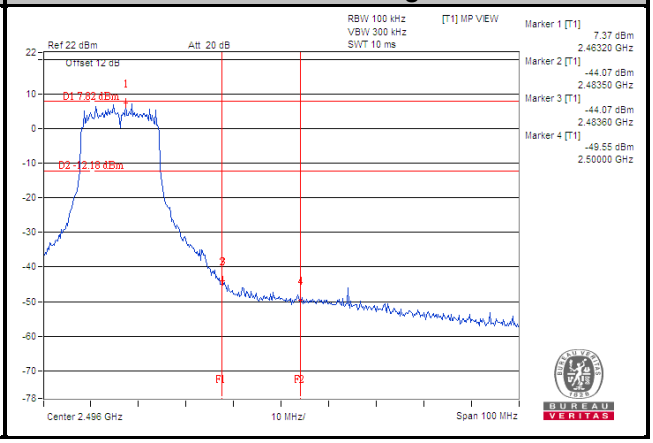




Ch 11

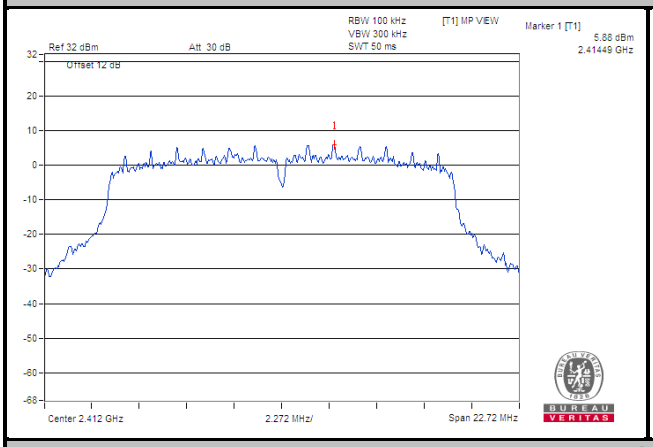


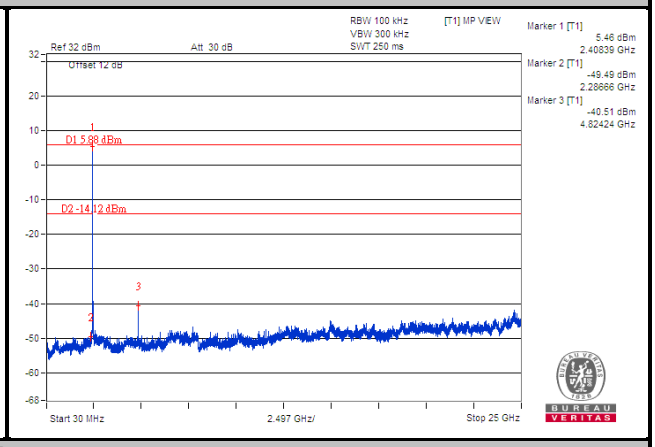


Ch 1 Band Edge	Ch 11 Band Edge
	

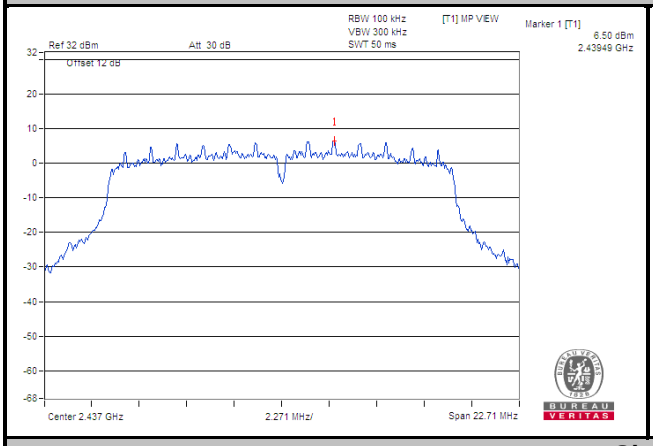
CHAIN 1

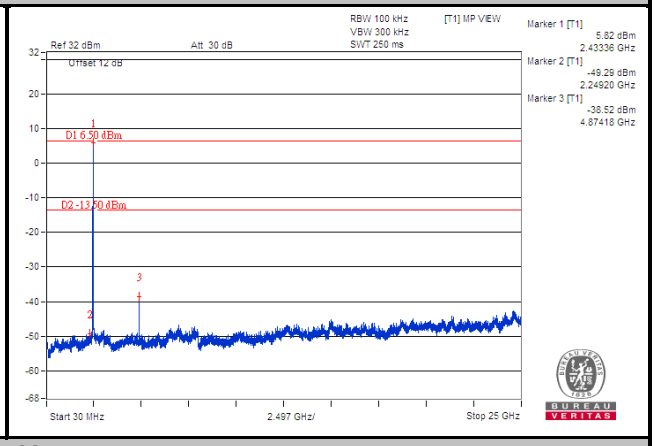
Ch 1



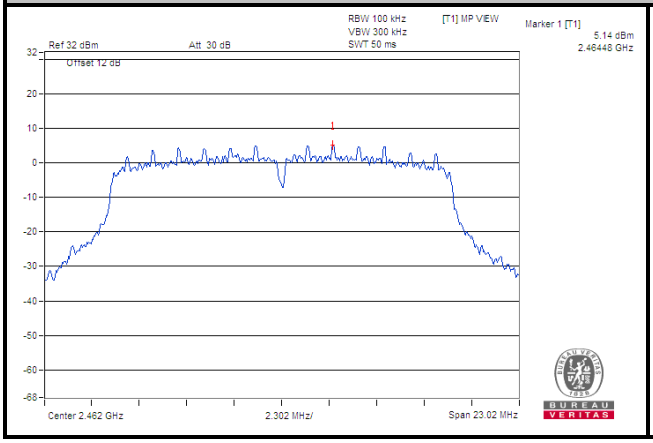


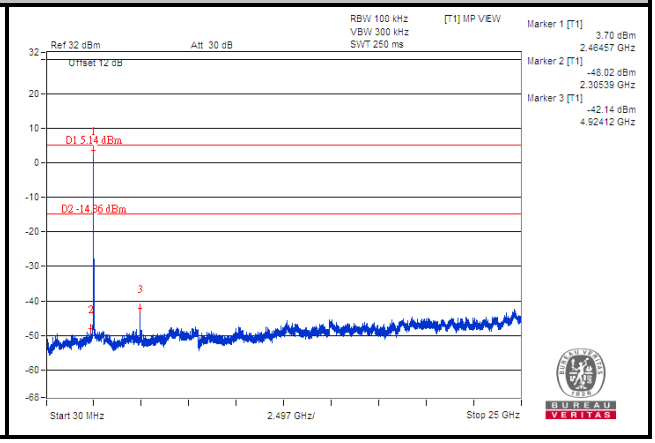
Ch 6

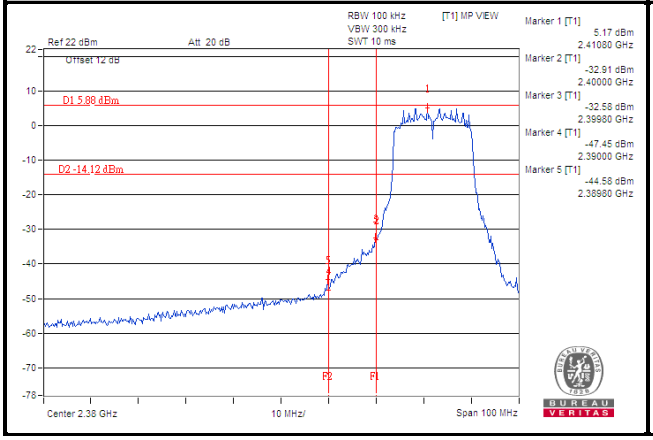
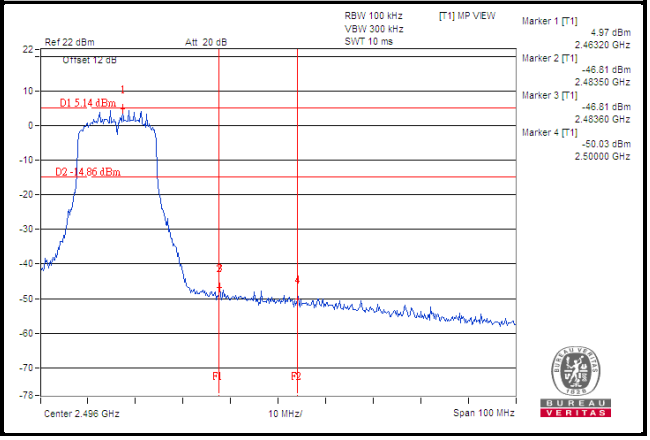




Ch 11



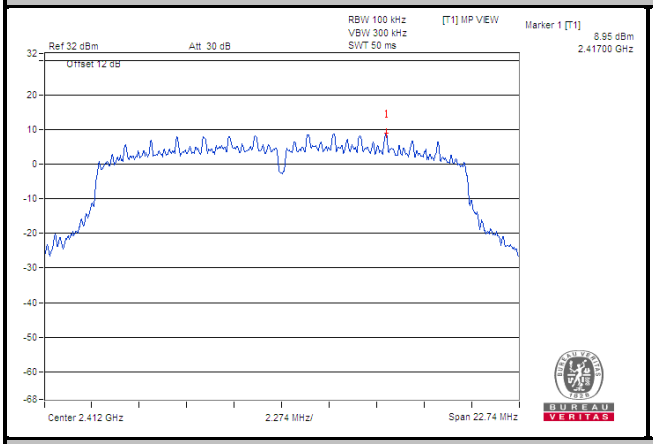


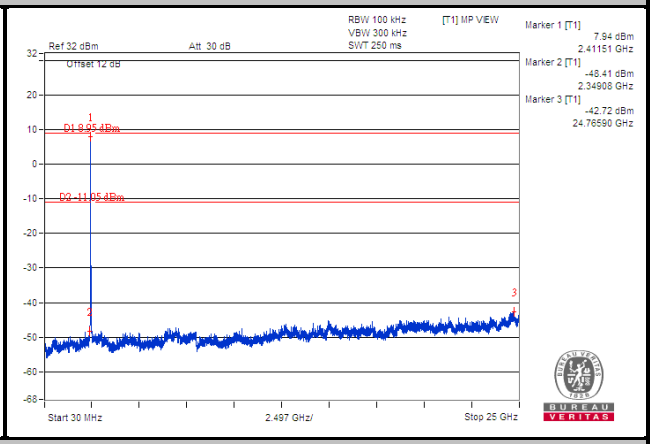
Ch 1 Band Edge	Ch 11 Band Edge
	

802.11n (HT20)

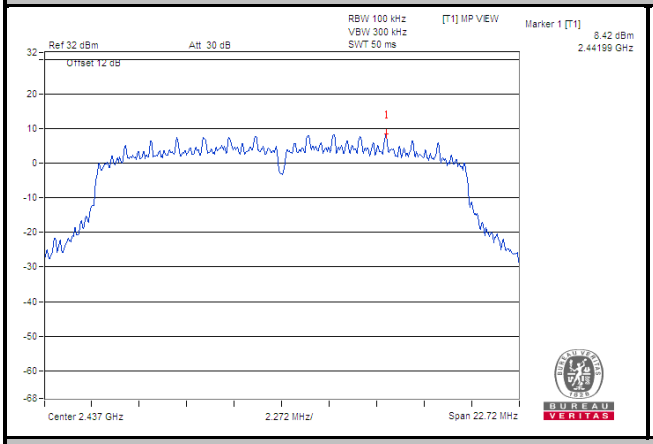
CHAIN 0

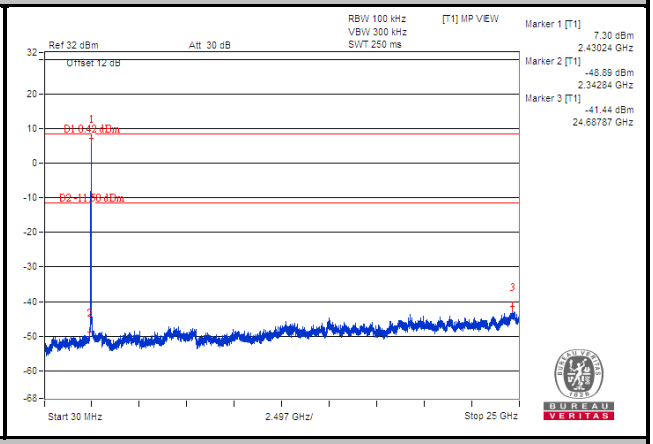
Ch 1



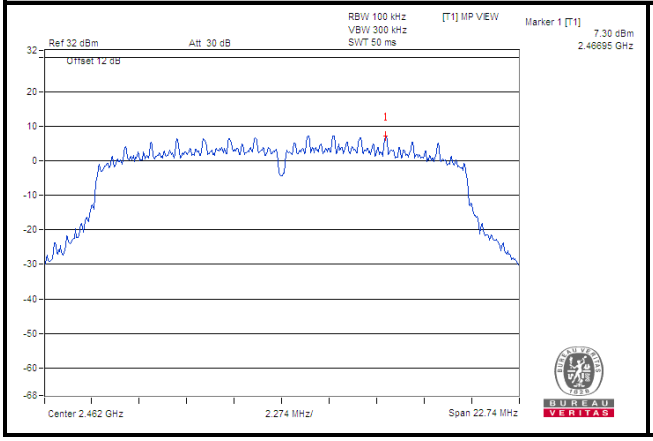


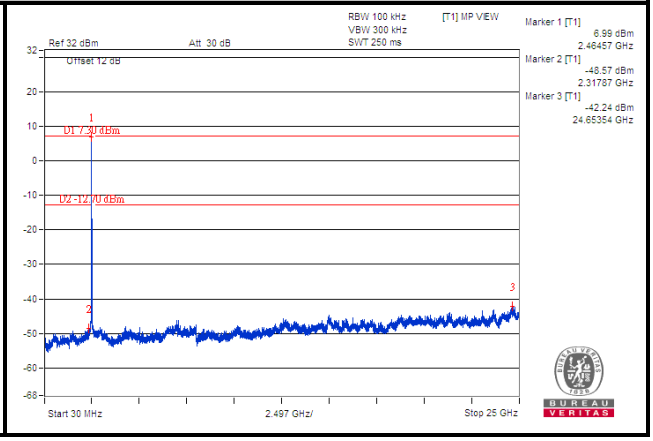
Ch 6

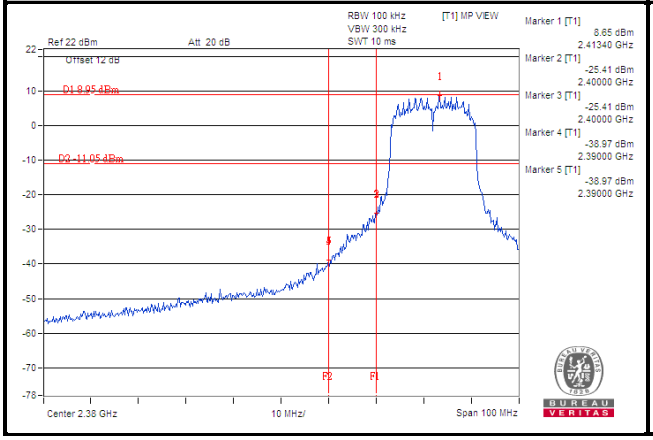
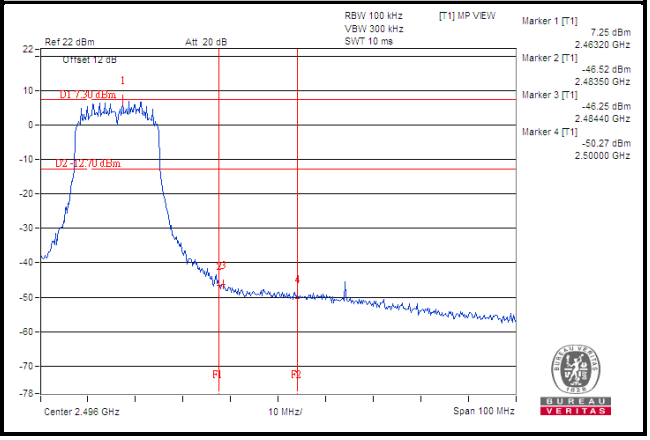




Ch 11

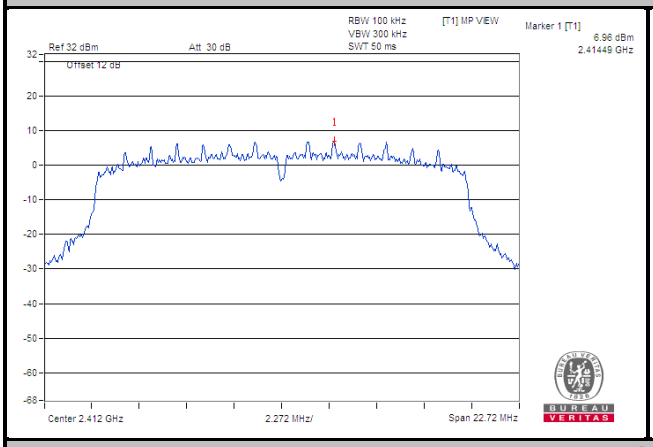


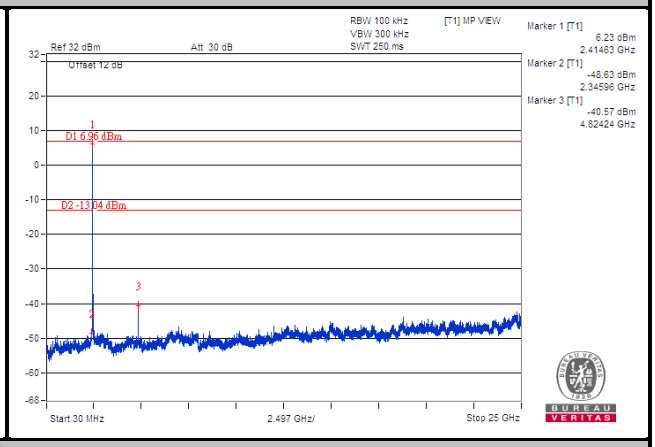


Ch 1 Band Edge	Ch 11 Band Edge
	

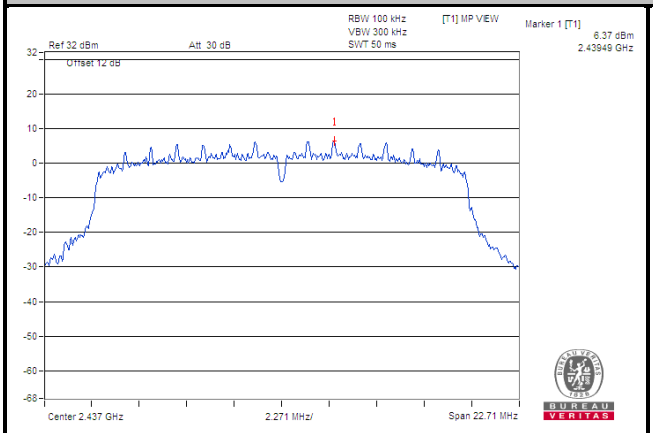
CHAIN 1

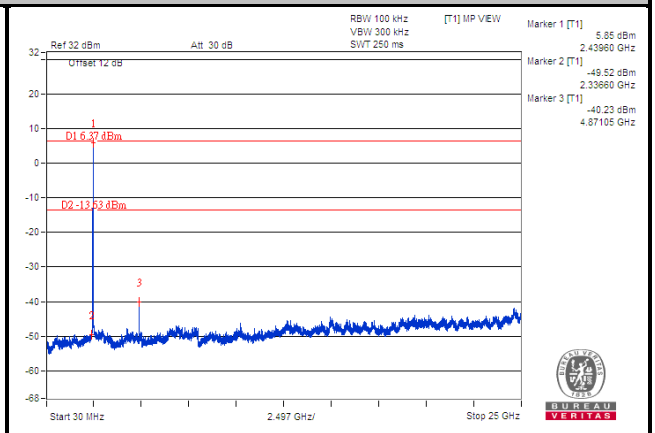
Ch 1



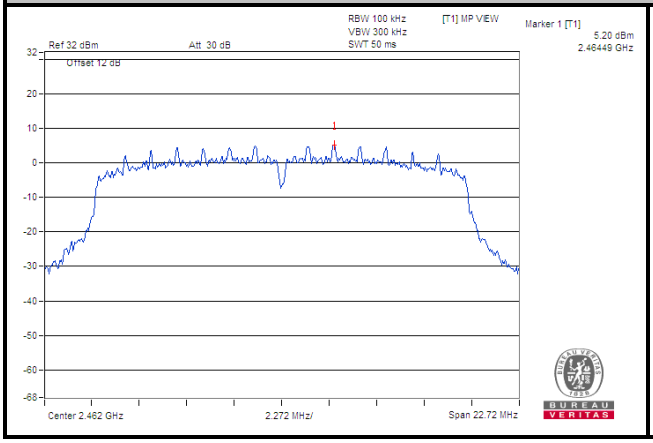


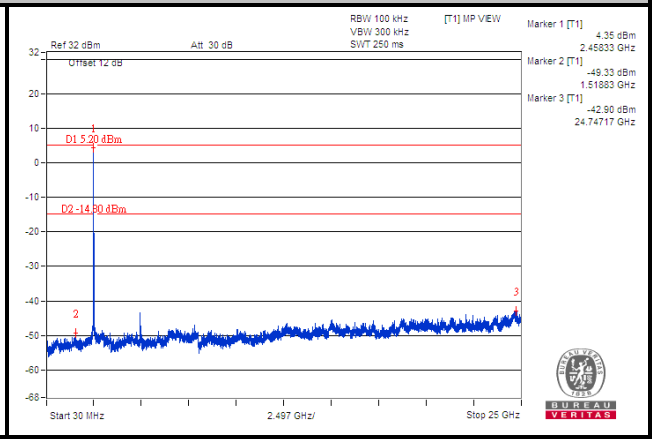
Ch 6

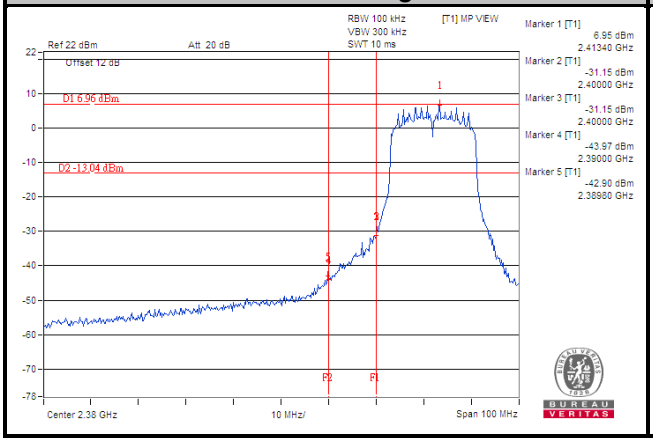
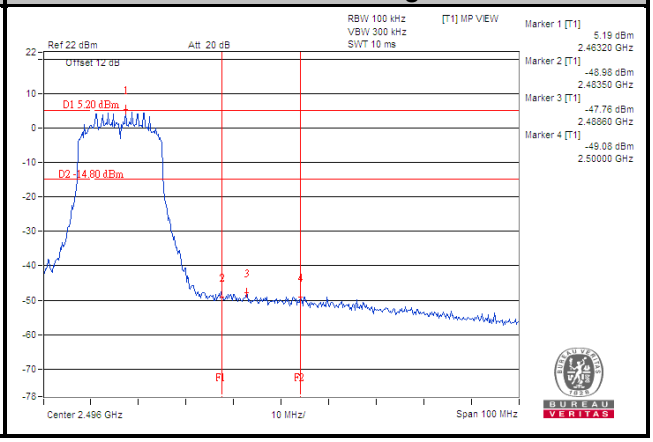




Ch 11



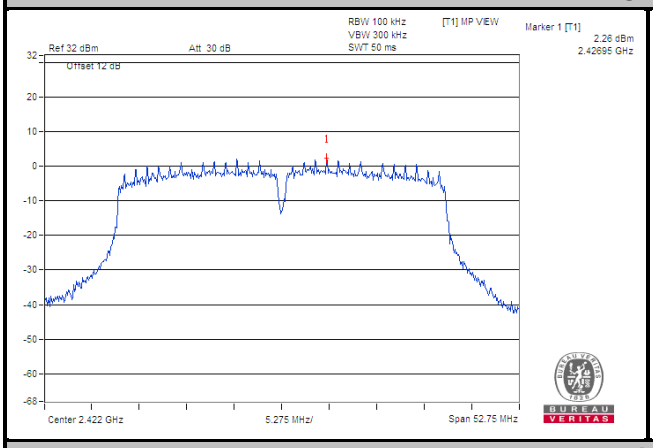


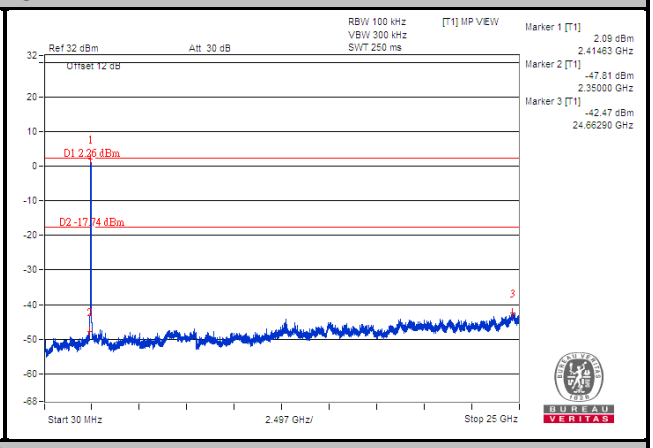
Ch 1 Band Edge	Ch 11 Band Edge
	

802.11n (HT40)

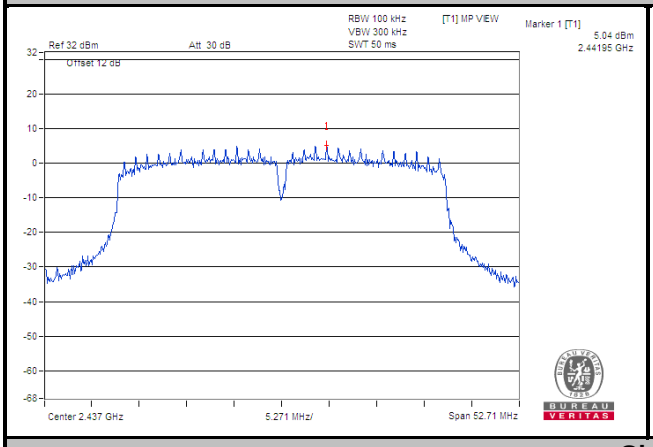
CHAIN 0

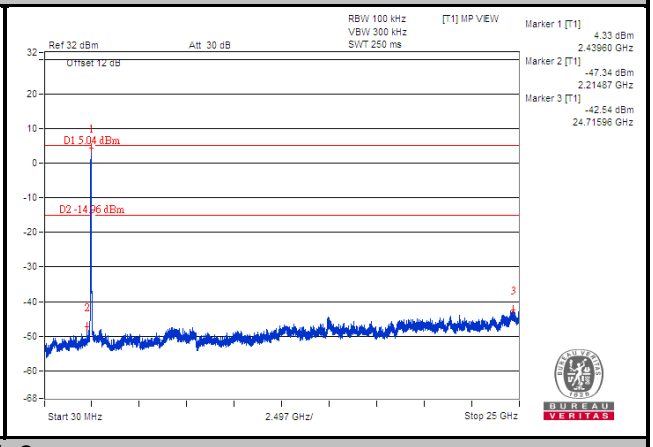
Ch 3



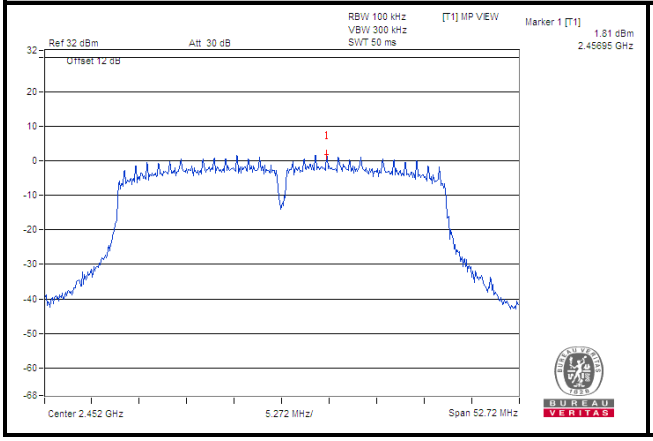


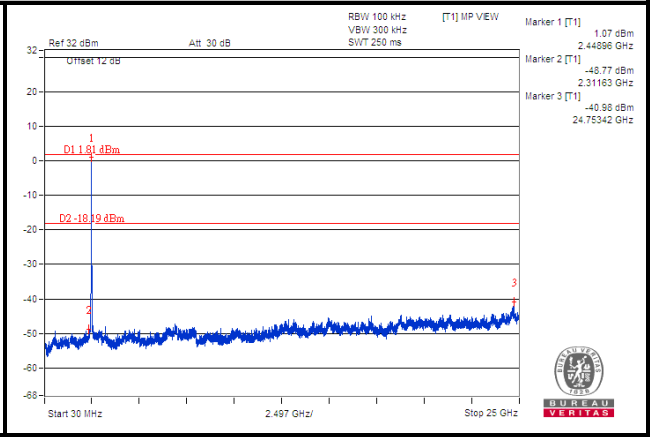
Ch 6

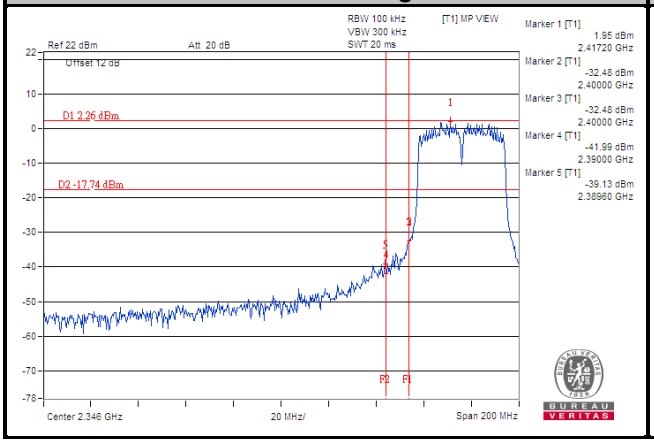
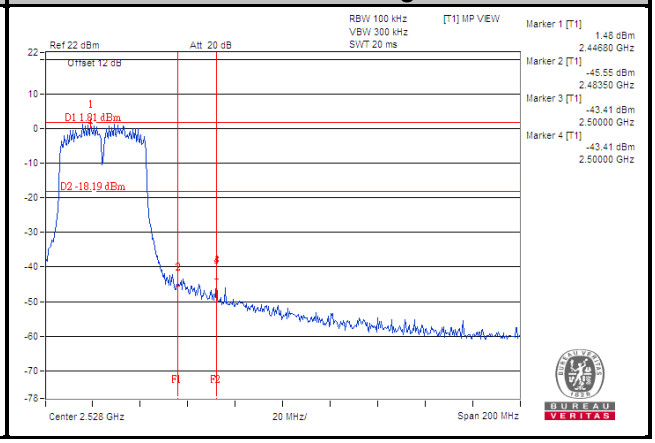




Ch 9

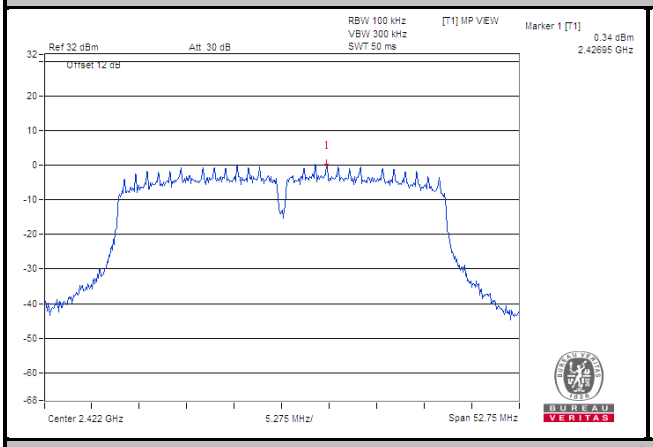


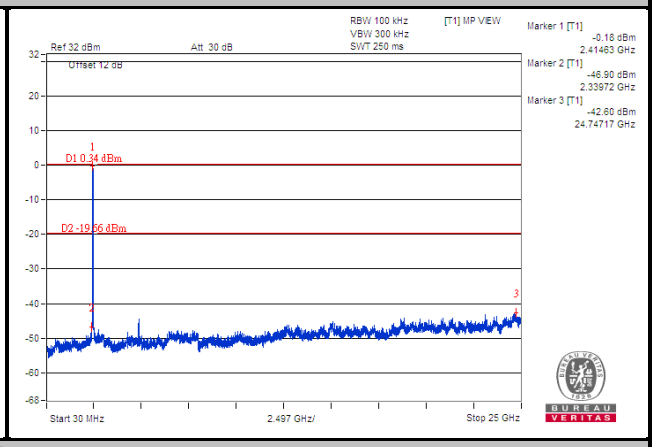


Ch 3 Band Edge	Ch 9 Band Edge
	

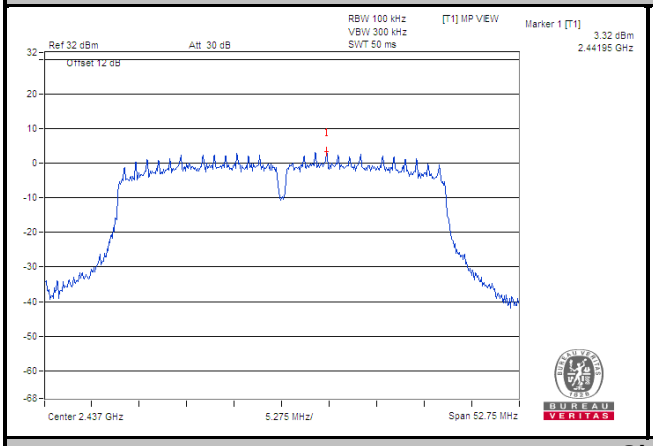
CHAIN 1

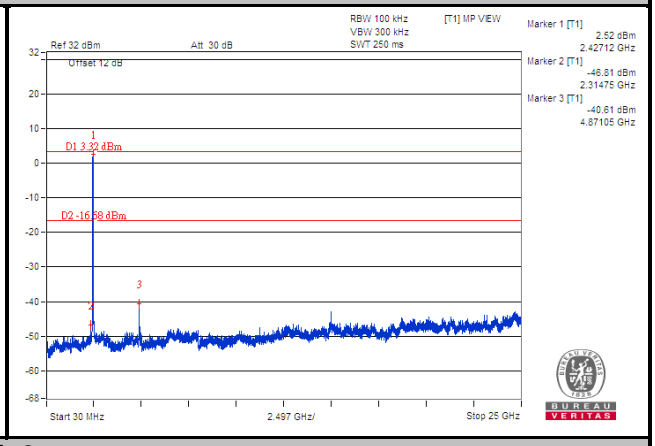
Ch 3



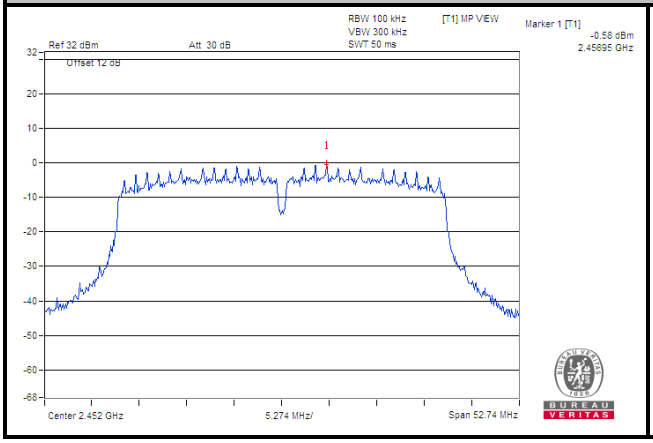


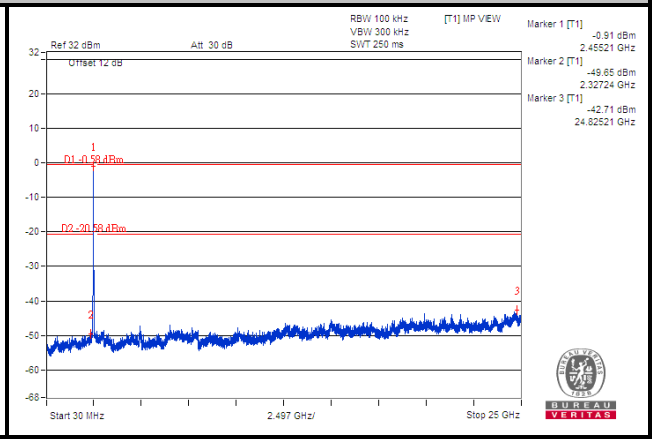
Ch 6

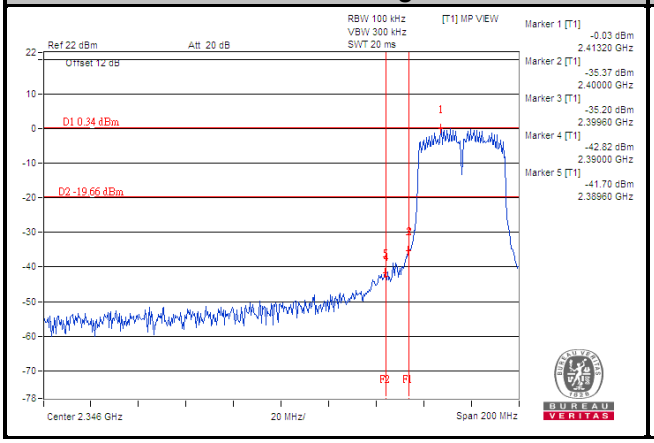
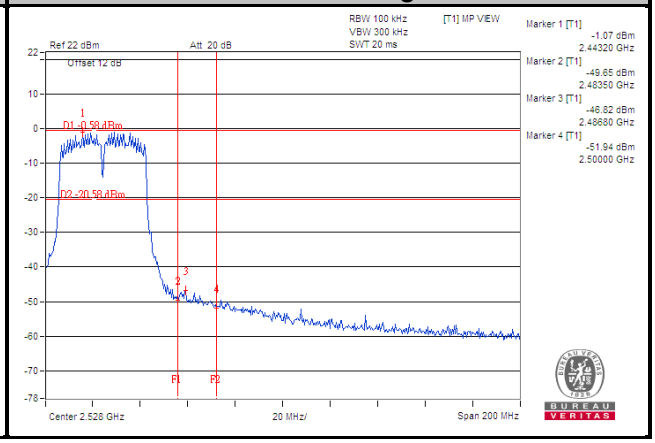




Ch 9





Ch 3 Band Edge	Ch 9 Band Edge
	

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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