FCC Test Report

Report No.:	RF180528C19-1
FCC ID:	O57TBX705F
Test Model:	Lenovo TB-X705F
Received Date:	May 28, 2018
Test Date:	Jun. 02, 2018 ~ Jun. 19, 2018
Issued Date:	Jun. 25, 2018
Applicant:	Lenovo(Shanghai) Electronics Technology Co., Ltd.
Address:	NO.68 BUILDING, 199 FENJU RD, China (Shanghai) Pilot Free Trade Zone, 200131, CHINA
Manufacturer:	Lenovo PC HK Limited
Address:	23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong
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):	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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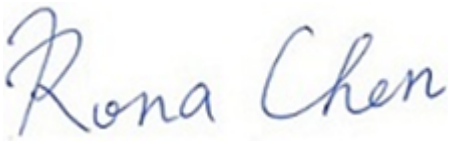
Release Control Record

Issue No.	Description	Date Issued
RF180528C19-1	Original Release	Jun. 25, 2018

1 Certificate of Conformity

Product:	Portable Tablet Computer
Brand:	Lenovo
Test Model:	Lenovo TB-X705F
Sample Status:	Production Unit
Applicant:	Lenovo(Shanghai) Electronics Technology Co., Ltd.
Test Date:	Jun. 02, 2018 ~ Jun. 19, 2018
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:** Jun. 25, 2018

Rona Chen / Specialist

Approved by :  , **Date:** Jun. 25, 2018

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 -14.00 dB at 0.53381 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -6.09 dB at 2483.88 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.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	**Frequency**	**Expended Uncertainty (k=2) (±)**
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	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	Portable Tablet Computer
Brand	Lenovo
Test Model	Lenovo TB-X705F
Status of EUT	Production Unit
Power Supply Rating	3.85 Vdc (Battery) 5 Vdc (Adapter or host equipment)
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 135.0 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	802.11b: 19.93 dBm / 98.401 mW 802.11g: 23.79 dBm / 239.332 mW 802.11n (HT20): 23.93 dBm / 247.172 mW 802.11n (HT40): 24.45 dBm / 278.612 mW
Antenna Type	Monopole antenna with -2.47 dBi gain
Antenna Connector	N/A
Product HW Version	Lenovo Tablet TB-X705F
Product SW Version	TB-X705F_RF01_20180518
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT provides 1 completed transmitter and 1 receiver.

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

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	Salom	SC-41	I/P: 100-240 Vac, 50/60 Hz, 0.3 A O/P: 5 Vdc, 2 A
Adapter 2	AcBel	SC-41	I/P: 100-240 Vac, 50/60 Hz, 0.3 A O/P: 5 Vdc, 2 A
Battery 1	SCUD	L16D2P31	3.85 Vdc, 7000 mAh
Battery 2	Celxpert	L16D2P31	3.85 Vdc, 7000 mAh
USB Cable 1 (White)	LiQi	LQ-02300039	1 m shielded cable w/o core
USB Cable 2 (Black)	LiQi	LQ-02300040	1 m shielded cable w/o core
LCD Panel 1	BOE	TV101WUM-LL0/TV101WUM-LL1	10.1 "
LCD Panel 2	INNOLUX	P101KZD-AF0/P101KZD-AF1	10.1 "
Photo Camera 1	O-film	L8856A00	8M AF
Photo Camera 2	Q-tech	F8856CB	8M AF
Photo Camera 3	Lcetron	LE5132FM	5M FF
Photo Camera 4	Holitech	MF80G	5M FF
CPU	Qualcomm	SDA-450-A-792NSP-TR-01-0-AA	792nsp
EMMC1 + DDR1	SAMSUNG	KMGD6001BM-B421（3+32）	32G
EMMC2 + DDR2	HYNIX	H9TQ26ADFTBCUR-KUM（3+32）	32G
EMMC3 + DDR3	SAMSUNG	KMRH60014A-B614（4+64）	64G
EMMC4 + DDR4	HYNIX	H9TQ52ACLTMCUR-KUM（4+64）	64G
Speaker	Keysound	QM171219AM48	--
Motor 1	AWA	YK2455R	--
Motor 2	Baolong	BLX-431320S	--
Main Board 1	huashen	W92ME1B3-3-03	--
Main Board 2	yilianda	W92ME1B3-3-05	--
BT/WLAN Module	Qualcomm	WCN-3680B-0-79BWLNSP	--

*** USB Cable 1 and USB Cable 2 is electrically identical, difference models are for color distinguished. Therefore, only USB Cable 1 is as a representative for final test.**

3. The Adapter 1 and Adapter 2 had been pre-tested to determine the worst-case. The worst case was found in Adapter 1. Therefore, only Adapter 1 was chosen for the final test.
4. The EUT contains two samples.

Sample	Configurations
A	EUT + Battery 1 + LCD Panel 1 + Photo Camera 1 + Photo Camera 3 + EMMC 3 + DDR 3 + Motor 1 + Main Board 1
B	EUT + Battery 2 + LCD Panel 2 + Photo Camera 2 + Photo Camera 4 + EMMC 4 + DDR 4 + Motor 2 + Main Board 2

5. 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	
A	√	√	√	√	Sample A
B	-	√	√	-	Sample B

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:
1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. "-"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)
A	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)
A, B	802.11n (HT40)	3 to 9	9	OFDM	BPSK	13.5

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	Test Condition
A, B	WLAN 2.4G + USB Cable + Adapter

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)
A	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)
A	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	Charles Hsiao
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
APCM	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu

3.3 Duty Cycle of Test Signal

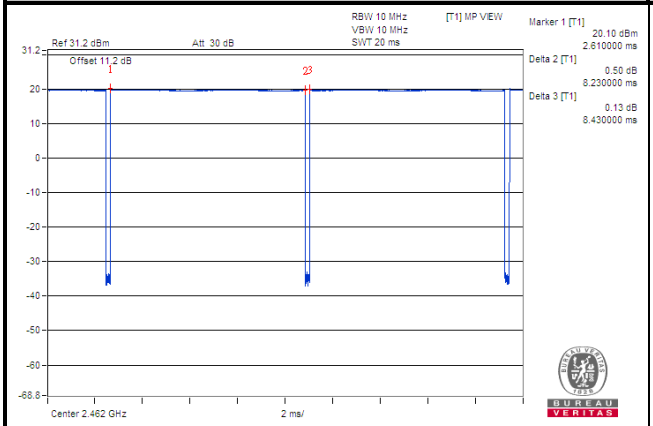
802.11b: Duty cycle = 8.23/8.43 = 0.976, Duty factor = 10 * log(1/0.976) = 0.10

802.11g: Duty cycle = 1.361/1.561 = 0.872, Duty factor = 10 * log(1/0.872) = 0.60

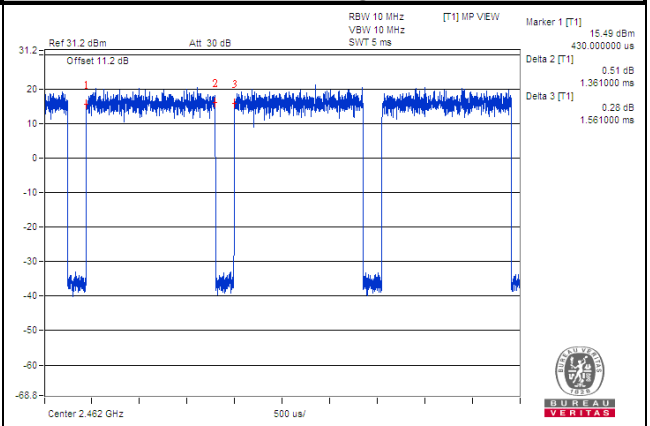
802.11n (HT20): Duty cycle = 1.273/1.489 = 0.855, Duty factor = 10 * log(1/0.855) = 0.68

802.11n (HT40): Duty cycle = 0.630/0.837 = 0.753, Duty factor = 10 * log(1/0.753) = 1.23

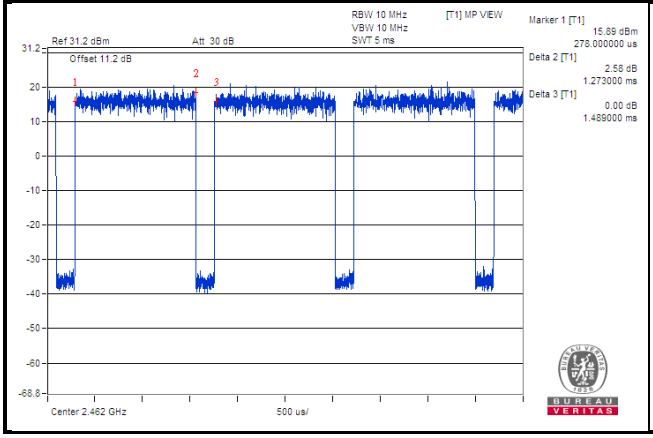
802.11b



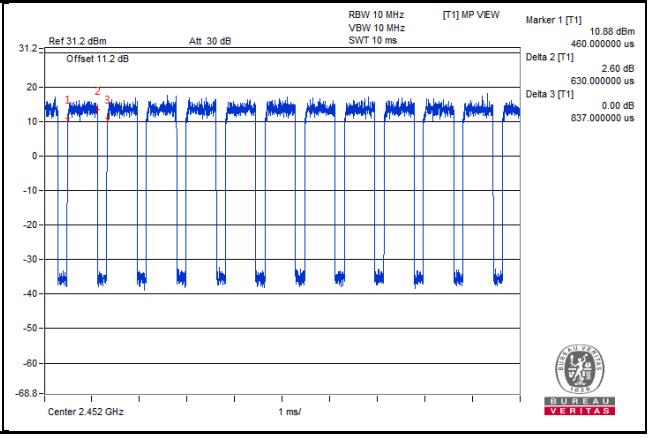
802.11g



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. The following support units or accessories were used to form a representative test configuration during the tests.

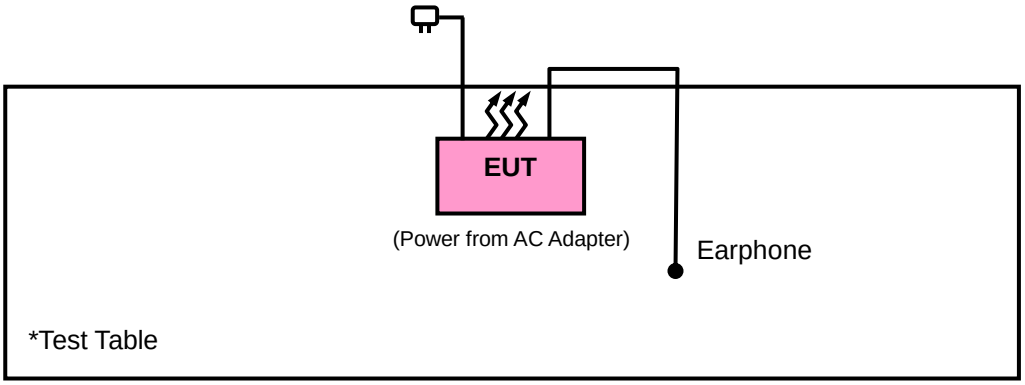
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Earphone	N/A	N/A	N/A	N/A

No.	Signal Cable Description of The Above Support Units
1.	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).

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)
558074 D01 DTS Meas Guidance v04
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	Jul. 05, 2017	Jul. 04, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
Double Ridge Guide Horn Antenna EMCO	3115	5619	Nov. 30, 2017	Nov. 29, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Dec. 06, 2017	Dec. 05, 2018
Fixed Attenuator Mini-Circuits	BW-N10W5+	NA	Jul. 07, 2017	Jul. 06, 2018
Loop Antenna	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent	310N	187226	Jun. 23, 2017	Jun. 22, 2018
Preamplifier Agilent	83017A	MY39501357	Jun. 23, 2017	Jun. 22, 2018
HORN Antenna Schwarzbeck	BBHA 9120D	9120D-969	Dec. 12, 2017	Dec. 11, 2018
Power Meter Anritsu	ML2495A	1012010	Aug. 15, 2017	Aug. 14, 2018
Power Sensor Anritsu	MA2411B	1315050	Aug. 15, 2017	Aug. 14, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 26, 2017	Jun. 25, 2018
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 26, 2017	Jun. 25, 2018
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 IC7450I-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:

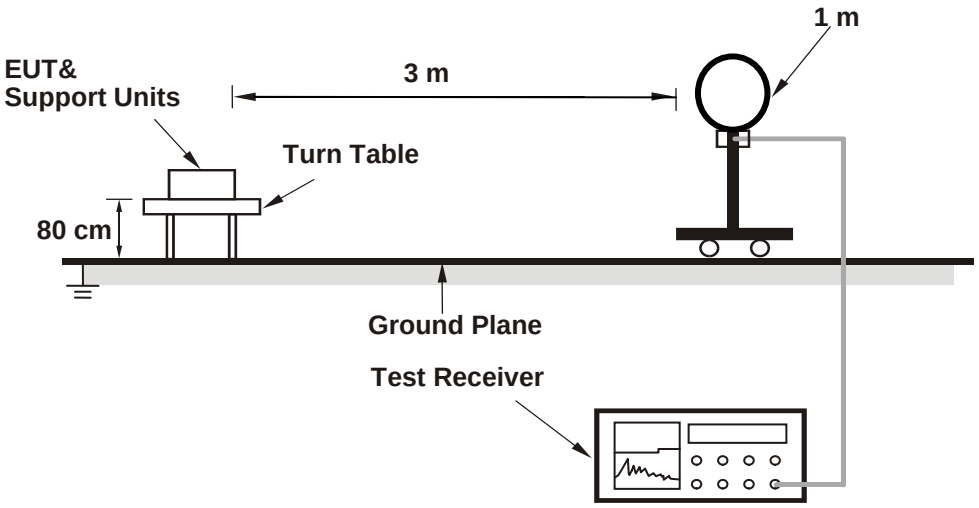
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
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 = 300 Hz ; 11g: RBW = 1 MHz, VBW = 1 kHz ;
   11n (HT20): RBW = 1 MHz, VBW = 1 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

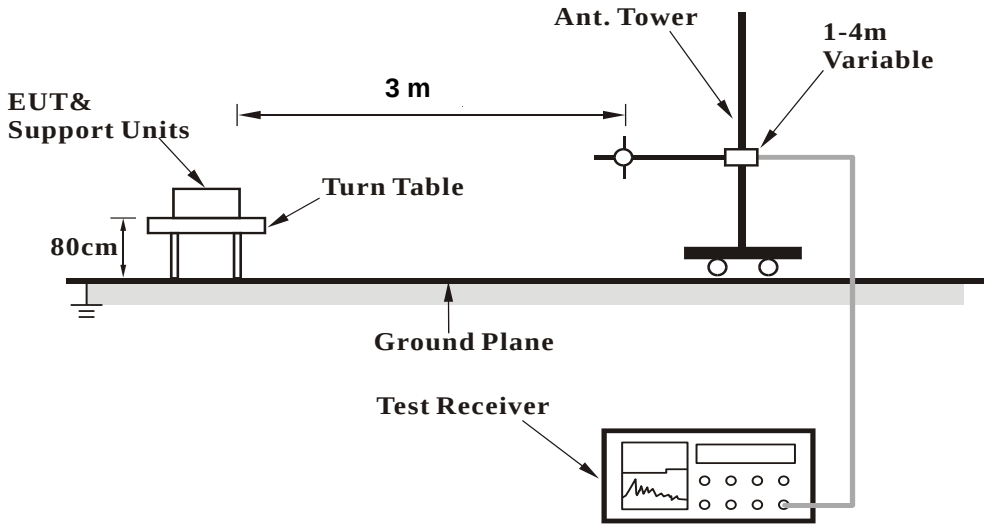
No deviation.

4.1.5 Test Set Up

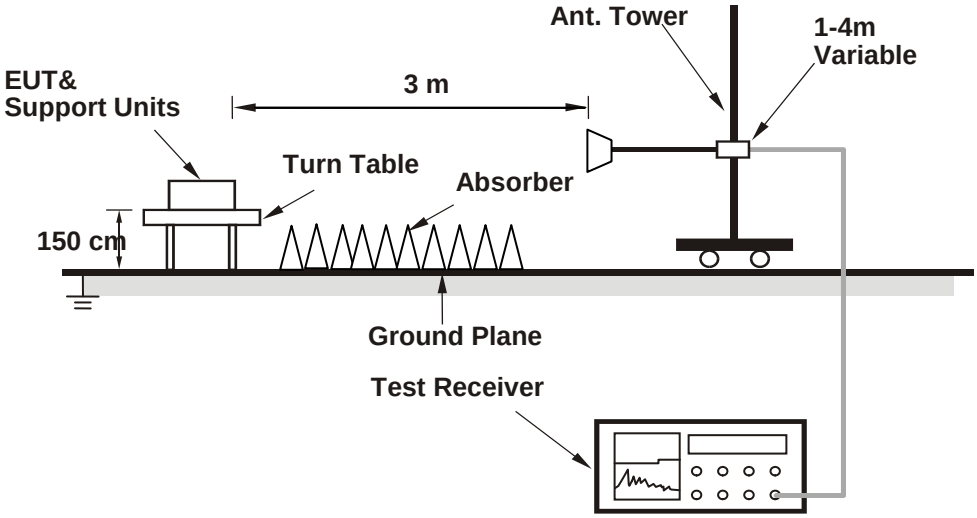
<Radiated Emission below 30 MHz>



<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：

Mode A

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**	Charles Hsiao

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**
2387.31	40.94	39.23	54	-13.06	31.8	5.4	35.49	130	123	Average
2387.31	51.86	50.15	74	-22.14	31.8	5.4	35.49	130	123	Peak
2412	102.57	100.8			31.81	5.43	35.47	130	123	Average
2412	105.61	103.84			31.81	5.43	35.47	130	123	Peak
4824	41.18	33.05	54	-12.82	33.97	8.26	34.1	105	27	Average
4824	46.91	38.78	74	-27.09	33.97	8.26	34.1	105	27	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**
2388.21	40.69	38.98	54	-13.31	31.8	5.4	35.49	123	98	Average
2388.21	51.85	50.14	74	-22.15	31.8	5.4	35.49	123	98	Peak
2412	100.25	98.48			31.81	5.43	35.47	123	98	Average
2412	103.67	101.9			31.81	5.43	35.47	123	98	Peak
4824	41.08	32.95	54	-12.92	33.97	8.26	34.1	157	339	Average
4824	47.04	38.91	74	-26.96	33.97	8.26	34.1	157	339	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 other emission levels 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**	Charles Hsiao

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**
2388.21	40.47	38.76	54	-13.53	31.8	5.4	35.49	130	123	Average
2388.21	51.96	50.25	74	-22.04	31.8	5.4	35.49	130	123	Peak
2437	102.47	100.62			31.85	5.46	35.46	130	123	Average
2437	105.95	104.1			31.85	5.46	35.46	130	123	Peak
2493	41.93	39.91	54	-12.07	31.9	5.53	35.41	130	123	Average
2493	52.91	50.89	74	-21.09	31.9	5.53	35.41	130	123	Peak
4874	41.18	32.99	54	-12.82	33.98	8.27	34.06	100	245	Average
4874	48	39.81	74	-26	33.98	8.27	34.06	100	245	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**
2389.38	40.57	38.86	54	-13.43	31.8	5.4	35.49	123	98	Average
2389.38	51.91	50.2	74	-22.09	31.8	5.4	35.49	123	98	Peak
2437	100.17	98.32			31.85	5.46	35.46	123	98	Average
2437	103.68	101.83			31.85	5.46	35.46	123	98	Peak
2493.52	42.05	40.03	54	-11.95	31.9	5.53	35.41	123	98	Average
2493.52	53.04	51.02	74	-20.96	31.9	5.53	35.41	123	98	Peak
4874	40.98	32.79	54	-13.02	33.98	8.27	34.06	168	66	Average
4874	47.72	39.53	74	-26.28	33.98	8.27	34.06	168	66	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 other emission levels 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**	Charles Hsiao

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	102.39	100.46			31.87	5.5	35.44	130	123	Average
2462	105.92	103.99			31.87	5.5	35.44	130	123	Peak
2487.68	41.76	39.75	54	-12.24	31.9	5.53	35.42	130	123	Average
2487.68	59.19	57.18	74	-14.81	31.9	5.53	35.42	130	123	Peak
4924	40.43	32.18	54	-13.57	33.99	8.28	34.02	134	240	Average
4924	48.4	40.15	74	-25.6	33.99	8.28	34.02	134	240	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	100.77	98.84			31.87	5.5	35.44	123	98	Average
2462	103.06	101.13			31.87	5.5	35.44	123	98	Peak
2486.76	41.72	39.73	54	-12.28	31.88	5.53	35.42	123	98	Average
2486.76	58.14	56.15	74	-15.86	31.88	5.53	35.42	123	98	Peak
4924	41.29	33.04	54	-12.71	33.99	8.28	34.02	135	229	Average
4924	48.65	40.4	74	-25.35	33.99	8.28	34.02	135	229	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 other emission levels 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**	Charles Hsiao

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	42.26	40.53	54	-11.74	31.8	5.4	35.47	130	123	Average
2389.92	53.99	52.26	74	-20.01	31.8	5.4	35.47	130	123	Peak
2412	98.74	96.97			31.81	5.43	35.47	130	123	Average
2412	105.8	104.03			31.81	5.43	35.47	130	123	Peak
4824	40.6	32.47	54	-13.4	33.97	8.26	34.1	117	344	Average
4824	47.62	39.49	74	-26.38	33.97	8.26	34.1	117	344	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	42.34	40.61	54	-11.66	31.8	5.4	35.47	123	98	Average
2389.92	53.05	51.32	74	-20.95	31.8	5.4	35.47	123	98	Peak
2412	96.54	94.77			31.81	5.43	35.47	123	98	Average
2412	103.49	101.72			31.81	5.43	35.47	123	98	Peak
4824	40.78	32.65	54	-13.22	33.97	8.26	34.1	185	7	Average
4824	47.71	39.58	74	-26.29	33.97	8.26	34.1	185	7	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 other emission levels 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**	Charles Hsiao

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**
2384.97	40.68	38.99	54	-13.32	31.78	5.4	35.49	130	123	Average
2384.97	52.51	50.82	74	-21.49	31.78	5.4	35.49	130	123	Peak
2437	98.62	96.77			31.85	5.46	35.46	130	123	Average
2437	105.43	103.58			31.85	5.46	35.46	130	123	Peak
2489.16	44.3	42.29	54	-9.7	31.9	5.53	35.42	130	123	Average
2489.16	54.68	52.67	74	-19.32	31.9	5.53	35.42	130	123	Peak
4874	41.04	32.85	54	-12.96	33.98	8.27	34.06	175	199	Average
4874	48.12	39.93	74	-25.88	33.98	8.27	34.06	175	199	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	40.6	38.89	54	-13.4	31.8	5.4	35.49	123	98	Average
2389.65	51.84	50.13	74	-22.16	31.8	5.4	35.49	123	98	Peak
2437	96.44	94.59			31.85	5.46	35.46	123	98	Average
2437	103.17	101.32			31.85	5.46	35.46	123	98	Peak
2489.4	44.13	42.12	54	-9.87	31.9	5.53	35.42	123	98	Average
2489.4	54.05	52.04	74	-19.95	31.9	5.53	35.42	123	98	Peak
4874	40.86	32.67	54	-13.14	33.98	8.27	34.06	192	114	Average
4874	47.41	39.22	74	-26.59	33.98	8.27	34.06	192	114	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 other emission levels 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**	Charles Hsiao

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	98.99	97.06			31.87	5.5	35.44	130	123	Average
2462	105.78	103.85			31.87	5.5	35.44	130	123	Peak
2483.52	44.38	42.42	54	-9.62	31.88	5.5	35.42	130	123	Average
2483.52	62.27	60.31	74	-11.73	31.88	5.5	35.42	130	123	Peak
4924	41.1	32.85	54	-12.9	33.99	8.28	34.02	195	9	Average
4924	48.05	39.8	74	-25.95	33.99	8.28	34.02	195	9	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	96.66	94.73			31.87	5.5	35.44	123	98	Average
2462	103.37	101.44			31.87	5.5	35.44	123	98	Peak
2483.52	43.87	41.91	54	-10.13	31.88	5.5	35.42	123	98	Average
2483.52	60.48	58.52	74	-13.52	31.88	5.5	35.42	123	98	Peak
4924	41.09	32.84	54	-12.91	33.99	8.28	34.02	174	77	Average
4924	47.74	39.49	74	-26.26	33.99	8.28	34.02	174	77	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 other emission levels 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**	Charles Hsiao

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	43.4	41.67	54	-10.6	31.8	5.4	35.47	130	123	Average
2389.92	58.89	57.16	74	-15.11	31.8	5.4	35.47	130	123	Peak
2412	97.47	95.7			31.81	5.43	35.47	130	123	Average
2412	104.38	102.61			31.81	5.43	35.47	130	123	Peak
4824	40.99	32.86	54	-13.01	33.97	8.26	34.1	117	164	Average
4824	46.99	38.86	74	-27.01	33.97	8.26	34.1	117	164	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	42.7	40.97	54	-11.3	31.8	5.4	35.47	123	98	Average
2389.92	55.23	53.5	74	-18.77	31.8	5.4	35.47	123	98	Peak
2412	95.55	93.78			31.81	5.43	35.47	123	98	Average
2412	102.35	100.58			31.81	5.43	35.47	123	98	Peak
4824	40.87	32.74	54	-13.13	33.97	8.26	34.1	139	334	Average
4824	47.81	39.68	74	-26.19	33.97	8.26	34.1	139	334	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 other emission levels 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**	Charles Hsiao

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**
2385.51	41.16	39.45	54	-12.84	31.8	5.4	35.49	130	123	Average
2385.51	52.1	50.39	74	-21.9	31.8	5.4	35.49	130	123	Peak
2437	97.41	95.56			31.85	5.46	35.46	130	123	Average
2437	104.16	102.31			31.85	5.46	35.46	130	123	Peak
2488.68	44.82	42.81	54	-9.18	31.9	5.53	35.42	130	123	Average
2488.68	54.27	52.26	74	-19.73	31.9	5.53	35.42	130	123	Peak
4874	40.38	32.19	54	-13.62	33.98	8.27	34.06	157	77	Average
4874	47.5	39.31	74	-26.5	33.98	8.27	34.06	157	77	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**
2384.88	40.76	39.07	54	-13.24	31.78	5.4	35.49	123	98	Average
2384.88	51.92	50.23	74	-22.08	31.78	5.4	35.49	123	98	Peak
2437	95.32	93.47			31.85	5.46	35.46	123	98	Average
2437	102.59	100.74			31.85	5.46	35.46	123	98	Peak
2489	44.49	42.48	54	-9.51	31.9	5.53	35.42	123	98	Average
2489	54.01	52	74	-19.99	31.9	5.53	35.42	123	98	Peak
4874	40.19	32	54	-13.81	33.98	8.27	34.06	115	175	Average
4874	47.65	39.46	74	-26.35	33.98	8.27	34.06	115	175	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 other emission levels 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**	Charles Hsiao

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	97.06	95.13			31.87	5.5	35.44	130	123	Average
2462	104.79	102.86			31.87	5.5	35.44	130	123	Peak
2483.52	45.03	43.07	54	-8.97	31.88	5.5	35.42	130	123	Average
2483.52	63.03	61.07	74	-10.97	31.88	5.5	35.42	130	123	Peak
4924	40.28	32.03	54	-13.72	33.99	8.28	34.02	120	305	Average
4924	47.25	39	74	-26.75	33.99	8.28	34.02	120	305	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	95.22	93.29			31.87	5.5	35.44	123	98	Average
2462	102	100.07			31.87	5.5	35.44	123	98	Peak
2483.68	44.88	42.92	54	-9.12	31.88	5.5	35.42	123	98	Average
2483.68	59.92	57.96	74	-14.08	31.88	5.5	35.42	123	98	Peak
4924	41.23	32.98	54	-12.77	33.99	8.28	34.02	165	77	Average
4924	47.07	38.82	74	-26.93	33.99	8.28	34.02	165	77	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 other emission levels 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**	Charles Hsiao

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	45.8	44.09	54	-8.2	31.8	5.4	35.49	130	123	Average
2389.56	56.73	55.02	74	-17.27	31.8	5.4	35.49	130	123	Peak
2422	95.65	93.85			31.83	5.43	35.46	130	123	Average
2422	102.4	100.6			31.83	5.43	35.46	130	123	Peak
2494.12	41.52	39.5	54	-12.48	31.9	5.53	35.41	130	123	Average
2494.12	52.24	50.22	74	-21.76	31.9	5.53	35.41	130	123	Peak
4844	41.1	32.95	54	-12.9	33.97	8.26	34.08	147	8	Average
4844	47.01	38.86	74	-26.99	33.97	8.26	34.08	147	8	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**
2389.29	45.27	43.56	54	-8.73	31.8	5.4	35.49	123	98	Average
2389.29	59.22	57.51	74	-14.78	31.8	5.4	35.49	123	98	Peak
2422	93.98	92.18			31.83	5.43	35.46	123	98	Average
2422	100.91	99.11			31.83	5.43	35.46	123	98	Peak
2492.68	41.61	39.59	54	-12.39	31.9	5.53	35.41	123	98	Average
2492.68	52.36	50.34	74	-21.64	31.9	5.53	35.41	123	98	Peak
4844	41.17	33.02	54	-12.83	33.97	8.26	34.08	157	8	Average
4844	47.45	39.3	74	-26.55	33.97	8.26	34.08	157	8	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 other emission levels 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**	Charles Hsiao

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**
2389.83	42.39	40.66	54	-11.61	31.8	5.4	35.47	130	123	Average
2389.83	52.28	50.55	74	-21.72	31.8	5.4	35.47	130	123	Peak
2437	95.78	93.93			31.85	5.46	35.46	130	123	Average
2437	102.84	100.99			31.85	5.46	35.46	130	123	Peak
2484.68	44.72	42.73	54	-9.28	31.88	5.53	35.42	130	123	Average
2484.68	57.57	55.58	74	-16.43	31.88	5.53	35.42	130	123	Peak
4874	41.18	32.99	54	-12.82	33.98	8.27	34.06	175	340	Average
4874	47.28	39.09	74	-26.72	33.98	8.27	34.06	175	340	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**
2388.66	42.2	40.49	54	-11.8	31.8	5.4	35.49	123	98	Average
2388.66	53.05	51.34	74	-20.95	31.8	5.4	35.49	123	98	Peak
2437	93.88	92.03			31.85	5.46	35.46	123	98	Average
2437	100.21	98.36			31.85	5.46	35.46	123	98	Peak
2483.84	43.84	41.88	54	-10.16	31.88	5.5	35.42	123	98	Average
2483.84	56.23	54.27	74	-17.77	31.88	5.5	35.42	123	98	Peak
4874	41.25	33.06	54	-12.75	33.98	8.27	34.06	124	118	Average
4874	46.71	38.52	74	-27.29	33.98	8.27	34.06	124	118	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 other emission levels 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**	Charles Hsiao

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**
2375.34	40.91	39.25	54	-13.09	31.78	5.37	35.49	229	129	Average
2375.34	52.47	50.81	74	-21.53	31.78	5.37	35.49	229	129	Peak
2452	95.68	93.81			31.85	5.46	35.44	229	129	Average
2452	102.15	100.28			31.85	5.46	35.44	229	129	Peak
2483.88	**47.91**	**45.95**	**54**	**-6.09**	**31.88**	**5.5**	**35.42**	**229**	**129**	**Average**
2483.88	63.06	61.1	74	-10.94	31.88	5.5	35.42	229	129	Peak
4904	41.62	33.4	54	-12.38	33.98	8.28	34.04	157	8	Average
4904	46.66	38.44	74	-27.34	33.98	8.28	34.04	157	8	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**
2388.93	40.69	38.98	54	-13.31	31.8	5.4	35.49	123	98	Average
2388.93	52.4	50.69	74	-21.6	31.8	5.4	35.49	123	98	Peak
2452	93.33	91.46			31.85	5.46	35.44	123	98	Average
2452	100.02	98.15			31.85	5.46	35.44	123	98	Peak
2484.56	45.67	43.68	54	-8.33	31.88	5.53	35.42	123	98	Average
2484.56	60.59	58.6	74	-13.41	31.88	5.53	35.42	123	98	Peak
4904	41.41	33.19	54	-12.59	33.98	8.28	34.04	115	258	Average
4904	47.51	39.29	74	-26.49	33.98	8.28	34.04	115	258	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 other emission levels 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:

Mode A

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 9	**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**	Charles Hsiao

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**
63.48	12.38	31.36	40	-27.62	12.35	0.9	32.23	133	190	Peak
176.34	21.75	42.88	43.5	-21.75	9.5	1.61	32.24	177	185	Peak
251.67	27.93	45.74	46	-18.07	12.35	1.94	32.1	153	162	Peak
375.6	22.24	37.6	46	-23.76	14.53	2.26	32.15	136	115	Peak
741	25.25	34.51	46	-20.75	19.72	3.16	32.14	178	145	Peak
938.4	32.64	38.56	46	-13.36	21.66	3.62	31.2	200	122	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**
62.67	14.35	33.08	40	-25.65	12.6	0.9	32.23	175	104	Peak
101.82	10.74	29.38	43.5	-32.76	12.34	1.28	32.26	130	98	Peak
245.46	13.37	31.43	46	-32.63	12.21	1.85	32.12	198	221	Peak
396.6	16.02	30.97	46	-29.98	14.93	2.34	32.22	138	215	Peak
722.1	26.66	36.07	46	-19.34	19.54	3.16	32.11	165	141	Peak
937	33	38.94	46	-13	21.65	3.62	31.21	166	328	Peak

Remarks:

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

Mode B

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 9	**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**	Charles Hsiao

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**
89.67	13.18	33.32	43.5	-30.32	10.46	1.11	31.71	186	229	Peak
162.57	20.42	42.31	43.5	-23.08	8.85	1.52	32.26	147	227	Peak
258.96	26.75	44.44	46	-19.25	12.47	1.94	32.1	136	316	Peak
386.1	21.37	36.5	46	-24.63	14.71	2.34	32.18	176	262	Peak
703.9	21.26	30.95	46	-24.74	19.29	3.11	32.09	180	134	Peak
936.3	30.15	36.09	46	-15.85	21.65	3.62	31.21	129	166	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**
48.9	11.8	28.56	40	-28.2	14.56	0.9	32.22	127	256	Peak
109.38	10.17	29.11	43.5	-33.33	12.03	1.28	32.25	190	341	Peak
252.21	12.82	30.63	46	-33.18	12.35	1.94	32.1	184	129	Peak
419	15.95	30.51	46	-30.05	15.22	2.41	32.19	152	164	Peak
746.6	27.91	37.05	46	-18.09	19.78	3.22	32.14	185	119	Peak
937.7	32.16	38.08	46	-13.84	21.66	3.62	31.2	137	174	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. The other emission levels 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	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
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

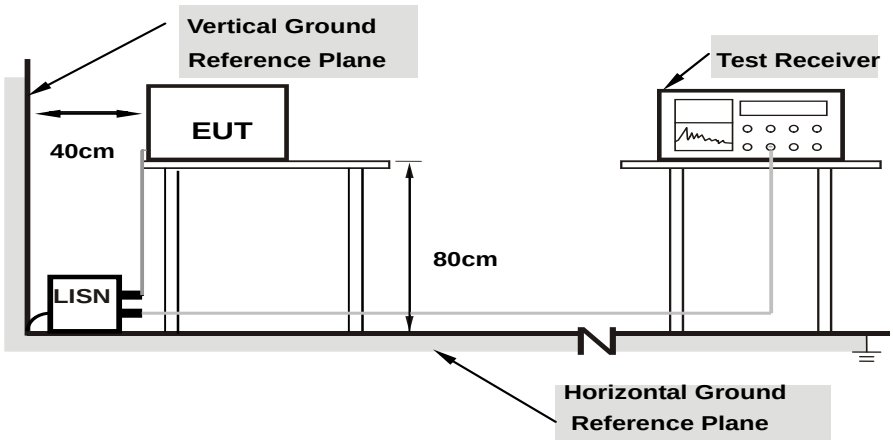
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling 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

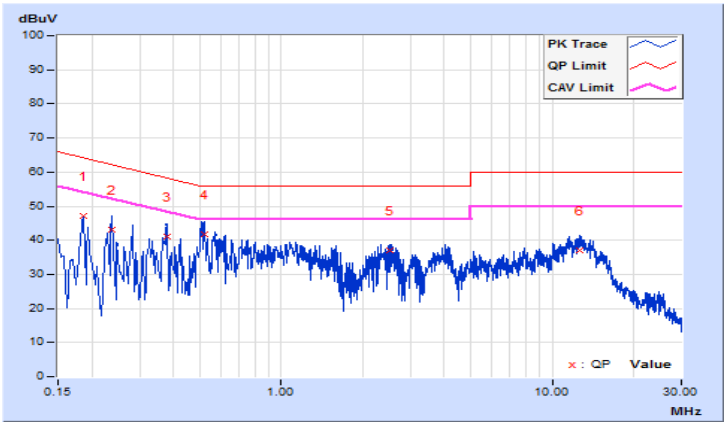
Mode A

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	Getaz Yang	Test Date	2018/6/5

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	0.18508	10.10	37.05	25.48	47.15	35.58	64.25	54.25	-17.10	-18.67
2	0.23602	10.11	32.94	19.65	43.05	29.76	62.24	52.24	-19.19	-22.48
3	0.37700	10.11	31.00	18.82	41.11	28.93	58.35	48.35	-17.24	-19.42
4	0.52130	10.12	31.53	19.75	41.65	29.87	56.00	46.00	-14.35	-16.13
5	2.52728	10.21	26.78	13.02	36.99	23.23	56.00	46.00	-19.01	-22.77
6	12.67764	10.78	26.09	12.89	36.87	23.67	60.00	50.00	-23.13	-26.33

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

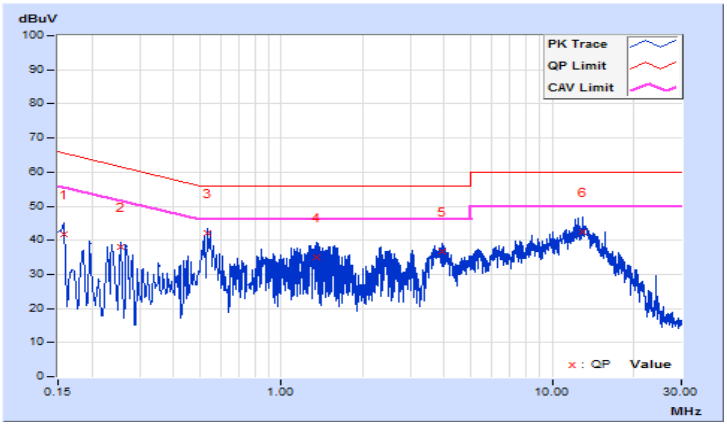


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Getaz Yang	Test Date	2018/6/5

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	0.15782	10.10	31.61	18.42	41.71	28.52	65.58	55.58	-23.87	-27.06
2	0.25557	10.11	27.97	7.61	38.08	17.72	61.57	51.57	-23.49	-33.85
3	**0.53381**	**10.12**	**31.88**	**18.59**	**42.00**	**28.71**	**56.00**	**46.00**	**-14.00**	**-17.29**
4	1.35037	10.15	24.72	14.03	34.87	24.18	56.00	46.00	-21.13	-21.82
5	3.92315	10.26	26.47	12.56	36.73	22.82	56.00	46.00	-19.27	-23.18
6	13.03736	10.65	31.74	15.96	42.39	26.61	60.00	50.00	-17.61	-23.39

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



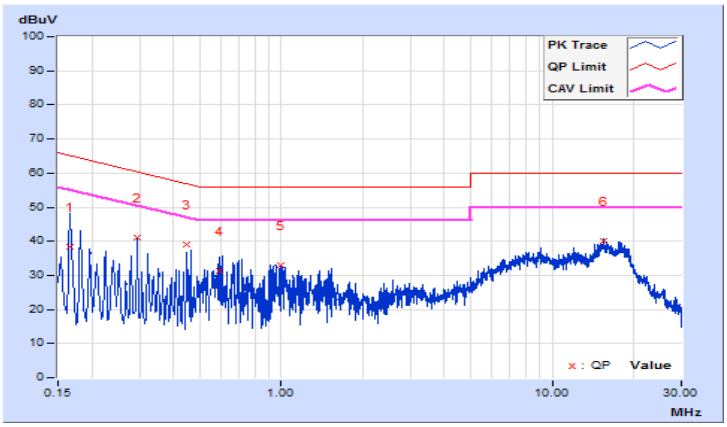
Mode B

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	Jisyong Wang	Test Date	2018/6/19

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	0.16569	10.10	28.19	7.54	38.29	17.64	65.17	55.17	-26.88	-37.53
2	0.29467	10.11	30.96	9.70	41.07	19.81	60.39	50.39	-19.32	-30.58
3	0.44742	10.12	28.97	7.44	39.09	17.56	56.92	46.92	-17.83	-29.36
4	0.58792	10.12	21.05	6.90	31.17	17.02	56.00	46.00	-24.83	-28.98
5	0.99847	10.14	22.98	6.62	33.12	16.76	56.00	46.00	-22.88	-29.24
6	15.44592	10.94	29.14	16.14	40.08	27.08	60.00	50.00	-19.92	-22.92

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

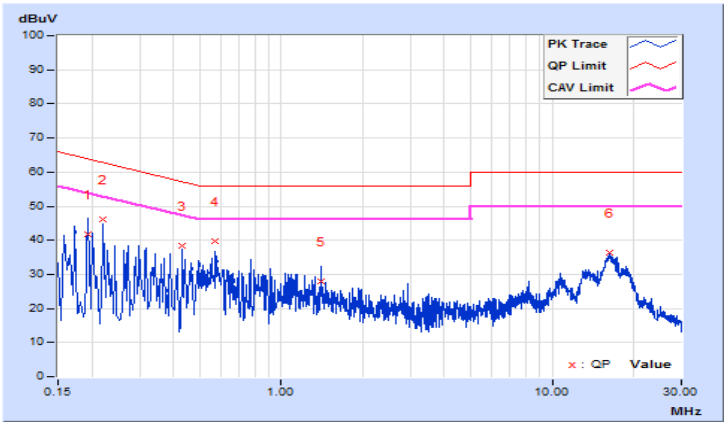


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Jisyong Wang	Test Date	2018/6/19

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	0.19305	10.10	31.77	6.38	41.87	16.48	63.90	53.90	-22.03	-37.42
2	0.22024	10.11	36.04	11.27	46.15	21.38	62.81	52.81	-16.66	-31.43
3	0.43152	10.12	28.22	6.30	38.34	16.42	57.22	47.22	-18.88	-30.80
4	0.57166	10.12	29.70	12.69	39.82	22.81	56.00	46.00	-16.18	-23.19
5	1.40120	10.15	17.83	2.47	27.98	12.62	56.00	46.00	-28.02	-33.38
6	16.22401	10.78	25.48	14.14	36.26	24.92	60.00	50.00	-23.74	-25.08

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

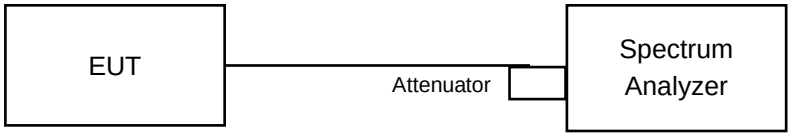


4.3 6 dB Bandwidth Measurement

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
1	2412	8.08	0.5	Pass
6	2437	8.59	0.5	Pass
11	2462	8.54	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.41	0.5	Pass
6	2437	16.42	0.5	Pass
11	2462	16.40	0.5	Pass

802.11n (HT20)

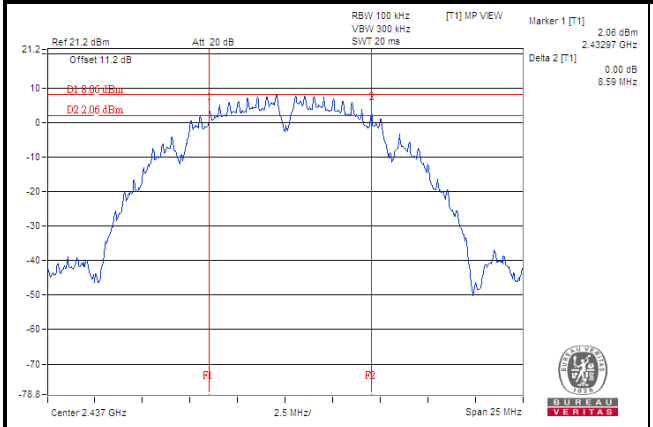
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	17.63	0.5	Pass
6	2437	17.65	0.5	Pass
11	2462	17.62	0.5	Pass

802.11n (HT40)

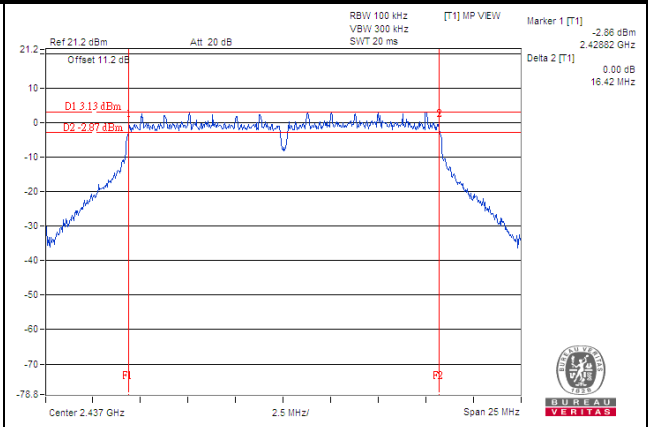
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.28	0.5	Pass
6	2437	35.48	0.5	Pass
9	2452	35.25	0.5	Pass

Spectrum Plot of Worst Value

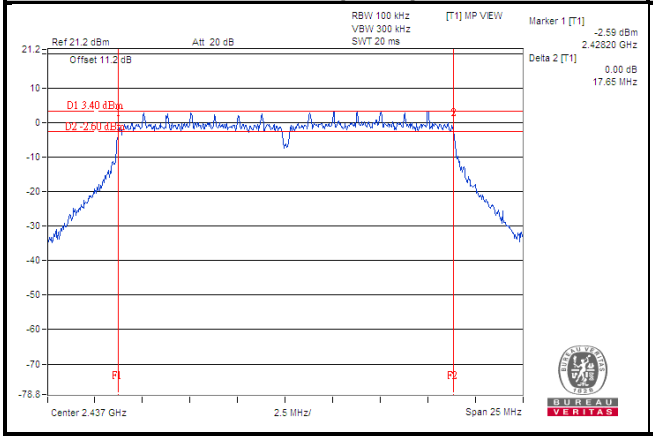
802.11b



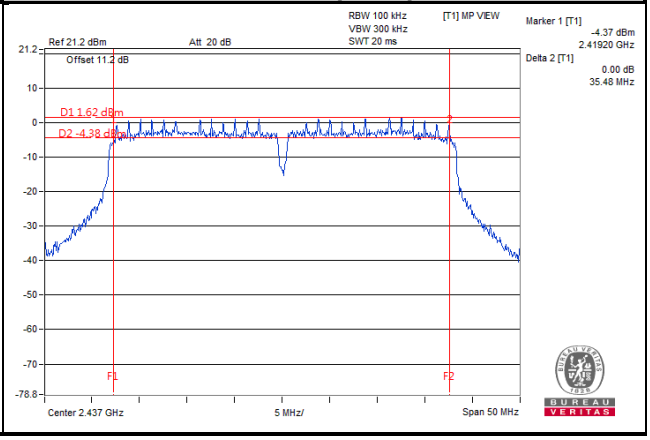
802.11g



802.11n (HT20)

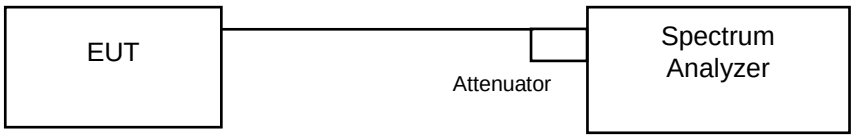


802.11n (HT40)



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
1	2412	12.98	Pass
6	2437	12.98	Pass
11	2462	12.98	Pass

802.11g

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
1	2412	17.02	Pass
6	2437	17.21	Pass
11	2462	17.02	Pass

802.11n (HT20)

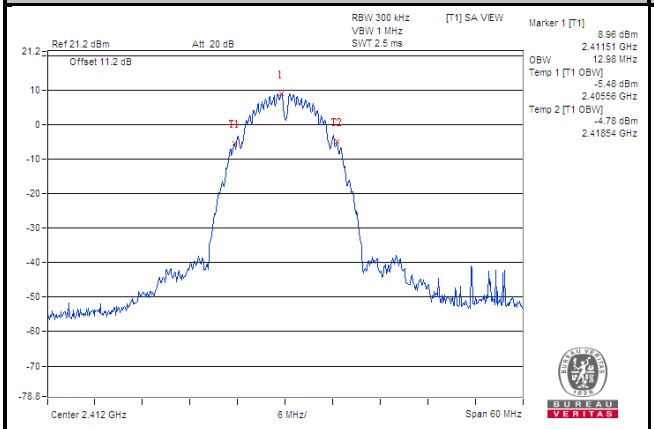
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
1	2412	18.08	Pass
6	2437	18.08	Pass
11	2462	18.17	Pass

802.11n (HT40)

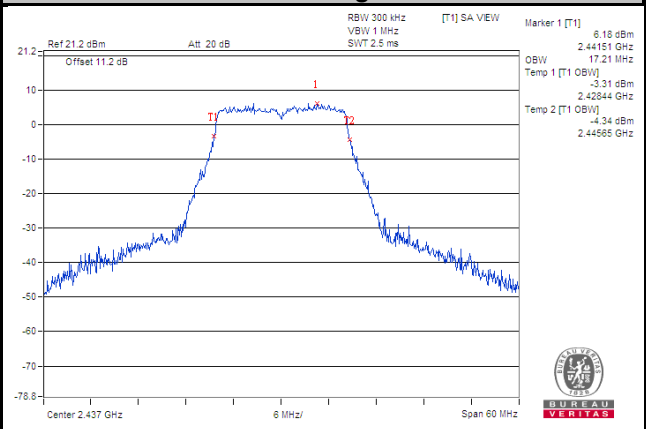
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
3	2422	36.34	Pass
6	2437	36.54	Pass
9	2452	36.34	Pass

Spectrum Plot of Worst Value

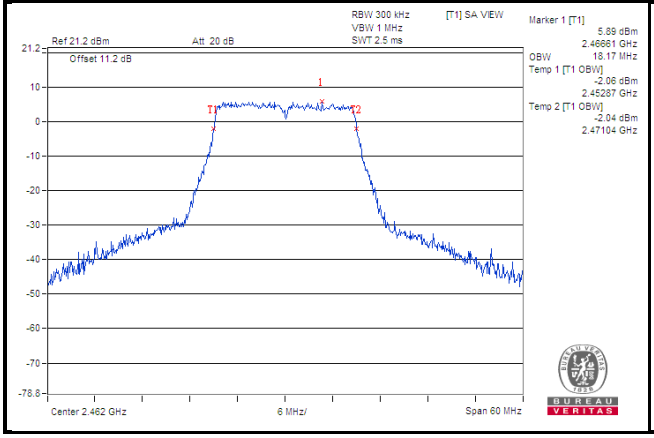
802.11b



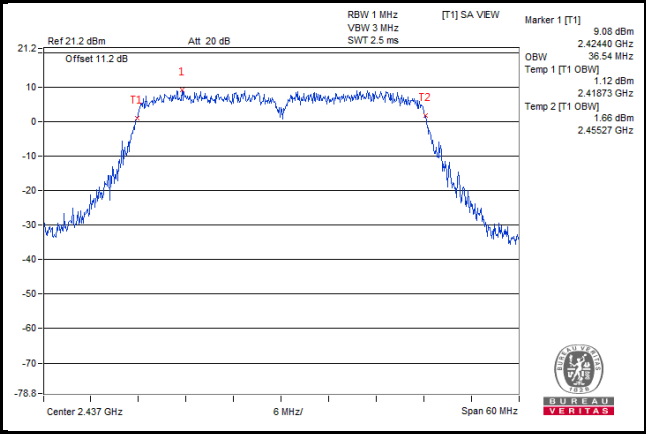
802.11g



802.11n (HT20)



802.11n (HT40)

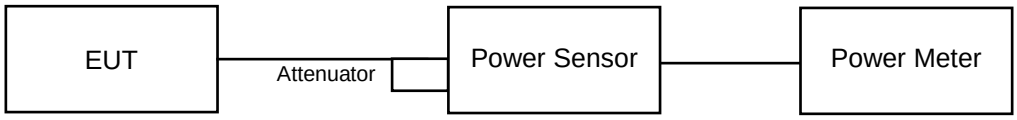


4.5 Conducted Output Power Measurement

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)

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 (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	94.624	19.76	30	Pass
6	2437	96.828	19.86	30	Pass
11	2462	98.401	19.93	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	223.872	23.50	30	Pass
6	2437	239.332	23.79	30	Pass
11	2462	232.809	23.67	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	240.436	23.81	30	Pass
6	2437	247.172	23.93	30	Pass
11	2462	237.684	23.76	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	260.016	24.15	30	Pass
6	2437	278.612	24.45	30	Pass
9	2452	268.534	24.29	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

Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Duty Factor (dB)	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-6.28	0.10	-6.18	8	Pass
6	2437	-5.91	0.10	-5.81	8	Pass
11	2462	-5.82	0.10	-5.72	8	Pass

802.11g

Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Duty Factor (dB)	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-12.04	0.60	-11.44	8	Pass
6	2437	-11.24	0.60	-10.64	8	Pass
11	2462	-11.46	0.60	-10.86	8	Pass

802.11n (HT20)

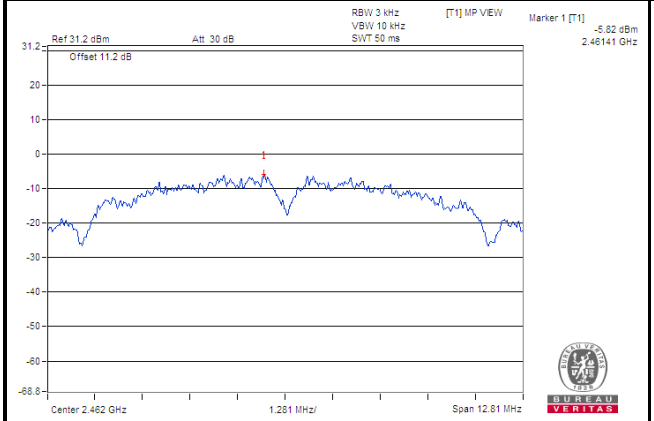
Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Duty Factor (dB)	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-12.04	0.68	-11.36	8	Pass
6	2437	-11.69	0.68	-11.01	8	Pass
11	2462	-12.31	0.68	-11.63	8	Pass

802.11n (HT40)

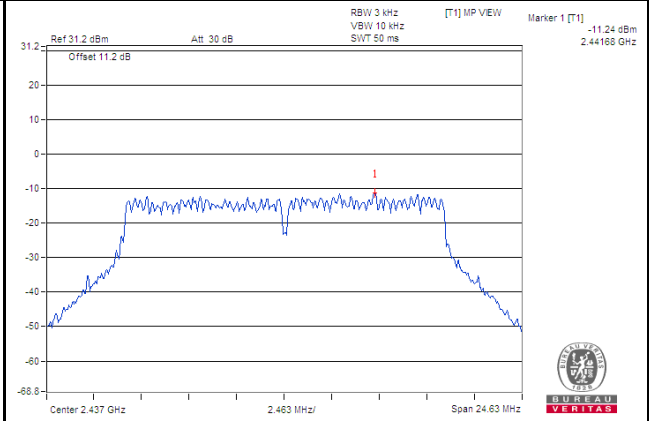
Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Duty Factor (dB)	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
3	2422	-13.96	1.23	-12.73	8	Pass
6	2437	-14.04	1.23	-12.81	8	Pass
9	2452	-13.91	1.23	-12.68	8	Pass

Spectrum Plot of Worst Value

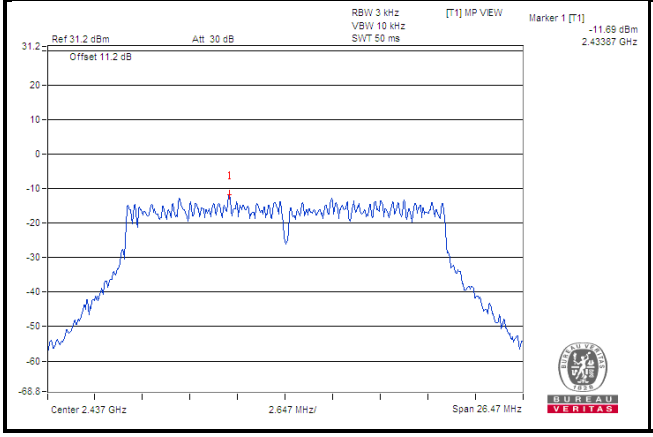
802.11b



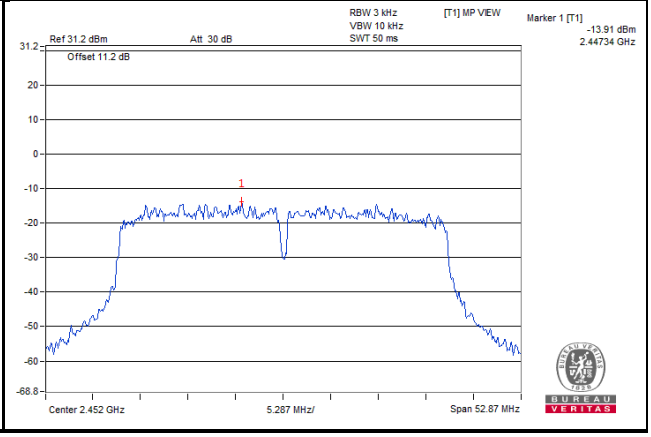
802.11g



802.11n (HT20)



802.11n (HT40)

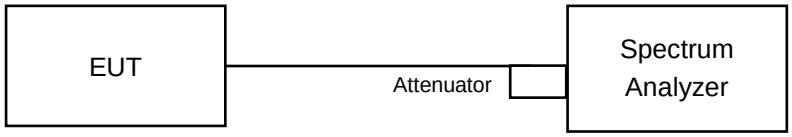


4.7 Conducted Out of Band Emission Measurement

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

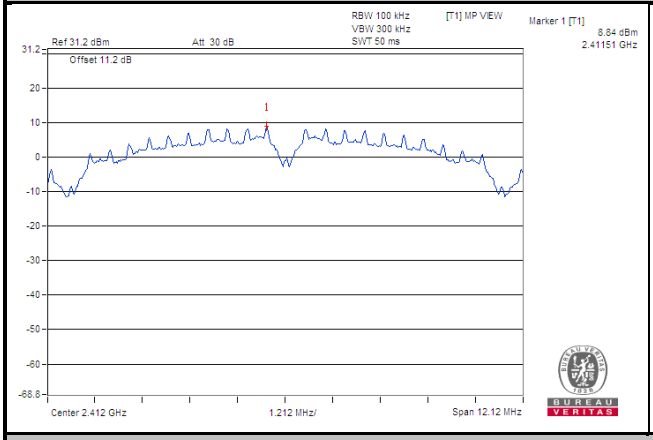
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

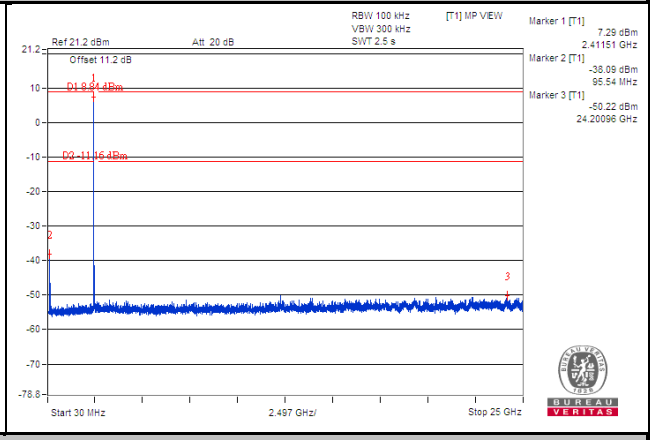
4.7.7 Test Results

The 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.

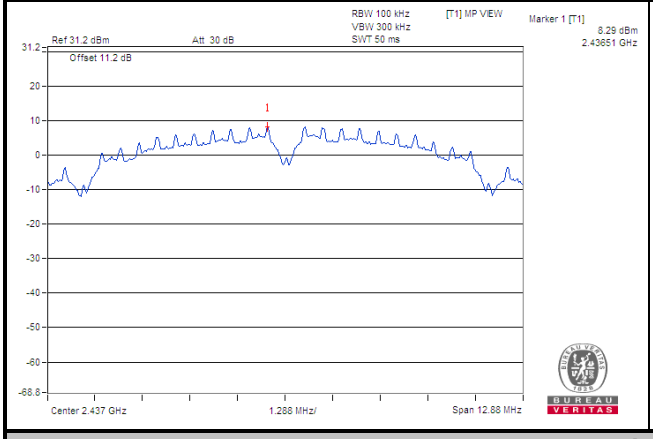
802.11b

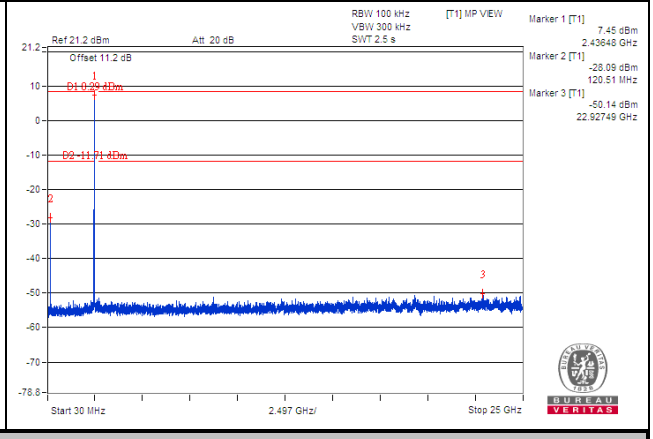
Ch 1



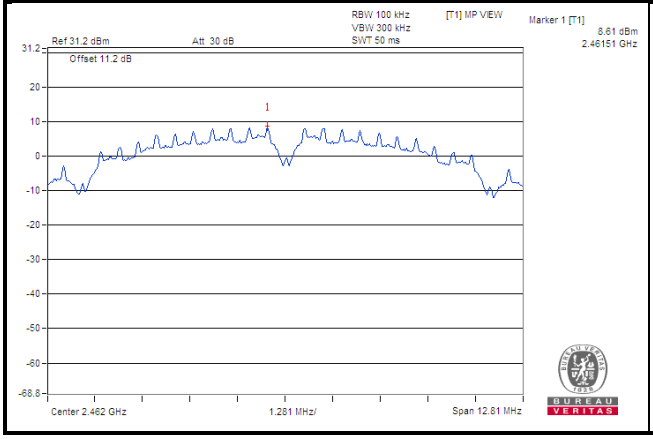


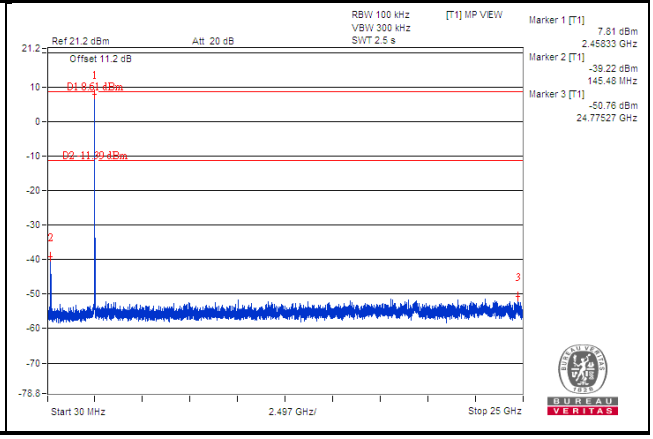
Ch 6

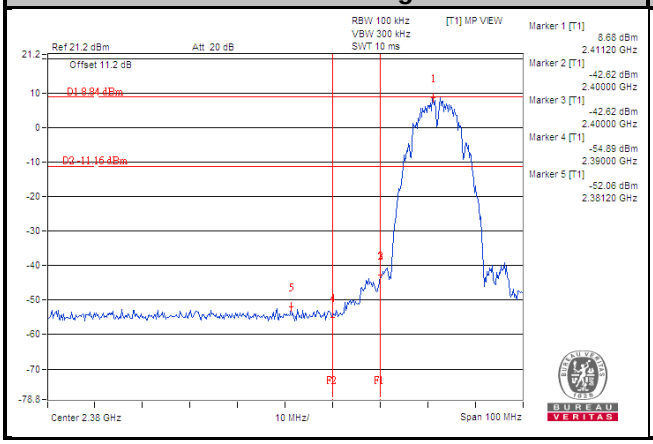
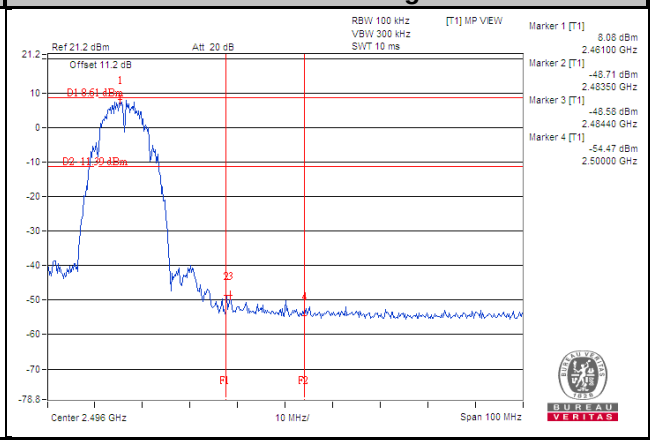




Ch 11

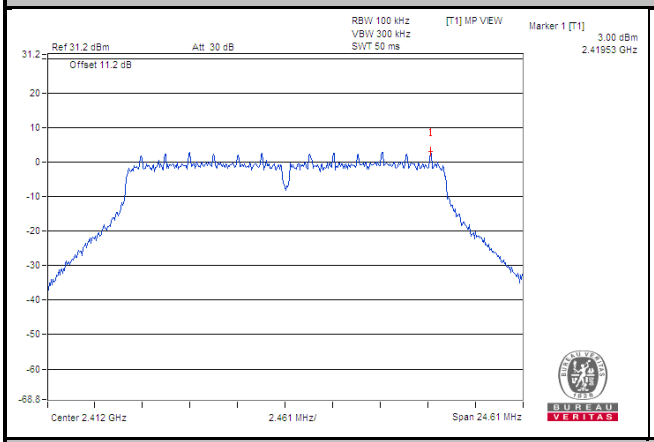


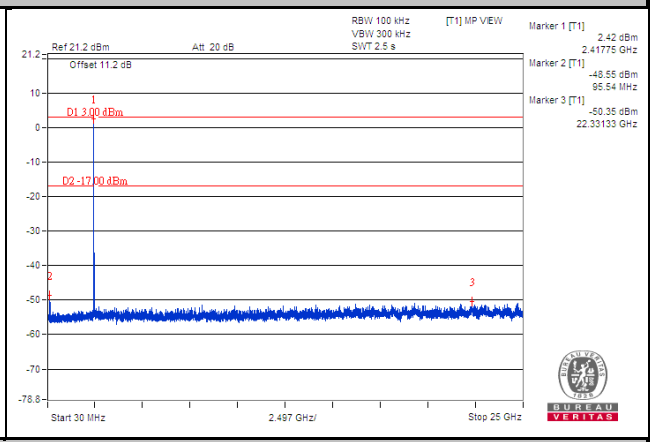


Ch 1 Band Edge	Ch 11 Band Edge
	

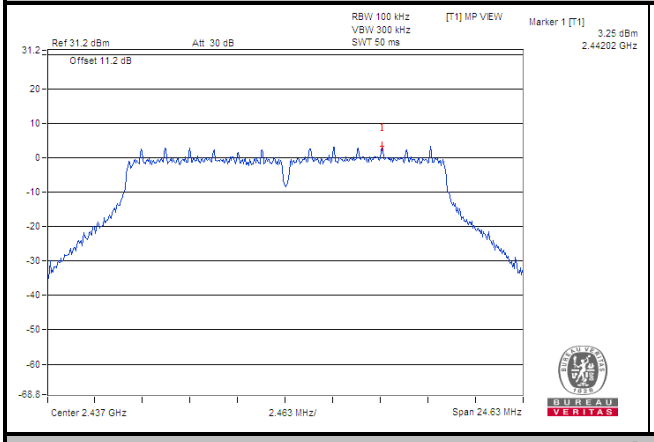
802.11g

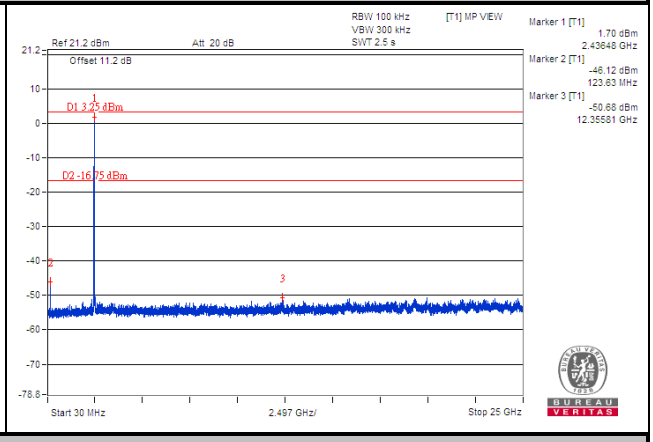
Ch 1



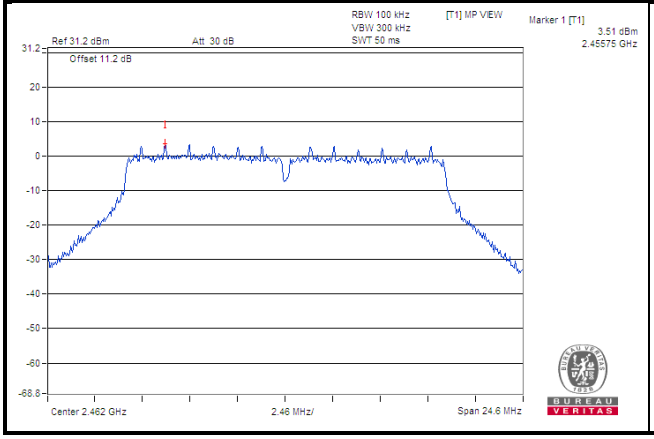


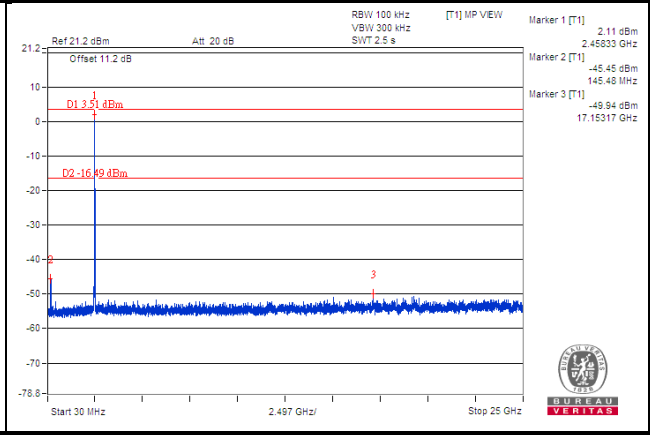
Ch 6

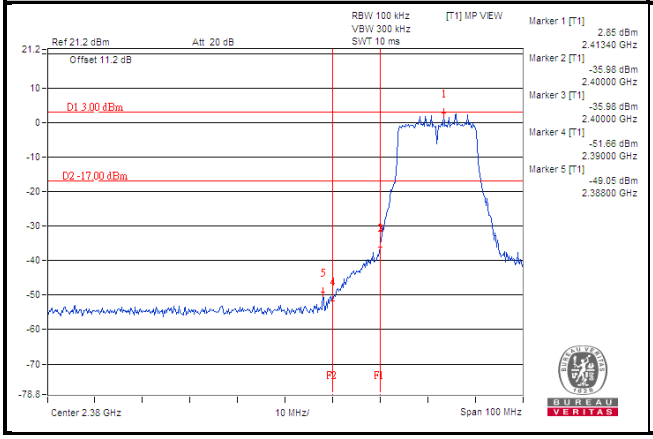
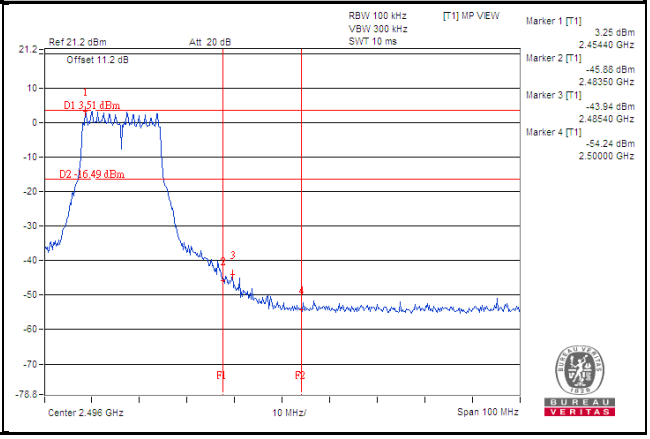




Ch 11

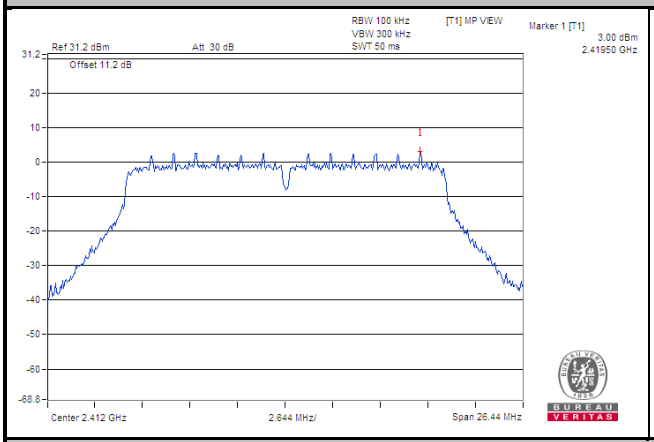


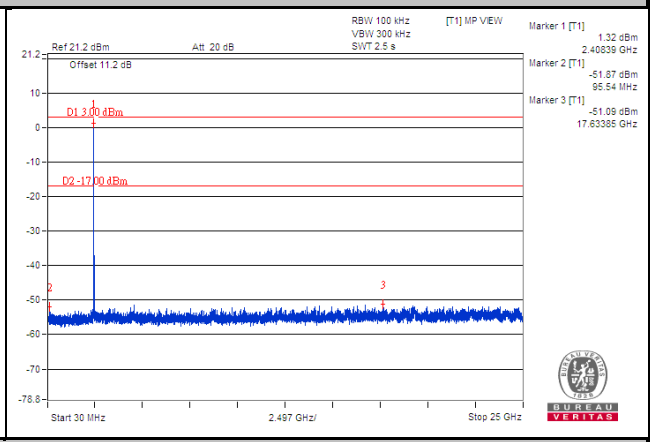


Ch 1 Band Edge	Ch 11 Band Edge
	

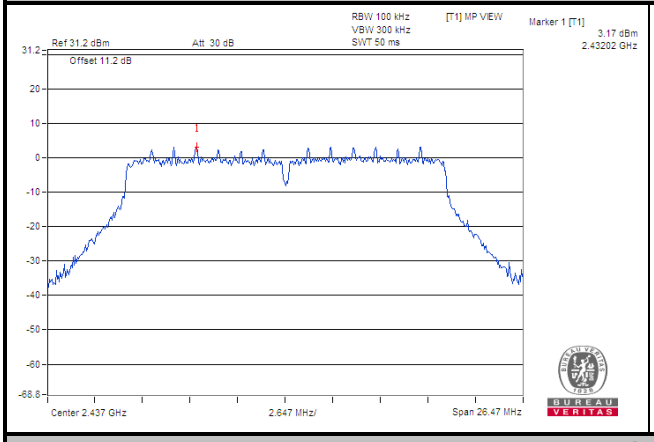
802.11n (HT20)

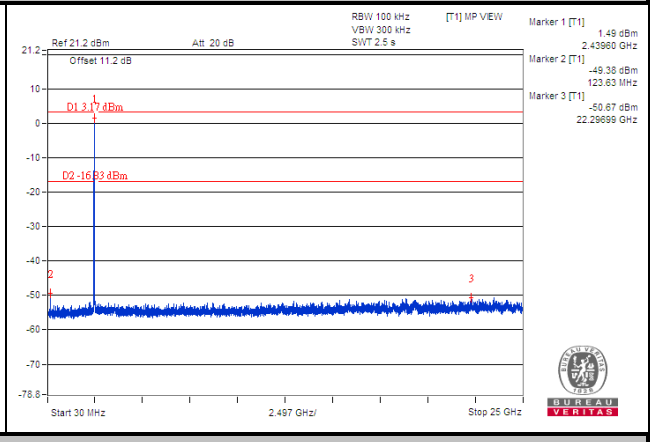
Ch 1



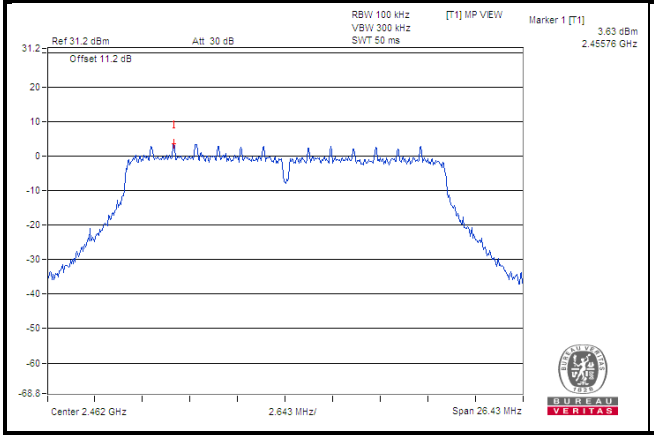


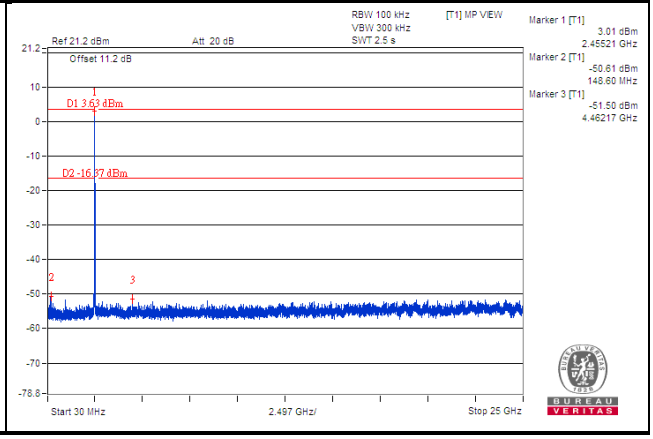
Ch 6

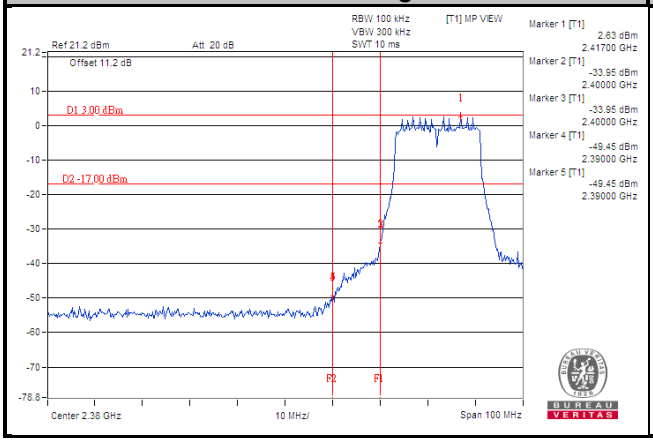
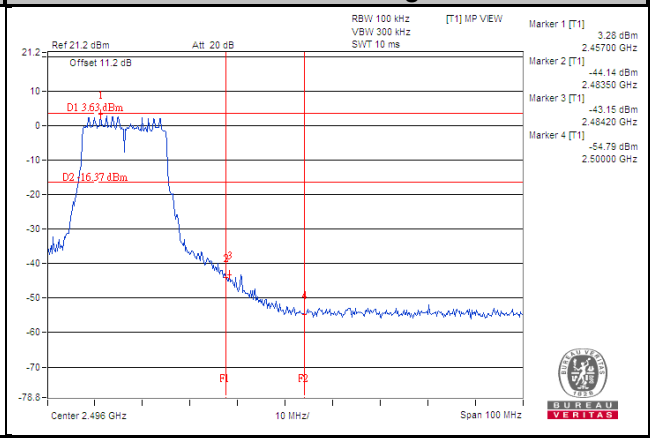




Ch 11

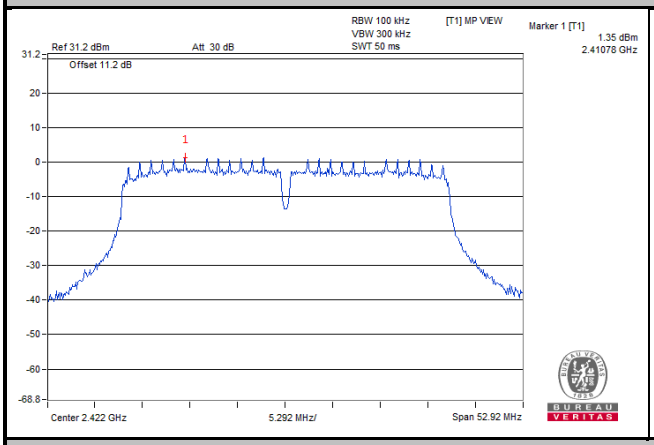


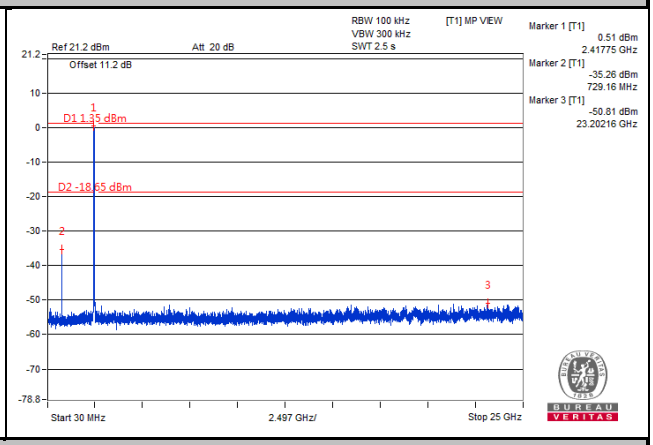


Ch 1 Band Edge	Ch 11 Band Edge
	

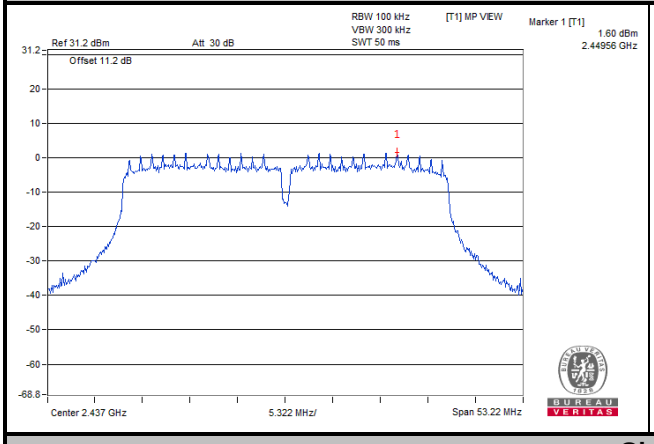
802.11n (HT40)

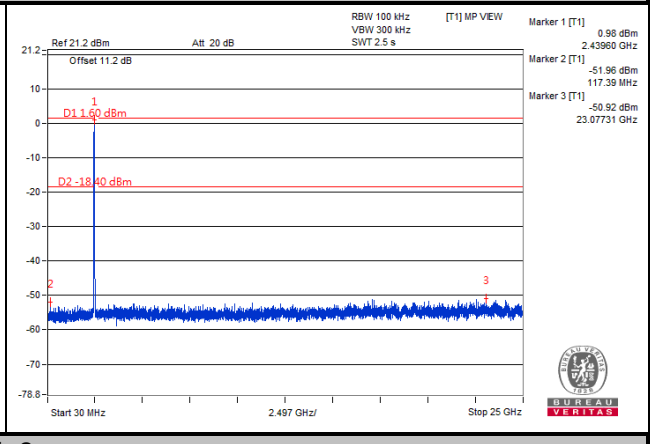
Ch 3



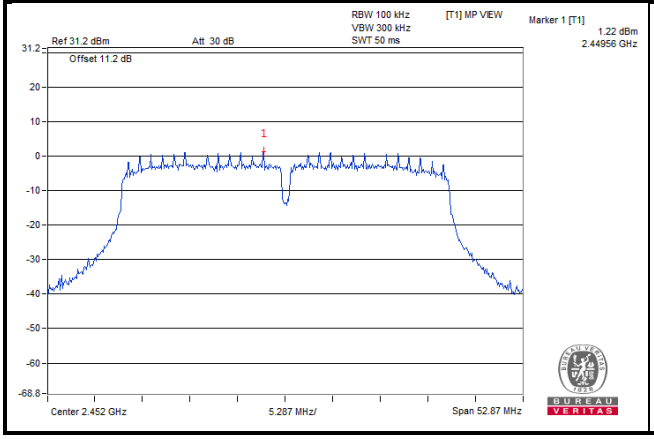


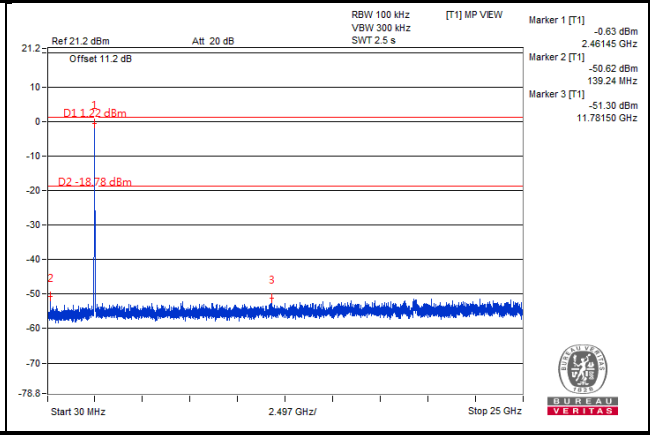
Ch 6

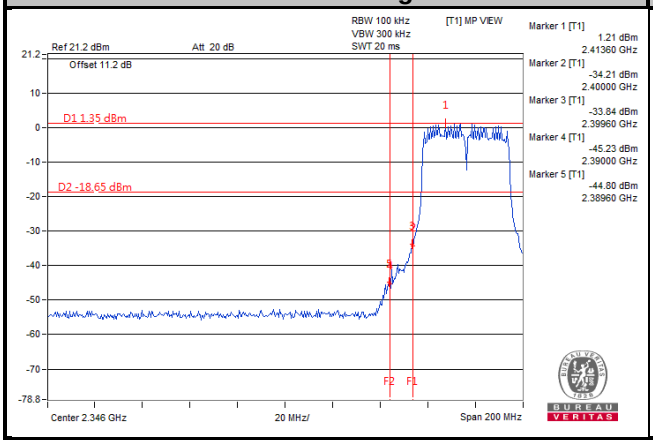
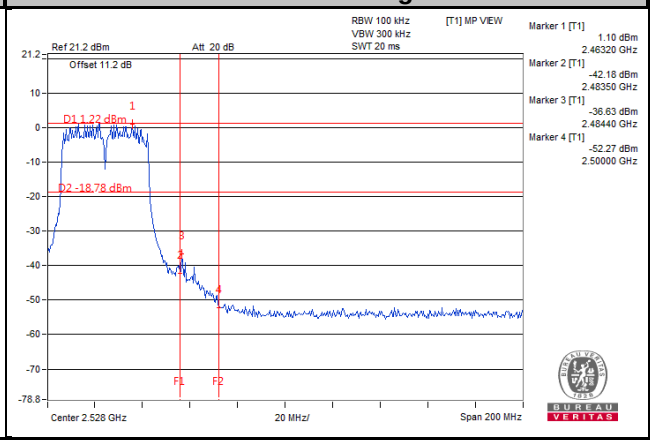




Ch 9





Ch 3 Band Edge	Ch 9 Band Edge
	

5 Pictures of Test Arrangements

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

Appendix – Information on 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:

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

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.

--- END ---