

FCC Test Report

Report No.: RF161004C26-2

FCC ID: QYLAP6234Z

Test Model: ZX70

Received Date: Oct. 04, 2016

Test Date: Oct. 07, 2016 ~ Oct. 19, 2016

Issued Date: Nov. 04, 2016

Applicant: Getac Technology Corporation.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Release Control Record

Issue No.	Description	Date Issued
RF161004C26-2	Original Release	Nov. 04, 2016

1 Certificate of Conformity

Product: Tablet

Brand: Getac

Test Model: ZX70

Sample Status: Identical Prototype

Applicant: Getac Technology Corporation.

Test Date: Oct. 07, 2016 ~ Oct. 19, 2016

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 EMC characteristics under the conditions specified in this report.

Prepared by : Gina Liu, **Date:** Nov. 04, 2016
Gina Liu / Specialist

Approved by : Stanley Wu, **Date:** Nov. 04, 2016
Stanley Wu / Assistant Manager

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 -13.92 dB at 0.18122 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.24 dB at 2483.87 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.
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	Expanded 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	Tablet
Brand	Getac
Test Model	ZX70
Status of EUT	Identical Prototype
Power Supply Rating	12.0 Vdc (adapter) 3.8 Vdc (Li-ion 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 MCS7
Operating Frequency	2412 ~ 2462 MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20)
Output Power	125.60 mW
Antenna Type	PIFA antenna with 1.18 dBi gain
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

- The EUT provides one completed transmitter and one receiver.

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

- The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	APD	WA24Q12R	I/P: 100-240 Vac, 50/60 Hz, 0.7 A O/P: 12 Vdc, 2 A 1.75m shielded cable with 1 core
Battery	Getac	BP1S2P4240L	3.8 Vdc, 8480 mAh
LCD Panel	Truly	TDO-HD0698K61701	7"
Photo Camera	Chicony	CWFFF2520005340LH	2MPs HD Fix focus camera
Video Camera	Chicony	CYAF82520005340LH	8MPs auto focus camera
CPU	intel	Atom Z8350	592 PIN
Memory	Samsung	K4E8E304EE-EGC	DDR3 2G (1G*2)
Storage	Samsung	KLMAG2GEND-B031	16G
GPS	U-blox	MAX-M8N	
BT/WLAN Module	AMPAK	AP6234	

- The above EUT information is declared by manufacturer and for more detailed features description, please refer 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		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE $\geq$ 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 **Y-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	MCS0

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	MCS0

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	MCS0

Test Condition:

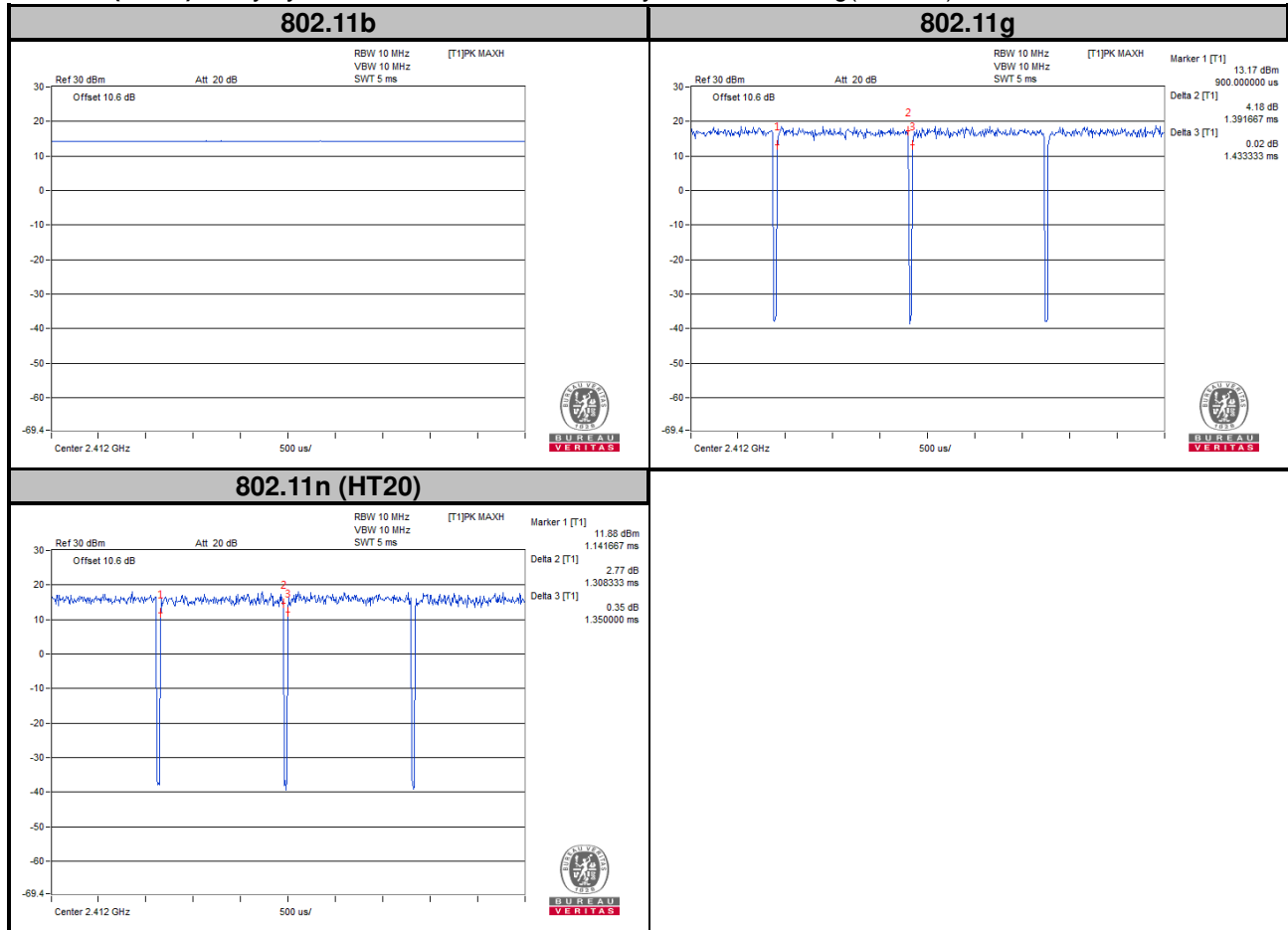
Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Toby Tian
APCM	25 deg. C, 65 % RH	3.8 Vdc	Luke Chen

3.3 Duty Cycle of Test Signal

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

802.11g: Duty cycle = $1.392/1.433 = 0.971$, Duty factor = $10 * \log(1/0.971) = 1.28$

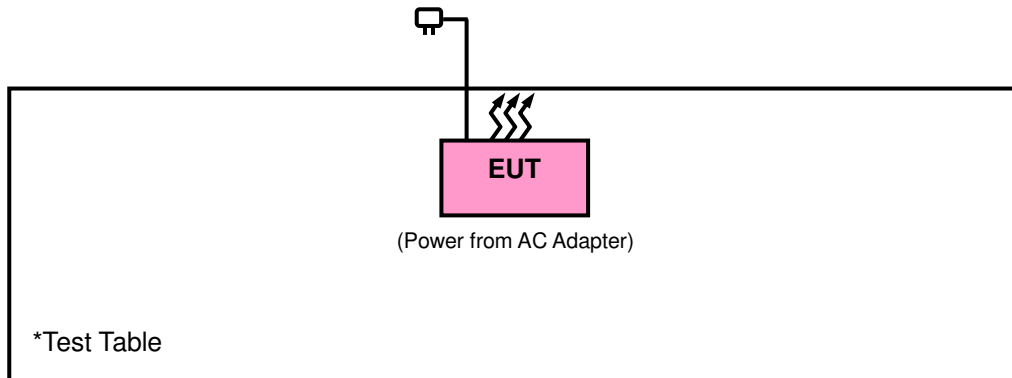
802.11n (HT20): Duty cycle = $1.308/1.35 = 0.969$, Duty factor = $10 * \log(1/0.969) = 0.14$



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)

558074 D01 DTS Meas Guidance v03r05

ANSI C63.10-2013

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC).
The test report has been issued separately.

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	Jun. 21, 2016	Jun. 20, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2015	Dec. 16, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Jan. 04, 2016	Jan. 03, 2017
Bluetooth Tester	CBT	100980	Apr. 27, 2015	Apr. 26, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Agilent Communications Tester-Wireless	8960 Series 10	MY53201073	Jul. 03, 2015	Jul. 02, 2017
Preamplifier Agilent	310N	187226	Jun. 24, 2016	Jun. 23, 2017
Preamplifier Agilent	83017A	MY39501357	Jun. 24, 2016	Jun. 23, 2017
Power Meter Anritsu	ML2495A	1232002	Sep. 08, 2016	Sep. 07, 2017
Power Sensor Anritsu	MA2411B	1207325	Sep. 08, 2016	Sep. 07, 2017
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 24, 2016	Jun. 23, 2017
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-24)	Jun. 24, 2016	Jun. 23, 2017
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
Fixed Attenuator Mini-Circuits	BW-N10W5+	N/A	Jul. 08, 2016	Jul. 07, 2017

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 FCC Site Registration No. is 149147.
5. The IC Site Registration No. is IC7450I-1.

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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:

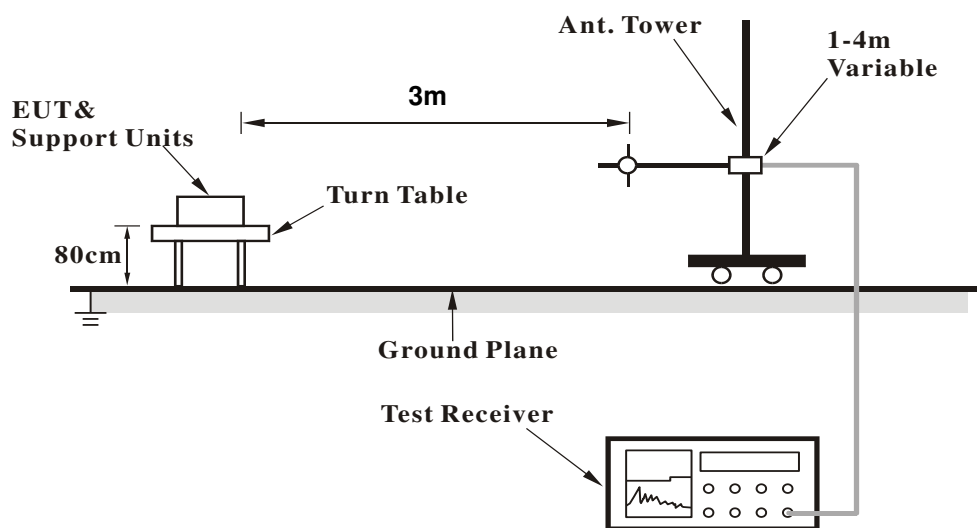
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 KHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for RMS Average (Duty cycle < 98 %) for Peak detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

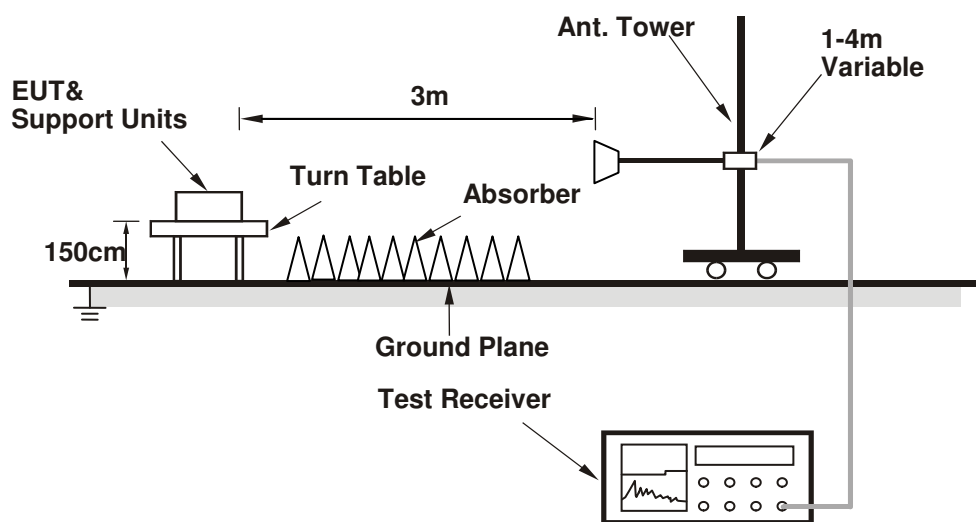
No deviation.

4.1.5 Test Set Up

<Frequency Range below 1 GHz>



<Frequency Range above 1 GHz>



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

4.1.6 EUT Operating Conditions

- Placed the EUT on a testing table.
- 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
2317.38	51.56	50.07	74	-22.44	31.71	5.3	35.52	110	214	Peak
2389.92	40.76	39.03	54	-13.24	31.8	5.4	35.47	110	214	Average
2412	93.21	91.44			31.81	5.43	35.47	110	214	Average
2412	95.59	93.82			31.81	5.43	35.47	110	214	Peak
4824	38.67	30.54	54	-15.33	33.97	8.26	34.1	128	169	Average
4824	47.37	39.24	74	-26.63	33.97	8.26	34.1	128	169	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
2378.58	51.51	49.85	74	-22.49	31.78	5.37	35.49	102	310	Peak
2388.66	40.43	38.72	54	-13.57	31.8	5.4	35.49	102	310	Average
2412	95.94	94.17			31.81	5.43	35.47	102	310	Average
2412	98.32	96.55			31.81	5.43	35.47	102	310	Peak
4824	38.24	30.11	54	-15.76	33.97	8.26	34.1	152	67	Average
4824	47.78	39.65	74	-26.22	33.97	8.26	34.1	152	67	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.

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
2384.16	40.25	38.56	54	-13.75	31.78	5.4	35.49	158	196	Average
2385.42	52.27	50.58	74	-21.73	31.78	5.4	35.49	158	196	Peak
2437	92.97	91.12			31.85	5.46	35.46	158	196	Average
2437	95.33	93.48			31.85	5.46	35.46	158	196	Peak
2485.72	40.91	38.92	54	-13.09	31.88	5.53	35.42	158	196	Average
2489.32	51.7	49.69	74	-22.3	31.9	5.53	35.42	158	196	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
2361.84	51.93	50.3	74	-22.07	31.76	5.37	35.5	116	310	Peak
2389.83	40.38	38.65	54	-13.62	31.8	5.4	35.47	116	310	Average
2437	95.62	93.77			31.85	5.46	35.46	116	310	Average
2437	98.31	96.46			31.85	5.46	35.46	116	310	Peak
2491.96	52.34	50.32	74	-21.66	31.9	5.53	35.41	116	310	Peak
2499.64	40.82	38.8	54	-13.18	31.9	5.53	35.41	116	310	Average

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

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	94.13	92.2			31.87	5.5	35.44	109	216	Average
2462	96.92	94.99			31.87	5.5	35.44	109	216	Peak
2487.68	53.02	51.01	74	-20.98	31.9	5.53	35.42	109	216	Peak
2487.76	42.62	40.61	54	-11.38	31.9	5.53	35.42	109	216	Average
4924	38.57	30.32	54	-15.43	33.99	8.28	34.02	136	81	Average
4924	47.28	39.03	74	-26.72	33.99	8.28	34.02	136	81	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	96.49	94.56			31.87	5.5	35.44	114	310	Average
2462	99.38	97.45			31.87	5.5	35.44	114	310	Peak
2487.48	52.84	50.85	74	-21.16	31.88	5.53	35.42	114	310	Peak
2487.84	43.42	41.41	54	-10.58	31.9	5.53	35.42	114	310	Average
4924	38.69	30.44	54	-15.31	33.99	8.28	34.02	171	102	Average
4924	47.65	39.4	74	-26.35	33.99	8.28	34.02	171	102	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

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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
2389.74	65.1	63.39	74	-8.9	31.8	5.4	35.49	110	214	Peak
2389.92	49.29	47.56	54	-4.71	31.8	5.4	35.47	110	214	Average
2412	88.54	86.77			31.81	5.43	35.47	110	214	Average
2412	96.47	94.7			31.81	5.43	35.47	110	214	Peak
4824	38.29	30.16	54	-15.71	33.97	8.26	34.1	108	182	Average
4824	47.71	39.58	74	-26.29	33.97	8.26	34.1	108	182	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	64.7	62.99	74	-9.3	31.8	5.4	35.49	102	310	Peak
2389.83	49.98	48.25	54	-4.02	31.8	5.4	35.47	102	310	Average
2412	91.29	89.52			31.81	5.43	35.47	102	310	Average
2412	99.21	97.44			31.81	5.43	35.47	102	310	Peak
4824	38.69	30.56	54	-15.31	33.97	8.26	34.1	159	112	Average
4824	47.75	39.62	74	-26.25	33.97	8.26	34.1	159	112	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.

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
2373.45	51.73	50.07	74	-22.27	31.78	5.37	35.49	158	196	Peak
2389.65	40.38	38.67	54	-13.62	31.8	5.4	35.49	158	196	Average
2437	89.15	87.3			31.85	5.46	35.46	158	196	Average
2437	97.79	95.94			31.85	5.46	35.46	158	196	Peak
2483.52	52.77	50.81	74	-21.23	31.88	5.5	35.42	158	196	Peak
2485.72	41.58	39.59	54	-12.42	31.88	5.53	35.42	158	196	Average
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
2388.84	54.92	53.21	74	-19.08	31.8	5.4	35.49	116	310	Peak
2389.83	41.98	40.25	54	-12.02	31.8	5.4	35.47	116	310	Average
2437	92.11	90.26			31.85	5.46	35.46	116	310	Average
2437	100.99	99.14			31.85	5.46	35.46	116	310	Peak
2483.88	42.46	40.5	54	-11.54	31.88	5.5	35.42	116	310	Average
2486.24	53.83	51.84	74	-20.17	31.88	5.53	35.42	116	310	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

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	97.69	95.76			31.87	5.5	35.44	158	117	Average
2462	106.59	104.66			31.87	5.5	35.44	158	117	Peak
2484.04	52.64	50.68	54	-1.36	31.88	5.5	35.42	158	117	Average
2484.06	72.09	70.13	74	-1.91	31.88	5.5	35.42	158	117	Peak
4924	38.16	29.91	54	-15.84	33.99	8.28	34.02	169	232	Average
4924	48.12	39.87	74	-25.88	33.99	8.28	34.02	169	232	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	98.16	96.23			31.87	5.5	35.44	127	352	Average
2462	105.64	103.71			31.87	5.5	35.44	127	352	Peak
2483.87	52.76	50.8	54	-1.24	31.88	5.5	35.42	127	352	Average
2484.01	72.43	70.47	74	-1.57	31.88	5.5	35.42	127	352	Peak
4924	38.07	29.82	54	-15.93	33.99	8.28	34.02	138	204	Average
4924	48.12	39.87	74	-25.88	33.99	8.28	34.02	138	204	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

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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
2388.66	63.09	61.38	74	-10.91	31.8	5.4	35.49	110	214	Peak
2389.92	47.79	46.06	54	-6.21	31.8	5.4	35.47	110	214	Average
2412	88.3	86.53			31.81	5.43	35.47	110	214	Average
2412	96.69	94.92			31.81	5.43	35.47	110	214	Peak
4824	38.54	30.41	54	-15.46	33.97	8.26	34.1	148	163	Average
4824	46.94	38.81	74	-27.06	33.97	8.26	34.1	148	163	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
2389.2	63.56	61.85	74	-10.44	31.8	5.4	35.49	102	310	Peak
2389.83	48.33	46.6	54	-5.67	31.8	5.4	35.47	102	310	Average
2412	89.92	88.15			31.81	5.43	35.47	102	310	Average
2412	97.62	95.85			31.81	5.43	35.47	102	310	Peak
4824	38.24	30.11	54	-15.76	33.97	8.26	34.1	142	192	Average
4824	46.31	38.18	74	-27.69	33.97	8.26	34.1	142	192	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.

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
2370.3	40.4	38.74	54	-13.6	31.78	5.37	35.49	158	196	Average
2388.21	51.27	49.56	74	-22.73	31.8	5.4	35.49	158	196	Peak
2437	87.87	86.02			31.85	5.46	35.46	158	196	Average
2437	96.43	94.58			31.85	5.46	35.46	158	196	Peak
2486.64	52.32	50.33	74	-21.68	31.88	5.53	35.42	158	196	Peak
2488.6	41.28	39.27	54	-12.72	31.9	5.53	35.42	158	196	Average
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
2386.95	52.7	50.99	74	-21.3	31.8	5.4	35.49	116	310	Peak
2389.56	41.46	39.75	54	-12.54	31.8	5.4	35.49	116	310	Average
2437	91.16	89.31			31.85	5.46	35.46	116	310	Average
2437	99.27	97.42			31.85	5.46	35.46	116	310	Peak
2483.92	41.89	39.93	54	-12.11	31.88	5.5	35.42	116	310	Average
2484.2	52.75	50.76	74	-21.25	31.88	5.53	35.42	116	310	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.

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	89.15	87.22			31.87	5.5	35.44	109	216	Average
2462	97.2	95.27			31.87	5.5	35.44	109	216	Peak
2483.52	48.38	46.42	54	-5.62	31.88	5.5	35.42	109	216	Average
2484.24	67.02	65.03	74	-6.98	31.88	5.53	35.42	109	216	Peak
4924	38.69	30.44	54	-15.31	33.99	8.28	34.02	108	126	Average
4924	47.57	39.32	74	-26.43	33.99	8.28	34.02	108	126	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	91.5	89.57			31.87	5.5	35.44	114	310	Average
2462	100.19	98.26			31.87	5.5	35.44	114	310	Peak
2483.68	49.67	47.71	54	-4.33	31.88	5.5	35.42	114	310	Average
2484.44	66.24	64.25	74	-7.76	31.88	5.53	35.42	114	310	Peak
4924	38.52	30.27	54	-15.48	33.99	8.28	34.02	152	206	Average
4924	47.57	39.32	74	-26.43	33.99	8.28	34.02	152	206	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

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:

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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

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
98.58	26.32	47.67	43.5	-17.18	9.58	1.28	32.21	175	146	Peak
120.72	24.59	46.83	43.5	-18.91	8.73	1.28	32.25	182	193	Peak
189.57	10.26	30.5	43.5	-33.24	10.4	1.61	32.25	155	114	Peak
498.8	17.84	28.31	46	-28.16	19	2.63	32.1	127	143	Peak
764.1	23.38	28.93	46	-22.62	23.35	3.22	32.12	185	146	Peak
818.7	24.27	29.19	46	-21.73	23.72	3.32	31.96	129	144	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
50.52	27.57	51.15	40	-12.43	7.74	0.9	32.22	123	154	Peak
85.35	22.23	44.42	40	-17.77	8.66	1.11	31.96	168	137	Peak
123.15	21.15	43.14	43.5	-22.35	8.87	1.38	32.24	144	128	Peak
454.7	17.27	28.74	46	-28.73	18.18	2.49	32.14	106	137	Peak
622.7	20.74	27.88	46	-25.26	22.1	2.93	32.17	189	245	Peak
783	24.32	29.27	46	-21.68	23.87	3.27	32.09	155	106	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value

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. 16, 2015	Nov. 15, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2016	Feb. 25, 2017
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Cond_ V7.3.7.3	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

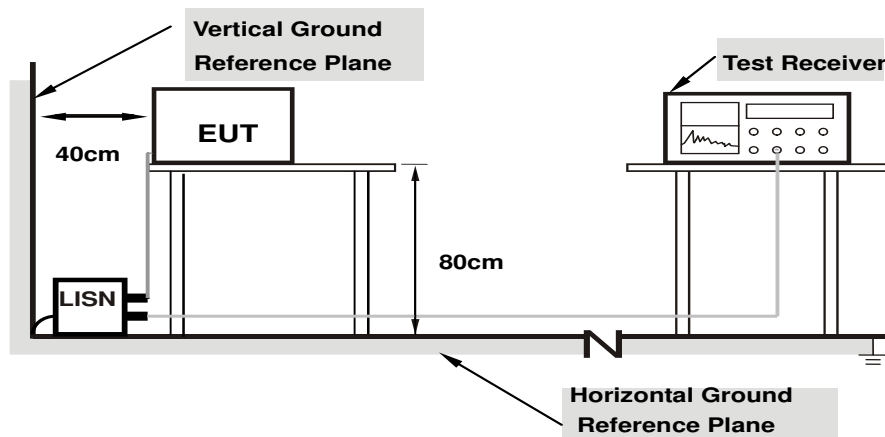
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance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

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

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

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

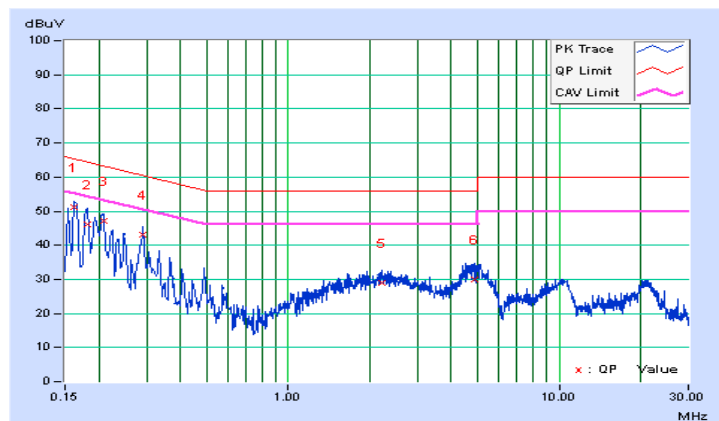
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2016/10/19

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	0.16181	10.02	41.20	28.86	51.22	38.88	65.37	55.37	-14.15	-16.49
2	0.18122	10.02	36.18	25.23	46.20	35.25	64.43	54.43	-18.23	-19.18
3	0.20783	10.03	37.02	29.34	47.05	39.37	63.29	53.29	-16.24	-13.92
4	0.29076	10.07	33.12	25.42	43.19	35.49	60.50	50.50	-17.31	-15.01
5	2.22621	10.29	18.56	11.45	28.85	21.74	56.00	46.00	-27.15	-24.26
6	4.90456	10.46	19.51	12.03	29.97	22.49	56.00	46.00	-26.03	-23.51

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

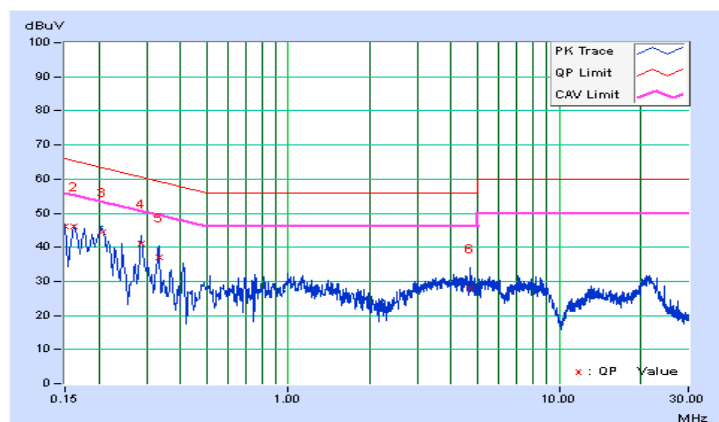


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2016/10/19

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	0.15000	10.03	36.20	25.08	46.23	35.11	66.00	56.00	-19.77	-20.89
2	0.16173	10.03	36.03	26.08	46.06	36.11	65.37	55.37	-19.31	-19.26
3	0.20511	10.04	34.27	28.34	44.31	38.38	63.40	53.40	-19.09	-15.02
4	0.28685	10.08	30.93	24.97	41.01	35.05	60.62	50.62	-19.61	-15.57
5	0.33377	10.10	26.83	20.86	36.93	30.96	59.36	49.36	-22.43	-18.40
6	4.66605	10.47	17.37	9.72	27.84	20.19	56.00	46.00	-28.16	-25.81

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

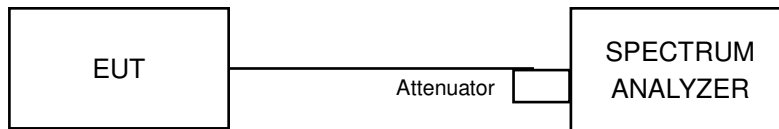


4.3 6 dB Bandwidth Measurement

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

- Set resolution bandwidth (RBW) = 100 kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- 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 Result

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	8.05	0.5	Pass
6	2437	8.08	0.5	Pass
11	2462	8.06	0.5	Pass

802.11g

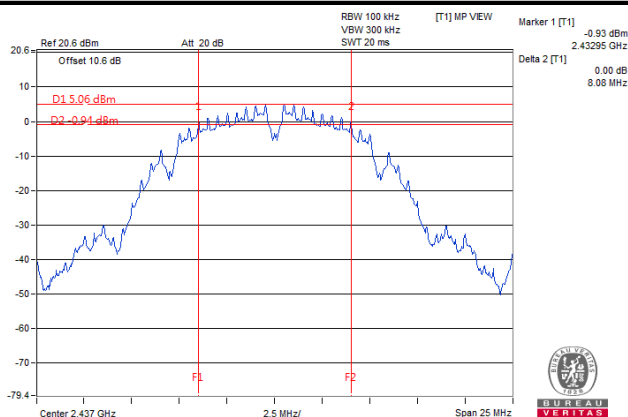
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.13	0.5	Pass
6	2437	15.13	0.5	Pass
11	2462	15.16	0.5	Pass

802.11n (HT20)

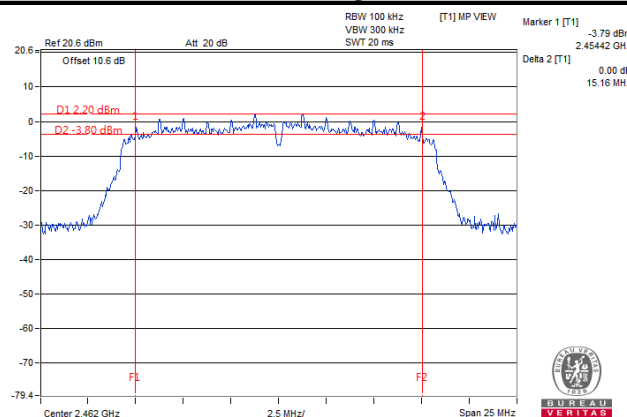
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.13	0.5	Pass
6	2437	16.09	0.5	Pass
11	2462	15.16	0.5	Pass

Spectrum Plot of Worst Value

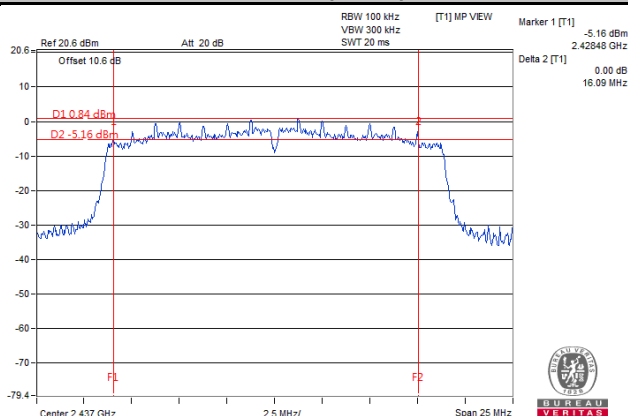
802.11b



802.11g



802.11n (HT20)

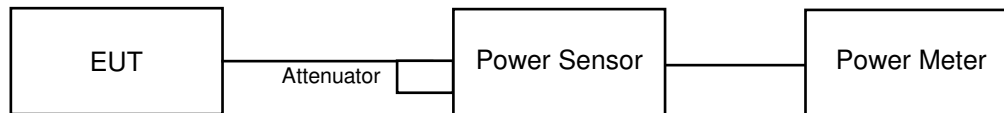


4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 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.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

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

4.4.7 Test Results

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	39.26	15.94	30	Pass
6	2437	40.93	16.12	30	Pass
11	2462	44.87	16.52	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	114.55	20.59	30	Pass
6	2437	119.12	20.76	30	Pass
11	2462	125.60	20.99	30	Pass

802.11n (HT20)

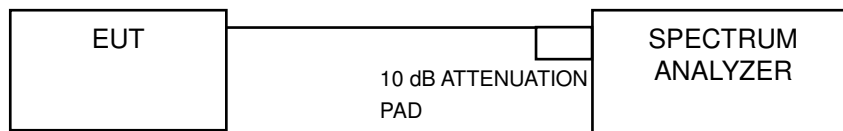
Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	103.04	20.13	30	Pass
6	2437	110.92	20.45	30	Pass
11	2462	117.76	20.71	30	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8 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 Procedure

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq 3 \times \text{RBW}$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

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

4.5.7 Test Results

802.11b

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-10.30	8	Pass
6	2437	-9.75	8	Pass
11	2462	-9.21	8	Pass

802.11g

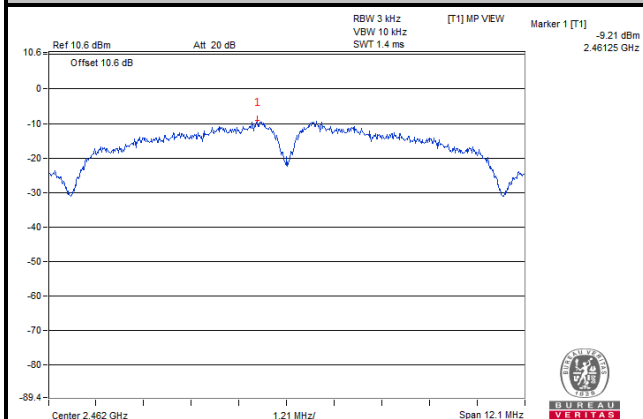
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-12.83	8	Pass
6	2437	-12.29	8	Pass
11	2462	-12.22	8	Pass

802.11n (HT20)

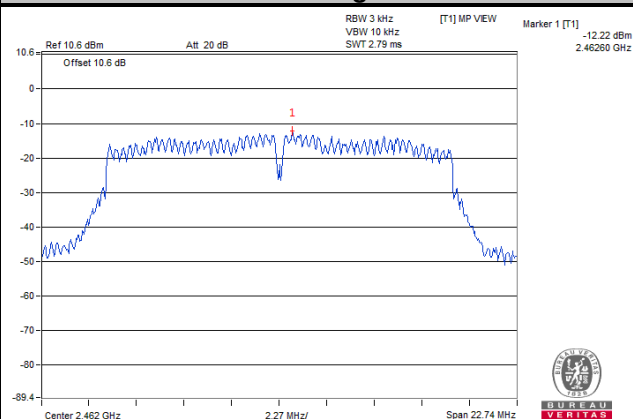
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-13.38	8	Pass
6	2437	-13.69	8	Pass
11	2462	-14.06	8	Pass

Spectrum Plot of Worst Value

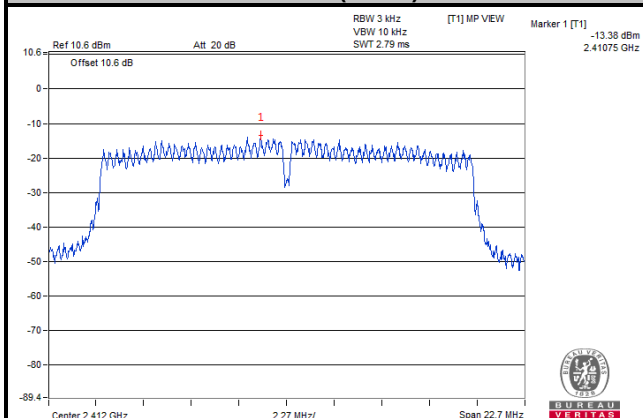
802.11b



802.11g



802.11n (HT20)

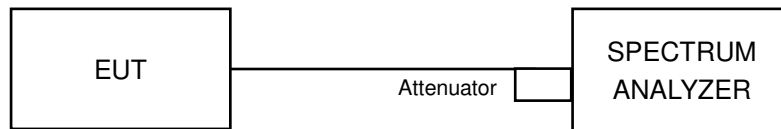


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 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 OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 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.

4.6.5 Deviation from Test Standard

No deviation.

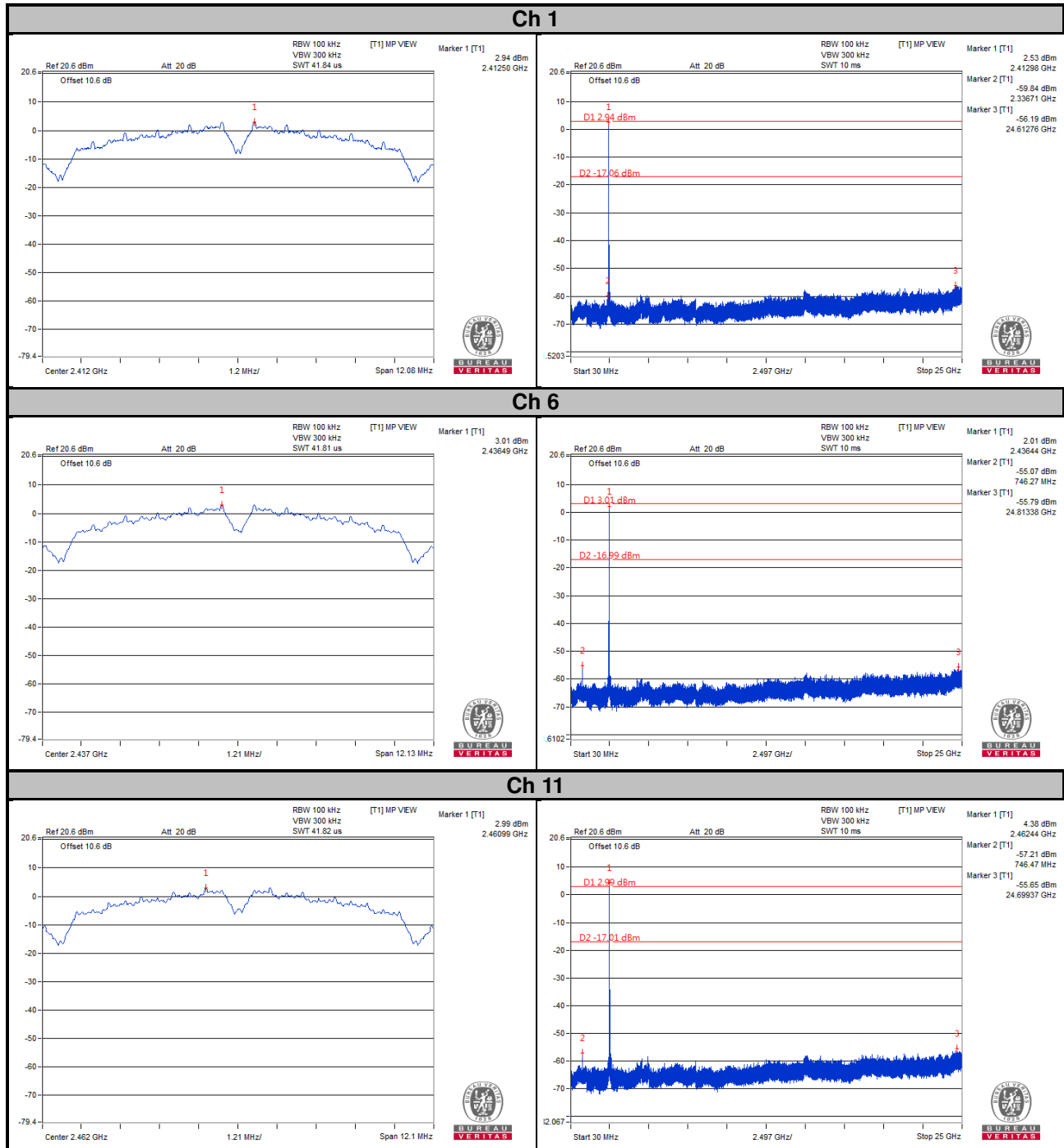
4.6.6 EUT Operating Condition

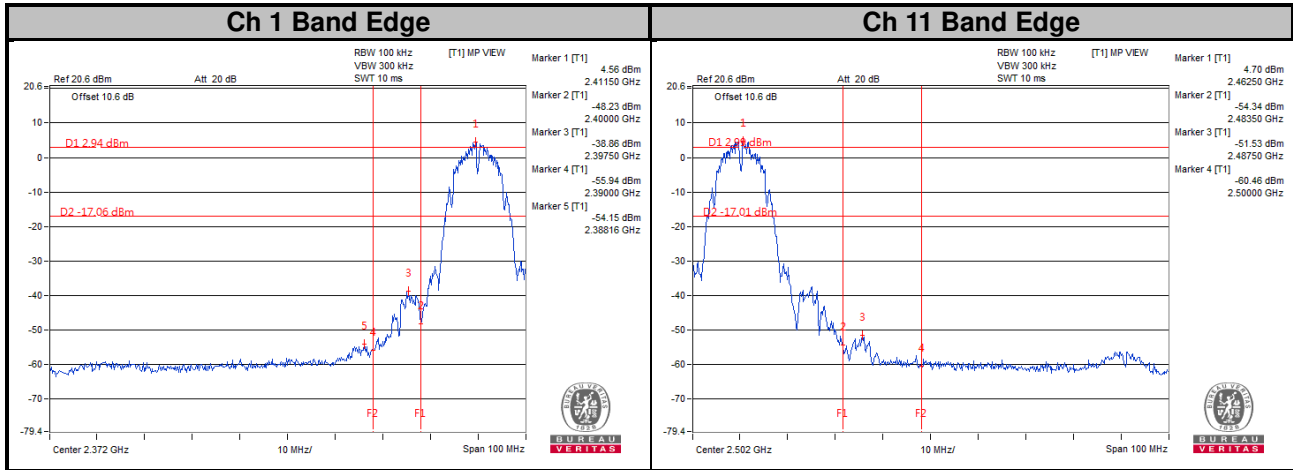
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.6.7 Test Results

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.

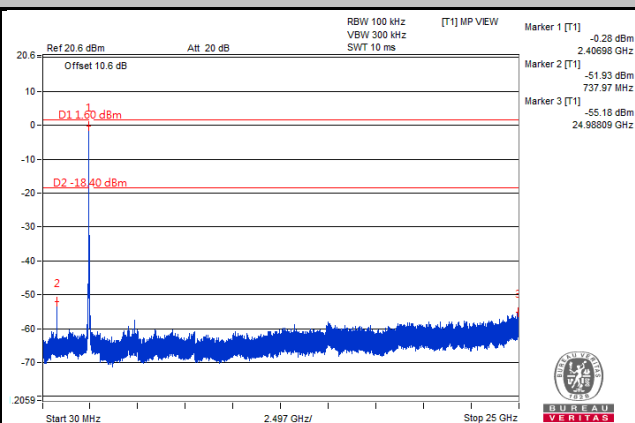
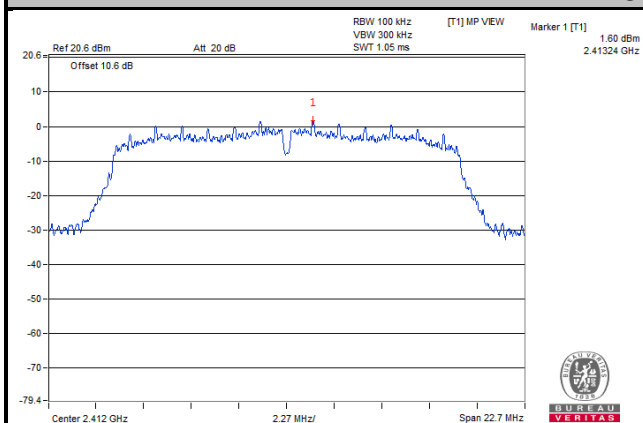
802.11b



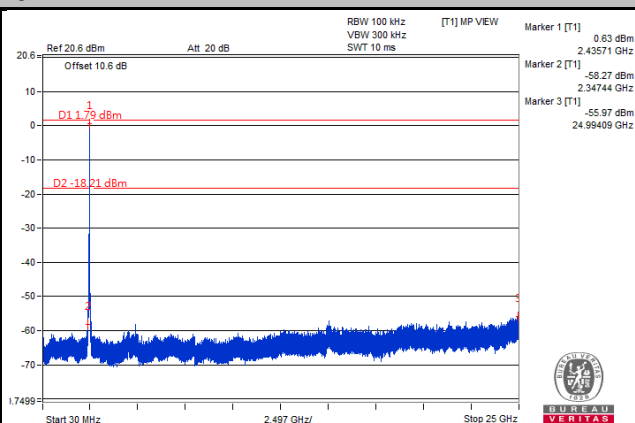
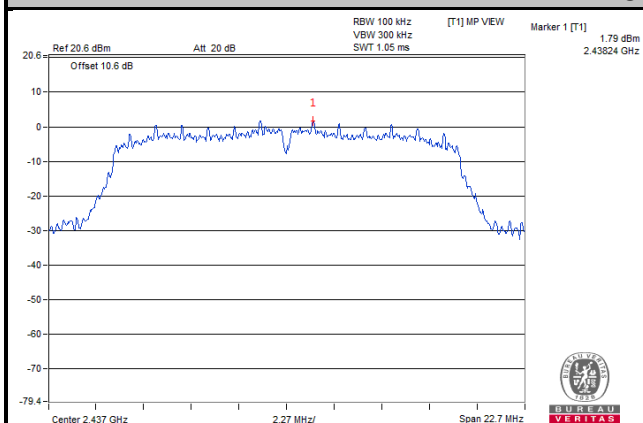


802.11g

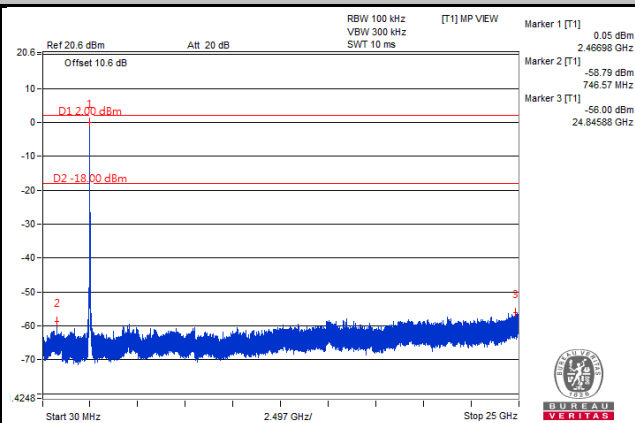
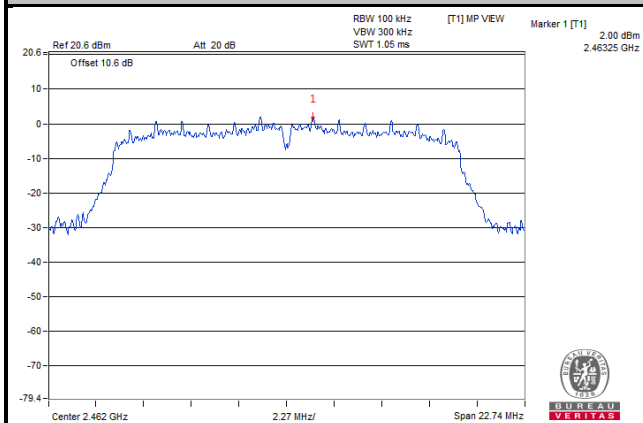
Ch 1

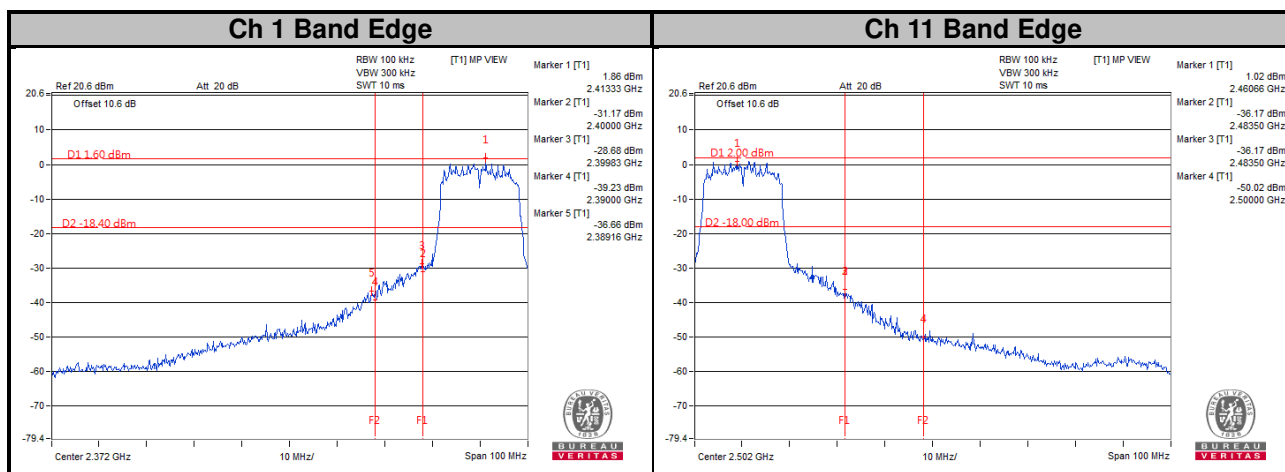


Ch 6



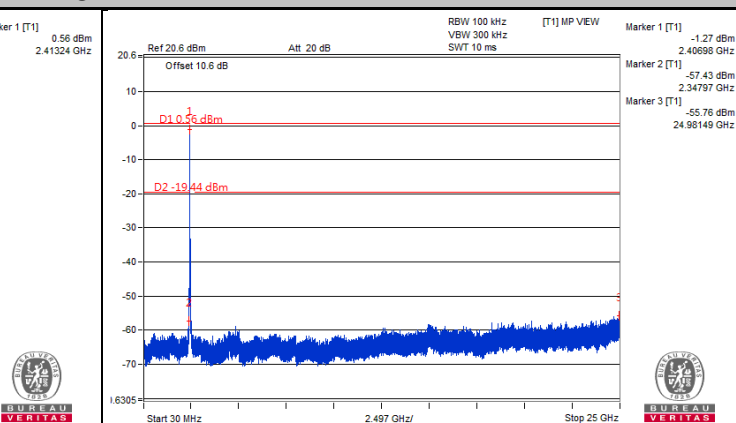
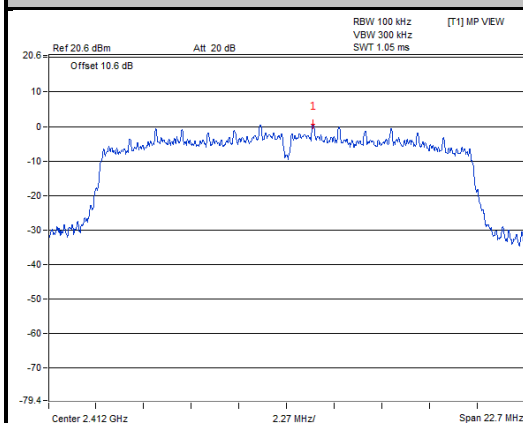
Ch 11



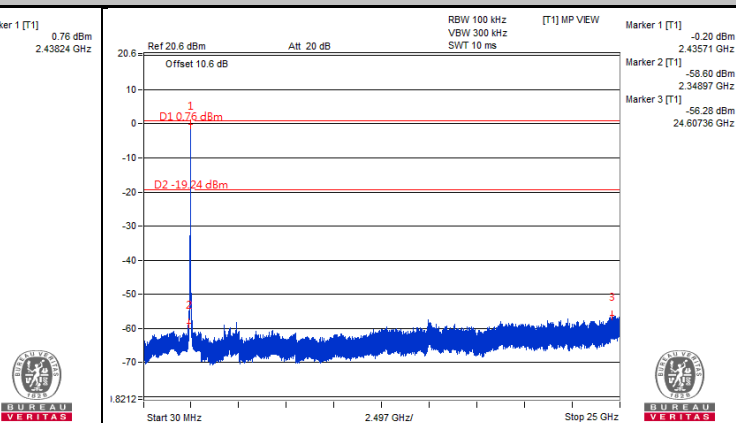
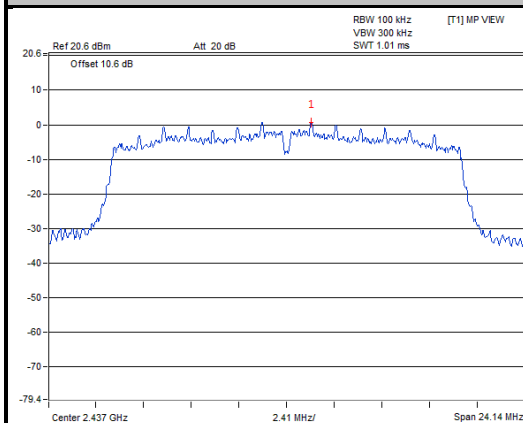


802.11n (HT20)

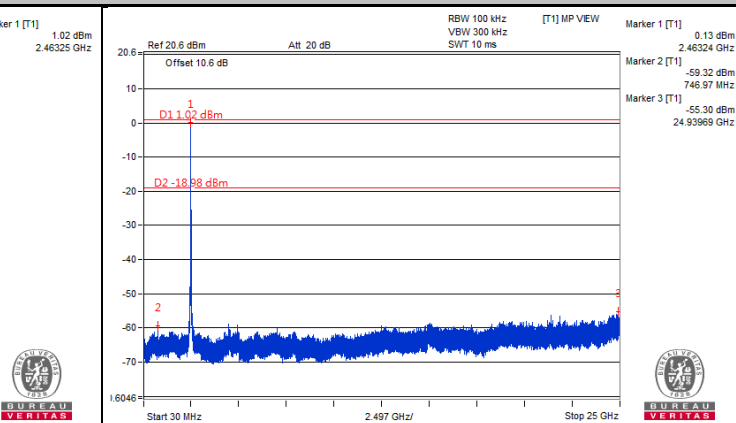
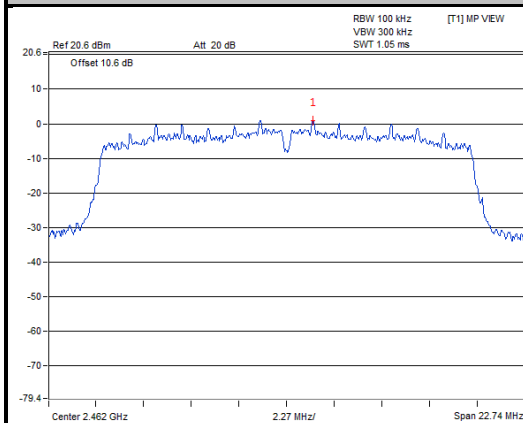
Ch 1

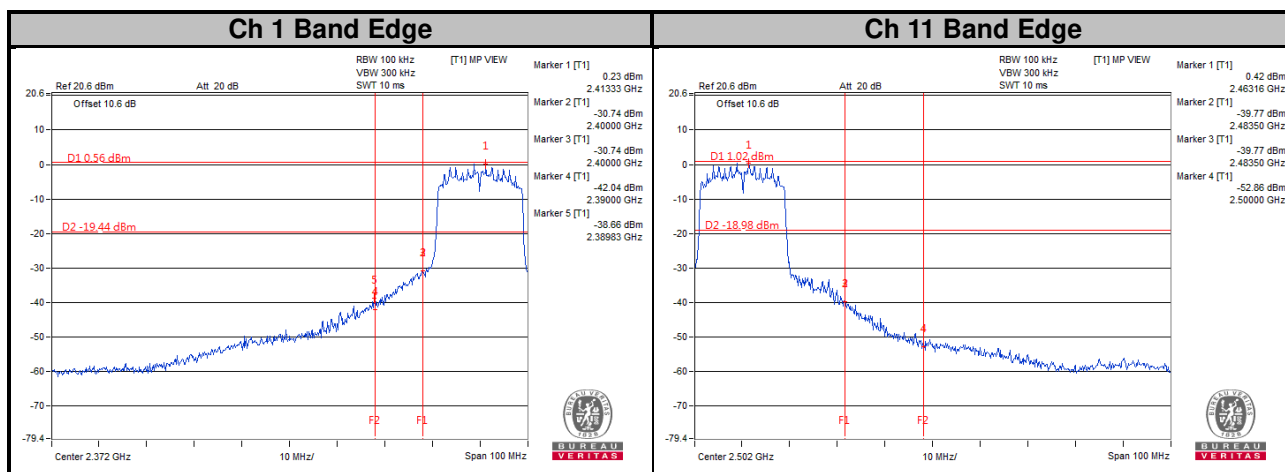


Ch 6



Ch 11





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 accredited and approved 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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