FCC Test Report

Report No.:	RF150716C07H
FCC ID:	KNYPRW5000AA
Test Model:	WP201
Received Date:	Sep. 04, 2015
Test Date:	Sep. 06 ~ Sep. 18, 2015
Issued Date:	Oct. 06, 2015
Applicant:	FreeWave Technologies, Inc.
Address:	5395 Pearl Pkwy Ste 100, Boulder, CO 80301, U.S.A.
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:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF150716C07H	Original release	Oct. 06, 2015

1 Certificate of Conformity

Product:	Wireless 802.11ac/b/g/n access point
Brand:	Freewave
Test Model:	WP201
Sample Status:	Engineering Sample
Applicant:	FreeWave Technologies, Inc.
Test Date:	Sep. 06 ~ Sep. 18, 2015
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) 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 : Celine Chou , **Date:** Oct. 06, 2015

Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Oct. 06, 2015

Ken Liu / Senior Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.207 15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -12.99dB at 0.50547MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5725.00MHz, 5470.00MHz and 5350.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is N-Type. (The device is professionally installed)

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.86 dB
	200MHz ~1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless 802.11ac/b/g/n access point
Brand	Freewave
Test Model	WP201
Status of EUT	Engineering Sample
Power Supply Rating	48Vdc (POE)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	5260 ~ 5320MHz, 5500 ~ 5700MHz
Number of Channel	5260 ~ 5320MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5500 ~ 5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11, 802.11n (HT40), 802.11ac (VHT40): 5, 802.11ac (VHT80): 2
Output Power	5260 ~ 5320MHz: 205.827mW 5500 ~ 5700MHz: 213.923mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	PoE, Adapter of PoE
Data Cable Supplied	N/A

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report (BV ADT report no.: RF150716C07E-1) is adding 5.26GHz to 5.32GHz and 5.50GHz to 5.70GHz by software.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 3 completed transmitters and 3 receivers.

Modulation Mode	TX Function
802.11a	3TX
802.11n (HT20)	3TX
802.11n (HT40)	3TX
802.11ac (VHT80)	3TX

* The modulation and bandwidth are similar for 802.11n mode for 20MHz/40MHz and 802.11ac mode for 20MHz/40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

3. The EUT consumes power from the following PoE.

PoE	
Brand	EnGenius
Model	EPE-48GP
Rating	48Vdc, 0.8A, 38.4W Max

Adapter of PoE	
Brand	Powertron Electronics Corp.
Model	PA1040-480IB080
Input Power	100-240Vac~50-60Hz 1.5A
Output Power	48Vdc / 0.8A 38.4W Max
Power Line	1.55m power cable with 1 core attached on adapter

4. The EUT with follow antennas gain is listed as table below.

Antenna Type	Connector	Gain(dBi)			
		5350MHz	5450MHz	5550MHz	5650MHz
Dipole	N-Type	5.27	5.33	5.55	5.75

3.2 Description of Test Modes

For 5260 ~ 5320MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290 MHz

For 5500 ~ 5700MHz

11 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

5 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530MHz	122	5610 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G:** Radiated Emission above 1GHz & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz

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 **Z-plane**.

Radiated Emission Test (Above 1GHz):

☒ 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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
-	802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	15.0
-	802.11ac (VHT80)		58	58	OFDM	BPSK	97.5
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	7.2
-	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	BPSK	15.0
-	802.11ac (VHT80)		106	106	OFDM	BPSK	97.5

Radiated Emission Test (Below 1GHz):

☒ 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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5260-5320	52 to 64	52	OFDM	BPSK	6.0
		5500-5700	100 to 140		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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5260-5320	52 to 64	52	OFDM	BPSK	6.0
		5500-5700	100 to 140		OFDM	BPSK	6.0

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	7.2
-	802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	15.0
-	802.11ac (VHT80)		58	58	OFDM	BPSK	97.5
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	7.2
-	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	BPSK	15.0
-	802.11ac (VHT80)		106	106	OFDM	BPSK	97.5

Test Condition:

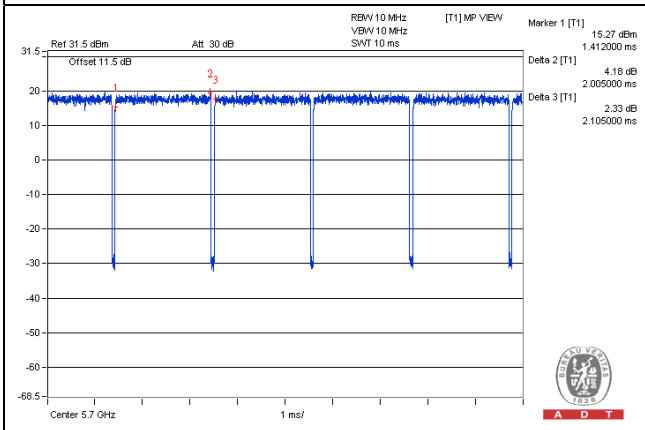
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	20deg. C, 70%RH	120Vac, 60Hz	Jones Chang
RE<1G	18deg. C, 70%RH	120Vac, 60Hz	Nick Hsu
PLC	18deg. C, 70%RH	120Vac, 60Hz	Nick Hsu
APCM	25deg. C, 60%RH	120Vac, 60Hz	Nick Hsu

3.3 Duty Cycle of Test Signal

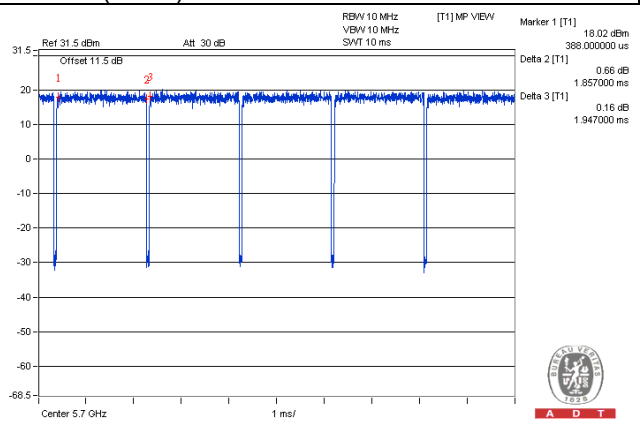
Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = 2.005/2.105 = 0.952, Duty factor = 10 * log(1/0.952) = 0.21
802.11n (HT20): Duty cycle = 1.857/1.947 = 0.954, Duty factor = 10 * log(1/0.954) = 0.21
802.11n (HT40): Duty cycle = 0.914/0.999 = 0.915, Duty factor = 10 * log(1/0.915) = 0.39
802.11ac (VHT80): Duty cycle = 4.120/4.215 = 0.977, Duty factor = 10 * log(1/0.977) = 0.10

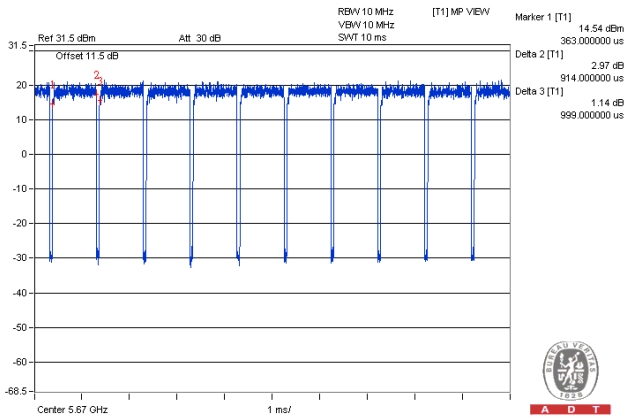
802.11a



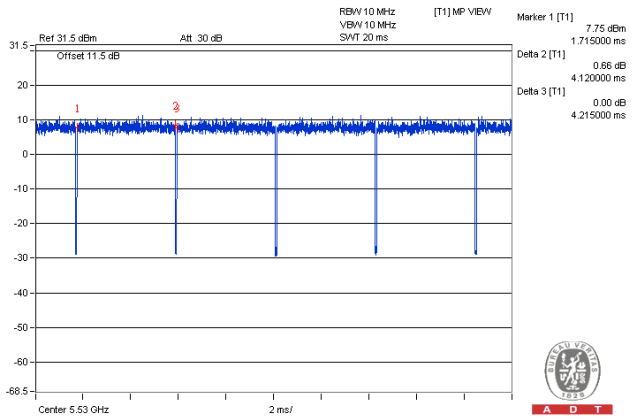
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



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.

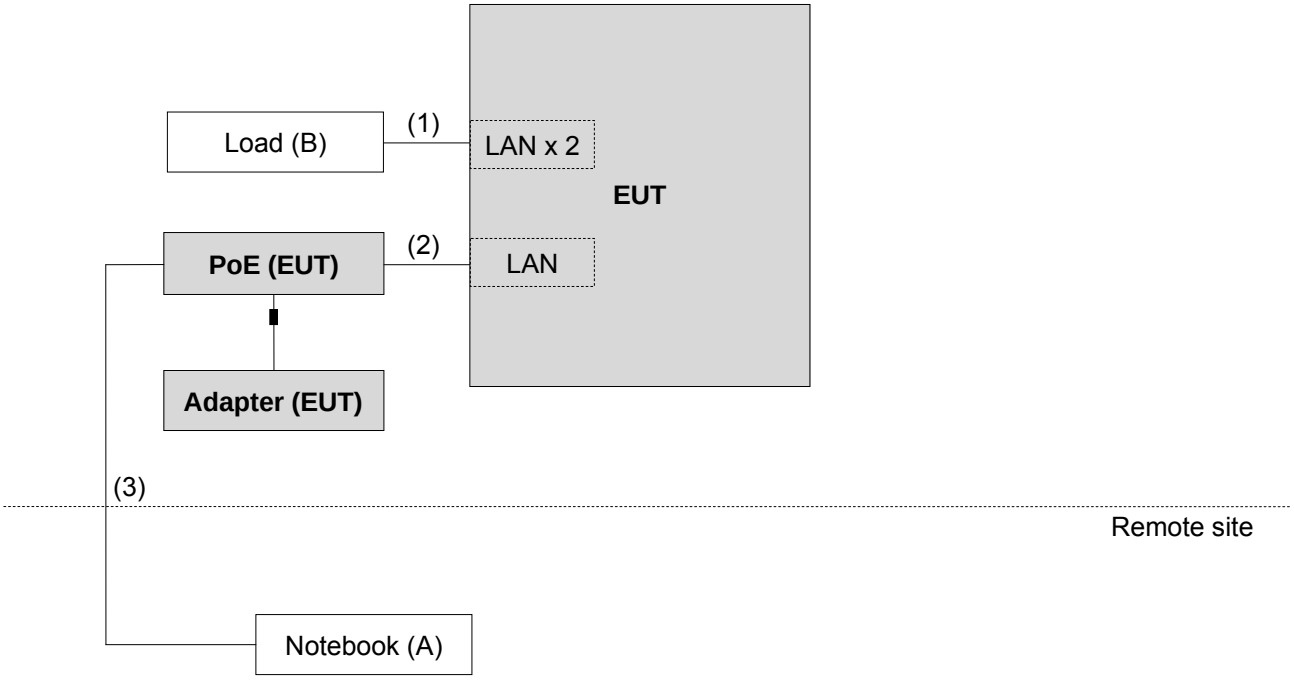
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Items A acted as communication partners to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Cat5e cable	1	1.8	N	0	-
2.	Cat5e cable	1	1.8	N	0	-
3.	Cat5e cable	1	10	N	0	-

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 E (15.407)

789033 D02 General UNII Test Procedures New Rules v01

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

Note: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It 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.

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 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules v01	FIELD STRENGTH AT 3m	
	PK:74 (dBμV/m)	AV:54 (dBμV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK:-27 (dBm/MHz) [*1] PK:-17 (dBm/MHz) [*2]	PK: 68.2(dBμV/m) [*1] PK:78.2 (dBμV/m) [*2]

Note: [*1] beyond 10MHz of the band edge [*2] within 10 MHz of band edge

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Apr. 10, 2015	Apr. 09, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Sep. 02, 2015	Sep. 01, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Feb. 05, 2015	Feb. 04, 2016
HORN Antenna SCHWARZBECK	9120D	209	Feb. 09, 2015	Feb. 08, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 09, 2015	Feb. 08, 2016
Preamplifier Agilent	8447D	2944A10738	Oct.18, 2014	Oct. 17, 2015
Preamplifier Agilent	8449B	3008A01964	Aug. 22, 2015	Aug. 21, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03(214378)	Aug. 22, 2015	Aug. 21, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 106	Cable-CH3-03(309224+ 12738)	Aug. 22, 2015	Aug. 21, 2016
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 18, 2014	Oct. 17, 2015
High Speed Peak Power Meter	ML2495A	0824011	Jul. 09, 2015	Jul. 08, 2016
Power Sensor	MA2411B	0738171	Jul. 09, 2015	Jul. 08, 2016
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 08, 2015	Jun. 07, 2016

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 Chamber 3.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 988962.
5. The IC Site Registration No. is IC 7450F-3.

4.1.3 Test Procedures

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. 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 detect 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:

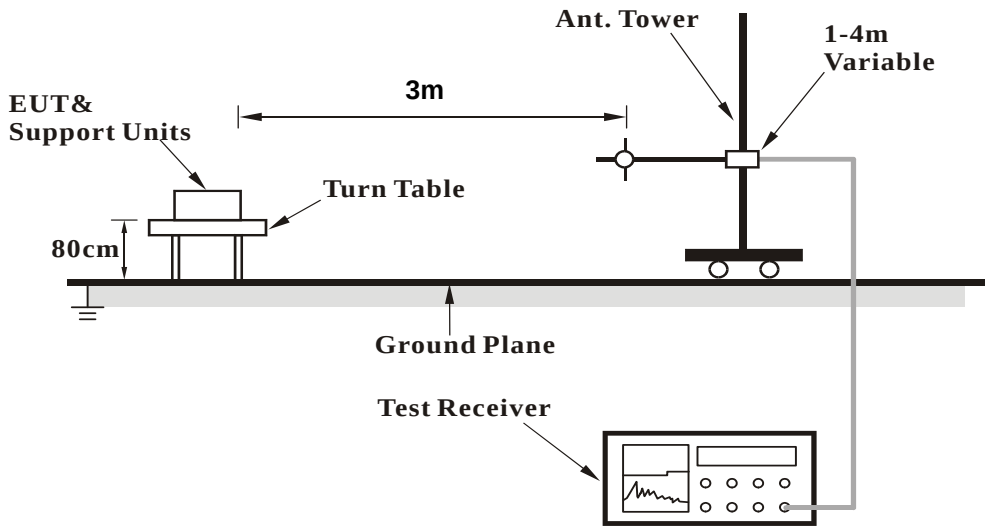
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

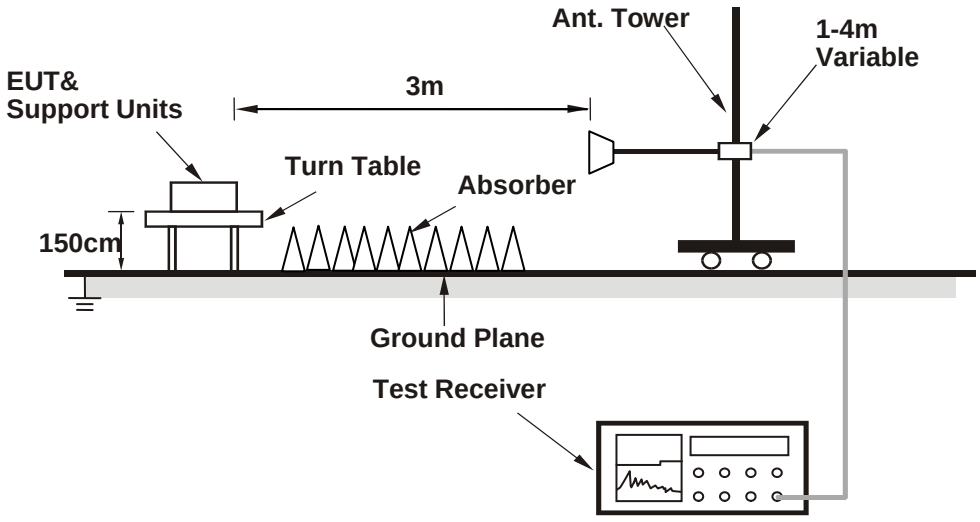
No deviation.

4.1.5 Test Set Up

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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 the testing table.
b. Prepared notebooks to act as communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz Data

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.2 PK	74.0	-17.8	1.19 H	179	50.00	6.20
2	5150.00	46.2 AV	54.0	-7.8	1.19 H	179	40.00	6.20
3	*5260.00	106.7 PK			1.37 H	203	67.00	39.70
4	*5260.00	97.4 AV			1.37 H	203	57.70	39.70
5	#10520.00	60.8 PK	74.0	-13.2	1.24 H	342	42.50	18.30
6	#10520.00	47.8 AV	54.0	-6.2	1.24 H	342	29.50	18.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5100.00	62.5 PK	74.0	-11.5	1.74 V	133	56.50	6.00
2	5100.00	51.5 AV	54.0	-2.5	1.74 V	133	45.50	6.00
3	*5260.00	122.9 PK			1.54 V	174	83.20	39.70
4	*5260.00	113.2 AV			1.54 V	174	73.50	39.70
5	#10520.00	61.8 PK	74.0	-12.2	1.50 V	150	43.50	18.30
6	#10520.00	49.1 AV	54.0	-4.9	1.50 V	150	30.80	18.30

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	105.9 PK			1.41 H	201	66.20	39.70
2	*5300.00	96.8 AV			1.41 H	201	57.10	39.70
3	10600.00	61.0 PK	74.0	-13.0	1.00 H	234	42.80	18.20
4	10600.00	47.9 AV	54.0	-6.1	1.00 H	234	29.70	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5140.00	62.9 PK	74.0	-11.1	1.68 V	151	56.70	6.20
2	5140.00	52.1 AV	54.0	-1.9	1.68 V	151	45.90	6.20
3	*5300.00	124.6 PK			1.85 V	149	84.90	39.70
4	*5300.00	115.1 AV			1.85 V	149	75.40	39.70
5	10600.00	61.3 PK	74.0	-12.7	1.23 V	150	43.10	18.20
6	10600.00	48.8 AV	54.0	-5.2	1.23 V	150	30.60	18.20

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	100.5 PK			1.05 H	147	60.80	39.70
2	*5320.00	91.6 AV			1.05 H	147	51.90	39.70
3	5350.00	58.0 PK	74.0	-16.0	1.30 H	150	51.60	6.40
4	5350.00	46.5 AV	54.0	-7.5	1.30 H	150	40.10	6.40
5	10640.00	60.6 PK	74.0	-13.4	1.20 H	168	42.50	18.10
6	10640.00	47.7 AV	54.0	-6.3	1.20 H	168	29.60	18.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	120.4 PK			1.65 V	147	80.70	39.70
2	*5320.00	111.1 AV			1.65 V	147	71.40	39.70
3	5350.00	69.2 PK	74.0	-4.8	1.67 V	186	62.80	6.40
4	5350.00	52.6 AV	54.0	-1.4	1.67 V	186	46.20	6.40
5	10640.00	61.0 PK	74.0	-13.0	1.50 V	180	42.90	18.10
6	10640.00	48.1 AV	54.0	-5.9	1.50 V	180	30.00	18.10

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.5 PK	74.0	-17.5	1.11 H	136	49.70	6.80
2	5460.00	44.8 AV	54.0	-9.2	1.11 H	136	38.00	6.80
3	#5470.00	57.1 PK	74.0	-16.9	1.25 H	181	50.30	6.80
4	#5470.00	44.3 AV	54.0	-9.7	1.25 H	181	37.50	6.80
5	*5500.00	100.4 PK			1.13 H	152	60.40	40.00
6	*5500.00	90.4 AV			1.13 H	152	50.40	40.00
7	11000.00	58.7 PK	74.0	-15.3	1.07 H	52	39.60	19.10
8	11000.00	46.2 AV	54.0	-7.8	1.07 H	52	27.10	19.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.5 PK	74.0	-13.5	1.77 V	196	53.70	6.80
2	5460.00	48.3 AV	54.0	-5.7	1.77 V	196	41.50	6.80
3	#5470.00	67.8 PK	74.0	-6.2	1.73 V	120	61.00	6.80
4	#5470.00	51.9 AV	54.0	-2.1	1.73 V	120	45.10	6.80
5	*5500.00	118.8 PK			1.91 V	144	78.80	40.00
6	*5500.00	108.7 AV			1.91 V	144	68.70	40.00
7	11000.00	57.0 PK	74.0	-17.0	1.38 V	162	37.90	19.10
8	11000.00	45.0 AV	54.0	-9.0	1.38 V	162	25.90	19.10

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	100.7 PK			1.01 H	156	60.60	40.10
2	*5580.00	90.6 AV			1.01 H	156	50.50	40.10
3	11160.00	57.7 PK	74.0	-16.3	1.16 H	69	39.00	18.70
4	11160.00	45.6 AV	54.0	-8.4	1.16 H	69	26.90	18.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	119.0 PK			1.71 V	149	78.90	40.10
2	*5580.00	109.3 AV			1.71 V	149	69.20	40.10
3	11160.00	59.2 PK	74.0	-14.8	1.79 V	309	40.50	18.70
4	11160.00	46.5 AV	54.0	-7.5	1.79 V	309	27.80	18.70

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	99.3 PK			1.00 H	149	59.00	40.30
2	*5700.00	89.3 AV			1.00 H	149	49.00	40.30
3	#5725.00	56.8 PK	74.0	-17.2	1.21 H	172	49.60	7.20
4	#5725.00	44.7 AV	54.0	-9.3	1.21 H	172	37.50	7.20
5	11400.00	59.6 PK	74.0	-14.4	1.20 H	26	41.30	18.30
6	11400.00	46.4 AV	54.0	-7.6	1.20 H	26	28.10	18.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	116.2 PK			1.70 V	149	75.90	40.30
2	*5700.00	105.6 AV			1.70 V	149	65.30	40.30
3	#5725.00	67.9 PK	74.0	-6.1	1.58 V	148	60.70	7.20
4	**#5725.00**	**53.0 AV**	**54.0**	**-1.0**	**1.58 V**	**148**	**45.80**	**7.20**
5	11400.00	61.1 PK	74.0	-12.9	1.38 V	352	42.80	18.30
6	11400.00	48.2 AV	54.0	-5.8	1.38 V	352	29.90	18.30

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT20)

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5100.00	60.5 PK	74.0	-13.5	1.30 H	186	54.50	6.00
2	5100.00	48.6 AV	54.0	-5.4	1.30 H	186	42.60	6.00
3	*5260.00	104.6 PK			1.35 H	194	64.90	39.70
4	*5260.00	95.3 AV			1.35 H	194	55.60	39.70
5	#10520.00	61.0 PK	74.0	-13.0	1.09 H	222	42.70	18.30
6	#10520.00	47.8 AV	54.0	-6.2	1.09 H	222	29.50	18.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5100.00	62.1 PK	74.0	-11.9	1.74 V	139	56.10	6.00
2	5100.00	51.3 AV	54.0	-2.7	1.74 V	139	45.30	6.00
3	*5260.00	122.1 PK			1.75 V	190	82.40	39.70
4	*5260.00	113.5 AV			1.75 V	190	73.80	39.70
5	#10520.00	61.3 PK	74.0	-12.7	1.64 V	234	43.00	18.30
6	#10520.00	48.5 AV	54.0	-5.5	1.64 V	234	30.20	18.30

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	107.1 PK			1.26 H	201	67.40	39.70
2	*5300.00	96.6 AV			1.26 H	201	56.90	39.70
3	10600.00	60.7 PK	74.0	-13.3	1.32 H	179	42.50	18.20
4	10600.00	47.6 AV	54.0	-6.4	1.32 H	179	29.40	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.0 PK	74.0	-12.0	1.78 V	187	55.80	6.20
2	5150.00	52.1 AV	54.0	-1.9	1.78 V	187	45.90	6.20
3	*5300.00	125.1 PK			1.77 V	190	85.40	39.70
4	*5300.00	115.2 AV			1.77 V	190	75.50	39.70
5	10600.00	61.1 PK	74.0	-12.9	1.67 V	201	42.90	18.20
6	10600.00	48.1 AV	54.0	-5.9	1.67 V	201	29.90	18.20

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	102.7 PK			1.35 H	201	63.00	39.70
2	*5320.00	93.0 AV			1.35 H	201	53.30	39.70
3	10600.00	61.3 PK	74.0	-12.7	1.25 H	101	43.10	18.20
4	10600.00	48.3 AV	54.0	-5.7	1.25 H	101	30.10	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	121.0 PK			1.84 V	148	81.30	39.70
2	*5320.00	110.9 AV			1.84 V	148	71.20	39.70
3	5350.00	65.2 PK	74.0	-8.8	1.72 V	158	58.80	6.40
4	5350.00	52.4 AV	54.0	-1.6	1.72 V	158	46.00	6.40
5	10640.00	61.9 PK	74.0	-12.1	1.68 V	188	43.80	18.10
6	10640.00	49.1 AV	54.0	-4.9	1.68 V	188	31.00	18.10

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.8 PK	74.0	-16.2	1.15 H	175	51.00	6.80
2	5460.00	45.2 AV	54.0	-8.8	1.15 H	175	38.40	6.80
3	#5470.00	57.9 PK	74.0	-16.1	1.14 H	150	51.10	6.80
4	#5470.00	45.3 AV	54.0	-8.7	1.14 H	150	38.50	6.80
5	*5500.00	101.3 PK			1.05 H	142	61.30	40.00
6	*5500.00	92.1 AV			1.05 H	142	52.10	40.00
7	11000.00	59.1 PK	74.0	-14.9	1.13 H	98	40.00	19.10
8	11000.00	46.2 AV	54.0	-7.8	1.13 H	98	27.10	19.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	61.3 PK	74.0	-12.7	1.70 V	328	54.50	6.80
2	5460.00	49.3 AV	54.0	-4.7	1.70 V	328	42.50	6.80
3	#5470.00	68.2 PK	74.0	-5.8	1.53 V	335	61.40	6.80
4	**#5470.00**	**53.0 AV**	**54.0**	**-1.0**	**1.53 V**	**335**	**46.20**	**6.80**
5	*5500.00	115.5 PK			1.00 V	345	75.50	40.00
6	*5500.00	105.5 AV			1.00 V	345	65.50	40.00
7	11000.00	59.4 PK	74.0	-14.6	1.24 V	114	40.30	19.10
8	11000.00	46.1 AV	54.0	-7.9	1.24 V	114	27.00	19.10

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	102.3 PK			1.05 H	148	62.20	40.10
2	*5580.00	92.6 AV			1.05 H	148	52.50	40.10
3	11160.00	57.6 PK	74.0	-16.4	1.33 H	58	38.90	18.70
4	11160.00	44.4 AV	54.0	-9.6	1.33 H	58	25.70	18.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	120.0 PK			1.68 V	328	79.90	40.10
2	*5580.00	109.8 AV			1.68 V	328	69.70	40.10
3	11160.00	57.4 PK	74.0	-16.6	1.63 V	192	38.70	18.70
4	11160.00	45.1 AV	54.0	-8.9	1.63 V	192	26.40	18.70

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	101.4 PK			1.00 H	189	61.10	40.30
2	*5700.00	91.8 AV			1.00 H	189	51.50	40.30
3	#5725.00	57.4 PK	74.0	-16.6	1.24 H	229	50.20	7.20
4	#5725.00	45.0 AV	54.0	-9.0	1.24 H	229	37.80	7.20
5	11400.00	59.0 PK	74.0	-15.0	1.23 H	262	40.70	18.30
6	11400.00	46.6 AV	54.0	-7.4	1.23 H	262	28.30	18.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	114.2 PK			1.94 V	272	73.90	40.30
2	*5700.00	104.2 AV			1.94 V	272	63.90	40.30
3	#5725.00	67.2 PK	74.0	-6.8	1.57 V	354	60.00	7.20
4	**#5725.00**	**53.0 AV**	**54.0**	**-1.0**	**1.57 V**	**354**	**45.80**	**7.20**
5	11400.00	60.5 PK	74.0	-13.5	1.49 V	174	42.20	18.30
6	11400.00	47.6 AV	54.0	-6.4	1.49 V	174	29.30	18.30

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT40)

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5270.00	100.2 PK			1.30 H	203	60.50	39.70
2	*5270.00	91.2 AV			1.30 H	203	51.50	39.70
3	#10540.00	61.1 PK	74.0	-12.9	1.22 H	212	42.70	18.40
4	#10540.00	48.1 AV	54.0	-5.9	1.22 H	212	29.70	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5110.00	62.0 PK	74.0	-12.0	1.71 V	194	55.80	6.20
2	5110.00	50.8 AV	54.0	-3.2	1.71 V	194	44.60	6.20
3	*5270.00	119.6 PK			1.71 V	190	79.90	39.70
4	*5270.00	109.9 AV			1.71 V	190	70.20	39.70
5	#10540.00	61.3 PK	74.0	-12.7	1.66 V	169	42.90	18.40
6	#10540.00	48.6 AV	54.0	-5.4	1.66 V	169	30.20	18.40

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	96.5 PK			1.21 H	196	56.80	39.70
2	*5310.00	86.9 AV			1.21 H	196	47.20	39.70
3	5350.00	58.7 PK	74.0	-15.3	1.21 H	310	52.30	6.40
4	5350.00	47.5 AV	54.0	-6.5	1.21 H	310	41.10	6.40
5	10620.00	60.5 PK	74.0	-13.5	1.16 H	278	42.30	18.20
6	10620.00	47.7 AV	54.0	-6.3	1.16 H	278	29.50	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	114.4 PK			1.67 V	192	74.70	39.70
2	*5310.00	105.0 AV			1.67 V	192	65.30	39.70
3	5350.00	64.6 PK	74.0	-9.4	1.61 V	163	58.20	6.40
4	**5350.00**	**53.0 AV**	**54.0**	**-1.0**	**1.61 V**	**163**	**46.60**	**6.40**
5	10620.00	61.0 PK	74.0	-13.0	1.59 V	233	42.80	18.20
6	10620.00	48.2 AV	54.0	-5.8	1.59 V	233	30.00	18.20

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.0 PK	74.0	-16.0	1.15 H	222	51.20	6.80
2	5460.00	45.3 AV	54.0	-8.7	1.15 H	222	38.50	6.80
3	#5470.00	57.7 PK	74.0	-16.3	1.09 H	204	50.90	6.80
4	#5470.00	45.1 AV	54.0	-8.9	1.09 H	204	38.30	6.80
5	*5510.00	97.8 PK			1.18 H	182	57.80	40.00
6	*5510.00	87.9 AV			1.18 H	182	47.90	40.00
7	11020.00	59.4 PK	74.0	-14.6	1.17 H	211	40.40	19.00
8	11020.00	46.9 AV	54.0	-7.1	1.17 H	211	27.90	19.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	61.8 PK	74.0	-12.2	1.72 V	13	55.00	6.80
2	5460.00	49.6 AV	54.0	-4.4	1.72 V	13	42.80	6.80
3	#5470.00	67.1 PK	74.0	-6.9	1.74 V	338	60.30	6.80
4	#5470.00	52.7 AV	54.0	-1.3	1.74 V	338	45.90	6.80
5	*5510.00	113.7 PK			1.88 V	353	73.70	40.00
6	*5510.00	103.4 AV			1.88 V	353	63.40	40.00
7	11020.00	59.3 PK	74.0	-14.7	1.24 V	241	40.30	19.00
8	11020.00	46.9 AV	54.0	-7.1	1.24 V	241	27.90	19.00

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 110	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	101.8 PK			1.16 H	149	61.70	40.10
2	*5550.00	92.8 AV			1.16 H	149	52.70	40.10
3	11100.00	58.7 PK	74.0	-15.3	1.15 H	241	40.20	18.50
4	11100.00	47.0 AV	54.0	-7.0	1.15 H	241	28.50	18.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	117.3 PK			1.59 V	142	77.20	40.10
2	*5550.00	108.2 AV			1.59 V	142	68.10	40.10
3	11100.00	59.0 PK	74.0	-15.0	1.40 V	190	40.50	18.50
4	11100.00	47.5 AV	54.0	-6.5	1.40 V	190	29.00	18.50

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	99.2 PK			1.00 H	136	59.00	40.20
2	*5670.00	90.5 AV			1.00 H	136	50.30	40.20
3	#5725.00	57.7 PK	74.0	-16.3	1.06 H	132	50.50	7.20
4	#5725.00	46.4 AV	54.0	-7.6	1.06 H	132	39.20	7.20
5	11340.00	59.5 PK	74.0	-14.5	1.24 H	66	40.80	18.70
6	11340.00	47.8 AV	54.0	-6.2	1.24 H	66	29.10	18.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	115.8 PK			1.52 V	149	75.60	40.20
2	*5670.00	105.4 AV			1.52 V	149	65.20	40.20
3	#5725.00	66.7 PK	74.0	-7.3	1.36 V	332	59.50	7.20
4	#5725.00	52.2 AV	54.0	-1.8	1.36 V	332	45.00	7.20
5	11340.00	59.9 PK	74.0	-14.1	1.27 V	157	41.20	18.70
6	11340.00	48.5 AV	54.0	-5.5	1.27 V	157	29.80	18.70

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT80)

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5290.00	86.7 PK			1.35 H	205	47.00	39.70
2	*5290.00	78.3 AV			1.35 H	205	38.60	39.70
3	5350.00	59.0 PK	74.0	-15.0	1.50 H	312	52.60	6.40
4	5350.00	47.6 AV	54.0	-6.4	1.50 H	312	41.20	6.40
5	#10580.00	60.2 PK	74.0	-13.8	1.26 H	179	41.80	18.40
6	#10580.00	47.2 AV	54.0	-6.8	1.26 H	179	28.80	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5290.00	104.8 PK			1.71 V	193	65.10	39.70
2	*5290.00	96.0 AV			1.71 V	193	56.30	39.70
3	5350.00	65.5 PK	74.0	-8.5	1.61 V	159	59.10	6.40
4	5350.00	52.6 AV	54.0	-1.4	1.61 V	159	46.20	6.40
5	#10580.00	60.4 PK	74.0	-13.6	1.61 V	187	42.00	18.40
6	#10580.00	47.5 AV	54.0	-6.5	1.61 V	187	29.10	18.40

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.1 PK	74.0	-15.9	1.05 H	156	51.30	6.80
2	5460.00	45.9 AV	54.0	-8.1	1.05 H	156	39.10	6.80
3	#5470.00	57.8 PK	74.0	-16.2	1.16 H	163	51.00	6.80
4	#5470.00	46.1 AV	54.0	-7.9	1.16 H	163	39.30	6.80
5	*5530.00	88.8 PK			1.01 H	145	48.80	40.00
6	*5530.00	77.5 AV			1.01 H	145	37.50	40.00
7	11060.00	59.9 PK	74.0	-14.1	1.14 H	105	41.10	18.80
8	11060.00	47.5 AV	54.0	-6.5	1.14 H	105	28.70	18.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.1 PK	74.0	-13.9	1.66 V	191	53.30	6.80
2	5460.00	48.9 AV	54.0	-5.1	1.66 V	191	42.10	6.80
3	#5470.00	67.0 PK	74.0	-7.0	1.66 V	172	60.20	6.80
4	#5470.00	52.8 AV	54.0	-1.2	1.66 V	172	46.00	6.80
5	*5530.00	104.7 PK			1.71 V	147	64.70	40.00
6	*5530.00	95.1 AV			1.71 V	147	55.10	40.00
7	11060.00	59.6 PK	74.0	-14.4	1.55 V	86	40.80	18.80
8	11060.00	47.5 AV	54.0	-6.5	1.55 V	86	28.70	18.80

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Below 1GHz worst-case data

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	32.6 QP	40.0	-7.4	1.99 H	91	47.40	-14.80
2	138.78	35.6 QP	43.5	-7.9	1.99 H	236	50.30	-14.70
3	169.89	35.9 QP	43.5	-7.6	1.49 H	230	50.20	-14.30
4	212.66	34.2 QP	43.5	-9.3	1.00 H	204	50.90	-16.70
5	374.04	36.5 QP	46.0	-9.5	1.00 H	234	47.50	-11.00
6	500.42	37.7 QP	46.0	-8.3	1.49 H	211	46.00	-8.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.19	36.1 QP	40.0	-3.9	1.00 V	264	52.20	-16.10
2	55.18	37.8 QP	40.0	-2.2	1.00 V	10	52.40	-14.60
3	146.56	33.3 QP	43.5	-10.2	1.00 V	48	47.40	-14.10
4	167.94	35.0 QP	43.5	-8.5	1.00 V	13	49.30	-14.30
5	374.04	34.9 QP	46.0	-11.1	1.00 V	160	45.90	-11.00
6	500.42	37.3 QP	46.0	-8.7	1.00 V	310	45.60	-8.30

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. 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 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS 30	100288	Apr. 27, 2015	Apr. 26, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2014	Dec. 29, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 21, 2015	Jul. 20, 2016
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 2.
3. The VCCI Site Registration No. is C-2047.

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/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

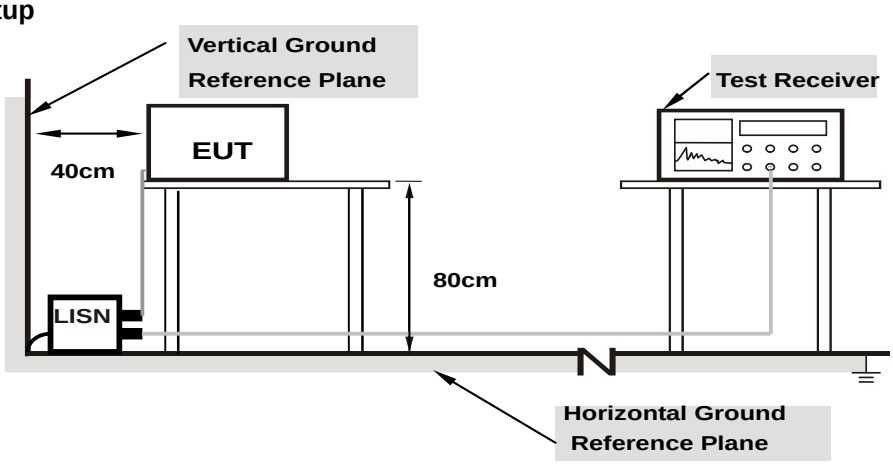
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

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

Same as 4.1.6.

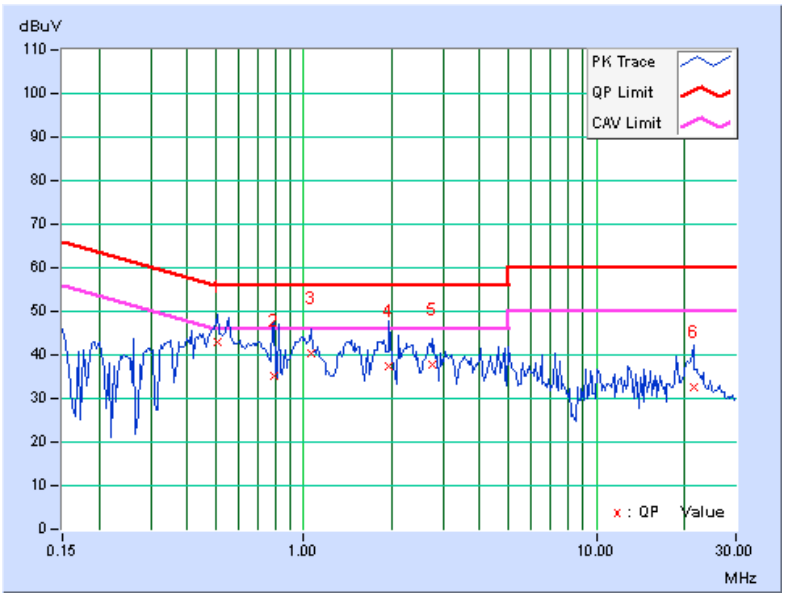
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.50547**	**9.97**	**33.04**	**20.78**	**43.01**	**30.75**	**56.00**	**46.00**	**-12.99**	**-15.25**
2	0.79063	10.03	25.34	15.58	35.37	25.61	56.00	46.00	-20.63	-20.39
3	1.05469	10.07	30.44	21.63	40.51	31.70	56.00	46.00	-15.49	-14.30
4	1.96484	10.15	27.15	19.91	37.30	30.06	56.00	46.00	-18.70	-15.94
5	2.76953	10.20	27.45	20.97	37.65	31.17	56.00	46.00	-18.35	-14.83
6	21.48828	10.65	22.08	13.30	32.73	23.95	60.00	50.00	-27.27	-26.05

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.

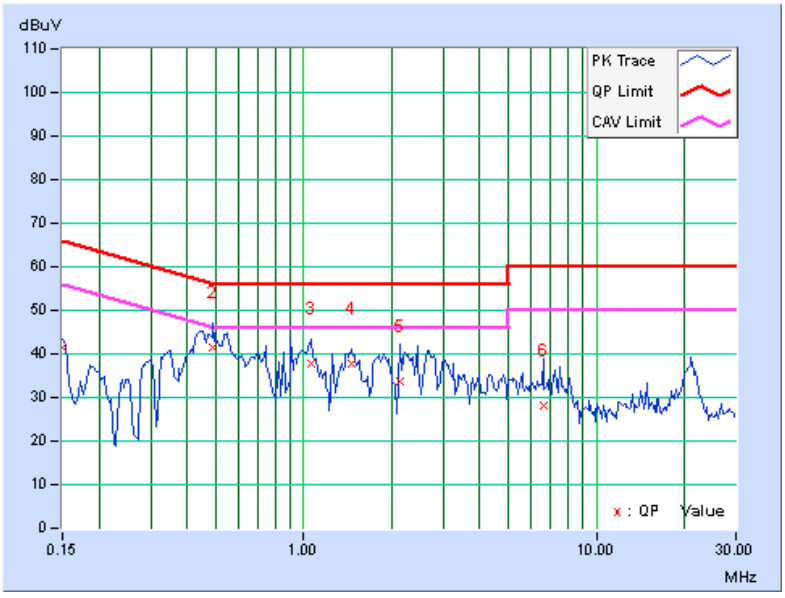


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.95	31.43	21.13	41.38	31.08	66.00	56.00	-24.62	-24.92
2	0.48984	10.01	31.62	22.60	41.63	32.61	56.17	46.17	-14.54	-13.56
3	1.05859	10.08	27.80	17.33	37.88	27.41	56.00	46.00	-18.12	-18.59
4	1.45703	10.13	27.66	18.96	37.79	29.09	56.00	46.00	-18.21	-16.91
5	2.14844	10.20	23.49	13.09	33.69	23.29	56.00	46.00	-22.31	-22.71
6	6.61328	10.39	17.61	8.59	28.00	18.98	60.00	50.00	-32.00	-31.02

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 Transmit Power Measurment

4.3.1 Limits of Transmit Power Measurement

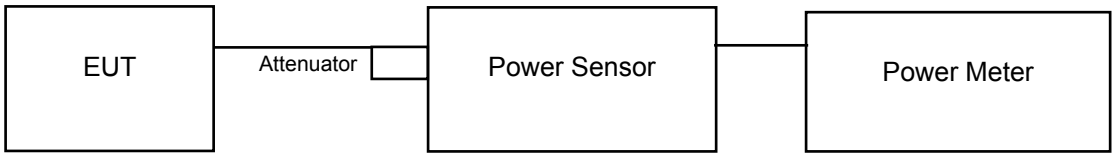
Operation Band	EUT Category		LIMIT
U-NII-1	---	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	---	Fixed point-to-point Access Point	1 Watt (30 dBm)
	---	Indoor Access Point	1 Watt (30 dBm)
	---	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	---		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

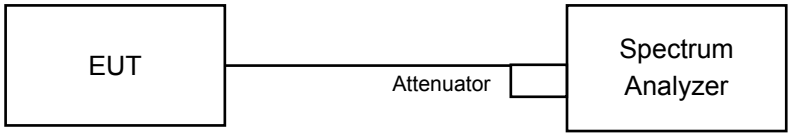
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

For 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40)



For 802.11ac (VHT80)



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

FOR AVERAGE POWER MEASUREMENT

For 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40)
Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

For 802.11ac (VHT80)

a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.

b. Set sweep trigger to “free run”.

c. Set RBW = 1 MHz.

d. Set VBW ≥ 3 MHz

e. Number of points in sweep ≥ 2 Span / RBW.

f. Sweep time ≤ (number of points in sweep) * T

g. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.

h. Detector = RMS.

i. Trace mode = max hold.

j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

4.3.5 Deviation fromTest 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

Power Output:

802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
52	5260	16.35	14.93	14.12	100.092	20.00	24.00	Pass
60	5300	15.95	14.82	14.06	95.162	19.78	24.00	Pass
64	5320	16.26	14.77	14.08	97.845	19.91	24.00	Pass
100	5500	15.96	14.82	14.15	95.787	19.81	24.00	Pass
116	5580	15.89	14.92	14.23	96.346	19.84	24.00	Pass
140	5700	15.86	14.74	14.34	95.497	19.80	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (22.55) = 24.53 > 24.00dBm
2. 11dBm + 10log (23.00) = 24.62 > 24.00dBm
3. 11dBm + 10log (22.75) = 24.57 > 24.00dBm
4. 11dBm + 10log (22.24) = 24.47 > 24.00dBm
5. 11dBm + 10log (22.84) = 24.59 > 24.00dBm
6. 11dBm + 10log (22.57) = 24.54 > 24.00dBm

Chain 1
1. 11dBm + 10log (21.78) = 24.38 > 24.00dBm
2. 11dBm + 10log (22.78) = 24.58 > 24.00dBm
3. 11dBm + 10log (22.27) = 24.48 > 24.00dBm
4. 11dBm + 10log (22.87) = 24.59 > 24.00dBm
5. 11dBm + 10log (22.01) = 24.43 > 24.00dBm
6. 11dBm + 10log (21.86) = 24.40 > 24.00dBm

Chain 2
1. 11dBm + 10log (21.65) = 24.35 > 24.00dBm
2. 11dBm + 10log (21.62) = 24.35 > 24.00dBm
3. 11dBm + 10log (22.28) = 24.48 > 24.00dBm
4. 11dBm + 10log (21.86) = 24.40 > 24.00dBm
5. 11dBm + 10log (21.78) = 24.38 > 24.00dBm
6. 11dBm + 10log (22.37) = 24.50 > 24.00dBm

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
52	5260	16.46	15.19	14.52	105.610	20.24	24.00	Pass
60	5300	16.34	15.05	14.48	103.096	20.13	24.00	Pass
64	5320	16.51	15.24	14.42	105.860	20.25	24.00	Pass
100	5500	16.28	15.11	14.22	101.320	20.06	24.00	Pass
116	5580	16.34	15.29	14.55	105.369	20.23	24.00	Pass
140	5700	16.24	15.22	14.62	104.312	20.18	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (23.77) = 24.76 > 24.00dBm
2. 11dBm + 10log (22.54) = 24.53 > 24.00dBm
3. 11dBm + 10log (23.94) = 24.79 > 24.00dBm
4. 11dBm + 10log (23.20) = 24.65 > 24.00dBm
5. 11dBm + 10log (23.33) = 24.68 > 24.00dBm
6. 11dBm + 10log (23.54) = 24.72 > 24.00dBm

Chain 1
1. 11dBm + 10log (23.45) = 24.70 > 24.00dBm
2. 11dBm + 10log (24.08) = 24.82 > 24.00dBm
3. 11dBm + 10log (22.75) = 24.57 > 24.00dBm
4. 11dBm + 10log (23.32) = 24.68 > 24.00dBm
5. 11dBm + 10log (23.14) = 24.64 > 24.00dBm
6. 11dBm + 10log (23.11) = 24.64 > 24.00dBm

Chain 2
1. 11dBm + 10log (23.25) = 24.66 > 24.00dBm
2. 11dBm + 10log (22.99) = 24.62 > 24.00dBm
3. 11dBm + 10log (22.84) = 24.59 > 24.00dBm
4. 11dBm + 10log (23.19) = 24.65 > 24.00dBm
5. 11dBm + 10log (22.83) = 24.59 > 24.00dBm
6. 11dBm + 10log (24.14) = 24.83 > 24.00dBm

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
54	5270	19.32	18.05	17.52	**205.827**	23.14	24.00	Pass
62	5310	14.40	13.30	13.02	68.967	18.39	24.00	Pass
102	5510	16.96	16.13	14.95	121.940	20.86	24.00	Pass
110	5550	19.43	18.23	17.54	210.981	23.24	24.00	Pass
134	5670	19.55	18.21	17.60	**213.923**	23.30	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (45.30) = 27.56 > 24.00dBm
2. 11dBm + 10log (46.17) = 27.64 > 24.00dBm
3. 11dBm + 10log (45.54) = 27.58 > 24.00dBm
4. 11dBm + 10log (45.61) = 27.59 > 24.00dBm
5. 11dBm + 10log (45.95) = 27.62 > 24.00dBm

Chain 1
1. 11dBm + 10log (45.54) = 27.58 > 24.00dBm
2. 11dBm + 10log (45.62) = 27.59 > 24.00dBm
3. 11dBm + 10log (45.34) = 27.56 > 24.00dBm
4. 11dBm + 10log (44.88) = 27.52 > 24.00dBm
5. 11dBm + 10log (45.42) = 27.57 > 24.00dBm

Chain 2
1. 11dBm + 10log (44.68) = 27.50 > 24.00dBm
2. 11dBm + 10log (46.35) = 27.66 > 24.00dBm
3. 11dBm + 10log (44.14) = 27.45 > 24.00dBm
4. 11dBm + 10log (44.77) = 27.51 > 24.00dBm
5. 11dBm + 10log (44.68) = 27.50 > 24.00dBm

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
58	5290	7.93	6.35	5.96	14.469	11.60	24.00	Pass
106	5530	10.18	9.22	7.84	24.860	13.96	24.00	Pass

Note:
Chain 0
1. 11dBm + 10log (91.63) = 30.62 > 24.00dBm
2. 11dBm + 10log (89.37) = 30.51 > 24.00dBm

Chain 1
1. 11dBm + 10log (86.79) = 30.38 > 24.00dBm
2. 11dBm + 10log (86.34) = 30.36 > 24.00dBm

Chain 2
1. 11dBm + 10log (86.53) = 30.37 > 24.00dBm
2. 11dBm + 10log (90.39) = 30.56 > 24.00dBm

26dB Bandwidth:

802.11a

Chan.	Chan. Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
52	5260	22.55	21.78	21.65	Pass
60	5300	23.00	22.78	21.62	Pass
64	5320	22.75	22.27	22.28	Pass
100	5500	22.24	22.87	21.86	Pass
116	5580	22.84	22.01	21.78	Pass
140	5700	22.57	21.86	22.37	Pass

802.11n (HT20)

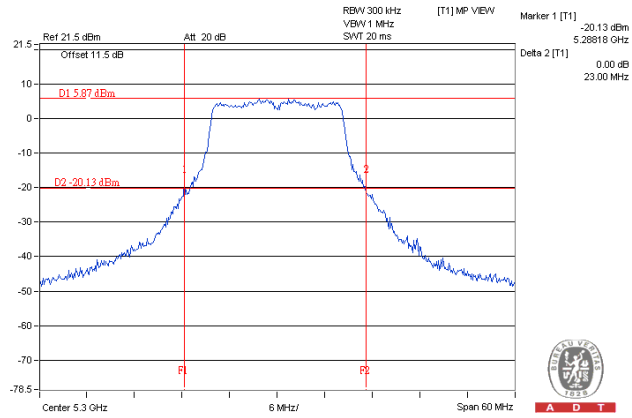
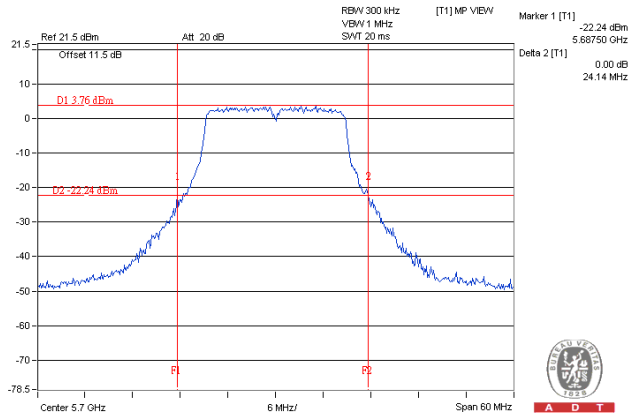
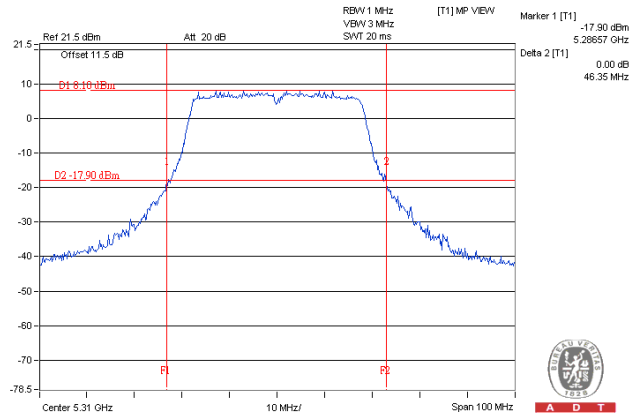
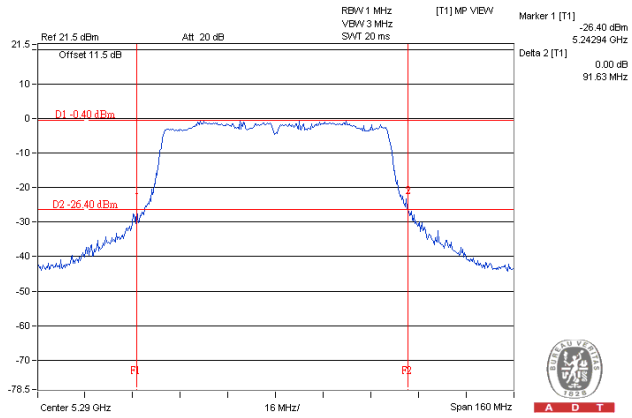
Chan.	Chan. Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
52	5260	23.77	23.45	23.25	Pass
60	5300	22.54	24.08	22.99	Pass
64	5320	23.94	22.75	22.84	Pass
100	5500	23.20	23.32	23.19	Pass
116	5580	23.33	23.14	22.83	Pass
140	5700	23.54	23.11	24.14	Pass

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
54	5270	45.30	45.54	44.68	Pass
62	5310	46.17	45.62	46.35	Pass
102	5510	45.54	45.34	44.14	Pass
110	5550	45.61	44.88	44.77	Pass
134	5670	45.95	45.42	44.68	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	26dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
58	5290	91.63	86.79	86.53	Pass
106	5530	89.37	86.34	90.39	Pass

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

Occupied Bandwidth:

802.11a

Chan.	Chan. Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
52	5260	16.80	16.68	16.68
60	5300	16.80	16.68	16.68
64	5320	16.92	16.80	16.68
100	5500	16.80	16.80	16.68
116	5580	16.92	16.80	16.68
140	5700	16.92	16.68	16.68

802.11n (HT20)

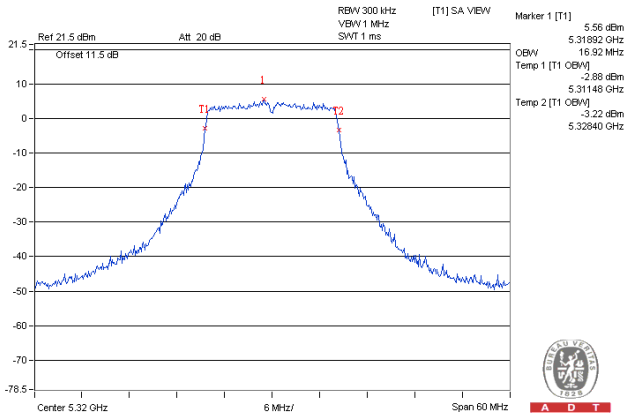
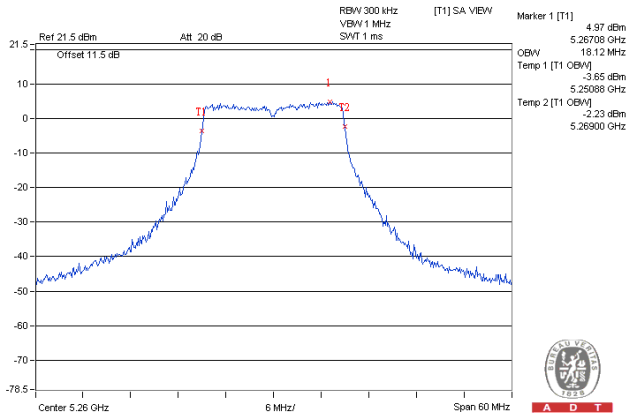
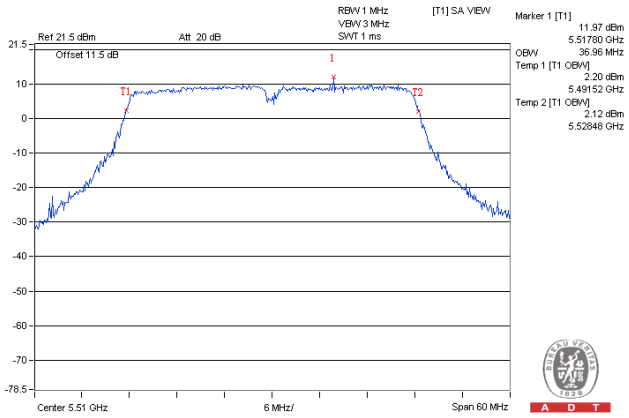
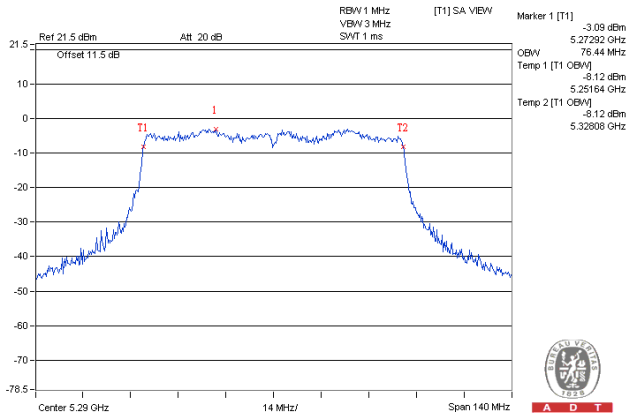
Chan.	Chan. Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
52	5260	18.12	17.76	17.88
60	5300	17.64	17.88	17.88
64	5320	18.12	17.76	17.88
100	5500	17.88	17.88	17.88
116	5580	17.88	17.88	17.88
140	5700	18.00	17.88	17.88

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
54	5270	36.72	37.08	36.84
62	5310	36.60	36.72	36.84
102	5510	36.84	36.96	36.96
110	5550	36.84	36.96	36.84
134	5670	36.84	36.96	36.84

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Occupied Bandwidth (MHz)		
		Chain 0	Chain 1	Chain 2
58	5290	76.16	76.44	76.16
106	5530	76.16	76.16	76.44

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

EUT MAXIMUM CONDUCTED POWER

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	100.092	20.00
5470~5725	96.346	19.84

Note: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	105.860	20.25
5470~5725	105.369	20.23

Note: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	205.827	23.14
5470~5725	213.923	23.30

Note: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	14.469	11.60
5470~5725	24.860	13.96

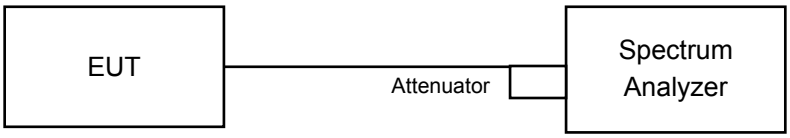
Note: Manufacturer provides Transmit Power Control description to meet this requirement.

4.4 Peak Power Spectral Density Measurement

4.4.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		LIMIT
U-NII-1	---	Outdoor Access Point	17dBm/ MHz
	---	Fixed point-to-point Access Point	
	---	Indoor Access Point	
	---	Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	---		30dBm/ 500kHz

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

Using method SA-2

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Sweep time = auto, trigger set to “free run”.

d. Trace average at least 100 traces in power averaging mode.

e. Record the max value and add 10 log (1/duty cycle)

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

802.11a

Chan.	Freq. (MHz)	PSD (dBm)			Total PSD w/o duty factor (dBm)	Duty factor	Total PSD with duty factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
52	5260	2.16	1.00	-0.01	5.92	0.21	6.13	6.96	Pass
60	5300	1.97	0.77	-0.07	5.75	0.21	5.96	6.96	Pass
64	5320	1.43	0.64	0.15	5.55	0.21	5.76	6.96	Pass
100	5500	1.91	0.23	-0.61	5.41	0.21	5.62	6.48	Pass
116	5580	1.80	1.59	-0.41	5.88	0.21	6.09	6.48	Pass
140	5700	1.82	-0.11	0.27	5.52	0.21	5.73	6.48	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For U-NII-2A Band: Directional gain = 5.27dBi + 10log(3) = 10.04dBi > 6dBi , so the power density limit shall be reduced to 11-(10.04-6) = 6.96dBm.
   For U-NII-2C Band: Directional gain = 5.75dBi + 10log(3) = 10.52dBi > 6dBi , so the power density limit shall be reduced to 11-(10.52-6) = 6.48dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm)			Total PSD w/o duty factor (dBm)	Duty factor	Total PSD with duty factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
52	5260	2.37	0.92	-0.29	5.90	0.21	6.11	6.96	Pass
60	5300	1.64	0.94	0.28	5.75	0.21	5.96	6.96	Pass
64	5320	1.26	1.36	0.54	5.83	0.21	6.04	6.96	Pass
100	5500	1.71	1.18	0.23	5.85	0.21	6.06	6.48	Pass
116	5580	1.96	0.73	0.05	5.75	0.21	5.96	6.48	Pass
140	5700	1.33	0.69	0.51	5.62	0.21	5.83	6.48	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For U-NII-2A Band: Directional gain = 5.27dBi + 10log(3) = 10.04dBi > 6dBi , so the power density limit shall be reduced to 11-(10.04-6) = 6.96dBm.
   For U-NII-2C Band: Directional gain = 5.75dBi + 10log(3) = 10.52dBi > 6dBi , so the power density limit shall be reduced to 11-(10.52-6) = 6.48dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

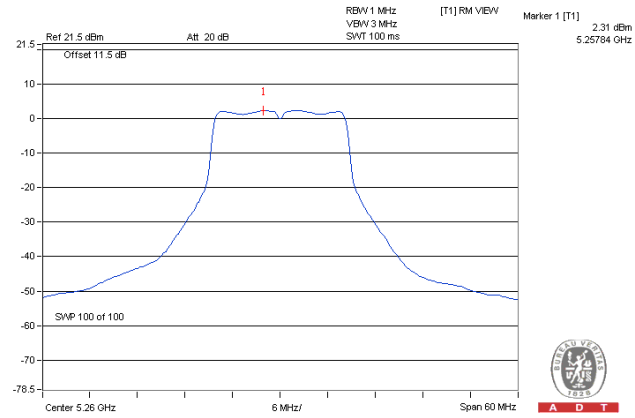
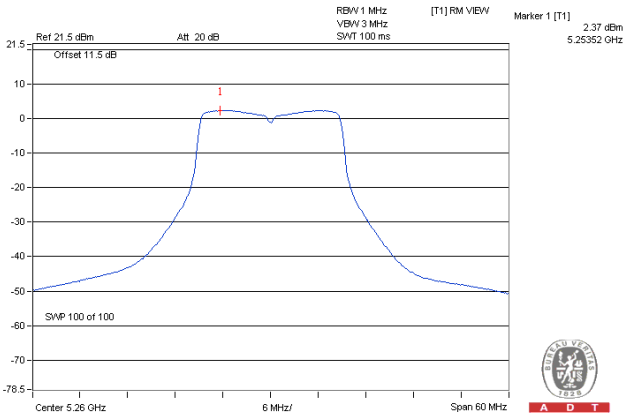
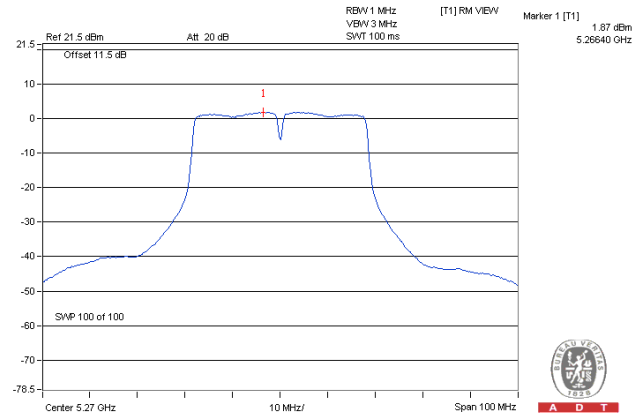
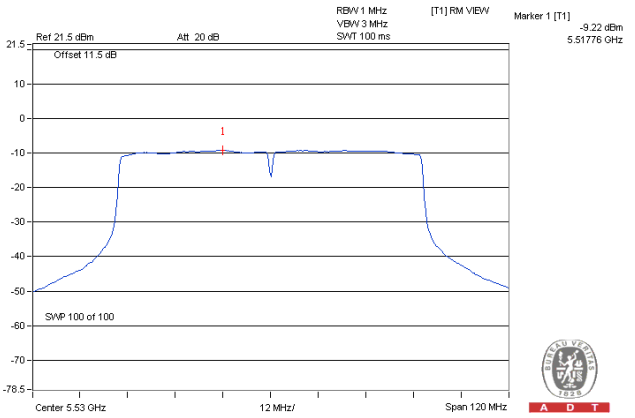
Chan.	Freq. (MHz)	PSD (dBm)			Total PSD w/o duty factor (dBm)	Duty factor	Total PSD with duty factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
54	5270	1.85	0.34	-0.27	5.50	0.39	5.89	6.96	Pass
62	5310	-1.63	-2.54	-3.89	2.18	0.39	2.57	6.96	Pass
102	5510	0.34	-0.62	-1.88	4.14	0.39	4.53	6.48	Pass
110	5550	1.66	0.86	-0.29	5.58	0.39	5.97	6.48	Pass
134	5670	1.57	0.58	0.03	5.54	0.39	5.93	6.48	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For U-NII-2A Band: Directional gain = 5.27dBi + 10log(3) = 10.04dBi > 6dBi , so the power density limit shall be reduced to 11-(10.04-6) = 6.96dBm.
   For U-NII-2C Band: Directional gain = 5.75dBi + 10log(3) = 10.52dBi > 6dBi , so the power density limit shall be reduced to 11-(10.52-6) = 6.48dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD (dBm)			Total PSD w/o duty factor (dBm)	Duty factor	Total PSD with duty factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
58	5290	-11.58	-12.64	-13.35	-7.69	0.10	-7.59	6.96	Pass
106	5530	-9.37	-10.08	-12.23	-5.63	0.10	-5.53	6.48	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. For U-NII-2A Band: Directional gain = 5.27dBi + 10log(3) = 10.04dBi > 6dBi , so the power density limit shall be reduced to 11-(10.04-6) = 6.96dBm.
   For U-NII-2C Band: Directional gain = 5.75dBi + 10log(3) = 10.52dBi > 6dBi , so the power density limit shall be reduced to 11-(10.52-6) = 6.48dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

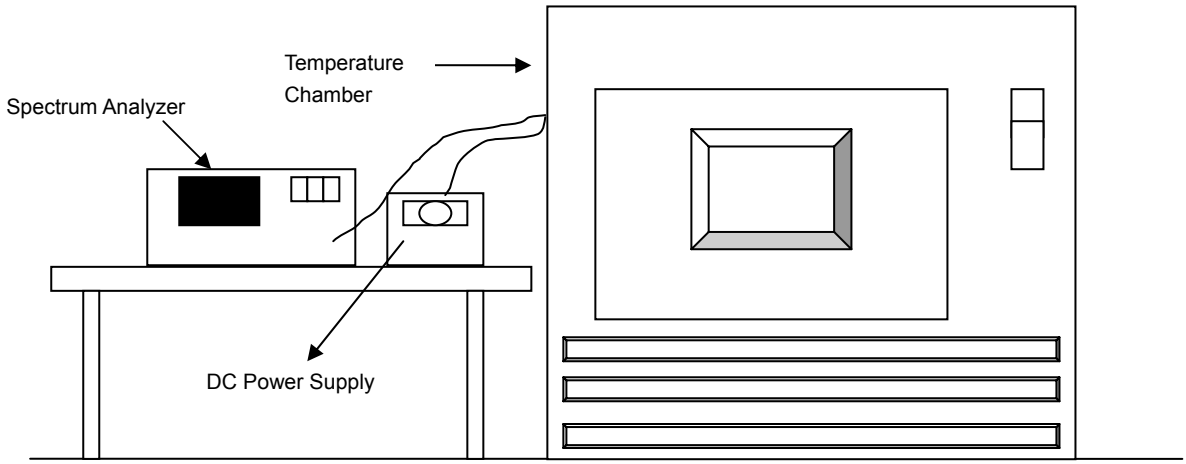
Spectrum Plot of Worst Value	
802.11a / Chain 0 / CH 52	802.11n (HT20) / Chain 0 / CH 52
	
802.11n (HT40) / Chain 0 / CH 54	802.11ac (VHT80) / Chain 0 / CH 106
	

4.5 Frequency Stability

4.5.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

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

a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.5.7 Test Results

Frequemcy Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	48	5260.022	0.00042	5260.0202	0.00038	5260.0223	0.00042	5260.0185	0.00035
40	48	5260.0178	0.00034	5260.0207	0.00039	5260.0205	0.00039	5260.0218	0.00041
30	48	5260.02	0.00038	5260.0181	0.00034	5260.0203	0.00039	5260.0198	0.00038
20	48	5260.0138	0.00026	5260.0146	0.00028	5260.0135	0.00026	5260.015	0.00029
10	48	5259.9815	-0.00035	5259.9817	-0.00035	5259.9809	-0.00036	5259.9823	-0.00034
0	48	5259.9905	-0.00018	5259.9916	-0.00016	5259.9882	-0.00022	5259.9875	-0.00024
-10	48	5260.0272	0.00052	5260.0258	0.00049	5260.0234	0.00044	5260.0251	0.00048
-20	48	5259.976	-0.00046	5259.9722	-0.00053	5259.9727	-0.00052	5259.9745	-0.00048
-30	48	5259.9892	-0.00021	5259.9862	-0.00026	5259.9894	-0.00020	5259.9899	-0.00019

Frequemcy Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	55.2	5260.0147	0.00028	5260.0141	0.00027	5260.0143	0.00027	5260.0149	0.00028
	48	5260.0138	0.00026	5260.0146	0.00028	5260.0135	0.00026	5260.015	0.00029
	40.8	5260.0136	0.00026	5260.0148	0.00028	5260.0132	0.00025	5260.0153	0.00029

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:

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

Hsin Chu EMC/RF Lab/Telecom Lab
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety
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 ---