

FCC Test Report

Report No.: RF150212E01-1

FCC ID: Q87-RE6700

Test Model: RE6700

Received Date: Feb. 12, 2015

Test Date: Feb. 14 ~ Mar. 16, 2015

Issued Date: Mar. 18, 2015

Applicant: Linksys LLC

Address: 121 Theory Drive Irvine California 92617 United State

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

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Release Control Record

Issue No.	Description	Date Issued
RF150212E01-1	Original release	Mar. 18, 2015

1 Certificate of Conformity

Product: Wireless Extender

Brand: Linksys

Test Model: RE6700

Sample Status: Engineering sample

Applicant: Linksys LLC

Test Date: Feb. 14 ~ Mar. 16, 2015

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2009

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:** Mar. 18, 2015
Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Mar. 18, 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 -4.25dB at 0.50553MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -2.4dB at 51.24MHz.
15.407(b) (1/2/3/4/6)	Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5714.00, 5150.00, 5861.00MHz.
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(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex(MHF) not a standard connector.

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	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports0	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 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 Extender
Brand	Linksys
Test Model	RE6700
Status of EUT	Engineering sample
Driver Version	1.0.00.012
Power Supply Rating	Refer to note
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 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
Output Power	5180 ~ 5240MHz: 493.610mW 5745 ~ 5825MHz: 427.269mW
Antenna Type	Dipole antenna with 5.97dBi gain
Antenna Connector	i-pex(MHF)
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. According to the applicant's requirement, two test samples were tested for conducted emission only.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function	Beamforming mode
802.11a	2TX	Not Support
802.11n (HT20)	2TX	Support
802.11n (HT40)	2TX	Support
802.11ac (VHT20)	2TX	Support
802.11ac (VHT40)	2TX	Support
802.11ac (VHT80)	2TX	Support

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n and 802.11ac, after pre-tested two modes (with beamforming mode and without beamforming mode) found with beamforming mode was the worst, therefore chosen for final test and presented in the test report.

3. The EUT internal following power supply.

Brand	HON-KWANG
Model	HK-XX18-A12
Input Power	100-240Vac, 47-63Hz, 0.8A
Output Power	12Vdc, 1.5A

3.2 Description of Test Modes

For 5180 ~ 5240MHz

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

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

For 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	-	√	Sample 1
B	-	-	√	-	Sample 2
C	-	-	√	-	Sample 3

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 X-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)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
A	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
A	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	13.5
A	802.11ac (VHT80)		42	42	OFDM	BPSK	58.5
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
A	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	13.5
A	802.11ac (VHT80)		155	155	OFDM	BPSK	58.5

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)
A	802.11a	5180-5240	36 to 48	36	OFDM	BPSK	6.0
	802.11a	5745-5825	149 to 165		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)
B ,C	802.11a	5180-5240	36 to 48	36	OFDM	BPSK	6.0
	802.11a	5745-5825	149 to 165		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.

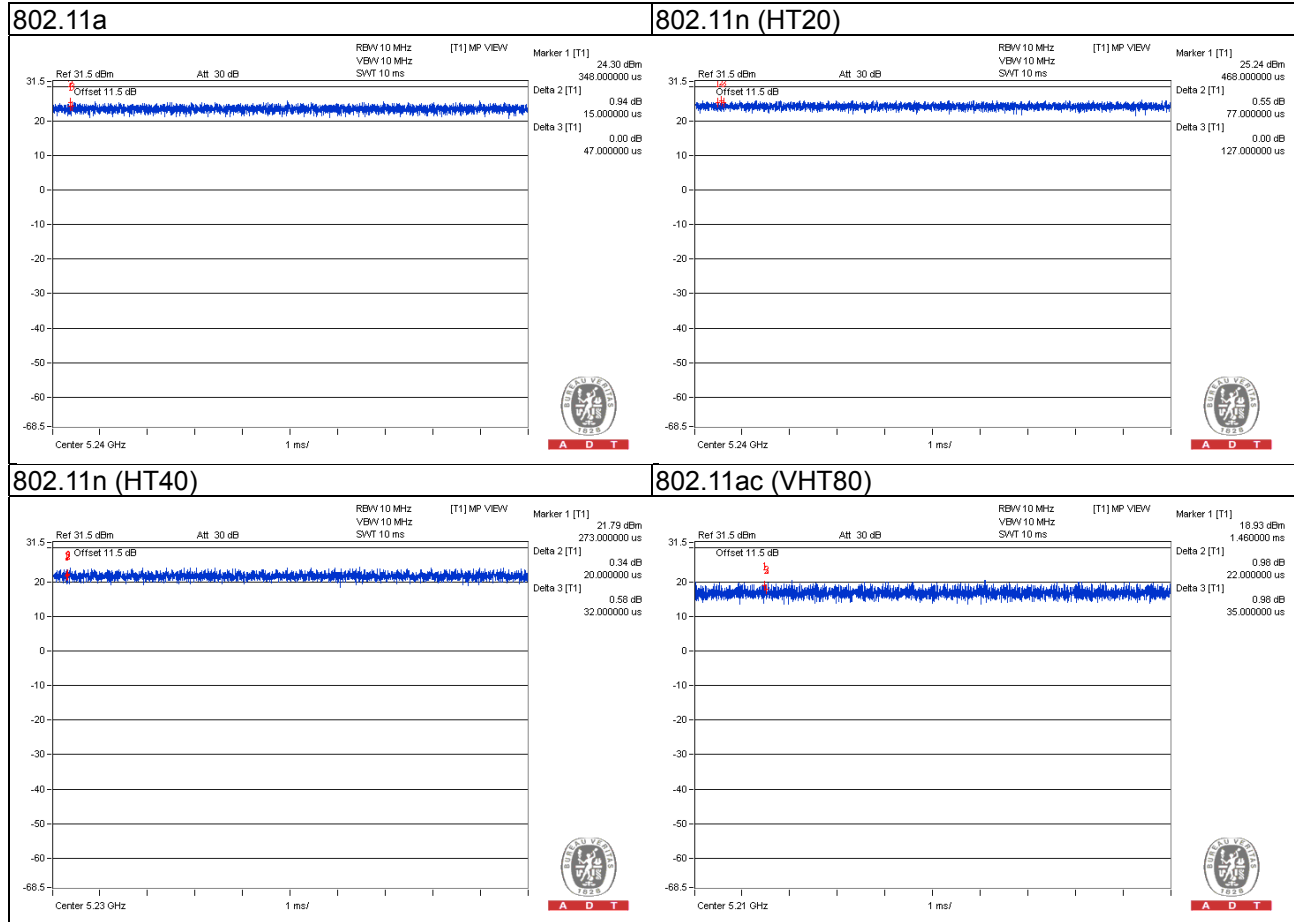
EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
A	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
A	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	13.5
A	802.11ac (VHT80)		42	42	OFDM	BPSK	58.5
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
A	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	13.5
A	802.11ac (VHT80)		155	155	OFDM	BPSK	58.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
RE<1G	26deg. C, 65%RH	120Vac, 60Hz	Alan Wu
PLC	25deg. C, 70%RH	120Vac, 60Hz	Barry Lee
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 not required



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.

For radiated emission

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Light Bulb	Yeh Chiang	250W	NA	NA	-
B.	Notebook	DELL	E5410	6RP2YM1	FCC DoC Approved	-
C.	Earphone	PHILIPS	SBC HL150	NA	NA	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	AC	1	1.8	No	0	-
2.	RJ 45	1	10	No	0	-
3.	Audio	1	1.8	No	0	-

For conducted emission

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Light Bulb	You Sheng	250W	NA	NA	-
B.	Notebook	DELL	PP27L	7YLB32S	FCC DoC Approved	-
C.	AP Router	D-Link	DIR-810L	QBXP1D4002851	FCC DoC Approved	-
D.	Notebook	DELL	E5420	CHHYLQ1	FCC DoC Approved	-
E.	Notebook	DELL	PP32LA	HSLB32S	FCC DoC Approved	-
F.	Earphone	Hawk	HKC920	H001	FCC DoC Approved	-

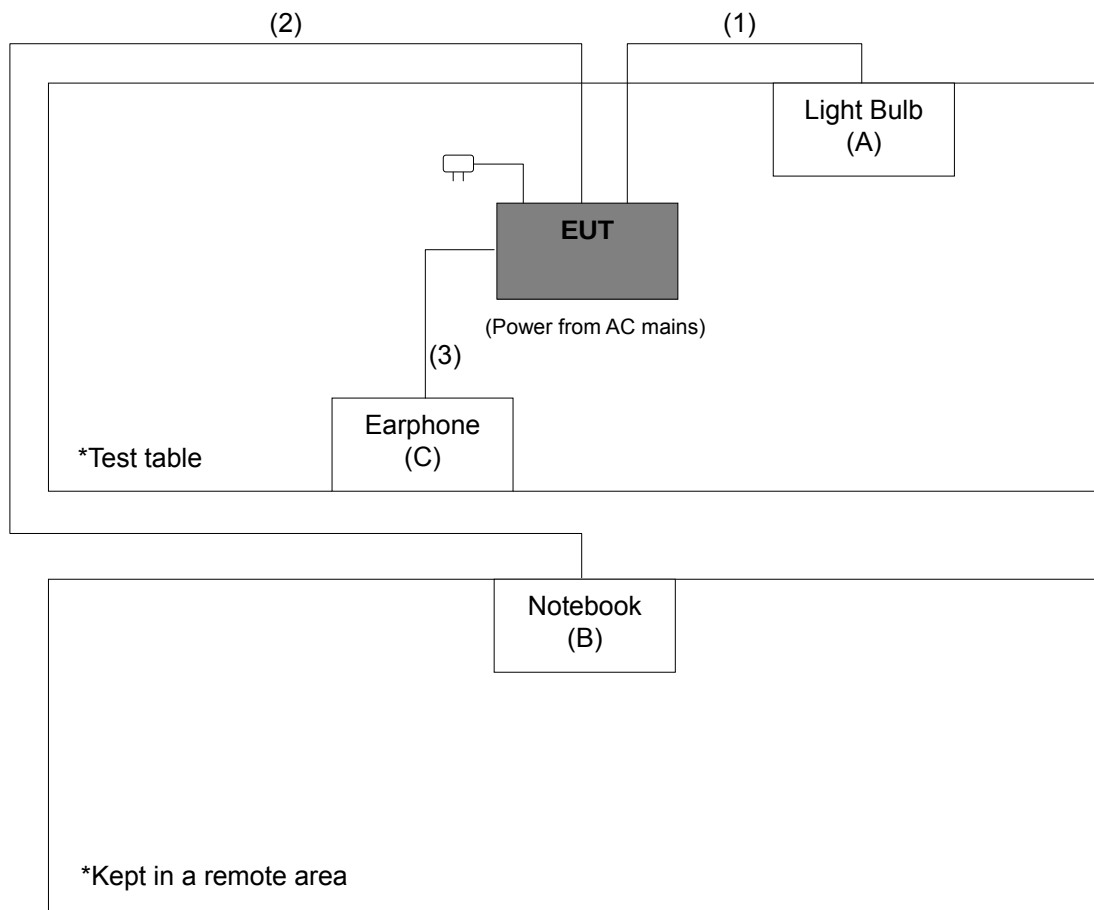
Note:

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

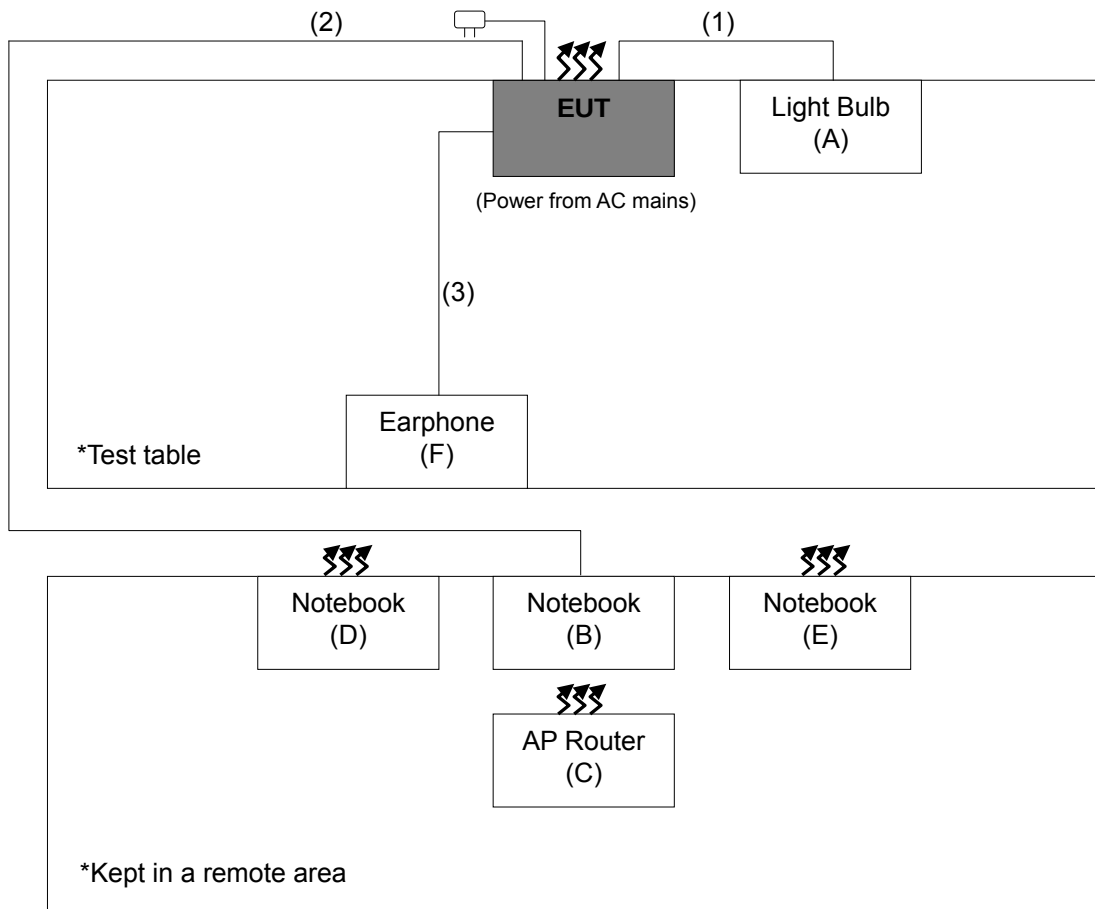
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	AC	1	0.7	No	0	-
2.	RJ45	1	10	No	0	-
3.	Audio	1	1.5	No	0	-

3.4.1 Configuration of System under Test

For radiated emission



For conducted emission



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 C63.10-2009

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. Other emissions shall be at least 20dB 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 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 (dBuV/m)	AV:54 (dBuV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBuV/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(dBuV/m) ^{*1} PK:78.2 (dBuV/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:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 06, 2014	Oct. 05, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Dec. 18, 2013	Dec. 17, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 06, 2015	Feb. 05, 2016
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Feb. 05, 2015	Feb. 04, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 09, 2015	Feb. 08, 2016
Preamplifier Agilent	8449B	3008A01961	Oct. 18, 2014	Oct. 17, 2015
Preamplifier Agilent	8447D	2944A10738	Oct. 18, 2014	Oct. 17, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 09, 2014	Aug. 08, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 09, 2014	Aug. 08, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 09, 2014	Aug. 08, 2015
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table BV ADT	TT100.	TT93021704	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021704	NA	NA
High Speed Peak Power Meter	ML2495A	0824011	Jul. 26, 2014	Jul. 25, 2015
Power Sensor	MA2411B	0738171	Jul. 26, 2014	Jul. 25, 2015
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 09, 2014	Jun. 08, 2015

- 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 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC7450F-4.

4.1.3 Test Procedures

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

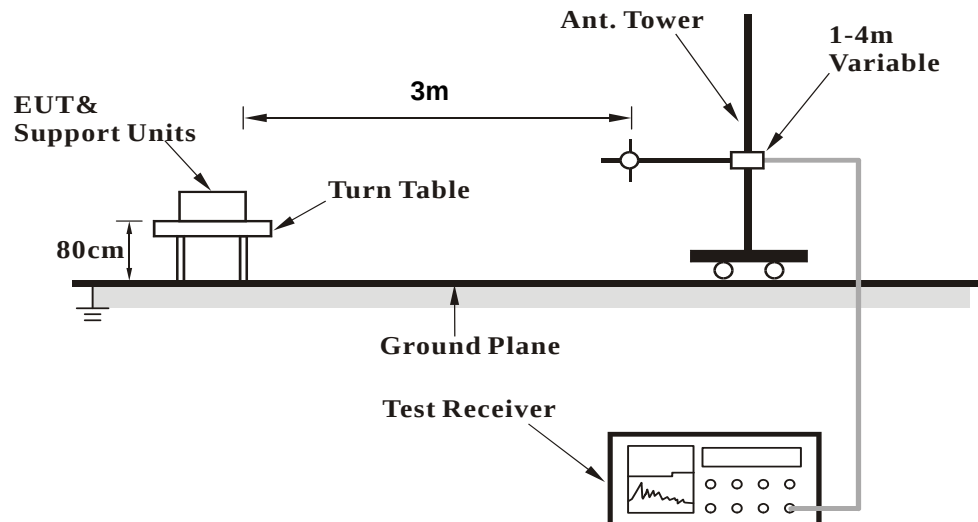
1. For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the ground at 3 meter chamber room for test.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
4. 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 ($10 \log(1/\text{duty cycle})$).
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
6. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

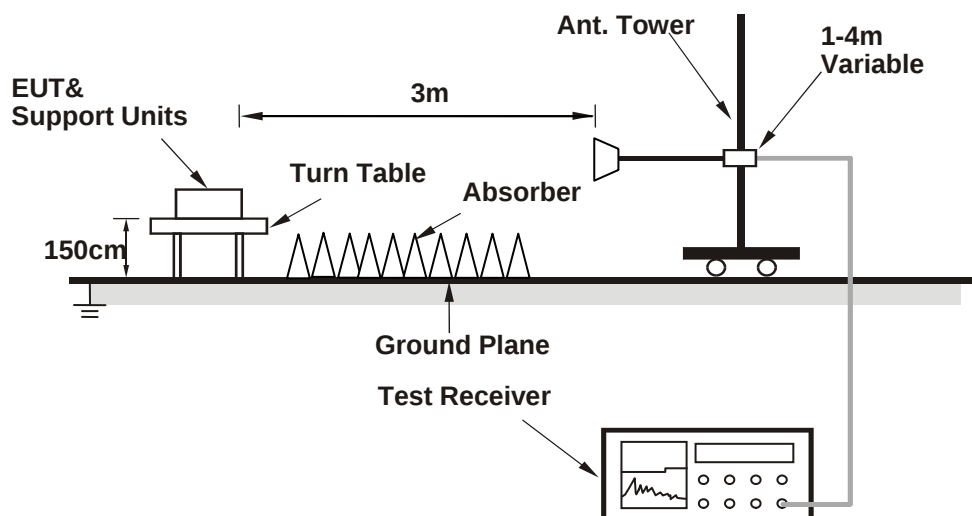
No deviation.

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

- Placed the EUT on the testing table.
- Prepared a notebook to act as communication partner and placed it outside of testing area.
- 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.
- The communication partner sent data to EUT by command "PING".
- The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz Data

802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	59.8 PK	74.0	-14.2	1.22 H	16	54.10	5.70
2	5150.00	48.1 AV	54.0	-5.9	1.22 H	16	42.40	5.70
3	*5180.00	102.8 PK			1.00 H	19	63.30	39.50
4	*5180.00	92.6 AV			1.00 H	19	53.10	39.50
5	#10360.00	60.8 PK	74.0	-13.2	1.23 H	64	42.30	18.50
6	#10360.00	47.9 AV	54.0	-6.1	1.23 H	64	29.40	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	5150.00	65.8 PK	74.0	-8.2	2.28 V	258	60.10	5.70
2	5150.00	52.9 AV	54.0	-1.1	2.28 V	258	47.20	5.70
3	*5180.00	115.4 PK			1.76 V	284	75.90	39.50
4	*5180.00	105.2 AV			1.76 V	284	65.70	39.50
5	#10360.00	61.8 PK	74.0	-12.2	1.10 V	129	43.30	18.50
6	#10360.00	47.9 AV	54.0	-6.1	1.10 V	129	29.40	18.50

Remarks:

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 40	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5200.00	102.7 PK			1.43 H	208	63.10	39.60
2	*5200.00	92.8 AV			1.43 H	208	53.20	39.60
3	#10400.00	60.0 PK	74.0	-14.0	1.08 H	77	41.70	18.30
4	#10400.00	48.0 AV	54.0	-6.0	1.08 H	77	29.70	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	*5200.00	115.4 PK			2.01 V	123	75.80	39.60
2	*5200.00	105.0 AV			2.01 V	123	65.40	39.60
3	#10400.00	60.9 PK	74.0	-13.1	1.23 V	64	42.60	18.30
4	#10400.00	47.8 AV	54.0	-6.2	1.23 V	64	29.50	18.30

Remarks:

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 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	58.5 PK	74.0	-15.5	1.23 H	64	52.80	5.70
2	5150.00	46.8 AV	54.0	-7.2	1.23 H	64	41.10	5.70
3	*5240.00	102.8 PK			1.35 H	14	63.20	39.60
4	*5240.00	92.5 AV			1.35 H	14	52.90	39.60
5	#10480.00	59.3 PK	74.0	-14.7	1.17 H	41	41.60	17.70
6	#10480.00	46.7 AV	54.0	-7.3	1.17 H	41	29.00	17.70
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	5150.00	57.7 PK	74.0	-16.3	1.40 V	300	52.00	5.70
2	5150.00	46.8 AV	54.0	-7.2	1.40 V	300	41.10	5.70
3	*5240.00	115.4 PK			2.04 V	125	75.80	39.60
4	*5240.00	105.0 AV			2.04 V	125	65.40	39.60
5	#10480.00	60.9 PK	74.0	-13.1	1.63 V	70	43.20	17.70
6	#10480.00	47.9 AV	54.0	-6.1	1.63 V	70	30.20	17.70

Remarks:

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 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5714.00	61.8 PK	74.0	-12.2	1.70 H	12	55.50	6.30
2	#5714.00	46.5 AV	54.0	-7.5	1.70 H	12	40.20	6.30
3	#5722.00	67.7 PK	78.2	-10.5	1.73 H	19	61.40	6.30
4	#5725.00	56.8 PK	78.2	-21.4	1.73 H	15	50.50	6.30
5	*5745.00	103.3 PK			1.57 H	329	63.00	40.30
6	*5745.00	94.0 AV			1.57 H	329	53.70	40.30
7	11490.00	58.9 PK	74.0	-15.1	1.23 H	54	41.70	17.20
8	11490.00	47.4 AV	54.0	-6.6	1.23 H	54	30.20	17.20
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	#5714.00	71.1 PK	74.0	-2.9	1.95 V	302	64.80	6.30
2	#5714.00	53.0 AV	54.0	-1.0	1.95 V	302	46.70	6.30
3	#5722.00	76.4 PK	78.2	-1.8	1.91 V	248	70.10	6.30
4	#5725.00	65.6 PK	78.2	-12.6	1.69 V	226	59.30	6.30
5	*5745.00	113.7 PK			1.92 V	262	73.40	40.30
6	*5745.00	104.6 AV			1.92 V	262	64.30	40.30
7	11490.00	59.9 PK	74.0	-14.1	1.13 V	68	42.70	17.20
8	11490.00	46.2 AV	54.0	-7.8	1.13 V	68	29.00	17.20

Remarks:

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 157	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5785.00	106.7 PK			1.77 H	13	66.30	40.40
2	*5785.00	96.0 AV			1.77 H	13	55.60	40.40
3	11570.00	58.9 PK	74.0	-15.1	1.23 H	64	41.60	17.30
4	11570.00	47.5 AV	54.0	-6.5	1.23 H	64	30.20	17.30
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	*5785.00	115.6 PK			1.93 V	302	75.20	40.40
2	*5785.00	104.5 AV			1.93 V	302	64.10	40.40
3	11570.00	58.6 PK	74.0	-15.4	1.23 V	64	41.30	17.30
4	11570.00	47.5 AV	54.0	-6.5	1.23 V	64	30.20	17.30

Remarks:

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.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	*5825.00	106.8 PK			2.11 H	193	66.30	40.50
2	*5825.00	95.5 AV			2.11 H	193	55.00	40.50
3	#5850.00	49.8 PK	78.2	-28.4	1.63 H	189	43.20	6.60
4	#5853.00	62.5 PK	78.2	-15.7	1.71 H	190	55.90	6.60
5	#5861.00	60.0 PK	74.0	-14.0	1.25 H	186	53.40	6.60
6	#5861.00	42.7 AV	54.0	-11.3	1.25 H	186	36.10	6.60
7	11650.00	59.3 PK	74.0	-14.7	1.17 H	41	41.60	17.70
8	11650.00	48.0 AV	54.0	-6.0	1.17 H	41	30.30	17.70
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	*5825.00	116.6 PK			1.88 V	277	76.10	40.50
2	*5825.00	105.4 AV			1.88 V	277	64.90	40.50
3	#5850.00	58.1 PK	78.2	-20.1	1.72 V	238	51.50	6.60
4	#5853.00	71.8 PK	78.2	-6.4	1.87 V	278	65.20	6.60
5	#5861.00	68.3 PK	74.0	-5.7	1.74 V	244	61.70	6.60
6	#5861.00	50.9 AV	54.0	-3.1	1.74 V	244	44.30	6.60
7	11650.00	59.6 PK	74.0	-14.4	1.23 V	55	41.90	17.70
8	11650.00	48.0 AV	54.0	-6.0	1.23 V	55	30.30	17.70

Remarks:

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 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	60.6 PK	74.0	-13.4	2.01 H	164	54.90	5.70
2	5150.00	47.1 AV	54.0	-6.9	2.01 H	164	41.40	5.70
3	*5180.00	104.3 PK			1.50 H	155	64.80	39.50
4	*5180.00	94.2 AV			1.50 H	155	54.70	39.50
5	#10360.00	58.5 PK	74.0	-15.5	1.17 H	85	40.00	18.50
6	#10360.00	45.9 AV	54.0	-8.1	1.17 H	85	27.40	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	5150.00	67.6 PK	74.0	-6.4	2.24 V	37	61.90	5.70
2	5150.00	52.8 AV	54.0	-1.2	2.24 V	37	47.10	5.70
3	*5180.00	112.8 PK			1.48 V	286	73.30	39.50
4	*5180.00	101.9 AV			1.48 V	286	62.40	39.50
5	#10360.00	58.9 PK	74.0	-15.1	1.23 V	64	40.40	18.50
6	#10360.00	46.5 AV	54.0	-7.5	1.23 V	64	28.00	18.50

Remarks:

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 40	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5200.00	107.7 PK			1.80 H	208	68.10	39.60
2	*5200.00	96.5 AV			1.80 H	208	56.90	39.60
3	#10400.00	58.6 PK	74.0	-15.4	1.15 H	69	40.30	18.30
4	#10400.00	45.4 AV	54.0	-8.6	1.15 H	69	27.10	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	*5200.00	115.1 PK			1.56 V	311	75.50	39.60
2	*5200.00	103.9 AV			1.56 V	311	64.30	39.60
3	#10400.00	60.3 PK	74.0	-13.7	1.23 V	64	42.00	18.30
4	#10400.00	46.0 AV	54.0	-8.0	1.23 V	64	27.70	18.30

Remarks:

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 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5240.00	103.9 PK			1.26 H	334	64.30	39.60
2	*5240.00	92.8 AV			1.26 H	334	53.20	39.60
3	5350.00	56.1 PK	74.0	-17.9	1.29 H	3	50.30	5.80
4	5350.00	43.7 AV	54.0	-10.3	1.29 H	3	37.90	5.80
5	#10480.00	58.3 PK	74.0	-15.7	1.18 H	74	40.60	17.70
6	#10480.00	45.1 AV	54.0	-8.9	1.18 H	74	27.40	17.70
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	*5240.00	115.2 PK			2.12 V	304	75.60	39.60
2	*5240.00	103.1 AV			2.12 V	304	63.50	39.60
3	5350.00	56.6 PK	74.0	-17.4	2.22 V	18	50.80	5.80
4	5350.00	44.5 AV	54.0	-9.5	2.22 V	18	38.70	5.80
5	#10480.00	58.2 PK	74.0	-15.8	1.16 V	97	40.50	17.70
6	#10480.00	45.4 AV	54.0	-8.6	1.16 V	97	27.70	17.70

Remarks:

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 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5714.00	57.1 PK	74.0	-16.9	1.13 H	248	50.60	6.50
2	#5714.00	44.4 AV	54.0	-9.6	1.13 H	248	37.90	6.50
3	#5722.00	57.1 PK	78.2	-21.1	1.54 H	6	50.60	6.50
4	#5725.00	49.2 PK	78.2	-29.0	1.43 H	339	42.70	6.50
5	*5745.00	102.0 PK			1.99 H	336	61.60	40.40
6	*5745.00	91.4 AV			1.99 H	336	51.00	40.40
7	11490.00	58.8 PK	74.0	-15.2	1.18 H	74	41.30	17.50
8	11490.00	44.9 AV	54.0	-9.1	1.18 H	74	27.40	17.50
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	#5714.00	66.9 PK	74.0	-7.1	1.46 V	174	60.40	6.50
2	#5714.00	49.9 AV	54.0	-4.1	1.46 V	174	43.40	6.50
3	#5722.00	76.8 PK	78.2	-1.4	1.72 V	19	70.30	6.50
4	#5725.00	59.1 PK	78.2	-19.1	1.79 V	20	52.60	6.50
5	*5745.00	110.4 PK			1.03 V	299	70.00	40.40
6	*5745.00	100.7 AV			1.03 V	299	60.30	40.40
7	11490.00	58.8 PK	74.0	-15.2	1.23 V	64	41.30	17.50
8	11490.00	45.1 AV	54.0	-8.9	1.23 V	64	27.60	17.50

Remarks:

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 157	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5785.00	104.9 PK			2.07 H	331	64.30	40.60
2	*5785.00	95.2 AV			2.07 H	331	54.60	40.60
3	11570.00	58.4 PK	74.0	-15.6	1.87 H	99	40.90	17.50
4	11570.00	44.0 AV	54.0	-10.0	1.87 H	99	26.50	17.50
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	*5785.00	113.8 PK			1.81 V	219	73.20	40.60
2	*5785.00	104.5 AV			1.81 V	219	63.90	40.60
3	11570.00	58.8 PK	74.0	-15.2	1.36 V	98	41.30	17.50
4	11570.00	45.1 AV	54.0	-8.9	1.36 V	98	27.60	17.50

Remarks:

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.

CHANNEL	TX Channel 165	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5825.00	106.1 PK			1.74 H	330	65.40	40.70
2	*5825.00	95.3 AV			1.74 H	330	54.60	40.70
3	#5850.00	56.8 PK	78.2	-21.4	1.18 H	225	50.00	6.80
4	#5853.00	65.3 PK	78.2	-12.9	1.08 H	229	58.50	6.80
5	#5861.00	60.0 PK	74.0	-14.0	1.15 H	108	53.20	6.80
6	#5861.00	45.6 AV	54.0	-8.4	1.15 H	108	38.80	6.80
7	11650.00	58.9 PK	74.0	-15.1	1.89 H	74	40.90	18.00
8	11650.00	45.1 AV	54.0	-8.9	1.89 H	74	27.10	18.00
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	*5825.00	112.5 PK			1.81 V	301	71.80	40.70
2	*5825.00	101.3 AV			1.81 V	301	60.60	40.70
3	#5850.00	63.1 PK	78.2	-15.1	1.00 V	242	56.30	6.80
4	#5853.00	74.2 PK	78.2	-4.0	1.86 V	304	67.40	6.80
5	#5861.00	70.2 PK	74.0	-3.8	1.90 V	229	63.40	6.80
6	#5861.00	53.0 AV	54.0	-1.0	1.90 V	229	46.20	6.80
7	11650.00	59.6 PK	74.0	-14.4	1.47 V	88	41.60	18.00
8	11650.00	45.2 AV	54.0	-8.8	1.47 V	88	27.20	18.00

Remarks:

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 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	62.3 PK	74.0	-11.7	1.00 H	335	56.60	5.70
2	5150.00	46.4 AV	54.0	-7.6	1.00 H	335	40.70	5.70
3	*5190.00	98.5 PK			1.41 H	199	59.00	39.50
4	*5190.00	88.2 AV			1.41 H	199	48.70	39.50
5	#10380.00	58.7 PK	74.0	-15.3	1.26 H	54	40.30	18.40
6	#10380.00	45.5 AV	54.0	-8.5	1.26 H	54	27.10	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	5150.00	71.2 PK	74.0	-2.8	2.29 V	328	65.50	5.70
2	5150.00	52.6 AV	54.0	-1.4	2.29 V	328	46.90	5.70
3	*5190.00	109.8 PK			1.75 V	129	70.30	39.50
4	*5190.00	99.0 AV			1.75 V	129	59.50	39.50
5	#10380.00	58.6 PK	74.0	-15.4	1.17 V	84	40.20	18.40
6	#10380.00	45.8 AV	54.0	-8.2	1.17 V	84	27.40	18.40

Remarks:

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 46	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5230.00	103.5 PK			1.27 H	195	63.90	39.60
2	*5230.00	93.4 AV			1.27 H	195	53.80	39.60
3	5350.00	51.8 PK	74.0	-22.2	1.15 H	74	46.00	5.80
4	5350.00	43.7 AV	54.0	-10.3	1.15 H	74	37.90	5.80
5	#10460.00	59.1 PK	74.0	-14.9	1.17 H	41	41.30	17.80
6	#10460.00	45.2 AV	54.0	-8.8	1.17 H	41	27.40	17.80
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	*5230.00	112.6 PK			2.03 V	310	73.00	39.60
2	*5230.00	102.6 AV			2.03 V	310	63.00	39.60
3	5350.00	56.0 PK	74.0	-18.0	2.15 V	19	50.20	5.80
4	5350.00	44.2 AV	54.0	-9.8	2.15 V	19	38.40	5.80
5	#10460.00	58.1 PK	74.0	-15.9	1.23 V	87	40.30	17.80
6	#10460.00	45.6 AV	54.0	-8.4	1.23 V	87	27.80	17.80

Remarks:

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 151	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5714.00	62.3 PK	74.0	-11.7	2.06 H	16	55.80	6.50
2	#5714.00	45.2 AV	54.0	-8.8	2.06 H	16	38.70	6.50
3	#5722.00	67.4 PK	78.2	-10.8	1.86 H	13	60.90	6.50
4	#5725.00	53.0 PK	78.2	-25.2	1.23 H	97	46.50	6.50
5	*5755.00	100.9 PK			1.54 H	144	60.40	40.50
6	*5755.00	90.7 AV			1.54 H	144	50.20	40.50
7	11510.00	58.7 PK	74.0	-15.3	1.23 H	78	41.30	17.40
8	11510.00	45.0 AV	54.0	-9.0	1.23 H	78	27.60	17.40
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	#5714.00	69.9 PK	74.0	-4.1	2.07 V	34	63.40	6.50
2	#5714.00	53.0 AV	54.0	-1.0	2.07 V	34	46.50	6.50
3	#5722.00	76.5 PK	78.2	-1.7	1.93 V	5	70.00	6.50
4	#5723.00	58.2 PK	78.2	-20.0	1.24 V	30	51.70	6.50
5	*5755.00	108.0 PK			1.76 V	292	67.50	40.50
6	*5755.00	97.4 AV			1.76 V	292	56.90	40.50
7	11510.00	59.0 PK	74.0	-15.0	1.32 V	58	41.60	17.40
8	11510.00	44.1 AV	54.0	-9.9	1.32 V	58	26.70	17.40

Remarks:

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 159	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	*5795.00	103.1 PK			1.31 H	138	62.50	40.60
2	*5795.00	92.6 AV			1.31 H	138	52.00	40.60
3	#5850.00	49.4 PK	78.2	-28.8	1.88 H	54	42.60	6.80
4	#5853.00	59.1 PK	78.2	-19.1	1.13 H	115	52.30	6.80
5	#5861.00	57.4 PK	74.0	-16.6	1.41 H	318	50.60	6.80
6	#5861.00	45.3 AV	54.0	-8.7	1.41 H	318	38.50	6.80
7	11590.00	58.7 PK	74.0	-15.3	1.99 H	74	41.20	17.50
8	11590.00	44.4 AV	54.0	-9.6	1.99 H	74	26.90	17.50
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	*5795.00	110.8 PK			1.24 V	240	70.20	40.60
2	*5795.00	100.8 AV			1.24 V	240	60.20	40.60
3	#5850.00	55.3 PK	78.2	-22.9	1.63 V	231	48.50	6.80
4	#5853.00	71.8 PK	78.2	-6.4	1.88 V	201	65.00	6.80
5	#5861.00	67.1 PK	74.0	-6.9	1.80 V	300	60.30	6.80
6	#5861.00	52.2 AV	54.0	-1.8	1.80 V	300	45.40	6.80
7	11590.00	59.4 PK	74.0	-14.6	1.23 V	97	41.90	17.50
8	11590.00	45.1 AV	54.0	-8.9	1.23 V	97	27.60	17.50

Remarks:

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 42	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	59.8 PK	74.0	-14.2	1.85 H	207	54.10	5.70
2	5150.00	46.2 AV	54.0	-7.8	1.85 H	207	40.50	5.70
3	*5210.00	94.2 PK			1.31 H	198	54.60	39.60
4	*5210.00	82.5 AV			1.31 H	198	42.90	39.60
5	#10420.00	58.5 PK	74.0	-15.5	1.19 H	74	40.30	18.20
6	#10420.00	45.3 AV	54.0	-8.7	1.19 H	74	27.10	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	5150.00	67.5 PK	74.0	-6.5	1.86 V	131	61.80	5.70
2	5150.00	52.6 AV	54.0	-1.4	1.86 V	131	46.90	5.70
3	*5210.00	103.2 PK			1.90 V	134	63.60	39.60
4	*5210.00	91.6 AV			1.90 V	134	52.00	39.60
5	#10420.00	58.5 PK	74.0	-15.5	1.28 V	74	40.30	18.20
6	#10420.00	45.8 AV	54.0	-8.2	1.28 V	74	27.60	18.20

Remarks:

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 155	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	#5714.00	62.1 PK	74.0	-11.9	1.46 H	11	55.60	6.50
2	#5714.00	46.8 AV	54.0	-7.2	1.46 H	11	40.30	6.50
3	#5722.00	62.8 PK	78.2	-15.4	1.30 H	13	56.30	6.50
4	#5725.00	50.5 PK	78.2	-27.7	1.50 H	99	44.00	6.50
5	*5775.00	95.8 PK			1.61 H	139	55.20	40.60
6	*5775.00	84.4 AV			1.61 H	139	43.80	40.60
7	#5850.00	50.5 PK	78.2	-27.7	1.59 H	345	43.70	6.80
8	#5853.00	60.4 PK	78.2	-17.8	1.79 H	48	53.60	6.80
9	#5861.00	60.5 PK	74.0	-13.5	1.95 H	74	53.70	6.80
10	#5861.00	47.4 AV	54.0	-6.6	1.95 H	74	40.60	6.80
11	11550.00	59.3 PK	74.0	-14.7	1.36 H	87	41.90	17.40
12	11550.00	45.0 AV	54.0	-9.0	1.36 H	87	27.60	17.40
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	#5714.00	72.9 PK	74.0	-1.1	1.60 V	11	66.40	6.50
2	#5714.00	53.0 AV	54.0	-1.0	1.60 V	11	46.50	6.50
3	#5722.00	74.9 PK	78.2	-3.3	1.52 V	50	68.40	6.50
4	#5725.00	61.8 PK	78.2	-16.4	1.62 V	17	55.30	6.50
5	*5775.00	104.4 PK			1.06 V	235	63.80	40.60
6	*5775.00	93.1 AV			1.06 V	235	52.50	40.60
7	#5850.00	52.5 PK	78.2	-25.7	1.65 V	305	45.70	6.80
8	#5853.00	67.8 PK	78.2	-10.4	1.67 V	238	61.00	6.80
9	#5861.00	67.6 PK	74.0	-6.4	1.70 V	237	60.80	6.80
10	#5861.00	50.2 AV	54.0	-3.8	1.70 V	237	43.40	6.80
11	11550.00	58.9 PK	74.0	-15.1	1.23 V	67	41.50	17.40
12	11550.00	44.3 AV	54.0	-9.7	1.23 V	67	26.90	17.40

Remarks:

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 Data

802.11a

CHANNEL	TX Channel 36	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	51.24	31.1 QP	40.0	-8.9	1.00 H	95	45.20	-14.10
2	375.29	41.8 QP	46.0	-4.2	1.00 H	148	53.00	-11.20
3	499.48	38.3 QP	46.0	-7.7	1.00 H	155	47.20	-8.90
4	625.60	36.8 QP	46.0	-9.2	1.24 H	222	43.10	-6.30
5	749.79	37.6 QP	46.0	-8.4	1.00 H	262	41.20	-3.60
6	875.91	37.0 QP	46.0	-9.0	1.50 H	167	39.20	-2.20
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	51.24	37.6 QP	40.0	-2.4	1.00 V	8	51.70	-14.10
2	101.69	35.9 QP	43.5	-7.6	1.00 V	314	54.30	-18.40
3	375.29	35.4 QP	46.0	-10.6	1.24 V	224	46.60	-11.20
4	625.60	36.2 QP	46.0	-9.8	1.75 V	132	42.50	-6.30
5	749.79	35.6 QP	46.0	-10.4	1.24 V	191	39.20	-3.60
6	875.91	40.0 QP	46.0	-6.0	1.00 V	261	42.20	-2.20

Remarks:

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.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCS 30	100287	Apr. 09, 2014	Apr. 08, 2015
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-523	Sep. 29, 2014	Sep. 28, 2015
RF Cable (JYEBAO)	5D-FB	COACAB-001	May 26, 2014	May 25, 2015
50 ohms Terminator	50	3	Oct. 17, 2014	Oct. 16, 2015
50 ohms Terminator	N/A	EMC-04	Oct. 21, 2014	Oct. 20, 2015
Software ADT	BV ADT_Cond_V7.3.7 .3	NA	NA	NA
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ENV216	100072	June 10, 2014	June 09, 2015

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 Lin Kou Shielded Room No. A. (NVLAP LAB CODE: 200838-0)

3. The VCCI Site Registration No. is C-817.

4.2.3 Test Procedures

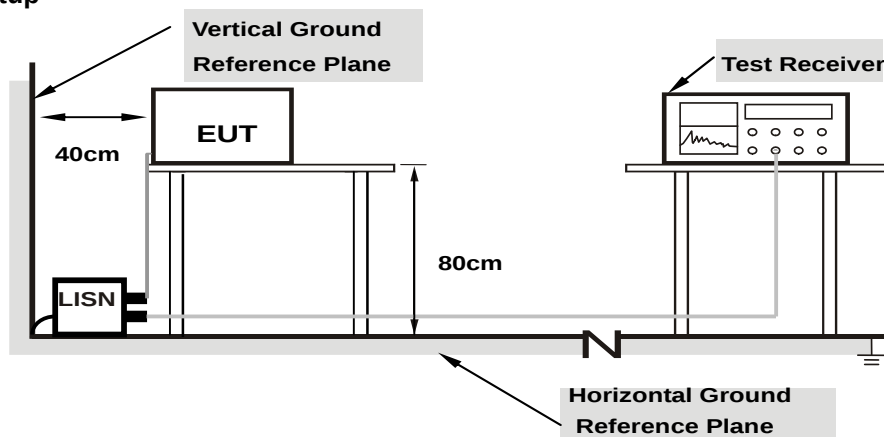
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 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.

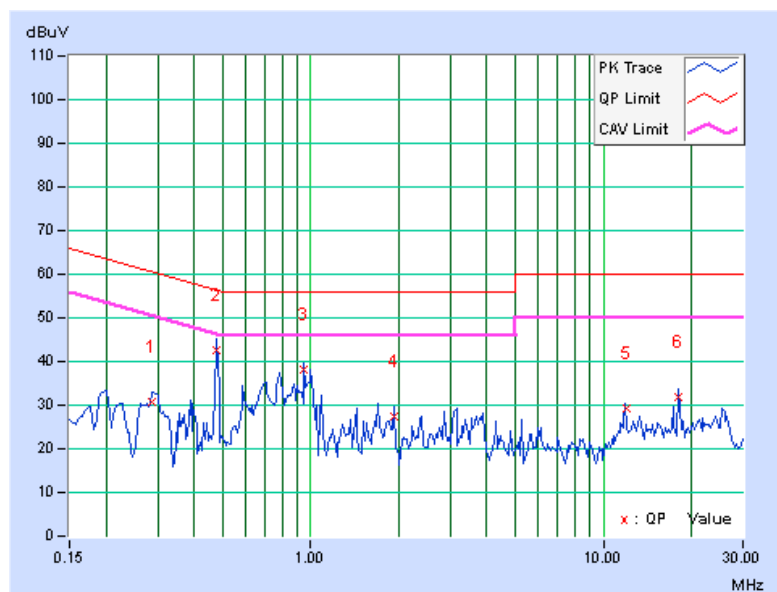
4.2.7 Test Results

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.28672	0.08	30.52	19.88	30.60	19.96	60.62	50.62	-30.02	-30.66
2	0.47737	0.09	42.38	40.66	42.47	40.75	56.38	46.38	-13.91	-5.63
3	0.95078	0.11	37.94	36.92	38.05	37.03	56.00	46.00	-17.95	-8.97
4	1.92194	0.16	27.18	24.92	27.34	25.08	56.00	46.00	-28.66	-20.92
5	11.94709	0.48	28.62	24.24	29.10	24.72	60.00	50.00	-30.90	-25.28
6	18.08984	0.62	31.30	28.72	31.92	29.34	60.00	50.00	-28.08	-20.66

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.

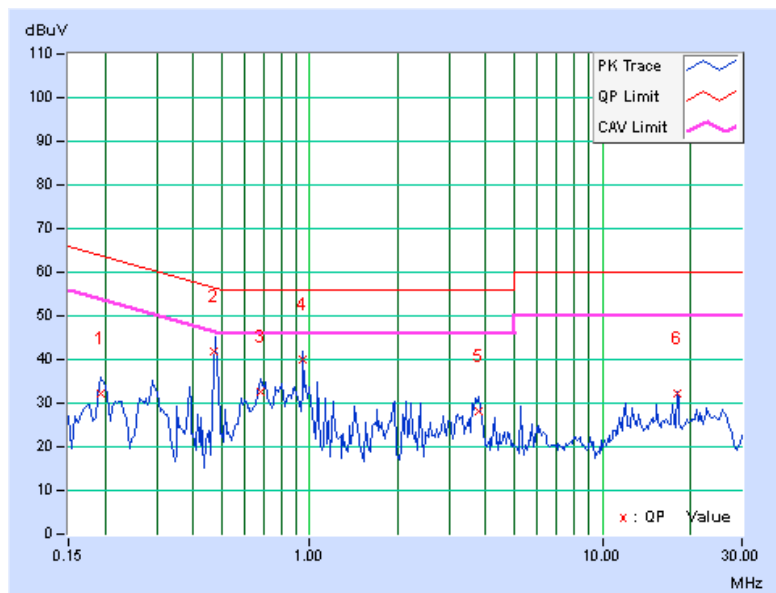


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.07	32.30	25.16	32.37	25.23	63.91	53.91	-31.54	-28.68
2	0.47172	0.08	41.68	41.22	41.76	41.30	56.48	46.48	-14.72	-5.18
3	0.68125	0.08	32.40	22.46	32.48	22.54	56.00	46.00	-23.52	-23.46
4	0.95078	0.09	39.92	38.96	40.01	39.05	56.00	46.00	-15.99	-6.95
5	3.77734	0.20	28.10	18.82	28.30	19.02	56.00	46.00	-27.70	-26.98
6	18.09375	0.61	31.70	29.12	32.31	29.73	60.00	50.00	-27.69	-20.27

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.

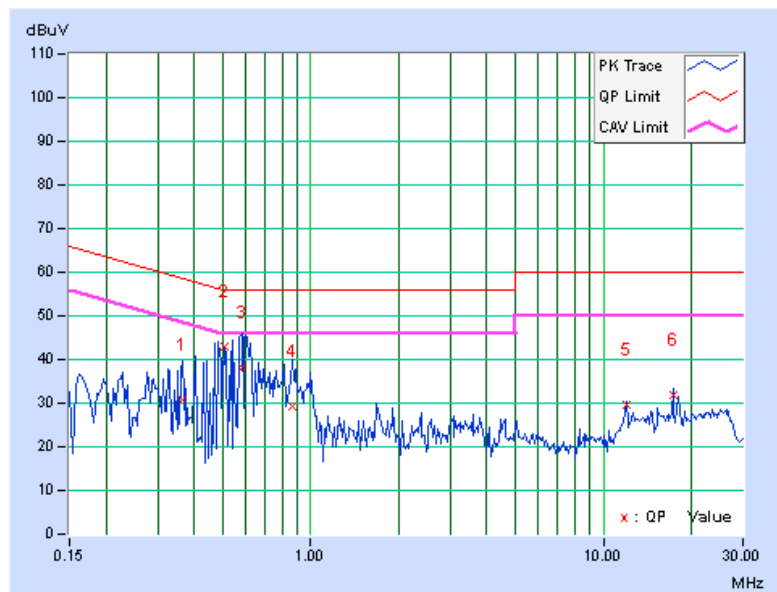


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.36484	0.09	30.58	14.62	30.67	14.71	58.62	48.62	-27.95	-33.91
2	0.50553	0.09	43.04	41.66	43.13	41.75	56.00	46.00	-12.87	-4.25
3	0.58359	0.10	37.98	19.04	38.08	19.14	56.00	46.00	-17.92	-26.86
4	0.86484	0.11	29.16	21.38	29.27	21.49	56.00	46.00	-26.73	-24.51
5	11.95313	0.48	29.02	24.48	29.50	24.96	60.00	50.00	-30.50	-25.04
6	17.39844	0.61	31.26	27.94	31.87	28.55	60.00	50.00	-28.13	-21.45

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.

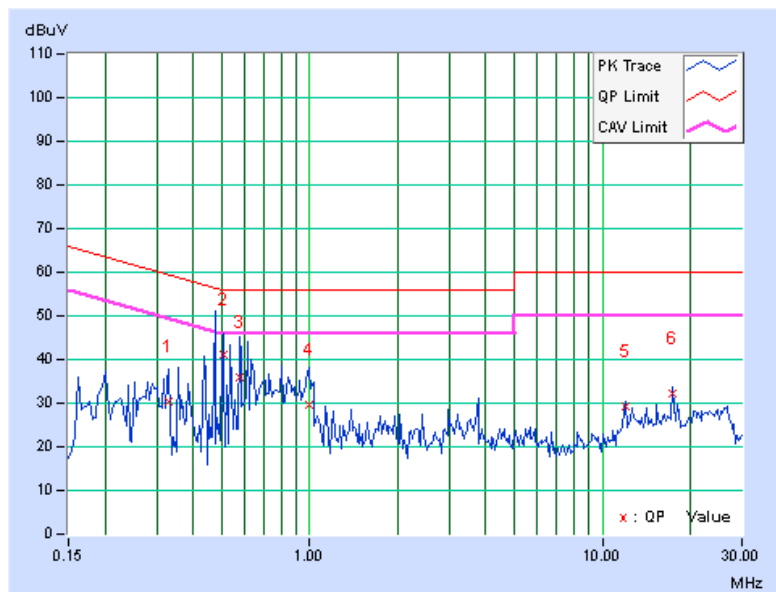


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.32969	0.08	30.26	15.48	30.34	15.56	59.46	49.46	-29.12	-33.90
2	0.50697	0.08	41.12	38.26	41.20	38.34	56.00	46.00	-14.80	-7.66
3	0.57578	0.08	35.82	21.04	35.90	21.12	56.00	46.00	-20.10	-24.88
4	0.99375	0.09	29.72	20.12	29.81	20.21	56.00	46.00	-26.19	-25.79
5	11.95703	0.45	28.88	24.44	29.33	24.89	60.00	50.00	-30.67	-25.11
6	17.41016	0.59	31.78	29.22	32.37	29.81	60.00	50.00	-27.63	-20.19

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 Measurement

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 $\leq$ 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,

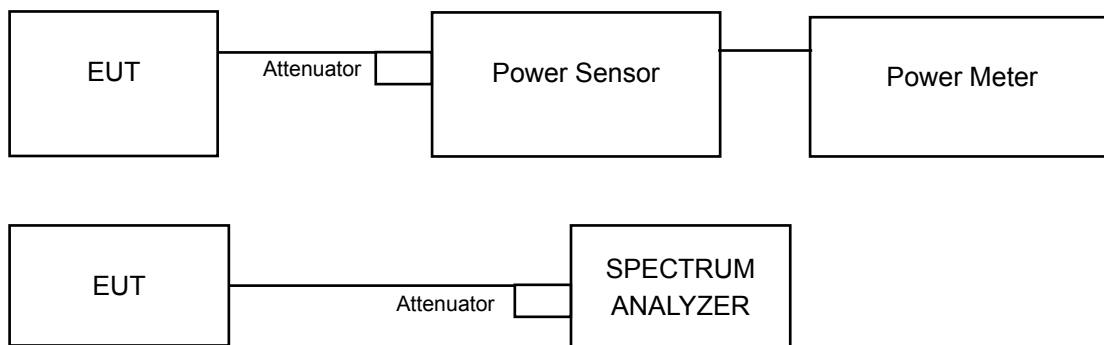
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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



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 $\geq$ 3 MHz
- e. Number of points in sweep $\geq$ 2 Span / RBW.
- f. Sweep time $\leq$ (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 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

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				
36	5180	22.74	24.57	474.350	26.76	30	Pass
40	5200	22.84	24.79	493.610	26.93	30	Pass
48	5240	22.73	23.04	388.871	25.90	30	Pass
149	5745	20.85	20.42	231.773	23.65	30	Pass
157	5785	22.09	24.24	427.269	26.31	30	Pass
165	5825	22.01	24.01	410.623	26.13	30	Pass

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				
36	5180	21.97	23.77	395.630	25.97	27.02	Pass
40	5200	21.37	23.11	341.732	25.34	27.02	Pass
48	5240	21.76	22.23	317.077	25.01	27.02	Pass
149	5745	20.05	18.83	177.542	22.49	27.02	Pass
157	5785	22.27	23.54	394.599	25.96	27.02	Pass
165	5825	21.63	23.61	375.161	25.74	27.02	Pass

Note: Gain = 5.97dBi + +10 log (2) = 8.98dBi > 6dBi, so the power limit shall be reduced to 30-(8.98-6) = 27.02dBm

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				
38	5190	18.22	18.49	137.006	21.37	27.02	Pass
46	5230	21.82	22.33	323.057	25.09	27.02	Pass
151	5755	16.76	16.43	91.378	19.61	27.02	Pass
159	5795	21.61	23.62	375.021	25.74	27.02	Pass

Note: Gain = 5.97dBi + +10 log (2) = 8.98dBi > 6dBi, so the power limit shall be reduced to 30-(8.98-6) = 27.02dBm

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				
42	5210	15.34	14.94	65.387	18.15	27.02	Pass
155	5775	14.63	16.00	68.851	18.38	27.02	Pass

Note: Gain = 5.97dBi + +10 log (2) = 8.98dBi > 6dBi, so the power limit shall be reduced to 30-(8.98-6) = 27.02dBm

26dB Bandwidth:

802.11a

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
36	5180	37.34	39.65	Pass
40	5200	37.88	42.54	Pass
48	5240	31.13	36.95	Pass

802.11n (HT20)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
36	5180	34.36	38.65	Pass
40	5200	42.85	43.14	Pass
48	5240	42.91	35.80	Pass

802.11n (HT40)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
38	5180	52.72	41.94	Pass
46	5200	84.90	79.04	Pass

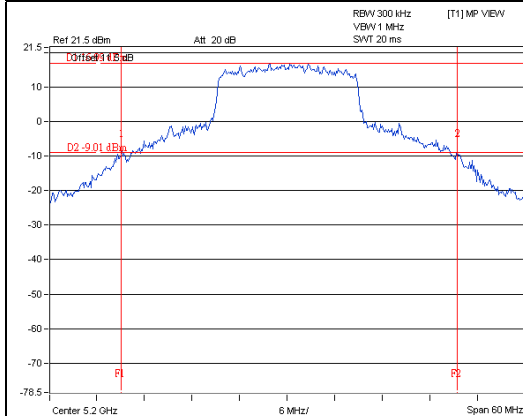
802.11ac (VHT80)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
42	5210	99.38	91.63	Pass

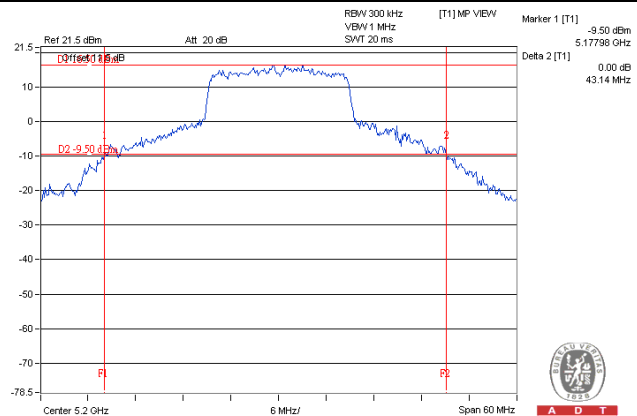
Spectrum Plot of Worst Value

802.11a

802.11n (HT20)



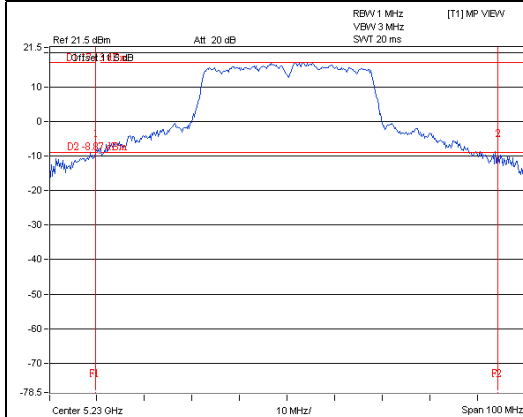
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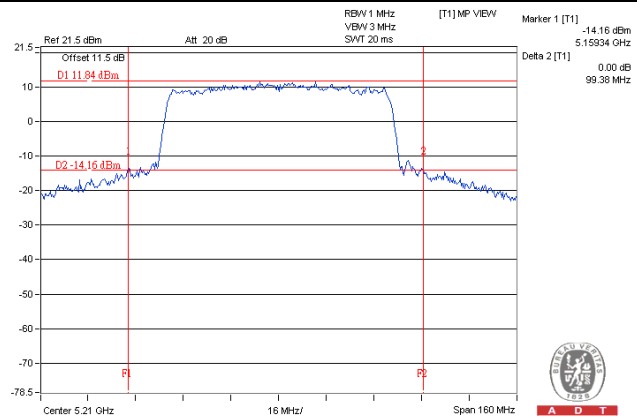
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802.11n (HT40)

802.11ac (VHT80)



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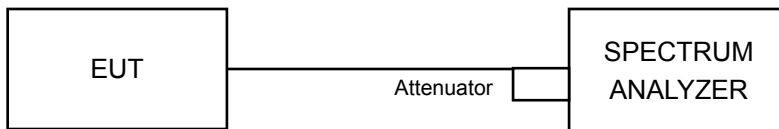
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4.4 Peak Power Spectral Density Measurement

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

For U-NII-1 band:

Using method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 30 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- Set Channel power measure = 1MHz
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

For U-NII-3 band:

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 500 kHz, Set VBW $\geq$ 3 RBW, Detector = RMS
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value and add 10 log (1/duty cycle)
- Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300kHz)

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

For U-NII-1 Band

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm)		Total Power Density (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1			
36	5180	7.75	9.71	11.85	14.02	Pass
40	5200	7.94	9.82	11.99	14.02	Pass
48	5240	6.43	8.97	10.89	14.02	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. Directional gain = $5.97\text{dBi} + 10\log(2) = 8.98\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(8.98-6) = 14.02\text{dBm}$.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm)		Total Power Density (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1			
36	5180	6.64	9.27	11.16	14.02	Pass
40	5200	6.87	9.05	11.11	14.02	Pass
48	5240	6.91	9.43	11.36	14.02	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. Directional gain = $5.97\text{dBi} + 10\log(2) = 8.98\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(8.98-6) = 14.02\text{dBm}$.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm)		Total Power Density (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1			
38	5190	1.28	1.35	4.33	14.02	Pass
46	5230	4.42	5.49	8.00	14.02	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. Directional gain = $5.97\text{dBi} + 10\log(2) = 8.98\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17-(8.98-6) = 14.02\text{dBm}$.

802.11ac (VHT80)

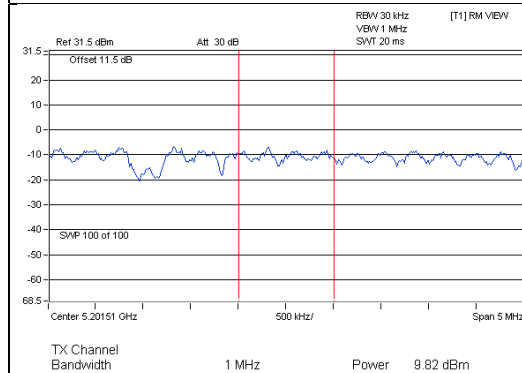
Chan.	Chan. Freq. (MHz)	PSD (dBm)		Total Power Density (dBm)	Max. Limit (dBm)	Pass/Fail
		Chain 0	Chain 1			
42	5210	-1.69	-0.81	1.78	14.02	Pass

Note:

- 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.
- Directional gain = $5.97\text{dBi} + 10\log(2) = 8.98\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.98 - 6) = 14.02\text{dBm}$.

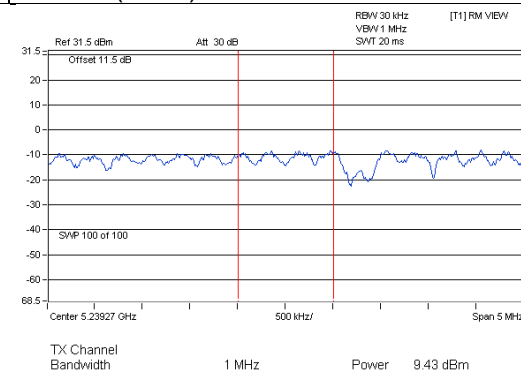
Spectrum Plot of Worst Value

802.11a



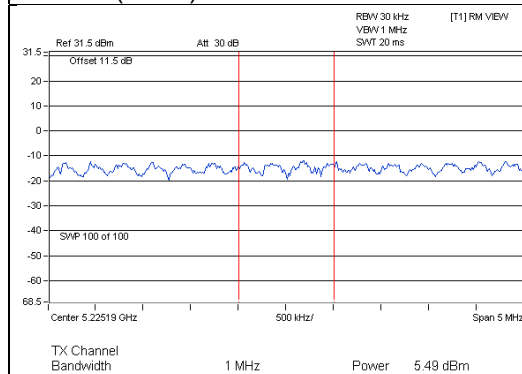
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802.11n (HT20)



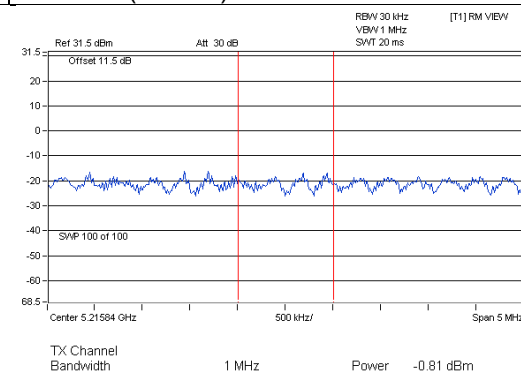
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802.11n (HT40)



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802.11ac (VHT80)



A D T

For U-NII-3 Band

802.11a

TX chain	Channel	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass /Fail
0	149	5745	-2.19	0.03	3.01	3.04	27.02	Pass
	157	5785	-0.75	1.47	3.01	4.48	27.02	Pass
	165	5825	-1.08	1.14	3.01	4.15	27.02	Pass
1	149	5745	-1.91	0.31	3.01	3.32	27.02	Pass
	157	5785	0.61	2.83	3.01	5.84	27.02	Pass
	165	5825	0.41	2.63	3.01	5.64	27.02	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. Directional gain = $5.97\text{dBi} + 10\log(2) = 8.98\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $90 - (8.98 - 6) = 27.02\text{dBm}$.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass /Fail
0	149	5745	-3.71	-1.49	3.01	1.52	27.02	Pass
	157	5785	-1.58	0.64	3.01	3.65	27.02	Pass
	165	5825	-2.27	-0.05	3.01	2.96	27.02	Pass
1	149	5745	0.03	2.25	3.01	5.26	27.02	Pass
	157	5785	-0.32	1.90	3.01	4.91	27.02	Pass
	165	5825	-0.93	1.29	3.01	4.30	27.02	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. Directional gain = $5.97\text{dBi} + 10\log(2) = 8.98\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $90 - (8.98 - 6) = 27.02\text{dBm}$.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass /Fail
0	151	5755	-8.37	-6.15	3.01	-3.14	27.02	Pass
	159	5795	-5.39	-3.17	3.01	-0.16	27.02	Pass
1	151	5755	-8.23	-6.01	3.01	-3.00	27.02	Pass
	159	5795	-3.93	-1.71	3.01	1.30	27.02	Pass

Note:

- 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.
- Directional gain = 5.97dBi + 10log(2) = 8.98dBi > 6dBi, so the power density limit shall be reduced to 90-(8.98-6) = 27.02dBm.

802.11ac (VHT80)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass /Fail
0	155	5775	-12.82	-10.60	3.01	-7.59	27.02	Pass
1	155	5775	-6.93	-4.71	3.01	-1.70	27.02	Pass

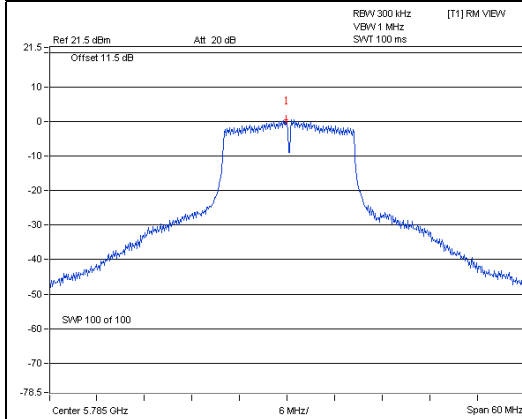
Note:

- 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.
- Directional gain = 5.97dBi + 10log(2) = 8.98dBi > 6dBi, so the power density limit shall be reduced to 90-(8.98-6) = 27.02dBm.

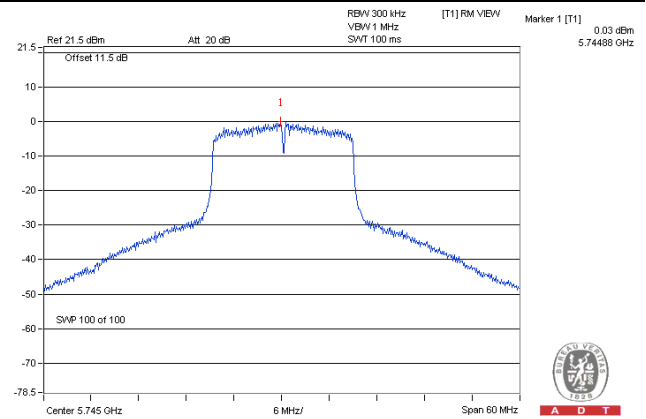
Spectrum Plot of Worst Value

802.11a

802.11n (HT20)



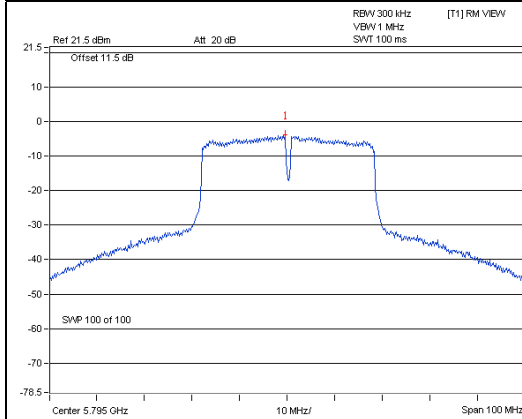
A D T



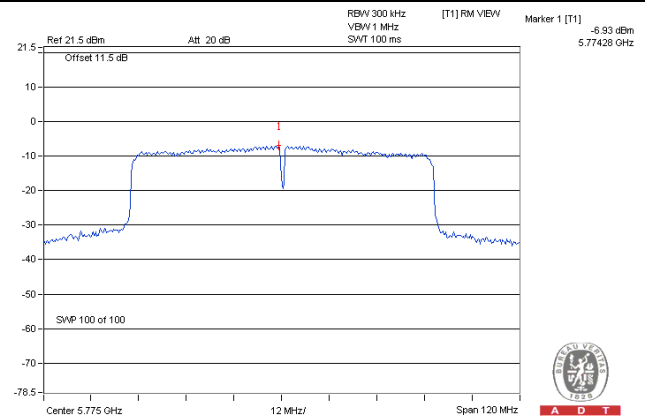
A D T

802.11n (HT40)

802.11ac (VHT80)



A D T



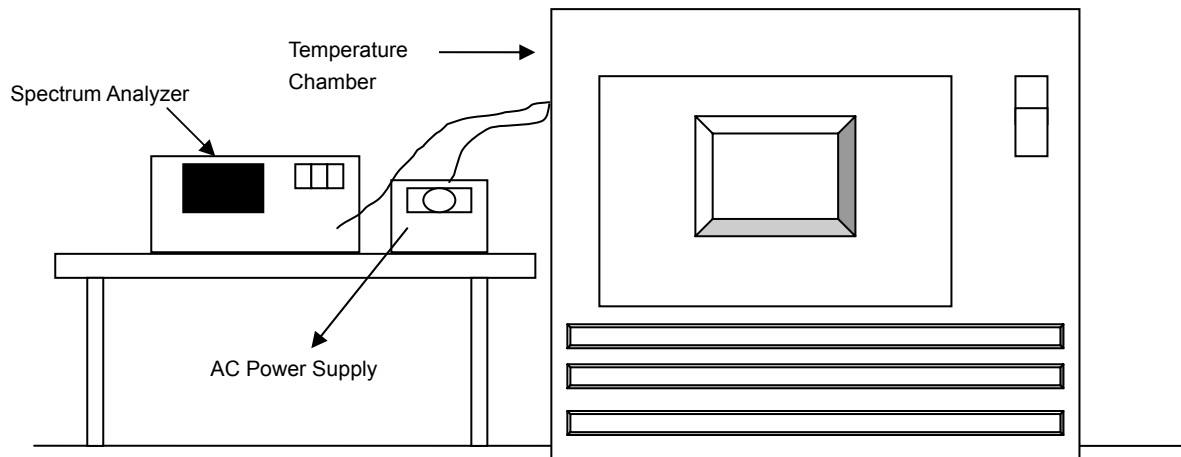
A D T

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

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- 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

Frequency Stability Versus Temp.									
Operating Frequency: 5240MHz									
Temp. (°C)	Power Supply (Vac)	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	120	5239.9776	-0.00043	5239.9733	-0.00051	5239.9734	-0.00051	5239.9734	-0.00051
40	120	5240.0211	0.00040	5240.0177	0.00034	5240.0185	0.00035	5240.0173	0.00033
30	120	5239.9879	-0.00023	5239.9858	-0.00027	5239.9841	-0.00030	5239.9883	-0.00022
20	120	5240.0015	0.00003	5240.0003	0.00001	5240.0033	0.00006	5240.0036	0.00007
10	120	5240.0196	0.00037	5240.0207	0.00040	5240.0229	0.00044	5240.0187	0.00036
0	120	5239.9827	-0.00033	5239.9853	-0.00028	5239.9862	-0.00026	5239.9838	-0.00031
-10	120	5240.0161	0.00031	5240.0173	0.00033	5240.0184	0.00035	5240.018	0.00034
-20	120	5239.9952	-0.00009	5239.9958	-0.00008	5239.9968	-0.00006	5239.9925	-0.00014
-30	120	5240.0245	0.00047	5240.025	0.00048	5240.0237	0.00045	5240.0251	0.00048

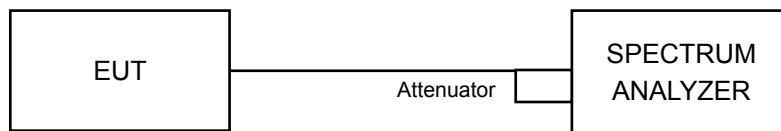
Frequency Stability Versus Temp.									
Operating Frequency: 5240MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5240.0024	0.00005	5240.0011	0.00002	5240.0038	0.00007	5240.004	0.00008
	120	5240.0015	0.00003	5240.0003	0.00001	5240.0033	0.00006	5240.0036	0.00007
	102	5240.0008	0.00002	5239.9996	-0.00001	5240.0023	0.00004	5240.0044	0.00008

4.6 6dB Bandwidth Measurement

4.6.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

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

- Set resolution bandwidth (RBW) = 100kHz
- 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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	17.63	17.63	0.5	Pass
157	5785	16.47	16.52	0.5	Pass
165	5825	16.48	16.53	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	17.64	17.64	0.5	Pass
157	5785	17.68	17.72	0.5	Pass
165	5825	17.68	17.71	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	36.51	36.51	0.5	Pass
159	5795	36.56	36.50	0.5	Pass

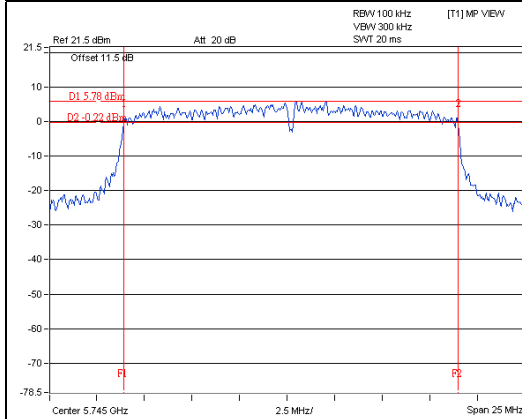
802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.91	76.14	0.5	Pass

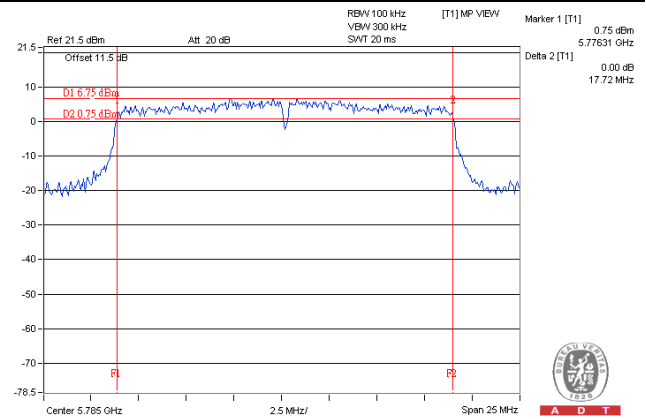
Spectrum Plot of Worst Value

802.11a

802.11n (HT20)



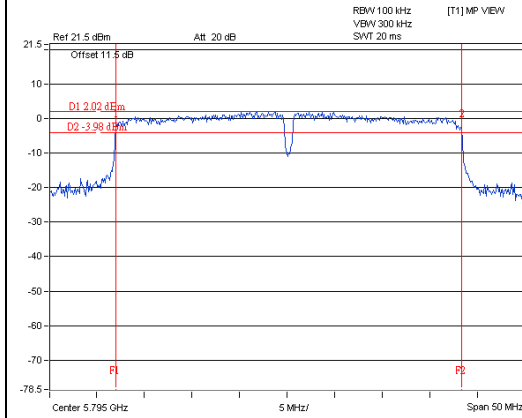
A D T



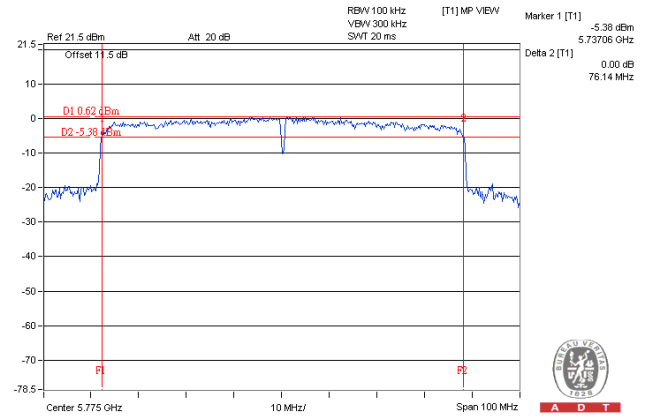
A D T

802.11n (HT40)

802.11ac (VHT80)



A D T



A D T

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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Fax: 886-2-26051924

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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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