

FCC Test Report

Report No.: RF150825C34-1

FCC ID: KA2WL8710APA1

Test Model: DWL-8710AP

Received Date: Aug. 25, 2015

Test Date: Sep. 30 ~ Oct. 29, 2015

Issued Date: Nov. 05, 2015

Applicant: D-Link Corporation

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Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Modification Record	6
3 General Information	7
3.1 General Description of EUT	7
3.2 Description of Test Modes	9
3.2.1 Test Mode Applicability and Tested Channel Detail	10
3.3 Duty Cycle of Test Signal	12
3.4 Description of Support Units	13
3.4.1 Configuration of System under Test	13
3.5 General Description of Applied Standard	14
4 Test Types and Results	15
4.1 Radiated Emission and Bandedge Measurement	15
4.1.1 Limits of Radiated Emission and Bandedge Measurement	15
4.1.2 Test Instruments	16
4.1.3 Test Procedure	17
4.1.4 Deviation from Test Standard	17
4.1.5 Test Setup	18
4.1.6 EUT Operating Conditions	18
4.1.7 Test Results	19
4.2 Conducted Emission Measurement	38
4.2.1 Limits of Conducted Emission Measurement	38
4.2.2 Test Instruments	38
4.2.3 Test Procedure	39
4.2.4 Deviation from Test Standard	39
4.2.5 Test Setup	39
4.2.6 EUT Operating Conditions	39
4.2.7 Test Results	40
4.3 Transmit Power Measurement	42
4.3.1 Limits of Transmit Power Measurement	42
4.3.2 Test Setup	42
4.3.3 Test Instruments	42
4.3.4 Test Procedure	43
4.3.5 Deviation from Test Standard	43
4.3.6 EUT Operating Conditions	43
4.3.7 Test Result	44
4.4 Peak Power Spectral Density Measurement	50
4.4.1 Limits of Peak Power Spectral Density Measurement	50
4.4.2 Test Setup	50
4.4.3 Test Instruments	50
4.4.4 Test Procedure	51
4.4.5 Deviation from Test Standard	51
4.4.6 EUT Operating Condition	51
4.4.7 Test Results	52
4.5 Frequency Stability	57
4.5.1 Limits of Frequency Stability Measurement	57
4.5.2 Test Setup	57
4.5.3 Test Instruments	57
4.5.4 Test Procedure	57
4.5.5 Deviation from Test Standard	57
4.5.6 EUT Operating Condition	57

4.5.7 Test Results	58
4.6 6dB Bandwidth Measurement.....	59
4.6.1 Limits of 6dB Bandwidth Measurement.....	59
4.6.2 Test Setup.....	59
4.6.3 Test Instruments	59
4.6.4 Test Procedure	59
4.6.5 Deviation from Test Standard	59
4.6.6 EUT Operating Condition	59
4.6.7 Test Results	60
5 Pictures of Test Arrangements.....	62
Appendix – Information on the Testing Laboratories	63



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Release Control Record

Issue No.	Description	Date Issued
RF150825C34-1	Original release.	Nov. 05, 2015

1 Certificate of Conformity

Product: 802.11n/ac Unified Wireless Outdoor Access Point

Brand: D-Link

Test Model: DWL-8710AP

Sample Status: Engineering sample

Applicant: D-Link Corporation

Test Date: Sep. 30 ~ Oct. 29, 2015

Standard: 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 : Sunt Lee, **Date:** Nov. 05, 2015
Sunt Lee / Specialist

Approved by : Ken Liu, **Date:** Nov. 05, 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
15.407(b)(6)	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -2.72dB at 0.43125MHz.
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 5722.00MHz.
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 N Plug. (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	Expanded Uncertainty (k=2) ($\pm$)
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	802.11n/ac Unified Wireless Outdoor Access Point
Brand	D-Link
Test Model	DWL-8710AP
Sample Status	Engineering sample
Power Supply Rating	54Vdc (POE)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
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: 119.43mW 5745 ~ 5825MHz: 238.289mW
Antenna Type	Dipole antenna with 6.92dBi gain
Antenna Connector	N Plug (The device is professionally installed)
Accessory Device	POE, POE's adapter
Data Cable Supplied	1.75m non-shielded ground cable

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function
802.11a	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX

*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)

2. The EUT will install at outdoor area, the highest antenna gain from the horizon above 30 degrees as below, for more detail information please refer to antenna specification and user manual.

Antenna	Antenna gain	Antenna install degree
Dipole	-2.33dBi	

3. The EUT uses following POE.

POE	
Brand	D-Link
Model	DPE-301GI
Rating	54Vdc, 0.6A
POE's adapter	
Brand	Gospell Digital Technology Co., Ltd.
Model	G0753-540-060
Input Power	100-240Vac, 0.75A MAX, 50/60Hz
Output Power	54Vdc, 0.6A
Power Line	1.45m DC cable without core attached on adapter

3.2 Description of Test Modes

FOR 5180 ~ 5240MHz:

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

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

2 channels are provided for 802.11n (HT40), 802.11ac (40MHz):

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), 802.11ac (VHT20):

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

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

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 $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE $\geq$ 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	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	7.2
-	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	15.0
-	802.11ac (VHT80)		42	42	OFDM	BPSK	65.0
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	7.2
-	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	15.0
-	802.11ac (VHT80)		155	155	OFDM	BPSK	65.0

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	5180-5240	36 to 48	149	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)
-	802.11a	5180-5320	36 to 64	149	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)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	7.2
-	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	15.0
-	802.11ac (VHT80)		42	42	OFDM	BPSK	65.0
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	7.2
-	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	15.0
-	802.11ac (VHT80)		155	155	OFDM	BPSK	65.0

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE _≥ 1G	18 deg. C, 70% RH	120Vac, 60Hz	Nick Hsu Jones Chang
	23 deg. C, 65% RH		
RE<1G	18 deg. C, 70% RH	120Vac, 60Hz	Nick Hsu
PLC	18 deg. C, 70% RH	120Vac, 60Hz	Nick Hsu
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ted Chang

3.3 Duty Cycle of Test Signal

802.11a, 802.11n (HT20): Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

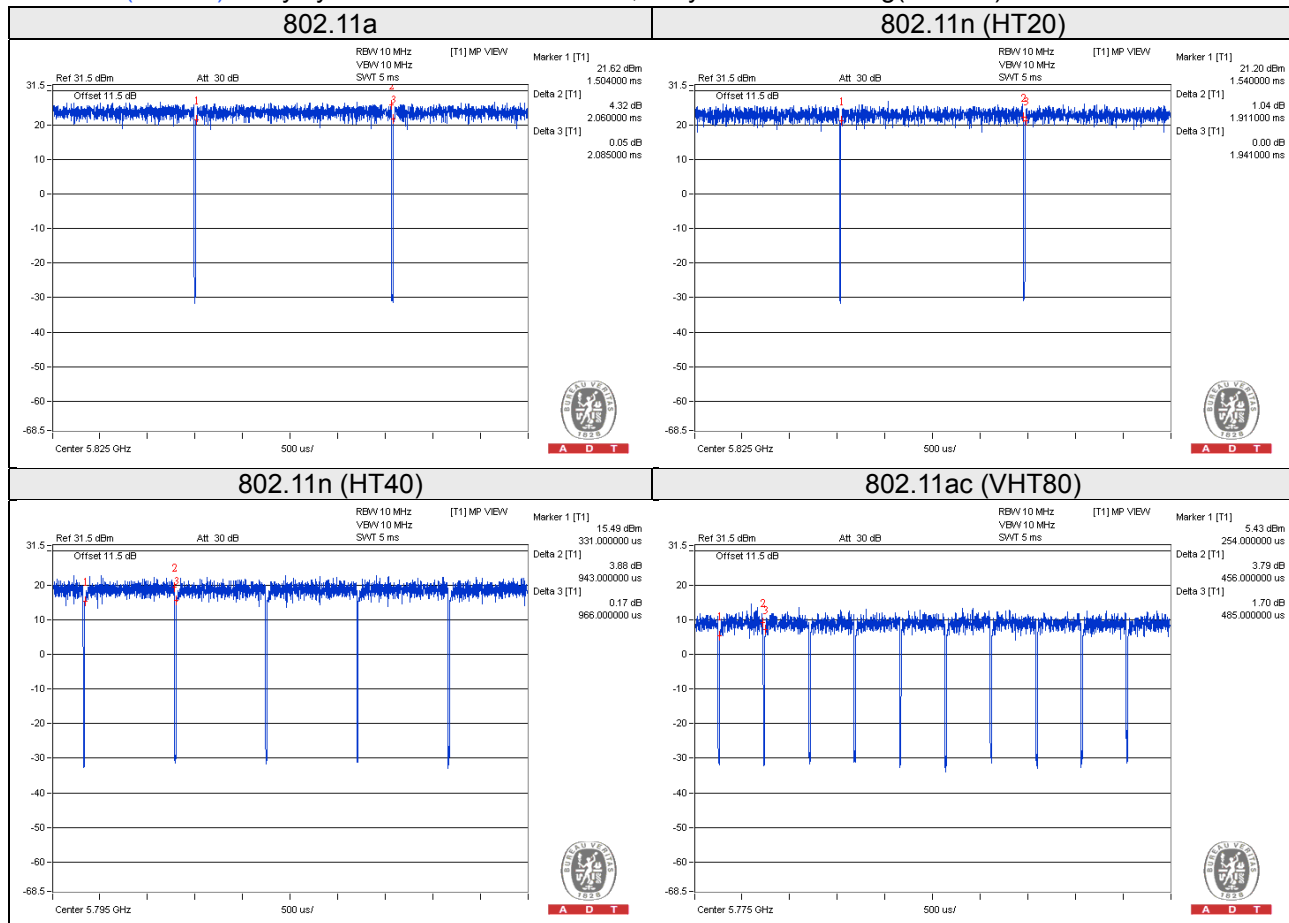
802.11n (HT40), 802.11ac (VHT80): Duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11a: Duty cycle = $2.06/2.085 = 0.988$

802.11n (HT20): Duty cycle = $1.911/1.941 = 0.985$

802.11n (HT40): Duty cycle = $0.943/0.966 = 0.976$, Duty factor = $10 * \log(1/0.976) = 0.10$

802.11ac (VHT80): Duty cycle = $0.456/0.485 = 0.940$, Duty factor = $10 * \log(1/0.940) = 0.27$



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.

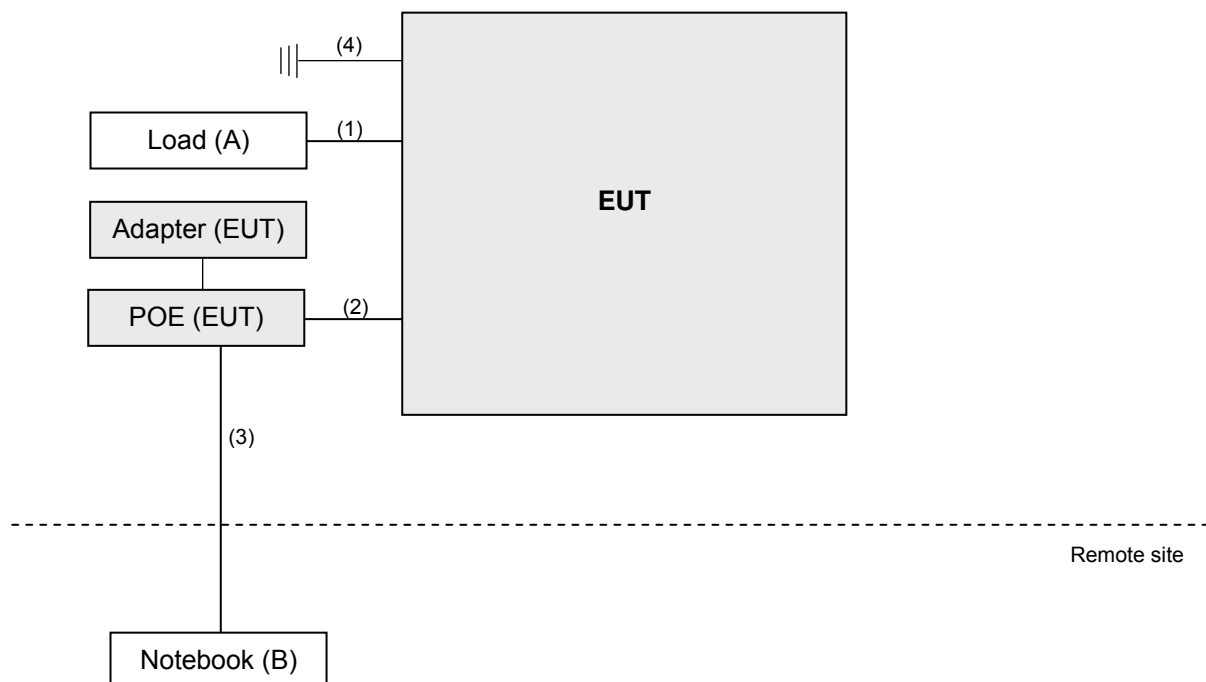
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Load	NA	NA	NA	NA	-
B.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45	1	1.8	N	0	-
2.	RJ45	1	1.8	N	0	-
3.	RJ45	1	5	N	0	-
4.	Ground	1	1.75	N	0	Accessory of EUT

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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 (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:

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

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	100040	Jul. 08, 2015	Jul. 07, 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
Loop Antenna R&S	HFH2-Z2	100070	Mar. 06, 2014	Mar. 05, 2016
Preamplifier Agilent	8447D	2944A10738	Oct.18, 2014 Oct.18, 2015	Oct. 17, 2015 Oct. 17, 2016
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
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 calibration interval of the loop antenna is 24 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 Procedure

- 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:

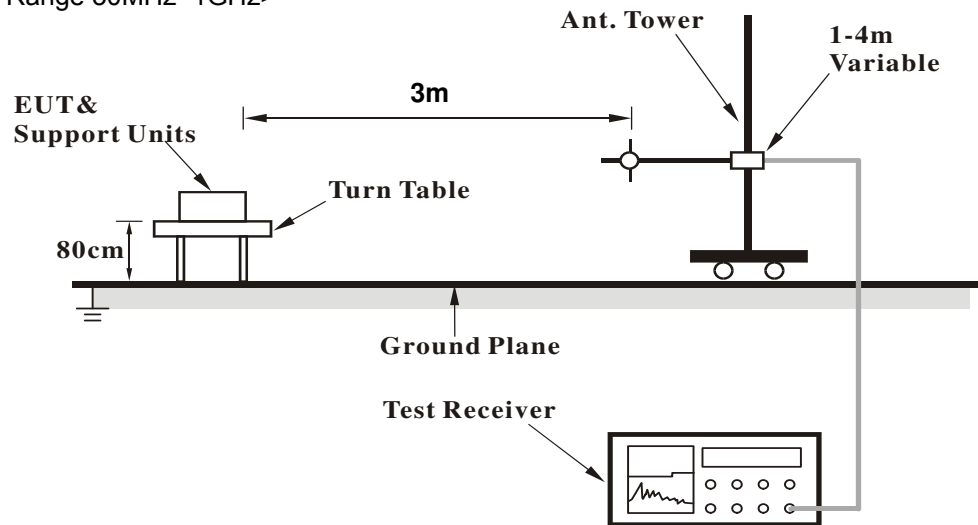
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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 ($10 \log(1/\text{duty cycle})$).
4. 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.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

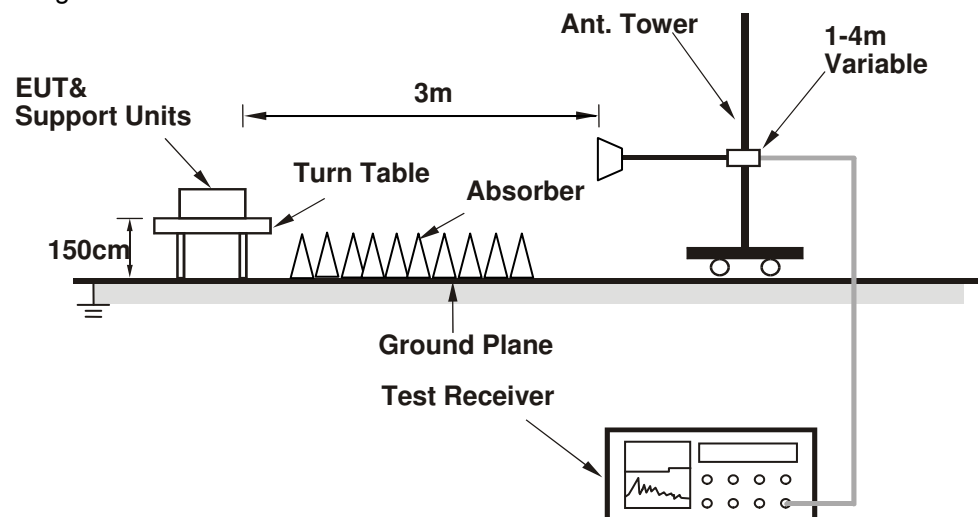
No deviation.

4.1.5 Test Setup

<Frequency Range 30MHz~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 a 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	5092.00	56.3 PK	74.0	-17.7	1.44 H	188	50.30	6.00
2	5092.00	45.1 AV	54.0	-8.9	1.44 H	188	39.10	6.00
3	*5180.00	100.4 PK			1.42 H	188	60.90	39.50
4	*5180.00	90.7 AV			1.42 H	188	51.20	39.50
5	#10360.00	58.4 PK	74.0	-15.6	1.18 H	141	41.40	17.00
6	#10360.00	45.5 AV	54.0	-8.5	1.18 H	141	28.50	17.00
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	5092.00	63.6 PK	74.0	-10.4	1.58 V	229	57.60	6.00
2	5092.00	52.5 AV	54.0	-1.5	1.58 V	229	46.50	6.00
3	*5180.00	113.6 PK			1.62 V	218	74.10	39.50
4	*5180.00	103.7 AV			1.62 V	218	64.20	39.50
5	#10360.00	58.1 PK	74.0	-15.9	1.33 V	172	41.10	17.00
6	#10360.00	45.9 AV	54.0	-8.1	1.33 V	172	28.90	17.00

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.

CHANNEL	TX Channel 40	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	5039.00	57.0 PK	74.0	-17.0	1.03 H	232	51.00	6.00
2	5039.00	44.8 AV	54.0	-9.2	1.03 H	232	38.80	6.00
3	*5200.00	100.5 PK			1.00 H	239	60.90	39.60
4	*5200.00	91.2 AV			1.00 H	239	51.60	39.60
5	5358.00	57.0 PK	74.0	-17.0	1.05 H	230	50.60	6.40
6	5358.00	44.9 AV	54.0	-9.1	1.05 H	230	38.50	6.40
7	#10400.00	58.2 PK	74.0	-15.8	1.02 H	181	41.20	17.00
8	#10400.00	45.1 AV	54.0	-8.9	1.02 H	181	28.10	17.00
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	5039.00	63.0 PK	74.0	-11.0	1.77 V	221	57.00	6.00
2	5039.00	52.6 AV	54.0	-1.4	1.77 V	221	46.60	6.00
3	*5200.00	114.1 PK			1.58 V	27	74.50	39.60
4	*5200.00	104.5 AV			1.58 V	27	64.90	39.60
5	5358.00	63.6 PK	74.0	-10.4	1.75 V	214	57.20	6.40
6	5358.00	52.8 AV	54.0	-1.2	1.75 V	214	46.40	6.40
7	#10400.00	58.0 PK	74.0	-16.0	1.42 V	65	41.00	17.00
8	#10400.00	45.5 AV	54.0	-8.5	1.42 V	65	28.50	17.00

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.

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	5080.00	56.3 PK	74.0	-17.7	1.02 H	227	50.30	6.00
2	5080.00	44.5 AV	54.0	-9.5	1.02 H	227	38.50	6.00
3	*5240.00	97.1 PK			1.00 H	237	57.50	39.60
4	*5240.00	88.0 AV			1.00 H	237	48.40	39.60
5	#10480.00	58.2 PK	74.0	-15.8	1.00 H	154	40.20	18.00
6	#10480.00	44.9 AV	54.0	-9.1	1.00 H	154	26.90	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	5080.00	63.2 PK	74.0	-10.8	1.71 V	229	57.20	6.00
2	5080.00	52.5 AV	54.0	-1.5	1.71 V	229	46.50	6.00
3	*5240.00	111.7 PK			1.71 V	226	72.10	39.60
4	*5240.00	102.1 AV			1.71 V	226	62.50	39.60
5	#10480.00	58.0 PK	74.0	-16.0	1.32 V	182	40.00	18.00
6	#10480.00	45.2 AV	54.0	-8.8	1.32 V	182	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.

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	59.5 PK	74.0	-14.5	1.40 H	221	52.30	7.20
2	#5714.00	48.1 AV	54.0	-5.9	1.40 H	221	40.90	7.20
3	#5722.00	63.1 PK	78.2	-15.1	1.59 H	192	55.90	7.20
4	#5725.00	56.3 PK	78.2	-21.9	1.59 H	192	49.10	7.20
5	*5745.00	102.1 PK			1.59 H	192	61.70	40.40
6	*5745.00	93.0 AV			1.59 H	192	52.60	40.40
7	11490.00	60.6 PK	74.0	-13.4	1.20 H	234	42.30	18.30
8	11490.00	47.7 AV	54.0	-6.3	1.20 H	234	29.40	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	#5670.00	64.8 PK	68.2	-3.4	1.92 V	213	57.80	7.00
2	#5714.00	70.0 PK	74.0	-4.0	1.87 V	306	62.80	7.20
3	#5714.00	51.1 AV	54.0	-2.9	1.87 V	306	43.90	7.20
4	#5722.00	76.3 PK	78.2	-1.9	1.94 V	169	69.10	7.20
5	#5725.00	58.9 PK	78.2	-19.3	1.94 V	169	51.70	7.20
6	*5745.00	113.6 PK			2.12 V	151	73.20	40.40
7	*5745.00	103.8 AV			2.12 V	151	63.40	40.40
8	11490.00	60.8 PK	74.0	-13.2	1.61 V	178	42.50	18.30
9	11490.00	47.8 AV	54.0	-6.2	1.61 V	178	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 157	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	*5785.00	105.4 PK			1.27 H	121	64.90	40.50
2	*5785.00	95.9 AV			1.27 H	121	55.40	40.50
3	11570.00	60.5 PK	74.0	-13.5	1.36 H	123	42.30	18.20
4	11570.00	47.6 AV	54.0	-6.4	1.36 H	123	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	#5630.00	66.3 PK	68.2	-1.9	2.06 V	127	59.40	6.90
2	#5700.00	64.1 PK	68.2	-4.1	2.08 V	137	56.90	7.20
3	*5785.00	115.7 PK			2.28 V	87	75.20	40.50
4	*5785.00	105.6 AV			2.28 V	87	65.10	40.50
5	#5940.00	63.3 PK	68.2	-4.9	2.07 V	137	55.60	7.70
6	11570.00	61.2 PK	74.0	-12.8	1.81 V	144	43.00	18.20
7	11570.00	48.3 AV	54.0	-5.7	1.81 V	144	30.10	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 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	103.8 PK			1.49 H	143	63.30	40.50
2	*5825.00	95.2 AV			1.49 H	143	54.70	40.50
3	#5850.00	57.5 PK	78.2	-20.7	1.48 H	129	50.00	7.50
4	#5853.00	64.3 PK	78.2	-13.9	1.48 H	129	56.70	7.60
5	#5861.00	61.1 PK	74.0	-12.9	1.50 H	189	53.50	7.60
6	#5861.00	48.6 AV	54.0	-5.4	1.50 H	189	41.00	7.60
7	11680.00	61.4 PK	74.0	-12.6	1.43 H	112	42.60	18.80
8	11680.00	48.3 AV	54.0	-5.7	1.43 H	112	29.50	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	#5666.00	66.5 PK	68.2	-1.7	2.50 V	332	59.50	7.00
2	*5825.00	116.0 PK			2.51 V	200	75.50	40.50
3	*5825.00	106.1 AV			2.51 V	200	65.60	40.50
4	#5850.00	62.8 PK	78.2	-15.4	2.44 V	190	55.30	7.50
5	#5852.00	75.3 PK	78.2	-2.9	2.44 V	190	67.70	7.60
6	#5861.00	72.1 PK	74.0	-1.9	2.45 V	188	64.50	7.60
7	#5861.00	51.5 AV	54.0	-2.5	2.45 V	188	43.90	7.60
8	#5900.00	65.5 PK	68.2	-2.7	2.48 V	174	57.90	7.60
9	11650.00	61.8 PK	74.0	-12.2	1.50 V	357	43.10	18.70
10	11650.00	48.7 AV	54.0	-5.3	1.50 V	357	30.00	18.70

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	5097.00	56.8 PK	74.0	-17.2	1.55 H	275	50.80	6.00
2	5097.00	44.6 AV	54.0	-9.4	1.55 H	275	38.60	6.00
3	*5180.00	99.5 PK			1.47 H	284	60.00	39.50
4	*5180.00	89.2 AV			1.47 H	284	49.70	39.50
5	#10360.00	58.0 PK	74.0	-16.0	1.12 H	221	41.00	17.00
6	#10360.00	45.1 AV	54.0	-8.9	1.12 H	221	28.10	17.00
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	5097.00	63.9 PK	74.0	-10.1	1.68 V	225	57.90	6.00
2	5097.00	52.3 AV	54.0	-1.7	1.68 V	225	46.30	6.00
3	*5180.00	113.7 PK			1.65 V	226	74.20	39.50
4	*5180.00	103.7 AV			1.65 V	226	64.20	39.50
5	#10360.00	58.1 PK	74.0	-15.9	1.41 V	105	41.10	17.00
6	#10360.00	44.9 AV	54.0	-9.1	1.41 V	105	27.90	17.00

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.

CHANNEL	TX Channel 40	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	5040.00	56.8 PK	74.0	-17.2	1.00 H	232	50.80	6.00
2	5040.00	44.5 AV	54.0	-9.5	1.00 H	232	38.50	6.00
3	*5200.00	101.0 PK			1.00 H	239	61.40	39.60
4	*5200.00	91.7 AV			1.00 H	239	52.10	39.60
5	5357.00	56.9 PK	74.0	-17.1	1.01 H	245	50.50	6.40
6	5357.00	44.8 AV	54.0	-9.2	1.01 H	245	38.40	6.40
7	#10400.00	57.4 PK	74.0	-16.6	1.02 H	142	40.40	17.00
8	#10400.00	44.5 AV	54.0	-9.5	1.02 H	142	27.50	17.00
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	5040.00	64.1 PK	74.0	-9.9	1.84 V	92	58.10	6.00
2	5040.00	52.6 AV	54.0	-1.4	1.84 V	92	46.60	6.00
3	*5200.00	115.0 PK			1.61 V	226	75.40	39.60
4	*5200.00	104.8 AV			1.61 V	226	65.20	39.60
5	5357.00	62.7 PK	74.0	-11.3	1.82 V	61	56.30	6.40
6	5357.00	52.4 AV	54.0	-1.6	1.82 V	61	46.00	6.40
7	#10400.00	58.0 PK	74.0	-16.0	1.16 V	169	41.00	17.00
8	#10400.00	45.1 AV	54.0	-8.9	1.16 V	169	28.10	17.00

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.

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	5080.00	56.5 PK	74.0	-17.5	1.09 H	229	50.50	6.00
2	5080.00	44.4 AV	54.0	-9.6	1.09 H	229	38.40	6.00
3	*5240.00	96.9 PK			1.00 H	237	57.30	39.60
4	*5240.00	87.6 AV			1.00 H	237	48.00	39.60
5	#10480.00	59.4 PK	74.0	-14.6	1.03 H	134	41.40	18.00
6	#10480.00	46.0 AV	54.0	-8.0	1.03 H	134	28.00	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	5080.00	63.8 PK	74.0	-10.2	1.65 V	219	57.80	6.00
2	5080.00	52.4 AV	54.0	-1.6	1.65 V	219	46.40	6.00
3	*5240.00	111.3 PK			1.82 V	39	71.70	39.60
4	*5240.00	101.6 AV			1.82 V	39	62.00	39.60
5	#10480.00	58.1 PK	74.0	-15.9	1.28 V	56	40.10	18.00
6	#10480.00	45.3 AV	54.0	-8.7	1.28 V	56	27.30	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.

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	57.6 PK	74.0	-16.4	1.25 H	193	50.40	7.20
2	#5714.00	47.0 AV	54.0	-7.0	1.25 H	193	39.80	7.20
3	#5722.00	60.0 PK	78.2	-18.2	1.46 H	209	52.80	7.20
4	#5725.00	53.8 PK	78.2	-24.4	1.46 H	209	46.60	7.20
5	*5745.00	102.5 PK			1.22 H	129	62.10	40.40
6	*5745.00	91.9 AV			1.22 H	129	51.50	40.40
7	11490.00	60.0 PK	74.0	-14.0	1.30 H	199	41.70	18.30
8	11490.00	46.9 AV	54.0	-7.1	1.30 H	199	28.60	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	#5580.00	64.8 PK	68.2	-3.4	2.18 V	130	57.90	6.90
2	#5722.00	77.2 PK	78.2	-1.0	1.87 V	131	70.00	7.20
3	#5725.00	62.3 PK	78.2	-15.9	1.87 V	131	55.10	7.20
4	*5745.00	113.7 PK			2.39 V	129	73.30	40.40
5	*5745.00	103.0 AV			2.39 V	129	62.60	40.40
6	#5900.00	63.0 PK	68.2	-5.2	2.68 V	128	55.40	7.60
7	11490.00	60.4 PK	74.0	-13.6	2.00 V	231	42.10	18.30
8	11490.00	47.2 AV	54.0	-6.8	2.00 V	231	28.90	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 157	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	*5785.00	105.2 PK			1.12 H	127	64.70	40.50
2	*5785.00	95.2 AV			1.12 H	127	54.70	40.50
3	11570.00	60.8 PK	74.0	-13.2	1.43 H	150	42.60	18.20
4	11570.00	47.6 AV	54.0	-6.4	1.43 H	150	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	#5630.00	66.3 PK	68.2	-1.9	2.09 V	127	59.40	6.90
2	*5785.00	117.4 PK			2.28 V	94	76.90	40.50
3	*5785.00	106.1 AV			2.28 V	94	65.60	40.50
4	#5940.00	64.5 PK	68.2	-3.7	2.43 V	157	56.80	7.70
5	11570.00	61.7 PK	74.0	-12.3	1.89 V	192	43.50	18.20
6	11570.00	48.8 AV	54.0	-5.2	1.89 V	192	30.60	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 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	104.3 PK			1.10 H	105	63.80	40.50
2	*5825.00	94.5 AV			1.10 H	105	54.00	40.50
3	#5850.00	55.4 PK	78.2	-22.8	1.22 H	184	47.90	7.50
4	#5853.00	62.5 PK	78.2	-15.7	1.22 H	184	54.90	7.60
5	#5861.00	58.0 PK	74.0	-16.0	1.10 H	111	50.40	7.60
6	#5861.00	47.5 AV	54.0	-6.5	1.10 H	111	39.90	7.60
7	11650.00	60.7 PK	74.0	-13.3	1.11 H	133	42.00	18.70
8	11650.00	47.8 AV	54.0	-6.2	1.11 H	133	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	#5666.00	66.0 PK	68.2	-2.2	2.14 V	128	59.00	7.00
2	*5825.00	117.2 PK			2.56 V	125	76.70	40.50
3	*5825.00	106.3 AV			2.56 V	125	65.80	40.50
4	#5850.00	62.8 PK	78.2	-15.4	2.55 V	124	55.30	7.50
5	#5853.00	75.5 PK	78.2	-2.7	2.55 V	124	67.90	7.60
6	#5854.00	76.1 PK	78.2	-2.1	2.61 V	129	68.50	7.60
7	#5861.00	72.1 PK	74.0	-1.9	2.50 V	157	64.50	7.60
8	#5861.00	51.4 AV	54.0	-2.6	2.50 V	157	43.80	7.60
9	#5910.00	64.2 PK	68.2	-4.0	2.55 V	152	56.60	7.60
10	11650.00	61.5 PK	74.0	-12.5	1.64 V	343	42.80	18.70
11	11650.00	48.3 AV	54.0	-5.7	1.64 V	343	29.60	18.70

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 (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	56.8 PK	74.0	-17.2	1.49 H	224	50.60	6.20
2	5150.00	44.8 AV	54.0	-9.2	1.49 H	224	38.60	6.20
3	*5190.00	97.1 PK			1.68 H	232	57.60	39.50
4	*5190.00	87.1 AV			1.68 H	232	47.60	39.50
5	#10380.00	58.1 PK	74.0	-15.9	1.16 H	147	41.10	17.00
6	#10380.00	45.2 AV	54.0	-8.8	1.16 H	147	28.20	17.00
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	5150.00	70.5 PK	74.0	-3.5	1.78 V	216	64.30	6.20
2	5150.00	52.5 AV	54.0	-1.5	1.78 V	216	46.30	6.20
3	*5190.00	110.1 PK			1.76 V	235	70.60	39.50
4	*5190.00	99.8 AV			1.76 V	235	60.30	39.50
5	#10380.00	58.0 PK	74.0	-16.0	1.32 V	148	41.00	17.00
6	#10380.00	45.2 AV	54.0	-8.8	1.32 V	148	28.20	17.00

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.

CHANNEL	TX Channel 46	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	57.2 PK	74.0	-16.8	1.41 H	230	51.00	6.20
2	5150.00	44.8 AV	54.0	-9.2	1.41 H	230	38.60	6.20
3	*5230.00	100.0 PK			1.65 H	230	60.40	39.60
4	*5230.00	89.7 AV			1.65 H	230	50.10	39.60
5	#10460.00	57.4 PK	74.0	-16.6	1.14 H	182	39.60	17.80
6	#10460.00	45.2 AV	54.0	-8.8	1.14 H	182	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	5150.00	63.7 PK	74.0	-10.3	1.79 V	57	57.50	6.20
2	5150.00	52.6 AV	54.0	-1.4	1.79 V	57	46.40	6.20
3	*5230.00	113.0 PK			1.74 V	54	73.40	39.60
4	*5230.00	102.9 AV			1.74 V	54	63.30	39.60
5	#10460.00	57.3 PK	74.0	-16.7	1.45 V	64	39.50	17.80
6	#10460.00	44.1 AV	54.0	-9.9	1.45 V	64	26.30	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 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	58.2 PK	74.0	-15.8	1.51 H	147	51.00	7.20
2	#5714.00	46.7 AV	54.0	-7.3	1.51 H	147	39.50	7.20
3	#5722.00	66.4 PK	78.2	-11.8	1.39 H	147	59.20	7.20
4	#5725.00	57.2 PK	78.2	-21.0	1.39 H	147	50.00	7.20
5	*5755.00	96.9 PK			1.51 H	152	56.40	40.50
6	*5755.00	87.1 AV			1.51 H	152	46.60	40.50
7	11510.00	59.7 PK	74.0	-14.3	1.19 H	345	41.50	18.20
8	11510.00	46.5 AV	54.0	-7.5	1.19 H	345	28.30	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	#5680.00	62.8 PK	74.0	-11.2	2.01 V	179	55.70	7.10
2	#5680.00	50.6 AV	54.0	-3.4	2.01 V	179	43.50	7.10
3	#5714.00	71.7 PK	74.0	-2.3	1.91 V	133	64.50	7.20
4	#5714.00	51.8 AV	54.0	-2.2	1.91 V	133	44.60	7.20
5	#5722.00	76.3 PK	78.2	-1.9	1.87 V	135	69.10	7.20
6	#5725.00	63.3 PK	78.2	-14.9	1.87 V	135	56.10	7.20
7	*5755.00	111.4 PK			2.35 V	131	70.90	40.50
8	*5755.00	100.0 AV			2.35 V	131	59.50	40.50
9	11510.00	59.6 PK	74.0	-14.4	1.74 V	255	41.40	18.20
10	11510.00	46.8 AV	54.0	-7.2	1.74 V	255	28.60	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 159	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	*5795.00	98.7 PK			1.44 H	128	58.20	40.50
2	*5795.00	89.0 AV			1.44 H	128	48.50	40.50
3	#5850.00	61.5 PK	78.2	-16.7	1.49 H	133	54.00	7.50
4	#5853.00	55.2 PK	78.2	-23.0	1.49 H	133	47.60	7.60
5	#5861.00	59.1 PK	74.0	-14.9	1.42 H	127	51.50	7.60
6	#5861.00	47.9 AV	54.0	-6.1	1.42 H	127	40.30	7.60
7	11590.00	59.4 PK	74.0	-14.6	1.32 H	218	41.10	18.30
8	11590.00	46.4 AV	54.0	-7.6	1.32 H	218	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	#5712.00	66.1 PK	74.0	-7.9	2.14 V	98	58.90	7.20
2	#5712.00	51.9 AV	54.0	-2.1	2.14 V	98	44.70	7.20
3	#5722.00	67.4 PK	78.2	-10.8	2.16 V	96	60.20	7.20
4	#5725.00	57.7 PK	78.2	-20.5	2.16 V	96	50.50	7.20
5	*5795.00	112.6 PK			2.30 V	132	72.10	40.50
6	*5795.00	101.6 AV			2.30 V	132	61.10	40.50
7	#5850.00	58.2 PK	78.2	-20.0	2.30 V	140	50.70	7.50
8	#5853.00	68.1 PK	78.2	-10.1	2.30 V	140	60.50	7.60
9	#5875.00	66.3 PK	68.2	-1.9	2.38 V	144	58.70	7.60
10	11590.00	60.6 PK	74.0	-13.4	1.80 V	239	42.30	18.30
11	11590.00	47.4 AV	54.0	-6.6	1.80 V	239	29.10	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.

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	57.7 PK	74.0	-16.3	1.46 H	231	51.50	6.20
2	5150.00	45.1 AV	54.0	-8.9	1.46 H	231	38.90	6.20
3	*5210.00	93.1 PK			1.60 H	232	53.50	39.60
4	*5210.00	82.5 AV			1.60 H	232	42.90	39.60
5	#10420.00	58.6 PK	74.0	-15.4	1.18 H	184	41.40	17.20
6	#10420.00	44.4 AV	54.0	-9.6	1.18 H	184	27.20	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	5150.00	67.9 PK	74.0	-6.1	1.59 V	222	61.70	6.20
2	5150.00	52.7 AV	54.0	-1.3	1.59 V	222	46.50	6.20
3	*5210.00	105.4 PK			1.57 V	192	65.80	39.60
4	*5210.00	96.0 AV			1.57 V	192	56.40	39.60
5	#10420.00	58.2 PK	74.0	-15.8	1.20 V	146	41.00	17.20
6	#10420.00	45.1 AV	54.0	-8.9	1.20 V	146	27.90	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 155	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	57.7 PK	74.0	-16.3	1.15 H	190	50.50	7.20
2	#5714.00	46.4 AV	54.0	-7.6	1.15 H	190	39.20	7.20
3	#5722.00	60.1 PK	78.2	-18.1	1.14 H	184	52.90	7.20
4	#5725.00	52.3 PK	78.2	-25.9	1.14 H	184	45.10	7.20
5	*5775.00	91.0 PK			1.14 H	187	50.50	40.50
6	*5775.00	81.6 AV			1.14 H	187	41.10	40.50
7	#5850.00	52.1 PK	78.2	-26.1	1.29 H	149	44.60	7.50
8	#5853.00	59.7 PK	78.2	-18.5	1.29 H	149	52.10	7.60
9	#5861.00	59.0 PK	74.0	-15.0	1.20 H	169	51.40	7.60
10	#5861.00	47.6 AV	54.0	-6.4	1.20 H	169	40.00	7.60
11	11550.00	59.1 PK	74.0	-14.9	1.38 H	98	40.90	18.20
12	11550.00	46.2 AV	54.0	-7.8	1.38 H	98	28.00	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	#5714.00	69.9 PK	74.0	-4.1	2.05 V	133	62.70	7.20
2	#5714.00	52.7 AV	54.0	-1.3	2.05 V	133	45.50	7.20
3	#5722.00	69.8 PK	78.2	-8.4	2.10 V	134	62.60	7.20
4	#5725.00	58.3 PK	78.2	-19.9	2.10 V	134	51.10	7.20
5	*5775.00	104.7 PK			2.38 V	131	64.20	40.50
6	*5775.00	94.1 AV			2.38 V	131	53.60	40.50
7	#5850.00	54.4 PK	78.2	-23.8	1.78 V	140	46.90	7.50
8	#5853.00	60.9 PK	78.2	-17.3	1.78 V	140	53.30	7.60
9	#5861.00	59.7 PK	74.0	-14.3	1.65 V	178	52.10	7.60
10	#5861.00	49.0 AV	54.0	-5.0	1.65 V	178	41.40	7.60
11	11550.00	59.9 PK	74.0	-14.1	1.68 V	121	41.70	18.20
12	11550.00	46.6 AV	54.0	-7.4	1.68 V	121	28.40	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.

Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	31.5 QP	40.0	-8.5	2.00 H	185	46.30	-14.80
2	96.01	33.8 QP	43.5	-9.7	2.00 H	231	53.30	-19.50
3	140.72	34.3 QP	43.5	-9.2	2.00 H	98	48.90	-14.60
4	179.61	34.4 QP	43.5	-9.1	1.50 H	110	49.50	-15.10
5	201.00	34.3 QP	43.5	-9.2	2.00 H	49	51.10	-16.80
6	284.60	27.4 QP	46.0	-18.6	1.01 H	136	40.20	-12.80
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	49.04	38.1 QP	40.0	-1.9	1.00 V	327	52.70	-14.60
2	70.73	36.6 QP	40.0	-3.4	1.00 V	171	52.90	-16.30
3	105.73	36.3 QP	43.5	-7.2	1.00 V	244	54.40	-18.10
4	148.50	32.2 QP	43.5	-11.3	1.00 V	186	46.20	-14.00
5	175.72	31.8 QP	43.5	-11.7	1.50 V	15	46.50	-14.70
6	214.61	33.7 QP	43.5	-9.8	1.00 V	186	50.30	-16.60

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.	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 Procedure

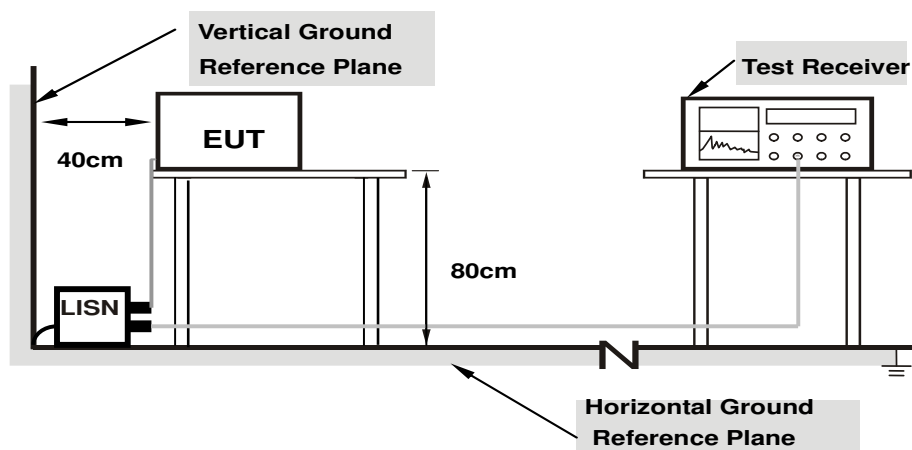
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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.

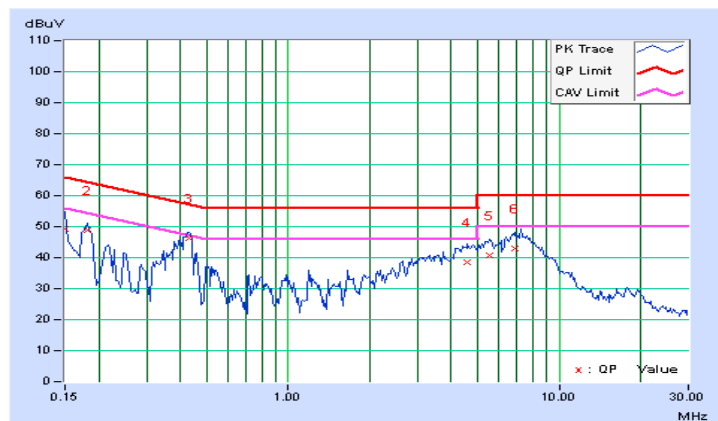
4.2.7 Test Results

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

No	Freq. [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	0.15000	9.94	39.50	27.20	49.44	37.14	66.00	56.00	-16.56	-18.86
2	0.18125	9.94	39.02	28.72	48.96	38.66	64.43	54.43	-15.46	-15.76
3	0.43234	9.96	36.25	34.50	46.21	44.46	57.21	47.21	-11.00	-2.75
4	4.59766	10.29	28.23	21.09	38.52	31.38	56.00	46.00	-17.48	-14.62
5	5.55078	10.31	30.31	22.21	40.62	32.52	60.00	50.00	-19.38	-17.48
6	6.89453	10.35	32.50	26.52	42.85	36.87	60.00	50.00	-17.15	-13.13

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.

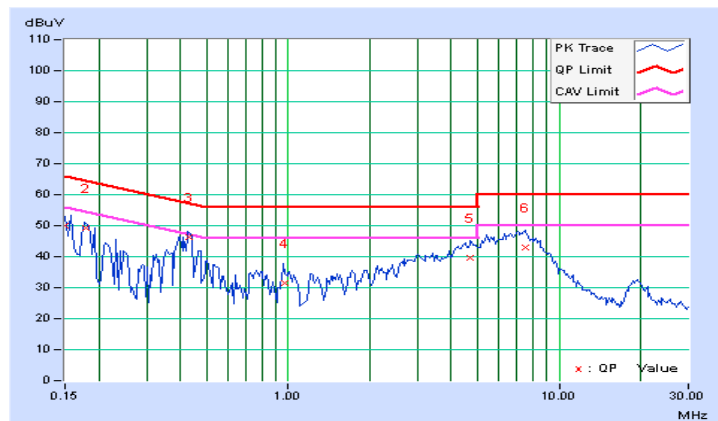


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

No	Freq. [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	0.15000	9.95	40.08	27.00	50.03	36.95	66.00	56.00	-15.97	-19.05
2	0.17989	9.96	39.43	29.35	49.39	39.31	64.49	54.49	-15.10	-15.18
3	0.43116	10.00	36.41	34.70	46.41	44.70	57.23	47.23	-10.82	-2.53
4	0.97521	10.07	21.25	16.09	31.32	26.16	56.00	46.00	-24.68	-19.84
5	4.71875	10.33	29.48	22.01	39.81	32.34	56.00	46.00	-16.19	-13.66
6	7.52734	10.42	32.41	27.11	42.83	37.53	60.00	50.00	-17.17	-12.47

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 $N_{ANT} \leq 4$;

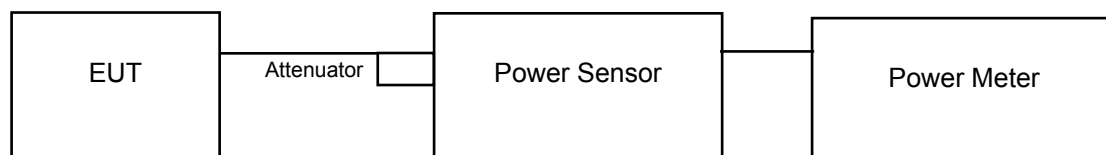
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

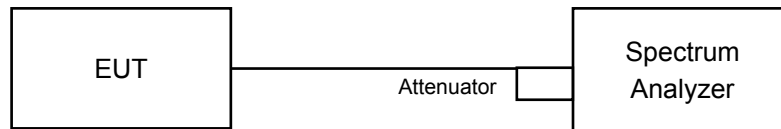
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

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)

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)

- Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- Set sweep trigger to "free run".
- Set RBW = 1 MHz
- Set VBW $\geq$ 3 MHz
- Number of points in sweep $\geq$ 2 Span / RBW
- Sweep time $\leq$ (number of points in sweep) * T
- Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- Detector = RMS
- Trace mode = max hold
- Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

For Occupied Bandwidth

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300 kHz RBW and 1MHz VBW. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.3.5 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:

For U-NII-1 Band (Outdoor Access Point)

802.11a

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
36	5180	15.57	15.18	69.019	18.39	29.08	-2.33	16.06	21.00	Pass
40	5200	15.69	15.32	71.109	18.52	29.08	-2.33	16.19	21.00	Pass
48	5240	13.24	12.98	40.947	16.12	29.08	-2.33	13.79	21.00	Pass

Note:

Gain = 6.92dBi > 6dBi, so the limit shall be reduced to 30-(6.92-6) = 29.08dBm.

Gain = -2.33dBi (above 30 degrees from the horizon),

EIRP = conducted power +(-2.33dBi) + array gain = (0 dB (i.e., no array gain) for NANT ≤ 4).

802.11n (HT20)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
36	5180	16.50	15.95	84.023	19.24	29.08	-2.33	16.91	21.00	Pass
40	5200	16.76	16.30	90.082	19.55	29.08	-2.33	17.22	21.00	Pass
48	5240	13.64	13.32	44.599	16.49	29.08	-2.33	14.16	21.00	Pass

Note:

Gain = 6.92dBi > 6dBi, so the limit shall be reduced to 30-(6.92-6) = 29.08dBm.

Gain = -2.33dBi (above 30 degrees from the horizon),

EIRP = conducted power +(-2.33dBi) + array gain = (0 dB (i.e., no array gain) for NANT ≤ 4).

802.11n (HT40)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
38	5190	15.00	14.82	61.962	17.92	29.08	-2.33	15.59	21.00	Pass
46	5230	17.98	17.53	119.43	20.77	29.08	-2.33	18.44	21.00	Pass

Note:

Gain = 6.92dBi > 6dBi, so the limit shall be reduced to 30-(6.92-6) = 29.08dBm.

Gain = -2.33dBi (above 30 degrees from the horizon),

EIRP = conducted power +(-2.33dBi) + array gain = (0 dB (i.e., no array gain) for NANT ≤ 4).

802.11ac (VHT80)

Chan.	Freq. (MHz)	Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Gain (dBi)	EIRP (dBm)	EIRP limit (dBm)	Pass / Fail
		Chain 0	Chain 1							
42	5210	14.12	14.03	51.116	17.09	29.08	-2.33	14.76	21.00	Pass

Note:

Gain = 6.92dBi > 6dBi, so the limit shall be reduced to 30-(6.92-6) = 29.08dBm.

Gain = -2.33dBi (above 30 degrees from the horizon),

EIRP = conducted power +(-2.33dBi) + array gain = (0 dB (i.e., no array gain) for NANT ≤ 4).

For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	16.98	17.85	110.842	20.45	29.08	Pass
157	5785	20.07	20.67	218.306	23.39	29.08	Pass
165	5825	20.29	20.42	217.059	23.37	29.08	Pass

Note: Gain = 6.92dBi > 6dBi, so the limit shall be reduced to 30-(6.92-6) = 29.08dBm.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	15.93	16.88	87.927	19.44	29.08	Pass
157	5785	20.68	20.84	238.289	23.77	29.08	Pass
165	5825	19.82	20.15	199.454	23.00	29.08	Pass

Note: Gain = 6.92dBi > 6dBi, so the limit shall be reduced to 30-(6.92-6) = 29.08dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
151	5755	15.97	16.79	87.29	19.41	29.08	Pass
159	5795	18.33	18.96	146.782	21.67	29.08	Pass

Note: Gain = 6.92dBi > 6dBi, so the limit shall be reduced to 30-(6.92-6) = 29.08dBm.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
155	5775	11.81	12.84	34.402	15.37	29.08	Pass

Note: Gain = 6.92dBi > 6dBi, so the limit shall be reduced to 30-(6.92-6) = 29.08dBm.

26dB Bandwidth:

802.11a

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
36	5180	20.61	20.56	Pass
40	5200	20.48	20.40	Pass
48	5240	20.67	20.54	Pass

802.11n (HT20)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
36	5180	25.80	20.69	Pass
40	5200	20.95	20.69	Pass
48	5240	20.84	20.64	Pass

802.11n (HT40)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
38	5190	41.54	40.78	Pass
46	5230	50.43	44.38	Pass

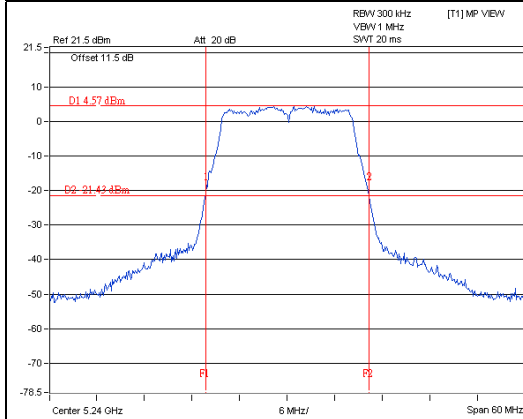
802.11ac (VHT80)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
42	5210	83.13	82.57	Pass

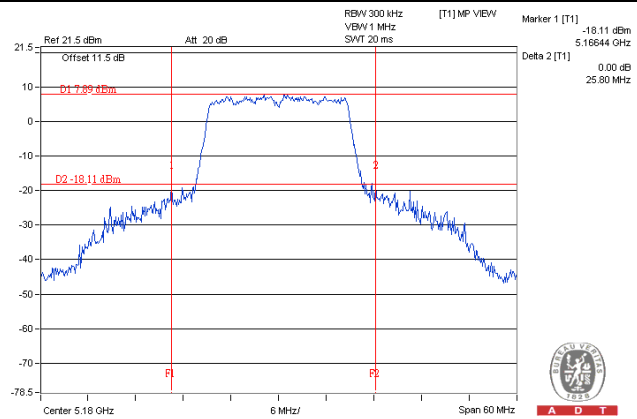
Spectrum Plot of Worst Value

802.11a

802.11n (HT20)



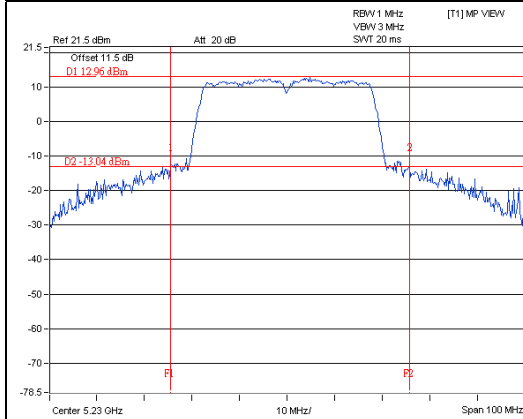
A D T



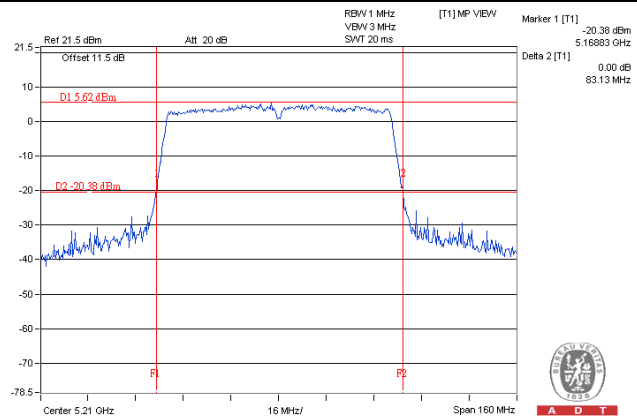
A D T

802.11n (HT40)

802.11ac (VHT80)



A D T



A D T

Occupied Bandwidth:

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.04	16.80
40	5200	16.92	16.80
48	5240	16.92	16.80
149	5745	16.96	16.87
157	5785	17.04	16.80
165	5825	17.04	16.80

802.11n (HT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.00	17.88
40	5200	17.88	17.88
48	5240	18.00	17.88
149	5745	18.00	17.88
157	5785	18.12	17.88
165	5825	18.12	17.88

802.11n (HT40)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.60	36.60
46	5230	36.60	36.84
151	5755	36.72	36.60
159	5795	36.72	36.60

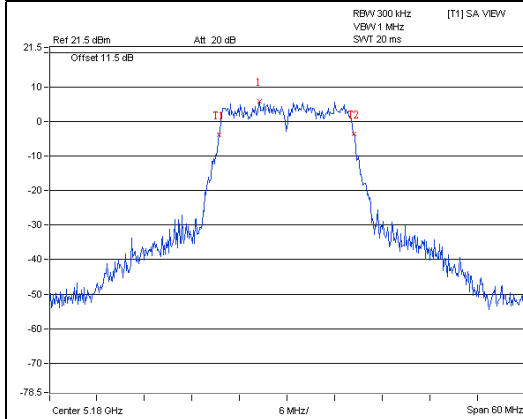
802.11ac (VHT80)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	76.08	75.84
155	5775	75.84	75.84

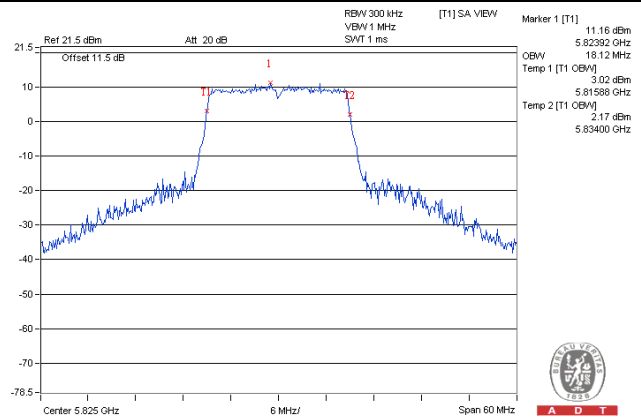
Spectrum Plot of Worst Value

802.11a

802.11n (HT20)



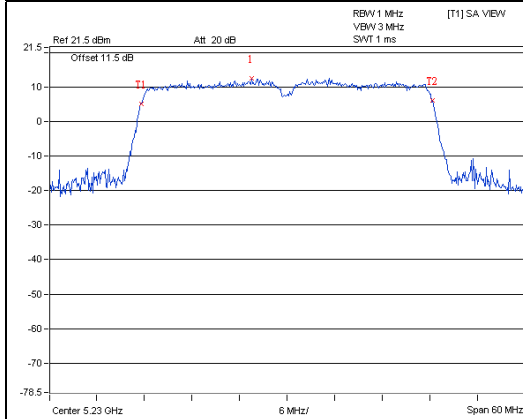
A D T



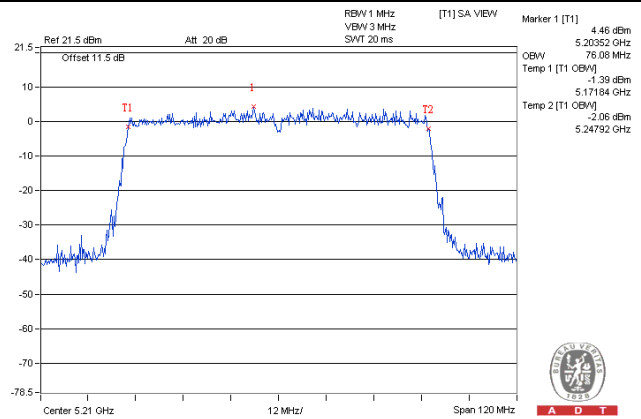
A D T

802.11n (HT40)

802.11ac (VHT80)



A D T



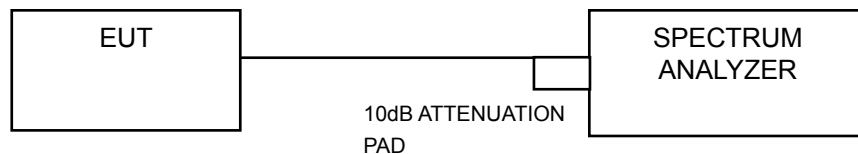
A D T

4.4 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 Procedure

For U-NII-1 band:

Using method SA-1

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 1 MHz, Set VBW $\geq$ 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 $10 \log (1/\text{duty cycle})$.

For U-NII-3 band:

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 300 kHz, Set VBW $\geq$ 3 RBW, 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 $10 \log (1/\text{duty cycle})$.
- f. 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 $\text{BWCF} = 10\log(500 \text{ kHz}/300\text{kHz})$.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Condition

Same as Item 4.3.6.

4.4.7 Test Results

For U-NII-1 Band

802.11a

Chan.	Freq. (MHz)	PSD (dBm)		Total PSD (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
36	5180	2.28	2.39	5.35	13.07	Pass
40	5200	2.90	2.55	5.74	13.07	Pass
48	5240	0.16	-0.24	2.97	13.07	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 = $6.92\text{dBi} + 10\log(2) = 9.93\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $17-(9.93-6) = 13.07\text{dBm}$.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm)		Total PSD (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1			
36	5180	3.12	2.94	6.04	13.07	Pass
40	5200	3.58	3.34	6.47	13.07	Pass
48	5240	0.36	0.06	3.22	13.07	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 = $6.92\text{dBi} + 10\log(2) = 9.93\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $17-(9.93-6) = 13.07\text{dBm}$.

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					
38	5190	-1.45	-1.43	1.58	0.10	1.68	13.07	Pass
46	5230	1.85	1.54	4.71	0.10	4.81	13.07	Pass

Note:

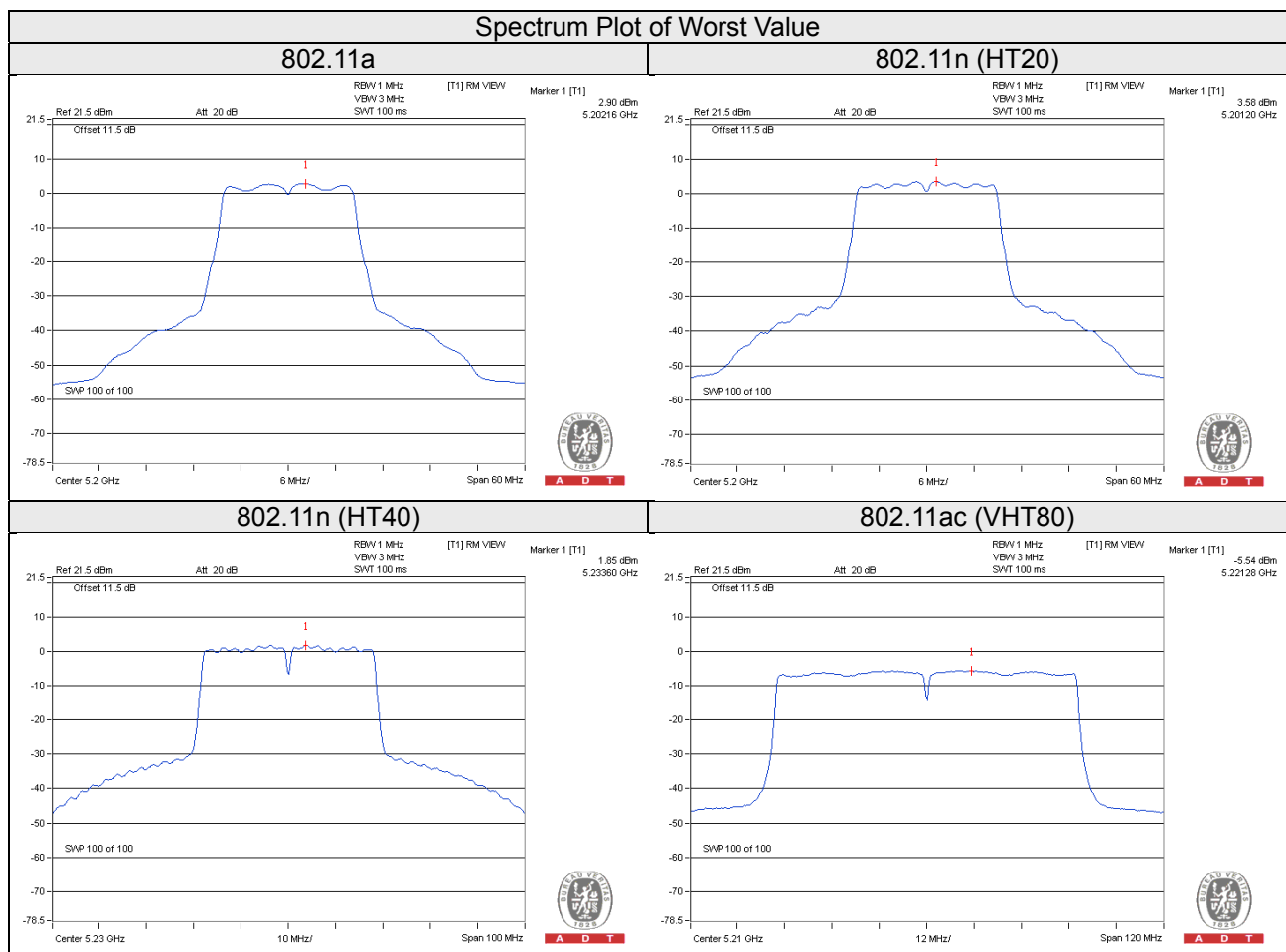
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $6.92\text{dBi} + 10\log(2) = 9.93\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $17-(9.93-6) = 13.07\text{dBm}$.
- 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					
42	5210	-5.70	-5.54	-2.61	0.27	-2.34	13.07	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 = $6.92\text{dBi} + 10\log(2) = 9.93\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $17-(9.93-6) = 13.07\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.



For U-NII-3 Band

802.11a

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	149	5745	-3.33	-1.11	3.01	1.90	26.07	Pass
	157	5785	-0.39	1.83	3.01	4.84	26.07	Pass
	165	5825	-0.22	2.00	3.01	5.01	26.07	Pass
1	149	5745	-3.36	-1.14	3.01	1.87	26.07	Pass
	157	5785	-0.83	1.39	3.01	4.40	26.07	Pass
	165	5825	-0.82	1.40	3.01	4.41	26.07	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 = $6.92\text{dBi} + 10\log(2) = 9.93\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $30-(9.93-6) = 26.07\text{dBm}$.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	149	5745	-4.81	-2.59	3.01	0.42	26.07	Pass
	157	5785	-0.56	1.66	3.01	4.67	26.07	Pass
	165	5825	-1.18	1.04	3.01	4.05	26.07	Pass
1	149	5745	-4.99	-2.77	3.01	0.24	26.07	Pass
	157	5785	-0.78	1.44	3.01	4.45	26.07	Pass
	165	5825	-1.61	0.61	3.01	3.62	26.07	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 = $6.92\text{dBi} + 10\log(2) = 9.93\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $30-(9.93-6) = 26.07\text{dBm}$.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	151	5755	-8.19	-5.97	3.01	0.10	-2.86	26.07	Pass
	159	5795	-5.94	-3.72	3.01	0.10	-0.61	26.07	Pass
1	151	5755	-8.24	-6.02	3.01	0.10	-2.91	26.07	Pass
	159	5795	-5.89	-3.67	3.01	0.10	-0.56	26.07	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 = 6.92dBi + 10log(2) = 9.93dBi > 6dBi, so the limit shall be reduced to 30-(9.93-6) = 26.07dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
0	155	5775	-15.53	-13.31	3.01	0.27	-10.03	26.07	Pass
1	155	5775	-15.18	-12.96	3.01	0.27	-9.68	26.07	Pass

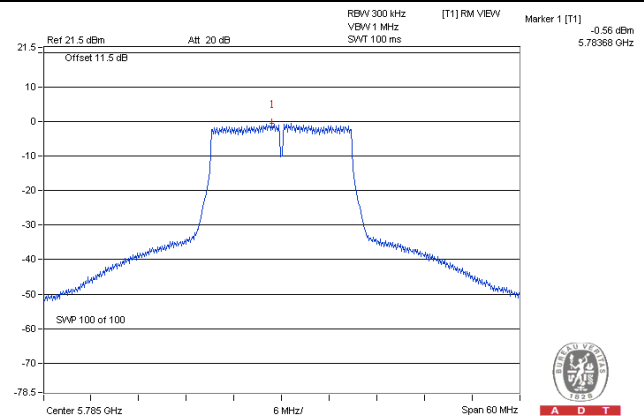
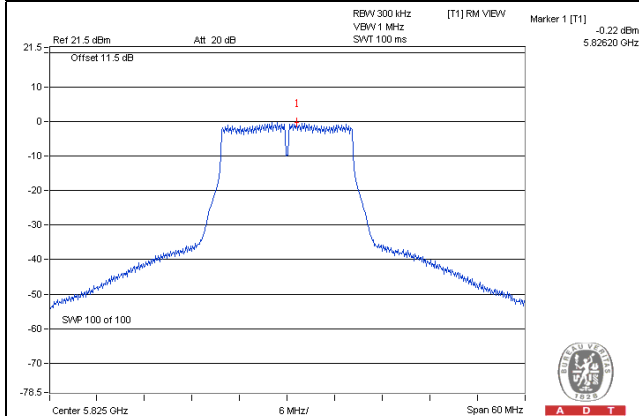
Note:

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 = 6.92dBi + 10log(2) = 9.93dBi > 6dBi, so the limit shall be reduced to 30-(9.93-6) = 26.07dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

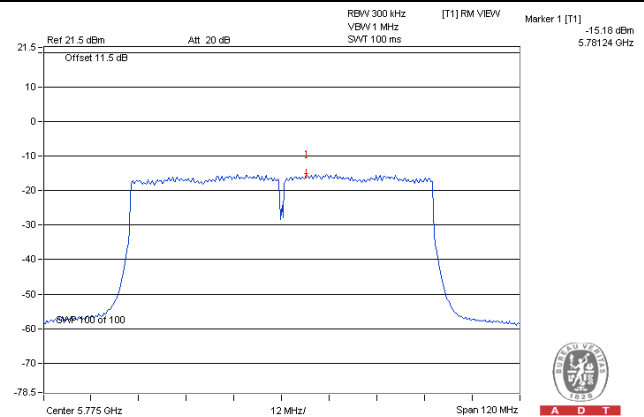
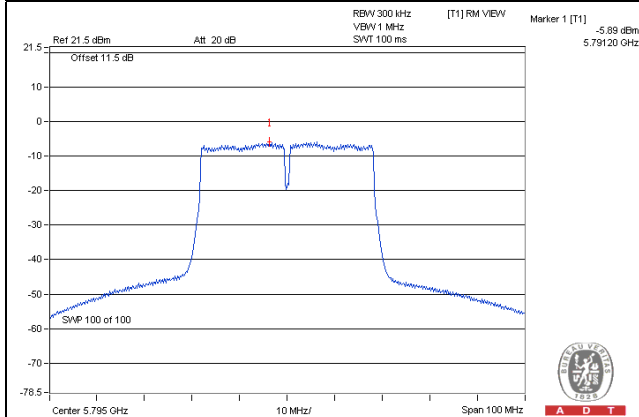
802.11a

802.11n (HT20)



802.11n (HT40)

802.11ac (VHT80)

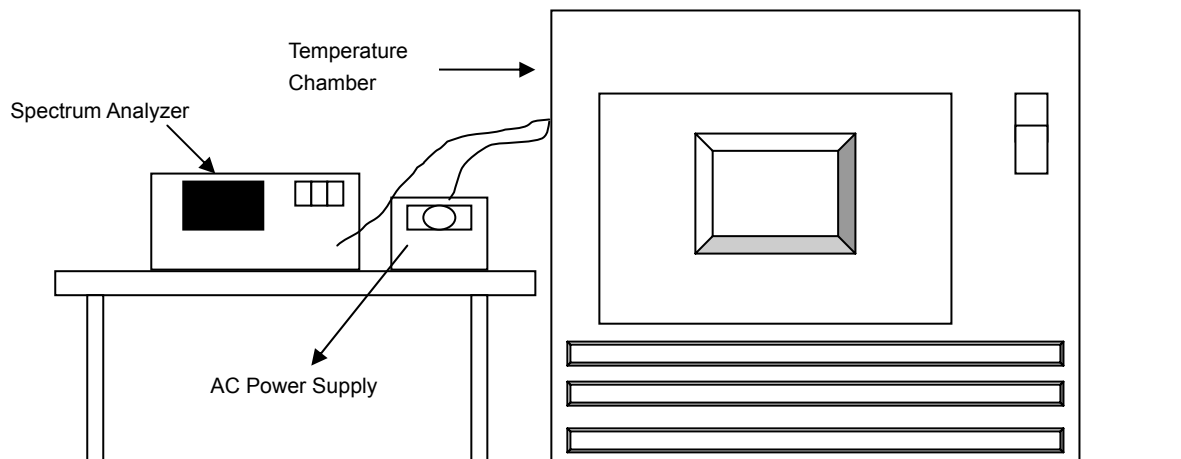


4.5 Frequency Stability

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: 5180MHz									
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	5179.9846	-0.00030	5179.983	-0.00033	5179.9842	-0.00031	5179.9848	-0.00029
40	120	5180.024	0.00046	5180.0233	0.00045	5180.0252	0.00049	5180.0246	0.00047
30	120	5179.9898	-0.00020	5179.9889	-0.00021	5179.9876	-0.00024	5179.9893	-0.00021
20	120	5179.9794	-0.00040	5179.9794	-0.00040	5179.9827	-0.00033	5179.9807	-0.00037
10	120	5180.0044	0.00008	5180.0058	0.00011	5180.006	0.00012	5180.0064	0.00012
0	120	5179.9796	-0.00039	5179.9789	-0.00041	5179.9779	-0.00043	5179.9798	-0.00039
-10	120	5179.9917	-0.00016	5179.9947	-0.00010	5179.9943	-0.00011	5179.9918	-0.00016
-20	120	5179.9892	-0.00021	5179.9888	-0.00022	5179.9916	-0.00016	5179.9911	-0.00017
-30	120	5179.9904	-0.00019	5179.9884	-0.00022	5179.9883	-0.00023	5179.99	-0.00019

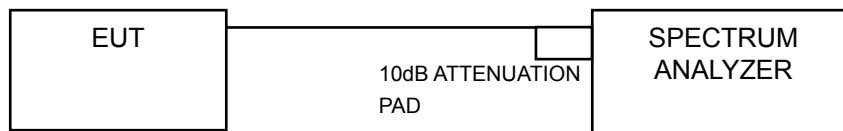
Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5179.9798	-0.00039	5179.9787	-0.00041	5179.9831	-0.00033	5179.9798	-0.00039
	120	5179.9794	-0.00040	5179.9794	-0.00040	5179.9827	-0.00033	5179.9807	-0.00037
	102	5179.9784	-0.00042	5179.9804	-0.00038	5179.982	-0.00035	5179.9801	-0.00038

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

- 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	16.40	16.45	0.5	Pass
157	5785	16.43	16.47	0.5	Pass
165	5825	16.44	16.46	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
149	5745	17.65	17.69	0.5	Pass
157	5785	17.65	17.67	0.5	Pass
165	5825	17.66	17.68	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
151	5755	36.45	36.51	0.5	Pass
159	5795	36.43	36.47	0.5	Pass

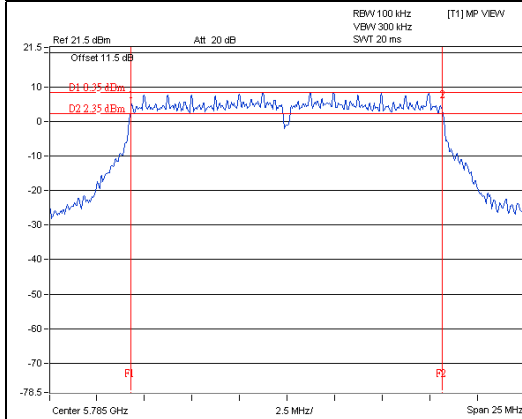
802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
155	5775	76.21	76.49	0.5	Pass

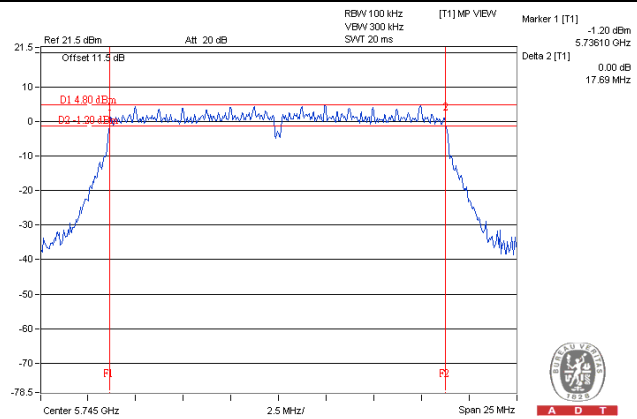
Spectrum Plot of Worst Value

802.11a

802.11n (HT20)



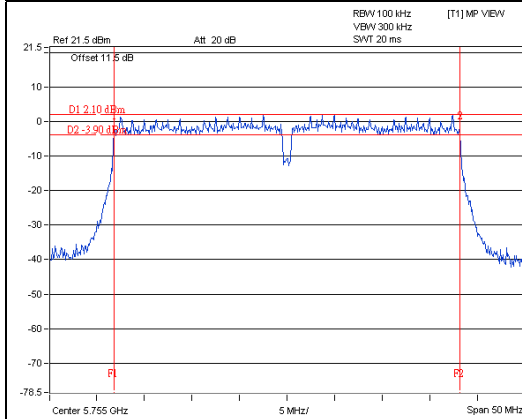
A D T



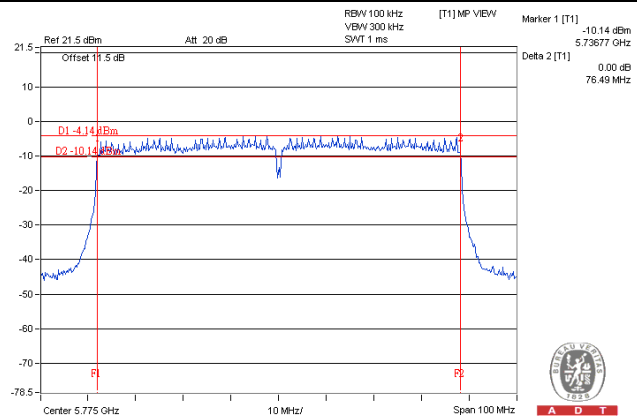
A D T

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:

Linko EMC/RF Lab

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Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-5935343

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Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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