

FCC Test Report (WLAN)

Report No.: RF120725E01F-1

FCC ID: PY312200203

Test Model: WNDAP660

Received Date: July 19, 2012

Test Date: July 26 to 31, 2012 and Aug. 28 to Sep. 01, 2015

Issued Date: Sep. 22, 2015

Applicant: Netgear Incorporated.

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

Release Control Record

Issue No.	Description	Date Issued
RF120725E01F-1	Original release.	Sep. 22, 2015



A D T

1 Certificate of Conformity

Product: ProSafe 3x3 Dual Radio, Dual Band Wireless Access Point

Brand: Netgear

Test Model: WNDAP660

Sample Status: ENGINEERING SAMPLE

Applicant: Netgear Incorporated.

Test Date: July 26 to 31, 2012 and Aug. 28 to Sep. 01, 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 :

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Date:

Sep. 22, 2015

Approved by :

May Chen
May Chen / Manager

Date:

Sep. 22, 2015

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 -3.87dB at 13.91656MHz.
15.407(b)(1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5715.00MHz, 5725.00MHz, 5850.00MHz, 11570.00MHz.
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	For Internal antenna connector is i-pex not a standard connector. For External antenna connector is SMA Plug Reverse not a standard connector.

NOTE: 1. This report is prepared for FCC Class II change. (Upgrade the standard to section 15.407 under new rule for U-NII-1, U-NII-3 band)

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz for Chamber G	30MHz ~ 1GHz	5.37 dB
Radiated Emissions up to 1 GHz for Chamber H	30MHz ~ 1GHz	5.69 dB
Radiated Emissions above 1 GHz for Chamber G	1GHz ~ 6GHz	3.65 dB
	6GHz ~ 18GHz	3.88 dB
	18GHz ~ 40GHz	4.11 dB
Radiated Emissions above 1 GHz for Chamber H	1GHz ~ 6GHz	3.84 dB
	6GHz ~ 18GHz	4.09 dB
	18GHz ~ 40GHz	4.24 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	ProSafe 3x3 Dual Radio, Dual Band Wireless Access Point
Brand	Netgear
Test Model	WNDAP660
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter or 56Vdc from PoE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 450Mbps
Operating Frequency	2.4GHz: 2.412GHz ~ 2.462GHz 5GHz: 5.18GHz ~ 5.24GHz, 5.745GHz ~ 5.825GHz
Number of Channel	2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 5GHz: 802.11a, 802.11n (HT20): 9 802.11n (HT40): 4
Output Power	5GHz: (U-NII-1 & U-NII-3) 802.11a: 252.823 mW 802.11n (HT20): 266.159mW 802.11n (HT40): 177.451mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	Console cable (unshielded, 1.5m) x 1

Note:

1. This report is prepared for FCC Class II change. The difference compared with the Report No.: RF120725E01-1 design is as the following:

- ◆ Upgrade the standard to section 15.407 under new rule for U-NII-1, U-NII-3 band.
- ◆ Add new adapters as below table :

Original adapter				
No	Brand	Model No.	P/N No.	Spec.
1	NETGEAR	MT18-9120150-A1	332-10221-01	Input: 120V, 0.5A, 60Hz Output: 12V, 1.5A DC power cable: 1.8m, unshielded
2	NETGEAR	SAL018F1 NA	332-10375-01	Input: 100-120V, 0.6A, 47-63Hz Output: 12V, 1.5A DC power cable: 1.8m, unshielded
POE (test only not sale together)				
Brand		Model No.		Spec.
PHIHONG		POE30U-560(G)		Input: 100-240V, 0.95A, 50-60Hz Output: 56V, 0.55A
Newly adapter				
No	Brand	Model No.	P/N No.	Spec.
3	NETGEAR	2ABB018F 1 NA	332-10750-01	Input: 100-120V, 0.6A, 50-60Hz Output: 12V, 1.5A DC power cable: 1.8m, unshielded
4	NETGEAR	AD2032F10	332-10751-01	Input: 100-120V, 0.56A, 50-60Hz Output: 12V, 1.5A DC power cable: 1.8m, unshielded
Note: 1 From the above adapters and PoE, the radiated emission worse case was found in adapter 4. Therefore only the test data of the mode was recorded in this report.				

2. According to above conditions, all test items of U-NII-3 band & AC Power Conducted Emissions test item of newly adapters and POE need to be performed, and the other test data was copied from the original test report (Report No.: RF120725E01-1). And all data was verified to meet the requirements.
3. 2.4GHz and 5GHz technology can transmit at same time.
4. The antennas provided to the EUT, please refer to the following table:

Internal Antenna (For 2.4GHz / 5GHz)					
Transmitter Circuit	Antenna Type	Peak Gain (dBi)			Connector Type
		2.4GHz	5GHz Band 1	5GHz Band 4	
Chain (0)	Dipole	2.44	4.36	5.95	i-pex
Chain (1)	Dipole	2.44	5.31	5.02	i-pex
Chain (2)	Dipole	2.44	3.87	3.96	i-pex
External Antenna (For 2.4GHz)					
Model	Antenna Type	Gain (dBi) (Exclude cable loss)	Cable Loss (dB)	Net Gain (dBi) (Include cable loss)	Connector Type
ANT-32405	Dipole	5	3.68	1.32	SMA Plug Reverse
From the above antennas, internal antenna was selected for testing.					

5. The EUT incorporates a MIMO function.

MODULATION MODE	DATA RATE (MCS)	TX/RX FUNCTION	
802.11b	1 ~ 11Mbps	1TX (Diversity) / 3TX	3RX
802.11g	6 ~ 54Mbps	1TX (Diversity) / 3TX	3RX
802.11a	6 ~ 54Mbps	1TX (Diversity) / 3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX

6. The emissions of the simultaneous operation (2.4GHz and 5GHz) has been evaluated and no non-compliance was found

7. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

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

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
1	√	√	√	√	Powered by adapter 4
2	-	-	√	-	Powered by adapter 3
3	-	-	√	-	Powered by POE

Where **RE≥1G**: Radiated Emission above 1GHz

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 2 axis. The worst case was found when positioned on **Y-plane** (for below 1GHz) and **X-plane** (for above 1GHz).
- "-" means no effect.

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.

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
802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	13.5

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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	5180-5240, 5745-5825	36 to 48, 149 to 165	157	OFDM	BPSK	6.5

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	5180-5240, 5745-5825	36 to 48, 149 to 165	157	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

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
802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	13.5

Test Condition:

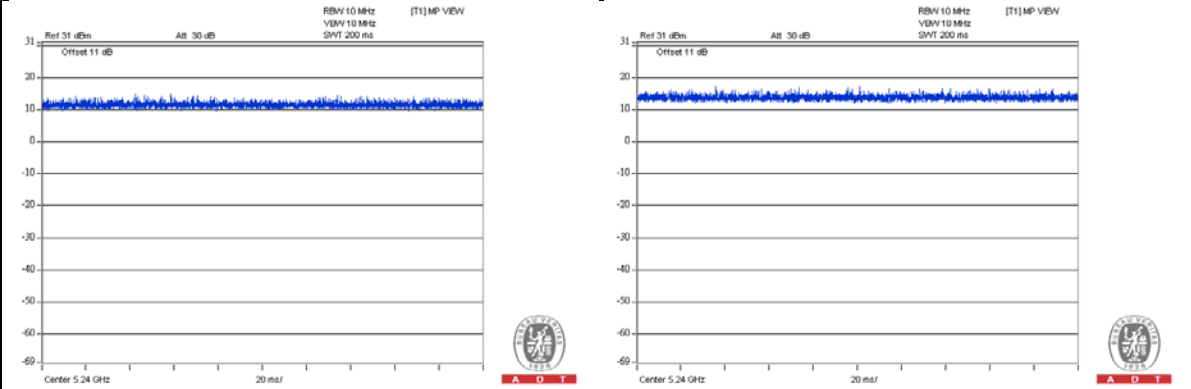
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Tim Ho
	25deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
RE<1G	27deg. C, 71%RH	120Vac, 60Hz	Weiwei Lo
PLC	26deg. C, 54%RH	120Vac, 60Hz	Jyunchun Lin
	25deg. C, 70%RH	120Vac, 60Hz	Mike Hsieh
	27deg. C, 63%RH	120Vac, 60Hz	Scott Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen
	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang

3.3 Duty Cycle of Test Signal

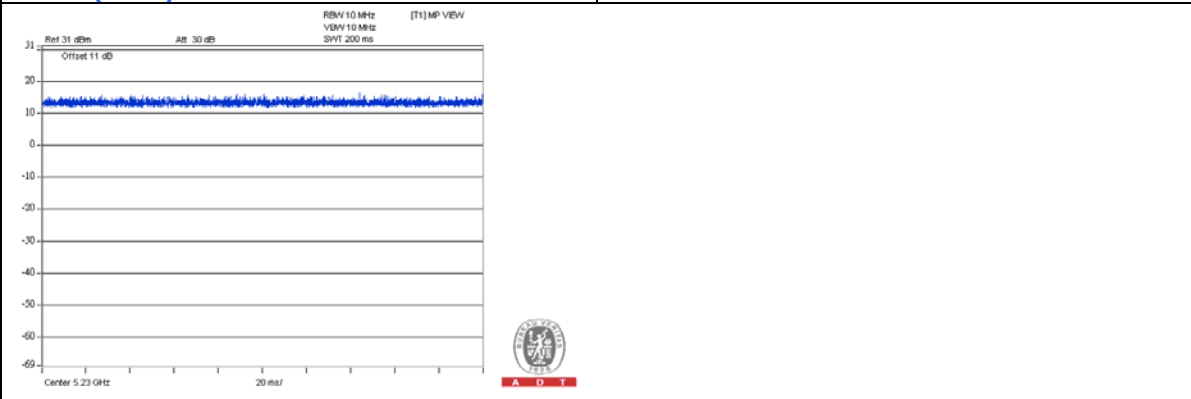
Duty cycle of test signal is 100 %, duty factor is not required.

802.11a

802.11n (HT20)



802.11 (HT40)



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook Computer	DELL	PP32LA	GSLB32S	FCC DoC	Provided by Lab
B.	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC	Provided by Lab
C.	POE	PHIHONG	POE30U-560(G)	NA	NA	Supplied by Client

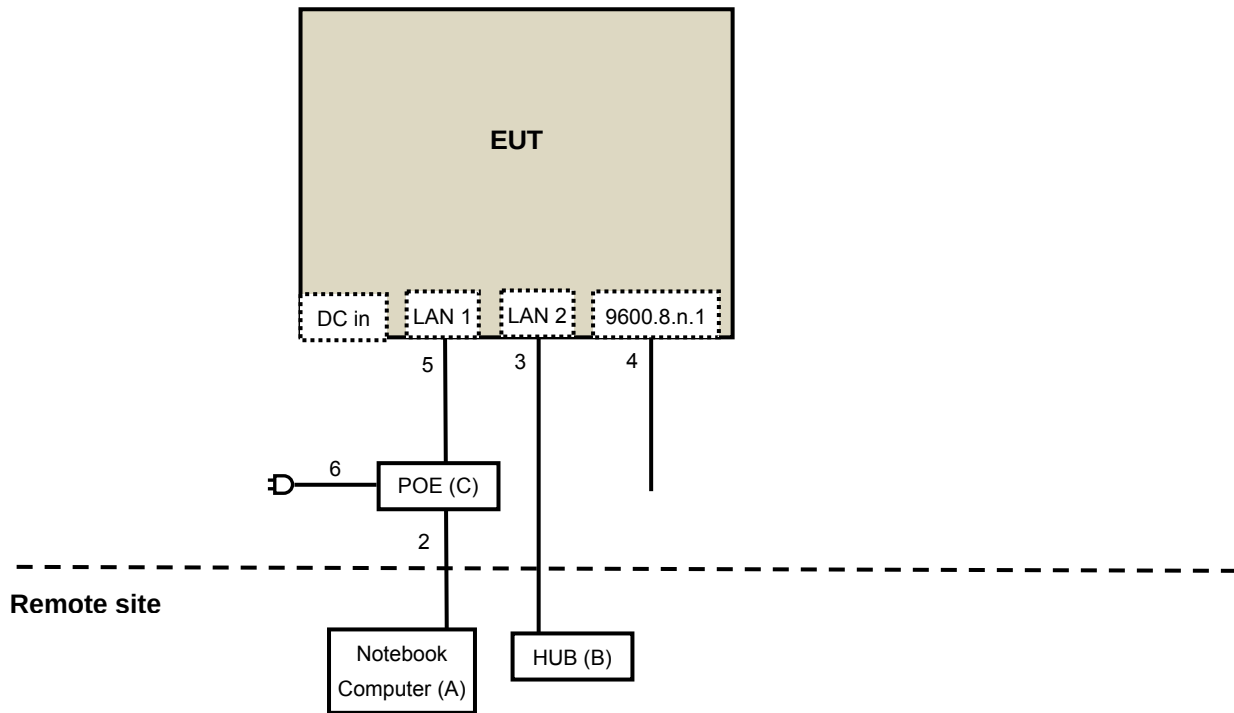
Note:

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

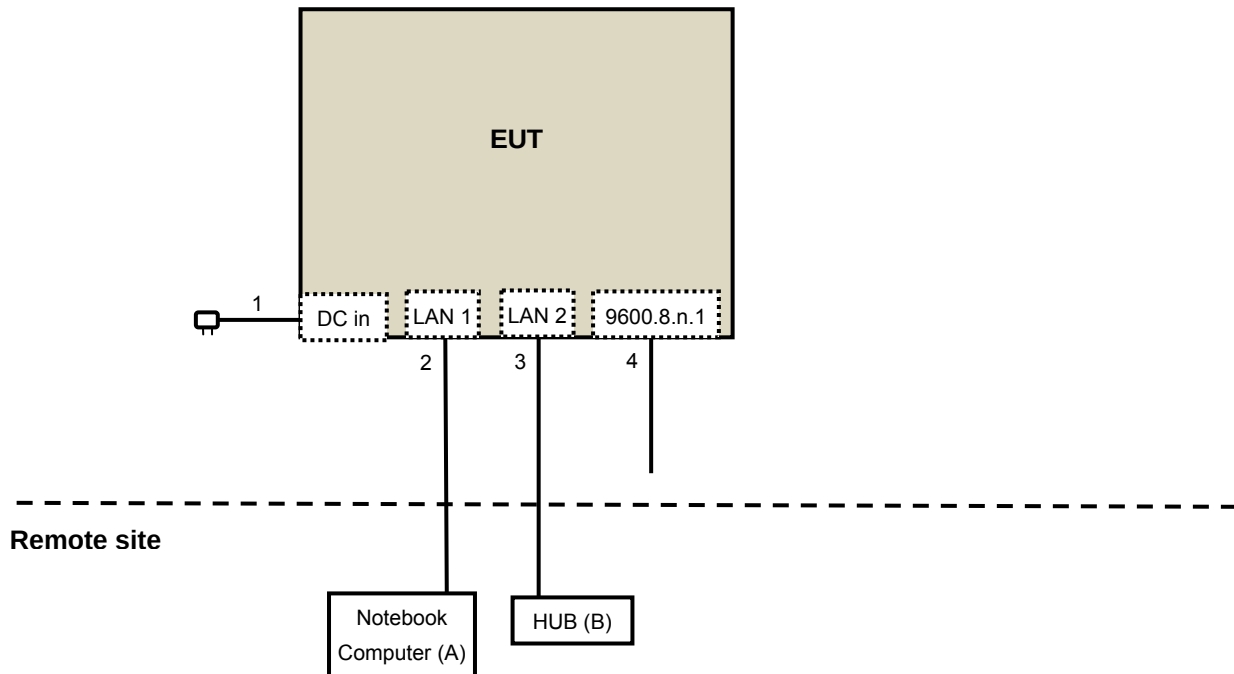
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC	1	1.8	No	0	Supplied by Client
2.	RJ-45	1	10	No	0	Provided by Lab
3.	RJ-45	1	10	No	0	Provided by Lab
4.	RJ-45 to RS232	1	1.5	No	0	Supplied by Client
5.	RJ-45	1	1.5	No	0	Provided by Lab
6.	AC	1	1.8	No	0	Supplied by Client

3.4.1 Configuration of System under Test

For Conduction Emission test: (POE mode)



For Other test items: (Adapter mode)



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 Procedure 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 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:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 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 Procedure 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

For Above 1GHz (U-NII-1):

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 29, 2011	Aug. 28, 2012
Pre-Selector Agilent	N9039A	MY46520310	Aug. 29, 2011	Aug. 28, 2012
Signal Generator Agilent	N5181A	MY49060347	July 25, 2012	July 24, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 08, 2011	Oct. 07, 2012
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
R&S Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012
Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012
Power Meter Anritsu	ML2495A	0824006	May 10, 2012	May 09, 2013
Power Sensor Anritsu	MA2411B	0738172	May 10, 2012	May 09, 2013

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 966 Chamber No. H.
3. The FCC Site Registration No. is 797305.
4. The CANADA Site Registration No. is IC 7450H-3.
5. Tested Date: July 26 to 31, 2012

For Above 1GHz (U-NII-3) and Below 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	July 24, 2015	July 23, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 06, 2015	Feb. 05, 2016
RF Cable	8D-FB	CHGCAB-001 -1 CHGCAB-001 -2	Oct. 04, 2014	Oct. 03, 2015
	RF-141	CHGCAB-004	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	000032009111 0	Feb. 09, 2015	Feb. 08, 2016
Pre-Amplifier Agilent	8449B	3008A02578	June 23, 2015	June 22, 2016
RF Cable	NA	131205 131216 131217 SNMY23684/ 4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	June 26, 2015	June 25, 2016
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 2016
Power meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016
Temperature & Humidity Chamber GIANTFORCE	GTH-150-40-S P-AR	MAA0812-00 8	Jan. 12, 2015	Jan. 11, 2016

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. G.
3. The FCC Site Registration No. is 966073.
4. The VCCI Site Registration No. is G-137.
5. The CANADA Site Registration No. is IC 7450H-2.
6. Tested Date: Aug. 28 to Sep. 01, 2015

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

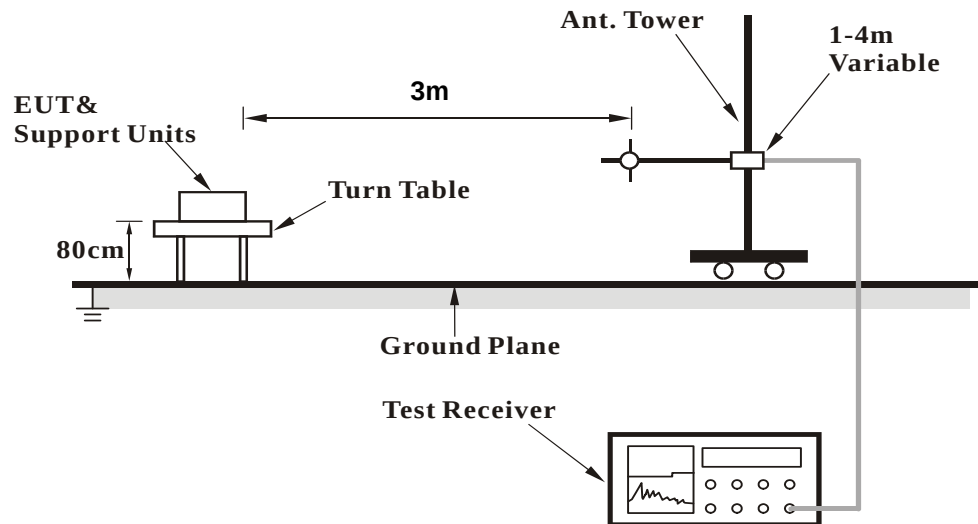
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
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

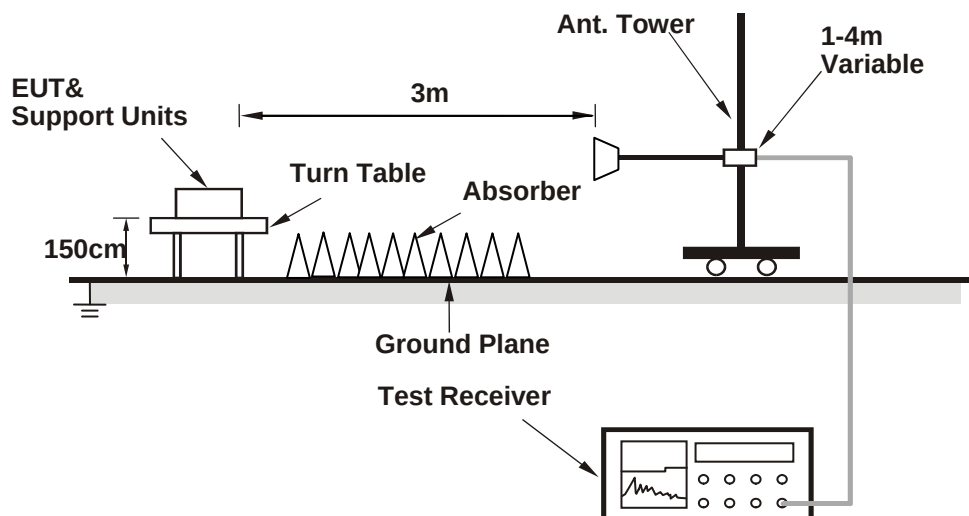
No deviation.

4.1.5 Test Setup

<Frequency Range 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

1. Placed the EUT on testing table.
2. Prepared other computer system (support unit A) to act as communication partner and placed them outside of testing area.
3. The communication partner ran test program "artgui.exe" to enable EUT under transmission/receiving condition continuously via one UTP cable.

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	58.6 PK	74.0	-15.4	1.29 H	98	16.30	42.30
2	5150.00	46.2 AV	54.0	-7.8	1.29 H	98	3.90	42.30
3	*5180.00	103.8 PK			1.29 H	98	61.40	42.40
4	*5180.00	93.4 AV			1.29 H	98	51.00	42.40
5	#10360.00	52.7 PK	68.3	-15.6	1.24 H	75	3.49	49.21
6	15540.00	60.9 PK	74.0	-13.1	1.28 H	48	5.80	55.10
7	15540.00	48.0 AV	54.0	-6.0	1.28 H	48	-7.10	55.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.3 PK	74.0	-14.7	1.05 V	22	17.00	42.30
2	5150.00	46.6 AV	54.0	-7.4	1.05 V	22	4.30	42.30
3	*5180.00	102.1 PK			1.05 V	22	59.70	42.40
4	*5180.00	91.1 AV			1.05 V	22	48.70	42.40
5	#10360.00	53.8 PK	68.3	-14.5	1.14 V	22	4.59	49.21
6	15540.00	58.2 PK	74.0	-15.8	1.08 V	25	3.10	55.10
7	15540.00	45.5 AV	54.0	-8.5	1.08 V	25	-9.60	55.10

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) – Pre-Amplifier 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	*5200.00	100.9 PK			1.37 H	328	58.43	42.47
2	*5200.00	90.4 AV			1.37 H	328	47.93	42.47
3	#10400.00	52.8 PK	68.3	-15.5	1.21 H	64	3.97	48.83
4	15600.00	60.9 PK	74.0	-13.1	1.25 H	45	5.93	54.97
5	15600.00	47.8 AV	54.0	-6.2	1.25 H	45	-7.17	54.97
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	100.8 PK			1.11 V	23	58.33	42.47
2	*5200.00	89.9 AV			1.11 V	23	47.43	42.47
3	#10400.00	55.8 PK	68.3	-12.5	1.17 V	27	6.97	48.83
4	15600.00	57.9 PK	74.0	-16.1	1.07 V	22	2.93	54.97
5	15600.00	45.5 AV	54.0	-8.5	1.07 V	22	-9.47	54.97

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) – Pre-Amplifier 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	*5240.00	101.3 PK			1.41 H	329	58.79	42.51
2	*5240.00	90.8 AV			1.41 H	329	48.29	42.51
3	5350.00	58.9 PK	74.0	-15.1	1.33 H	88	16.31	42.59
4	5350.00	46.4 AV	54.0	-7.6	1.33 H	88	3.81	42.59
5	#10480.00	53.2 PK	68.3	-15.1	1.23 H	76	3.81	49.39
6	15720.00	60.6 PK	74.0	-13.4	1.24 H	47	5.90	54.70
7	15720.00	47.7 AV	54.0	-6.3	1.24 H	47	-7.00	54.70
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	99.9 PK			1.10 V	22	57.39	42.51
2	*5240.00	89.5 AV			1.10 V	22	46.99	42.51
3	5350.00	59.2 PK	74.0	-14.8	1.10 V	22	16.61	42.59
4	5350.00	46.9 AV	54.0	-7.1	1.10 V	22	4.31	42.59
5	#10480.00	53.8 PK	68.3	-14.5	1.14 V	29	4.41	49.39
6	15720.00	58.6 PK	74.0	-15.4	1.05 V	18	3.90	54.70
7	15720.00	46.0 AV	54.0	-8.0	1.05 V	18	-8.70	54.70

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) – Pre-Amplifier 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	#5715.00	63.7 PK	74.0	-10.3	1.39 H	87	62.19	1.51
2	#5715.00	43.7 AV	54.0	-10.3	1.39 H	87	42.19	1.51
3	#5725.00	77.8 PK	78.2	-0.4	1.40 H	80	76.27	1.53
4	*5745.00	105.4 PK			1.07 H	86	103.82	1.58
5	*5745.00	97.5 AV			1.07 H	86	95.92	1.58
6	11490.00	58.4 PK	74.0	-15.6	1.99 H	142	46.00	12.40
7	11490.00	44.5 AV	54.0	-9.5	1.99 H	142	32.10	12.40
8	#17235.00	55.3 PK	74.0	-18.7	2.00 H	206	37.94	17.36
9	#17235.00	43.2 AV	54.0	-10.8	2.00 H	206	25.84	17.36
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	#5715.00	60.0 PK	74.0	-14.0	1.73 V	158	58.49	1.51
2	#5715.00	42.4 AV	54.0	-11.6	1.73 V	158	40.89	1.51
3	#5725.00	69.6 PK	78.2	-8.6	1.67 V	157	68.07	1.53
4	*5745.00	104.6 PK			1.38 V	152	103.02	1.58
5	*5745.00	94.9 AV			1.38 V	152	93.32	1.58
6	11490.00	63.6 PK	74.0	-10.4	1.95 V	228	51.20	12.40
7	11490.00	48.0 AV	54.0	-6.0	1.95 V	228	35.60	12.40
8	#17235.00	54.7 PK	74.0	-19.3	2.00 V	179	37.34	17.36
9	#17235.00	43.2 AV	54.0	-10.8	2.00 V	179	25.84	17.36

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.
- " # ": 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	5400.00	61.3 PK	74.0	-12.7	1.60 H	88	60.32	0.98
2	5400.00	52.3 AV	54.0	-1.7	1.60 H	88	51.32	0.98
3	#5600.00	57.8 PK	74.0	-16.2	1.49 H	88	56.46	1.34
4	#5600.00	48.2 AV	54.0	-5.8	1.49 H	88	46.86	1.34
5	#5715.00	73.9 PK	74.0	-0.1	1.48 H	83	72.39	1.51
6	#5715.00	52.8 AV	54.0	-1.2	1.48 H	83	51.29	1.51
7	#5725.00	78.1 PK	78.2	-0.1	1.60 H	91	76.57	1.53
8	*5785.00	114.9 PK			1.50 H	86	113.24	1.66
9	*5785.00	103.4 AV			1.50 H	86	101.74	1.66
10	#5850.00	77.1 PK	78.2	-1.1	1.73 H	90	75.46	1.64
11	#5860.00	70.7 PK	74.0	-3.3	1.75 H	91	69.07	1.63
12	#5860.00	50.8 AV	54.0	-3.2	1.75 H	91	49.17	1.63
13	11570.00	64.5 PK	74.0	-9.5	2.02 H	152	52.38	12.12
14	11570.00	50.3 AV	54.0	-3.7	2.02 H	152	38.18	12.12
15	#17355.00	61.1 PK	74.0	-12.9	1.96 H	212	43.24	17.86
16	#17355.00	49.3 AV	54.0	-4.7	1.96 H	212	31.44	17.86

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	5400.00	58.1 PK	74.0	-15.9	1.34 V	143	57.12	0.98
2	5400.00	49.0 AV	54.0	-5.0	1.34 V	143	48.02	0.98
3	#5600.00	55.3 PK	74.0	-18.7	1.39 V	152	53.96	1.34
4	#5600.00	45.5 AV	54.0	-8.5	1.39 V	152	44.16	1.34
5	#5715.00	70.6 PK	74.0	-3.4	1.42 V	163	69.09	1.51
6	#5715.00	49.6 AV	54.0	-4.4	1.42 V	163	48.09	1.51
7	#5725.00	75.6 PK	78.2	-2.6	1.40 V	155	74.07	1.53
8	*5785.00	111.5 PK			1.41 V	152	109.84	1.66
9	*5785.00	99.9 AV			1.41 V	152	98.24	1.66
10	#5850.00	74.9 PK	78.2	-3.3	1.45 V	148	73.26	1.64
11	#5860.00	67.7 PK	74.0	-6.3	1.43 V	157	66.07	1.63
12	#5860.00	47.9 AV	54.0	-6.1	1.43 V	157	46.27	1.63
13	11570.00	69.3 PK	74.0	-4.7	2.01 V	212	57.18	12.12
14	11570.00	53.9 AV	54.0	-0.1	2.01 V	212	41.78	12.12
15	#17355.00	60.8 PK	74.0	-13.2	2.04 V	165	42.94	17.86
16	#17355.00	49.3 AV	54.0	-4.7	2.04 V	165	31.44	17.86

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) – Pre-Amplifier 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	5360.00	59.8 PK	74.0	-14.2	1.49 H	95	58.88	0.92
2	5360.00	51.3 AV	54.0	-2.7	1.49 H	95	50.38	0.92
3	*5825.00	110.8 PK			1.64 H	94	109.13	1.67
4	*5825.00	100.3 AV			1.64 H	94	98.63	1.67
5	#5850.00	78.1 PK	78.2	-0.1	2.32 H	94	76.46	1.64
6	#5860.00	69.9 PK	74.0	-4.1	2.29 H	103	68.27	1.63
7	#5860.00	49.3 AV	54.0	-4.7	2.29 H	103	47.67	1.63
8	11650.00	58.3 PK	74.0	-15.7	2.03 H	129	46.26	12.04
9	11650.00	44.2 AV	54.0	-9.8	2.03 H	129	32.16	12.04
10	#17475.00	55.3 PK	74.0	-18.7	2.02 H	203	36.65	18.65
11	#17475.00	43.4 AV	54.0	-10.6	2.02 H	203	24.75	18.65
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	5360.00	57.2 PK	74.0	-16.8	1.46 V	144	56.28	0.92
2	5360.00	48.7 AV	54.0	-5.3	1.46 V	144	47.78	0.92
3	*5825.00	108.2 PK			1.40 V	153	106.53	1.67
4	*5825.00	97.4 AV			1.40 V	153	95.73	1.67
5	#5850.00	75.3 PK	78.2	-2.9	1.45 V	167	73.66	1.64
6	#5860.00	67.3 PK	74.0	-6.7	1.37 V	137	65.67	1.63
7	#5860.00	46.4 AV	54.0	-7.6	1.37 V	137	44.77	1.63
8	11650.00	63.2 PK	74.0	-10.8	1.90 V	242	51.16	12.04
9	11650.00	47.5 AV	54.0	-6.5	1.90 V	242	35.46	12.04
10	#17475.00	54.7 PK	74.0	-19.3	2.01 V	169	36.05	18.65
11	#17475.00	43.2 AV	54.0	-10.8	2.01 V	169	24.55	18.65

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) – Pre-Amplifier 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	57.7 PK	74.0	-16.3	1.28 H	317	15.40	42.30
2	5150.00	46.1 AV	54.0	-7.9	1.28 H	317	3.80	42.30
3	*5180.00	102.4 PK			1.28 H	299	60.00	42.40
4	*5180.00	92.2 AV			1.28 H	299	49.80	42.40
5	#10360.00	53.0 PK	68.3	-15.3	1.26 H	74	3.79	49.21
6	15540.00	60.2 PK	74.0	-13.8	1.29 H	55	5.10	55.10
7	15540.00	47.6 AV	54.0	-6.4	1.29 H	55	-7.50	55.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.3 PK	74.0	-14.7	1.13 V	30	17.00	42.30
2	5150.00	46.4 AV	54.0	-7.6	1.13 V	30	4.10	42.30
3	*5180.00	104.1 PK			1.13 V	30	61.70	42.40
4	*5180.00	93.2 AV			1.13 V	30	50.80	42.40
5	#10360.00	53.2 PK	68.3	-15.1	1.15 V	26	3.99	49.21
6	15540.00	59.1 PK	74.0	-14.9	1.01 V	13	4.00	55.10
7	15540.00	46.3 AV	54.0	-7.7	1.01 V	13	-8.80	55.10

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) – Pre-Amplifier 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	*5200.00	103.8 PK			1.00 H	48	61.33	42.47
2	*5200.00	92.5 AV			1.00 H	48	50.03	42.47
3	#10400.00	53.7 PK	68.3	-14.6	1.21 H	72	4.87	48.83
4	15600.00	59.1 PK	74.0	-14.9	1.22 H	47	4.13	54.97
5	15600.00	46.6 AV	54.0	-7.4	1.22 H	47	-8.37	54.97
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	104.0 PK			1.18 V	41	61.53	42.47
2	*5200.00	93.0 AV			1.18 V	41	50.53	42.47
3	#10400.00	53.5 PK	68.3	-14.8	1.15 V	17	4.67	48.83
4	15600.00	59.0 PK	74.0	-15.0	1.02 V	21	4.03	54.97
5	15600.00	46.2 AV	54.0	-7.8	1.02 V	21	-8.77	54.97

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) – Pre-Amplifier 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	*5240.00	103.5 PK			1.00 H	55	60.99	42.51
2	*5240.00	92.7 AV			1.00 H	55	50.19	42.51
3	5350.00	57.8 PK	74.0	-16.2	1.00 H	55	15.21	42.59
4	5350.00	46.1 AV	54.0	-7.9	1.00 H	55	3.51	42.59
5	#10480.00	53.9 PK	68.3	-14.4	1.25 H	54	4.51	49.39
6	15720.00	58.7 PK	74.0	-15.3	1.17 H	56	4.00	54.70
7	15720.00	46.4 AV	54.0	-7.6	1.17 H	56	-8.30	54.70
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	104.0 PK			1.14 V	27	61.49	42.51
2	*5240.00	92.9 AV			1.14 V	27	50.39	42.51
3	5350.00	59.3 PK	74.0	-14.7	1.14 V	27	16.71	42.59
4	5350.00	47.1 AV	54.0	-6.9	1.14 V	27	4.51	42.59
5	#10480.00	53.1 PK	68.3	-15.2	1.19 V	23	3.71	49.39
6	15720.00	58.4 PK	74.0	-15.6	1.02 V	25	3.70	54.70
7	15720.00	45.6 AV	54.0	-8.4	1.02 V	25	-9.10	54.70

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) – Pre-Amplifier 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	#5715.00	66.1 PK	74.0	-7.9	1.32 H	86	64.59	1.51
2	#5715.00	46.3 AV	54.0	-7.7	1.32 H	86	44.79	1.51
3	#5725.00	78.1 PK	78.2	-0.1	1.32 H	167	76.57	1.53
4	*5745.00	106.8 PK			1.32 H	85	105.22	1.58
5	*5745.00	96.3 AV			1.32 H	85	94.72	1.58
6	11490.00	58.6 PK	74.0	-15.4	1.93 H	150	46.20	12.40
7	11490.00	44.9 AV	54.0	-9.1	1.93 H	150	32.50	12.40
8	#17235.00	56.0 PK	74.0	-18.0	2.05 H	218	38.64	17.36
9	#17235.00	43.7 AV	54.0	-10.3	2.05 H	218	26.34	17.36
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	#5715.00	63.4 PK	74.0	-10.6	1.35 V	138	61.89	1.51
2	#5715.00	43.6 AV	54.0	-10.4	1.35 V	138	42.09	1.51
3	#5725.00	74.7 PK	78.2	-3.5	1.36 V	165	73.17	1.53
4	*5745.00	104.0 PK			1.43 V	160	102.42	1.58
5	*5745.00	93.4 AV			1.43 V	160	91.82	1.58
6	11490.00	64.1 PK	74.0	-9.9	1.94 V	228	51.70	12.40
7	11490.00	48.4 AV	54.0	-5.6	1.94 V	228	36.00	12.40
8	#17235.00	54.9 PK	74.0	-19.1	2.01 V	173	37.54	17.36
9	#17235.00	43.5 AV	54.0	-10.5	2.01 V	173	26.14	17.36

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.
- " # ": 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	5400.00	60.8 PK	74.0	-13.2	1.60 H	87	59.82	0.98
2	5400.00	53.5 AV	54.0	-0.5	1.60 H	87	52.52	0.98
3	#5715.00	73.9 PK	74.0	-0.1	2.38 H	117	72.39	1.51
4	#5715.00	52.1 AV	54.0	-1.9	2.38 H	117	50.59	1.51
5	#5725.00	78.1 PK	78.2	-0.1	2.21 H	86	76.57	1.53
6	*5785.00	114.8 PK			1.54 H	92	113.14	1.66
7	*5785.00	102.5 AV			1.54 H	92	100.84	1.66
8	#5850.00	75.2 PK	78.2	-3.0	1.57 H	91	73.56	1.64
9	#5860.00	70.4 PK	74.0	-3.6	1.57 H	93	68.77	1.63
10	#5860.00	49.2 AV	54.0	-4.8	1.57 H	93	47.57	1.63
11	11570.00	64.6 PK	74.0	-9.4	1.98 H	136	52.48	12.12
12	11570.00	50.6 AV	54.0	-3.4	1.98 H	136	38.48	12.12
13	#17355.00	60.9 PK	74.0	-13.1	1.94 H	197	43.04	17.86
14	#17355.00	49.2 AV	54.0	-4.8	1.94 H	197	31.34	17.86

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	5400.00	57.3 PK	74.0	-16.7	1.32 V	131	56.32	0.98
2	5400.00	50.3 AV	54.0	-3.7	1.32 V	131	49.32	0.98
3	#5715.00	70.3 PK	74.0	-3.7	1.39 V	147	68.79	1.51
4	#5715.00	48.8 AV	54.0	-5.2	1.39 V	147	47.29	1.51
5	#5725.00	75.4 PK	78.2	-2.8	1.30 V	163	73.87	1.53
6	*5785.00	112.1 PK			1.37 V	123	110.44	1.66
7	*5785.00	99.9 AV			1.37 V	123	98.24	1.66
8	#5850.00	72.3 PK	78.2	-5.9	1.34 V	130	70.66	1.64
9	#5860.00	67.2 PK	74.0	-6.8	1.42 V	165	65.57	1.63
10	#5860.00	46.0 AV	54.0	-8.0	1.42 V	165	44.37	1.63
11	11570.00	69.3 PK	74.0	-4.7	1.99 V	227	57.18	12.12
12	11570.00	53.9 AV	54.0	-0.1	1.99 V	227	41.78	12.12
13	#17355.00	60.9 PK	74.0	-13.1	2.07 V	153	43.04	17.86
14	#17355.00	49.2 AV	54.0	-4.8	2.07 V	153	31.34	17.86

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) – Pre-Amplifier 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	5360.00	58.0 PK	74.0	-16.0	1.56 H	95	57.08	0.92
2	5360.00	50.7 AV	54.0	-3.3	1.56 H	95	49.78	0.92
3	*5825.00	110.5 PK			1.56 H	102	108.83	1.67
4	*5825.00	99.9 AV			1.56 H	102	98.23	1.67
5	#5850.00	78.0 PK	78.2	-0.2	1.50 H	85	76.36	1.64
6	#5860.00	67.8 PK	74.0	-6.2	1.55 H	91	66.17	1.63
7	#5860.00	48.7 AV	54.0	-5.3	1.55 H	91	47.07	1.63
8	11650.00	58.0 PK	74.0	-16.0	2.00 H	133	45.96	12.04
9	11650.00	44.4 AV	54.0	-9.6	2.00 H	133	32.36	12.04
10	#17475.00	55.1 PK	74.0	-18.9	1.97 H	210	36.45	18.65
11	#17475.00	42.8 AV	54.0	-11.2	1.97 H	210	24.15	18.65
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	5360.00	55.2 PK	74.0	-18.8	1.30 V	127	54.28	0.92
2	5360.00	47.8 AV	54.0	-6.2	1.30 V	127	46.88	0.92
3	*5825.00	107.8 PK			1.36 V	116	106.13	1.67
4	*5825.00	97.3 AV			1.36 V	116	95.63	1.67
5	#5850.00	75.1 PK	78.2	-3.1	1.34 V	140	73.46	1.64
6	#5860.00	65.5 PK	74.0	-8.5	1.30 V	139	63.87	1.63
7	#5860.00	46.2 AV	54.0	-7.8	1.30 V	139	44.57	1.63
8	11650.00	63.7 PK	74.0	-10.3	1.91 V	223	51.66	12.04
9	11650.00	48.0 AV	54.0	-6.0	1.91 V	223	35.96	12.04
10	#17475.00	54.7 PK	74.0	-19.3	2.02 V	171	36.05	18.65
11	#17475.00	43.3 AV	54.0	-10.7	2.02 V	171	24.65	18.65

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) – Pre-Amplifier 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	68.0 PK	74.0	-6.0	1.07 H	265	25.70	42.30
2	5150.00	52.6 AV	54.0	-1.4	1.07 H	265	10.30	42.30
3	*5190.00	101.1 PK			1.00 H	113	58.70	42.44
4	*5190.00	90.3 AV			1.00 H	113	47.86	42.44
5	#10380.00	53.4 PK	68.3	-14.9	1.26 H	62	4.38	49.02
6	15570.00	59.2 PK	74.0	-14.8	1.13 H	55	4.16	55.04
7	15570.00	46.8 AV	54.0	-7.2	1.13 H	55	-8.24	55.04
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	63.1 PK	74.0	-10.9	1.14 V	21	20.80	42.30
2	5150.00	49.1 AV	54.0	-4.9	1.14 V	21	6.80	42.30
3	*5190.00	106.1 PK			1.14 V	21	63.66	42.44
4	*5190.00	94.6 AV			1.14 V	21	52.16	42.44
5	#10380.00	53.1 PK	68.3	-15.2	1.14 V	20	4.08	49.02
6	15570.00	58.9 PK	74.0	-15.1	1.00 V	28	3.86	55.04
7	15570.00	45.9 AV	54.0	-8.1	1.00 V	28	-9.14	55.04

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) – Pre-Amplifier 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	*5230.00	104.6 PK			1.00 H	84	62.10	42.50
2	*5230.00	93.0 AV			1.00 H	84	50.50	42.50
3	5350.00	59.5 PK	74.0	-14.5	1.00 H	84	16.91	42.59
4	5350.00	48.4 AV	54.0	-5.6	1.00 H	84	5.81	42.59
5	#10460.00	53.2 PK	68.3	-15.1	1.19 H	42	3.95	49.25
6	15690.00	57.6 PK	74.0	-16.4	1.10 H	57	2.93	54.67
7	15690.00	46.0 AV	54.0	-8.0	1.10 H	57	-8.67	54.67
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	103.7 PK			1.19 V	23	61.20	42.50
2	*5230.00	91.7 AV			1.19 V	23	49.20	42.50
3	5350.00	59.1 PK	74.0	-14.9	1.19 V	23	16.51	42.59
4	5350.00	47.2 AV	54.0	-6.8	1.19 V	23	4.61	42.59
5	#10460.00	53.0 PK	68.3	-15.3	1.20 V	15	3.75	49.25
6	15690.00	58.0 PK	74.0	-16.0	1.00 V	21	3.33	54.67
7	15690.00	45.4 AV	54.0	-8.6	1.00 V	21	-9.27	54.67

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) – Pre-Amplifier 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	#5715.00	71.6 PK	74.0	-2.4	1.64 H	121	70.09	1.51
2	#5715.00	53.8 AV	54.0	-0.2	1.64 H	121	52.29	1.51
3	#5725.00	76.4 PK	78.2	-1.8	1.56 H	122	74.87	1.53
4	*5755.00	102.6 PK			1.63 H	77	101.01	1.59
5	*5755.00	91.8 AV			1.63 H	77	90.21	1.59
6	11510.00	59.0 PK	74.0	-15.0	1.95 H	136	46.63	12.37
7	11510.00	44.9 AV	54.0	-9.1	1.95 H	136	32.53	12.37
8	#17265.00	55.1 PK	74.0	-18.9	1.97 H	212	37.64	17.46
9	#17265.00	42.8 AV	54.0	-11.2	1.97 H	212	25.34	17.46
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	#5715.00	69.2 PK	74.0	-4.8	1.32 V	121	67.69	1.51
2	#5715.00	51.3 AV	54.0	-2.7	1.32 V	121	49.79	1.51
3	#5725.00	73.0 PK	78.2	-5.2	1.38 V	140	71.47	1.53
4	*5755.00	100.0 PK			1.37 V	138	98.41	1.59
5	*5755.00	89.2 AV			1.37 V	138	87.61	1.59
6	11510.00	63.8 PK	74.0	-10.2	1.92 V	232	51.43	12.37
7	11510.00	48.1 AV	54.0	-5.9	1.92 V	232	35.73	12.37
8	#17265.00	54.9 PK	74.0	-19.1	2.06 V	170	37.44	17.46
9	#17265.00	43.5 AV	54.0	-10.5	2.06 V	170	26.04	17.46

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) – Pre-Amplifier 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	108.6 PK			1.96 H	96	106.92	1.68
2	*5795.00	96.6 AV			1.96 H	96	94.92	1.68
3	#5850.00	76.2 PK	78.2	-2.0	1.96 H	102	74.56	1.64
4	#5860.00	70.6 PK	74.0	-3.4	1.00 H	89	68.97	1.63
5	#5860.00	53.1 AV	54.0	-0.9	1.00 H	89	51.47	1.63
6	11590.00	58.7 PK	74.0	-15.3	1.96 H	140	46.67	12.03
7	11590.00	44.6 AV	54.0	-9.4	1.96 H	140	32.57	12.03
8	#17385.00	55.6 PK	74.0	-18.4	1.99 H	210	37.61	17.99
9	#17385.00	43.4 AV	54.0	-10.6	1.99 H	210	25.41	17.99

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	105.6 PK			1.38 V	144	103.92	1.68
2	*5795.00	93.8 AV			1.38 V	144	92.12	1.68
3	#5850.00	73.5 PK	78.2	-4.7	1.32 V	141	71.86	1.64
4	#5860.00	67.9 PK	74.0	-6.1	1.36 V	130	66.27	1.63
5	#5860.00	50.1 AV	54.0	-3.9	1.36 V	130	48.47	1.63
6	11590.00	63.6 PK	74.0	-10.4	1.99 V	243	51.57	12.03
7	11590.00	48.3 AV	54.0	-5.7	1.99 V	243	36.27	12.03
8	#17385.00	54.3 PK	74.0	-19.7	2.03 V	167	36.31	17.99
9	#17385.00	42.8 AV	54.0	-11.2	2.03 V	167	24.81	17.99

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) – Pre-Amplifier 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

802.11n (HT20)

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 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	250.00	41.5 QP	46.0	-4.5	1.00 H	57	55.48	-14.01
2	374.98	35.3 QP	46.0	-10.7	1.00 H	306	45.25	-9.98
3	500.01	39.6 QP	46.0	-6.4	1.50 H	0	46.43	-6.83
4	625.00	41.4 QP	46.0	-4.6	1.50 H	159	45.16	-3.74
5	749.98	38.5 QP	46.0	-7.5	1.00 H	223	39.73	-1.21
6	916.68	36.5 QP	46.0	-9.5	1.50 H	297	35.23	1.25
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.63	35.4 QP	40.0	-4.6	1.00 V	183	49.77	-14.35
2	87.62	35.2 QP	40.0	-4.8	1.50 V	88	53.95	-18.76
3	250.00	37.7 QP	46.0	-8.3	2.00 V	266	51.71	-14.01
4	374.98	38.8 QP	46.0	-7.2	1.50 V	324	48.78	-9.98
5	749.98	36.0 QP	46.0	-10.0	2.00 V	180	37.23	-1.21
6	916.68	35.6 QP	46.0	-10.4	1.00 V	301	34.34	1.25

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) – Pre-Amplifier 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.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 06, 2015	May 05, 2016
Line-Impedance Stabilization Network (for EUT) R&S	ENV216	100072	June 11, 2015	June 10, 2016
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100071	Nov. 10, 2014	Nov. 09, 2015
RF Cable	5D-FB	COCCAB-001	Mar. 09, 2015	Mar. 08, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
Software BVADT	BVADT_Cond_ V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Aug. 28, 2015

4.2.3 Test Procedures

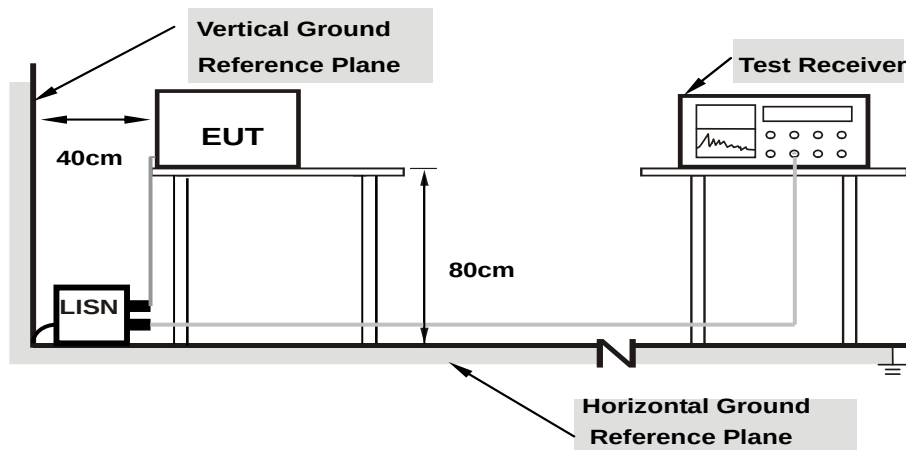
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

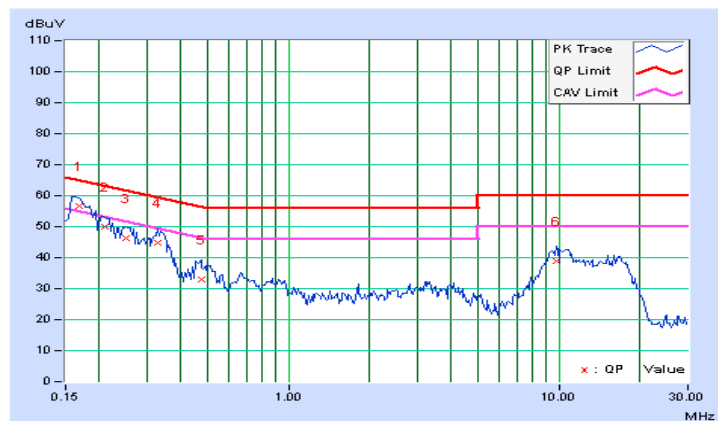
4.2.7 Test Results (Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16784	0.20	56.46	45.26	56.66	45.46	65.07	55.07	-8.40	-9.60
2	0.20859	0.21	49.80	38.57	50.01	38.78	63.26	53.26	-13.25	-14.48
3	0.25156	0.22	46.25	36.26	46.47	36.48	61.71	51.71	-15.24	-15.23
4	0.32969	0.22	44.76	37.26	44.98	37.48	59.46	49.46	-14.48	-11.98
5	0.47422	0.24	32.72	25.35	32.96	25.59	56.44	46.44	-23.48	-20.85
6	9.85547	0.82	38.14	32.58	38.96	33.40	60.00	50.00	-21.04	-16.60

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

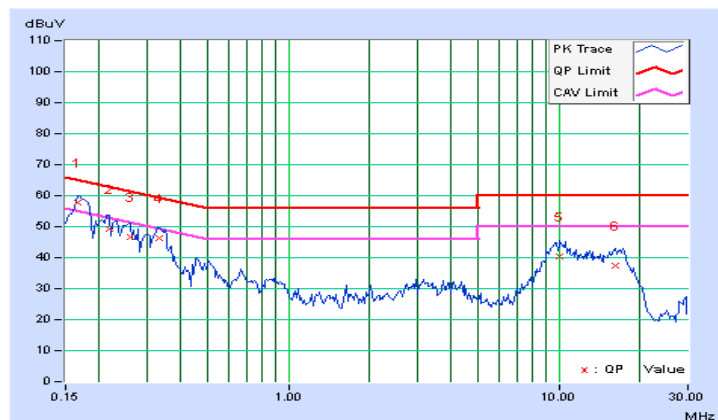


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16637	0.24	57.55	45.93	57.79	46.17	65.14	55.14	-7.35	-8.97
2	0.21641	0.27	48.81	37.11	49.08	37.38	62.96	52.96	-13.87	-15.57
3	0.25938	0.28	46.25	35.87	46.53	36.15	61.45	51.45	-14.92	-15.30
4	0.33359	0.29	45.86	38.87	46.15	39.16	59.36	49.36	-13.21	-10.20
5	10.05859	0.85	39.56	34.22	40.41	35.07	60.00	50.00	-19.59	-14.93
6	16.18359	1.10	36.15	30.92	37.25	32.02	60.00	50.00	-22.75	-17.98

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



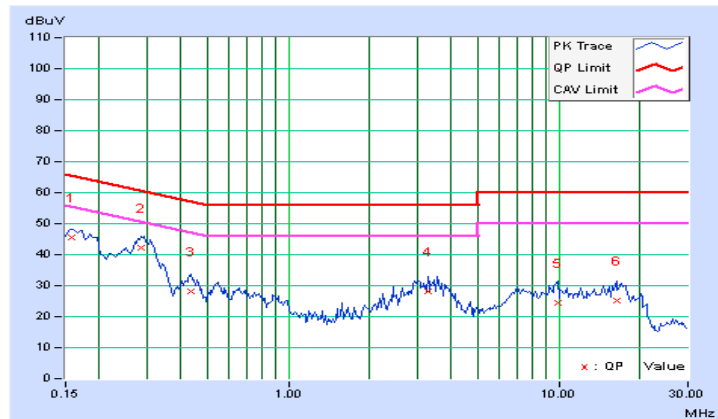
4.2.8 Test Results (Mode 2)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.20	45.34	37.33	45.54	37.53	65.58	55.58	-20.04	-18.05
2	0.28672	0.22	41.91	36.87	42.13	37.09	60.62	50.62	-18.49	-13.53
3	0.43516	0.23	28.07	22.84	28.30	23.07	57.15	47.15	-28.85	-24.08
4	3.27734	0.39	27.83	20.74	28.22	21.13	56.00	46.00	-27.78	-24.87
5	9.96484	0.83	23.77	18.85	24.60	19.68	60.00	50.00	-35.40	-30.32
6	16.30469	1.09	24.25	18.74	25.34	19.83	60.00	50.00	-34.66	-30.17

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

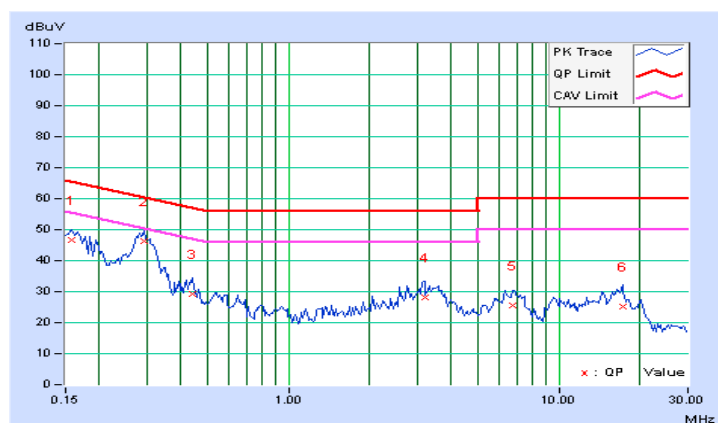


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.23	46.58	38.80	46.81	39.03	65.58	55.58	-18.77	-16.55
2	0.29453	0.28	45.89	41.97	46.17	42.25	60.40	50.40	-14.22	-8.14
3	0.44297	0.30	29.01	23.89	29.31	24.19	57.01	47.01	-27.69	-22.81
4	3.19141	0.48	27.73	20.84	28.21	21.32	56.00	46.00	-27.79	-24.68
5	6.72266	0.67	25.01	20.01	25.68	20.68	60.00	50.00	-34.32	-29.32
6	17.17578	1.14	24.21	18.95	25.35	20.09	60.00	50.00	-34.65	-29.91

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



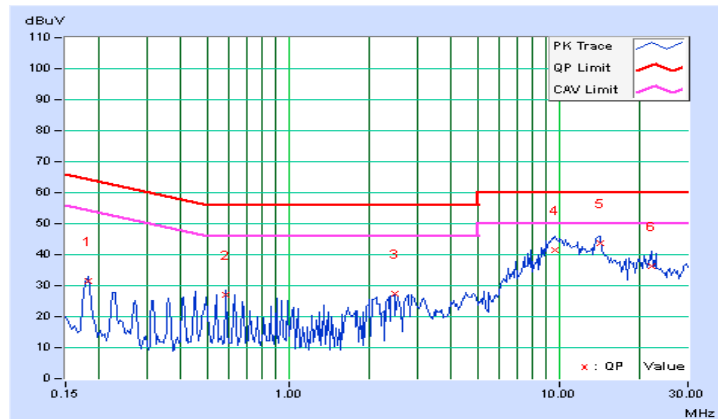
4.2.9 Test Results (Mode 3)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.21	31.27	30.50	31.48	30.71	64.43	54.43	-32.95	-23.72
2	0.58750	0.25	26.85	26.82	27.10	27.07	56.00	46.00	-28.90	-18.93
3	2.48438	0.37	27.15	26.36	27.52	26.73	56.00	46.00	-28.48	-19.27
4	9.64453	0.81	40.56	35.58	41.37	36.39	60.00	50.00	-18.63	-13.61
5	14.15625	1.00	42.61	41.05	43.61	42.05	60.00	50.00	-16.39	-7.95
6	22.07422	1.30	35.00	34.82	36.30	36.12	60.00	50.00	-23.70	-13.88

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

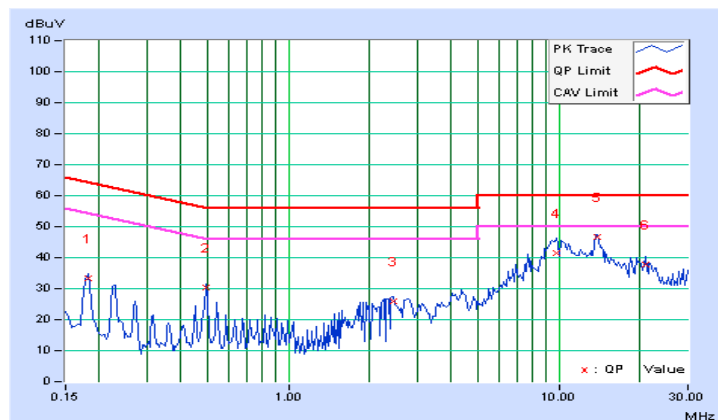


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.25	33.22	31.76	33.47	32.01	64.43	54.43	-30.96	-22.42
2	0.49766	0.31	29.98	29.89	30.29	30.20	56.04	46.04	-25.75	-15.84
3	2.44075	0.43	25.66	25.54	26.09	25.97	56.00	46.00	-29.91	-20.03
4	9.75391	0.84	40.79	35.96	41.63	36.80	60.00	50.00	-18.37	-13.20
5	13.91656	1.01	45.73	45.12	46.74	46.13	60.00	50.00	-13.26	-3.87
6	20.87500	1.28	36.63	35.85	37.91	37.13	60.00	50.00	-22.09	-12.87

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 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

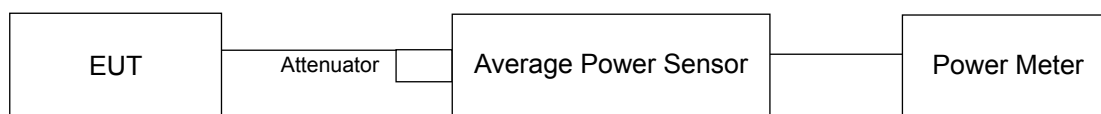
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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 Procedures

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.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Results

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	6.60	6.70	7.10	14.377	11.58	24	Pass
40	5200	6.50	6.30	7.50	14.356	11.57	24	Pass
48	5240	6.60	6.30	6.90	13.735	11.38	24	Pass
149	5745	13.47	12.94	14.74	71.697	18.56	30	Pass
157	5785	19.20	19.32	19.25	252.823	24.03	30	Pass
165	5825	16.86	16.16	17.17	141.953	21.52	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	10.70	9.90	10.40	32.486	15.12	24	Pass
40	5200	10.80	9.70	10.30	32.071	15.06	24	Pass
48	5240	10.70	9.60	10.20	31.34	14.96	24	Pass
149	5745	13.71	12.91	14.82	73.378	18.66	30	Pass
157	5785	19.72	19.32	19.39	266.159	24.25	30	Pass
165	5825	16.08	16.32	17.02	133.756	21.26	30	Pass

802.11n (HT40)

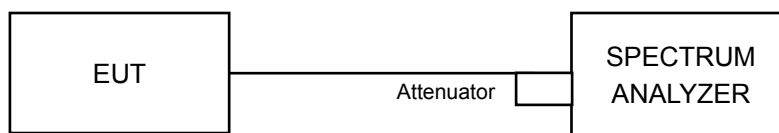
Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
38	5190	11.60	11.20	12.10	43.855	16.42	24	Pass
46	5230	11.50	11.70	12.10	45.134	16.55	24	Pass
151	5755	14.02	13.43	14.33	74.366	18.71	30	Pass
159	5795	17.99	17.11	18.00	177.451	22.49	30	Pass

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

Using method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
- 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:

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
- Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- 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 $BWCF = 10\log(500\text{ kHz}/300\text{ kHz})$
- Sweep time = auto, trigger set to “free run”.
- Trace average at least 100 traces in power averaging mode.
- Record the max value

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:

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm)			Total Power Density (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
36	5180	-4.59	-4.54	-4.68	0.17	7.69	Pass
40	5200	-4.37	-5.71	-4.35	0.01	7.69	Pass
48	5240	-4.86	-4.92	-4.84	-0.10	7.69	Pass

- Note:** 1. Method a) 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 = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.31\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(9.31-6) = 7.69\text{dBm}$.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm)			Total Power Density (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
36	5180	-1.03	-2.17	-0.45	3.61	7.69	Pass
40	5200	-0.89	-1.54	-1.12	3.60	7.69	Pass
48	5240	-0.77	-2.74	-0.78	3.43	7.69	Pass

- Note:** 1. Method a) 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 = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.31\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(9.31-6) = 7.69\text{dBm}$.

802.11n (HT40)

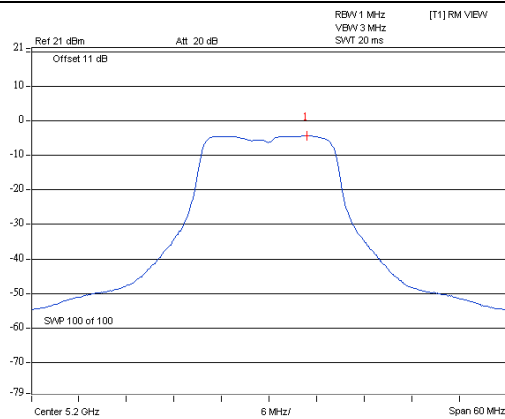
Chan.	Chan. Freq. (MHz)	PSD (dBm)			Total Power Density (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
38	5190	-2.86	-4.08	-2.36	1.73	7.69	Pass
46	5230	-3.30	-3.05	-2.44	1.86	7.69	Pass

- Note:** 1. Method a) 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 = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.31\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(9.31-6) = 7.69\text{dBm}$.

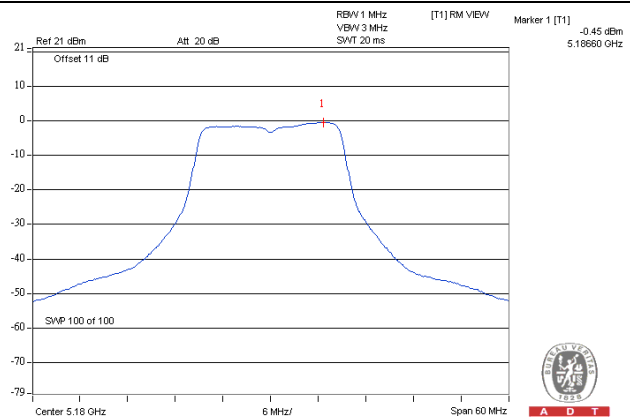
Spectrum Plot of Worst Value

802.11a_Chain 2 / CH40

802.11n (HT20)_Chain 2 / CH36

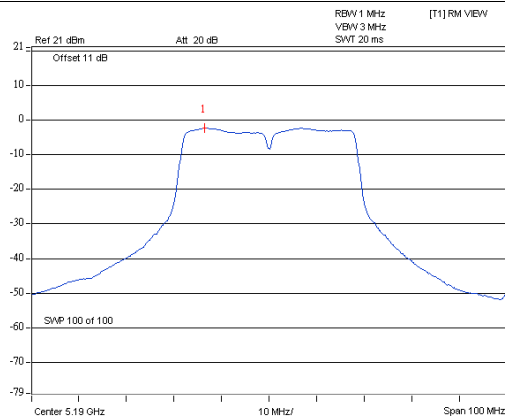


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8802.11n (HT40)_Chain 2 / CH38



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For U-NII-3:

802.11a

TX chain	Chan.	Chan. Freq. (MHz)	PSD		10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-8.69	-6.47	4.77	-1.70	26.21	Pass
	157	5785	-4.07	-1.85	4.77	2.92	26.21	Pass
	165	5825	-6.21	-3.99	4.77	0.78	26.21	Pass
1	149	5745	-7.65	-5.43	4.77	-0.66	26.21	Pass
	157	5785	-3.20	-0.98	4.77	3.79	26.21	Pass
	165	5825	-6.22	-4.00	4.77	0.77	26.21	Pass
2	149	5745	-5.89	-3.67	4.77	1.10	26.21	Pass
	157	5785	-3.15	-0.93	4.77	3.84	26.21	Pass
	165	5825	-4.96	-2.74	4.77	2.03	26.21	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.79\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30-(9.79-6) = 26.21\text{dBm}$.

802.11n (HT20)

TX chain	Chan.	Chan. Freq. (MHz)	PSD		10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	149	5745	-9.41	-7.19	4.77	-2.42	26.21	Pass
	157	5785	-4.24	-2.02	4.77	2.75	26.21	Pass
	165	5825	-6.87	-4.65	4.77	0.12	26.21	Pass
1	149	5745	-8.61	-6.39	4.77	-1.62	26.21	Pass
	157	5785	-3.31	-1.09	4.77	3.68	26.21	Pass
	165	5825	-6.09	-3.87	4.77	0.90	26.21	Pass
2	149	5745	-6.92	-4.70	4.77	0.07	26.21	Pass
	157	5785	-3.45	-1.23	4.77	3.54	26.21	Pass
	165	5825	-5.55	-3.33	4.77	1.44	26.21	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.79\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30-(9.79-6) = 26.21\text{dBm}$.

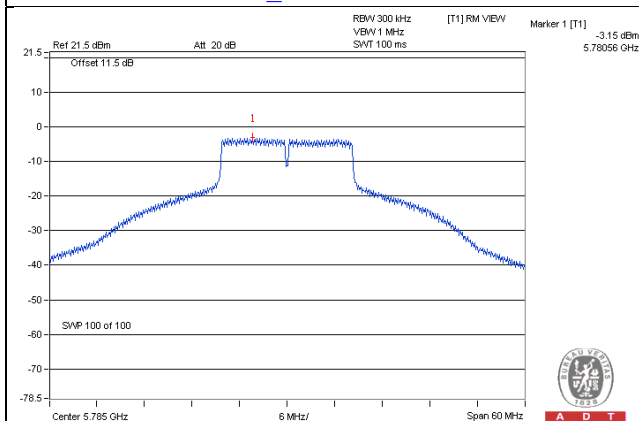
802.11n (HT40)

TX chain	Chan.	Chan. Freq. (MHz)	PSD		10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)				
0	151	5755	-14.12	-11.90	4.77	-7.13	26.21	Pass
	159	5795	-8.69	-6.47	4.77	-1.70	26.21	Pass
1	151	5755	-12.75	-10.53	4.77	-5.76	26.21	Pass
	159	5795	-7.65	-5.43	4.77	-0.66	26.21	Pass
2	151	5755	-10.89	-8.67	4.77	-3.90	26.21	Pass
	159	5795	-7.20	-4.98	4.77	-0.21	26.21	Pass

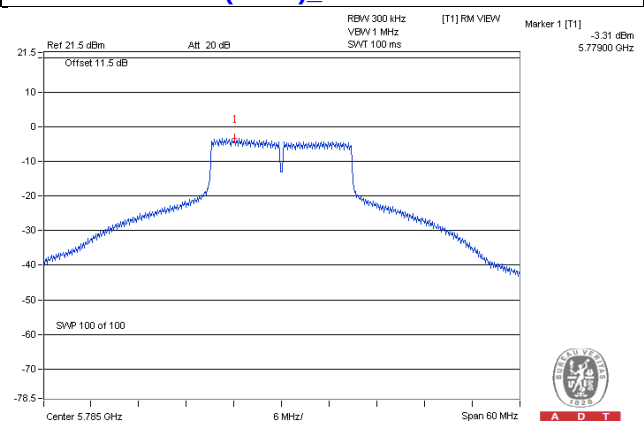
Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 9.79\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.79 - 6) = 26.21\text{dBm}$.

Spectrum Plot of Worst Value

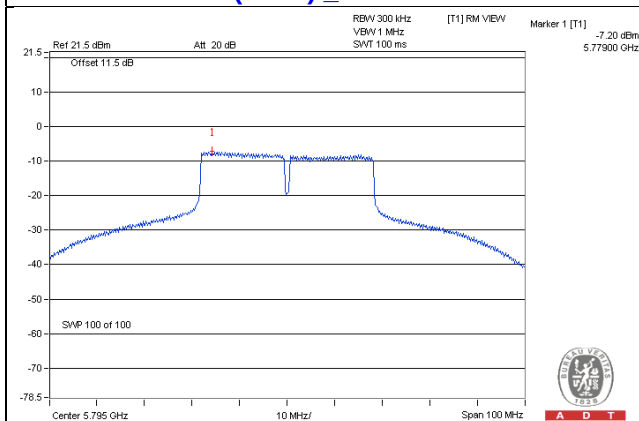
802.11a_Chain 2 / CH157



802.11n (HT20)_Chain 1 / CH157



8802.11n (HT40)_Chain 2 / CH159

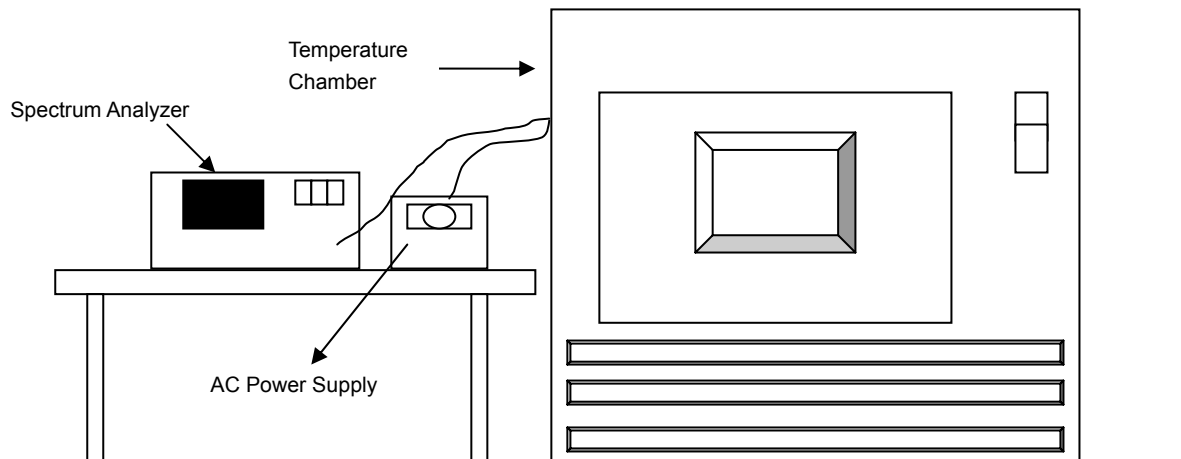


4.5 Frequency Stability Measurement

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 Procedures

- 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 Conditions

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

4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5745MHz									
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	5744.9779	-0.00038	5744.9763	-0.00041	5744.9779	-0.00038	5744.9756	-0.00042
40	120	5744.9698	-0.00053	5744.9729	-0.00047	5744.9729	-0.00047	5744.9735	-0.00046
30	120	5744.9924	-0.00013	5744.9918	-0.00014	5744.9896	-0.00018	5744.9915	-0.00015
20	120	5744.9972	-0.00005	5744.9983	-0.00003	5744.9966	-0.00006	5744.994	-0.00010
10	120	5744.984	-0.00028	5744.9835	-0.00029	5744.9847	-0.00027	5744.98	-0.00035
0	120	5744.9782	-0.00038	5744.9734	-0.00046	5744.9763	-0.00041	5744.9787	-0.00037
-10	120	5744.9797	-0.00035	5744.9775	-0.00039	5744.9771	-0.00040	5744.9778	-0.00039
-20	120	5745.0224	0.00039	5745.0225	0.00039	5745.0217	0.00038	5745.0222	0.00039
-30	120	5744.9843	-0.00027	5744.9824	-0.00031	5744.9878	-0.00021	5744.9827	-0.00030

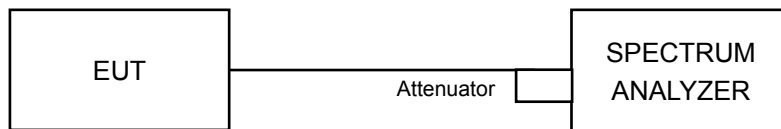
Frequency Stability Versus Temp.									
Operating Frequency: 5745MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5744.9961	-0.00007	5744.9994	-0.00001	5744.9957	-0.00007	5744.9936	-0.00011
	120	5744.9972	-0.00005	5744.9983	-0.00003	5744.9966	-0.00006	5744.994	-0.00010
	102	5744.9976	-0.00004	5744.9972	-0.00005	5744.9959	-0.00007	5744.9939	-0.00011

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 Procedures

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 Conditions

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	Chain 2		
149	5745	16.62	16.59	16.60	0.5	Pass
157	5785	16.62	16.55	16.61	0.5	Pass
165	5825	16.60	16.58	16.58	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	17.78	17.86	17.88	0.5	Pass
157	5785	17.87	17.86	17.84	0.5	Pass
165	5825	17.86	17.86	17.86	0.5	Pass

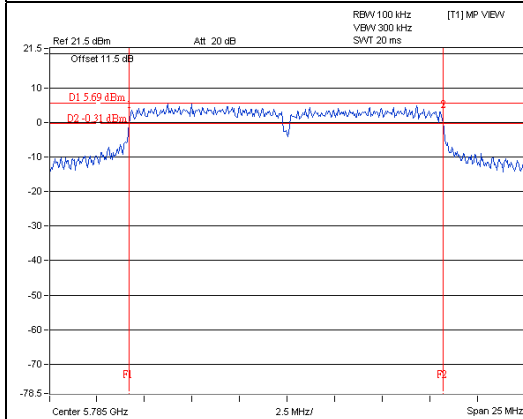
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
151	5755	36.74	36.68	36.70	0.5	Pass
159	5795	36.71	36.63	36.70	0.5	Pass

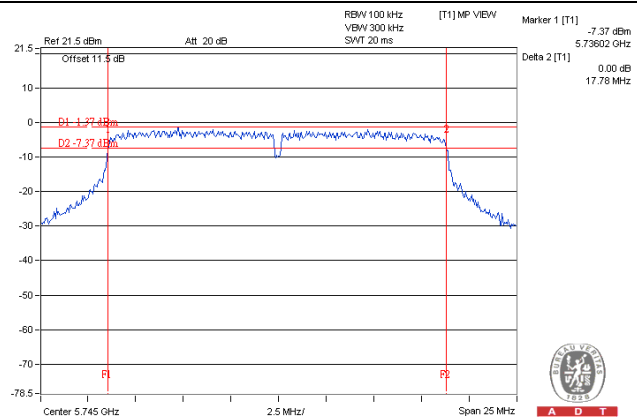
Spectrum Plot of Worst Value

802.11a_Chain 1 / CH157

802.11n (HT20)_Chain 0 / CH149

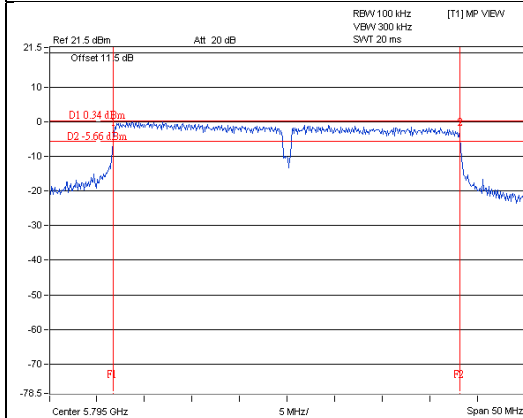


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802.11n (HT40)_Chain 1 / CH159



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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.

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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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