FCC Test Report

Report No.:	RF151119C17-1
FCC ID:	YHI-NW111
Test Model:	NW-111
Received Date:	Nov. 19, 2015
Test Date:	Nov. 25, 2015 ~ Dec. 14, 2015
Issued Date:	Dec. 23, 2015
Applicant:	NEXCOM International Co., Ltd.
Address:	9F, No. 920, Chung-Cheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location :	No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C

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Release Control Record

Issue No.	Description	Date Issued
RF151119C17-1	Original Release	Dec. 23, 2015

1 Certificate of Conformity

Product:	3x3 11n/g/b/a 2.4/5GHz WiFi Module
Brand:	NEXCOM
Test Model:	NW-111
Sample Status:	Identical Prototype
Applicant:	NEXCOM International Co., Ltd.
Test Date:	Nov. 25, 2015 ~ Dec. 14, 2015
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Evonne Liu , **Date:** Dec. 23, 2015

Evonne Liu / Specialist

Approved by : Stanley Wu , **Date:** Dec. 23, 2015

Stanley Wu / Assistant 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 -9.17 dB at 0.16181 MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.64 dB at 200.12 MHz.
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)	6 dB 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	No antenna connector is used.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	3x3 11n/g/b/a 2.4/5GHz WiFi Module
Brand	NEXCOM
Test Model	NW-111
Status of EUT	Identical Prototype
Power Supply Rating	3.3 Vdc (Host equipment)
Modulation Type	64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to MCS23
Operating Frequency	5180 ~ 5240 MHz, 5745 ~ 5805 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 5745 ~ 5805 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
Output Power	60.89 mW for 5180 ~ 5240 MHz 62.45 mW for 5745 ~ 5805 MHz
Antenna Type	PIFA antenna with 4.70 dBi gain (5180 ~ 5240 MHz) PIFA antenna with 5.24 dBi gain (5745 ~ 5805 MHz)
	Dipole antenna with 1.95 dBi gain (5180 ~ 5240 MHz) Dipole antenna with 1.94 dBi gain (5745 ~ 5805 MHz)
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	N/A

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides 3 completed transmitters and 3 receivers.

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

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

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Antenna 1	ARISTOTLE	RFA-25-AP250-70-50	PIFA
Antenna 2	WIESON	GY121L049S-XXX	Dipole

3. 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 ~ 5240 MHz

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

FOR 5745 ~ 5805 MHz:

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785
153	5765	161	5805

2 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT with PIFA Antenna
B	√	√	√	√	EUT with Dipole Antenna

Where **RE≥1G:** Radiated Emission above 1 GHz **RE<1G:** Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

Radiated Emission Test (Above 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	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	MCS0
	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	MCS0
	802.11a	5745-5805	149 to 161	149, 157, 161	OFDM	BPSK	6.0
	802.11n (HT20)		149 to 161	149, 157, 161	OFDM	BPSK	MCS0
	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	MCS0

Radiated Emission Test (Below 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11n (HT40)	5180-5240	38 to 46	38	OFDM	BPSK	MCS0
	802.11n (HT40)	5745-5805	151 to 159	151	OFDM	BPSK	MCS0
B	802.11n (HT40)	5180-5240	38 to 46	38	OFDM	BPSK	MCS0
	802.11n (HT20)	5745-5805	149 to 161	149	OFDM	BPSK	MCS0

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	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11n (HT40)	5180-5240	38 to 46	38	OFDM	BPSK	MCS0
B	802.11n (HT20)	5745-5805	149 to 161	149	OFDM	BPSK	MCS0

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	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	MCS0
	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	MCS0
	802.11a	5745-5805	149 to 161	149, 157, 161	OFDM	BPSK	6.0
	802.11n (HT20)		149 to 161	149, 157, 161	OFDM	BPSK	MCS0
	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao / Karl Lee
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Toby Tian
APCM	25 deg. C, 65 % RH	3.3 Vdc	Taylor Liu

3.3 Duty Cycle of Test Signal

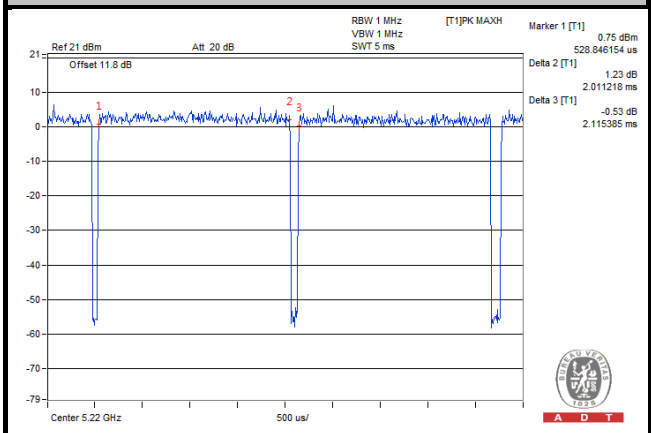
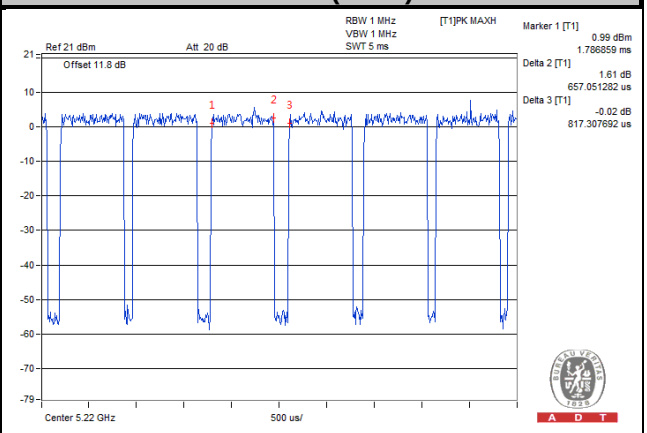
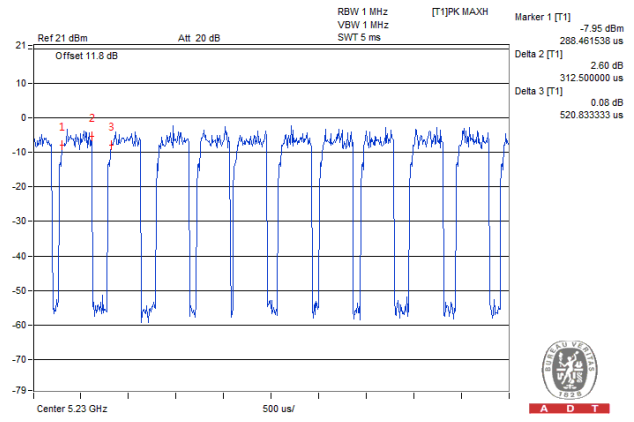
5180 ~ 5240 MHz

MODULATION TYPE: BPSK

802.11a: Duty cycle = 2.011/2.115 = 0.950, Duty factor = 10 * log(1/0.950) = 0.22

802.11n (HT20): Duty cycle = 657/817 = 0.803, Duty factor = 10 * log(1/0.803) = 0.95

802.11n (HT40): Duty cycle = 312/520 = 0.600, Duty factor = 10 * log(1/0.600) = 2.22

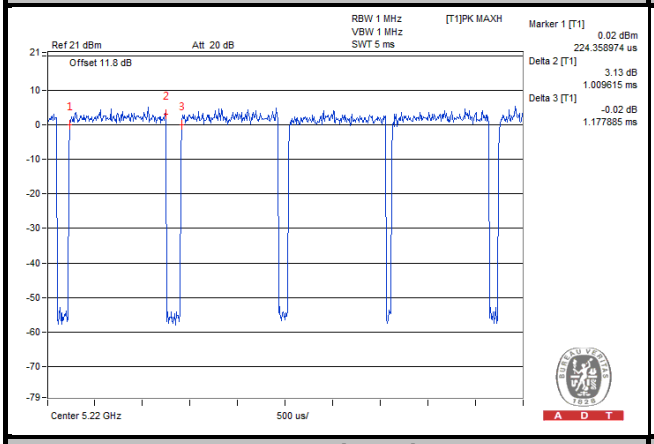
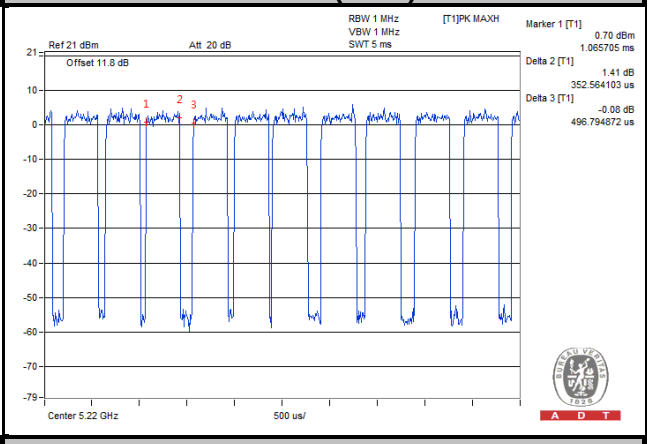
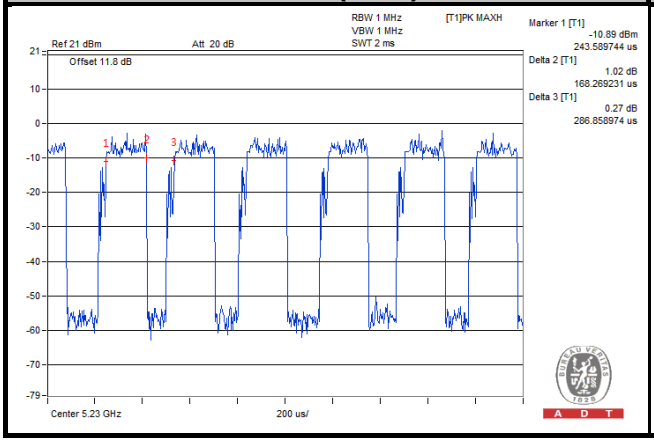
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

MODULATION TYPE: QPSK

802.11a: Duty cycle = 1.009/1.177 = 0.857, Duty factor = 10 * log(1/0.857) = 0.67

802.11n (HT20): Duty cycle = 352/496 = 0.709, Duty factor = 10 * log(1/0.709) = 1.49

802.11n (HT40): Duty cycle = 168/286 = 0.586, Duty factor = 10 * log(1/0.586) = 2.32

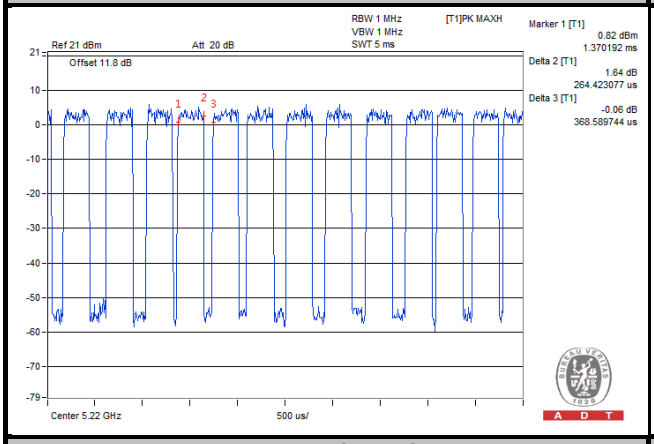
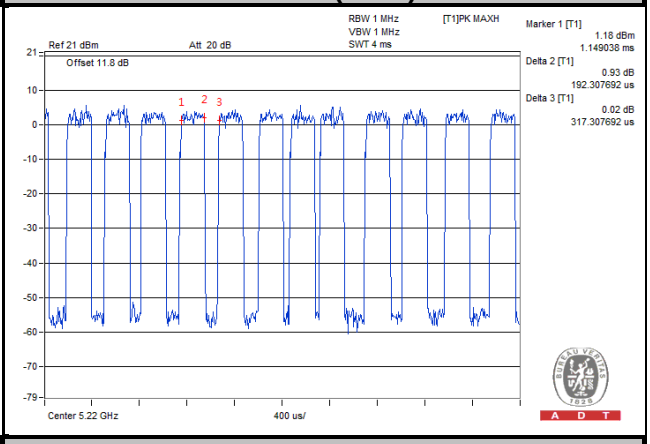
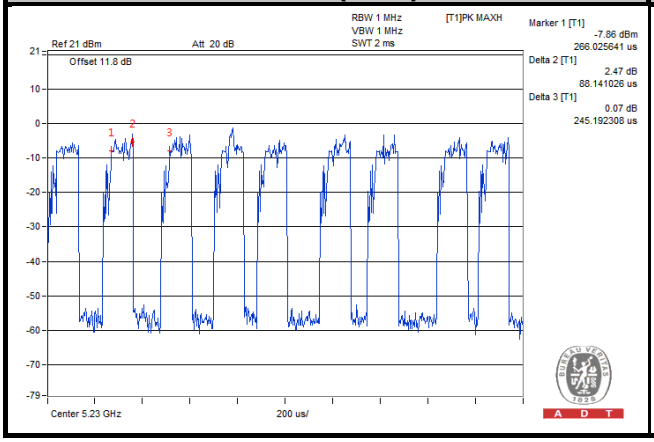
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

MODULATION TYPE: 16QAM

802.11a: Duty cycle = 264/368 = 0.717, Duty factor = 10 * log(1/0.717) = 1.44

802.11n (HT20): Duty cycle = 192/317 = 0.606, Duty factor = 10 * log(1/0.606) = 2.17

802.11n (HT40): Duty cycle = 88/245 = 0.359, Duty factor = 10 * log(1/0.359) = 4.44

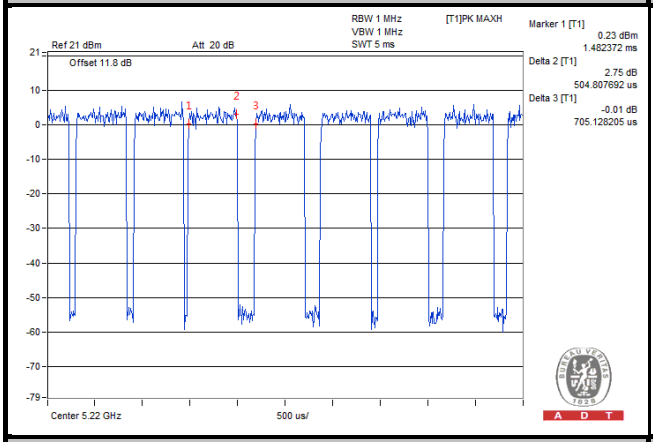
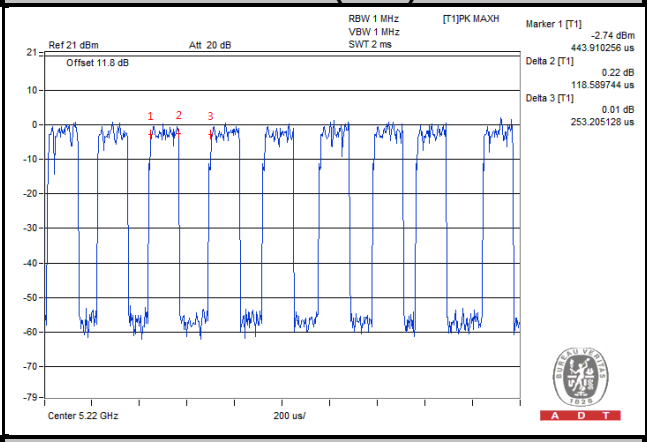
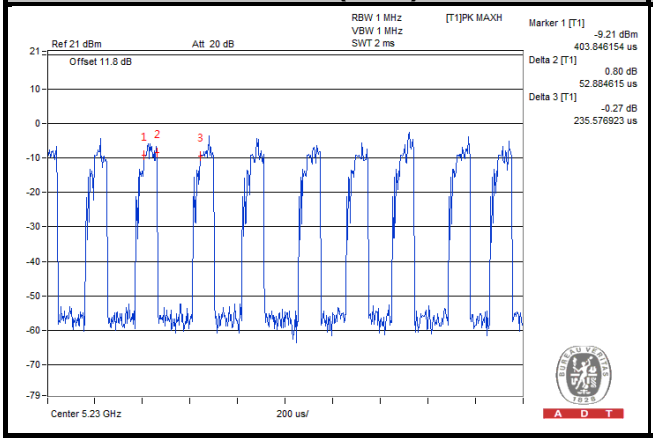
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

MODULATION TYPE: 64QAM

802.11a: Duty cycle = 504/705 = 0.715, Duty factor = 10 * log(1/0.715) = 1.45

802.11n (HT20): Duty cycle = 118/253 = 0.468, Duty factor = 10 * log(1/0.468) = 3.29

802.11n (HT40): Duty cycle = 52/235 = 0.224, Duty factor = 10 * log(1/0.224) = 6.49

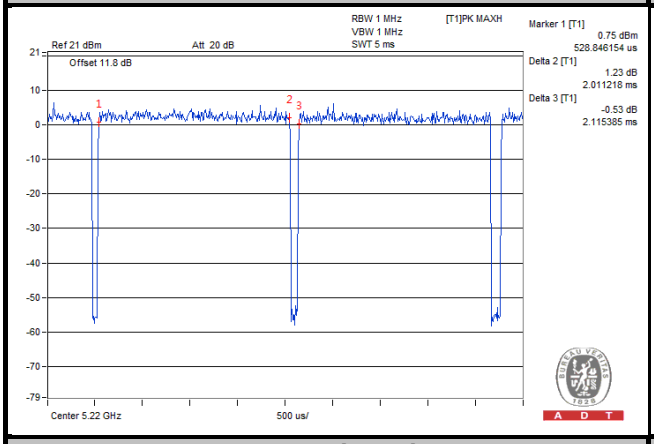
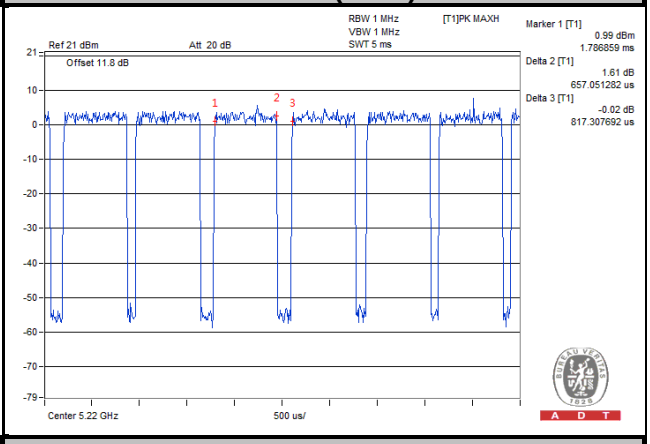
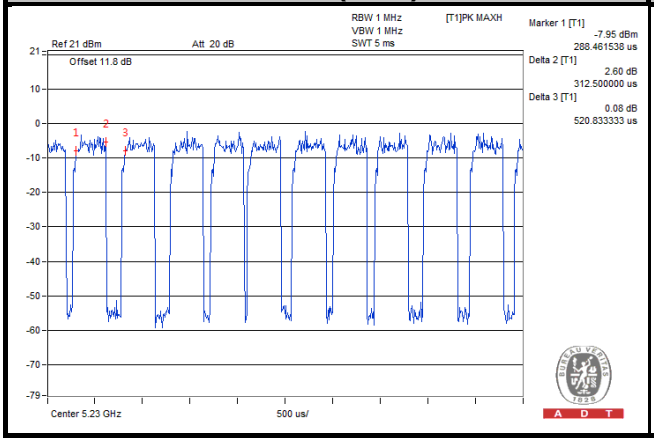
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

5745 ~ 5805 MHz

802.11a: Duty cycle = 2.011/2.115 = 0.950, Duty factor = 10 * log(1/0.950) = 0.22

802.11n (HT20): Duty cycle = 657/817 = 0.803, Duty factor = 10 * log(1/0.803) = 0.95

802.11n (HT40): Duty cycle = 312/520 = 0.600, Duty factor = 10 * log(1/0.600) = 2.21

802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

3.4 Description of Support Units

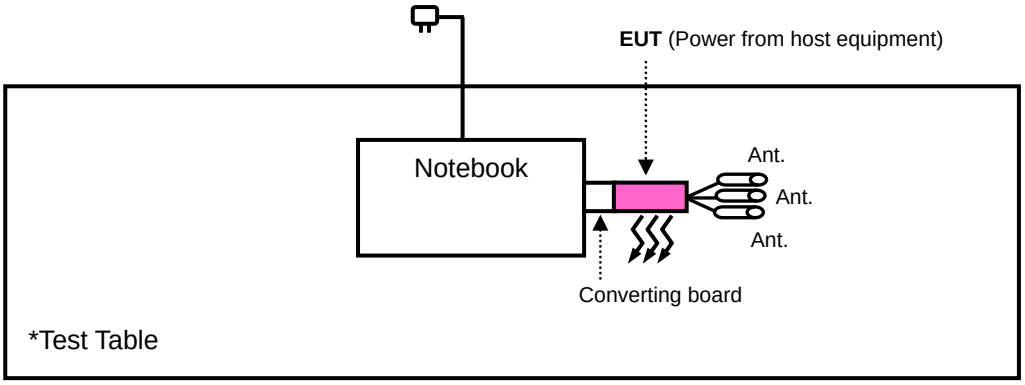
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Notebook	DELL	E6420	D3T96R1	N/A

Note:

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)
789033 D02 General UNII Test Procedures New Rules v01
644545 D01 Guidance for IEEE 802 11ac v01r02
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. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

4.1.2 Limits of Unwanted Emission Out of the Restricted Bands

Applicable To	Limit	
789033 D02 General UNII Test Procedures New Rules v01	Field Strength at 3 m	
	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Applicable To	**EIRP Limit**	**Equivalent Field Strength at 3 m**
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK: -27 (dBm/MHz) *1 PK: -17 (dBm/MHz) *2	PK: 68.2 (dBμV/m) *1 PK: 78.2 (dBμV/m) *2

NOTE: *1 beyond 10 MHz of the band edge *2 within 10 MHz of band edge

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

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

4.1.3 Test Instruments

Description & Manaufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	May 19, 2015	May 18, 2016
Spectrum Analyzer Rohde & Schwarz	FSV40	100980	Feb. 10, 2015	Feb. 09, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 04, 2015	Feb. 03, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Feb. 04, 2015	Feb. 03, 2016
HORN Antenna ETS-Lindgren	3117	00143293	Jan. 05, 2015	Jan. 04, 2016
Bluetooth Tester	CBT	100980	Apr. 27, 2015	Apr. 26, 2017
Loop Antenna	EM-6879	269	Jul. 31, 2015	Jul. 30, 2016
Agilent Communications Tester-Wireless	8960 Series 10	MY53201073	Jul. 03, 2015	Jul. 02, 2017
Preamplifier Agilent	310N	187226	Jun. 29, 2015	Jun. 28, 2016
Preamplifier Agilent	83017A	MY39501357	Jun. 29, 2015	Jun. 28, 2016
Power Meter Anritsu	ML2495A	1232002	Sep. 21, 2015	Sep. 20, 2016
Power Sensor Anritsu	MA2411B	1207325	Sep. 21, 2015	Sep. 20, 2016
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 27, 2015	Jun. 26, 2016
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 27, 2015	Jun. 26, 2016
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The FCC Site Registration No. is 149147.
5. The IC Site Registration No. is IC7450I-1.

4.1.4 Test Procedures

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

Note:

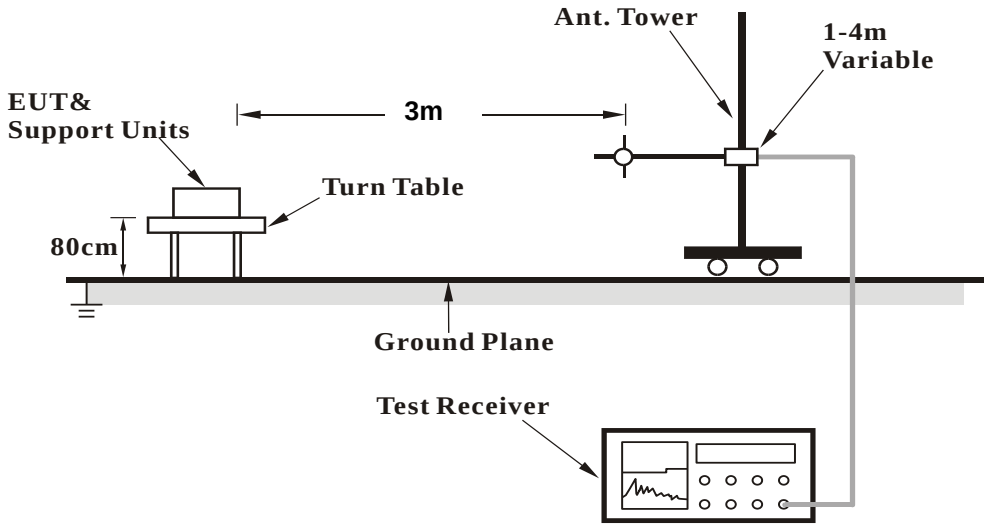
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.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

4.1.5 Deviation from Test Standard

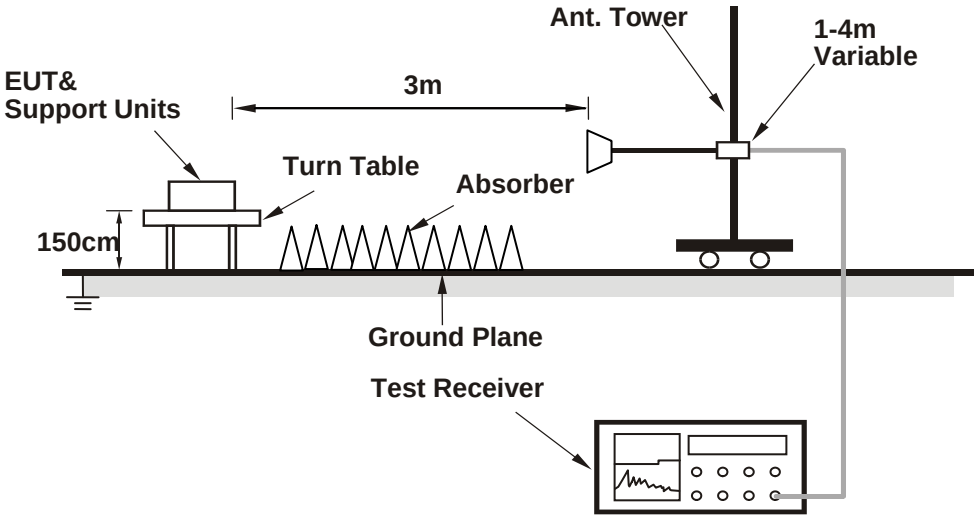
No deviation.

4.1.6 Test Set Up

<Frequency Range below 1 GHz>



<Frequency Range above 1 GHz>



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

4.1.7 EUT Operating Conditions

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

4.1.8 Test Results

ABOVE 1 GHz DATA：

Mode A

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5074	42.6	34.48	54	-11.4	34.07	8.03	33.98	118	230	Average
5074	56.19	48.07	74	-17.81	34.07	8.03	33.98	118	230	Peak
5180	96.81	88.5			34.15	8.16	34	118	230	Average
5180	103.45	95.14			34.15	8.16	34	118	230	Peak
5432	43.22	34.43	54	-10.78	34.35	8.48	34.04	118	230	Average
5432	56.85	48.06	74	-17.15	34.35	8.48	34.04	118	230	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5148	48.65	40.4	54	-5.35	34.12	8.13	34	220	6	Average
5148	62.03	53.78	74	-11.97	34.12	8.13	34	220	6	Peak
5180	103.94	95.63			34.15	8.16	34	192	7	Average
5180	110.26	101.95			34.15	8.16	34	192	7	Peak
5356	46.76	38.13	54	-7.24	34.28	8.38	34.03	192	7	Average
5356	58.39	49.76	74	-15.61	34.28	8.38	34.03	192	7	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 44	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5120	42.59	34.39	54	-11.41	34.09	8.1	33.99	104	230	Average
5120	57.19	48.99	74	-16.81	34.09	8.1	33.99	104	230	Peak
5220	95.91	87.52			34.17	8.22	34	104	230	Average
5220	103.18	94.79			34.17	8.22	34	104	230	Peak
5420	42.81	34.04	54	-11.19	34.33	8.48	34.04	104	230	Average
5420	56.86	48.09	74	-17.14	34.33	8.48	34.04	104	230	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5100	47.85	39.69	54	-6.15	34.08	8.07	33.99	200	7	Average
5100	57.69	49.53	74	-16.31	34.08	8.07	33.99	200	7	Peak
5220	103.1	94.71			34.17	8.22	34	200	7	Average
5220	110.46	102.07			34.17	8.22	34	200	7	Peak
5390	45.82	37.14	54	-8.18	34.31	8.41	34.04	200	7	Average
5390	58.59	49.91	74	-15.41	34.31	8.41	34.04	200	7	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5220 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5084	42.53	34.37	54	-11.47	34.07	8.07	33.98	104	230	Average
5084	57.54	49.38	74	-16.46	34.07	8.07	33.98	104	230	Peak
5240	95.24	86.8			34.19	8.26	34.01	104	230	Average
5240	103.6	95.16			34.19	8.26	34.01	104	230	Peak
5436	43.22	34.43	54	-10.78	34.35	8.48	34.04	104	230	Average
5436	57.45	48.66	74	-16.55	34.35	8.48	34.04	104	230	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5060	47.69	39.59	54	-6.31	34.05	8.03	33.98	217	7	Average
5060	56.88	48.78	74	-17.12	34.05	8.03	33.98	217	7	Peak
5240	103.34	94.9			34.19	8.26	34.01	217	7	Average
5240	110.64	102.2			34.19	8.26	34.01	217	7	Peak
5454	45.87	37.05	54	-8.13	34.36	8.51	34.05	217	7	Average
5454	58.68	49.86	74	-15.32	34.36	8.51	34.05	217	7	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5708	56.1	46.95	68.2	-12.1	34.61	8.65	34.11	100	230	Peak
*5724	65.41	56.25	78.2	-12.79	34.62	8.65	34.11	123	230	Peak
5745	96.4	87.21			34.64	8.66	34.11	100	230	Average
5745	103.05	93.86			34.64	8.66	34.11	100	230	Peak
*5856	56.29	46.97	78.2	-21.91	34.76	8.7	34.14	100	230	Peak
*5862	57.6	48.27	68.2	-10.6	34.76	8.71	34.14	100	230	Peak
11490	50.92	35.8	54	-3.08	37.89	12.62	35.39	100	15	Average
11490	60.62	45.5	74	-13.38	37.89	12.62	35.39	100	15	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5706	58.75	49.6	68.2	-9.45	34.61	8.65	34.11	155	2	Peak
*5724	74	64.84	78.2	-4.2	34.62	8.65	34.11	140	10	Peak
5745	103.6	94.41			34.64	8.66	34.11	155	2	Average
5745	110.02	100.83			34.64	8.66	34.11	155	2	Peak
*5858	57.84	48.52	78.2	-20.36	34.76	8.7	34.14	155	2	Peak
*5868	56.76	47.43	68.2	-11.44	34.76	8.71	34.14	155	2	Peak
11490	52.25	37.13	54	-1.75	37.89	12.62	35.39	110	304	Average
11490	61.22	46.1	74	-12.78	37.89	12.62	35.39	110	304	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5706	57.15	48	68.2	-11.05	34.61	8.65	34.11	100	230	Peak
*5720	56.57	47.41	78.2	-21.63	34.62	8.65	34.11	100	230	Peak
5785	96.26	87.03			34.68	8.68	34.13	100	230	Average
5785	103.38	94.15			34.68	8.68	34.13	100	230	Peak
*5854	57.14	47.82	78.2	-21.06	34.76	8.7	34.14	100	230	Peak
*5870	57.53	48.2	68.2	-10.67	34.76	8.71	34.14	100	230	Peak
11570	49.8	34.49	54	-4.2	38	12.68	35.37	104	49	Average
11570	59.77	44.46	74	-14.23	38	12.68	35.37	104	49	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5712	57.67	48.52	68.2	-10.53	34.61	8.65	34.11	154	2	Peak
*5718	56.9	47.74	78.2	-21.3	34.62	8.65	34.11	154	2	Peak
5785	103.56	94.33			34.68	8.68	34.13	154	2	Average
5785	110.87	101.64			34.68	8.68	34.13	154	2	Peak
*5858	57.18	47.86	78.2	-21.02	34.76	8.7	34.14	154	2	Peak
*5866	57.37	48.04	68.2	-10.83	34.76	8.71	34.14	154	2	Peak
11570	51.3	35.99	54	-2.7	38	12.68	35.37	104	32	Average
11570	60.8	45.49	74	-13.2	38	12.68	35.37	104	32	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5785 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 161	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5710	59.52	50.37	68.2	-8.68	34.61	8.65	34.11	100	230	Peak
*5720	58.6	49.44	78.2	-19.6	34.62	8.65	34.11	100	230	Peak
5805	95.2	85.94			34.71	8.68	34.13	100	230	Average
5805	103.77	94.51			34.71	8.68	34.13	100	230	Peak
*5854	59.51	50.19	78.2	-18.69	34.76	8.7	34.14	100	230	Peak
*5866	59.33	50	68.2	-8.87	34.76	8.71	34.14	100	230	Peak
11610	49.04	33.61	54	-4.96	38.04	12.76	35.37	100	47	Average
11610	57.94	42.51	74	-16.06	38.04	12.76	35.37	100	47	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5708	59.61	50.46	68.2	-8.59	34.61	8.65	34.11	146	4	Peak
*5720	58.65	49.49	78.2	-19.55	34.62	8.65	34.11	146	4	Peak
5805	103.25	93.99			34.71	8.68	34.13	146	4	Average
5805	110.77	101.51			34.71	8.68	34.13	146	4	Peak
*5858	59.68	50.36	78.2	-18.52	34.76	8.7	34.14	146	4	Peak
*5864	59.43	50.1	68.2	-8.77	34.76	8.71	34.14	146	4	Peak
11610	51.27	35.84	54	-2.73	38.04	12.76	35.37	100	30	Average
11610	61.44	46.01	74	-12.56	38.04	12.76	35.37	100	30	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5805 MHz: Fundamental frequency.
3. *: Out of restricted band

802.11n (HT20)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5104	42.95	34.79	54	-11.05	34.08	8.07	33.99	118	245	Average
5104	57.07	48.91	74	-16.93	34.08	8.07	33.99	118	245	Peak
5180	96.51	88.2			34.15	8.16	34	118	245	Average
5180	103.57	95.26			34.15	8.16	34	118	245	Peak
5434	43.12	34.33	54	-10.88	34.35	8.48	34.04	118	245	Average
5434	57.73	48.94	74	-16.27	34.35	8.48	34.04	118	245	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5148	47.75	39.5	54	-6.25	34.12	8.13	34	192	6	Average
5148	61.19	52.94	74	-12.81	34.12	8.13	34	192	6	Peak
5180	103.31	95			34.15	8.16	34	192	7	Average
5180	110.32	102.01			34.15	8.16	34	192	7	Peak
5428	47.01	38.24	54	-6.99	34.33	8.48	34.04	192	7	Average
5428	59.06	50.29	74	-14.94	34.33	8.48	34.04	192	7	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 44	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5014	42.58	34.57	54	-11.42	34.01	7.97	33.97	104	230	Average
5014	56.64	48.63	74	-17.36	34.01	7.97	33.97	104	230	Peak
5220	96.1	87.71			34.17	8.22	34	104	230	Average
5220	103.95	95.56			34.17	8.22	34	104	230	Peak
5370	42.81	34.14	54	-11.19	34.29	8.41	34.03	104	230	Average
5370	57.1	48.43	74	-16.9	34.29	8.41	34.03	104	230	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5144	48.25	40	54	-5.75	34.12	8.13	34	200	7	Average
5144	56.76	48.51	74	-17.24	34.12	8.13	34	200	7	Peak
5220	103.4	95.01			34.17	8.22	34	200	7	Average
5220	110.38	101.99			34.17	8.22	34	200	7	Peak
5432	46.72	37.93	54	-7.28	34.35	8.48	34.04	200	7	Average
5432	58.34	49.55	74	-15.66	34.35	8.48	34.04	200	7	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5220 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5064	42.59	34.49	54	-11.41	34.05	8.03	33.98	104	230	Average
5064	56.78	48.68	74	-17.22	34.05	8.03	33.98	104	230	Peak
5240	95.44	87			34.19	8.26	34.01	104	230	Average
5240	103.22	94.78			34.19	8.26	34.01	104	230	Peak
5406	43.26	34.54	54	-10.74	34.32	8.44	34.04	104	230	Average
5406	57.71	48.99	74	-16.29	34.32	8.44	34.04	104	230	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5078	47.3	39.18	54	-6.7	34.07	8.03	33.98	217	7	Average
5078	56.88	48.76	74	-17.12	34.07	8.03	33.98	217	7	Peak
5240	103.94	95.5			34.19	8.26	34.01	217	7	Average
5240	110.17	101.73			34.19	8.26	34.01	217	7	Peak
5422	46.81	38.04	54	-7.19	34.33	8.48	34.04	217	7	Average
5422	58.64	49.87	74	-15.36	34.33	8.48	34.04	217	7	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5714	56.56	47.41	68.2	-11.64	34.61	8.65	34.11	100	98	Peak
*5724	63.86	54.7	78.2	-14.34	34.62	8.65	34.11	100	98	Peak
5745	95.09	85.9			34.64	8.66	34.11	100	98	Average
5745	102.89	93.7			34.64	8.66	34.11	100	98	Peak
*5858	56.83	47.51	78.2	-21.37	34.76	8.7	34.14	100	98	Peak
*5862	56.97	47.64	68.2	-11.23	34.76	8.71	34.14	100	98	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5712	59.32	50.17	68.2	-8.88	34.61	8.65	34.11	147	0	Peak
*5722	74.81	65.65	78.2	-3.39	34.62	8.65	34.11	163	353	Peak
5745	102.11	92.92			34.64	8.66	34.11	147	0	Average
5745	109.15	99.96			34.64	8.66	34.11	147	0	Peak
*5854	58.06	48.74	78.2	-20.14	34.76	8.7	34.14	147	0	Peak
*5868	56.91	47.58	68.2	-11.29	34.76	8.71	34.14	147	0	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5712	58.03	48.88	68.2	-10.17	34.61	8.65	34.11	100	102	Peak
*5722	57.75	48.59	78.2	-20.45	34.62	8.65	34.11	100	102	Peak
5785	93.55	84.32			34.68	8.68	34.13	100	102	Average
5785	101.72	92.49			34.68	8.68	34.13	100	102	Peak
*5854	57.72	48.4	78.2	-20.48	34.76	8.7	34.14	100	102	Peak
*5868	57.36	48.03	68.2	-10.84	34.76	8.71	34.14	100	102	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5706	58.94	49.79	68.2	-9.26	34.61	8.65	34.11	139	0	Peak
*5722	57.52	48.36	78.2	-20.68	34.62	8.65	34.11	139	0	Peak
5785	101.97	92.74			34.68	8.68	34.13	139	0	Average
5785	108.49	99.26			34.68	8.68	34.13	139	0	Peak
*5860	57.28	47.96	78.2	-20.92	34.76	8.7	34.14	139	0	Peak
*5862	57.42	48.09	68.2	-10.78	34.76	8.71	34.14	139	0	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5785 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 161	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5706	56.36	47.21	68.2	-11.84	34.61	8.65	34.11	100	99	Peak
*5724	57.03	47.87	78.2	-21.17	34.62	8.65	34.11	100	99	Peak
5805	95.69	86.43			34.71	8.68	34.13	100	99	Average
5805	102.78	93.52			34.71	8.68	34.13	100	99	Peak
*5858	57.05	47.73	78.2	-21.15	34.76	8.7	34.14	100	99	Peak
*5864	56.71	47.38	68.2	-11.49	34.76	8.71	34.14	100	99	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5706	57.59	48.44	68.2	-10.61	34.61	8.65	34.11	146	4	Peak
*5718	57.85	48.69	78.2	-20.35	34.62	8.65	34.11	146	4	Peak
5805	101.03	91.77			34.71	8.68	34.13	146	4	Average
5805	109.82	100.56			34.71	8.68	34.13	146	4	Peak
*5852	57.64	48.34	78.2	-20.56	34.74	8.7	34.14	146	4	Peak
*5870	57.11	47.78	68.2	-11.09	34.76	8.71	34.14	146	4	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5805 MHz: Fundamental frequency.
3. *: Out of restricted band

802.11n (HT40)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5090	43.05	34.88	54	-10.95	34.08	8.07	33.98	118	230	Average
5090	56.56	48.39	74	-17.44	34.08	8.07	33.98	118	230	Peak
5190	87.34	79			34.15	8.19	34	118	230	Average
5190	95.21	86.87			34.15	8.19	34	118	230	Peak
5450	43.97	35.15	54	-10.03	34.36	8.51	34.05	118	230	Average
5450	57.22	48.4	74	-16.78	34.36	8.51	34.05	118	230	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	**52.75**	**44.5**	**54**	**-1.25**	**34.12**	**8.13**	**34**	**151**	**10**	**Average**
5150	64.67	56.42	74	-9.33	34.12	8.13	34	151	10	Peak
5190	95.34	87			34.15	8.19	34	200	7	Average
5190	102.91	94.57			34.15	8.19	34	200	7	Peak
5426	44.96	36.19	54	-9.04	34.33	8.48	34.04	200	7	Average
5426	57.8	49.03	74	-16.2	34.33	8.48	34.04	200	7	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5190 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5066	42.99	34.89	54	-11.01	34.05	8.03	33.98	104	230	Average
5066	57.04	48.94	74	-16.96	34.05	8.03	33.98	104	230	Peak
5230	92.41	84.01			34.19	8.22	34.01	104	230	Average
5230	100	91.6			34.19	8.22	34.01	104	230	Peak
5458	43.47	34.65	54	-10.53	34.36	8.51	34.05	104	230	Average
5458	57.82	49	74	-16.18	34.36	8.51	34.05	104	230	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5088	47.73	39.57	54	-6.27	34.07	8.07	33.98	217	7	Average
5088	56.69	48.53	74	-17.31	34.07	8.07	33.98	217	7	Peak
5230	99.11	90.71			34.19	8.22	34.01	217	7	Average
5230	107.48	99.08			34.19	8.22	34.01	217	7	Peak
5458	46.87	38.05	54	-7.13	34.36	8.51	34.05	217	7	Average
5458	58.18	49.36	74	-15.82	34.36	8.51	34.05	217	7	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5230 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5714	58.7	49.55	68.2	-9.5	34.61	8.65	34.11	100	98	Peak
*5724	62.95	53.79	78.2	-15.25	34.62	8.65	34.11	100	98	Peak
5755	89.95	80.74			34.66	8.66	34.11	100	98	Average
5755	96.27	87.06			34.66	8.66	34.11	100	98	Peak
*5860	57.49	48.17	78.2	-20.71	34.76	8.7	34.14	100	98	Peak
*5866	57.21	47.88	68.2	-10.99	34.76	8.71	34.14	100	98	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
***5714**	**66.65**	**57.5**	**68.2**	**-1.55**	**34.61**	**8.65**	**34.11**	**219**	**191**	**Peak**
*5724	70.79	61.63	78.2	-7.41	34.62	8.65	34.11	219	191	Peak
5755	94.19	84.98			34.66	8.66	34.11	219	191	Average
5755	101.78	92.57			34.66	8.66	34.11	219	191	Peak
*5860	57.13	47.81	78.2	-21.07	34.76	8.7	34.14	219	191	Peak
*5862	56.88	47.55	68.2	-11.32	34.76	8.71	34.14	219	191	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5755 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5708	56.32	47.17	68.2	-11.88	34.61	8.65	34.11	100	83	Peak
*5718	57.65	48.49	78.2	-20.55	34.62	8.65	34.11	100	83	Peak
5795	92.02	82.78			34.69	8.68	34.13	100	83	Average
5795	99.55	90.31			34.69	8.68	34.13	100	83	Peak
*5854	56.86	47.54	78.2	-21.34	34.76	8.7	34.14	100	83	Peak
*5862	56.97	47.64	68.2	-11.23	34.76	8.71	34.14	100	83	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5712	57.66	48.51	68.2	-10.54	34.61	8.65	34.11	146	5	Peak
*5718	57.67	48.51	78.2	-20.53	34.62	8.65	34.11	146	5	Peak
5795	98.16	88.92			34.69	8.68	34.13	146	5	Average
5795	105.98	96.74			34.69	8.68	34.13	146	5	Peak
*5860	56.43	47.11	78.2	-21.77	34.76	8.7	34.14	146	5	Peak
*5862	57.54	48.21	68.2	-10.66	34.76	8.71	34.14	146	5	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5795 MHz: Fundamental frequency.
3. *: Out of restricted band

Mode B

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5148	47.45	39.2	54	-6.55	34.12	8.13	34	107	326	Average
5148	62.53	54.28	74	-11.47	34.12	8.13	34	107	326	Peak
5180	104.71	96.4			34.15	8.16	34	108	326	Average
5180	111.42	103.11			34.15	8.16	34	108	326	Peak
5402	46.66	37.94	54	-7.34	34.32	8.44	34.04	108	326	Average
5402	58.54	49.82	74	-15.46	34.32	8.44	34.04	108	326	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5136	43.64	35.39	54	-10.36	34.11	8.13	33.99	200	184	Average
5136	56.4	48.15	74	-17.6	34.11	8.13	33.99	200	184	Peak
5180	101.41	93.1			34.15	8.16	34	200	184	Average
5180	108.05	99.74			34.15	8.16	34	200	184	Peak
5454	44.97	36.15	54	-9.03	34.36	8.51	34.05	200	184	Average
5454	58.6	49.78	74	-15.4	34.36	8.51	34.05	200	184	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 44	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5116	44.69	36.49	54	-9.31	34.09	8.1	33.99	108	302	Average
5116	56.86	48.66	74	-17.14	34.09	8.1	33.99	108	302	Peak
5220	104.4	96.01			34.17	8.22	34	108	302	Average
5220	111.06	102.67			34.17	8.22	34	108	302	Peak
5414	45.28	36.55	54	-8.72	34.33	8.44	34.04	108	302	Average
5414	57.74	49.01	74	-16.26	34.33	8.44	34.04	108	302	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	43.35	35.1	54	-10.65	34.12	8.13	34	200	184	Average
5150	56.63	48.38	74	-17.37	34.12	8.13	34	200	184	Peak
5220	101.6	93.21			34.17	8.22	34	200	184	Average
5220	108.66	100.27			34.17	8.22	34	200	184	Peak
5368	44.05	35.38	54	-9.95	34.29	8.41	34.03	200	184	Average
5368	57.36	48.69	74	-16.64	34.29	8.41	34.03	200	184	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5220 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5140	43.75	35.49	54	-10.25	34.12	8.13	33.99	108	303	Average
5140	56.91	48.65	74	-17.09	34.12	8.13	33.99	108	303	Peak
5240	104.1	95.66			34.19	8.26	34.01	108	303	Average
5240	111	102.56			34.19	8.26	34.01	108	303	Peak
5426	44.91	36.14	54	-9.09	34.33	8.48	34.04	108	303	Average
5426	57.92	49.15	74	-16.08	34.33	8.48	34.04	108	303	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5058	43.09	34.99	54	-10.91	34.05	8.03	33.98	200	194	Average
5058	56.48	48.38	74	-17.52	34.05	8.03	33.98	200	194	Peak
5240	100.54	92.1			34.19	8.26	34.01	200	194	Average
5240	108.47	100.03			34.19	8.26	34.01	200	194	Peak
5448	43.87	35.04	54	-10.13	34.36	8.51	34.04	200	194	Average
5448	57.78	48.95	74	-16.22	34.36	8.51	34.04	200	194	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5712	57.73	48.58	68.2	-10.47	34.61	8.65	34.11	100	296	Peak
*5724	74.29	65.13	78.2	-3.91	34.62	8.65	34.11	159	327	Peak
5745	103.5	94.31			34.64	8.66	34.11	100	296	Average
5745	110.62	101.43			34.64	8.66	34.11	100	296	Peak
*5860	56.75	47.43	78.2	-21.45	34.76	8.7	34.14	100	296	Peak
*5866	56.65	47.32	68.2	-11.55	34.76	8.71	34.14	100	296	Peak
11490	50.72	35.6	54	-3.28	37.89	12.62	35.39	100	17	Average
11490	60.73	45.61	74	-13.27	37.89	12.62	35.39	100	17	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5708	57.11	47.96	68.2	-11.09	34.61	8.65	34.11	193	188	Peak
*5724	72.02	62.86	78.2	-6.18	34.62	8.65	34.11	178	195	Peak
5745	100.3	91.11			34.64	8.66	34.11	193	188	Average
5745	107.59	98.4			34.64	8.66	34.11	193	188	Peak
*5852	56.38	47.08	78.2	-21.82	34.74	8.7	34.14	193	188	Peak
*5862	56.15	46.82	68.2	-12.05	34.76	8.71	34.14	193	188	Peak
11490	52.72	37.6	54	-1.28	37.89	12.62	35.39	114	337	Average
11490	62.5	47.38	74	-11.5	37.89	12.62	35.39	114	337	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5714	59.15	50	68.2	-9.05	34.61	8.65	34.11	100	296	Peak
*5716	58.2	49.05	78.2	-20	34.61	8.65	34.11	100	296	Peak
5785	104.36	95.13			34.68	8.68	34.13	100	296	Average
5785	111.37	102.14			34.68	8.68	34.13	100	296	Peak
*5854	58.31	48.99	78.2	-19.89	34.76	8.7	34.14	100	296	Peak
*5870	57.62	48.29	68.2	-10.58	34.76	8.71	34.14	100	296	Peak
11570	51.4	36.09	54	-2.6	38	12.68	35.37	100	17	Average
11570	62.36	47.05	74	-11.64	38	12.68	35.37	100	17	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5708	57.5	48.35	68.2	-10.7	34.61	8.65	34.11	193	190	Peak
*5724	57.38	48.22	78.2	-20.82	34.62	8.65	34.11	193	190	Peak
5785	101.16	91.93			34.68	8.68	34.13	193	190	Average
5785	107.06	97.83			34.68	8.68	34.13	193	190	Peak
*5852	56.72	47.42	78.2	-21.48	34.74	8.7	34.14	193	190	Peak
*5866	56.78	47.45	68.2	-11.42	34.76	8.71	34.14	193	190	Peak
11570	52.96	37.65	54	-1.04	38	12.68	35.37	100	337	Average
11570	63.04	47.73	74	-10.96	38	12.68	35.37	100	337	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5785 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 161	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5706	57.66	48.51	68.2	-10.54	34.61	8.65	34.11	100	294	Peak
*5718	56.59	47.43	78.2	-21.61	34.62	8.65	34.11	100	294	Peak
5805	104.64	95.38			34.71	8.68	34.13	100	294	Average
5805	111.15	101.89			34.71	8.68	34.13	100	294	Peak
*5858	56.35	47.03	78.2	-21.85	34.76	8.7	34.14	100	294	Peak
*5864	56.46	47.13	68.2	-11.74	34.76	8.71	34.14	100	294	Peak
11610	49.64	34.21	54	-4.36	38.04	12.76	35.37	103	17	Average
11610	58.95	43.52	74	-15.05	38.04	12.76	35.37	103	17	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5708	57.1	47.95	68.2	-11.1	34.61	8.65	34.11	193	190	Peak
*5722	57.89	48.73	78.2	-20.31	34.62	8.65	34.11	193	190	Peak
5805	100.37	91.11			34.71	8.68	34.13	193	190	Average
5805	108.35	99.09			34.71	8.68	34.13	193	190	Peak
*5860	56.9	47.58	78.2	-21.3	34.76	8.7	34.14	193	190	Peak
*5866	58.17	48.84	68.2	-10.03	34.76	8.71	34.14	193	190	Peak
11610	50.44	35.01	54	-3.56	38.04	12.76	35.37	100	348	Average
11610	60.56	45.13	74	-13.44	38.04	12.76	35.37	100	348	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5805 MHz: Fundamental frequency.
3. *: Out of restricted band

802.11n (HT20)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5146	48.35	40.1	54	-5.65	34.12	8.13	34	107	326	Average
5146	61.57	53.32	74	-12.43	34.12	8.13	34	107	326	Peak
5180	103.31	95			34.15	8.16	34	108	326	Average
5180	110.52	102.21			34.15	8.16	34	108	326	Peak
5404	45.26	36.54	54	-8.74	34.32	8.44	34.04	108	326	Average
5404	58.17	49.45	74	-15.83	34.32	8.44	34.04	108	326	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5082	43.93	35.77	54	-10.07	34.07	8.07	33.98	200	184	Average
5082	56.94	48.78	74	-17.06	34.07	8.07	33.98	200	184	Peak
5180	100.42	92.11			34.15	8.16	34	200	184	Average
5180	107.4	99.09			34.15	8.16	34	200	184	Peak
5444	44.82	36.03	54	-9.18	34.35	8.48	34.04	200	184	Average
5444	58.88	50.09	74	-15.12	34.35	8.48	34.04	200	184	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 44	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5086	44.53	36.37	54	-9.47	34.07	8.07	33.98	108	302	Average
5086	56.73	48.57	74	-17.27	34.07	8.07	33.98	108	302	Peak
5220	103.75	95.36			34.17	8.22	34	108	302	Average
5220	110.54	102.15			34.17	8.22	34	108	302	Peak
5458	44.97	36.15	54	-9.03	34.36	8.51	34.05	108	302	Average
5458	57.55	48.73	74	-16.45	34.36	8.51	34.05	108	302	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5114	43.69	35.49	54	-10.31	34.09	8.1	33.99	200	184	Average
5114	56.46	48.26	74	-17.54	34.09	8.1	33.99	200	184	Peak
5220	100.09	91.7			34.17	8.22	34	200	184	Average
5220	107.1	98.71			34.17	8.22	34	200	184	Peak
5434	44.62	35.83	54	-9.38	34.35	8.48	34.04	200	184	Average
5434	57.58	48.79	74	-16.42	34.35	8.48	34.04	200	184	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5220 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5064	43.33	35.23	54	-10.67	34.05	8.03	33.98	108	303	Average
5064	56.07	47.97	74	-17.93	34.05	8.03	33.98	108	303	Peak
5240	103.85	95.41			34.19	8.26	34.01	108	303	Average
5240	110.35	101.91			34.19	8.26	34.01	108	303	Peak
5432	44.93	36.14	54	-9.07	34.35	8.48	34.04	108	303	Average
5432	57.64	48.85	74	-16.36	34.35	8.48	34.04	108	303	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5090	43.15	34.98	54	-10.85	34.08	8.07	33.98	200	194	Average
5090	56.5	48.33	74	-17.5	34.08	8.07	33.98	200	194	Peak
5240	100.94	92.5			34.19	8.26	34.01	200	194	Average
5240	107.66	99.22			34.19	8.26	34.01	200	194	Peak
5382	43.72	35.04	54	-10.28	34.31	8.41	34.04	200	194	Average
5382	58.2	49.52	74	-15.8	34.31	8.41	34.04	200	194	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5710	56.51	47.36	68.2	-11.69	34.61	8.65	34.11	100	296	Peak
*5722	77.17	68.01	78.2	-1.03	34.62	8.65	34.11	101	297	Peak
5745	103.7	94.51			34.64	8.66	34.11	100	296	Average
5745	110.57	101.38			34.64	8.66	34.11	100	296	Peak
*5852	56.54	47.24	78.2	-21.66	34.74	8.7	34.14	100	296	Peak
*5870	57.06	47.73	68.2	-11.14	34.76	8.71	34.14	100	296	Peak
11490	51.52	36.4	54	-2.48	37.89	12.62	35.39	100	17	Average
11490	60.47	45.35	74	-13.53	37.89	12.62	35.39	100	17	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5710	56.44	47.29	68.2	-11.76	34.61	8.65	34.11	193	188	Peak
*5724	74.03	64.87	78.2	-4.17	34.62	8.65	34.11	194	187	Peak
5745	99.6	90.41			34.64	8.66	34.11	193	188	Average
5745	107.12	97.93			34.64	8.66	34.11	193	188	Peak
*5856	56.79	47.47	78.2	-21.41	34.76	8.7	34.14	193	188	Peak
*5870	55.53	46.2	68.2	-12.67	34.76	8.71	34.14	193	188	Peak
11490	**52.98**	**37.86**	**54**	**-1.02**	**37.89**	**12.62**	**35.39**	**114**	**337**	**Average**
11490	63.58	48.46	74	-10.42	37.89	12.62	35.39	114	337	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5714	57.55	48.4	68.2	-10.65	34.61	8.65	34.11	100	296	Peak
*5724	57.02	47.86	78.2	-21.18	34.62	8.65	34.11	100	296	Peak
5785	103.76	94.53			34.68	8.68	34.13	100	296	Average
5785	110.69	101.46			34.68	8.68	34.13	100	296	Peak
*5858	57.1	47.78	78.2	-21.1	34.76	8.7	34.14	100	296	Peak
*5864	57.4	48.07	68.2	-10.8	34.76	8.71	34.14	100	296	Peak
11570	51	35.69	54	-3	38	12.68	35.37	100	17	Average
11570	61.95	46.64	74	-12.05	38	12.68	35.37	100	17	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5714	56.14	46.99	68.2	-12.06	34.61	8.65	34.11	193	190	Peak
*5724	56.1	46.94	78.2	-22.1	34.62	8.65	34.11	193	190	Peak
5785	99.46	90.23			34.68	8.68	34.13	193	190	Average
5785	107.45	98.22			34.68	8.68	34.13	193	190	Peak
*5856	56.4	47.08	78.2	-21.8	34.76	8.7	34.14	193	190	Peak
*5862	56.38	47.05	68.2	-11.82	34.76	8.71	34.14	193	190	Peak
11570	52.93	37.62	54	-1.07	38	12.68	35.37	106	327	Average
11570	62.29	46.98	74	-11.71	38	12.68	35.37	106	327	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5785 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 161	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5708	57.94	48.79	68.2	-10.26	34.61	8.65	34.11	106	292	Peak
*5724	57.8	48.64	78.2	-20.4	34.62	8.65	34.11	106	292	Peak
5805	104.77	95.51			34.71	8.68	34.13	106	292	Average
5805	111.03	101.77			34.71	8.68	34.13	106	292	Peak
*5852	57.07	47.77	78.2	-21.13	34.74	8.7	34.14	106	292	Peak
*5868	57.51	48.18	68.2	-10.69	34.76	8.71	34.14	106	292	Peak
11610	49.44	34.01	54	-4.56	38.04	12.76	35.37	103	17	Average
11610	59.28	43.85	74	-14.72	38.04	12.76	35.37	103	17	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5712	57.58	48.43	68.2	-10.62	34.61	8.65	34.11	264	354	Peak
*5718	58.29	49.13	78.2	-19.91	34.62	8.65	34.11	264	354	Peak
5805	100.54	91.28			34.71	8.68	34.13	264	354	Average
5805	107.36	98.1			34.71	8.68	34.13	264	354	Peak
*5854	57.53	48.21	78.2	-20.67	34.76	8.7	34.14	264	354	Peak
*5866	57.22	47.89	68.2	-10.98	34.76	8.71	34.14	264	354	Peak
11610	50.84	35.41	54	-3.16	38.04	12.76	35.37	100	348	Average
11610	60.37	44.94	74	-13.63	38.04	12.76	35.37	100	348	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5805 MHz: Fundamental frequency.
3. *: Out of restricted band

802.11n (HT40)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5142	**52.7**	**44.44**	**54**	**-1.3**	**34.12**	**8.13**	**33.99**	**108**	**325**	**Average**
5142	69.1	60.84	74	-4.9	34.12	8.13	33.99	108	325	Peak
5190	95.14	86.8			34.15	8.19	34	108	326	Average
5190	102.55	94.21			34.15	8.19	34	108	326	Peak
5460	45.37	36.55	54	-8.63	34.36	8.51	34.05	108	326	Average
5460	57.71	48.89	74	-16.29	34.36	8.51	34.05	108	326	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5148	47.05	38.8	54	-6.95	34.12	8.13	34	200	184	Average
5148	58.36	50.11	74	-15.64	34.12	8.13	34	200	184	Peak
5190	92.94	84.6			34.15	8.19	34	200	184	Average
5190	99.35	91.01			34.15	8.19	34	200	184	Peak
5430	44.82	36.03	54	-9.18	34.35	8.48	34.04	200	184	Average
5430	57.72	48.93	74	-16.28	34.35	8.48	34.04	200	184	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5190 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Charles Hsiao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5138	44.34	36.09	54	-9.66	34.11	8.13	33.99	108	303	Average
5138	56.65	48.4	74	-17.35	34.11	8.13	33.99	108	303	Peak
5230	100.61	92.21			34.19	8.22	34.01	108	303	Average
5230	107.31	98.91			34.19	8.22	34.01	108	303	Peak
5376	44.71	36.05	54	-9.29	34.29	8.41	34.04	108	303	Average
5376	58.18	49.52	74	-15.82	34.29	8.41	34.04	108	303	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5092	43.65	35.48	54	-10.35	34.08	8.07	33.98	200	194	Average
5092	56.74	48.57	74	-17.26	34.08	8.07	33.98	200	194	Peak
5230	97.82	89.42			34.19	8.22	34.01	200	194	Average
5230	104.8	96.4			34.19	8.22	34.01	200	194	Peak
5460	44.47	35.65	54	-9.53	34.36	8.51	34.05	200	194	Average
5460	58.56	49.74	74	-15.44	34.36	8.51	34.05	200	194	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5230 MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5714	66.82	57.67	68.2	-1.38	34.61	8.65	34.11	102	46	Peak
*5724	69.22	60.06	78.2	-8.98	34.62	8.65	34.11	102	46	Peak
5755	96.03	86.82			34.66	8.66	34.11	102	46	Average
5755	103.21	94			34.66	8.66	34.11	102	46	Peak
*5858	56.6	47.28	78.2	-21.6	34.76	8.7	34.14	102	46	Peak
*5870	57.29	47.96	68.2	-10.91	34.76	8.71	34.14	102	46	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5714	58.77	49.62	68.2	-9.43	34.61	8.65	34.11	264	330	Peak
*5724	64.67	55.51	78.2	-13.53	34.62	8.65	34.11	264	330	Peak
5755	93.3	84.09			34.66	8.66	34.11	264	330	Average
5755	100.8	91.59			34.66	8.66	34.11	264	330	Peak
*5852	57.19	47.89	78.2	-21.01	34.74	8.7	34.14	264	330	Peak
*5870	58.26	48.93	68.2	-9.94	34.76	8.71	34.14	264	330	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5755 MHz: Fundamental frequency.
3. *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 GHz ~ 40 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5710	57.61	48.46	68.2	-10.59	34.61	8.65	34.11	103	277	Peak
*5722	58.04	48.88	78.2	-20.16	34.62	8.65	34.11	103	277	Peak
5795	98.03	88.79			34.69	8.68	34.13	103	277	Average
5795	106.25	97.01			34.69	8.68	34.13	103	277	Peak
*5854	58.57	49.25	78.2	-19.63	34.76	8.7	34.14	103	277	Peak
*5862	58.12	48.79	68.2	-10.08	34.76	8.71	34.14	103	277	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
*5710	57.19	48.04	68.2	-11.01	34.61	8.65	34.11	264	354	Peak
*5722	57.71	48.55	78.2	-20.49	34.62	8.65	34.11	264	354	Peak
5795	95.71	86.47			34.69	8.68	34.13	264	354	Average
5795	103.08	93.84			34.69	8.68	34.13	264	354	Peak
*5860	57.5	48.18	78.2	-20.7	34.76	8.7	34.14	264	354	Peak
*5862	57.75	48.42	68.2	-10.45	34.76	8.71	34.14	264	354	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5795 MHz: Fundamental frequency.
3. *: Out of restricted band

9 kHz ~ 30 MHz DATA:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz WORST-CASE DATA:

Mode A

802.11n (HT40)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	30 MHz ~ 1 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
99.12	41.89	60.67	43.5	-1.61	12.15	1.28	32.21	125	163	Peak
200.12	**42.86**	**62.43**	**43.5**	**-0.64**	**11.08**	**1.65**	**32.3**	**136**	**251**	**Peak**
300	43.14	60.19	46	-2.86	13.06	2.03	32.14	145	128	Peak
624	40.12	51.2	46	-5.88	18.16	2.93	32.17	126	153	Peak
750.8	44.12	53.22	46	-1.88	19.82	3.22	32.14	168	175	Peak
875.28	43.52	50.38	46	-2.48	21.29	3.49	31.64	169	185	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
99.85	34.2	52.9	43.5	-9.3	12.28	1.28	32.26	169	185	Peak
199.56	33.23	52.8	43.5	-10.27	11.08	1.65	32.3	169	175	Peak
298.92	35.53	52.6	46	-10.47	13.04	2.03	32.14	136	320	Peak
500.1	31.23	44.34	46	-14.77	16.36	2.63	32.1	126	152	Peak
750.4	40.15	49.25	46	-5.85	19.82	3.22	32.14	136	220	Peak
871.36	38.23	45.2	46	-7.77	21.25	3.44	31.66	132	125	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

802.11n (HT40)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	30 MHz ~ 1 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
99.87	39.36	58.06	43.5	-4.14	12.28	1.28	32.26	125	145	Peak
200	40.86	60.43	43.5	-2.64	11.08	1.65	32.3	136	256	Peak
300	44.26	61.31	46	-1.74	13.06	2.03	32.14	144	178	Peak
375.2	31.23	46.59	46	-14.77	14.53	2.26	32.15	166	178	Peak
625.6	40.16	51.22	46	-5.84	18.18	2.93	32.17	169	185	Peak
747.8	44.23	53.36	46	-1.77	19.79	3.22	32.14	118	217	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
99.89	33.95	52.65	43.5	-9.55	12.28	1.28	32.26	143	265	Peak
201	33.52	53.07	43.5	-9.98	11.09	1.65	32.29	145	169	Peak
298.92	35.61	52.68	46	-10.39	13.04	2.03	32.14	157	184	Peak
498	32.3	45.45	46	-13.7	16.32	2.63	32.1	165	125	Peak
751	39.63	48.73	46	-6.37	19.82	3.22	32.14	132	169	Peak
875.6	38.21	45.05	46	-7.79	21.3	3.49	31.63	168	195	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

Mode B

802.11n (HT40)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	30 MHz ~ 1 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
99.93	41.79	60.49	43.5	-1.71	12.28	1.28	32.26	106	320	Peak
200.1	42.57	62.14	43.5	-0.93	11.08	1.65	32.3	194	251	Peak
298.92	44.94	62.01	46	-1.06	13.04	2.03	32.14	145	128	Peak
374.9	30.4	45.76	46	-15.6	14.53	2.26	32.15	145	121	Peak
750.1	44.82	53.94	46	-1.18	19.81	3.22	32.15	164	122	Peak
874.7	43.67	50.53	46	-2.33	21.29	3.49	31.64	145	164	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
99.93	33.61	52.31	43.5	-9.89	12.28	1.28	32.26	164	208	Peak
199.56	32.46	52.03	43.5	-11.04	11.08	1.65	32.3	169	323	Peak
290.55	26.69	43.91	46	-19.31	12.88	2.03	32.13	144	127	Peak
499.5	31.63	44.75	46	-14.37	16.35	2.63	32.1	166	241	Peak
750.1	38.91	48.03	46	-7.09	19.81	3.22	32.15	133	230	Peak
871.2	37.91	44.88	46	-8.09	21.25	3.44	31.66	197	146	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

802.11n (HT20)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	30 MHz ~ 1 GHz
INPUT POWER	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65 % RH	TESTED BY	Karl Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
99.93	42.11	60.81	43.5	-1.39	12.28	1.28	32.26	164	208	Peak
199.29	41.17	60.74	43.5	-2.33	11.08	1.65	32.3	179	212	Peak
298.65	44.8	61.87	46	-1.2	13.04	2.03	32.14	164	128	Peak
499.5	32.71	45.83	46	-13.29	16.35	2.63	32.1	166	112	Peak
750.1	43.99	53.11	46	-2.01	19.81	3.22	32.15	104	120	Peak
874.7	43.86	50.72	46	-2.14	21.29	3.49	31.64	178	121	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
99.93	33.61	52.31	43.5	-9.89	12.28	1.28	32.26	196	138	Peak
199.29	34.74	54.31	43.5	-8.76	11.08	1.65	32.3	163	123	Peak
248.97	26.13	44.08	46	-19.87	12.3	1.85	32.1	178	122	Peak
499.5	32.07	45.19	46	-13.93	16.35	2.63	32.1	122	120	Peak
747.3	38.99	48.13	46	-7.01	19.78	3.22	32.14	164	210	Peak
874.7	37.96	44.82	46	-8.04	21.29	3.49	31.64	167	281	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 16, 2015	Nov. 15, 2016
RF signal cable Woken	5D-FB	Cable-cond1-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2015	Feb. 25, 2016
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 24, 2015	Jul. 23, 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 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

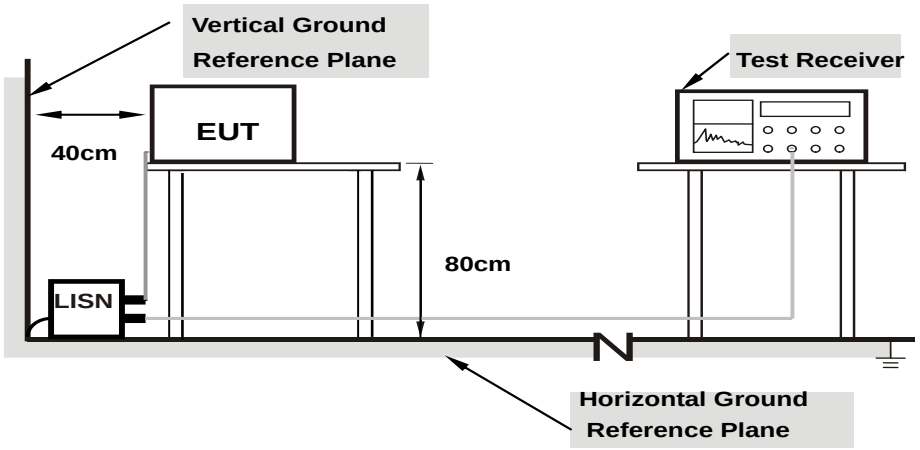
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.7 Test Results

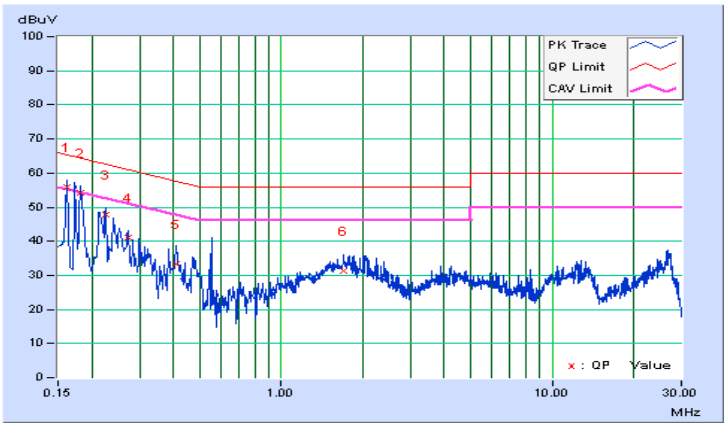
Mode A

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Toby Tian	Test Date	2015/12/16

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16173	9.82	46.01	28.99	55.83	38.81	65.37	55.37	-9.54	-16.56
2	0.18128	9.83	44.35	25.79	54.18	35.62	64.43	54.43	-10.24	-18.80
3	0.22434	9.84	38.10	23.29	47.94	33.13	62.66	52.66	-14.71	-19.52
4	0.27120	9.85	31.26	17.25	41.11	27.10	61.08	51.08	-19.97	-23.98
5	0.40800	9.88	23.50	8.91	33.38	18.79	57.69	47.69	-24.31	-28.90
6	1.70620	9.98	21.30	12.46	31.28	22.44	56.00	46.00	-24.72	-23.56

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

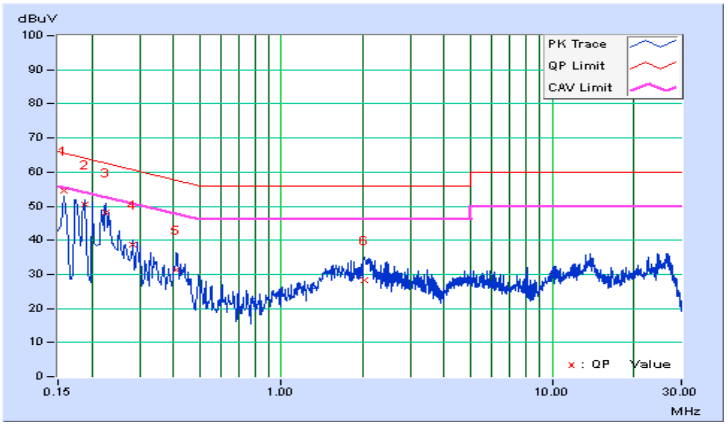


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Toby Tian	Test Date	2015/12/16

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15760	9.82	44.70	25.16	54.52	34.98	65.59	55.59	-11.07	-20.61
2	0.18910	9.83	40.75	16.93	50.58	26.76	64.08	54.08	-13.50	-27.32
3	0.22434	9.84	38.33	23.86	48.17	33.70	62.66	52.66	-14.49	-18.96
4	0.28288	9.85	28.81	15.41	38.66	25.26	60.73	50.73	-22.07	-25.47
5	0.40800	9.88	21.28	6.47	31.16	16.35	57.69	47.69	-26.53	-31.34
6	2.02289	9.99	18.13	9.44	28.12	19.43	56.00	46.00	-27.88	-26.57

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



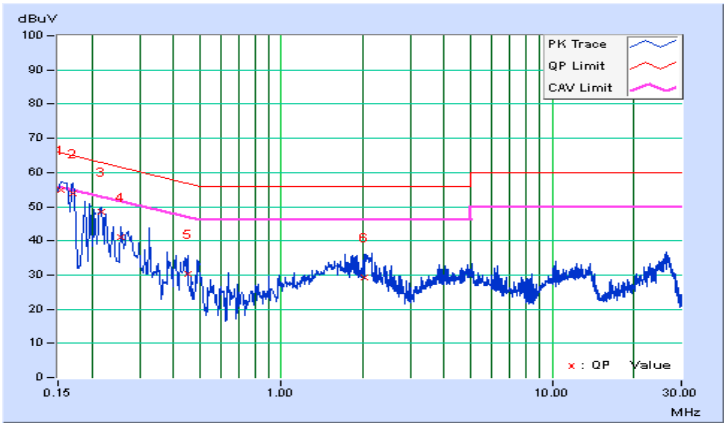
Mode B

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Toby Tian	Test Date	2015/12/16

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.82	45.23	27.42	55.05	37.24	65.79	55.79	-10.73	-18.54
2	0.16967	9.83	44.15	26.78	53.98	36.61	64.98	54.98	-11.00	-18.37
3	0.21565	9.84	38.62	23.47	48.46	33.31	62.98	52.98	-14.52	-19.67
4	0.25557	9.85	31.20	15.27	41.05	25.12	61.57	51.57	-20.52	-26.45
5	0.45097	9.88	20.36	9.21	30.24	19.09	56.86	46.86	-26.61	-27.76
6	2.04100	10.00	19.40	10.65	29.40	20.65	56.00	46.00	-26.60	-25.35

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

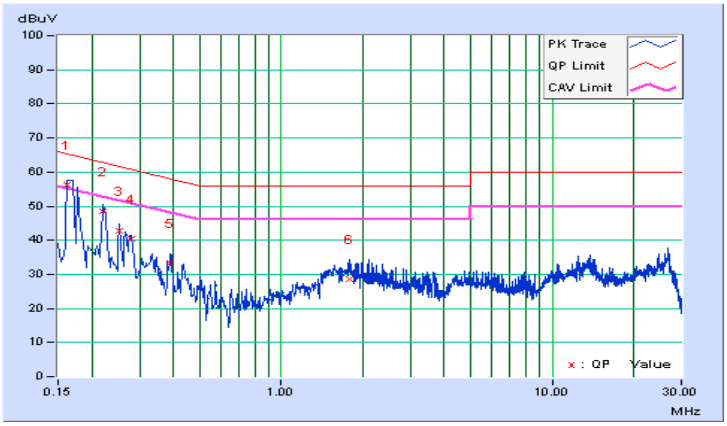


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Toby Tian	Test Date	2015/12/16

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.16181**	**9.82**	**46.38**	**30.19**	**56.20**	**40.01**	**65.37**	**55.37**	**-9.17**	**-15.36**
2	0.22038	9.84	38.79	24.85	48.63	34.69	62.80	52.80	-14.18	-18.12
3	0.25166	9.84	32.78	16.14	42.62	25.98	61.70	51.70	-19.08	-25.72
4	0.27844	9.85	30.39	18.18	40.24	28.03	60.86	50.86	-20.62	-22.83
5	0.38910	9.88	23.34	10.56	33.22	20.44	58.08	48.08	-24.87	-27.65
6	1.79220	9.98	18.75	10.43	28.73	20.41	56.00	46.00	-27.27	-25.59

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



4.3 Transmit Power Measurment

4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125 mW (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	250 mW (24 dBm)
U-NII-2A			250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C			250 mW (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 $N_{ANT} \leq 4$;

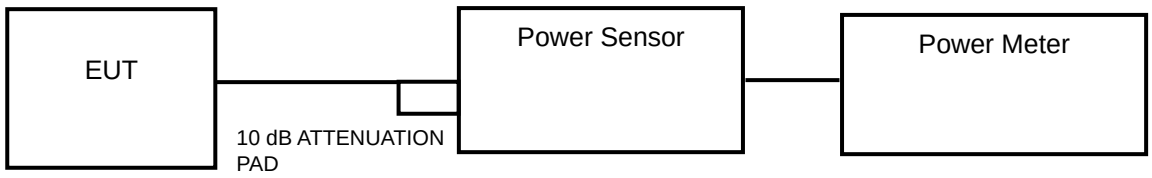
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

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

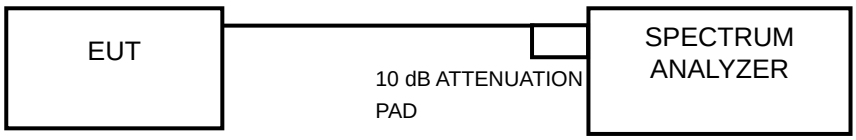
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.3.2 Test Setup

<Power Output Measurement>



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

<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.

26 dB Bandwidth

1) Set RBW = approximately 1 % of the emission bandwidth.
2) Set the VBW > RBW.
3) Detector = Peak.
4) Trace mode = max hold.
5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Mode A

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	12.69	13.11	13.29	60.37	17.81	24	Pass
44	5220	12.68	12.73	13.73	**60.89**	**17.85**	24	Pass
48	5240	12.73	12.33	13.43	57.88	17.63	24	Pass
149	5745	12.26	12.57	14.01	60.07	17.79	30	Pass
157	5785	12.47	12.63	13.89	60.47	17.82	30	Pass
161	5805	12.27	12.63	13.97	60.13	17.79	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	12.51	13.11	13.14	58.89	17.70	24	Pass
44	5220	12.72	12.64	13.47	59.31	17.73	24	Pass
48	5240	12.68	12.28	13.40	57.32	17.58	24	Pass
149	5745	12.31	12.78	13.88	60.42	17.81	30	Pass
157	5785	12.53	12.91	13.98	**62.45**	**17.96**	30	Pass
161	5805	12.41	12.66	14.08	61.45	17.89	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
38	5190	7.83	9.42	7.58	20.55	13.13	24	Pass
46	5230	11.01	11.86	12.74	46.76	16.70	24	Pass
151	5755	10.28	10.82	11.81	37.91	15.79	30	Pass
159	5795	11.21	11.51	12.75	46.20	16.65	30	Pass

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
36	5180	23.47	24.89	22.98	Pass
44	5220	23.65	23.59	24.16	Pass
48	5240	23.76	22.94	23.33	Pass

802.11n (HT20)

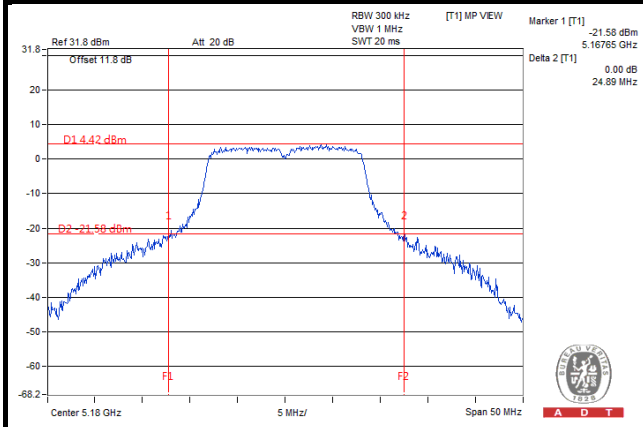
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
36	5180	24.29	24.59	24.30	Pass
44	5220	24.51	23.13	23.61	Pass
48	5240	25.02	23.64	23.11	Pass

802.11n (HT40)

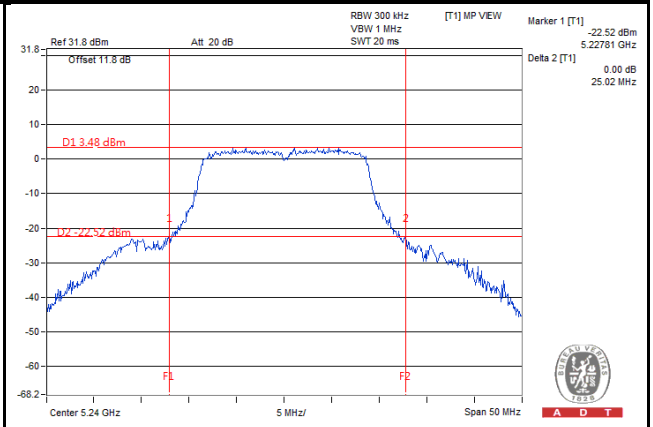
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
38	5190	49.28	48.27	47.25	Pass
46	5230	51.91	48.13	47.81	Pass

Spectrum Plot of Worst Value

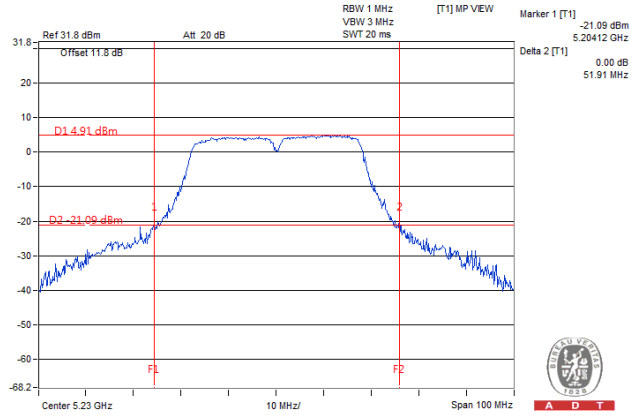
802.11a



802.11n (HT20)



802.11n (HT40)



Mode B

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	12.69	13.11	13.29	60.37	17.81	24	Pass
44	5220	12.68	12.73	13.73	**60.89**	**17.85**	24	Pass
48	5240	12.73	12.33	13.43	57.88	17.63	24	Pass
149	5745	11.37	11.99	12.92	49.11	16.91	30	Pass
157	5785	12.47	12.63	13.89	60.47	17.82	30	Pass
161	5805	12.27	12.63	13.97	60.13	17.79	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
36	5180	12.51	13.11	13.14	58.89	17.70	24	Pass
44	5220	12.72	12.64	13.47	59.31	17.73	24	Pass
48	5240	12.68	12.28	13.40	57.32	17.58	24	Pass
149	5745	11.21	11.73	12.88	47.51	16.77	30	Pass
157	5785	12.53	12.91	13.98	**62.45**	**17.96**	30	Pass
161	5805	12.41	12.66	14.08	61.45	17.89	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Cunducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
38	5190	7.83	9.42	7.58	20.55	13.13	24	Pass
46	5230	11.01	11.86	12.74	46.76	16.70	24	Pass
151	5755	9.13	9.82	10.74	29.63	14.72	30	Pass
159	5795	11.21	11.51	12.75	46.20	16.65	30	Pass

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
36	5180	23.47	24.89	22.98	Pass
44	5220	23.65	23.59	24.16	Pass
48	5240	23.76	22.94	23.33	Pass

802.11n (HT20)

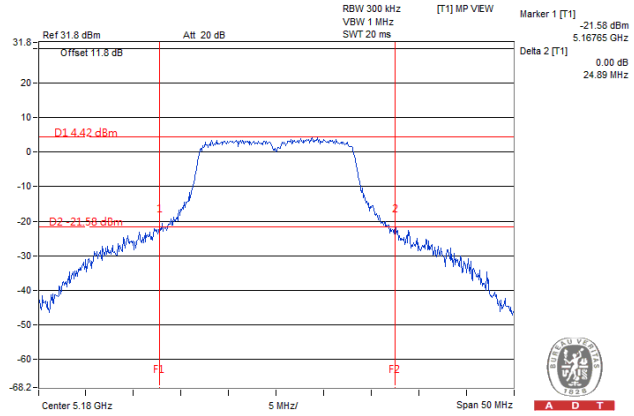
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
36	5180	24.29	24.59	24.30	Pass
44	5220	24.51	23.13	23.61	Pass
48	5240	25.02	23.64	23.11	Pass

802.11n (HT40)

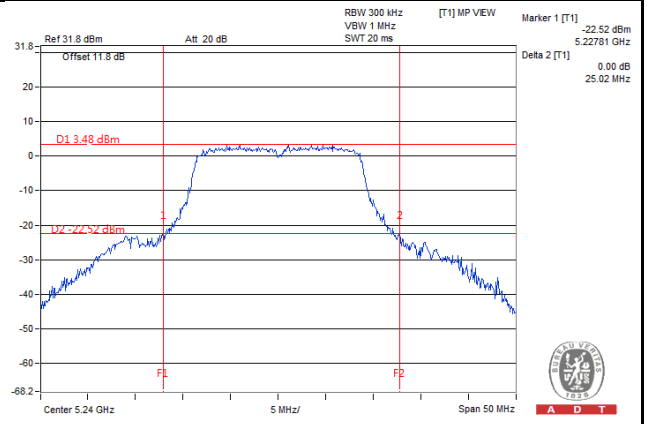
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)			Pass / Fail
		Chain 0	Chain 1	Chain 2	
38	5190	49.28	48.27	47.25	Pass
46	5230	51.91	48.13	47.81	Pass

Spectrum Plot of Worst Value

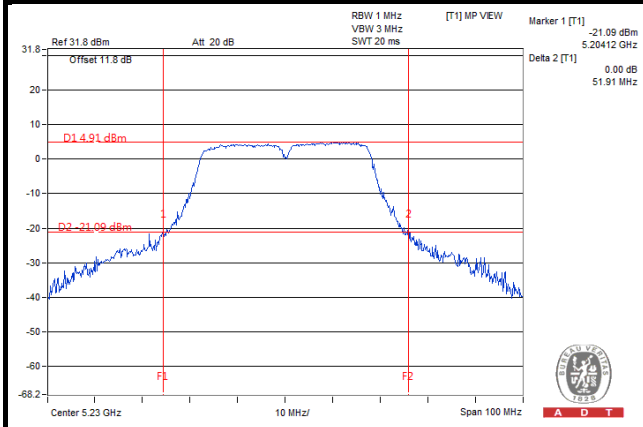
802.11a



802.11n (HT20)



802.11n (HT40)

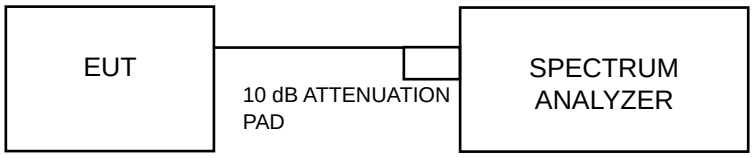


4.4 Peak Power Spectral Density Measurement

4.4.1 Limits of Peak Power Spectral Density Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.4.4 Test Procedures

For U-NII-1 band:

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and add 10 log (1/duty cycle)

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300 kHz)
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add 10 log (1/duty cycle)

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

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

4.4.7 Test Results

Mode A

U-NII-1 Band

802.11a

Channel	Frequency (MHz)	PSD (dBm)			Total PSD w/o Duty Factor (dBm)	Duty Factor	Total PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
36	5180	-0.51	0.77	0.42	5.03	0.22	5.25	7.53	Pass
44	5220	-0.41	0.10	0.73	4.94	0.22	5.16	7.53	Pass
48	5240	-0.06	-0.29	0.71	4.91	0.22	5.13	7.53	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 = 4.70 dBi + 10log(3) = 9.47 dBi > 6 dBi , so the power density limit shall be reduced to 11-(9.47-6) = 7.53 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm)			Total PSD w/o Duty Factor (dBm)	Duty Factor	Total PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
36	5180	-1.12	0.40	-0.42	4.44	0.95	5.39	7.53	Pass
44	5220	-0.70	-0.58	0.13	4.40	0.95	5.35	7.53	Pass
48	5240	-0.43	-0.56	0.27	4.55	0.95	5.50	7.53	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 = 4.70 dBi + 10log(3) = 9.47 dBi > 6 dBi , so the power density limit shall be reduced to 11-(9.47-6) = 7.53 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

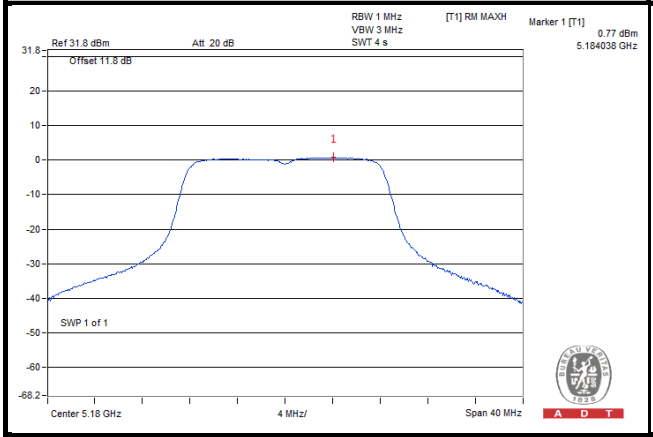
Channel	Frequency (MHz)	PSD (dBm)			Total PSD w/o Duty Factor (dBm)	Duty Factor	Total PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
38	5190	-8.21	-6.41	-7.63	-2.58	2.22	-0.36	7.53	Pass
46	5230	-3.92	-3.63	-3.05	1.25	2.22	3.47	7.53	Pass

NOTE:

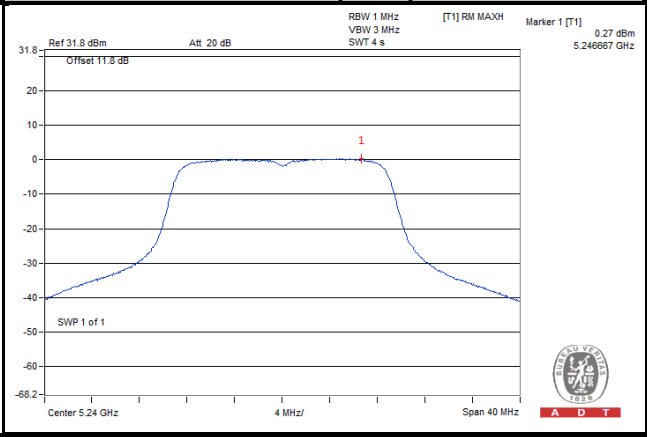
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 4.70 dBi + 10log(3) = 9.47 dBi > 6 dBi , so the power density limit shall be reduced to 11-(9.47-6) = 7.53 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

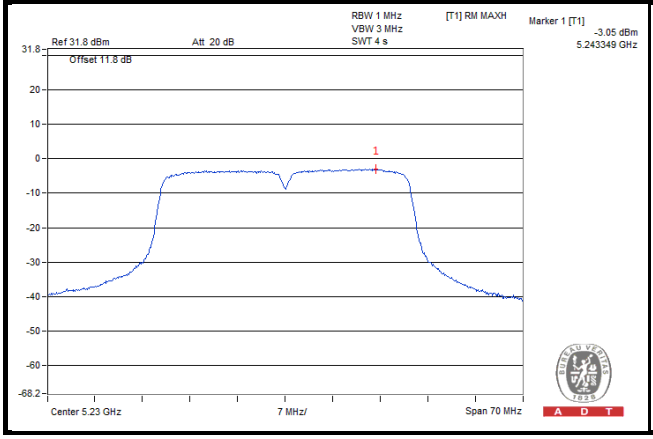
802.11a



802.11n (HT20)



802.11n (HT40)



U-NII-3 Band

802.11a

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=3) dB	Total PSD without Duty Factor (dBm/500 kHz)	Duty Factor	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-2.85	4.77	1.92	0.22	2.14	25.99	Pass
	157	5785	-2.69	4.77	2.08	0.22	2.30	25.99	Pass
	161	5805	-2.91	4.77	1.86	0.22	2.08	25.99	Pass
1	149	5745	-2.17	4.77	2.60	0.21	2.82	25.99	Pass
	157	5785	-2.30	4.77	2.47	0.21	2.69	25.99	Pass
	161	5805	-3.78	4.77	0.99	0.21	1.21	25.99	Pass
2	149	5745	-1.51	4.77	3.26	0.21	3.48	25.99	Pass
	157	5785	-1.17	4.77	3.60	0.21	3.82	25.99	Pass
	161	5805	-0.50	4.77	4.27	0.21	4.49	25.99	Pass

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.24 dBi + 10log(3) = 10.01 dBi > 6 dBi , so the power density limit shall be reduced to 30-(10.01-6) = 25.99 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=3) dB	Total PSD without Duty Factor (dBm/500 kHz)	Duty Factor	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-3.85	4.77	0.92	0.95	1.87	25.99	Pass
	157	5785	-3.64	4.77	1.13	0.95	2.08	25.99	Pass
	161	5805	-3.31	4.77	1.46	0.95	2.41	25.99	Pass
1	149	5745	-3.31	4.77	1.46	0.95	2.41	25.99	Pass
	157	5785	-3.25	4.77	1.52	0.95	2.47	25.99	Pass
	161	5805	-3.82	4.77	0.95	0.95	1.90	25.99	Pass
2	149	5745	-2.25	4.77	2.52	0.95	3.47	25.99	Pass
	157	5785	-1.92	4.77	2.85	0.95	3.80	25.99	Pass
	161	5805	-1.47	4.77	3.30	0.95	4.25	25.99	Pass

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.24 dBi + 10log(3) = 10.01 dBi > 6 dBi , so the power density limit shall be reduced to 30-(10.01-6) = 25.99 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

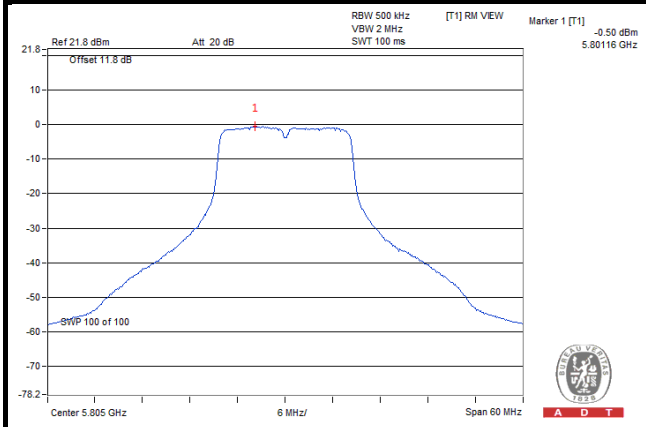
TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=3) dB	Total PSD without Duty Factor (dBm/500 kHz)	Duty Factor	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	151	5755	-8.95	4.77	-4.18	2.22	-1.96	25.99	Pass
	159	5795	-7.99	4.77	-3.22	2.22	-1.00	25.99	Pass
1	151	5755	-8.27	4.77	-3.50	2.22	-1.28	25.99	Pass
	159	5795	-7.80	4.77	-3.03	2.22	-0.81	25.99	Pass
2	151	5755	-7.15	4.77	-2.38	2.22	-0.16	25.99	Pass
	159	5795	-6.43	4.77	-1.66	2.22	0.56	25.99	Pass

NOTE:

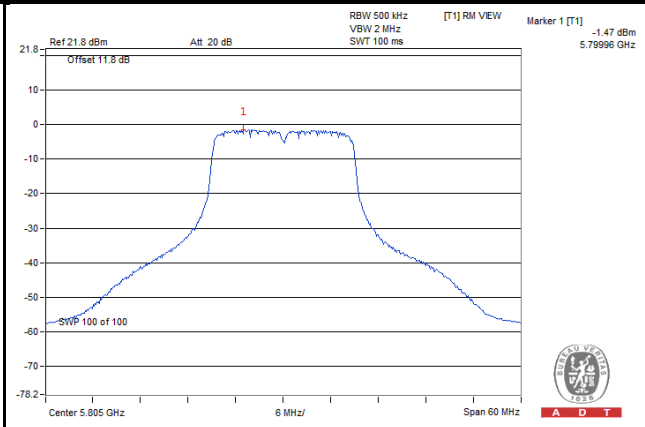
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5.24 dBi + 10log(3) = 10.01 dBi > 6 dBi , so the power density limit shall be reduced to 30-(10.01-6) = 25.99 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

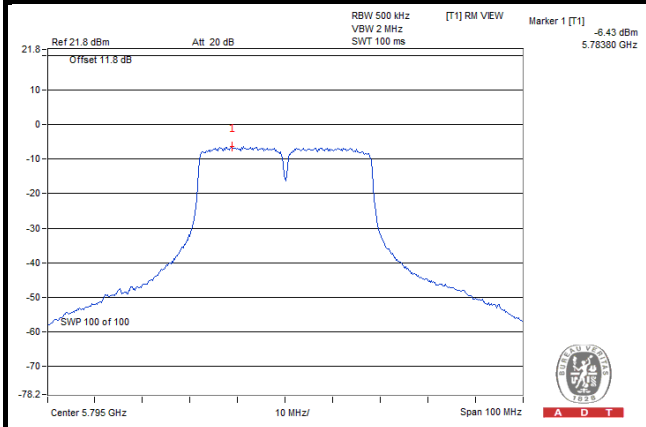
802.11a



802.11n (HT20)



802.11n (HT40)



Mode B

U-NII-1 Band

802.11a

Channel	Frequency (MHz)	PSD (dBm)			Total PSD w/o Duty Factor (dBm)	Duty Factor	Total PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
36	5180	-0.51	0.77	0.42	5.03	0.22	5.25	10.28	Pass
44	5220	-0.41	0.10	0.73	4.94	0.22	5.16	10.28	Pass
48	5240	-0.06	-0.29	0.71	4.91	0.22	5.13	10.28	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 = 1.95 dBi + 10log(3) = 6.72 dBi > 6 dBi , so the power density limit shall be reduced to 11-(6.72-6) = 10.28 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm)			Total PSD w/o Duty Factor (dBm)	Duty Factor	Total PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
36	5180	-1.12	0.40	-0.42	4.44	0.95	5.39	10.28	Pass
44	5220	-0.70	-0.58	0.13	4.40	0.95	5.35	10.28	Pass
48	5240	-0.43	-0.56	0.27	4.55	0.95	5.50	10.28	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 = 1.95 dBi + 10log(3) = 6.72 dBi > 6 dBi , so the power density limit shall be reduced to 11-(6.72-6) = 10.28 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

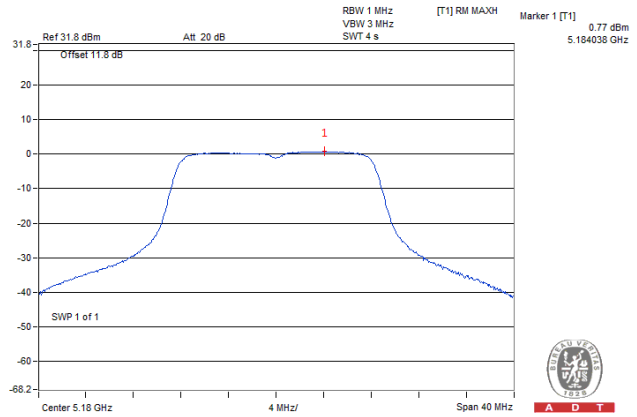
Channel	Frequency (MHz)	PSD (dBm)			Total PSD w/o Duty Factor (dBm)	Duty Factor	Total PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2					
38	5190	-8.21	-6.41	-7.63	-2.58	2.22	-0.36	10.28	Pass
46	5230	-3.92	-3.63	-3.05	1.25	2.22	3.47	10.28	Pass

NOTE:

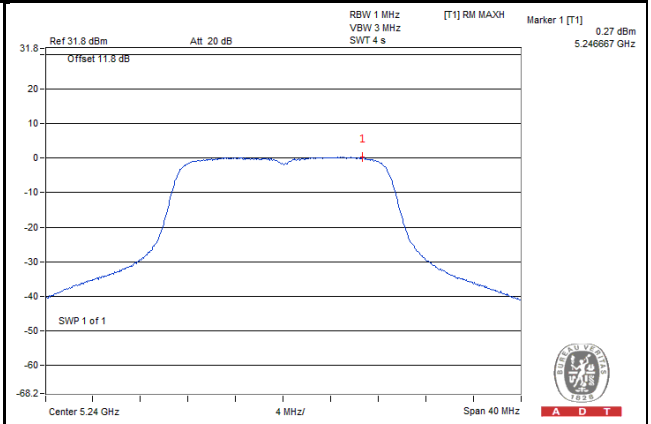
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 1.95 dBi + 10log(3) = 6.72 dBi > 6 dBi , so the power density limit shall be reduced to 11-(6.72-6) = 10.28 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

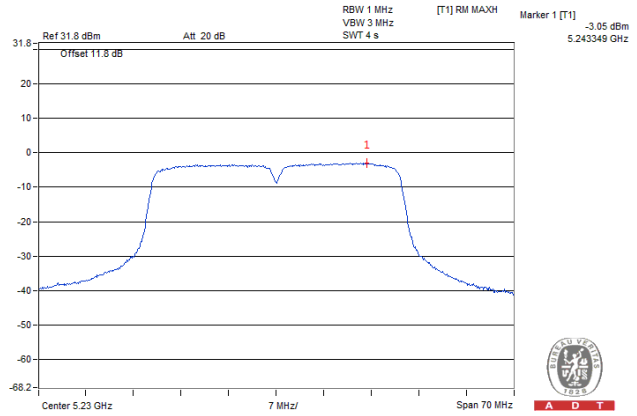
802.11a



802.11n (HT20)



802.11n (HT40)



U-NII-3 Band

802.11a

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=3) dB	Total PSD without Duty Factor (dBm/500 kHz)	Duty Factor	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-4.60	4.77	0.17	0.22	0.39	29.29	Pass
	157	5785	-2.69	4.77	2.08	0.22	2.30	29.29	Pass
	161	5805	-2.91	4.77	1.86	0.22	2.08	29.29	Pass
1	149	5745	-3.80	4.77	0.97	0.22	1.19	29.29	Pass
	157	5785	-2.30	4.77	2.47	0.22	2.69	29.29	Pass
	161	5805	-3.78	4.77	0.99	0.22	1.21	29.29	Pass
2	149	5745	-2.45	4.77	2.32	0.22	2.54	29.29	Pass
	157	5785	-1.17	4.77	3.60	0.22	3.82	29.29	Pass
	161	5805	-0.50	4.77	4.27	0.22	4.49	29.29	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 = 1.94 dBi + 10log(3) = 6.71 dBi > 6 dBi , so the power density limit shall be reduced to 30-(6.71-6) = 29.29 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=3) dB	Total PSD without Duty Factor (dBm/500 kHz)	Duty Factor	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-4.79	4.77	-0.02	0.95	0.93	29.29	Pass
	157	5785	-3.64	4.77	1.13	0.95	2.08	29.29	Pass
	161	5805	-3.31	4.77	1.46	0.95	2.41	29.29	Pass
1	149	5745	-4.27	4.77	0.50	0.95	1.45	29.29	Pass
	157	5785	-3.25	4.77	1.52	0.95	2.47	29.29	Pass
	161	5805	-3.82	4.77	0.95	0.95	1.90	29.29	Pass
2	149	5745	-2.98	4.77	1.79	0.95	2.74	29.29	Pass
	157	5785	-1.92	4.77	2.85	0.95	3.80	29.29	Pass
	161	5805	-1.47	4.77	3.30	0.95	4.25	29.29	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 = 1.94 dBi + 10log(3) = 6.71 dBi > 6 dBi , so the power density limit shall be reduced to 30-(6.71-6) = 29.29 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

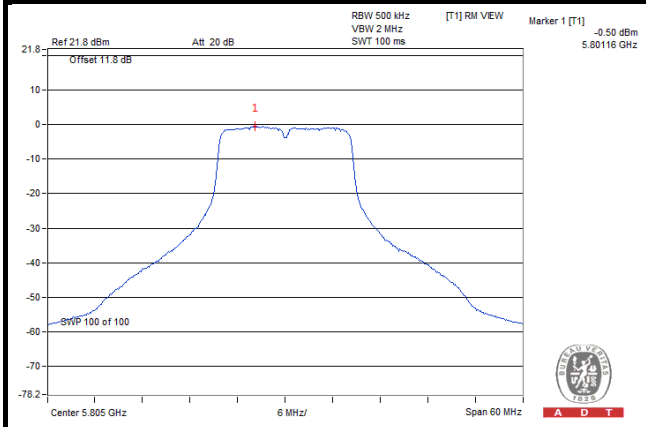
TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=3) dB	Total PSD without Duty Factor (dBm/500 kHz)	Duty Factor	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	151	5755	-10.35	4.77	-5.58	2.22	-3.36	29.29	Pass
	159	5795	-7.99	4.77	-3.22	2.22	-1.00	29.29	Pass
1	151	5755	-9.26	4.77	-4.49	2.22	-2.27	29.29	Pass
	159	5795	-7.80	4.77	-3.03	2.22	-0.81	29.29	Pass
2	151	5755	-8.17	4.77	-3.40	2.22	-1.18	29.29	Pass
	159	5795	-6.43	4.77	-1.66	2.22	0.56	29.29	Pass

NOTE:

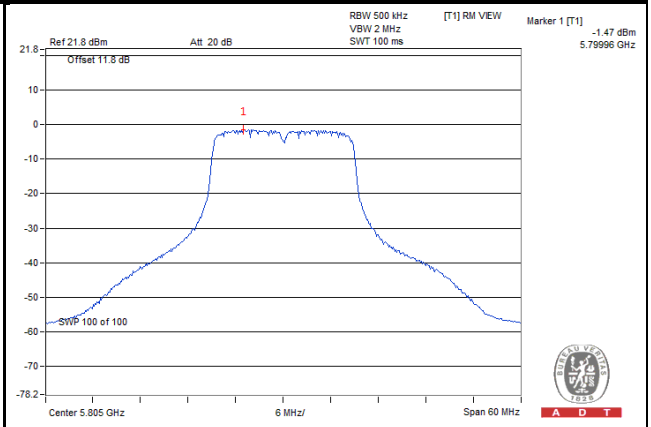
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 1.94 dBi + 10log(3) = 6.71 dBi > 6 dBi , so the power density limit shall be reduced to 30-(6.71-6) = 29.29 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

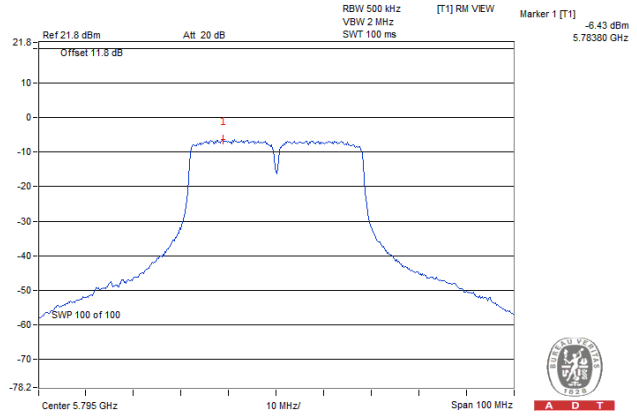
802.11a



802.11n (HT20)



802.11n (HT40)

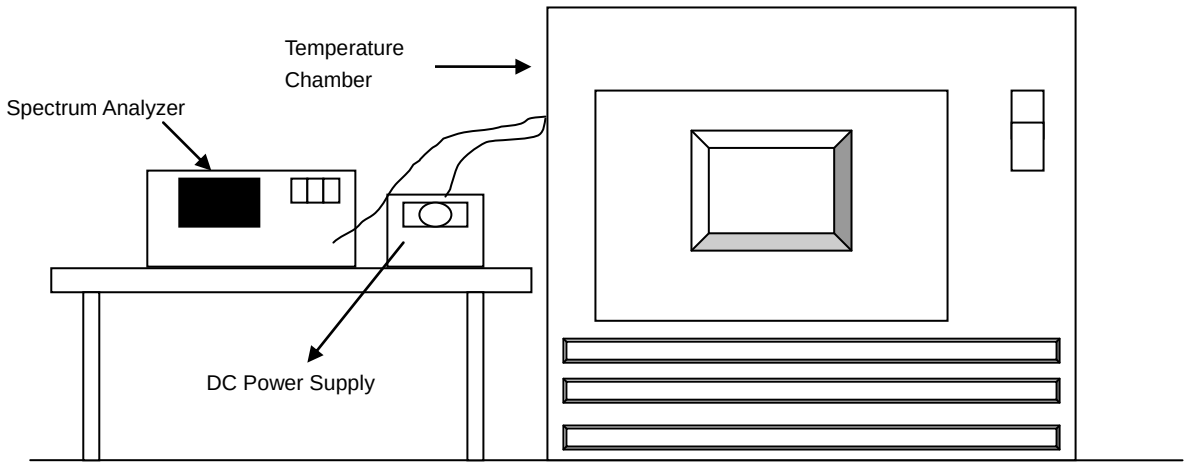


4.5 Frequency Stability

4.5.1 Limit 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 4.1.3 to get information of above instrument.

4.5.4 Test Procedure

a. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
b. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10 dB lower than the measured peak value.
c. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

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

Mode A

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
50	3.3	5180.037152	7.172	5180.036924	7.128	5180.037107	7.164	5180.037045	7.152
40	3.3	5180.037017	7.146	5180.036949	7.133	5180.036534	7.053	5180.037008	7.144
30	3.3	5180.038605	7.453	5180.038067	7.349	5180.038120	7.359	5180.038122	7.359
20	3.3	5180.039202	7.568	5180.038854	7.501	5180.039099	7.548	5180.039074	7.543
10	3.3	5180.040717	7.860	5180.040627	7.843	5180.040451	7.809	5180.040921	7.900
0	3.3	5180.039191	7.566	5180.039159	7.560	5180.038909	7.511	5180.039373	7.601
-10	3.3	5180.037632	7.265	5180.037576	7.254	5180.037438	7.227	5180.037557	7.250
-20	3.3	5180.036970	7.137	5180.037151	7.172	5180.037012	7.145	5180.036884	7.120
-30	3.3	5180.036100	6.969	5180.036021	6.954	5180.035933	6.937	5180.036121	6.973

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	2.8	5180.027001	5.213	5180.026668	5.148	5180.026516	5.119	5180.027019	5.216
	3.3	5180.039202	7.568	5180.038854	7.501	5180.039099	7.548	5180.039074	7.543
	3.8	5180.028251	5.454	5180.028548	5.511	5180.028223	5.448	5180.028281	5.460

Mode B

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
50	3.3	5180.037152	7.172	5180.036924	7.128	5180.037107	7.164	5180.037045	7.152
40	3.3	5180.037017	7.146	5180.036949	7.133	5180.036534	7.053	5180.037008	7.144
30	3.3	5180.038605	7.453	5180.038067	7.349	5180.038120	7.359	5180.038122	7.359
20	3.3	5180.039202	7.568	5180.038854	7.501	5180.039099	7.548	5180.039074	7.543
10	3.3	5180.040717	7.860	5180.040627	7.843	5180.040451	7.809	5180.040921	7.900
0	3.3	5180.039191	7.566	5180.039159	7.560	5180.038909	7.511	5180.039373	7.601
-10	3.3	5180.037632	7.265	5180.037576	7.254	5180.037438	7.227	5180.037557	7.250
-20	3.3	5180.036970	7.137	5180.037151	7.172	5180.037012	7.145	5180.036884	7.120
-30	3.3	5180.036100	6.969	5180.036021	6.954	5180.035933	6.937	5180.036121	6.973

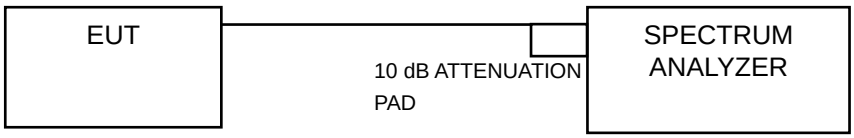
Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	2.8	5180.027001	5.213	5180.026668	5.148	5180.026516	5.119	5180.027019	5.216
	3.3	5180.039202	7.568	5180.038854	7.501	5180.039099	7.548	5180.039074	7.543
	3.8	5180.028251	5.454	5180.028548	5.511	5180.028223	5.448	5180.028281	5.460

4.6 6 dB Bandwidth Measurment

4.6.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

a. Set resolution bandwidth (RBW) = 100 kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. 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

Mode A

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.35	16.33	16.35	0.5	Pass
157	5785	16.10	16.06	16.30	0.5	Pass
161	5805	16.32	16.30	16.32	0.5	Pass

802.11n (HT20)

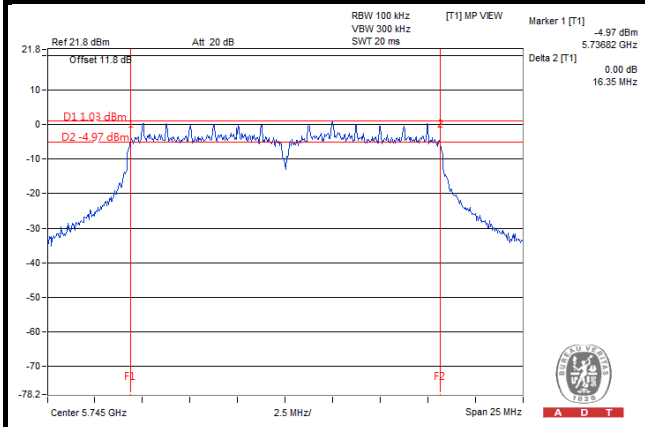
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.69	16.96	16.97	0.5	Pass
157	5785	16.05	17.54	16.37	0.5	Pass
161	5805	16.82	16.70	16.33	0.5	Pass

802.11n (HT40)

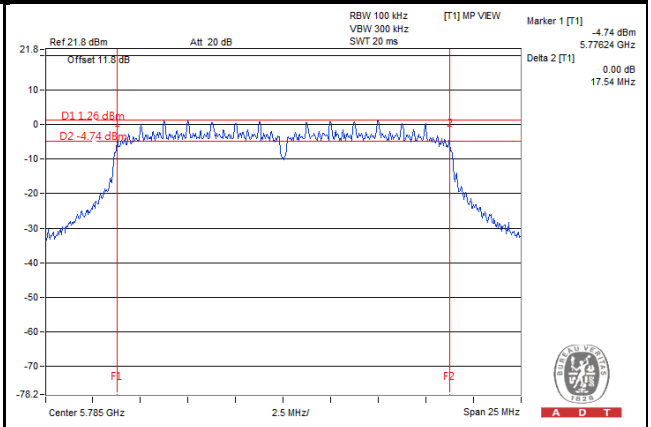
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
151	5755	35.28	35.78	35.78	0.5	Pass
159	5795	35.29	35.30	35.55	0.5	Pass

Spectrum Plot of Worst Value

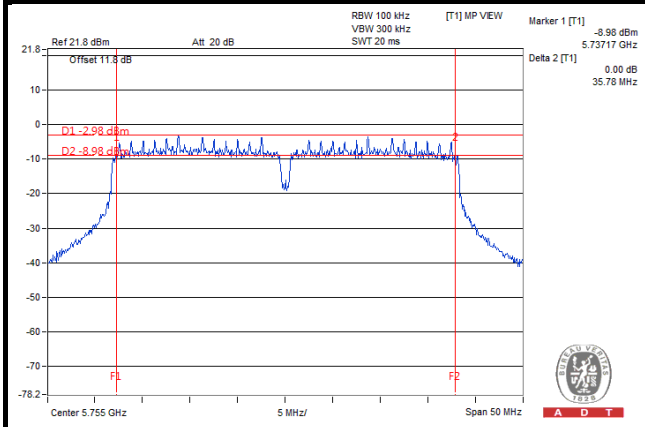
802.11a



802.11n (HT20)



802.11n (HT40)



Mode B

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.35	16.32	16.37	0.5	Pass
157	5785	16.10	16.06	16.30	0.5	Pass
161	5805	16.32	16.30	16.32	0.5	Pass

802.11n (HT20)

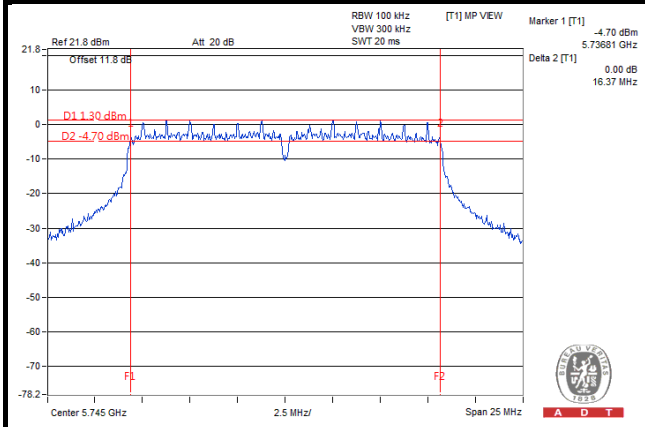
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.55	16.97	17.20	0.5	Pass
157	5785	16.05	17.54	16.37	0.5	Pass
161	5805	16.82	16.70	16.33	0.5	Pass

802.11n (HT40)

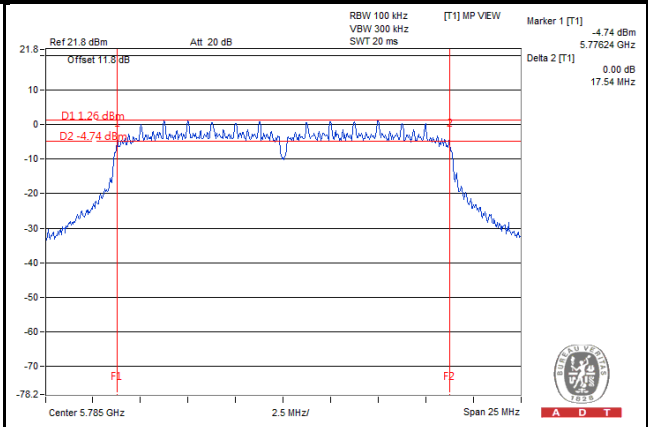
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
151	5755	35.50	35.51	35.50	0.5	Pass
159	5795	35.29	35.30	35.55	0.5	Pass

Spectrum Plot of Worst Value

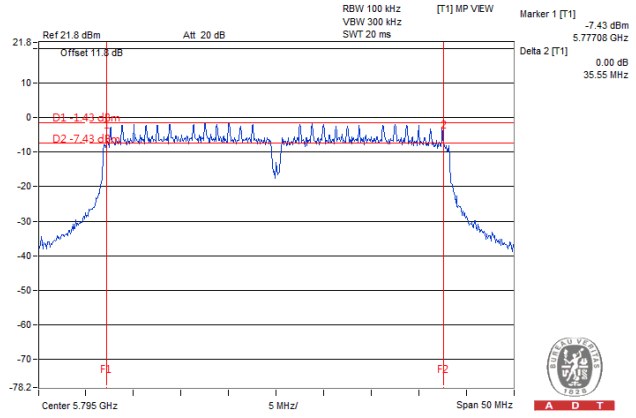
802.11a



802.11n (HT20)



802.11n (HT40)



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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

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