

FCC Test Report

Report No.: RF160511C21-7

FCC ID: MSQP00I

Test Model: P00I

Received Date: May 11, 2016

Test Date: May 24, 2016 ~ Jun. 08, 2016

Issued Date: Jun. 16, 2016

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

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Release Control Record

Issue No.	Description	Date Issued
RF160511C21-7	Original Release	Jun. 16, 2016

1 Certificate of Conformity

Product: ASUS Tablet

Brand: ASUS

Test Model: P00I

Sample Status: Identical Prototype

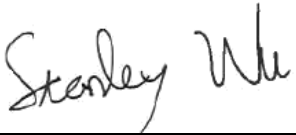
Applicant: ASUSTek COMPUTER INC.

Test Date: May 24, 2016 ~ Jun. 08, 2016

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 :  , **Date:** Jun. 16, 2016
Ivonne Wu / Supervisor

Approved by :  , **Date:** Jun. 16, 2016
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 -6.85 dB at 0.18122 MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -2.21 dB at 5470 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	Expanded 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	ASUS Tablet
Brand	ASUS
Test Model	P00I
Status of EUT	Identical Prototype
Power Supply Rating	5 Vdc (from host equipment or adapter) 9 Vdc (from adapter) 3.85 Vdc (Li-ion battery)
Modulation Type	256QAM, 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 MCS7 802.11ac: up to V9
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5700 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80) 5500 ~ 5700 MHz: 11 for 802.11a, 802.11n (HT20) 5 for 802.11n (HT40) 2 for 802.11ac (VHT80) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80)
Output Power	31.84 mW for 5180 ~ 5240 MHz 32.51 mW for 5260 ~ 5320 MHz 31.26 mW for 5500 ~ 5700 MHz 35.56 mW for 5745 ~ 5825 MHz
Antenna Type	PIFA antenna with -0.14 dBi gain (5180 ~ 5240 MHz) PIFA antenna with 0.16 dBi gain (5260 ~ 5320 MHz) PIFA antenna with 0.71 dBi gain (5500 ~ 5700 MHz) PIFA antenna with 0.62 dBi gain (5745 ~ 5825 MHz)
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	ASUS	AD2068320	I/P: 100-240Vac, 50/60Hz, 0.5A O/P: 5Vdc, 2A or 9Vdc, 2A
Adapter 2	ASUS	AS0202	I/P: 100-240Vac, 50/60Hz, 0.5A O/P: 5Vdc, 2A or 9Vdc, 2A
Battery	ASUS	C12P1602	3.85Vdc, 30Wh
USB Cable	ASAP	LA05US018-1N	0.9m shielded cable w/o core
LCD Panel	TIANMA	TM097QDSP01-00	LCD TFT 9.7' QXGA GL SLIM LED
Front Camera	CHICONY	CBFE55720003870LH	5 M
Real Camera	CHICONY	CJAG81120003871LH	8 M
CPU	Qualcomm	MSM-8956-0-747PNSP- MT-01-0-AA	987 Pin
LPDDR3 1	HYNIX	H9CKNNNDATMUPR-NUH	LPDDR3-3GB
LPDDR3 2	SAMSUNG	K3QF6F60AM-FGCF000	LPDDR3-3GB
eMMC1	HYNIX	H26M64208EMR	eMMC5.1-32GB
eMMC2	SAMSUNG	KLMBG2JENB-B041	eMMC5.1-32GB
BT/WLAN Module	Qualcomm	WCN-3680B-0-79BWLNSP -TR-05-1	--
WWAN Module	Qualcomm	WTR-2965-0-59FOWNSP -TR-06-0-VV	--

* LPDDR3 1 & eMMC1 was chosen for test.

2. 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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

FOR 5260 ~ 5320 MHz

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	62	5310

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
58	5290

FOR 5500 ~ 5700 MHz

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

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

5 channels are provided for 802.11n (HT40):

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

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	122	5610

FOR 5745 ~ 5825 MHz:

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

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

2 channels are provided for 802.11n (HT40):

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

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE $\geq$ 1G:** Radiated Emission above 1 GHz

RE<1G: Radiated Emission below 1 GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane** for 5180-5240MHz & 5500-5700MHz & 5745-5825MHz and **Y-plane** for 5260-5320MHz.

2. "-" means no effect.

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	42	42	OFDM	BPSK	V0
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	58	58	OFDM	BPSK	V0
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 134	102, 110, 134	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	106 to 122	106, 122	OFDM	BPSK	V0
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	MCS0
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	155	155	OFDM	BPSK	V0

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11n (HT40)	38 to 46	38	OFDM	BPSK	MCS0
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	V0
-	5500-5700	802.11ac (VHT80)	106 to 122	106	OFDM	BPSK	V0
-	5745-5825	802.11n (HT40)	151 to 159	151	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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5500-5700	802.11ac (VHT80)	106 to 122	106	OFDM	BPSK	V0

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 44, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	42	42	OFDM	BPSK	V0
-	5260-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	58	58	OFDM	BPSK	V0
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 134	102, 110, 134	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	106 to 122	106, 122	OFDM	BPSK	V0
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	MCS0
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	155	155	OFDM	BPSK	V0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	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	3.8 Vdc	Carlos Chen

3.3 Duty Cycle of Test Signal

MODULATION TYPE: BPSK

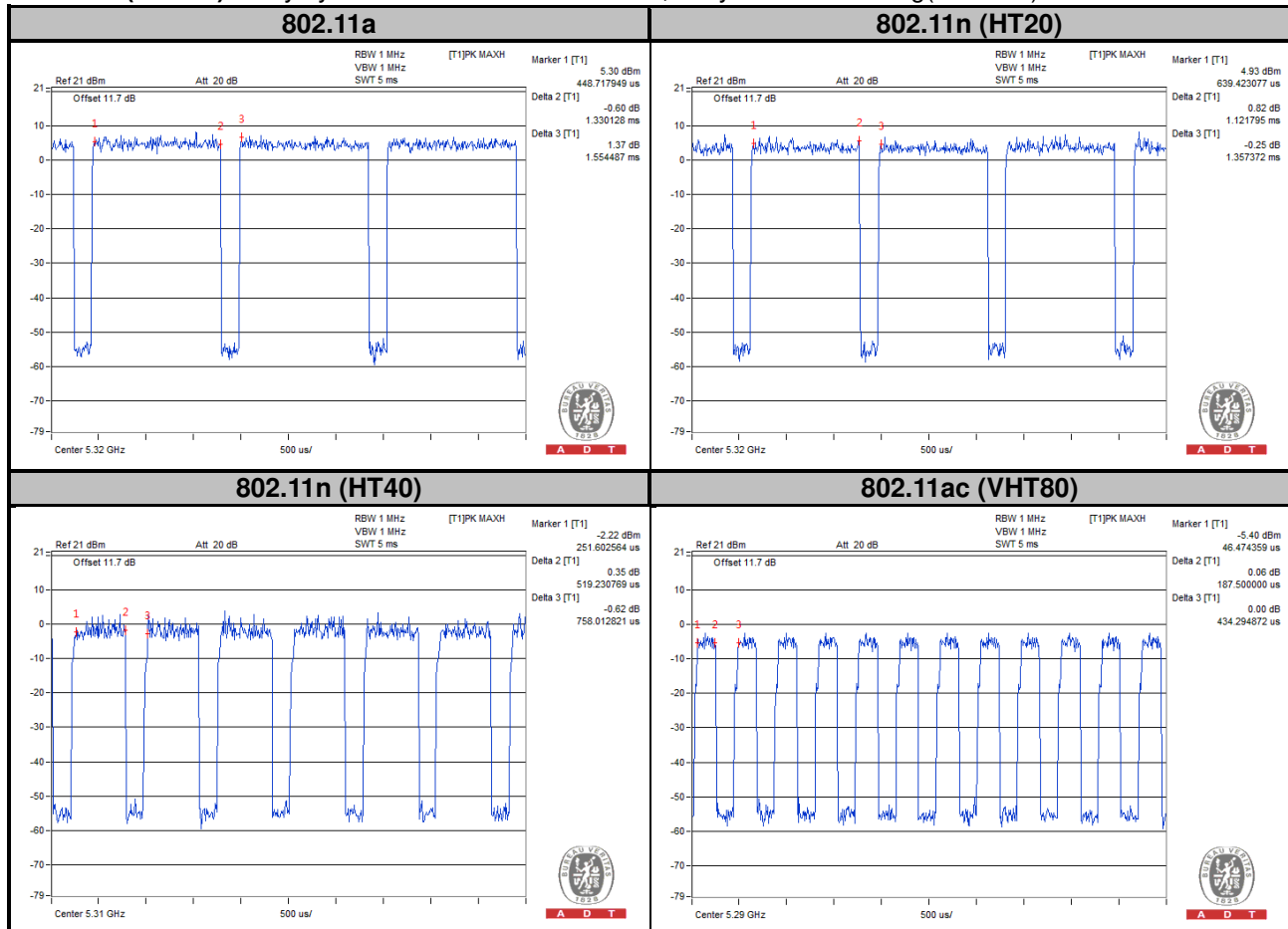
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $1.330/1.554 = 0.856$, Duty factor = $10 * \log(1/0.856) = 0.68$

802.11n (HT20): Duty cycle = $1.122/1.357 = 0.827$, Duty factor = $10 * \log(1/0.827) = 0.83$

802.11n (HT40): Duty cycle = $519.23/758.01 = 0.685$, Duty factor = $10 * \log(1/0.685) = 1.64$

802.11ac (VHT80): Duty cycle = $187.50/434.29 = 0.432$, Duty factor = $10 * \log(1/0.432) = 3.65$



MODULATION TYPE: QPSK

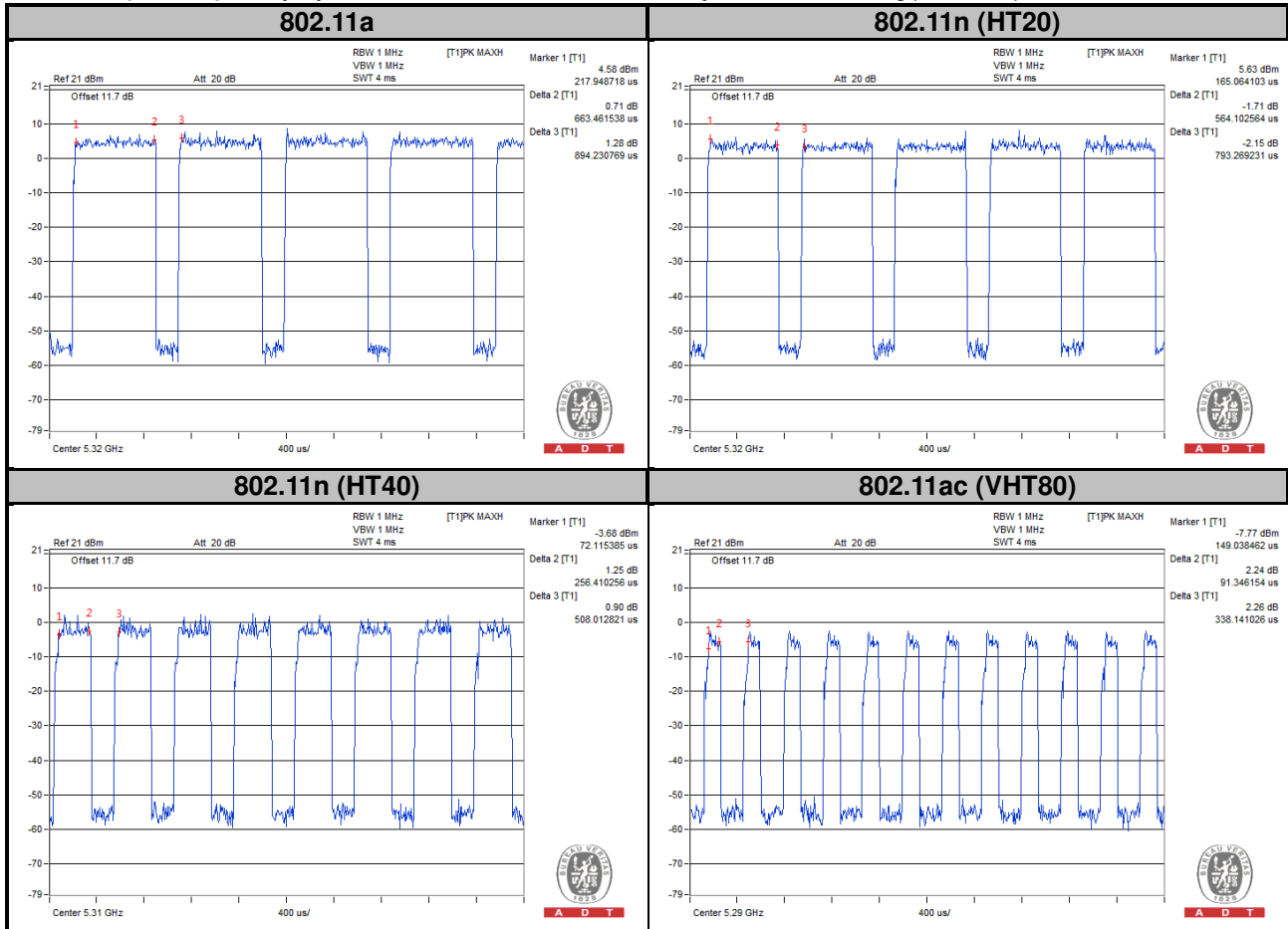
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $663.46/894.23 = 0.742$, Duty factor = $10 * \log(1/0.742) = 1.30$

802.11n (HT20): Duty cycle = $564.10/793.27 = 0.711$, Duty factor = $10 * \log(1/0.711) = 1.48$

802.11n (HT40): Duty cycle = $256.41/508.01 = 0.505$, Duty factor = $10 * \log(1/0.505) = 2.97$

802.11ac (VHT80): Duty cycle = $91.35/338.14 = 0.270$, Duty factor = $10 * \log(1/0.270) = 5.68$



MODULATION TYPE: 16QAM

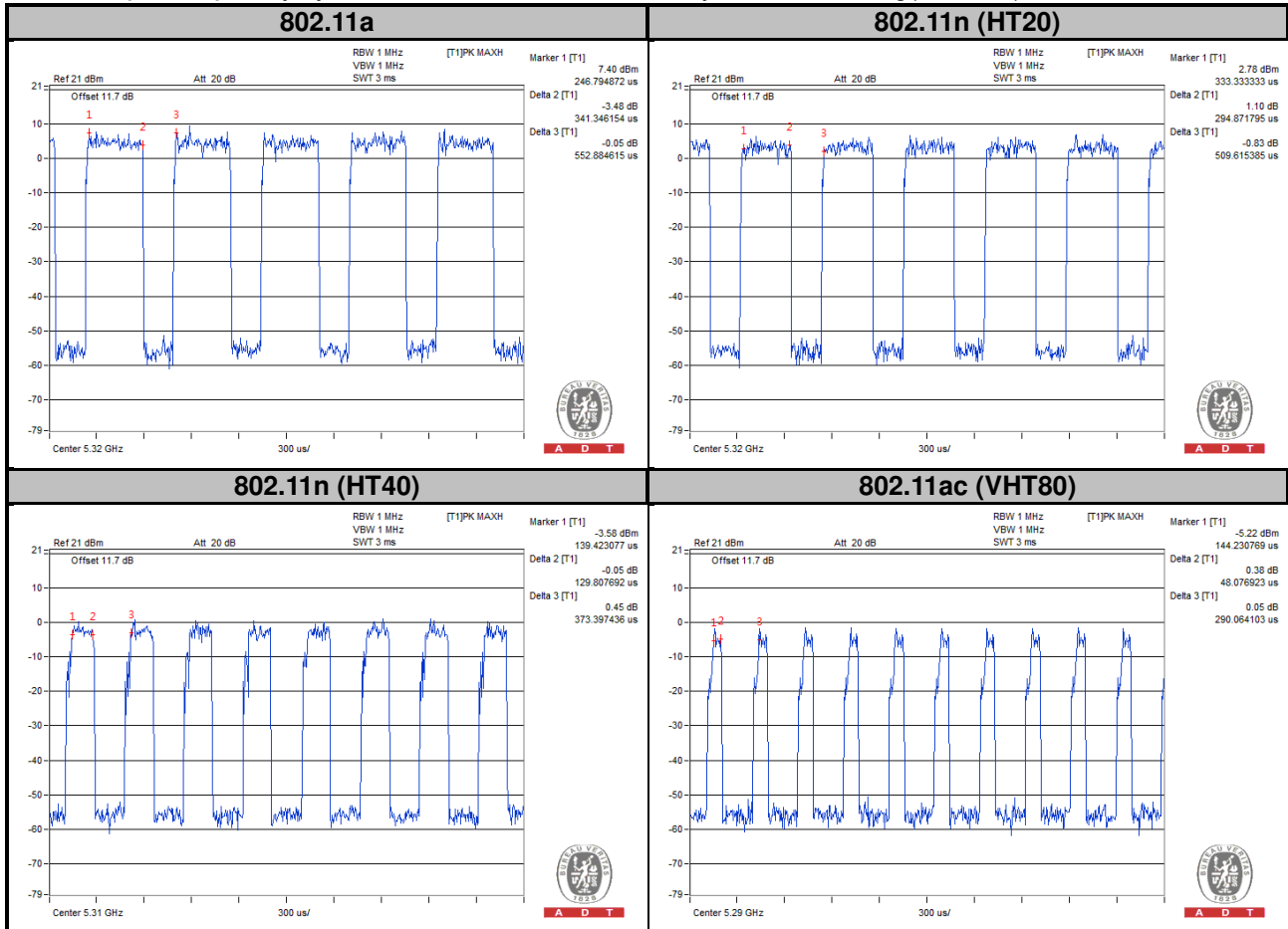
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $341.35/552.88 = 0.617$, Duty factor = $10 * \log(1/0.617) = 2.09$

802.11n (HT20): Duty cycle = $294.87/509.62 = 0.579$, Duty factor = $10 * \log(1/0.579) = 2.38$

802.11n (HT40): Duty cycle = $129.81/373.40 = 0.348$, Duty factor = $10 * \log(1/0.348) = 4.59$

802.11ac (VHT80): Duty cycle = $48.08/290.06 = 0.166$, Duty factor = $10 * \log(1/0.166) = 7.81$



MODULATION TYPE: 64QAM

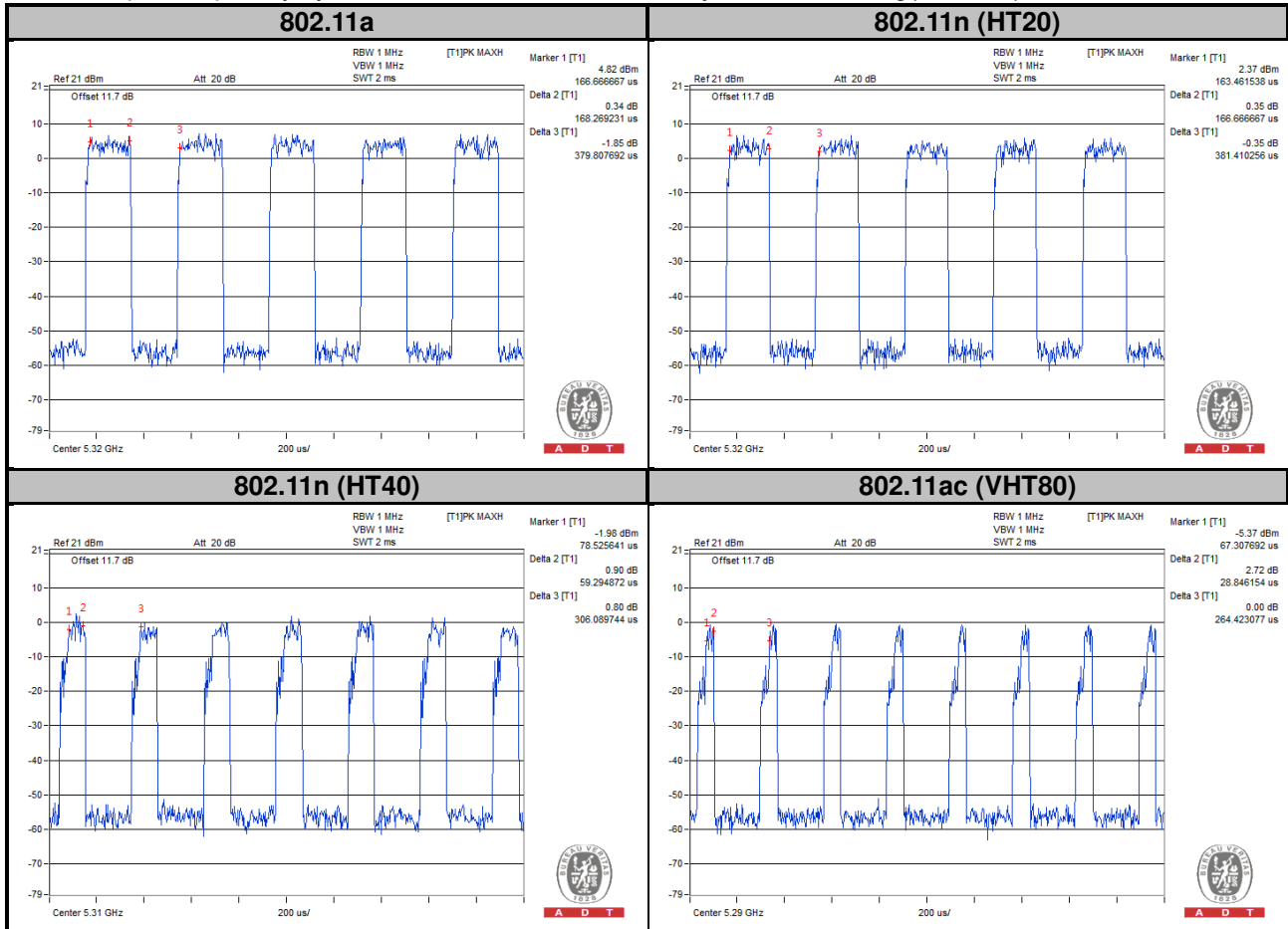
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $168.27/379.81 = 0.443$, Duty factor = $10 * \log(1/0.443) = 3.54$

802.11n (HT20): Duty cycle = $166.67/381.41 = 0.437$, Duty factor = $10 * \log(1/0.437) = 3.60$

802.11n (HT40): Duty cycle = $59.29/306.09 = 0.194$, Duty factor = $10 * \log(1/0.194) = 7.13$

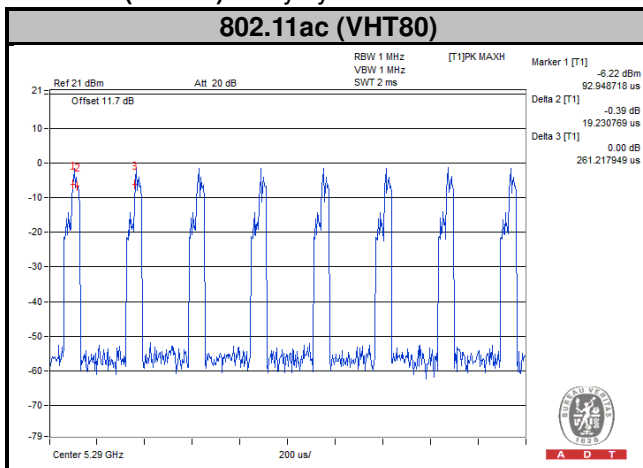
802.11ac (VHT80): Duty cycle = $28.85/264.42 = 0.109$, Duty factor = $10 * \log(1/0.109) = 9.62$



MODULATION TYPE: 256QAM

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

802.11ac (VHT80): Duty cycle = $19.23/261.22 = 0.074$, Duty factor = $10 * \log(1/0.074) = 11.33$



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.

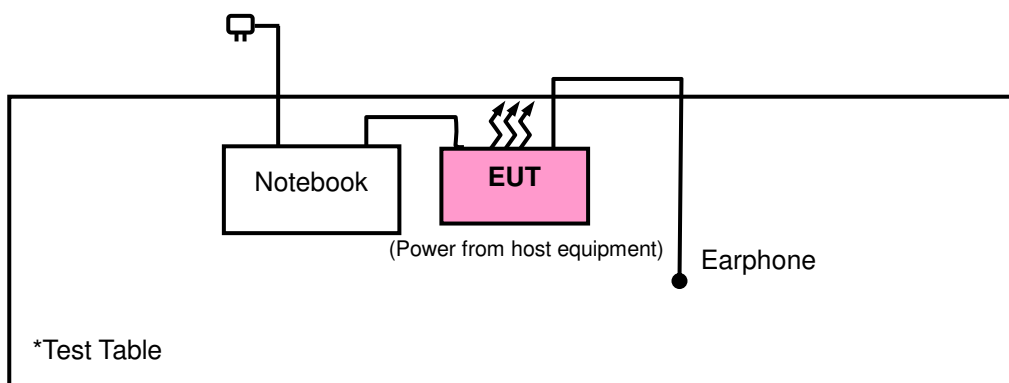
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Earphone	N/A	N/A	N/A	N/A
2.	Notebook	DELL	Inspiron 14R	6LRKKW1	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A
2.	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 v01r02

644545 D01 Guidance for IEEE 802 11ac v01r02

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 v01r02	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:

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

4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Jan. 21, 2016	Jan. 20, 2017
Spectrum Analyzer Agilent	N9010A	MY52220314	Sep. 03, 2015	Sep. 02, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2015	Dec. 16, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Jan. 04, 2016	Jan. 03, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Jan. 04, 2016	Jan. 03, 2017
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(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 27, 2015	Jun. 26, 2016
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-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
Test Receiver Agilent	N9038A	MY51210203	Jan. 21, 2016	Jan. 20, 2017

- Note: 1. The calibration interval of the above test instruments is 12 / 24 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:

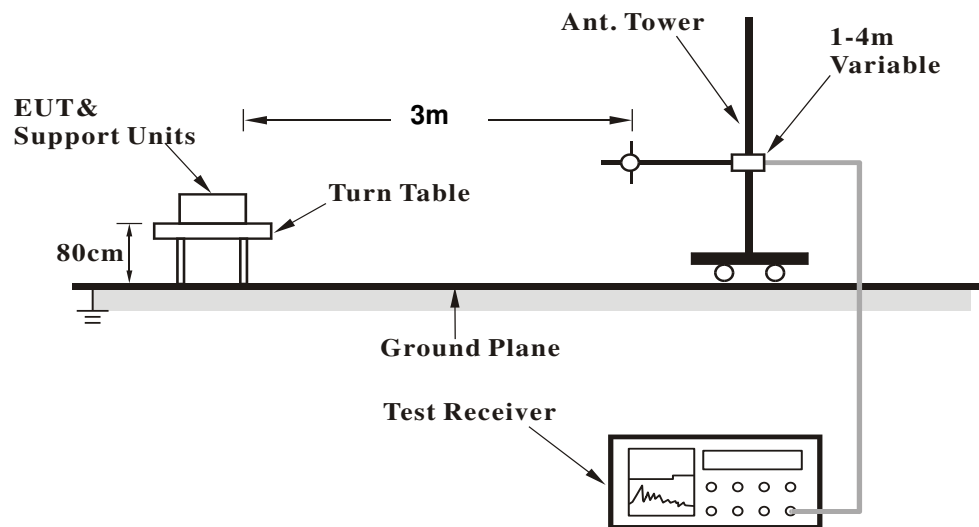
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
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 ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle $\geq 98 \%$) 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

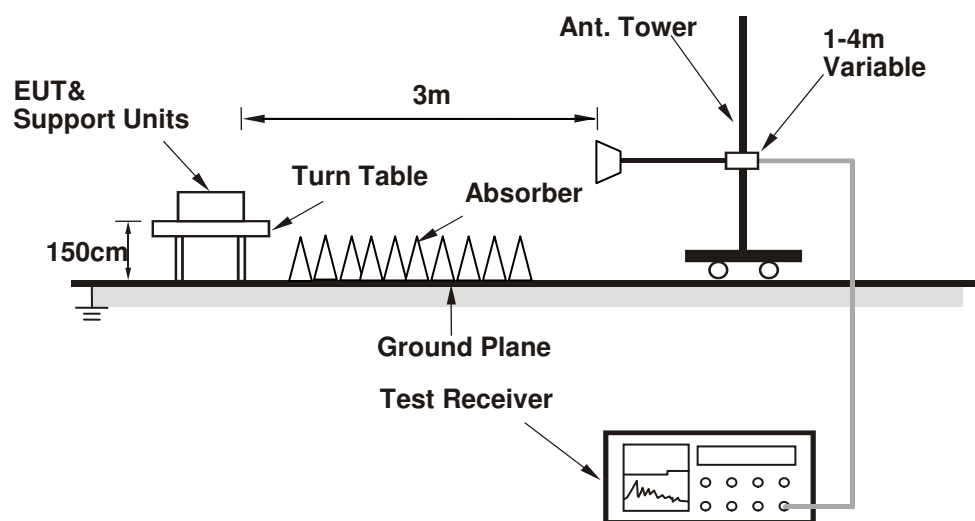
No deviation.

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

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

4.1.8 Test Results

Above 1 GHz Data :

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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (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	45.95	37.7	54	-8.05	34.12	8.13	34	100	354	Average
5150	59.16	50.91	74	-14.84	34.12	8.13	34	100	354	Peak
5180	97.26	88.95			34.15	8.16	34	100	354	Average
5180	104.49	96.18			34.15	8.16	34	100	354	Peak
5440	42.82	34.03	54	-11.18	34.35	8.48	34.04	100	354	Average
5440	57.54	48.75	74	-16.46	34.35	8.48	34.04	100	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	45.37	37.12	54	-8.63	34.12	8.13	34	104	8	Average
5150	60.34	52.09	74	-13.66	34.12	8.13	34	104	8	Peak
5180	96.41	88.1			34.15	8.16	34	104	8	Average
5180	103.38	95.07			34.15	8.16	34	104	8	Peak
5440	42.57	33.78	54	-11.43	34.35	8.48	34.04	104	8	Average
5440	58.11	49.32	74	-15.89	34.35	8.48	34.04	104	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (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
5072	41.93	33.81	54	-12.07	34.07	8.03	33.98	100	354	Average
5072	56.11	47.99	74	-17.89	34.07	8.03	33.98	100	354	Peak
5220	97.85	89.46			34.17	8.22	34	100	354	Average
5220	104.78	96.39			34.17	8.22	34	100	354	Peak
5420	42.51	33.74	54	-11.49	34.33	8.48	34.04	100	354	Average
5420	57.34	48.57	74	-16.66	34.33	8.48	34.04	100	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5102	42.01	33.85	54	-11.99	34.08	8.07	33.99	104	8	Average
5102	57.32	49.16	74	-16.68	34.08	8.07	33.99	104	8	Peak
5220	96.4	88.01			34.17	8.22	34	104	8	Average
5220	103.88	95.49			34.17	8.22	34	104	8	Peak
5438	42.68	33.89	54	-11.32	34.35	8.48	34.04	104	8	Average
5438	57.82	49.03	74	-16.18	34.35	8.48	34.04	104	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (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
5096	42.07	33.91	54	-11.93	34.08	8.07	33.99	100	354	Average
5096	56.56	48.4	74	-17.44	34.08	8.07	33.99	100	354	Peak
5240	97.29	88.85			34.19	8.26	34.01	100	354	Average
5240	104.95	96.51			34.19	8.26	34.01	100	354	Peak
5446	42.77	33.94	54	-11.23	34.36	8.51	34.04	100	354	Average
5446	57.42	48.59	74	-16.58	34.36	8.51	34.04	100	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	42.19	33.94	54	-11.81	34.11	8.13	33.99	104	8	Average
5138	56.43	48.18	74	-17.57	34.11	8.13	33.99	104	8	Peak
5240	96.43	87.99			34.19	8.26	34.01	104	8	Average
5240	103.65	95.21			34.19	8.26	34.01	104	8	Peak
5432	42.77	33.98	54	-11.23	34.35	8.48	34.04	104	8	Average
5432	57.31	48.52	74	-16.69	34.35	8.48	34.04	104	8	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 52	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										
Frequency (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
5054	42.63	34.57	54	-11.37	34.04	8	33.98	107	14	Average
5054	57.45	49.39	74	-16.55	34.04	8	33.98	107	14	Peak
5260	98.73	90.27			34.21	8.26	34.01	107	14	Average
5260	105.87	97.41			34.21	8.26	34.01	107	14	Peak
5450	42.83	34.01	54	-11.17	34.36	8.51	34.05	107	14	Average
5450	58.05	49.23	74	-15.95	34.36	8.51	34.05	107	14	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5080	42.51	34.39	54	-11.49	34.07	8.03	33.98	101	9	Average
5080	58.22	50.1	74	-15.78	34.07	8.03	33.98	101	9	Peak
5260	100.57	92.11			34.21	8.26	34.01	101	9	Average
5260	108.38	99.92			34.21	8.26	34.01	101	9	Peak
5454	42.81	33.99	54	-11.19	34.36	8.51	34.05	101	9	Average
5454	58.05	49.23	74	-15.95	34.36	8.51	34.05	101	9	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5260 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 60	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										
Frequency (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	42.58	34.48	54	-11.42	34.05	8.03	33.98	106	32	Average
5064	57.42	49.32	74	-16.58	34.05	8.03	33.98	106	32	Peak
5300	97.83	89.29			34.24	8.32	34.02	106	32	Average
5300	105.27	96.73			34.24	8.32	34.02	106	32	Peak
5418	44.63	35.9	54	-9.37	34.33	8.44	34.04	106	32	Average
5418	57.72	48.99	74	-16.28	34.33	8.44	34.04	106	32	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5048	42.45	34.39	54	-11.55	34.04	8	33.98	100	8	Average
5048	57.22	49.16	74	-16.78	34.04	8	33.98	100	8	Peak
5300	101.16	92.62			34.24	8.32	34.02	100	8	Average
5300	107.83	99.29			34.24	8.32	34.02	100	8	Peak
5442	45.03	36.24	54	-8.97	34.35	8.48	34.04	100	8	Average
5442	57.12	48.33	74	-16.88	34.35	8.48	34.04	100	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5300 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 64	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										
Frequency (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	42.39	34.29	54	-11.61	34.05	8.03	33.98	106	32	Average
5066	57.44	49.34	74	-16.56	34.05	8.03	33.98	106	32	Peak
5320	98.25	89.67			34.25	8.35	34.02	106	32	Average
5320	106.04	97.46			34.25	8.35	34.02	106	32	Peak
5350	42.96	34.33	54	-11.04	34.28	8.38	34.03	106	32	Average
5350	59.6	50.97	74	-14.4	34.28	8.38	34.03	106	32	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5048	42.46	34.4	54	-11.54	34.04	8	33.98	100	8	Average
5048	57.55	49.49	74	-16.45	34.04	8	33.98	100	8	Peak
5320	100.55	91.97			34.25	8.35	34.02	100	8	Average
5320	108.14	99.56			34.25	8.35	34.02	100	8	Peak
5352	44.75	36.12	54	-9.25	34.28	8.38	34.03	100	8	Average
5352	62.43	53.8	74	-11.57	34.28	8.38	34.03	100	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5320 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 100	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										
Frequency (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
5370	44.76	36.09	54	-9.24	34.29	8.41	34.03	202	4	Average
5370	58.49	49.82	74	-15.51	34.29	8.41	34.03	202	4	Peak
5470	58.52	49.69	68.2	-9.68	34.37	8.51	34.05	202	4	Peak
5500	95.09	86.17			34.4	8.57	34.05	202	4	Average
5500	102.76	93.84			34.4	8.57	34.05	202	4	Peak
5725	57.5	48.34	68.2	-10.7	34.62	8.65	34.11	202	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5448	45.43	36.6	54	-8.57	34.36	8.51	34.04	111	12	Average
5448	57.91	49.08	74	-16.09	34.36	8.51	34.04	111	12	Peak
5470	57.42	48.59	68.2	-10.78	34.37	8.51	34.05	111	12	Peak
5500	98.07	89.15			34.4	8.57	34.05	111	12	Average
5500	105.46	96.54			34.4	8.57	34.05	111	12	Peak
5725	55.63	46.47	68.2	-12.57	34.62	8.65	34.11	111	12	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5500 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 116	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										
Frequency (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
5460	42.97	34.15	54	-11.03	34.36	8.51	34.05	209	4	Average
5460	57.26	48.44	74	-16.74	34.36	8.51	34.05	209	4	Peak
5470	56.71	47.88	68.2	-11.49	34.37	8.51	34.05	209	4	Peak
5580	96.68	87.69			34.47	8.6	34.08	209	4	Average
5580	103.76	94.77			34.47	8.6	34.08	209	4	Peak
5725	56.6	47.44	68.2	-11.6	34.62	8.65	34.11	209	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5440	42.73	33.94	54	-11.27	34.35	8.48	34.04	103	12	Average
5440	57.93	49.14	74	-16.07	34.35	8.48	34.04	103	12	Peak
5470	56.12	47.29	68.2	-12.08	34.37	8.51	34.05	103	12	Peak
5580	99.36	90.37			34.47	8.6	34.08	103	12	Average
5580	106.88	97.89			34.47	8.6	34.08	103	12	Peak
5725	56.33	47.17	68.2	-11.87	34.62	8.65	34.11	103	12	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5580 MHz: Fundamental Frequency
3. 5470 MHz & 5725 MHz: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 140	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										
Frequency (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
5370	42.62	33.95	54	-11.38	34.29	8.41	34.03	162	4	Average
5370	57.75	49.08	74	-16.25	34.29	8.41	34.03	162	4	Peak
5470	56.75	47.92	68.2	-11.45	34.37	8.51	34.05	162	4	Peak
5700	97.41	88.28			34.59	8.64	34.1	162	4	Average
5700	103.89	94.76			34.59	8.64	34.1	162	4	Peak
5725	56.9	47.74	68.2	-11.3	34.62	8.65	34.11	162	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5398	42.62	33.9	54	-11.38	34.32	8.44	34.04	121	31	Average
5398	57.67	48.95	74	-16.33	34.32	8.44	34.04	121	31	Peak
5470	58.02	49.19	68.2	-10.18	34.37	8.51	34.05	121	31	Peak
5700	98.7	89.57			34.59	8.64	34.1	121	31	Average
5700	106.73	97.6			34.59	8.64	34.1	121	31	Peak
5725	63.14	53.98	68.2	-5.06	34.62	8.65	34.11	121	31	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5700 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

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										
Frequency (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	58.62	49.47	68.2	-9.58	34.61	8.65	34.11	179	2	Peak
*5724	65.16	56	78.2	-13.04	34.62	8.65	34.11	179	2	Peak
5745	92.49	83.3			34.64	8.66	34.11	179	2	Average
5745	100.03	90.84			34.64	8.66	34.11	179	2	Peak
*5856	56.7	47.38	78.2	-21.5	34.76	8.7	34.14	179	2	Peak
*5870	56.72	47.39	68.2	-11.48	34.76	8.71	34.14	179	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	57.59	48.44	68.2	-10.61	34.61	8.65	34.11	106	28	Peak
*5724	72.45	63.29	78.2	-5.75	34.62	8.65	34.11	106	28	Peak
5745	97.43	88.24			34.64	8.66	34.11	106	28	Average
5745	104.99	95.8			34.64	8.66	34.11	106	28	Peak
*5854	57.49	48.17	78.2	-20.71	34.76	8.7	34.14	106	28	Peak
*5864	56.64	47.31	68.2	-11.56	34.76	8.71	34.14	106	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: 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										
Frequency (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	57.24	48.09	68.2	-10.96	34.61	8.65	34.11	185	2	Peak
*5722	56.89	47.73	78.2	-21.31	34.62	8.65	34.11	185	2	Peak
5785	92.48	83.25			34.68	8.68	34.13	185	2	Average
5785	99.97	90.74			34.68	8.68	34.13	185	2	Peak
*5852	56.97	47.67	78.2	-21.23	34.74	8.7	34.14	185	2	Peak
*5868	56.59	47.26	68.2	-11.61	34.76	8.71	34.14	185	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	57.43	48.28	68.2	-10.77	34.61	8.65	34.11	106	28	Peak
*5716	57.22	48.07	78.2	-20.98	34.61	8.65	34.11	106	28	Peak
5785	96.93	87.7			34.68	8.68	34.13	106	28	Average
5785	104.33	95.1			34.68	8.68	34.13	106	28	Peak
*5852	57.56	48.26	78.2	-20.64	34.74	8.7	34.14	106	28	Peak
*5868	57.23	47.9	68.2	-10.97	34.76	8.71	34.14	106	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 165	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										
Frequency (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	178	2	Peak
*5724	57.97	48.81	78.2	-20.23	34.62	8.65	34.11	178	2	Peak
5825	92.74	83.45			34.73	8.69	34.13	178	2	Average
5825	101.33	92.04			34.73	8.69	34.13	178	2	Peak
*5856	58.31	48.99	78.2	-19.89	34.76	8.7	34.14	178	2	Peak
*5868	58.51	49.18	68.2	-9.69	34.76	8.71	34.14	178	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	57.7	48.55	68.2	-10.5	34.61	8.65	34.11	105	28	Peak
*5722	57.2	48.04	78.2	-21	34.62	8.65	34.11	105	28	Peak
5825	96.99	87.7			34.73	8.69	34.13	105	28	Average
5825	105.16	95.87			34.73	8.69	34.13	105	28	Peak
*5852	61.43	52.13	78.2	-16.77	34.74	8.7	34.14	105	28	Peak
*5862	57.69	48.36	68.2	-10.51	34.76	8.71	34.14	105	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: 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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	46.35	38.1	54	-7.65	34.12	8.13	34	100	354	Average
5150	60.2	51.95	74	-13.8	34.12	8.13	34	100	354	Peak
5180	97.76	89.45	54			8.16	34	100	354	Average
5180	104.55	96.24	74			8.16	34	100	354	Peak
5436	42.63	33.84	54	-11.37	34.35	8.48	34.04	100	354	Average
5436	57.47	48.68	74	-16.53	34.35	8.48	34.04	100	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	45.25	37	54	-8.75	34.12	8.13	34	104	8	Average
5150	58.48	50.23	74	-15.52	34.12	8.13	34	104	8	Peak
5180	96.09	87.78	54			8.16	34	104	8	Average
5180	103.94	95.63	74			8.16	34	104	8	Peak
5406	42.63	33.91	54	-11.37	34.32	8.44	34.04	104	8	Average
5406	57.4	48.68	74	-16.6	34.32	8.44	34.04	104	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
Margin value = Emission level – Limit value
- 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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (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	42.08	33.82	54	-11.92	34.12	8.13	33.99	100	354	Average
5142	57.36	49.1	74	-16.64	34.12	8.13	33.99	100	354	Peak
5220	97.06	88.67			34.17	8.22	34	100	354	Average
5220	104.35	95.96			34.17	8.22	34	100	354	Peak
5426	42.62	33.85	54	-11.38	34.33	8.48	34.04	100	354	Average
5426	57.05	48.28	74	-16.95	34.33	8.48	34.04	100	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5044	41.78	33.72	54	-12.22	34.04	8	33.98	104	8	Average
5044	55.99	47.93	74	-18.01	34.04	8	33.98	104	8	Peak
5220	96.64	88.25			34.17	8.22	34	104	8	Average
5220	103.3	94.91			34.17	8.22	34	104	8	Peak
5376	42.7	34.04	54	-11.3	34.29	8.41	34.04	104	8	Average
5376	56.03	47.37	74	-17.97	34.29	8.41	34.04	104	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (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
5080	41.99	33.87	54	-12.01	34.07	8.03	33.98	100	354	Average
5080	56.19	48.07	74	-17.81	34.07	8.03	33.98	100	354	Peak
5240	97.76	89.32			34.19	8.26	34.01	100	354	Average
5240	104.93	96.49			34.19	8.26	34.01	100	354	Peak
5388	42.63	33.95	54	-11.37	34.31	8.41	34.04	100	354	Average
5388	56.44	47.76	74	-17.56	34.31	8.41	34.04	100	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5040	41.8	33.73	54	-12.2	34.04	8	33.97	104	8	Average
5040	57.21	49.14	74	-16.79	34.04	8	33.97	104	8	Peak
5240	96.19	87.75			34.19	8.26	34.01	104	8	Average
5240	103.61	95.17			34.19	8.26	34.01	104	8	Peak
5452	42.65	33.83	54	-11.35	34.36	8.51	34.05	104	8	Average
5452	56.78	47.96	74	-17.22	34.36	8.51	34.05	104	8	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 52	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										
Frequency (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
5026	42.33	34.3	54	-11.67	34.03	7.97	33.97	107	14	Average
5026	57.25	49.22	74	-16.75	34.03	7.97	33.97	107	14	Peak
5260	97.09	88.63			34.21	8.26	34.01	107	14	Average
5260	105.57	97.11			34.21	8.26	34.01	107	14	Peak
5442	42.74	33.95	54	-11.26	34.35	8.48	34.04	107	14	Average
5442	57.78	48.99	74	-16.22	34.35	8.48	34.04	107	14	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5026	42.24	34.21	54	-11.76	34.03	7.97	33.97	101	9	Average
5026	56.42	48.39	74	-17.58	34.03	7.97	33.97	101	9	Peak
5260	99.59	91.13			34.21	8.26	34.01	101	9	Average
5260	108.1	99.64			34.21	8.26	34.01	101	9	Peak
5440	42.66	33.87	54	-11.34	34.35	8.48	34.04	101	9	Average
5440	57.68	48.89	74	-16.32	34.35	8.48	34.04	101	9	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5260 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 60	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										
Frequency (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	42.47	34.3	54	-11.53	34.08	8.07	33.98	106	32	Average
5090	57.15	48.98	74	-16.85	34.08	8.07	33.98	106	32	Peak
5300	97.08	88.54			34.24	8.32	34.02	106	32	Average
5300	105.26	96.72			34.24	8.32	34.02	106	32	Peak
5352	44.63	36	54	-9.37	34.28	8.38	34.03	106	32	Average
5352	57.5	48.87	74	-16.5	34.28	8.38	34.03	106	32	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	42.5	34.4	54	-11.5	34.05	8.03	33.98	100	8	Average
5060	57.69	49.59	74	-16.31	34.05	8.03	33.98	100	8	Peak
5300	98.86	90.32			34.24	8.32	34.02	100	8	Average
5300	107.96	99.42			34.24	8.32	34.02	100	8	Peak
5358	45.3	36.67	54	-8.7	34.28	8.38	34.03	100	8	Average
5358	57.7	49.07	74	-16.3	34.28	8.38	34.03	100	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5300 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 64	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										
Frequency (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
5048	42.35	34.29	54	-11.65	34.04	8	33.98	106	32	Average
5048	58.27	50.21	74	-15.73	34.04	8	33.98	106	32	Peak
5320	96.73	88.15			34.25	8.35	34.02	106	32	Average
5320	105.32	96.74			34.25	8.35	34.02	106	32	Peak
5350	43.91	35.28	54	-10.09	34.28	8.38	34.03	106	32	Average
5350	59.38	50.75	74	-14.62	34.28	8.38	34.03	106	32	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	42.55	34.39	54	-11.45	34.07	8.07	33.98	100	8	Average
5088	57.32	49.16	74	-16.68	34.07	8.07	33.98	100	8	Peak
5320	99.47	90.89			34.25	8.35	34.02	100	8	Average
5320	107.56	98.98			34.25	8.35	34.02	100	8	Peak
5350	44.67	36.04	54	-9.33	34.28	8.38	34.03	100	8	Average
5350	60.2	51.57	74	-13.8	34.28	8.38	34.03	100	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5320 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 100	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										
Frequency (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
5450	44.75	35.93	54	-9.25	34.36	8.51	34.05	202	4	Average
5450	57.68	48.86	74	-16.32	34.36	8.51	34.05	202	4	Peak
5470	58	49.17	68.2	-10.2	34.37	8.51	34.05	202	4	Peak
5500	92.68	83.76			34.4	8.57	34.05	202	4	Average
5500	101.33	92.41			34.4	8.57	34.05	202	4	Peak
5725	57.19	48.03	68.2	-11.01	34.62	8.65	34.11	202	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5400	45.24	36.52	54	-8.76	34.32	8.44	34.04	111	12	Average
5400	57.99	49.27	74	-16.01	34.32	8.44	34.04	111	12	Peak
5470	57.03	48.2	68.2	-11.17	34.37	8.51	34.05	111	12	Peak
5500	95.64	86.72			34.4	8.57	34.05	111	12	Average
5500	104.42	95.5			34.4	8.57	34.05	111	12	Peak
5725	57.44	48.28	68.2	-10.76	34.62	8.65	34.11	111	12	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5500 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 116	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										
Frequency (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
5450	42.83	34.01	54	-11.17	34.36	8.51	34.05	209	4	Average
5450	58.41	49.59	74	-15.59	34.36	8.51	34.05	209	4	Peak
5470	56.68	47.85	68.2	-11.52	34.37	8.51	34.05	209	4	Peak
5580	94.26	85.27			34.47	8.6	34.08	209	4	Average
5580	102.75	93.76			34.47	8.6	34.08	209	4	Peak
5725	56.35	47.19	68.2	-11.85	34.62	8.65	34.11	209	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5432	42.73	33.94	54	-11.27	34.35	8.48	34.04	103	12	Average
5432	57.84	49.05	74	-16.16	34.35	8.48	34.04	103	12	Peak
5470	55.23	46.4	68.2	-12.97	34.37	8.51	34.05	103	12	Peak
5580	97.11	88.12			34.47	8.6	34.08	103	12	Average
5580	105.58	96.59			34.47	8.6	34.08	103	12	Peak
5725	55.11	45.95	68.2	-13.09	34.62	8.65	34.11	103	12	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5580 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 140	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										
Frequency (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
5408	42.55	33.83	54	-11.45	34.32	8.44	34.04	162	4	Average
5408	57.54	48.82	74	-16.46	34.32	8.44	34.04	162	4	Peak
5470	57.03	48.2	68.2	-11.17	34.37	8.51	34.05	162	4	Peak
5700	93.96	84.83			34.59	8.64	34.1	162	4	Average
5700	102.31	93.18			34.59	8.64	34.1	162	4	Peak
5725	57.01	47.85	68.2	-11.19	34.62	8.65	34.11	162	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5358	42.49	33.86	54	-11.51	34.28	8.38	34.03	121	31	Average
5358	58.02	49.39	74	-15.98	34.28	8.38	34.03	121	31	Peak
5470	56.68	47.85	68.2	-11.52	34.37	8.51	34.05	121	31	Peak
5700	97.21	88.08			34.59	8.64	34.1	121	31	Average
5700	105.85	96.72			34.59	8.64	34.1	121	31	Peak
5725	61.25	52.09	68.2	-6.95	34.62	8.65	34.11	121	31	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5700 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

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										
Frequency (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	57.37	48.22	68.2	-10.83	34.61	8.65	34.11	179	2	Peak
*5724	64.41	55.25	78.2	-13.79	34.62	8.65	34.11	179	2	Peak
5745	91.04	81.85			34.64	8.66	34.11	179	2	Average
5745	99.76	90.57			34.64	8.66	34.11	179	2	Peak
*5856	56.42	47.1	78.2	-21.78	34.76	8.7	34.14	179	2	Peak
*5868	58.37	49.04	68.2	-9.83	34.76	8.71	34.14	179	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	58.51	49.36	68.2	-9.69	34.61	8.65	34.11	106	28	Peak
*5724	71.71	62.55	78.2	-6.49	34.62	8.65	34.11	106	28	Peak
5745	96	86.81			34.64	8.66	34.11	106	28	Average
5745	104.79	95.6			34.64	8.66	34.11	106	28	Peak
*5854	57.88	48.56	78.2	-20.32	34.76	8.7	34.14	106	28	Peak
*5864	57.08	47.75	68.2	-11.12	34.76	8.71	34.14	106	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: 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										
Frequency (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	56.67	47.52	68.2	-11.53	34.61	8.65	34.11	185	2	Peak
*5724	57.17	48.01	78.2	-21.03	34.62	8.65	34.11	185	2	Peak
5785	91.47	82.24			34.68	8.68	34.13	185	2	Average
5785	99.58	90.35			34.68	8.68	34.13	185	2	Peak
*5854	57.19	47.87	78.2	-21.01	34.76	8.7	34.14	185	2	Peak
*5868	55.67	46.34	68.2	-12.53	34.76	8.71	34.14	185	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	56.62	47.47	68.2	-11.58	34.61	8.65	34.11	106	28	Peak
*5722	56.74	47.58	78.2	-21.46	34.62	8.65	34.11	106	28	Peak
5785	95.62	86.39			34.68	8.68	34.13	106	28	Average
5785	103.9	94.67			34.68	8.68	34.13	106	28	Peak
*5856	57.52	48.2	78.2	-20.68	34.76	8.7	34.14	106	28	Peak
*5862	57.04	47.71	68.2	-11.16	34.76	8.71	34.14	106	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 165	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										
Frequency (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	56.17	47.02	68.2	-12.03	34.61	8.65	34.11	178	2	Peak
*5716	57	47.85	78.2	-21.2	34.61	8.65	34.11	178	2	Peak
5825	91.71	82.42			34.73	8.69	34.13	178	2	Average
5825	99.61	90.32			34.73	8.69	34.13	178	2	Peak
*5852	56.69	47.39	78.2	-21.51	34.74	8.7	34.14	178	2	Peak
*5868	57.46	48.13	68.2	-10.74	34.76	8.71	34.14	178	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	57.05	47.9	68.2	-11.15	34.61	8.65	34.11	105	28	Peak
*5724	57.83	48.67	78.2	-20.37	34.62	8.65	34.11	105	28	Peak
5825	95.49	86.2			34.73	8.69	34.13	105	28	Average
5825	103.91	94.62			34.73	8.69	34.13	105	28	Peak
*5852	57.15	47.85	78.2	-21.05	34.74	8.7	34.14	105	28	Peak
*5868	56.62	47.29	68.2	-11.58	34.76	8.71	34.14	105	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: 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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	51.05	42.8	54	-2.95	34.12	8.13	34	100	354	Average
5150	68	59.75	74	-6	34.12	8.13	34	100	354	Peak
5190	93.51	85.17			34.15	8.19	34	100	354	Average
5190	101.52	93.18			34.15	8.19	34	100	354	Peak
5404	43.32	34.6	54	-10.68	34.32	8.44	34.04	100	354	Average
5404	56.97	48.25	74	-17.03	34.32	8.44	34.04	100	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5148	50.2	41.95	54	-3.8	34.12	8.13	34	104	8	Average
5148	66.89	58.64	74	-7.11	34.12	8.13	34	104	8	Peak
5190	92.88	84.54			34.15	8.19	34	104	8	Average
5190	100.94	92.6			34.15	8.19	34	104	8	Peak
5356	43.11	34.48	54	-10.89	34.28	8.38	34.03	104	8	Average
5356	57.7	49.07	74	-16.3	34.28	8.38	34.03	104	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
Margin value = Emission level – Limit value
- 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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (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	42.8	34.54	54	-11.2	34.12	8.13	33.99	100	354	Average
5142	57.39	49.13	74	-16.61	34.12	8.13	33.99	100	354	Peak
5230	93.52	85.12			34.19	8.22	34.01	100	354	Average
5230	101.81	93.41			34.19	8.22	34.01	100	354	Peak
5430	43.37	34.58	54	-10.63	34.35	8.48	34.04	100	354	Average
5430	57.31	48.52	74	-16.69	34.35	8.48	34.04	100	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	42.59	34.47	54	-11.41	34.07	8.03	33.98	104	8	Average
5078	57.36	49.24	74	-16.64	34.07	8.03	33.98	104	8	Peak
5230	92.66	84.26			34.19	8.22	34.01	104	8	Average
5230	100.99	92.59			34.19	8.22	34.01	104	8	Peak
5416	43.28	34.55	54	-10.72	34.33	8.44	34.04	104	8	Average
5416	56.59	47.86	74	-17.41	34.33	8.44	34.04	104	8	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 54	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										
Frequency (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	42.9	34.73	54	-11.1	34.08	8.07	33.98	107	14	Average
5092	57.05	48.88	74	-16.95	34.08	8.07	33.98	107	14	Peak
5270	94.74	86.25			34.21	8.29	34.01	107	14	Average
5270	102.71	94.22			34.21	8.29	34.01	107	14	Peak
5384	43.1	34.42	54	-10.9	34.31	8.41	34.04	107	14	Average
5384	58.39	49.71	74	-15.61	34.31	8.41	34.04	107	14	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	43.11	34.86	54	-10.89	34.12	8.13	34	100	9	Average
5150	57.21	48.96	74	-16.79	34.12	8.13	34	100	9	Peak
5270	97.29	88.8			34.21	8.29	34.01	100	9	Average
5270	105.42	96.93			34.21	8.29	34.01	100	9	Peak
5440	49.53	40.74	54	-4.47	34.35	8.48	34.04	100	9	Average
5440	58.16	49.37	74	-15.84	34.35	8.48	34.04	100	9	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5270 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 62	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										
Frequency (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	42.81	34.64	54	-11.19	34.08	8.07	33.98	106	32	Average
5090	56.66	48.49	74	-17.34	34.08	8.07	33.98	106	32	Peak
5310	93.88	85.33			34.25	8.32	34.02	106	32	Average
5310	102.8	94.25			34.25	8.32	34.02	106	32	Peak
5350	43.48	34.85	54	-10.52	34.28	8.38	34.03	106	32	Average
5350	68.36	59.73	74	-5.64	34.28	8.38	34.03	106	32	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	42.57	34.41	54	-11.43	34.07	8.07	33.98	100	8	Average
5086	57.35	49.19	74	-16.65	34.07	8.07	33.98	100	8	Peak
5310	96.43	87.88			34.25	8.32	34.02	100	8	Average
5310	105.47	96.92			34.25	8.32	34.02	100	8	Peak
5350	49.83	41.2	54	-4.17	34.28	8.38	34.03	100	8	Average
5350	66.38	57.75	74	-7.62	34.28	8.38	34.03	100	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5310 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 102	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										
Frequency (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
5426	43.3	34.53	54	-10.7	34.33	8.48	34.04	202	4	Average
5426	57.35	48.58	74	-16.65	34.33	8.48	34.04	202	4	Peak
5470	62.6	53.77	68.2	-5.6	34.37	8.51	34.05	202	4	Peak
5510	87.45	78.54			34.4	8.57	34.06	202	4	Average
5510	95.84	86.93			34.4	8.57	34.06	202	4	Peak
5725	56.3	47.14	68.2	-11.9	34.62	8.65	34.11	202	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5452	43.21	34.39	54	-10.79	34.36	8.51	34.05	111	12	Average
5452	58.03	49.21	74	-15.97	34.36	8.51	34.05	111	12	Peak
5470	65.89	57.06	68.2	-2.31	34.37	8.51	34.05	111	12	Peak
5510	89.83	80.92			34.4	8.57	34.06	111	12	Average
5510	98.94	90.03			34.4	8.57	34.06	111	12	Peak
5725	56.48	47.32	68.2	-11.72	34.62	8.65	34.11	111	12	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5510 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 110	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										
Frequency (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
5426	43.52	34.75	54	-10.48	34.33	8.48	34.04	214	37	Average
5426	57	48.23	74	-17	34.33	8.48	34.04	214	37	Peak
5470	56.82	47.99	68.2	-11.38	34.37	8.51	34.05	214	37	Peak
5550	92.43	83.46			34.45	8.59	34.07	214	37	Average
5550	100.43	91.46			34.45	8.59	34.07	214	37	Peak
5725	57.58	48.42	68.2	-10.62	34.62	8.65	34.11	214	37	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5352	43.31	34.68	54	-10.69	34.28	8.38	34.03	124	12	Average
5352	57.55	48.92	74	-16.45	34.28	8.38	34.03	124	12	Peak
5470	57.42	48.59	68.2	-10.78	34.37	8.51	34.05	124	12	Peak
5550	95.01	86.04			34.45	8.59	34.07	124	12	Average
5550	103.18	94.21			34.45	8.59	34.07	124	12	Peak
5725	56.02	46.86	68.2	-12.18	34.62	8.65	34.11	124	12	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5550 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 134	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										
Frequency (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
5420	43.18	34.41	54	-10.82	34.33	8.48	34.04	162	4	Average
5420	57.86	49.09	74	-16.14	34.33	8.48	34.04	162	4	Peak
5470	57.27	48.44	68.2	-10.93	34.37	8.51	34.05	162	4	Peak
5670	92.96	83.86			34.57	8.63	34.1	162	4	Average
5670	101.79	92.69			34.57	8.63	34.1	162	4	Peak
5725	56.68	47.52	68.2	-11.52	34.62	8.65	34.11	162	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5446	43.05	34.22	54	-10.95	34.36	8.51	34.04	121	31	Average
5446	57.19	48.36	74	-16.81	34.36	8.51	34.04	121	31	Peak
5470	56.09	47.26	68.2	-12.11	34.37	8.51	34.05	121	31	Peak
5670	95.71	86.61			34.57	8.63	34.1	121	31	Average
5670	104.05	94.95			34.57	8.63	34.1	121	31	Peak
5725	56.12	46.96	68.2	-12.08	34.62	8.65	34.11	121	31	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5670 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

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										
Frequency (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	63.64	54.49	68.2	-4.56	34.61	8.65	34.11	179	2	Peak
*5722	68.64	59.48	78.2	-9.56	34.62	8.65	34.11	179	2	Peak
5755	87.78	78.57			34.66	8.66	34.11	179	2	Average
5755	97.51	88.3			34.66	8.66	34.11	179	2	Peak
*5854	57.49	48.17	78.2	-20.71	34.76	8.7	34.14	179	2	Peak
*5862	56.67	47.34	68.2	-11.53	34.76	8.71	34.14	179	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	65.85	56.7	68.2	-2.35	34.61	8.65	34.11	106	28	Peak
*5722	74.08	64.92	78.2	-4.12	34.62	8.65	34.11	106	28	Peak
5755	92.67	83.46			34.66	8.66	34.11	106	28	Average
5755	100.96	91.75			34.66	8.66	34.11	106	28	Peak
*5860	57.6	48.28	78.2	-20.6	34.76	8.7	34.14	106	28	Peak
*5864	57.18	47.85	68.2	-11.02	34.76	8.71	34.14	106	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5755 MHz: Fundamental Frequency
- *: 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										
Frequency (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	57.9	48.75	68.2	-10.3	34.61	8.65	34.11	178	2	Peak
*5716	56.96	47.81	78.2	-21.24	34.61	8.65	34.11	178	2	Peak
5795	89.9	80.66			34.69	8.68	34.13	178	2	Average
5795	97.96	88.72			34.69	8.68	34.13	178	2	Peak
*5854	57.23	47.91	78.2	-20.97	34.76	8.7	34.14	178	2	Peak
*5870	56.71	47.38	68.2	-11.49	34.76	8.71	34.14	178	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	58.8	49.65	68.2	-9.4	34.61	8.65	34.11	105	28	Peak
*5724	56.66	47.5	78.2	-21.54	34.62	8.65	34.11	105	28	Peak
5795	93.49	84.25			34.69	8.68	34.13	105	28	Average
5795	102.41	93.17			34.69	8.68	34.13	105	28	Peak
*5852	58.05	48.75	78.2	-20.15	34.74	8.7	34.14	105	28	Peak
*5862	56.44	47.11	68.2	-11.76	34.76	8.71	34.14	105	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5795 MHz: Fundamental Frequency
- *: Out of Restricted Band

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	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										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5148	49.55	41.3	54	-4.45	34.12	8.13	34	122	354	Average
5148	63.33	55.08	74	-10.67	34.12	8.13	34	122	354	Peak
5210	91.41	83.05			34.17	8.19	34	122	354	Average
5210	99.37	91.01			34.17	8.19	34	122	354	Peak
5418	43.56	34.83	54	-10.44	34.33	8.44	34.04	122	354	Average
5418	57.49	48.76	74	-16.51	34.33	8.44	34.04	122	354	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	49.65	41.4	54	-4.35	34.12	8.13	34	104	8	Average
5150	63.43	55.18	74	-10.57	34.12	8.13	34	104	8	Peak
5210	90.36	82			34.17	8.19	34	104	8	Average
5210	98.86	90.5			34.17	8.19	34	104	8	Peak
5404	43.46	34.74	54	-10.54	34.32	8.44	34.04	104	8	Average
5404	57.1	48.38	74	-16.9	34.32	8.44	34.04	104	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
Margin value = Emission level – Limit value
- 5210 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 58	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										
Frequency (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
5054	43.79	35.73	54	-10.21	34.04	8	33.98	106	32	Average
5054	57.75	49.69	74	-16.25	34.04	8	33.98	106	32	Peak
5290	91.95	83.42			34.23	8.32	34.02	106	32	Average
5290	100.03	91.5			34.23	8.32	34.02	106	32	Peak
5362	49.85	41.21	54	-4.15	34.29	8.38	34.03	106	32	Average
5362	62.3	53.66	74	-11.7	34.29	8.38	34.03	106	32	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5022	43.7	35.67	54	-10.3	34.03	7.97	33.97	101	8	Average
5022	57.54	49.51	74	-16.46	34.03	7.97	33.97	101	8	Peak
5290	94.25	85.72			34.23	8.32	34.02	101	8	Average
5290	102.47	93.94			34.23	8.32	34.02	101	8	Peak
5354	50.43	41.8	54	-3.57	34.28	8.38	34.03	101	8	Average
5354	66.12	57.49	74	-7.88	34.28	8.38	34.03	101	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5290 MHz: Fundamental Frequency

EUT Test Condition		Measurement Detail	
Channel	Channel 106	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										
Frequency (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
5460	50.85	42.03	54	-3.15	34.36	8.51	34.05	200	4	Average
5460	63.66	54.84	74	-10.34	34.36	8.51	34.05	200	4	Peak
5470	62.5	53.67	68.2	-5.7	34.37	8.51	34.05	200	4	Peak
5530	89.9	80.97			34.42	8.58	34.07	200	4	Average
5530	97.52	88.59			34.42	8.58	34.07	200	4	Peak
5725	57.07	47.91	68.2	-11.13	34.62	8.65	34.11	200	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5460	51.24	42.42	54	-2.76	34.36	8.51	34.05	117	12	Average
5460	63.61	54.79	74	-10.39	34.36	8.51	34.05	117	12	Peak
5470	65.99	57.16	68.2	-2.21	34.37	8.51	34.05	117	12	Peak
5530	91.44	82.51			34.42	8.58	34.07	117	12	Average
5530	99.35	90.42			34.42	8.58	34.07	117	12	Peak
5725	57.93	48.77	68.2	-10.27	34.62	8.65	34.11	117	12	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5530 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 122	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										
Frequency (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
5416	44.39	35.66	54	-9.61	34.33	8.44	34.04	162	4	Average
5416	58	49.27	74	-16	34.33	8.44	34.04	162	4	Peak
5470	57.98	49.15	68.2	-10.22	34.37	8.51	34.05	162	4	Peak
5610	89.23	80.2			34.5	8.61	34.08	162	4	Average
5610	97.2	88.17			34.5	8.61	34.08	162	4	Peak
5725	56.94	47.78	68.2	-11.26	34.62	8.65	34.11	162	4	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
5442	44.11	35.32	54	-9.89	34.35	8.48	34.04	115	31	Average
5442	58.48	49.69	74	-15.52	34.35	8.48	34.04	115	31	Peak
5470	55.77	46.94	68.2	-12.43	34.37	8.51	34.05	115	31	Peak
5610	92.56	83.53			34.5	8.61	34.08	115	31	Average
5610	100.72	91.69			34.5	8.61	34.08	115	31	Peak
5725	55.7	46.54	68.2	-12.5	34.62	8.65	34.11	115	31	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5610 MHz: Fundamental Frequency
- 5470 MHz & 5725 MHz: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 155	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										
Frequency (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	61.61	52.46	68.2	-6.59	34.61	8.65	34.11	185	2	Peak
*5722	64.13	54.97	78.2	-14.07	34.62	8.65	34.11	185	2	Peak
5775	86.02	76.79			34.68	8.67	34.12	185	2	Average
5775	93.99	84.76			34.68	8.67	34.12	185	2	Peak
*5852	58.02	48.72	78.2	-20.18	34.74	8.7	34.14	185	2	Peak
*5868	57.13	47.8	68.2	-11.07	34.76	8.71	34.14	185	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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	63.41	54.26	68.2	-4.79	34.61	8.65	34.11	106	28	Peak
*5724	67.22	58.06	78.2	-10.98	34.62	8.65	34.11	106	28	Peak
5775	90.59	81.36			34.68	8.67	34.12	106	28	Average
5775	98.21	88.98			34.68	8.67	34.12	106	28	Peak
*5856	59.26	49.94	78.2	-18.94	34.76	8.7	34.14	106	28	Peak
*5864	59.86	50.53	68.2	-8.34	34.76	8.71	34.14	106	28	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5775 MHz: Fundamental Frequency
- *: 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:

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										
Frequency (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
91.02	27.79	49.47	43.5	-15.71	8.98	1.11	31.77	102	191	Peak
160.14	30.57	50.52	43.5	-12.93	10.8	1.52	32.27	109	119	Peak
217.38	37.58	56.58	46	-8.42	11.58	1.65	32.23	180	180	Peak
302.8	25.15	41.1	46	-20.85	14.07	2.11	32.13	140	337	Peak
643	22.86	29.93	46	-23.14	22.1	2.99	32.16	129	299	Peak
806.1	25.44	29.77	46	-20.56	24.38	3.32	32.03	180	61	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
32.43	32.92	48.47	40	-7.08	15.96	0.74	32.25	191	115	Peak
47.55	33.28	56.03	40	-6.72	8.57	0.9	32.22	186	9	Peak
211.98	28.76	47.96	43.5	-14.74	11.4	1.65	32.25	121	211	Peak
522.6	20.55	29.48	46	-25.45	20.51	2.7	32.14	120	205	Peak
574.4	20.67	29.95	46	-25.33	20.1	2.82	32.2	181	115	Peak
776.7	24.33	29.66	46	-21.67	23.5	3.27	32.1	176	187	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 58	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										
Frequency (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
89.94	27.28	48.98	43.5	-16.22	8.9	1.11	31.71	189	294	Peak
158.52	30.69	50.76	43.5	-12.81	10.68	1.52	32.27	106	188	Peak
219.27	37.94	56.84	46	-8.06	11.67	1.65	32.22	116	172	Peak
302.1	26.82	42.85	46	-19.18	14.07	2.03	32.13	130	300	Peak
517	20.81	30.11	46	-25.19	20.13	2.7	32.13	120	210	Peak
716.5	24.66	30.39	46	-21.34	23.27	3.11	32.11	158	19	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
47.55	33.13	55.88	40	-6.87	8.57	0.9	32.22	109	222	Peak
147.18	27.13	47.96	43.5	-16.37	9.92	1.52	32.27	147	117	Peak
203.88	27.71	47.3	43.5	-15.79	11.04	1.65	32.28	127	277	Peak
477.1	18.94	29.59	46	-27.06	18.91	2.56	32.12	189	111	Peak
627.6	22.42	29.56	46	-23.58	22.1	2.93	32.17	142	220	Peak
768.3	24.26	29.75	46	-21.74	23.4	3.22	32.11	135	322	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 106	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										
Frequency (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
93.99	27.47	49.07	43.5	-16.03	9.22	1.11	31.93	199	359	Peak
159.06	30.75	50.76	43.5	-12.75	10.74	1.52	32.27	159	226	Peak
203.61	36.79	56.38	43.5	-6.71	11.04	1.65	32.28	110	165	Peak
301.4	26.53	42.64	46	-19.47	13.99	2.03	32.13	111	133	Peak
527.5	20.94	29.73	46	-25.06	20.66	2.7	32.15	105	205	Peak
730.5	24.14	29.73	46	-21.86	23.37	3.16	32.12	173	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
32.7	33.13	48.8	40	-6.87	15.84	0.74	32.25	118	244	Peak
47.82	33.65	56.49	40	-6.35	8.48	0.9	32.22	174	182	Peak
145.83	27.09	48.19	43.5	-16.41	9.79	1.38	32.27	197	164	Peak
486.2	20.11	30.65	46	-25.89	18.94	2.63	32.11	105	104	Peak
605.2	21.86	29.94	46	-24.14	21.24	2.87	32.19	160	252	Peak
703.9	23.71	29.55	46	-22.29	23.14	3.11	32.09	131	3	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) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (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
94.26	27.48	49.04	43.5	-16.02	9.26	1.11	31.93	194	26	Peak
158.79	30.72	50.73	43.5	-12.78	10.74	1.52	32.27	107	177	Peak
219	37.78	56.68	46	-8.22	11.67	1.65	32.22	129	291	Peak
301.4	26.64	42.75	46	-19.36	13.99	2.03	32.13	114	301	Peak
610.8	20.92	28.7	46	-25.08	21.53	2.87	32.18	177	183	Peak
701.8	25.03	30.87	46	-20.97	23.14	3.11	32.09	125	315	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (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
47.55	33.67	56.42	40	-6.33	8.57	0.9	32.22	147	355	Peak
145.29	26.88	48.04	43.5	-16.62	9.73	1.38	32.27	129	268	Peak
211.98	29.37	48.57	43.5	-14.13	11.4	1.65	32.25	114	177	Peak
486.9	18.87	29.41	46	-27.13	18.94	2.63	32.11	189	109	Peak
523.3	21.04	29.78	46	-24.96	20.7	2.7	32.14	121	210	Peak
911.8	28.23	30.38	46	-17.77	25.72	3.53	31.4	191	118	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. 11, 2014	Nov. 10, 2015
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 02, 2015	Mar. 01, 2016
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 21, 2014	Jul. 20, 2015
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

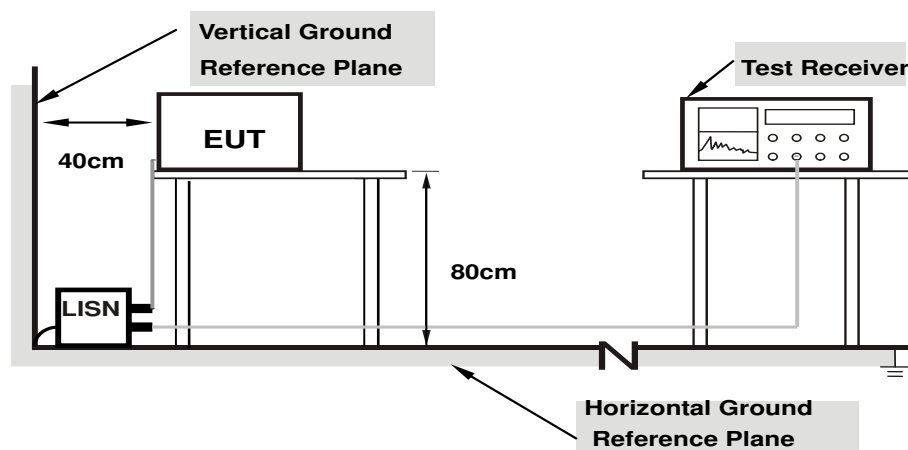
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

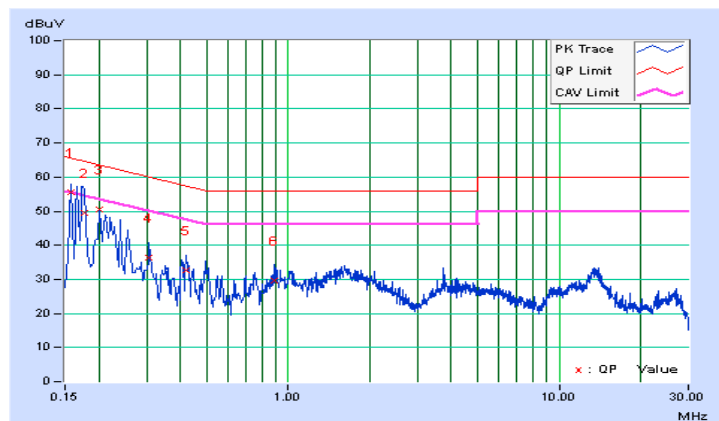
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2016/6/8

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	0.15782	10.02	45.62	28.58	55.64	38.60	65.58	55.58	-9.94	-16.98
2	0.17737	10.02	39.48	15.95	49.50	25.97	64.61	54.61	-15.10	-28.63
3	0.20084	10.03	40.59	27.58	50.62	37.61	63.58	53.58	-12.96	-15.97
4	0.30640	10.08	26.40	15.34	36.48	25.42	60.07	50.07	-23.59	-24.65
5	0.41979	10.12	22.45	8.46	32.57	18.58	57.45	47.45	-24.88	-28.87
6	0.89290	10.19	19.28	13.91	29.47	24.10	56.00	46.00	-26.53	-21.90

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

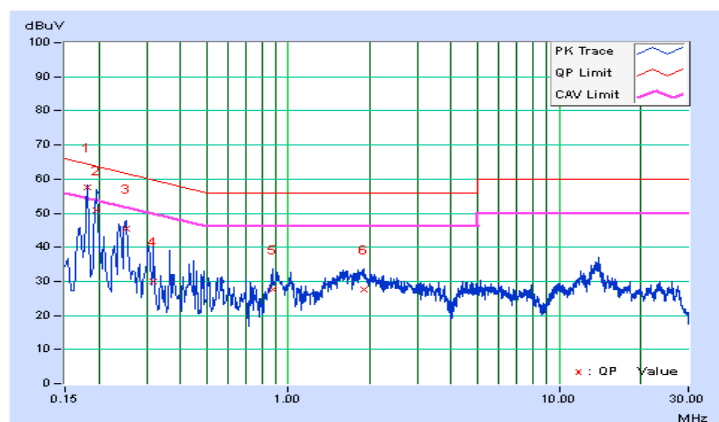


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2016/6/8

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	0.18122	10.03	47.55	34.89	57.58	44.92	64.43	54.43	-6.85	-9.51
2	0.19692	10.04	40.77	17.09	50.81	27.13	63.74	53.74	-12.93	-26.61
3	0.25125	10.06	35.26	20.11	45.32	30.17	61.72	51.72	-16.39	-21.54
4	0.31813	10.09	19.91	7.73	30.00	17.82	59.76	49.76	-29.75	-31.93
5	0.87335	10.19	17.28	11.88	27.47	22.07	56.00	46.00	-28.53	-23.93
6	1.91341	10.27	17.48	9.84	27.75	20.11	56.00	46.00	-28.25	-25.89

Remarks:

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



4.3 Transmit Power Measurement

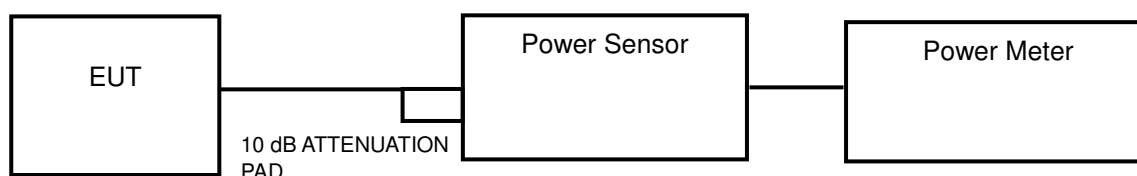
4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 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)

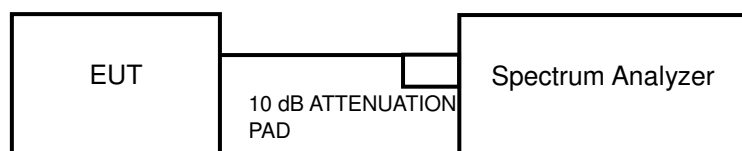
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

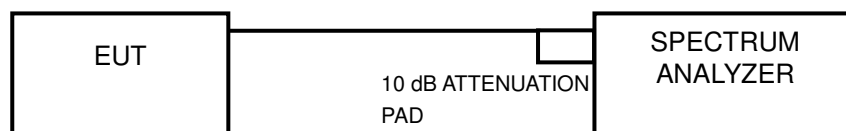
<Power Output Measurement>



or



<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.

<802.11ac (VHT80)>

Method SA-1 is used to perform output power measurement, trigger and gating function of spectrum analyzer 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 from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	23.50	13.71	24	Pass
44	5220	31.84	15.03	24	Pass
48	5240	30.69	14.87	24	Pass
52	5260	25.18	14.01	24	Pass
60	5300	26.12	14.17	24	Pass
64	5320	32.51	15.12	24	Pass
100	5500	31.26	14.95	24	Pass
116	5580	27.93	14.46	24	Pass
140	5700	28.25	14.51	24	Pass
149	5745	30.55	14.85	30	Pass
157	5785	34.28	15.35	30	Pass
165	5825	35.56	15.51	30	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11 \text{ dBm} + 10\log(25.98) = 25.15 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(27.00) = 25.31 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(26.64) = 25.26 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(29.40) = 25.68 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(38.82) = 26.89 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(24.88) = 24.96 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	18.71	12.72	24	Pass
44	5220	25.41	14.05	24	Pass
48	5240	26.18	14.18	24	Pass
52	5260	21.78	13.38	24	Pass
60	5300	22.54	13.53	24	Pass
64	5320	27.16	14.34	24	Pass
100	5500	24.43	13.88	24	Pass
116	5580	22.23	13.47	24	Pass
140	5700	23.77	13.76	24	Pass
149	5745	24.27	13.85	30	Pass
157	5785	26.61	14.25	30	Pass
165	5825	29.17	14.65	30	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11 \text{ dBm} + 10\log(23.51) = 24.71 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(23.90) = 24.78 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(24.79) = 24.94 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(27.34) = 25.37 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(26.18) = 25.18 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(22.79) = 24.58 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	22.49	13.52	24	Pass
46	5230	27.99	14.47	24	Pass
54	5270	22.28	13.48	24	Pass
62	5310	28.05	14.48	24	Pass
102	5510	19.36	12.87	24	Pass
110	5550	27.86	14.45	24	Pass
134	5670	22.65	13.55	24	Pass
151	5755	26.73	14.27	30	Pass
159	5795	31.19	14.94	30	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11 \text{ dBm} + 10\log(69.24) = 29.40 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(70.39) = 29.48 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(66.30) = 29.22 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(77.55) = 29.90 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(70.18) = 29.46 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	29.17	14.65	24	Pass
58	5290	29.31	14.67	24	Pass
106	5530	27.67	14.42	24	Pass
122	5610	26.55	14.24	24	Pass
155	5775	24.27	13.85	30	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11 \text{ dBm} + 10\log(85.92) = 30.34 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(85.81) = 30.34 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(85.80) = 30.33 \text{ dBm} > 24 \text{ dBm}$.

26 dB Bandwidth:
802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	22.48
44	5220	24.80
48	5240	26.31
52	5260	25.98
60	5300	27.00
64	5320	26.64
100	5500	29.40
116	5580	38.82
140	5700	24.88

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	22.71
44	5220	22.75
48	5240	24.92
52	5260	23.51
60	5300	23.90
64	5320	24.79
100	5500	27.34
116	5580	26.18
140	5700	22.79

802.11n (HT40)

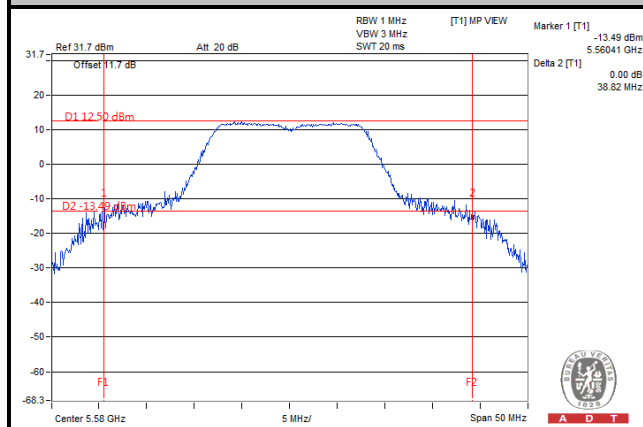
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	67.21
46	5230	65.73
54	5270	69.24
62	5310	70.39
102	5510	66.30
110	5550	77.55
134	5670	70.18

802.11ac (VHT80)

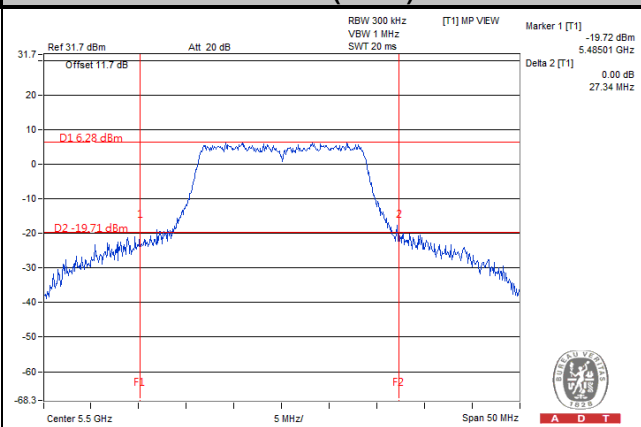
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
42	5210	85.09
58	5290	85.92
106	5530	85.81
122	5610	85.80

Spectrum Plot of Worst Value

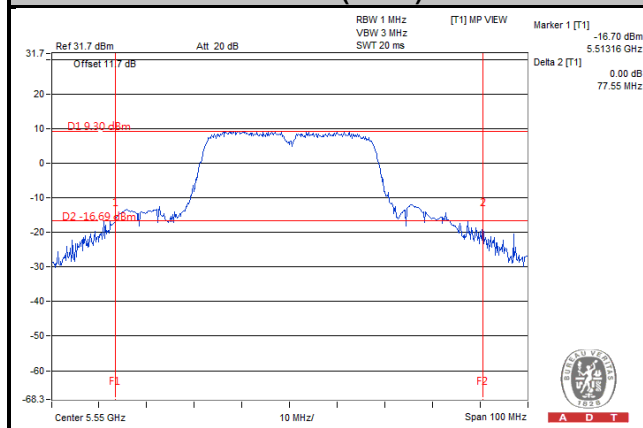
802.11a



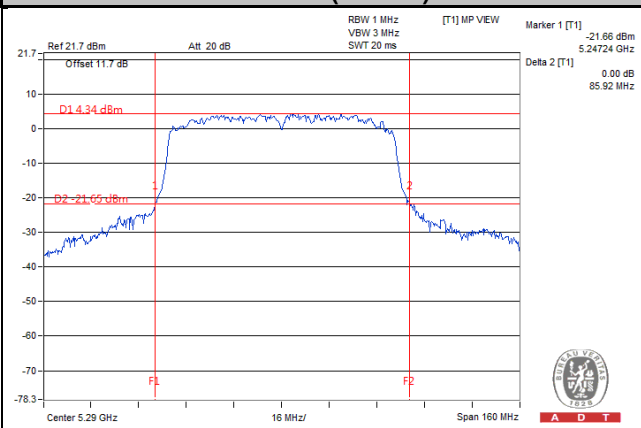
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

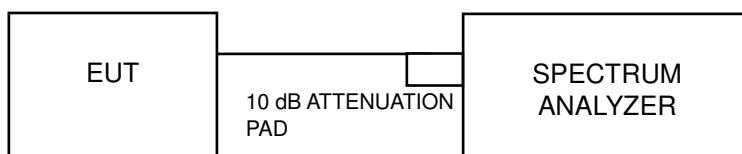


4.4 Peak Power Spectral Density Measurement

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, U-NII-2A, U-NII-2C 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 $\geq$ 3 RBW, 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 = 500 kHz, Set VBW $\geq$ 3 RBW, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 500 kHz band segment within the fundamental EBW.
4. Sweep time = auto, trigger set to "free run".
5. Trace average at least 100 traces in power averaging mode.
6. 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

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
36	5180	0.47	0.68	1.15	11	Pass
44	5220	1.24	0.68	1.92	11	Pass
48	5240	0.85	0.68	1.53	11	Pass
52	5260	0.92	0.68	1.60	11	Pass
60	5300	1.71	0.68	2.39	11	Pass
64	5320	1.85	0.68	2.53	11	Pass
100	5500	3.01	0.68	3.69	11	Pass
116	5580	2.56	0.68	3.24	11	Pass
140	5700	1.10	0.68	1.78	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
36	5180	-0.69	0.83	0.14	11	Pass
44	5220	-0.20	0.83	0.63	11	Pass
48	5240	-0.28	0.83	0.55	11	Pass
52	5260	-0.03	0.83	0.80	11	Pass
60	5300	0.44	0.83	1.27	11	Pass
64	5320	0.64	0.83	1.47	11	Pass
100	5500	1.73	0.83	2.56	11	Pass
116	5580	1.38	0.83	2.21	11	Pass
140	5700	-0.12	0.83	0.71	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
38	5190	-3.32	1.64	-1.68	11	Pass
46	5230	-2.94	1.64	-1.30	11	Pass
54	5270	-2.82	1.64	-1.18	11	Pass
62	5310	-2.19	1.64	-0.55	11	Pass
102	5510	-2.82	1.64	-1.18	11	Pass
110	5550	-1.35	1.64	0.29	11	Pass
134	5670	-2.87	1.64	-1.23	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

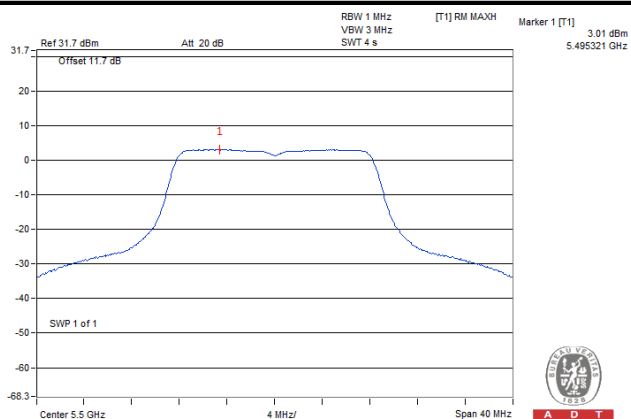
802.11ac (VHT80)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
42	5210	-10.69	3.65	-7.04	11	Pass
58	5290	-10.16	3.65	-6.51	11	Pass
106	5530	-8.61	3.65	-4.96	11	Pass
122	5610	-9.36	3.65	-5.71	11	Pass

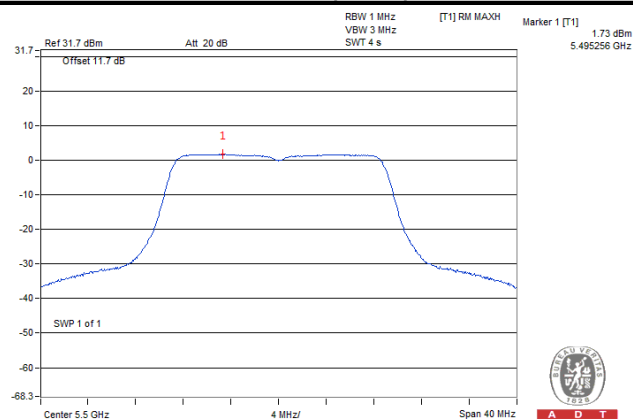
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

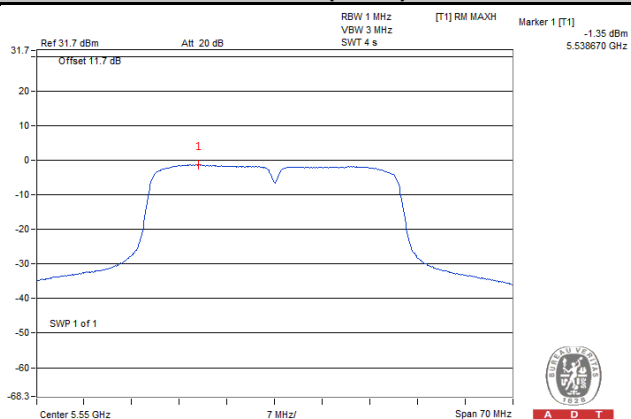
802.11a



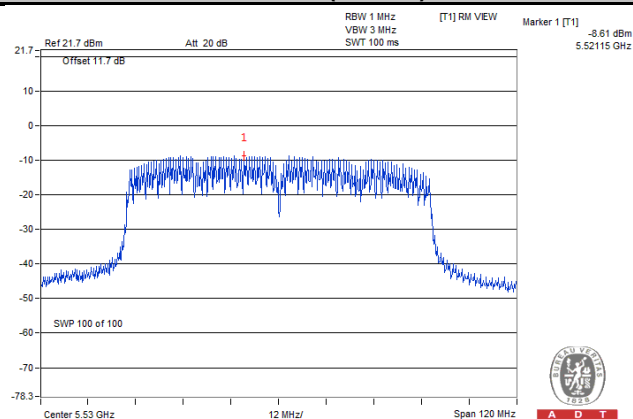
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor	PSD with Duty Factor (dBm)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-2.77	0.68	-2.09	30	Pass
157	5785	-2.45	0.68	-1.77	30	Pass
165	5825	-2.12	0.68	-1.44	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor	PSD with Duty Factor (dBm)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-3.91	0.83	-3.08	30	Pass
157	5785	-3.61	0.83	-2.78	30	Pass
165	5825	-3.32	0.83	-2.49	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor	PSD with Duty Factor (dBm)	Limit (dBm/500 kHz)	Pass / Fail
151	5755	-7.00	1.64	-5.36	30	Pass
159	5795	-6.63	1.64	-4.99	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

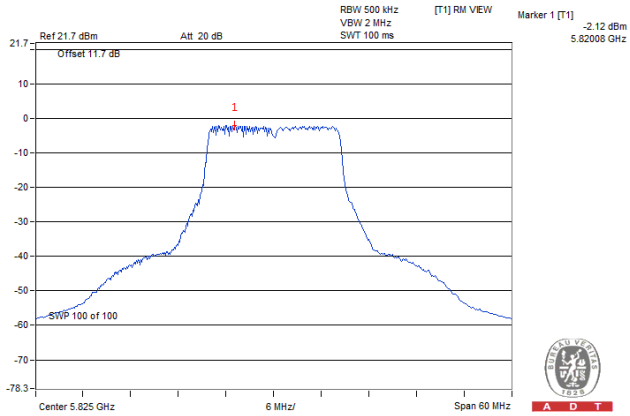
802.11ac (VHT80)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor	PSD with Duty Factor (dBm)	Limit (dBm/500 kHz)	Pass / Fail
155	5775	-11.93	3.65	-8.28	30	Pass

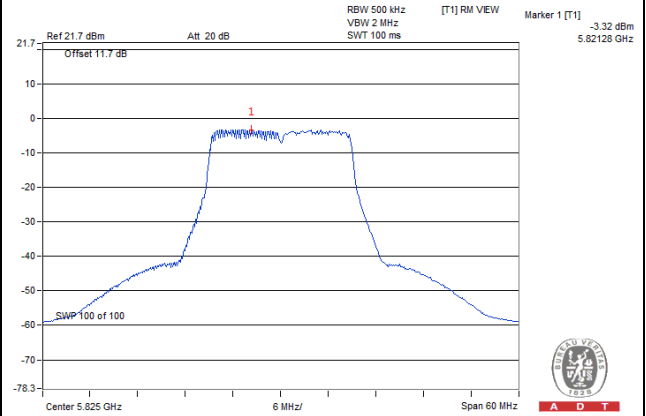
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

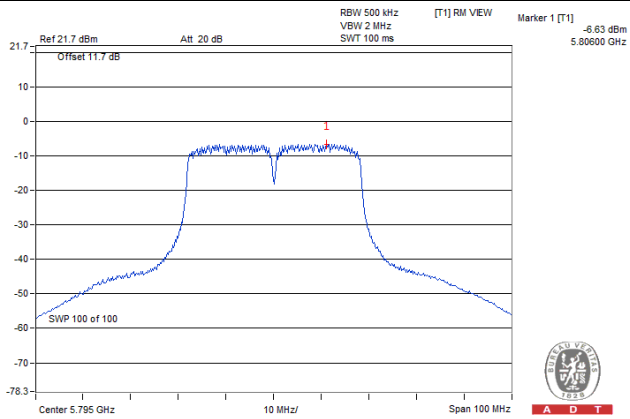
802.11a



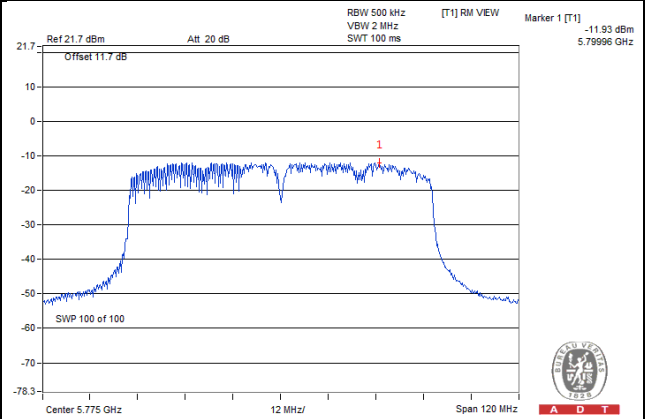
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

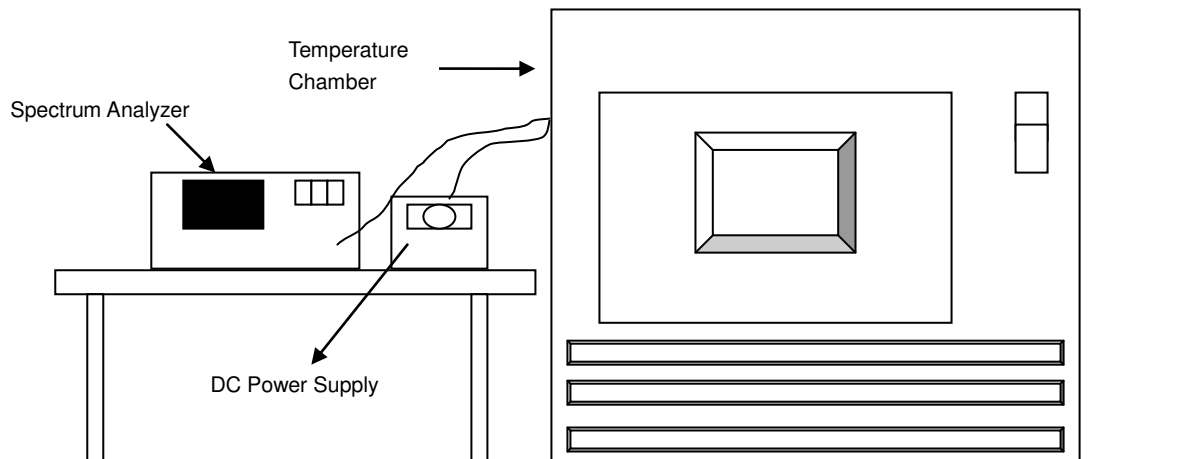


4.5 Frequency Stability

4.5.1 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

- 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.
- 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.
- 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

Frequency Stability Versus Temp.									
Operating Frequency: 5320 MHz									
Temp. (°C)	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	3.85	5320.019574	3.679	5320.019165	3.602	5320.019228	3.614	5320.019930	3.746
40	3.85	5320.019258	3.620	5320.019532	3.671	5320.019349	3.637	5320.019225	3.614
30	3.85	5320.020933	3.935	5320.021005	3.948	5320.020407	3.836	5320.020591	3.870
20	3.85	5320.021480	4.038	5320.021872	4.111	5320.021527	4.046	5320.022006	4.136
10	3.85	5320.022855	4.296	5320.023387	4.396	5320.023648	4.445	5320.023150	4.352
0	3.85	5320.021826	4.103	5320.021643	4.068	5320.021914	4.119	5320.021504	4.042
-10	3.85	5320.020604	3.873	5320.020303	3.816	5320.020530	3.859	5320.020042	3.767
-20	3.85	5320.019757	3.714	5320.019533	3.672	5320.019573	3.679	5320.019699	3.703
-30	3.85	5320.018819	3.537	5320.018318	3.443	5320.018220	3.425	5320.018968	3.565

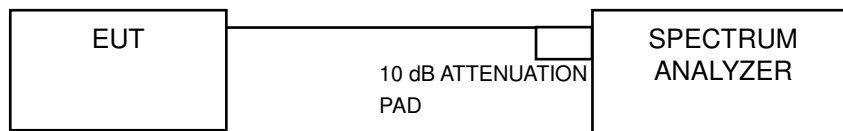
Frequency Stability Versus Temp.									
Operating Frequency: 5320 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	3.6	5320.021744	4.087	5320.022177	4.169	5320.021894	4.115	5320.021708	4.080
	3.85	5320.021480	4.038	5320.021872	4.111	5320.021527	4.046	5320.022006	4.136
	4.35	5320.023150	4.352	5320.023153	4.352	5320.023345	4.388	5320.023639	4.443

4.6 6 dB Bandwidth Measurement

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

- Set resolution bandwidth (RBW) = 100 kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.41	0.5	Pass
157	5785	16.40	0.5	Pass
165	5825	16.38	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.64	0.5	Pass
157	5785	17.64	0.5	Pass
165	5825	17.65	0.5	Pass

802.11n (HT40)

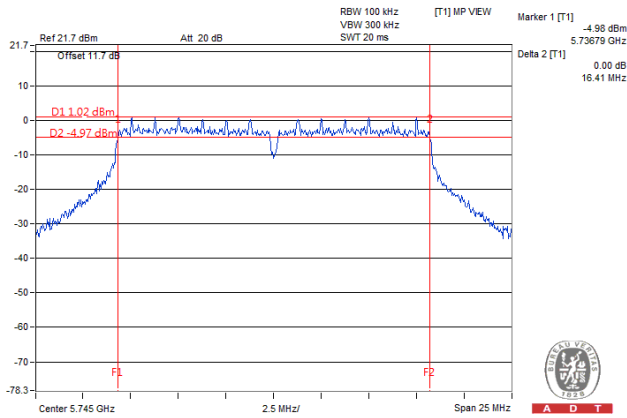
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.71	0.5	Pass
159	5795	35.29	0.5	Pass

802.11ac (VHT80)

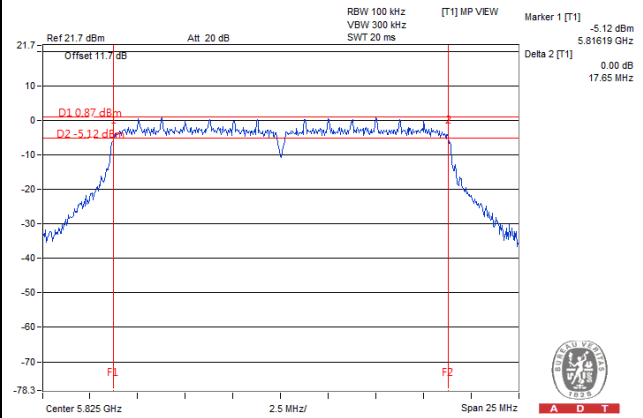
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	75.38	0.5	Pass

Spectrum Plot of Worst Value

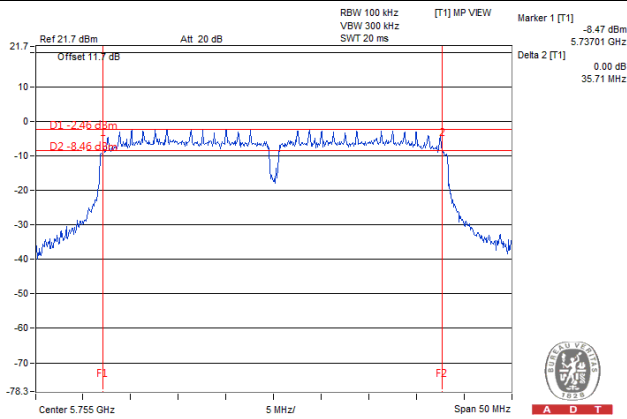
802.11a



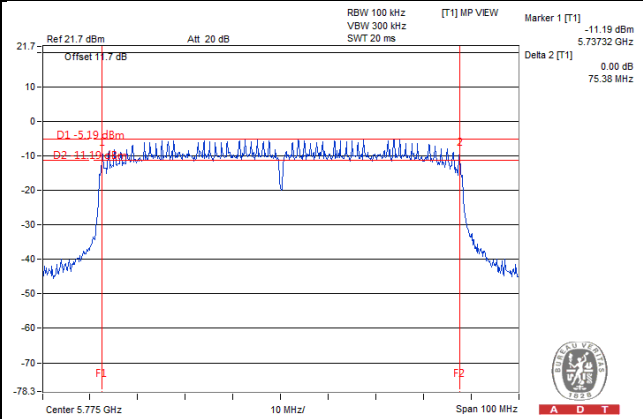
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



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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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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