

FCC Test Report

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FCC ID: 2AJOTTA-1005

Test Model: TA-1005

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Issued Date: Nov. 16, 2017

Applicant: HMD Global Oy

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**FCC Registration /
Designation Number:** 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
RF170808C06-4	Original Release	Nov. 16, 2017

1 Certificate of Conformity

Product: Smart Phone

Brand: Nokia

Test Model: TA-1005

Sample Status: Identical Prototype

Applicant: HMD Global Oy

Test Date: Sep. 04, 2017 ~ Oct. 05, 2017

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:** Nov. 16, 2017
Ivonne Wu / Supervisor

Approved by : , **Date:** Nov. 16, 2017
Dylan Chiou / Project Engineer

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 -17.50 dB at 11.29741 MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -3 dB at 5353.19 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only
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.

*For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.

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	Smart Phone
Brand	Nokia
Test Model	TA-1005
Status of EUT	Identical Prototype
Power Supply Rating	5 Vdc or 9 Vdc or 12 Vdc (adapter) 5 Vdc (host equipment) 3.85 Vdc (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 MCS15 802.11ac: up to V9
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5720 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 ~ 5720 MHz: 12 for 802.11a, 802.11n (HT20) 6 for 802.11n (HT40) 3 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	49.470 mW for 5180 ~ 5240 MHz 49.824 mW for 5260 ~ 5320 MHz 49.901 mW for 5500 ~ 5720 MHz 35.596 mW for 5745 ~ 5825 MHz
Antenna Type	PIFA antenna with -3 dBi (Main) / -4.2 dBi (Aux.) gain (5180 ~ 5240 MHz) PIFA antenna with -3.2 dBi (Main) / -4.3 dBi (Aux.) gain (5260 ~ 5320 MHz) PIFA antenna with -3.5 dBi (Main) / -4.5 dBi (Aux.) gain (5500 ~ 5720 MHz) PIFA antenna with -4 dBi (Main) / -4.8 dBi (Aux.) 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 incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

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

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

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	Salcomp	FC0302	I/P: 100-240 Vac, 0.5 A O/P: 5 Vdc, 2.5 A or 9 Vdc, 2 A or 12 Vdc, 1.5 A
Adapter 2	DVE	AD-18WU	I/P: 100-240 Vac, 0.5 A O/P: 5 Vdc, 3 A or 9 Vdc, 2 A or 12 Vdc, 1.5 A
Battery	SCUD	HE333	3.85 Vdc, 3250 mAh
Earphone 1	NOKIA	HS-A01	1.15 meter
Earphone 2	NOKIA	HS-A01C	1.15 meter
USB Cable 1	Foxconn	CUDT01E-FA210-EH	0.95 meter Manufacturer: FIT
USB Cable 2	Foxconn	CA-18W	0.95 meter Manufacturer: YinRun
LCD Panel	LG Display	LH546QH1-EDD1-QG1	5.5" OLED
Front Camera	Chicony	CBFH51020005020LH	5M
Main Camera	Primay	FCDC1N	12+13M
eMMC 1 (=ROM 1)	SAMSUNG	IC_UFS2.1_128G	128G
Main Board	AT&S	FIH1883	--
BT/WLAN Module	murata	LBDD5QA1MS-119	--
WWAN Module	Qualcomm	MSM8998	--

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

3.2 Description of Test Modes

For 5180 ~ 5240 MHz

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

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

2 channels are provided for 802.11n (HT40):

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

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

12 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	144	5720

6 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	126	5630
110	5550	134	5670
118	5590	142	5710

3 channels are provided for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	138	5690
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:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane** for 5180~5240MHz and **Y-plane** for 5260~5320MHz & 5500~5720MHz & 5745~5825Mhz.
- "-" 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	MCS0
-	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	MCS0
-	5500-5720	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	MCS0
-	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	MCS0

Radiated Emission Test (Below 1 GHz):

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11ac (VHT80)	42	42	OFDM	BPSK	MCS0
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	MCS0
-	5500-5720	802.11ac (VHT80)	106 to 138	106	OFDM	BPSK	MCS0
-	5745-5825	802.11n (HT40)	151 to 159	159	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)
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	6.0

Antenna Port Conducted Measurement:

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

EUT Configure Mode	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	MCS0
-	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	MCS0
-	5500-5720	802.11a	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	MCS0
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	MCS0
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	MCS0
-	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	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 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	Getaz Yang
APCM	25 deg. C, 65 % RH	3.85 Vdc	Carlos Chen

3.3 Duty Cycle of Test Signal

MODULATION TYPE: BPSK

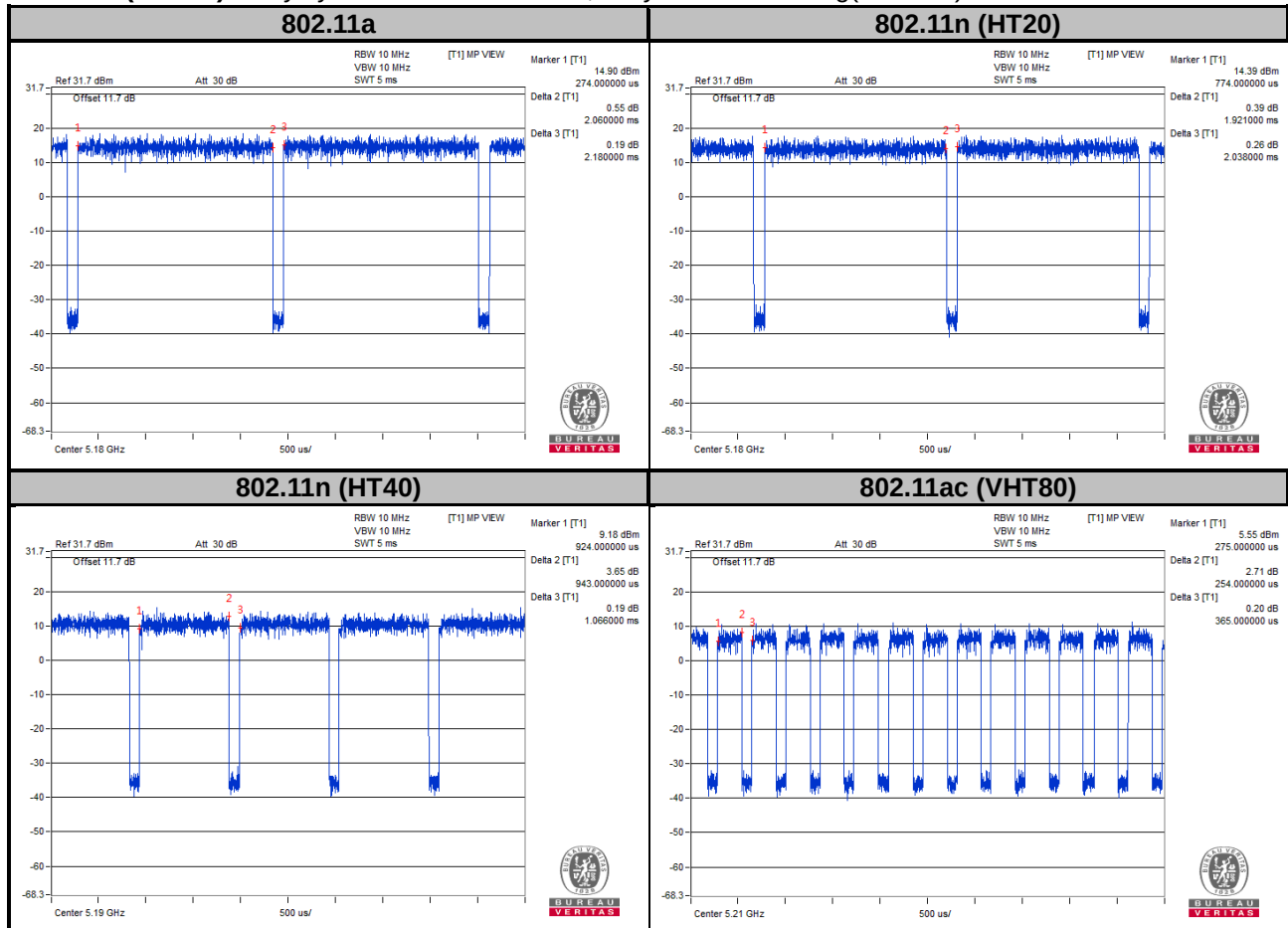
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $2.060/2.180 = 0.945$, Duty factor = $10 * \log(1/0.945) = 0.25$

802.11n (HT20): Duty cycle = $1.921/2.038 = 0.943$, Duty factor = $10 * \log(1/0.943) = 0.26$

802.11n (HT40): Duty cycle = $0.943/1.066 = 0.885$, Duty factor = $10 * \log(1/0.885) = 0.53$

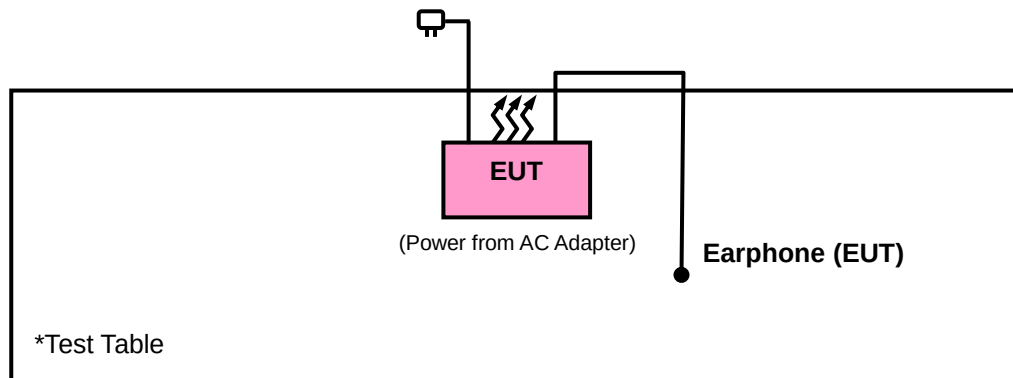
802.11ac (VHT80): Duty cycle = $254/365 = 0.696$, Duty factor = $10 * \log(1/0.696) = 1.57$



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

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 v01r04

644545 D01 Guidance for IEEE 802 11ac v01r02

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC).
The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

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

Note:

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

4.1.2 Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r04		Field Strength at 3 m	
		PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2 (dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8 (dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

^{*1} beyond 75 MHz or more above of the band edge.

^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note:

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 Technologies	N9038A	MY52260177	Jul. 05, 2017	Jul. 04, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 13, 2016	Dec. 12, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Jun. 26, 2017	Jun. 25, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 14, 2016	Dec. 13, 2017
Fixed Attenuator Mini-Circuits	BW-N10W5+	NA	Jul. 07, 2017	Jul. 06, 2018
Bluetooth Tester	CBT	100980	Jun. 28, 2017	Jun. 27, 2019
Loop Antenna	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent	310N	187226	Jun. 23, 2017	Jun. 22, 2018
Preamplifier Agilent	83017A	MY39501357	Jun. 23, 2017	Jun. 22, 2018
Power Meter Anritsu	ML2495A	1012010	Aug. 15, 2017	Aug. 14, 2018
Power Sensor Anritsu	MA2411B	1315050	Aug. 15, 2017	Aug. 14, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 26, 2017	Jun. 25, 2018
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-24)	Jun. 26, 2017	Jun. 25, 2018
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

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

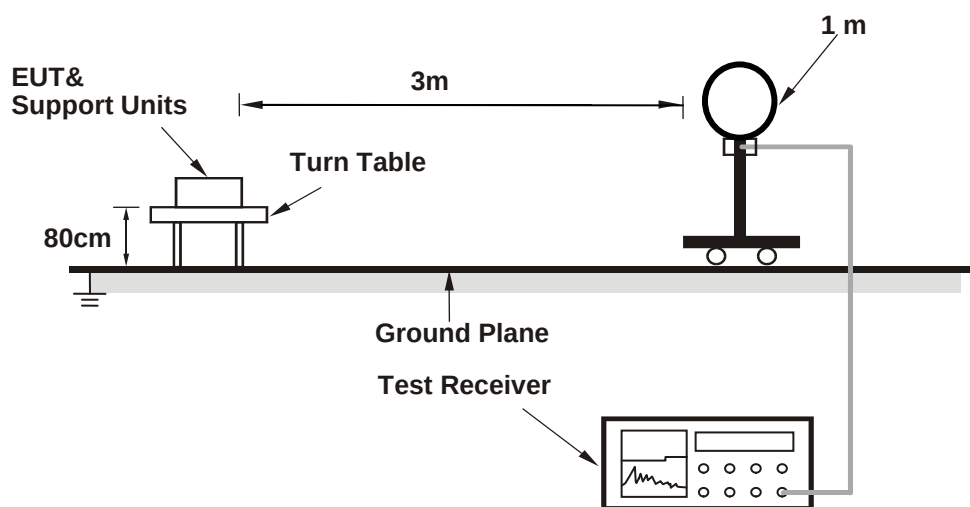
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for Average (Duty cycle < 98 %) detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 Deviation from Test Standard

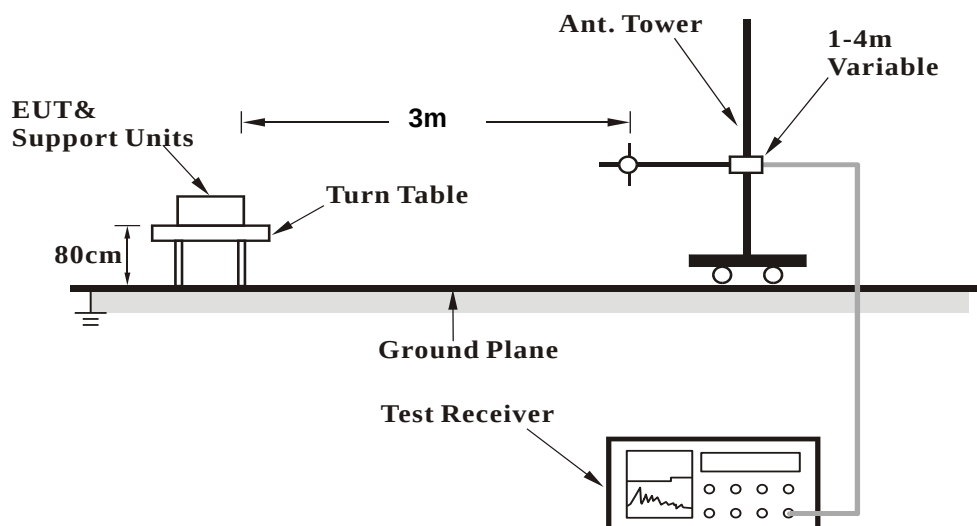
No deviation.

4.1.6 Test Set Up

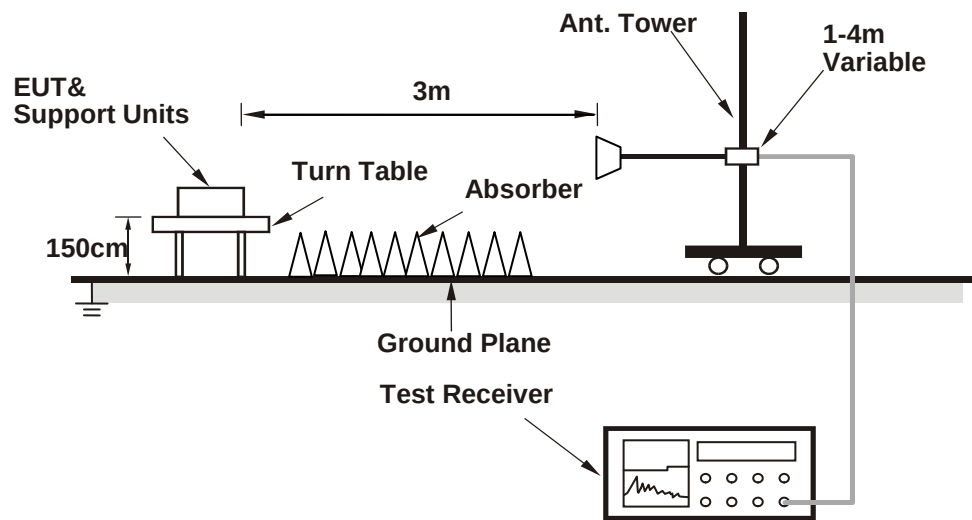
<Radiated emission below 30 MHz>



<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
5147.45	59.22	50.97	74	-14.78	34.12	8.13	34	246	0	Peak
5150	45.03	36.78	54	-8.97	34.12	8.13	34	246	0	Average
5180	93.1	84.79			34.15	8.16	34	246	0	Average
5180	100.78	92.47			34.15	8.16	34	246	0	Peak
*10360	56.63	42.33	68.2	-11.57	37.12	12.3	35.12	145	211	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
5147.3	57.42	49.17	74	-16.58	34.12	8.13	34	222	287	Peak
5147.3	44	35.75	54	-10	34.12	8.13	34	222	287	Average
5180	89.7	81.39			34.15	8.16	34	222	287	Average
5180	96.86	88.55			34.15	8.16	34	222	287	Peak
*10360	57.05	42.75	68.2	-11.15	37.12	12.3	35.12	112	320	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band

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
5119.7	42.72	34.52	54	-11.28	34.09	8.1	33.99	246	0	Average
5119.7	53.15	44.95	74	-20.85	34.09	8.1	33.99	246	0	Peak
5220	92.75	84.36			34.17	8.22	34	246	0	Average
5220	100.14	91.75			34.17	8.22	34	246	0	Peak
5379.81	42.95	34.27	54	-11.05	34.31	8.41	34.04	246	0	Average
5379.81	53.39	44.71	74	-20.61	34.31	8.41	34.04	246	0	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
5068.85	42.79	34.69	54	-11.21	34.05	8.03	33.98	222	287	Average
5068.85	53.55	45.45	74	-20.45	34.05	8.03	33.98	222	287	Peak
5220	88.89	80.5			34.17	8.22	34	222	287	Average
5220	96.3	87.91			34.17	8.22	34	222	287	Peak
5415.78	42.81	34.08	54	-11.19	34.33	8.44	34.04	222	287	Average
5415.78	53.36	44.63	74	-20.64	34.33	8.44	34.04	222	287	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
5240	92.35	83.91			34.19	8.26	34.01	246	0	Average
5240	100.15	91.71			34.19	8.26	34.01	246	0	Peak
5451.64	42.81	33.99	54	-11.19	34.36	8.51	34.05	246	0	Average
5451.64	53.21	44.39	74	-20.79	34.36	8.51	34.05	246	0	Peak
*10480	55.89	41.38	68.2	-12.31	37.19	12.53	35.21	188	205	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
5240	88.74	80.3			34.19	8.26	34.01	222	287	Average
5240	96.53	88.09			34.19	8.26	34.01	222	287	Peak
5440.2	42.81	34.02	54	-11.19	34.35	8.48	34.04	222	287	Average
5440.2	54.27	45.48	74	-19.73	34.35	8.48	34.04	222	287	Peak
*10480	56.54	42.03	68.2	-11.66	37.19	12.53	35.21	111	211	Peak

Remarks:

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

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
5124.65	42.74	34.52	54	-11.26	34.11	8.1	33.99	100	179	Average
5124.65	53.87	45.65	74	-20.13	34.11	8.1	33.99	100	179	Peak
5260	94.55	86.09			34.21	8.26	34.01	100	179	Average
5260	102.35	93.89			34.21	8.26	34.01	100	179	Peak
*10520	56.37	41.78	68.2	-11.83	37.21	12.61	35.23	196	327	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
5125.25	42.79	34.57	54	-11.21	34.11	8.1	33.99	100	176	Average
5125.25	53.74	45.52	74	-20.26	34.11	8.1	33.99	100	176	Peak
5260	92.25	83.79			34.21	8.26	34.01	100	176	Average
5260	100.78	92.32			34.21	8.26	34.01	100	176	Peak
*10520	57.09	42.5	68.2	-11.11	37.21	12.61	35.23	144	163	Peak

Remarks:

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

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
5137.25	42.76	34.51	54	-11.24	34.11	8.13	33.99	100	176	Average
5137.25	53.34	45.09	74	-20.66	34.11	8.13	33.99	100	176	Peak
5300	92.51	83.97			34.24	8.32	34.02	100	176	Average
5300	100.07	91.53			34.24	8.32	34.02	100	176	Peak
5366.17	42.86	34.22	54	-11.14	34.29	8.38	34.03	100	176	Average
5366.17	54.17	45.53	74	-19.83	34.29	8.38	34.03	100	176	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
5134.7	42.82	34.57	54	-11.18	34.11	8.13	33.99	100	179	Average
5134.7	53.59	45.34	74	-20.41	34.11	8.13	33.99	100	179	Peak
5300	94.74	86.2			34.24	8.32	34.02	100	179	Average
5300	102.5	93.96			34.24	8.32	34.02	100	179	Peak
5449.33	43.07	34.24	54	-10.93	34.36	8.51	34.04	100	179	Average
5449.33	54	45.17	74	-20	34.36	8.51	34.04	100	179	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
5320	92.47	83.89			34.25	8.35	34.02	100	176	Average
5320	100.89	92.31			34.25	8.35	34.02	100	176	Peak
5350.11	44.43	35.8	54	-9.57	34.28	8.38	34.03	100	176	Average
5350.11	55.88	47.25	74	-18.12	34.28	8.38	34.03	100	176	Peak
10640	47.15	32.42	54	-6.85	37.31	12.71	35.29	124	161	Average
10640	56.91	42.18	74	-17.09	37.31	12.71	35.29	124	161	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
5320	94.62	86.04			34.25	8.35	34.02	100	179	Average
5320	102.07	93.49			34.25	8.35	34.02	100	179	Peak
5350.11	45.91	37.28	54	-8.09	34.28	8.38	34.03	100	179	Average
5350.11	61.82	53.19	74	-12.18	34.28	8.38	34.03	100	179	Peak
10640	47.85	33.12	54	-6.15	37.31	12.71	35.29	152	134	Average
10640	57.07	42.34	74	-16.93	37.31	12.71	35.29	152	134	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
5457.84	43.63	34.81	54	-10.37	34.36	8.51	34.05	212	147	Average
5457.84	55.44	46.62	74	-18.56	34.36	8.51	34.05	212	147	Peak
*5468.08	57.95	49.12	68.2	-10.25	34.37	8.51	34.05	212	147	Peak
5500	94.02	85.1			34.4	8.57	34.05	212	147	Average
5500	100.62	91.7			34.4	8.57	34.05	212	147	Peak
11000	48.84	33.76	54	-5.16	37.6	12.96	35.48	158	210	Average
11000	58.23	43.15	74	-15.77	37.6	12.96	35.48	158	210	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
5458.16	43.99	35.17	54	-10.01	34.36	8.51	34.05	145	192	Average
5458.16	55.3	46.48	74	-18.7	34.36	8.51	34.05	145	192	Peak
*5468.08	59.9	51.07	68.2	-8.3	34.37	8.51	34.05	145	192	Peak
5500	94.44	85.52			34.4	8.57	34.05	145	192	Average
5500	101.3	92.38			34.4	8.57	34.05	145	192	Peak
11000	48.26	33.18	54	-5.74	37.6	12.96	35.48	147	139	Average
11000	57.61	42.53	74	-16.39	37.6	12.96	35.48	147	139	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5500 MHz: Fundamental Frequency
- *: 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
5361.04	42.95	34.31	54	-11.05	34.29	8.38	34.03	191	147	Average
5361.04	53.13	44.49	74	-20.87	34.29	8.38	34.03	191	147	Peak
*5470.96	51.46	42.6	68.2	-16.74	34.37	8.54	34.05	191	147	Peak
5580	94.42	85.43			34.47	8.6	34.08	191	147	Average
5580	101.4	92.41			34.47	8.6	34.08	191	147	Peak
*5723.96	53.14	43.98	68.2	-15.06	34.62	8.65	34.11	191	147	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
5372.72	42.92	34.25	54	-11.08	34.29	8.41	34.03	171	193	Average
5372.72	53.32	44.65	74	-20.68	34.29	8.41	34.03	171	193	Peak
*5470	52.52	43.69	68.2	-15.68	34.37	8.51	34.05	171	193	Peak
5580	94.86	85.87			34.47	8.6	34.08	171	193	Average
5580	101.77	92.78			34.47	8.6	34.08	171	193	Peak
*5725.4	52.69	43.53	68.2	-15.51	34.62	8.65	34.11	171	193	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5580 MHz: Fundamental Frequency
- *: 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
5700	94.46	85.33			34.59	8.64	34.1	195	122	Average
5700	102.03	92.9			34.59	8.64	34.1	195	122	Peak
*5724.84	63.56	54.4	68.2	-4.64	34.62	8.65	34.11	175	106	Peak
11400	48.17	33.07	54	-5.83	37.84	12.67	35.41	168	274	Average
11400	57.31	42.21	74	-16.69	37.84	12.67	35.41	168	274	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
5700	94.4	85.27			34.59	8.64	34.1	197	193	Average
5700	101.25	92.12			34.59	8.64	34.1	197	193	Peak
*5725.08	63.12	53.96	68.2	-5.08	34.62	8.65	34.11	175	118	Peak
11400	48.36	33.26	54	-5.64	37.84	12.67	35.41	161	127	Average
11400	57.67	42.57	74	-16.33	37.84	12.67	35.41	161	127	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 144	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
5415.76	43.58	34.85	54	-10.42	34.33	8.44	34.04	188	147	Average
5415.76	53.32	44.59	74	-20.68	34.33	8.44	34.04	188	147	Peak
*5470.16	52.22	43.39	68.2	-15.98	34.37	8.51	34.05	188	147	Peak
5720	94.9	85.74			34.62	8.65	34.11	188	147	Average
5720	102.35	93.19			34.62	8.65	34.11	188	147	Peak
*5856	58.16	48.84	78.2	-20.04	34.76	8.7	34.14	188	147	Peak
*5866	58.89	49.56	68.2	-9.31	34.76	8.71	34.14	188	147	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
5364.08	43.51	34.87	54	-10.49	34.29	8.38	34.03	185	202	Average
5364.08	53.89	45.25	74	-20.11	34.29	8.38	34.03	185	202	Peak
*5470.8	53.21	44.35	68.2	-14.99	34.37	8.54	34.05	185	202	Peak
5720	94.82	85.66			34.62	8.65	34.11	185	202	Average
5720	101.98	92.82			34.62	8.65	34.11	185	202	Peak
*5854	56.65	47.33	78.2	-21.55	34.76	8.7	34.14	185	202	Peak
*5860	55.56	46.24	68.2	-12.64	34.76	8.7	34.14	185	202	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5720 MHz: Fundamental Frequency
- *: 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

<Spurious Emission>

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
5745	92.64	83.45			34.64	8.66	34.11	138	181	Average
5745	99.74	90.55			34.64	8.66	34.11	138	181	Peak
11490	47.85	32.73	54	-6.15	37.89	12.62	35.39	163	215	Average
11490	57.01	41.89	74	-16.99	37.89	12.62	35.39	163	215	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
5745	91.78	82.59			34.64	8.66	34.11	182	185	Average
5745	98.36	89.17			34.64	8.66	34.11	182	185	Peak
11490	48.25	33.13	54	-5.75	37.89	12.62	35.39	127	165	Average
11490	57.43	42.31	74	-16.57	37.89	12.62	35.39	127	165	Peak

<Out of Band Emission (OOBE)>

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
*5565.625	54.07	45.08	68.2	-14.13	34.47	8.59	34.07	138	181	Peak
5652.25	51.6	42.51	69.86	-18.26	34.56	8.62	34.09	138	181	Peak
5922.625	51.57	42.17	69.96	-18.39	34.83	8.73	34.16	138	181	Peak
*5968.3	54.13	44.68	68.2	-14.07	34.87	8.75	34.17	138	181	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
*5608.675	55.12	46.09	68.2	-13.08	34.5	8.61	34.08	182	185	Peak
5652.775	53.54	44.44	70.25	-16.71	34.56	8.63	34.09	182	185	Peak
5923.15	52.08	42.68	69.57	-17.49	34.83	8.73	34.16	182	185	Peak
*5969.35	55.11	45.66	68.2	-13.09	34.87	8.75	34.17	182	185	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

<Spurious Emission>

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
5785	91.61	82.38			34.68	8.68	34.13	138	181	Average
5785	99.31	90.08			34.68	8.68	34.13	138	181	Peak
11570	47.25	31.94	54	-6.75	38	12.68	35.37	142	181	Average
11570	56.56	41.25	74	-17.44	38	12.68	35.37	142	181	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
5785	91.74	82.51			34.68	8.68	34.13	182	185	Average
5785	98.7	89.47			34.68	8.68	34.13	182	185	Peak
11570	47.74	32.43	54	-6.26	38	12.68	35.37	125	195	Average
11570	56.96	41.65	74	-17.04	38	12.68	35.37	125	195	Peak

<Out of Band Emission (OOBE)>

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
*5545.15	54.03	45.09	68.2	-14.17	34.43	8.58	34.07	138	181	Peak
5652.25	52.23	43.14	69.86	-17.63	34.56	8.62	34.09	138	181	Peak
5922.625	53.29	43.89	69.96	-16.67	34.83	8.73	34.16	138	181	Peak
*5969.875	54.45	45	68.2	-13.75	34.87	8.75	34.17	138	181	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
*5574.025	54.44	45.45	68.2	-13.76	34.47	8.59	34.07	182	185	Peak
5652.25	53.16	44.07	69.86	-16.7	34.56	8.62	34.09	182	185	Peak
5923.15	51.51	42.11	69.57	-18.06	34.83	8.73	34.16	182	185	Peak
*5993.5	54.99	45.5	68.2	-13.21	34.9	8.76	34.17	182	185	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

<Spurious Emission>

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
5825	92	82.71			34.73	8.69	34.13	138	181	Average
5825	99.46	90.17			34.73	8.69	34.13	138	181	Peak
11650	48.75	33.22	54	-5.25	38.09	12.8	35.36	136	205	Average
11650	58.64	43.11	74	-15.36	38.09	12.8	35.36	136	205	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
5825	90.88	81.59			34.73	8.69	34.13	182	185	Average
5825	98.19	88.9			34.73	8.69	34.13	182	185	Peak
11650	48.36	32.83	54	-5.64	38.09	12.8	35.36	185	76	Average
11650	58.65	43.12	74	-15.35	38.09	12.8	35.36	185	76	Peak

<Out of Band Emission (OOBE)>

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
*5613.925	54.16	45.13	68.2	-14.04	34.5	8.61	34.08	138	181	Peak
5652.25	51.93	42.84	69.86	-17.93	34.56	8.62	34.09	138	181	Peak
5922.625	53.05	43.65	69.96	-16.91	34.83	8.73	34.16	138	181	Peak
*5989.3	55.18	45.72	68.2	-13.02	34.88	8.75	34.17	138	181	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
*5610.775	54.25	45.22	68.2	-13.95	34.5	8.61	34.08	182	185	Peak
5652.25	52.11	43.02	69.86	-17.75	34.56	8.62	34.09	182	185	Peak
5922.625	52.41	43.01	69.96	-17.55	34.83	8.73	34.16	182	185	Peak
*6022.9	54.44	44.93	68.2	-13.76	34.92	8.77	34.18	182	185	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)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	45.54	37.29	54	-8.46	34.12	8.13	34	246	0	Average
5150	57.5	49.25	74	-16.5	34.12	8.13	34	246	0	Peak
5180	92.46	84.15			34.15	8.16	34	246	0	Average
5180	100.01	91.7			34.15	8.16	34	246	0	Peak
*10360	55.85	41.55	68.2	-12.35	37.12	12.3	35.12	124	300	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	43.73	35.48	54	-10.27	34.12	8.13	34	222	287	Average
5150	54.13	45.88	74	-19.87	34.12	8.13	34	222	287	Peak
5180	88.49	80.18			34.15	8.16	34	222	287	Average
5180	96.4	88.09			34.15	8.16	34	222	287	Peak
*10360	56.14	41.84	68.2	-12.06	37.12	12.3	35.12	104	131	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5180 MHz: Fundamental Frequency
- *: Out of Restricted Band

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
5135.15	42.76	34.51	54	-11.24	34.11	8.13	33.99	246	0	Average
5135.15	53.76	45.51	74	-20.24	34.11	8.13	33.99	246	0	Peak
5220	92.36	83.97			34.17	8.22	34	246	0	Average
5220	100.39	92			34.17	8.22	34	246	0	Peak
5442.84	43.02	34.23	54	-10.98	34.35	8.48	34.04	246	0	Average
5442.84	54.65	45.86	74	-19.35	34.35	8.48	34.04	246	0	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
5141.3	42.78	34.52	54	-11.22	34.12	8.13	33.99	222	287	Average
5141.3	53.38	45.12	74	-20.62	34.12	8.13	33.99	222	287	Peak
5220	88.42	80.03			34.17	8.22	34	222	287	Average
5220	96.13	87.74			34.17	8.22	34	222	287	Peak
5450.76	42.89	34.07	54	-11.11	34.36	8.51	34.05	222	287	Average
5450.76	53.65	44.83	74	-20.35	34.36	8.51	34.05	222	287	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5220 MHz: Fundamental Frequency
- *: Out of Restricted Band

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
5240	92.25	83.81			34.19	8.26	34.01	246	0	Average
5240	100.62	92.18			34.19	8.26	34.01	246	0	Peak
5447.79	43.16	34.33	54	-10.84	34.36	8.51	34.04	246	0	Average
5447.79	53.19	44.36	74	-20.81	34.36	8.51	34.04	246	0	Peak
*10480	57.42	42.91	68.2	-10.78	37.19	12.53	35.21	189	5	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
5240	88.16	79.72			34.19	8.26	34.01	222	287	Average
5240	96.55	88.11			34.19	8.26	34.01	222	287	Peak
5436.46	42.84	34.05	54	-11.16	34.35	8.48	34.04	222	287	Average
5436.46	53.61	44.82	74	-20.39	34.35	8.48	34.04	222	287	Peak
*10480	55.63	41.12	68.2	-12.57	37.19	12.53	35.21	124	316	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5240 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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
5124.95	42.88	34.66	54	-11.12	34.11	8.1	33.99	100	176	Average
5124.95	54.1	45.88	74	-19.9	34.11	8.1	33.99	100	176	Peak
5260	92.52	84.06			34.21	8.26	34.01	100	176	Average
5260	100.57	92.11			34.21	8.26	34.01	100	176	Peak
*10520	56.11	41.52	68.2	-12.09	37.21	12.61	35.23	136	195	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
5112.2	42.77	34.57	54	-11.23	34.09	8.1	33.99	100	179	Average
5112.2	53.42	45.22	74	-20.58	34.09	8.1	33.99	100	179	Peak
5260	94.43	85.97			34.21	8.26	34.01	100	179	Average
5260	102.21	93.75			34.21	8.26	34.01	100	179	Peak
*10520	57.32	42.73	68.2	-10.88	37.21	12.61	35.23	125	174	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5260 MHz: Fundamental Frequency
3. *: Out of Restricted Band

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
5127.05	42.87	34.65	54	-11.13	34.11	8.1	33.99	100	176	Average
5127.05	54.18	45.96	74	-19.82	34.11	8.1	33.99	100	176	Peak
5300	92.55	84.01			34.24	8.32	34.02	100	176	Average
5300	100.59	92.05			34.24	8.32	34.02	100	176	Peak
5447.79	42.91	34.08	54	-11.09	34.36	8.51	34.04	100	176	Average
5447.79	53.55	44.72	74	-20.45	34.36	8.51	34.04	100	176	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
5107.85	42.81	34.61	54	-11.19	34.09	8.1	33.99	100	179	Average
5107.85	53.83	45.63	74	-20.17	34.09	8.1	33.99	100	179	Peak
5300	94.33	85.79			34.24	8.32	34.02	100	179	Average
5300	102.29	93.75			34.24	8.32	34.02	100	179	Peak
5351.98	43.02	34.39	54	-10.98	34.28	8.38	34.03	100	179	Average
5351.98	53.65	45.02	74	-20.35	34.28	8.38	34.03	100	179	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
5320	92.35	83.77			34.25	8.35	34.02	100	176	Average
5320	100.76	92.18			34.25	8.35	34.02	100	176	Peak
5354.07	43.75	35.12	54	-10.25	34.28	8.38	34.03	100	176	Average
5354.07	55.76	47.13	74	-18.24	34.28	8.38	34.03	100	176	Peak
10640	47.54	32.81	54	-6.46	37.31	12.71	35.29	158	232	Average
10640	56.74	42.01	74	-17.26	37.31	12.71	35.29	158	232	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
5320	94.14	85.56			34.25	8.35	34.02	100	179	Average
5320	102.65	94.07			34.25	8.35	34.02	100	179	Peak
5350	47.89	39.26	54	-6.11	34.28	8.38	34.03	101	179	Average
5350	63.63	55	74	-10.37	34.28	8.38	34.03	101	179	Peak
10640	47.41	32.68	54	-6.59	37.31	12.71	35.29	127	165	Average
10640	56.65	41.92	74	-17.35	37.31	12.71	35.29	127	165	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
5454.96	43.43	34.61	54	-10.57	34.36	8.51	34.05	212	147	Average
5454.96	53.98	45.16	74	-20.02	34.36	8.51	34.05	212	147	Peak
*5468.08	57.25	48.42	68.2	-10.95	34.37	8.51	34.05	212	147	Peak
5500	94.29	85.37			34.4	8.57	34.05	212	147	Average
5500	101.33	92.41			34.4	8.57	34.05	212	147	Peak
11000	48.69	33.61	54	-5.31	37.6	12.96	35.48	168	218	Average
11000	57.86	42.78	74	-16.14	37.6	12.96	35.48	168	218	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
5459.12	44.45	35.63	54	-9.55	34.36	8.51	34.05	145	192	Average
5459.12	56.69	47.87	74	-17.31	34.36	8.51	34.05	145	192	Peak
*5470.8	62.88	54.02	68.2	-5.32	34.37	8.54	34.05	145	192	Peak
5500	94.17	85.25			34.4	8.57	34.05	145	192	Average
5500	101.2	92.28			34.4	8.57	34.05	145	192	Peak
11000	48.29	33.21	54	-5.71	37.6	12.96	35.48	162	320	Average
11000	57.49	42.41	74	-16.51	37.6	12.96	35.48	162	320	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5500 MHz: Fundamental Frequency
- *: 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
5443.76	42.86	34.07	54	-11.14	34.35	8.48	34.04	191	147	Average
5443.76	53.11	44.32	74	-20.89	34.35	8.48	34.04	191	147	Peak
*5469.68	52.86	44.03	68.2	-15.34	34.37	8.51	34.05	191	147	Peak
5580	93.99	85			34.47	8.6	34.08	191	147	Average
5580	101.28	92.29			34.47	8.6	34.08	191	147	Peak
*5725.64	53.14	43.98	68.2	-15.06	34.62	8.65	34.11	191	147	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
5457.2	42.97	34.15	54	-11.03	34.36	8.51	34.05	193	205	Average
5457.2	53.29	44.47	74	-20.71	34.36	8.51	34.05	193	205	Peak
*5468.08	52.44	43.61	68.2	-15.76	34.37	8.51	34.05	193	205	Peak
5580	93.69	84.7			34.47	8.6	34.08	193	205	Average
5580	101.15	92.16			34.47	8.6	34.08	193	205	Peak
*5725.64	52.51	43.35	68.2	-15.69	34.62	8.65	34.11	193	205	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5580 MHz: Fundamental Frequency
- *: 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
5700	92.02	82.89			34.59	8.64	34.1	195	122	Average
5700	99.21	90.08			34.59	8.64	34.1	195	122	Peak
*5724.89	64.51	55.35	68.2	-3.69	34.62	8.65	34.11	154	113	Peak
11400	48.11	33.01	54	-5.89	37.84	12.67	35.41	196	258	Average
11400	57.41	42.31	74	-16.59	37.84	12.67	35.41	196	258	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
5700	90.89	81.76			34.59	8.64	34.1	197	193	Average
5700	98.03	88.9			34.59	8.64	34.1	197	193	Peak
*5724.36	63.12	53.96	68.2	-5.08	34.62	8.65	34.11	185	154	Peak
11400	48.17	33.07	54	-5.83	37.84	12.67	35.41	125	83	Average
11400	57.69	42.59	74	-16.31	37.84	12.67	35.41	125	83	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 144	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
5443.92	43.61	34.82	54	-10.39	34.35	8.48	34.04	188	147	Average
5443.92	54.06	45.27	74	-19.94	34.35	8.48	34.04	188	147	Peak
*5470.48	53.2	44.37	68.2	-15	34.37	8.51	34.05	188	147	Peak
5720	94.84	85.68			34.62	8.65	34.11	188	147	Average
5720	102.33	93.17			34.62	8.65	34.11	188	147	Peak
*5856	57.87	48.55	78.2	-20.33	34.76	8.7	34.14	188	147	Peak
*5866	57.03	47.7	68.2	-11.17	34.76	8.71	34.14	188	147	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
5371.44	42.87	34.2	54	-11.13	34.29	8.41	34.03	185	202	Average
5371.44	53.69	45.02	74	-20.31	34.29	8.41	34.03	185	202	Peak
*5469.68	53.2	44.37	68.2	-15	34.37	8.51	34.05	185	202	Peak
5720	94.86	85.7			34.62	8.65	34.11	185	202	Average
5720	101.65	92.49			34.62	8.65	34.11	185	202	Peak
*5856	56.75	47.43	78.2	-21.45	34.76	8.7	34.14	185	202	Peak
*5870	57.19	47.86	68.2	-11.01	34.76	8.71	34.14	185	202	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5720 MHz: Fundamental Frequency
- *: 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

<Spurious Emission>

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
5745	92	82.81			34.64	8.66	34.11	138	181	Average
5745	99.54	90.35			34.64	8.66	34.11	138	181	Peak
11490	48.34	33.22	54	-5.66	37.89	12.62	35.39	136	344	Average
11490	57.21	42.09	74	-16.79	37.89	12.62	35.39	136	344	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
5745	91.62	82.43			34.64	8.66	34.11	182	185	Average
5745	98.87	89.68			34.64	8.66	34.11	182	185	Peak
11490	48.41	33.29	54	-5.59	37.89	12.62	35.39	124	109	Average
11490	57.55	42.43	74	-16.45	37.89	12.62	35.39	124	109	Peak

<Out of Band Emission (OOBE)>

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
*5546.2	54.91	45.97	68.2	-13.29	34.43	8.58	34.07	138	181	Peak
5652.25	51.99	42.9	69.86	-17.87	34.56	8.62	34.09	138	181	Peak
5922.625	53.39	43.99	69.96	-16.57	34.83	8.73	34.16	138	181	Peak
*5959.375	55.23	45.78	68.2	-12.97	34.87	8.74	34.16	138	181	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
*5634.4	54.21	45.14	68.2	-13.99	34.54	8.62	34.09	182	185	Peak
5652.25	51.76	42.67	69.86	-18.1	34.56	8.62	34.09	182	185	Peak
5922.625	52.42	43.02	69.96	-17.54	34.83	8.73	34.16	182	185	Peak
*5957.275	55.55	46.1	68.2	-12.65	34.87	8.74	34.16	182	185	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

<Spurious Emission>

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
5785	92.33	83.1			34.68	8.68	34.13	138	181	Average
5785	99.5	90.27			34.68	8.68	34.13	138	181	Peak
11570	48.11	32.8	54	-5.89	38	12.68	35.37	185	246	Average
11570	57.49	42.18	74	-16.51	38	12.68	35.37	185	246	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
5785	91.25	82.02			34.68	8.68	34.13	184	185	Average
5785	98.36	89.13			34.68	8.68	34.13	184	185	Peak
11570	48.12	32.81	54	-5.88	38	12.68	35.37	154	226	Average
11570	57.39	42.08	74	-16.61	38	12.68	35.37	154	226	Peak

<Out of Band Emission (OOBE)>

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
*5603.425	54.28	45.25	68.2	-13.92	34.5	8.61	34.08	138	181	Peak
5652.775	51.41	42.31	70.25	-18.84	34.56	8.63	34.09	138	181	Peak
5922.625	51.36	41.96	69.96	-18.6	34.83	8.73	34.16	138	181	Peak
*5971.975	54.82	45.37	68.2	-13.38	34.87	8.75	34.17	138	181	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
*5637.025	54.39	45.32	68.2	-13.81	34.54	8.62	34.09	184	185	Peak
5652.25	52.4	43.31	69.86	-17.46	34.56	8.62	34.09	184	185	Peak
5923.15	52.51	43.11	69.57	-17.06	34.83	8.73	34.16	184	185	Peak
*5985.625	55.51	46.05	68.2	-12.69	34.88	8.75	34.17	184	185	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

<Spurious Emission>

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
5825	92.81	83.52			34.73	8.69	34.13	138	181	Average
5825	99.63	90.34			34.73	8.69	34.13	138	181	Peak
11650	48.3	32.77	54	-5.7	38.09	12.8	35.36	128	155	Average
11650	58.41	42.88	74	-15.59	38.09	12.8	35.36	128	155	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
5825	90.46	81.17			34.73	8.69	34.13	184	185	Average
5825	98.1	88.81			34.73	8.69	34.13	184	185	Peak
11650	48.32	32.79	54	-5.68	38.09	12.8	35.36	164	126	Average
11650	57.42	41.89	74	-16.58	38.09	12.8	35.36	164	126	Peak

<Out of Band Emission (OOBE)>

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
*5632.3	54.2	45.15	68.2	-14	34.52	8.62	34.09	138	181	Peak
5652.25	51.25	42.16	69.86	-18.61	34.56	8.62	34.09	138	181	Peak
5922.625	52.34	42.94	69.96	-17.62	34.83	8.73	34.16	138	181	Peak
*5935.225	54.93	45.53	68.2	-13.27	34.83	8.73	34.16	138	181	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
*5639.125	54.29	45.22	68.2	-13.91	34.54	8.62	34.09	184	185	Peak
5652.25	52.49	43.4	69.86	-17.37	34.56	8.62	34.09	184	185	Peak
5922.625	54.04	44.64	69.96	-15.92	34.83	8.73	34.16	184	185	Peak
*5955.175	54.37	44.94	68.2	-13.83	34.85	8.74	34.16	184	185	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)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	50.21	41.96	54	-3.79	34.12	8.13	34	216	346	Average
5150	61.45	53.2	74	-12.55	34.12	8.13	34	216	346	Peak
5190	90.25	81.91			34.15	8.19	34	246	5	Average
5190	97.14	88.8			34.15	8.19	34	246	5	Peak
5426.67	43.32	34.55	54	-10.68	34.33	8.48	34.04	246	5	Average
5426.67	53.59	44.82	74	-20.41	34.33	8.48	34.04	246	5	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	45.75	37.5	54	-8.25	34.12	8.13	34	222	252	Average
5150	56.33	48.08	74	-17.67	34.12	8.13	34	222	252	Peak
5190	86.35	78.01			34.15	8.19	34	222	252	Average
5190	93.54	85.2			34.15	8.19	34	222	252	Peak
5393.45	43.3	34.59	54	-10.7	34.31	8.44	34.04	222	252	Average
5393.45	54.27	45.56	74	-19.73	34.31	8.44	34.04	222	252	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp 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
5148.95	43.22	34.97	54	-10.78	34.12	8.13	34	246	0	Average
5148.95	53.54	45.29	74	-20.46	34.12	8.13	34	246	0	Peak
5230	91.46	83.06			34.19	8.22	34.01	246	0	Average
5230	98.59	90.19			34.19	8.22	34.01	246	0	Peak
5441.74	43.33	34.54	54	-10.67	34.35	8.48	34.04	246	0	Average
5441.74	53.53	44.74	74	-20.47	34.35	8.48	34.04	246	0	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
5132.6	43.14	34.92	54	-10.86	34.11	8.1	33.99	222	287	Average
5132.6	53.18	44.96	74	-20.82	34.11	8.1	33.99	222	287	Peak
5230	87.46	79.06			34.19	8.22	34.01	222	287	Average
5230	94.32	85.92			34.19	8.22	34.01	222	287	Peak
5457.14	43.32	34.5	54	-10.68	34.36	8.51	34.05	222	287	Average
5457.14	53.34	44.52	74	-20.66	34.36	8.51	34.05	222	287	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 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
5129.75	43.21	34.99	54	-10.79	34.11	8.1	33.99	100	176	Average
5129.75	54.13	45.91	74	-19.87	34.11	8.1	33.99	100	176	Peak
5270	90.25	81.76			34.21	8.29	34.01	100	176	Average
5270	97.19	88.7			34.21	8.29	34.01	100	176	Peak
5438.55	43.45	34.66	54	-10.55	34.35	8.48	34.04	100	176	Average
5438.55	53.69	44.9	74	-20.31	34.35	8.48	34.04	100	176	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
5100.2	43.28	35.12	54	-10.72	34.08	8.07	33.99	100	179	Average
5100.2	53.51	45.35	74	-20.49	34.08	8.07	33.99	100	179	Peak
5270	92.51	84.02			34.21	8.29	34.01	100	179	Average
5270	99.39	90.9			34.21	8.29	34.01	100	179	Peak
5350.11	43.65	35.02	54	-10.35	34.28	8.38	34.03	100	179	Average
5350.11	53.68	45.05	74	-20.32	34.28	8.38	34.03	100	179	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
5138.45	43.26	35.01	54	-10.74	34.11	8.13	33.99	100	176	Average
5138.45	54.21	45.96	74	-19.79	34.11	8.13	33.99	100	176	Peak
5310	89.36	80.81			34.25	8.32	34.02	100	176	Average
5310	96.31	87.76			34.25	8.32	34.02	100	176	Peak
5354.4	49.96	41.33	54	-4.04	34.28	8.38	34.03	100	176	Average
5354.4	63.49	54.86	74	-10.51	34.28	8.38	34.03	100	176	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
5106.05	43.32	35.15	54	-10.68	34.09	8.07	33.99	100	179	Average
5106.05	53.39	45.22	74	-20.61	34.09	8.07	33.99	100	179	Peak
5310	91.46	82.91			34.25	8.32	34.02	100	179	Average
5310	98.09	89.54			34.25	8.32	34.02	100	179	Peak
5354.62	50.91	42.28	54	-3.09	34.28	8.38	34.03	151	164	Average
5354.62	65.42	56.79	74	-8.58	34.28	8.38	34.03	151	164	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
5459.28	46.54	37.72	54	-7.46	34.36	8.51	34.05	196	147	Average
5459.28	56.91	48.09	74	-17.09	34.36	8.51	34.05	196	147	Peak
*5469.68	64.03	55.2	68.2	-4.17	34.37	8.51	34.05	196	147	Peak
5510	90.89	81.98			34.4	8.57	34.06	212	147	Average
5510	97.53	88.62			34.4	8.57	34.06	212	147	Peak
*5724.52	53.05	43.89	68.2	-15.15	34.62	8.65	34.11	196	147	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
5459.28	47.2	38.38	54	-6.8	34.36	8.51	34.05	152	107	Average
5459.28	58.57	49.75	74	-15.43	34.36	8.51	34.05	152	107	Peak
*5469.04	64.24	55.41	68.2	-3.96	34.37	8.51	34.05	152	107	Peak
5510	90.71	81.8			34.4	8.57	34.06	164	192	Average
5510	96.96	88.05			34.4	8.57	34.06	164	192	Peak
*5724.28	52.6	43.44	68.2	-15.6	34.62	8.65	34.11	152	107	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5510 MHz: Fundamental Frequency
- *: 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
5456.56	43.3	34.48	54	-10.7	34.36	8.51	34.05	188	147	Average
5456.56	53.45	44.63	74	-20.55	34.36	8.51	34.05	188	147	Peak
*5469.04	52.52	43.69	68.2	-15.68	34.37	8.51	34.05	188	147	Peak
5550	91.63	82.66			34.45	8.59	34.07	188	147	Average
5550	98.63	89.66			34.45	8.59	34.07	188	147	Peak
*5725.88	53.07	43.91	68.2	-15.13	34.62	8.65	34.11	188	147	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
5399.12	43.44	34.72	54	-10.56	34.32	8.44	34.04	185	202	Average
5399.12	53.77	45.05	74	-20.23	34.32	8.44	34.04	185	202	Peak
*5469.68	53.75	44.92	68.2	-14.45	34.37	8.51	34.05	185	202	Peak
5550	91.66	82.69			34.45	8.59	34.07	185	202	Average
5550	98.52	89.55			34.45	8.59	34.07	185	202	Peak
*5725.24	53.51	44.35	68.2	-14.69	34.62	8.65	34.11	185	202	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5550 MHz: Fundamental Frequency
- *: 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
5424.08	43.25	34.48	54	-10.75	34.33	8.48	34.04	191	147	Average
5424.08	53.68	44.91	74	-20.32	34.33	8.48	34.04	191	147	Peak
*5468.08	52.43	43.6	68.2	-15.77	34.37	8.51	34.05	191	147	Peak
5670	91.94	82.84			34.57	8.63	34.1	191	147	Average
5670	99.23	90.13			34.57	8.63	34.1	191	147	Peak
*5724.2	57.25	48.09	68.2	-10.95	34.62	8.65	34.11	177	164	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
5456.4	43.33	34.51	54	-10.67	34.36	8.51	34.05	179	189	Average
5456.4	53.05	44.23	74	-20.95	34.36	8.51	34.05	179	189	Peak
*5469.2	51.84	43.01	68.2	-16.36	34.37	8.51	34.05	179	189	Peak
5670	91.47	82.37			34.57	8.63	34.1	179	189	Average
5670	97.82	88.72			34.57	8.63	34.1	179	189	Peak
*5724.04	56.68	47.52	68.2	-11.52	34.62	8.65	34.11	193	180	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 142	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
5397.2	43.58	34.86	54	-10.42	34.32	8.44	34.04	188	147	Average
5397.2	53.72	45	74	-20.28	34.32	8.44	34.04	188	147	Peak
*5469.04	52.08	43.25	68.2	-16.12	34.37	8.51	34.05	188	147	Peak
5710	91.7	82.55			34.61	8.65	34.11	188	147	Average
5710	98.57	89.42			34.61	8.65	34.11	188	147	Peak
*5852	58.53	49.23	78.2	-19.67	34.74	8.7	34.14	188	147	Peak
*5870	57.2	47.87	68.2	-11	34.76	8.71	34.14	188	147	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
5449.36	43.39	34.56	54	-10.61	34.36	8.51	34.04	185	202	Average
5449.36	53.5	44.67	74	-20.5	34.36	8.51	34.04	185	202	Peak
*5469.52	53.23	44.4	68.2	-14.97	34.37	8.51	34.05	185	202	Peak
5710	92.01	82.86			34.61	8.65	34.11	185	202	Average
5710	98.75	89.6			34.61	8.65	34.11	185	202	Peak
*5856	58.3	48.98	78.2	-19.9	34.76	8.7	34.14	185	202	Peak
*5862	57.58	48.25	68.2	-10.62	34.76	8.71	34.14	185	202	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5710 MHz: Fundamental Frequency
- *: 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

<Spurious Emission>

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
5755	89.74	80.53			34.66	8.66	34.11	138	181	Average
5755	96.29	87.08			34.66	8.66	34.11	138	181	Peak
11510	48.96	33.85	54	-5.04	37.9	12.6	35.39	196	165	Average
11510	58.48	43.37	74	-15.52	37.9	12.6	35.39	196	165	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
5755	88.4	79.19			34.66	8.66	34.11	182	185	Average
5755	95.05	85.84			34.66	8.66	34.11	182	185	Peak
11510	48.17	33.06	54	-5.83	37.9	12.6	35.39	126	208	Average
11510	57.33	42.22	74	-16.67	37.9	12.6	35.39	126	208	Peak

<Out of Band Emission (OOBE)>

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
*5603.425	53.81	44.78	68.2	-14.39	34.5	8.61	34.08	138	181	Peak
5652.25	52.38	43.29	69.86	-17.48	34.56	8.62	34.09	138	181	Peak
5922.625	51.96	42.56	69.96	-18	34.83	8.73	34.16	138	181	Peak
*6001.9	55.18	45.69	68.2	-13.02	34.9	8.76	34.17	138	181	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
*5604.475	53.9	44.87	68.2	-14.3	34.5	8.61	34.08	182	185	Peak
5652.775	53.12	44.02	70.25	-17.13	34.56	8.63	34.09	182	185	Peak
5922.625	52.61	43.21	69.96	-17.35	34.83	8.73	34.16	182	185	Peak
*5962	55.79	46.35	68.2	-12.41	34.87	8.74	34.17	182	185	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

<Spurious Emission>

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
5795	88.96	79.72			34.69	8.68	34.13	138	181	Average
5795	96.07	86.83			34.69	8.68	34.13	138	181	Peak
11590	49.23	33.86	54	-4.77	38.02	12.72	35.37	158	243	Average
11590	58.25	42.88	74	-15.75	38.02	12.72	35.37	158	243	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
5795	88.5	79.26			34.69	8.68	34.13	182	185	Average
5795	94.97	85.73			34.69	8.68	34.13	182	185	Peak
11590	48.52	33.15	54	-5.48	38.02	12.72	35.37	196	154	Average
11590	58.38	43.01	74	-15.62	38.02	12.72	35.37	196	154	Peak

<Out of Band Emission (OOBE)>

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
*5600.8	54.61	45.58	68.2	-13.59	34.5	8.61	34.08	138	181	Peak
5652.25	52.42	43.33	69.86	-17.44	34.56	8.62	34.09	138	181	Peak
5922.625	52.21	42.81	69.96	-17.75	34.83	8.73	34.16	138	181	Peak
*5939.425	54.58	45.15	68.2	-13.62	34.85	8.74	34.16	138	181	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
*5644.9	54.12	45.05	68.2	-14.08	34.54	8.62	34.09	182	185	Peak
5652.25	53.11	44.02	69.86	-16.75	34.56	8.62	34.09	182	185	Peak
5922.625	52.18	42.78	69.96	-17.78	34.83	8.73	34.16	182	185	Peak
*5980.375	54.81	45.35	68.2	-13.39	34.88	8.75	34.17	182	185	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)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.25	50.96	42.71	54	-3.04	34.12	8.13	34	216	352	Average
5149.25	63.61	55.36	74	-10.39	34.12	8.13	34	216	352	Peak
5210	87.49	79.13			34.17	8.19	34	246	1	Average
5210	94.52	86.16			34.17	8.19	34	246	1	Peak
5416.77	43.7	34.97	54	-10.3	34.33	8.44	34.04	246	1	Average
5416.77	54.15	45.42	74	-19.85	34.33	8.44	34.04	246	1	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	47.3	39.05	54	-6.7	34.12	8.13	34	222	252	Average
5150	60.39	52.14	74	-13.61	34.12	8.13	34	222	252	Peak
5210	83.22	74.86			34.17	8.19	34	222	252	Average
5210	90.67	82.31			34.17	8.19	34	222	252	Peak
5376.51	43.77	35.11	54	-10.23	34.29	8.41	34.04	222	252	Average
5376.51	53.6	44.94	74	-20.4	34.29	8.41	34.04	222	252	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp 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
5072.3	43.57	35.45	54	-10.43	34.07	8.03	33.98	100	176	Average
5072.3	53.18	45.06	74	-20.82	34.07	8.03	33.98	100	176	Peak
5290	86.31	77.78			34.23	8.32	34.02	100	176	Average
5290	93.55	85.02			34.23	8.32	34.02	100	176	Peak
5352.31	50.71	42.08	54	-3.29	34.28	8.38	34.03	100	176	Average
5352.31	63.55	54.92	74	-10.45	34.28	8.38	34.03	100	176	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
5147.3	43.72	35.47	54	-10.28	34.12	8.13	34	100	179	Average
5147.3	54.31	46.06	74	-19.69	34.12	8.13	34	100	179	Peak
5290	88.47	79.94			34.23	8.32	34.02	100	179	Average
5290	95.33	86.8			34.23	8.32	34.02	100	179	Peak
5353.19	51	42.37	54	-3	34.28	8.38	34.03	101	170	Average
5353.19	64.08	55.45	74	-9.92	34.28	8.38	34.03	101	170	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 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
5452.4	50.2	41.38	54	-3.8	34.36	8.51	34.05	168	182	Average
5452.4	57.44	48.62	74	-16.56	34.36	8.51	34.05	168	182	Peak
*5469.04	56.85	48.02	68.2	-11.35	34.37	8.51	34.05	168	182	Peak
5530	87.85	78.92			34.42	8.58	34.07	188	156	Average
5530	95.49	86.56			34.42	8.58	34.07	188	156	Peak
*5724.36	54.25	45.09	68.2	-13.95	34.62	8.65	34.11	168	182	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
5458.8	50.86	42.04	54	-3.14	34.36	8.51	34.05	117	196	Average
5458.8	63.03	54.21	74	-10.97	34.36	8.51	34.05	117	196	Peak
*5470.16	64.88	56.05	68.2	-3.32	34.37	8.51	34.05	117	196	Peak
5530	87.13	78.2			34.42	8.58	34.07	185	202	Average
5530	95.37	86.44			34.42	8.58	34.07	185	202	Peak
*5724.52	52.42	43.26	68.2	-15.78	34.62	8.65	34.11	117	196	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5530 MHz: Fundamental Frequency
- *: 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
5452.56	43.67	34.85	54	-10.33	34.36	8.51	34.05	201	120	Average
5452.56	53.49	44.67	74	-20.51	34.36	8.51	34.05	201	120	Peak
*5470.8	52.73	43.87	68.2	-15.47	34.37	8.54	34.05	201	120	Peak
5610	87.71	78.68			34.5	8.61	34.08	201	120	Average
5610	95.21	86.18			34.5	8.61	34.08	201	120	Peak
*5725.8	53.04	43.88	68.2	-15.16	34.62	8.65	34.11	201	120	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
5453.84	43.65	34.83	54	-10.35	34.36	8.51	34.05	157	202	Average
5453.84	53.38	44.56	74	-20.62	34.36	8.51	34.05	157	202	Peak
*5468.4	52.38	43.55	68.2	-15.82	34.37	8.51	34.05	157	202	Peak
5610	87.68	78.65			34.5	8.61	34.08	157	202	Average
5610	95.6	86.57			34.5	8.61	34.08	157	202	Peak
*5724.44	52.64	43.48	68.2	-15.56	34.62	8.65	34.11	157	202	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 138	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
5379.12	43.61	34.93	54	-10.39	34.31	8.41	34.04	188	147	Average
5379.12	53.52	44.84	74	-20.48	34.31	8.41	34.04	188	147	Peak
*5470.64	52.27	43.44	68.2	-15.93	34.37	8.51	34.05	188	147	Peak
5690	87.02	77.89			34.59	8.64	34.1	188	147	Average
5690	95.35	86.22			34.59	8.64	34.1	188	147	Peak
*5854	57.84	48.52	78.2	-20.36	34.76	8.7	34.14	188	147	Peak
*5866	57.37	48.04	68.2	-10.83	34.76	8.71	34.14	188	147	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
5450	43.63	34.81	54	-10.37	34.36	8.51	34.05	157	202	Average
5450	53.37	44.55	74	-20.63	34.36	8.51	34.05	157	202	Peak
*5470.96	52.4	43.54	68.2	-15.8	34.37	8.54	34.05	157	202	Peak
5690	87.43	78.3			34.59	8.64	34.1	157	202	Average
5690	95.62	86.49			34.59	8.64	34.1	157	202	Peak
*5852	58.06	48.76	78.2	-20.14	34.74	8.7	34.14	157	202	Peak
*5862	57.21	47.88	68.2	-10.99	34.76	8.71	34.14	157	202	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5690 MHz: Fundamental Frequency
- *: 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

<Spurious Emission>

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
5775	83.36	74.13			34.68	8.67	34.12	138	181	Average
5775	92.37	83.14			34.68	8.67	34.12	138	181	Peak
11550	47.96	32.69	54	-6.04	37.97	12.68	35.38	142	113	Average
11550	56.82	41.55	74	-17.18	37.97	12.68	35.38	142	113	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
5775	82.59	73.36			34.68	8.67	34.12	182	185	Average
5775	91.72	82.49			34.68	8.67	34.12	182	185	Peak
11550	48.06	32.79	54	-5.94	37.97	12.68	35.38	132	85	Average
11550	57.34	42.07	74	-16.66	37.97	12.68	35.38	132	85	Peak

<Out of Band Emission (OOBE)>

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
*5640.175	54.37	45.3	68.2	-13.83	34.54	8.62	34.09	138	181	Peak
5652.25	51.14	42.05	69.86	-18.72	34.56	8.62	34.09	138	181	Peak
5922.625	52.58	43.18	69.96	-17.38	34.83	8.73	34.16	138	181	Peak
*5983	54.78	45.32	68.2	-13.42	34.88	8.75	34.17	138	181	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
*5632.825	53.75	44.68	68.2	-14.45	34.54	8.62	34.09	182	185	Peak
5652.775	52.01	42.91	70.25	-18.24	34.56	8.63	34.09	182	185	Peak
5923.675	51.48	42.08	69.18	-17.7	34.83	8.73	34.16	182	185	Peak
*5942.575	54.55	45.12	68.2	-13.65	34.85	8.74	34.16	182	185	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:

802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	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
77.79	21.88	44.66	40	-18.12	8.33	1.11	32.22	122	162	Peak
173.91	19.04	40.35	43.5	-24.46	9.32	1.61	32.24	115	184	Peak
207.93	23.16	42.64	43.5	-20.34	11.14	1.65	32.27	196	187	Peak
467.3	16.95	30.67	46	-29.05	15.85	2.56	32.13	158	174	Peak
619.9	18.68	29.8	46	-27.32	18.13	2.93	32.18	102	136	Peak
850.9	23.03	30.35	46	-22.97	21.03	3.44	31.79	122	169	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
64.02	34.59	53.57	40	-5.41	12.35	0.9	32.23	105	195	Peak
74.01	25.39	47.72	40	-14.61	8.78	1.11	32.22	112	162	Peak
206.04	18.1	37.6	43.5	-25.4	11.12	1.65	32.27	141	85	Peak
430.9	15.56	30	46	-30.44	15.33	2.41	32.18	101	120	Peak
671.7	19.68	29.95	46	-26.32	18.8	3.05	32.12	105	132	Peak
823.6	22.58	30.44	46	-23.42	20.69	3.38	31.93	109	145	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
62.94	30.15	48.88	40	-9.85	12.6	0.9	32.23	121	162	Peak
92.91	23.97	43.58	43.5	-19.53	11.16	1.11	31.88	148	157	Peak
192.81	22.37	42.22	43.5	-21.13	10.81	1.61	32.27	112	132	Peak
352.5	23.84	39.48	46	-22.16	14.24	2.19	32.07	105	195	Peak
609.4	19.36	30.66	46	-26.64	18.02	2.87	32.19	142	162	Peak
800.5	21.18	29.59	46	-24.82	20.33	3.32	32.06	113	132	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
75.09	20.95	43.62	40	-19.05	8.44	1.11	32.22	169	125	Peak
111.81	19.09	38.27	43.5	-24.41	11.79	1.28	32.25	158	175	Peak
225.48	18.82	37.57	46	-27.18	11.59	1.85	32.19	115	154	Peak
435.1	15.16	29.47	46	-30.84	15.37	2.49	32.17	132	163	Peak
609.4	19.38	30.68	46	-26.62	18.02	2.87	32.19	125	162	Peak
811.7	21.7	29.86	46	-24.3	20.52	3.32	32	199	168	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
68.07	18.95	39.34	40	-21.05	10.93	0.9	32.22	102	145	Peak
99.39	23.82	42.52	43.5	-19.68	12.28	1.28	32.26	136	122	Peak
193.89	21.95	41.73	43.5	-21.55	10.88	1.61	32.27	101	120	Peak
413.4	15.93	30.57	46	-30.07	15.15	2.41	32.2	133	126	Peak
589.8	18.49	30.03	46	-27.51	17.78	2.87	32.19	102	151	Peak
809.6	22.2	30.4	46	-23.8	20.49	3.32	32.01	144	184	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
53.49	34.49	51.52	40	-5.51	14.3	0.9	32.23	102	162	Peak
112.08	28.97	48.28	43.5	-14.53	11.66	1.28	32.25	133	162	Peak
205.5	25.01	44.51	43.5	-18.49	11.12	1.65	32.27	105	125	Peak
421.8	18.79	33.32	46	-27.21	15.25	2.41	32.19	101	151	Peak
651.4	19.01	29.69	46	-26.99	18.48	2.99	32.15	122	132	Peak
822.2	21.65	29.53	46	-24.35	20.68	3.38	31.94	145	154	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 159	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
60.78	13.03	31.25	40	-26.97	13.11	0.9	32.23	134	274	Peak
105.06	18.2	36.76	43.5	-25.3	12.42	1.28	32.26	168	229	Peak
187.95	21.11	41.3	43.5	-22.39	10.45	1.61	32.25	147	24	Peak
393.1	12.94	27.95	46	-33.06	14.85	2.34	32.2	106	142	Peak
695.5	18.55	28.36	46	-27.45	19.17	3.11	32.09	177	342	Peak
854.4	21.75	28.99	46	-24.25	21.08	3.44	31.76	160	129	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
59.43	23.23	41.04	40	-16.77	13.52	0.9	32.23	148	214	Peak
187.95	12.64	32.83	43.5	-30.86	10.45	1.61	32.25	128	125	Peak
248.16	11.13	29.1	46	-34.87	12.28	1.85	32.1	200	137	Peak
390.3	13.22	28.28	46	-32.78	14.79	2.34	32.19	190	125	Peak
762	19.24	28.2	46	-26.76	19.94	3.22	32.12	166	323	Peak
897.1	22.24	28.81	46	-23.76	21.44	3.49	31.5	127	164	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. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Conc_ 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

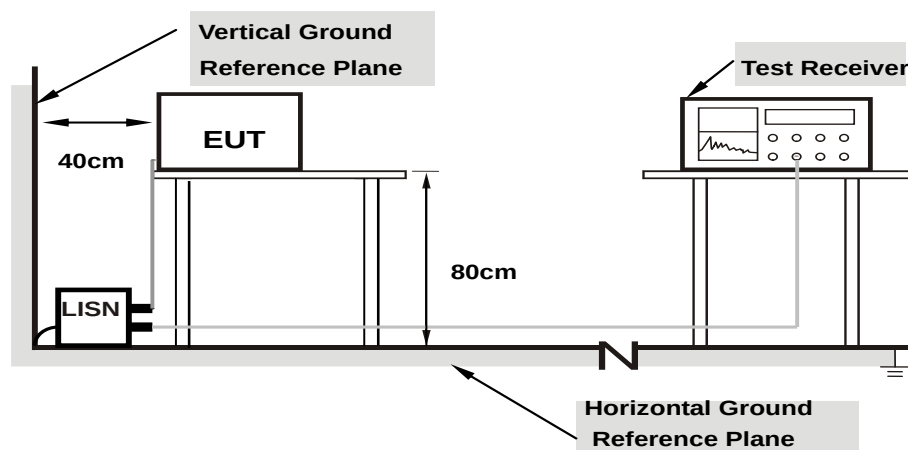
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

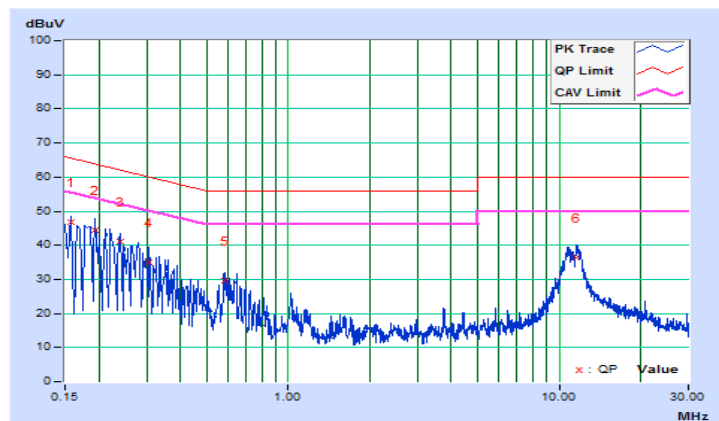
4.2.7 Test Results

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	Getaz Yang	Test Date	2017/10/4

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	10.10	36.67	23.17	46.77	33.27	65.58	55.58	-18.81	-22.31
2	0.19301	10.10	34.40	17.79	44.50	27.89	63.91	53.91	-19.41	-26.02
3	0.23993	10.11	30.97	16.81	41.08	26.92	62.10	52.10	-21.02	-25.18
4	0.30640	10.11	24.81	8.74	34.92	18.85	60.07	50.07	-25.15	-31.22
5	0.58401	10.12	19.41	7.74	29.53	17.86	56.00	46.00	-26.47	-28.14
6	11.59066	10.71	25.49	18.55	36.20	29.26	60.00	50.00	-23.80	-20.74

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

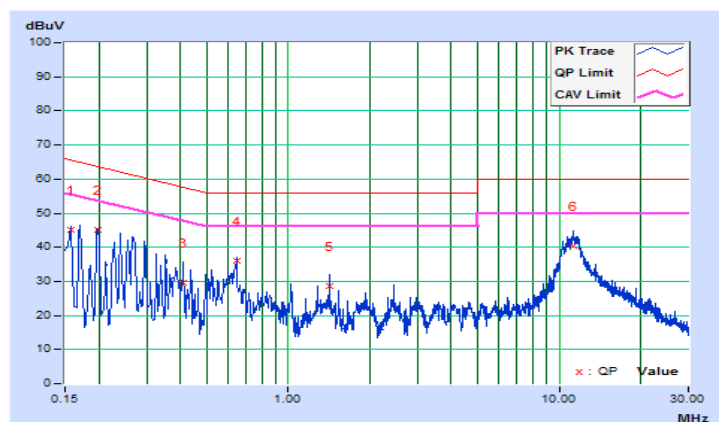


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/10/4

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	0.15782	10.10	34.98	18.96	45.08	29.06	65.58	55.58	-20.50	-26.52
2	0.19717	10.10	34.96	21.99	45.06	32.09	63.73	53.73	-18.67	-21.64
3	0.40800	10.12	19.41	4.89	29.53	15.01	57.69	47.69	-28.16	-32.68
4	0.64657	10.12	26.04	13.45	36.16	23.57	56.00	46.00	-19.84	-22.43
5	1.42075	10.15	18.36	7.02	28.51	17.17	56.00	46.00	-27.49	-28.83
6	11.29741	10.57	29.93	21.93	40.50	32.50	60.00	50.00	-19.50	-17.50

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

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

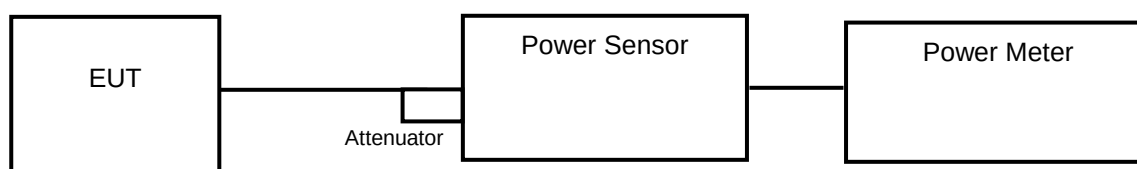
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

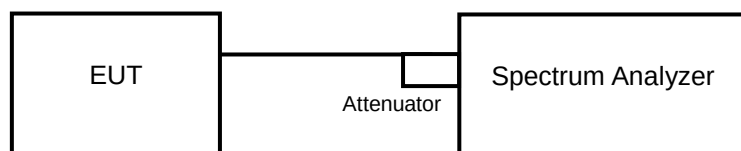
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

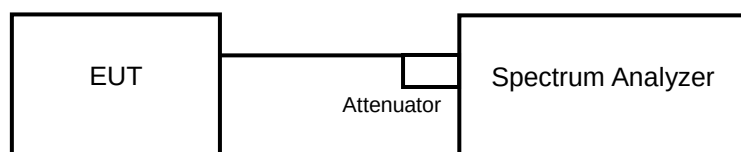
<Power Output Measurement>



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 (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	14.78	12.88	49.47	16.94	24	Pass
44	5220	14.76	12.77	48.846	16.89	24	Pass
48	5240	14.76	12.81	49.022	16.90	24	Pass
52	5260	14.66	12.87	48.606	16.87	24	Pass
60	5300	14.83	12.88	49.818	16.97	24	Pass
64	5320	14.79	12.81	49.229	16.92	24	Pass
100	5500	14.86	12.84	49.851	16.98	24	Pass
116	5580	14.83	12.81	49.508	16.95	24	Pass
140	5700	14.82	12.56	48.369	16.85	24	Pass
144	5720 (U-NII-2C)	10.40	7.74	17.892	12.53	23.40	Pass
144	5720 (U-NII-3)	3.87	1.72	4.152	6.18	30	Pass
149	5745	13.38	9.94	31.64	15.00	30	Pass
157	5785	13.95	10.32	35.596	15.51	30	Pass
165	5825	13.94	9.86	34.457	15.37	30	Pass

Note:

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

Chain 0

1. $11 \text{ dBm} + 10\log (36.64) = 26.64 \text{ dBm} > 24 \text{ dBm}.$
2. $11 \text{ dBm} + 10\log (25.73) = 25.1 \text{ dBm} > 24 \text{ dBm}.$
3. $11 \text{ dBm} + 10\log (37.83) = 26.78 \text{ dBm} > 24 \text{ dBm}.$
4. $11 \text{ dBm} + 10\log (37.98) = 26.8 \text{ dBm} > 24 \text{ dBm}.$
5. $11 \text{ dBm} + 10\log (27.50) = 25.39 \text{ dBm} > 24 \text{ dBm}.$
6. $11 \text{ dBm} + 10\log (27.42) = 25.38 \text{ dBm} > 24 \text{ dBm}.$
7. $11 \text{ dBm} + 10\log (5725-5705.54) = 23.89 \text{ dBm} < 24 \text{ dBm}.$

Chain 1

1. $11 \text{ dBm} + 10\log (36.04) = 26.57 \text{ dBm} > 24 \text{ dBm}.$
2. $11 \text{ dBm} + 10\log (37.75) = 26.77 \text{ dBm} > 24 \text{ dBm}.$
3. $11 \text{ dBm} + 10\log (38.46) = 26.85 \text{ dBm} > 24 \text{ dBm}.$
4. $11 \text{ dBm} + 10\log (29.29) = 25.67 \text{ dBm} > 24 \text{ dBm}.$
5. $11 \text{ dBm} + 10\log (29.38) = 25.68 \text{ dBm} > 24 \text{ dBm}.$
6. $11 \text{ dBm} + 10\log (25.85) = 25.12 \text{ dBm} > 24 \text{ dBm}.$
7. $11 \text{ dBm} + 10\log (5725-5707.62) = 23.40 \text{ dBm} < 24 \text{ dBm}.$

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	14.92	12.60	49.243	16.92	24	Pass
44	5220	14.85	12.73	49.299	16.93	24	Pass
48	5240	14.81	12.66	48.719	16.88	24	Pass
52	5260	14.57	12.83	47.829	16.80	24	Pass
60	5300	14.80	12.77	49.123	16.91	24	Pass
64	5320	14.89	12.77	49.755	16.97	24	Pass
100	5500	14.90	12.71	49.567	16.95	24	Pass
116	5580	15.09	12.25	49.073	16.91	24	Pass
140	5700	11.99	8.77	23.346	13.68	24	Pass
144	5720 (U-NII-2C)	9.92	7.06	15.8	11.99	23.28	Pass
144	5720 (U-NII-3)	4.18	2.16	4.52	6.55	30	Pass
149	5745	13.43	10.11	32.286	15.09	30	Pass
157	5785	13.34	10.15	31.928	15.04	30	Pass
165	5825	13.87	10.02	34.424	15.37	30	Pass

Note:

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

Chain 0

1. $11 \text{ dBm} + 10\log (43.25) = 27.36 \text{ dBm} > 24 \text{ dBm}.$
2. $11 \text{ dBm} + 10\log (33.64) = 26.27 \text{ dBm} > 24 \text{ dBm}.$
3. $11 \text{ dBm} + 10\log (43.94) = 27.43 \text{ dBm} > 24 \text{ dBm}.$
4. $11 \text{ dBm} + 10\log (44.41) = 27.47 \text{ dBm} > 24 \text{ dBm}.$
5. $11 \text{ dBm} + 10\log (43.21) = 27.36 \text{ dBm} > 24 \text{ dBm}.$
6. $11 \text{ dBm} + 10\log (28.90) = 25.61 \text{ dBm} > 24 \text{ dBm}.$
7. $11 \text{ dBm} + 10\log (5725-5707.26) = 23.49 \text{ dBm} < 24 \text{ dBm}.$

Chain 1

1. $11 \text{ dBm} + 10\log (43.07) = 27.34 \text{ dBm} > 24 \text{ dBm}.$
2. $11 \text{ dBm} + 10\log (45.25) = 27.56 \text{ dBm} > 24 \text{ dBm}.$
3. $11 \text{ dBm} + 10\log (43.71) = 27.41 \text{ dBm} > 24 \text{ dBm}.$
4. $11 \text{ dBm} + 10\log (42.59) = 27.29 \text{ dBm} > 24 \text{ dBm}.$
5. $11 \text{ dBm} + 10\log (34.82) = 26.42 \text{ dBm} > 24 \text{ dBm}.$
6. $11 \text{ dBm} + 10\log (25.93) = 25.14 \text{ dBm} > 24 \text{ dBm}.$
7. $11 \text{ dBm} + 10\log (5725-5708.10) = 23.28 \text{ dBm} < 24 \text{ dBm}.$

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	14.14	11.73	40.836	16.11	24	Pass
46	5230	14.88	12.56	48.791	16.88	24	Pass
54	5270	14.85	12.85	49.824	16.97	24	Pass
62	5310	12.23	10.12	26.991	14.31	24	Pass
102	5510	14.37	11.97	43.093	16.34	24	Pass
110	5550	15.20	12.25	49.901	16.98	24	Pass
134	5670	15.03	12.23	48.553	16.86	24	Pass
142	5710 (U-NII-2C)	7.28	4.78	9.437	9.75	24	Pass
142	5710 (U-NII-3)	-0.57	-4.73	1.3712	1.37	30	Pass
151	5755	13.43	10.23	32.573	15.13	30	Pass
159	5795	13.30	10.20	31.851	15.03	30	Pass

Note:

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

Chain 0

1. $11 \text{ dBm} + 10\log (72.18) = 29.58 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (67.66) = 29.30 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (74.59) = 29.73 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (73.94) = 29.69 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (47.14) = 27.73 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (5725-5687.65) = 26.72 \text{ dBm} > 24 \text{ dBm}$.

Chain 1

1. $11 \text{ dBm} + 10\log (72.26) = 29.59 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (76.01) = 29.81 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (69.00) = 29.39 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (52.22) = 28.18 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (43.65) = 27.40 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (5725-5688.29) = 26.65 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	14.10	11.42	39.572	15.97	24	Pass
58	5290	13.92	11.75	39.622	15.98	24	Pass
106	5530	14.09	11.40	39.449	15.96	24	Pass
122	5610	14.10	11.30	39.194	15.93	24	Pass
138	5690 (U-NII-2C)	2.19	0.86	4.131	6.16	24	Pass
138	5690 (U-NII-3)	-9.91	-12.99	0.2188	-6.60	30	Pass
155	5775	11.45	8.30	20.725	13.16	30	Pass

Note:

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

Chain 0

1. $11 \text{ dBm} + 10\log (85.59) = 30.32 \text{ dBm} > 24 \text{ dBm}.$
2. $11 \text{ dBm} + 10\log (95.51) = 30.80 \text{ dBm} > 24 \text{ dBm}.$
3. $11 \text{ dBm} + 10\log (97.35) = 30.88 \text{ dBm} > 24 \text{ dBm}.$
4. $11 \text{ dBm} + 10\log (5725-5632.67) = 30.65 \text{ dBm} > 24 \text{ dBm}.$

Chain 1

1. $11 \text{ dBm} + 10\log (105.52) = 31.23 \text{ dBm} > 24 \text{ dBm}.$
2. $11 \text{ dBm} + 10\log (84.19) = 30.25 \text{ dBm} > 24 \text{ dBm}.$
3. $11 \text{ dBm} + 10\log (84.71) = 30.28 \text{ dBm} > 24 \text{ dBm}.$
4. $11 \text{ dBm} + 10\log (5725-5647.82) = 29.87 \text{ dBm} > 24 \text{ dBm}.$

26 dB Bandwidth:
802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	27.58	37.75
44	5220	27.65	38.66
48	5240	37.87	37.75
52	5260	36.64	36.04
60	5300	25.73	37.75
64	5320	37.83	38.46
100	5500	37.98	29.29
116	5580	27.50	29.38
140	5700	27.42	25.85
144	5720 (U-NII-2C)	19.46	17.38
144	5720 (U-NII-3)	7.85	5.85

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	41.91	44.22
44	5220	42.66	44.32
48	5240	43.80	43.57
52	5260	43.25	43.07
60	5300	33.64	45.25
64	5320	43.94	43.71
100	5500	44.41	42.59
116	5580	43.21	34.82
140	5700	28.90	25.93
144	5720 (U-NII-2C)	17.74	16.90
144	5720 (U-NII-3)	7.31	6.44

802.11n (HT40)

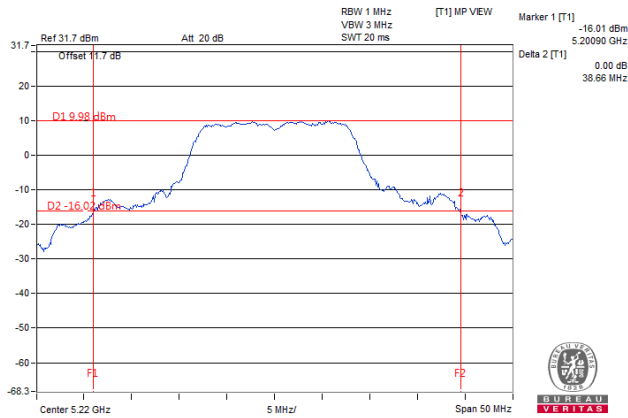
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	68.19	71.13
46	5230	66.77	78.50
54	5270	72.18	72.26
62	5310	67.66	76.01
102	5510	74.59	69.00
110	5550	73.94	52.22
134	5670	47.14	43.65
142	5710 (U-NII-2C)	37.35	36.71
142	5710 (U-NII-3)	6.95	6.87

802.11ac (VHT80)

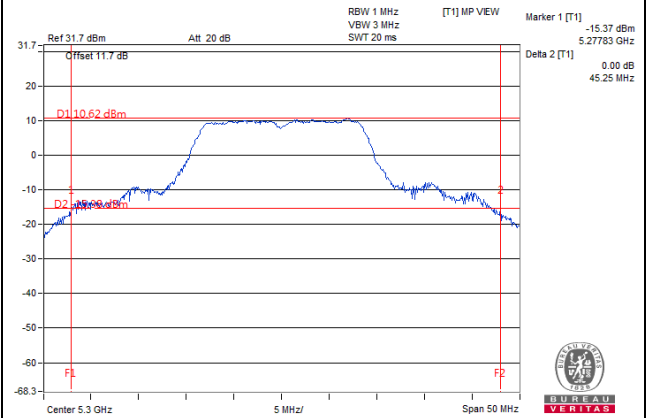
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	89.53	109.89
58	5290	85.59	105.52
106	5530	95.51	84.19
122	5610	97.35	84.71
138	5690 (U-NII-2C)	92.33	77.18
138	5690 (U-NII-3)	9.12	7.03

Spectrum Plot of Worst Value

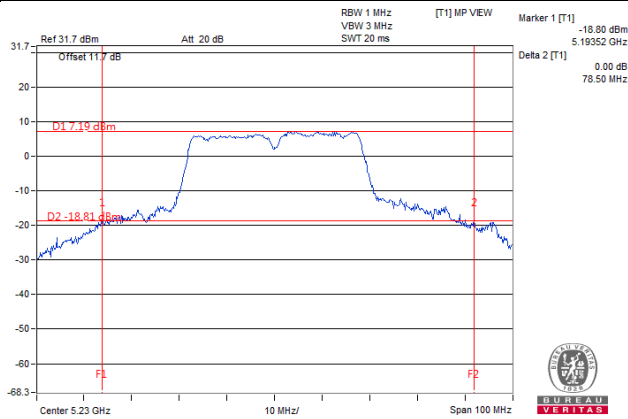
802.11a



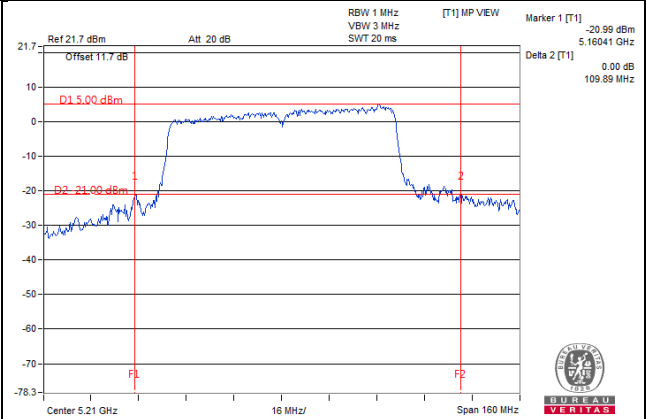
802.11n (HT20)



802.11n (HT40)

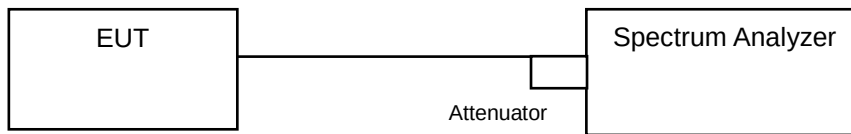


802.11ac (VHT80)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1 % to 5 % of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to SAMPLE. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.4.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.06	17.16
40	5200	17.11	17.16
48	5240	17.21	17.01
52	5260	17.16	16.92
60	5300	17.11	17.11
64	5320	17.25	17.01
100	5500	17.30	16.97
116	5580	17.16	16.82
140	5700	17.06	16.82
144	5720 (U-NII-2C)	13.28	13.28
144	5720 (U-NII-3)	3.28	3.16
149	5745	16.77	16.73
157	5785	16.80	16.70
165	5825	16.75	16.70

802.11n (HT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.17	18.26
40	5200	18.17	18.31
48	5240	18.36	18.22
52	5260	18.26	18.17
60	5300	18.17	18.36
64	5320	18.36	18.26
100	5500	18.36	18.12
116	5580	18.17	18.17
140	5700	18.12	18.07
144	5720 (U-NII-2C)	13.88	13.88
144	5720 (U-NII-3)	3.88	3.88
149	5745	18.02	17.93
157	5785	18.05	17.95
165	5825	17.95	17.95

802.11n (HT40)

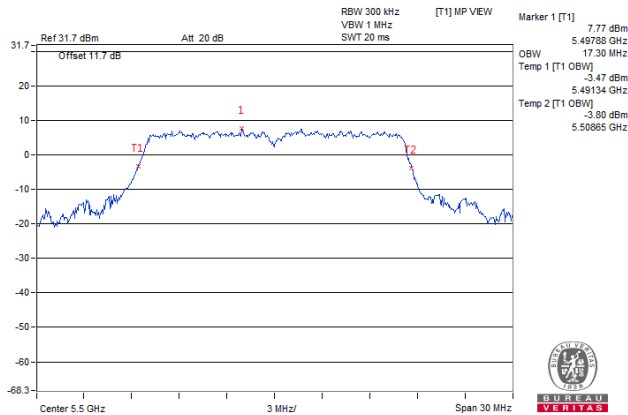
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	37.69	38.71
46	5230	37.82	39.23
54	5270	38.07	38.07
62	5310	37.69	38.58
102	5510	38.33	37.82
110	5550	38.07	37.43
134	5670	37.56	37.17
142	5710 (U-NII-2C)	33.48	33.36
142	5710 (U-NII-3)	3.36	3.36
151	5755	37.01	37.17
159	5795	36.85	36.83

802.11ac (VHT80)

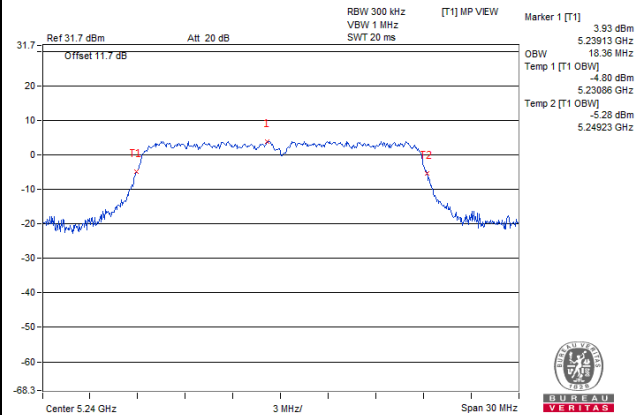
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.96	75.96
58	5290	76.12	76.12
106	5530	76.12	75.96
122	5610	75.96	76.12
138	5690 (U-NII-2C)	73.16	73.16
138	5690 (U-NII-3)	3.16	2.92
155	5775	76.28	76.12

Spectrum Plot of Worst Value

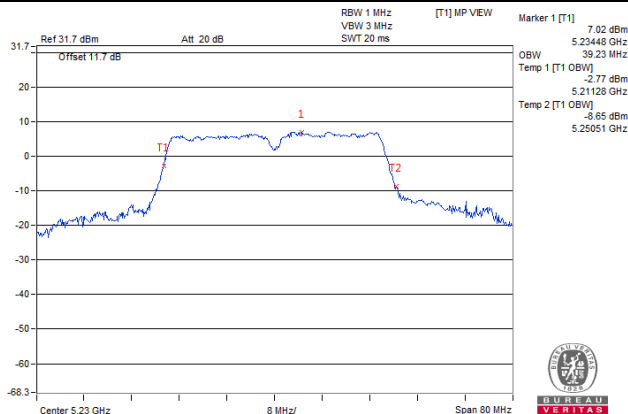
802.11a



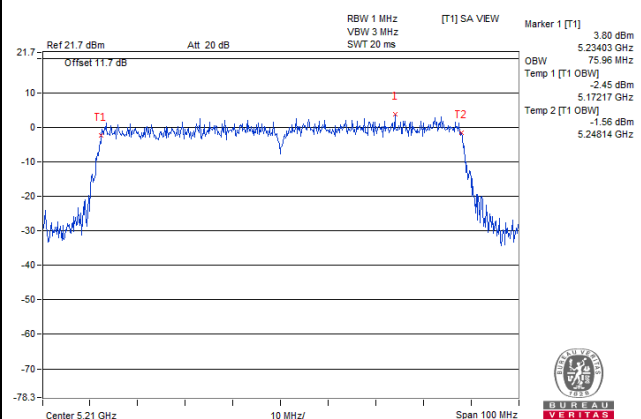
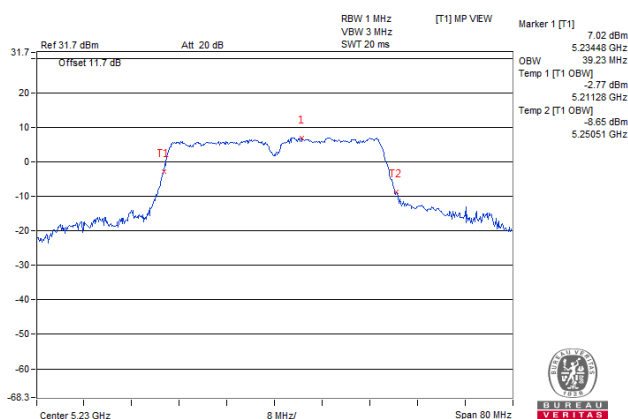
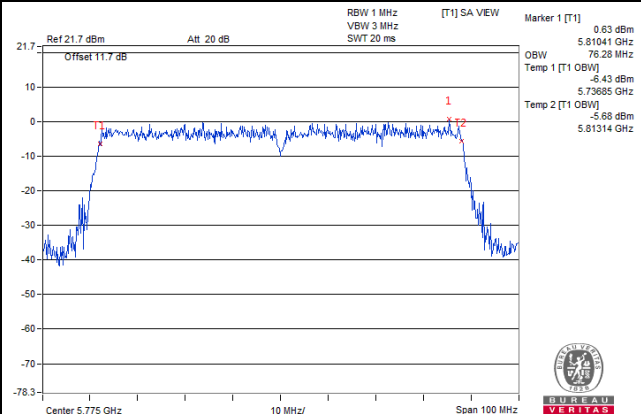
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

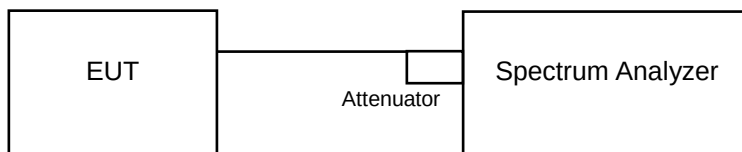


4.5 Peak Power Spectral Density Measurement

4.5.1 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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.5.4 Test 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 ≥ 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 ≥ 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)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

802.11a

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	1.34	0.39	0.25	4.15	11	Pass
44	5220	1.51	0.37	0.25	4.24	11	Pass
48	5240	1.45	0.66	0.25	4.33	11	Pass
52	5260	1.61	0.76	0.25	4.47	11	Pass
60	5300	2.07	1.38	0.25	5.00	11	Pass
64	5320	2.21	1.45	0.25	5.11	11	Pass
100	5500	3.91	3.16	0.25	6.81	11	Pass
116	5580	3.48	1.94	0.25	6.04	11	Pass
140	5700	2.42	-0.29	0.25	4.53	11	Pass
144	5720 (U-NII-2C)	1.83	-0.64	0.25	4.02	11	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**

$$\text{Directional gain} = 10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.57 \text{ dBi} < 6 \text{ dBi}, \text{ so the limit does not need to be reduced.}$$
For U-NII-2A, U-NII-2C Band:

$$\text{Directional gain} = 10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.72 \text{ dBi} < 6 \text{ dBi}, \text{ so the limit does not need to be reduced.}$$
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	0.45	0.14	0.26	3.56	11	Pass
44	5220	0.76	0.10	0.26	3.71	11	Pass
48	5240	0.94	0.40	0.26	3.94	11	Pass
52	5260	0.92	0.58	0.26	4.02	11	Pass
60	5300	1.40	0.94	0.26	4.44	11	Pass
64	5320	1.57	1.08	0.26	4.60	11	Pass
100	5500	3.35	2.81	0.26	6.35	11	Pass
116	5580	2.90	1.69	0.26	5.60	11	Pass
140	5700	1.92	-0.61	0.26	4.10	11	Pass
144	5720 (U-NII-2C)	1.36	-0.90	0.26	3.64	11	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.57 \text{ dBi} < 6 \text{ dBi}$, so the limit does not need to be reduced.
- For U-NII-2A, U-NII-2C Band:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.72 \text{ dBi} < 6 \text{ dBi}$, so the limit does not need to be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-2.36	-2.08	0.53	1.32	11	Pass
46	5230	-1.94	-2.26	0.53	1.44	11	Pass
54	5270	-1.74	-2.26	0.53	1.55	11	Pass
62	5310	-1.17	-1.50	0.53	2.21	11	Pass
102	5510	0.29	-0.19	0.53	3.60	11	Pass
110	5550	0.27	-0.90	0.53	3.26	11	Pass
134	5670	-1.70	-3.09	0.53	1.20	11	Pass
142	5710 (U-NII-2C)	-3.00	-5.36	0.53	-0.48	11	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.57 \text{ dBi} < 6 \text{ dBi}$, so the limit does not need to be reduced.
- For U-NII-2A, U-NII-2C Band:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.72 \text{ dBi} < 6 \text{ dBi}$, so the limit does not need to be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-6.44	-5.95	1.57	-1.61	11	Pass
58	5290	-6.42	-6.06	1.57	-1.66	11	Pass
106	5530	-4.45	-4.93	1.57	-0.10	11	Pass
122	5610	-5.59	-7.15	1.57	-1.72	11	Pass
138	5690 (U-NII-2C)	-5.33	-8.52	1.57	-2.05	11	Pass

Note:

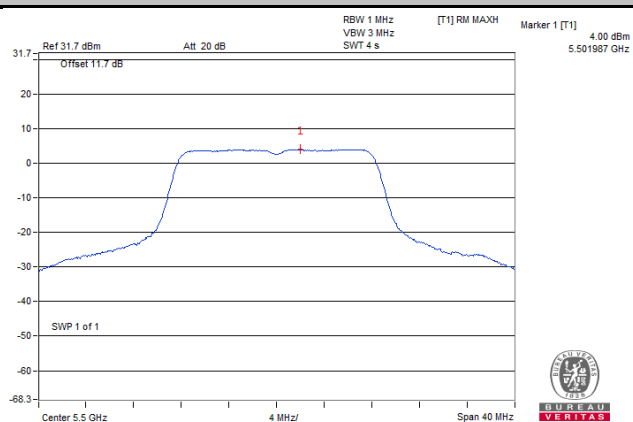
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**

$$\text{Directional gain} = 10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.57 \text{ dBi} < 6 \text{ dBi}, \text{ so the limit does not need to be reduced.}$$
For U-NII-2A, U-NII-2C Band:

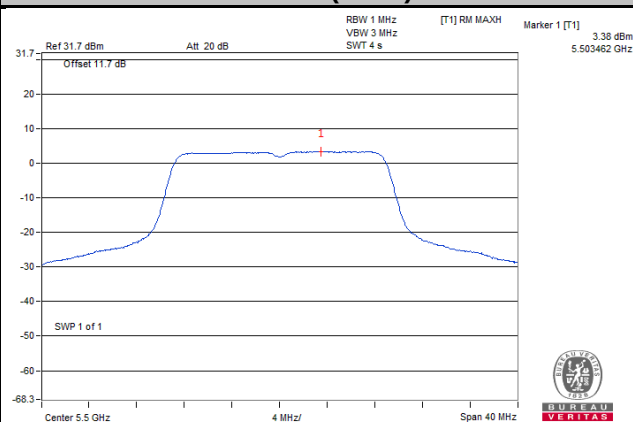
$$\text{Directional gain} = 10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.72 \text{ dBi} < 6 \text{ dBi}, \text{ so the limit does not need to be reduced.}$$
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

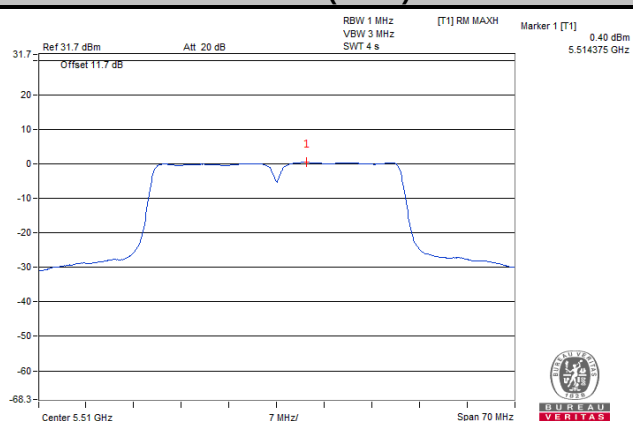
802.11a



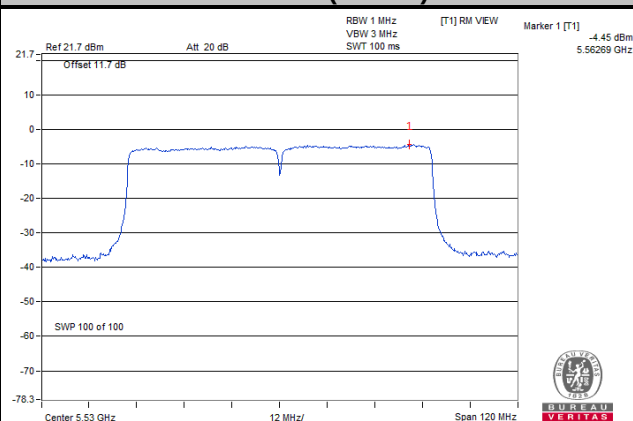
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



For U-NII-3 Band

802.11a

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	144	5720 (U-NII-3)	-1.16	3.01	0.25	2.10	30	Pass
	149	5745	-3.09	3.01	0.25	0.17	30	Pass
	157	5785	-1.90	3.01	0.25	1.36	30	Pass
	165	5825	-1.75	3.01	0.25	1.51	30	Pass
1	144	5720 (U-NII-3)	-3.39	3.01	0.25	-0.13	30	Pass
	149	5745	-6.21	3.01	0.25	-2.95	30	Pass
	157	5785	-5.08	3.01	0.25	-1.82	30	Pass
	165	5825	-4.89	3.01	0.25	-1.63	30	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -1.38 < 6 \text{ dBi}$, so the limit does no need to be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	144	5720 (U-NII-3)	-1.61	3.01	0.26	1.66	30	Pass
	149	5745	-3.63	3.01	0.26	-0.36	30	Pass
	157	5785	-3.32	3.01	0.26	-0.05	30	Pass
	165	5825	-2.00	3.01	0.26	1.27	30	Pass
1	144	5720 (U-NII-3)	-3.93	3.01	0.26	-0.66	30	Pass
	149	5745	-6.41	3.01	0.26	-3.14	30	Pass
	157	5785	-6.18	3.01	0.26	-2.91	30	Pass
	165	5825	-5.31	3.01	0.26	-2.04	30	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -1.38 < 6 \text{ dBi}$, so the limit does no need to be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	142	5710 (U-NII-3)	-5.32	3.01	0.53	-1.78	30	Pass
	151	5755	-6.75	3.01	0.53	-3.21	30	Pass
	159	5795	-6.08	3.01	0.53	-2.54	30	Pass
1	142	5710 (U-NII-3)	-8.08	3.01	0.53	-4.54	30	Pass
	151	5755	-9.44	3.01	0.53	-5.90	30	Pass
	159	5795	-9.02	3.01	0.53	-5.48	30	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -1.38 < 6 \text{ dBi}$, so the limit does no need to be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

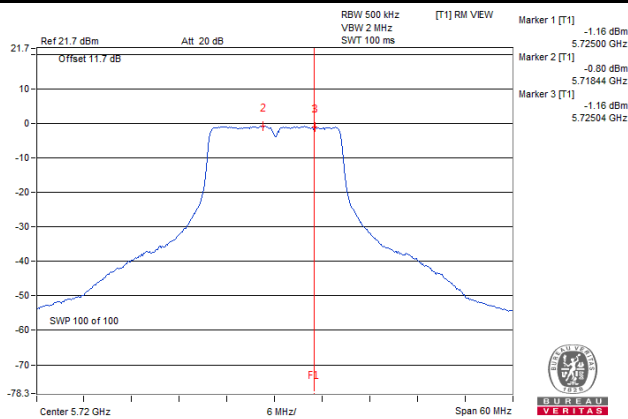
TX Chain	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	138	5690 (U-NII-3)	-8.36	3.01	1.57	-3.78	30	Pass
	155	5775	-12.20	3.01	1.57	-7.62	30	Pass
1	138	5690 (U-NII-3)	-10.92	3.01	1.57	-6.34	30	Pass
	155	5775	-15.21	3.01	1.57	-10.63	30	Pass

Note:

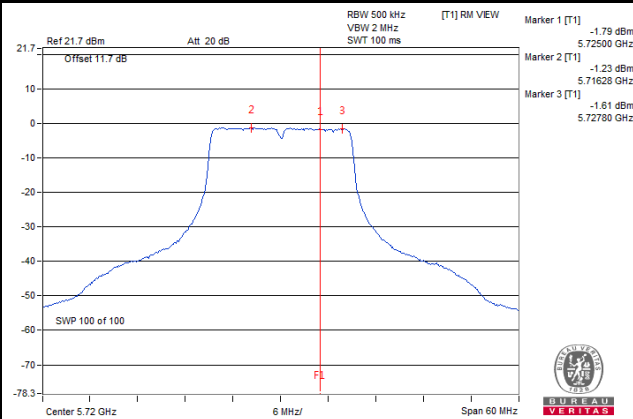
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -1.38 < 6 \text{ dBi}$, so the limit does no need to be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

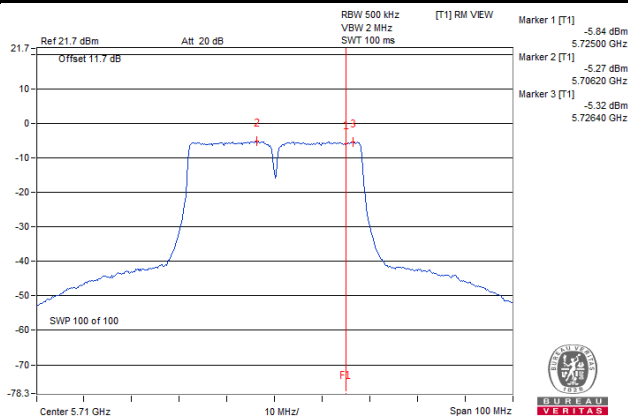
802.11a



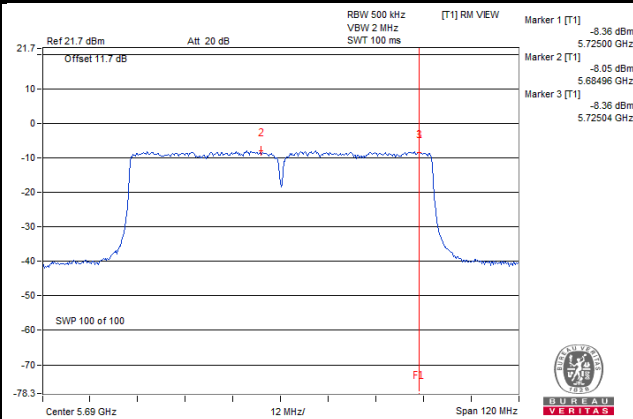
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

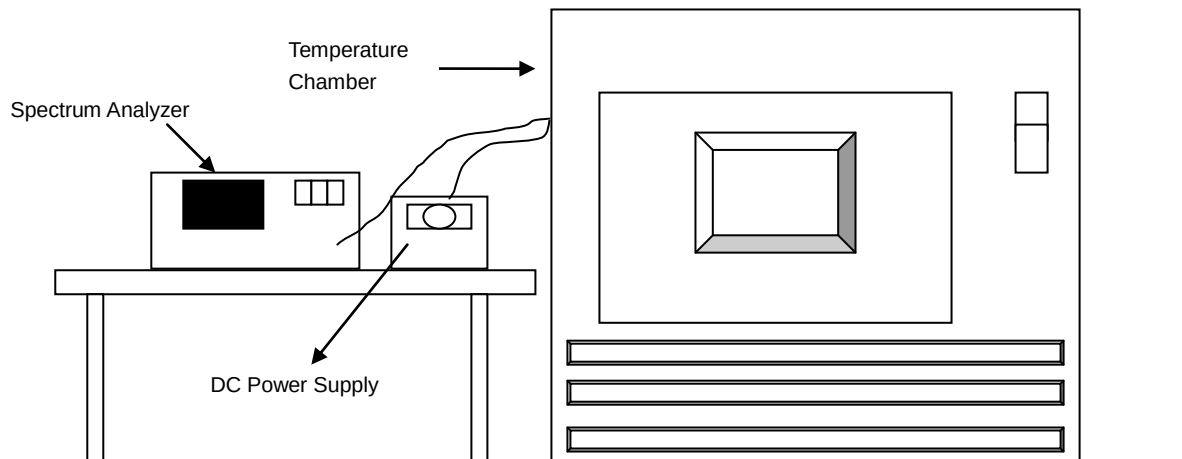


4.6 Frequency Stability

4.6.1 Limit of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation.

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

- 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.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 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	5179.9956	-0.85000	5179.9989	-0.21000	5179.9977	-0.44000	5179.9952	-0.93000
40	3.85	5179.9945	-1.06000	5179.9963	-0.71000	5179.9942	-1.12000	5179.9972	-0.54000
30	3.85	5179.9896	-2.01000	5179.9884	-2.24000	5179.9908	-1.78000	5179.9895	-2.03000
20	3.85	5179.9914	-1.66000	5179.9938	-1.20000	5179.9943	-1.10000	5179.9936	-1.24000
10	3.85	5180.0134	2.59000	5180.0136	2.63000	5180.0139	2.68000	5180.0104	2.01000
0	3.85	5179.9761	-4.61000	5179.9773	-4.38000	5179.978	-4.25000	5179.9795	-3.96000
-10	3.85	5179.9983	-0.33000	5179.9986	-0.27000	5179.9976	-0.46000	5179.9977	-0.44000
-20	3.85	5180.014	2.70000	5180.0107	2.07000	5180.0143	2.76000	5180.0102	1.97000
-30	3.85	5179.9971	-0.56000	5179.9985	-0.29000	5180	0.00000	5179.9988	-0.23000

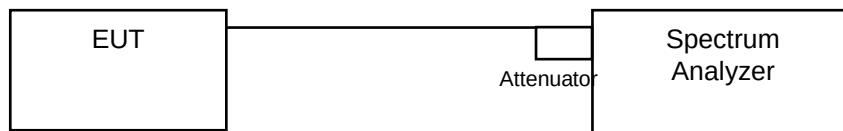
Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	4.4275	5179.992	-1.54000	5179.9941	-1.14000	5179.9936	-1.24000	5179.9942	-1.12000
	3.85	5179.9914	-1.66000	5179.9938	-1.20000	5179.9943	-1.10000	5179.9936	-1.24000
	3.2725	5179.9906	-1.81000	5179.9936	-1.24000	5179.9933	-1.29000	5179.9937	-1.22000

4.7 6 dB Bandwidth Measurement

4.7.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.7.4 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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 (U-NII-3)	3.22	3.23	0.5	Pass
149	5745	16.41	16.43	0.5	Pass
157	5785	16.40	16.42	0.5	Pass
165	5825	16.38	16.41	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 (U-NII-3)	3.85	3.85	0.5	Pass
149	5745	17.62	17.65	0.5	Pass
157	5785	17.62	17.61	0.5	Pass
165	5825	17.63	17.63	0.5	Pass

802.11n (HT40)

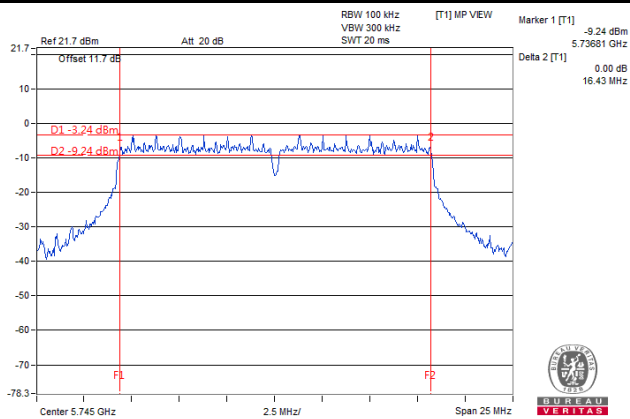
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710 (U-NII-3)	3.23	3.24	0.5	Pass
151	5755	36.45	36.42	0.5	Pass
159	5795	36.18	36.44	0.5	Pass

802.11ac (VHT80)

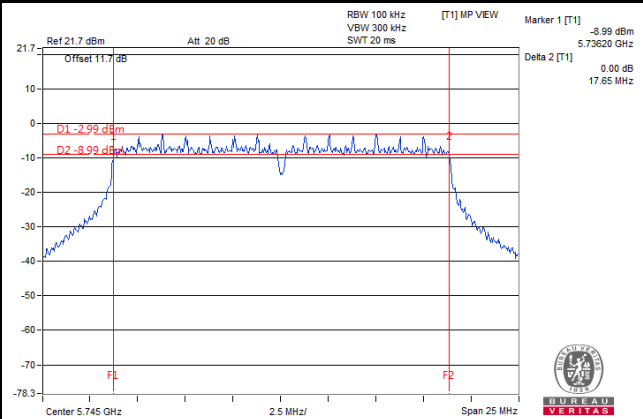
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 (U-NII-3)	3.22	3.24	0.5	Pass
155	5775	76.48	76.55	0.5	Pass

Spectrum Plot of Worst Value

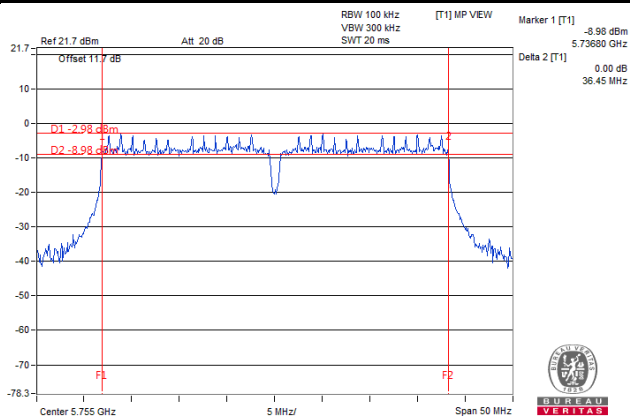
802.11a



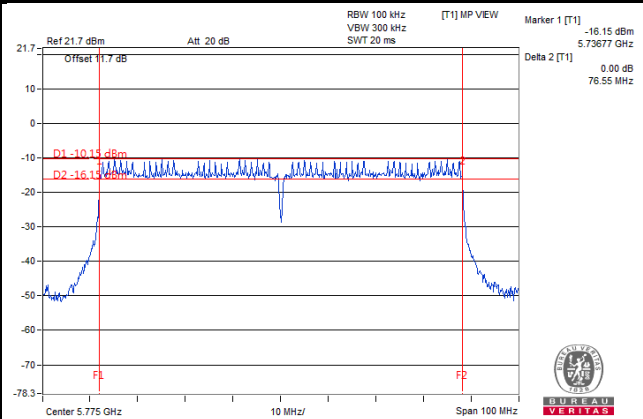
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

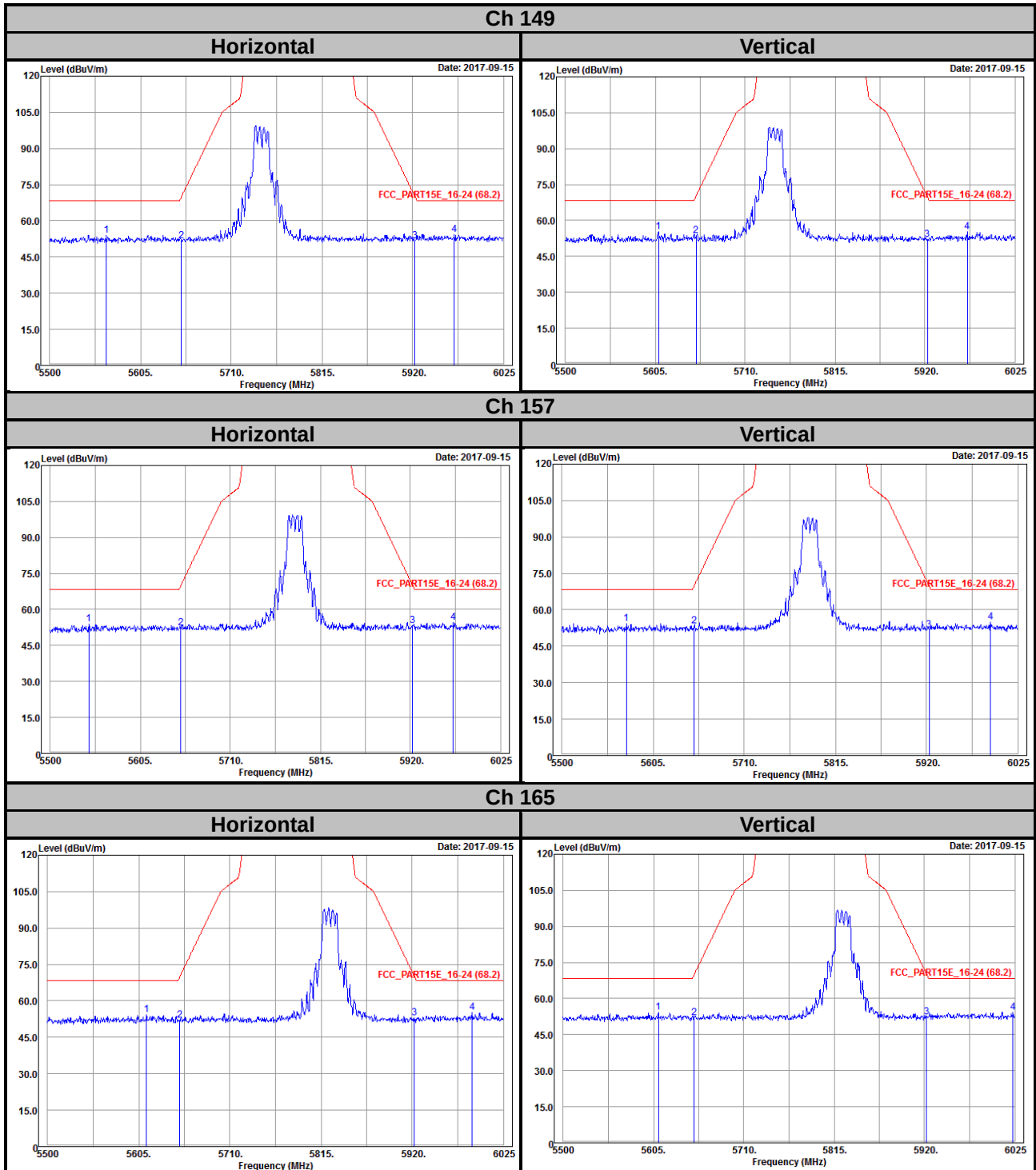


5 Pictures of Test Arrangements

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

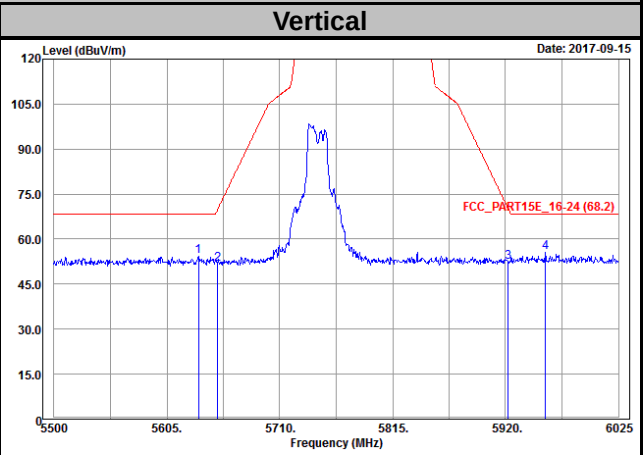
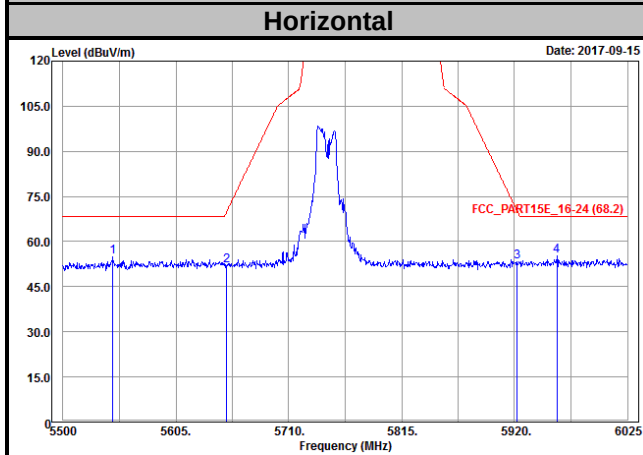
Annex A- Radiated Out of Band Emisison (OOBE) Measurement (For U-NII-3 band)

802.11a

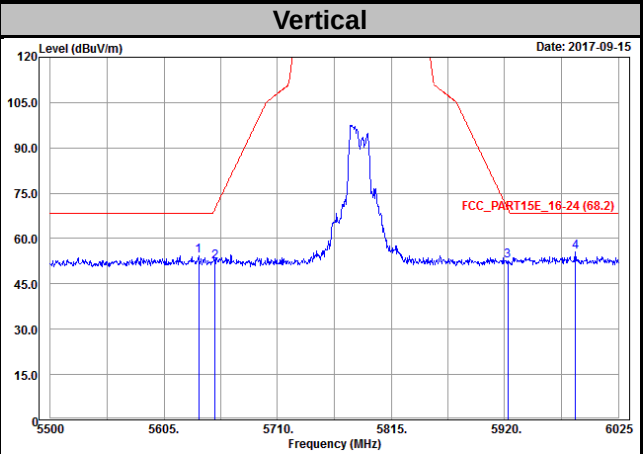
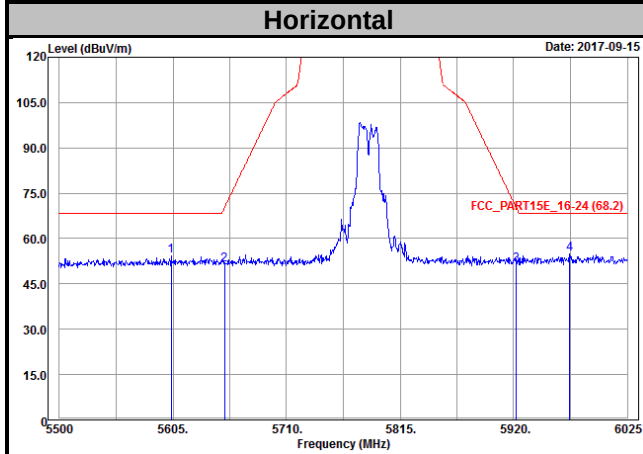


802.11n (HT20)

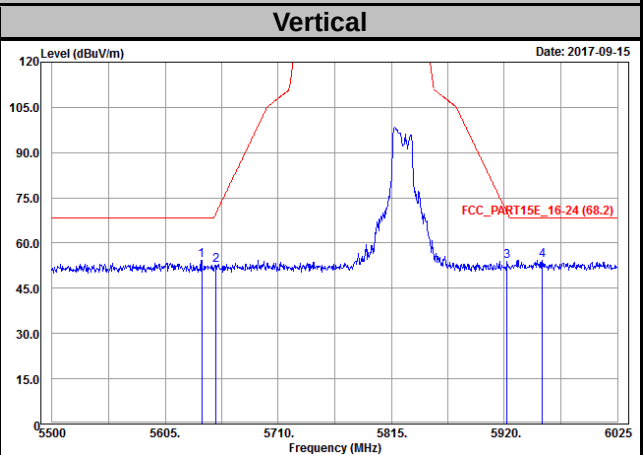
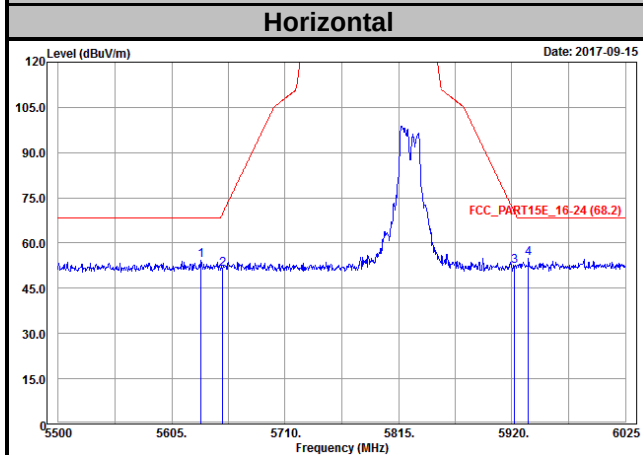
Ch 149



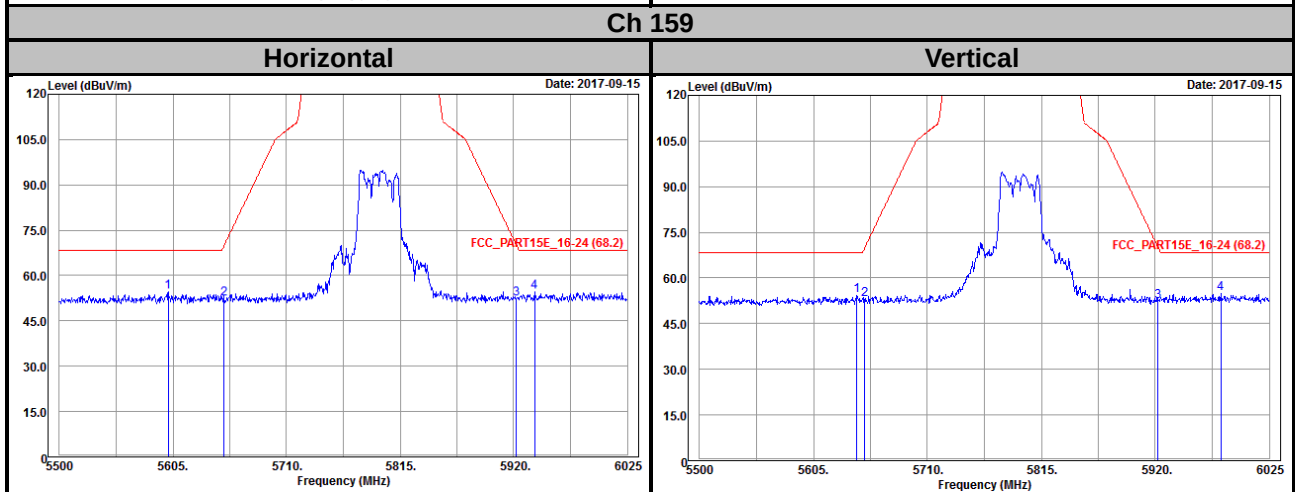
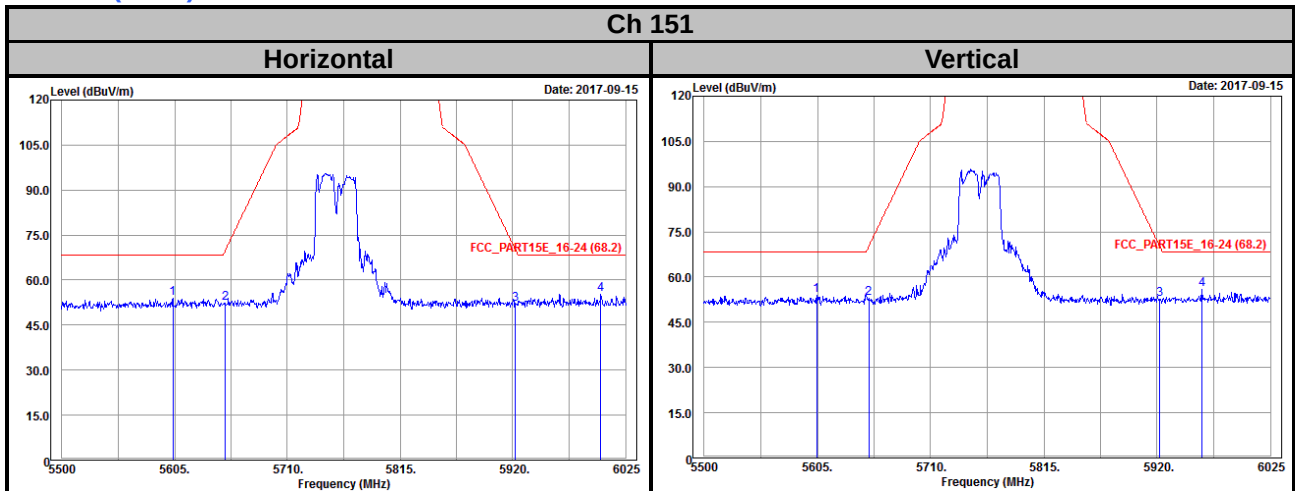
Ch 157



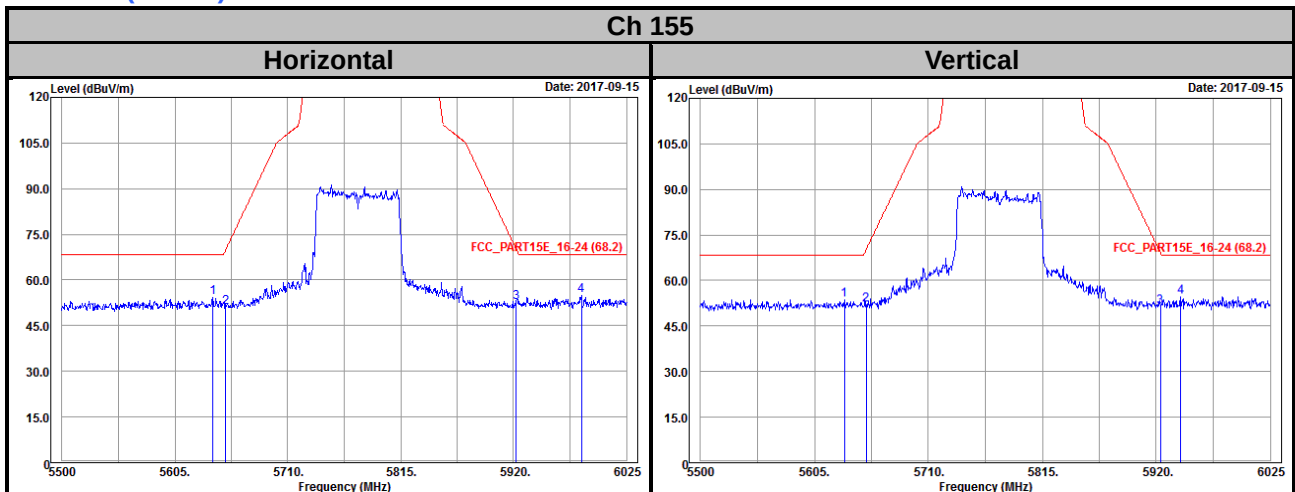
Ch 165



802.11n (HT40)



802.11ac (VHT80)



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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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Web Site: www.bureauveritas-adt.com

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

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