FCC Test Report

Report No.:	RF190212C40A-4
FCC ID:	B32CM5P
Test Model:	CM5P
Received Date:	Feb. 13, 2019
Test Date:	Feb. 21, 2019 ~ Mar. 22, 2019
Issued Date:	Mar. 29, 2019
Applicant:	Verifone, Inc.
Address:	1400 West Stanford Ranch Road Suite 200 Rocklin CA 95765 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location (1):	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.
Test Location (2):	B2F., No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C
FCC Registration / Designation Number:	427177 / TW0011

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Release Control Record

Issue No.	Description	Date Issued
RF190212C40A-4	Original Release	Mar. 29, 2019

1 Certificate of Conformity

Product:	Point of Sale Terminal
Brand:	Verifone
Test Model:	CM5P
Sample Status:	Identical Prototype
Applicant:	Verifone, Inc.
Test Date:	Feb. 21, 2019 ~ Mar. 22, 2019
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 RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Mar. 29, 2019

Ivonne Wu / Supervisor

Approved by : _____ , **Date:** Mar. 29, 2019

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 -18.20 dB at 1.77400 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 -3.11 dB at 5724.37 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.

Note:

1. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	**Frequency**	**Expended Uncertainty (k=2) (±)**
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	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	Point of Sale Terminal
Brand	Verifone
Test Model	CM5P
Status of EUT	Identical Prototype
Power Supply Rating	5.0 Vdc (adapter or host equipment) 3.7 Vdc (Li-ion battery)
Modulation Type	64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to 150.0 Mbps
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5700 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5240 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 5260 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 5500 ~ 5700 MHz: 11 for 802.11a, 802.11n (HT20) 5 for 802.11n (HT40) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
Output Power	11.803 mW for 5180 ~ 5240 MHz 11.246 mW for 5260 ~ 5320 MHz 10.495 mW for 5500 ~ 5700 MHz 8.954 mW for 5745 ~ 5825 MHz
Antenna Type	Fixed Internal antenna with 2.6 dBi gain
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT provides one transmitter and receiver.

Modulation Mode	Tx Function
802.11a	1TX
802.11n (HT20)	1TX
802.11n (HT40)	1TX

2. The EUT's accessories list refers to Ext. Pho.
3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

For 5180 ~ 5240 MHz

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

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

2 channels are provided for 802.11n (HT40):

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

For 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

For 5500 ~ 5700 MHz

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

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

5 channels are provided for 802.11n (HT40):

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

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

Note:
1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.
2. "-" means no effect.

Radiated Emission Test (Above 1 GHz):

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-	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	6.5
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 140	100, 116, 140	OFDM	BPSK	6.5
-		802.11n (HT40)	102 to 134	102, 110, 134	OFDM	BPSK	13.5
-	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	6.5
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5

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)
-	5500-5700	802.11a	100 to 140	140	OFDM	BPSK	6.0

Power Line Conducted Emission Test:

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5500-5700	802.11a	100 to 140	140	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, 40, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-	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	6.5
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-	5500-5700	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 140	100, 116, 140	OFDM	BPSK	6.5
-		802.11n (HT40)	102 to 134	102, 110, 134	OFDM	BPSK	13.5
-	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	6.5
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥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	Thomas Wei
APCM	25 deg. C, 65 % RH	3.7 Vdc	Vincent Huang

3.3 Duty Cycle of Test Signal

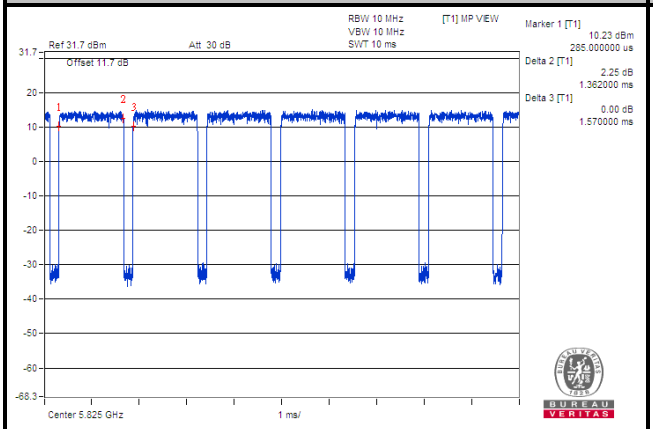
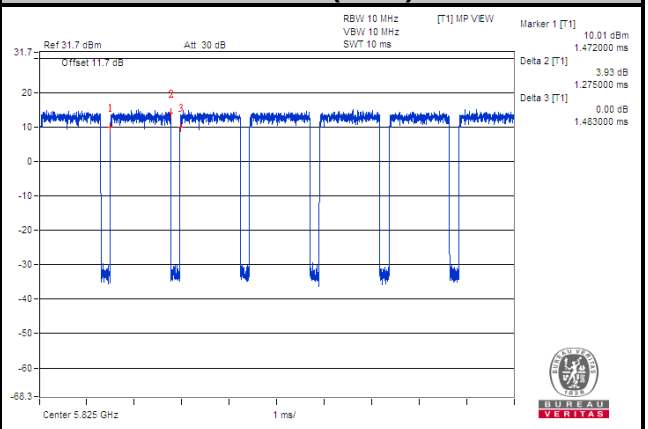
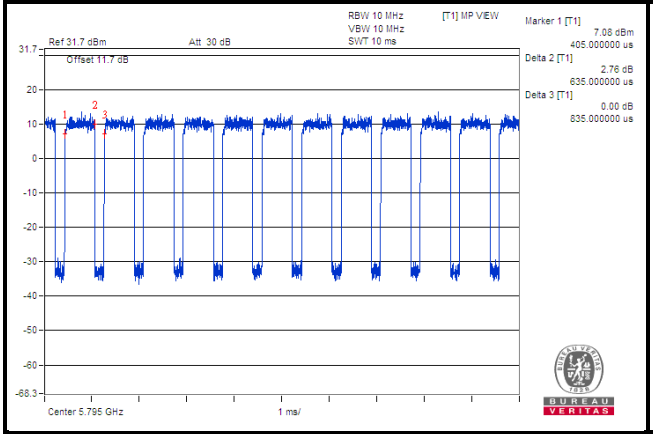
MODULATION TYPE: BPSK

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

802.11a: Duty cycle = 1.362/1.570 = 0.868, Duty factor = 10 * log(1/0.868) = 0.61

802.11n (HT20): Duty cycle = 1.275/1.483 = 0.860, Duty factor = 10 * log(1/0.860) = 0.66

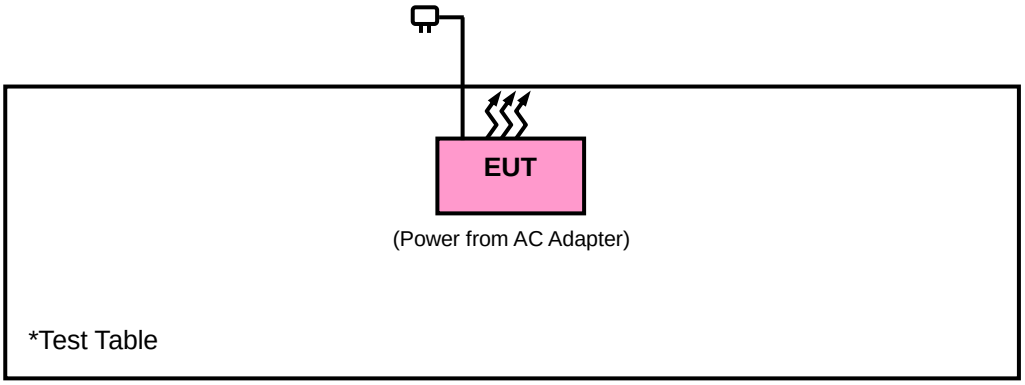
802.11n (HT40): Duty cycle = 635/835 = 0.760, Duty factor = 10 * log(1/0.760) = 1.19

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

3.4 Description of Support Units

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

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)
KDB 789033 D02 General UNII Test Procedures New Rules v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

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

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 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 v02r01		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:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P 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	Aug. 20, 2018	Aug. 19, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSV40	100980	Apr. 17, 2018	Apr. 16, 2019
HORN Antenna ETS-Lindgren	3117	00143293	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Nov. 27, 2018	Nov. 26, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 25, 2018	Nov. 24, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019
Loop Antenna	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
Preamplifier Agilent	310N	187226	Jun. 19, 2018	Jun. 18, 2019
Preamplifier Agilent	83017A	MY39501357	Jun. 19, 2018	Jun. 18, 2019
Preamplifier EMCI	EMC 184045	980116	Oct. 12, 2018	Oct. 11, 2019
Power Meter Anritsu	ML2495A	1012010	Sep. 05, 2018	Sep. 04, 2019
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2018	Sep. 03, 2019
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 19, 2018	Jun. 18, 2019
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 19, 2018	Jun. 18, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
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
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 05, 2018	Sep. 04, 2019
DC Power Supply Topward	33010D	807748	NA	NA
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is 7450I-1.

4.1.4 Test Procedures

For Radiated Emission below 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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. Both Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case 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.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

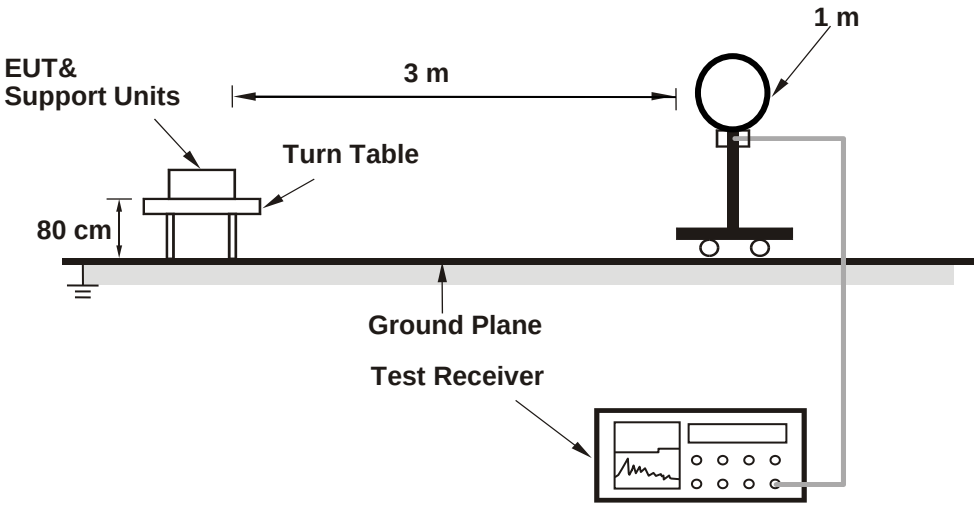
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz. (11a: RBW = 1 MHz, VBW = 1 kHz ; 11n (HT20): RBW = 1 MHz, VBW = 1 kHz ; 11n (HT40): RBW = 1 MHz, VBW = 3 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 Deviation from Test Standard

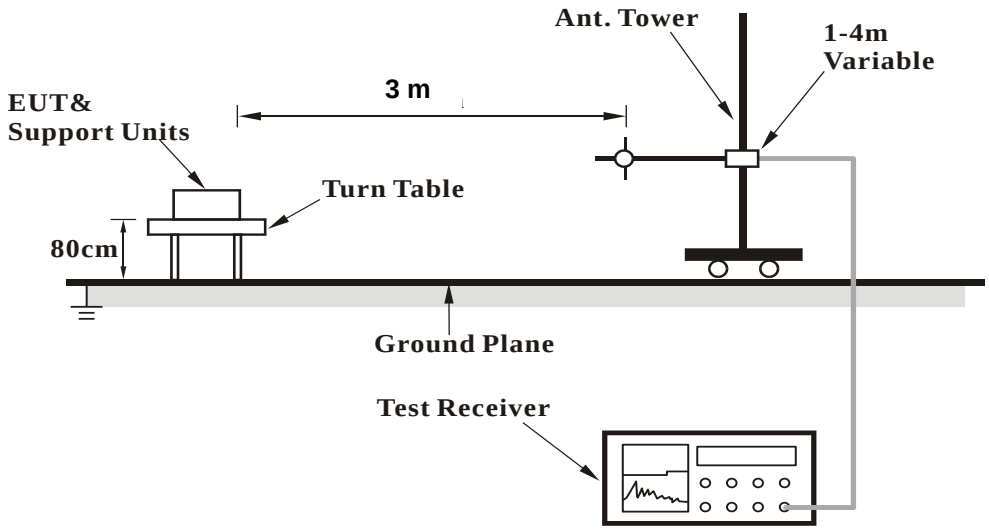
No deviation.

4.1.6 Test Setup

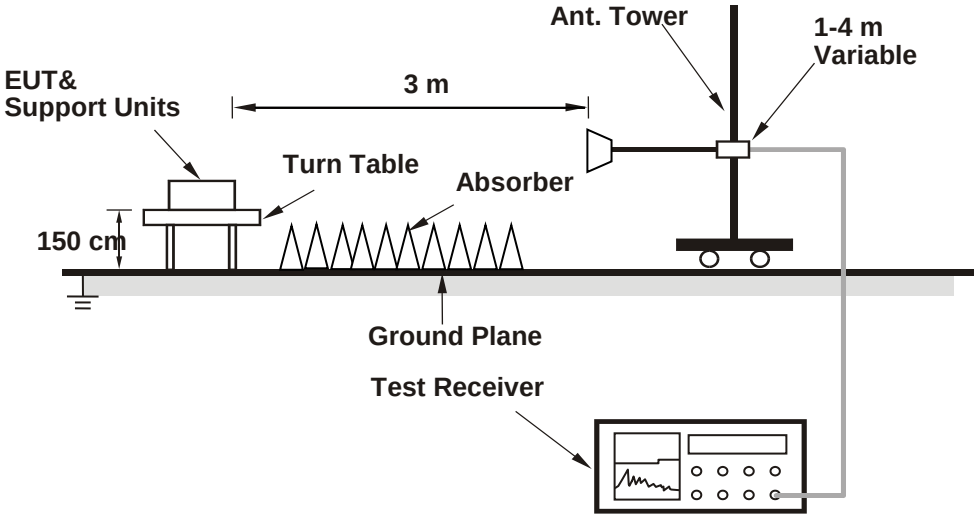
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.7 EUT Operating Conditions

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

4.1.8 Test Results

Above 1 GHz Data：

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**
5149.55	45.14	36.89	54	-8.86	34.12	8.13	34	100	275	Average
5149.55	55.98	47.73	74	-18.02	34.12	8.13	34	100	275	Peak
5180	92.51	84.2			34.15	8.16	34	100	275	Average
5180	100.76	92.45			34.15	8.16	34	100	275	Peak
*10360	53.48	39.18	68.2	-14.72	37.12	12.3	35.12	196	99	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**
5149.85	45.91	37.66	54	-8.09	34.12	8.13	34	183	51	Average
5149.85	56.34	48.09	74	-17.66	34.12	8.13	34	183	51	Peak
5180	94.1	85.79			34.15	8.16	34	183	51	Average
5180	102.1	93.79			34.15	8.16	34	183	51	Peak
*10360	54.68	40.38	68.2	-13.52	37.12	12.3	35.12	112	321	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	**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**
5147.6	43.87	35.62	54	-10.13	34.12	8.13	34	100	275	Average
5147.6	53.96	45.71	74	-20.04	34.12	8.13	34	100	275	Peak
5200	92.07	83.72			34.16	8.19	34	100	275	Average
5200	100.26	91.91			34.16	8.19	34	100	275	Peak
5372.99	42.9	34.23	54	-11.1	34.29	8.41	34.03	100	275	Average
5372.99	54.5	45.83	74	-19.5	34.29	8.41	34.03	100	275	Peak
*10400	53.79	39.45	68.2	-14.41	37.14	12.36	35.16	105	314	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**
5147.6	44.4	36.15	54	-9.6	34.12	8.13	34	183	51	Average
5147.6	54.31	46.06	74	-19.69	34.12	8.13	34	183	51	Peak
5200	94.03	85.68			34.16	8.19	34	183	51	Average
5200	102.57	94.22			34.16	8.19	34	183	51	Peak
5438.11	42.96	34.17	54	-11.04	34.35	8.48	34.04	183	51	Average
5438.11	53.63	44.84	74	-20.37	34.35	8.48	34.04	183	51	Peak
*10400	53.86	39.52	68.2	-14.34	37.14	12.36	35.16	158	188	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5200 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	91.82	83.38			34.19	8.26	34.01	100	275	Average
5240	99.63	91.19			34.19	8.26	34.01	100	275	Peak
5376.62	42.96	34.3	54	-11.04	34.29	8.41	34.04	100	275	Average
5376.62	53.71	45.05	74	-20.29	34.29	8.41	34.04	100	275	Peak
*10480	54.82	40.31	68.2	-13.38	37.19	12.53	35.21	119	326	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	94.08	85.64			34.19	8.26	34.01	183	51	Average
5240	101.97	93.53			34.19	8.26	34.01	183	51	Peak
5433.49	42.93	34.14	54	-11.07	34.35	8.48	34.04	183	51	Average
5433.49	54.31	45.52	74	-19.69	34.35	8.48	34.04	183	51	Peak
*10480	54.35	39.84	68.2	-13.85	37.19	12.53	35.21	154	322	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
4. The emission levels of other frequencies were very low against the limit

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**
5111.75	43.01	34.81	54	-10.99	34.09	8.1	33.99	200	297	Average
5111.75	53.76	45.56	74	-20.24	34.09	8.1	33.99	200	297	Peak
5260	93.67	85.21			34.21	8.26	34.01	200	297	Average
5260	100	91.54			34.21	8.26	34.01	200	297	Peak
*10520	55.99	41.4	68.2	-12.21	37.21	12.61	35.23	121	9	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**
5139.95	42.93	34.67	54	-11.07	34.12	8.13	33.99	198	46	Average
5139.95	53.21	44.95	74	-20.79	34.12	8.13	33.99	198	46	Peak
5260	94.47	86.01			34.21	8.26	34.01	198	46	Average
5260	101.54	93.08			34.21	8.26	34.01	198	46	Peak
*10520	55.09	40.5	68.2	-13.11	37.21	12.61	35.23	140	213	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
4. The emission levels of other frequencies were very low against the limit

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**
5123	42.86	34.64	54	-11.14	34.11	8.1	33.99	200	297	Average
5123	52.95	44.73	74	-21.05	34.11	8.1	33.99	200	297	Peak
5300	93.66	85.12			34.24	8.32	34.02	200	297	Average
5300	100.23	91.69			34.24	8.32	34.02	200	297	Peak
5352.75	44.18	35.55	54	-9.82	34.28	8.38	34.03	200	297	Average
5352.75	54.05	45.42	74	-19.95	34.28	8.38	34.03	200	297	Peak
10600	45.88	31.2	54	-8.12	37.28	12.67	35.27	105	85	Average
10600	55.21	40.53	74	-18.79	37.28	12.67	35.27	105	85	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**
5137.1	42.84	34.59	54	-11.16	34.11	8.13	33.99	198	46	Average
5137.1	53.59	45.34	74	-20.41	34.11	8.13	33.99	198	46	Peak
5300	94.65	86.11			34.24	8.32	34.02	198	46	Average
5300	101.47	92.93			34.24	8.32	34.02	198	46	Peak
5351.98	45	36.37	54	-9	34.28	8.38	34.03	198	46	Average
5351.98	53.99	45.36	74	-20.01	34.28	8.38	34.03	198	46	Peak
10600	46.31	31.63	54	-7.69	37.28	12.67	35.27	132	226	Average
10600	54.89	40.21	74	-19.11	37.28	12.67	35.27	132	226	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5300 MHz: Fundamental Frequency
3. The emission levels of other frequencies were very low against the limit

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	93.47	84.89			34.25	8.35	34.02	200	297	Average
5320	100.11	91.53			34.25	8.35	34.02	200	297	Peak
5350.22	45.79	37.16	54	-8.21	34.28	8.38	34.03	200	297	Average
5350.22	56.65	48.02	74	-17.35	34.28	8.38	34.03	200	297	Peak
10640	46.61	31.88	54	-7.39	37.31	12.71	35.29	124	77	Average
10640	56	41.27	74	-18	37.31	12.71	35.29	124	77	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	94.74	86.16			34.25	8.35	34.02	198	46	Average
5320	101.13	92.55			34.25	8.35	34.02	198	46	Peak
5350.55	47.22	38.59	54	-6.78	34.28	8.38	34.03	198	46	Average
5350.55	57.65	49.02	74	-16.35	34.28	8.38	34.03	198	46	Peak
10640	46.31	31.58	54	-7.69	37.31	12.71	35.29	142	100	Average
10640	55.1	40.37	74	-18.9	37.31	12.71	35.29	142	100	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5320 MHz: Fundamental Frequency
3. The emission levels of other frequencies were very low against the limit

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**
5447.76	43.55	34.72	54	-10.45	34.36	8.51	34.04	186	240	Average
5447.76	53.61	44.78	74	-20.39	34.36	8.51	34.04	186	240	Peak
*5470.16	54.32	45.49	68.2	-13.88	34.37	8.51	34.05	186	240	Peak
5500	92.4	83.48			34.4	8.57	34.05	186	240	Average
5500	99.91	90.99			34.4	8.57	34.05	186	240	Peak
11000	45.83	30.75	54	-8.17	37.6	12.96	35.48	158	264	Average
11000	55.52	40.44	74	-18.48	37.6	12.96	35.48	158	264	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**
5447.92	44.07	35.24	54	-9.93	34.36	8.51	34.04	179	36	Average
5447.92	53.88	45.05	74	-20.12	34.36	8.51	34.04	179	36	Peak
*5470.64	56.19	47.36	68.2	-12.01	34.37	8.51	34.05	179	36	Peak
5500	94.7	85.78			34.4	8.57	34.05	179	36	Average
5500	102.69	93.77			34.4	8.57	34.05	179	36	Peak
11000	45.17	30.09	54	-8.83	37.6	12.96	35.48	121	64	Average
11000	54.68	39.6	74	-19.32	37.6	12.96	35.48	121	64	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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**
5369.2	42.48	33.81	54	-11.52	34.29	8.41	34.03	186	240	Average
5369.2	53.45	44.78	74	-20.55	34.29	8.41	34.03	186	240	Peak
*5469.04	52.11	43.28	68.2	-16.09	34.37	8.51	34.05	186	240	Peak
5580	92.29	83.3			34.47	8.6	34.08	186	240	Average
5580	100.66	91.67			34.47	8.6	34.08	186	240	Peak
*5724.28	52.37	43.21	68.2	-15.83	34.62	8.65	34.11	186	240	Peak
11160	46.32	31.24	54	-7.68	37.7	12.83	35.45	196	115	Average
11160	56.15	41.07	74	-17.85	37.7	12.83	35.45	196	115	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	42.64	33.82	54	-11.36	34.36	8.51	34.05	179	36	Average
5458.8	53.32	44.5	74	-20.68	34.36	8.51	34.05	179	36	Peak
*5468.08	51.95	43.12	68.2	-16.25	34.37	8.51	34.05	179	36	Peak
5580	94.65	85.66			34.47	8.6	34.08	179	36	Average
5580	102.85	93.86			34.47	8.6	34.08	179	36	Peak
*5724.76	52.72	43.56	68.2	-15.48	34.62	8.65	34.11	179	36	Peak
11160	46.01	30.93	54	-7.99	37.7	12.83	35.45	137	149	Average
11160	55.75	40.67	74	-18.25	37.7	12.83	35.45	137	149	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5580 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	93.85	84.72			34.59	8.64	34.1	178	241	Average
5700	101.67	92.54			34.59	8.64	34.1	178	241	Peak
*5724.23	62.24	53.08	68.2	-5.96	34.62	8.65	34.11	178	241	Peak
11400	46.25	31.15	54	-7.75	37.84	12.67	35.41	166	157	Average
11400	55.84	40.74	74	-18.16	37.84	12.67	35.41	166	157	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	96.51	87.38			34.59	8.64	34.1	178	26	Average
5700	104.23	95.1			34.59	8.64	34.1	178	26	Peak
*5724.37	65.09	55.93	68.2	-3.11	34.62	8.65	34.11	178	26	Peak
11400	46.81	31.71	54	-7.19	37.84	12.67	35.41	155	196	Average
11400	56.51	41.41	74	-17.49	37.84	12.67	35.41	155	196	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5700 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	91.6	82.41			34.64	8.66	34.11	178	241	Average
5745	99.63	90.44			34.64	8.66	34.11	178	241	Peak
11490	47.52	32.4	54	-6.48	37.89	12.62	35.39	155	199	Average
11490	55.4	40.28	74	-18.6	37.89	12.62	35.39	155	199	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	96.64	87.45			34.64	8.66	34.11	180	26	Average
5745	104.94	95.75			34.64	8.66	34.11	180	26	Peak
11490	47.68	32.56	54	-6.32	37.89	12.62	35.39	105	246	Average
11490	55.23	40.11	74	-18.77	37.89	12.62	35.39	105	246	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**
*5538.85	54.07	45.13	68.2	-14.13	34.43	8.58	34.07	178	241	Peak
5656.975	53.53	44.44	73.36	-19.83	34.56	8.63	34.1	178	241	Peak
5920	51.5	42.12	71.9	-20.4	34.81	8.73	34.16	178	241	Peak
*5945.725	53.31	43.88	68.2	-14.89	34.85	8.74	34.16	178	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5639.65	52.97	43.9	68.2	-15.23	34.54	8.62	34.09	180	26	Peak
5652.25	49.51	40.42	69.86	-20.35	34.56	8.62	34.09	180	26	Peak
5923.675	51.13	41.73	69.18	-18.05	34.83	8.73	34.16	180	26	Peak
*5971.45	53.43	43.98	68.2	-14.77	34.87	8.75	34.17	180	26	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	91.97	82.74			34.68	8.68	34.13	178	241	Average
5785	99.47	90.24			34.68	8.68	34.13	178	241	Peak
11570	47.76	32.45	54	-6.24	38	12.68	35.37	147	19	Average
11570	54.93	39.62	74	-19.07	38	12.68	35.37	147	19	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5785	97.31	88.08			34.68	8.68	34.13	180	26	Average
5785	104.68	95.45			34.68	8.68	34.13	180	26	Peak
11570	47.63	32.32	54	-6.37	38	12.68	35.37	151	51	Average
11570	54.95	39.64	74	-19.05	38	12.68	35.37	151	51	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**
*5581.9	53.22	44.21	68.2	-14.98	34.49	8.6	34.08	178	241	Peak
5656.45	51.87	42.78	72.97	-21.1	34.56	8.63	34.1	178	241	Peak
5923.15	51.82	42.42	69.57	-17.75	34.83	8.73	34.16	178	241	Peak
*5993.5	53.62	44.13	68.2	-14.58	34.9	8.76	34.17	178	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5555.125	53.91	44.94	68.2	-14.29	34.45	8.59	34.07	180	26	Peak
5654.35	51.84	42.75	71.42	-19.58	34.56	8.63	34.1	180	26	Peak
5922.1	51.52	42.12	70.35	-18.83	34.83	8.73	34.16	180	26	Peak
*6010.825	53.32	43.82	68.2	-14.88	34.92	8.76	34.18	180	26	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5785 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	90.99	81.7			34.73	8.69	34.13	178	241	Average
5825	98.82	89.53			34.73	8.69	34.13	178	241	Peak
11650	47.97	32.44	54	-6.03	38.09	12.8	35.36	192	326	Average
11650	55.93	40.4	74	-18.07	38.09	12.8	35.36	192	326	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	96.95	87.66			34.73	8.69	34.13	180	26	Average
5825	104	94.71			34.73	8.69	34.13	180	26	Peak
11650	48.07	32.54	54	-5.93	38.09	12.8	35.36	128	114	Average
11650	54.86	39.33	74	-19.14	38.09	12.8	35.36	128	114	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**
*5640.7	53.35	44.28	68.2	-14.85	34.54	8.62	34.09	178	241	Peak
5660.65	53.48	44.39	76.08	-22.6	34.56	8.63	34.1	178	241	Peak
5922.625	51.09	41.69	69.96	-18.87	34.83	8.73	34.16	178	241	Peak
*5964.625	54.33	44.88	68.2	-13.87	34.87	8.75	34.17	178	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5616.55	53.27	44.22	68.2	-14.93	34.52	8.61	34.08	180	26	Peak
5653.825	51.62	42.53	71.03	-19.41	34.56	8.63	34.1	180	26	Peak
5917.375	52.54	43.16	73.84	-21.3	34.81	8.73	34.16	180	26	Peak
*5935.225	53.4	44	68.2	-14.8	34.83	8.73	34.16	180	26	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5825 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	46.96	38.71	54	-7.04	34.12	8.13	34	100	275	Average
5150	57.94	49.69	74	-16.06	34.12	8.13	34	100	275	Peak
5180	93.66	85.35			34.15	8.16	34	100	275	Average
5180	101.5	93.19			34.15	8.16	34	100	275	Peak
*10360	54.05	39.75	68.2	-14.15	37.12	12.3	35.12	105	322	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**
5149.85	47.98	39.73	54	-6.02	34.12	8.13	34	183	51	Average
5149.85	57.96	49.71	74	-16.04	34.12	8.13	34	183	51	Peak
5180	95.06	86.75			34.15	8.16	34	183	51	Average
5180	102.96	94.65			34.15	8.16	34	183	51	Peak
*10360	53.62	39.32	68.2	-14.58	37.12	12.3	35.12	153	255	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5180 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

EUT Test Condition		Measurement Detail	
Channel	Channel 40	**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**
5148.2	44.76	36.51	54	-9.24	34.12	8.13	34	100	275	Average
5148.2	54.22	45.97	74	-19.78	34.12	8.13	34	100	275	Peak
5200	93.65	85.3			34.16	8.19	34	100	275	Average
5200	100.5	92.15			34.16	8.19	34	100	275	Peak
5453.95	42.95	34.13	54	-11.05	34.36	8.51	34.05	100	275	Average
5453.95	53.85	45.03	74	-20.15	34.36	8.51	34.05	100	275	Peak
*10400	54.23	39.89	68.2	-13.97	37.14	12.36	35.16	105	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**
5148.65	45.4	37.15	54	-8.6	34.12	8.13	34	183	51	Average
5148.65	55.18	46.93	74	-18.82	34.12	8.13	34	183	51	Peak
5200	95.68	87.33			34.16	8.19	34	183	51	Average
5200	102.69	94.34			34.16	8.19	34	183	51	Peak
5456.59	43.03	34.21	54	-10.97	34.36	8.51	34.05	183	51	Average
5456.59	53.85	45.03	74	-20.15	34.36	8.51	34.05	183	51	Peak
*10400	53.87	39.53	68.2	-14.33	37.14	12.36	35.16	114	278	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5200 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	93.74	85.3			34.19	8.26	34.01	100	275	Average
5240	100.55	92.11			34.19	8.26	34.01	100	275	Peak
5451.53	42.98	34.16	54	-11.02	34.36	8.51	34.05	100	275	Average
5451.53	53.26	44.44	74	-20.74	34.36	8.51	34.05	100	275	Peak
*10480	54.96	40.45	68.2	-13.24	37.19	12.53	35.21	174	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	95.87	87.43			34.19	8.26	34.01	183	51	Average
5240	102.57	94.13			34.19	8.26	34.01	183	51	Peak
5455.16	42.82	34	54	-11.18	34.36	8.51	34.05	183	51	Average
5455.16	54.2	45.38	74	-19.8	34.36	8.51	34.05	183	51	Peak
*10480	54.28	39.77	68.2	-13.92	37.19	12.53	35.21	119	326	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
4. The emission levels of other frequencies were very low against the limit

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**
5117	42.9	34.7	54	-11.1	34.09	8.1	33.99	200	297	Average
5117	53.28	45.08	74	-20.72	34.09	8.1	33.99	200	297	Peak
5260	95.58	87.12			34.21	8.26	34.01	200	297	Average
5260	102.18	93.72			34.21	8.26	34.01	200	297	Peak
*10520	55.13	40.54	68.2	-13.07	37.21	12.61	35.23	158	226	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**
5056.7	42.82	34.72	54	-11.18	34.05	8.03	33.98	198	46	Average
5056.7	53.86	45.76	74	-20.14	34.05	8.03	33.98	198	46	Peak
5260	96.58	88.12			34.21	8.26	34.01	198	46	Average
5260	103.67	95.21			34.21	8.26	34.01	198	46	Peak
*10520	54.99	40.4	68.2	-13.21	37.21	12.61	35.23	124	136	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
4. The emission levels of other frequencies were very low against the limit

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**
5121.95	42.84	34.64	54	-11.16	34.09	8.1	33.99	200	297	Average
5121.95	53.4	45.2	74	-20.6	34.09	8.1	33.99	200	297	Peak
5300	95.87	87.33			34.24	8.32	34.02	200	297	Average
5300	102.24	93.7			34.24	8.32	34.02	200	297	Peak
5351.98	44.64	36.01	54	-9.36	34.28	8.38	34.03	200	297	Average
5351.98	54.7	46.07	74	-19.3	34.28	8.38	34.03	200	297	Peak
10600	45.93	31.25	54	-8.07	37.28	12.67	35.27	128	255	Average
10600	56.24	41.56	74	-17.76	37.28	12.67	35.27	128	255	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**
5146.25	42.85	34.6	54	-11.15	34.12	8.13	34	198	46	Average
5146.25	53.74	45.49	74	-20.26	34.12	8.13	34	198	46	Peak
5300	96.74	88.2			34.24	8.32	34.02	198	46	Average
5300	103.46	94.92			34.24	8.32	34.02	198	46	Peak
5351.98	46.12	37.49	54	-7.88	34.28	8.38	34.03	198	46	Average
5351.98	56.05	47.42	74	-17.95	34.28	8.38	34.03	198	46	Peak
10600	46.22	31.54	54	-7.78	37.28	12.67	35.27	147	4	Average
10600	54.99	40.31	74	-19.01	37.28	12.67	35.27	147	4	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5300 MHz: Fundamental Frequency
3. The emission levels of other frequencies were very low against the limit

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	95.25	86.67			34.25	8.35	34.02	200	297	Average
5320	102.19	93.61			34.25	8.35	34.02	200	297	Peak
5350.11	47.53	38.9	54	-6.47	34.28	8.38	34.03	200	297	Average
5350.11	57.96	49.33	74	-16.04	34.28	8.38	34.03	200	297	Peak
10640	46.38	31.65	54	-7.62	37.31	12.71	35.29	124	3	Average
10640	56	41.27	74	-18	37.31	12.71	35.29	124	3	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	96.79	88.21			34.25	8.35	34.02	198	46	Average
5320	103.54	94.96			34.25	8.35	34.02	198	46	Peak
5350.44	49.75	41.12	54	-4.25	34.28	8.38	34.03	198	46	Average
5350.44	61.19	52.56	74	-12.81	34.28	8.38	34.03	198	46	Peak
10640	46.31	31.58	54	-7.69	37.31	12.71	35.29	144	214	Average
10640	55.72	40.99	74	-18.28	37.31	12.71	35.29	144	214	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5320 MHz: Fundamental Frequency
3. The emission levels of other frequencies were very low against the limit

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**
5460.08	43.96	35.14	54	-10.04	34.36	8.51	34.05	186	240	Average
5460.08	53.78	44.96	74	-20.22	34.36	8.51	34.05	186	240	Peak
*5468.56	57.88	49.05	68.2	-10.32	34.37	8.51	34.05	186	240	Peak
5500	94.36	85.44			34.4	8.57	34.05	186	240	Average
5500	101.71	92.79			34.4	8.57	34.05	186	240	Peak
11000	44.96	29.88	54	-9.04	37.6	12.96	35.48	146	95	Average
11000	54.89	39.81	74	-19.11	37.6	12.96	35.48	146	95	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**
5456.56	45.27	36.45	54	-8.73	34.36	8.51	34.05	179	36	Average
5456.56	54.9	46.08	74	-19.1	34.36	8.51	34.05	179	36	Peak
*5470.64	60.52	51.69	68.2	-7.68	34.37	8.51	34.05	179	36	Peak
5500	95.66	86.74			34.4	8.57	34.05	179	36	Average
5500	103.56	94.64			34.4	8.57	34.05	179	36	Peak
11000	45.03	29.95	54	-8.97	37.6	12.96	35.48	164	127	Average
11000	54.72	39.64	74	-19.28	37.6	12.96	35.48	164	127	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5500 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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**
5438.32	42.47	33.68	54	-11.53	34.35	8.48	34.04	188	239	Average
5438.32	53.09	44.3	74	-20.91	34.35	8.48	34.04	188	239	Peak
*5469.84	51.99	43.16	68.2	-16.21	34.37	8.51	34.05	188	239	Peak
5580	93.98	84.99			34.47	8.6	34.08	188	239	Average
5580	102.03	93.04			34.47	8.6	34.08	188	239	Peak
*5724.12	51.93	42.77	68.2	-16.27	34.62	8.65	34.11	188	239	Peak
11160	45.74	30.66	54	-8.26	37.7	12.83	35.45	146	293	Average
11160	55.56	40.48	74	-18.44	37.7	12.83	35.45	146	293	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**
5459.76	42.62	33.8	54	-11.38	34.36	8.51	34.05	179	36	Average
5459.76	53.13	44.31	74	-20.87	34.36	8.51	34.05	179	36	Peak
*5468.24	52.16	43.33	68.2	-16.04	34.37	8.51	34.05	179	36	Peak
5580	95.88	86.89			34.47	8.6	34.08	179	36	Average
5580	104.41	95.42			34.47	8.6	34.08	179	36	Peak
*5724.92	53.22	44.06	68.2	-14.98	34.62	8.65	34.11	179	36	Peak
11160	46.27	31.19	54	-7.73	37.7	12.83	35.45	136	206	Average
11160	56.43	41.35	74	-17.57	37.7	12.83	35.45	136	206	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5580 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	92.74	83.61			34.59	8.64	34.1	178	241	Average
5700	100.46	91.33			34.59	8.64	34.1	178	241	Peak
*5724.28	62.48	53.32	68.2	-5.72	34.62	8.65	34.11	178	241	Peak
11400	45.55	30.45	54	-8.45	37.84	12.67	35.41	190	231	Average
11400	55.28	40.18	74	-18.72	37.84	12.67	35.41	190	231	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	94.39	85.26			34.59	8.64	34.1	178	26	Average
5700	103.02	93.89			34.59	8.64	34.1	178	26	Peak
*5723.96	65.03	55.87	68.2	-3.17	34.62	8.65	34.11	178	26	Peak
11400	45.81	30.71	54	-8.19	37.84	12.67	35.41	132	51	Average
11400	55.61	40.51	74	-18.39	37.84	12.67	35.41	132	51	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5700 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	91.46	82.27			34.64	8.66	34.11	178	241	Average
5745	99.71	90.52			34.64	8.66	34.11	178	241	Peak
11490	47.34	32.22	54	-6.66	37.89	12.62	35.39	185	177	Average
11490	55.48	40.36	74	-18.52	37.89	12.62	35.39	185	177	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	96.38	87.19			34.64	8.66	34.11	180	26	Average
5745	104.85	95.66			34.64	8.66	34.11	180	26	Peak
11490	47.35	32.23	54	-6.65	37.89	12.62	35.39	105	24	Average
11490	54.74	39.62	74	-19.26	37.89	12.62	35.39	105	24	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**
*5613.4	53.27	44.24	68.2	-14.93	34.5	8.61	34.08	178	241	Peak
5660.65	53.09	44	76.08	-22.99	34.56	8.63	34.1	178	241	Peak
5917.9	52.52	43.14	73.45	-20.93	34.81	8.73	34.16	178	241	Peak
*5976.7	53.08	43.62	68.2	-15.12	34.88	8.75	34.17	178	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5547.25	53.38	44.44	68.2	-14.82	34.43	8.58	34.07	180	26	Peak
5652.775	52.12	43.02	70.25	-18.13	34.56	8.63	34.09	180	26	Peak
5920.525	51.39	42.01	71.51	-20.12	34.81	8.73	34.16	180	26	Peak
*5943.625	53.51	44.08	68.2	-14.69	34.85	8.74	34.16	180	26	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	91.74	82.51			34.68	8.68	34.13	178	241	Average
5785	98.91	89.68			34.68	8.68	34.13	178	241	Peak
11570	47.8	32.49	54	-6.2	38	12.68	35.37	140	152	Average
11570	55.46	40.15	74	-18.54	38	12.68	35.37	140	152	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	96.32	87.09			34.68	8.68	34.13	180	26	Average
5785	103.97	94.74			34.68	8.68	34.13	180	26	Peak
11570	47.88	32.57	54	-6.12	38	12.68	35.37	124	165	Average
11570	54.96	39.65	74	-19.04	38	12.68	35.37	124	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**
*5611.825	53.1	44.07	68.2	-15.1	34.5	8.61	34.08	178	241	Peak
5654.875	52.13	43.04	71.81	-19.68	34.56	8.63	34.1	178	241	Peak
5915.8	53.99	44.61	75.01	-21.02	34.81	8.73	34.16	178	241	Peak
*5943.625	52.77	43.34	68.2	-15.43	34.85	8.74	34.16	178	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5599.225	53	43.98	68.2	-15.2	34.5	8.6	34.08	180	26	Peak
5653.3	50.3	41.2	70.64	-20.34	34.56	8.63	34.09	180	26	Peak
5923.15	52.46	43.06	69.57	-17.11	34.83	8.73	34.16	180	26	Peak
*5952.55	53.2	43.77	68.2	-15	34.85	8.74	34.16	180	26	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5785 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	91.8	82.51			34.73	8.69	34.13	178	241	Average
5825	98.91	89.62			34.73	8.69	34.13	178	241	Peak
11650	48.18	32.65	54	-5.82	38.09	12.8	35.36	152	5	Average
11650	55.4	39.87	74	-18.6	38.09	12.8	35.36	152	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**
5825	96.74	87.45			34.73	8.69	34.13	180	26	Average
5825	104.14	94.85			34.73	8.69	34.13	180	26	Peak
11650	48.1	32.57	54	-5.9	38.09	12.8	35.36	138	266	Average
11650	57	41.47	74	-17	38.09	12.8	35.36	138	266	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**
*5631.25	53.65	44.6	68.2	-14.55	34.52	8.62	34.09	178	241	Peak
5652.25	52.62	43.53	69.86	-17.24	34.56	8.62	34.09	178	241	Peak
5917.9	51.41	42.03	73.45	-22.04	34.81	8.73	34.16	178	241	Peak
*6012.925	53.27	43.77	68.2	-14.93	34.92	8.76	34.18	178	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5638.6	52.99	43.92	68.2	-15.21	34.54	8.62	34.09	180	26	Peak
5652.25	51.5	42.41	69.86	-18.36	34.56	8.62	34.09	180	26	Peak
5922.1	52.3	42.9	70.35	-18.05	34.83	8.73	34.16	180	26	Peak
*5966.725	52.65	43.2	68.2	-15.55	34.87	8.75	34.17	180	26	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5825 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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**
5149.85	47.97	39.72	54	-6.03	34.12	8.13	34	100	275	Average
5149.85	58.81	50.56	74	-15.19	34.12	8.13	34	100	275	Peak
5190	86.47	78.13			34.15	8.19	34	100	275	Average
5190	93.55	85.21			34.15	8.19	34	100	275	Peak
5459.45	43.34	34.52	54	-10.66	34.36	8.51	34.05	100	275	Average
5459.45	54.29	45.47	74	-19.71	34.36	8.51	34.05	100	275	Peak
*10380	54.34	39.99	68.2	-13.86	37.13	12.36	35.14	105	249	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	50.78	42.53	54	-3.22	34.12	8.13	34	183	51	Average
5150	60.59	52.34	74	-13.41	34.12	8.13	34	183	51	Peak
5190	88.47	80.13			34.15	8.19	34	183	51	Average
5190	95.38	87.04			34.15	8.19	34	183	51	Peak
5450.65	43.38	34.56	54	-10.62	34.36	8.51	34.05	183	51	Average
5450.65	53.75	44.93	74	-20.25	34.36	8.51	34.05	183	51	Peak
*10380	54.23	39.88	68.2	-13.97	37.13	12.36	35.14	113	300	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5190 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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**
5150	44.02	35.77	54	-9.98	34.12	8.13	34	100	275	Average
5150	54.13	45.88	74	-19.87	34.12	8.13	34	100	275	Peak
5230	91.47	83.07			34.19	8.22	34.01	100	275	Average
5230	98.65	90.25			34.19	8.22	34.01	100	275	Peak
5444.82	43.4	34.58	54	-10.6	34.35	8.51	34.04	100	275	Average
5448.82	53.56	44.73	74	-20.44	34.36	8.51	34.04	100	275	Peak
*10460	54.77	40.26	68.2	-13.43	37.17	12.53	35.19	118	32	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5147.75	43.94	35.69	54	-10.06	34.12	8.13	34	183	51	Average
5147.75	53.54	45.29	74	-20.46	34.12	8.13	34	183	51	Peak
5230	93.77	85.37			34.19	8.22	34.01	183	51	Average
5230	100.5	92.1			34.19	8.22	34.01	183	51	Peak
5437.78	43.47	34.68	54	-10.53	34.35	8.48	34.04	183	51	Average
5437.78	53.23	44.44	74	-20.77	34.35	8.48	34.04	183	51	Peak
*10460	54.41	39.9	68.2	-13.79	37.17	12.53	35.19	118	324	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5230 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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**
5143.4	43.66	35.4	54	-10.34	34.12	8.13	33.99	200	297	Average
5143.4	53.21	44.95	74	-20.79	34.12	8.13	33.99	200	297	Peak
5270	92.57	84.08			34.21	8.29	34.01	200	297	Average
5270	99.23	90.74			34.21	8.29	34.01	200	297	Peak
5350.77	43.85	35.22	54	-10.15	34.28	8.38	34.03	200	297	Average
5350.77	54.19	45.56	74	-19.81	34.28	8.38	34.03	200	297	Peak
*10540	56.34	41.72	68.2	-11.86	37.23	12.63	35.24	124	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**
5078.45	43.23	35.11	54	-10.77	34.07	8.03	33.98	198	46	Average
5078.45	53.82	45.7	74	-20.18	34.07	8.03	33.98	198	46	Peak
5270	93.57	85.08			34.21	8.29	34.01	198	46	Average
5270	100.05	91.56			34.21	8.29	34.01	198	46	Peak
5352.42	45.14	36.51	54	-8.86	34.28	8.38	34.03	198	46	Average
5352.42	54.26	45.63	74	-19.74	34.28	8.38	34.03	198	46	Peak
*10540	55.01	40.39	68.2	-13.19	37.23	12.63	35.24	131	225	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5270 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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**
5121.35	43.24	35.04	54	-10.76	34.09	8.1	33.99	200	297	Average
5121.35	53.71	45.51	74	-20.29	34.09	8.1	33.99	200	297	Peak
5310	88.57	80.02			34.25	8.32	34.02	200	297	Average
5310	95.41	86.86			34.25	8.32	34.02	200	297	Peak
5350.11	46.87	38.24	54	-7.13	34.28	8.38	34.03	200	297	Average
5350.11	57	48.37	74	-17	34.28	8.38	34.03	200	297	Peak
10620	46.57	31.86	54	-7.43	37.3	12.69	35.28	134	6	Average
10620	56.21	41.5	74	-17.79	37.3	12.69	35.28	134	6	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**
5127.2	43.58	35.36	54	-10.42	34.11	8.1	33.99	198	46	Average
5127.2	53.56	45.34	74	-20.44	34.11	8.1	33.99	198	46	Peak
5310	89.85	81.3			34.25	8.32	34.02	198	46	Average
5310	96.54	87.99			34.25	8.32	34.02	198	46	Peak
5350	50.24	41.61	54	-3.76	34.28	8.38	34.03	198	46	Average
5350	64.42	55.79	74	-9.58	34.28	8.38	34.03	198	46	Peak
10620	46.7	31.99	54	-7.3	37.3	12.69	35.28	125	177	Average
10620	55.11	40.4	74	-18.89	37.3	12.69	35.28	125	177	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5310 MHz: Fundamental Frequency
3. The emission levels of other frequencies were very low against the limit

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**
5459.76	44.46	35.64	54	-9.54	34.36	8.51	34.05	186	240	Average
5459.76	54.44	45.62	74	-19.56	34.36	8.51	34.05	186	240	Peak
*5469.52	62.78	53.95	68.2	-5.42	34.37	8.51	34.05	186	240	Peak
5510	88.01	79.1			34.4	8.57	34.06	186	240	Average
5510	95.93	87.02			34.4	8.57	34.06	186	240	Peak
*5725.48	52.43	43.27	68.2	-15.77	34.62	8.65	34.11	186	240	Peak
11020	44.84	29.77	54	-9.16	37.61	12.94	35.48	146	216	Average
11020	54.56	39.49	74	-19.44	37.61	12.94	35.48	146	216	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**
5459.76	46.17	37.35	54	-7.83	34.36	8.51	34.05	170	36	Average
5459.76	56.41	47.59	74	-17.59	34.36	8.51	34.05	170	36	Peak
*5470.96	64.58	55.72	68.2	-3.62	34.37	8.54	34.05	170	36	Peak
5510	90.49	81.58			34.4	8.57	34.06	170	36	Average
5510	97.96	89.05			34.4	8.57	34.06	170	36	Peak
*5724.68	52.49	43.33	68.2	-15.71	34.62	8.65	34.11	170	36	Peak
11020	45.91	30.84	54	-8.09	37.61	12.94	35.48	134	126	Average
11020	55.79	40.72	74	-18.21	37.61	12.94	35.48	134	126	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5510 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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**
5460.08	42.97	34.15	54	-11.03	34.36	8.51	34.05	188	239	Average
5460.08	53.73	44.91	74	-20.27	34.36	8.51	34.05	188	239	Peak
*5470.64	53.32	44.49	68.2	-14.88	34.37	8.51	34.05	188	239	Peak
5550	91.16	82.19			34.45	8.59	34.07	188	239	Average
5550	99.41	90.44			34.45	8.59	34.07	188	239	Peak
*5724.2	51.53	42.37	68.2	-16.67	34.62	8.65	34.11	188	239	Peak
11100	45.27	30.18	54	-8.73	37.66	12.89	35.46	126	304	Average
11100	54.71	39.62	74	-19.29	37.66	12.89	35.46	126	304	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**
5447.44	43.26	34.43	54	-10.74	34.36	8.51	34.04	179	36	Average
5447.44	53.9	45.07	74	-20.1	34.36	8.51	34.04	179	36	Peak
*5470.96	54.15	45.29	68.2	-14.05	34.37	8.54	34.05	179	36	Peak
5550	93.03	84.06			34.45	8.59	34.07	179	36	Average
5550	101.55	92.58			34.45	8.59	34.07	179	36	Peak
*5725.4	52.2	43.04	68.2	-16	34.62	8.65	34.11	179	36	Peak
11100	44.85	29.76	54	-9.15	37.66	12.89	35.46	142	150	Average
11100	54.56	39.47	74	-19.44	37.66	12.89	35.46	142	150	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5550 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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**
5402.32	41.91	33.19	54	-12.09	34.32	8.44	34.04	178	241	Average
5402.32	49.97	41.25	74	-24.03	34.32	8.44	34.04	178	241	Peak
*5468.56	50.14	41.31	68.2	-18.06	34.37	8.51	34.05	178	241	Peak
5670	91.38	82.28			34.57	8.63	34.1	178	241	Average
5670	99.55	90.45			34.57	8.63	34.1	178	241	Peak
*5725.56	58.65	49.49	68.2	-9.55	34.62	8.65	34.11	178	241	Peak
11340	45.81	30.72	54	-8.19	37.8	12.71	35.42	105	49	Average
11340	55.63	40.54	74	-18.37	37.8	12.71	35.42	105	49	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**
5444.4	42.48	33.69	54	-11.52	34.35	8.48	34.04	163	28	Average
5444.4	54.19	45.4	74	-19.81	34.35	8.48	34.04	163	28	Peak
*5468.08	51.79	42.96	68.2	-16.41	34.37	8.51	34.05	163	28	Peak
5670	93.88	84.78			34.57	8.63	34.1	163	28	Average
5670	101.75	92.65			34.57	8.63	34.1	163	28	Peak
*5724.44	60.29	51.13	68.2	-7.91	34.62	8.65	34.11	163	28	Peak
11340	45.33	30.24	54	-8.67	37.8	12.71	35.42	150	136	Average
11340	55.05	39.96	74	-18.95	37.8	12.71	35.42	150	136	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5670 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	88.32	79.11			34.66	8.66	34.11	178	241	Average
5755	96.94	87.73			34.66	8.66	34.11	178	241	Peak
11510	47.61	32.5	54	-6.39	37.9	12.6	35.39	105	5	Average
11510	54.7	39.59	74	-19.3	37.9	12.6	35.39	105	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**
5755	93.61	84.4			34.66	8.66	34.11	180	26	Average
5755	101.49	92.28			34.66	8.66	34.11	180	26	Peak
11510	48.14	33.03	54	-5.86	37.9	12.6	35.39	128	246	Average
11510	55.59	40.48	74	-18.41	37.9	12.6	35.39	128	246	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**
*5543.05	52.74	43.8	68.2	-15.46	34.43	8.58	34.07	178	241	Peak
5653.3	51.96	42.86	70.64	-18.68	34.56	8.63	34.09	178	241	Peak
5923.15	50.62	41.22	69.57	-18.95	34.83	8.73	34.16	178	241	Peak
*5952.025	52.41	42.98	68.2	-15.79	34.85	8.74	34.16	178	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5605.525	53.88	44.85	68.2	-14.32	34.5	8.61	34.08	180	26	Peak
5656.975	54.26	45.17	73.36	-19.1	34.56	8.63	34.1	180	26	Peak
5922.625	51.73	42.33	69.96	-18.23	34.83	8.73	34.16	180	26	Peak
*5933.125	53.9	44.5	68.2	-14.3	34.83	8.73	34.16	180	26	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5755 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

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	88.08	78.84			34.69	8.68	34.13	178	241	Average
5795	95.72	86.48			34.69	8.68	34.13	178	241	Peak
11590	47.62	32.25	54	-6.38	38.02	12.72	35.37	147	7	Average
11590	55.58	40.21	74	-18.42	38.02	12.72	35.37	147	7	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	93.13	83.89			34.69	8.68	34.13	180	26	Average
5795	101.23	91.99			34.69	8.68	34.13	180	26	Peak
11590	48.4	33.03	54	-5.6	38.02	12.72	35.37	138	266	Average
11590	54.27	38.9	74	-19.73	38.02	12.72	35.37	138	266	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**
*5642.275	52.97	43.9	68.2	-15.23	34.54	8.62	34.09	178	241	Peak
5657.5	52.2	43.11	73.75	-21.55	34.56	8.63	34.1	178	241	Peak
5919.475	52.79	43.41	72.29	-19.5	34.81	8.73	34.16	178	241	Peak
*5975.65	52.7	43.24	68.2	-15.5	34.88	8.75	34.17	178	241	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
*5599.225	53.05	44.03	68.2	-15.15	34.5	8.6	34.08	180	26	Peak
5652.25	51.64	42.55	69.86	-18.22	34.56	8.62	34.09	180	26	Peak
5920	51.93	42.55	71.9	-19.97	34.81	8.73	34.16	180	26	Peak
*6008.725	52.93	43.42	68.2	-15.27	34.92	8.76	34.17	180	26	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 5795 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The emission levels of other frequencies were very low against the limit

9 kHz ~ 30 MHz Data:

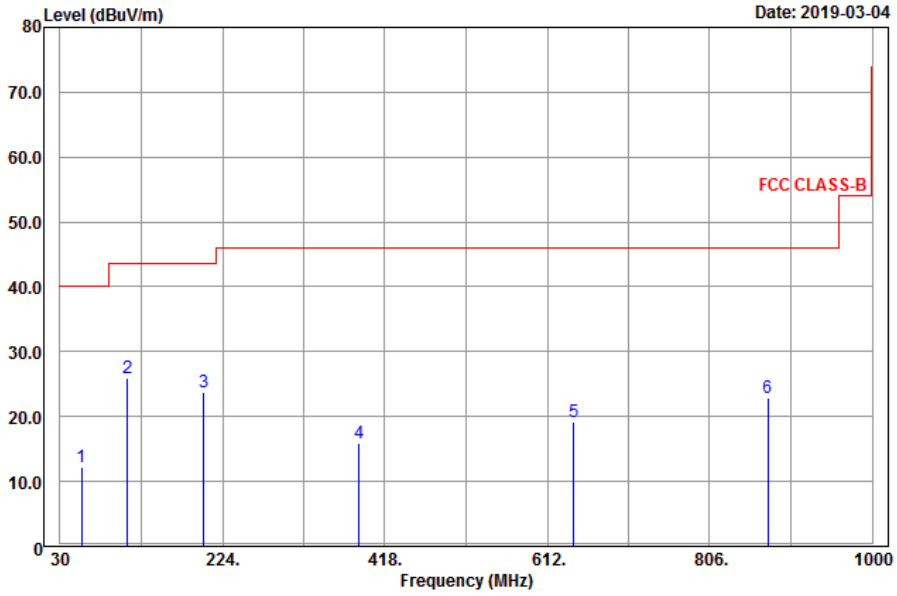
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

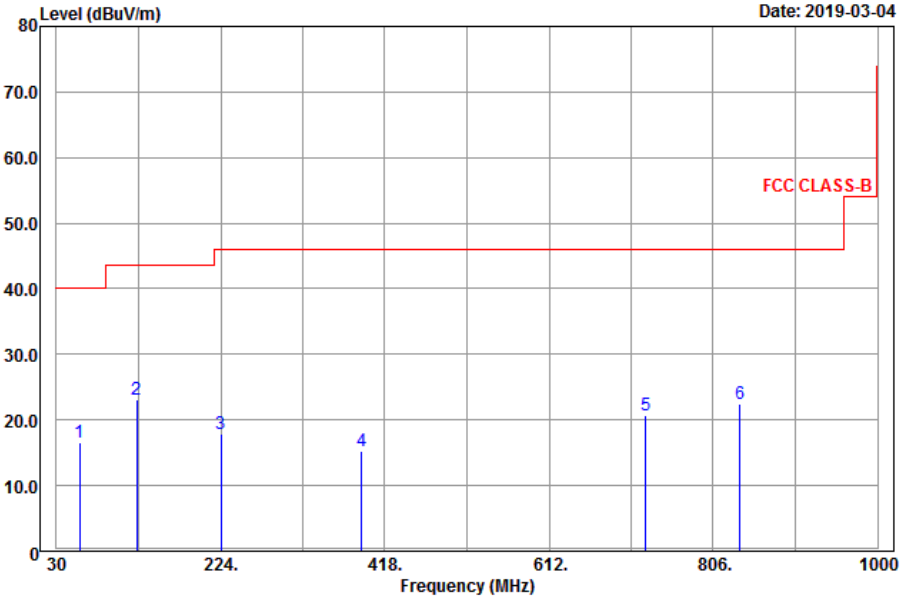
802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 140	**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

Horizontal



Vertical



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
55.92	12.24	29.58	40	-27.76	13.99	0.9	32.23	125	143	Peak
110.46	25.94	45	43.5	-17.56	11.91	1.28	32.25	163	290	Peak
201.99	23.84	43.39	43.5	-19.66	11.09	1.65	32.29	127	144	Peak
387.5	15.82	30.92	46	-30.18	14.75	2.34	32.19	145	127	Peak
643.7	19.24	30.05	46	-26.76	18.35	2.99	32.15	155	209	Peak
875.4	22.91	29.75	46	-23.09	21.3	3.49	31.63	123	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
57.81	16.56	34.21	40	-23.44	13.68	0.9	32.23	155	51	Peak
124.77	23.11	44.42	43.5	-20.39	9.55	1.38	32.24	160	213	Peak
224.4	17.91	36.95	46	-28.09	11.51	1.65	32.2	184	172	Peak
390.3	15.33	30.39	46	-30.67	14.79	2.34	32.19	170	48	Peak
726.3	20.76	30.14	46	-25.24	19.58	3.16	32.12	131	196	Peak
837.6	22.4	30.01	46	-23.6	20.87	3.38	31.86	126	194	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. The emission levels of other frequencies were very low against the limit

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	ESCS 30	100288	Jan. 03, 2019	Jan. 02, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

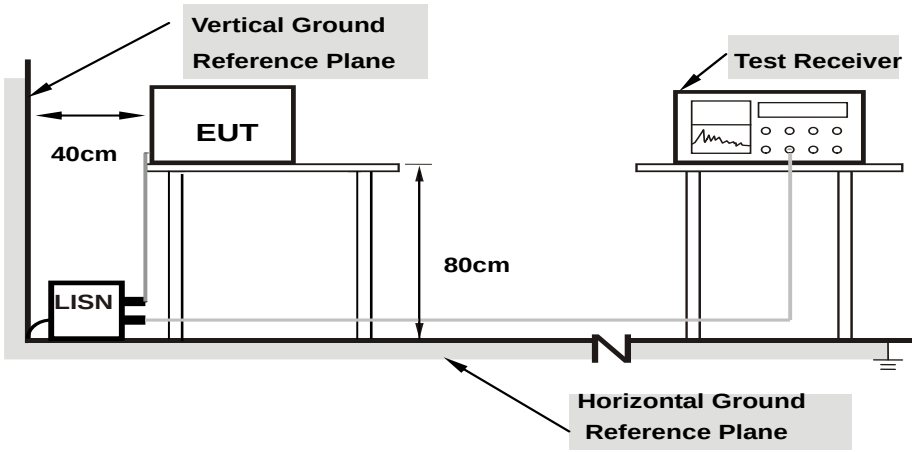
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT Operating Conditions

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

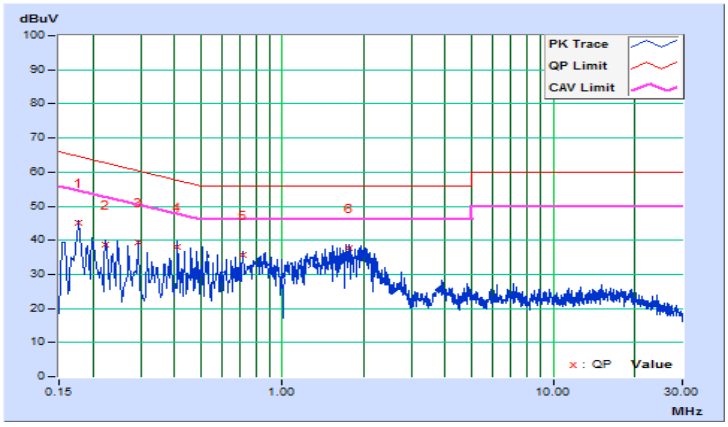
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Thomas Wei	Test Date	2019/3/22

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	0.17800	9.68	35.40	18.98	45.08	28.66	64.58	54.58	-19.50	-25.92
2	0.22211	9.68	29.09	14.30	38.77	23.98	62.74	52.74	-23.97	-28.76
3	0.29400	9.68	29.73	13.57	39.41	23.25	60.41	50.41	-21.00	-27.16
4	0.41000	9.68	28.28	13.12	37.96	22.80	57.65	47.65	-19.69	-24.85
5	0.71800	9.67	26.05	12.25	35.72	21.92	56.00	46.00	-20.28	-24.08
6	1.77400	9.69	28.11	11.97	37.80	21.66	56.00	46.00	-18.20	-24.34

Remarks:

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

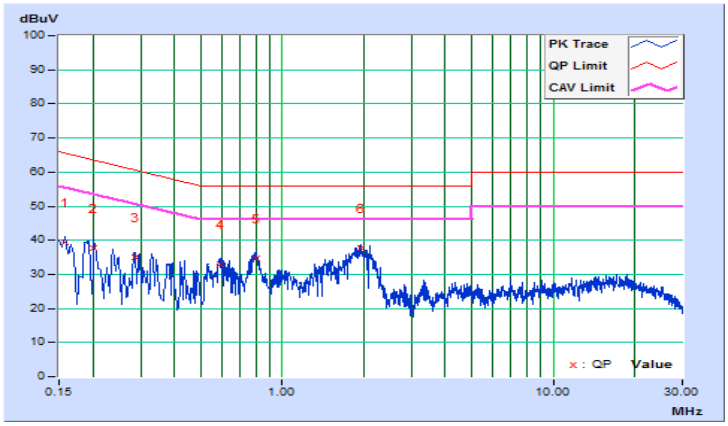


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Thomas Wei	Test Date	2019/3/22

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	0.15811	9.66	29.63	13.31	39.29	22.97	65.56	55.56	-26.27	-32.59
2	0.20201	9.66	28.18	11.01	37.84	20.67	63.53	53.53	-25.69	-32.86
3	0.28527	9.66	25.51	8.75	35.17	18.41	60.66	50.66	-25.49	-32.25
4	0.58872	9.65	23.51	8.93	33.16	18.58	56.00	46.00	-22.84	-27.42
5	0.79917	9.64	25.10	10.04	34.74	19.68	56.00	46.00	-21.26	-26.32
6	1.95800	9.67	27.97	12.32	37.64	21.99	56.00	46.00	-18.36	-24.01

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

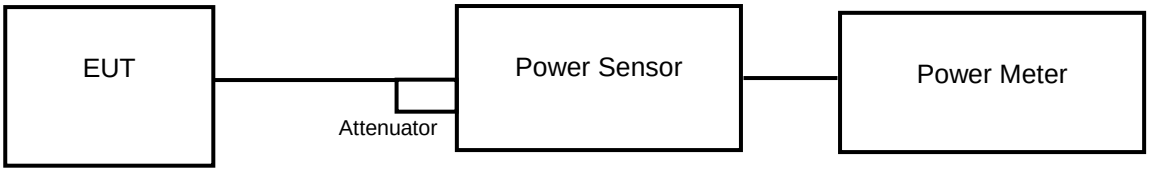
4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125 mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250 mW (24 dBm)
U-NII-2A	√		250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-2C	√		250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-3	√		1 Watt (30 dBm)

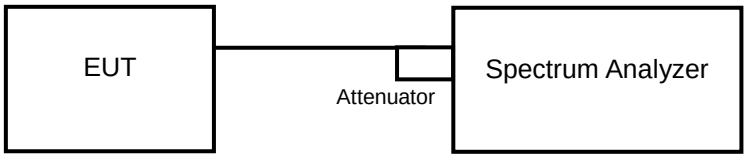
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

<Power Output Measurement>



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

<802.11a, 802.11n (HT20), 802.11n (HT40)>

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

26 dB Bandwidth

a. Set RBW = approximately 1 % of the emission bandwidth.
b. Set the VBW > RBW.
c. Detector = Peak.
d. Trace mode = max hold.
e. 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 Results

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	8.453	9.27	24	Pass
40	5200	8.395	9.24	24	Pass
48	5240	8.260	9.17	24	Pass
52	5260	8.110	9.09	24	Pass
60	5300	7.516	8.76	24	Pass
64	5320	7.211	8.58	24	Pass
100	5500	7.674	8.85	24	Pass
116	5580	7.516	8.76	24	Pass
140	5700	9.268	9.67	24	Pass
149	5745	8.851	9.47	30	Pass
157	5785	8.770	9.43	30	Pass
165	5825	7.780	8.91	30	Pass

Note:

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

1. 11 dBm + 10log (34.25) = 26.34 dBm > 24 dBm.
2. 11 dBm + 10log (31.41) = 25.97 dBm > 24 dBm.
3. 11 dBm + 10log (32.12) = 26.06 dBm > 24 dBm.
4. 11 dBm + 10log (32.79) = 26.15 dBm > 24 dBm.
5. 11 dBm + 10log (37.00) = 26.68 dBm > 24 dBm.
6. 11 dBm + 10log (39.15) = 26.92 dBm > 24 dBm.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	11.803	10.72	24	Pass
40	5200	11.695	10.68	24	Pass
48	5240	11.455	10.59	24	Pass
52	5260	11.246	10.51	24	Pass
60	5300	10.328	10.14	24	Pass
64	5320	9.908	9.96	24	Pass
100	5500	10.495	10.21	24	Pass
116	5580	10.304	10.13	24	Pass
140	5700	7.362	8.67	24	Pass
149	5745	8.954	9.52	30	Pass
157	5785	8.892	9.49	30	Pass
165	5825	7.925	8.99	30	Pass

Note:

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

1. 11 dBm + 10log (40.32) = 27.05 dBm > 24 dBm.
2. 11 dBm + 10log (41.56) = 27.18 dBm > 24 dBm.
3. 11 dBm + 10log (39.29) = 26.94 dBm > 24 dBm.
4. 11 dBm + 10log (40.98) = 27.12 dBm > 24 dBm.
5. 11 dBm + 10log (44.05) = 27.43 dBm > 24 dBm.
6. 11 dBm + 10log (34.22) = 26.34 dBm > 24 dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	5.260	7.21	24	Pass
46	5230	10.023	10.01	24	Pass
54	5270	9.817	9.92	24	Pass
62	5310	4.345	6.38	24	Pass
102	5510	9.311	9.69	24	Pass
110	5550	9.162	9.62	24	Pass
134	5670	7.962	9.01	24	Pass
151	5755	8.851	9.47	30	Pass
159	5795	8.831	9.46	30	Pass

Note:

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

1. 11 dBm + 10log (73.08) = 29.63 dBm > 24 dBm.
2. 11 dBm + 10log (43.25) = 27.35 dBm > 24 dBm.
3. 11 dBm + 10log (67.14) = 29.26 dBm > 24 dBm.
4. 11 dBm + 10log (73.82) = 29.68 dBm > 24 dBm.
5. 11 dBm + 10log (69.78) = 29.43 dBm > 24 dBm.

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	31.98
40	5200	34.46
48	5240	30.03
52	5260	34.25
60	5300	31.41
64	5320	32.12
100	5500	32.79
116	5580	37.00
140	5700	39.15

802.11n (HT20)

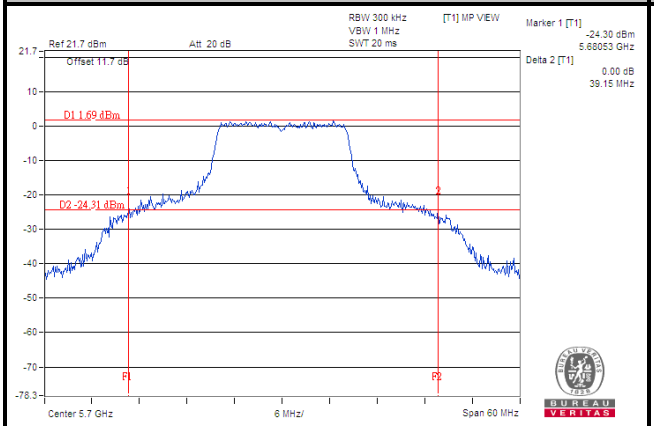
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	38.11
40	5200	41.31
48	5240	42.39
52	5260	40.32
60	5300	41.56
64	5320	39.29
100	5500	40.98
116	5580	44.05
140	5700	34.22

802.11n (HT40)

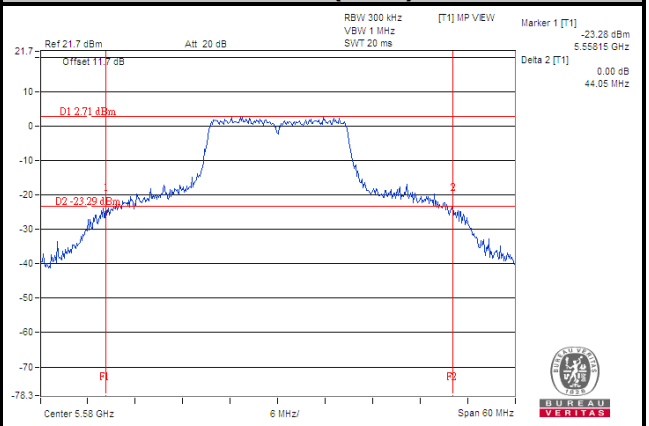
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	42.59
46	5230	69.07
54	5270	73.08
62	5310	43.25
102	5510	67.14
110	5550	73.82
134	5670	69.78

Spectrum Plot of Worst Value

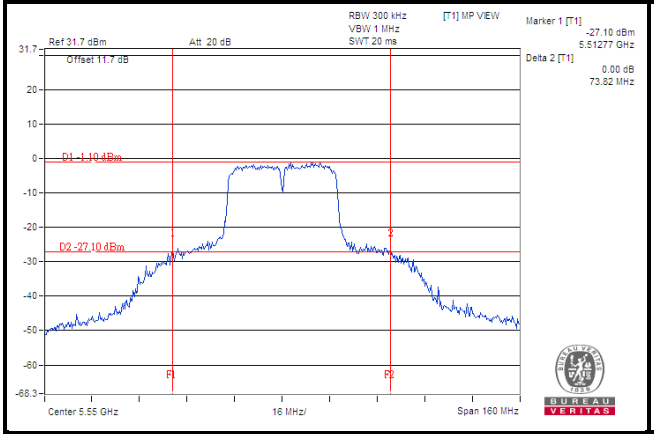
802.11a



802.11n (HT20)

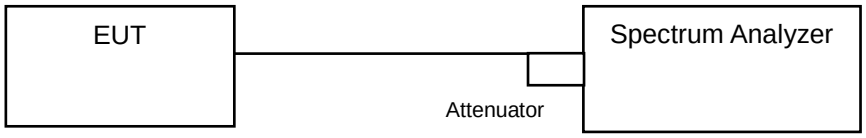


802.11n (HT40)



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)
36	5180	17.64
40	5200	17.52
48	5240	17.52
52	5260	17.52
60	5300	17.52
64	5320	17.52
100	5500	17.40
116	5580	17.64
140	5700	18.24
149	5745	18.72
157	5785	18.00
165	5825	17.64

802.11n (HT20)

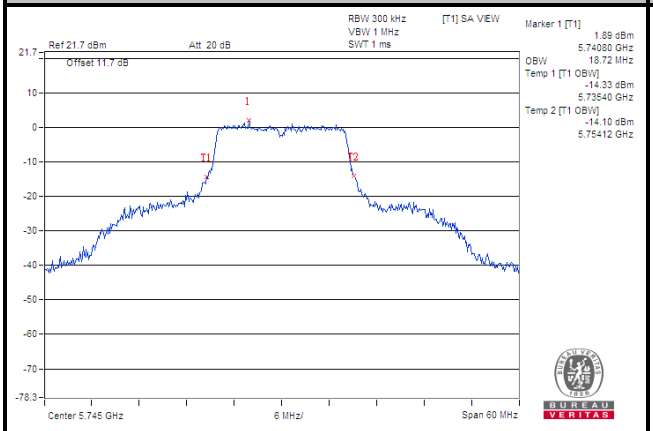
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18.96
40	5200	19.20
48	5240	19.44
52	5260	19.32
60	5300	20.64
64	5320	18.72
100	5500	18.96
116	5580	19.80
140	5700	18.36
149	5745	19.32
157	5785	18.96
165	5825	18.60

802.11n (HT40)

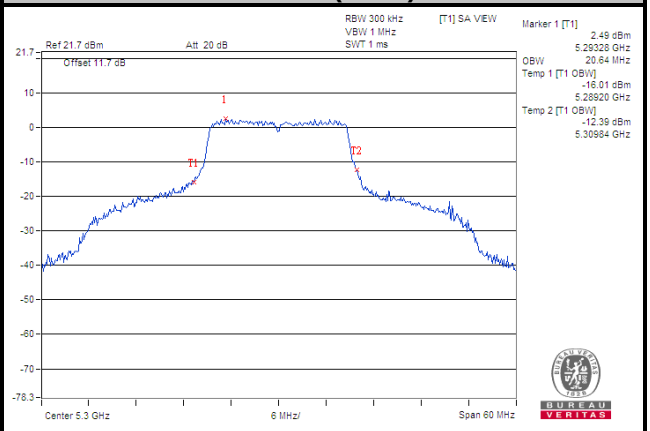
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.72
46	5230	37.08
54	5270	37.08
62	5310	36.72
102	5510	36.96
110	5550	37.08
134	5670	37.08
151	5755	37.08
159	5795	37.08

Spectrum Plot of Worst Value

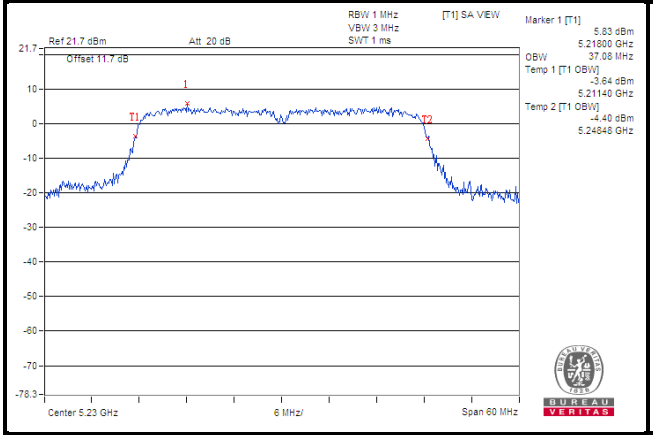
802.11a



802.11n (HT20)



802.11n (HT40)

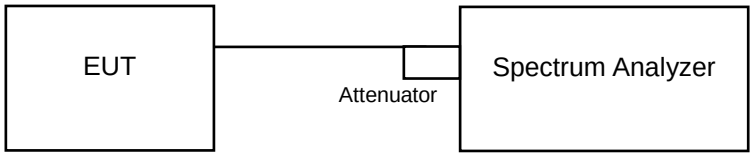


4.5 Peak Power Spectral Density Measurement

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

4.5.5 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 w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	-2.24	0.61	-1.63	11	Pass
40	5200	-2.05	0.61	-1.44	11	Pass
48	5240	-2.12	0.61	-1.51	11	Pass
52	5260	-2.01	0.61	-1.40	11	Pass
60	5300	-2.51	0.61	-1.90	11	Pass
64	5320	-2.80	0.61	-2.19	11	Pass
100	5500	-3.14	0.61	-2.53	11	Pass
116	5580	-2.47	0.61	-1.86	11	Pass
140	5700	-2.31	0.61	-1.70	11	Pass

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

802.11n (HT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	-1.10	0.66	-0.44	11	Pass
40	5200	-1.12	0.66	-0.46	11	Pass
48	5240	-1.12	0.66	-0.46	11	Pass
52	5260	-1.05	0.66	-0.39	11	Pass
60	5300	-1.79	0.66	-1.13	11	Pass
64	5320	-1.65	0.66	-0.99	11	Pass
100	5500	-1.67	0.66	-1.01	11	Pass
116	5580	-1.52	0.66	-0.86	11	Pass
140	5700	-3.70	0.66	-3.04	11	Pass

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

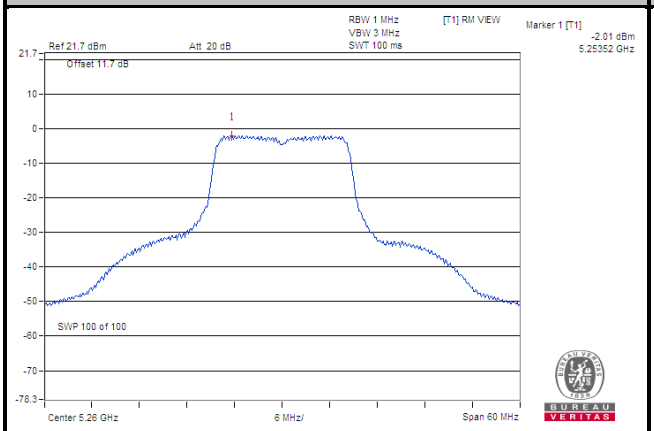
802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
38	5190	-9.00	1.19	-7.81	11	Pass
46	5230	-5.13	1.19	-3.94	11	Pass
54	5270	-5.43	1.19	-4.24	11	Pass
62	5310	-10.02	1.19	-8.83	11	Pass
102	5510	-6.31	1.19	-5.12	11	Pass
110	5550	-5.57	1.19	-4.38	11	Pass
134	5670	-5.97	1.19	-4.78	11	Pass

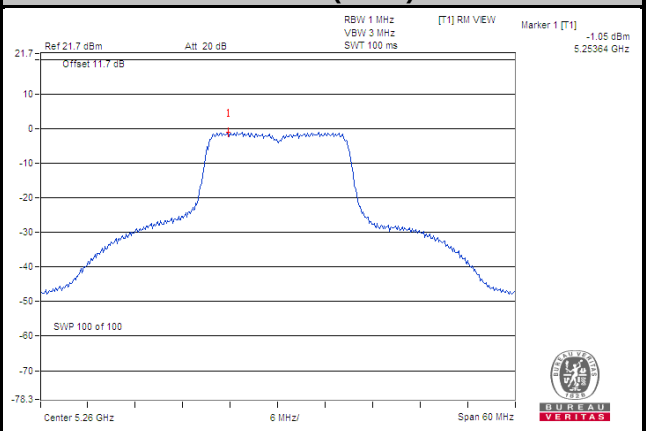
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

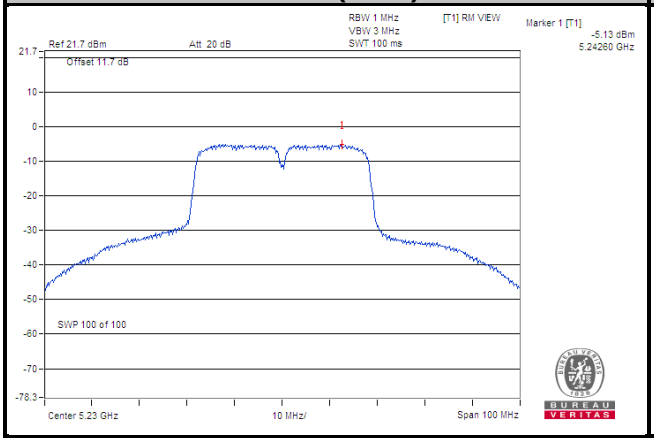
802.11a



802.11n (HT20)



802.11n (HT40)



For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
149	5745	-7.25	-5.03	0.61	-4.42	30	Pass
157	5785	-7.64	-5.42	0.61	-4.81	30	Pass
165	5825	-7.86	-5.64	0.61	-5.03	30	Pass

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

802.11n (HT20)

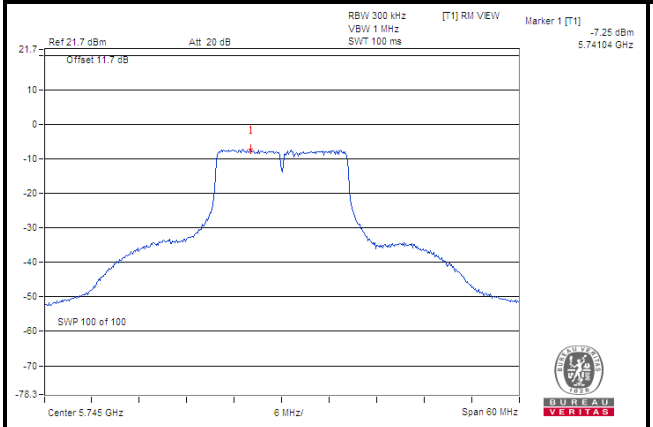
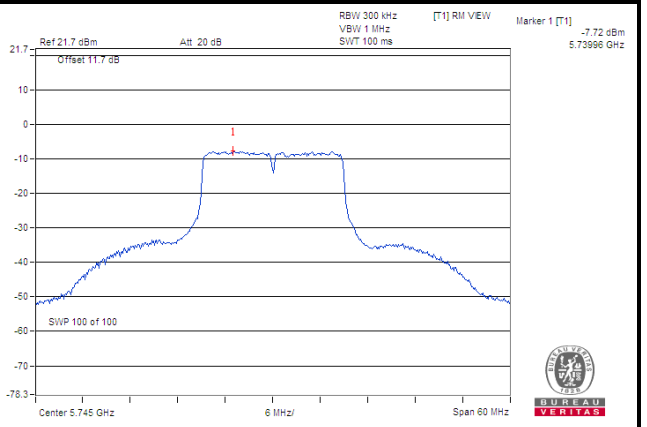
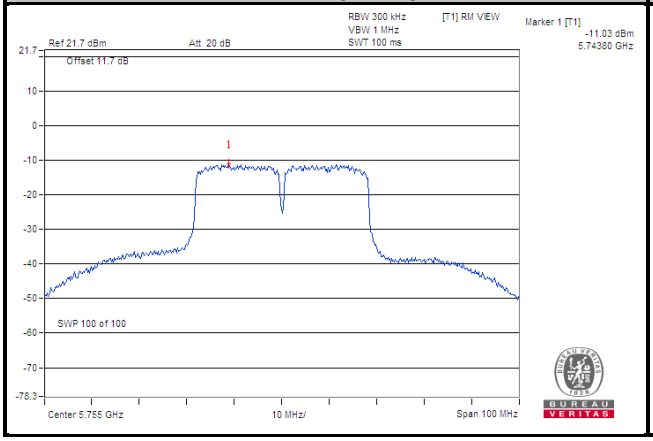
Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
149	5745	-7.72	-5.50	0.66	-4.84	30	Pass
157	5785	-7.78	-5.56	0.66	-4.90	30	Pass
165	5825	-8.25	-6.03	0.66	-5.37	30	Pass

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

802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
151	5755	-11.03	-8.81	1.19	-7.62	30	Pass
159	5795	-11.68	-9.46	1.19	-8.27	30	Pass

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

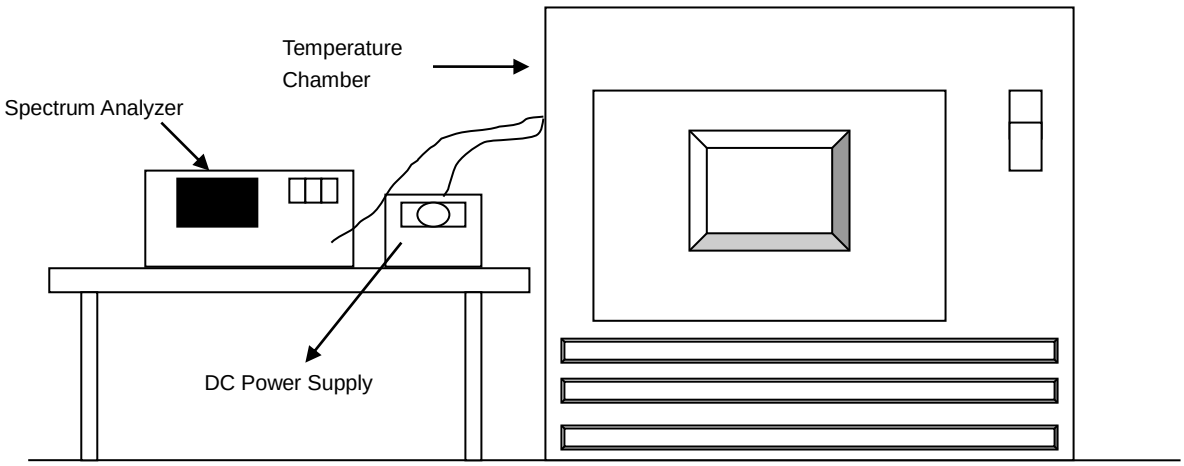
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

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

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

4.6.5 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. (℃)	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	3.7	5179.9941	PASS	5179.9946	PASS	5179.9925	PASS	5179.9942	3.7
40	3.7	5179.9941	PASS	5179.9964	PASS	5179.9962	PASS	5179.997	3.7
30	3.7	5180.0007	PASS	5180.0045	PASS	5180.005	PASS	5180.0002	3.7
20	3.7	5179.9832	PASS	5179.9833	PASS	5179.9852	PASS	5179.9852	3.7
10	3.7	5179.9895	PASS	5179.9869	PASS	5179.9865	PASS	5179.9903	3.7
0	3.7	5179.9823	PASS	5179.982	PASS	5179.9863	PASS	5179.9831	3.7
-10	3.7	5180.0151	PASS	5180.0156	PASS	5180.0178	PASS	5180.0169	3.7
-20	3.7	5180.0263	PASS	5180.025	PASS	5180.0245	PASS	5180.0264	3.7
-30	3.7	5179.975	PASS	5179.9739	PASS	5179.9737	PASS	5179.9722	3.7

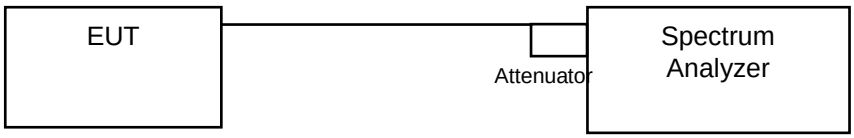
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	4.255	5179.9823	PASS	5179.9824	PASS	5179.9858	PASS	5179.985	4.255
	3.7	5179.9832	PASS	5179.9833	PASS	5179.9852	PASS	5179.9852	3.7
	3.145	5179.9831	PASS	5179.9839	PASS	5179.9849	PASS	5179.9851	3.145

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

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

4.7.5 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

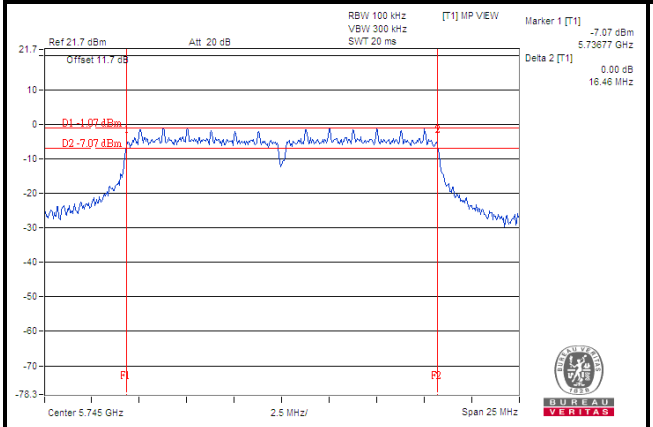
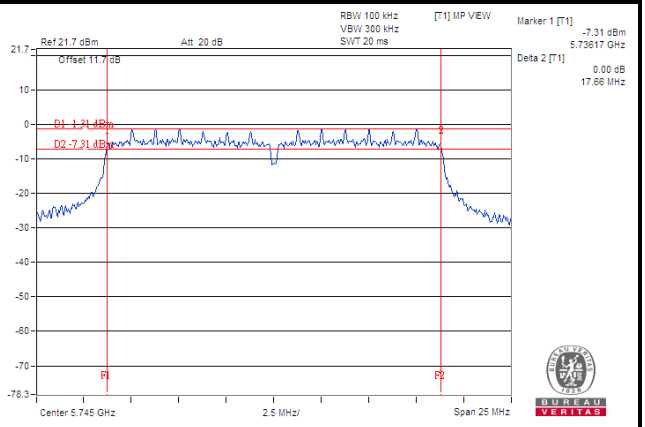
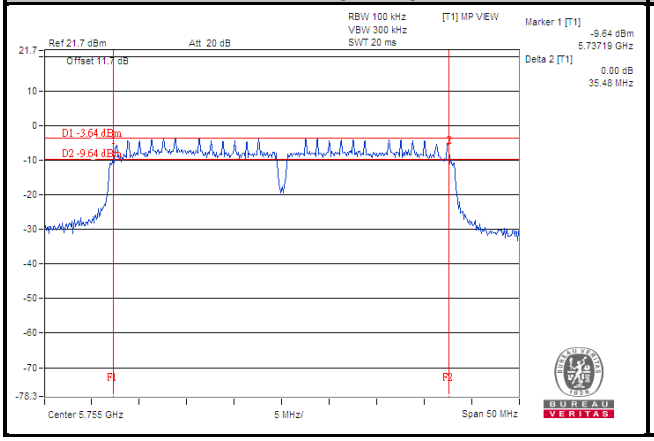
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.46	0.5	Pass
157	5785	16.46	0.5	Pass
165	5825	16.47	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.66	0.5	Pass
157	5785	17.67	0.5	Pass
165	5825	17.67	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.48	0.5	Pass
159	5795	35.49	0.5	Pass

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

5 Pictures of Test Arrangements

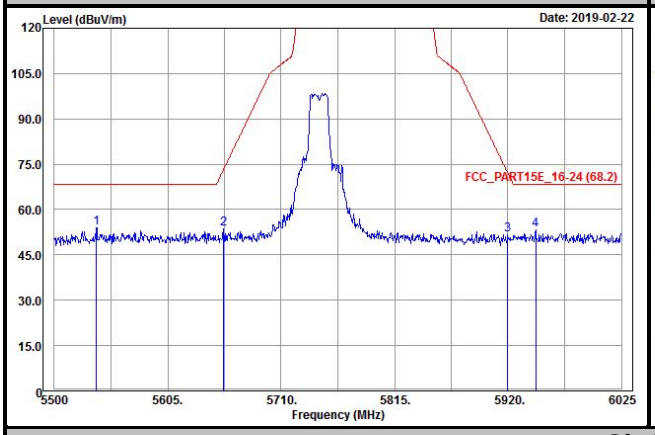
Please refer to the attached file (Test Setup Photo).

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

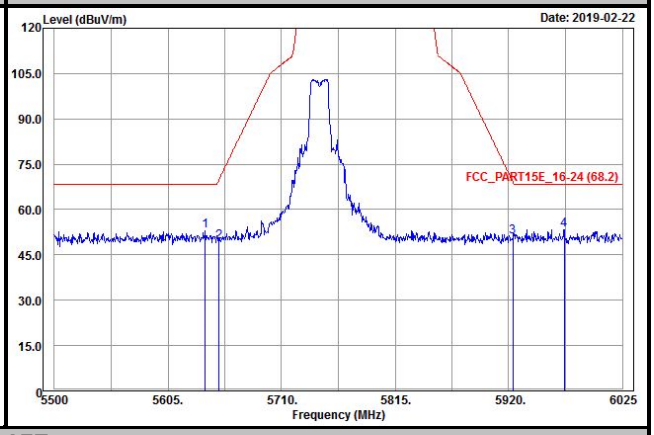
802.11a

Ch 149

Horizontal

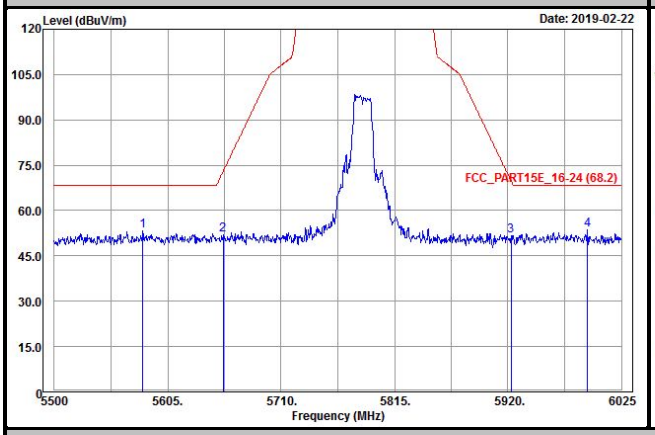


Vertical

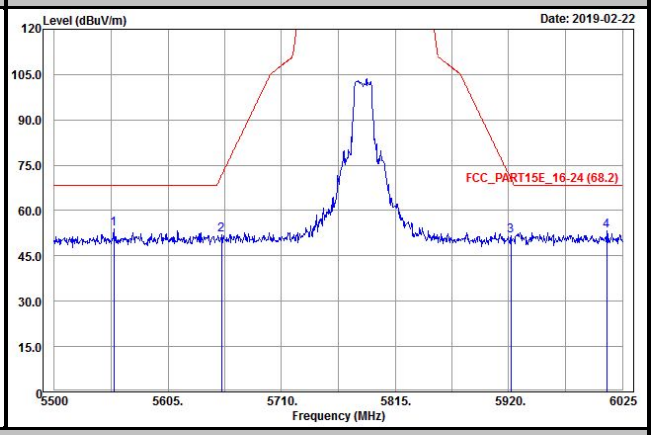


Ch 157

Horizontal

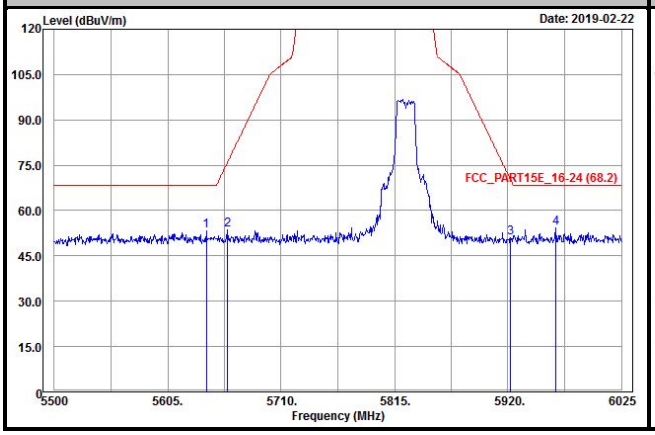


Vertical

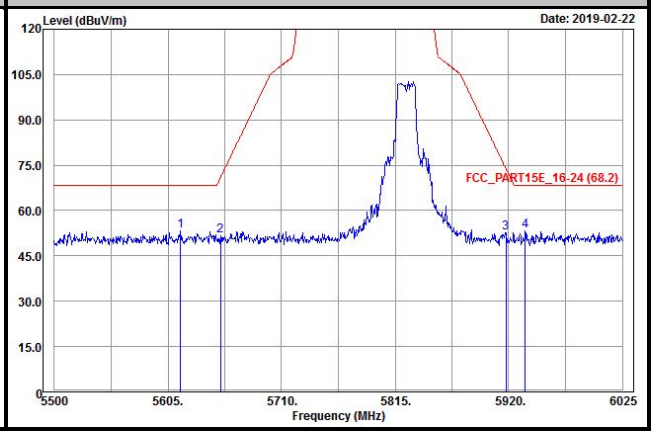


Ch 165

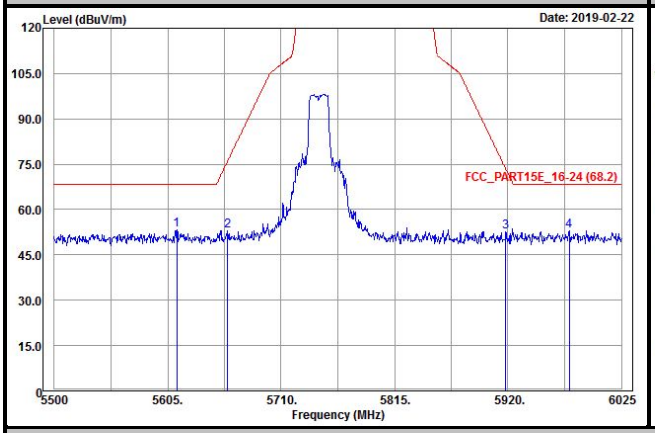
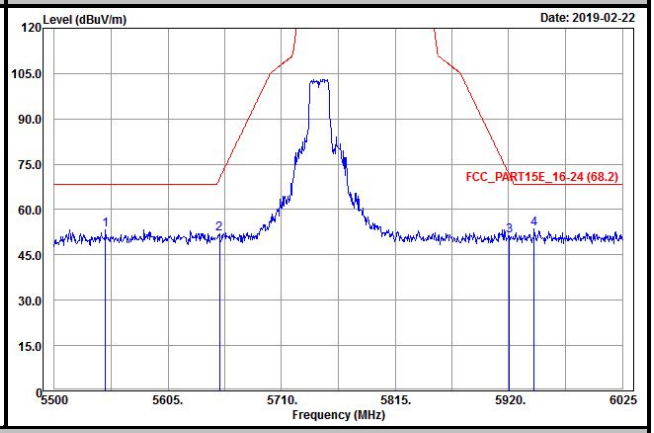
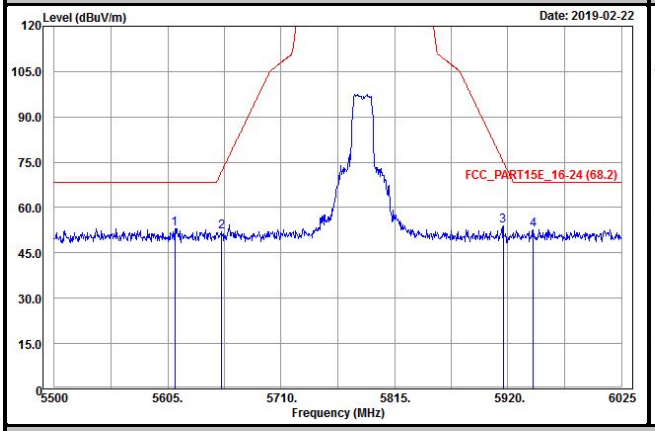
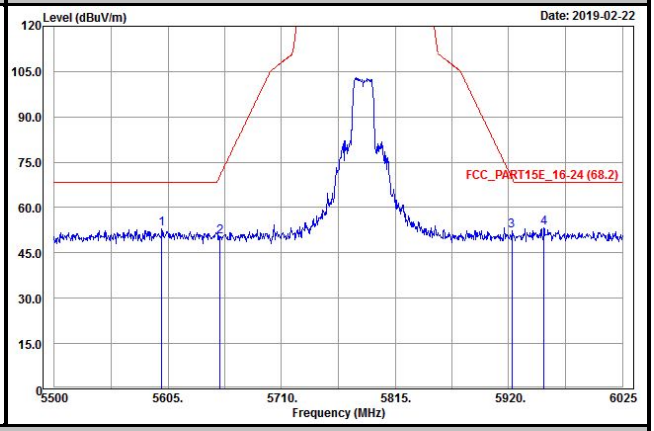
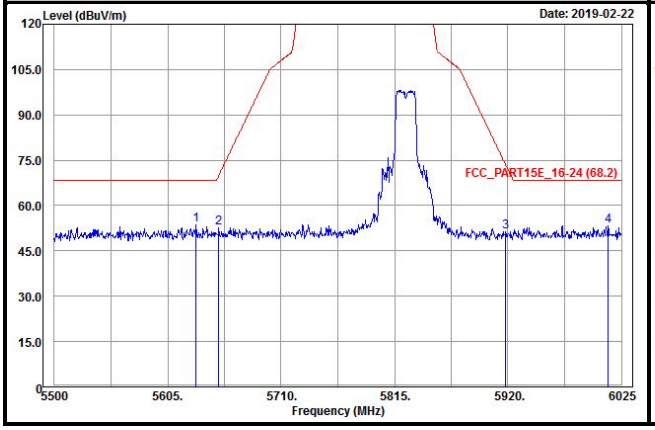
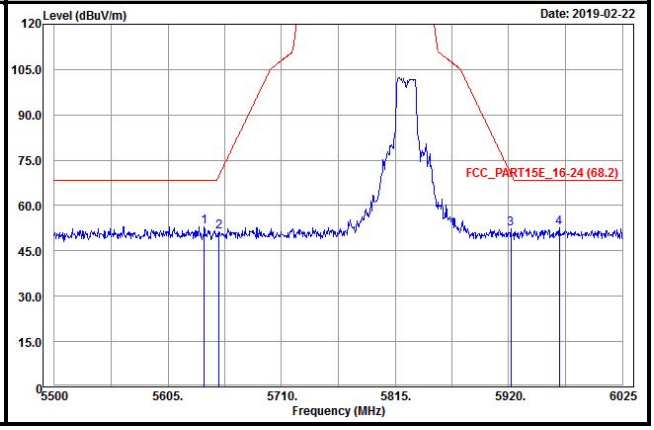
Horizontal



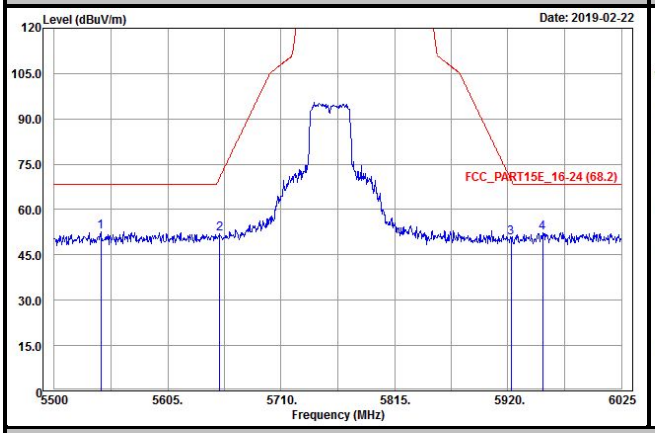
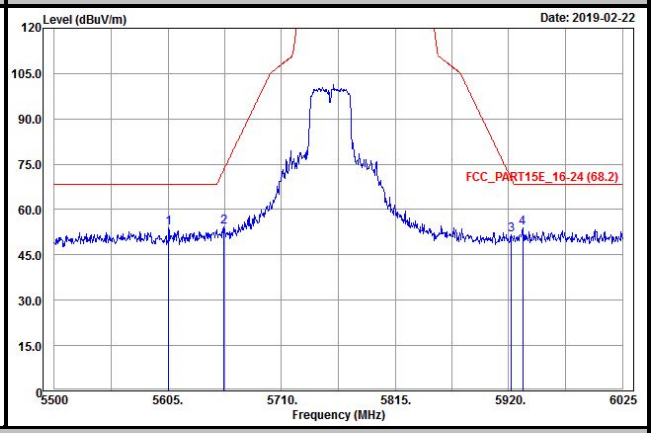
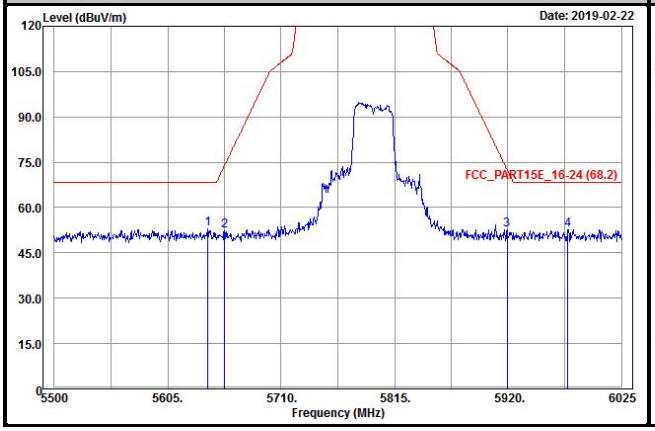
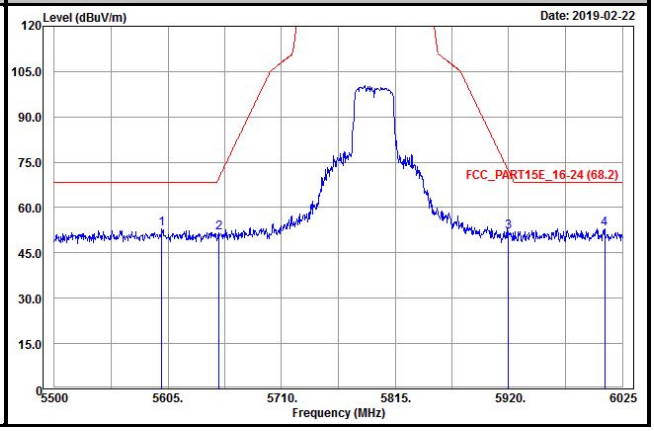
Vertical



802.11n (HT20)

Ch 149	
Horizontal	Vertical
	
Ch 157	
Horizontal	Vertical
	
Ch 165	
Horizontal	Vertical
	

802.11n (HT40)

Ch 151	
Horizontal	Vertical
	
Ch 159	
Horizontal	**Vertical**
	

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

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