FCC Test Report

Report No.:	RF181011C08-4
FCC ID:	B32CM5W
Test Model:	CM5W
Received Date:	Oct. 11, 2018
Test Date:	Jan. 02, 2019 ~ Jan. 08, 2019
Issued Date:	Jan. 16, 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 :	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan, R.O.C.
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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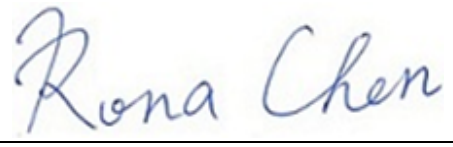
Release Control Record

Issue No.	Description	Date Issued
RF181011C08-4	Original Release	Jan. 16, 2019

1 Certificate of Conformity

Product:	Point of Sale Terminal
Brand:	Verifone
Test Model:	CM5W
Sample Status:	Identical Prototype
Applicant:	Verifone, Inc.
Test Date:	Jan. 02, 2019 ~ Jan. 08, 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:** Jan. 16, 2019

Rona Chen / Specialist

Approved by :  , **Date:** Jan. 16, 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 -19.16 dB at 0.81406 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 -3.83 dB at 5470 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

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

Note:

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	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 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	CM5W
Status of EUT	Identical Prototype
Power Supply Rating	3.85 Vdc (Battery) 5 Vdc (Adapter)
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	14.997 mW for 5180 ~ 5240 MHz 14.757 mW for 5260 ~ 5320 MHz 14.256 mW for 5500 ~ 5700 MHz 10.351 mW for 5745 ~ 5825 MHz
Antenna Type	Monopole antenna with 1.5 dBi gain (5180 ~ 5240 MHz) Monopole antenna with 1.5 dBi gain (5260 ~ 5320 MHz) Monopole antenna with 1.5 dBi gain (5500 ~ 5700 MHz) Monopole antenna with 1.5 dBi gain (5745 ~ 5825 MHz)
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT provides 1 completed transmitter and 1 receiver.

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

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	Verifone	VF0602	I/P: 100-240 Vac, 50-60 Hz, 0.3 A O/P: 5 Vdc, 2 A
Battery	Verifone	BPK278-501	3.85 Vdc, 3900 mAh
BT/WLAN Module	Quectel	SC20-W	--
CTLS chipset	ST Microelectronics	ST25R3911B	--

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** for U-NII-1, U-NII-2A, and U-NII-2C **/ Z-plane** for U-NII-3.

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	802.11n (HT40)	102 to 134	102	OFDM	BPSK	13.5

Power Line Conducted Emission Test:

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

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5500-5700	802.11n (HT40)	102 to 134	102	OFDM	BPSK	13.5

Antenna Port Conducted Measurement:

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

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

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

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	Thomas Wei
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei
APCM	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu

3.3 Duty Cycle of Test Signal

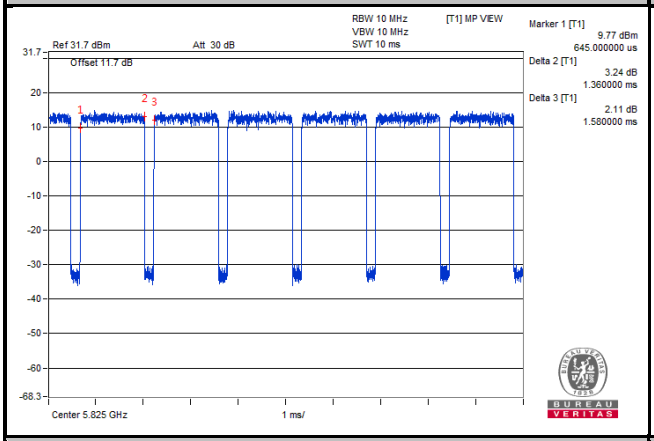
MODULATION TYPE: BPSK

802.11a: Duty cycle = 1.360/1.580 = 0.861, Duty factor = 10 * log(1/0.861) = 0.65

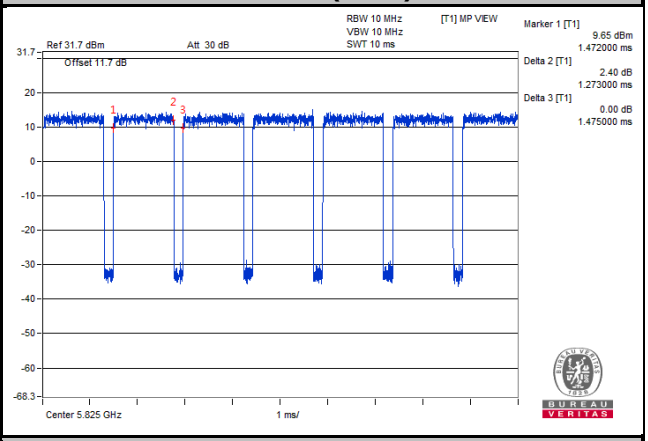
802.11n (HT20): Duty cycle = 1.273/1.475 = 0.863, Duty factor = 10 * log(1/0.863) = 0.64

802.11n (HT40): Duty cycle = 0.625/0.839 = 0.745, Duty factor = 10 * log(1/0.745) = 1.28

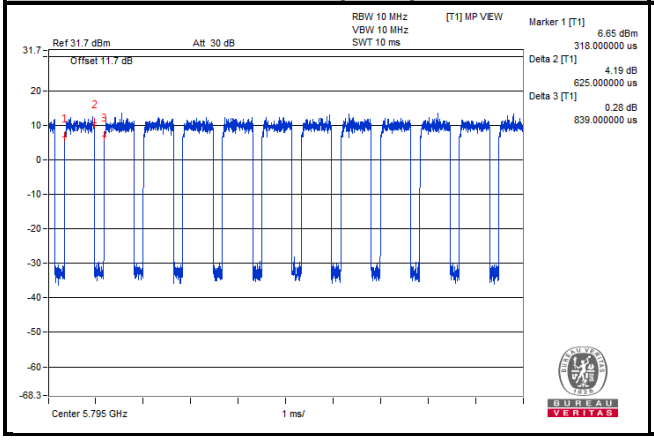
802.11a



802.11n (HT20)



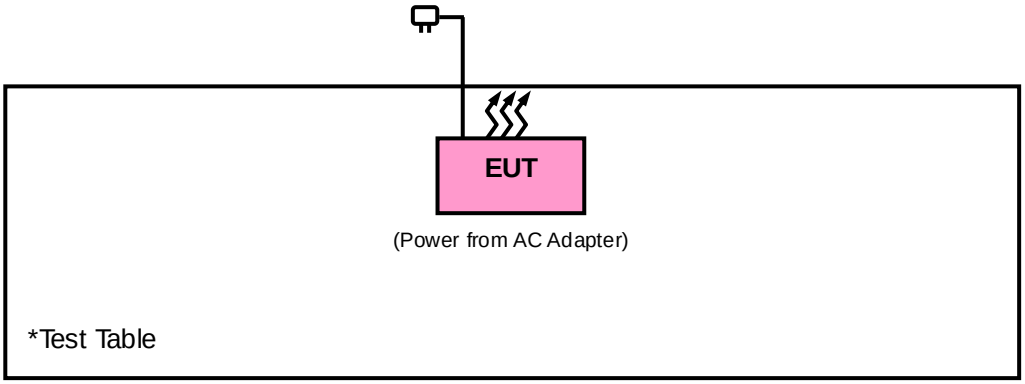
802.11n (HT40)



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	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 13, 2018	Dec. 12, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
Broadband Horn Antenna SCHWARZBECK	BBHA 9170	148	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Nov. 23, 2018	Nov. 22, 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 EMCI	EMC001340	980201	Oct. 12, 2018	Oct. 11, 2019
Preamplifier EMCI	EMC 012645	980115	Oct. 12, 2018	Oct. 11, 2019
Preamplifier EMCI	EMC 184045	980116	Oct. 12, 2018	Oct. 11, 2019
Preamplifier EMCI	EMC 330H	980112	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 Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8000&3000	140811+170717	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 12, 2018	Oct. 11, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	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 HwaYa Chamber 10.

3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.

4. The IC Site Registration No. is 7450F-10.

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:

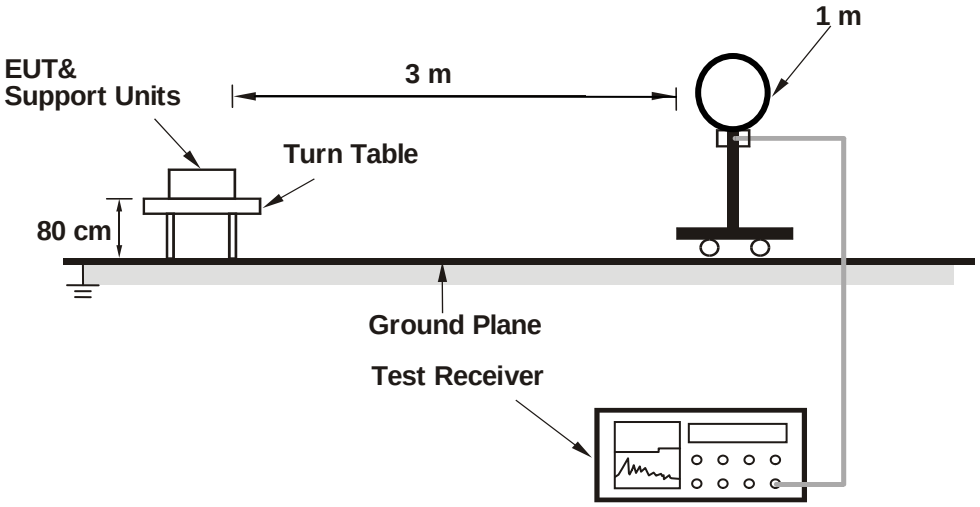
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) 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

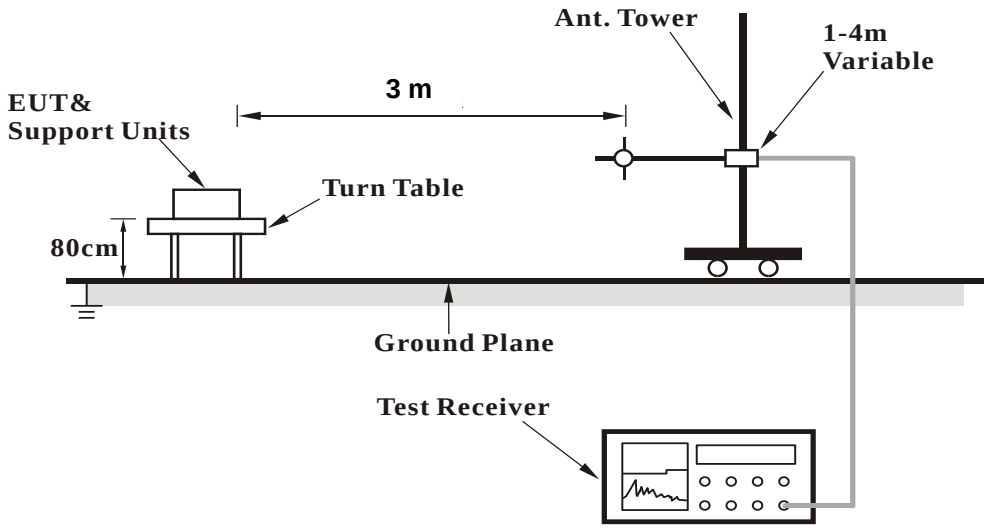
No deviation.

4.1.6 Test Setup

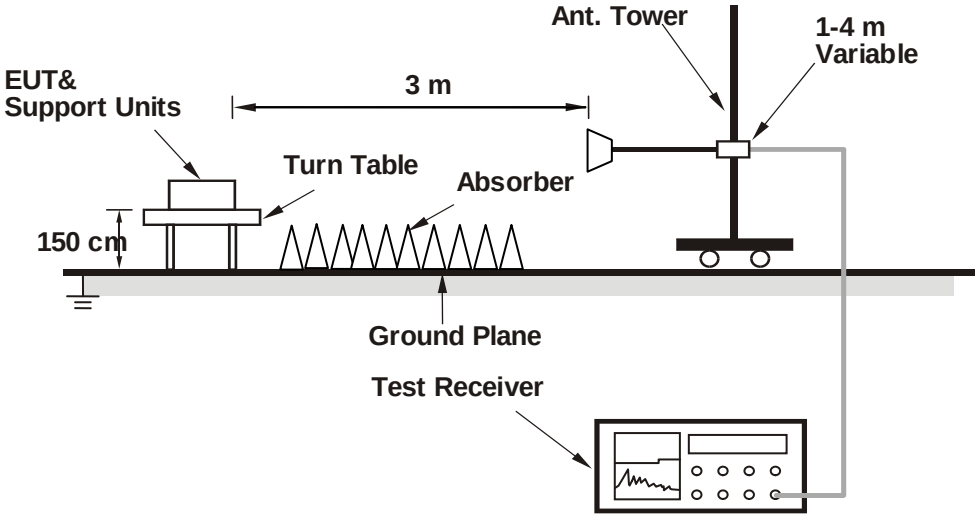
<Radiated Emission below 30 MHz>



<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**	Thomas Wei

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**
5149.94	39.76	39.18	54	-14.24	31.56	6.34	37.32	219	73	Average
5149.94	52.41	51.83	74	-21.59	31.56	6.34	37.32	219	73	Peak
5180	85.76	85.14			31.59	6.37	37.34	219	73	Average
5180	94.19	93.57			31.59	6.37	37.34	219	73	Peak
*10360	53.19	55.95	68.2	-15.01	39.48	10.21	52.45	166	211	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5149.76	41.28	40.7	54	-12.72	31.56	6.34	37.32	104	198	Average
5149.76	54.5	53.92	74	-19.5	31.56	6.34	37.32	104	198	Peak
5180	89.36	88.74			31.59	6.37	37.34	104	198	Average
5180	98.14	97.52			31.59	6.37	37.34	104	198	Peak
*10360	52.93	55.69	68.2	-15.27	39.48	10.21	52.45	157	89	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**	Thomas Wei

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**
5147.24	38.8	38.22	54	-15.2	31.56	6.34	37.32	225	70	Average
5147.24	50.9	50.32	74	-23.1	31.56	6.34	37.32	225	70	Peak
5200	84.89	84.26			31.6	6.39	37.36	225	70	Average
5200	94.11	93.48			31.6	6.39	37.36	225	70	Peak
5440.53	38.55	37.42	54	-15.45	31.76	6.5	37.13	225	70	Average
5440.53	51.09	49.96	74	-22.91	31.76	6.5	37.13	225	70	Peak
*10400	54.04	56.78	68.2	-14.16	39.51	10.2	52.45	146	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**
5147.6	39.72	39.14	54	-14.28	31.56	6.34	37.32	113	202	Average
5147.6	50.62	50.04	74	-23.38	31.56	6.34	37.32	113	202	Peak
5200	89.69	89.06			31.6	6.39	37.36	113	202	Average
5200	99.14	98.51			31.6	6.39	37.36	113	202	Peak
5443.28	38.72	37.59	54	-15.28	31.76	6.5	37.13	113	202	Average
5443.28	51.1	49.97	74	-22.9	31.76	6.5	37.13	113	202	Peak
*10400	53.2	55.94	68.2	-15	39.51	10.2	52.45	192	274	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**	Thomas Wei

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**
5067.32	38.25	37.75	54	-15.75	31.51	6.26	37.27	100	74	Average
5067.32	51.13	50.63	74	-22.87	31.51	6.26	37.27	100	74	Peak
5240	84.94	84.22			31.62	6.42	37.32	100	74	Average
5240	94.36	93.64			31.62	6.42	37.32	100	74	Peak
5445.48	38.6	37.47	54	-15.4	31.76	6.5	37.13	100	74	Average
5445.48	50.66	49.53	74	-23.34	31.76	6.5	37.13	100	74	Peak
*10480	54.1	56.94	68.2	-14.1	39.6	10.22	52.66	178	284	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**
5035.46	38.21	37.73	54	-15.79	31.48	6.24	37.24	107	220	Average
5035.46	50.98	50.5	74	-23.02	31.48	6.24	37.24	107	220	Peak
5240	88.84	88.12			31.62	6.42	37.32	107	220	Average
5240	97.92	97.2			31.62	6.42	37.32	107	220	Peak
5446.69	38.57	37.43	54	-15.43	31.77	6.5	37.13	107	220	Average
5446.69	50.91	49.77	74	-23.09	31.77	6.5	37.13	107	220	Peak
*10480	53.46	56.3	68.2	-14.74	39.6	10.22	52.66	137	276	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**	Thomas Wei

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**
5079.74	38.3	37.78	54	-15.7	31.52	6.27	37.27	100	74	Average
5079.74	51.09	50.57	74	-22.91	31.52	6.27	37.27	100	74	Peak
5260	85.08	84.27			31.65	6.43	37.27	100	74	Average
5260	93.46	92.65			31.65	6.43	37.27	100	74	Peak
5426.67	38.48	37.37	54	-15.52	31.75	6.49	37.13	100	74	Average
5426.67	51.44	50.33	74	-22.56	31.75	6.49	37.13	100	74	Peak
*10520	54	56.8	68.2	-14.2	39.66	10.27	52.73	164	251	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**
5117.54	38.32	37.75	54	-15.68	31.54	6.31	37.28	109	221	Average
5117.54	50.86	50.29	74	-23.14	31.54	6.31	37.28	109	221	Peak
5260	88.98	88.17			31.65	6.43	37.27	109	221	Average
5260	98.07	97.26			31.65	6.43	37.27	109	221	Peak
5446.03	38.54	37.4	54	-15.46	31.77	6.5	37.13	109	221	Average
5446.03	51.15	50.01	74	-22.85	31.77	6.5	37.13	109	221	Peak
*10520	53.94	56.74	68.2	-14.26	39.66	10.27	52.73	184	201	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**	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5135.54	38.23	37.65	54	-15.77	31.55	6.33	37.3	117	73	Average
5135.54	50.43	49.85	74	-23.57	31.55	6.33	37.3	117	73	Peak
5300	85.03	84.09			31.67	6.46	37.19	117	73	Average
5300	94.1	93.16			31.67	6.46	37.19	117	73	Peak
5446.47	38.56	37.42	54	-15.44	31.77	6.5	37.13	117	73	Average
5446.47	51.08	49.94	74	-22.92	31.77	6.5	37.13	117	73	Peak
10600	45.86	48.69	54	-8.14	39.85	10.43	53.11	187	203	Average
10600	54.35	57.18	74	-19.65	39.85	10.43	53.11	187	203	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**
5133.92	38.18	37.61	54	-15.82	31.55	6.32	37.3	110	221	Average
5133.92	50.29	49.72	74	-23.71	31.55	6.32	37.3	110	221	Peak
5300	88.73	87.79			31.67	6.46	37.19	110	221	Average
5300	97.8	96.86			31.67	6.46	37.19	110	221	Peak
5352.2	38.88	37.89	54	-15.12	31.7	6.47	37.18	110	221	Average
5352.2	50.66	49.67	74	-23.34	31.7	6.47	37.18	110	221	Peak
10600	45.52	48.35	54	-8.48	39.85	10.43	53.11	150	241	Average
10600	54.44	57.27	74	-19.56	39.85	10.43	53.11	150	241	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. *: Out of Restricted Band
4. 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**	Thomas Wei

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	83.74	82.79			31.68	6.46	37.19	106	72	Average
5320	92.34	91.39			31.68	6.46	37.19	106	72	Peak
5350.11	39.02	38.03	54	-14.98	31.7	6.47	37.18	106	72	Average
5350.11	52.24	51.25	74	-21.76	31.7	6.47	37.18	106	72	Peak
10640	45.91	48.69	54	-8.09	39.93	10.36	53.07	176	205	Average
10640	55.22	58	74	-18.78	39.93	10.36	53.07	176	205	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	87.34	86.39			31.68	6.46	37.19	118	221	Average
5320	96.23	95.28			31.68	6.46	37.19	118	221	Peak
5350.11	40.17	39.18	54	-13.83	31.7	6.47	37.18	118	221	Average
5350.11	53.03	52.04	74	-20.97	31.7	6.47	37.18	118	221	Peak
10640	45.41	48.19	54	-8.59	39.93	10.36	53.07	123	246	Average
10640	53.44	56.22	74	-20.56	39.93	10.36	53.07	123	246	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. *: Out of Restricted Band
4. 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**	Thomas Wei

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**
5446	38.67	37.53	54	-15.33	31.77	6.5	37.13	106	74	Average
5446	50.64	49.5	74	-23.36	31.77	6.5	37.13	106	74	Peak
*5470	50.69	49.46	68.2	-17.51	31.79	6.52	37.08	106	74	Peak
5500	83.85	82.53			31.81	6.54	37.03	106	74	Average
5500	93.36	92.04			31.81	6.54	37.03	106	74	Peak
*5725	50.12	48.61	68.2	-18.08	32.18	6.76	37.43	106	74	Peak
11000	46.95	48.85	54	-7.05	40.73	10.4	53.03	159	326	Average
11000	54.54	56.44	74	-19.46	40.73	10.4	53.03	159	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**
5448.08	39.47	38.33	54	-14.53	31.77	6.5	37.13	106	185	Average
5448.08	51.81	50.67	74	-22.19	31.77	6.5	37.13	106	185	Peak
*5470	54.3	53.07	68.2	-13.9	31.79	6.52	37.08	106	185	Peak
5500	87.95	86.63			31.81	6.54	37.03	106	185	Average
5500	97.38	96.06			31.81	6.54	37.03	106	185	Peak
*5725	50.05	48.54	68.2	-18.15	32.18	6.76	37.43	106	185	Peak
11000	46.51	48.41	54	-7.49	40.73	10.4	53.03	171	211	Average
11000	54.87	56.77	74	-19.13	40.73	10.4	53.03	171	211	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**	Thomas Wei

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**
5448.4	39.22	38.08	54	-14.78	31.77	6.5	37.13	101	196	Average
5448.4	51.51	50.37	74	-22.49	31.77	6.5	37.13	101	196	Peak
*5470	50.36	49.13	68.2	-17.84	31.79	6.52	37.08	101	196	Peak
5580	87.08	85.67			31.92	6.65	37.16	101	196	Average
5580	96.05	94.64			31.92	6.65	37.16	101	196	Peak
*5725	51.08	49.57	68.2	-17.12	32.18	6.76	37.43	101	196	Peak
11160	46.97	48.67	54	-7.03	40.56	10.52	52.78	159	278	Average
11160	55.83	57.53	74	-18.17	40.56	10.52	52.78	159	278	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	39.08	37.95	54	-14.92	31.76	6.5	37.13	100	264	Average
5444.4	51.23	50.1	74	-22.77	31.76	6.5	37.13	100	264	Peak
*5470	52.37	51.14	68.2	-15.83	31.79	6.52	37.08	100	264	Peak
5580	90.28	88.87			31.92	6.65	37.16	100	264	Average
5580	99.56	98.15			31.92	6.65	37.16	100	264	Peak
*5725	52.34	50.83	68.2	-15.86	32.18	6.76	37.43	100	264	Peak
11160	46.89	48.59	54	-7.11	40.56	10.52	52.78	128	244	Average
11160	56.06	57.76	74	-17.94	40.56	10.52	52.78	128	244	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**	Thomas Wei

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**
5458.32	38.64	37.44	54	-15.36	31.77	6.51	37.08	108	196	Average
5458.32	50.91	49.71	74	-23.09	31.77	6.51	37.08	108	196	Peak
*5470	49.88	48.65	68.2	-18.32	31.79	6.52	37.08	108	196	Peak
5700	86.05	84.6			32.12	6.73	37.4	108	196	Average
5700	95.31	93.86			32.12	6.73	37.4	108	196	Peak
*5725	56.8	55.29	68.2	-11.4	32.18	6.76	37.43	108	196	Peak
11400	46.61	48.51	54	-7.39	40.33	10.47	52.7	179	236	Average
11400	55.31	57.21	74	-18.69	40.33	10.47	52.7	179	236	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5400.08	38.65	37.62	54	-15.35	31.74	6.47	37.18	113	263	Average
5400.08	51.21	50.18	74	-22.79	31.74	6.47	37.18	113	263	Peak
*5470	50.08	48.85	68.2	-18.12	31.79	6.52	37.08	113	263	Peak
5700	88.85	87.4			32.12	6.73	37.4	113	263	Average
5700	97.94	96.49			32.12	6.73	37.4	113	263	Peak
*5725	55.91	54.4	68.2	-12.29	32.18	6.76	37.43	113	263	Peak
11400	46.37	48.27	54	-7.63	40.33	10.47	52.7	199	272	Average
11400	54.73	56.63	74	-19.27	40.33	10.47	52.7	199	272	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**	Thomas Wei

<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	91.39	89.87			32.21	6.78	37.47	177	6	Average
5745	99.7	98.18			32.21	6.78	37.47	177	6	Peak
11490	46.23	48.1	54	-7.77	40.25	10.66	52.78	161	233	Average
11490	55.6	57.47	74	-18.4	40.25	10.66	52.78	161	233	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	87.39	85.87			32.21	6.78	37.47	192	293	Average
5745	96.46	94.94			32.21	6.78	37.47	192	293	Peak
11490	46.38	48.25	54	-7.62	40.25	10.66	52.78	142	159	Average
11490	55.53	57.4	74	-18.47	40.25	10.66	52.78	142	159	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5603.675	51.43	49.99	68.2	-16.77	31.98	6.68	37.22	177	6	Peak
5660.2	49.92	48.49	75.77	-25.85	32.06	6.71	37.34	177	6	Peak
5921.925	50.58	48.7	70.47	-19.89	32.52	6.86	37.5	177	6	Peak
6000.775	51.56	49.55	68.2	-16.64	32.63	6.89	37.51	177	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
5607	51.17	49.73	68.2	-17.03	31.98	6.68	37.22	192	293	Peak
5650.7	50.47	48.98	68.72	-18.25	32.06	6.71	37.28	192	293	Peak
5915.75	50.47	48.62	75.02	-24.55	32.49	6.86	37.5	192	293	Peak
5943.775	50.95	49.03	68.2	-17.25	32.55	6.87	37.5	192	293	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**	Thomas Wei

<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	91.79	90.25			32.26	6.82	37.54	208	12	Average
5785	100.54	99			32.26	6.82	37.54	208	12	Peak
11570	46.55	48.67	54	-7.45	40.13	10.76	53.01	169	251	Average
11570	56.33	58.45	74	-17.67	40.13	10.76	53.01	169	251	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	85.99	84.45			32.26	6.82	37.54	112	194	Average
5785	95.22	93.68			32.26	6.82	37.54	112	194	Peak
11570	46.1	48.22	54	-7.9	40.13	10.76	53.01	139	241	Average
11570	54.9	57.02	74	-19.1	40.13	10.76	53.01	139	241	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
5643.1	51.1	49.64	68.2	-17.1	32.04	6.7	37.28	208	12	Peak
5652.6	50.88	49.39	70.13	-19.25	32.06	6.71	37.28	208	12	Peak
5915.75	50.79	48.94	75.02	-24.23	32.49	6.86	37.5	208	12	Peak
5969.9	51.05	49.11	68.2	-17.15	32.57	6.88	37.51	208	12	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
5566.625	51.31	49.88	68.2	-16.89	31.92	6.63	37.12	112	194	Peak
5654.025	49.72	48.29	71.19	-21.47	32.06	6.71	37.34	112	194	Peak
5922.875	50.66	48.78	69.77	-19.11	32.52	6.86	37.5	112	194	Peak
5988.425	52.21	50.23	68.2	-15.99	32.6	6.89	37.51	112	194	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**	Thomas Wei

<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	91.49	89.83			32.35	6.84	37.53	205	8	Average
5825	100.53	98.87			32.35	6.84	37.53	205	8	Peak
11650	46.54	48.85	54	-7.46	40.03	10.8	53.14	149	251	Average
11650	55.49	57.8	74	-18.51	40.03	10.8	53.14	149	251	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	85.69	84.03			32.35	6.84	37.53	116	187	Average
5825	94.9	93.24			32.35	6.84	37.53	116	187	Peak
11650	46.05	48.36	54	-7.95	40.03	10.8	53.14	192	103	Average
11650	56.15	58.46	74	-17.85	40.03	10.8	53.14	192	103	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
5630.275	51.22	49.79	68.2	-16.98	32.01	6.7	37.28	205	8	Peak
5651.175	49.4	47.91	69.07	-19.67	32.06	6.71	37.28	205	8	Peak
5920.975	50.98	49.13	71.17	-20.19	32.49	6.86	37.5	205	8	Peak
5994.6	52.39	50.38	68.2	-15.81	32.63	6.89	37.51	205	8	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
5643.1	51.46	50	68.2	-16.74	32.04	6.7	37.28	116	187	Peak
5654.5	51.38	49.95	71.54	-20.16	32.06	6.71	37.34	116	187	Peak
5919.55	50.47	48.62	72.22	-21.75	32.49	6.86	37.5	116	187	Peak
5938.075	51.68	49.79	68.2	-16.52	32.52	6.87	37.5	116	187	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**	Thomas Wei

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**
5149.4	40.75	40.17	54	-13.25	31.56	6.34	37.32	218	70	Average
5149.4	52.39	51.81	74	-21.61	31.56	6.34	37.32	218	70	Peak
5180	86.16	85.54			31.59	6.37	37.34	218	70	Average
5180	95.74	95.12			31.59	6.37	37.34	218	70	Peak
*10360	54.65	57.41	68.2	-13.55	39.48	10.21	52.45	182	113	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5149.94	43.2	42.62	54	-10.8	31.56	6.34	37.32	104	199	Average
5149.94	54.53	53.95	74	-19.47	31.56	6.34	37.32	104	199	Peak
5180	90.36	89.74			31.59	6.37	37.34	104	199	Average
5180	99.32	98.7			31.59	6.37	37.34	104	199	Peak
*10360	53.68	56.44	68.2	-14.52	39.48	10.21	52.45	195	160	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**	Thomas Wei

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**
5148.32	39.46	38.88	54	-14.54	31.56	6.34	37.32	226	298	Average
5148.32	51.27	50.69	74	-22.73	31.56	6.34	37.32	226	298	Peak
5200	86.59	85.96			31.6	6.39	37.36	226	298	Average
5200	95.35	94.72			31.6	6.39	37.36	226	298	Peak
5448.56	38.49	37.35	54	-15.51	31.77	6.5	37.13	226	298	Average
5448.56	50.76	49.62	74	-23.24	31.77	6.5	37.13	226	298	Peak
*10400	53.77	56.51	68.2	-14.43	39.51	10.2	52.45	186	206	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**
5148.68	40.82	40.24	54	-13.18	31.56	6.34	37.32	119	221	Average
5148.68	51.99	51.41	74	-22.01	31.56	6.34	37.32	119	221	Peak
5200	90.99	90.36			31.6	6.39	37.36	119	221	Average
5200	100.07	99.44			31.6	6.39	37.36	119	221	Peak
5444.16	38.56	37.43	54	-15.44	31.76	6.5	37.13	119	221	Average
5444.16	51.37	50.24	74	-22.63	31.76	6.5	37.13	119	221	Peak
*10400	54.3	57.04	68.2	-13.9	39.51	10.2	52.45	145	169	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**	Thomas Wei

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**
5140.04	38.37	37.78	54	-15.63	31.56	6.33	37.3	222	299	Average
5140.04	50.03	49.44	74	-23.97	31.56	6.33	37.3	222	299	Peak
5240	86.84	86.12			31.62	6.42	37.32	222	299	Average
5240	96.39	95.67			31.62	6.42	37.32	222	299	Peak
5456.59	38.47	37.27	54	-15.53	31.77	6.51	37.08	222	299	Average
5456.59	51.28	50.08	74	-22.72	31.77	6.51	37.08	222	299	Peak
*10480	53.75	56.59	68.2	-14.45	39.6	10.22	52.66	179	251	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5132.3	38.33	37.76	54	-15.67	31.55	6.32	37.3	119	222	Average
5132.3	50.75	50.18	74	-23.25	31.55	6.32	37.3	119	222	Peak
5240	90.74	90.02			31.62	6.42	37.32	119	222	Average
5240	100.25	99.53			31.62	6.42	37.32	119	222	Peak
5428.87	38.52	37.4	54	-15.48	31.76	6.49	37.13	119	222	Average
5428.87	51.99	50.87	74	-22.01	31.76	6.49	37.13	119	222	Peak
*10480	54.45	57.29	68.2	-13.75	39.6	10.22	52.66	171	286	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**	Thomas Wei

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**
5110.7	38.22	37.66	54	-15.78	31.54	6.3	37.28	100	73	Average
5110.7	50.24	49.68	74	-23.76	31.54	6.3	37.28	100	73	Peak
5260	86.28	85.47			31.65	6.43	37.27	100	73	Average
5260	94.94	94.13			31.65	6.43	37.27	100	73	Peak
5459.23	38.58	37.38	54	-15.42	31.77	6.51	37.08	100	73	Average
5459.23	50.97	49.77	74	-23.03	31.77	6.51	37.08	100	73	Peak
*10520	54.21	57.01	68.2	-13.99	39.66	10.27	52.73	192	58	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5026.64	38.24	37.77	54	-15.76	31.48	6.23	37.24	110	220	Average
5026.64	50.79	50.32	74	-23.21	31.48	6.23	37.24	110	220	Peak
5260	90.08	89.27			31.65	6.43	37.27	110	220	Average
5260	99.32	98.51			31.65	6.43	37.27	110	220	Peak
5428.65	38.47	37.35	54	-15.53	31.76	6.49	37.13	110	220	Average
5428.65	50.34	49.22	74	-23.66	31.76	6.49	37.13	110	220	Peak
*10520	53.97	56.77	68.2	-14.23	39.66	10.27	52.73	161	205	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**	Thomas Wei

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**
5130.68	38.17	37.6	54	-15.83	31.55	6.32	37.3	118	72	Average
5130.68	50.33	49.76	74	-23.67	31.55	6.32	37.3	118	72	Peak
5300	86.13	85.19			31.67	6.46	37.19	118	72	Average
5300	95.46	94.52			31.67	6.46	37.19	118	72	Peak
5351.76	38.77	37.78	54	-15.23	31.7	6.47	37.18	118	72	Average
5351.76	50.67	49.68	74	-23.33	31.7	6.47	37.18	118	72	Peak
10600	45.69	48.52	54	-8.31	39.85	10.43	53.11	203	152	Average
10600	54.46	57.29	74	-19.54	39.85	10.43	53.11	203	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**
5009.18	38.22	37.76	54	-15.78	31.47	6.22	37.23	110	221	Average
5009.18	50.36	49.9	74	-23.64	31.47	6.22	37.23	110	221	Peak
5300	90.13	89.19			31.67	6.46	37.19	110	221	Average
5300	98.96	98.02			31.67	6.46	37.19	110	221	Peak
5351.76	39.52	38.53	54	-14.48	31.7	6.47	37.18	110	221	Average
5351.76	50.75	49.76	74	-23.25	31.7	6.47	37.18	110	221	Peak
10600	45.24	48.07	54	-8.76	39.85	10.43	53.11	128	311	Average
10600	53.79	56.62	74	-20.21	39.85	10.43	53.11	128	311	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. *: Out of Restricted Band
4. 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**	Thomas Wei

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	85.24	84.29			31.68	6.46	37.19	110	72	Average
5320	93.9	92.95			31.68	6.46	37.19	110	72	Peak
5350	40.73	39.74	54	-13.27	31.7	6.47	37.18	110	72	Average
5350	52.14	51.15	74	-21.86	31.7	6.47	37.18	110	72	Peak
10640	45.55	48.33	54	-8.45	39.93	10.36	53.07	153	167	Average
10640	53.64	56.42	74	-20.36	39.93	10.36	53.07	153	167	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	88.84	87.89			31.68	6.46	37.19	102	202	Average
5320	98.08	97.13			31.68	6.46	37.19	102	202	Peak
5350	42.16	41.17	54	-11.84	31.7	6.47	37.18	102	202	Average
5350	55.27	54.28	74	-18.73	31.7	6.47	37.18	102	202	Peak
10640	45.99	48.77	54	-8.01	39.93	10.36	53.07	189	292	Average
10640	53.35	56.13	74	-20.65	39.93	10.36	53.07	189	292	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. *: Out of Restricted Band
4. 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**	Thomas Wei

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	39.74	38.54	54	-14.26	31.77	6.51	37.08	100	198	Average
5460	51.65	50.45	74	-22.35	31.77	6.51	37.08	100	198	Peak
*5470	58.25	57.02	68.2	-9.95	31.79	6.52	37.08	100	198	Peak
5500	87.05	85.73			31.81	6.54	37.03	100	198	Average
5500	95.92	94.6			31.81	6.54	37.03	100	198	Peak
*5725	50.29	48.78	68.2	-17.91	32.18	6.76	37.43	100	198	Peak
11000	47.13	49.03	54	-6.87	40.73	10.4	53.03	215	165	Average
11000	54.88	56.78	74	-19.12	40.73	10.4	53.03	215	165	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5459.92	41.85	40.65	54	-12.15	31.77	6.51	37.08	117	264	Average
5459.92	54.48	53.28	74	-19.52	31.77	6.51	37.08	117	264	Peak
*5470	63.44	62.21	68.2	-4.76	31.79	6.52	37.08	117	264	Peak
5500	91.75	90.43			31.81	6.54	37.03	117	264	Average
5500	101.19	99.87			31.81	6.54	37.03	117	264	Peak
*5725	50.67	49.16	68.2	-17.53	32.18	6.76	37.43	117	264	Peak
11000	46.67	48.57	54	-7.33	40.73	10.4	53.03	139	311	Average
11000	54.19	56.09	74	-19.81	40.73	10.4	53.03	139	311	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**	Thomas Wei

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**
5441.04	38.68	37.55	54	-15.32	31.76	6.5	37.13	100	196	Average
5441.04	50.79	49.66	74	-23.21	31.76	6.5	37.13	100	196	Peak
*5470	50.57	49.34	68.2	-17.63	31.79	6.52	37.08	100	196	Peak
5580	87.88	86.47			31.92	6.65	37.16	100	196	Average
5580	96.82	95.41			31.92	6.65	37.16	100	196	Peak
*5725	50.26	48.75	68.2	-17.94	32.18	6.76	37.43	100	196	Peak
11160	46.95	48.65	54	-7.05	40.56	10.52	52.78	189	207	Average
11160	55.36	57.06	74	-18.64	40.56	10.52	52.78	189	207	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**
5441.52	38.61	37.48	54	-15.39	31.76	6.5	37.13	100	264	Average
5441.52	50.79	49.66	74	-23.21	31.76	6.5	37.13	100	264	Peak
*5470	50.95	49.72	68.2	-17.25	31.79	6.52	37.08	100	264	Peak
5580	91.28	89.87			31.92	6.65	37.16	100	264	Average
5580	100.88	99.47			31.92	6.65	37.16	100	264	Peak
*5725	51	49.49	68.2	-17.2	32.18	6.76	37.43	100	264	Peak
11160	47.43	49.13	54	-6.57	40.56	10.52	52.78	198	255	Average
11160	56.93	58.63	74	-17.07	40.56	10.52	52.78	198	255	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**	Thomas Wei

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**
5448.72	38.74	37.6	54	-15.26	31.77	6.5	37.13	116	293	Average
5448.72	50.68	49.54	74	-23.32	31.77	6.5	37.13	116	293	Peak
*5470	50.35	49.12	68.2	-17.85	31.79	6.52	37.08	116	293	Peak
5700	87.85	86.4			32.12	6.73	37.4	116	293	Average
5700	96.73	95.28			32.12	6.73	37.4	116	293	Peak
*5725	61.39	59.88	68.2	-6.81	32.18	6.76	37.43	116	293	Peak
11400	46.6	48.5	54	-7.4	40.33	10.47	52.7	193	276	Average
11400	55.8	57.7	74	-18.2	40.33	10.47	52.7	193	276	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5440.08	38.69	37.56	54	-15.31	31.76	6.5	37.13	135	312	Average
5440.08	51.57	50.44	74	-22.43	31.76	6.5	37.13	135	312	Peak
*5470	49.92	48.69	68.2	-18.28	31.79	6.52	37.08	135	312	Peak
5700	88.85	87.4			32.12	6.73	37.4	135	312	Average
5700	98.18	96.73			32.12	6.73	37.4	135	312	Peak
*5725	62.55	61.04	68.2	-5.65	32.18	6.76	37.43	135	312	Peak
11400	46.47	48.37	54	-7.53	40.33	10.47	52.7	215	266	Average
11400	55.61	57.51	74	-18.39	40.33	10.47	52.7	215	266	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**	Thomas Wei

<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	91.09	89.57			32.21	6.78	37.47	199	6	Average
5745	100.31	98.79			32.21	6.78	37.47	199	6	Peak
11490	46.41	48.28	54	-7.59	40.25	10.66	52.78	123	201	Average
11490	55.24	57.11	74	-18.76	40.25	10.66	52.78	123	201	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	86.99	85.47			32.21	6.78	37.47	193	293	Average
5745	95.75	94.23			32.21	6.78	37.47	193	293	Peak
11490	46.15	48.02	54	-7.85	40.25	10.66	52.78	166	215	Average
11490	55.6	57.47	74	-18.4	40.25	10.66	52.78	166	215	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
5637.875	50.98	49.52	68.2	-17.22	32.04	6.7	37.28	199	6	Peak
5653.075	50.01	48.52	70.49	-20.48	32.06	6.71	37.28	199	6	Peak
5918.125	50.92	49.07	73.27	-22.35	32.49	6.86	37.5	199	6	Peak
5953.275	52.3	50.38	68.2	-15.9	32.55	6.87	37.5	199	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
5574.7	51.89	50.45	68.2	-16.31	31.92	6.64	37.12	193	293	Peak
5654.025	49.73	48.3	71.19	-21.46	32.06	6.71	37.34	193	293	Peak
5921.925	50.6	48.72	70.47	-19.87	32.52	6.86	37.5	193	293	Peak
6025	52.2	50.08	68.2	-16	32.72	6.9	37.5	193	293	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**	Thomas Wei

<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	91.59	90.05			32.26	6.82	37.54	210	12	Average
5785	100.15	98.61			32.26	6.82	37.54	210	12	Peak
11570	46.43	48.55	54	-7.57	40.13	10.76	53.01	168	233	Average
11570	55.25	57.37	74	-18.75	40.13	10.76	53.01	168	233	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	85.89	84.35			32.26	6.82	37.54	110	194	Average
5785	94.97	93.43			32.26	6.82	37.54	110	194	Peak
11570	46.11	48.23	54	-7.89	40.13	10.76	53.01	131	310	Average
11570	54.4	56.52	74	-19.6	40.13	10.76	53.01	131	310	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
5631.7	51.33	49.9	68.2	-16.87	32.01	6.7	37.28	210	12	Peak
5658.775	50.15	48.72	74.72	-24.57	32.06	6.71	37.34	210	12	Peak
5923.825	51.1	49.22	69.07	-17.97	32.52	6.86	37.5	210	12	Peak
5967.05	51.31	49.37	68.2	-16.89	32.57	6.88	37.51	210	12	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
5578.025	51.03	49.62	68.2	-17.17	31.92	6.65	37.16	110	194	Peak
5657.35	50.33	48.9	73.66	-23.33	32.06	6.71	37.34	110	194	Peak
5921.925	50.05	48.17	70.47	-20.42	32.52	6.86	37.5	110	194	Peak
5996.975	51.78	49.77	68.2	-16.42	32.63	6.89	37.51	110	194	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**	Thomas Wei

<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	90.89	89.23			32.35	6.84	37.53	204	2	Average
5825	100.1	98.44			32.35	6.84	37.53	204	2	Peak
11650	46.08	48.39	54	-7.92	40.03	10.8	53.14	154	230	Average
11650	53.86	56.17	74	-20.14	40.03	10.8	53.14	154	230	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	85.69	84.03			32.35	6.84	37.53	205	186	Average
5825	94.27	92.61			32.35	6.84	37.53	205	186	Peak
11650	46.15	48.46	54	-7.85	40.03	10.8	53.14	129	257	Average
11650	55.57	57.88	74	-18.43	40.03	10.8	53.14	129	257	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5565.2	50.75	49.32	68.2	-17.45	31.92	6.63	37.12	204	2	Peak
5655.925	49.62	48.19	72.6	-22.98	32.06	6.71	37.34	204	2	Peak
5920.975	51.9	50.05	71.17	-19.27	32.49	6.86	37.5	204	2	Peak
6008.85	52.62	50.57	68.2	-15.58	32.67	6.89	37.51	204	2	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5637.875	50.68	49.22	68.2	-17.52	32.04	6.7	37.28	205	186	Peak
5657.825	49.76	48.33	74.01	-24.25	32.06	6.71	37.34	205	186	Peak
5921.925	51.81	49.93	70.47	-18.66	32.52	6.86	37.5	205	186	Peak
5979.4	51.83	49.86	68.2	-16.37	32.6	6.88	37.51	205	186	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**	Thomas Wei

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**
5149.76	47.36	46.78	54	-6.64	31.56	6.34	37.32	100	282	Average
5149.76	62.02	61.44	74	-11.98	31.56	6.34	37.32	100	282	Peak
5190	83.17	82.54			31.59	6.38	37.34	100	282	Average
5190	92.81	92.18			31.59	6.38	37.34	100	282	Peak
5418.75	38.84	37.79	54	-15.16	31.75	6.48	37.18	100	282	Average
5418.75	50.98	49.93	74	-23.02	31.75	6.48	37.18	100	282	Peak
*10380	54.61	57.35	68.2	-13.59	39.5	10.21	52.45	159	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**
5149.4	49.48	48.9	54	-4.52	31.56	6.34	37.32	101	108	Average
5149.4	64.16	63.58	74	-9.84	31.56	6.34	37.32	101	108	Peak
5190	86.97	86.34			31.59	6.38	37.34	101	108	Average
5190	96.58	95.95			31.59	6.38	37.34	101	108	Peak
5442.18	38.77	37.64	54	-15.23	31.76	6.5	37.13	101	108	Average
5442.18	50.87	49.74	74	-23.13	31.76	6.5	37.13	101	108	Peak
*10380	53.75	56.49	68.2	-14.45	39.5	10.21	52.45	127	296	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**	Thomas Wei

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**
5148.32	39.1	38.52	54	-14.9	31.56	6.34	37.32	216	274	Average
5148.32	50.69	50.11	74	-23.31	31.56	6.34	37.32	216	274	Peak
5230	83.93	83.22			31.62	6.41	37.32	216	274	Average
5230	92.45	91.74			31.62	6.41	37.32	216	274	Peak
5440.2	39.21	38.08	54	-14.79	31.76	6.5	37.13	216	274	Average
5440.2	50.59	49.46	74	-23.41	31.76	6.5	37.13	216	274	Peak
*10460	54.33	57.13	68.2	-13.87	39.57	10.22	52.59	138	126	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**
5149.94	39.85	39.27	54	-14.15	31.56	6.34	37.32	120	221	Average
5149.94	51.89	51.31	74	-22.11	31.56	6.34	37.32	120	221	Peak
5230	87.63	86.92			31.62	6.41	37.32	120	221	Average
5230	96.59	95.88			31.62	6.41	37.32	120	221	Peak
5447.13	39.12	37.98	54	-14.88	31.77	6.5	37.13	120	221	Average
5447.13	50.56	49.42	74	-23.44	31.77	6.5	37.13	120	221	Peak
*10460	53.46	56.26	68.2	-14.74	39.57	10.22	52.59	155	231	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**	Thomas Wei

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**
5123.66	38.91	38.35	54	-15.09	31.55	6.31	37.3	120	73	Average
5123.66	50.66	50.1	74	-23.34	31.55	6.31	37.3	120	73	Peak
5270	83.09	82.27			31.65	6.44	37.27	120	73	Average
5270	91.33	90.51			31.65	6.44	37.27	120	73	Peak
5431.07	39.1	37.98	54	-14.9	31.76	6.49	37.13	120	73	Average
5431.07	50.72	49.6	74	-23.28	31.76	6.49	37.13	120	73	Peak
*10540	53.64	56.49	68.2	-14.56	39.7	10.31	52.86	170	225	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**
5097.92	38.96	38.42	54	-15.04	31.53	6.29	37.28	100	220	Average
5097.92	50.37	49.83	74	-23.63	31.53	6.29	37.28	100	220	Peak
5270	86.19	85.37			31.65	6.44	37.27	100	220	Average
5270	94.84	94.02			31.65	6.44	37.27	100	220	Peak
5372.77	39.21	38.2	54	-14.79	31.72	6.47	37.18	100	220	Average
5372.77	50.85	49.84	74	-23.15	31.72	6.47	37.18	100	220	Peak
*10540	52.97	55.82	68.2	-15.23	39.7	10.31	52.86	167	278	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**	Thomas Wei

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**
5081.36	38.43	37.9	54	-15.57	31.52	6.28	37.27	138	186	Average
5081.36	50.83	50.3	74	-23.17	31.52	6.28	37.27	138	186	Peak
5310	82.24	81.29			31.68	6.46	37.19	138	186	Average
5310	91.46	90.51			31.68	6.46	37.19	138	186	Peak
5350.33	44.47	43.48	54	-9.53	31.7	6.47	37.18	138	186	Average
5350.33	60.13	59.14	74	-13.87	31.7	6.47	37.18	138	186	Peak
10620	45.95	48.76	54	-8.05	39.89	10.39	53.09	195	254	Average
10620	54.18	56.99	74	-19.82	39.89	10.39	53.09	195	254	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**
5137.16	38.42	37.84	54	-15.58	31.55	6.33	37.3	140	287	Average
5137.16	50.4	49.82	74	-23.6	31.55	6.33	37.3	140	287	Peak
5310	86.04	85.09			31.68	6.46	37.19	140	287	Average
5310	95.72	94.77			31.68	6.46	37.19	140	287	Peak
5350.11	49.86	48.87	54	-4.14	31.7	6.47	37.18	140	287	Average
5350.11	65.84	64.85	74	-8.16	31.7	6.47	37.18	140	287	Peak
10620	45.57	48.38	54	-8.43	39.89	10.39	53.09	134	249	Average
10620	53.26	56.07	74	-20.74	39.89	10.39	53.09	134	249	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. *: Out of Restricted Band
4. 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**	Thomas Wei

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5459.28	40.41	39.21	54	-13.59	31.77	6.51	37.08	130	283	Average
5459.28	52.56	51.36	74	-21.44	31.77	6.51	37.08	130	283	Peak
*5470	62.59	61.36	68.2	-5.61	31.79	6.52	37.08	130	283	Peak
5510	82.96	81.66			31.81	6.55	37.06	130	283	Average
5510	92.83	91.53			31.81	6.55	37.06	130	283	Peak
*5725	50.88	49.37	68.2	-17.32	32.18	6.76	37.43	130	283	Peak
11020	46.81	48.64	54	-7.19	40.71	10.41	52.95	194	273	Average
11020	55.76	57.59	74	-18.24	40.71	10.41	52.95	194	273	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**
5459.44	42.63	41.43	54	-11.37	31.77	6.51	37.08	124	289	Average
5459.44	54.72	53.52	74	-19.28	31.77	6.51	37.08	124	289	Peak
***5470**	**64.37**	**63.14**	**68.2**	**-3.83**	**31.79**	**6.52**	**37.08**	**124**	**289**	**Peak**
5510	86.26	84.96			31.81	6.55	37.06	124	289	Average
5510	96.28	94.98			31.81	6.55	37.06	124	289	Peak
*5725	51.76	50.25	68.2	-16.44	32.18	6.76	37.43	124	289	Peak
11020	46.6	48.43	54	-7.4	40.71	10.41	52.95	117	158	Average
11020	54.03	55.86	74	-19.97	40.71	10.41	52.95	117	158	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**	Thomas Wei

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	39.52	38.38	54	-14.48	31.77	6.5	37.13	115	199	Average
5447.76	50.85	49.71	74	-23.15	31.77	6.5	37.13	115	199	Peak
*5470	50.11	48.88	68.2	-18.09	31.79	6.52	37.08	115	199	Peak
5550	84.7	83.29			31.89	6.61	37.09	115	199	Average
5550	93.24	91.83			31.89	6.61	37.09	115	199	Peak
*5725	51.01	49.5	68.2	-17.19	32.18	6.76	37.43	115	199	Peak
11100	47.34	48.95	54	-6.66	40.63	10.47	52.71	168	281	Average
11100	54.38	55.99	74	-19.62	40.63	10.47	52.71	168	281	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**
5447.6	39.93	38.79	54	-14.07	31.77	6.5	37.13	116	264	Average
5447.6	50.89	49.75	74	-23.11	31.77	6.5	37.13	116	264	Peak
*5470	51.97	50.74	68.2	-16.23	31.79	6.52	37.08	116	264	Peak
5550	89.2	87.79			31.89	6.61	37.09	116	264	Average
5550	97.66	96.25			31.89	6.61	37.09	116	264	Peak
*5725	50.65	49.14	68.2	-17.55	32.18	6.76	37.43	116	264	Peak
11100	47.61	49.22	54	-6.39	40.63	10.47	52.71	134	321	Average
11100	55.42	57.03	74	-18.58	40.63	10.47	52.71	134	321	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**	Thomas Wei

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**
5434	39.44	38.32	54	-14.56	31.76	6.49	37.13	100	196	Average
5434	50.81	49.69	74	-23.19	31.76	6.49	37.13	100	196	Peak
*5470	50.02	48.79	68.2	-18.18	31.79	6.52	37.08	100	196	Peak
5670	84.51	83.04			32.09	6.72	37.34	100	196	Average
5670	92.87	91.4			32.09	6.72	37.34	100	196	Peak
*5725	53.27	51.76	68.2	-14.93	32.18	6.76	37.43	100	196	Peak
11340	46.88	48.68	54	-7.12	40.4	10.52	52.72	179	270	Average
11340	55.89	57.69	74	-18.11	40.4	10.52	52.72	179	270	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
5457.68	39.33	38.13	54	-14.67	31.77	6.51	37.08	113	263	Average
5457.68	50.63	49.43	74	-23.37	31.77	6.51	37.08	113	263	Peak
*5470	50.57	49.34	68.2	-17.63	31.79	6.52	37.08	113	263	Peak
5670	86.91	85.44			32.09	6.72	37.34	113	263	Average
5670	95.82	94.35			32.09	6.72	37.34	113	263	Peak
*5725	55.37	53.86	68.2	-12.83	32.18	6.76	37.43	113	263	Peak
11340	46.57	48.37	54	-7.43	40.4	10.52	52.72	119	255	Average
11340	55.46	57.26	74	-18.54	40.4	10.52	52.72	119	255	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**	Thomas Wei

<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	88.72	87.17			32.23	6.79	37.47	206	12	Average
5755	97.62	96.07			32.23	6.79	37.47	206	12	Peak
11510	46.9	48.79	54	-7.1	40.23	10.69	52.81	159	228	Average
11510	57.29	59.18	74	-16.71	40.23	10.69	52.81	159	228	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	84.32	82.77			32.23	6.79	37.47	218	189	Average
5755	93.3	91.75			32.23	6.79	37.47	218	189	Peak
11510	46.47	48.36	54	-7.53	40.23	10.69	52.81	127	301	Average
11510	56	57.89	74	-18	40.23	10.69	52.81	127	301	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
5592.75	51.21	49.75	68.2	-16.99	31.95	6.67	37.16	206	12	Peak
5652.6	50.87	49.38	70.13	-19.26	32.06	6.71	37.28	206	12	Peak
5917.175	50.86	49.01	73.97	-23.11	32.49	6.86	37.5	206	12	Peak
5971.8	52.11	50.17	68.2	-16.09	32.57	6.88	37.51	206	12	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
5646.425	50.4	48.94	68.2	-17.8	32.04	6.7	37.28	218	189	Peak
5652.6	50	48.51	70.13	-20.13	32.06	6.71	37.28	218	189	Peak
5922.4	50.1	48.22	70.12	-20.02	32.52	6.86	37.5	218	189	Peak
6016.45	51.9	49.83	68.2	-16.3	32.67	6.9	37.5	218	189	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**	Thomas Wei

<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	89.73	88.15			32.29	6.83	37.54	207	3	Average
5795	98.53	96.95			32.29	6.83	37.54	207	3	Peak
11590	46.35	48.47	54	-7.65	40.11	10.78	53.01	182	157	Average
11590	54.23	56.35	74	-19.77	40.11	10.78	53.01	182	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
5795	83.73	82.15			32.29	6.83	37.54	204	190	Average
5795	92.28	90.7			32.29	6.83	37.54	204	190	Peak
11590	46.15	48.27	54	-7.85	40.11	10.78	53.01	154	192	Average
11590	54.09	56.21	74	-19.91	40.11	10.78	53.01	154	192	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
5607	51.4	49.96	68.2	-16.8	31.98	6.68	37.22	207	3	Peak
5659.725	50.61	49.18	75.42	-24.81	32.06	6.71	37.34	207	3	Peak
5915.275	51.61	49.76	75.37	-23.76	32.49	6.86	37.5	207	3	Peak
5995.55	52.21	50.2	68.2	-15.99	32.63	6.89	37.51	207	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
5582.3	51.35	49.9	68.2	-16.85	31.95	6.66	37.16	204	190	Peak
5658.3	51.23	49.8	74.36	-23.13	32.06	6.71	37.34	204	190	Peak
5915.75	50.5	48.65	75.02	-24.52	32.49	6.86	37.5	204	190	Peak
6003.625	51.67	49.66	68.2	-16.53	32.63	6.89	37.51	204	190	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:

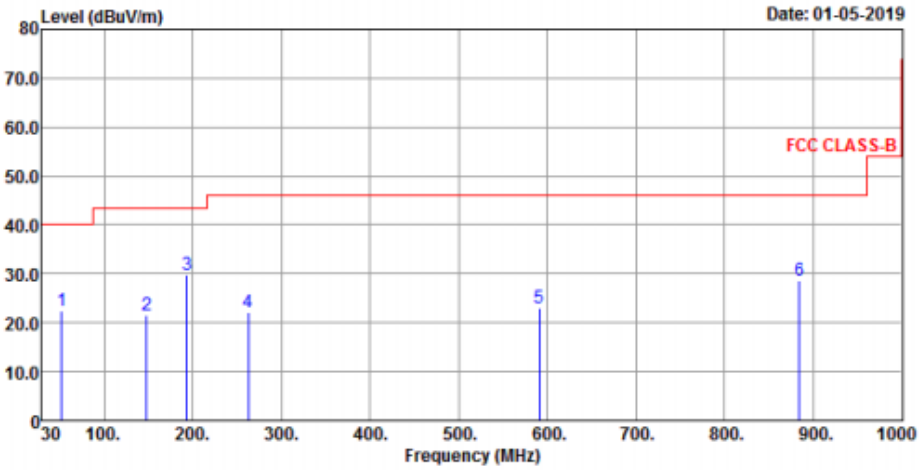
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

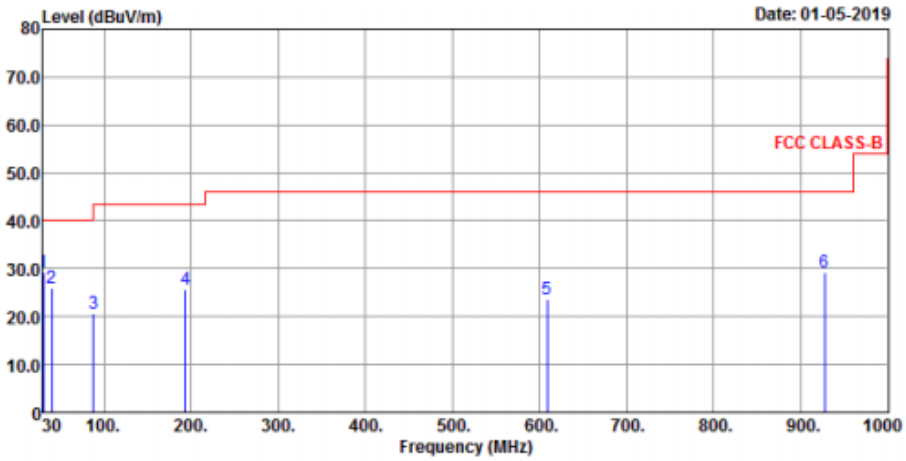
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 102	**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**	Thomas Wei

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
52.31	22.49	40.51	40	-17.51	12.76	0.54	31.32	131	111	Peak
148.34	21.61	39.62	43.5	-21.89	12.64	0.97	31.62	168	159	Peak
193.93	29.96	50.71	43.5	-13.54	9.77	1.19	31.71	195	203	Peak
262.8	22.13	40.68	46	-23.87	11.85	1.5	31.9	245	251	Peak
590.66	23.05	32.95	46	-22.95	19.39	2.86	32.15	278	281	Peak
884.57	28.61	33.3	46	-17.39	23.31	3.98	31.98	311	345	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
30	29.22	47.94	40	-10.78	11.98	0.44	31.14	279	288	Peak
39.7	26.11	43.07	40	-13.89	13.54	0.49	30.99	243	251	Peak
88.2	20.65	43.55	43.5	-22.85	8.27	0.7	31.87	216	203	Peak
193.93	25.57	46.32	43.5	-17.93	9.77	1.19	31.71	185	171	Peak
609.09	23.61	33.05	46	-22.39	19.72	2.94	32.1	152	146	Peak
927.25	29.1	33.28	46	-16.9	23.66	4.15	31.99	133	112	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	ESCI	100613	Dec. 10, 2018	Dec. 09, 2019
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
LISN 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

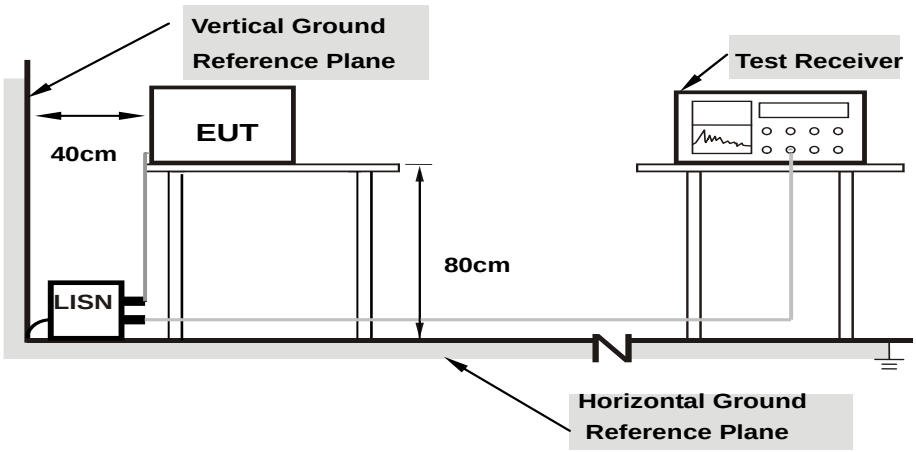
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

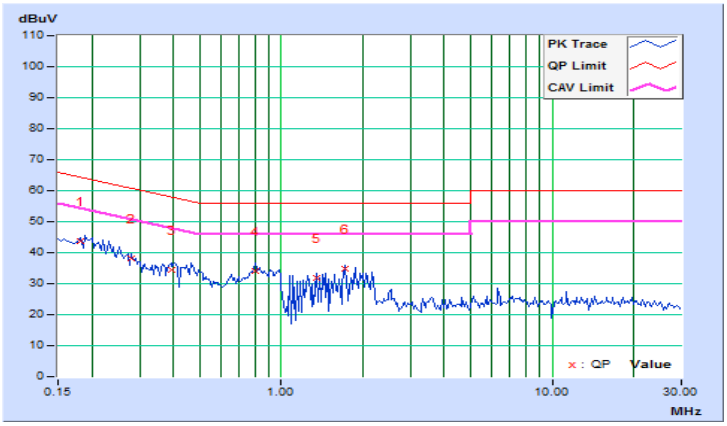
4.2.7 Test Results

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	2019/1/2

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	0.18125	9.67	34.00	19.00	43.67	28.67	64.43	54.43	-20.76	-25.76
2	0.27891	9.67	28.66	14.40	38.33	24.07	60.85	50.85	-22.52	-26.78
3	0.39219	9.66	24.80	11.04	34.46	20.70	58.02	48.02	-23.56	-27.32
4	0.79844	9.65	24.60	10.44	34.25	20.09	56.00	46.00	-21.75	-25.91
5	1.34375	9.66	22.02	5.39	31.68	15.05	56.00	46.00	-24.32	-30.95
6	1.71094	9.67	25.29	11.10	34.96	20.77	56.00	46.00	-21.04	-25.23

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

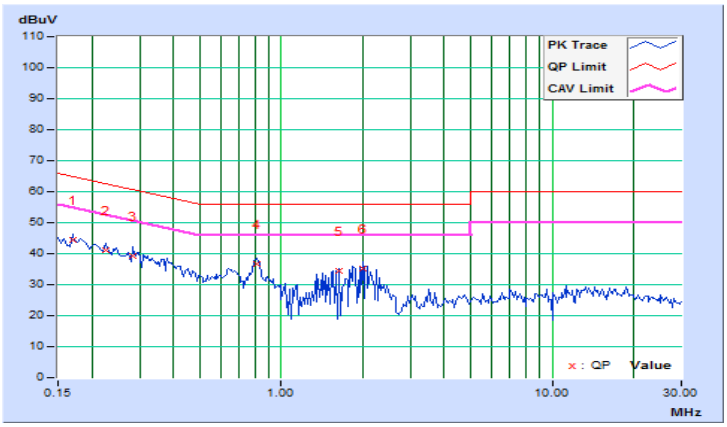


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Thomas Wei	Test Date	2019/1/2

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	0.16953	9.68	34.83	19.11	44.51	28.79	64.98	54.98	-20.47	-26.19
2	0.22422	9.67	31.44	16.67	41.11	26.34	62.66	52.66	-21.55	-26.32
3	0.28281	9.67	29.58	14.48	39.25	24.15	60.73	50.73	-21.48	-26.58
4	**0.81406**	**9.66**	**27.18**	**13.09**	**36.84**	**22.75**	**56.00**	**46.00**	**-19.16**	**-23.25**
5	1.63281	9.67	24.87	10.31	34.54	19.98	56.00	46.00	-21.46	-26.02
6	1.99219	9.68	25.46	6.71	35.14	16.39	56.00	46.00	-20.86	-29.61

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

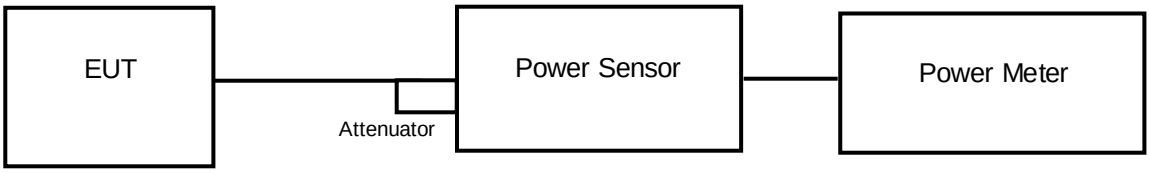
4.3.1 Limits of Transmit Power Measurement

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)

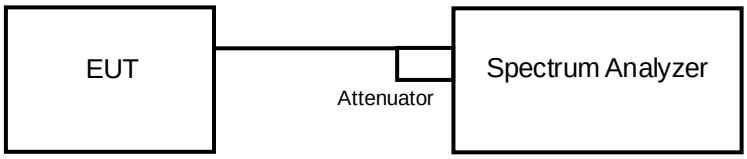
*B is the 26 dB emission bandwidth in megahertz

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

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	10.864	10.36	24	Pass
40	5200	10.544	10.23	24	Pass
48	5240	10.593	10.25	24	Pass
52	5260	10.74	10.31	24	Pass
60	5300	10.447	10.19	24	Pass
64	5320	10.544	10.23	24	Pass
100	5500	9.506	9.78	24	Pass
116	5580	10.28	10.12	24	Pass
140	5700	8.035	9.05	24	Pass
149	5745	10.139	10.06	30	Pass
157	5785	10.046	10.02	30	Pass
165	5825	7.98	9.02	30	Pass

Note:

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

1. 11 dBm + 10log (26.00) = 25.15 dBm > 24 dBm.
2. 11 dBm + 10log (26.94) = 25.30 dBm > 24 dBm.
3. 11 dBm + 10log (24.67) = 24.92 dBm > 24 dBm.
4. 11 dBm + 10log (24.28) = 24.85 dBm > 24 dBm.
5. 11 dBm + 10log (29.75) = 25.73 dBm > 24 dBm.
6. 11 dBm + 10log (25.97) = 25.14 dBm > 24 dBm.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	14.997	11.76	24	Pass
40	5200	14.521	11.62	24	Pass
48	5240	14.825	11.71	24	Pass
52	5260	14.555	11.63	24	Pass
60	5300	14.06	11.48	24	Pass
64	5320	14.757	11.69	24	Pass
100	5500	12.942	11.12	24	Pass
116	5580	14.256	11.54	24	Pass
140	5700	10.814	10.34	24	Pass
149	5745	10.351	10.15	30	Pass
157	5785	10.257	10.11	30	Pass
165	5825	8.166	9.12	30	Pass

Note:

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

1. 11 dBm + 10log (34.29) = 26.35 dBm > 24 dBm.
2. 11 dBm + 10log (33.18) = 26.21 dBm > 24 dBm.
3. 11 dBm + 10log (33.84) = 26.29 dBm > 24 dBm.
4. 11 dBm + 10log (34.27) = 26.35 dBm > 24 dBm.
5. 11 dBm + 10log (39.77) = 27.00 dBm > 24 dBm.
6. 11 dBm + 10log (35.08) = 26.45 dBm > 24 dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	10.544	10.23	24	Pass
46	5230	12.735	11.05	24	Pass
54	5270	12.445	10.95	24	Pass
62	5310	10.617	10.26	24	Pass
102	5510	6.776	8.31	24	Pass
110	5550	10.839	10.35	24	Pass
134	5670	10.789	10.33	24	Pass
151	5755	10.233	10.10	30	Pass
159	5795	9.931	9.97	30	Pass

Note:

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

1. 11 dBm + 10log (64.06) = 29.07 dBm > 24 dBm.
2. 11 dBm + 10log (57.14) = 28.57 dBm > 24 dBm.
3. 11 dBm + 10log (51.56) = 28.12 dBm > 24 dBm.
4. 11 dBm + 10log (82.06) = 30.14 dBm > 24 dBm.
5. 11 dBm + 10log (84.49) = 30.27 dBm > 24 dBm.

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	24.22
40	5200	24.54
48	5240	24.88
52	5260	26.00
60	5300	26.94
64	5320	24.67
100	5500	24.28
116	5580	29.75
140	5700	25.97

802.11n (HT20)

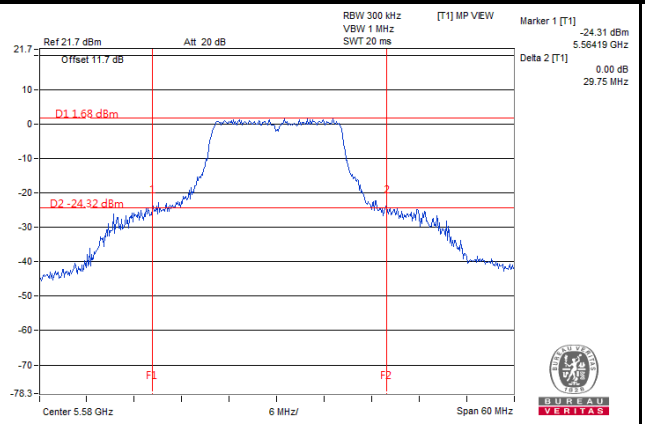
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	33.16
40	5200	34.59
48	5240	36.50
52	5260	34.29
60	5300	33.18
64	5320	33.84
100	5500	34.27
116	5580	39.77
140	5700	35.08

802.11n (HT40)

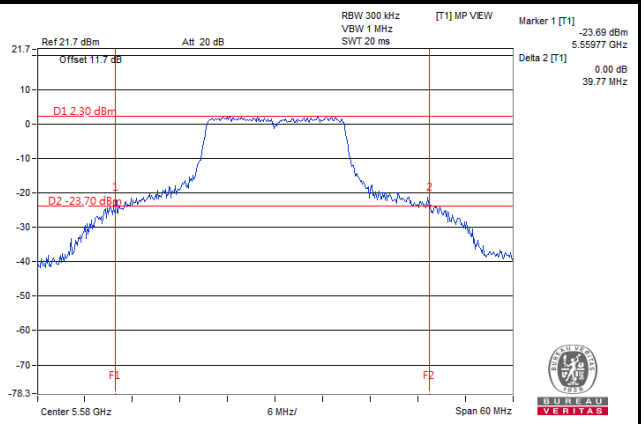
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	69.54
46	5230	62.55
54	5270	64.06
62	5310	57.14
102	5510	51.56
110	5550	82.06
134	5670	84.49

Spectrum Plot of Worst Value

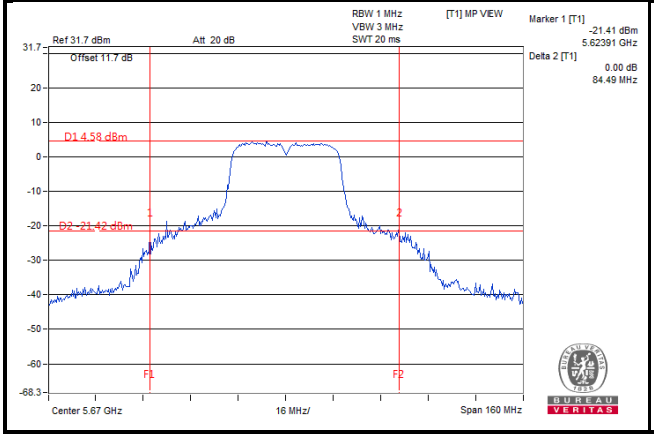
802.11a



802.11n (HT20)

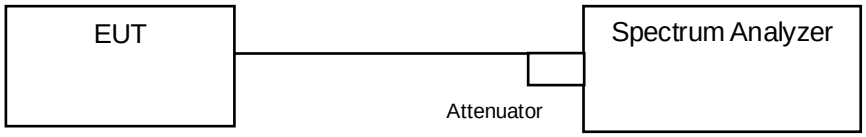


802.11n (HT40)



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	17.40
40	5200	17.28
48	5240	17.28
52	5260	17.52
60	5300	17.28
64	5320	17.28
100	5500	17.28
116	5580	17.64
140	5700	17.28
149	5745	17.82
157	5785	17.52
165	5825	17.40

802.11n (HT20)

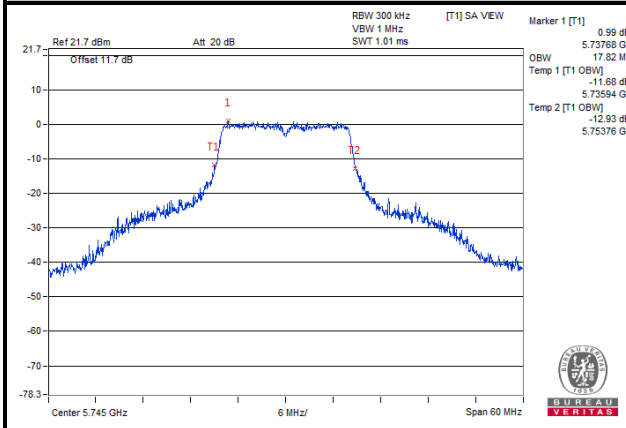
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18.48
40	5200	18.36
48	5240	18.72
52	5260	18.84
60	5300	18.60
64	5320	18.60
100	5500	18.48
116	5580	18.96
140	5700	18.60
149	5745	18.66
157	5785	18.42
165	5825	18.30

802.11n (HT40)

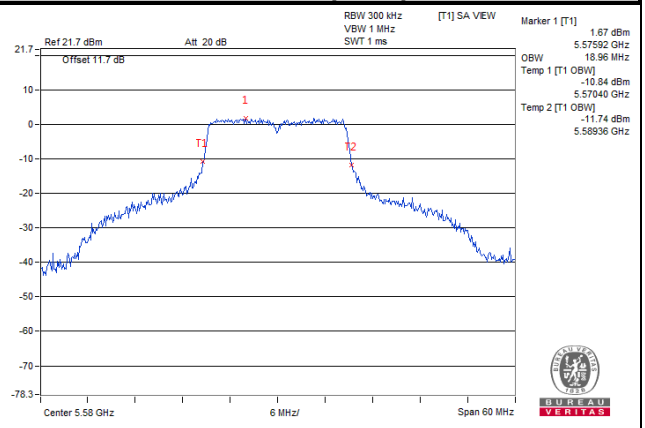
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.72
46	5230	36.84
54	5270	37.08
62	5310	36.84
102	5510	36.60
110	5550	36.96
134	5670	37.08
151	5755	36.84
159	5795	36.90

Spectrum Plot of Worst Value

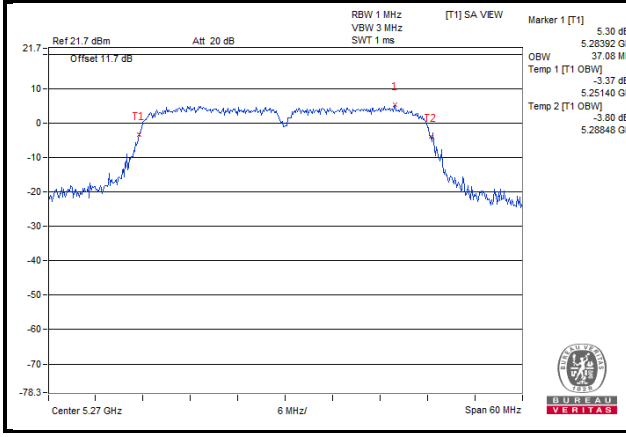
802.11a



802.11n (HT20)



802.11n (HT40)

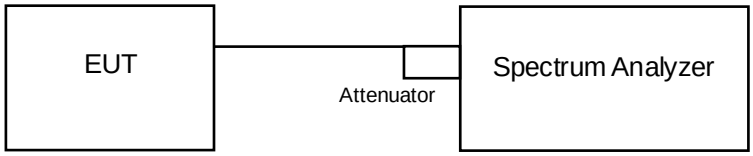


4.5 Peak Power Spectral Density Measurement

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

For U-NII-1, U-NII-2A, U-NII-2C Band

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	-1.84	0.65	-1.19	11	Pass
40	5200	-1.91	0.65	-1.26	11	Pass
48	5240	-1.97	0.65	-1.32	11	Pass
52	5260	-1.78	0.65	-1.13	11	Pass
60	5300	-2.28	0.65	-1.63	11	Pass
64	5320	-2.37	0.65	-1.72	11	Pass
100	5500	-2.37	0.65	-1.72	11	Pass
116	5580	-2.08	0.65	-1.43	11	Pass
140	5700	-3.58	0.65	-2.93	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	-1.04	0.64	-0.40	11	Pass
40	5200	-0.98	0.64	-0.34	11	Pass
48	5240	-1.10	0.64	-0.46	11	Pass
52	5260	-0.97	0.64	-0.33	11	Pass
60	5300	-1.55	0.64	-0.91	11	Pass
64	5320	-1.32	0.64	-0.68	11	Pass
100	5500	-1.12	0.64	-0.48	11	Pass
116	5580	-1.08	0.64	-0.44	11	Pass
140	5700	-2.44	0.64	-1.80	11	Pass

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

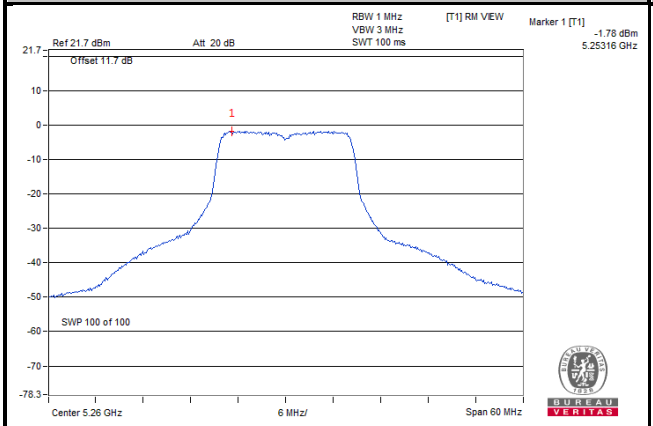
802.11n (HT40)

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	-5.68	1.28	-4.40	11	Pass
46	5230	-4.97	1.28	-3.69	11	Pass
54	5270	-4.77	1.28	-3.49	11	Pass
62	5310	-6.02	1.28	-4.74	11	Pass
102	5510	-7.10	1.28	-5.82	11	Pass
110	5550	-5.06	1.28	-3.78	11	Pass
134	5670	-5.82	1.28	-4.54	11	Pass

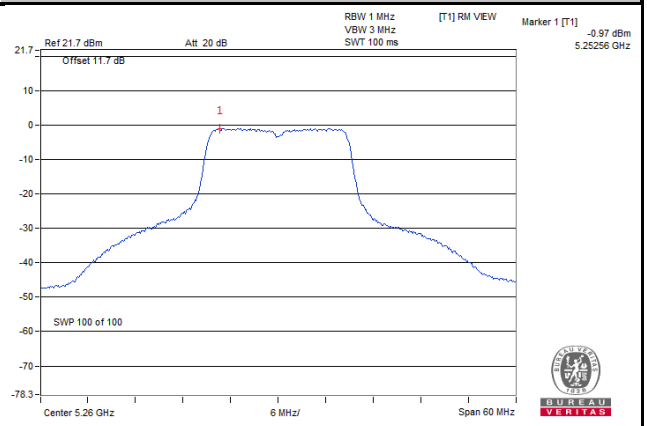
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

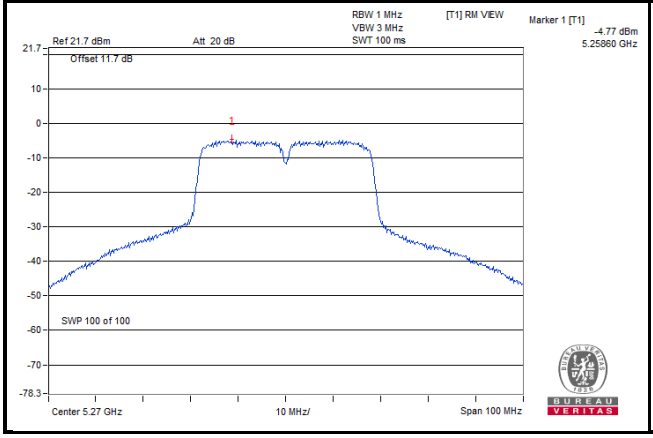
802.11a



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	-7.83	-5.61	0.65	-4.96	30	Pass
157	5785	-8.11	-5.89	0.65	-5.24	30	Pass
165	5825	-8.66	-6.44	0.65	-5.79	30	Pass

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	-7.87	-5.65	0.64	-5.01	30	Pass
157	5785	-8.15	-5.93	0.64	-5.29	30	Pass
165	5825	-8.44	-6.22	0.64	-5.58	30	Pass

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

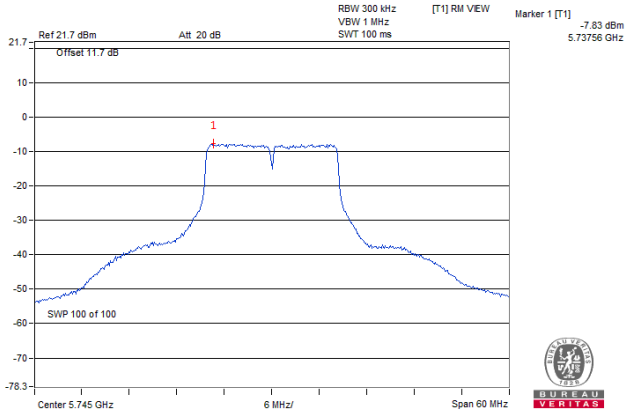
802.11n (HT40)

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	-12.07	-9.85	1.28	-8.57	30	Pass
159	5795	-12.26	-10.04	1.28	-8.76	30	Pass

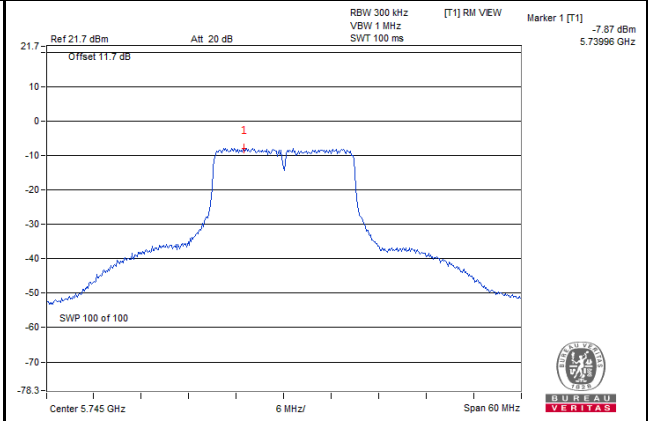
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

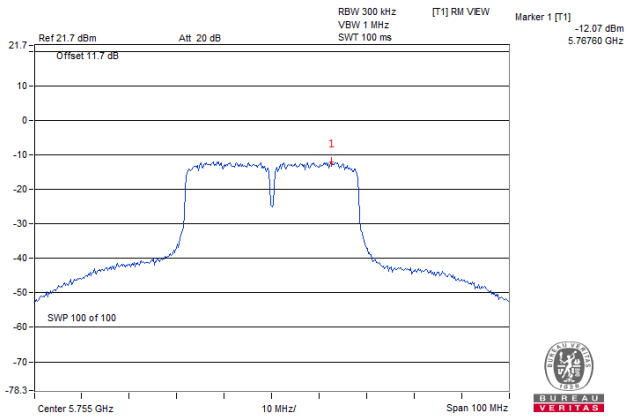
802.11a



802.11n (HT20)



802.11n (HT40)

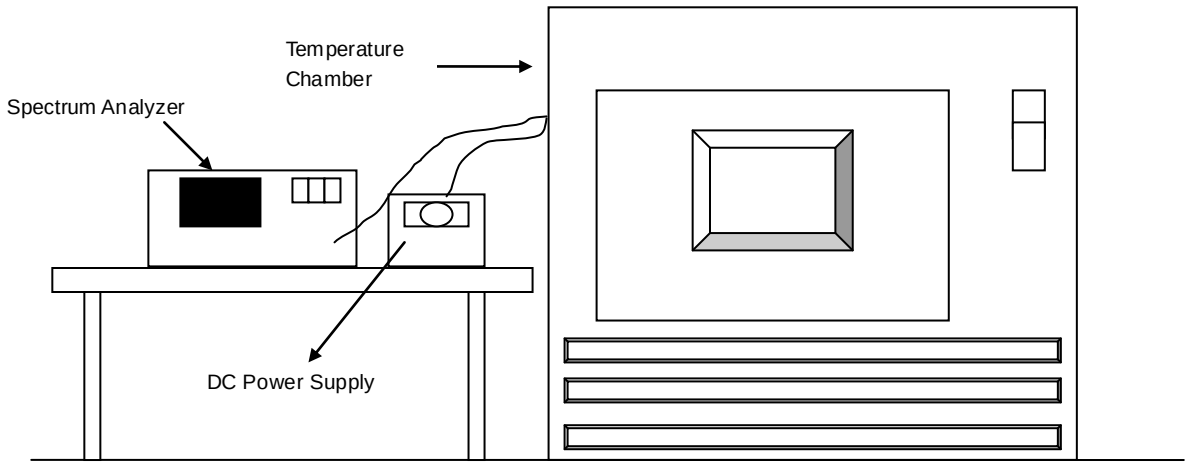


4.6 Frequency Stability

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	3.85	5180.0093	1.80000	5180.0084	1.62000	5180.0084	1.62000	5180.0109	2.10000
40	3.85	5180.0149	2.88000	5180.0155	2.99000	5180.0173	3.34000	5180.0173	3.34000
30	3.85	5179.9769	-4.46000	5179.9781	-4.23000	5179.9803	-3.80000	5179.9792	-4.02000
20	3.85	5180.0143	2.76000	5180.0157	3.03000	5180.0133	2.57000	5180.0139	2.68000
10	3.85	5180.0123	2.37000	5180.0137	2.64000	5180.0138	2.66000	5180.0099	1.91000
0	3.85	5180.0113	2.18000	5180.0116	2.24000	5180.0114	2.20000	5180.0112	2.16000
-10	3.85	5180.0168	3.24000	5180.0152	2.93000	5180.0137	2.64000	5180.0133	2.57000

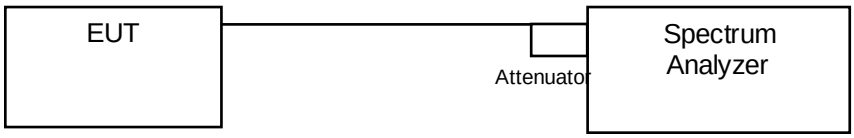
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	4.428	5180.0137	2.64000	5180.0153	2.95000	5180.0143	2.76000	5180.0136	2.63000
	3.85	5180.0143	2.76000	5180.0157	3.03000	5180.0133	2.57000	5180.0139	2.68000
	3.273	5180.014	2.70000	5180.0153	2.95000	5180.0131	2.53000	5180.0138	2.66000

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	16.38	0.5	Pass
157	5785	16.39	0.5	Pass
165	5825	16.38	0.5	Pass

802.11n (HT20)

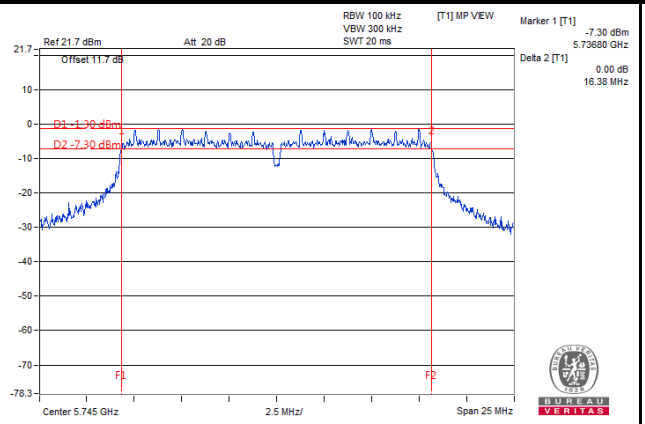
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.60	0.5	Pass
157	5785	17.62	0.5	Pass
165	5825	17.62	0.5	Pass

802.11n (HT40)

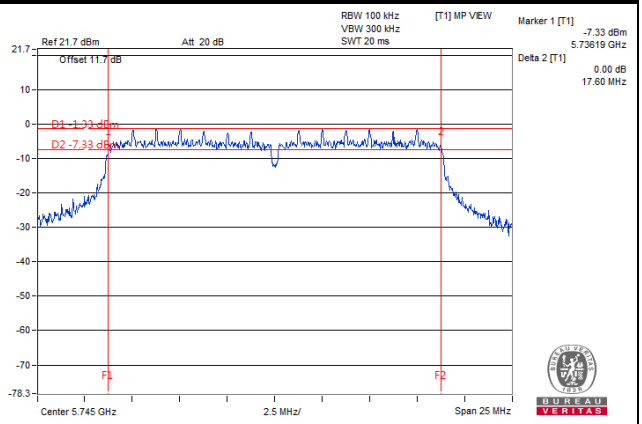
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.54	0.5	Pass
159	5795	35.37	0.5	Pass

Spectrum Plot of Worst Value

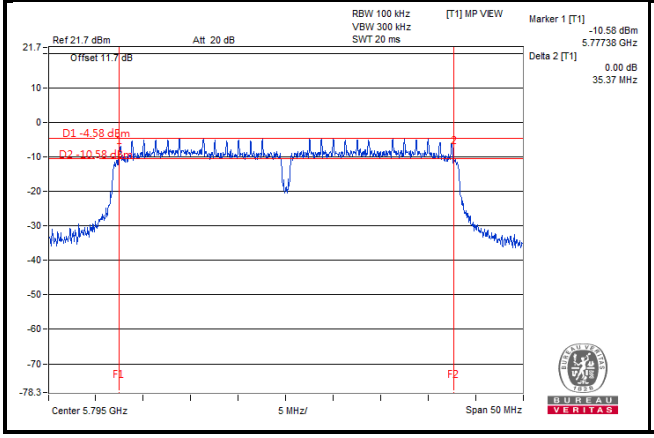
802.11a



802.11n (HT20)



802.11n (HT40)



5 Pictures of Test Arrangements

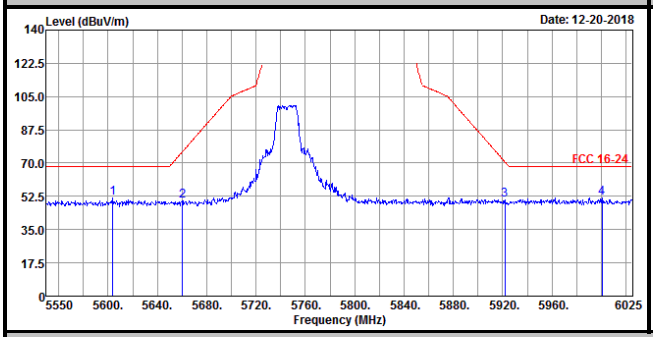
Please refer to the attached file (Test Setup Photo).

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

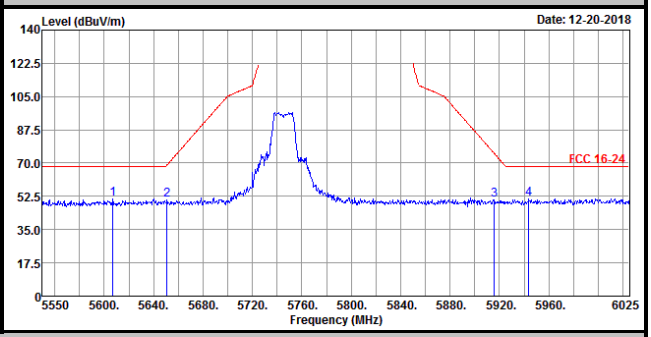
802.11a

Ch 149

Horizontal

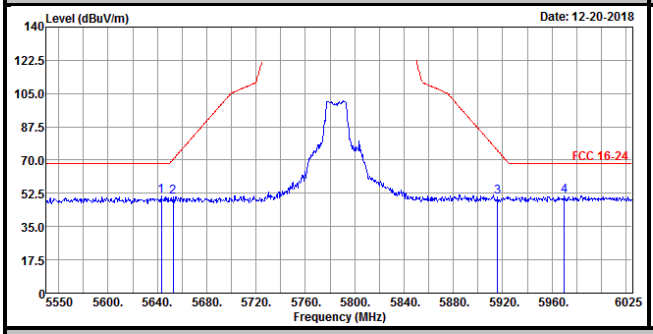


Vertical

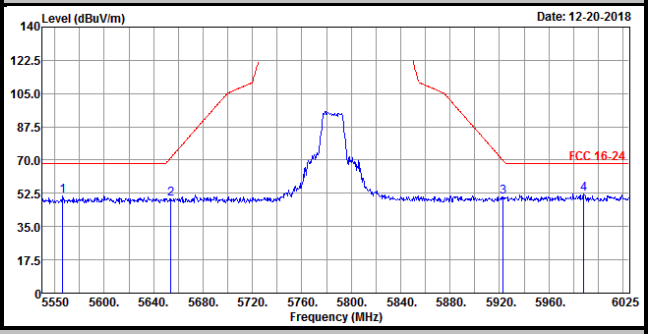


Ch 157

Horizontal

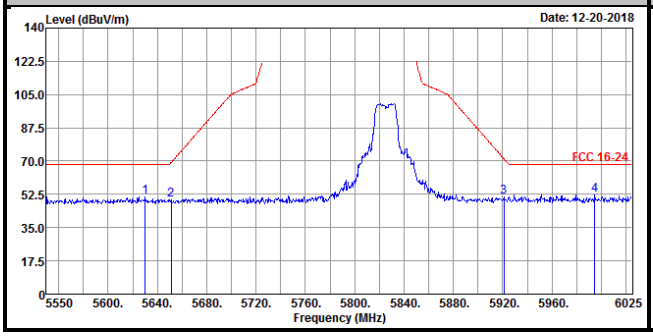


Vertical

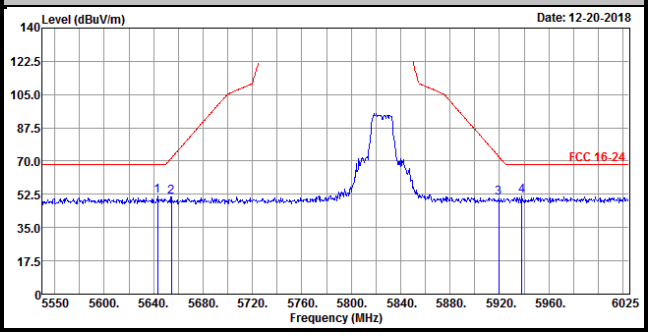


Ch 165

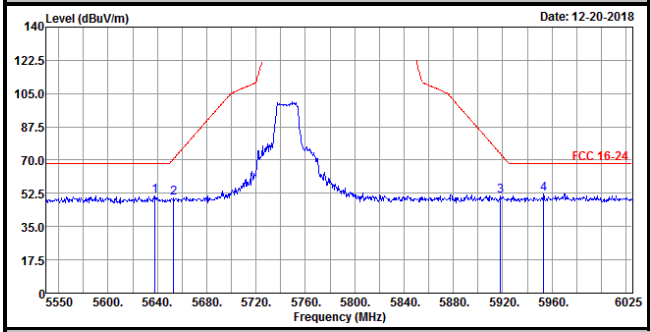
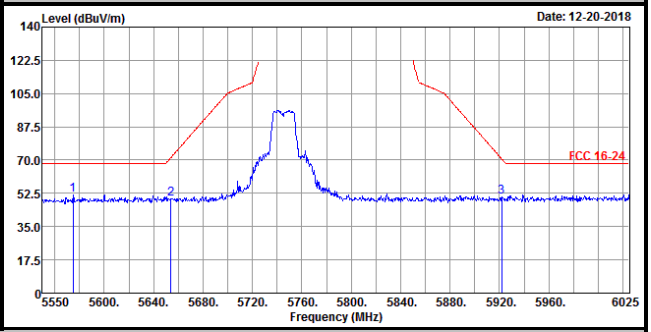
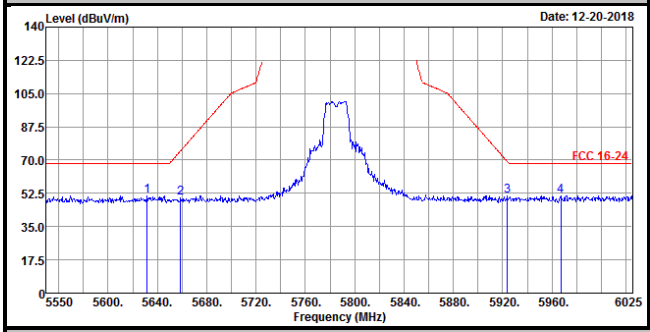
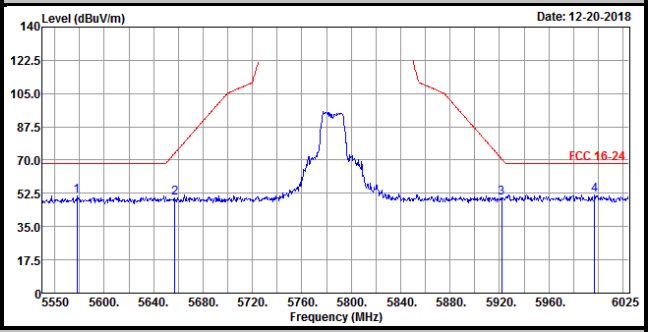
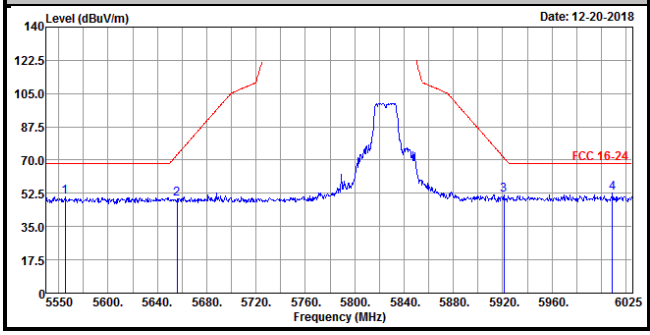
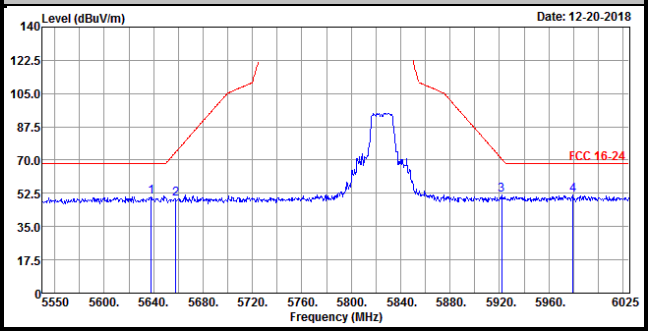
Horizontal



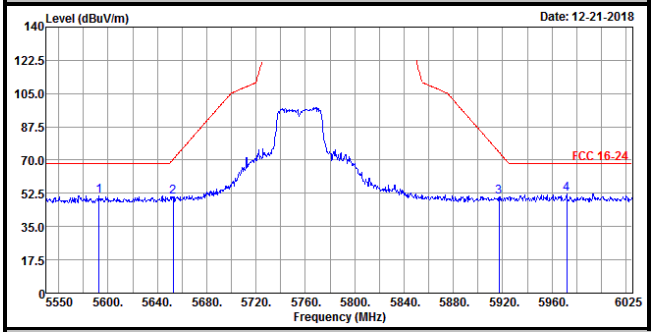
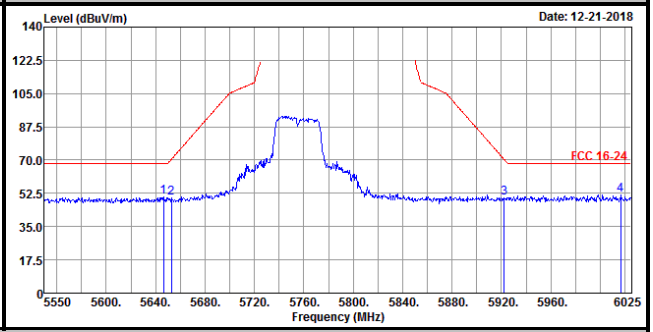
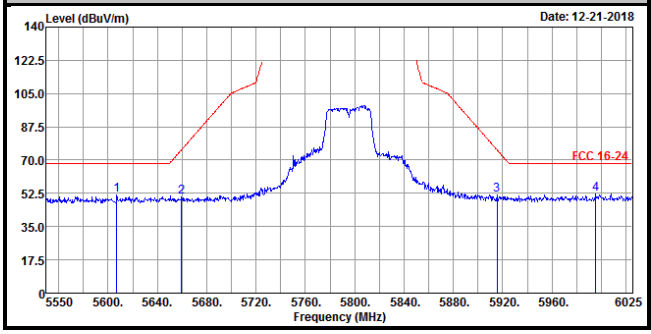
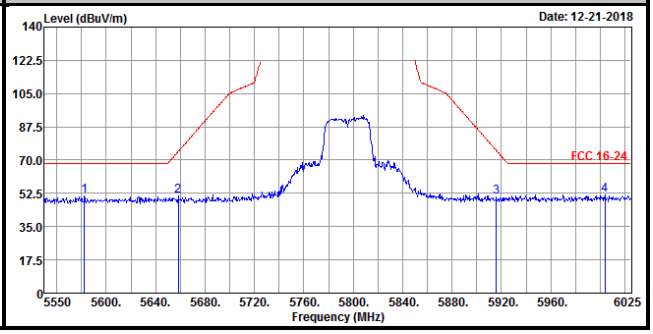
Vertical



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.

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

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

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