

FCC Test Report

Report No.: RF170606C32-4

FCC ID: MSQP028

Test Model: P028

Received Date: Jun. 06, 2017

Test Date: Jun. 21, 2017 ~ Jun. 27, 2017

Issued Date: Jul. 11, 2017

Applicant: ASUSTek COMPUTER INC.

Address: 4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN

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

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
(R.O.C)

Test Location (1): No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan
Hsien 333, Taiwan, R.O.C.

Test Location (2): No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan,
R.O.C



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Release Control Record

Issue No.	Description	Date Issued
RF170606C32-4	Original Release	Jul. 11, 2017

1 Certificate of Conformity

Product: ASUS Tablet

Brand: ASUS

Test Model: P028

Sample Status: Production Unit

Applicant: ASUSTek COMPUTER INC.

Test Date: Jun. 21, 2017 ~ Jun. 27, 2017

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

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

Prepared by :

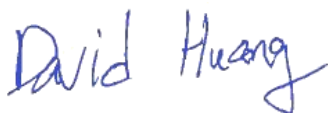


Date:

Jul. 11, 2017

Ivonne Wu / Supervisor

Approved by :



Date:

Jul. 11, 2017

David Huang / 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 -8.94 dB at 0.96600 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 -3.57 dB at 5146.55 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

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

2.1 Measurement Uncertainty

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

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

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	ASUS Tablet
Brand	ASUS
Test Model	P028
Status of EUT	Production Unit
Power Supply Rating	5 Vdc or 5.2 Vdc (adapter) 5 Vdc (host equipment) 3.85 Vdc (battery)
Modulation Type	64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to MCS7
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	13.836 mW for 5180 ~ 5240 MHz 13.677 mW for 5260 ~ 5320 MHz 10.186 mW for 5500 ~ 5700 MHz 9.750 mW for 5745 ~ 5825 MHz
Antenna Type	PIFA antenna with 1.94 dBi gain (5180 ~ 5240 MHz) PIFA antenna with 2.1 dBi gain (5260 ~ 5320 MHz) PIFA antenna with 1.3 dBi gain (5500 ~ 5700 MHz) PIFA antenna with 2.59 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:

- There're 2 configurations for the EUT listed as below.

Sample	Description
A	EUT + LCD Panel 2 + CPU 1 (HD) (Z301M) + eMMC 1 (64G) + LPDDR3 -1 (2G)
B	EUT + LCD Panel 3 + CPU 2 (FHD) (Z301MF) + eMMC 3 (32G) + LPDDR3 -1 (2G)

* Only the worst test data was presented in the report.

** After pre-scanned, the EUT was tested together with earphone, USB cable 2, and adapter 2.

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

3.2 Description of Test Modes

For 5180 ~ 5240 MHz

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

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

2 channels are provided for 802.11n (HT40):

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

For 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	
A	√	√	√	√	Sample A
B	√	√	√	-	Sample B

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:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane** for 5180-5240MHz & 5260-5320MHz & 5745-5825MHz and **Y-plane** for 5500-5700MHz for sample A, and **X-plane** for 5180-5260MHz & 5500-5700MHz and **Z-plane** for 5260-5320MHz & 5745-5825MHz for sample B.
- "-" means no effect.

Radiated Emission Test (Above 1 GHz):

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

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

Radiated Emission Test (Below 1 GHz):

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11n (HT40)	38 to 46	38	OFDM	BPSK	MCS0
-	5260-5320	802.11n (HT40)	54 to 62	62	OFDM	BPSK	MCS0
-	5500-5700	802.11n (HT20)	100 to 140	140	OFDM	BPSK	MCS0
-	5745-5825	802.11n (HT20)	149 to 165	165	OFDM	BPSK	MCS0

Power Line Conducted Emission Test:

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

EUT Configure Mode	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	5180-5320	802.11n (HT40)	38 to 46	38	OFDM	BPSK	MCS0

Antenna Port Conducted Measurement:

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

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

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
APCM	25 deg. C, 65 % RH	3.85 Vdc	Luke Chen

3.3 Duty Cycle of Test Signal

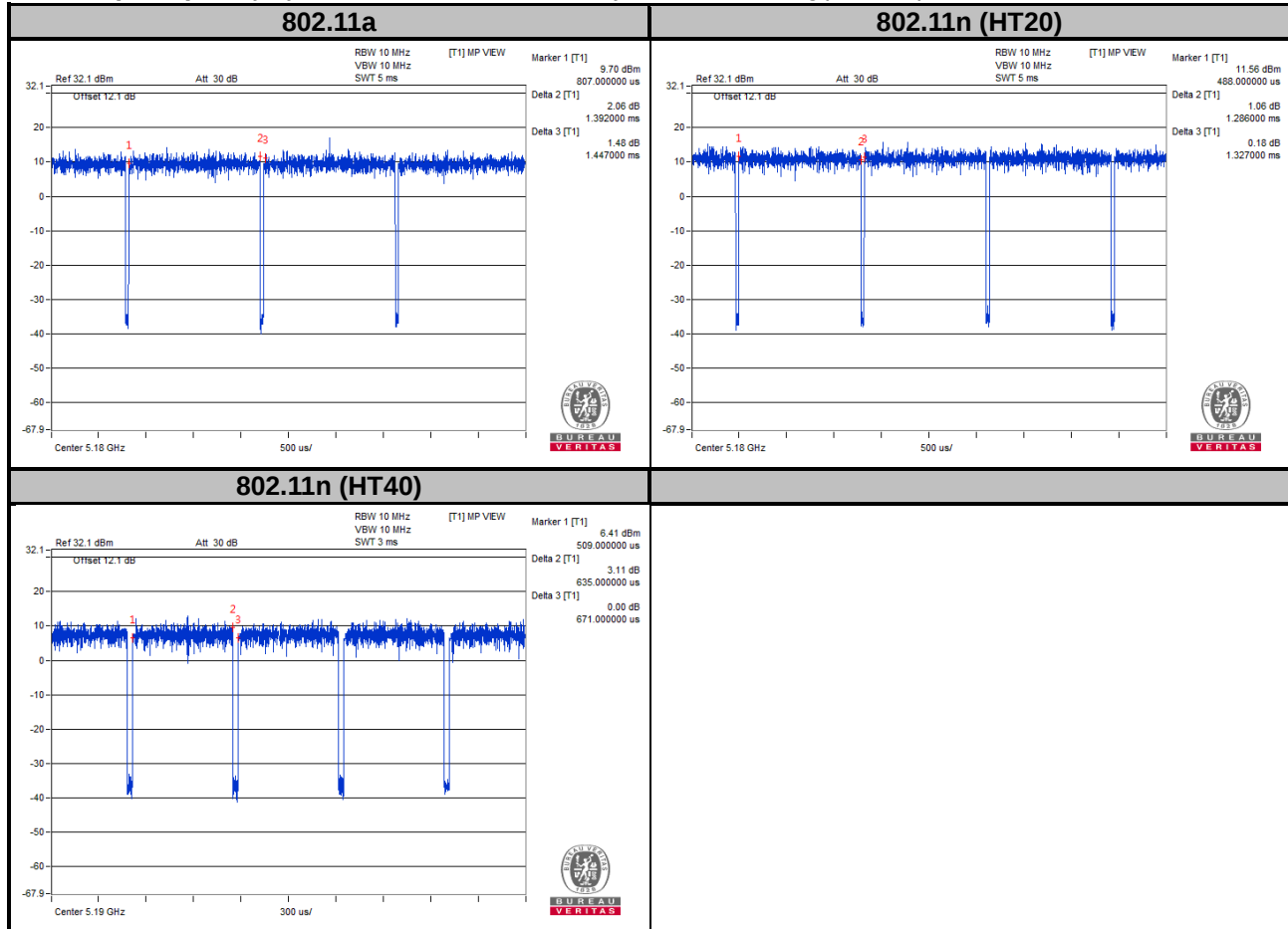
MODULATION TYPE: BPSK

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

802.11a: Duty cycle = $1.392/1.447 = 0.962$, Duty factor = $10 * \log(1/0.962) = 0.17$

802.11n (HT20): Duty cycle = $1.286/1.327 = 0.969$, Duty factor = $10 * \log(1/0.969) = 0.14$

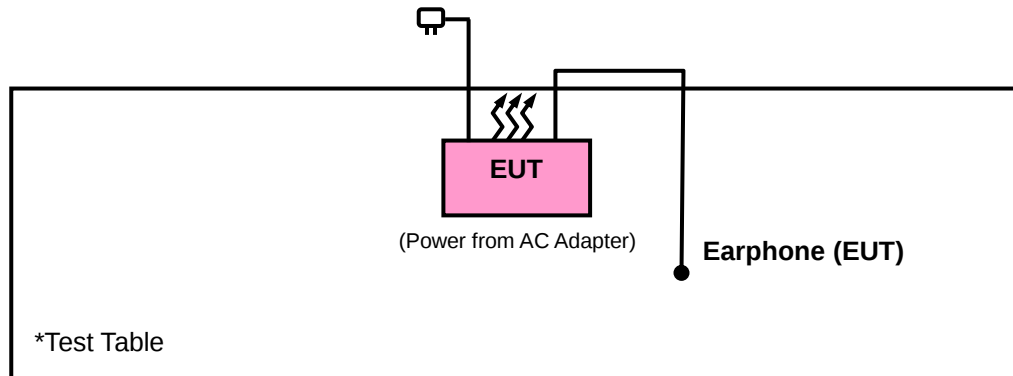
802.11n (HT40): Duty cycle = $635/671 = 0.946$, Duty factor = $10 * \log(1/0.946) = 0.24$



3.4 Description of Support Units

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v01r04

ANSI C63.10-2013

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

4.1.2 Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r03		Field Strength at 3 m	
		PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2 (dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8 (dBμV/m) ^{*3} PK:122.2 (dBμV/m) ^{*4}
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

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

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

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

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

Note:

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

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

4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9010A	MY52220314	Nov. 16, 2016	Nov. 15, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 16, 2016	Dec. 15, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Dec. 29, 2016	Dec. 28, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 14, 2016	Dec. 13, 2017
Fixed Attenuator Mini-Circuits	BW-N10W5+	NA	Jul. 08, 2016	Jul. 07, 2017
Bluetooth Tester	CBT	100946	Jul. 29, 2016	Jul. 28, 2018
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	310N	187226	Jun. 24, 2016	Jun. 23, 2017
Preamplifier Agilent	310N	187226	Jun. 23, 2017	Jun. 22, 2018
Preamplifier Agilent	83017A	MY39501357	Jun. 24, 2016	Jun. 23, 2017
Preamplifier Agilent	83017A	MY39501357	Jun. 23, 2017	Jun. 22, 2018
Power Meter Anritsu	ML2495A	1232002	Sep. 08, 2016	Sep. 07, 2017
Power Sensor Anritsu	MA2411B	1207325	Sep. 08, 2016	Sep. 07, 2017
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 24, 2016	Jun. 23, 2017
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400)	Jun. 23, 2017	Jun. 22, 2017
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-24)	Jun. 24, 2016	Jun. 23, 2017
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(R FC-SMS-100-SM S-24)	Jun. 23, 2017	Jun. 22, 2018
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

- Note:
1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HsinTien Chamber 1.
 3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
 4. The FCC Site Registration No. is 149147.
 5. The IC Site Registration No. is IC7450I-1.

4.1.4 Test Procedures

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

Note:

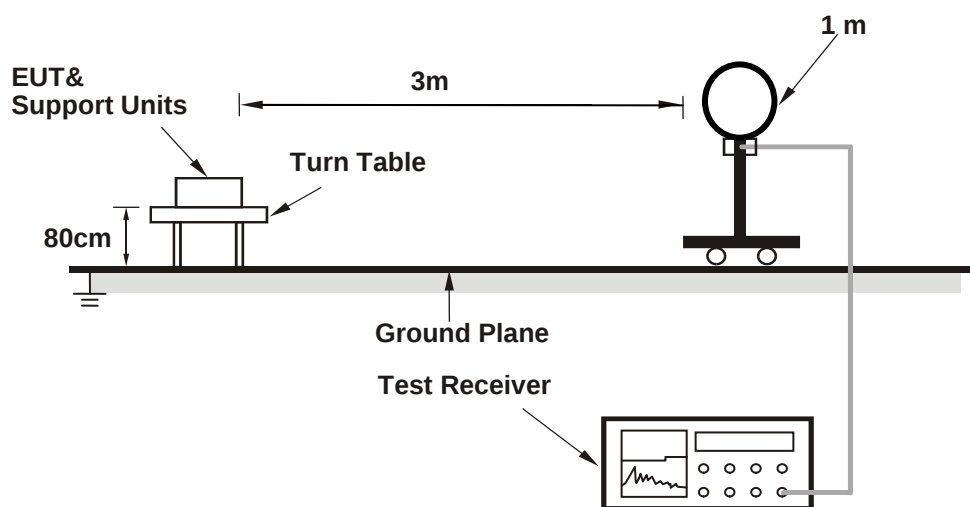
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency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

4.1.5 Deviation from Test Standard

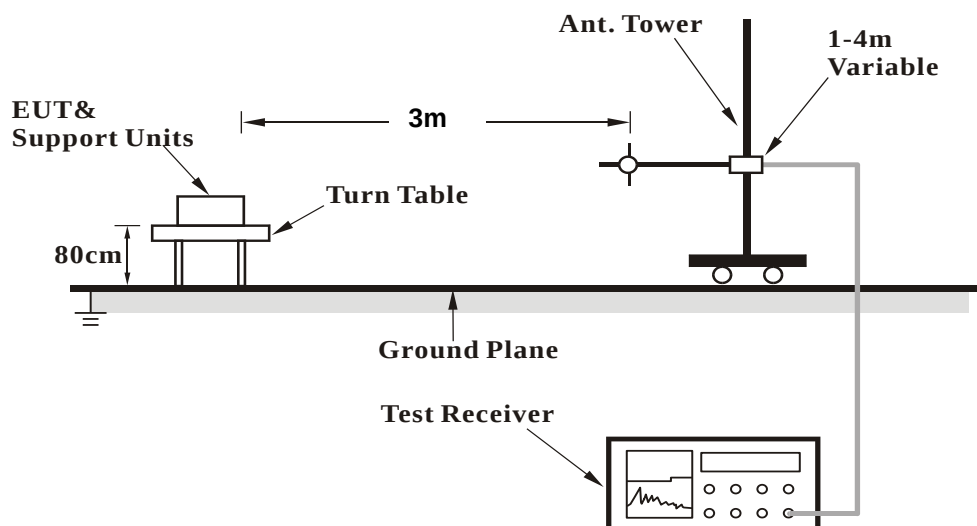
No deviation.

4.1.6 Test Set Up

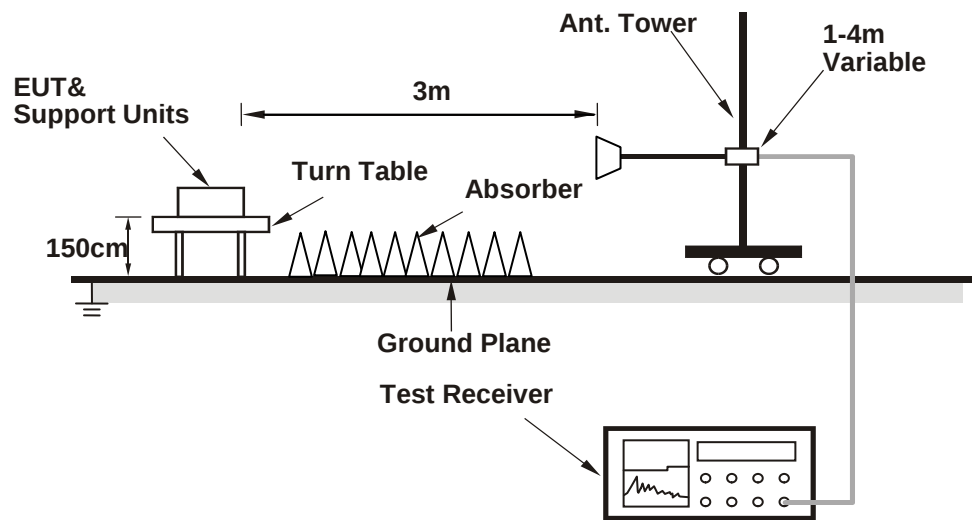
<Radiated emission below 30MHz>



<Frequency Range below 1 GHz>



<Frequency Range above 1 GHz>



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

4.1.7 EUT Operating Conditions

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

4.1.8 Test Results

Above 1 GHz Data :

Mode A

802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5138.75	45.23	36.98	54	-8.77	34.11	8.13	33.99	103	184	Average
5138.75	55.01	46.76	74	-18.99	34.11	8.13	33.99	103	184	Peak
5180	95.17	86.86			34.15	8.16	34	103	184	Average
5180	102.57	94.26			34.15	8.16	34	103	184	Peak
*10360	55.87	41.57	68.2	-12.33	37.12	12.3	35.12	129	74	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5139.35	43.76	35.51	54	-10.24	34.11	8.13	33.99	241	34	Average
5139.35	54.3	46.05	74	-19.7	34.11	8.13	33.99	241	34	Peak
5180	92.54	84.23			34.15	8.16	34	241	34	Average
5180	100.82	92.51			34.15	8.16	34	241	34	Peak
*10360	56.31	42.01	68.2	-11.89	37.12	12.3	35.12	128	166	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 44	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5144.9	44.2	35.95	54	-9.8	34.12	8.13	34	102	181	Average
5144.9	53.89	45.64	74	-20.11	34.12	8.13	34	102	181	Peak
5220	95.42	87.03			34.17	8.22	34	102	181	Average
5220	103.96	95.57			34.17	8.22	34	102	181	Peak
5456.81	43.28	34.46	54	-10.72	34.36	8.51	34.05	102	181	Average
5456.81	53.85	45.03	74	-20.15	34.36	8.51	34.05	102	181	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5045.9	43.11	35.05	54	-10.89	34.04	8	33.98	218	34	Average
5045.9	53.79	45.73	74	-20.21	34.04	8	33.98	218	34	Peak
5220	93.33	84.94			34.17	8.22	34	218	34	Average
5220	100.68	92.29			34.17	8.22	34	218	34	Peak
5426.23	43.37	34.6	54	-10.63	34.33	8.48	34.04	218	34	Average
5426.23	53.25	44.48	74	-20.75	34.33	8.48	34.04	218	34	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	95.62	87.18			34.19	8.26	34.01	102	181	Average
5240	102.58	94.14			34.19	8.26	34.01	102	181	Peak
5372.55	43.33	34.66	54	-10.67	34.29	8.41	34.03	102	181	Average
5372.55	54.3	45.63	74	-19.7	34.29	8.41	34.03	102	181	Peak
*10480	56.68	42.17	68.2	-11.52	37.19	12.53	35.21	156	253	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	92.66	84.22			34.19	8.26	34.01	218	34	Average
5240	100.67	92.23			34.19	8.26	34.01	218	34	Peak
5450.65	43.18	34.36	54	-10.82	34.36	8.51	34.05	218	34	Average
5450.65	54.48	45.66	74	-19.52	34.36	8.51	34.05	218	34	Peak
*10480	56.68	42.17	68.2	-11.52	37.19	12.53	35.21	195	117	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 52	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5147.75	43.09	34.84	54	-10.91	34.12	8.13	34	123	188	Average
5147.75	53.52	45.27	74	-20.48	34.12	8.13	34	123	188	Peak
5260	96.55	88.09			34.21	8.26	34.01	123	188	Average
5260	103.76	95.3			34.21	8.26	34.01	123	188	Peak
*10520	55.89	41.3	68.2	-12.31	37.21	12.61	35.23	124	108	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5102.9	42.85	34.69	54	-11.15	34.08	8.07	33.99	279	33	Average
5102.9	53.14	44.98	74	-20.86	34.08	8.07	33.99	279	33	Peak
5260	92.47	84.01			34.21	8.26	34.01	279	33	Average
5260	99.44	90.98			34.21	8.26	34.01	279	33	Peak
*10520	56.18	41.59	68.2	-12.02	37.21	12.61	35.23	169	206	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 60	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5123.15	42.98	34.76	54	-11.02	34.11	8.1	33.99	123	188	Average
5123.15	53.66	45.44	74	-20.34	34.11	8.1	33.99	123	188	Peak
5300	96.35	87.81			34.24	8.32	34.02	123	188	Average
5300	103.87	95.33			34.24	8.32	34.02	123	188	Peak
5353.41	44.06	35.43	54	-9.94	34.28	8.38	34.03	123	188	Average
5353.41	56.18	47.55	74	-17.82	34.28	8.38	34.03	123	188	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
5020.55	42.89	34.86	54	-11.11	34.03	7.97	33.97	279	33	Average
5020.55	53.54	45.51	74	-20.46	34.03	7.97	33.97	279	33	Peak
5300	92.43	83.89			34.24	8.32	34.02	279	33	Average
5300	99.8	91.26			34.24	8.32	34.02	279	33	Peak
5360.45	43.98	35.35	54	-10.02	34.28	8.38	34.03	279	33	Average
5360.45	54.85	46.22	74	-19.15	34.28	8.38	34.03	279	33	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 64	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	96.77	88.19			34.25	8.35	34.02	123	188	Average
5320	103.81	95.23			34.25	8.35	34.02	123	188	Peak
5352.97	44.36	35.73	54	-9.64	34.28	8.38	34.03	123	188	Average
5352.97	55.35	46.72	74	-18.65	34.28	8.38	34.03	123	188	Peak
10640	46.71	31.98	54	-7.29	37.31	12.71	35.29	124	270	Average
10640	57.27	42.54	74	-16.73	37.31	12.71	35.29	124	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
5320	92.46	83.88			34.25	8.35	34.02	279	33	Average
5320	99.87	91.29			34.25	8.35	34.02	279	33	Peak
5351.21	44.18	35.55	54	-9.82	34.28	8.38	34.03	279	33	Average
5351.21	54.2	45.57	74	-19.8	34.28	8.38	34.03	279	33	Peak
10640	46.83	32.1	54	-7.17	37.31	12.71	35.29	145	310	Average
10640	57.49	42.76	74	-16.51	37.31	12.71	35.29	145	310	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 100	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5458	43.52	34.7	54	-10.48	34.36	8.51	34.05	221	181	Average
5458	53.83	45.01	74	-20.17	34.36	8.51	34.05	221	181	Peak
*5470	53.59	44.76	68.2	-14.61	34.37	8.51	34.05	221	181	Peak
5500	91.41	82.49			34.4	8.57	34.05	221	181	Average
5500	98.66	89.74			34.4	8.57	34.05	221	181	Peak
11000	47.08	32	54	-6.92	37.6	12.96	35.48	157	275	Average
11000	57.43	42.35	74	-16.57	37.6	12.96	35.48	157	275	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
5424.08	44.18	35.41	54	-9.82	34.33	8.48	34.04	100	149	Average
5424.08	54.45	45.68	74	-19.55	34.33	8.48	34.04	100	149	Peak
*5469.68	53.3	44.47	68.2	-14.9	34.37	8.51	34.05	100	149	Peak
5500	93.45	84.53			34.4	8.57	34.05	100	149	Average
5500	100.97	92.05			34.4	8.57	34.05	100	149	Peak
11000	46.93	31.85	54	-7.07	37.6	12.96	35.48	160	360	Average
11000	57.77	42.69	74	-16.23	37.6	12.96	35.48	160	360	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 116	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5449.25	43.2	34.37	54	-10.8	34.36	8.51	34.04	221	181	Average
5449.25	53.56	44.73	74	-20.44	34.36	8.51	34.04	221	181	Peak
*5470.48	52.68	43.85	68.2	-15.52	34.37	8.51	34.05	221	181	Peak
5580	91.25	82.26			34.47	8.6	34.08	221	181	Average
5580	98.62	89.63			34.47	8.6	34.08	221	181	Peak
*5724.76	53.23	44.07	68.2	-14.97	34.62	8.65	34.11	221	181	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5453.2	43.23	34.41	54	-10.77	34.36	8.51	34.05	100	149	Average
5453.2	54.34	45.52	74	-19.66	34.36	8.51	34.05	100	149	Peak
*5470.16	52.65	43.82	68.2	-15.55	34.37	8.51	34.05	100	149	Peak
5580	93.35	84.36			34.47	8.6	34.08	100	149	Average
5580	100.11	91.12			34.47	8.6	34.08	100	149	Peak
*5725.48	52.15	42.99	68.2	-16.05	34.62	8.65	34.11	100	149	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	91.24	82.11			34.59	8.64	34.1	221	181	Average
5700	98.69	89.56			34.59	8.64	34.1	221	181	Peak
*5724.28	53.63	44.47	68.2	-14.57	34.62	8.65	34.11	221	181	Peak
11400	47.17	32.07	54	-6.83	37.84	12.67	35.41	106	80	Average
11400	57.8	42.7	74	-16.2	37.84	12.67	35.41	106	80	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	93.45	84.32			34.59	8.64	34.1	115	149	Average
5700	100.55	91.42			34.59	8.64	34.1	115	149	Peak
*5723.96	53.75	44.59	68.2	-14.45	34.62	8.65	34.11	115	149	Peak
11400	47.06	31.96	54	-6.94	37.84	12.67	35.41	177	245	Average
11400	57.61	42.51	74	-16.39	37.84	12.67	35.41	177	245	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	95.74	86.55			34.64	8.66	34.11	110	256	Average
5745	102.29	93.1			34.64	8.66	34.11	110	256	Peak
11490	47.68	32.56	54	-6.32	37.89	12.62	35.39	121	162	Average
11490	57.7	42.58	74	-16.3	37.89	12.62	35.39	121	162	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	89.47	80.28			34.64	8.66	34.11	100	88	Average
5745	96.39	87.2			34.64	8.66	34.11	100	88	Peak
11490	47.33	32.21	54	-6.67	37.89	12.62	35.39	114	152	Average
11490	56.8	41.68	74	-17.2	37.89	12.62	35.39	114	152	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
*5528.875	53.78	44.85	68.2	-14.42	34.42	8.58	34.07	110	256	Peak
5652.25	53.8	44.71	69.86	-16.06	34.56	8.62	34.09	110	256	Peak
5922.1	52.86	43.46	70.35	-17.49	34.83	8.73	34.16	110	256	Peak
*5966.2	54.46	45.01	68.2	-13.74	34.87	8.75	34.17	110	256	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5574.025	53.58	44.59	68.2	-14.62	34.47	8.59	34.07	100	88	Peak
5656.45	52.52	43.43	72.97	-20.45	34.56	8.63	34.1	100	88	Peak
5923.15	53.13	43.73	69.57	-16.44	34.83	8.73	34.16	100	88	Peak
*5933.125	54.4	45	68.2	-13.8	34.83	8.73	34.16	100	88	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	89.65	80.42			34.68	8.68	34.13	100	88	Average
5785	96.54	87.31			34.68	8.68	34.13	100	88	Peak
11570	47.89	32.58	54	-6.11	38	12.68	35.37	121	132	Average
11570	57.73	42.42	74	-16.27	38	12.68	35.37	121	132	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	95.35	86.12			34.68	8.68	34.13	110	256	Average
5785	102.18	92.95			34.68	8.68	34.13	110	256	Peak
11570	47.89	32.58	54	-6.11	38	12.68	35.37	166	142	Average
11570	57.67	42.36	74	-16.33	38	12.68	35.37	166	142	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
*5564.575	52.91	43.92	68.2	-15.29	34.47	8.59	34.07	100	88	Peak
5653.3	52.74	43.64	70.64	-17.9	34.56	8.63	34.09	100	88	Peak
5920.525	53.5	44.12	71.51	-18.01	34.81	8.73	34.16	100	88	Peak
*5936.8	54.03	44.63	68.2	-14.17	34.83	8.73	34.16	100	88	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
*5542	54.48	45.54	68.2	-13.72	34.43	8.58	34.07	110	256	Peak
5654.875	52.87	43.78	71.81	-18.94	34.56	8.63	34.1	110	256	Peak
5922.625	53.68	44.28	69.96	-16.28	34.83	8.73	34.16	110	256	Peak
*5958.85	53.99	44.54	68.2	-14.21	34.87	8.74	34.16	110	256	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	89.75	80.46			34.73	8.69	34.13	100	88	Average
5825	96.68	87.39			34.73	8.69	34.13	100	88	Peak
11650	47.75	32.22	54	-6.25	38.09	12.8	35.36	114	151	Average
11650	56.67	41.14	74	-17.33	38.09	12.8	35.36	114	151	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	95.47	86.18			34.73	8.69	34.13	110	256	Average
5825	102.61	93.32			34.73	8.69	34.13	110	256	Peak
11650	48.05	32.52	54	-5.95	38.09	12.8	35.36	164	157	Average
11650	57.07	41.54	74	-16.93	38.09	12.8	35.36	164	157	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
*5615.5	54.21	45.16	68.2	-13.99	34.52	8.61	34.08	110	256	Peak
5655.4	52.75	43.66	72.2	-19.45	34.56	8.63	34.1	110	256	Peak
5919.475	53.84	44.46	72.29	-18.45	34.81	8.73	34.16	110	256	Peak
*5998.225	54.48	44.99	68.2	-13.72	34.9	8.76	34.17	110	256	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
*5621.275	53.91	44.86	68.2	-14.29	34.52	8.61	34.08	100	88	Peak
5654.875	53.89	44.8	71.81	-17.92	34.56	8.63	34.1	100	88	Peak
5923.15	52.36	42.96	69.57	-17.21	34.83	8.73	34.16	100	88	Peak
*5997.175	55.06	45.57	68.2	-13.14	34.9	8.76	34.17	100	88	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5132.3	45.17	36.95	54	-8.83	34.11	8.1	33.99	103	184	Average
5132.3	55.23	47.01	74	-18.77	34.11	8.1	33.99	103	184	Peak
5180	94.74	86.43			34.15	8.16	34	103	184	Average
5180	102.81	94.5			34.15	8.16	34	103	184	Peak
*10360	55.24	40.94	68.2	-12.96	37.12	12.3	35.12	134	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
5105.6	43.69	35.52	54	-10.31	34.09	8.07	33.99	241	34	Average
5105.6	53.54	45.37	74	-20.46	34.09	8.07	33.99	241	34	Peak
5180	92.21	83.9			34.15	8.16	34	241	34	Average
5180	100.49	92.18			34.15	8.16	34	241	34	Peak
*10360	55.95	41.65	68.2	-12.25	37.12	12.3	35.12	195	217	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 44	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5139.35	44.05	35.8	54	-9.95	34.11	8.13	33.99	102	181	Average
5139.35	54.92	46.67	74	-19.08	34.11	8.13	33.99	102	181	Peak
5220	95.2	86.81			34.17	8.22	34	102	181	Average
5220	102.98	94.59			34.17	8.22	34	102	181	Peak
5455.49	43.27	34.45	54	-10.73	34.36	8.51	34.05	102	181	Average
5455.49	55.2	46.38	74	-18.8	34.36	8.51	34.05	102	181	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5124.5	43.23	35.01	54	-10.77	34.11	8.1	33.99	218	34	Average
5124.5	54.61	46.39	74	-19.39	34.11	8.1	33.99	218	34	Peak
5220	93.02	84.63			34.17	8.22	34	218	34	Average
5220	100.82	92.43			34.17	8.22	34	218	34	Peak
5374.64	43.46	34.8	54	-10.54	34.29	8.41	34.04	218	34	Average
5374.64	53.81	45.15	74	-20.19	34.29	8.41	34.04	218	34	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	94.29	85.85			34.19	8.26	34.01	102	181	Average
5240	102.5	94.06			34.19	8.26	34.01	102	181	Peak
5453.4	43.34	34.52	54	-10.66	34.36	8.51	34.05	102	181	Average
5453.4	54.91	46.09	74	-19.09	34.36	8.51	34.05	102	181	Peak
*10480	56.87	42.36	68.2	-11.33	37.19	12.53	35.21	196	327	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	92.23	83.79			34.19	8.26	34.01	218	34	Average
5240	100.04	91.6			34.19	8.26	34.01	218	34	Peak
5387.62	43.33	34.65	54	-10.67	34.31	8.41	34.04	218	34	Average
5387.62	53.66	44.98	74	-20.34	34.31	8.41	34.04	218	34	Peak
*10480	55.66	41.15	68.2	-12.54	37.19	12.53	35.21	127	216	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 52	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5141.6	42.79	34.53	54	-11.21	34.12	8.13	33.99	128	188	Average
5141.6	53.5	45.24	74	-20.5	34.12	8.13	33.99	128	188	Peak
5260	95.25	86.79			34.21	8.26	34.01	128	188	Average
5260	102.11	93.65			34.21	8.26	34.01	128	188	Peak
*10520	56.33	41.74	68.2	-11.87	37.21	12.61	35.23	105	258	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5104.55	42.67	34.51	54	-11.33	34.08	8.07	33.99	279	33	Average
5104.55	53.36	45.2	74	-20.64	34.08	8.07	33.99	279	33	Peak
5260	91.22	82.76			34.21	8.26	34.01	279	33	Average
5260	98.23	89.77			34.21	8.26	34.01	279	33	Peak
*10520	56.75	42.16	68.2	-11.45	37.21	12.61	35.23	134	213	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 60	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5125.1	42.83	34.61	54	-11.17	34.11	8.1	33.99	128	188	Average
5125.1	53.2	44.98	74	-20.8	34.11	8.1	33.99	128	188	Peak
5300	95.66	87.12			34.24	8.32	34.02	128	188	Average
5300	102.09	93.55			34.24	8.32	34.02	128	188	Peak
5350.99	43.35	34.72	54	-10.65	34.28	8.38	34.03	128	188	Average
5350.99	53.4	44.77	74	-20.6	34.28	8.38	34.03	128	188	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
5124.8	42.75	34.53	54	-11.25	34.11	8.1	33.99	279	33	Average
5124.8	54.29	46.07	74	-19.71	34.11	8.1	33.99	279	33	Peak
5300	91.44	82.9			34.24	8.32	34.02	279	33	Average
5300	98.81	90.27			34.24	8.32	34.02	279	33	Peak
5455.6	42.96	34.14	54	-11.04	34.36	8.51	34.05	279	33	Average
5455.6	53.88	45.06	74	-20.12	34.36	8.51	34.05	279	33	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 64	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	95.73	87.15			34.25	8.35	34.02	128	188	Average
5320	102.15	93.57			34.25	8.35	34.02	128	188	Peak
5359.13	43.43	34.8	54	-10.57	34.28	8.38	34.03	128	188	Average
5359.13	53.53	44.9	74	-20.47	34.28	8.38	34.03	128	188	Peak
10640	46.74	32.01	54	-7.26	37.31	12.71	35.29	147	165	Average
10640	56.62	41.89	74	-17.38	37.31	12.71	35.29	147	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
5320	91.4	82.82			34.25	8.35	34.02	279	33	Average
5320	98.81	90.23			34.25	8.35	34.02	279	33	Peak
5351.87	42.92	34.29	54	-11.08	34.28	8.38	34.03	279	33	Average
5351.87	53.42	44.79	74	-20.58	34.28	8.38	34.03	279	33	Peak
10640	46.72	31.99	54	-7.28	37.31	12.71	35.29	137	310	Average
10640	57.09	42.36	74	-16.91	37.31	12.71	35.29	137	310	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 100	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5441.52	43.7	34.91	54	-10.3	34.35	8.48	34.04	221	181	Average
5441.52	54.15	45.36	74	-19.85	34.35	8.48	34.04	221	181	Peak
*5468.08	53.23	44.4	68.2	-14.97	34.37	8.51	34.05	221	181	Peak
5500	90.47	81.55			34.4	8.57	34.05	221	181	Average
5500	97.46	88.54			34.4	8.57	34.05	221	181	Peak
11000	47.04	31.96	54	-6.96	37.6	12.96	35.48	140	310	Average
11000	57.14	42.06	74	-16.86	37.6	12.96	35.48	140	310	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
5459.6	43.68	34.86	54	-10.32	34.36	8.51	34.05	115	149	Average
5459.6	53.97	45.15	74	-20.03	34.36	8.51	34.05	115	149	Peak
*5470.96	52.91	44.05	68.2	-15.29	34.37	8.54	34.05	115	149	Peak
5500	92.59	83.67			34.4	8.57	34.05	115	149	Average
5500	99.07	90.15			34.4	8.57	34.05	115	149	Peak
11000	47.11	32.03	54	-6.89	37.6	12.96	35.48	147	124	Average
11000	58.25	43.17	74	-15.75	37.6	12.96	35.48	147	124	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 116	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5450.64	43.17	34.35	54	-10.83	34.36	8.51	34.05	221	181	Average
5450.64	53.52	44.7	74	-20.48	34.36	8.51	34.05	221	181	Peak
*5469.52	52.12	43.29	68.2	-16.08	34.37	8.51	34.05	221	181	Peak
5580	90.22	81.23			34.47	8.6	34.08	221	181	Average
5580	97.67	88.68			34.47	8.6	34.08	221	181	Peak
*5726.04	53.57	44.41	68.2	-14.63	34.62	8.65	34.11	221	181	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5448.4	43.33	34.5	54	-10.67	34.36	8.51	34.04	100	149	Average
5448.4	53.95	45.12	74	-20.05	34.36	8.51	34.04	100	149	Peak
*5470.64	53.49	44.66	68.2	-14.71	34.37	8.51	34.05	100	149	Peak
5580	92.55	83.56			34.47	8.6	34.08	100	149	Average
5580	99.24	90.25			34.47	8.6	34.08	100	149	Peak
*5724.04	52.57	43.41	68.2	-15.63	34.62	8.65	34.11	100	149	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	90.52	81.39			34.59	8.64	34.1	221	181	Average
5700	97.21	88.08			34.59	8.64	34.1	221	181	Peak
*5724.92	53.62	44.46	68.2	-14.58	34.62	8.65	34.11	221	181	Peak
11400	47.21	32.11	54	-6.79	37.84	12.67	35.41	137	346	Average
11400	56.93	41.83	74	-17.07	37.84	12.67	35.41	137	346	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	92.33	83.2			34.59	8.64	34.1	115	149	Average
5700	99.69	90.56			34.59	8.64	34.1	115	149	Peak
*5724.36	53.42	44.26	68.2	-14.78	34.62	8.65	34.11	115	149	Peak
11400	47.23	32.13	54	-6.77	37.84	12.67	35.41	110	104	Average
11400	56.62	41.52	74	-17.38	37.84	12.67	35.41	110	104	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	88.35	79.16			34.64	8.66	34.11	100	88	Average
5745	95.81	86.62			34.64	8.66	34.11	100	88	Peak
11490	47.26	32.14	54	-6.74	37.89	12.62	35.39	136	214	Average
11490	56.68	41.56	74	-17.32	37.89	12.62	35.39	136	214	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	94.31	85.12			34.64	8.66	34.11	110	256	Average
5745	101.68	92.49			34.64	8.66	34.11	110	256	Peak
11490	48.37	33.25	54	-5.63	37.89	12.62	35.39	136	195	Average
11490	56.77	41.65	74	-17.23	37.89	12.62	35.39	136	195	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5630.2	53.58	44.53	68.2	-14.62	34.52	8.62	34.09	100	88	Peak
5655.4	53.03	43.94	72.2	-19.17	34.56	8.63	34.1	100	88	Peak
5916.85	51.98	42.6	74.23	-22.25	34.81	8.73	34.16	100	88	Peak
*5936.8	54.13	44.73	68.2	-14.07	34.83	8.73	34.16	100	88	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
*5614.45	54.26	45.23	68.2	-13.94	34.5	8.61	34.08	110	256	Peak
5653.825	52.93	43.84	71.03	-18.1	34.56	8.63	34.1	110	256	Peak
5923.675	52.13	42.73	69.18	-17.05	34.83	8.73	34.16	110	256	Peak
*5973.025	54.29	44.83	68.2	-13.91	34.88	8.75	34.17	110	256	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	88.76	79.53			34.68	8.68	34.13	100	88	Average
5785	95.96	86.73			34.68	8.68	34.13	100	88	Peak
11570	47.43	32.12	54	-6.57	38	12.68	35.37	136	154	Average
11570	56.26	40.95	74	-17.74	38	12.68	35.37	136	154	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	94.25	85.02			34.68	8.68	34.13	110	256	Average
5785	101.65	92.42			34.68	8.68	34.13	110	256	Peak
11570	48.52	33.21	54	-5.48	38	12.68	35.37	166	198	Average
11570	57.3	41.99	74	-16.7	38	12.68	35.37	166	198	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
*5517.85	53.4	44.47	68.2	-14.8	34.42	8.57	34.06	100	88	Peak
5653.825	50.96	41.87	71.03	-20.07	34.56	8.63	34.1	100	88	Peak
5923.15	51.64	42.24	69.57	-17.93	34.83	8.73	34.16	100	88	Peak
*5946.775	53.28	43.85	68.2	-14.92	34.85	8.74	34.16	100	88	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
*5630.725	53.61	44.56	68.2	-14.59	34.52	8.62	34.09	110	256	Peak
5653.825	53.42	44.33	71.03	-17.61	34.56	8.63	34.1	110	256	Peak
5921.575	52.9	43.5	70.73	-17.83	34.83	8.73	34.16	110	256	Peak
*5929.975	54.51	45.11	68.2	-13.69	34.83	8.73	34.16	110	256	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	88.15	78.86			34.73	8.69	34.13	100	88	Average
5825	95.28	85.99			34.73	8.69	34.13	100	88	Peak
11650	48.75	33.22	54	-5.25	38.09	12.8	35.36	132	165	Average
11650	56.44	40.91	74	-17.56	38.09	12.8	35.36	132	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
5825	94.47	85.18			34.73	8.69	34.13	110	256	Average
5825	101.83	92.54			34.73	8.69	34.13	110	256	Peak
11650	48.12	32.59	54	-5.88	38.09	12.8	35.36	166	132	Average
11650	56.5	40.97	74	-17.5	38.09	12.8	35.36	166	132	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
*5610.775	53.26	44.23	68.2	-14.94	34.5	8.61	34.08	100	88	Peak
5655.925	52.73	43.64	72.58	-19.85	34.56	8.63	34.1	100	88	Peak
5922.625	52.46	43.06	69.96	-17.5	34.83	8.73	34.16	100	88	Peak
*5968.3	54.07	44.62	68.2	-14.13	34.87	8.75	34.17	100	88	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
*5596.6	53.55	44.54	68.2	-14.65	34.49	8.6	34.08	110	256	Peak
5653.825	52.32	43.23	71.03	-18.71	34.56	8.63	34.1	110	256	Peak
5919.475	54.38	45	72.29	-17.91	34.81	8.73	34.16	110	256	Peak
*5925.25	55.87	46.47	68.2	-12.33	34.83	8.73	34.16	110	256	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5146.55	50.43	42.18	54	-3.57	34.12	8.13	34	138	184	Average
5146.55	61.27	53.02	74	-12.73	34.12	8.13	34	138	184	Peak
5190	92.68	84.34			34.15	8.19	34	138	184	Average
5190	100.27	91.93			34.15	8.19	34	138	184	Peak
5403.35	43.66	34.94	54	-10.34	34.32	8.44	34.04	138	184	Average
5403.35	53.58	44.86	74	-20.42	34.32	8.44	34.04	138	184	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5147.3	47.23	38.98	54	-6.77	34.12	8.13	34	241	34	Average
5147.3	58.56	50.31	74	-15.44	34.12	8.13	34	241	34	Peak
5190	90.17	81.83			34.15	8.19	34	241	34	Average
5190	97.93	89.59			34.15	8.19	34	241	34	Peak
5369.14	43.52	34.85	54	-10.48	34.29	8.41	34.03	241	34	Average
5369.14	54.22	45.55	74	-19.78	34.29	8.41	34.03	241	34	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 46	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5115.35	44.2	36	54	-9.8	34.09	8.1	33.99	102	181	Average
5115.35	53.89	45.69	74	-20.11	34.09	8.1	33.99	102	181	Peak
5230	92.06	83.66			34.19	8.22	34.01	102	181	Average
5230	100.15	91.75			34.19	8.22	34.01	102	181	Peak
5432.17	43.67	34.88	54	-10.33	34.35	8.48	34.04	102	181	Average
5432.17	53.94	45.15	74	-20.06	34.35	8.48	34.04	102	181	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5138.9	42.98	34.73	54	-11.02	34.11	8.13	33.99	218	34	Average
5138.9	53.45	45.2	74	-20.55	34.11	8.13	33.99	218	34	Peak
5230	90.19	81.79			34.19	8.22	34.01	218	34	Average
5230	97.96	89.56			34.19	8.22	34.01	218	34	Peak
5450.76	43.19	34.37	54	-10.81	34.36	8.51	34.05	218	34	Average
5450.76	54.23	45.41	74	-19.77	34.36	8.51	34.05	218	34	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 54	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5121.5	43.75	35.55	54	-10.25	34.09	8.1	33.99	128	188	Average
5121.5	54.06	45.86	74	-19.94	34.09	8.1	33.99	128	188	Peak
5270	93.35	84.86			34.21	8.29	34.01	128	188	Average
5270	99.48	90.99			34.21	8.29	34.01	128	188	Peak
5412.48	44.45	35.72	54	-9.55	34.33	8.44	34.04	128	188	Average
5412.48	54.31	45.58	74	-19.69	34.33	8.44	34.04	128	188	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
5126.3	43.28	35.06	54	-10.72	34.11	8.1	33.99	279	33	Average
5126.3	53.12	44.9	74	-20.88	34.11	8.1	33.99	279	33	Peak
5270	89.42	80.93			34.21	8.29	34.01	279	33	Average
5270	95.77	87.28			34.21	8.29	34.01	279	33	Peak
5445.7	43.75	34.92	54	-10.25	34.36	8.51	34.04	279	33	Average
5445.7	54.33	45.5	74	-19.67	34.36	8.51	34.04	279	33	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 62	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5022.95	43.35	35.32	54	-10.65	34.03	7.97	33.97	128	188	Average
5022.95	54.66	46.63	74	-19.34	34.03	7.97	33.97	128	188	Peak
5310	93.47	84.92			34.25	8.32	34.02	128	188	Average
5310	99.73	91.18			34.25	8.32	34.02	128	188	Peak
5350.11	47.59	38.96	54	-6.41	34.28	8.38	34.03	128	188	Average
5350.11	57.28	48.65	74	-16.72	34.28	8.38	34.03	128	188	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
5122.4	43.22	35.02	54	-10.78	34.09	8.1	33.99	279	33	Average
5122.4	53.06	44.86	74	-20.94	34.09	8.1	33.99	279	33	Peak
5310	89.62	81.07			34.25	8.32	34.02	279	33	Average
5310	95.91	87.36			34.25	8.32	34.02	279	33	Peak
5350.77	45.58	36.95	54	-8.42	34.28	8.38	34.03	279	33	Average
5350.77	56.57	47.94	74	-17.43	34.28	8.38	34.03	279	33	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 102	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5459.92	44.19	35.37	54	-9.81	34.36	8.51	34.05	221	181	Average
5459.92	53.79	44.97	74	-20.21	34.36	8.51	34.05	221	181	Peak
*5470.48	58.17	49.34	68.2	-10.03	34.37	8.51	34.05	221	181	Peak
5510	89.42	80.51			34.4	8.57	34.06	221	181	Average
5510	95.49	86.58			34.4	8.57	34.06	221	181	Peak
*5723.96	52.77	43.61	68.2	-15.43	34.62	8.65	34.11	221	181	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5456.88	44.63	35.81	54	-9.37	34.36	8.51	34.05	100	149	Average
5456.88	54.12	45.3	74	-19.88	34.36	8.51	34.05	100	149	Peak
*5470.8	57.35	48.49	68.2	-10.85	34.37	8.54	34.05	100	149	Peak
5510	91.47	82.56			34.4	8.57	34.06	100	149	Average
5510	97.13	88.22			34.4	8.57	34.06	100	149	Peak
*5724.36	52.91	43.75	68.2	-15.29	34.62	8.65	34.11	100	149	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 110	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5410.48	43.81	35.09	54	-10.19	34.32	8.44	34.04	221	181	Average
5410.48	53.97	45.25	74	-20.03	34.32	8.44	34.04	221	181	Peak
*5469.04	52.03	43.2	68.2	-16.17	34.37	8.51	34.05	221	181	Peak
5550	89.35	80.38			34.45	8.59	34.07	221	181	Average
5550	95.14	86.17			34.45	8.59	34.07	221	181	Peak
*5724.36	53.65	44.49	68.2	-14.55	34.62	8.65	34.11	221	181	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5449.84	43.79	34.97	54	-10.21	34.36	8.51	34.05	100	149	Average
5449.84	54.5	45.68	74	-19.5	34.36	8.51	34.05	100	149	Peak
*5469.84	54.8	45.97	68.2	-13.4	34.37	8.51	34.05	100	149	Peak
5550	91.43	82.46			34.45	8.59	34.07	100	149	Average
5550	97.73	88.76			34.45	8.59	34.07	100	149	Peak
*5724.36	53.49	44.33	68.2	-14.71	34.62	8.65	34.11	100	149	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 134	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5429.2	42.89	34.1	54	-11.11	34.35	8.48	34.04	221	181	Average
5429.2	51.77	42.98	74	-22.23	34.35	8.48	34.04	221	181	Peak
*5469.68	50.97	42.14	68.2	-17.23	34.37	8.51	34.05	221	181	Peak
5670	89.24	80.14			34.57	8.63	34.1	221	181	Average
5670	95.45	86.35			34.57	8.63	34.1	221	181	Peak
*5724.6	52.16	43	68.2	-16.04	34.62	8.65	34.11	221	181	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5437.84	43.54	34.75	54	-10.46	34.35	8.48	34.04	115	149	Average
5437.84	54.54	45.75	74	-19.46	34.35	8.48	34.04	115	149	Peak
*5470.16	53.44	44.61	68.2	-14.76	34.37	8.51	34.05	115	149	Peak
5670	91.55	82.45			34.57	8.63	34.1	115	149	Average
5670	97.55	88.45			34.57	8.63	34.1	115	149	Peak
*5724.36	52.91	43.75	68.2	-15.29	34.62	8.65	34.11	115	149	Peak

Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 151	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	93.47	84.26			34.66	8.66	34.11	110	256	Average
5755	99.1	89.89			34.66	8.66	34.11	110	256	Peak
11510	48.64	33.53	54	-5.36	37.9	12.6	35.39	136	214	Average
11510	58.07	42.96	74	-15.93	37.9	12.6	35.39	136	214	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	87.43	78.22			34.66	8.66	34.11	100	88	Average
5755	93.79	84.58			34.66	8.66	34.11	100	88	Peak
11510	48.69	33.58	54	-5.31	37.9	12.6	35.39	115	185	Average
11510	56.96	41.85	74	-17.04	37.9	12.6	35.39	115	185	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
*5520.475	53.82	44.89	68.2	-14.38	34.42	8.57	34.06	110	256	Peak
5653.3	53.53	44.43	70.64	-17.11	34.56	8.63	34.09	110	256	Peak
5923.15	52.64	43.24	69.57	-16.93	34.83	8.73	34.16	110	256	Peak
*5925.775	53.94	44.54	68.2	-14.26	34.83	8.73	34.16	110	256	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
*5633.35	53.41	44.34	68.2	-14.79	34.54	8.62	34.09	100	88	Peak
5655.925	52.74	43.65	72.58	-19.84	34.56	8.63	34.1	100	88	Peak
5920	53.49	44.11	71.9	-18.41	34.81	8.73	34.16	100	88	Peak
*5974.075	54.34	44.88	68.2	-13.86	34.88	8.75	34.17	100	88	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5755 MHz: Fundamental Frequency
- *: Out of Restricted Band

EUT Test Condition		Measurement Detail	
Channel	Channel 159	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	93.32	84.08			34.69	8.68	34.13	110	256	Average
5795	99.6	90.36			34.69	8.68	34.13	110	256	Peak
11590	47.93	32.56	54	-6.07	38.02	12.72	35.37	122	169	Average
11590	57.22	41.85	74	-16.78	38.02	12.72	35.37	122	169	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	87.14	77.9			34.69	8.68	34.13	100	88	Average
5795	93.34	84.1			34.69	8.68	34.13	100	88	Peak
11590	47.89	32.52	54	-6.11	38.02	12.72	35.37	169	147	Average
11590	56.66	41.29	74	-17.34	38.02	12.72	35.37	169	147	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
*5569.3	53.57	44.58	68.2	-14.63	34.47	8.59	34.07	110	256	Peak
5654.35	53.97	44.88	71.42	-17.45	34.56	8.63	34.1	110	256	Peak
5920	53.26	43.88	71.9	-18.64	34.81	8.73	34.16	110	256	Peak
*5936.275	54.61	45.21	68.2	-13.59	34.83	8.73	34.16	110	256	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
*5582.425	53.99	44.98	68.2	-14.21	34.49	8.6	34.08	100	88	Peak
5651.2	53.49	44.4	69.09	-15.6	34.56	8.62	34.09	100	88	Peak
5923.15	52.5	43.1	69.57	-17.07	34.83	8.73	34.16	100	88	Peak
*5978.8	54.6	45.14	68.2	-13.6	34.88	8.75	34.17	100	88	Peak

Remarks:

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

Mode B

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	50.05	41.8	54	-3.95	34.12	8.13	34	119	188	Average
5150	61.56	53.31	74	-12.44	34.12	8.13	34	119	188	Peak
5190	94.47	86.13			34.15	8.19	34	119	188	Average
5190	100.34	92			34.15	8.19	34	119	188	Peak
5431.62	43.74	34.95	54	-10.26	34.35	8.48	34.04	119	188	Average
5431.62	54.2	45.41	74	-19.8	34.35	8.48	34.04	119	188	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5149.85	47.28	39.03	54	-6.72	34.12	8.13	34	237	29	Average
5149.85	56.92	48.67	74	-17.08	34.12	8.13	34	237	29	Peak
5190	90.65	82.31			34.15	8.19	34	237	29	Average
5190	96.72	88.38			34.15	8.19	34	237	29	Peak
5459.89	43.55	34.73	54	-10.45	34.36	8.51	34.05	237	29	Average
5459.89	53.52	44.7	74	-20.48	34.36	8.51	34.05	237	29	Peak

Remarks:

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

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 62	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5135.3	43.55	35.3	54	-10.45	34.11	8.13	33.99	100	251	Average
5135.3	53.45	45.2	74	-20.55	34.11	8.13	33.99	100	251	Peak
5310	89.74	81.19			34.25	8.32	34.02	100	251	Average
5310	95.1	86.55			34.25	8.32	34.02	100	251	Peak
5351.21	45.08	36.45	54	-8.92	34.28	8.38	34.03	100	251	Average
5351.21	55.11	46.48	74	-18.89	34.28	8.38	34.03	100	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
5140.85	43.37	35.11	54	-10.63	34.12	8.13	33.99	132	32	Average
5140.85	53.16	44.9	74	-20.84	34.12	8.13	33.99	132	32	Peak
5310	92.47	83.92			34.25	8.32	34.02	132	32	Average
5310	98.21	89.66			34.25	8.32	34.02	132	32	Peak
5350.44	46.03	37.4	54	-7.97	34.28	8.38	34.03	132	32	Average
5350.44	57.55	48.92	74	-16.45	34.28	8.38	34.03	132	32	Peak

Remarks:

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

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	93.49	84.36			34.59	8.64	34.1	102	259	Average
5700	100.84	91.71			34.59	8.64	34.1	102	259	Peak
5724.2	54.89	45.73	74	-19.11	34.62	8.65	34.11	102	259	Peak
11400	46.97	31.87	54	-7.03	37.84	12.67	35.41	142	245	Average
11400	58.57	43.47	74	-15.43	37.84	12.67	35.41	142	245	Peak
5700	93.49	84.36	54	39.49	34.59	8.64	34.1	102	259	Average
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	89.55	80.42			34.59	8.64	34.1	107	77	Average
5700	96.32	87.19			34.59	8.64	34.1	107	77	Peak
5725.96	53.47	44.31	74	-20.53	34.62	8.65	34.11	107	77	Peak
11400	47.11	32.01	54	-6.89	37.84	12.67	35.41	158	349	Average
11400	58.05	42.95	74	-15.95	37.84	12.67	35.41	158	349	Peak
5700	89.55	80.42	54	35.55	34.59	8.64	34.1	107	77	Average

Remarks:

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

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	92.21	82.92			34.73	8.69	34.13	100	246	Average
5825	99.77	90.48			34.73	8.69	34.13	100	246	Peak
11650	47.27	31.74	54	-6.73	38.09	12.8	35.36	124	147	Average
11650	57.58	42.05	74	-16.42	38.09	12.8	35.36	124	147	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	93.33	84.04			34.73	8.69	34.13	200	279	Average
5825	100.57	91.28			34.73	8.69	34.13	200	279	Peak
11650	47.4	31.87	54	-6.6	38.09	12.8	35.36	138	255	Average
11650	58.13	42.6	74	-15.87	38.09	12.8	35.36	138	255	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
*5608.675	54.29	45.26	68.2	-13.91	34.5	8.61	34.08	100	246	Peak
5652.775	52.09	42.99	70.25	-18.16	34.56	8.63	34.09	100	246	Peak
5923.675	50.69	41.29	69.18	-18.49	34.83	8.73	34.16	100	246	Peak
*5954.65	54.89	45.46	68.2	-13.31	34.85	8.74	34.16	100	246	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5608.15	54.07	45.04	68.2	-14.13	34.5	8.61	34.08	200	279	Peak
5651.725	52.59	43.5	69.48	-16.89	34.56	8.62	34.09	200	279	Peak
5918.425	53.55	44.17	73.07	-19.52	34.81	8.73	34.16	200	279	Peak
*5929.975	53.9	44.5	68.2	-14.3	34.83	8.73	34.16	200	279	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band

9 kHz ~ 30 MHz DATA:

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

30 MHz ~ 1 GHz WORST-CASE DATA:

Mode A

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
54.3	33.73	50.84	40	-6.27	14.22	0.9	32.23	166	132	Peak
99.12	23.54	42.32	43.5	-19.96	12.15	1.28	32.21	165	142	Peak
186.87	23.87	44.14	43.5	-19.63	10.37	1.61	32.25	104	154	Peak
374.9	13.87	29.23	46	-32.13	14.53	2.26	32.15	195	165	Peak
626.2	19.51	30.57	46	-26.49	18.18	2.93	32.17	174	184	Peak
804.7	21.01	29.31	46	-24.99	20.41	3.32	32.03	155	164	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
40.26	30.1	48	40	-9.9	13.59	0.74	32.23	121	131	Peak
87.78	24	44.75	40	-16	9.95	1.11	31.81	115	121	Peak
152.31	15.65	37.93	43.5	-27.85	8.47	1.52	32.27	104	124	Peak
414.8	14.79	29.41	46	-31.21	15.17	2.41	32.2	116	168	Peak
575.8	17.35	29.16	46	-28.65	17.57	2.82	32.2	196	175	Peak
747.3	21.74	30.88	46	-24.26	19.78	3.22	32.14	172	165	Peak

Remarks:

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

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 62	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
34.05	15.01	34.68	40	-24.99	11.83	0.74	32.24	166	132	Peak
89.13	27.29	47.73	43.5	-16.21	10.21	1.11	31.76	199	174	Peak
163.65	22.79	44.64	43.5	-20.71	8.89	1.52	32.26	184	175	Peak
335	14.77	30.75	46	-31.23	13.92	2.19	32.09	104	125	Peak
526.8	17.57	30.33	46	-28.43	16.69	2.7	32.15	133	136	Peak
852.3	22.32	29.6	46	-23.68	21.06	3.44	31.78	121	151	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
59.43	35.99	53.8	40	-4.01	13.52	0.9	32.23	199	185	Peak
94.8	17.89	37.15	43.5	-25.61	11.62	1.11	31.99	176	164	Peak
178.5	17.61	38.62	43.5	-25.89	9.62	1.61	32.24	111	142	Peak
321	13.44	29.9	46	-32.56	13.54	2.11	32.11	121	162	Peak
491.8	17.5	30.73	46	-28.5	16.24	2.63	32.1	103	124	Peak
681.5	20.52	30.62	46	-25.48	18.96	3.05	32.11	122	163	Peak

Remarks:

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

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

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
32.43	15.85	35.62	40	-24.15	11.74	0.74	32.25	112	154	Peak
95.07	22.18	41.27	43.5	-21.32	11.62	1.28	31.99	163	164	Peak
177.69	21.14	42.21	43.5	-22.36	9.56	1.61	32.24	195	175	Peak
349	14.42	30.1	46	-31.58	14.2	2.19	32.07	188	195	Peak
553.4	16.6	28.88	46	-29.4	17.16	2.76	32.2	132	132	Peak
867.7	21.43	28.44	46	-24.57	21.23	3.44	31.68	142	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
40.8	25.7	43.6	40	-14.3	13.59	0.74	32.23	119	186	Peak
89.13	24.23	44.67	43.5	-19.27	10.21	1.11	31.76	164	187	Peak
184.44	13.93	34.45	43.5	-29.57	10.11	1.61	32.24	103	214	Peak
442.8	14.26	28.47	46	-31.74	15.46	2.49	32.16	136	135	Peak
636.7	17.58	28.55	46	-28.42	18.26	2.93	32.16	112	165	Peak
824.3	20.51	28.36	46	-25.49	20.7	3.38	31.93	196	174	Peak

Remarks:

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

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
59.7	22.49	40.45	40	-17.51	13.37	0.9	32.23	116	132	Peak
147.99	16.27	38.63	43.5	-27.23	8.39	1.52	32.27	114	121	Peak
218.46	14.81	34.08	46	-31.19	11.3	1.65	32.22	104	154	Peak
458.2	15.78	29.75	46	-30.22	15.68	2.49	32.14	199	165	Peak
759.2	21.25	30.25	46	-24.75	19.91	3.22	32.13	175	165	Peak
852.3	22.32	29.6	46	-23.68	21.06	3.44	31.78	118	154	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
47.28	22.9	39.71	40	-17.1	14.51	0.9	32.22	121	152	Peak
117.75	12.02	32.15	43.5	-31.48	10.84	1.28	32.25	112	195	Peak
207.66	13.36	32.84	43.5	-30.14	11.14	1.65	32.27	102	103	Peak
390.3	13.88	28.94	46	-32.12	14.79	2.34	32.19	126	135	Peak
542.9	17.11	29.6	46	-28.89	16.94	2.76	32.19	175	184	Peak
747.3	21.74	30.88	46	-24.26	19.78	3.22	32.14	168	195	Peak

Remarks:

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

Mode B
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
75.36	11.6	34.31	40	-28.4	8.4	1.11	32.22	125	137	Peak
155.28	16.04	38.23	43.5	-27.46	8.56	1.52	32.27	156	138	Peak
228.99	13.56	32.17	46	-32.44	11.72	1.85	32.18	131	108	Peak
407.1	13.94	28.66	46	-32.06	15.08	2.41	32.21	100	266	Peak
479.9	15.46	28.95	46	-30.54	16.07	2.56	32.12	103	273	Peak
723.5	19.4	28.8	46	-26.6	19.55	3.16	32.11	199	25	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
56.46	20.36	37.7	40	-19.64	13.99	0.9	32.23	105	139	Peak
142.86	7.65	30.14	43.5	-35.85	8.4	1.38	32.27	187	243	Peak
255.72	11.01	28.75	46	-34.99	12.42	1.94	32.1	154	112	Peak
473.6	15.53	29.14	46	-30.47	15.95	2.56	32.12	103	238	Peak
535.2	15.81	28.47	46	-30.19	16.81	2.7	32.17	199	124	Peak
661.2	18.37	28.88	46	-27.63	18.63	2.99	32.13	171	164	Peak

Remarks:

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

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 62	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
95.61	22.15	41.16	43.5	-21.35	11.75	1.28	32.04	120	43	Peak
141.51	12.41	34.89	43.5	-31.09	8.41	1.38	32.27	164	121	Peak
194.97	18.39	38.12	43.5	-25.11	10.94	1.61	32.28	160	134	Peak
451.2	14.25	28.32	46	-31.75	15.58	2.49	32.14	140	244	Peak
624.8	17.03	28.1	46	-28.97	18.17	2.93	32.17	129	326	Peak
731.2	18.92	28.26	46	-27.08	19.62	3.16	32.12	161	128	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
84	21.27	43.17	40	-18.73	9	1.11	32.01	189	115	Peak
143.13	6.85	29.35	43.5	-36.65	8.39	1.38	32.27	163	214	Peak
216.57	10.04	29.35	46	-35.96	11.27	1.65	32.23	123	108	Peak
440	14.28	28.53	46	-31.72	15.42	2.49	32.16	136	190	Peak
575.1	16.69	28.52	46	-29.31	17.55	2.82	32.2	157	245	Peak
643.7	18.44	29.25	46	-27.56	18.35	2.99	32.15	181	115	Peak

Remarks:

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

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

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
106.95	17.98	36.69	43.5	-25.52	12.26	1.28	32.25	150	136	Peak
145.02	17.16	39.68	43.5	-26.34	8.37	1.38	32.27	115	129	Peak
217.38	12.06	31.35	46	-33.94	11.29	1.65	32.23	190	137	Peak
386.8	13.77	28.88	46	-32.23	14.73	2.34	32.18	108	134	Peak
561.1	16.69	28.82	46	-29.31	17.31	2.76	32.2	196	340	Peak
785.1	20.74	29.37	46	-25.26	20.18	3.27	32.08	155	141	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
73.2	16.89	39.22	40	-23.11	8.78	1.11	32.22	106	137	Peak
95.07	16.35	35.44	43.5	-27.15	11.62	1.28	31.99	156	143	Peak
255.72	11.01	28.75	46	-34.99	12.42	1.94	32.1	184	116	Peak
397.3	13.78	28.71	46	-32.22	14.95	2.34	32.22	109	148	Peak
680.8	19.02	29.14	46	-26.98	18.94	3.05	32.11	164	113	Peak
768.3	20.55	29.44	46	-25.45	20	3.22	32.11	196	133	Peak

Remarks:

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

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
95.61	22.15	41.16	43.5	-21.35	11.75	1.28	32.04	162	138	Peak
157.44	17.18	39.29	43.5	-26.32	8.64	1.52	32.27	179	130	Peak
252.75	10.62	28.41	46	-35.38	12.37	1.94	32.1	196	253	Peak
505.1	15.84	28.9	46	-30.16	16.42	2.63	32.11	149	123	Peak
680.1	17.94	28.07	46	-28.06	18.93	3.05	32.11	196	245	Peak
925.8	22.71	28.88	46	-23.29	21.59	3.53	31.29	127	184	Peak
Antenna Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
95.07	16.35	35.44	43.5	-27.15	11.62	1.28	31.99	159	304	Peak
172.29	15.39	36.85	43.5	-28.11	9.26	1.52	32.24	126	127	Peak
272.46	11.06	28.57	46	-34.94	12.66	1.94	32.11	196	304	Peak
505.8	15.84	28.89	46	-30.16	16.43	2.63	32.11	129	155	Peak
656.3	18.76	29.36	46	-27.24	18.55	2.99	32.14	159	304	Peak
857.2	21.25	28.44	46	-24.75	21.12	3.44	31.75	174	112	Peak

Remarks:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 22, 2016	Dec. 21, 2017
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

4.2.3 Test Procedures

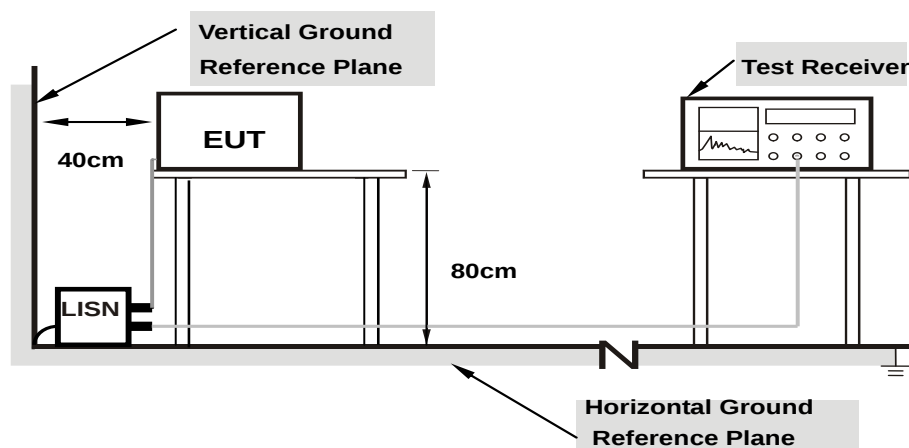
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

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

4.2.7 Test Results

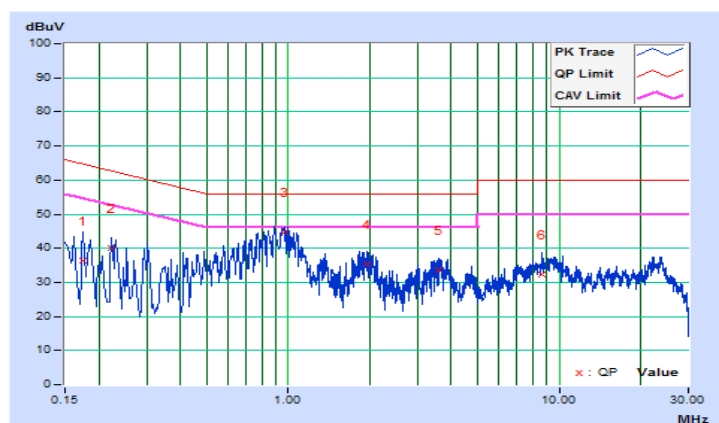
Mode A

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/6/21

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	0.17400	10.36	25.93	7.05	36.29	17.41	64.77	54.77	-28.48	-37.36
2	0.22200	10.37	29.65	13.03	40.02	23.40	62.74	52.74	-22.72	-29.34
3	0.96600	10.40	34.31	24.64	44.71	35.04	56.00	46.00	-11.29	-10.96
4	1.95400	10.46	24.99	15.67	35.45	26.13	56.00	46.00	-20.55	-19.87
5	3.60200	10.55	23.08	12.72	33.63	23.27	56.00	46.00	-22.37	-22.73
6	8.66200	10.77	21.53	13.75	32.30	24.52	60.00	50.00	-27.70	-25.48

Remarks:

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

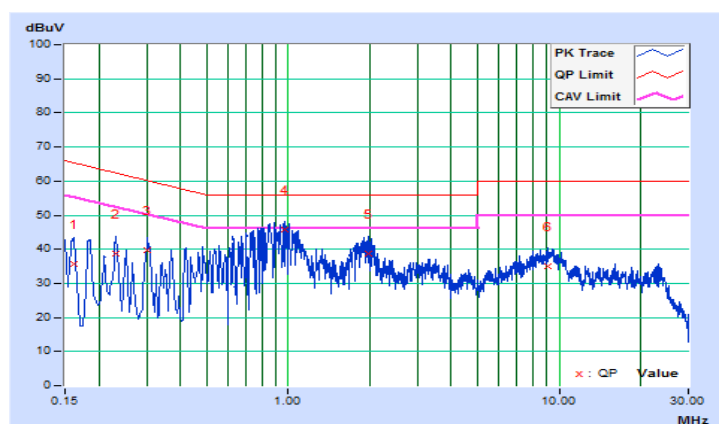


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/6/21

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	0.16148	10.11	25.62	10.50	35.73	20.61	65.39	55.39	-29.66	-34.78
2	0.23000	10.14	28.74	21.22	38.88	31.36	62.45	52.45	-23.57	-21.09
3	0.30200	10.15	29.65	21.65	39.80	31.80	60.19	50.19	-20.39	-18.39
4	0.96600	10.17	35.60	26.89	45.77	37.06	56.00	46.00	-10.23	-8.94
5	1.96600	10.23	28.37	19.84	38.60	30.07	56.00	46.00	-17.40	-15.93
6	9.13800	10.52	24.46	17.27	34.98	27.79	60.00	50.00	-25.02	-22.21

Remarks:

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



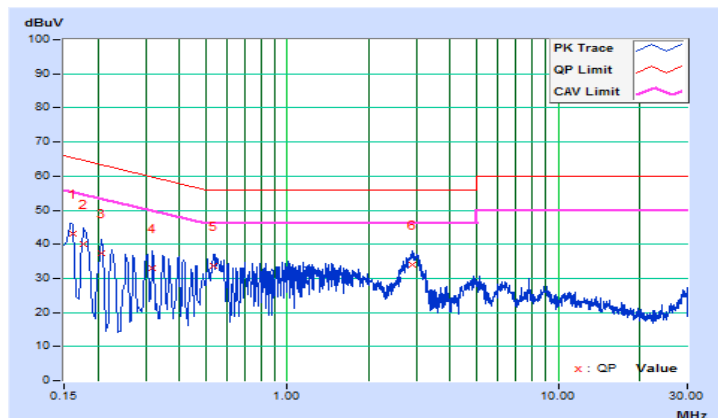
Mode B

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/6/30

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	0.16200	10.35	32.91	18.84	43.26	29.19	65.36	55.36	-22.10	-26.17
2	0.17801	10.36	29.81	15.73	40.17	26.09	64.58	54.58	-24.41	-28.49
3	0.20631	10.37	26.96	12.13	37.33	22.50	63.35	53.35	-26.02	-30.85
4	0.31800	10.39	22.70	8.53	33.09	18.92	59.76	49.76	-26.67	-30.84
5	0.53545	10.40	23.36	15.39	33.76	25.79	56.00	46.00	-22.24	-20.21
6	2.90200	10.51	23.49	17.36	34.00	27.87	56.00	46.00	-22.00	-18.13

Remarks:

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

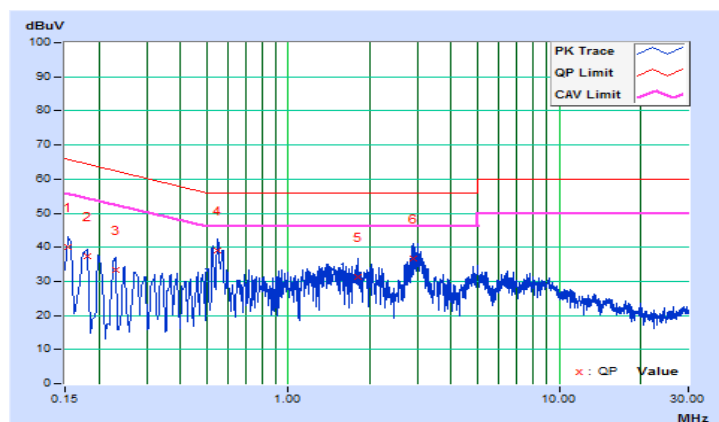


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2017/6/30

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	0.15400	10.11	29.85	20.20	39.96	30.31	65.78	55.78	-25.82	-25.47
2	0.18037	10.13	27.12	15.26	37.25	25.39	64.47	54.47	-27.22	-29.08
3	0.22985	10.14	23.29	8.61	33.43	18.75	62.46	52.46	-29.03	-33.71
4	0.54830	10.16	28.80	20.02	38.96	30.18	56.00	46.00	-17.04	-15.82
5	1.81000	10.22	21.02	12.83	31.24	23.05	56.00	46.00	-24.76	-22.95
6	2.90200	10.28	26.46	17.26	36.74	27.54	56.00	46.00	-19.26	-18.46

Remarks:

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



4.3 Transmit Power Measurement

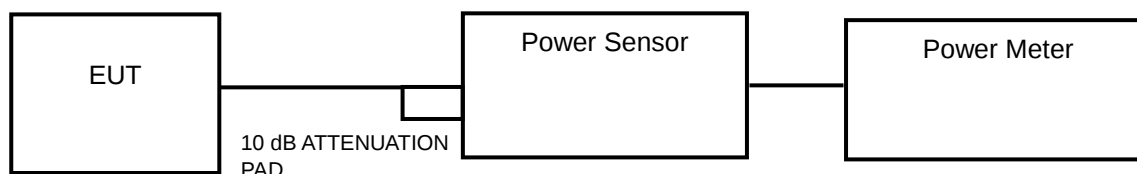
4.3.1 Limits of Transmit Power Measurement

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

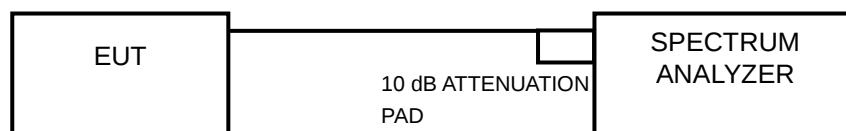
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

<Power Output Measurement>



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

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

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

26 dB Bandwidth

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	12.972	11.13	24	Pass
44	5220	13.366	11.26	24	Pass
48	5240	13.152	11.19	24	Pass
52	5260	13.677	11.36	24	Pass
60	5300	13.183	11.2	24	Pass
64	5320	12.794	11.07	24	Pass
100	5500	9.572	9.81	24	Pass
116	5580	9.661	9.85	24	Pass
140	5700	9.268	9.67	24	Pass
149	5745	9.750	9.89	30	Pass
157	5785	8.933	9.51	30	Pass
165	5825	8.590	9.34	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(20.06) = 24.02 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(20.16) = 24.04 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(20.23) = 24.06 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(20.14) = 24.04 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(20.19) = 24.05 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(20.07) = 24.03 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	13.122	11.18	24	Pass
44	5220	12.972	11.13	24	Pass
48	5240	13.152	11.19	24	Pass
52	5260	13.274	11.23	24	Pass
60	5300	12.589	11.00	24	Pass
64	5320	12.647	11.02	24	Pass
100	5500	9.141	9.61	24	Pass
116	5580	9.376	9.72	24	Pass
140	5700	8.974	9.53	24	Pass
149	5745	9.036	9.56	30	Pass
157	5785	9.120	9.60	30	Pass
165	5825	8.872	9.48	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(20.24) = 24.06 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(20.38) = 24.09 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(20.52) = 24.12 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(20.33) = 24.08 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(20.37) = 24.09 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(20.50) = 24.12 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	13.836	11.41	24	Pass
46	5230	13.459	11.29	24	Pass
54	5270	13.428	11.28	24	Pass
62	5310	13.152	11.19	24	Pass
102	5510	9.795	9.91	24	Pass
110	5550	10.186	10.08	24	Pass
134	5670	10.093	10.04	24	Pass
151	5755	9.397	9.73	30	Pass
159	5795	9.506	9.78	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(41.41) = 27.17 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(41.70) = 27.20 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(41.49) = 27.18 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(41.37) = 27.17 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(41.46) = 27.18 \text{ dBm} > 24 \text{ dBm}$.

26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	20.24
44	5220	20.08
48	5240	20.17
52	5260	20.06
60	5300	20.16
64	5320	20.23
100	5500	20.14
116	5580	20.19
140	5700	20.07

802.11n (HT20)

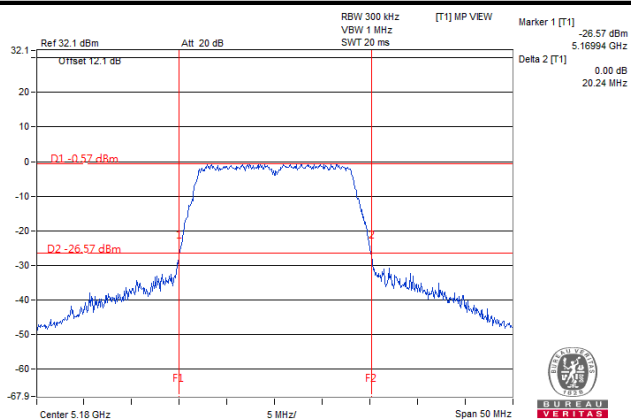
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	20.31
44	5220	20.34
48	5240	20.49
52	5260	20.24
60	5300	20.38
64	5320	20.52
100	5500	20.33
116	5580	20.37
140	5700	20.50

802.11n (HT40)

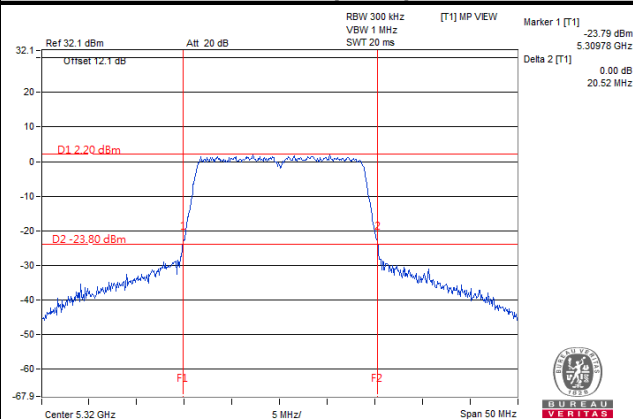
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	41.34
46	5230	41.56
54	5270	41.41
62	5310	41.70
102	5510	41.49
110	5550	41.37
134	5670	41.46

Spectrum Plot of Worst Value

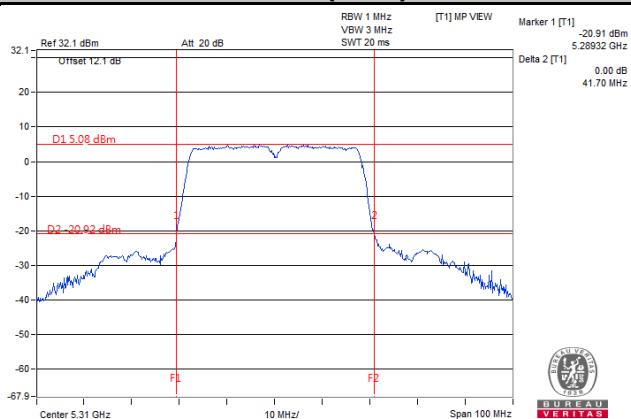
802.11a



802.11n (HT20)



802.11n (HT40)

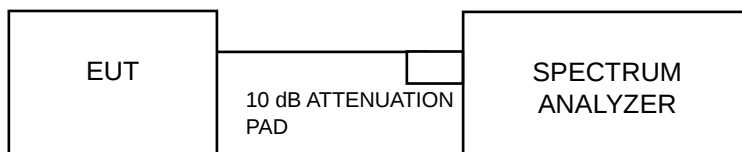


4.4 Peak Power Spectral Density Measurement

4.4.1 Limits of Peak Power Spectral Density Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.4.4 Test Procedures

For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-2

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

※For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 500 kHz, Set VBW $\geq$ 3 RBW, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 500 kHz band segment within the fundamental EBW.
4. Sweep time = auto, trigger set to "free run".
5. Trace average at least 100 traces in power averaging mode.
6. Record the max value and add 10 log (1/duty cycle)

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

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

4.4.7 Test Results

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	-3.78	0.17	-3.61	11	Pass
44	5220	-3.82	0.17	-3.65	11	Pass
48	5240	-3.75	0.17	-3.58	11	Pass
52	5260	-3.92	0.17	-3.75	11	Pass
60	5300	-3.99	0.17	-3.82	11	Pass
64	5320	-3.93	0.17	-3.76	11	Pass
100	5500	-3.81	0.17	-3.64	11	Pass
116	5580	-4.03	0.17	-3.86	11	Pass
140	5700	-4.37	0.17	-4.20	11	Pass

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

802.11n (HT20)

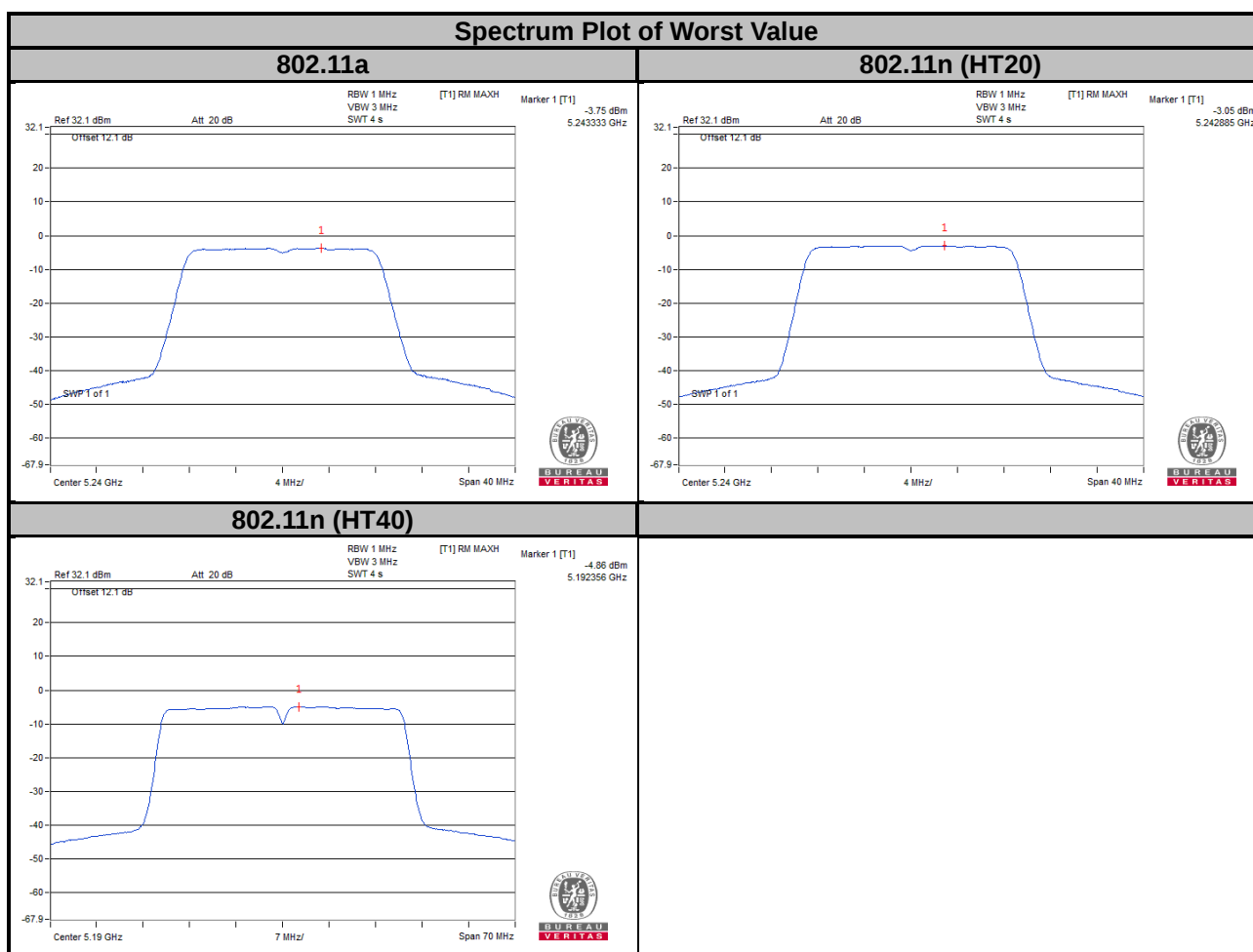
Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	-3.15	0.14	-3.01	11	Pass
44	5220	-3.14	0.14	-3.00	11	Pass
48	5240	-3.05	0.14	-2.91	11	Pass
52	5260	-3.40	0.14	-3.26	11	Pass
60	5300	-3.53	0.14	-3.39	11	Pass
64	5320	-3.33	0.14	-3.19	11	Pass
100	5500	-4.48	0.14	-4.34	11	Pass
116	5580	-4.32	0.14	-4.18	11	Pass
140	5700	-4.76	0.14	-4.62	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	-4.86	0.24	-4.62	11	Pass
46	5230	-4.91	0.24	-4.67	11	Pass
54	5270	-4.98	0.24	-4.74	11	Pass
62	5310	-5.12	0.24	-4.88	11	Pass
102	5510	-5.79	0.24	-5.55	11	Pass
110	5550	-5.69	0.24	-5.45	11	Pass
134	5670	-5.74	0.24	-5.50	11	Pass

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



For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-6.18	0.17	-6.01	30	Pass
157	5785	-6.98	0.17	-6.81	30	Pass
165	5825	-6.31	0.17	-6.14	30	Pass

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

802.11n (HT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-6.60	0.14	-6.46	30	Pass
157	5785	-6.37	0.14	-6.23	30	Pass
165	5825	-6.45	0.14	-6.31	30	Pass

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

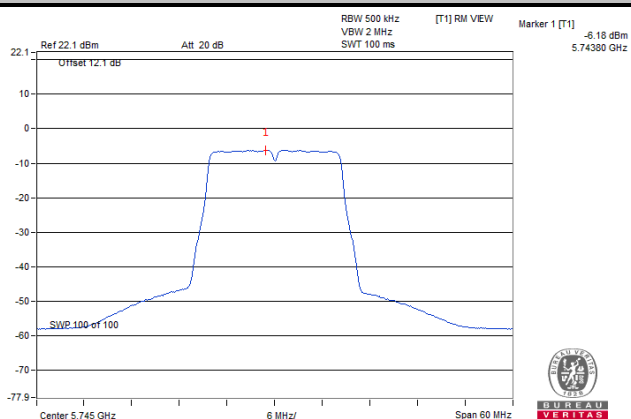
802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
151	5755	-9.40	0.24	-9.16	30	Pass
159	5795	-8.93	0.24	-8.69	30	Pass

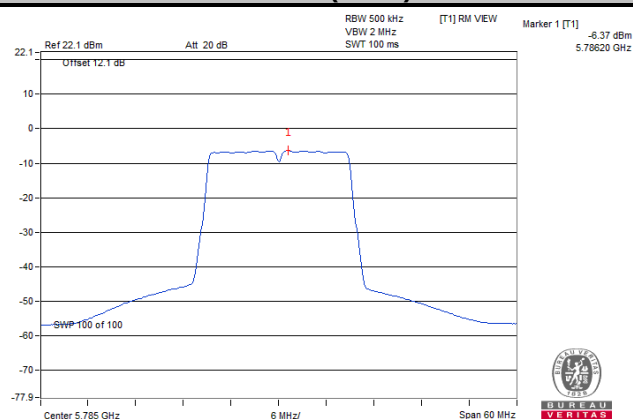
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

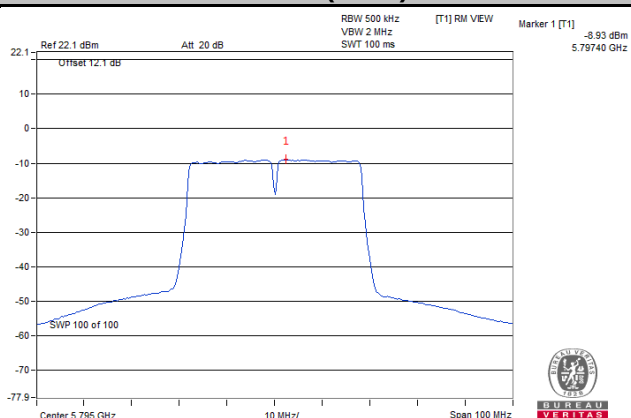
802.11a



802.11n (HT20)



802.11n (HT40)

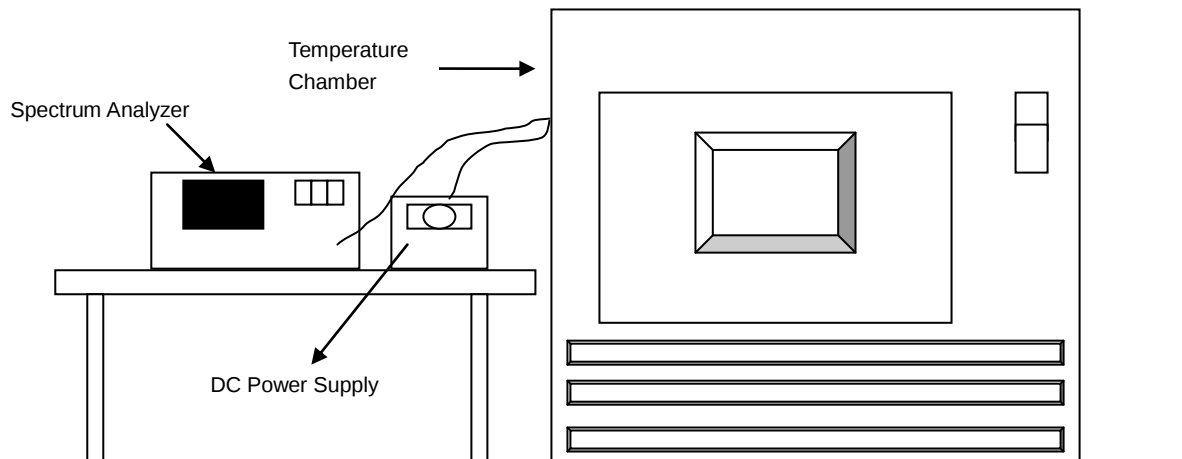


4.5 Frequency Stability

4.5.1 Limit of Frequency Stability Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.5.4 Test Procedure

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

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

4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
50	3.85	5180.0078	1.51000	5180.0077	1.49000	5180.0111	2.14000	5180.007	1.35000
40	3.85	5179.9795	-3.96000	5179.9769	-4.46000	5179.9796	-3.94000	5179.9778	-4.29000
30	3.85	5179.9862	-2.66000	5179.9885	-2.22000	5179.9851	-2.88000	5179.9875	-2.41000
20	3.85	5179.9993	-0.14000	5179.9955	-0.87000	5179.9959	-0.79000	5179.9949	-0.98000
10	3.85	5179.9986	-0.27000	5179.9958	-0.81000	5179.999	-0.19000	5179.9989	-0.21000
0	3.85	5180.0086	1.66000	5180.01	1.93000	5180.0068	1.31000	5180.009	1.74000
-10	3.85	5179.9769	-4.46000	5179.9815	-3.57000	5179.9775	-4.34000	5179.9783	-4.19000
-20	3.85	5179.9766	-4.52000	5179.9801	-3.84000	5179.9808	-3.71000	5179.9794	-3.98000
-30	3.85	5180.0129	2.49000	5180.017	3.28000	5180.015	2.90000	5180.0156	3.01000

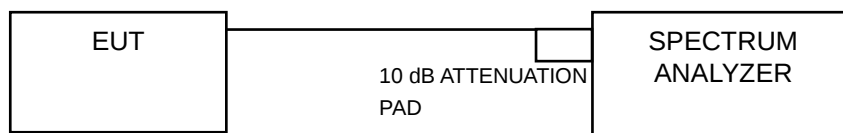
Frequency Stability Versus Temp.									
Operating Frequency: 5320 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	4.4275	5179.9992	-0.15000	5179.9958	-0.81000	5179.9959	-0.79000	5179.9947	-1.02000
	3.85	5179.9993	-0.14000	5179.9955	-0.87000	5179.9959	-0.79000	5179.9949	-0.98000
	3.2725	5179.9995	-0.10000	5179.9949	-0.98000	5179.9951	-0.95000	5179.9957	-0.83000

4.6 6 dB Bandwidth Measurement

4.6.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.41	0.5	Pass
157	5785	16.40	0.5	Pass
165	5825	16.43	0.5	Pass

802.11n (HT20)

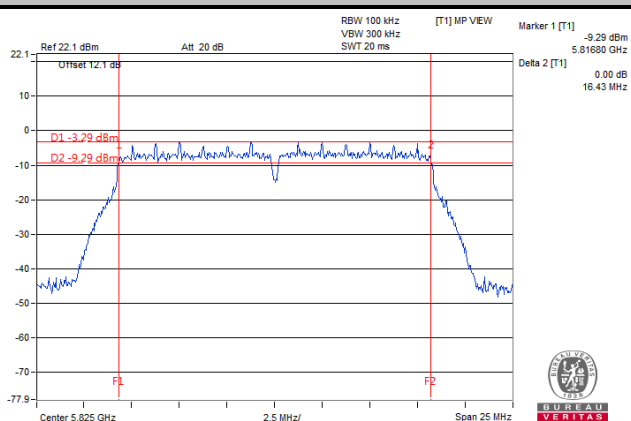
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.65	0.5	Pass
157	5785	17.63	0.5	Pass
165	5825	17.66	0.5	Pass

802.11n (HT40)

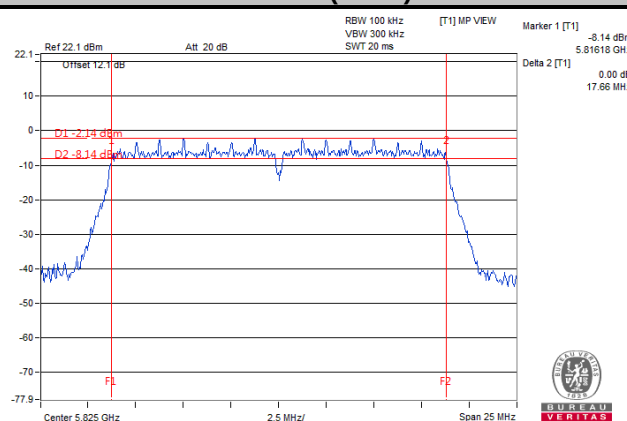
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	36.35	0.5	Pass
159	5795	36.31	0.5	Pass

Spectrum Plot of Worst Value

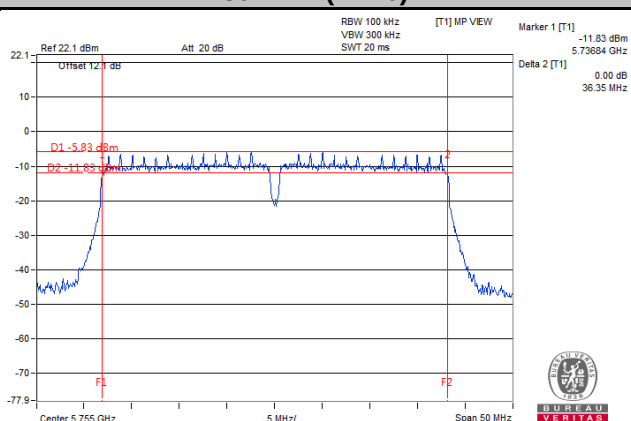
802.11a



802.11n (HT20)



802.11n (HT40)

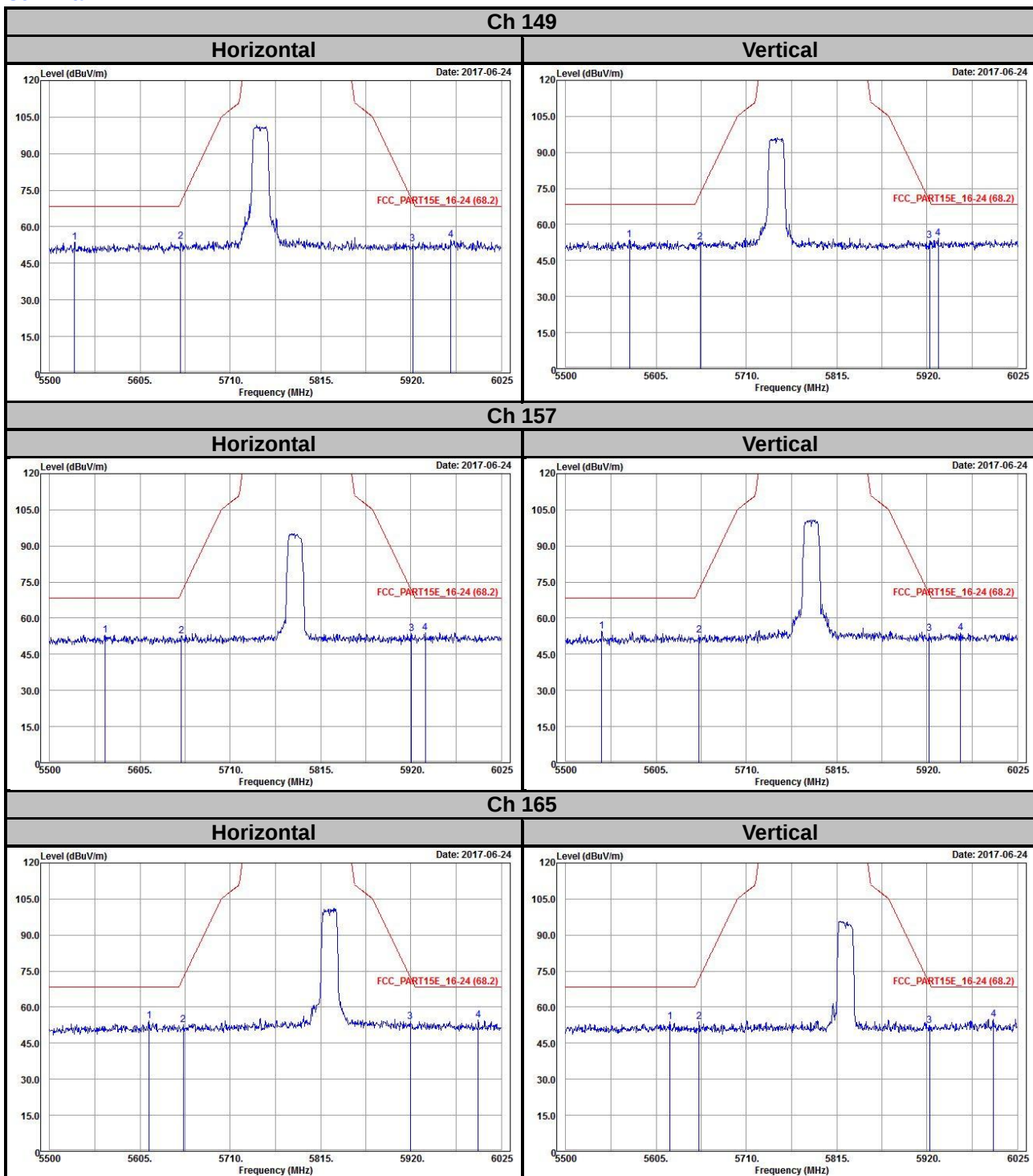


5 Pictures of Test Arrangements

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

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

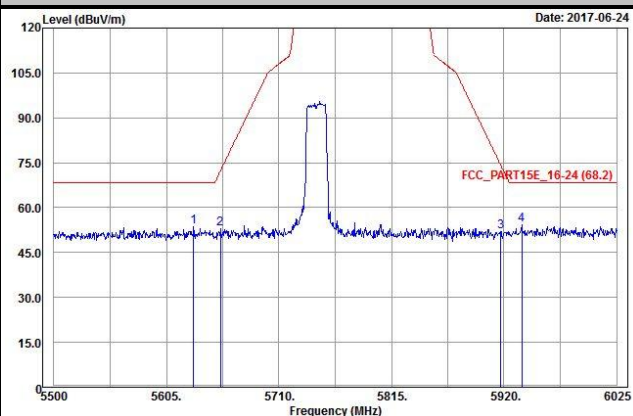
Mode A
802.11a



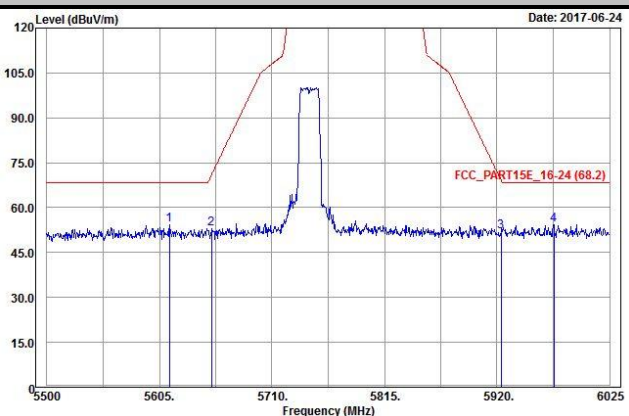
802.11n (HT20)

Ch 149

Horizontal

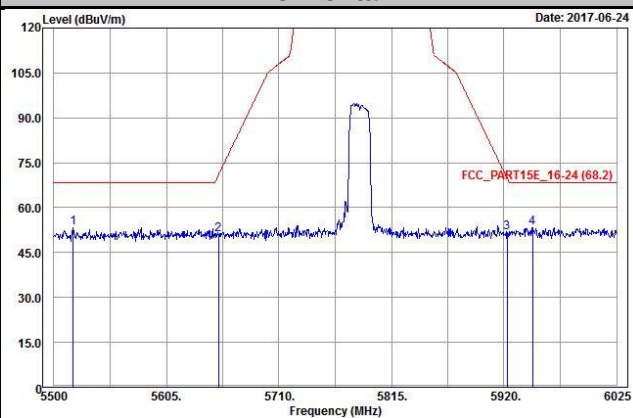


Vertical

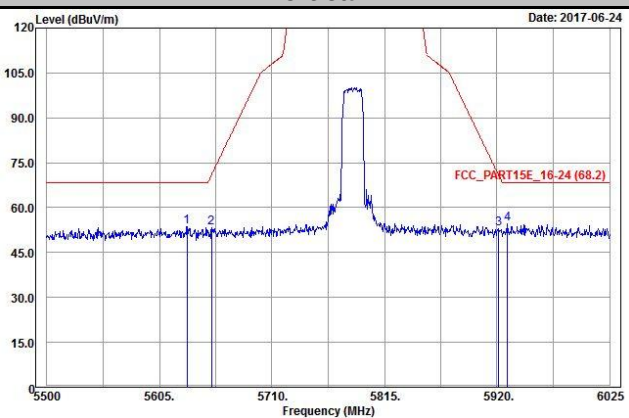


Ch 157

Horizontal

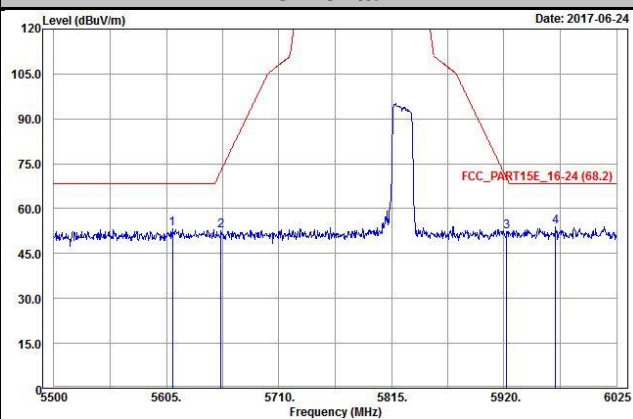


Vertical

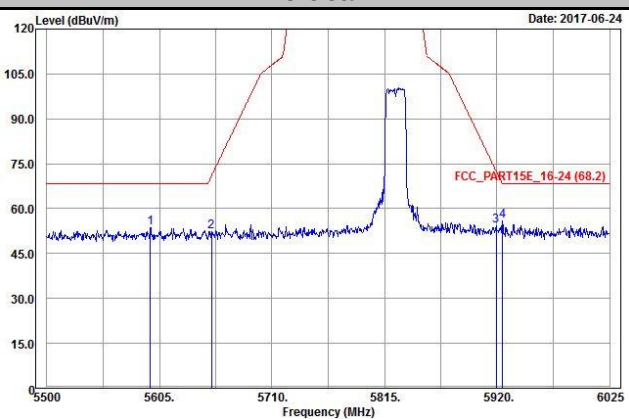


Ch 165

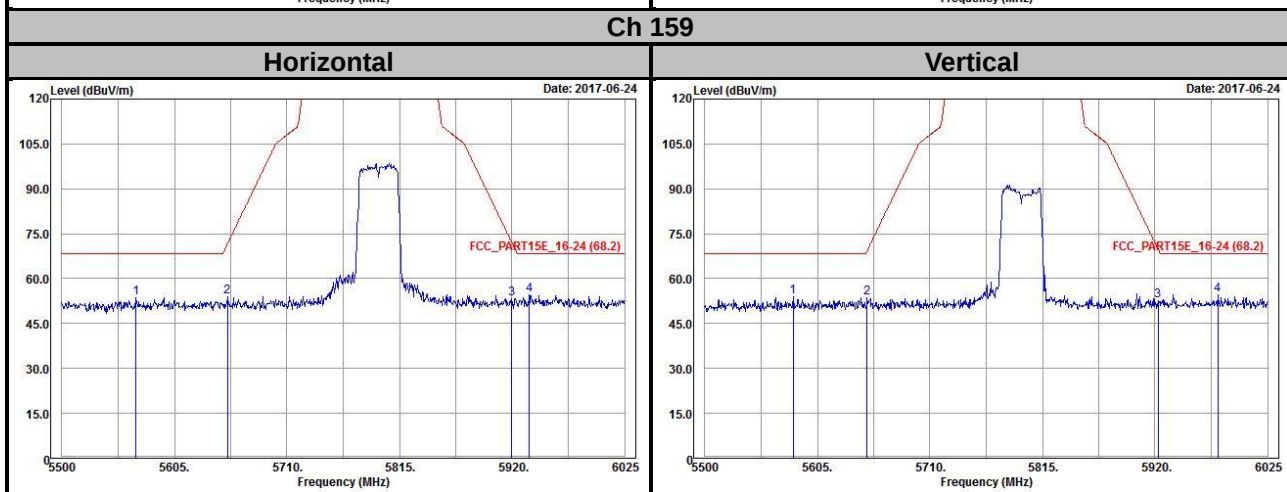
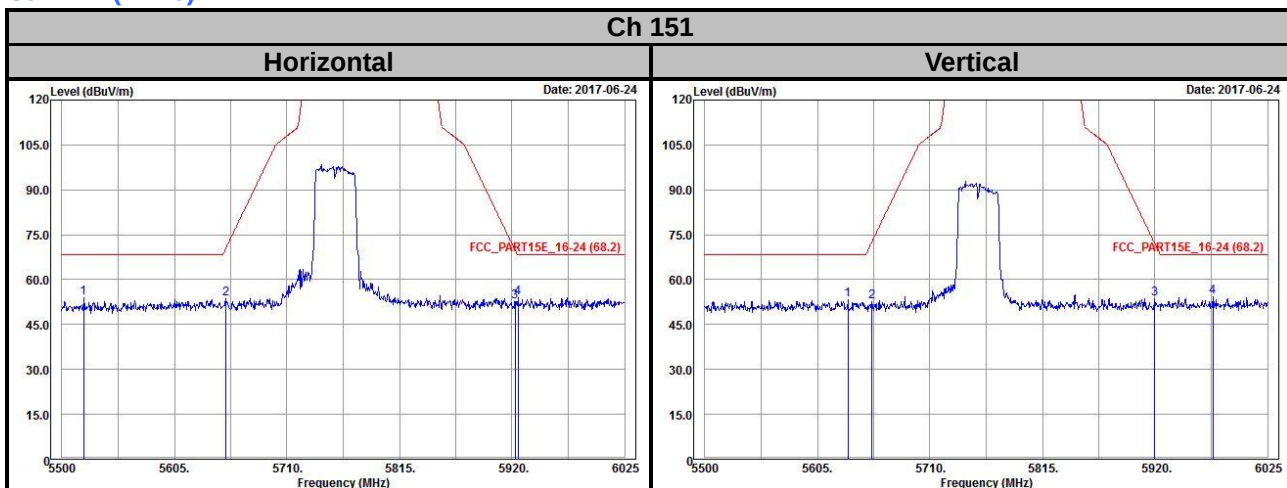
Horizontal



Vertical

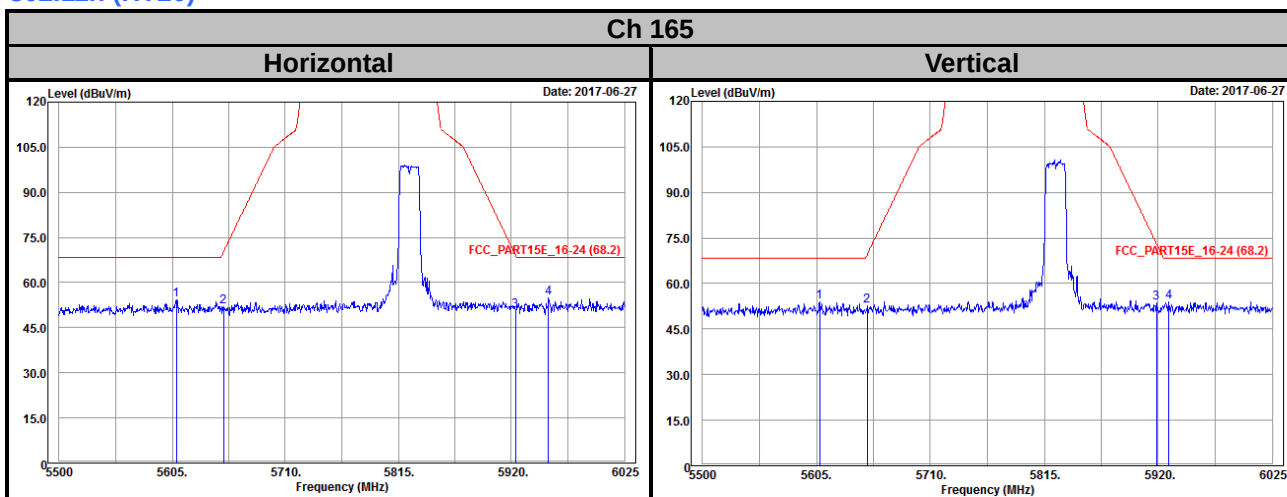


802.11n (HT40)



Mode B

802.11n (HT20)



Appendix – Information on the Testing Laboratories

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

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

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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