FCC Test Report

Report No.:	RF180201C11B-1
FCC ID:	Q3N-RK25
Test Model:	RK25
Received Date:	Feb. 01, 2018
Test Date:	Feb. 09 ~ Mar. 09, 2018
Issued Date:	Apr. 10, 2018
Applicant:	CIPHERLAB CO., LTD
Address:	12F, 333 Dunhua S. Rd., Sec.2 Taipei, Taiwan 106
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.
The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

Table of Contents

Release Control Record 4

1 Certificate of Conformity 5

2 Summary of Test Results 6

2.1 Measurement Uncertainty 6
2.2 Modification Record 6

3 General Information 7

3.1 General Description of EUT 7
3.2 Description of Test Modes 9
3.2.1 Test Mode Applicability and Tested Channel Detail 11
3.3 Duty Cycle of Test Signal 13
3.4 Description of Support Units 14
3.4.1 Configuration of System under Test 14
3.5 General Description of Applied Standards 14

4 Test Types and Results 15

4.1 Radiated Emission and Bandedge Measurement 15
4.1.1 Limits of Radiated Emission and Bandedge Measurement 15
4.1.2 Test Instruments 16
4.1.3 Test Procedures 17
4.1.4 Deviation from Test Standard 18
4.1.5 Test Setup 18
4.1.6 EUT Operating Conditions 19
4.1.7 Test Results 20
4.2 Conducted Emission Measurement 59
4.2.1 Limits of Conducted Emission Measurement 59
4.2.2 Test Instruments 59
4.2.3 Test Procedures 60
4.2.4 Deviation from Test Standard 60
4.2.5 Test Setup 60
4.2.6 EUT Operating Conditions 60
4.2.7 Test Results 61
4.3 Transmit Power Measurement 65
4.3.1 Limits of Transmit Power Measurement 65
4.3.2 Test Setup 65
4.3.3 Test Instruments 66
4.3.4 Test Procedure 66
4.3.5 Deviation from Test Standard 66
4.3.6 EUT Operating Conditions 66
4.3.7 Test Result 67
4.4 Occupied Bandwidth Measurement 74
4.4.1 Test Setup 74
4.4.2 Test Instruments 74
4.4.3 Test Procedure 74
4.4.4 Test Result 75
4.5 Peak Power Spectral Density Measurement 78
4.5.1 Limits of Peak Power Spectral Density Measurement 78
4.5.2 Test Setup 78
4.5.3 Test Instruments 78
4.5.4 Test Procedures 79
4.5.5 Deviation from Test Standard 79
4.5.6 EUT Operating Conditions 79
4.5.7 Test Results 80
4.6 Frequency Stability 85
4.6.1 Limits of Frequency Stability Measurement 85

4.6.2 Test Setup 85
4.6.3 Test Instruments 85
4.6.4 Test Procedure 85
4.6.5 Deviation from Test Standard 85
4.6.6 EUT Operating Condition 85
4.6.7 Test Results 86
4.7 6dB Bandwidth Measurement 87
4.7.1 Limits of 6dB Bandwidth Measurement 87
4.7.2 Test Setup 87
4.7.3 Test Instruments 87
4.7.4 Test Procedure 87
4.7.5 Deviation from Test Standard 87
4.7.6 EUT Operating Condition 87
4.7.7 Test Results 88

5 Pictures of Test Arrangements 90

Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band) 91

Appendix – Information on the Testing Laboratories 94

Release Control Record

Issue No.	Description	Date Issued
RF180201C11B-1	Original release.	Apr. 10, 2018

1 Certificate of Conformity

Product:	Mobile Computer
Brand:	CIPHERLAB
Test Model:	RK25
Sample Status:	Engineering sample
Applicant:	CIPHERLAB CO., LTD
Test Date:	Feb. 09 ~ Mar. 09, 2018
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 : Polly Chien , **Date:** Apr. 10, 2018

Polly Chien / Specialist

Approved by : Bruce Chen , **Date:** Apr. 10, 2018

Bruce Chen / 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 -10.86dB at 0.57924MHz.
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 -3.5dB at 30.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB 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	Antenna connector is Spring not a standard connector.

*For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE 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	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.86 dB
	200MHz ~1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Mobile Computer
Brand	CIPHERLAB
Test Model	RK25
Sample Status	Engineering sample
Power Supply Rating	5Vdc (adapter) 3.8Vdc (battery)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 150Mbps 802.11ac: up to 433.3Mbps
Operating Frequency	5180~5240MHz, 5260~5320MHz, 5500~5700MHz, 5745~5825MHz
Number of Channel	5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11n (HT40): 2 802.11ac (VHT80): 1 5260~5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11n (HT40): 2 802.11ac (VHT80): 1 5500~5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 8 802.11n (HT40), 802.11n (HT40): 3 802.11ac (VHT80): 1 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11n (HT40): 2 802.11ac (VHT80): 1
Output Power	5180~5240MHz: 47.315mW 5260~5320MHz: 48.084mW 5500~5700MHz: 46.345mW 5745~5825MHz: 43.853mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter, Battery
Cable Supplied	1m shielded USB cable without core 1.6m non-shielded snapon cable with one core

Note:

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

Modulation Mode	TX Function
802.11a	1TX
802.11n (HT20)	1TX
802.11n (HT40)	1TX
802.11ac (VHT20)	1TX
802.11ac (VHT40)	1TX
802.11ac (VHT80)	1TX

* The modulation and bandwidth are similar for 802.11n mode for 20MHz/40MHz and 802.11ac mode for 20MHz/40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. The EUT uses following antennas.

WLAN / BT EDR / BT LE					
Brand	Arima		Model	330-0000-00453	
Antenna Type	Embedded inverted-F		Antenna Connector	Spring	
Gain (dBi)	Frequency (MHz)				
	2400	2442	2484	5150	5875
	-0.2	0.3	0.6	0.5	-0.1

* The max. gain among all 5GHz gains is chosen for final tests.

3. The EUT uses following accessory devices.

Component	Vendor	Model	Specification
Adapter	Sunny COMPUTER TECHNOLOGY CO.,LTD.	SYS1561-1005	I/P: 100-240Vac, 1.0A MAX, 50-60Hz O/P: +5Vdc, 2A, 10W MAX.
Battery	CIPHERLAB	BA-0124A0	Rating: 3.8Vdc, 4000mAh, 15.2Wh

4. The EUT doesn't operate in 5600~5650MHz via software control.

5. WLAN 2.4GHz and WLAN 5GHz / WLAN and BT technologies can not transmit at same time.

3.2 Description of Test Modes

5180~5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

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

2 channels are provided for 802.11n (HT40), 802.11n (HT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

5260~5320MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

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

2 channels are provided for 802.11n (HT40), 802.11n (HT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

5500~5700MHz:

8 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

3 channels are provided for 802.11n (HT40), 802.11n (HT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	134	5670 MHz
110	5550 MHz		

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
106	5530 MHz

5745~5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

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

2 channels are provided for 802.11n (HT40), 802.11n (HT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT + USB Cable + Adapter + Battery
B	-	√	√	-	EUT + Snapon Cable + Adapter + Battery

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission APCM: Antenna Port Conducted Measurement

Note:

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

Radiated Emission Test (Above 1GHz):

☒ 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	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	1TX
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5	1TX
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5	1TX
	802.11ac (VHT80)		42	42	OFDM	29.3	1TX
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0	1TX
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5	1TX
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5	1TX
	802.11ac (VHT80)		58	58	OFDM	29.3	1TX
A	802.11a	5500-5700	100 to 144	100, 116, 140	OFDM	6.0	1TX
	802.11n (HT20)		100 to 144	100, 116, 140	OFDM	6.5	1TX
	802.11n (HT40)		102 to 142	102, 110, 134	OFDM	13.5	1TX
	802.11ac (VHT80)		106 to 138	106	OFDM	29.3	1TX
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	1TX
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5	1TX
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5	1TX
	802.11ac (VHT80)		155	155	OFDM	29.3	1TX

Radiated Emission Test (Below 1GHz):

☒ 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	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A, B	802.11a	5180-5240	36 to 48	64	OFDM	6.0	1TX
		5260-5320	52 to 64		OFDM	6.0	1TX
		5500-5700	100 to 140		OFDM	6.0	1TX
		5745-5825	149 to 165		OFDM	6.0	1TX

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	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A, B	802.11a	5180-5240	36 to 48	64	OFDM	6.0	1TX
		5260-5320	52 to 64		OFDM	6.0	1TX
		5500-5700	100 to 140		OFDM	6.0	1TX
		5745-5825	149 to 165		OFDM	6.0	1TX

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	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0	1TX
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5	1TX
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5	1TX
	802.11ac (VHT80)		42	42	OFDM	29.3	1TX
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0	1TX
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5	1TX
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5	1TX
	802.11ac (VHT80)		58	58	OFDM	29.3	1TX
A	802.11a	5500-5700	100 to 144	100, 116, 140	OFDM	6.0	1TX
	802.11n (HT20)		100 to 144	100, 116, 140	OFDM	6.5	1TX
	802.11n (HT40)		102 to 142	102, 110, 134	OFDM	13.5	1TX
	802.11ac (VHT80)		106 to 138	106	OFDM	29.3	1TX
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0	1TX
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5	1TX
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5	1TX
	802.11ac (VHT80)		155	155	OFDM	29.3	1TX

Test Condition:

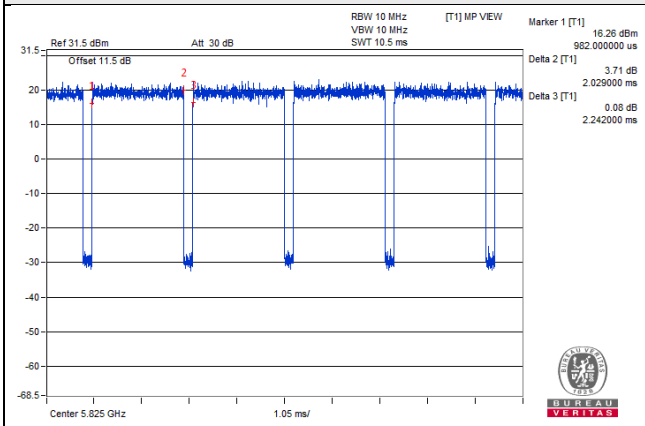
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 70% RH	120Vac, 60Hz	Matthew Yang, Noah Chang
RE<1G	25 deg. C, 65% RH	120Vac, 60Hz	Greg Lin
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Greg Lin
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Chris Lin

3.3 Duty Cycle of Test Signal

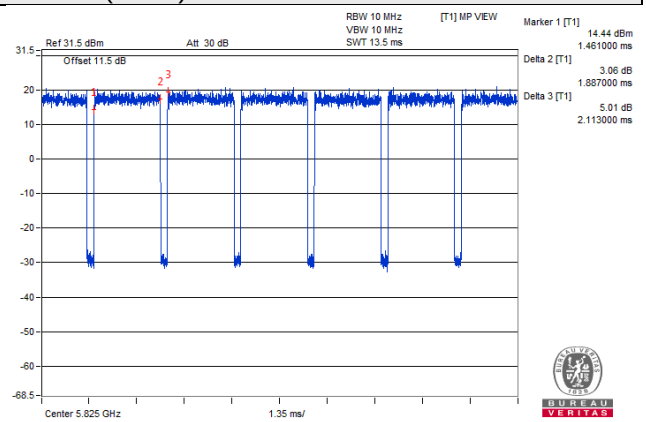
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 2.029/2.242 = 0.905, Duty factor = 10 * log(1/0.905) = 0.43
802.11n (HT20): Duty cycle = 1.887/2.113 = 0.893, Duty factor = 10 * log(1/0.893) = 0.49
802.11n (HT40): Duty cycle = 0.927/1.145 = 0.810, Duty factor = 10 * log(1/0.810) = 0.92
802.11ac (VHT80): Duty cycle = 0.246/0.448 = 0.549, Duty factor = 10 * log(1/0.549) = 2.60

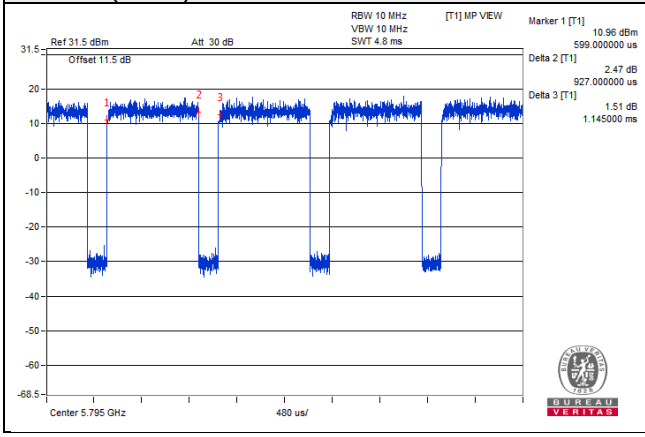
802.11a



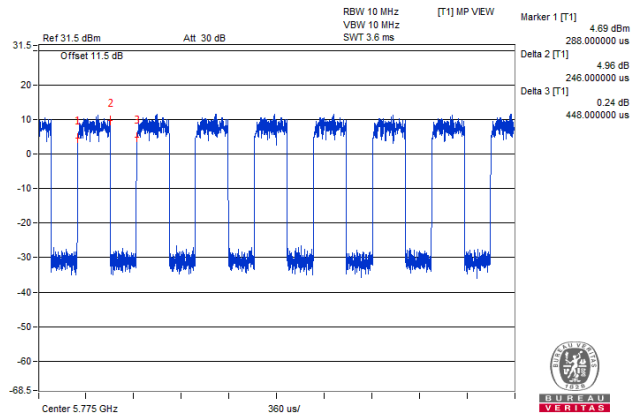
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

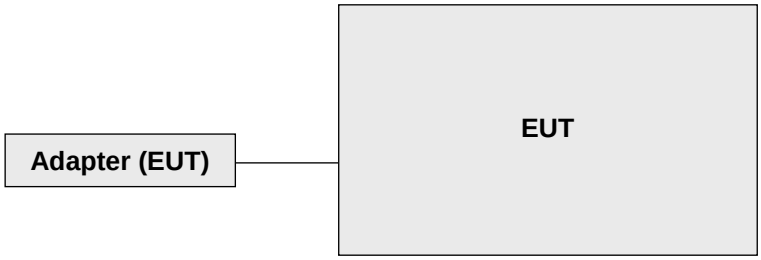


3.4 Description of Support Units

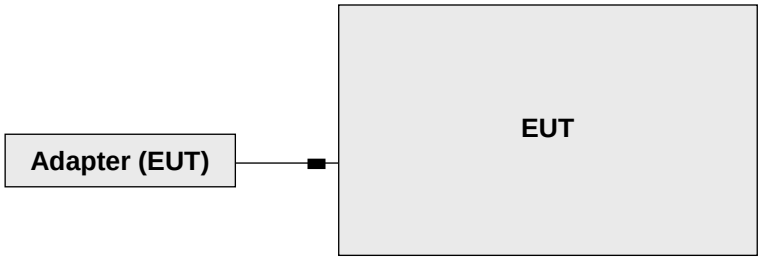
The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.4.1 Configuration of System under Test

Mode A



Mode B



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)
KDB 789033 D02 General UNII Test Procedure New Rules v02r01
ANSI C63.10:2013

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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 1000MHz, 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 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v01r03</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK: 74 (dBμV/m)</td><td>AV: 54 (dBμV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK: -27 (dBm/MHz)</td><td rowspan="3">PK: 68.2(dBμV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK: -27 (dBm/MHz) *1
PK: 10 (dBm/MHz) *2
PK: 15.6 (dBm/MHz) *3
PK: 27 (dBm/MHz) *4</td><td>PK: 68.2(dBμV/m) *1
PK: 105.2 (dBμV/m) *2
PK: 110.8(dBμV/m) *3
PK: 122.2 (dBμV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*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.</td></tr>
</table>

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 02, 2017	May 01, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	9120D	209	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2017	Aug. 20, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Apr. 05, 2017	Apr. 04, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM-8000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
Software BV ADT	ADT_Radiated_V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018
26GHz ~ 40GHz Amplifier Agilent	8449B	3008A1960	Aug. 08, 2017	Aug. 07, 2018

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
5. The IC Site Registration No. is IC 7450F-3.

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

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

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) 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 detect 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:

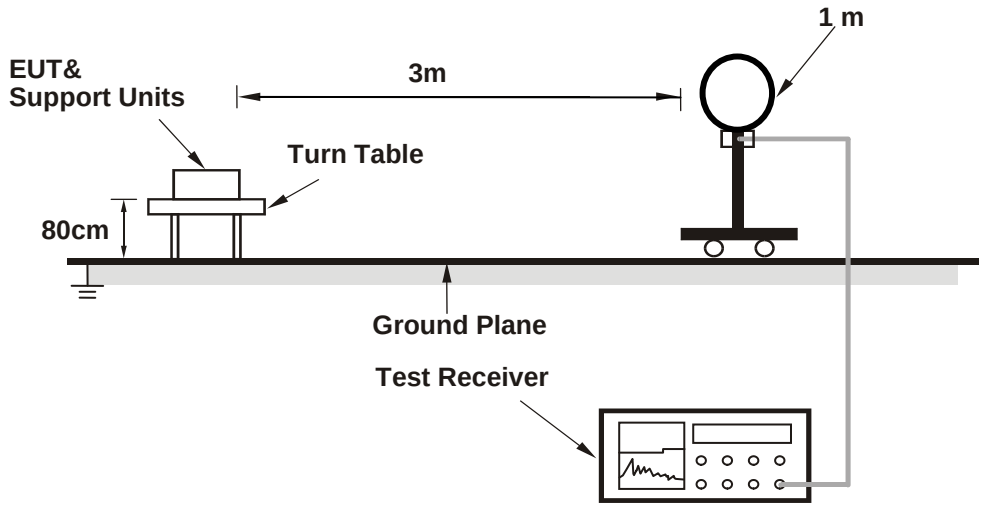
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

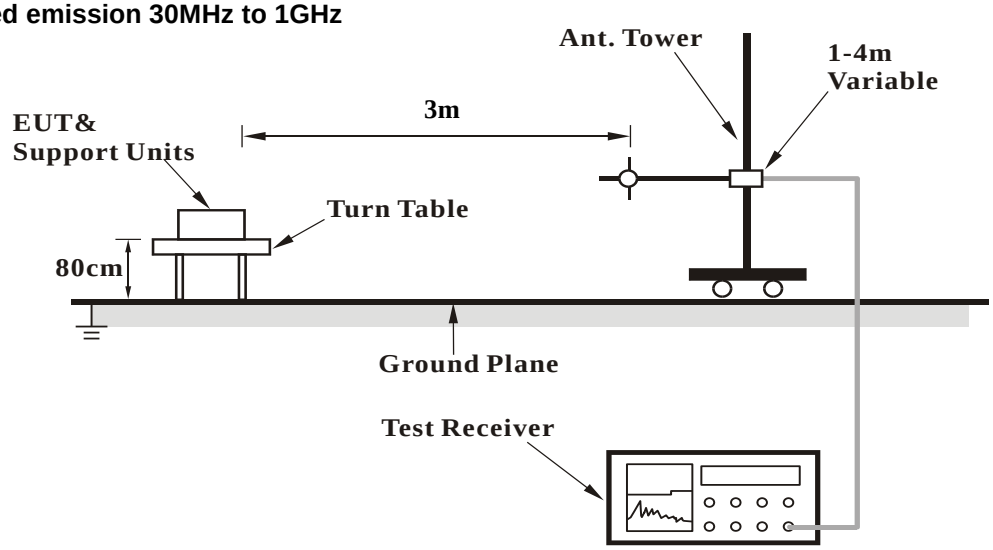
No deviation.

4.1.5 Test Setup

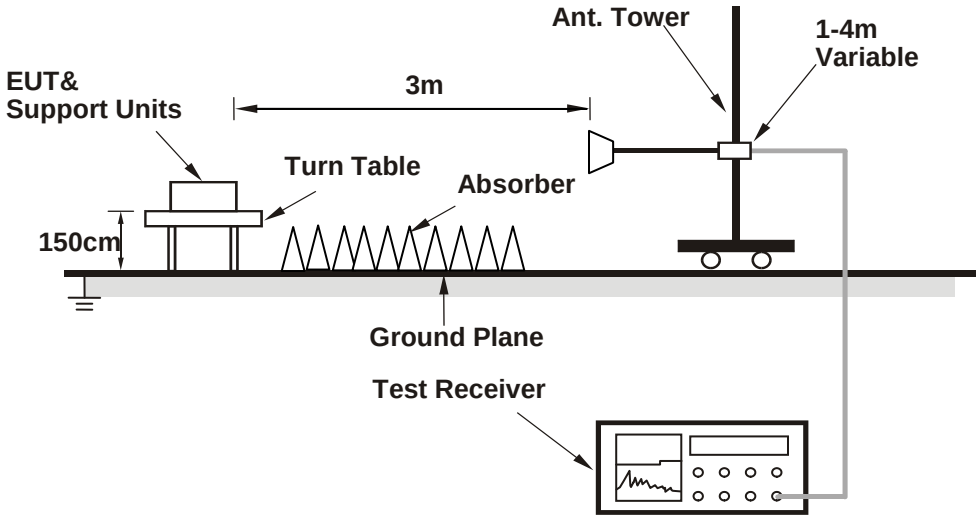
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.5 PK	74.0	-17.5	1.18 H	19	54.40	2.10
2	5150.00	42.8 AV	54.0	-11.2	1.18 H	19	40.70	2.10
3	*5180.00	104.9 PK			1.23 H	9	66.10	38.80
4	*5180.00	94.9 AV			1.23 H	9	56.10	38.80
5	#10360.00	56.5 PK	74.0	-17.5	2.97 H	190	43.20	13.30
6	#10360.00	44.2 AV	54.0	-9.8	2.97 H	190	30.90	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.5 PK	74.0	-16.5	2.41 V	6	55.40	2.10
2	5150.00	43.6 AV	54.0	-10.4	2.41 V	6	41.50	2.10
3	*5180.00	106.4 PK			1.84 V	352	67.60	38.80
4	*5180.00	96.2 AV			1.84 V	352	57.40	38.80
5	#10360.00	58.3 PK	74.0	-15.7	1.29 V	82	45.00	13.30
6	#10360.00	47.7 AV	54.0	-6.3	1.29 V	82	34.40	13.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	105.5 PK			1.27 H	1	66.80	38.70
2	*5200.00	95.0 AV			1.27 H	1	56.30	38.70
3	#10400.00	57.2 PK	74.0	-16.8	2.79 H	193	43.90	13.30
4	#10400.00	44.8 AV	54.0	-9.2	2.79 H	193	31.50	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	107.6 PK			1.79 V	346	68.90	38.70
2	*5200.00	96.7 AV			1.79 V	346	58.00	38.70
3	#10400.00	58.9 PK	74.0	-15.1	1.18 V	73	45.60	13.30
4	#10400.00	47.2 AV	54.0	-6.8	1.18 V	73	33.90	13.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	105.1 PK			1.31 H	3	66.60	38.50
2	*5240.00	94.9 AV			1.31 H	3	56.40	38.50
3	5350.00	53.8 PK	74.0	-20.2	1.22 H	24	51.80	2.00
4	5350.00	42.1 AV	54.0	-11.9	1.22 H	24	40.10	2.00
5	#10480.00	58.1 PK	74.0	-15.9	2.85 H	179	44.20	13.90
6	#10480.00	45.2 AV	54.0	-8.8	2.85 H	179	31.30	13.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	106.6 PK			1.82 V	349	68.10	38.50
2	*5240.00	95.9 AV			1.82 V	349	57.40	38.50
3	5350.00	54.6 PK	74.0	-19.4	2.26 V	11	52.60	2.00
4	5350.00	42.3 AV	54.0	-11.7	2.26 V	11	40.30	2.00
5	#10480.00	59.0 PK	74.0	-15.0	1.25 V	79	45.10	13.90
6	#10480.00	46.8 AV	54.0	-7.2	1.25 V	79	32.90	13.90

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.6 PK	74.0	-19.4	1.34 H	39	52.50	2.10
2	5150.00	40.7 AV	54.0	-13.3	1.34 H	39	38.60	2.10
3	*5260.00	103.2 PK			1.11 H	23	64.80	38.40
4	*5260.00	92.9 AV			1.11 H	23	54.50	38.40
5	#10520.00	56.3 PK	74.0	-17.7	1.34 H	143	42.20	14.10
6	#10520.00	43.5 AV	54.0	-10.5	1.34 H	143	29.40	14.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	53.7 PK	74.0	-20.3	1.20 V	322	51.60	2.10
2	5150.00	40.7 AV	54.0	-13.3	1.20 V	322	38.60	2.10
3	*5260.00	104.6 PK			1.78 V	352	66.20	38.40
4	*5260.00	94.7 AV			1.78 V	352	56.30	38.40
5	#10520.00	59.4 PK	74.0	-14.6	2.29 V	309	45.30	14.10
6	#10520.00	46.9 AV	54.0	-7.1	2.29 V	309	32.80	14.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	103.0 PK			1.39 H	14	64.50	38.50
2	*5300.00	92.2 AV			1.39 H	14	53.70	38.50
3	10600.00	57.1 PK	74.0	-16.9	2.01 H	9	42.90	14.20
4	10600.00	44.5 AV	54.0	-9.5	2.01 H	9	30.30	14.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	104.7 PK			1.41 V	356	66.20	38.50
2	*5300.00	94.6 AV			1.41 V	356	56.10	38.50
3	10600.00	58.4 PK	74.0	-15.6	2.31 V	312	44.20	14.20
4	10600.00	47.7 AV	54.0	-6.3	2.31 V	312	33.50	14.20

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	102.8 PK			1.29 H	23	64.20	38.60
2	*5320.00	92.3 AV			1.29 H	23	53.70	38.60
3	5350.00	53.1 PK	74.0	-20.9	1.53 H	27	51.10	2.00
4	5350.00	40.9 AV	54.0	-13.1	1.53 H	27	38.90	2.00
5	10640.00	56.9 PK	74.0	-17.1	1.87 H	18	42.70	14.20
6	10640.00	44.6 AV	54.0	-9.4	1.87 H	18	30.40	14.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	104.5 PK			1.50 V	2	65.90	38.60
2	*5320.00	94.5 AV			1.50 V	2	55.90	38.60
3	5350.00	54.2 PK	74.0	-19.8	1.64 V	355	52.20	2.00
4	5350.00	42.7 AV	54.0	-11.3	1.64 V	355	40.70	2.00
5	10640.00	59.2 PK	74.0	-14.8	2.24 V	311	45.00	14.20
6	10640.00	47.0 AV	54.0	-7.0	2.24 V	311	32.80	14.20

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.6 PK	74.0	-20.4	1.28 H	96	51.20	2.40
2	5460.00	40.6 AV	54.0	-13.4	1.28 H	96	38.20	2.40
3	#5470.00	53.9 PK	74.0	-20.1	1.26 H	63	51.50	2.40
4	#5470.00	40.8 AV	54.0	-13.2	1.26 H	63	38.40	2.40
5	*5500.00	101.3 PK			1.06 H	26	62.10	39.20
6	*5500.00	90.6 AV			1.06 H	26	51.40	39.20
7	11000.00	56.9 PK	74.0	-17.1	1.36 H	226	41.30	15.60
8	11000.00	43.8 AV	54.0	-10.2	1.36 H	226	28.20	15.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	52.1 PK	74.0	-21.9	1.55 V	339	49.70	2.40
2	5460.00	40.3 AV	54.0	-13.7	1.55 V	339	37.90	2.40
3	#5470.00	59.8 PK	74.0	-14.2	1.52 V	343	57.40	2.40
4	#5470.00	41.3 AV	54.0	-12.7	1.52 V	343	38.90	2.40
5	*5500.00	105.9 PK			1.46 V	12	66.70	39.20
6	*5500.00	95.5 AV			1.46 V	12	56.30	39.20
7	11000.00	57.4 PK	74.0	-16.6	2.29 V	316	41.80	15.60
8	11000.00	45.3 AV	54.0	-8.7	2.29 V	316	29.70	15.60

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	102.8 PK			1.30 H	25	63.40	39.40
2	*5580.00	92.0 AV			1.30 H	25	52.60	39.40
3	11160.00	57.0 PK	74.0	-17.0	1.70 H	27	42.60	14.40
4	11160.00	44.9 AV	54.0	-9.1	1.70 H	27	30.50	14.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	106.3 PK			1.19 V	16	66.90	39.40
2	*5580.00	96.0 AV			1.19 V	16	56.60	39.40
3	11160.00	57.1 PK	74.0	-16.9	1.35 V	31	42.70	14.40
4	11160.00	44.4 AV	54.0	-9.6	1.35 V	31	30.00	14.40

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	102.8 PK			1.45 H	24	63.30	39.50
2	*5700.00	92.8 AV			1.45 H	24	53.30	39.50
3	#5725.00	54.5 PK	74.0	-19.5	1.11 H	30	51.50	3.00
4	#5725.00	42.4 AV	54.0	-11.6	1.11 H	30	39.40	3.00
5	11400.00	57.3 PK	74.0	-16.7	2.55 H	155	42.60	14.70
6	11400.00	44.2 AV	54.0	-9.8	2.55 H	155	29.50	14.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	105.1 PK			1.91 V	10	65.60	39.50
2	*5700.00	94.9 AV			1.91 V	10	55.40	39.50
3	#5725.00	54.7 PK	74.0	-19.3	2.06 V	355	51.70	3.00
4	#5725.00	42.9 AV	54.0	-11.1	2.06 V	355	39.90	3.00
5	11400.00	57.7 PK	74.0	-16.3	1.67 V	300	43.00	14.70
6	11400.00	45.3 AV	54.0	-8.7	1.67 V	300	30.60	14.70

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5613.60	54.7 PK	68.2	-13.5	1.06 H	33	52.00	2.70
2	*5745.00	101.9 PK			1.06 H	33	62.10	39.80
3	*5745.00	92.2 AV			1.06 H	33	52.40	39.80
4	#5998.40	56.2 PK	68.2	-12.0	1.06 H	33	52.60	3.60
5	11490.00	55.9 PK	74.0	-18.1	1.40 H	328	41.60	14.30
6	11490.00	42.8 AV	54.0	-11.2	1.40 H	328	28.50	14.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5621.60	54.3 PK	68.2	-13.9	1.48 V	32	51.60	2.70
2	*5745.00	105.1 PK			1.48 V	32	65.30	39.80
3	*5745.00	95.3 AV			1.48 V	32	55.50	39.80
4	#5995.20	54.9 PK	68.2	-13.3	1.48 V	32	51.30	3.60
5	11490.00	56.3 PK	74.0	-17.7	1.80 V	248	42.00	14.30
6	11490.00	43.1 AV	54.0	-10.9	1.80 V	248	28.80	14.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.00	53.9 PK	68.2	-14.3	1.44 H	31	51.20	2.70
2	*5785.00	100.8 PK			1.44 H	31	60.80	40.00
3	*5785.00	90.8 AV			1.44 H	31	50.80	40.00
4	#5979.20	55.1 PK	68.2	-13.1	1.44 H	31	51.60	3.50
5	11570.00	55.8 PK	74.0	-18.2	1.29 H	334	41.80	14.00
6	11570.00	42.6 AV	54.0	-11.4	1.29 H	334	28.60	14.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5628.80	54.1 PK	68.2	-14.1	1.38 V	32	51.30	2.80
2	*5785.00	104.9 PK			1.38 V	32	64.90	40.00
3	*5785.00	94.5 AV			1.38 V	32	54.50	40.00
4	#5962.40	55.3 PK	68.2	-12.9	1.38 V	32	51.80	3.50
5	11570.00	56.2 PK	74.0	-17.8	1.77 V	252	42.20	14.00
6	11570.00	42.9 AV	54.0	-11.1	1.77 V	252	28.90	14.00

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5610.40	55.2 PK	68.2	-13.0	1.16 H	33	52.50	2.70
2	*5825.00	100.0 PK			1.16 H	33	59.90	40.10
3	*5825.00	89.6 AV			1.16 H	33	49.50	40.10
4	#5942.40	56.3 PK	68.2	-11.9	1.16 H	33	52.70	3.60
5	11650.00	55.3 PK	74.0	-18.7	1.31 H	339	41.60	13.70
6	11650.00	42.4 AV	54.0	-11.6	1.31 H	339	28.70	13.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5608.00	56.4 PK	68.2	-11.8	1.37 V	22	53.70	2.70
2	*5825.00	104.4 PK			1.37 V	22	64.30	40.10
3	*5825.00	94.2 AV			1.37 V	22	54.10	40.10
4	#5991.20	55.1 PK	68.2	-13.1	1.37 V	22	51.50	3.60
5	11650.00	55.7 PK	74.0	-18.3	1.74 V	268	42.00	13.70
6	11650.00	42.5 AV	54.0	-11.5	1.74 V	268	28.80	13.70

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT20)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.2 PK	74.0	-19.8	1.36 H	10	52.10	2.10
2	5150.00	42.6 AV	54.0	-11.4	1.36 H	10	40.50	2.10
3	*5180.00	102.5 PK			1.42 H	5	63.70	38.80
4	*5180.00	92.0 AV			1.42 H	5	53.20	38.80
5	#10360.00	56.7 PK	74.0	-17.3	3.11 H	186	43.40	13.30
6	#10360.00	44.3 AV	54.0	-9.7	3.11 H	186	31.00	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.8 PK	74.0	-19.2	1.96 V	355	52.70	2.10
2	5150.00	42.9 AV	54.0	-11.1	1.96 V	355	40.80	2.10
3	*5180.00	104.0 PK			1.68 V	347	65.20	38.80
4	*5180.00	93.7 AV			1.68 V	347	54.90	38.80
5	#10360.00	57.4 PK	74.0	-16.6	1.28 V	80	44.10	13.30
6	#10360.00	46.4 AV	54.0	-7.6	1.28 V	80	33.10	13.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	103.2 PK			1.33 H	4	64.50	38.70
2	*5200.00	92.9 AV			1.33 H	4	54.20	38.70
3	#10400.00	56.4 PK	74.0	-17.6	3.05 H	180	43.10	13.30
4	#10400.00	44.4 AV	54.0	-9.6	3.05 H	180	31.10	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	104.8 PK			1.82 V	350	66.10	38.70
2	*5200.00	94.3 AV			1.82 V	350	55.60	38.70
3	#10400.00	57.1 PK	74.0	-16.9	1.30 V	85	43.80	13.30
4	#10400.00	46.1 AV	54.0	-7.9	1.30 V	85	32.80	13.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	102.5 PK			1.38 H	7	64.00	38.50
2	*5240.00	92.4 AV			1.38 H	7	53.90	38.50
3	5350.00	54.1 PK	74.0	-19.9	1.29 H	21	52.10	2.00
4	5350.00	42.3 AV	54.0	-11.7	1.29 H	21	40.30	2.00
5	#10480.00	57.1 PK	74.0	-16.9	3.14 H	190	43.20	13.90
6	#10480.00	44.7 AV	54.0	-9.3	3.14 H	190	30.80	13.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	104.1 PK			1.87 V	356	65.60	38.50
2	*5240.00	93.8 AV			1.87 V	356	55.30	38.50
3	5350.00	54.7 PK	74.0	-19.3	1.24 V	91	52.70	2.00
4	5350.00	42.6 AV	54.0	-11.4	1.24 V	91	40.60	2.00
5	#10480.00	57.7 PK	74.0	-16.3	1.34 V	79	43.80	13.90
6	#10480.00	45.1 AV	54.0	-8.9	1.34 V	79	31.20	13.90

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	53.7 PK	74.0	-20.3	2.00 H	98	51.60	2.10
2	5150.00	40.9 AV	54.0	-13.1	2.00 H	98	38.80	2.10
3	*5260.00	101.3 PK			1.39 H	11	62.90	38.40
4	*5260.00	90.5 AV			1.39 H	11	52.10	38.40
5	#10520.00	55.7 PK	74.0	-18.3	2.50 H	39	41.60	14.10
6	#10520.00	43.8 AV	54.0	-10.2	2.50 H	39	29.70	14.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	53.5 PK	74.0	-20.5	1.96 V	319	51.40	2.10
2	5150.00	40.8 AV	54.0	-13.2	1.96 V	319	38.70	2.10
3	*5260.00	103.4 PK			1.25 V	356	65.00	38.40
4	*5260.00	92.9 AV			1.25 V	356	54.50	38.40
5	#10520.00	56.4 PK	74.0	-17.6	2.41 V	312	42.30	14.10
6	#10520.00	47.0 AV	54.0	-7.0	2.41 V	312	32.90	14.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	100.4 PK			1.17 H	16	61.90	38.50
2	*5300.00	90.1 AV			1.17 H	16	51.60	38.50
3	10600.00	56.0 PK	74.0	-18.0	2.42 H	40	41.80	14.20
4	10600.00	44.3 AV	54.0	-9.7	2.42 H	40	30.10	14.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	102.5 PK			1.39 V	355	64.00	38.50
2	*5300.00	92.2 AV			1.39 V	355	53.70	38.50
3	10600.00	58.4 PK	74.0	-15.6	2.38 V	320	44.20	14.20
4	10600.00	46.2 AV	54.0	-7.8	2.38 V	320	32.00	14.20

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	102.2 PK			1.19 H	20	63.60	38.60
2	*5320.00	90.6 AV			1.19 H	20	52.00	38.60
3	5350.00	53.4 PK	74.0	-20.6	1.28 H	30	51.40	2.00
4	5350.00	41.3 AV	54.0	-12.7	1.28 H	30	39.30	2.00
5	10640.00	56.7 PK	74.0	-17.3	2.16 H	65	42.50	14.20
6	10640.00	43.8 AV	54.0	-10.2	2.16 H	65	29.60	14.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	102.2 PK			1.34 V	352	63.60	38.60
2	*5320.00	92.0 AV			1.34 V	352	53.40	38.60
3	5350.00	53.3 PK	74.0	-20.7	1.54 V	300	51.30	2.00
4	5350.00	41.5 AV	54.0	-12.5	1.54 V	300	39.50	2.00
5	10640.00	56.6 PK	74.0	-17.4	1.77 V	322	42.40	14.20
6	10640.00	44.9 AV	54.0	-9.1	1.77 V	322	30.70	14.20

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.8 PK	74.0	-20.2	1.13 H	52	51.40	2.40
2	5460.00	40.8 AV	54.0	-13.2	1.13 H	52	38.40	2.40
3	#5470.00	54.2 PK	74.0	-19.8	1.08 H	41	51.80	2.40
4	#5470.00	41.2 AV	54.0	-12.8	1.08 H	41	38.80	2.40
5	*5500.00	99.3 PK			1.10 H	19	60.10	39.20
6	*5500.00	88.6 AV			1.10 H	19	49.40	39.20
7	11000.00	57.3 PK	74.0	-16.7	2.41 H	180	41.70	15.60
8	11000.00	44.7 AV	54.0	-9.3	2.41 H	180	29.10	15.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.3 PK	74.0	-19.7	1.38 V	356	51.90	2.40
2	5460.00	41.3 AV	54.0	-12.7	1.38 V	356	38.90	2.40
3	#5470.00	54.6 PK	74.0	-19.4	1.32 V	24	52.20	2.40
4	#5470.00	42.1 AV	54.0	-11.9	1.32 V	24	39.70	2.40
5	*5500.00	103.8 PK			1.44 V	10	64.60	39.20
6	*5500.00	93.4 AV			1.44 V	10	54.20	39.20
7	11000.00	57.7 PK	74.0	-16.3	1.19 V	92	42.10	15.60
8	11000.00	45.2 AV	54.0	-8.8	1.19 V	92	29.60	15.60

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	101.1 PK			1.28 H	23	61.70	39.40
2	*5580.00	90.3 AV			1.28 H	23	50.90	39.40
3	11160.00	56.6 PK	74.0	-17.4	2.35 H	176	42.20	14.40
4	11160.00	44.4 AV	54.0	-9.6	2.35 H	176	30.00	14.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	104.8 PK			1.37 V	14	65.40	39.40
2	*5580.00	94.4 AV			1.37 V	14	55.00	39.40
3	11160.00	56.9 PK	74.0	-17.1	1.17 V	96	42.50	14.40
4	11160.00	44.8 AV	54.0	-9.2	1.17 V	96	30.40	14.40

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	101.1 PK			1.10 H	23	61.60	39.50
2	*5700.00	90.5 AV			1.10 H	23	51.00	39.50
3	#5725.00	53.6 PK	74.0	-20.4	1.30 H	31	50.60	3.00
4	#5725.00	41.8 AV	54.0	-12.2	1.30 H	31	38.80	3.00
5	11400.00	56.8 PK	74.0	-17.2	2.28 H	189	42.10	14.70
6	11400.00	44.0 AV	54.0	-10.0	2.28 H	189	29.30	14.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	103.6 PK			1.52 V	354	64.10	39.50
2	*5700.00	93.3 AV			1.52 V	354	53.80	39.50
3	#5725.00	54.3 PK	74.0	-19.7	1.46 V	4	51.30	3.00
4	#5725.00	42.6 AV	54.0	-11.4	1.46 V	4	39.60	3.00
5	11400.00	57.2 PK	74.0	-16.8	1.25 V	74	42.50	14.70
6	11400.00	44.3 AV	54.0	-9.7	1.25 V	74	29.60	14.70

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5611.20	54.6 PK	68.2	-13.6	1.17 H	28	51.90	2.70
2	*5745.00	100.6 PK			1.17 H	28	60.80	39.80
3	*5745.00	90.1 AV			1.17 H	28	50.30	39.80
4	#5932.80	55.3 PK	68.2	-12.9	1.17 H	28	51.60	3.70
5	11490.00	56.1 PK	74.0	-17.9	1.32 H	350	41.80	14.30
6	11490.00	43.0 AV	54.0	-11.0	1.32 H	350	28.70	14.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5632.00	54.6 PK	68.2	-13.6	1.36 V	26	51.80	2.80
2	*5745.00	103.2 PK			1.36 V	26	63.40	39.80
3	*5745.00	93.0 AV			1.36 V	26	53.20	39.80
4	#6000.00	56.5 PK	68.2	-11.7	1.36 V	26	52.90	3.60
5	11490.00	56.6 PK	74.0	-17.4	1.89 V	259	42.30	14.30
6	11490.00	43.4 AV	54.0	-10.6	1.89 V	259	29.10	14.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5633.60	54.1 PK	68.2	-14.1	1.11 H	24	51.30	2.80
2	*5785.00	99.5 PK			1.11 H	24	59.50	40.00
3	*5785.00	88.9 AV			1.11 H	24	48.90	40.00
4	#5960.00	54.5 PK	68.2	-13.7	1.11 H	24	51.00	3.50
5	11570.00	55.6 PK	74.0	-18.4	1.30 H	347	41.60	14.00
6	11570.00	42.5 AV	54.0	-11.5	1.30 H	347	28.50	14.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5633.60	55.0 PK	68.2	-13.2	1.43 V	34	52.20	2.80
2	*5785.00	102.7 PK			1.43 V	34	62.70	40.00
3	*5785.00	92.5 AV			1.43 V	34	52.50	40.00
4	#5998.40	56.6 PK	68.2	-11.6	1.43 V	34	53.00	3.60
5	11570.00	56.4 PK	74.0	-17.6	1.84 V	264	42.40	14.00
6	11570.00	43.0 AV	54.0	-11.0	1.84 V	264	29.00	14.00

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5628.00	53.4 PK	68.2	-14.8	1.01 H	2	50.60	2.80
2	*5825.00	99.1 PK			1.01 H	2	59.00	40.10
3	*5825.00	87.8 AV			1.01 H	2	47.70	40.10
4	#5994.40	55.0 PK	68.2	-13.2	1.01 H	2	51.40	3.60
5	11650.00	55.4 PK	74.0	-18.6	1.32 H	351	41.70	13.70
6	11650.00	42.3 AV	54.0	-11.7	1.32 H	351	28.60	13.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5604.80	55.5 PK	68.2	-12.7	1.34 V	33	52.80	2.70
2	*5825.00	102.5 PK			1.34 V	33	62.40	40.10
3	*5825.00	92.2 AV			1.34 V	33	52.10	40.10
4	#5998.40	55.4 PK	68.2	-12.8	1.34 V	33	51.80	3.60
5	11650.00	55.9 PK	74.0	-18.1	1.77 V	258	42.20	13.70
6	11650.00	42.6 AV	54.0	-11.4	1.77 V	258	28.90	13.70

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT40)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.3 PK	74.0	-17.7	1.53 H	2	54.20	2.10
2	5150.00	41.9 AV	54.0	-12.1	1.53 H	2	39.80	2.10
3	*5190.00	99.1 PK			1.07 H	4	60.40	38.70
4	*5190.00	89.1 AV			1.07 H	4	50.40	38.70
5	#10380.00	56.5 PK	74.0	-17.5	1.90 H	352	43.20	13.30
6	#10380.00	44.4 AV	54.0	-9.6	1.90 H	352	31.10	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.3 PK	74.0	-17.7	2.02 V	337	54.20	2.10
2	5150.00	42.3 AV	54.0	-11.7	2.02 V	337	40.20	2.10
3	*5190.00	100.7 PK			1.58 V	354	62.00	38.70
4	*5190.00	90.1 AV			1.58 V	354	51.40	38.70
5	#10380.00	56.3 PK	74.0	-17.7	2.66 V	188	43.00	13.30
6	#10380.00	43.6 AV	54.0	-10.4	2.66 V	188	30.30	13.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	98.9 PK			1.17 H	5	60.40	38.50
2	*5230.00	88.7 AV			1.17 H	5	50.20	38.50
3	5350.00	53.1 PK	74.0	-20.9	1.46 H	43	51.10	2.00
4	5350.00	40.3 AV	54.0	-13.7	1.46 H	43	38.30	2.00
5	#10460.00	56.1 PK	74.0	-17.9	1.72 H	102	42.50	13.60
6	#10460.00	42.8 AV	54.0	-11.2	1.72 H	102	29.20	13.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	100.6 PK			1.60 V	351	62.10	38.50
2	*5230.00	90.5 AV			1.60 V	351	52.00	38.50
3	5350.00	54.1 PK	74.0	-19.9	1.52 V	341	52.10	2.00
4	5350.00	40.6 AV	54.0	-13.4	1.52 V	341	38.60	2.00
5	#10460.00	55.4 PK	74.0	-18.6	1.55 V	26	41.80	13.60
6	#10460.00	42.8 AV	54.0	-11.2	1.55 V	26	29.20	13.60

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.0 PK	74.0	-20.0	1.55 H	77	51.90	2.10
2	5150.00	41.0 AV	54.0	-13.0	1.55 H	77	38.90	2.10
3	*5270.00	98.3 PK			1.13 H	22	59.80	38.50
4	*5270.00	88.2 AV			1.13 H	22	49.70	38.50
5	#10540.00	56.5 PK	74.0	-17.5	1.85 H	115	42.40	14.10
6	#10540.00	43.5 AV	54.0	-10.5	1.85 H	115	29.40	14.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.1 PK	74.0	-19.9	1.75 V	350	52.00	2.10
2	5150.00	41.0 AV	54.0	-13.0	1.75 V	350	38.90	2.10
3	*5270.00	100.0 PK			1.90 V	357	61.50	38.50
4	*5270.00	89.2 AV			1.90 V	357	50.70	38.50
5	#10540.00	57.0 PK	74.0	-17.0	2.48 V	313	42.90	14.10
6	#10540.00	46.6 AV	54.0	-7.4	2.48 V	313	32.50	14.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	98.0 PK			1.05 H	11	59.50	38.50
2	*5310.00	87.5 AV			1.05 H	11	49.00	38.50
3	5350.00	54.4 PK	74.0	-19.6	1.34 H	64	52.40	2.00
4	5350.00	40.8 AV	54.0	-13.2	1.34 H	64	38.80	2.00
5	#10540.00	55.8 PK	74.0	-18.2	1.44 H	320	41.70	14.10
6	#10540.00	43.3 AV	54.0	-10.7	1.44 H	320	29.20	14.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	99.7 PK			1.27 V	353	61.20	38.50
2	*5310.00	89.6 AV			1.27 V	353	51.10	38.50
3	5350.00	57.6 PK	74.0	-16.4	1.91 V	300	55.60	2.00
4	5350.00	41.0 AV	54.0	-13.0	1.91 V	300	39.00	2.00
5	10620.00	56.2 PK	74.0	-17.8	2.42 V	318	42.00	14.20
6	10620.00	45.6 AV	54.0	-8.4	2.42 V	318	31.40	14.20

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.0 PK	74.0	-19.0	1.11 H	51	52.60	2.40
2	5460.00	41.4 AV	54.0	-12.6	1.11 H	51	39.00	2.40
3	#5470.00	56.0 PK	74.0	-18.0	1.06 H	49	53.60	2.40
4	#5470.00	43.2 AV	54.0	-10.8	1.06 H	49	40.80	2.40
5	*5510.00	96.6 PK			1.00 H	35	57.30	39.30
6	*5510.00	86.2 AV			1.00 H	35	46.90	39.30
7	11020.00	57.3 PK	74.0	-16.7	2.01 H	161	41.90	15.40
8	11020.00	44.6 AV	54.0	-9.4	2.01 H	161	29.20	15.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.6 PK	74.0	-19.4	1.52 V	33	52.20	2.40
2	5460.00	41.7 AV	54.0	-12.3	1.52 V	33	39.30	2.40
3	#5470.00	56.3 PK	74.0	-17.7	1.40 V	26	53.90	2.40
4	#5470.00	43.5 AV	54.0	-10.5	1.40 V	26	41.10	2.40
5	*5510.00	101.0 PK			1.47 V	20	61.70	39.30
6	*5510.00	90.7 AV			1.47 V	20	51.40	39.30
7	11020.00	57.7 PK	74.0	-16.3	1.15 V	101	42.30	15.40
8	11020.00	44.9 AV	54.0	-9.1	1.15 V	101	29.50	15.40

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 110	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	97.1 PK			1.02 H	31	57.80	39.30
2	*5550.00	86.8 AV			1.02 H	31	47.50	39.30
3	11100.00	56.6 PK	74.0	-17.4	2.06 H	167	42.00	14.60
4	11100.00	44.0 AV	54.0	-10.0	2.06 H	167	29.40	14.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	101.4 PK			1.33 V	18	62.10	39.30
2	*5550.00	91.1 AV			1.33 V	18	51.80	39.30
3	11100.00	57.1 PK	74.0	-16.9	1.20 V	97	42.50	14.60
4	11100.00	44.2 AV	54.0	-9.8	1.20 V	97	29.60	14.60

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	96.8 PK			1.05 H	50	57.30	39.50
2	*5670.00	86.4 AV			1.05 H	50	46.90	39.50
3	#5725.00	53.8 PK	74.0	-20.2	1.00 H	66	50.80	3.00
4	#5725.00	41.8 AV	54.0	-12.2	1.00 H	66	38.80	3.00
5	11340.00	56.8 PK	74.0	-17.2	2.11 H	162	41.80	15.00
6	11340.00	43.7 AV	54.0	-10.3	2.11 H	162	28.70	15.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	100.7 PK			1.51 V	15	61.20	39.50
2	*5670.00	90.6 AV			1.51 V	15	51.10	39.50
3	#5725.00	54.0 PK	74.0	-20.0	1.62 V	34	51.00	3.00
4	#5725.00	42.1 AV	54.0	-11.9	1.62 V	34	39.10	3.00
5	11340.00	57.1 PK	74.0	-16.9	1.24 V	89	42.10	15.00
6	11340.00	44.1 AV	54.0	-9.9	1.24 V	89	29.10	15.00

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5604.00	55.1 PK	68.2	-13.1	1.07 H	28	52.40	2.70
2	*5755.00	97.7 PK			1.07 H	28	57.80	39.90
3	*5755.00	87.5 AV			1.07 H	28	47.60	39.90
4	#5965.60	55.6 PK	68.2	-12.6	1.07 H	28	52.10	3.50
5	11510.00	56.5 PK	74.0	-17.5	1.16 H	312	42.30	14.20
6	11510.00	43.1 AV	54.0	-10.9	1.16 H	312	28.90	14.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5643.20	53.9 PK	68.2	-14.3	1.13 V	76	51.10	2.80
2	*5755.00	101.6 PK			1.13 V	76	61.70	39.90
3	*5755.00	90.7 AV			1.13 V	76	50.80	39.90
4	#5980.00	55.1 PK	68.2	-13.1	1.13 V	76	51.50	3.60
5	11510.00	57.0 PK	74.0	-17.0	1.59 V	229	42.80	14.20
6	11510.00	43.4 AV	54.0	-10.6	1.59 V	229	29.20	14.20

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5636.00	53.7 PK	68.2	-14.5	1.01 H	24	50.90	2.80
2	*5795.00	97.2 PK			1.01 H	24	57.10	40.10
3	*5795.00	86.4 AV			1.01 H	24	46.30	40.10
4	#5940.80	55.2 PK	68.2	-13.0	1.01 H	24	51.60	3.60
5	11590.00	56.5 PK	74.0	-17.5	1.18 H	322	42.50	14.00
6	11590.00	43.0 AV	54.0	-11.0	1.18 H	322	29.00	14.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5610.40	54.5 PK	68.2	-13.7	1.11 V	75	51.80	2.70
2	*5795.00	101.0 PK			1.11 V	75	60.90	40.10
3	*5795.00	89.9 AV			1.11 V	75	49.80	40.10
4	#5948.80	55.1 PK	68.2	-13.1	1.11 V	75	51.50	3.60
5	11590.00	56.7 PK	74.0	-17.3	1.63 V	238	42.70	14.00
6	11590.00	43.4 AV	54.0	-10.6	1.63 V	238	29.40	14.00

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT80)

CHANNEL	TX Channel 42	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.1 PK	74.0	-18.9	1.80 H	16	53.00	2.10
2	5150.00	41.6 AV	54.0	-12.4	1.80 H	16	39.50	2.10
3	*5210.00	93.3 PK			1.16 H	5	54.70	38.60
4	*5210.00	82.5 AV			1.16 H	5	43.90	38.60
5	5350.00	53.1 PK	74.0	-20.9	1.74 H	22	51.10	2.00
6	5350.00	40.5 AV	54.0	-13.5	1.74 H	22	38.50	2.00
7	#10420.00	56.1 PK	74.0	-17.9	1.75 H	358	42.80	13.30
8	#10420.00	44.9 AV	54.0	-9.1	1.75 H	358	31.60	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	53.8 PK	74.0	-20.2	2.60 V	333	51.70	2.10
2	5150.00	41.9 AV	54.0	-12.1	2.60 V	333	39.80	2.10
3	*5210.00	94.3 PK			2.18 V	355	55.70	38.60
4	*5210.00	83.6 AV			2.18 V	355	45.00	38.60
5	5350.00	53.4 PK	74.0	-20.6	2.55 V	297	51.40	2.00
6	5350.00	40.6 AV	54.0	-13.4	2.55 V	297	38.60	2.00
7	#10420.00	57.3 PK	74.0	-16.7	2.04 V	313	44.00	13.30
8	#10420.00	47.8 AV	54.0	-6.2	2.04 V	313	34.50	13.30

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	53.5 PK	74.0	-20.5	1.91 H	47	51.40	2.10
2	5150.00	40.9 AV	54.0	-13.1	1.91 H	47	38.80	2.10
3	*5290.00	93.0 PK			1.49 H	13	54.50	38.50
4	*5290.00	81.7 AV			1.49 H	13	43.20	38.50
5	5350.00	53.4 PK	74.0	-20.6	1.85 H	69	51.40	2.00
6	5350.00	40.5 AV	54.0	-13.5	1.85 H	69	38.50	2.00
7	#10580.00	56.5 PK	74.0	-17.5	1.61 H	332	42.40	14.10
8	#10580.00	44.3 AV	54.0	-9.7	1.61 H	332	30.20	14.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	53.6 PK	74.0	-20.4	1.68 V	325	51.50	2.10
2	5150.00	40.8 AV	54.0	-13.2	1.68 V	325	38.70	2.10
3	*5290.00	94.0 PK			1.77 V	353	55.50	38.50
4	*5290.00	83.1 AV			1.77 V	353	44.60	38.50
5	5350.00	53.1 PK	74.0	-20.9	1.90 V	301	51.10	2.00
6	5350.00	40.9 AV	54.0	-13.1	1.90 V	301	38.90	2.00
7	#10580.00	56.9 PK	74.0	-17.1	2.15 V	314	42.80	14.10
8	#10580.00	46.9 AV	54.0	-7.1	2.15 V	314	32.80	14.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.9 PK	74.0	-20.1	1.21 H	57	51.50	2.40
2	5460.00	41.4 AV	54.0	-12.6	1.21 H	57	39.00	2.40
3	#5470.00	54.2 PK	74.0	-19.8	1.18 H	49	51.80	2.40
4	#5470.00	42.0 AV	54.0	-12.0	1.18 H	49	39.60	2.40
5	*5530.00	91.2 PK			1.15 H	23	51.90	39.30
6	*5530.00	81.2 AV			1.15 H	23	41.90	39.30
7	#5725.00	53.5 PK	74.0	-20.5	1.20 H	44	50.50	3.00
8	#5725.00	40.9 AV	54.0	-13.1	1.20 H	44	37.90	3.00
9	11060.00	56.5 PK	74.0	-17.5	1.97 H	204	41.60	14.90
10	11060.00	44.1 AV	54.0	-9.9	1.97 H	204	29.20	14.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.2 PK	74.0	-19.8	1.35 V	38	51.80	2.40
2	5460.00	42.0 AV	54.0	-12.0	1.35 V	38	39.60	2.40
3	#5470.00	54.5 PK	74.0	-19.5	1.31 V	34	52.10	2.40
4	#5470.00	42.3 AV	54.0	-11.7	1.31 V	34	39.90	2.40
5	*5530.00	95.0 PK			1.26 V	24	55.70	39.30
6	*5530.00	84.6 AV			1.26 V	24	45.30	39.30
7	#5725.00	53.9 PK	74.0	-20.1	1.28 V	16	50.90	3.00
8	#5725.00	41.1 AV	54.0	-12.9	1.28 V	16	38.10	3.00
9	11060.00	56.7 PK	74.0	-17.3	1.66 V	121	41.80	14.90
10	11060.00	44.5 AV	54.0	-9.5	1.66 V	121	29.60	14.90

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5629.60	54.2 PK	68.2	-14.0	1.06 H	27	51.40	2.80
2	*5775.00	91.8 PK			1.06 H	27	51.80	40.00
3	*5775.00	81.5 AV			1.06 H	27	41.50	40.00
4	#5957.60	55.0 PK	68.2	-13.2	1.06 H	27	51.40	3.60
5	11550.00	56.0 PK	74.0	-18.0	1.15 H	327	41.90	14.10
6	11550.00	43.1 AV	54.0	-10.9	1.15 H	327	29.00	14.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5625.60	54.7 PK	68.2	-13.5	1.18 V	76	51.90	2.80
2	*5775.00	95.1 PK			1.18 V	76	55.10	40.00
3	*5775.00	84.8 AV			1.18 V	76	44.80	40.00
4	#5936.00	55.3 PK	68.2	-12.9	1.18 V	76	51.70	3.60
5	11550.00	56.3 PK	74.0	-17.7	1.54 V	236	42.20	14.10
6	11550.00	43.4 AV	54.0	-10.6	1.54 V	236	29.30	14.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	32.1 QP	40.0	-7.9	1.50 H	57	47.20	-15.10
2	171.62	29.2 QP	43.5	-14.3	1.25 H	299	43.00	-13.80
3	297.72	27.4 QP	46.0	-18.6	1.00 H	310	39.80	-12.40
4	363.68	25.5 QP	46.0	-20.5	1.50 H	316	36.80	-11.30
5	672.14	26.6 QP	46.0	-19.4	1.00 H	271	32.80	-6.20
6	767.20	29.1 QP	46.0	-16.9	1.00 H	113	33.50	-4.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	74.62	27.5 QP	40.0	-12.5	1.25 V	125	43.50	-16.00
2	192.96	32.0 QP	43.5	-11.5	1.00 V	212	48.00	-16.00
3	293.84	20.8 QP	46.0	-25.2	2.00 V	241	33.30	-12.50
4	470.38	22.8 QP	46.0	-23.2	1.50 V	17	32.30	-9.50
5	668.26	26.0 QP	46.0	-20.0	1.00 V	127	32.20	-6.20
6	819.58	27.7 QP	46.0	-18.3	1.50 V	208	31.30	-3.60

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.94	26.9 QP	40.0	-13.1	1.25 H	36	41.80	-14.90
2	189.08	25.9 QP	43.5	-17.6	1.50 H	293	41.70	-15.80
3	361.74	22.0 QP	46.0	-24.0	1.00 H	133	33.40	-11.40
4	623.64	25.5 QP	46.0	-20.5	1.25 H	205	32.40	-6.90
5	780.78	27.9 QP	46.0	-18.1	1.50 H	22	32.00	-4.10
6	1000.00	30.5 QP	54.0	-23.5	1.00 H	86	31.50	-1.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**30.00**	**36.5 QP**	**40.0**	**-3.5**	**1.00 V**	**186**	**51.60**	**-15.10**
2	165.80	24.0 QP	43.5	-19.5	1.00 V	262	37.50	-13.50
3	305.48	22.0 QP	46.0	-24.0	1.25 V	199	34.10	-12.10
4	487.84	22.9 QP	46.0	-23.1	2.00 V	73	32.30	-9.40
5	652.74	25.5 QP	46.0	-20.5	1.50 V	293	32.00	-6.50
6	819.58	27.9 QP	46.0	-18.1	1.25 V	196	31.50	-3.60

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. 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 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
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 ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN 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

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

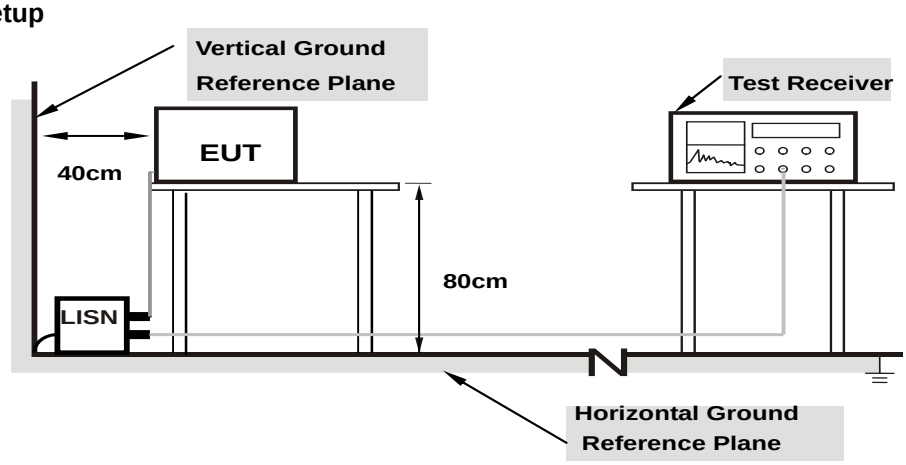
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

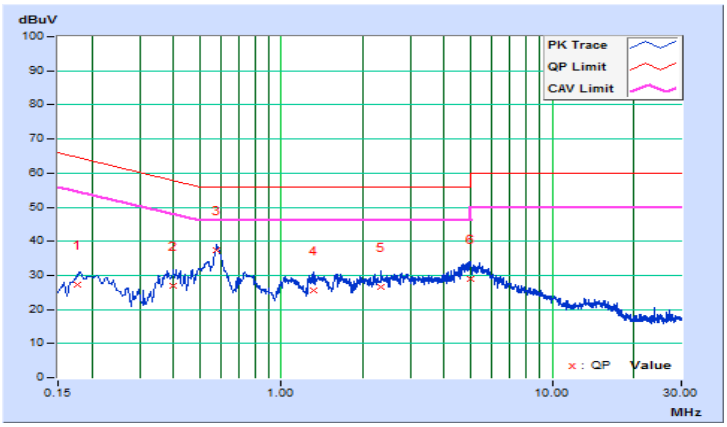
Worst-case data: 802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17698	10.45	16.90	10.46	27.35	20.91	64.63	54.63	-37.28	-33.72
2	0.40024	10.50	16.59	12.21	27.09	22.71	57.85	47.85	-30.76	-25.14
3	0.57620	10.48	26.83	21.99	37.31	32.47	56.00	46.00	-18.69	-13.53
4	1.31127	10.47	15.00	9.65	25.47	20.12	56.00	46.00	-30.53	-25.88
5	2.33178	10.54	16.05	10.19	26.59	20.73	56.00	46.00	-29.41	-25.27
6	4.97103	10.66	18.33	10.96	28.99	21.62	56.00	46.00	-27.01	-24.38

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.

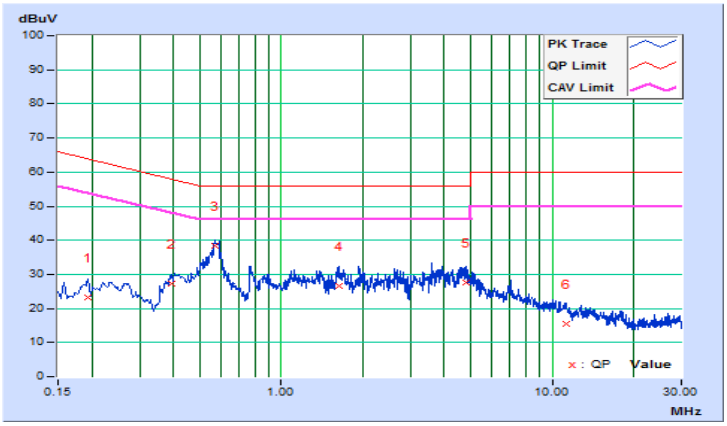


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19305	10.22	13.14	8.84	23.36	19.06	63.90	53.90	-40.54	-34.84
2	0.39219	10.25	17.00	12.77	27.25	23.02	58.02	48.02	-30.77	-25.00
3	0.56837	10.25	27.97	24.29	38.22	34.54	56.00	46.00	-17.78	-11.46
4	1.63189	10.28	16.28	11.85	26.56	22.13	56.00	46.00	-29.44	-23.87
5	4.81463	10.44	17.25	10.33	27.69	20.77	56.00	46.00	-28.31	-25.23
6	11.25831	10.68	4.77	1.18	15.45	11.86	60.00	50.00	-44.55	-38.14

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.

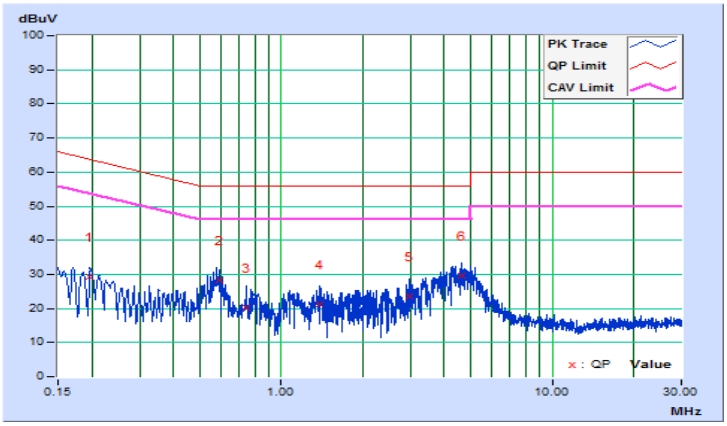


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19692	10.44	18.90	11.26	29.34	21.70	63.74	53.74	-34.40	-32.04
2	0.59158	10.48	17.75	9.13	28.23	19.61	56.00	46.00	-27.77	-26.39
3	0.74432	10.47	9.77	1.67	20.24	12.14	56.00	46.00	-35.76	-33.86
4	1.38947	10.48	10.83	2.62	21.31	13.10	56.00	46.00	-34.69	-32.90
5	2.97693	10.57	12.85	2.91	23.42	13.48	56.00	46.00	-32.58	-32.52
6	4.65041	10.65	18.94	7.60	29.59	18.25	56.00	46.00	-26.41	-27.75

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.

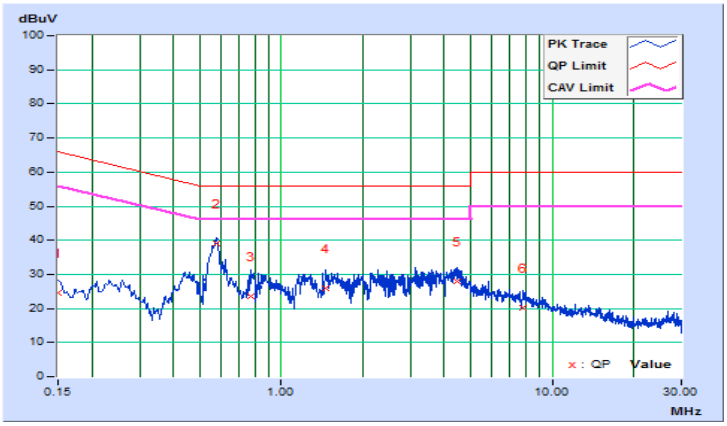


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.19	14.50	8.29	24.69	18.48	66.00	56.00	-41.31	-37.52
2	**0.57924**	**10.25**	**28.77**	**24.89**	**39.02**	**35.14**	**56.00**	**46.00**	**-16.98**	**-10.86**
3	0.76778	10.26	13.33	8.11	23.59	18.37	56.00	46.00	-32.41	-27.63
4	1.46055	10.27	15.57	9.10	25.84	19.37	56.00	46.00	-30.16	-26.63
5	4.48619	10.42	17.54	10.87	27.96	21.29	56.00	46.00	-28.04	-24.71
6	7.78232	10.55	9.58	4.82	20.13	15.37	60.00	50.00	-39.87	-34.63

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

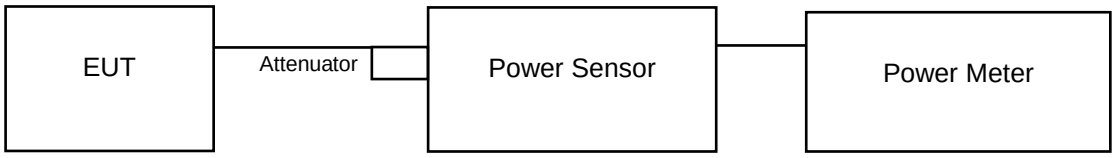
4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(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	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

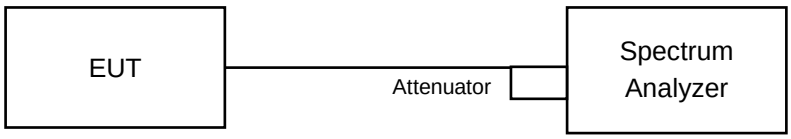
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

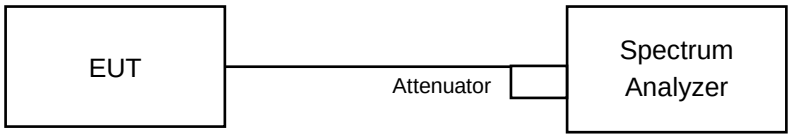
For Power Output
802.11a, 802.11n (HT20), 802.11n (HT40)



802.11ac (VHT80)



For Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

For 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 and set the detector to AVERAGE. Duty factor is not added to measured value.

For 802.11ac (VHT80)

1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
2) Set sweep trigger to “free run”.
3) Set RBW = 1 MHz.
4) Set VBW ≥ 3 MHz.
5) Number of points in sweep ≥ 2 Span / RBW.
6) Sweep time ≤ (number of points in sweep) * T
7) Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
8) Detector = RMS.
9) Trace mode = max hold.
10) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
11) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

For 26dB 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

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	**47.315**	16.75	24	Pass
40	5200	44.463	16.48	24	Pass
48	5240	44.361	16.47	24	Pass
52	5260	46.774	16.70	24	Pass
60	5300	46.238	16.65	24	Pass
64	5320	**48.084**	16.82	24	Pass
100	5500	**46.345**	16.66	24	Pass
116	5580	44.259	16.46	24	Pass
140	5700	44.566	16.49	24	Pass
149	5745	43.152	16.35	30	Pass
157	5785	**43.853**	16.42	30	Pass
165	5825	42.855	16.32	30	Pass

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

1. 11dBm + 10log (22.30) = 24.48 > 24dBm
2. 11dBm + 10log (22.36) = 24.49 > 24dBm
3. 11dBm + 10log (22.28) = 24.48 > 24dBm
4. 11dBm + 10log (22.75) = 24.57 > 24dBm
5. 11dBm + 10log (22.66) = 24.55 > 24dBm
6. 11dBm + 10log (22.51) = 24.52 > 24dBm

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	29.717	14.73	24	Pass
40	5200	30.130	14.79	24	Pass
48	5240	29.580	14.71	24	Pass
52	5260	27.606	14.41	24	Pass
60	5300	27.479	14.39	24	Pass
64	5320	27.990	14.47	24	Pass
100	5500	29.174	14.65	24	Pass
116	5580	27.164	14.34	24	Pass
140	5700	27.479	14.39	24	Pass
149	5745	27.227	14.35	30	Pass
157	5785	28.314	14.52	30	Pass
165	5825	27.290	14.36	30	Pass

Note:
For U-NII-2A, U-NII-2C Band:
1. 11dBm + 10log (22.79) = 24.58 > 24dBm
2. 11dBm + 10log (22.80) = 24.58 > 24dBm
3. 11dBm + 10log (23.03) = 24.62 > 24dBm
4. 11dBm + 10log (22.98) = 24.61 > 24dBm
5. 11dBm + 10log (22.58) = 24.54 > 24dBm
6. 11dBm + 10log (22.80) = 24.58 > 24dBm

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	29.717	14.73	24	Pass
46	5230	27.479	14.39	24	Pass
54	5270	27.669	14.42	24	Pass
62	5310	28.708	14.58	24	Pass
102	5510	26.730	14.27	24	Pass
110	5550	27.290	14.36	24	Pass
134	5670	27.542	14.40	24	Pass
151	5755	28.576	14.56	30	Pass
159	5795	27.416	14.38	30	Pass

Note:
For U-NII-2A, U-NII-2C Band:
1. 11dBm + 10log (45.95) = 27.62 > 24dBm
2. 11dBm + 10log (46.08) = 27.64 > 24dBm
3. 11dBm + 10log (45.36) = 27.57 > 24dBm
4. 11dBm + 10log (46.04) = 27.63 > 24dBm
5. 11dBm + 10log (46.47) = 27.67 > 24dBm

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	18.155	12.59	24	Pass
58	5290	17.742	12.49	24	Pass
106	5530	17.338	12.39	24	Pass
155	5775	17.989	12.55	30	Pass

Note:
For U-NII-2A, U-NII-2C Band:
1. 11dBm + 10log (84.99) = 30.29 > 24dBm
2. 11dBm + 10log (85.00) = 30.29 > 24dBm

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
36	5180	22.62
40	5200	22.44
48	5240	22.62
52	5260	22.30
60	5300	22.36
64	5320	22.28
100	5500	22.75
116	5580	22.66
140	5700	22.51

802.11n (HT20)

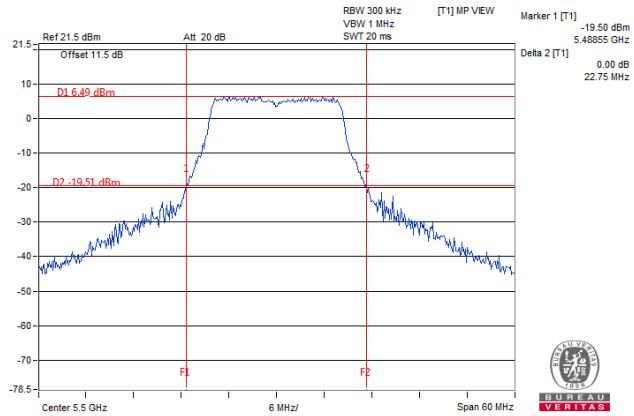
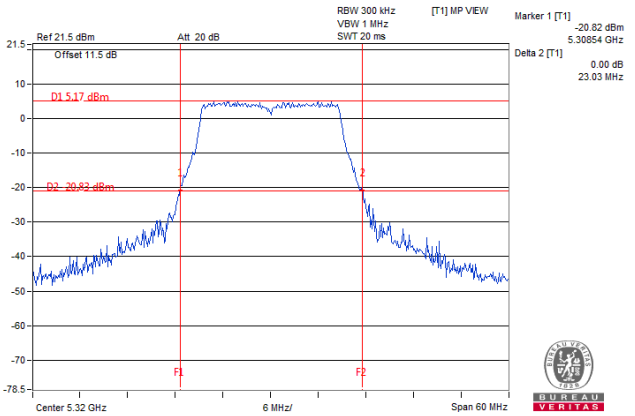
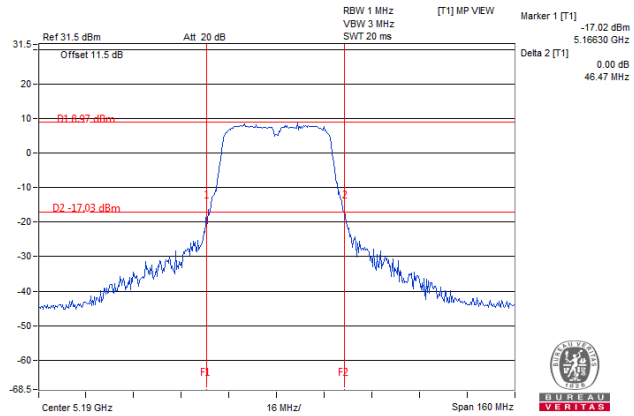
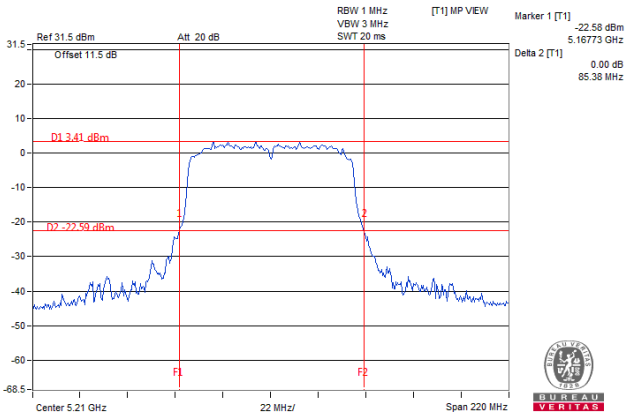
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
36	5180	22.91
40	5200	22.61
48	5240	22.89
52	5260	22.79
60	5300	22.80
64	5320	23.03
100	5500	22.98
116	5580	22.58
140	5700	22.80

802.11n (HT40)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
38	5190	46.47
46	5230	46.16
54	5270	45.95
62	5310	46.08
102	5510	45.36
110	5550	46.04
134	5670	46.47

802.11ac (VHT80)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
42	5210	85.38
58	5290	84.99
106	5530	85.00

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

EUT Maximum Conducted Power

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	48.084	16.82
5470~5725	46.345	16.66

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	27.990	14.47
5470~5725	29.174	14.65

802.11n (HT40)

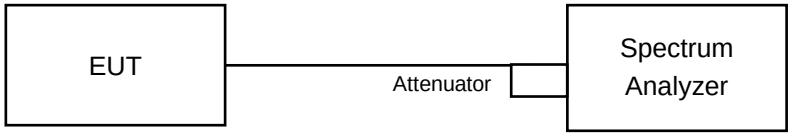
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	28.708	14.58
5470~5725	27.542	14.40

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	17.742	12.49
5470~5725	17.338	12.39

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Result

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.92
40	5200	17.16
48	5240	17.16
52	5260	17.16
60	5300	17.16
64	5320	17.16
100	5500	17.16
116	5580	17.16
140	5700	17.16
149	5745	17.04
157	5785	17.16
165	5825	17.16

802.11n (HT20)

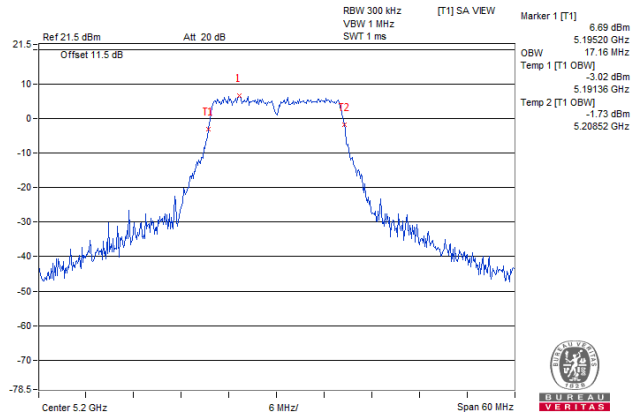
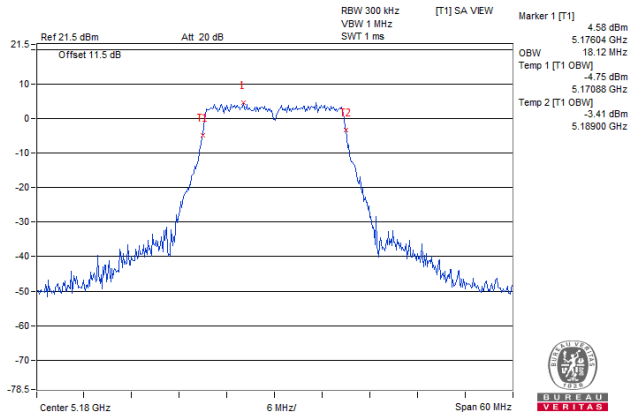
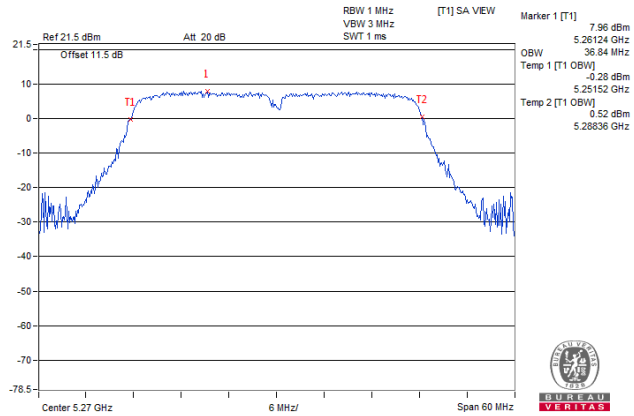
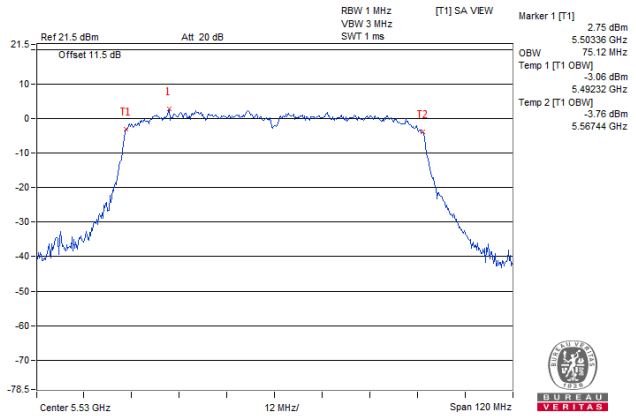
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18.12
40	5200	18.12
48	5240	18.12
52	5260	18.12
60	5300	18.12
64	5320	18.12
100	5500	18.12
116	5580	18.12
140	5700	18.12
149	5745	18.12
157	5785	18.00
165	5825	18.12

802.11n (HT40)

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

802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	74.88
58	5290	74.88
106	5530	75.12
155	5775	74.88

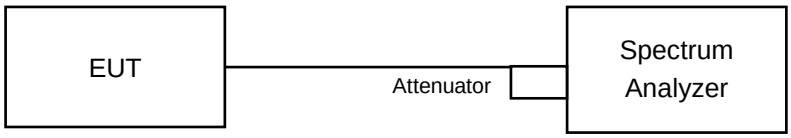
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1, U-NII-2A, U-NII-2C band:
Duty cycle of test signal is < 98%
Using method SA-2
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
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)

For U-NII-3 band:
Duty cycle of test signal is < 98%
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3) Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4) Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz / 300 kHz)
5) Sweep time = auto, trigger set to “free run”.
6) Trace average at least 100 traces in power averaging mode.
7) Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For U-NII-1 band:

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
36	5180	2.06	0.43	2.49	11	Pass
40	5200	2.03	0.43	2.46	11	Pass
48	5240	2.33	0.43	2.76	11	Pass
52	5260	2.03	0.43	2.46	11	Pass
60	5300	2.00	0.43	2.43	11	Pass
64	5320	2.37	0.43	2.80	11	Pass
100	5500	1.88	0.43	2.31	11	Pass
116	5580	1.81	0.43	2.24	11	Pass
140	5700	2.07	0.43	2.50	11	Pass

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

802.11n (HT20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
36	5180	0.50	0.49	0.99	11	Pass
40	5200	-0.03	0.49	0.46	11	Pass
48	5240	0.17	0.49	0.66	11	Pass
52	5260	0.07	0.49	0.56	11	Pass
60	5300	0.04	0.49	0.53	11	Pass
64	5320	-0.02	0.49	0.47	11	Pass
100	5500	-0.46	0.49	0.03	11	Pass
116	5580	-0.56	0.49	-0.07	11	Pass
140	5700	-0.26	0.49	0.23	11	Pass

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

802.11n (HT40)

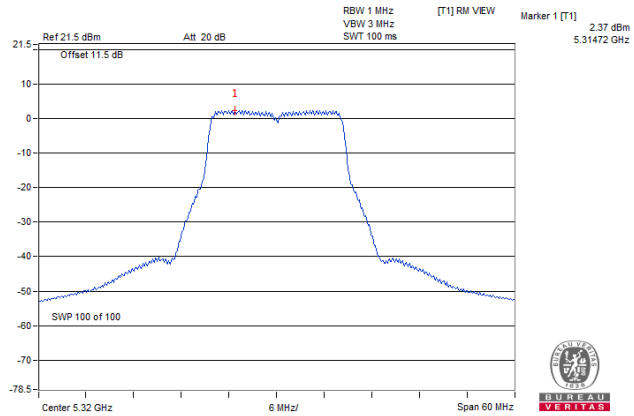
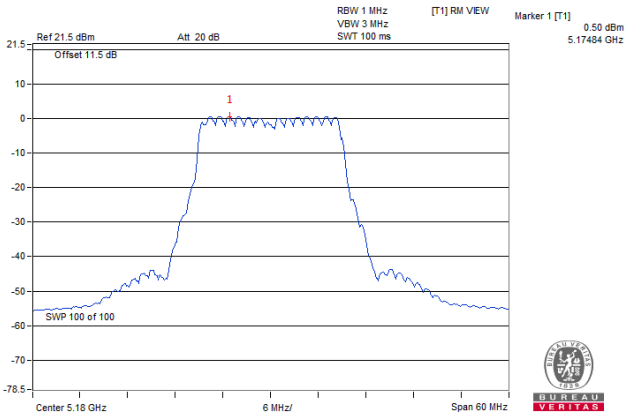
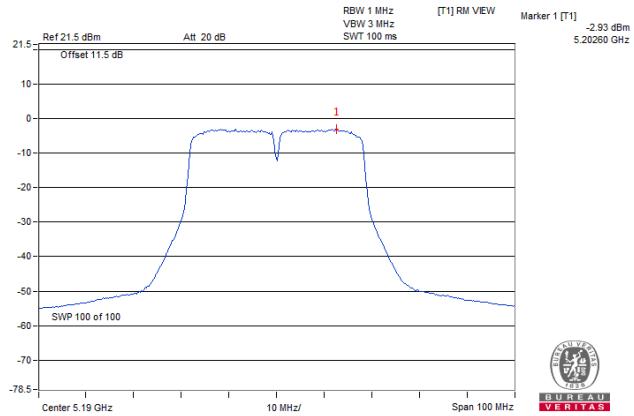
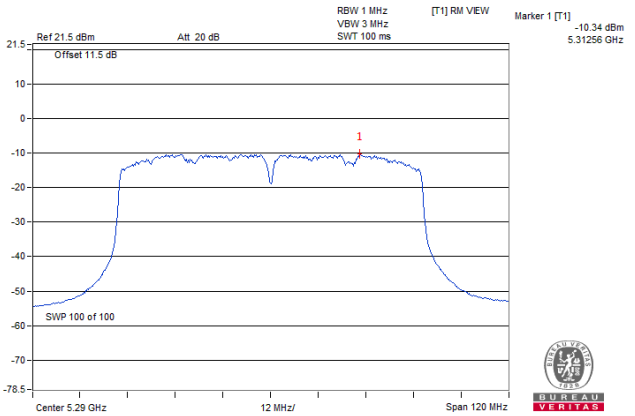
Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
38	5190	-2.93	0.92	-2.01	11	Pass
46	5230	-3.06	0.92	-2.14	11	Pass
54	5270	-3.03	0.92	-2.11	11	Pass
62	5310	-2.96	0.92	-2.04	11	Pass
102	5510	-3.12	0.92	-2.20	11	Pass
110	5550	-3.66	0.92	-2.74	11	Pass
134	5670	-3.65	0.92	-2.73	11	Pass

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

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
42	5210	-10.37	2.60	-7.77	11	Pass
58	5290	-10.34	2.60	-7.74	11	Pass
106	5530	-10.97	2.60	-8.37	11	Pass

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

Spectrum Plot of Worst Value	
802.11a / CH 64	802.11n (HT20) / CH 36
	
802.11n (HT40) / CH 38	802.11ac (VHT80) / CH 58
	

For U-NII-3 band:

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-6.46	-4.24	0.43	-3.81	30	Pass
157	5785	-6.28	-4.06	0.43	-3.63	30	Pass
165	5825	-6.14	-3.92	0.43	-3.49	30	Pass

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

802.11n (HT20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-8.51	-6.29	0.49	-5.80	30	Pass
157	5785	-8.50	-6.28	0.49	-5.79	30	Pass
165	5825	-8.27	-6.05	0.49	-5.56	30	Pass

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

802.11n (HT40)

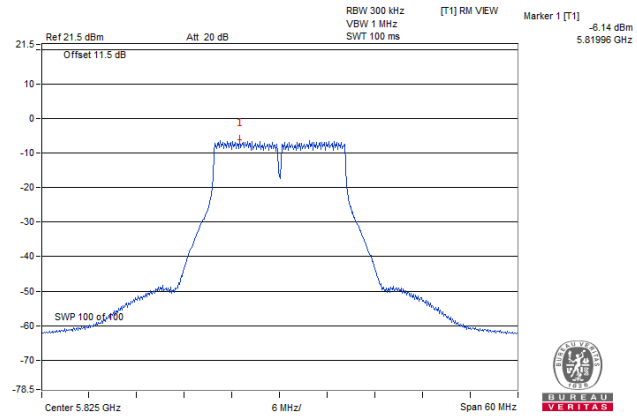
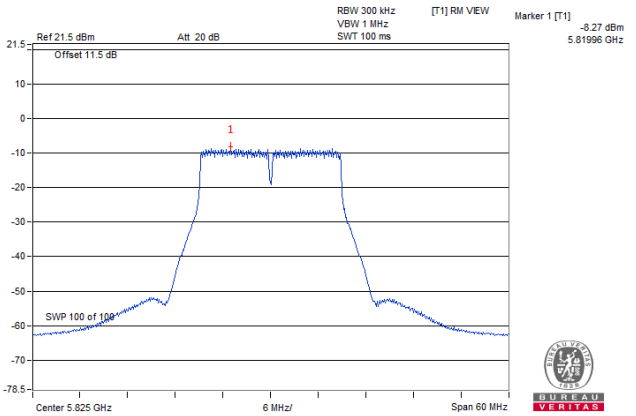
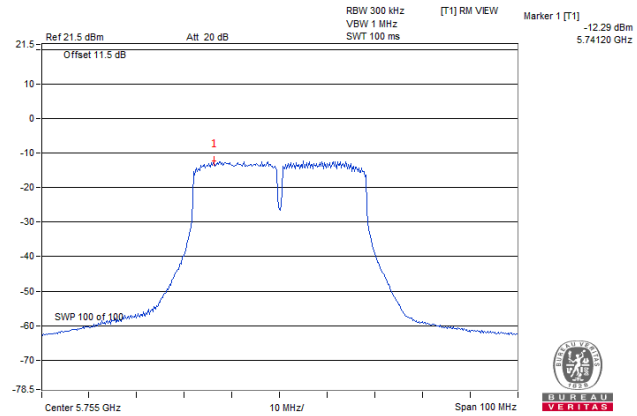
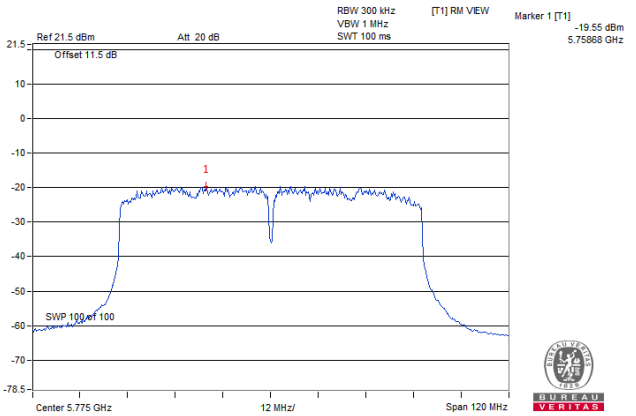
Chan.	Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
151	5755	-12.29	-10.07	0.92	-9.15	30	Pass
159	5795	-12.32	-10.10	0.92	-9.18	30	Pass

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

802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
155	5775	-19.55	-17.33	2.60	-14.73	30	Pass

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

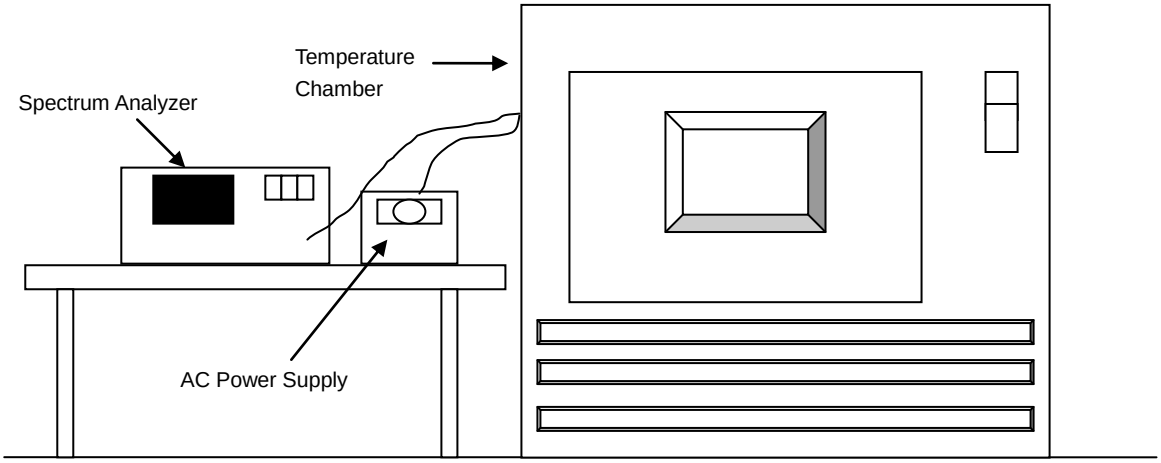
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
50	120	5180.0240	PASS	5180.0202	PASS	5180.0233	PASS	5180.0217	PASS
40	120	5180.0214	PASS	5180.0248	PASS	5180.0229	PASS	5180.0241	PASS
30	120	5180.0111	PASS	5180.0126	PASS	5180.0098	PASS	5180.014	PASS
20	120	5179.9903	PASS	5179.9901	PASS	5179.9867	PASS	5179.9901	PASS
10	120	5180.0053	PASS	5180.005	PASS	5180.0058	PASS	5180.0077	PASS
0	120	5179.9798	PASS	5179.9808	PASS	5179.9779	PASS	5179.9809	PASS
-10	120	5179.9983	PASS	5179.9961	PASS	5179.9963	PASS	5179.9954	PASS
-20	120	5179.9861	PASS	5179.9878	PASS	5179.9875	PASS	5179.9866	PASS
-30	120	5180.0130	PASS	5180.0099	PASS	5180.0138	PASS	5180.0119	PASS

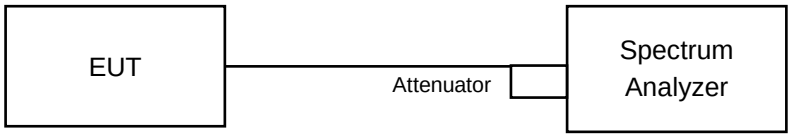
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5179.9909	PASS	5179.9901	PASS	5179.9869	PASS	5179.9897	PASS
	120	5179.9903	PASS	5179.9901	PASS	5179.9867	PASS	5179.9901	PASS
	102	5179.9894	PASS	5179.9893	PASS	5179.9866	PASS	5179.9896	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

Measurement Procedure REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.42	0.5	Pass
157	5785	16.41	0.5	Pass
165	5825	16.41	0.5	Pass

802.11n (HT20)

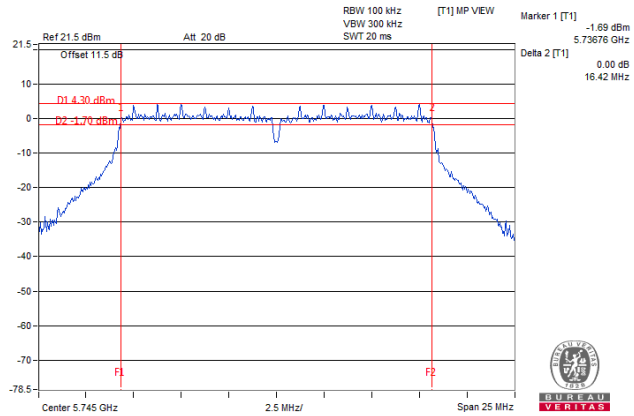
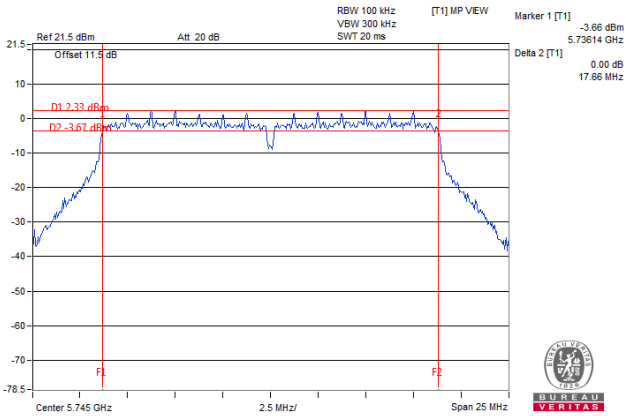
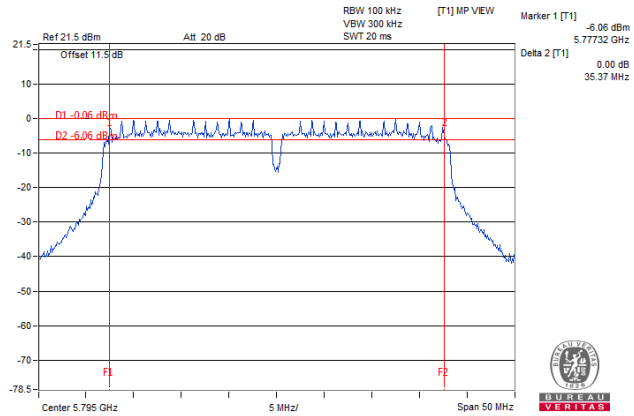
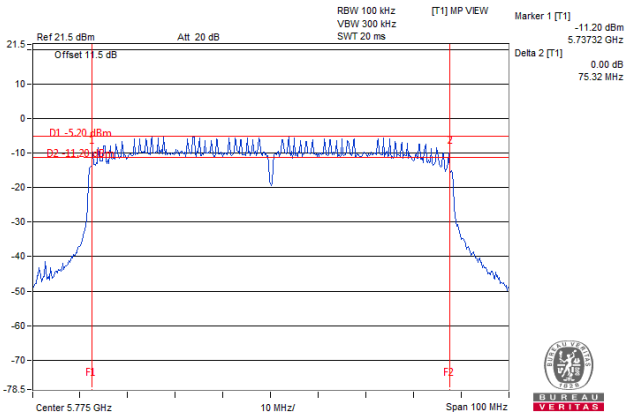
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.66	0.5	Pass
157	5785	17.64	0.5	Pass
165	5825	17.65	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.36	0.5	Pass
159	5795	35.37	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	75.32	0.5	Pass

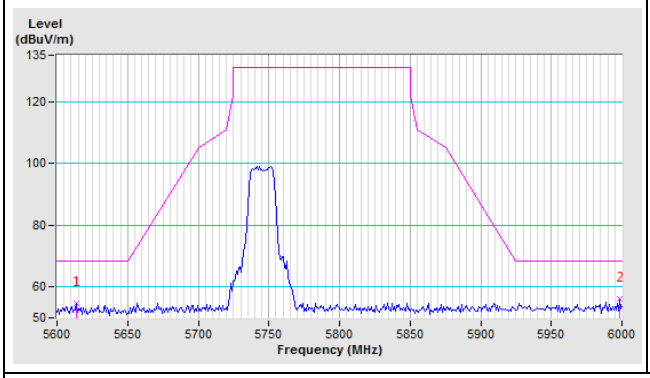
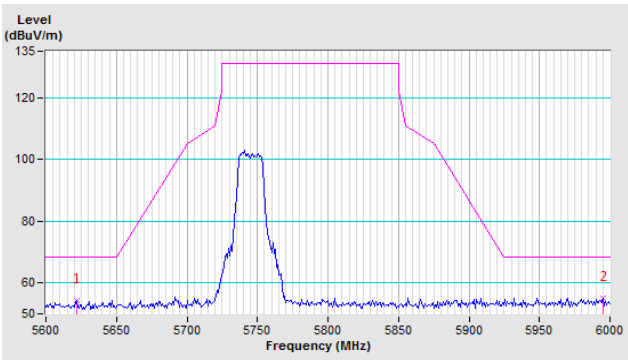
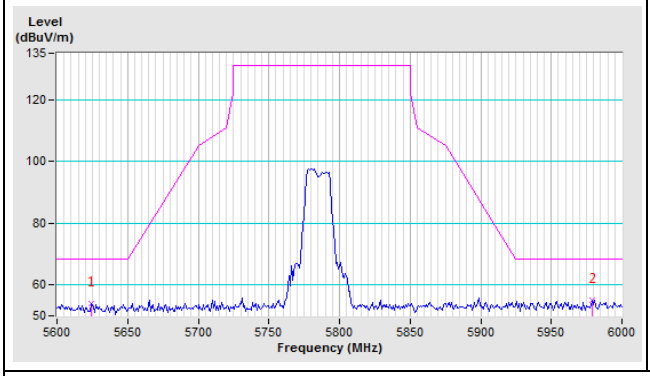
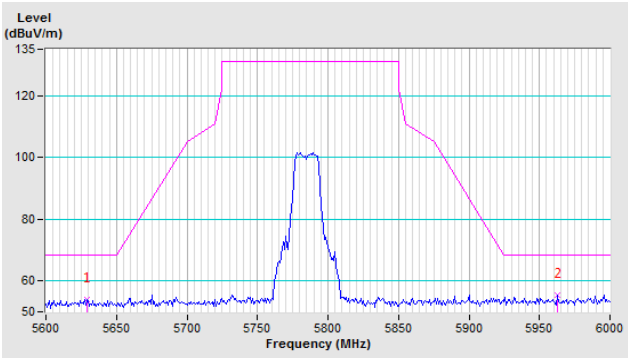
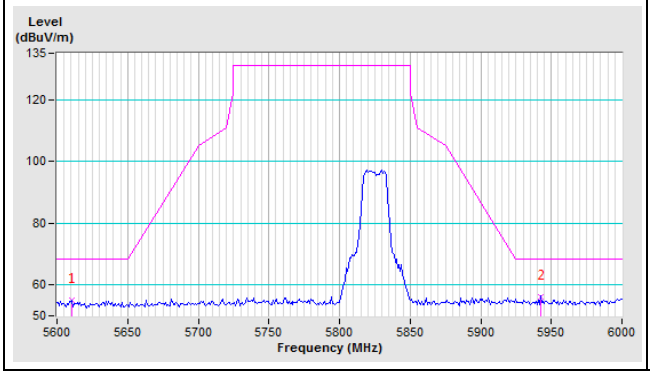
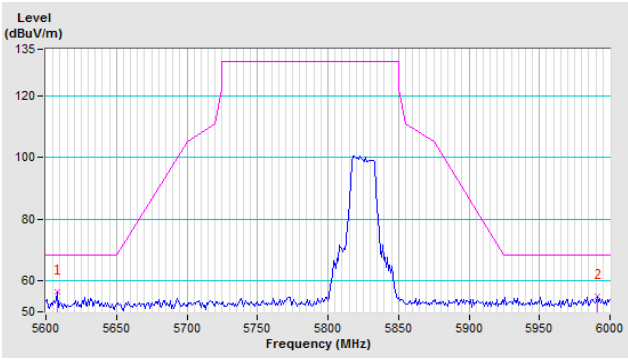
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

5 Pictures of Test Arrangements

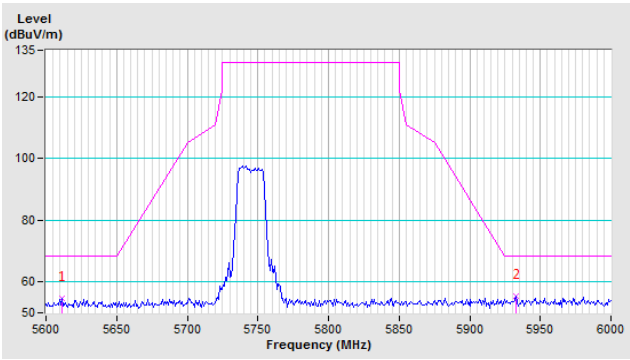
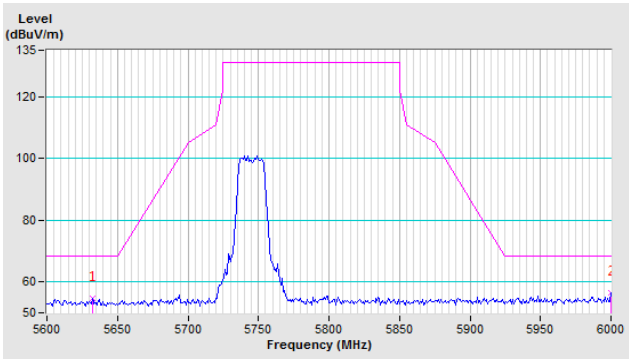
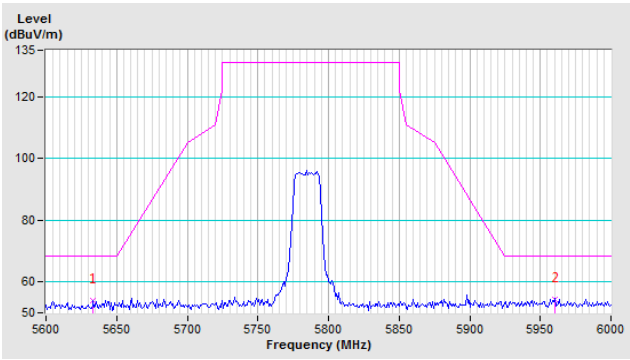
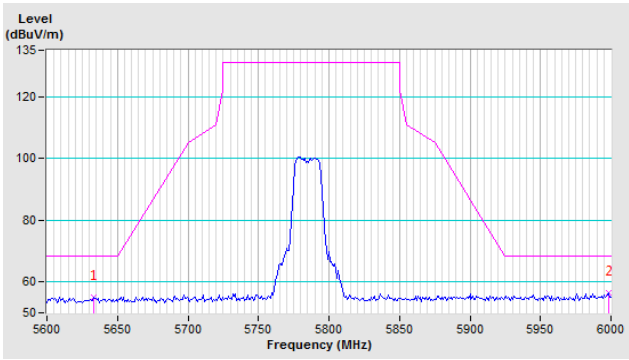
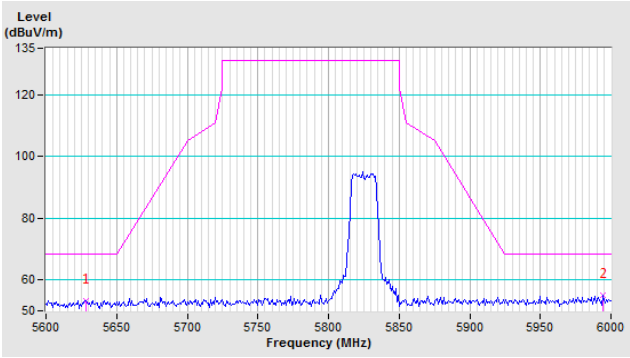
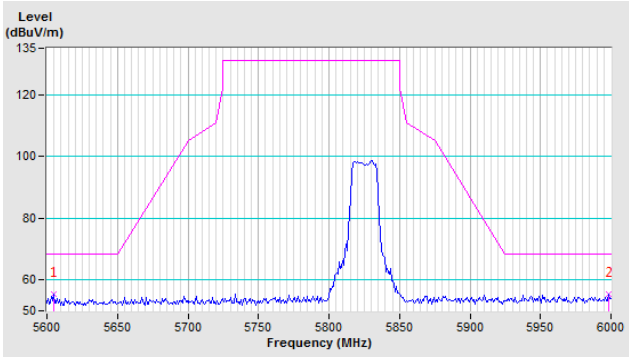
Please refer to the attached file (Test Setup Photo).

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

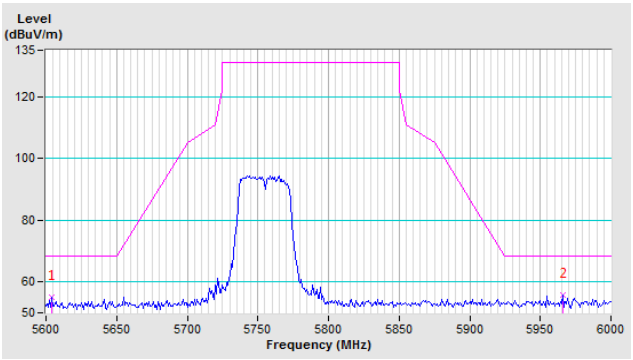
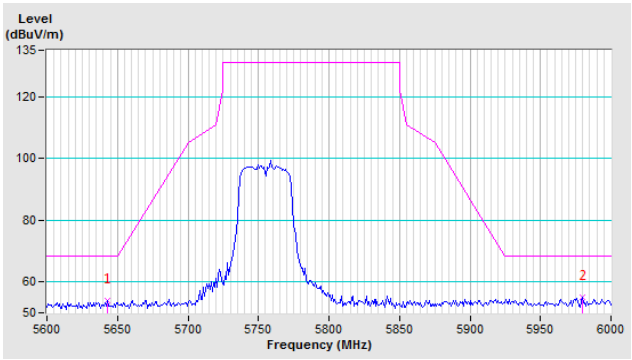
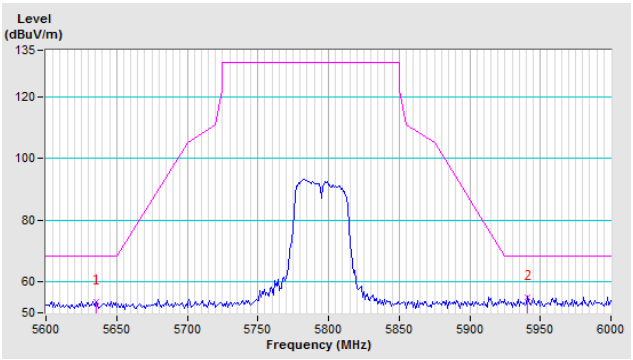
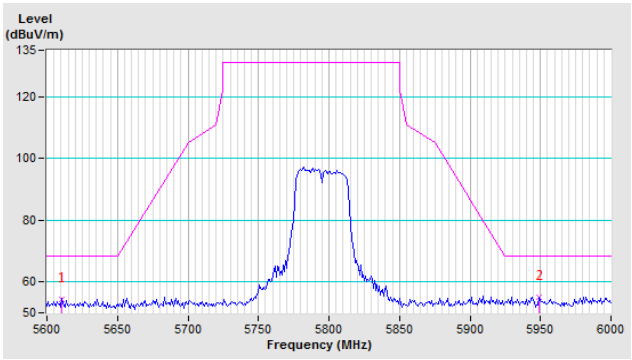
802.11a

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

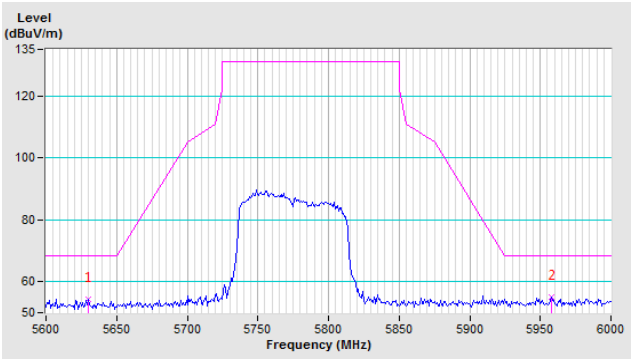
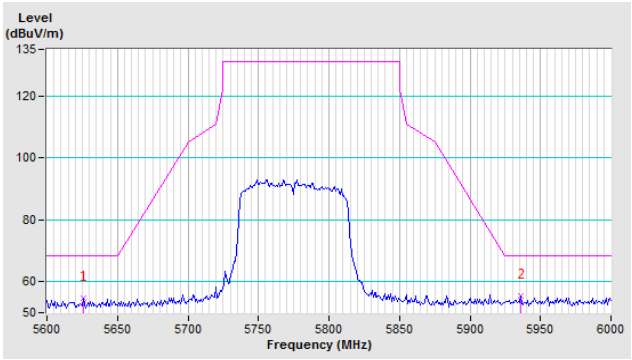
802.11n (HT20)

CH149	
Horizontal	Vertical
	
CH157	
Horizontal	Vertical
	
CH165	
Horizontal	Vertical
	

802.11n (HT40)

CH151	
Horizontal	Vertical
	
CH159	
Horizontal	Vertical
	

802.11ac (VHT80)

CH155	
Horizontal	Vertical
	

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited 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.

--- END ---