

FCC Test Report (WLAN)

Report No.: RF160727E11-1

FCC ID: MQT-PRESTOA3

Test Model: PRESTO A3

Received Date: July 27, 2016

Test Date: Sep. 20 to Oct. 03, 2016

Issued Date: Oct. 25, 2016

Applicant: XAC AUTOMATION CORP.

Address: 4F, No. 30, INDUSTRY E. RD. IX, SCIENCE-BASED INDUSTRIAL
PARK,HSINCHU,TAIWAN

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

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.

Test Location (1): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.

Test Location (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin
Chu Hsien 307, Taiwan R.O.C.



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 (WLAN)	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 Standard	15
4 Test Types and Results	16
4.1 Radiated Emission and Bandedge Measurement	16
4.1.1 Limits of Radiated Emission and Bandedge Measurement	16
4.1.2 Test Instruments	17
4.1.3 Test Procedure	19
4.1.4 Deviation from Test Standard	19
4.1.5 Test Setup	20
4.1.6 EUT Operating Condition	21
4.1.7 Test Results	22
4.2 Transmit Power Measurement	56
4.2.1 Limits of Transmit Power Measurement	56
4.2.2 Test Setup	56
4.2.3 Test Instruments	56
4.2.4 Test Procedure	57
4.2.5 Deviation from Test Standard	57
4.2.6 EUT Operating Condition	57
4.2.7 Test Result	58
4.3 Occupied Bandwidth Measurement	62
4.3.1 Test Setup	62
4.3.2 Test Instruments	62
4.3.3 Test Procedure	62
4.3.4 Test Results	63
4.4 Peak Power Spectral Density Measurement	67
4.4.1 Limits of Peak Power Spectral Density Measurement	67
4.4.2 Test Setup	67
4.4.3 Test Instruments	67
4.4.4 Test Procedure	67
4.4.5 Deviation from Test Standard	68
4.4.6 EUT Operating Condition	68
4.4.7 Test Results	69
4.5 Frequency Stability Measurement	74
4.5.1 Limits of Frequency Stability Measurement	74
4.5.2 Test Setup	74
4.5.3 Test Instruments	74
4.5.4 Test Procedure	74
4.5.5 Deviation from Test Standard	74
4.5.6 EUT Operating Condition	74
4.5.7 Test Results	75
4.6 6dB Bandwidth Measurement	76
4.6.1 Limits of 6dB Bandwidth Measurement	76

4.6.2	Test Setup.....	76
4.6.3	Test Instruments	76
4.6.4	Test Procedure	76
4.6.5	Deviation from Test Standard	76
4.6.6	EUT Operating Condition	76
4.6.7	Test Results	77
5	Pictures of Test Arrangements.....	79
	Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)	80
	Appendix – Information on the Testing Laboratories	83

Release Control Record

Issue No.	Description	Date Issued
RF160727E11-1	Original release.	Oct. 25, 2016

1 Certificate of Conformity

Product: Terminal

Brand: ElaCarte

Test Model: PRESTO A3

Sample Status: ENGINEERING SAMPLE

Applicant: XAC AUTOMATION CORP.

Test Date: Sep. 20 to Oct. 03, 2016

Standard: 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 : Midoli Peng , **Date:** Oct. 25, 2016
Midoli Peng / Specialist

Approved by : May Chen , **Date:** Oct. 25, 2016
May Chen / Manager

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	NA	Power supply is 3.7Vdc from battery
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 -0.2dB at 5150.00MHz.
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 HRS U.FL-LP(V)-040 not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.19 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.43 dB
	6GHz ~ 18GHz	3.49 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	Terminal
Brand	ElaCarte
Test Model	PRESTO A3
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 3.7V from battery
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 150Mbps
Operating Frequency	For 15.407: 5.18~5.24GHz, 5.26~5.32GHz, 5.50~5.70GHz, 5.745~5.825GHz For 15.247: 2.412 ~ 2.462GHz
Number of Channel	For 15.407: 802.11a, 802.11n (HT20): 24 802.11n (HT40): 11 For 15.247: 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	For 15.407: 5180-5240MHz : 14.791mW 5260-5320MHz : 19.861mW 5500-5700MHz : 19.409mW 5745-5825MHz : 21.429mW For 15.247: 115.611mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Battery x1(option)
Data Cable Supplied	NA

Note:

1. The EUT could be supplied with 3.7V battery(option) as the following table:

Brand	Model No.	Spec.
Ela Carte	A2 Battery	DC 3.7V, 10800mA

2. There are WLAN, Bluetooth and RFID technology used for the EUT.

3. Simultaneously transmission condition.

Condition	Technology		
1	WLAN (2.4GHz)	Bluetooth	RFID
2	WLAN (5GHz)	Bluetooth	RFID

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

4. The antennas provided to the EUT, please refer to the following table:

WiFi/BT Antenna Spec.					
Brand	Model No.	Antenna Type	Antenna Connector		Gain(dBi)
INPAQ	WA-P-LB-02-368	PCB	HRS U.FL-LP(V)-040		2.4GHz:4.23 5GHz:4.02
RFID Antenna Spec.					
Brand	Model No.	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (MHz)
INPAQ	NF-C-F10-R0-083	PCB	ZIF	13	13.56

5. The EUT incorporates a SISO function.

2.4GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	1TX	1RX
802.11g	6 ~ 54Mbps	1TX	1RX
802.11n (HT20)	MCS 0~7	1TX	1RX
802.11n (HT40)	MCS 0~7	1TX	1RX
5GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	1TX	1RX
802.11n (HT20)	MCS 0~7	1TX	1RX
802.11n (HT40)	MCS 0~7	1TX	1RX

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

3.2 Description of Test Modes

FOR 5180 ~ 5240MHz

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

FOR 5260 ~ 5320MHz

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

FOR 5500 ~ 5700MHz

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

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

5 channels are provided for 802.11n (HT40):

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

FOR 5745 ~ 5825MHz:

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	-	√	-

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

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	13.5
802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6
802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	6.5
802.11n (HT40)		102 to 134	102, 110, 134	OFDM	BPSK	13.5
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	13.5

Radiated Emission Test (Below 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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	157	OFDM	BPSK	6
	5260-5320	52 to 64				
	5500-5700	100 to 140				
	5745-5825	149 to 165				

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	13.5
802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6
802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	6.5
802.11n (HT40)		102 to 134	102, 110, 134	OFDM	BPSK	13.5
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	13.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	24deg. C, 63%RH	DC 3.7V	Jyunchun Lin
RE<1G	24deg. C, 64%RH	DC 3.7V	Jyunchun Lin
APCM	25deg. C, 60%RH	DC 3.7V	Tim Ho

3.3 Duty Cycle of Test Signal

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

802.11a: Duty cycle = $5.48/5.685 = 0.964$, Duty factor = $10 * \log(1/0.964) = 0.16$

802.11n (HT20): Duty cycle = $5.483/5.708 = 0.961$, Duty factor = $10 * \log(1/0.961) = 0.17$

802.11n (HT40): Duty cycle = $2.464/2.667 = 0.924$, Duty factor = $10 * \log(1/0.924) = 0.34$



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

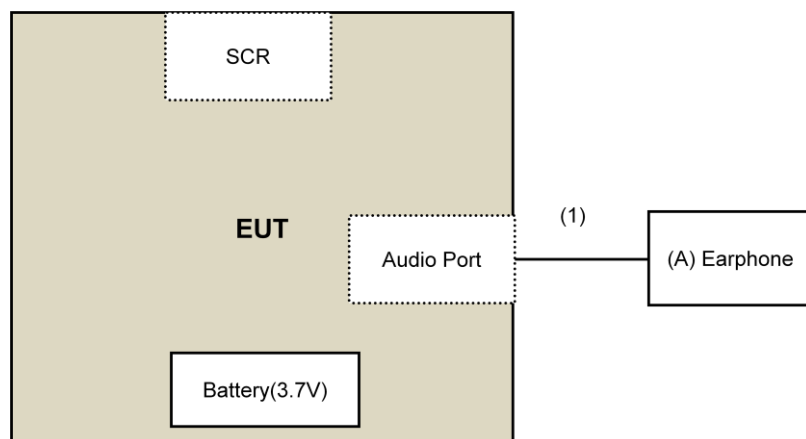
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Earphone	Hawk	HKC920	H003	FCC DoC	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Audio Cable	1	2.2	No	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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 v01r03

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 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

Applicable To			Limit	
789033 D02 General UNII Test Procedure New Rules v01r02			Field Strength at 3m	
			PK:74 (dBµV/m)	AV:54 (dBµV/m)
Frequency Band	Applicable To		EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)		PK:-27 (dBm/MHz)	PK:68.2(dBµV/m)
5250~5350 MHz	15.407(b)(2)			
5470~5725 MHz	15.407(b)(3)			
5725~5850 MHz	☒	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2(dBµV/m) ^{*1} PK:105.2 (dBµV/m) ^{*2} PK: 110.8(dBµV/m) ^{*3} PK:122.2 (dBµV/m) ^{*4}
	☐	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge.			^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note:

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

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Pre-Amplifier ^(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna ^(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-01	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 02, 2016	Apr. 01, 2017
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Jan. 19, 2016	Jan. 18, 2017
Pre-Amplifier Agilent	8449B	3008A01922	Sep. 18, 2016	Sep. 17, 2017
RF Cable	EMC104-SM- SM-2000 EMC104-SM- SM-5000 EMC104-SM- SM-5000	150318 150323 150324	Mar. 30, 2016	Mar. 29, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated _V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSP40	100036	Jan. 27, 2016	Jan. 26, 2017
Power meter Anritsu	ML2495A	0824006	May 26, 2016	May 25, 2017
Power sensor Anritsu	MA2411B	0738172	May 26, 2016	May 25, 2017
DC Power Supply GOOD WILL INSTRUMENT CO., LTD.	GPC - 3030D	7700087	NA	NA
Temperature & Humidity Chamber TERCHY	MHU-225AU	911033	Dec. 03, 2015	Dec. 02, 2016
Digital Multimeter FLUKE	87III	73680266	Nov. 10, 2015	Nov. 09, 2016

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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 3 Loop antenna was used for all emissions below 30 MHz.
4. The test was performed in 966 Chamber No. 4.
5. The FCC Site Registration No. is 292998
6. The CANADA Site Registration No. is 20331-2
7. Tested Date: Sep. 20 to Oct. 03, 2016

4.1.3 Test Procedure

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. Both X and Y axes 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:

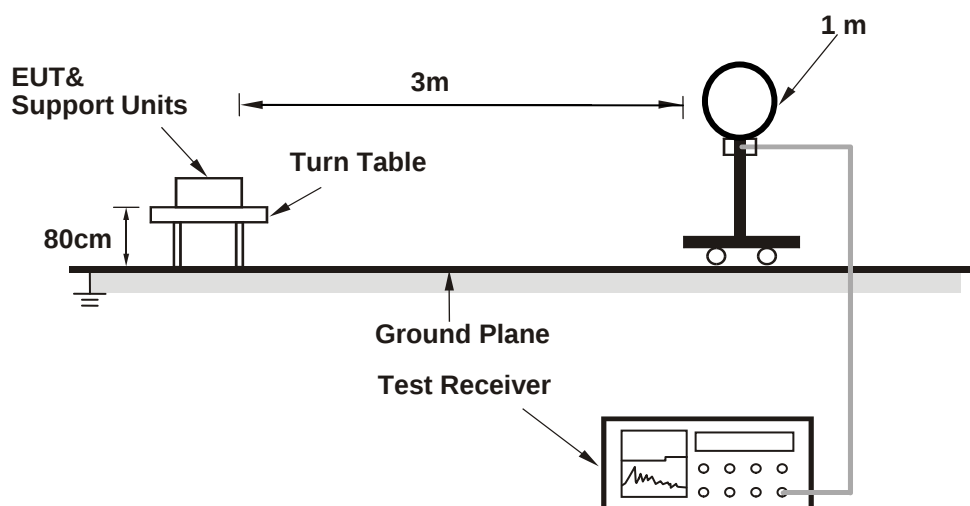
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) 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

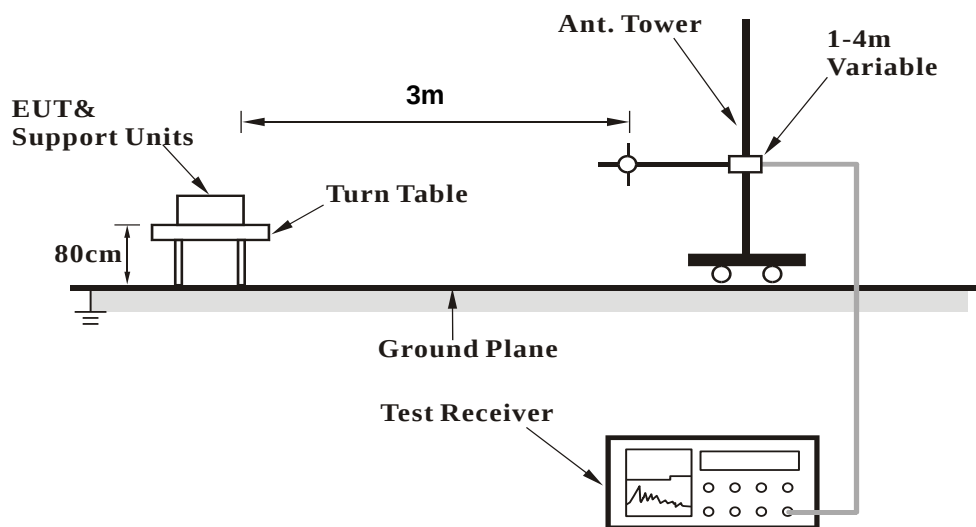
No deviation.

4.1.5 Test Setup

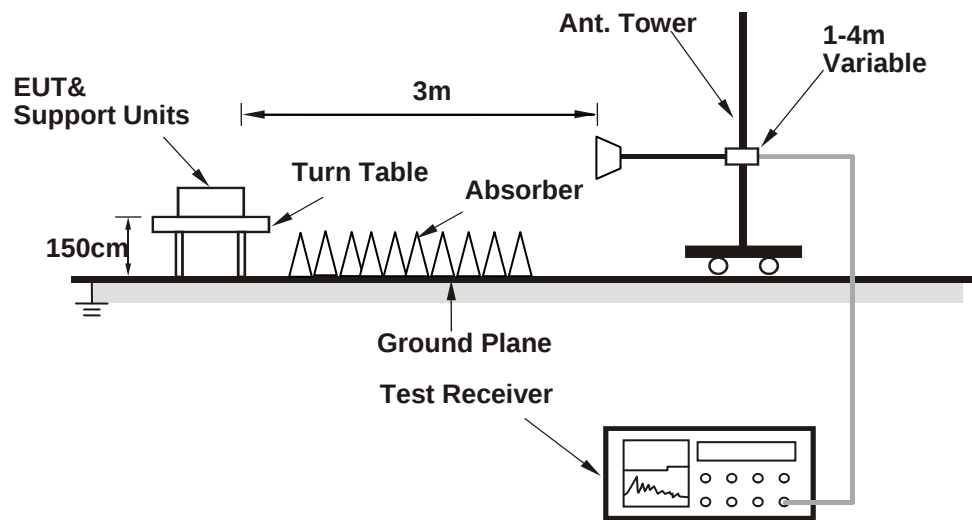
For Radiated emission below 30MHz



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 Condition

- a. The communication partner run test program “QRCT.exe Ver3.0.124.0” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data:

802.11a

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

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	60.3 PK	74.0	-13.7	1.70 H	130	58.4	1.9
2	5150.00	43.2 AV	54.0	-10.8	1.70 H	130	41.3	1.9
3	*5180.00	103.2 PK			1.70 H	130	101.2	2.0
4	*5180.00	93.4 AV			1.70 H	130	91.4	2.0
5	#10360.00	51.6 PK	74.0	-22.4	1.62 H	305	39.3	12.3
6	#10360.00	40.2 AV	54.0	-13.8	1.62 H	305	27.9	12.3
7	15540.00	52.5 PK	74.0	-21.5	1.43 H	155	38.6	13.9
8	15540.00	41.5 AV	54.0	-12.5	1.43 H	155	27.6	13.9
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	60.6 PK	74.0	-13.4	1.96 V	265	58.7	1.9
2	5150.00	44.2 AV	54.0	-9.8	1.96 V	265	42.3	1.9
3	*5180.00	104.3 PK			1.96 V	265	102.3	2.0
4	*5180.00	94.0 AV			1.96 V	265	92.0	2.0
5	#10360.00	51.7 PK	74.0	-22.3	1.50 V	360	39.4	12.3
6	#10360.00	41.0 AV	54.0	-13.0	1.50 V	360	28.7	12.3
7	15540.00	52.7 PK	74.0	-21.3	1.55 V	358	38.8	13.9
8	15540.00	41.6 AV	54.0	-12.4	1.55 V	358	27.7	13.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	103.3 PK			1.74 H	122	101.1	2.2
2	*5200.00	93.2 AV			1.74 H	122	91.0	2.2
3	#10400.00	51.7 PK	74.0	-22.3	1.62 H	320	39.3	12.4
4	#10400.00	40.2 AV	54.0	-13.8	1.62 H	320	27.8	12.4
5	15600.00	51.9 PK	74.0	-22.1	1.46 H	166	38.1	13.8
6	15600.00	41.1 AV	54.0	-12.9	1.46 H	166	27.3	13.8
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			2.01 V	259	102.6	2.2
2	*5200.00	94.3 AV			2.01 V	259	92.1	2.2
3	#10400.00	51.5 PK	74.0	-22.5	1.45 V	360	39.1	12.4
4	#10400.00	41.1 AV	54.0	-12.9	1.45 V	360	28.7	12.4
5	15600.00	52.2 PK	74.0	-21.8	1.51 V	360	38.4	13.8
6	15600.00	41.2 AV	54.0	-12.8	1.51 V	360	27.4	13.8

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	103.4 PK			1.76 H	142	101.3	2.1
2	*5240.00	93.5 AV			1.76 H	142	91.4	2.1
3	#10480.00	51.5 PK	74.0	-22.5	1.60 H	302	38.7	12.8
4	#10480.00	39.9 AV	54.0	-14.1	1.60 H	302	27.1	12.8
5	15720.00	52.9 PK	74.0	-21.1	1.45 H	156	38.9	14.0
6	15720.00	41.8 AV	54.0	-12.2	1.45 H	156	27.8	14.0
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	104.6 PK			1.93 V	255	102.5	2.1
2	*5240.00	94.1 AV			1.93 V	255	92.0	2.1
3	#10480.00	51.7 PK	74.0	-22.3	1.44 V	360	38.9	12.8
4	#10480.00	41.1 AV	54.0	-12.9	1.44 V	360	28.3	12.8
5	15720.00	53.0 PK	74.0	-21.0	1.59 V	344	39.0	14.0
6	15720.00	42.1 AV	54.0	-11.9	1.59 V	344	28.1	14.0

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	*5260.00	102.8 PK			1.67 H	135	100.6	2.2
2	*5260.00	93.0 AV			1.67 H	135	90.8	2.2
3	#10520.00	51.8 PK	74.0	-22.2	1.63 H	312	38.7	13.1
4	#10520.00	39.8 AV	54.0	-14.2	1.63 H	312	26.7	13.1
5	15780.00	52.6 PK	74.0	-21.4	1.48 H	146	38.7	13.9
6	15780.00	41.3 AV	54.0	-12.7	1.48 H	146	27.4	13.9
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	*5260.00	104.3 PK			1.93 V	280	102.1	2.2
2	*5260.00	94.2 AV			1.93 V	280	92.0	2.2
3	#10520.00	51.2 PK	74.0	-22.8	1.44 V	360	38.1	13.1
4	#10520.00	40.9 AV	54.0	-13.1	1.44 V	360	27.8	13.1
5	15780.00	52.6 PK	74.0	-21.4	1.63 V	342	38.7	13.9
6	15780.00	42.0 AV	54.0	-12.0	1.63 V	342	28.1	13.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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			1.67 H	122	100.7	2.3
2	*5300.00	93.1 AV			1.67 H	122	90.8	2.3
3	10600.00	51.8 PK	74.0	-22.2	1.69 H	296	38.6	13.2
4	10600.00	39.9 AV	54.0	-14.1	1.69 H	296	26.7	13.2
5	15900.00	53.1 PK	74.0	-20.9	1.45 H	151	39.2	13.9
6	15900.00	41.7 AV	54.0	-12.3	1.45 H	151	27.8	13.9
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	104.5 PK			1.91 V	249	102.2	2.3
2	*5300.00	94.3 AV			1.91 V	249	92.0	2.3
3	10600.00	52.0 PK	74.0	-22.0	1.44 V	360	38.8	13.2
4	10600.00	41.6 AV	54.0	-12.4	1.44 V	360	28.4	13.2
5	15900.00	52.7 PK	74.0	-21.3	1.56 V	347	38.8	13.9
6	15900.00	41.8 AV	54.0	-12.2	1.56 V	347	27.9	13.9

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.

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

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	103.0 PK			1.71 H	145	100.7	2.3
2	*5320.00	93.2 AV			1.71 H	145	90.9	2.3
3	5350.00	55.0 PK	74.0	-19.0	1.71 H	145	52.6	2.4
4	5350.00	42.3 AV	54.0	-11.7	1.71 H	145	39.9	2.4
5	10640.00	52.0 PK	74.0	-22.0	1.62 H	321	38.8	13.2
6	10640.00	39.9 AV	54.0	-14.1	1.62 H	321	26.7	13.2
7	15960.00	52.4 PK	74.0	-21.6	1.50 H	149	38.7	13.7
8	15960.00	41.4 AV	54.0	-12.6	1.50 H	149	27.7	13.7
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			2.01 V	273	102.2	2.3
2	*5320.00	94.5 AV			2.01 V	273	92.2	2.3
3	5350.00	55.8 PK	74.0	-18.2	2.01 V	273	53.4	2.4
4	5350.00	43.6 AV	54.0	-10.4	2.01 V	273	41.2	2.4
5	10640.00	51.9 PK	74.0	-22.1	1.47 V	360	38.7	13.2
6	10640.00	41.7 AV	54.0	-12.3	1.47 V	360	28.5	13.2
7	15960.00	53.4 PK	74.0	-20.6	1.57 V	359	39.7	13.7
8	15960.00	42.5 AV	54.0	-11.5	1.57 V	359	28.8	13.7

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.

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

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	#5470.00	61.8 PK	74.0	-12.2	1.76 H	132	59.2	2.6
2	#5470.00	47.1 AV	54.0	-6.9	1.76 H	132	44.5	2.6
3	*5500.00	103.7 PK			1.76 H	132	101.1	2.6
4	*5500.00	93.6 AV			1.76 H	132	91.0	2.6
5	11000.00	52.2 PK	74.0	-21.8	1.61 H	330	38.2	14.0
6	11000.00	40.0 AV	54.0	-14.0	1.61 H	330	26.0	14.0
7	#16500.00	54.5 PK	74.0	-19.5	1.47 H	135	38.6	15.9
8	#16500.00	42.5 AV	54.0	-11.5	1.47 H	135	26.6	15.9
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	#5470.00	62.5 PK	74.0	-11.5	1.91 V	250	59.9	2.6
2	#5470.00	48.1 AV	54.0	-5.9	1.91 V	250	45.5	2.6
3	*5500.00	104.3 PK			1.91 V	250	101.7	2.6
4	*5500.00	94.0 AV			1.91 V	250	91.4	2.6
5	11000.00	51.9 PK	74.0	-22.1	1.49 V	355	37.9	14.0
6	11000.00	41.8 AV	54.0	-12.2	1.49 V	355	27.8	14.0
7	#16500.00	55.6 PK	74.0	-18.4	1.62 V	360	39.7	15.9
8	#16500.00	43.4 AV	54.0	-10.6	1.62 V	360	27.5	15.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	102.6 PK			1.74 H	138	99.8	2.8
2	*5580.00	93.1 AV			1.74 H	138	90.3	2.8
3	11160.00	52.5 PK	74.0	-21.5	1.67 H	316	38.6	13.9
4	11160.00	40.5 AV	54.0	-13.5	1.67 H	316	26.6	13.9
5	#16740.00	54.9 PK	74.0	-19.1	1.49 H	144	38.0	16.9
6	#16740.00	43.0 AV	54.0	-11.0	1.49 H	144	26.1	16.9
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	104.5 PK			1.93 V	280	101.7	2.8
2	*5580.00	94.3 AV			1.93 V	280	91.5	2.8
3	11160.00	52.2 PK	74.0	-21.8	1.52 V	360	38.3	13.9
4	11160.00	42.0 AV	54.0	-12.0	1.52 V	360	28.1	13.9
5	#16740.00	55.3 PK	74.0	-18.7	1.52 V	343	38.4	16.9
6	#16740.00	43.0 AV	54.0	-11.0	1.52 V	343	26.1	16.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	103.3 PK			1.68 H	144	100.1	3.2
2	*5700.00	93.5 AV			1.68 H	144	90.3	3.2
3	#5725.00	58.6 PK	74.0	-15.4	1.68 H	144	55.4	3.2
4	#5725.00	42.8 AV	54.0	-11.2	1.68 H	144	39.6	3.2
5	11400.00	52.4 PK	74.0	-21.6	1.66 H	331	38.3	14.1
6	11400.00	40.3 AV	54.0	-13.7	1.66 H	331	26.2	14.1
7	#17100.00	55.3 PK	74.0	-18.7	1.45 H	161	36.7	18.6
8	#17100.00	43.2 AV	54.0	-10.8	1.45 H	161	24.6	18.6

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	104.6 PK			1.93 V	260	101.4	3.2
2	*5700.00	94.2 AV			1.93 V	260	91.0	3.2
3	#5725.00	59.2 PK	74.0	-14.8	1.93 V	260	56.0	3.2
4	#5725.00	43.5 AV	54.0	-10.5	1.93 V	260	40.3	3.2
5	11400.00	52.2 PK	74.0	-21.8	1.47 V	358	38.1	14.1
6	11400.00	41.9 AV	54.0	-12.1	1.47 V	358	27.8	14.1
7	#17100.00	55.3 PK	74.0	-18.7	1.62 V	360	36.7	18.6
8	#17100.00	43.2 AV	54.0	-10.8	1.62 V	360	24.6	18.6

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5626.48	57.4 PK	68.2	-10.8	1.46 H	45	53.4	4.0
2	*5745.00	99.6 PK			1.46 H	45	96.4	3.2
3	*5745.00	89.4 AV			1.46 H	45	86.2	3.2
4	#5931.43	58.2 PK	68.2	-10.0	1.46 H	45	53.8	4.4
5	11490.00	52.5 PK	74.0	-21.5	1.67 H	334	38.2	14.3
6	11490.00	40.5 AV	54.0	-13.5	1.67 H	334	26.2	14.3
7	#17235.00	54.4 PK	74.0	-19.6	1.50 H	137	35.1	19.3
8	#17235.00	42.6 AV	54.0	-11.4	1.50 H	137	23.3	19.3

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	#5605.57	57.9 PK	68.2	-10.3	1.87 V	76	54.0	3.9
2	*5745.00	101.4 PK			1.87 V	76	98.2	3.2
3	*5745.00	92.1 AV			1.87 V	76	88.9	3.2
4	#6004.10	57.7 PK	68.2	-10.5	1.87 V	76	53.2	4.5
5	11490.00	52.1 PK	74.0	-21.9	1.42 V	360	37.8	14.3
6	11490.00	41.7 AV	54.0	-12.3	1.42 V	360	27.4	14.3
7	#17235.00	55.7 PK	74.0	-18.3	1.60 V	348	36.4	19.3
8	#17235.00	43.6 AV	54.0	-10.4	1.60 V	348	24.3	19.3

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5626.95	58.9 PK	68.2	-9.3	1.50 H	46	54.9	4.0
2	*5785.00	100.2 PK			1.50 H	46	97.0	3.2
3	*5785.00	89.8 AV			1.50 H	46	86.6	3.2
4	#5992.23	59.1 PK	68.2	-9.1	1.50 H	46	54.6	4.5
5	11570.00	52.0 PK	74.0	-22.0	1.65 H	348	38.1	13.9
6	11570.00	40.3 AV	54.0	-13.7	1.65 H	348	26.4	13.9
7	#17355.00	56.2 PK	74.0	-17.8	1.45 H	164	36.4	19.8
8	#17355.00	43.7 AV	54.0	-10.3	1.45 H	164	23.9	19.8

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	#5597.02	57.4 PK	68.2	-10.8	1.90 V	77	53.5	3.9
2	*5785.00	100.9 PK			1.90 V	77	97.7	3.2
3	*5785.00	92.3 AV			1.90 V	77	89.1	3.2
4	#5983.68	58.7 PK	68.2	-9.5	1.90 V	77	54.2	4.5
5	11570.00	52.0 PK	74.0	-22.0	1.36 V	360	38.1	13.9
6	11570.00	42.0 AV	54.0	-12.0	1.36 V	360	28.1	13.9
7	#17355.00	55.6 PK	74.0	-18.4	1.63 V	345	35.8	19.8
8	#17355.00	43.2 AV	54.0	-10.8	1.63 V	345	23.4	19.8

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5562.35	57.1 PK	68.2	-11.1	1.41 H	42	53.2	3.9
2	*5825.00	99.7 PK			1.41 H	42	96.5	3.2
3	*5825.00	89.5 AV			1.41 H	42	86.3	3.2
4	#5928.57	58.7 PK	68.2	-9.5	1.41 H	42	54.3	4.4
5	11650.00	52.3 PK	74.0	-21.7	1.61 H	336	38.5	13.8
6	11650.00	40.3 AV	54.0	-13.7	1.61 H	336	26.5	13.8
7	#17475.00	55.3 PK	74.0	-18.7	1.52 H	161	35.1	20.2
8	#17475.00	43.2 AV	54.0	-10.8	1.52 H	161	23.0	20.2

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	#5600.35	57.2 PK	68.2	-11.0	1.83 V	82	53.3	3.9
2	*5825.00	100.6 PK			1.83 V	82	97.4	3.2
3	*5825.00	92.4 AV			1.83 V	82	89.2	3.2
4	#5942.35	58.2 PK	68.2	-10.0	1.83 V	82	53.8	4.4
5	11650.00	51.9 PK	74.0	-22.1	1.40 V	360	38.1	13.8
6	11650.00	41.7 AV	54.0	-12.3	1.40 V	360	27.9	13.8
7	#17475.00	55.5 PK	74.0	-18.5	1.53 V	359	35.3	20.2
8	#17475.00	43.1 AV	54.0	-10.9	1.53 V	359	22.9	20.2

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	58.5 PK	74.0	-15.5	1.62 H	143	56.6	1.9
2	5150.00	42.8 AV	54.0	-11.2	1.62 H	143	40.9	1.9
3	*5180.00	102.6 PK			1.62 H	143	100.6	2.0
4	*5180.00	92.8 AV			1.62 H	143	90.8	2.0
5	#10360.00	51.8 PK	74.0	-22.2	1.57 H	309	39.5	12.3
6	#10360.00	40.6 AV	54.0	-13.4	1.57 H	309	28.3	12.3
7	15540.00	52.6 PK	74.0	-21.4	1.47 H	159	38.7	13.9
8	15540.00	41.8 AV	54.0	-12.2	1.47 H	159	27.9	13.9
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	59.1 PK	74.0	-14.9	2.05 V	263	57.2	1.9
2	5150.00	43.4 AV	54.0	-10.6	2.05 V	263	41.5	1.9
3	*5180.00	103.2 PK			2.05 V	263	101.2	2.0
4	*5180.00	93.5 AV			2.05 V	263	91.5	2.0
5	#10360.00	51.7 PK	74.0	-22.3	1.44 V	360	39.4	12.3
6	#10360.00	41.0 AV	54.0	-13.0	1.44 V	360	28.7	12.3
7	15540.00	53.1 PK	74.0	-20.9	1.57 V	341	39.2	13.9
8	15540.00	41.9 AV	54.0	-12.1	1.57 V	341	28.0	13.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	102.0 PK			1.67 H	158	99.8	2.2
2	*5200.00	91.9 AV			1.67 H	158	89.7	2.2
3	#10400.00	51.8 PK	74.0	-22.2	1.59 H	313	39.4	12.4
4	#10400.00	40.4 AV	54.0	-13.6	1.59 H	313	28.0	12.4
5	15600.00	52.4 PK	74.0	-21.6	1.48 H	152	38.6	13.8
6	15600.00	41.5 AV	54.0	-12.5	1.48 H	152	27.7	13.8
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	102.6 PK			2.09 V	259	100.4	2.2
2	*5200.00	92.6 AV			2.09 V	259	90.4	2.2
3	#10400.00	52.0 PK	74.0	-22.0	1.46 V	360	39.6	12.4
4	#10400.00	41.2 AV	54.0	-12.8	1.46 V	360	28.8	12.4
5	15600.00	52.9 PK	74.0	-21.1	1.65 V	350	39.1	13.8
6	15600.00	42.1 AV	54.0	-11.9	1.65 V	350	28.3	13.8

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	102.3 PK			1.72 H	160	100.2	2.1
2	*5240.00	92.4 AV			1.72 H	160	90.3	2.1
3	#10480.00	51.8 PK	74.0	-22.2	1.64 H	297	39.0	12.8
4	#10480.00	40.5 AV	54.0	-13.5	1.64 H	297	27.7	12.8
5	15720.00	52.7 PK	74.0	-21.3	1.38 H	158	38.7	14.0
6	15720.00	41.9 AV	54.0	-12.1	1.38 H	158	27.9	14.0
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	103.2 PK			2.00 V	255	101.1	2.1
2	*5240.00	93.1 AV			2.00 V	255	91.0	2.1
3	#10480.00	51.5 PK	74.0	-22.5	1.46 V	360	38.7	12.8
4	#10480.00	40.7 AV	54.0	-13.3	1.46 V	360	27.9	12.8
5	15720.00	52.3 PK	74.0	-21.7	1.60 V	335	38.3	14.0
6	15720.00	41.6 AV	54.0	-12.4	1.60 V	335	27.6	14.0

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	*5260.00	102.2 PK			1.74 H	151	100.0	2.2
2	*5260.00	92.3 AV			1.74 H	151	90.1	2.2
3	#10520.00	51.3 PK	74.0	-22.7	1.60 H	305	38.2	13.1
4	#10520.00	39.9 AV	54.0	-14.1	1.60 H	305	26.8	13.1
5	15780.00	53.0 PK	74.0	-21.0	1.47 H	148	39.1	13.9
6	15780.00	41.7 AV	54.0	-12.3	1.47 H	148	27.8	13.9
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	*5260.00	103.0 PK			2.04 V	266	100.8	2.2
2	*5260.00	93.0 AV			2.04 V	266	90.8	2.2
3	#10520.00	52.0 PK	74.0	-22.0	1.45 V	358	38.9	13.1
4	#10520.00	41.4 AV	54.0	-12.6	1.45 V	358	28.3	13.1
5	15780.00	52.9 PK	74.0	-21.1	1.59 V	352	39.0	13.9
6	15780.00	42.2 AV	54.0	-11.8	1.59 V	352	28.3	13.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	101.8 PK			1.74 H	167	99.5	2.3
2	*5300.00	92.2 AV			1.74 H	167	89.9	2.3
3	10600.00	52.1 PK	74.0	-21.9	1.63 H	302	38.9	13.2
4	10600.00	40.6 AV	54.0	-13.4	1.63 H	302	27.4	13.2
5	15900.00	52.4 PK	74.0	-21.6	1.43 H	156	38.5	13.9
6	15900.00	41.6 AV	54.0	-12.4	1.43 H	156	27.7	13.9
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	102.4 PK			2.03 V	257	100.1	2.3
2	*5300.00	92.9 AV			2.03 V	257	90.6	2.3
3	10600.00	52.1 PK	74.0	-21.9	1.41 V	360	38.9	13.2
4	10600.00	41.4 AV	54.0	-12.6	1.41 V	360	28.2	13.2
5	15900.00	52.7 PK	74.0	-21.3	1.54 V	359	38.8	13.9
6	15900.00	41.7 AV	54.0	-12.3	1.54 V	359	27.8	13.9

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.

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

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	102.0 PK			1.75 H	174	99.7	2.3
2	*5320.00	92.0 AV			1.75 H	174	89.7	2.3
3	5350.00	58.3 PK	74.0	-15.7	1.75 H	174	55.9	2.4
4	5350.00	42.2 AV	54.0	-11.8	1.75 H	174	39.8	2.4
5	10640.00	51.7 PK	74.0	-22.3	1.60 H	295	38.5	13.2
6	10640.00	40.6 AV	54.0	-13.4	1.60 H	295	27.4	13.2
7	15960.00	52.4 PK	74.0	-21.6	1.47 H	146	38.7	13.7
8	15960.00	41.4 AV	54.0	-12.6	1.47 H	146	27.7	13.7
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	102.6 PK			2.03 V	278	100.3	2.3
2	*5320.00	92.6 AV			2.03 V	278	90.3	2.3
3	5350.00	58.7 PK	74.0	-15.3	2.03 V	278	56.3	2.4
4	5350.00	43.0 AV	54.0	-11.0	2.03 V	278	40.6	2.4
5	10640.00	51.5 PK	74.0	-22.5	1.48 V	360	38.3	13.2
6	10640.00	41.1 AV	54.0	-12.9	1.48 V	360	27.9	13.2
7	15960.00	53.2 PK	74.0	-20.8	1.57 V	334	39.5	13.7
8	15960.00	42.3 AV	54.0	-11.7	1.57 V	334	28.6	13.7

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.

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

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	#5470.00	58.9 PK	74.0	-15.1	1.68 H	175	56.3	2.6
2	#5470.00	43.0 AV	54.0	-11.0	1.68 H	175	40.4	2.6
3	*5500.00	102.3 PK			1.68 H	175	99.7	2.6
4	*5500.00	92.4 AV			1.68 H	175	89.8	2.6
5	11000.00	52.1 PK	74.0	-21.9	1.60 H	323	38.1	14.0
6	11000.00	40.1 AV	54.0	-13.9	1.60 H	323	26.1	14.0
7	#16500.00	54.9 PK	74.0	-19.1	1.42 H	159	39.0	15.9
8	#16500.00	42.8 AV	54.0	-11.2	1.42 H	159	26.9	15.9

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	#5470.00	59.4 PK	74.0	-14.6	2.05 V	261	56.8	2.6
2	#5470.00	43.9 AV	54.0	-10.1	2.05 V	261	41.3	2.6
3	*5500.00	102.7 PK			2.05 V	261	100.1	2.6
4	*5500.00	93.0 AV			2.05 V	261	90.4	2.6
5	11000.00	52.2 PK	74.0	-21.8	1.45 V	357	38.2	14.0
6	11000.00	42.1 AV	54.0	-11.9	1.45 V	357	28.1	14.0
7	#16500.00	54.9 PK	74.0	-19.1	1.58 V	360	39.0	15.9
8	#16500.00	42.8 AV	54.0	-11.2	1.58 V	360	26.9	15.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	102.5 PK			1.67 H	157	99.7	2.8
2	*5580.00	92.6 AV			1.67 H	157	89.8	2.8
3	11160.00	52.6 PK	74.0	-21.4	1.69 H	347	38.7	13.9
4	11160.00	40.8 AV	54.0	-13.2	1.69 H	347	26.9	13.9
5	#16740.00	55.2 PK	74.0	-18.8	1.44 H	172	38.3	16.9
6	#16740.00	42.8 AV	54.0	-11.2	1.44 H	172	25.9	16.9
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	103.0 PK			2.07 V	271	100.2	2.8
2	*5580.00	93.0 AV			2.07 V	271	90.2	2.8
3	11160.00	51.8 PK	74.0	-22.2	1.46 V	360	37.9	13.9
4	11160.00	41.5 AV	54.0	-12.5	1.46 V	360	27.6	13.9
5	#16740.00	55.7 PK	74.0	-18.3	1.60 V	360	38.8	16.9
6	#16740.00	43.5 AV	54.0	-10.5	1.60 V	360	26.6	16.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	102.4 PK			1.68 H	175	99.2	3.2
2	*5700.00	92.5 AV			1.68 H	175	89.3	3.2
3	#5725.00	58.8 PK	74.0	-15.2	1.68 H	175	55.6	3.2
4	#5725.00	42.8 AV	54.0	-11.2	1.68 H	175	39.6	3.2
5	11400.00	52.4 PK	74.0	-21.6	1.57 H	314	38.3	14.1
6	11400.00	40.5 AV	54.0	-13.5	1.57 H	314	26.4	14.1
7	#17100.00	54.4 PK	74.0	-19.6	1.40 H	166	35.8	18.6
8	#17100.00	42.4 AV	54.0	-11.6	1.40 H	166	23.8	18.6

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	102.8 PK			2.01 V	272	99.6	3.2
2	*5700.00	92.8 AV			2.01 V	272	89.6	3.2
3	#5725.00	59.3 PK	74.0	-14.7	2.01 V	272	56.1	3.2
4	#5725.00	43.5 AV	54.0	-10.5	2.01 V	272	40.3	3.2
5	11400.00	52.1 PK	74.0	-21.9	1.47 V	360	38.0	14.1
6	11400.00	41.9 AV	54.0	-12.1	1.47 V	360	27.8	14.1
7	#17100.00	55.1 PK	74.0	-18.9	1.58 V	360	36.5	18.6
8	#17100.00	43.1 AV	54.0	-10.9	1.58 V	360	24.5	18.6

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5584.20	57.6 PK	68.2	-10.6	1.50 H	50	53.7	3.9
2	*5745.00	99.1 PK			1.50 H	50	95.9	3.2
3	*5745.00	90.0 AV			1.50 H	50	86.8	3.2
4	#5954.23	58.0 PK	68.2	-10.2	1.50 H	50	53.6	4.4
5	11490.00	52.9 PK	74.0	-21.1	1.69 H	332	38.6	14.3
6	11490.00	40.8 AV	54.0	-13.2	1.69 H	332	26.5	14.3
7	#17235.00	56.3 PK	74.0	-17.7	1.45 H	167	37.0	19.3
8	#17235.00	43.8 AV	54.0	-10.2	1.45 H	167	24.5	19.3

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	#5646.43	58.2 PK	68.2	-10.0	1.87 V	77	54.2	4.0
2	*5745.00	100.3 PK			1.87 V	77	97.1	3.2
3	*5745.00	91.1 AV			1.87 V	77	87.9	3.2
4	#6009.80	58.3 PK	68.2	-9.9	1.87 V	77	53.8	4.5
5	11490.00	51.8 PK	74.0	-22.2	1.40 V	360	37.5	14.3
6	11490.00	41.7 AV	54.0	-12.3	1.40 V	360	27.4	14.3
7	#17235.00	55.8 PK	74.0	-18.2	1.58 V	358	36.5	19.3
8	#17235.00	43.6 AV	54.0	-10.4	1.58 V	358	24.3	19.3

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5598.93	57.5 PK	68.2	-10.7	1.45 H	37	53.6	3.9
2	*5785.00	99.6 PK			1.45 H	37	96.4	3.2
3	*5785.00	89.7 AV			1.45 H	37	86.5	3.2
4	#5944.73	57.8 PK	68.2	-10.4	1.45 H	37	53.4	4.4
5	11570.00	52.8 PK	74.0	-21.2	1.57 H	345	38.9	13.9
6	11570.00	40.7 AV	54.0	-13.3	1.57 H	345	26.8	13.9
7	#17355.00	56.0 PK	74.0	-18.0	1.52 H	162	36.2	19.8
8	#17355.00	43.5 AV	54.0	-10.5	1.52 H	162	23.7	19.8
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	#5570.43	58.1 PK	68.2	-10.1	1.88 V	85	54.2	3.9
2	*5785.00	100.4 PK			1.88 V	85	97.2	3.2
3	*5785.00	90.9 AV			1.88 V	85	87.7	3.2
4	#5952.80	57.9 PK	68.2	-10.3	1.88 V	85	53.5	4.4
5	11570.00	52.0 PK	74.0	-22.0	1.39 V	360	38.1	13.9
6	11570.00	41.5 AV	54.0	-12.5	1.39 V	360	27.6	13.9
7	#17355.00	55.9 PK	74.0	-18.1	1.64 V	360	36.1	19.8
8	#17355.00	43.7 AV	54.0	-10.3	1.64 V	360	23.9	19.8

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5603.20	58.2 PK	68.2	-10.0	1.50 H	34	54.3	3.9
2	*5825.00	99.7 PK			1.50 H	34	96.5	3.2
3	*5825.00	90.1 AV			1.50 H	34	86.9	3.2
4	#5977.02	58.7 PK	68.2	-9.5	1.50 H	34	54.2	4.5
5	11650.00	52.5 PK	74.0	-21.5	1.61 H	338	38.7	13.8
6	11650.00	40.6 AV	54.0	-13.4	1.61 H	338	26.8	13.8
7	#17475.00	55.6 PK	74.0	-18.4	1.48 H	167	35.4	20.2
8	#17475.00	43.2 AV	54.0	-10.8	1.48 H	167	23.0	20.2

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	#5640.73	58.2 PK	68.2	-10.0	1.93 V	72	54.2	4.0
2	*5825.00	99.9 PK			1.93 V	72	96.7	3.2
3	*5825.00	90.9 AV			1.93 V	72	87.7	3.2
4	#5988.43	58.5 PK	68.2	-9.7	1.93 V	72	54.0	4.5
5	11650.00	52.3 PK	74.0	-21.7	1.49 V	354	38.5	13.8
6	11650.00	41.8 AV	54.0	-12.2	1.49 V	354	28.0	13.8
7	#17475.00	55.7 PK	74.0	-18.3	1.66 V	360	35.5	20.2
8	#17475.00	43.4 AV	54.0	-10.6	1.66 V	360	23.2	20.2

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	72.3 PK	74.0	-1.7	1.47 H	18	70.4	1.9
2	5150.00	53.0 AV	54.0	-1.0	1.47 H	18	51.1	1.9
3	*5190.00	99.6 PK			1.47 H	18	97.5	2.1
4	*5190.00	89.8 AV			1.47 H	18	87.7	2.1
5	#10380.00	52.3 PK	74.0	-21.7	1.63 H	317	40.0	12.3
6	#10380.00	40.7 AV	54.0	-13.3	1.63 H	317	28.4	12.3
7	15570.00	52.7 PK	74.0	-21.3	1.49 H	159	38.9	13.8
8	15570.00	41.8 AV	54.0	-12.2	1.49 H	159	28.0	13.8
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	73.2 PK	74.0	-0.8	1.97 V	263	71.3	1.9
2	5150.00	53.8 AV	54.0	-0.2	1.97 V	263	51.9	1.9
3	*5190.00	100.2 PK			1.97 V	263	98.1	2.1
4	*5190.00	90.1 AV			1.97 V	263	88.0	2.1
5	#10380.00	52.0 PK	74.0	-22.0	1.43 V	360	39.7	12.3
6	#10380.00	41.4 AV	54.0	-12.6	1.43 V	360	29.1	12.3
7	15570.00	55.3 PK	74.0	-18.7	1.61 V	360	41.5	13.8
8	15570.00	43.4 AV	54.0	-10.6	1.61 V	360	29.6	13.8

REMARKS:

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

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

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	99.8 PK			1.49 H	33	97.7	2.1
2	*5230.00	90.0 AV			1.49 H	33	87.9	2.1
3	#10460.00	51.4 PK	74.0	-22.6	1.66 H	302	38.7	12.7
4	#10460.00	40.3 AV	54.0	-13.7	1.66 H	302	27.6	12.7
5	15690.00	52.3 PK	74.0	-21.7	1.40 H	162	38.2	14.1
6	15690.00	41.0 AV	54.0	-13.0	1.40 H	162	26.9	14.1
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			1.91 V	272	98.5	2.1
2	*5230.00	90.5 AV			1.91 V	272	88.4	2.1
3	#10460.00	52.3 PK	74.0	-21.7	1.39 V	360	39.6	12.7
4	#10460.00	41.6 AV	54.0	-12.4	1.39 V	360	28.9	12.7
5	15690.00	55.8 PK	74.0	-18.2	1.68 V	360	41.7	14.1
6	15690.00	43.7 AV	54.0	-10.3	1.68 V	360	29.6	14.1

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	*5270.00	99.0 PK			1.48 H	22	96.7	2.3
2	*5270.00	89.2 AV			1.48 H	22	86.9	2.3
3	#10540.00	51.5 PK	74.0	-22.5	1.64 H	304	38.4	13.1
4	#10540.00	39.9 AV	54.0	-14.1	1.64 H	304	26.8	13.1
5	15810.00	53.0 PK	74.0	-21.0	1.43 H	166	39.2	13.8
6	15810.00	41.8 AV	54.0	-12.2	1.43 H	166	28.0	13.8
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	*5270.00	99.9 PK			1.94 V	277	97.6	2.3
2	*5270.00	90.0 AV			1.94 V	277	87.7	2.3
3	#10540.00	52.5 PK	74.0	-21.5	1.50 V	360	39.4	13.1
4	#10540.00	41.9 AV	54.0	-12.1	1.50 V	360	28.8	13.1
5	15810.00	55.3 PK	74.0	-18.7	1.68 V	360	41.5	13.8
6	15810.00	43.2 AV	54.0	-10.8	1.68 V	360	29.4	13.8

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	100.4 PK			1.56 H	23	98.1	2.3
2	*5310.00	89.7 AV			1.56 H	23	87.4	2.3
3	5350.00	67.0 PK	74.0	-7.0	1.56 H	23	64.6	2.4
4	5350.00	52.4 AV	54.0	-1.6	1.56 H	23	50.0	2.4
5	10620.00	51.5 PK	74.0	-22.5	1.65 H	293	38.3	13.2
6	10620.00	40.1 AV	54.0	-13.9	1.65 H	293	26.9	13.2
7	15930.00	52.7 PK	74.0	-21.3	1.45 H	144	38.8	13.9
8	15930.00	41.9 AV	54.0	-12.1	1.45 H	144	28.0	13.9

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	101.2 PK			1.97 V	263	98.9	2.3
2	*5310.00	90.3 AV			1.97 V	263	88.0	2.3
3	5350.00	67.8 PK	74.0	-6.2	1.97 V	263	65.4	2.4
4	5350.00	53.3 AV	54.0	-0.7	1.97 V	263	50.9	2.4
5	10620.00	52.3 PK	74.0	-21.7	1.51 V	360	39.1	13.2
6	10620.00	41.9 AV	54.0	-12.1	1.51 V	360	28.7	13.2
7	15930.00	55.7 PK	74.0	-18.3	1.68 V	360	41.8	13.9
8	15930.00	43.6 AV	54.0	-10.4	1.68 V	360	29.7	13.9

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.

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

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	#5470.00	71.8 PK	74.0	-2.2	1.56 H	33	69.2	2.6
2	#5470.00	53.0 AV	54.0	-1.0	1.56 H	33	50.4	2.6
3	*5510.00	99.4 PK			1.56 H	33	96.8	2.6
4	*5510.00	89.0 AV			1.56 H	33	86.4	2.6
5	11020.00	52.8 PK	74.0	-21.2	1.62 H	341	38.8	14.0
6	11020.00	40.5 AV	54.0	-13.5	1.62 H	341	26.5	14.0
7	#16530.00	54.9 PK	74.0	-19.1	1.40 H	174	38.6	16.3
8	#16530.00	43.0 AV	54.0	-11.0	1.40 H	174	26.7	16.3
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	#5470.00	72.6 PK	74.0	-1.4	1.96 V	262	70.0	2.6
2	#5470.00	53.7 AV	54.0	-0.3	1.96 V	262	51.1	2.6
3	*5510.00	100.2 PK			1.96 V	262	97.6	2.6
4	*5510.00	89.7 AV			1.96 V	262	87.1	2.6
5	11020.00	52.2 PK	74.0	-21.8	1.49 V	347	38.2	14.0
6	11020.00	41.6 AV	54.0	-12.4	1.49 V	347	27.6	14.0
7	#16530.00	55.2 PK	74.0	-18.8	1.60 V	360	38.9	16.3
8	#16530.00	43.0 AV	54.0	-11.0	1.60 V	360	26.7	16.3

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	99.7 PK			1.51 H	37	96.9	2.8
2	*5550.00	89.8 AV			1.51 H	37	87.0	2.8
3	11100.00	52.6 PK	74.0	-21.4	1.63 H	335	38.8	13.8
4	11100.00	40.7 AV	54.0	-13.3	1.63 H	335	26.9	13.8
5	#16650.00	55.7 PK	74.0	-18.3	1.48 H	169	38.8	16.9
6	#16650.00	43.3 AV	54.0	-10.7	1.48 H	169	26.4	16.9
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	100.6 PK			1.94 V	262	97.8	2.8
2	*5550.00	90.7 AV			1.94 V	262	87.9	2.8
3	11100.00	51.8 PK	74.0	-22.2	1.41 V	360	38.0	13.8
4	11100.00	41.6 AV	54.0	-12.4	1.41 V	360	27.8	13.8
5	#16650.00	55.5 PK	74.0	-18.5	1.64 V	360	38.6	16.9
6	#16650.00	43.6 AV	54.0	-10.4	1.64 V	360	26.7	16.9

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	100.3 PK			1.50 H	33	97.3	3.0
2	*5670.00	90.2 AV			1.50 H	33	87.2	3.0
3	#5725.00	63.7 PK	74.0	-10.3	1.50 H	33	60.5	3.2
4	#5725.00	45.9 AV	54.0	-8.1	1.50 H	33	42.7	3.2
5	11340.00	52.1 PK	74.0	-21.9	1.63 H	319	37.7	14.4
6	11340.00	39.9 AV	54.0	-14.1	1.63 H	319	25.5	14.4
7	#17010.00	55.8 PK	74.0	-18.2	1.45 H	149	37.1	18.7
8	#17010.00	43.5 AV	54.0	-10.5	1.45 H	149	24.8	18.7

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	101.2 PK			1.96 V	262	98.2	3.0
2	*5670.00	91.1 AV			1.96 V	262	88.1	3.0
3	#5725.00	64.5 PK	74.0	-9.5	1.96 V	265	61.3	3.2
4	#5725.00	46.7 AV	54.0	-7.3	1.96 V	265	43.5	3.2
5	11340.00	52.3 PK	74.0	-21.7	1.45 V	360	37.9	14.4
6	11340.00	41.9 AV	54.0	-12.1	1.45 V	360	27.5	14.4
7	#17010.00	55.6 PK	74.0	-18.4	1.63 V	360	36.9	18.7
8	#17010.00	43.5 AV	54.0	-10.5	1.63 V	360	24.8	18.7

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5608.43	58.1 PK	68.2	-10.1	1.50 H	34	54.2	3.9
2	*5755.00	99.8 PK			1.50 H	34	96.6	3.2
3	*5755.00	89.9 AV			1.50 H	34	86.7	3.2
4	#5978.93	57.4 PK	68.2	-10.8	1.50 H	34	52.9	4.5
5	11510.00	52.1 PK	74.0	-21.9	1.58 H	314	37.8	14.3
6	11510.00	40.1 AV	54.0	-13.9	1.58 H	314	25.8	14.3
7	#17265.00	55.5 PK	74.0	-18.5	1.41 H	155	36.2	19.3
8	#17265.00	43.1 AV	54.0	-10.9	1.41 H	155	23.8	19.3

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	#5648.32	58.7 PK	68.2	-9.5	1.92 V	262	54.7	4.0
2	*5755.00	100.6 PK			1.92 V	262	97.4	3.2
3	*5755.00	91.0 AV			1.92 V	262	87.8	3.2
4	#5971.80	58.2 PK	68.2	-10.0	1.92 V	262	53.7	4.5
5	11510.00	51.6 PK	74.0	-22.4	1.40 V	360	37.3	14.3
6	11510.00	41.5 AV	54.0	-12.5	1.40 V	360	27.2	14.3
7	#17265.00	55.4 PK	74.0	-18.6	1.58 V	357	36.1	19.3
8	#17265.00	43.5 AV	54.0	-10.5	1.58 V	357	24.2	19.3

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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	#5636.93	57.9 PK	68.2	-10.3	1.49 H	44	53.9	4.0
2	*5795.00	99.9 PK			1.49 H	44	96.7	3.2
3	*5795.00	89.9 AV			1.49 H	44	86.7	3.2
4	#5930.48	58.4 PK	68.2	-9.8	1.49 H	44	54.0	4.4
5	11590.00	51.5 PK	74.0	-22.5	1.59 H	333	37.7	13.8
6	11590.00	39.6 AV	54.0	-14.4	1.59 H	333	25.8	13.8
7	#17385.00	55.2 PK	74.0	-18.8	1.46 H	147	35.3	19.9
8	#17385.00	43.1 AV	54.0	-10.9	1.46 H	147	23.2	19.9
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	#5592.75	57.7 PK	68.2	-10.5	1.92 V	252	53.8	3.9
2	*5795.00	100.1 PK			1.92 V	252	96.9	3.2
3	*5795.00	90.8 AV			1.92 V	252	87.6	3.2
4	#5993.65	58.5 PK	68.2	-9.7	1.92 V	252	54.0	4.5
5	11590.00	52.0 PK	74.0	-22.0	1.50 V	360	38.2	13.8
6	11590.00	41.6 AV	54.0	-12.4	1.50 V	360	27.8	13.8
7	#17385.00	55.6 PK	74.0	-18.4	1.69 V	360	35.7	19.9
8	#17385.00	43.4 AV	54.0	-10.6	1.69 V	360	23.5	19.9

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 Data:

802.11a

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	60.51	28.1 QP	40.0	-11.9	1.00 H	0	37.0	-8.9
2	418.24	26.5 QP	46.0	-19.5	2.00 H	69	30.9	-4.4
3	591.05	27.2 QP	46.0	-18.8	1.50 H	86	27.6	-0.4
4	723.33	28.8 QP	46.0	-17.2	2.50 H	305	27.0	1.8
5	775.37	29.5 QP	46.0	-16.5	1.50 H	238	26.6	2.9
6	810.68	29.8 QP	46.0	-16.2	2.00 H	286	26.7	3.1
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	61.67	28.7 QP	40.0	-11.3	1.50 V	340	38.2	-9.5
2	100.79	24.5 QP	43.5	-19.0	1.00 V	186	37.3	-12.8
3	615.73	30.0 QP	46.0	-16.0	1.00 V	158	30.2	-0.2
4	644.35	29.6 QP	46.0	-16.4	1.50 V	0	29.5	0.1
5	834.95	30.2 QP	46.0	-15.8	1.50 V	306	27.3	2.9
6	924.68	31.3 QP	46.0	-14.7	1.50 V	280	27.0	4.3

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 Transmit Power Measurement

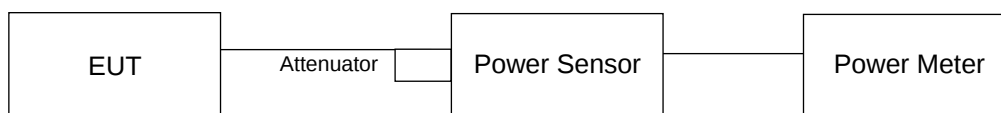
4.2.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 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)

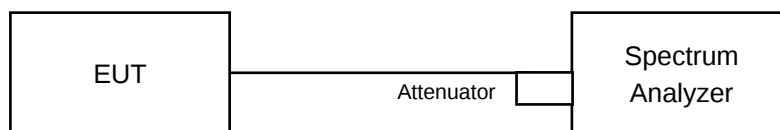
*B is the 26 dB emission bandwidth in megahertz

4.2.2 Test Setup

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 Test Procedure

For AVERAGE POWER MEASUREMENT

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

FOR 26dB OCCUPIED 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%.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Condition

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

4.2.7 Test Result

802.11a

Power Output:

Channel	Channel Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass/Fail
36	5180	14.791	11.70	24.00	Pass
40	5200	13.9	11.43	24.00	Pass
48	5240	12.972	11.13	24.00	Pass
52	5260	12.618	11.01	24.00	Pass
60	5300	11.298	10.53	24.00	Pass
64	5320	12.474	10.96	24.00	Pass
100	5500	12.023	10.80	24.00	Pass
116	5580	15.276	11.84	24.00	Pass
140	5700	19.409	12.88	24.00	Pass
149	5745	21.38	13.30	30.00	Pass
157	5785	21.429	13.31	30.00	Pass
165	5825	16.032	12.05	30.00	Pass

26dB Bandwidth:

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)
52	5260	29.84
60	5300	29.59
64	5320	28.86
100	5500	28.47
116	5580	34.64
140	5700	40.97

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	29.84	25.74 > 24
60	5300	29.59	25.71 > 24
64	5320	28.86	25.6 > 24
100	5500	28.47	25.54 > 24
116	5580	34.64	26.39 > 24
140	5700	40.97	27.12 > 24

802.11n (HT20)

Power Output:

Channel	Channel Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass/Fail
36	5180	13.552	11.32	24.00	Pass
40	5200	13.459	11.29	24.00	Pass
48	5240	12.05	10.81	24.00	Pass
52	5260	11.35	10.55	24.00	Pass
60	5300	11.015	10.42	24.00	Pass
64	5320	10.789	10.33	24.00	Pass
100	5500	9.817	9.92	24.00	Pass
116	5580	12.531	10.98	24.00	Pass
140	5700	16.406	12.15	24.00	Pass
149	5745	19.143	12.82	30.00	Pass
157	5785	18.45	12.66	30.00	Pass
165	5825	16.032	12.05	30.00	Pass

26dB Bandwidth:

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)
52	5260	29.66
60	5300	28.27
64	5320	29.28
100	5500	25.69
116	5580	30.57
140	5700	39.68

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	29.66	25.72 > 24
60	5300	28.27	25.51 > 24
64	5320	29.28	25.66 > 24
100	5500	25.69	25.09 > 24
116	5580	30.57	25.85 > 24
140	5700	39.68	26.98 > 24

802.11n (HT40)

Power Output:

Channel	Channel Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass/Fail
38	5190	13.709	11.37	24.00	Pass
46	5230	12.162	10.85	24.00	Pass
54	5270	11.967	10.78	24.00	Pass
62	5310	19.861	12.98	24.00	Pass
102	5510	8.954	9.52	24.00	Pass
110	5550	10.28	10.12	24.00	Pass
134	5670	15.417	11.88	24.00	Pass
151	5755	14.825	11.71	30.00	Pass
159	5795	15.453	11.89	30.00	Pass

26dB Bandwidth:

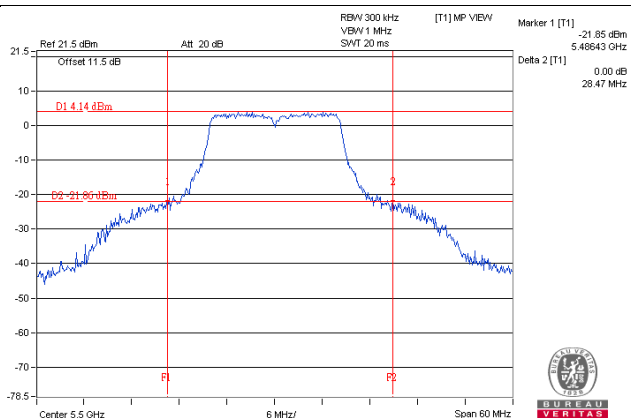
Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)
54	5270	63.68
62	5310	64.15
102	5510	45.99
110	5550	46.75
134	5670	70.32

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

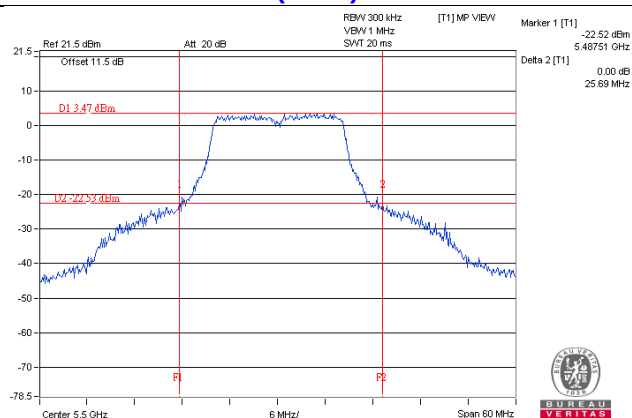
Power Limit = 11dBm + 10logB < U-NII-2A, U-NII-2C >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	63.68	29.04 > 24
62	5310	64.15	29.07 > 24
102	5510	45.99	27.62 > 24
110	5550	46.75	27.69 > 24
134	5670	70.32	29.47 > 24

Spectrum Plot of Worst Value

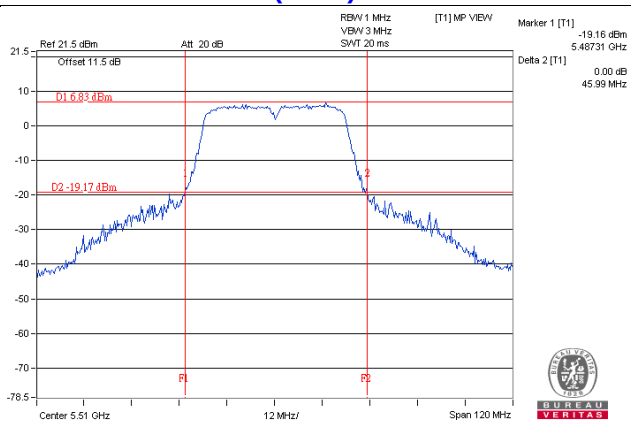
802.11a / CH100



802.11n (HT20) / CH100

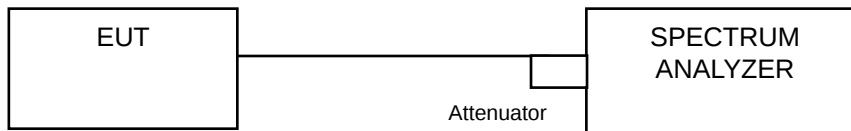


802.11n (HT40) / CH102



4.3 Occupied Bandwidth Measurement

4.3.1 Test Setup



4.3.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.3 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.

4.3.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.52
40	5200	17.52
48	5240	17.40
52	5260	17.16
60	5300	17.16
64	5320	17.16
100	5500	17.28
116	5580	17.52
140	5700	19.44
149	5745	21.60
157	5785	21.36
165	5825	19.32

802.11n (HT20)

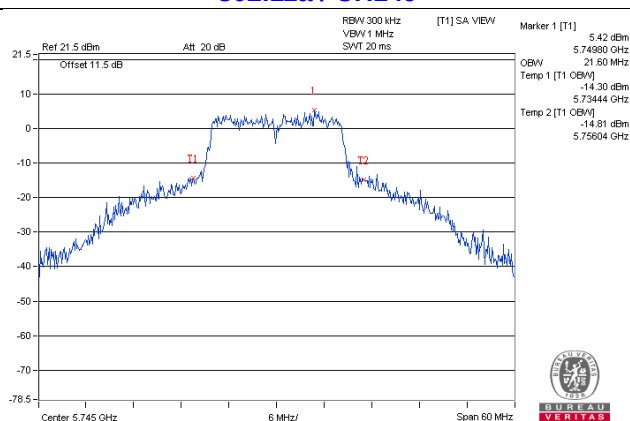
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.52
40	5200	17.52
48	5240	17.28
52	5260	17.28
60	5300	17.40
64	5320	17.16
100	5500	17.04
116	5580	17.16
140	5700	18.96
149	5745	20.76
157	5785	21.00
165	5825	19.68

802.11n (HT40)

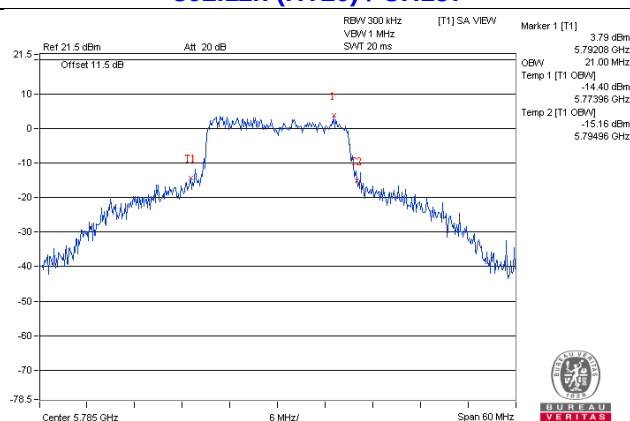
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.72
46	5230	36.72
54	5270	36.72
62	5310	36.72
102	5510	36.48
110	5550	36.72
134	5670	36.96
151	5755	36.72
159	5795	36.96

Spectrum Plot of Worst Value

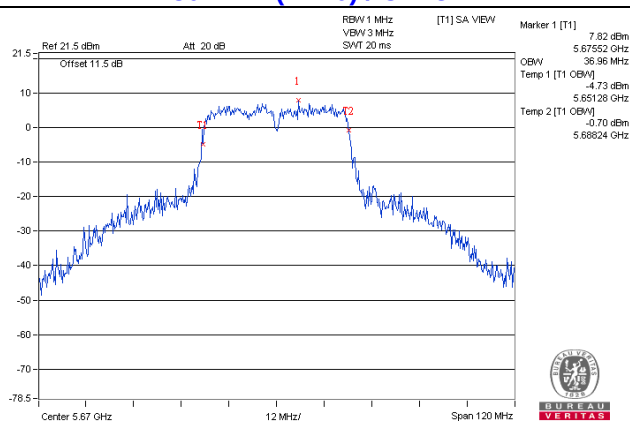
802.11a / CH149



802.11n (HT20) / CH157



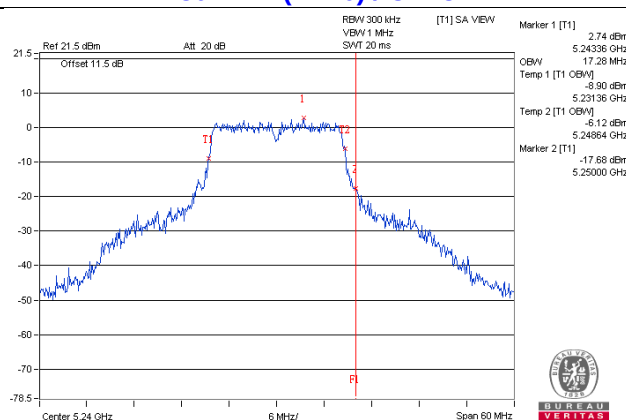
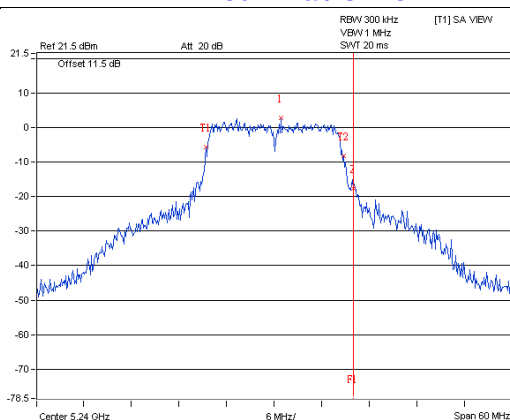
802.11n (HT40) / CH134



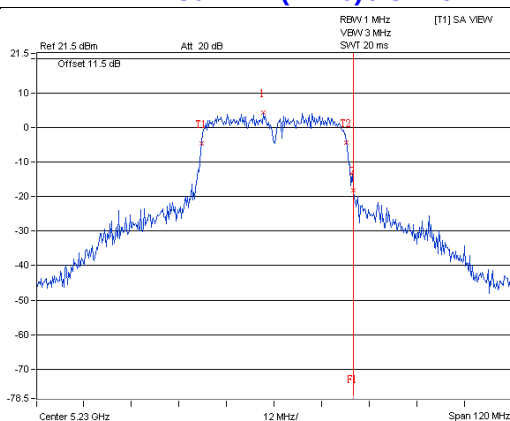
**Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)**

802.11a / CH48

802.11n (HT20) / CH48



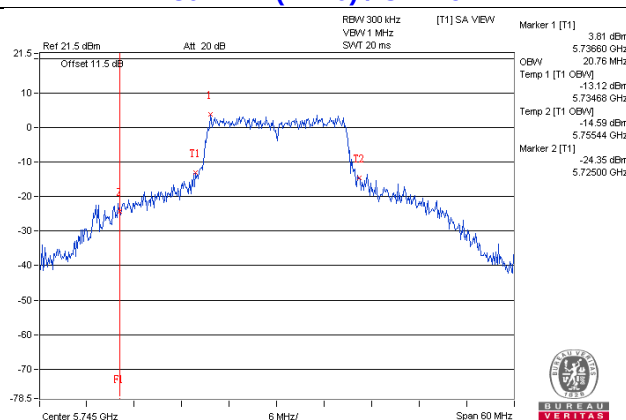
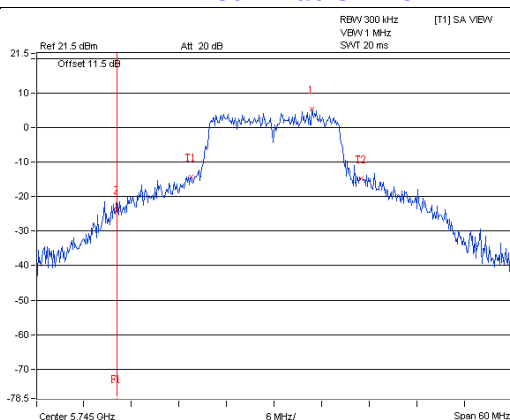
802.11n (HT40) / CH46



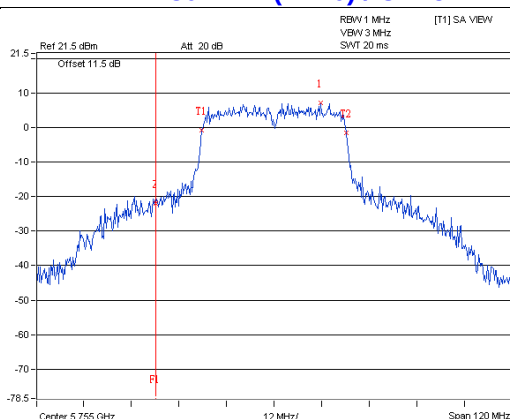
**Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)**

802.11a / CH149

802.11n (HT20) / CH149



802.11n (HT40) / CH151

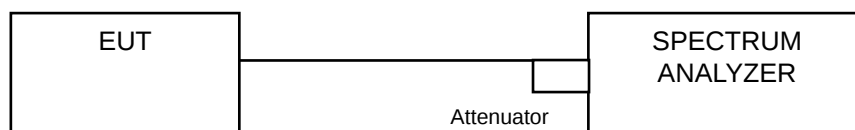


4.4 Peak Power Spectral Density Measurement

4.4.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedure

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

Using method SA-2

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

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 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 $BWCF = 10\log(500\text{ kHz}/300\text{kHz})$
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)

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Condition

Same as Item 4.3.6.

4.4.7 Test Results

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

802.11a

Chan.	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	-1.68	0.16	-1.52	11	Pass
40	5200	-1.51	0.16	-1.35	11	Pass
48	5240	-1.76	0.16	-1.60	11	Pass
52	5260	-2.38	0.16	-2.22	11	Pass
60	5300	-1.85	0.16	-1.69	11	Pass
64	5320	-1.93	0.16	-1.77	11	Pass
100	5500	-0.97	0.16	-0.81	11	Pass
116	5580	0.43	0.16	0.59	11	Pass
140	5700	0.00	0.16	0.16	11	Pass

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

802.11n (HT20)

Chan.	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	-1.40	0.17	-1.23	11	Pass
40	5200	-2.12	0.17	-1.94	11	Pass
48	5240	-1.82	0.17	-1.64	11	Pass
52	5260	-1.95	0.17	-1.78	11	Pass
60	5300	-2.03	0.17	-1.86	11	Pass
64	5320	-2.25	0.17	-2.08	11	Pass
100	5500	-2.15	0.17	-1.98	11	Pass
116	5580	-0.61	0.17	-0.43	11	Pass
140	5700	-0.71	0.17	-0.54	11	Pass

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

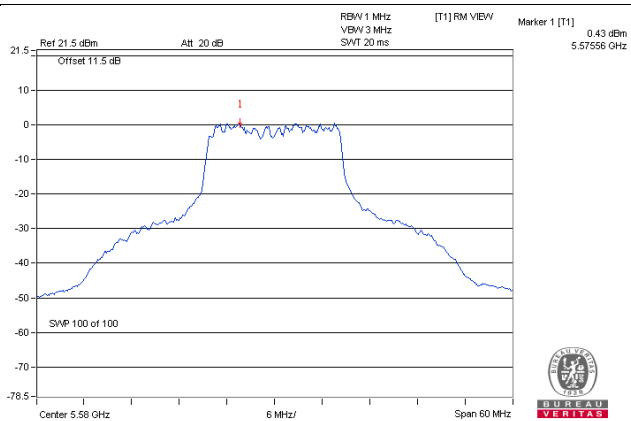
802.11n (HT40)

Chan.	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	-5.70	0.34	-5.36	11	Pass
46	5230	-6.08	0.34	-5.74	11	Pass
54	5270	-6.45	0.34	-6.10	11	Pass
62	5310	-3.28	0.34	-2.94	11	Pass
102	5510	-5.96	0.34	-5.62	11	Pass
110	5550	-5.53	0.34	-5.19	11	Pass
134	5670	-4.21	0.34	-3.87	11	Pass

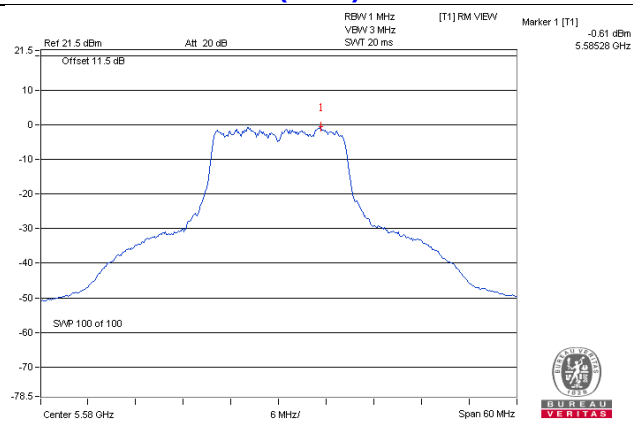
Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

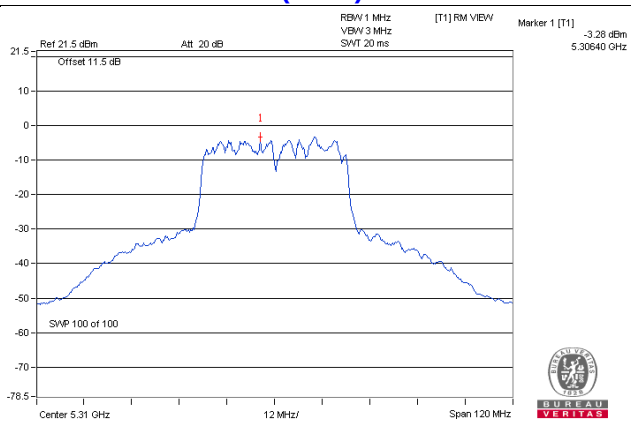
802.11a / CH140



802.11n (HT20) / CH116



802.11n (HT40) / CH62



For U-NII-3:

802.11a

Chan.	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	-8.30	-6.08	0.16	-5.92	30	Pass
157	5785	-7.99	-5.77	0.16	-5.61	30	Pass
165	5825	-8.81	-6.59	0.16	-6.43	30	Pass

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

802.11n (HT20)

Chan.	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	-9.13	-6.91	0.17	-6.74	30	Pass
157	5785	-8.96	-6.74	0.17	-6.57	30	Pass
165	5825	-9.48	-7.26	0.17	-7.09	30	Pass

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

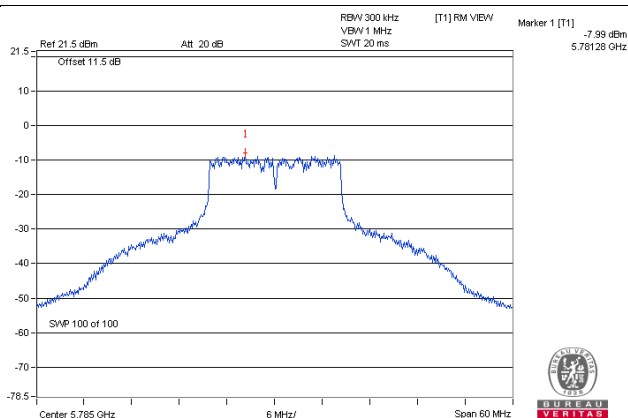
802.11n (HT40)

Chan.	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	-11.88	-9.66	0.34	-9.32	30	Pass
159	5795	-13.02	-10.80	0.34	-10.46	30	Pass

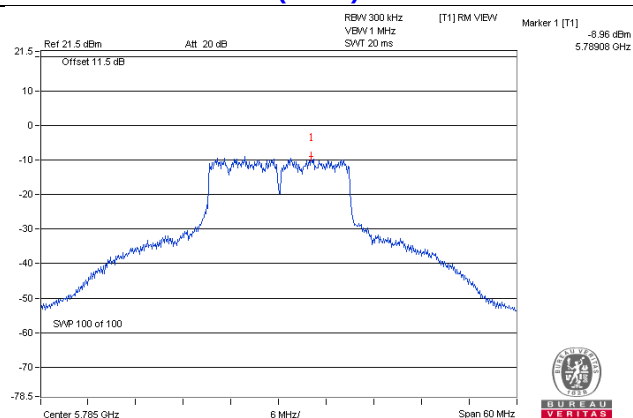
Note: 1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

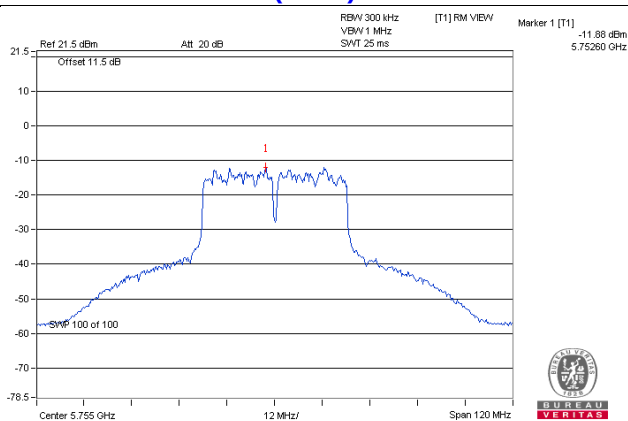
802.11a / CH157



802.11n (HT20) / CH157



802.11n (HT40) / CH151



4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
50	3.7	5180.0177	Pass	5180.0172	Pass	5180.0171	Pass	5180.0165	Pass
40	3.7	5179.9984	Pass	5179.9997	Pass	5179.9988	Pass	5179.9984	Pass
30	3.7	5179.9812	Pass	5179.9829	Pass	5179.9818	Pass	5179.9807	Pass
20	3.7	5179.9806	Pass	5179.9819	Pass	5179.9806	Pass	5179.9803	Pass
10	3.7	5179.9852	Pass	5179.9841	Pass	5179.9832	Pass	5179.9828	Pass
0	3.7	5180.0036	Pass	5180.0049	Pass	5180.0053	Pass	5180.0027	Pass
-10	3.7	5180.022	Pass	5180.0212	Pass	5180.0184	Pass	5180.0186	Pass
-20	3.7	5179.9915	Pass	5179.9915	Pass	5179.9904	Pass	5179.9899	Pass
-30	3.7	5180.0033	Pass	5180.0032	Pass	5180.0041	Pass	5180.0046	Pass

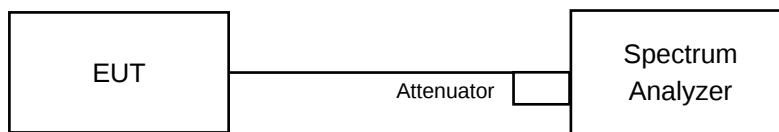
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	3.7	5179.9815	Pass	5179.9813	Pass	5179.9805	Pass	5179.9798	Pass
	3.7	5179.9806	Pass	5179.9819	Pass	5179.9806	Pass	5179.9803	Pass
	3.7	5179.9797	Pass	5179.9812	Pass	5179.981	Pass	5179.9804	Pass

4.6 6dB Bandwidth Measurement

4.6.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

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

MEASUREMENT PROCEDURE REF

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.40	0.5	PASS
157	5785	16.43	0.5	PASS
165	5825	16.39	0.5	PASS

802.11n (HT20)

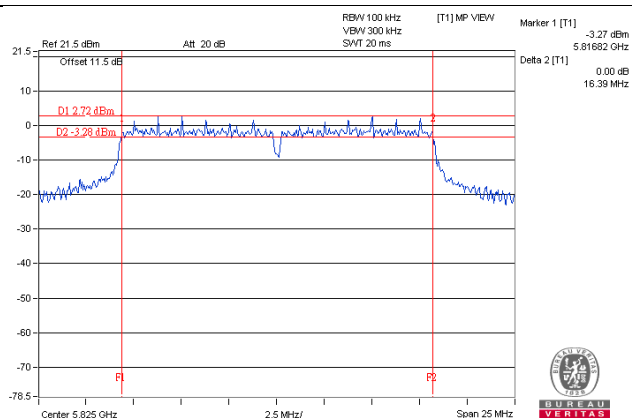
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.65	0.5	PASS
157	5785	17.67	0.5	PASS
165	5825	17.63	0.5	PASS

802.11n (HT40)

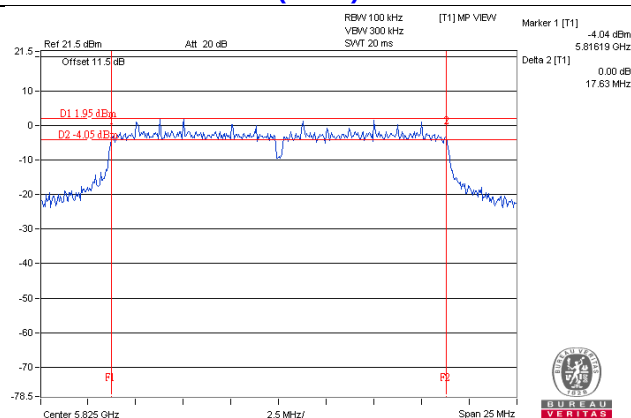
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.32	0.5	PASS
159	5795	35.57	0.5	PASS

Spectrum Plot of Worst Value

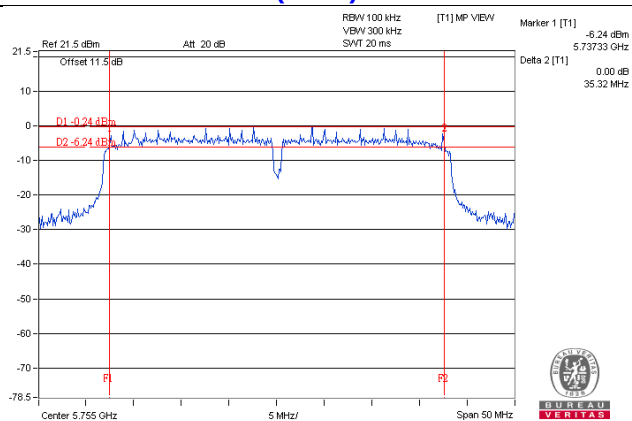
802.11a / CH165



802.11n (HT20) / CH165



802.11n (HT40) / CH151



5 Pictures of Test Arrangements

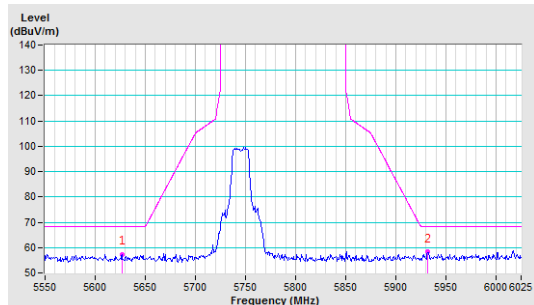
Please refer to the attached file (Test Setup Photo).

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

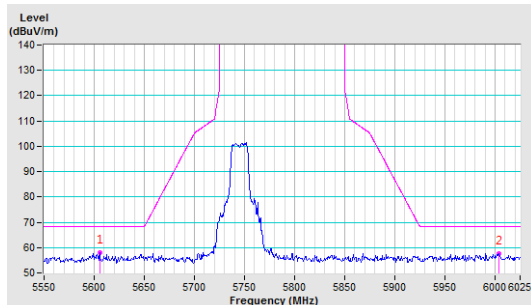
802.11a

CH 149 5745 MHz

Horizontal

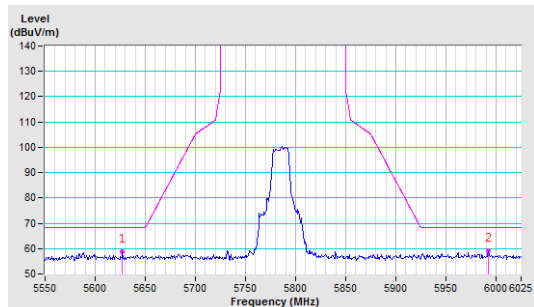


Vertical

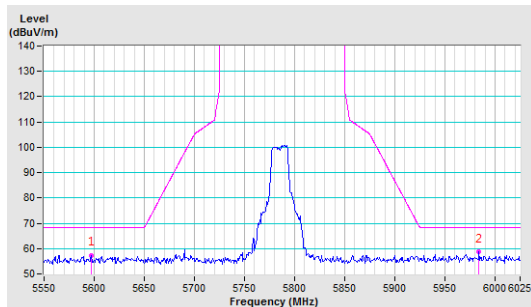


CH 157 5785 MHz

Horizontal

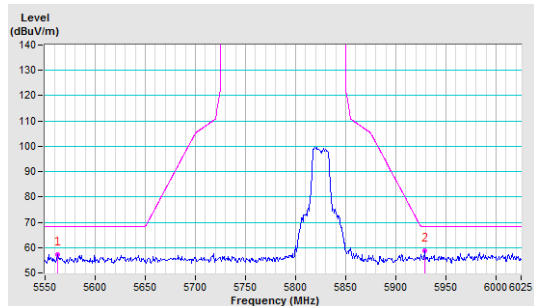


Vertical

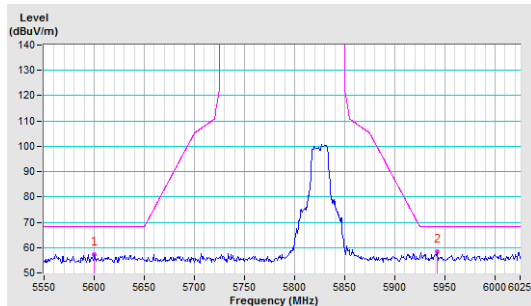


CH 165 5825 MHz

Horizontal



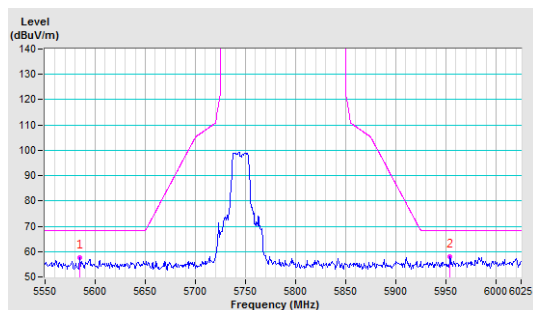
Vertical



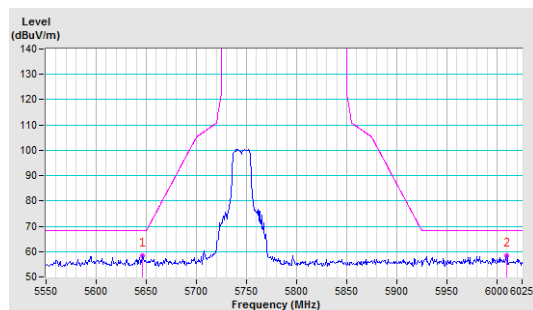
802.11n (HT20)

CH 149 5745 MHz

Horizontal

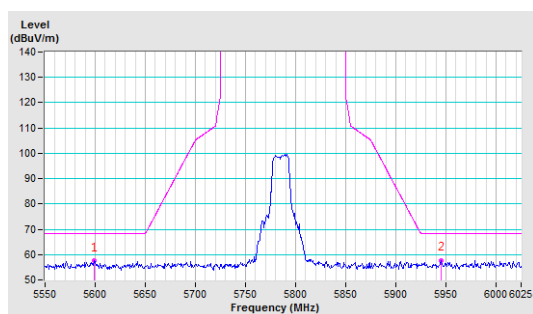


Vertical

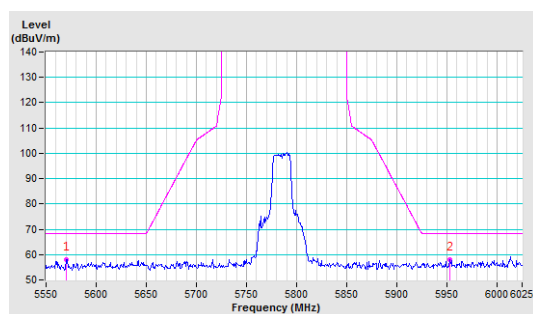


CH 157 5785 MHz

Horizontal

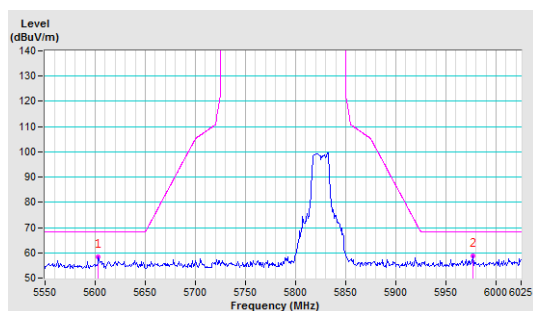


Vertical

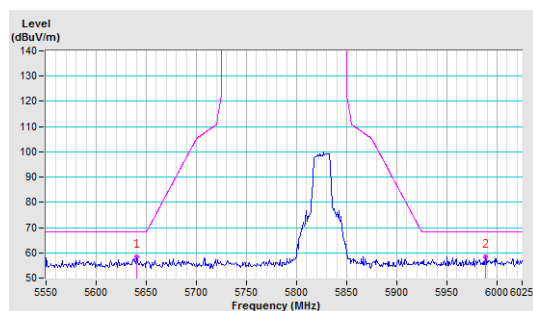


CH 165 5825 MHz

Horizontal



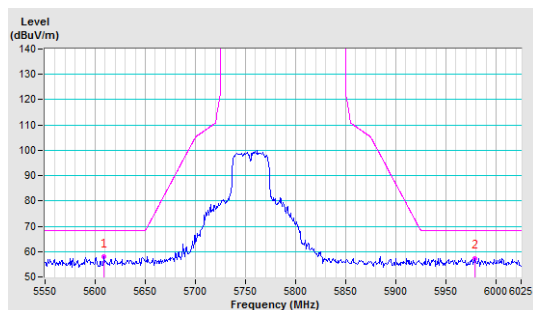
Vertical



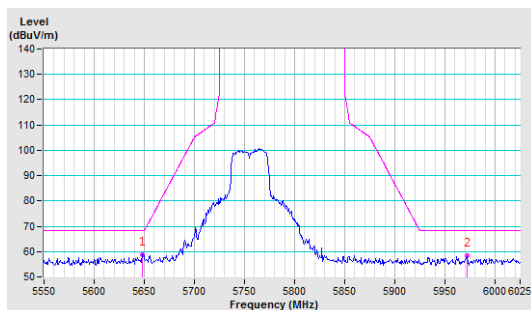
802.11n (HT40)

CH 151 5755 MHz

Horizontal

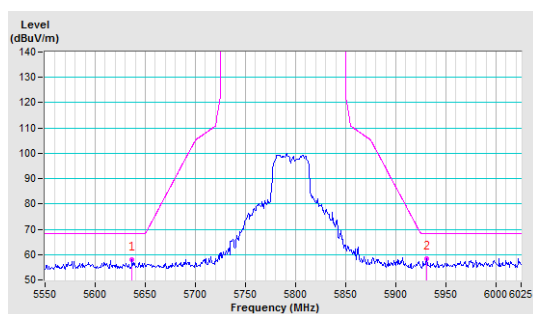


Vertical

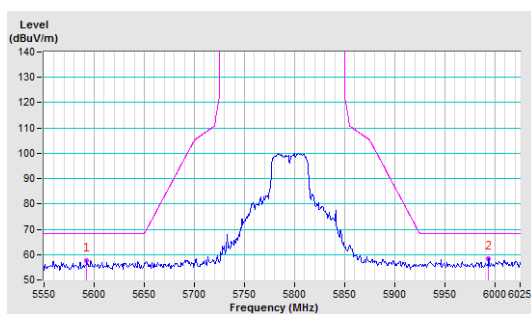


CH 159 5795 MHz

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 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 Lab

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 ---