

Supplementary FCC Test Report

Report No.: RF131028E08F-1

FCC ID: UZ7MC32N0

Test Model: MC32N0

Received Date: Mar. 02, 2015

Test Date: Apr. 01 to 07, 2015

Issued Date: May 06, 2015

Applicant: Zebra Technologies Corporation

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Manufacturer: Symbol Technologies, Inc.

Address: 1 Zebra Plaza Holtsville, NY 1174

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**Report Issue History Record of EUT (MC32N0)**

Attachment No.	Issue Date	Description
131028E08	Feb. 07, 2014	Original
131028E08F-1	May 06, 2015	Upgrade the versions of the standard to section 15.407 under new rule

Release Control Record

Issue No.	Description	Date Issued
RF131028E08F-1	Original release.	May 06, 2015

1 Certificate of Conformity

Product: Mobile Computer

Brand: Symbol

Test Model: MC32N0

Sample Status: MASS PRODUCTION

Applicant: Zebra Technologies Corporation

Test Date: Apr. 01 to 07, 2015

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2009

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

Prepared by : , **Date:** May 06, 2015
Claire Kuan / Specialist

Approved by : , **Date:** May 06, 2015
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (SECTION 15.407 Under New Rule)			
FCC Clause	Test Item	Result	Remarks
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5150.00MHz.
15.407(a)(1/2 /3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(1/2 /3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(e)	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 Hirose U.FL not a standard connector.

- NOTE:** 1. For WLAN: The EUT was operating in 2400~2483.5MHz, 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz.
2. The DFS report was recorded in another test report.
3. This report is prepared for FCC Class II change. (Upgrade the versions of the standard to section 15.407 under new rule).

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) ($\pm$)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.43 dB
	1GHz ~6GHz	3.72 dB
Radiated Emissions above 1 GHz	6GHz ~ 18GHz	4.00 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

Product	Mobile Computer
Brand	Symbol
Test Model	MC32N0
Status of EUT	MASS PRODUCTION
Power Supply Rating	DC 5.4V from power adapter or 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 802.11g / a: up to 54Mbps 802.11n (HT20): up to 72.2Mbps
Operating Frequency	For 15.407 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.7GHz, 5.745~5.825GHz For 15.247 2.412 ~ 2.472GHz
Number of Channel	For 15.407 24 for 802.11a, 802.11n (HT20) For 15.247 13 for 802.11b, 802.11g, 802.11n (HT20)
Output Power	802.11a: 85.901 mW 802.11n (HT20): 76.56mW
Antenna Type	Please see Note
Antenna Connector	Please see Note
Accessory Device	Battery x 1 (Part No.: 21-65587-03)
Data Cable Supplied	NA

Note:

- This report is prepared for FCC Class II change. The difference compared with the Report No.: RF 131028E08-1 design is as the following:
 - ◆ Upgrade the versions of the standard to section 15.407 under new rule
- According to above conditions, all test items of U-NII band 1 and U-NII band 3 and Dynamic Frequency Selection test item need to be performed (except for Conducted Emission test item). And all data was verified to meet the requirements.
- There are Bluetooth 2.1 + EDR technology and WLAN 802.11 a/b/g/n technology.
- For WLAN: 2.4GHz and 5GHz technology cannot transmit at same time.
- WLAN & BT technology can transmit at same time.

6. EUT Configuration list:

	Feature	Straight	Rotate	Gun
OS	WIN CE 7.0	V	V	V
	Android	V	V	V
Display	Size 3", Resolution: 320x320	V	V	V
Flash/RAM	512M/2G	V	V	V
	1G/4G	V	V	V
Scanner	2D Imager SE4750	V		V
	2D Imager SE4500			V
	1D SE965	V	V	V
Keypad	28 keys	V	V	V
	38 keys	V	V	V
	48 keys	V	V	V
Battery	1X	V	V	
	2X	V	V	V
RF	WLAN 802.11 a/b/g/n (HT20)	V	V	V
	BT 2.1 EDR	V	V	V
Accessories	USB1.1 Full speed host/client	V	V	V
	Holster	V	V	V
	Headset	V	V	V

7. The associated devices(optional) of EUT information are as below:

Product	Brand	Model
Headset	MOTOROLA	RCH51
Cable (RCH51 adapter cable to MC32N0) (Part No. : 25-124411-02R)		

8. The Version of EUT information are as below:

WinCE System		
Mobile Computer	OS Version	07.00.2824
	OEM Version	00.40.02
Wireless(Fusion)	Part Number	31-FUSION-X2.01
	Version	X_2.01.0.0.062R
	WLAN Firmware	X_2.01.0.0.166
XW2DMT	Version	X_2.01.0.0.3
	Motorola version	X_2.01.0.0.166
BTRegTest Ver4.1	Version	3.00.2.0.031R

Android System		
Android	Version	4.1.1
EA	Version	2.53
Kernal version	Version	3.0.31

9. The EUT could be supplied with the a power adapter and/or Li-ion battery as below:

Power Adapter	
Brand:	MOTOROLA
Part No.:	PWRS-14000-249R
Input power:	100~240V, 50~60Hz, 0.6A
Output power:	5.4V, 3A
US AC line cord, un-grounded and unshielded, 1.85m (Part No.: 50-16000-182R)	
USB Client Communication and Charging Cable	
Brand:	MOTOROLA
Part No.:	25-67868-03R
Associated Devices:	AC cable*1 (Part No.: 50-16000-182R) Adapter * 1 (Part No.: PWRS-14000-249R)
Li-ion Battery 1	
Brand:	MOTOROLA
Model No.:	82-000011-01
RATING:	3.7V, 2740mAh, 10.2Wh
Li-ion Battery 2	
Brand:	MOTOROLA
Model No.:	82-000012-01
RATING:	3.7V, 4800mAh, 17.8Wh

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

For WLAN

No.	Brand	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)	Cable Loss(dB)	Cable Length(mm)
1	Laird	Rot - Main	PIFA	0.95 (2.4G) 5.5 (5G)	Hirose U.FL	2400~2500 4900~5850	0.1~0.15	61 +2/-1
2	Laird	Rot - Aux	PIFA	0.61 (2.4G) 5.89 (5G)	Hirose U.FL	2400~2500 4900~5850	0.1~0.15	23 +2.5/0
3	Laird	Str - Main	PIFA	1.09 (2.4G) 4.65 (5G)	Hirose U.FL	2400~2500 4900~5850	0.1~0.15	61 +2/-1
4	Laird	Str - Aux	PIFA	0.66 (2.4G) 4.19 (5G)	Hirose U.FL	2400~2500 4900~5850	0.1~0.15	23 +2.5/0
5	Laird	Gun - Main	PIFA	1.77 (2.4G) 4.82 (5G)	Hirose U.FL	2400~2500 4900~5850	0.1~0.15	61 +2/-1
6	Laird	Gun - Aux	PIFA	1.61 (2.4G) 5.82 (5G)	Hirose U.FL	2400~2500 4900~5850	0.1~0.15	23 +2.5/0

Note :

1. For 2.4G: The antenna 5 was selected as representative antenna for the test.

2. For 5G: The antenna 2 was selected as representative antenna for the test.

For Bluetooth

No.	Brand	Model	Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)	Cable Loss(dB)	Cable Length(mm)
7	Aristotle	Rot	PIFA	2.6	IPEX	2400~2480	0.1~0.15	26 ± 0.5
8	Aristotle	Str	PIFA	2.71	IPEX	2400~2480	0.1~0.15	26 ± 0.5
9	Aristotle	Gun	PIFA	3.74	IPEX	2400~2480	0.1~0.15	26 ± 0.5

Note :

1. The antenna 9 was selected as representative antenna for the test.

11. The EUT was pre-tested in chamber under following test modes :

For Radiated Emission (2.4GHz)

Mode	Axis	Scanner	Keypad	Feature	Memory	Antenna	Battery	Adapter
Mode A	X-Y	SE965	48 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode B	X-Z	SE965	48 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode C	Y-Z	SE965	48 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode D	X-Y	SE965	48 keys	Gun	4GBFlash/1GB DDR	Aux	2X	Yes
Mode E	X-Z	SE965	48 keys	Gun	4GBFlash/1GB DDR	Aux	2X	Yes
Mode F	Y-Z	SE965	48 keys	Gun	4GBFlash/1GB DDR	Aux	2X	Yes
Mode G	X-Y	SE965	38 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode H	X-Y	SE965	28 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode I	X-Y	SE4750	48 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode J	X-Y	SE4500	48 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode K	X-Y	SE965	48 keys	Rotate	4GBFlash/1GB DDR	Main	2X	Yes
Mode L	X-Y	SE965	48 keys	Rotate	4GBFlash/1GB DDR	Main	1X	Yes
Mode M	X-Y	SE965	48 keys	Straight	4GBFlash/1GB DDR	Main	2X	Yes
Mode N	X-Y	SE965	48 keys	Straight	2GBFlash/512MB DDR	Main	2X	Yes

For Radiated Emission (5GHz)

Mode	Axis	Scanner	Keypad	Feature	Memory	Antenna	Battery	Adapter
Mode O	X-Y	SE965	48 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode P	X-Z	SE965	48 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode Q	Y-Z	SE965	48 keys	Gun	4GBFlash/1GB DDR	Main	2X	Yes
Mode R	X-Y	SE965	48 keys	Gun	4GBFlash/1GB DDR	Aux	2X	Yes
Mode S	X-Z	SE965	48 keys	Gun	4GBFlash/1GB DDR	Aux	2X	Yes
Mode T	Y-Z	SE965	48 keys	Gun	4GBFlash/1GB DDR	Aux	2X	Yes
Mode U	X-Y	SE4750	48 keys	Gun	4GBFlash/1GB DDR	Aux	2X	Yes
Mode V	X-Y	SE4500	48 keys	Gun	4GBFlash/1GB DDR	Aux	2X	Yes
Mode W	X-Y	SE965	48 keys	Rotate	4GBFlash/1GB DDR	Aux	2X	Yes
Mode X	X-Y	SE965	48 keys	Straight	4GBFlash/1GB DDR	Aux	2X	Yes

The worse radiated emission (2.4GHz) was found in **Mode A** and the worse radiated emission (5GHz) was found in **Mode W**. Therefore only the test data of the modes were recorded in this report.

12. The EUT incorporates a SISO function. Both, main and diversity (aux.) antennas path can transmit but only one can transmit at given time while the other is RX only.

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

13. 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

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		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE $\geq$ 1G	RE<1G	APCM	
-	√	√	√	-

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

NOTE:

1. The test mode was reference to the worst case in the original test report.

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, 44, 48	OFDM	BPSK	6
802.11n (HT20)		36 to 48	36, 40, 44, 48	OFDM	BPSK	6.5
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

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	36, 40, 44, 48	OFDM	BPSK	6
802.11n (HT20)		36 to 48	36, 40, 44, 48	OFDM	BPSK	6.5
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

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, 44, 48	OFDM	BPSK	6
802.11n (HT20)		36 to 48	36, 40, 44, 48	OFDM	BPSK	6.5
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

Test Condition:

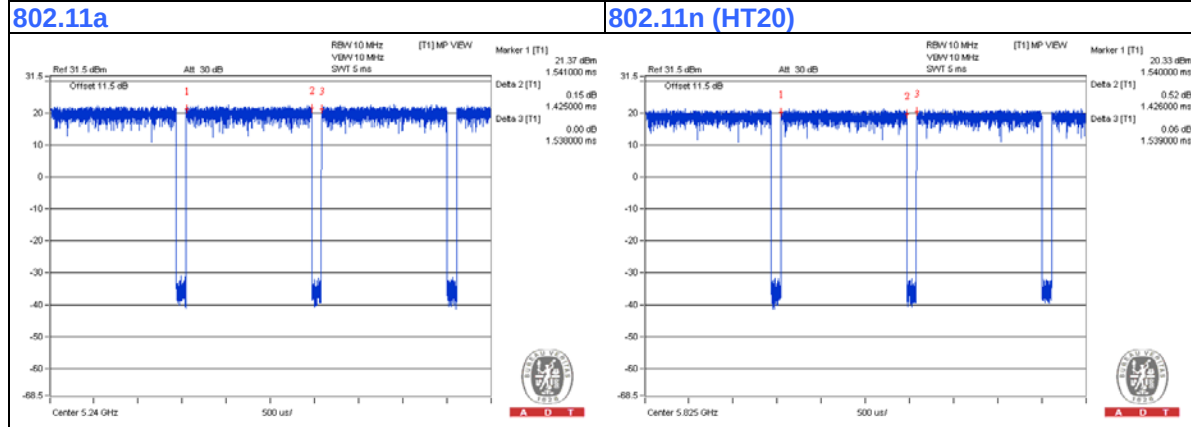
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	23deg. C, 68%RH	120Vac, 60Hz	Tim Ho
RE $<$ 1G	23deg. C, 68%RH	120Vac, 60Hz	Tim Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

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

802.11a: Duty cycle = 1.426 ms/1.539 ms = 0.927, Duty factor = $10 * \log(1/0.927) = 0.33$

802.11n (HT20): Duty cycle = 1.205 ms/1.318 ms = 0.914, Duty factor = $10 * \log(1/0.914) = 0.39$



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v01

ANSI C63.10-2009

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 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 Procedures New Rules v01	FIELD STRENGTH AT 3m	
	PK:74 (dBuV/m)	AV:54 (dBuV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBuV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK:-27 (dBm/MHz) ^{*1} PK:-17 (dBm/MHz) ^{*2}	PK: 68.2(dBuV/m) ^{*1} PK:78.2 (dBuV/m) ^{*2}

NOTE: ^{*1} beyond 10MHz of the band edge ^{*2} within 10 MHz of band edge

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
MXE EMI Receiver Agilent	N9038A	MY50010156	aug. 11, 2014	aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 6, 2015	Feb. 5, 2016
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Aug. 26, 2014	Aug. 25, 2015
Pre-Amplifier Agilent	8449B	300801923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.
6. Tested Date: Apr. 02, 2015

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters 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:

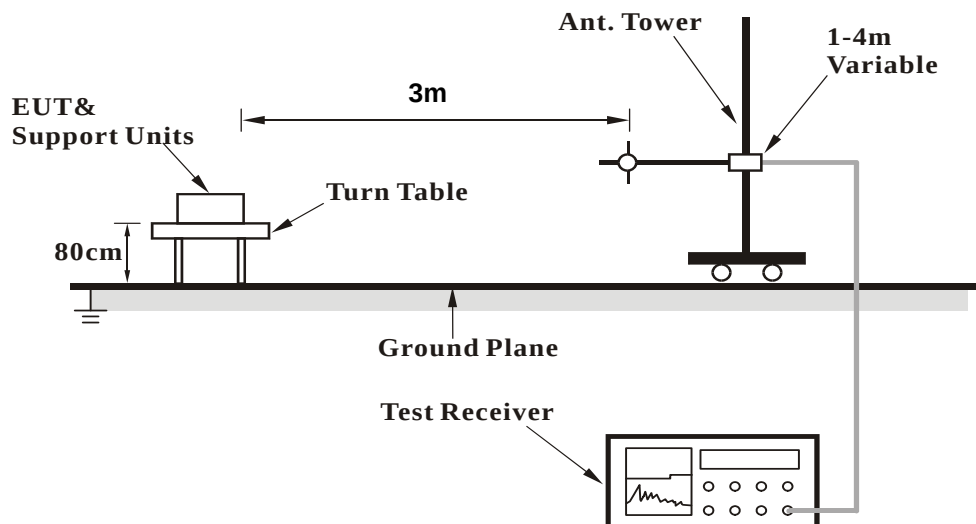
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

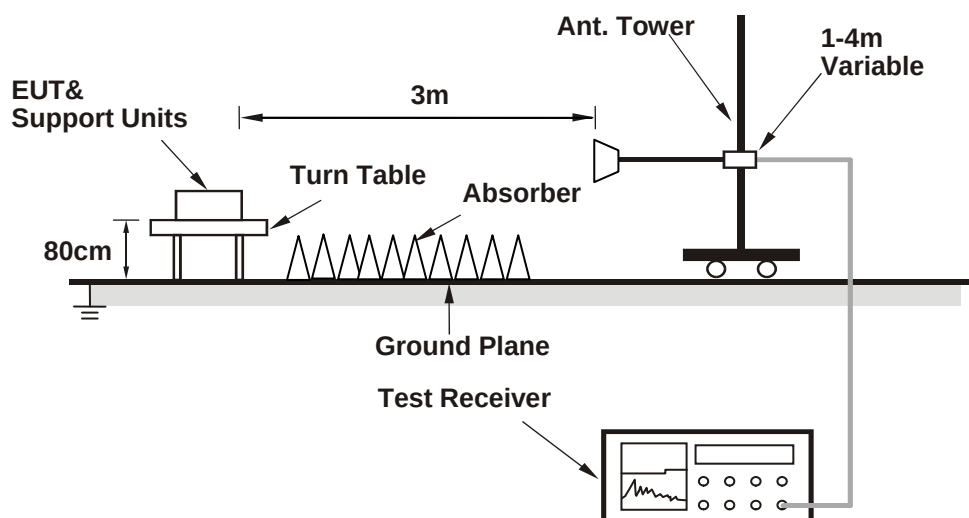
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

1. Turn on the power of EUT.
2. The communication partner run test program "XW2DMT.exe" 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	66.3 PK	74.0	-7.7	1.55 H	332	25.30	41.00
2	5150.00	49.3 AV	54.0	-4.7	1.55 H	332	8.30	41.00
3	*5180.00	106.3 PK			1.55 H	332	65.19	41.11
4	*5180.00	96.9 AV			1.55 H	332	55.79	41.11
5	#10360.00	51.9 PK	74.0	-22.1	1.05 H	183	4.52	47.38
6	#10360.00	40.2 AV	54.0	-13.8	1.05 H	183	-7.18	47.38
7	15540.00	51.2 PK	74.0	-22.8	1.03 H	116	-0.81	52.01
8	15540.00	42.1 AV	54.0	-11.9	1.03 H	116	-9.91	52.01
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	70.7 PK	74.0	-3.3	1.13 V	320	29.70	41.00
2	5150.00	53.0 AV	54.0	-1.0	1.13 V	320	12.00	41.00
3	*5180.00	111.1 PK			1.13 V	320	69.99	41.11
4	*5180.00	101.5 AV			1.13 V	320	60.39	41.11
5	#10360.00	52.1 PK	74.0	-21.9	1.02 V	164	4.72	47.38
6	#10360.00	40.0 AV	54.0	-14.0	1.02 V	164	-7.38	47.38
7	15540.00	52.0 PK	74.0	-22.0	1.05 V	163	-0.01	52.01
8	15540.00	42.3 AV	54.0	-11.7	1.05 V	163	-9.71	52.01

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	5150.00	63.2 PK	74.0	-10.8	1.55 H	344	22.20	41.00
2	5150.00	47.9 AV	54.0	-6.1	1.55 H	344	6.90	41.00
3	*5200.00	110.7 PK			1.55 H	344	69.54	41.16
4	*5200.00	101.1 AV			1.55 H	344	59.94	41.16
5	#10400.00	52.4 PK	74.0	-21.6	1.05 H	173	5.07	47.33
6	#10400.00	40.4 AV	54.0	-13.6	1.05 H	173	-6.93	47.33
7	15600.00	51.3 PK	74.0	-22.7	1.05 H	122	-0.86	52.16
8	15600.00	42.3 AV	54.0	-11.7	1.05 H	122	-9.86	52.16

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	67.6 PK	74.0	-6.4	1.11 V	320	26.60	41.00
2	5150.00	52.3 AV	54.0	-1.7	1.11 V	320	11.30	41.00
3	*5200.00	114.8 PK			1.11 V	320	73.64	41.16
4	*5200.00	105.1 AV			1.11 V	320	63.94	41.16
5	#10400.00	53.4 PK	74.0	-20.6	1.01 V	171	6.07	47.33
6	#10400.00	41.2 AV	54.0	-12.8	1.01 V	171	-6.13	47.33
7	15600.00	53.3 PK	74.0	-20.7	1.11 V	171	1.14	52.16
8	15600.00	43.6 AV	54.0	-10.4	1.11 V	171	-8.56	52.16

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 44	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	54.4 PK	74.0	-19.6	1.51 H	347	13.40	41.00
2	5150.00	43.3 AV	54.0	-10.7	1.51 H	347	2.30	41.00
3	*5220.00	110.5 PK			1.51 H	347	69.32	41.18
4	*5220.00	100.7 AV			1.51 H	347	59.52	41.18
5	5350.00	55.0 PK	74.0	-19.0	1.51 H	347	13.62	41.38
6	5350.00	42.1 AV	54.0	-11.9	1.51 H	347	0.72	41.38
7	#10440.00	51.7 PK	74.0	-22.3	1.05 H	176	4.34	47.36
8	#10440.00	39.8 AV	54.0	-14.2	1.05 H	176	-7.56	47.36
9	15660.00	51.2 PK	74.0	-22.8	1.00 H	107	-0.90	52.10
10	15660.00	42.0 AV	54.0	-12.0	1.00 H	107	-10.10	52.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.3 PK	74.0	-15.7	1.11 V	319	17.30	41.00
2	5150.00	46.9 AV	54.0	-7.1	1.11 V	319	5.90	41.00
3	*5220.00	114.2 PK			1.11 V	319	73.02	41.18
4	*5220.00	104.7 AV			1.11 V	319	63.52	41.18
5	5350.00	54.9 PK	74.0	-19.1	1.11 V	319	13.52	41.38
6	5350.00	41.8 AV	54.0	-12.2	1.11 V	319	0.42	41.38
7	#10440.00	51.7 PK	74.0	-22.3	1.08 V	158	4.34	47.36
8	#10440.00	39.9 AV	54.0	-14.1	1.08 V	158	-7.46	47.36
9	15660.00	51.7 PK	74.0	-22.3	1.06 V	155	-0.40	52.10
10	15660.00	42.2 AV	54.0	-11.8	1.06 V	155	-9.90	52.10

REMARKS:

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

CHANNEL	TX Channel 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	111.5 PK			1.51 H	341	70.29	41.21
2	*5240.00	101.0 AV			1.51 H	341	59.79	41.21
3	5350.00	55.4 PK	74.0	-18.6	1.51 H	341	14.02	41.38
4	5350.00	42.1 AV	54.0	-11.9	1.51 H	341	0.72	41.38
5	#10480.00	52.6 PK	74.0	-21.4	1.11 H	179	5.21	47.39
6	#10480.00	40.7 AV	54.0	-13.3	1.11 H	179	-6.69	47.39
7	15720.00	50.9 PK	74.0	-23.1	1.08 H	107	-1.22	52.12
8	15720.00	41.8 AV	54.0	-12.2	1.08 H	107	-10.32	52.12
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	115.5 PK			1.11 V	320	74.29	41.21
2	*5240.00	104.8 AV			1.11 V	320	63.59	41.21
3	5350.00	55.6 PK	74.0	-18.4	1.11 V	320	14.22	41.38
4	5350.00	42.1 AV	54.0	-11.9	1.11 V	320	0.72	41.38
5	#10480.00	52.0 PK	74.0	-22.0	1.00 V	148	4.61	47.39
6	#10480.00	40.0 AV	54.0	-14.0	1.00 V	148	-7.39	47.39
7	15720.00	51.7 PK	74.0	-22.3	1.00 V	155	-0.42	52.12
8	15720.00	42.2 AV	54.0	-11.8	1.00 V	155	-9.92	52.12

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	#5715.00	60.2 PK	74.0	-13.8	1.58 H	347	18.32	41.88
2	#5715.00	44.1 AV	54.0	-9.9	1.58 H	347	2.22	41.88
3	#5725.00	73.1 PK	78.2	-5.1	1.58 H	347	31.19	41.91
4	*5745.00	103.6 PK			1.58 H	347	61.67	41.93
5	*5745.00	93.5 AV			1.58 H	347	51.57	41.93
6	11490.00	52.4 PK	74.0	-21.6	1.05 H	188	4.65	47.75
7	11490.00	40.3 AV	54.0	-13.7	1.05 H	188	-7.45	47.75
8	#17235.00	51.6 PK	74.0	-22.4	1.01 H	125	-4.15	55.75
9	#17235.00	42.7 AV	54.0	-11.3	1.01 H	125	-13.05	55.75

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	#5715.00	64.9 PK	74.0	-9.1	1.11 V	312	23.02	41.88
2	#5715.00	48.5 AV	54.0	-5.5	1.11 V	312	6.62	41.88
3	#5725.00	76.8 PK	78.2	-1.4	1.11 V	312	34.89	41.91
4	*5745.00	108.1 PK			1.11 V	312	66.17	41.93
5	*5745.00	98.0 AV			1.11 V	312	56.07	41.93
6	11490.00	53.8 PK	74.0	-20.2	1.08 V	189	6.05	47.75
7	11490.00	41.5 AV	54.0	-12.5	1.08 V	189	-6.25	47.75
8	#17235.00	53.3 PK	74.0	-20.7	1.11 V	199	-2.45	55.75
9	#17235.00	43.6 AV	54.0	-10.4	1.11 V	199	-12.15	55.75

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	*5785.00	105.0 PK			1.50 H	330	63.00	42.00
2	*5785.00	96.0 AV			1.50 H	330	54.00	42.00
3	11570.00	52.0 PK	74.0	-22.0	1.10 H	169	4.21	47.79
4	11570.00	40.2 AV	54.0	-13.8	1.10 H	169	-7.59	47.79
5	#17355.00	51.8 PK	74.0	-22.2	1.11 H	134	-4.14	55.94
6	#17355.00	42.6 AV	54.0	-11.4	1.11 H	134	-13.34	55.94

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	*5785.00	108.7 PK			1.11 V	313	66.70	42.00
2	*5785.00	99.6 AV			1.11 V	313	57.60	42.00
3	11570.00	53.8 PK	74.0	-20.2	1.06 V	176	6.01	47.79
4	11570.00	41.6 AV	54.0	-12.4	1.06 V	176	-6.19	47.79
5	#17355.00	53.9 PK	74.0	-20.1	1.11 V	193	-2.04	55.94
6	#17355.00	44.0 AV	54.0	-10.0	1.11 V	193	-11.94	55.94

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	*5825.00	106.3 PK			1.59 H	326	64.23	42.07
2	*5825.00	95.7 AV			1.59 H	326	53.63	42.07
3	#5850.00	70.5 PK	78.2	-7.7	1.59 H	326	28.37	42.13
4	#5860.00	59.9 PK	74.0	-14.1	1.59 H	326	17.74	42.16
5	#5860.00	46.1 AV	54.0	-7.9	1.59 H	326	3.94	42.16
6	11650.00	52.4 PK	74.0	-21.6	1.06 H	174	4.55	47.85
7	11650.00	40.1 AV	54.0	-13.9	1.06 H	174	-7.75	47.85
8	#17475.00	51.1 PK	74.0	-22.9	1.08 H	107	-5.05	56.15
9	#17475.00	42.1 AV	54.0	-11.9	1.08 H	107	-14.05	56.15

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	*5825.00	109.6 PK			1.11 V	313	67.53	42.07
2	*5825.00	99.2 AV			1.11 V	313	57.13	42.07
3	#5850.00	74.7 PK	78.2	-3.5	1.11 V	313	32.57	42.13
4	#5860.00	63.7 PK	74.0	-10.3	1.11 V	313	21.54	42.16
5	#5860.00	50.0 AV	54.0	-4.0	1.11 V	313	7.84	42.16
6	11650.00	54.1 PK	74.0	-19.9	1.00 V	191	6.25	47.85
7	11650.00	41.9 AV	54.0	-12.1	1.00 V	191	-5.95	47.85
8	#17475.00	54.1 PK	74.0	-19.9	1.08 V	197	-2.05	56.15
9	#17475.00	44.3 AV	54.0	-9.7	1.08 V	197	-11.85	56.15

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	65.9 PK	74.0	-8.1	1.55 H	348	24.90	41.00
2	5150.00	49.0 AV	54.0	-5.0	1.55 H	348	8.00	41.00
3	*5180.00	108.0 PK			1.55 H	348	66.89	41.11
4	*5180.00	96.8 AV			1.55 H	348	55.69	41.11
5	#10360.00	52.0 PK	74.0	-22.0	1.08 H	169	4.62	47.38
6	#10360.00	40.5 AV	54.0	-13.5	1.08 H	169	-6.88	47.38
7	15540.00	51.4 PK	74.0	-22.6	1.08 H	126	-0.61	52.01
8	15540.00	42.2 AV	54.0	-11.8	1.08 H	126	-9.81	52.01
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	69.8 PK	74.0	-4.2	1.12 V	320	28.80	41.00
2	5150.00	53.0 AV	54.0	-1.0	1.12 V	320	12.00	41.00
3	*5180.00	112.3 PK			1.12 V	320	71.19	41.11
4	*5180.00	101.1 AV			1.12 V	320	59.99	41.11
5	#10360.00	52.3 PK	74.0	-21.7	1.00 V	175	4.92	47.38
6	#10360.00	40.4 AV	54.0	-13.6	1.00 V	175	-6.98	47.38
7	15540.00	51.8 PK	74.0	-22.2	1.02 V	150	-0.21	52.01
8	15540.00	42.0 AV	54.0	-12.0	1.02 V	150	-10.01	52.01

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 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	5150.00	63.8 PK	74.0	-10.2	1.58 H	327	22.80	41.00
2	5150.00	48.5 AV	54.0	-5.5	1.58 H	327	7.50	41.00
3	*5200.00	110.8 PK			1.58 H	327	69.64	41.16
4	*5200.00	100.4 AV			1.58 H	327	59.24	41.16
5	#10400.00	52.0 PK	74.0	-22.0	1.09 H	170	4.67	47.33
6	#10400.00	40.3 AV	54.0	-13.7	1.09 H	170	-7.03	47.33
7	15600.00	51.0 PK	74.0	-23.0	1.07 H	126	-1.16	52.16
8	15600.00	41.7 AV	54.0	-12.3	1.07 H	126	-10.46	52.16
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	67.8 PK	74.0	-6.2	1.16 V	313	26.80	41.00
2	5150.00	52.4 AV	54.0	-1.6	1.16 V	313	11.40	41.00
3	*5200.00	115.2 PK			1.16 V	313	74.04	41.16
4	*5200.00	104.9 AV			1.16 V	313	63.74	41.16
5	#10400.00	53.4 PK	74.0	-20.6	1.05 V	173	6.07	47.33
6	#10400.00	41.5 AV	54.0	-12.5	1.05 V	173	-5.83	47.33
7	15600.00	53.7 PK	74.0	-20.3	1.16 V	156	1.54	52.16
8	15600.00	44.1 AV	54.0	-9.9	1.16 V	156	-8.06	52.16

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 44	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	54.6 PK	74.0	-19.4	1.60 H	333	13.60	41.00
2	5150.00	43.1 AV	54.0	-10.9	1.60 H	333	2.10	41.00
3	*5220.00	110.6 PK			1.60 H	333	69.42	41.18
4	*5220.00	100.5 AV			1.60 H	333	59.32	41.18
5	#10440.00	51.4 PK	74.0	-22.6	1.04 H	188	4.04	47.36
6	#10440.00	39.8 AV	54.0	-14.2	1.04 H	188	-7.56	47.36
7	15660.00	51.2 PK	74.0	-22.8	1.05 H	125	-0.90	52.10
8	15660.00	42.3 AV	54.0	-11.7	1.05 H	125	-9.80	52.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.6 PK	74.0	-15.4	1.16 V	313	17.60	41.00
2	5150.00	47.3 AV	54.0	-6.7	1.16 V	313	6.30	41.00
3	*5220.00	115.0 PK			1.16 V	313	73.82	41.18
4	*5220.00	104.7 AV			1.16 V	313	63.52	41.18
5	#10440.00	53.3 PK	74.0	-20.7	1.00 V	175	5.94	47.36
6	#10440.00	40.9 AV	54.0	-13.1	1.00 V	175	-6.46	47.36
7	15660.00	53.5 PK	74.0	-20.5	1.13 V	186	1.40	52.10
8	15660.00	43.6 AV	54.0	-10.4	1.13 V	186	-8.50	52.10

REMARKS:

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

CHANNEL	TX Channel 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	110.8 PK			1.51 H	331	69.59	41.21
2	*5240.00	100.6 AV			1.51 H	331	59.39	41.21
3	5350.00	54.7 PK	74.0	-19.3	1.51 H	331	13.32	41.38
4	5350.00	41.7 AV	54.0	-12.3	1.51 H	331	0.32	41.38
5	#10480.00	51.9 PK	74.0	-22.1	1.06 H	190	4.51	47.39
6	#10480.00	40.3 AV	54.0	-13.7	1.06 H	190	-7.09	47.39
7	15720.00	50.8 PK	74.0	-23.2	1.05 H	139	-1.32	52.12
8	15720.00	42.2 AV	54.0	-11.8	1.05 H	139	-9.92	52.12
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	114.7 PK			1.11 V	319	73.49	41.21
2	*5240.00	104.5 AV			1.11 V	319	63.29	41.21
3	5350.00	54.6 PK	74.0	-19.4	1.11 V	319	13.22	41.38
4	5350.00	41.7 AV	54.0	-12.3	1.11 V	319	0.32	41.38
5	#10480.00	53.5 PK	74.0	-20.5	1.02 V	160	6.11	47.39
6	#10480.00	40.8 AV	54.0	-13.2	1.02 V	160	-6.59	47.39
7	15720.00	53.1 PK	74.0	-20.9	1.10 V	186	0.98	52.12
8	15720.00	43.2 AV	54.0	-10.8	1.10 V	186	-8.92	52.12

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	#5715.00	58.6 PK	74.0	-15.4	1.60 H	344	16.72	41.88
2	#5715.00	43.8 AV	54.0	-10.2	1.60 H	344	1.92	41.88
3	#5725.00	72.7 PK	78.2	-5.5	1.60 H	344	30.79	41.91
4	*5745.00	103.5 PK			1.60 H	344	61.57	41.93
5	*5745.00	92.8 AV			1.60 H	344	50.87	41.93
6	11490.00	52.2 PK	74.0	-21.8	1.06 H	173	4.45	47.75
7	11490.00	40.1 AV	54.0	-13.9	1.06 H	173	-7.65	47.75
8	#17235.00	50.8 PK	74.0	-23.2	1.10 H	138	-4.95	55.75
9	#17235.00	41.9 AV	54.0	-12.1	1.10 H	138	-13.85	55.75

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	#5715.00	62.1 PK	74.0	-11.9	1.11 V	312	20.22	41.88
2	#5715.00	47.4 AV	54.0	-6.6	1.11 V	312	5.52	41.88
3	#5725.00	77.1 PK	78.2	-1.1	1.11 V	312	35.19	41.91
4	*5745.00	107.6 PK			1.11 V	312	65.67	41.93
5	*5745.00	97.1 AV			1.11 V	312	55.17	41.93
6	11490.00	53.7 PK	74.0	-20.3	1.11 V	191	5.95	47.75
7	11490.00	41.7 AV	54.0	-12.3	1.11 V	191	-6.05	47.75
8	#17235.00	54.0 PK	74.0	-20.0	1.11 V	189	-1.75	55.75
9	#17235.00	44.0 AV	54.0	-10.0	1.11 V	189	-11.75	55.75

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	*5785.00	104.7 PK			1.59 H	318	62.70	42.00
2	*5785.00	94.3 AV			1.59 H	318	52.30	42.00
3	11570.00	52.7 PK	74.0	-21.3	1.10 H	173	4.91	47.79
4	11570.00	40.8 AV	54.0	-13.2	1.10 H	173	-6.99	47.79
5	#17355.00	51.8 PK	74.0	-22.2	1.07 H	114	-4.14	55.94
6	#17355.00	42.6 AV	54.0	-11.4	1.07 H	114	-13.34	55.94

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	*5785.00	109.1 PK			1.14 V	312	67.10	42.00
2	*5785.00	98.5 AV			1.14 V	312	56.50	42.00
3	11570.00	53.2 PK	74.0	-20.8	1.03 V	172	5.41	47.79
4	11570.00	41.2 AV	54.0	-12.8	1.03 V	172	-6.59	47.79
5	#17355.00	53.5 PK	74.0	-20.5	1.09 V	179	-2.44	55.94
6	#17355.00	43.6 AV	54.0	-10.4	1.09 V	179	-12.34	55.94

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	*5825.00	105.1 PK			1.51 H	334	63.03	42.07
2	*5825.00	94.4 AV			1.51 H	334	52.33	42.07
3	#5850.00	71.0 PK	78.2	-7.2	1.51 H	334	28.87	42.13
4	#5860.00	59.4 PK	74.0	-14.6	1.51 H	334	17.24	42.16
5	#5860.00	46.2 AV	54.0	-7.8	1.51 H	334	4.04	42.16
6	11650.00	52.3 PK	74.0	-21.7	1.00 H	175	4.45	47.85
7	11650.00	40.2 AV	54.0	-13.8	1.00 H	175	-7.65	47.85
8	#17475.00	51.5 PK	74.0	-22.5	1.03 H	119	-4.65	56.15
9	#17475.00	42.3 AV	54.0	-11.7	1.03 H	119	-13.85	56.15

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	*5825.00	108.8 PK			1.09 V	313	66.73	42.07
2	*5825.00	98.3 AV			1.09 V	313	56.23	42.07
3	#5850.00	74.4 PK	78.2	-3.8	1.09 V	313	32.27	42.13
4	#5860.00	62.9 PK	74.0	-11.1	1.09 V	313	20.74	42.16
5	#5860.00	49.7 AV	54.0	-4.3	1.09 V	313	7.54	42.16
6	11650.00	53.8 PK	74.0	-20.2	1.01 V	177	5.95	47.85
7	11650.00	41.7 AV	54.0	-12.3	1.01 V	177	-6.15	47.85
8	#17475.00	54.0 PK	74.0	-20.0	1.08 V	188	-2.15	56.15
9	#17475.00	43.9 AV	54.0	-10.1	1.08 V	188	-12.25	56.15

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 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.31	34.3 QP	40.0	-5.7	2.00 H	92	53.10	-18.81
2	217.60	36.0 QP	46.0	-10.0	1.00 H	288	52.06	-16.09
3	288.02	42.3 QP	46.0	-3.7	1.00 H	102	54.71	-12.39
4	302.38	39.2 QP	46.0	-6.8	1.00 H	299	50.99	-11.80
5	649.49	30.7 QP	46.0	-15.3	1.00 H	39	34.62	-3.90
6	699.15	32.2 QP	46.0	-13.8	1.50 H	356	35.53	-3.37
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	60.85	34.7 QP	40.0	-5.3	1.00 V	248	48.73	-14.01
2	68.95	35.9 QP	40.0	-4.2	1.00 V	117	50.99	-15.14
3	100.33	37.9 QP	43.5	-5.6	1.00 V	245	55.17	-17.23
4	288.65	40.1 QP	46.0	-6.0	1.50 V	360	52.41	-12.36
5	604.77	40.0 QP	46.0	-6.0	1.50 V	147	44.55	-4.55
6	956.98	33.3 QP	46.0	-12.7	2.00 V	269	32.10	1.16

REMARKS:

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

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	89	53.04	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	282	52.01	-16.09
3	288.02	42.3 QP	46.0	-3.7	1.00 H	98	54.67	-12.39
4	649.49	30.7 QP	46.0	-15.3	1.00 H	27	34.58	-3.90
5	699.15	32.1 QP	46.0	-13.9	1.50 H	352	35.49	-3.37
6	746.58	30.2 QP	46.0	-15.8	1.00 H	334	32.26	-2.08
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	60.84	34.7 QP	40.0	-5.3	1.00 V	244	48.69	-14.01
2	68.94	35.8 QP	40.0	-4.2	1.00 V	113	50.96	-15.14
3	100.32	37.9 QP	43.5	-5.6	1.00 V	242	55.14	-17.23
4	288.65	40.1 QP	46.0	-5.9	1.50 V	357	52.44	-12.36
5	604.78	40.0 QP	46.0	-6.0	1.50 V	144	44.52	-4.55
6	956.98	33.2 QP	46.0	-12.8	2.00 V	266	32.07	1.16

REMARKS:

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

CHANNEL	TX Channel 44	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	85	53.00	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	278	51.97	-16.09
3	288.01	42.2 QP	46.0	-3.8	1.00 H	93	54.62	-12.39
4	649.48	30.6 QP	46.0	-15.4	1.00 H	22	34.51	-3.90
5	699.14	32.1 QP	46.0	-13.9	1.50 H	347	35.45	-3.37
6	746.58	30.1 QP	46.0	-15.9	1.00 H	328	32.21	-2.08
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	60.84	34.7 QP	40.0	-5.3	1.00 V	241	48.68	-14.01
2	68.94	35.8 QP	40.0	-4.2	1.00 V	112	50.93	-15.14
3	100.32	37.9 QP	43.5	-5.6	1.00 V	240	55.13	-17.23
4	288.65	40.0 QP	46.0	-6.0	1.50 V	355	52.38	-12.36
5	604.77	40.0 QP	46.0	-6.1	1.50 V	142	44.50	-4.55
6	956.98	33.2 QP	46.0	-12.8	2.00 V	264	32.03	1.16

REMARKS:

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

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	88	53.05	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	283	52.01	-16.09
3	288.02	42.3 QP	46.0	-3.7	1.00 H	98	54.67	-12.39
4	302.37	39.1 QP	46.0	-6.9	1.00 H	294	50.94	-11.81
5	649.48	30.7 QP	46.0	-15.3	1.00 H	35	34.58	-3.90
6	699.15	32.1 QP	46.0	-13.9	1.50 H	352	35.48	-3.37

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	60.83	34.6 QP	40.0	-5.4	1.00 V	232	48.57	-14.01
2	68.94	35.7 QP	40.0	-4.3	1.00 V	108	50.87	-15.14
3	100.32	37.9 QP	43.5	-5.7	1.00 V	236	55.08	-17.23
4	288.64	40.0 QP	46.0	-6.0	1.50 V	350	52.35	-12.36
5	604.76	39.9 QP	46.0	-6.1	1.50 V	138	44.44	-4.55
6	956.97	33.1 QP	46.0	-12.9	2.00 V	259	31.98	1.16

REMARKS:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	83	53.00	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	279	51.97	-16.09
3	288.01	42.2 QP	46.0	-3.8	1.00 H	92	54.60	-12.39
4	649.48	30.6 QP	46.0	-15.4	1.00 H	30	34.51	-3.90
5	699.14	32.1 QP	46.0	-13.9	1.50 H	347	35.44	-3.37
6	746.57	30.1 QP	46.0	-15.9	1.00 H	329	32.20	-2.08

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	60.84	34.7 QP	40.0	-5.3	1.00 V	243	48.68	-14.01
2	68.94	35.8 QP	40.0	-4.2	1.00 V	112	50.93	-15.14
3	100.32	37.9 QP	43.5	-5.6	1.00 V	239	55.12	-17.23
4	288.65	40.0 QP	46.0	-6.0	1.50 V	356	52.38	-12.36
5	604.77	40.0 QP	46.0	-6.0	1.50 V	142	44.52	-4.55
6	956.98	33.2 QP	46.0	-12.8	2.00 V	265	32.05	1.16

REMARKS:

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

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	88	53.05	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	283	52.01	-16.09
3	288.02	42.3 QP	46.0	-3.7	1.00 H	99	54.66	-12.39
4	408.01	30.1 QP	46.0	-16.0	2.00 H	99	39.44	-9.39
5	649.49	30.7 QP	46.0	-15.3	1.00 H	35	34.58	-3.90
6	699.15	32.1 QP	46.0	-13.9	1.50 H	351	35.49	-3.37

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	60.84	34.6 QP	40.0	-5.4	1.00 V	238	48.61	-14.01
2	68.93	35.7 QP	40.0	-4.3	1.00 V	108	50.88	-15.14
3	100.31	37.8 QP	43.5	-5.7	1.00 V	234	55.06	-17.23
4	288.64	40.0 QP	46.0	-6.0	1.50 V	351	52.33	-12.36
5	604.76	39.9 QP	46.0	-6.1	1.50 V	138	44.47	-4.55
6	956.97	33.2 QP	46.0	-12.8	2.00 V	259	32.00	1.16

REMARKS:

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

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	84	53.01	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	278	51.96	-16.09
3	288.01	42.2 QP	46.0	-3.8	1.00 H	95	54.61	-12.39
4	408.00	30.0 QP	46.0	-16.0	2.00 H	94	39.37	-9.39
5	649.48	30.6 QP	46.0	-15.4	1.00 H	31	34.53	-3.90
6	699.14	32.1 QP	46.0	-13.9	1.50 H	346	35.46	-3.37

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	60.84	34.7 QP	40.0	-5.3	1.00 V	242	48.68	-14.01
2	68.94	35.8 QP	40.0	-4.2	1.00 V	112	50.93	-15.14
3	100.32	37.9 QP	43.5	-5.6	1.00 V	239	55.11	-17.23
4	288.65	40.0 QP	46.0	-6.0	1.50 V	355	52.38	-12.36
5	604.77	40.0 QP	46.0	-6.0	1.50 V	142	44.51	-4.55
6	956.98	33.2 QP	46.0	-12.8	2.00 V	263	32.05	1.16

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

802.11n (HT20)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	84	53.01	-18.81
2	217.58	35.9 QP	46.0	-10.1	1.00 H	278	51.96	-16.09
3	288.01	42.2 QP	46.0	-3.8	1.00 H	93	54.61	-12.39
4	302.37	39.1 QP	46.0	-6.9	1.00 H	289	50.90	-11.81
5	649.48	30.6 QP	46.0	-15.4	1.00 H	29	34.52	-3.90
6	699.14	32.1 QP	46.0	-13.9	1.50 H	347	35.45	-3.37
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	60.84	34.7 QP	40.0	-5.3	1.00 V	242	48.68	-14.01
2	68.94	35.8 QP	40.0	-4.2	1.00 V	112	50.94	-15.14
3	100.32	37.9 QP	43.5	-5.6	1.00 V	222	55.13	-17.23
4	288.65	40.0 QP	46.0	-6.0	1.50 V	354	52.37	-12.36
5	604.77	40.0 QP	46.0	-6.0	1.50 V	142	44.51	-4.55
6	956.98	33.2 QP	46.0	-12.8	2.00 V	263	32.06	1.16

REMARKS:

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

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	87	53.04	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	283	52.00	-16.09
3	288.02	42.3 QP	46.0	-3.7	1.00 H	98	54.66	-12.39
4	649.48	30.7 QP	46.0	-15.3	1.00 H	34	34.58	-3.90
5	699.15	32.1 QP	46.0	-13.9	1.50 H	349	35.47	-3.37
6	746.58	30.2 QP	46.0	-15.8	1.00 H	328	32.27	-2.08

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	60.84	34.6 QP	40.0	-5.4	1.00 V	238	48.62	-14.01
2	68.94	35.8 QP	40.0	-4.3	1.00 V	108	50.89	-15.14
3	100.31	37.8 QP	43.5	-5.7	1.00 V	218	55.07	-17.23
4	288.64	40.0 QP	46.0	-6.0	1.50 V	348	52.33	-12.36
5	604.76	39.9 QP	46.0	-6.1	1.50 V	137	44.46	-4.55
6	956.97	33.2 QP	46.0	-12.8	2.00 V	258	32.01	1.16

REMARKS:

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

CHANNEL	TX Channel 44	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	83	52.99	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	278	51.95	-16.09
3	288.01	42.2 QP	46.0	-3.8	1.00 H	93	54.61	-12.39
4	649.48	30.6 QP	46.0	-15.4	1.00 H	28	34.52	-3.90
5	699.14	32.1 QP	46.0	-13.9	1.50 H	343	35.43	-3.37
6	746.57	30.1 QP	46.0	-15.9	1.00 H	323	32.22	-2.08

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	60.83	34.6 QP	40.0	-5.4	1.00 V	243	48.65	-14.01
2	68.94	35.8 QP	40.0	-4.2	1.00 V	112	50.95	-15.14
3	100.32	37.9 QP	43.5	-5.6	1.00 V	239	55.12	-17.23
4	288.65	40.0 QP	46.0	-6.0	1.50 V	355	52.35	-12.36
5	604.77	40.0 QP	46.0	-6.1	1.50 V	142	44.50	-4.55
6	956.98	33.2 QP	46.0	-12.8	2.00 V	263	32.05	1.16

REMARKS:

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

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	86	53.04	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	283	52.01	-16.09
3	288.02	42.3 QP	46.0	-3.7	1.00 H	97	54.65	-12.39
4	649.48	30.7 QP	46.0	-15.3	1.00 H	34	34.57	-3.90
5	699.15	32.1 QP	46.0	-13.9	1.50 H	351	35.48	-3.37
6	746.58	30.2 QP	46.0	-15.8	1.00 H	334	32.25	-2.08

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	60.83	34.6 QP	40.0	-5.4	1.00 V	239	48.58	-14.00
2	68.93	35.8 QP	40.0	-4.2	1.00 V	108	50.90	-15.14
3	100.31	37.8 QP	43.5	-5.7	1.00 V	233	55.06	-17.23
4	288.64	39.9 QP	46.0	-6.1	1.50 V	349	52.29	-12.36
5	604.76	39.9 QP	46.0	-6.1	1.50 V	138	44.44	-4.55
6	956.97	33.2 QP	46.0	-12.8	2.00 V	256	32.01	1.16

REMARKS:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	88	53.02	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	283	52.01	-16.09
3	288.02	42.3 QP	46.0	-3.7	1.00 H	98	54.66	-12.39
4	649.49	30.7 QP	46.0	-15.3	1.00 H	34	34.56	-3.90
5	699.15	32.1 QP	46.0	-13.9	1.50 H	351	35.49	-3.37
6	746.58	30.2 QP	46.0	-15.8	1.00 H	333	32.26	-2.08

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	60.83	34.6 QP	40.0	-5.4	1.00 V	238	48.62	-14.01
2	68.93	35.7 QP	40.0	-4.3	1.00 V	108	50.87	-15.14
3	100.32	37.8 QP	43.5	-5.7	1.00 V	234	55.05	-17.23
4	288.64	40.0 QP	46.0	-6.0	1.50 V	350	52.34	-12.36
5	604.76	39.9 QP	46.0	-6.1	1.50 V	138	44.46	-4.55
6	956.97	33.2 QP	46.0	-12.8	2.00 V	258	32.00	1.16

REMARKS:

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

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	84	52.97	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	278	51.96	-16.09
3	288.01	42.2 QP	46.0	-3.8	1.00 H	93	54.58	-12.39
4	649.48	30.6 QP	46.0	-15.4	1.00 H	29	34.51	-3.90
5	699.14	32.1 QP	46.0	-13.9	1.50 H	347	35.45	-3.37
6	746.58	30.1 QP	46.0	-15.9	1.00 H	328	32.21	-2.08

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	60.84	34.7 QP	40.0	-5.3	1.00 V	241	48.69	-14.01
2	68.94	35.8 QP	40.0	-4.2	1.00 V	112	50.92	-15.14
3	100.32	37.9 QP	43.5	-5.6	1.00 V	237	55.11	-17.23
4	288.64	40.0 QP	46.0	-6.0	1.50 V	353	52.34	-12.36
5	604.77	39.9 QP	46.0	-6.1	1.50 V	139	44.49	-4.55
6	956.97	33.2 QP	46.0	-12.8	2.00 V	260	32.02	1.16

REMARKS:

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

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	86.30	34.2 QP	40.0	-5.8	2.00 H	87	53.04	-18.81
2	217.59	35.9 QP	46.0	-10.1	1.00 H	282	51.99	-16.09
3	288.02	42.3 QP	46.0	-3.7	1.00 H	98	54.66	-12.39
4	649.48	30.7 QP	46.0	-15.3	1.00 H	33	34.57	-3.90
5	699.15	32.1 QP	46.0	-13.9	1.50 H	351	35.48	-3.37
6	746.58	30.2 QP	46.0	-15.8	1.00 H	333	32.26	-2.08

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	60.84	34.6 QP	40.0	-5.4	1.00 V	235	48.63	-14.01
2	68.93	35.7 QP	40.0	-4.3	1.00 V	108	50.86	-15.14
3	100.31	37.8 QP	43.5	-5.7	1.00 V	228	55.05	-17.23
4	288.64	39.9 QP	46.0	-6.1	1.50 V	348	52.24	-12.36
5	604.76	39.9 QP	46.0	-6.1	1.50 V	133	44.43	-4.55
6	956.97	33.1 QP	46.0	-12.9	2.00 V	255	31.97	1.16

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

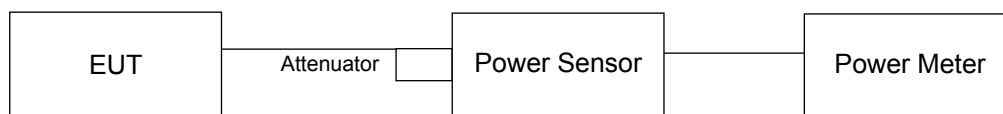
4.2 Transmit Power Measurement

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



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 Test Procedures

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.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

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

4.2.7 Test Result

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
36	5180	38.371	15.84	24	Pass
40	5200	85.31	19.31	24	Pass
44	5220	85.901	19.34	24	Pass
48	5240	83.753	19.23	24	Pass
149	5745	44.566	16.49	30	Pass
157	5785	63.387	18.02	30	Pass
165	5825	62.951	17.99	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
36	5180	34.834	15.42	24	Pass
40	5200	76.56	18.84	24	Pass
44	5220	74.645	18.73	24	Pass
48	5240	75.509	18.78	24	Pass
149	5745	32.359	15.10	30	Pass
157	5785	57.412	17.59	30	Pass
165	5825	55.335	17.43	30	Pass

※Add test for each data rate output power (require by manufacturer):

802.11a

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)							
		Data rate							
		6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
36	5180	15.84	15.66	15.67	15.79	15.74	15.65	15.74	15.83
40	5200	19.31	19.19	19.23	19.15	19.11	19.25	19.2	19.25
44	5220	19.34	19.29	19.19	19.30	19.29	19.31	19.25	19.26
48	5240	19.23	19.11	19.08	19.22	19.14	19.14	19.08	19.06
149	5745	16.49	16.30	16.43	16.48	16.39	16.33	16.47	16.47
157	5785	18.02	17.95	17.93	17.86	17.9	17.87	17.99	17.82
165	5825	17.99	17.85	17.91	17.79	17.95	17.87	17.79	17.97

802.11n (HT20)

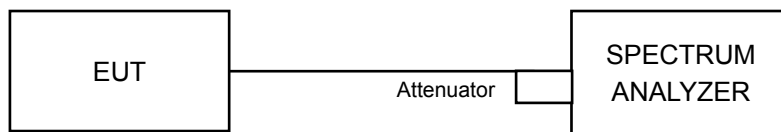
CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)								
		Data rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
36	5180	15.42	15.33	15.38	15.30	15.40	15.27	15.41	15.35	15.25
40	5200	18.84	18.69	18.75	18.68	18.66	18.7	18.73	18.66	18.77
44	5220	18.73	18.56	18.69	18.61	18.69	18.7	18.62	18.66	18.64
48	5240	18.78	18.74	18.59	18.66	18.63	18.58	18.77	18.76	18.66
149	5745	15.10	14.93	14.97	15.00	15	14.93	15.08	15.02	15.02
157	5785	17.59	17.46	17.49	17.48	17.46	17.53	17.51	17.53	17.44
165	5825	17.43	17.34	17.32	17.32	17.29	17.37	17.31	17.36	17.25

4.3 Peak Power Spectral Density Measurement

4.3.1 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

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedures

For U-NII-1 band:

Using method SA-1

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

For U-NII-3 band:

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

Same as Item 4.3.6

4.3.7 Test Results

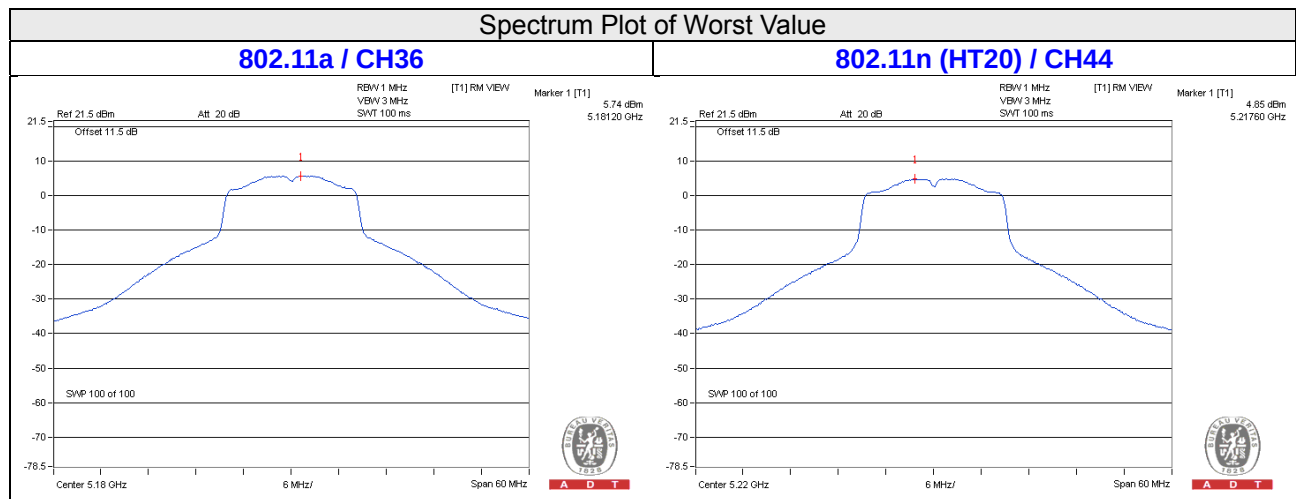
For U-NII-1:

802.11a

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm)	LIMIT (dBm)	PASS /FAIL
36	5180	5.74	0.33	6.07	11	Pass
40	5200	5.46	0.33	5.79	11	Pass
44	5220	5.60	0.33	5.93	11	Pass
48	5240	5.54	0.33	5.87	11	Pass

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm)	LIMIT (dBm)	PASS /FAIL
36	5180	0.91	0.39	1.30	11	Pass
40	5200	4.74	0.39	5.13	11	Pass
44	5220	4.85	0.39	5.24	11	Pass
48	5240	4.85	0.39	5.24	11	Pass



For U-NII-3:

802.11a

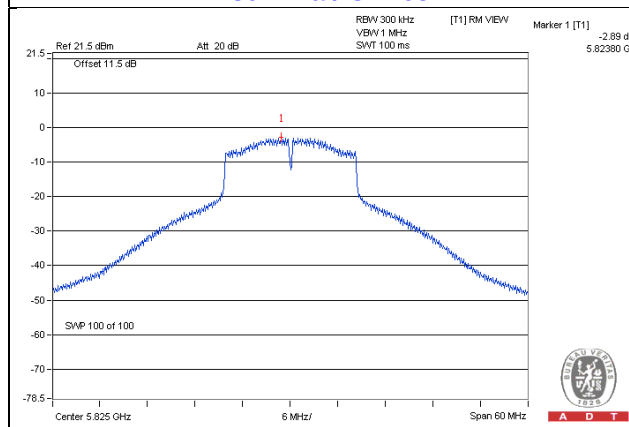
CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR		DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-4.78	-2.56	0.33	-2.23	30	PASS
157	5785	-2.93	-0.71	0.33	-0.38	30	PASS
165	5825	-2.89	-0.67	0.33	-0.34	30	PASS

802.11n (HT20)

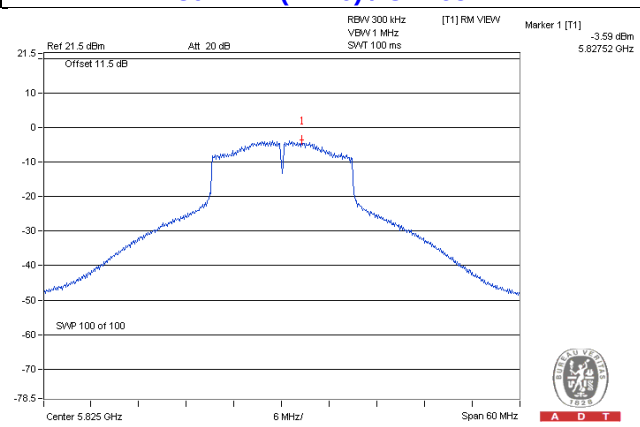
CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR		DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-6.56	-4.34	0.33	-3.95	30	PASS
157	5785	-3.91	-1.69	0.33	-1.30	30	PASS
165	5825	-3.59	-1.37	0.33	-0.98	30	PASS

Spectrum Plot of Worst Value

802.11a / CH165



802.11n (HT20) / CH165

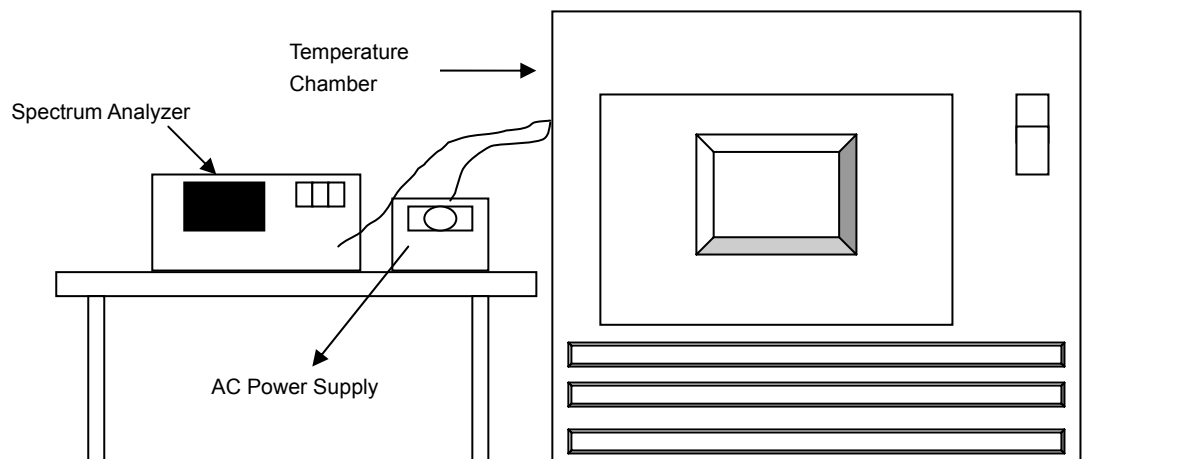


4.4 Frequency Stability Measurement

4.4.1 Limits of Frequency Stability Measurement

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

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 Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

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

4.4.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5240MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5240.0139	0.00027	5240.0153	0.00029	5240.0173	0.00033	5240.0177	0.00034
40	120	5240.0218	0.00042	5240.0207	0.00040	5240.0206	0.00039	5240.0201	0.00038
30	120	5239.9952	-0.00009	5239.9956	-0.00008	5239.995	-0.00010	5239.9964	-0.00007
20	120	5240.0089	0.00017	5240.0081	0.00015	5240.0054	0.00010	5240.0051	0.00010
10	120	5240.0172	0.00033	5240.0158	0.00030	5240.0185	0.00035	5240.0187	0.00036
0	120	5240.0223	0.00043	5240.0214	0.00041	5240.0228	0.00044	5240.0221	0.00042
-10	120	5239.9874	-0.00024	5239.9874	-0.00024	5239.9849	-0.00029	5239.9856	-0.00027
-20	120	5239.9825	-0.00033	5239.9808	-0.00037	5239.979	-0.00040	5239.9813	-0.00036
-30	120	5240.0113	0.00022	5240.0136	0.00026	5240.0103	0.00020	5240.013	0.00025

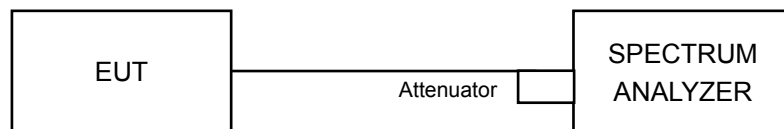
Frequency Stability Versus Temp.									
Operating Frequency: 5240MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5240.0086	0.00016	5240.0075	0.00014	5240.0057	0.00011	5240.0042	0.00008
	120	5240.0089	0.00017	5240.0081	0.00015	5240.0054	0.00010	5240.0051	0.00010
	102	5240.0099	0.00019	5240.0071	0.00014	5240.0064	0.00012	5240.0041	0.00008

4.5 6dB Bandwidth Measurement

4.5.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

802.11a

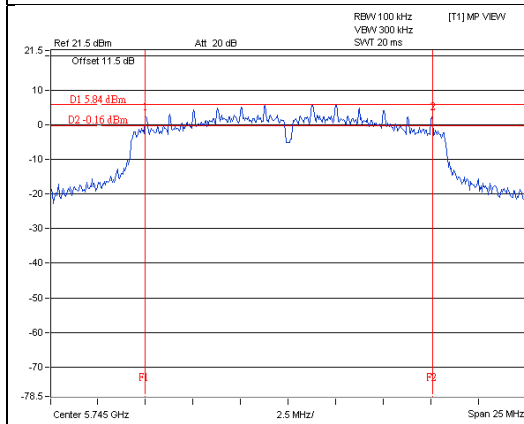
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.19	0.5	Pass
157	5785	15.37	0.5	Pass
165	5825	15.70	0.5	Pass

802.11n (HT20)

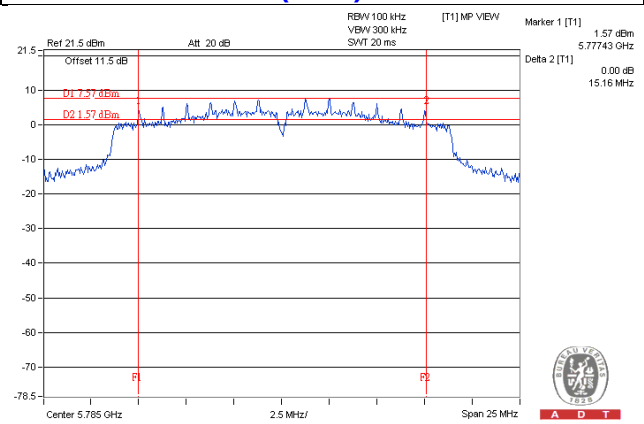
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.21	0.5	Pass
157	5785	15.16	0.5	Pass
165	5825	15.17	0.5	Pass

Spectrum Plot of Worst Value

802.11a / CH149



802.11n (HT20) / CH157



5 Pictures of Test Arrangements

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

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:

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Fax: 886-2-26051924

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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