

## FCC Test Report

**Report No.:** RF111011C17T

**FCC ID:** H8N-WLU5150

**Test Model:** WLU5150-D81

**Received Date:** Oct. 11, 2011

**Test Date:** Nov. 08, 2011 ~ Feb. 16, 2016

**Issued Date:** Feb. 24, 2016

**Applicant:** ASKEY COMPUTER CORP.

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23585, TAIWAN, R.O.C.

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

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R.O.C.

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**Test Location (2):** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin  
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**Test Location (3):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin  
Chu Hsien 307, Taiwan



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### Release Control Record

Issue No.	Description	Date Issued
RF111011C17T	Original release	Feb. 24, 2016



# 1 Certificate of Conformity

**Product:** Wireless LAN Adaptor  
**Brand:** Panasonic  
**Test Model:** WLU5150-D81  
**Sample Status:** Engineering sample  
**Applicant:** ASKEY COMPUTER CORP.  
**Test Date:** Nov. 08, 2011 ~ Feb. 16, 2016  
**Standards:** 47 CFR FCC Part 15, Subpart E (Section 15.407)  
ANSI C63.10:2013

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

**Prepared by :** Wey Lin , **Date:** Feb. 24, 2016  
Wey Lin / Specialist

**Approved by :** Ken Liu , **Date:** Feb. 24, 2016  
Ken Liu / Senior 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	Pass	Meet the requirement of limit. Minimum passing margin is -7.67dB at 0.17737MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5852.10MHz, 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	No antenna connector is used.

### 2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.59 dB
	200MHz ~ 1000MHz	3.60 dB
Radiated Emissions above 1 GHz (Band 1 & 4)	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB
Radiated Emissions above 1 GHz (Band 2 & 3)	1GHz ~ 18GHz	2.19 dB
	18GHz ~ 40GHz	2.56 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	Wireless LAN Adaptor
Brand	Panasonic
Test Model	WLU5150-D81
Status of EUT	Engineering sample
Power Supply Rating	5Vdc from host equipment
Modulation Type	64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
Operating Frequency	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz & 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (HT20) 3 for 802.11n (HT40) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
Output Power	5180 ~ 5240MHz: 208.273mW 5260 ~ 5320MHz: 68.600mW 5500 ~ 5700MHz: 77.300mW 5745 ~ 5825MHz: 186.891mW
Antenna Type	Refer to Note
Antenna Connector	N/A
Accessory Device	N/A
Data Cable Supplied	N/A

**Note:**

1. This report represents Class II Permissive Change (C2PC) for Askey Computer Corp.'s Wireless LAN Adaptor Approval. This product was FCC Parts 15C and 15E certified for mobile operation by Curtis-Straus on November 30, 2011 under FCC ID: H8N-WLU5150. This included compliance with Transmit Power Control (TPC) and DFS requirements as a Client only without Radar Detection.
2. This C2PC report is issued as a supplementary report of the original report no.: RF111011C17 and RF111011C17-1. The difference compared with the original report is for model: WLU5150-D81 updating standard to the latest version for U-NII band. All required tests of U-NII-1 and U-NII-3 have been re-tested.
3. This EUT incorporates a MIMO function. Physically, this EUT is provided with two complete transmitters and receivers.

Modulation Mode	TX Function
802.11a	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

4. The updated Part 15E grant will include the following additional footnote:

This device has shown compliance, in all grant-listed U-NII sub-bands, with the new rules for U-NII devices adopted under Docket No.13-49 and may be manufactured, imported, marketed and installed after the June 1, 2016 transition deadline.

5. Antenna information is listed as below.

Table 1					
Transmitter Circuit	Brand	P/N	Antenna Type	Gain (dBi)	Antenna Connector
Chain (0) Ant. 1 (L)	Askey	08B1-1PV1000	PCB	Refer to table 2	N/A
Chain (1) Ant. 2 (R)	Askey	08B1-1PW1000	PCB	Refer to table 2	N/A

Table 2										
Ant. 1 (L)	Frequency (MHz)	2412	2450	2484	5180	5250	5350	5500	5725	5806
	Peak Gain (dBi)	-0.83	0.40	1.23	2.45	2.21	2.20	3.14	3.73	3.64
Ant. 2 (R)	Frequency (MHz)	2412	2450	2484	5180	5250	5350	5500	5725	5806
	Peak Gain (dBi)	-3.76	-2.96	-0.76	0.99	3.21	3.06	3.29	3.49	3.71

6. 2.4GHz & 5GHz technology cannot transmit at same time.
7. The EUT incorporates CDD function with 802.11a, 802.11b & 802.11g.



### 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:**

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

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

3 channels are provided for 802.11n (HT40):

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

**FOR 5745 ~ 5825MHz:**

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G**: Radiated Emission above 1GHz & Bandedge Measurement  
**RE<1G**: Radiated Emission below 1GHz  
**PLC**: Power Line Conducted Emission  
**APCM**: Antenna Port Conducted Measurement

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

#### Radiated Emission Test (Above 1GHz):

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

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

EUT CONFIGURE MODE	MODE	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	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	13.5
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	13.5
-	802.11a	5500-5700	100 to 140	100, 116, 132, 140	OFDM	BPSK	6.0
	802.11n (HT20)		100 to 140	100, 116, 132, 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	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	13.5

#### Radiated Emission Test (Below 1GHz):

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

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11n (HT20)	5180-5240	36 to 48	40	OFDM	BPSK	6.5
	802.11n (HT20)	5260-5320	52 to 64		OFDM	BPSK	6.5
	802.11n (HT20)	5500-5700	100 to 140		OFDM	BPSK	6.5
	802.11n (HT20)	5745-5825	149 to 165		OFDM	BPSK	6.5

**Power Line Conducted Emission Test:**

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11n (HT20)	5180-5240	36 to 48	40	OFDM	BPSK	6.5
	802.11n (HT20)	5260-5320	52 to 64		OFDM	BPSK	6.5
	802.11n (HT20)	5500-5700	100 to 140		OFDM	BPSK	6.5
	802.11n (HT20)	5745-5825	149 to 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.

EUT CONFIGURE MODE	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	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	13.5
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	BPSK	13.5
-	802.11a	5500-5700	100 to 140	100, 116, 132, 140	OFDM	BPSK	6.0
	802.11n (HT20)		100 to 140	1100, 116, 132, 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	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	13.5

**Test Condition:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (System)	TESTED BY
RE <sub>≥</sub> 1G	21deg. C, 67%RH	120Vac, 60Hz	Chris Lin
RE <sub>&lt;</sub> 1G	22deg. C, 66%RH	120Vac, 60Hz	Alan Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Cedric Wu

### 3.3 Duty Cycle of Test Signal

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

**802.11a:** Duty cycle =  $1.332/1.392 = 0.957$ , Duty factor =  $10 * \log(1/0.957) = 0.19$

**802.11n (HT20):** Duty cycle =  $1.247/1.292 = 0.965$ , Duty factor =  $10 * \log(1/0.965) = 0.15$

**802.11n (HT40):** Duty cycle =  $0.617/0.677 = 0.911$ , Duty factor =  $10 * \log(1/0.911) = 0.40$



### 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.	Notebook	DELL	E5410	6RP2YM1	FCC DoC Approved	-

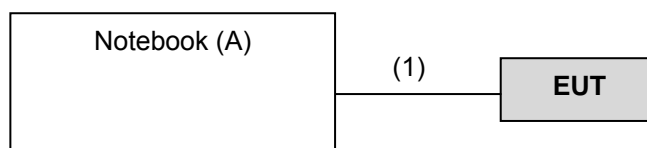
Note:

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.	USB cable	1	0.1	N	0	Provided by manufacturer

Note: The core(s) is(are) originally attached to the cable(s).

#### 3.4.1 Configuration of System under Test



### **3.5 General Description of Applied Standards**

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

**FCC Part 15, Subpart E (15.407)**

**789033 D02 General UNII Test Procedures New Rules v01r01**

**662911 D01 Multiple Transmitter Output v02r01**

ANSI C63.10-2013

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

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

#### NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 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 v01r01	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) <sup>*1</sup> PK:-17 (dBm/MHz) <sup>*2</sup>	PK: 68.2(dBuV/m) <sup>*1</sup> PK:78.2 (dBuV/m) <sup>*2</sup>

**NOTE:** <sup>\*1</sup> beyond 10MHz of the band edge <sup>\*2</sup> 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

Test date: Nov. 08 ~ Nov. 10, 2011

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 29, 2011	Aug. 28, 2012
Agilent Pre-Selector	N9039A	MY46520310	Aug. 29, 2011	Aug. 28, 2012
Agilent Signal Generator	N5181A	MY49060347	July 25, 2011	July 24, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02465	Feb. 28, 2011	Feb. 27, 2012
Miteq Pre-Amplifier	AFS33-1800265 0-30-8P-44	881786	Nov. 16, 2010	Nov. 15, 2011
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 14, 2011	Apr. 13, 2012
AISI Horn Antenna	AIH.8018	0000220091110	Nov. 22, 2010	Nov. 21, 2011
SCHWARZBECK Horn Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-205 RF104-207 RF104-202	Dec. 28, 2010	Dec. 27, 2011
RF Cable	NA	CHHCAB_001	Oct. 08, 2011	Oct. 07, 2012
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	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.



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Test date: Feb. 01 ~ Feb. 16, 2016

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 12, 2015	Oct. 11, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Jul. 08, 2015	Jul. 07, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Jan. 08, 2016	Jan. 07, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2015	Aug. 08, 2016
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-02(295012+ 309220)	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	Aug. 09, 2015	Aug. 08, 2016
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021703	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 18, 2015	Oct. 17, 2016
High Speed Peak Power Meter	ML2495A	0824011	Jul. 09, 2015	Jul. 08, 2016
Power Sensor	MA2411B	0738171	Jul. 09, 2015	Jul. 08, 2016
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 08, 2015	Jun. 07, 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 test was performed in HwaYa Chamber 4.  
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.  
4. The FCC Site Registration No. is 460141.  
5. The IC Site Registration No. is IC7450F-4.

#### 4.1.3 Test Procedures

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

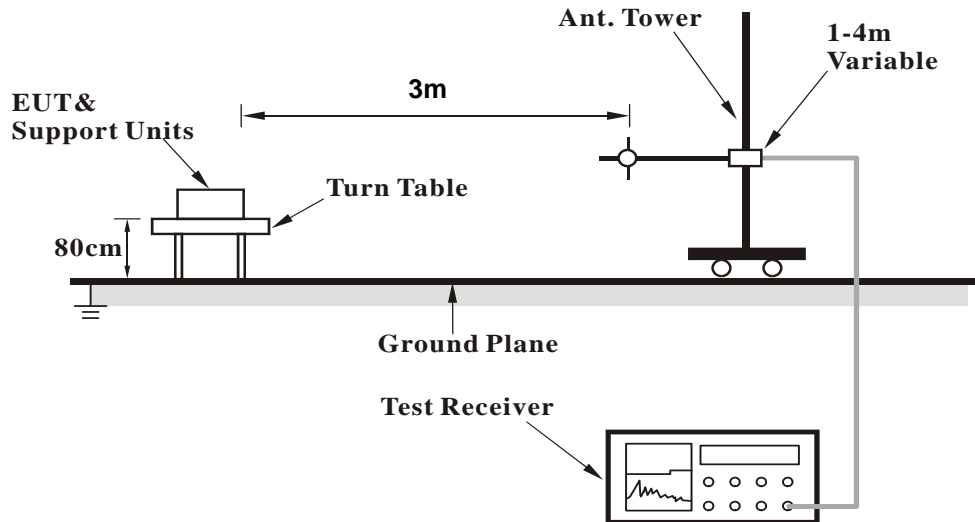
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

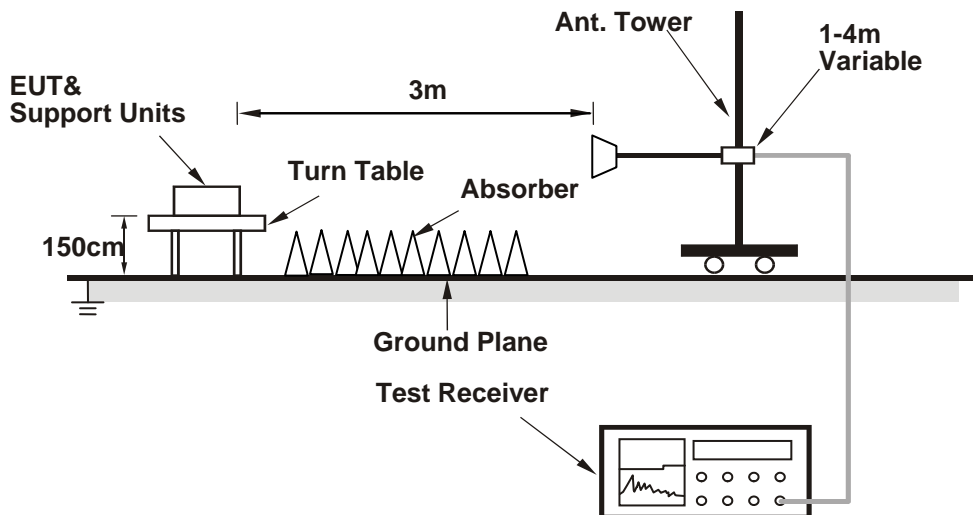
No deviation.

#### 4.1.5 Test Set Up

<Frequency Range 30MHz ~ 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

- a. Connected the EUT with notebook via a USB cable and placed them on the testing table.
- b. The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the system in full functions.

#### 4.1.7 Test Results

Above 1GHz data:

802.11a

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

#### ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	73.5 PK	74.0	-0.5	1.75 H	340	68.00	5.50
2	5150.00	51.9 AV	54.0	-2.1	1.75 H	340	46.40	5.50
3	*5180.00	111.1 PK			1.38 H	343	71.60	39.50
4	*5180.00	101.6 AV			1.38 H	343	62.10	39.50
5	#10360.00	60.9 PK	74.0	-13.1	1.68 H	340	43.40	17.50
6	#10360.00	48.7 AV	54.0	-5.3	1.68 H	340	31.20	17.50

#### 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	68.6 PK	74.0	-5.4	1.00 V	294	63.10	5.50
2	5150.00	49.4 AV	54.0	-4.6	1.00 V	294	43.90	5.50
3	*5180.00	104.4 PK			3.04 V	13	64.90	39.50
4	*5180.00	93.6 AV			3.04 V	13	54.10	39.50
5	#10360.00	59.1 PK	74.0	-14.9	1.65 V	302	41.60	17.50
6	#10360.00	45.0 AV	54.0	-9.0	1.65 V	302	27.50	17.50

#### 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)
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	71.7 PK	74.0	-2.3	1.33 H	339	66.20	5.50
2	5150.00	51.0 AV	54.0	-3.0	1.33 H	339	45.50	5.50
3	*5200.00	113.9 PK			1.33 H	339	74.30	39.60
4	*5200.00	103.3 AV			1.33 H	339	63.70	39.60
5	#10400.00	63.8 PK	74.0	-10.2	1.28 H	340	45.80	18.00
6	#10400.00	51.8 AV	54.0	-2.2	1.28 H	340	33.80	18.00

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.5 PK	74.0	-11.5	2.74 V	10	57.00	5.50
2	5150.00	46.0 AV	54.0	-8.0	2.74 V	10	40.50	5.50
3	*5200.00	106.5 PK			2.88 V	4	66.90	39.60
4	*5200.00	95.7 AV			2.88 V	4	56.10	39.60
5	#10400.00	60.6 PK	74.0	-13.4	1.47 V	87	42.60	18.00
6	#10400.00	46.5 AV	54.0	-7.5	1.47 V	87	28.50	18.00

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	112.5 PK			1.55 H	333	72.90	39.60
2	*5240.00	102.0 AV			1.55 H	333	62.40	39.60
3	5350.00	58.3 PK	74.0	-15.7	1.60 H	358	52.60	5.70
4	5350.00	46.5 AV	54.0	-7.5	1.60 H	358	40.80	5.70
5	#10480.00	61.6 PK	74.0	-12.4	1.47 H	44	43.60	18.00
6	#10480.00	48.1 AV	54.0	-5.9	1.47 H	44	30.10	18.00

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	104.6 PK			3.26 V	20	65.00	39.60
2	*5240.00	93.9 AV			3.26 V	20	54.30	39.60
3	5350.00	56.9 PK	74.0	-17.1	3.30 V	60	51.20	5.70
4	5350.00	46.4 AV	54.0	-7.6	3.30 V	60	40.70	5.70
5	#10480.00	59.3 PK	74.0	-14.7	1.36 V	85	41.30	18.00
6	#10480.00	46.2 AV	54.0	-7.8	1.36 V	85	28.20	18.00

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	113.9 PK			1.22 H	115	71.99	41.91
2	*5260.00	100.3 AV			1.22 H	115	58.39	41.91
3	#10520.00	53.1 PK	68.2	-15.1	1.25 H	288	4.44	48.66
4	15780.00	62.7 PK	74.0	-11.3	1.00 H	66	8.78	53.92
5	15780.00	50.5 AV	54.0	-3.5	1.00 H	66	-3.42	53.92

**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	104.9 PK			1.25 V	80	62.99	41.91
2	*5260.00	93.1 AV			1.25 V	80	51.19	41.91
3	#10520.00	52.7 PK	68.2	-15.5	1.29 V	319	4.04	48.66
4	15780.00	63.5 PK	74.0	-10.5	1.04 V	176	9.58	53.92
5	15780.00	51.2 AV	54.0	-2.8	1.04 V	176	-2.72	53.92

**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)
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	112.7 PK			1.21 H	121	70.70	42.00
2	*5300.00	100.1 AV			1.21 H	121	58.10	42.00
3	10600.00	56.6 PK	74.0	-17.4	1.26 H	269	7.68	48.92
4	10600.00	45.9 AV	54.0	-8.1	1.26 H	269	-3.02	48.92
5	15900.00	63.0 PK	74.0	-11.0	1.00 H	67	8.36	54.64
6	15900.00	50.5 AV	54.0	-3.5	1.00 H	67	-4.14	54.64

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	105.0 PK			1.25 V	69	63.00	42.00
2	*5300.00	92.5 AV			1.25 V	69	50.50	42.00
3	10600.00	55.2 PK	74.0	-18.8	1.31 V	0	6.28	48.92
4	10600.00	44.3 AV	54.0	-9.7	1.31 V	0	-4.62	48.92
5	15900.00	62.5 PK	74.0	-11.5	1.04 V	172	7.86	54.64
6	15900.00	50.3 AV	54.0	-3.7	1.04 V	172	-4.34	54.64

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)
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	113.8 PK			1.22 H	111	71.76	42.04
2	*5320.00	101.7 AV			1.22 H	111	59.66	42.04
3	5350.00	68.3 PK	74.0	-5.7	1.18 H	111	26.21	42.09
4	5350.00	49.7 AV	54.0	-4.3	1.18 H	111	7.61	42.09
5	10640.00	57.1 PK	74.0	-16.9	1.25 H	271	8.29	48.81
6	10640.00	45.9 AV	54.0	-8.1	1.25 H	271	-2.91	48.81
7	15960.00	62.3 PK	74.0	-11.7	1.00 H	70	7.96	54.34
8	15960.00	50.3 AV	54.0	-3.7	1.00 H	70	-4.04	54.34

**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	107.6 PK			1.28 V	87	65.56	42.04
2	*5320.00	95.9 AV			1.28 V	87	53.86	42.04
3	5350.00	61.6 PK	74.0	-12.4	1.31 V	86	19.51	42.09
4	5350.00	47.0 AV	54.0	-7.0	1.31 V	86	4.91	42.09
5	10640.00	55.5 PK	74.0	-18.5	1.31 V	358	6.69	48.81
6	10640.00	44.6 AV	54.0	-9.4	1.31 V	358	-4.21	48.81
7	15960.00	62.7 PK	74.0	-11.3	1.05 V	175	8.36	54.34
8	15960.00	50.4 AV	54.0	-3.6	1.05 V	175	-3.94	54.34

**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)
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 &amp; TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	62.2 PK	74.0	-11.8	1.22 H	110	19.98	42.22
2	5460.00	49.2 AV	54.0	-4.8	1.22 H	110	6.98	42.22
3	#5470.00	58.2 PK	68.2	-10.0	1.23 H	122	15.97	42.23
4	*5500.00	114.5 PK			1.24 H	117	72.25	42.25
5	*5500.00	102.1 AV			1.24 H	117	59.85	42.25
6	11000.00	56.4 PK	74.0	-17.6	1.26 H	277	7.42	48.98
7	11000.00	45.0 AV	54.0	-9.0	1.26 H	277	-3.98	48.98
8	#16500.00	59.2 PK	68.2	-9.0	1.00 H	68	3.27	55.93

## ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.5 PK	74.0	-15.5	1.28 V	80	16.28	42.22
2	5460.00	46.7 AV	54.0	-7.3	1.28 V	80	4.48	42.22
3	#5470.00	55.5 PK	68.2	-12.7	1.27 V	82	13.27	42.23
4	*5500.00	108.6 PK			1.26 V	80	66.35	42.25
5	*5500.00	97.2 AV			1.26 V	80	54.95	42.25
6	11000.00	55.3 PK	74.0	-18.7	1.27 V	323	6.32	48.98
7	11000.00	44.5 AV	54.0	-9.5	1.27 V	323	-4.48	48.98
8	#16500.00	56.1 PK	68.2	-12.1	1.05 V	175	0.17	55.93

## 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)
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	113.6 PK			1.24 H	113	71.21	42.39
2	*5580.00	101.4 AV			1.24 H	113	59.01	42.39
3	11160.00	58.1 PK	74.0	-15.9	1.26 H	275	9.04	49.06
4	11160.00	45.6 AV	54.0	-8.4	1.26 H	275	-3.46	49.06
5	#16740.00	58.7 PK	68.2	-9.5	1.00 H	70	2.50	56.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	107.5 PK			1.24 V	81	65.11	42.39
2	*5580.00	96.4 AV			1.24 V	81	54.01	42.39
3	11160.00	55.7 PK	74.0	-18.3	1.27 V	319	6.64	49.06
4	11160.00	44.7 AV	54.0	-9.3	1.27 V	319	-4.36	49.06
5	#16740.00	55.9 PK	68.2	-12.3	1.05 V	174	-0.30	56.20

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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 132	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	*5660.00	113.9 PK			1.20 H	112	71.34	42.56
2	*5660.00	103.2 AV			1.20 H	112	60.64	42.56
3	11320.00	59.0 PK	74.0	-15.0	1.27 H	277	9.95	49.05
4	11320.00	46.2 AV	54.0	-7.8	1.27 H	277	-2.85	49.05
5	#16980.00	59.8 PK	68.2	-8.4	1.00 H	67	3.44	56.36
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	*5660.00	109.4 PK			1.25 V	79	66.84	42.56
2	*5660.00	98.3 AV			1.25 V	79	55.74	42.56
3	11320.00	56.1 PK	74.0	-17.9	1.25 V	320	7.05	49.05
4	11320.00	44.8 AV	54.0	-9.2	1.25 V	320	-4.25	49.05
5	#16980.00	56.2 PK	68.2	-12.0	1.05 V	177	-0.16	56.36

**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)
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	114.5 PK			1.22 H	112	71.86	42.64
2	*5700.00	102.1 AV			1.22 H	112	59.46	42.64
3	#5725.00	61.5 PK	68.2	-6.7	1.22 H	111	18.83	42.67
4	11400.00	60.2 PK	74.0	-13.8	1.25 H	266	10.97	49.23
5	11400.00	47.6 AV	54.0	-6.4	1.25 H	266	-1.63	49.23
6	#17100.00	59.9 PK	68.2	-8.3	1.00 H	66	3.30	56.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	107.6 PK			1.25 V	76	64.96	42.64
2	*5700.00	96.5 AV			1.25 V	76	53.86	42.64
3	#5725.00	59.1 PK	68.2	-9.1	1.25 V	80	16.43	42.67
4	11400.00	58.7 PK	74.0	-15.3	1.26 V	319	9.47	49.23
5	11400.00	46.5 AV	54.0	-7.5	1.26 V	319	-2.73	49.23
6	#17100.00	55.7 PK	68.2	-12.5	1.05 V	168	-0.90	56.60

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	#5714.90	69.5 PK	74.0	-4.5	1.00 H	327	63.30	6.20
2	#5714.90	47.3 AV	54.0	-6.7	1.00 H	327	41.10	6.20
3	#5722.90	77.5 PK	78.2	-0.7	1.00 H	327	71.20	6.30
4	#5725.00	70.5 PK	78.2	-7.7	1.00 H	329	64.20	6.30
5	*5745.00	110.3 PK			1.00 H	325	69.90	40.40
6	*5745.00	99.9 AV			1.00 H	325	59.50	40.40
7	11490.00	65.8 PK	74.0	-8.2	1.00 H	308	46.50	19.30
8	11490.00	50.8 AV	54.0	-3.2	1.00 H	308	31.50	19.30

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5714.90	65.5 PK	74.0	-8.5	1.03 V	99	59.30	6.20
2	#5714.90	46.7 AV	54.0	-7.3	1.03 V	99	40.50	6.20
3	#5722.90	74.3 PK	78.2	-3.9	1.03 V	99	68.00	6.30
4	#5725.00	65.0 PK	78.2	-13.2	1.03 V	99	58.70	6.30
5	*5745.00	103.7 PK			1.01 V	98	63.30	40.40
6	*5745.00	93.5 AV			1.01 V	98	53.10	40.40
7	11490.00	65.0 PK	74.0	-9.0	1.02 V	296	45.70	19.30
8	11490.00	49.8 AV	54.0	-4.2	1.02 V	296	30.50	19.30

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	114.1 PK			1.00 H	323	73.60	40.50
2	*5785.00	103.7 AV			1.00 H	323	63.20	40.50
3	11570.00	68.5 PK	74.0	-5.5	1.00 H	302	49.50	19.00
4	11570.00	53.7 AV	54.0	-0.3	1.00 H	302	34.70	19.00

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	107.6 PK			1.01 V	86	67.10	40.50
2	*5785.00	97.3 AV			1.01 V	86	56.80	40.50
3	11570.00	68.1 PK	74.0	-5.9	1.03 V	296	49.10	19.00
4	11570.00	53.6 AV	54.0	-0.4	1.03 V	296	34.60	19.00

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.





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	114.3 PK			1.00 H	323	73.70	40.60
2	*5825.00	103.3 AV			1.00 H	323	62.70	40.60
3	#5850.00	66.1 PK	78.2	-12.1	1.02 H	327	59.50	6.60
<b>4</b>	<b>#5852.10</b>	<b>78.1 PK</b>	<b>78.2</b>	<b>-0.1</b>	<b>1.02 H</b>	<b>327</b>	<b>71.50</b>	<b>6.60</b>
5	#5860.10	73.2 PK	74.0	-0.8	1.05 H	324	66.60	6.60
6	#5860.10	50.1 AV	54.0	-3.9	1.05 H	324	43.50	6.60
7	11650.00	67.6 PK	74.0	-6.4	1.00 H	305	49.10	18.50
8	11650.00	52.3 AV	54.0	-1.7	1.00 H	305	33.80	18.50

**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	106.8 PK			1.00 V	94	66.20	40.60
2	*5825.00	97.1 AV			1.00 V	94	56.50	40.60
3	#5850.00	60.4 PK	78.2	-17.8	1.00 V	92	53.80	6.60
4	#5852.10	71.5 PK	78.2	-6.7	1.00 V	92	64.90	6.60
5	#5860.10	66.8 PK	74.0	-7.2	1.00 V	92	60.20	6.60
6	#5860.10	48.2 AV	54.0	-5.8	1.00 V	92	41.60	6.60
7	11650.00	66.8 PK	74.0	-7.2	1.01 V	297	48.30	18.50
8	11650.00	51.6 AV	54.0	-2.4	1.01 V	297	33.10	18.50

**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)
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	<b>5150.00</b>	<b>73.9 PK</b>	<b>74.0</b>	<b>-0.1</b>	<b>1.92 H</b>	<b>333</b>	<b>68.40</b>	<b>5.50</b>
2	5150.00	52.7 AV	54.0	-1.3	1.92 H	333	47.20	5.50
3	*5180.00	108.5 PK			1.88 H	347	69.00	39.50
4	*5180.00	98.4 AV			1.88 H	347	58.90	39.50
5	#10360.00	60.1 PK	74.0	-13.9	1.52 H	63	42.60	17.50
6	#10360.00	47.7 AV	54.0	-6.3	1.52 H	63	30.20	17.50
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	70.4 PK	74.0	-3.6	2.76 V	186	64.90	5.50
2	5150.00	50.1 AV	54.0	-3.9	2.76 V	186	44.60	5.50
3	*5180.00	102.2 PK			2.68 V	73	62.70	39.50
4	*5180.00	91.7 AV			2.68 V	73	52.20	39.50
5	#10360.00	59.2 PK	74.0	-14.8	1.27 V	4	41.70	17.50
6	#10360.00	45.3 AV	54.0	-8.7	1.27 V	4	27.80	17.50

**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)
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	73.7 PK	74.0	-0.3	1.78 H	221	68.20	5.50
2	5150.00	53.0 AV	54.0	-1.0	1.78 H	221	47.50	5.50
3	*5200.00	112.3 PK			1.73 H	332	72.70	39.60
4	*5200.00	102.0 AV			1.73 H	332	62.40	39.60
5	#10400.00	60.6 PK	74.0	-13.4	1.59 H	64	42.60	18.00
6	#10400.00	48.1 AV	54.0	-5.9	1.59 H	64	30.10	18.00

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.5 PK	74.0	-10.5	3.21 V	189	58.00	5.50
2	5150.00	46.8 AV	54.0	-7.2	3.21 V	189	41.30	5.50
3	*5200.00	105.5 PK			3.14 V	173	65.90	39.60
4	*5200.00	95.2 AV			3.14 V	173	55.60	39.60
5	#10400.00	59.6 PK	74.0	-14.4	1.47 V	84	41.60	18.00
6	#10400.00	47.0 AV	54.0	-7.0	1.47 V	84	29.00	18.00

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	110.9 PK			1.76 H	330	71.30	39.60
2	*5240.00	100.7 AV			1.76 H	330	61.10	39.60
3	5350.00	58.3 PK	74.0	-15.7	1.25 H	98	52.60	5.70
4	5350.00	46.9 AV	54.0	-7.1	1.25 H	98	41.20	5.70
5	#10480.00	60.6 PK	74.0	-13.4	1.47 H	87	42.60	18.00
6	#10480.00	48.3 AV	54.0	-5.7	1.47 H	87	30.30	18.00

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.2 PK			3.25 V	23	63.60	39.60
2	*5240.00	93.0 AV			3.25 V	23	53.40	39.60
3	5350.00	56.7 PK	74.0	-17.3	3.12 V	30	51.00	5.70
4	5350.00	45.4 AV	54.0	-8.6	3.12 V	30	39.70	5.70
5	#10480.00	59.6 PK	74.0	-14.4	1.55 V	201	41.60	18.00
6	#10480.00	46.6 AV	54.0	-7.4	1.55 V	201	28.60	18.00

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	113.8 PK			1.27 H	112	71.89	41.91
2	*5260.00	100.9 AV			1.27 H	112	58.99	41.91
3	#10520.00	56.1 PK	68.2	-12.1	1.26 H	278	7.44	48.66
4	15780.00	62.3 PK	74.0	-11.7	1.00 H	70	8.38	53.92
5	15780.00	50.4 AV	54.0	-3.6	1.00 H	70	-3.52	53.92

**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	103.6 PK			1.24 V	69	61.69	41.91
2	*5260.00	92.4 AV			1.24 V	69	50.49	41.91
3	#10520.00	54.1 PK	68.2	-17.1	1.24 V	321	5.44	48.66
4	15780.00	62.4 PK	74.0	-11.6	1.05 V	174	8.48	53.92
5	15780.00	50.5 AV	54.0	-3.5	1.05 V	174	-3.42	53.92

**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)
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	113.1 PK			1.27 H	116	71.10	42.00
2	*5300.00	100.6 AV			1.27 H	116	58.60	42.00
3	10600.00	57.5 PK	74.0	-16.5	1.22 H	269	8.58	48.92
4	10600.00	45.6 AV	54.0	-8.4	1.22 H	269	-3.32	48.92
5	15900.00	62.1 PK	74.0	-11.9	1.00 H	66	7.46	54.64
6	15900.00	50.4 AV	54.0	-3.6	1.00 H	66	-4.24	54.64

**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	103.5 PK			1.24 V	80	61.50	42.00
2	*5300.00	92.2 AV			1.24 V	80	50.20	42.00
3	10600.00	56.9 PK	74.0	-17.1	1.25 V	319	7.98	48.92
4	10600.00	44.7 AV	54.0	-9.3	1.25 V	319	-4.22	48.92
5	15900.00	62.3 PK	74.0	-11.7	1.05 V	177	7.66	54.64
6	15900.00	50.3 AV	54.0	-3.7	1.05 V	177	-4.34	54.64

**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)
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 &amp; 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	113.3 PK			1.27 H	113	71.26	42.04
2	*5320.00	101.0 AV			1.27 H	113	58.96	42.04
3	5350.00	63.1 PK	74.0	-10.9	1.28 H	113	21.01	42.09
4	5350.00	48.0 AV	54.0	-6.0	1.28 H	113	5.91	42.09
5	10640.00	56.9 PK	74.0	-17.1	1.26 H	281	8.09	48.81
6	10640.00	45.4 AV	54.0	-8.6	1.26 H	281	-3.41	48.81
7	15960.00	62.2 PK	74.0	-11.8	1.00 H	69	7.86	54.34
8	15960.00	50.5 AV	54.0	-3.5	1.00 H	69	-3.84	54.34

## ANTENNA POLARITY &amp; 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	104.6 PK			1.26 V	77	62.56	42.04
2	*5320.00	93.3 AV			1.26 V	77	51.26	42.04
3	5350.00	58.4 PK	74.0	-15.6	1.24 V	81	16.31	42.09
4	5350.00	45.9 AV	54.0	-8.1	1.24 V	81	3.81	42.09
5	10640.00	56.6 PK	74.0	-17.4	1.25 V	320	7.79	48.81
6	10640.00	44.9 AV	54.0	-9.1	1.25 V	320	-3.91	48.81
7	15960.00	62.4 PK	74.0	-11.6	1.05 V	174	8.06	54.34
8	15960.00	50.3 AV	54.0	-3.7	1.05 V	174	-4.04	54.34

## 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)
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 &amp; TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	63.8 PK	74.0	-10.2	1.24 H	114	21.58	42.22
2	5460.00	48.7 AV	54.0	-5.3	1.24 H	114	6.48	42.22
3	#5470.00	60.3 PK	68.2	-7.9	1.23 H	239	18.07	42.23
4	*5500.00	113.2 PK			1.24 H	241	70.95	42.25
5	*5500.00	100.8 AV			1.24 H	241	58.55	42.25
6	11000.00	57.5 PK	74.0	-16.5	1.25 H	276	8.52	48.98
7	11000.00	44.6 AV	54.0	-9.4	1.25 H	276	-4.38	48.98
8	#16500.00	59.7 PK	68.2	-8.5	1.00 H	70	3.77	55.93

## ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.1 PK	74.0	-15.9	1.26 V	70	15.88	42.22
2	5460.00	46.2 AV	54.0	-7.8	1.26 V	70	3.98	42.22
3	#5470.00	58.6 PK	68.2	-9.6	1.25 V	70	16.37	42.23
4	*5500.00	104.1 PK			1.25 V	69	61.85	42.25
5	*5500.00	93.1 AV			1.25 V	69	50.85	42.25
6	11000.00	56.7 PK	74.0	-17.3	1.24 V	318	7.72	48.98
7	11000.00	44.1 AV	54.0	-9.9	1.24 V	318	-4.88	48.98
8	#16500.00	56.9 PK	68.2	-11.3	1.01 V	177	0.97	55.93

## 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)
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	112.5 PK			1.22 H	247	70.11	42.39
2	*5580.00	100.0 AV			1.22 H	247	57.61	42.39
3	11160.00	58.5 PK	74.0	-15.5	1.26 H	274	9.44	49.06
4	11160.00	46.6 AV	54.0	-7.4	1.26 H	274	-2.46	49.06
5	#16740.00	59.8 PK	68.2	-8.4	1.00 H	69	3.60	56.20

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	103.5 PK			1.24 V	80	61.11	42.39
2	*5580.00	92.8 AV			1.24 V	80	50.41	42.39
3	11160.00	56.9 PK	74.0	-17.1	1.23 V	310	7.84	49.06
4	11160.00	45.7 AV	54.0	-8.3	1.23 V	310	-3.36	49.06
5	#16740.00	57.6 PK	68.2	-10.6	1.04 V	176	1.40	56.20

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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 132	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	*5660.00	113.4 PK			1.22 H	255	70.84	42.56
2	*5660.00	100.7 AV			1.22 H	255	58.14	42.56
3	11320.00	61.2 PK	74.0	-12.8	1.26 H	264	12.15	49.05
4	11320.00	48.6 AV	54.0	-5.4	1.26 H	264	-0.45	49.05
5	#16980.00	59.6 PK	68.2	-8.6	1.00 H	66	3.24	56.36

**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	*5660.00	104.3 PK			1.26 V	77	61.74	42.56
2	*5660.00	93.1 AV			1.26 V	77	50.54	42.56
3	11320.00	58.4 PK	74.0	-15.6	1.25 V	319	9.35	49.05
4	11320.00	46.2 AV	54.0	-7.8	1.25 V	319	-2.85	49.05
5	#16980.00	56.7 PK	68.2	-11.5	1.05 V	174	0.34	56.36

**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)
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	113.0 PK			1.21 H	262	70.36	42.64
2	*5700.00	100.1 AV			1.21 H	262	57.46	42.64
3	#5725.00	60.5 PK	68.2	-7.7	1.23 H	245	17.83	42.67
4	11400.00	60.2 PK	74.0	-13.8	1.25 H	267	10.97	49.23
5	11400.00	48.3 AV	54.0	-5.7	1.25 H	267	-0.93	49.23
6	#17100.00	60.0 PK	68.2	-8.2	1.00 H	70	3.40	56.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	103.9 PK			1.24 V	81	61.26	42.64
2	*5700.00	92.8 AV			1.24 V	81	50.16	42.64
3	#5725.00	58.4 PK	68.2	-9.8	1.24 V	82	15.73	42.67
4	11400.00	58.7 PK	74.0	-15.3	1.26 V	311	9.47	49.23
5	11400.00	46.3 AV	54.0	-7.7	1.26 V	311	-2.93	49.23
6	#17100.00	57.8 PK	68.2	-10.4	1.04 V	179	1.20	56.60

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	#5714.90	67.9 PK	74.0	-6.1	1.00 H	329	61.70	6.20
2	#5714.90	46.6 AV	54.0	-7.4	1.00 H	329	40.40	6.20
3	#5722.90	78.0 PK	78.2	-0.2	1.00 H	329	71.70	6.30
4	#5725.00	67.9 PK	78.2	-10.3	1.00 H	329	61.60	6.30
5	*5745.00	110.1 PK			1.00 H	325	69.70	40.40
6	*5745.00	99.4 AV			1.00 H	325	59.00	40.40
7	11490.00	65.6 PK	74.0	-8.4	1.00 H	307	46.30	19.30
8	11490.00	50.3 AV	54.0	-3.7	1.00 H	307	31.00	19.30

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5714.90	64.1 PK	74.0	-9.9	1.06 V	91	57.90	6.20
2	#5714.90	45.5 AV	54.0	-8.5	1.06 V	91	39.30	6.20
3	#5722.90	73.5 PK	78.2	-4.7	1.06 V	91	67.20	6.30
4	#5725.00	61.7 PK	78.2	-16.5	1.06 V	91	55.40	6.30
5	*5745.00	103.1 PK			1.10 V	98	62.70	40.40
6	*5745.00	92.5 AV			1.10 V	98	52.10	40.40
7	11490.00	64.8 PK	74.0	-9.2	1.05 V	297	45.50	19.30
8	11490.00	49.6 AV	54.0	-4.4	1.05 V	297	30.30	19.30

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	115.3 PK			1.00 H	324	74.80	40.50
2	*5785.00	104.6 AV			1.00 H	324	64.10	40.50
3	11570.00	68.8 PK	74.0	-5.2	1.00 H	303	49.80	19.00
4	11570.00	53.8 AV	54.0	-0.2	1.00 H	303	34.80	19.00

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	108.3 PK			1.02 V	91	67.80	40.50
2	*5785.00	97.9 AV			1.02 V	91	57.40	40.50
3	11570.00	68.1 PK	74.0	-5.9	1.02 V	298	49.10	19.00
4	11570.00	53.6 AV	54.0	-0.4	1.02 V	298	34.60	19.00

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

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	113.5 PK			1.00 H	323	72.90	40.60
2	*5825.00	103.1 AV			1.00 H	323	62.50	40.60
3	#5850.00	64.4 PK	78.2	-13.8	1.00 H	322	57.80	6.60
4	#5852.10	77.5 PK	78.2	-0.7	1.00 H	322	70.90	6.60
5	#5860.10	73.5 PK	74.0	-0.5	1.00 H	322	66.90	6.60
6	#5860.10	49.1 AV	54.0	-4.9	1.00 H	322	42.50	6.60
7	11650.00	67.4 PK	74.0	-6.6	1.00 H	302	48.90	18.50
8	11650.00	51.7 AV	54.0	-2.3	1.00 H	302	33.20	18.50

**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	108.2 PK			1.01 V	94	67.60	40.60
2	*5825.00	97.8 AV			1.01 V	94	57.20	40.60
3	#5850.00	63.5 PK	78.2	-14.7	1.07 V	99	56.90	6.60
4	#5852.10	73.6 PK	78.2	-4.6	1.07 V	99	67.00	6.60
5	#5860.10	67.2 PK	74.0	-6.8	1.07 V	99	60.60	6.60
6	#5860.10	48.0 AV	54.0	-6.0	1.07 V	99	41.40	6.60
7	11650.00	66.4 PK	74.0	-7.6	1.02 V	296	47.90	18.50
8	11650.00	51.0 AV	54.0	-3.0	1.02 V	296	32.50	18.50

**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)
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	71.2 PK	74.0	-2.8	2.11 H	219	65.70	5.50
2	<b>5150.00</b>	<b>53.9 AV</b>	<b>54.0</b>	<b>-0.1</b>	<b>2.11 H</b>	<b>219</b>	<b>48.40</b>	<b>5.50</b>
3	*5190.00	102.0 PK			1.50 H	334	62.50	39.50
4	*5190.00	91.9 AV			1.50 H	334	52.40	39.50
5	#10380.00	59.3 PK	74.0	-14.7	1.05 H	21	41.50	17.80
6	#10380.00	46.8 AV	54.0	-7.2	1.05 H	21	29.00	17.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.0 PK	74.0	-18.0	2.30 V	187	50.50	5.50
2	5150.00	49.7 AV	54.0	-4.3	2.30 V	187	44.20	5.50
3	*5190.00	93.4 PK			1.06 V	0	53.90	39.50
4	*5190.00	84.3 AV			1.06 V	0	44.80	39.50
5	#10380.00	57.8 PK	74.0	-16.2	1.05 V	21	40.00	17.80
6	#10380.00	45.2 AV	54.0	-8.8	1.05 V	21	27.40	17.80

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
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	67.3 PK	74.0	-6.7	1.72 H	334	61.80	5.50
2	5150.00	52.9 AV	54.0	-1.1	1.72 H	334	47.40	5.50
3	*5230.00	106.3 PK			2.00 H	326	66.70	39.60
4	*5230.00	97.2 AV			2.00 H	326	57.60	39.60
5	5350.00	58.3 PK	74.0	-15.7	2.17 H	330	52.60	5.70
6	5350.00	47.0 AV	54.0	-7.0	2.17 H	330	41.30	5.70
7	#10460.00	60.6 PK	74.0	-13.4	1.47 H	85	42.60	18.00
8	#10460.00	46.1 AV	54.0	-7.9	1.47 H	85	28.10	18.00

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.5 PK	74.0	-12.5	1.16 V	20	56.00	5.50
2	5150.00	47.1 AV	54.0	-6.9	1.16 V	20	41.60	5.50
3	*5230.00	100.5 PK			1.13 V	5	60.90	39.60
4	*5230.00	90.2 AV			1.13 V	5	50.60	39.60
5	5350.00	55.8 PK	74.0	-18.2	1.63 V	48	50.10	5.70
6	5350.00	44.1 AV	54.0	-9.9	1.63 V	48	38.40	5.70
7	#10460.00	58.0 PK	74.0	-16.0	1.17 V	41	40.00	18.00
8	#10460.00	45.2 AV	54.0	-8.8	1.17 V	41	27.20	18.00

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	108.9 PK			1.25 H	256	66.97	41.93
2	*5270.00	95.3 AV			1.25 H	256	53.37	41.93
3	#10540.00	50.6 PK	68.2	-17.6	1.26 H	268	1.87	48.73
4	15810.00	62.5 PK	74.0	-11.5	1.00 H	67	8.49	54.01
5	15810.00	50.4 AV	54.0	-3.6	1.00 H	67	-3.61	54.01

**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	*5270.00	102.9 PK			1.26 V	81	60.97	41.93
2	*5270.00	91.5 AV			1.26 V	81	49.57	41.93
3	#10540.00	50.3 PK	68.2	-17.9	1.28 V	320	1.57	48.73
4	15810.00	62.4 PK	74.0	-11.6	1.05 V	176	8.39	54.01
5	15810.00	50.2 AV	54.0	-3.8	1.05 V	176	-3.81	54.01

**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)
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	106.7 PK			1.22 H	116	64.68	42.02
2	*5310.00	92.6 AV			1.22 H	116	50.58	42.02
3	5350.00	69.5 PK	74.0	-4.5	1.27 H	117	27.41	42.09
4	5350.00	53.1 AV	54.0	-0.9	1.27 H	117	11.01	42.09
5	10620.00	56.6 PK	74.0	-17.4	1.22 H	287	7.73	48.87
6	10620.00	45.2 AV	54.0	-8.8	1.22 H	287	-3.67	48.87
7	15930.00	62.5 PK	74.0	-11.5	1.00 H	68	8.01	54.49
8	15930.00	50.2 AV	54.0	-3.8	1.00 H	68	-4.29	54.49

**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	101.0 PK			1.26 V	74	58.98	42.02
2	*5310.00	88.6 AV			1.26 V	74	46.58	42.02
3	5350.00	65.4 PK	74.0	-8.6	1.26 V	80	23.31	42.09
4	5350.00	48.7 AV	54.0	-5.3	1.26 V	80	6.61	42.09
5	10620.00	55.3 PK	74.0	-18.7	1.28 V	320	6.43	48.87
6	10620.00	44.6 AV	54.0	-9.4	1.28 V	320	-4.27	48.87
7	15930.00	62.7 PK	74.0	-11.3	1.05 V	177	8.21	54.49
8	15930.00	50.4 AV	54.0	-3.6	1.05 V	177	-4.09	54.49

**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)
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 &amp; TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	68.1 PK	74.0	-5.9	1.21 H	108	25.88	42.22
2	5460.00	52.1 AV	54.0	-1.9	1.21 H	108	9.88	42.22
3	#5470.00	66.7 PK	68.2	-1.5	1.22 H	114	24.47	42.23
4	*5510.00	107.3 PK			1.22 H	115	65.03	42.27
5	*5510.00	93.7 AV			1.22 H	115	51.43	42.27
6	11020.00	57.7 PK	74.0	-16.3	1.26 H	291	8.70	49.00
7	11020.00	45.3 AV	54.0	-8.7	1.26 H	291	-3.70	49.00
8	#16530.00	58.4 PK	68.2	-9.8	1.00 H	69	2.52	55.88

## ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	65.6 PK	74.0	-8.4	1.24 V	81	23.38	42.22
2	5460.00	49.2 AV	54.0	-4.8	1.24 V	81	6.98	42.22
3	#5470.00	61.9 PK	68.2	-6.3	1.25 V	80	19.67	42.23
4	*5510.00	101.9 PK			1.24 V	80	59.63	42.27
5	*5510.00	89.6 AV			1.24 V	80	47.33	42.27
6	11020.00	55.9 PK	74.0	-18.1	1.28 V	319	6.90	49.00
7	11020.00	43.7 AV	54.0	-10.3	1.28 V	319	-5.30	49.00
8	#16530.00	58.3 PK	68.2	-9.9	1.05 V	178	2.42	55.88

## 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)
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	110.1 PK			1.23 H	114	67.76	42.34
2	*5550.00	95.8 AV			1.23 H	114	53.46	42.34
3	11100.00	57.9 PK	74.0	-16.1	1.26 H	287	8.80	49.10
4	11100.00	45.6 AV	54.0	-8.4	1.26 H	287	-3.50	49.10
5	#16650.00	58.6 PK	68.2	-9.6	1.00 H	71	2.68	55.92

**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	102.5 PK			1.25 V	77	60.16	42.34
2	*5550.00	91.3 AV			1.25 V	77	48.96	42.34
3	11100.00	56.5 PK	74.0	-17.5	1.28 V	320	7.40	49.10
4	11100.00	44.6 AV	54.0	-9.4	1.28 V	320	-4.50	49.10
5	#16650.00	57.6 PK	68.2	-10.6	1.06 V	177	1.68	55.92

**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)
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	109.3 PK			1.21 H	113	66.72	42.58
2	*5670.00	96.9 AV			1.21 H	113	54.32	42.58
3	#5725.00	56.4 PK	68.2	-11.8	1.21 H	114	13.73	42.67
4	11340.00	57.3 PK	74.0	-16.7	1.27 H	284	8.21	49.09
5	11340.00	45.3 AV	54.0	-8.7	1.27 H	284	-3.79	49.09
6	#17010.00	58.5 PK	68.2	-9.7	1.00 H	70	2.14	56.36

**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	103.4 PK			1.23 V	80	60.82	42.58
2	*5670.00	92.4 AV			1.23 V	80	49.82	42.58
3	#5725.00	54.5 PK	68.2	-13.7	1.23 V	81	11.83	42.67
4	11340.00	56.7 PK	74.0	-17.3	1.28 V	311	7.61	49.09
5	11340.00	44.8 AV	54.0	-9.2	1.28 V	311	-4.29	49.09
6	#17010.00	58.1 PK	68.2	-10.1	1.07 V	167	1.74	56.36

**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)
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	#5714.90	71.6 PK	74.0	-2.4	1.20 H	42	65.40	6.20
2	#5714.90	53.8 AV	54.0	-0.2	1.20 H	42	47.60	6.20
3	#5722.90	73.5 PK	78.2	-4.7	1.24 H	41	67.20	6.30
4	#5725.00	64.1 PK	78.2	-14.1	1.24 H	41	57.80	6.30
5	*5755.00	103.9 PK			1.00 H	324	63.40	40.50
6	*5755.00	93.8 AV			1.00 H	324	53.30	40.50
7	11510.00	64.7 PK	74.0	-9.3	1.00 H	300	45.60	19.10
8	11510.00	49.6 AV	54.0	-4.4	1.00 H	300	30.50	19.10

**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	#5714.90	65.2 PK	74.0	-8.8	1.06 V	93	59.00	6.20
2	#5714.90	50.9 AV	54.0	-3.1	1.06 V	93	44.70	6.20
3	#5722.90	70.9 PK	78.2	-7.3	1.06 V	93	64.60	6.30
4	#5725.00	60.6 PK	78.2	-17.6	1.06 V	93	54.30	6.30
5	*5755.00	98.0 PK			1.02 V	93	57.50	40.50
6	*5755.00	87.6 AV			1.02 V	93	47.10	40.50
7	11510.00	64.2 PK	74.0	-9.8	1.03 V	299	45.10	19.10
8	11510.00	48.7 AV	54.0	-5.3	1.03 V	299	29.60	19.10

**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)
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	*5795.00	111.4 PK			1.00 H	324	70.90	40.50
2	*5795.00	100.7 AV			1.00 H	324	60.20	40.50
3	#5850.00	64.0 PK	78.2	-14.2	1.02 H	324	57.40	6.60
4	#5852.10	73.9 PK	78.2	-4.3	1.02 H	324	67.30	6.60
5	#5860.10	72.9 PK	74.0	-1.1	1.05 H	326	66.30	6.60
6	#5860.10	53.5 AV	54.0	-0.5	1.05 H	326	46.90	6.60
7	11590.00	66.5 PK	74.0	-7.5	1.00 H	309	47.80	18.70
8	11590.00	50.9 AV	54.0	-3.1	1.00 H	309	32.20	18.70

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	105.9 PK			1.01 V	91	65.40	40.50
2	*5795.00	95.4 AV			1.01 V	91	54.90	40.50
3	#5850.00	58.8 PK	78.2	-19.4	1.07 V	97	52.20	6.60
4	#5852.10	68.5 PK	78.2	-9.7	1.07 V	97	61.90	6.60
5	#5860.10	66.7 PK	74.0	-7.3	1.07 V	97	60.10	6.60
6	#5860.10	50.1 AV	54.0	-3.9	1.07 V	97	43.50	6.60
7	11590.00	65.9 PK	74.0	-8.1	1.10 V	290	47.20	18.70
8	11590.00	50.3 AV	54.0	-3.7	1.10 V	290	31.60	18.70

**REMARKS:**

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

Below 1GHz worst-case data:

802.11n (HT20)

CHANNEL	TX Channel 40	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	41.54	24.4 QP	40.0	-15.6	2.00 H	263	39.00	-14.60
2	111.40	31.8 QP	43.5	-11.7	1.24 H	235	48.70	-16.90
3	173.49	38.8 QP	43.5	-4.7	1.24 H	5	53.10	-14.30
4	239.46	38.0 QP	46.0	-8.0	1.24 H	170	53.00	-15.00
5	365.59	33.9 QP	46.0	-12.1	1.00 H	278	45.60	-11.70
6	530.52	32.7 QP	46.0	-13.3	1.24 H	278	41.70	-9.00

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	43.48	35.5 QP	40.0	-4.5	1.24 V	343	49.80	-14.30
2	55.13	34.0 QP	40.0	-6.0	1.24 V	2	48.00	-14.00
3	113.34	33.6 QP	43.5	-9.9	1.00 V	199	50.30	-16.70
4	183.19	37.3 QP	43.5	-6.2	1.00 V	145	52.80	-15.50
5	425.74	29.0 QP	46.0	-17.0	1.24 V	218	39.60	-10.60
6	497.54	28.6 QP	46.0	-17.4	2.00 V	139	38.10	-9.50

**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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

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

- Note:** 1. The lower limit shall apply at the transition frequencies.  
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 4.2.2 Test Instruments

Test date: Feb. 03, 2016

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 16, 2015	Nov. 15, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2015	Feb. 25, 2016
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 24, 2015	Jul. 23, 2016
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

### 4.2.3 Test Procedures

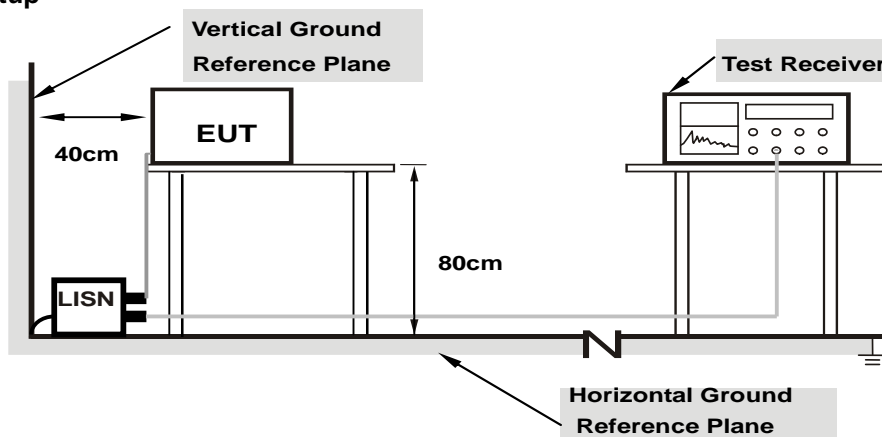
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

### 4.2.4 Deviation from Test Standard

No deviation.

### 4.2.5 Test Setup



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

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

### 4.2.6 EUT Operating Conditions

Same as 4.1.6.

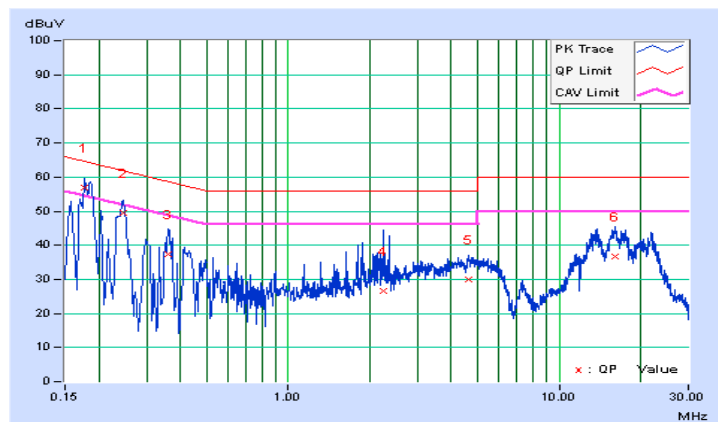
### 4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	<b>0.17737</b>	<b>10.07</b>	<b>46.87</b>	<b>29.58</b>	<b>56.94</b>	<b>39.65</b>	<b>64.61</b>
2	0.24601	10.12	39.40	23.12	49.52	33.24	61.89	51.89	-12.37	-18.65
3	0.36143	10.13	27.29	11.56	37.42	21.69	58.70	48.70	-21.28	-27.01
4	2.24967	10.29	16.31	9.44	26.60	19.73	56.00	46.00	-29.40	-26.27
5	4.62304	10.46	19.41	13.34	29.87	23.80	56.00	46.00	-26.13	-22.20
6	16.00896	10.97	25.86	17.52	36.83	28.49	60.00	50.00	-23.17	-21.51

#### REMARKS:

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

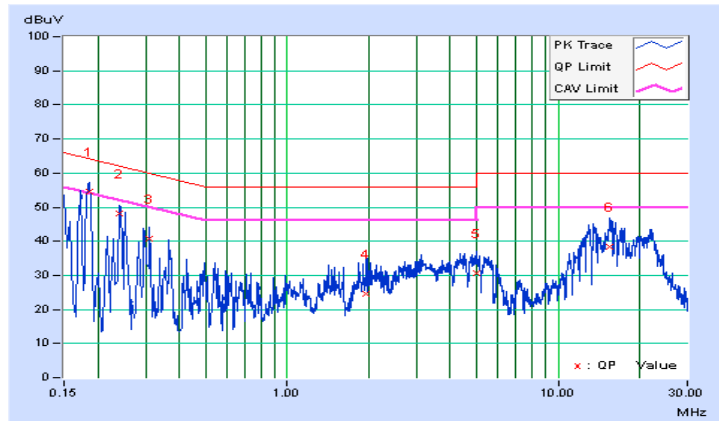


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.18508	10.03	44.48	28.90	54.51	38.93	64.25
2	0.24025	10.06	38.07	22.31	48.13	32.37	62.09	52.09	-13.96	-19.72
3	0.31031	10.10	30.74	12.59	40.84	22.69	59.96	49.96	-19.12	-27.27
4	1.94469	10.28	14.30	6.17	24.58	16.45	56.00	46.00	-31.42	-29.55
5	4.97885	10.48	20.27	14.52	30.75	25.00	56.00	46.00	-25.25	-21.00
6	15.53976	10.80	27.58	19.26	38.38	30.06	60.00	50.00	-21.62	-19.94

**REMARKS:**

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



### 4.3 Transmit Power Measurement

#### 4.3.1 Limits of Transmit Power Measurement

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

\*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

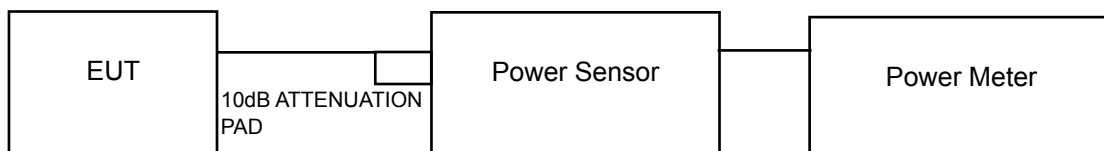
Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  MHz for any  $N_{ANT}$ ;

Array Gain =  $5 \log(N_{ANT}/N_{SS})$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $N_{ANT} \geq 5$ .

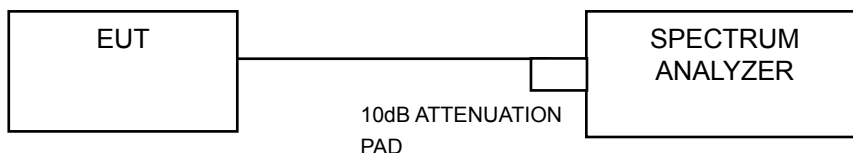
For power measurements on all other devices: Array Gain =  $10 \log(N_{ANT}/N_{SS})$  dB.

#### 4.3.2 Test Setup

For Power Output Measurement



For 26dB and Occupied Bandwidth



#### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

#### 4.3.4 Test Procedure

##### For Average Power Measurement

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 Occupied Bandwidth

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 AVERAGE. 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.

#### 4.3.5 Deviation from Test Standard

No deviation.

#### 4.3.6 EUT Operating Conditions

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

### 4.3.7 Test Result

#### POWER OUTPUT:

#### 802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	15.73	15.18	70.372	18.47	24	Pass
40	5200	20.12	20.02	203.264	23.08	24	Pass
48	5240	15.43	14.82	65.253	18.15	24	Pass
52	5260	15.20	15.50	<b>68.600</b>	18.40	24	Pass
60	5300	14.80	15.00	61.800	17.90	24	Pass
64	5320	14.50	14.60	57.000	17.60	24	Pass
100	5500	16.60	15.00	<b>77.300</b>	18.90	24	Pass
116	5580	15.70	16.00	77.000	18.90	24	Pass
132	5660	14.00	14.20	51.400	17.10	24	Pass
140	5700	15.50	15.80	73.500	18.70	24	Pass
149	5745	16.76	15.74	84.921	19.29	30	Pass
157	5785	19.92	19.48	<b>186.891</b>	22.72	30	Pass
165	5825	19.53	18.11	154.457	21.89	30	Pass

#### NOTE:

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

##### Chain 0

1.  $11\text{dBm} + 10\log(31.35) = 25.96\text{ dBm} > 24\text{dBm}$ .
2.  $11\text{dBm} + 10\log(30.16) = 25.79\text{ dBm} > 24\text{dBm}$ .
3.  $11\text{dBm} + 10\log(29.58) = 25.71\text{ dBm} > 24\text{dBm}$ .
4.  $11\text{dBm} + 10\log(35.44) = 26.49\text{ dBm} > 24\text{dBm}$ .
5.  $11\text{dBm} + 10\log(30.38) = 25.83\text{ dBm} > 24\text{dBm}$ .
6.  $11\text{dBm} + 10\log(28.14) = 25.49\text{ dBm} > 24\text{dBm}$ .
7.  $11\text{dBm} + 10\log(29.00) = 25.62\text{ dBm} > 24\text{dBm}$ .

##### Chain 1

1.  $11\text{dBm} + 10\log(32.00) = 26.05\text{ dBm} > 24\text{dBm}$ .
2.  $11\text{dBm} + 10\log(30.10) = 25.79\text{ dBm} > 24\text{dBm}$ .
3.  $11\text{dBm} + 10\log(27.63) = 25.41\text{ dBm} > 24\text{dBm}$ .
4.  $11\text{dBm} + 10\log(27.69) = 25.42\text{ dBm} > 24\text{dBm}$ .
5.  $11\text{dBm} + 10\log(27.68) = 25.42\text{ dBm} > 24\text{dBm}$ .
6.  $11\text{dBm} + 10\log(27.82) = 25.44\text{ dBm} > 24\text{dBm}$ .
7.  $11\text{dBm} + 10\log(36.55) = 26.63\text{ dBm} > 24\text{dBm}$ .

**802.11n (HT20)**

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	15.28	15.47	68.966	18.39	24	Pass
40	5200	20.08	20.27	<b>208.273</b>	23.19	24	Pass
48	5240	15.48	15.22	68.584	18.36	24	Pass
52	5260	14.50	14.60	57.000	17.60	24	Pass
60	5300	14.00	14.10	50.800	17.10	24	Pass
64	5320	13.70	13.80	47.400	16.80	24	Pass
100	5500	15.70	14.20	63.500	18.00	24	Pass
116	5580	14.90	15.20	64.000	18.10	24	Pass
132	5660	14.10	14.30	52.600	17.20	24	Pass
140	5700	14.60	15.00	60.500	17.80	24	Pass
149	5745	15.85	14.68	67.835	18.31	30	Pass
157	5785	19.51	19.57	179.904	22.55	30	Pass
165	5825	18.87	19.57	167.663	22.24	30	Pass

**NOTE:**
**For U-NII-2A, U-NII-2C Band:**
**Chain 0**

1.  $11\text{dBm} + 10\log(30.12) = 25.79\text{ dBm} > 24\text{dBm}$ .
2.  $11\text{dBm} + 10\log(28.96) = 25.62\text{ dBm} > 24\text{dBm}$ .
3.  $11\text{dBm} + 10\log(26.56) = 25.24\text{ dBm} > 24\text{dBm}$ .
4.  $11\text{dBm} + 10\log(31.24) = 25.95\text{ dBm} > 24\text{dBm}$ .
5.  $11\text{dBm} + 10\log(27.25) = 25.35\text{ dBm} > 24\text{dBm}$ .
6.  $11\text{dBm} + 10\log(30.75) = 25.88\text{ dBm} > 24\text{dBm}$ .
7.  $11\text{dBm} + 10\log(33.57) = 26.26\text{ dBm} > 24\text{dBm}$ .

**Chain 1**

1.  $11\text{dBm} + 10\log(32.47) = 26.11\text{ dBm} > 24\text{dBm}$ .
2.  $11\text{dBm} + 10\log(27.47) = 25.39\text{ dBm} > 24\text{dBm}$ .
3.  $11\text{dBm} + 10\log(28.46) = 25.54\text{ dBm} > 24\text{dBm}$ .
4.  $11\text{dBm} + 10\log(23.59) = 24.73\text{ dBm} > 24\text{dBm}$ .
5.  $11\text{dBm} + 10\log(29.63) = 25.72\text{ dBm} > 24\text{dBm}$ .
6.  $11\text{dBm} + 10\log(31.98) = 26.05\text{ dBm} > 24\text{dBm}$ .
7.  $11\text{dBm} + 10\log(35.47) = 26.50\text{ dBm} > 24\text{dBm}$ .



**802.11n (HT40)**

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	10.24	9.89	20.318	13.08	24	Pass
46	5230	16.96	16.82	97.743	19.90	24	Pass
54	5270	13.50	13.70	45.800	16.60	24	Pass
62	5310	9.70	9.90	19.100	12.80	24	Pass
102	5510	12.90	11.60	34.000	15.30	24	Pass
110	5550	14.70	14.20	55.800	17.50	24	Pass
134	5670	13.80	14.50	52.200	17.20	24	Pass
151	5755	12.17	11.12	29.424	14.69	30	Pass
159	5795	19.60	18.72	165.674	22.19	30	Pass

**NOTE:**
**For U-NII-2A, U-NII-2C Band:**
**Chain 0**

1.  $11\text{dBm} + 10\log(49.64) = 27.96\text{ dBm} > 24\text{dBm}$ .
2.  $11\text{dBm} + 10\log(43.93) = 27.43\text{ dBm} > 24\text{dBm}$ .
3.  $11\text{dBm} + 10\log(45.32) = 27.56\text{ dBm} > 24\text{dBm}$ .
4.  $11\text{dBm} + 10\log(56.44) = 28.52\text{ dBm} > 24\text{dBm}$ .
5.  $11\text{dBm} + 10\log(50.66) = 28.05\text{ dBm} > 24\text{dBm}$ .

**Chain 1**

1.  $11\text{dBm} + 10\log(50.18) = 28.01\text{ dBm} > 24\text{dBm}$ .
2.  $11\text{dBm} + 10\log(43.34) = 27.37\text{ dBm} > 24\text{dBm}$ .
3.  $11\text{dBm} + 10\log(45.12) = 27.54\text{ dBm} > 24\text{dBm}$ .
4.  $11\text{dBm} + 10\log(55.76) = 28.46\text{ dBm} > 24\text{dBm}$ .
5.  $11\text{dBm} + 10\log(59.88) = 28.77\text{ dBm} > 24\text{dBm}$ .

**26dB BANDWIDTH:**
**802.11a**

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
36	5180	36.35	31.93	Pass
40	5200	45.61	44.01	Pass
48	5240	37.56	32.49	Pass
52	5260	31.35	32.00	Pass
60	5300	30.16	30.10	Pass
64	5320	29.58	27.63	Pass
100	5500	35.44	27.69	Pass
116	5580	30.38	27.68	Pass
132	5660	28.14	27.82	Pass
140	5700	29.00	36.55	Pass

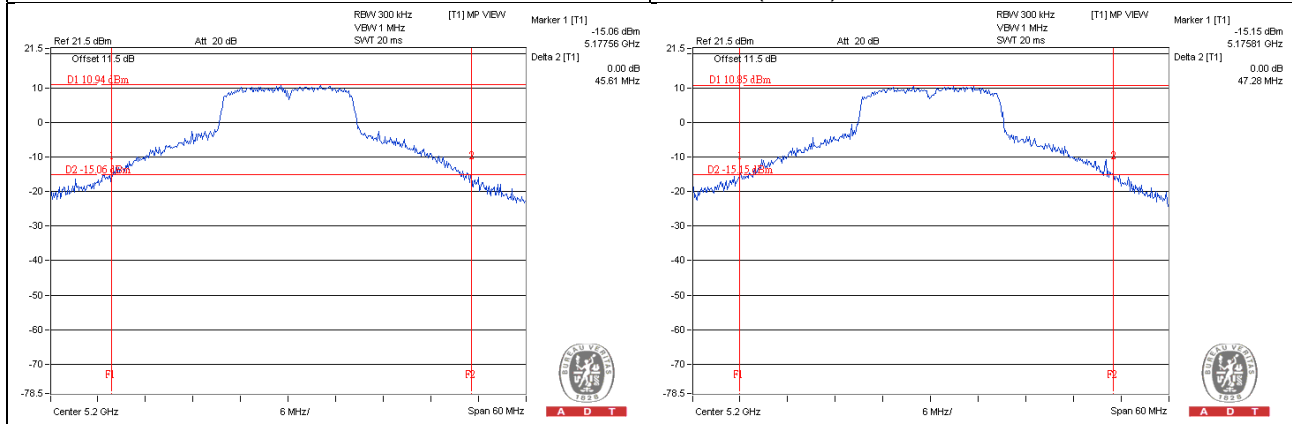
**802.11n (HT20)**

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
36	5180	37.74	34.22	Pass
40	5200	47.28	43.45	Pass
48	5240	37.04	33.17	Pass
52	5260	30.12	32.47	Pass
60	5300	28.96	27.47	Pass
64	5320	26.56	28.46	Pass
100	5500	31.24	23.59	Pass
116	5580	27.25	29.63	Pass
132	5660	30.75	31.98	Pass
140	5700	33.57	35.47	Pass

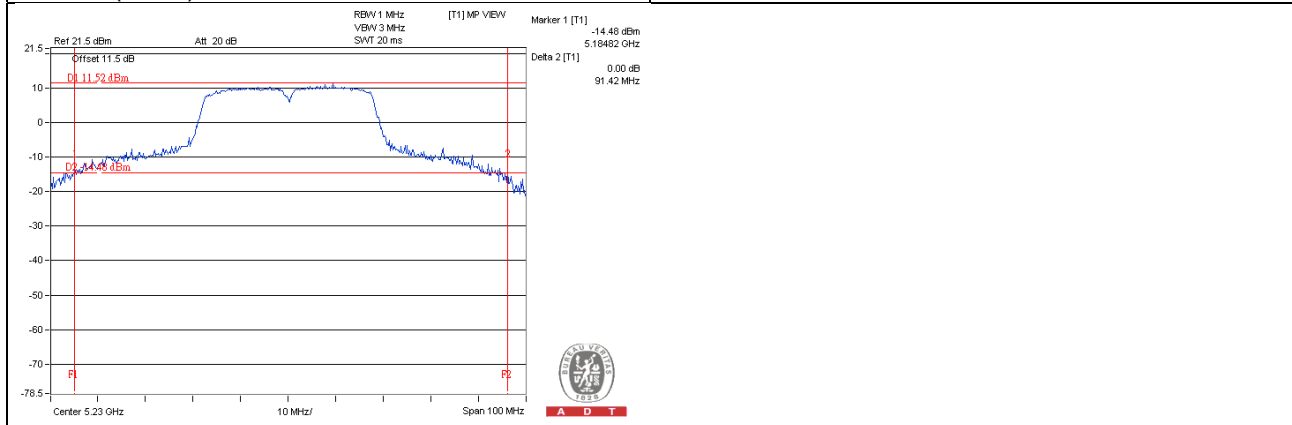
802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
38	5190	53.06	49.53	Pass
46	5230	91.42	85.67	Pass
54	5270	49.64	50.18	Pass
62	5310	43.93	43.34	Pass
102	5510	45.32	45.12	Pass
110	5550	56.44	55.76	Pass
134	5670	50.66	59.88	Pass

Spectrum Plot of Worst Value 802.11a 802.11n (HT20)



802.11n (HT40)



**OCCUPIED BANDWIDTH:**
**802.11a**

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.84	17.16
40	5200	30.72	25.92
48	5240	19.80	17.28
52	5260	17.00	17.20
60	5300	17.00	17.00
64	5320	17.10	17.00
100	5500	17.90	16.90
116	5580	17.00	17.00
132	5660	17.00	17.10
140	5700	17.10	19.10
149	5745	21.48	17.91
157	5785	26.88	28.32
165	5825	24.96	25.80

**802.11n (HT20)**

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	19.44	18.24
40	5200	30.72	26.52
48	5240	20.88	18.36
52	5260	18.10	18.10
60	5300	18.10	18.00
64	5320	18.10	18.10
100	5500	18.10	17.90
116	5580	17.90	18.00
140	5700	18.10	18.10
132	5660	18.30	18.60
149	5745	20.16	18.00
157	5785	25.92	29.04
165	5825	24.12	24.24

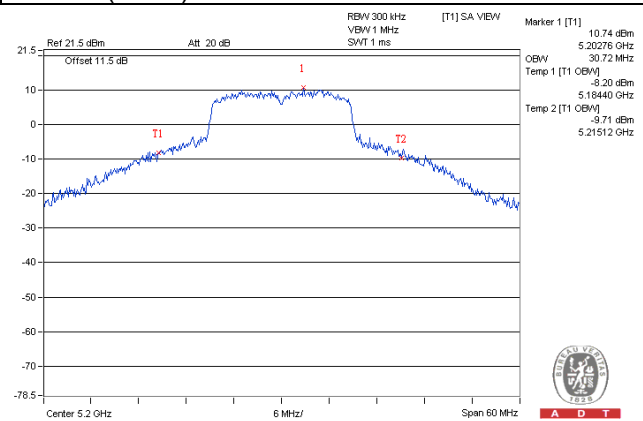
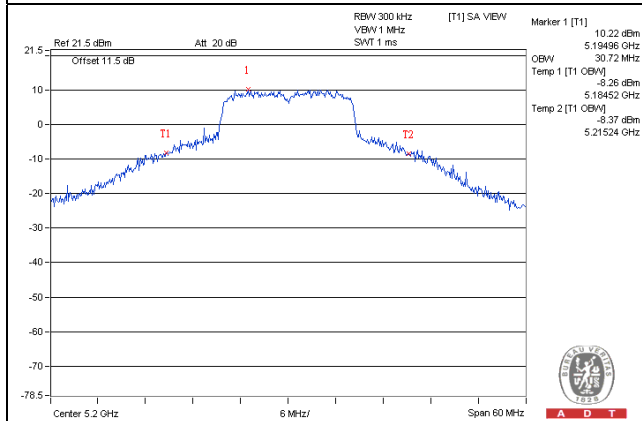
802.11n (HT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	37.32	37.08
46	5230	39.12	38.04
54	5270	36.40	36.60
62	5310	36.40	36.20
102	5510	36.40	36.20
110	5550	36.40	36.20
134	5670	36.60	36.60
151	5755	37.32	37.08
159	5795	41.52	41.04

Spectrum Plot of Worst Value

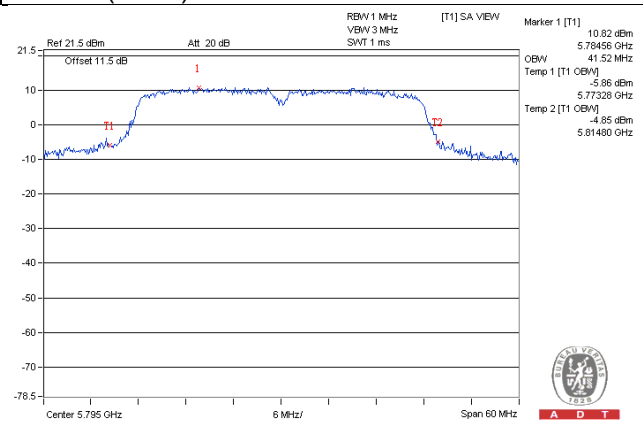
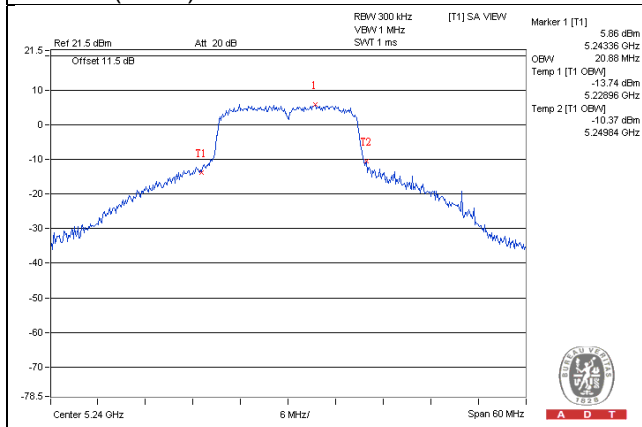
802.11a/ Chain 0/ Channel 40

802.11n (HT20) / Chain 0/ Channel 40



802.11n (HT20) / Chain 0/ Channel 48

802.11n (HT40) / Chain 0/ Channel 159



**EUT MAXIMUM CONDUCTED POWER**
**802.11a**

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	68.600	18.40
5470~5725	77.300	18.90

**NOTE:** Manufacturer provides Transmit Power Control description to meet this requirement.

**802.11n (HT20)**

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	57.000	17.60
5470~5725	64.000	18.10

**NOTE:** Manufacturer provides Transmit Power Control description to meet this requirement.

**802.11n (HT40)**

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	45.800	16.60
5470~5725	55.800	17.50

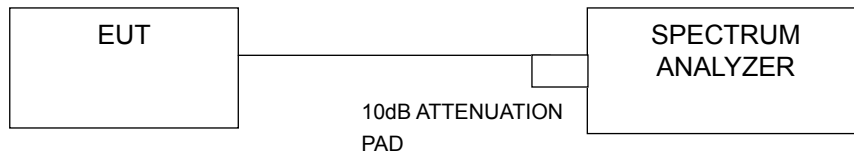
**NOTE:** Manufacturer provides Transmit Power Control description to meet this requirement.

#### 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 Procedures

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

Using method SA-2

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

##### For U-NII-3 band:

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW  $\geq$  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 Conditions

Same as Item 4.3.6.



#### 4.4.7 Test Results

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

##### 802.11a

Chan.	Freq. (MHz)	PSD (dBm)		Total PSD w/o duty factor (dBm)	Duty factor	Total PSD with duty factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1					
36	5180	1.39	0.96	4.19	0.19	4.38	11	Pass
40	5200	6.16	5.27	8.75	0.19	8.94	11	Pass
48	5240	1.69	0.96	4.35	0.19	4.54	11	Pass
52	5260	3.70	4.30	7.00	0.19	7.19	11	Pass
60	5300	4.00	4.10	6.50	0.19	6.69	11	Pass
64	5320	3.50	3.30	6.20	0.19	6.39	11	Pass
100	5500	6.20	4.00	8.00	0.19	8.19	10.38	Pass
116	5580	4.70	4.70	7.40	0.19	7.59	10.38	Pass
132	5660	3.00	3.50	6.00	0.19	6.19	10.38	Pass
140	5700	5.00	4.70	7.40	0.19	7.59	10.38	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- U-NII-1:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 4.76\text{dBi} < 6\text{dBi}$ , so the power density limit shall not be reduced.

**U-NII-2A:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 5.73\text{dBi} < 6\text{dBi}$ , so the power density limit shall not be reduced.

**U-NII-2C:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 6.62\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11 - (6.62 - 6) = 10.38\text{dBm}$ .
- Refer to section 3.3 for duty cycle spectrum plot.

**802.11n (HT20)**

Chan.	Freq. (MHz)	PSD (dBm)		Total PSD w/o duty factor (dBm)	Duty factor	Total PSD with duty factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1					
36	5180	1.07	1.00	4.05	0.15	4.20	11	Pass
40	5200	5.87	5.11	8.52	0.15	8.67	11	Pass
48	5240	1.88	0.96	4.46	0.15	4.61	11	Pass
52	5260	3.00	3.70	6.10	0.15	6.25	11	Pass
60	5300	2.40	3.30	5.60	0.15	5.75	11	Pass
64	5320	2.10	3.00	5.40	0.15	5.55	11	Pass
100	5500	4.50	2.60	6.40	0.15	6.55	10.38	Pass
116	5580	3.50	3.90	6.70	0.15	6.85	10.38	Pass
132	5660	2.90	3.10	5.80	0.15	5.95	10.38	Pass
140	5700	3.80	4.10	6.50	0.15	6.65	10.38	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- U-NII-1:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 4.76\text{dBi} < 6\text{dBi}$ , so the power density limit shall not be reduced.

**U-NII-2A:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 5.73\text{dBi} < 6\text{dBi}$ , so the power density limit shall not be reduced.

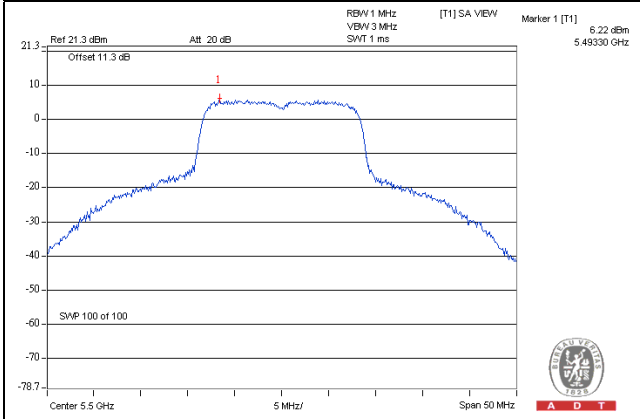
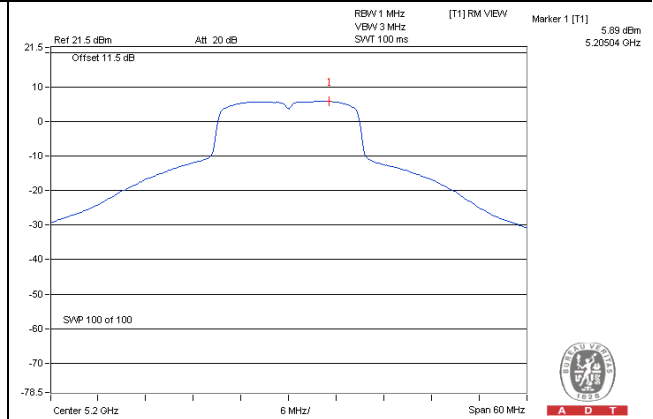
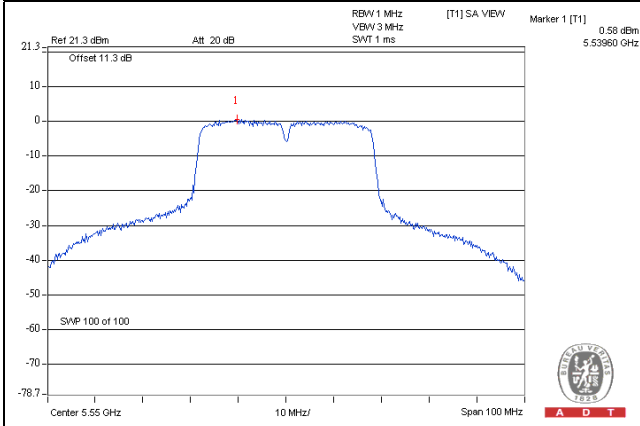
**U-NII-2C:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 6.62\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11 - (6.62 - 6) = 10.38\text{dBm}$ .
- Refer to section 3.3 for duty cycle spectrum plot.

**802.11n (HT40)**

Chan.	Freq. (MHz)	PSD (dBm)		Total PSD w/o duty factor (dBm)	Duty factor	Total PSD with duty factor (dBm)	Max. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1					
38	5190	-6.50	-6.89	-3.68	0.40	-3.28	11	Pass
46	5230	0.20	-0.22	3.01	0.40	3.41	11	Pass
54	5270	-0.40	-0.50	2.50	0.40	2.90	11	Pass
62	5310	-4.50	-4.00	-1.70	0.40	-1.30	11	Pass
102	5510	-1.30	-2.50	1.00	0.40	1.40	10.38	Pass
110	5550	0.60	-0.10	2.90	0.40	3.30	10.38	Pass
134	5670	-0.30	0.20	2.60	0.40	3.00	10.38	Pass

**Note:**

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- U-NII-1:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$  = 4.76dBi < 6dBi, so the power density limit shall not be reduced.  
**U-NII-2A:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$  = 5.73dBi < 6dBi, so the power density limit shall not be reduced.  
**U-NII-2C:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2]$  = 6.62dBi > 6dBi, so the power density limit shall be reduced to 11-(6.62-6) = 10.38dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

**Spectrum Plot of Worst Value****802.11a / Ch 100 / Chain 0****802.11n (HT20) / Ch 40 / Chain 0****802.11n (HT40) / Ch 110 / Chain 0**

## For U-NII-3 Band

### 802.11a

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-6.28	-4.06	3.01	0.19	-0.86	29.31	Pass
	157	5785	-4.44	-2.22	3.01	0.19	0.98	29.31	Pass
	165	5825	-5.39	-3.17	3.01	0.19	0.03	29.31	Pass
1	149	5745	-7.03	-4.81	3.01	0.19	-1.61	29.31	Pass
	157	5785	-3.83	-1.61	3.01	0.19	1.59	29.31	Pass
	165	5825	-4.83	-2.61	3.01	0.19	0.59	29.31	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 6.69\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30 - (6.69 - 6) = 29.31\text{dBm}$ .
- Refer to section 3.3 for duty cycle spectrum plot.

### 802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-7.88	-5.66	3.01	0.15	-2.50	29.31	Pass
	157	5785	-4.94	-2.72	3.01	0.15	0.44	29.31	Pass
	165	5825	-5.73	-3.51	3.01	0.15	-0.35	29.31	Pass
1	149	5745	-8.81	-6.59	3.01	0.15	-3.43	29.31	Pass
	157	5785	-3.97	-1.75	3.01	0.15	1.41	29.31	Pass
	165	5825	-5.46	-3.24	3.01	0.15	-0.08	29.31	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 6.69\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30 - (6.69 - 6) = 29.31\text{dBm}$ .
- Refer to section 3.3 for duty cycle spectrum plot.

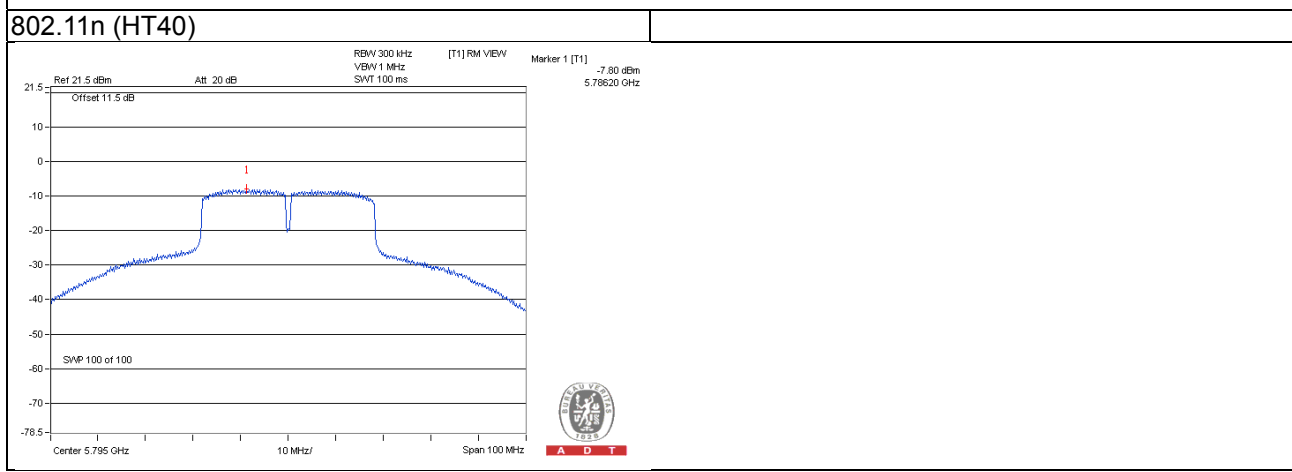
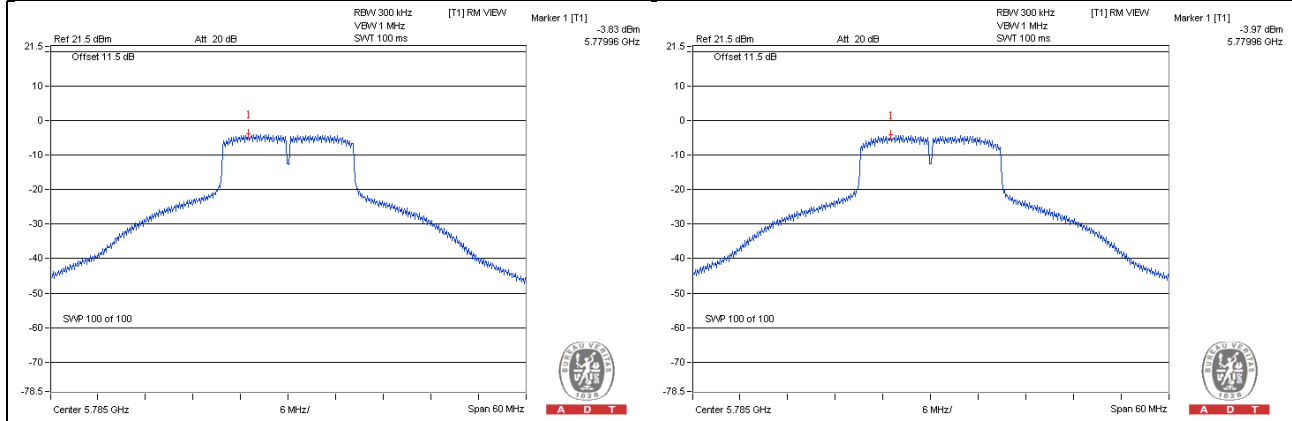
802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300 kHz)	PSD (dBm/500 kHz)	10 log (N=2) dB	Duty factor	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	151	5755	-14.09	-11.87	3.01	0.40	-8.46	29.31	Pass
	159	5795	-8.31	-6.09	3.01	0.40	-2.68	29.31	Pass
1	151	5755	-15.34	-13.12	3.01	0.40	-9.71	29.31	Pass
	159	5795	-7.80	-5.58	3.01	0.40	-2.17	29.31	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / 2] = 6.69\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $30 - (6.69 - 6) = 29.31\text{dBm}$ .
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

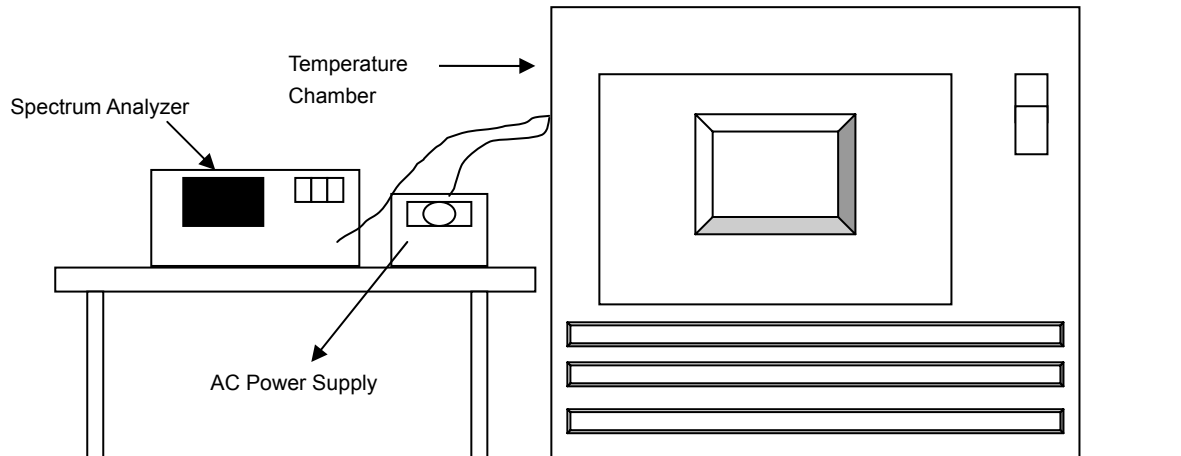


## 4.5 Frequency Stability

### 4.5.1 Limits of Frequency Stability Measurement

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

### 4.5.2 Test Setup



### 4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.5.4 Test Procedure

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

### 4.5.5 Deviation from Test Standard

No deviation.

### 4.5.6 EUT Operating Condition

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

#### 4.5.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. ( )	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	5180.0222	0.00043	5180.0222	0.00043	5180.0233	0.00045	5180.0202	0.00039
40	120	5180.0256	0.00049	5180.027	0.00052	5180.0238	0.00046	5180.0252	0.00049
30	120	5179.9974	-0.00005	5180.0003	0.00001	5180.0002	0.00000	5180.0017	0.00003
20	120	5180.0154	0.00030	5180.0147	0.00028	5180.0132	0.00025	5180.0148	0.00029
10	120	5179.9802	-0.00038	5179.9844	-0.00030	5179.981	-0.00037	5179.9829	-0.00033
0	120	5179.9915	-0.00016	5179.9937	-0.00012	5179.9951	-0.00009	5179.992	-0.00015
-10	120	5179.9957	-0.00008	5179.9953	-0.00009	5179.9968	-0.00006	5179.9974	-0.00005
-20	120	5179.9758	-0.00047	5179.9766	-0.00045	5179.9793	-0.00040	5179.9786	-0.00041
-30	120	5179.9899	-0.00019	5179.9905	-0.00018	5179.9925	-0.00014	5179.994	-0.00012

Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. ( )	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	5180.0156	0.00030	5180.0142	0.00027	5180.0136	0.00026	5180.0143	0.00028
	120	5180.0154	0.00030	5180.0147	0.00028	5180.0132	0.00025	5180.0148	0.00029
	102	5180.0160	0.00031	5180.0143	0.00028	5180.0122	0.00024	5180.0148	0.00029

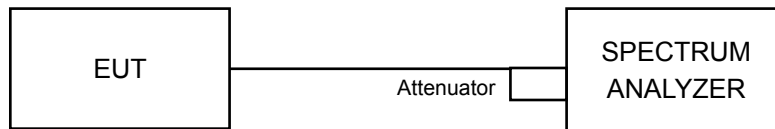


## 4.6 6dB Bandwidth Measurement

### 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

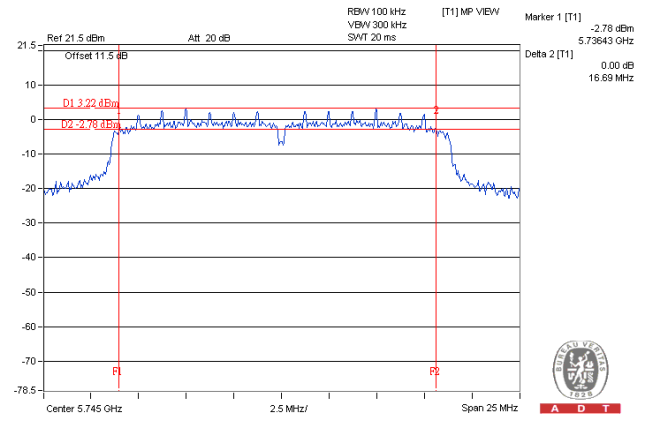
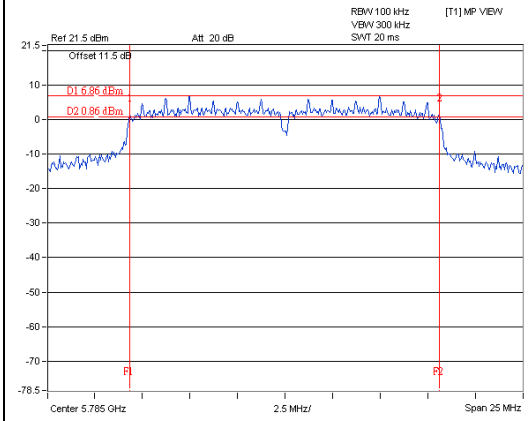
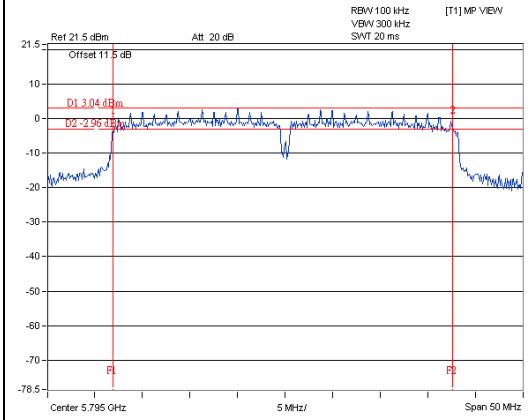
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.31	16.33	0.5	Pass
157	5785	16.34	16.33	0.5	Pass
165	5825	16.31	16.34	0.5	Pass

##### 802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.69	16.37	0.5	Pass
157	5785	16.62	16.57	0.5	Pass
165	5825	16.31	16.33	0.5	Pass

##### 802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	35.65	35.81	0.5	Pass
159	5795	35.83	35.79	0.5	Pass

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

## 5 Pictures of Test Arrangements

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

## 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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**Web Site:** [www.bureauveritas-adt.com](http://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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