

## TEST REPORT



Applicant	Acctron Company Limited
Address	Workshop 11, 6/F · Block C, Delya Industrial Centre No.7 Shek Pai Tau Road , Tuen Mew Territories, H.K.

Manufacturer or Supplier	Acctron Company Limited
Address	Workshop 11, 6/F · Block C, Delya Industrial Centre No.7 Shek Pai Tau Road , Tuen Mew Territories, H.K.
Product	Rover Land & Sea
Brand Name	Brookstone
Model	EK101A4WHA
Additional Model & Model Difference	N/A
Date of tests	Jul. 26, 2016 ~ Aug. 15, 2016

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.247**

**CONCLUSION:** The submitted sample was found to COMPLY with the test requirement

Tested by Breeze Jiang Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
	 Date: Aug. 19, 2016

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

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**BUREAU**  
**VERITAS**

Test Report No.: RF160705N025

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF160705N025	Original release	Aug. 19, 2016

## 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

## 2 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	UNCERTAINTY
Radiated emissions	9KHz ~ 30MHz	2.90dB
	30MHz ~ 1GMHz	3.62dB
	1GHz ~ 18GHz	4.03dB
	18GHz ~ 40GHz	4.84dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .



### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Rover Land & Sea
<b>MODEL NO.</b>	EK101A4WHA
<b>FCC ID</b>	2AAJZ-314686
<b>NOMINAL VOLTAGE</b>	DC 9V (1.5V*AA*6) from battery
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>OPERATING FREQUENCY</b>	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
<b>PEAK POWER</b>	17.14dBm (Maximum)
<b>ANTENNA TYPE</b>	Dipole Antenna, 2dBi Gain
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	N/A

**NOTE:**

1. The EUT incorporates a SIMO function. Physically, the EUT provides one transmitter and one receiver.

<b>MODULATION MODE</b>	<b>FUNCTION</b>
<b>802.11b</b>	1TX/1RX
<b>802.11g</b>	1TX/1RX
<b>802.11n (HT20)</b>	1TX/1RX
<b>802.11n (HT40)</b>	1TX/1RX

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. Please refer to the EUT photo document (Reference No.: 160705N025) for detailed product photo.



### 3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n(HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.

The worst case was found when positioned on X axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	-	√	<b>Powered by New Battery with (WIFI) function</b>

Where **RE<1G**: Radiated Emission below 1GHz

**RE≥1G**: Radiated Emission above 1GHz

**PLC**: Power Line Conducted Emission

**APCM**: Antenna Port Conducted Measurement

#### **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, XYZ axis 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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	1	CCK	DBPSK	1.0	X

#### **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, XYZ axis 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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0	X
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
A	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5	X
A	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5	X



#### **BANDEDGE MEASUREMENT:**

- ☒ 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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

#### **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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

#### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 61%RH	DC 9V From Battery	Eric Fang
RE≥1G	25deg. C, 61%RH	DC 9V From Battery	Eric Fang
PLC	-	-	-
APCM	20deg. C, 55%RH	DC 9V From Battery	Breeze Jiang

### **3.3 DUTY CYCLE OF TEST SIGNAL**

Duty cycle of test signal is 100 %



### 3.4 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 C, Section 15.247**

**KDB 558074 D01 DTS Meas Guidance v03r05**

**ANSI C63.10-2013**

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

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

### 3.5 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.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	N/A	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

## 4 TEST TYPES AND RESULTS

### 4.1 RADIATED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

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. As shown in 15.35(b), 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.



## 4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Apr. 05,16	Apr. 04,17
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Apr. 05,16	Apr. 04,17
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 14, 16	Jul. 13, 17
Horn Antenna	ETS-Lindgren	3117	00062558	May 18,16	May 17,17
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 12,16	Mar. 11,17
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 16	Aug. 07, 17
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 12,16	Mar. 11,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Mar. 12,16	Mar. 11,17
Amplifier	Burgeon	BPA-530	100220	Apr. 05,16	Apr. 04,17
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,16	Mar. 03, 17
Pre-Amplifier(1-18G)	HP	8449B	3008A00409	Apr. 25,16	Apr. 24,17
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 11,15	Nov. 10,16
Power Sensor	Keysight	U2021XA	MY55060016	May 27,16	May 26,17
Power Sensor	Keysight	U2021XA	MY55060018	May 27,16	May 26,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 12, 15	Oct.11, 16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 28,15	Nov. 27,16
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 09,15	Nov. 08,16
Signal Generator	Agilent	N5183A	MY50140980	Nov. 09,15	Nov. 08,16
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Apr. 22, 16	Apr. 21, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug. 08,16	Aug. 07,17

**NOTE:**

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 494399.

#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meters semi-anechoic chamber. 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 antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

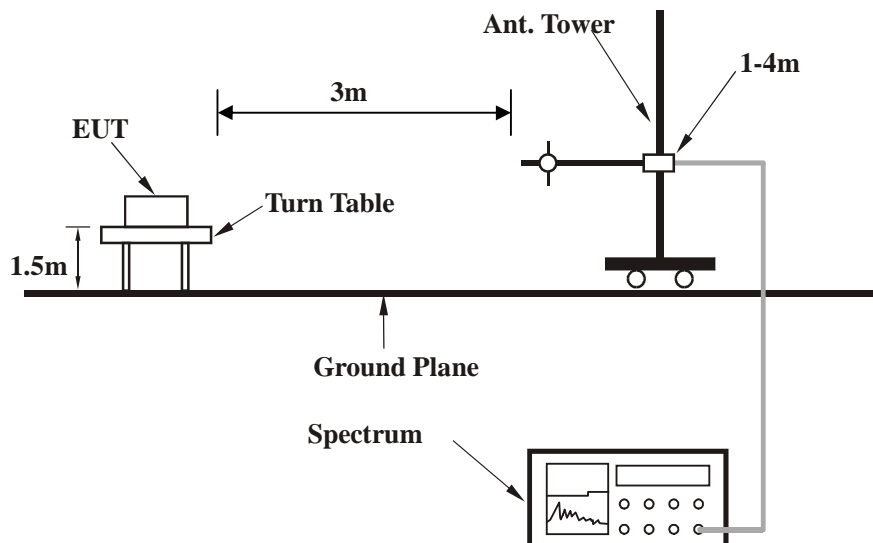
#### NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. For WiFi, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.1.5 TEST SETUP



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

#### 4.1.6 EUT OPERATING CONDITIONS

- Set the EUT under full load condition and placed them on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.

#### 4.1.7 TEST RESULTS

##### BELOW 1GHz WORST-CASE DATA:

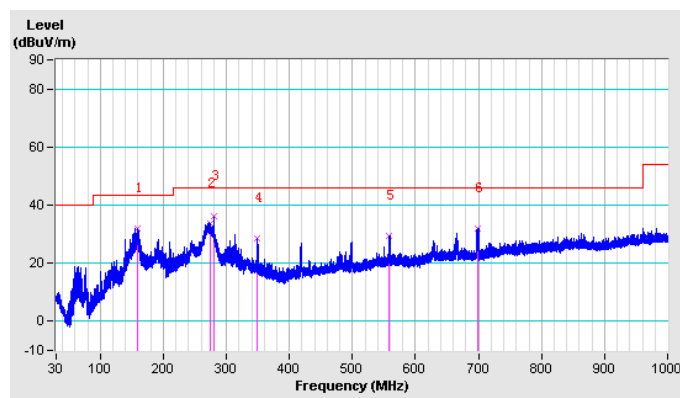
##### 802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	158.86	32.1 QP	43.5	-11.4	2.00 H	0	50.53	-18.45
2	274.59	33.9 QP	46.0	-12.2	2.00 H	0	48.88	-15.03
3	279.65	36.2 QP	46.0	-9.8	2.00 H	0	51.37	-15.18
4	348.52	28.7 QP	46.0	-17.3	2.00 H	0	41.56	-12.87
5	557.59	29.3 QP	46.0	-16.7	2.00 H	0	34.60	-5.27
6	699.75	31.9 QP	46.0	-14.1	2.00 H	0	35.53	-3.60

##### REMARKS:

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



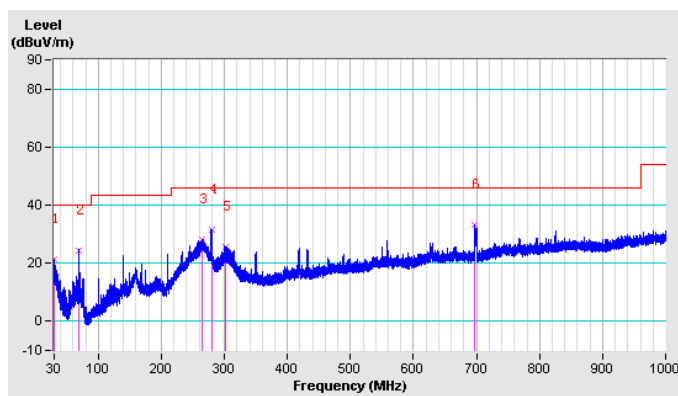


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	21.2 QP	40.0	-18.8	1.00 V	0	33.55	-12.31
2	69.86	24.4 QP	40.0	-15.6	1.00 V	0	48.82	-24.44
3	263.86	28.2 QP	46.0	-17.8	1.00 V	0	42.87	-14.64
4	279.47	31.7 QP	46.0	-14.3	1.00 V	0	46.88	-15.18
5	302.54	25.7 QP	46.0	-20.3	1.00 V	0	39.76	-14.04
6	697.00	33.2 QP	46.0	-12.8	1.00 V	0	36.84	-3.66

**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.







## ABOVE 1GHz DATA

## 802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	37.98 PK	74.00	-36.02	1.69 H	203	35.45	2.53
2	2390.00	27.67 AV	54.00	-26.33	1.69 H	203	25.14	2.53
3	*2412.00	93.39 PK			1.69 H	203	90.80	2.59
4	*2412.00	88.29 AV			1.69 H	203	85.70	2.59
5	4824.00	57.93 PK	74.00	-16.07	1.85 H	249	50.15	7.78
6	4824.00	52.30 AV	54.00	-1.70	1.85 H	249	44.52	7.78
7	#7236.00	56.70 PK	73.39	-16.69	1.65 H	245	43.25	13.45
8	#7236.00	51.56 AV	68.29	-16.73	1.65 H	245	38.11	13.45
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	2390.00	48.68 PK	74.00	-25.32	3.18 V	337	46.15	2.53
2	2390.00	40.64 AV	54.00	-13.36	3.18 V	337	38.11	2.53
3	*2412.00	89.65 PK			3.18 V	337	87.06	2.59
4	*2412.00	84.56 AV			3.18 V	337	81.97	2.59
5	4824.00	55.44 PK	74.00	-18.56	1.25 V	101	47.66	7.78
6	4824.00	52.00 AV	54.00	-2.00	1.25 V	101	44.22	7.78
7	#7236.00	57.08 PK	69.65	-12.57	1.59 V	248	43.63	13.45
8	#7236.00	51.50 AV	64.56	-13.06	1.59 V	248	38.05	13.45

## 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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2437.00	93.69 PK			1.52 H	220	91.04	2.65
2	*2437.00	88.98 AV			1.52 H	220	86.33	2.65
3	4874.00	56.76 PK	74.00	-17.24	1.53 H	306	48.91	7.85
4	4874.00	52.80 AV	54.00	-1.20	1.53 H	306	44.95	7.85
5	7311.00	50.29 PK	74.00	-23.71	1.14 H	280	36.68	13.61
6	7311.00	42.29 AV	54.00	-11.71	1.14 H	280	28.68	13.61
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	*2437.00	83.12 PK			1.95 V	220	80.47	2.65
2	*2437.00	78.48 AV			1.95 V	220	75.83	2.65
3	4874.00	49.52 PK	74.00	-24.48	1.69 V	220	41.67	7.85
4	4874.00	46.13 AV	54.00	-7.87	1.69 V	220	38.28	7.85
5	7311.00	48.43 PK	74.00	-25.57	1.49 V	281	34.82	13.61
6	7311.00	41.00 AV	54.00	-13.00	1.49 V	281	27.39	13.61

**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 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	93.70 PK			1.85 H	302	90.99	2.71
2	*2462.00	88.59 AV			1.85 H	302	85.88	2.71
3	2483.50	32.63 PK	74.00	-41.37	1.85 H	302	29.86	2.77
4	2483.50	21.97 AV	54.00	-32.03	1.85 H	302	19.20	2.77
5	4924.00	56.08 PK	74.00	-17.92	1.00 H	189	48.16	7.92
6	4924.00	53.50 AV	54.00	-0.50	1.00 H	189	45.58	7.92
7	7386.00	48.48 PK	74.00	-25.52	1.94 H	256	34.70	13.78
8	7386.00	35.73 AV	54.00	-18.27	1.94 H	256	21.95	13.78
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	*2462.00	79.58 PK			1.15 V	238	76.87	2.71
2	*2462.00	75.25 AV			1.15 V	238	72.54	2.71
3	2483.50	30.97 PK	74.00	-43.03	1.15 V	238	28.20	2.77
4	2483.50	19.15 AV	54.00	-34.85	1.15 V	238	16.38	2.77
5	4924.00	49.10 PK	74.00	-24.90	1.84 V	278	41.18	7.92
6	4924.00	44.76 AV	54.00	-9.24	1.84 V	278	36.84	7.92
7	7386.00	48.35 PK	74.00	-25.65	1.00 V	101	34.57	13.78
8	7386.00	35.97 AV	54.00	-18.03	1.00 V	101	22.19	13.78

**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.



## 802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	49.22 PK	74.00	-24.78	1.89 H	220	46.69	2.53
2	2390.00	31.82 AV	54.00	-22.18	1.89 H	220	29.29	2.53
3	*2412.00	93.27 PK			1.89 H	220	90.68	2.59
4	*2412.00	77.01 AV			1.89 H	220	74.42	2.59
5	4824.00	49.79 PK	74.00	-24.21	1.96 H	328	42.01	7.78
6	4824.00	35.53 AV	54.00	-18.47	1.96 H	328	27.75	7.78
7	7236.00	51.64 PK	73.27	-21.63	1.96 H	285	38.19	13.45
8	7236.00	36.41 AV	57.01	-20.60	1.96 H	285	22.96	13.45
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	2390.00	37.89 PK	74.00	-36.11	1.56 V	203	35.36	2.53
2	2390.00	26.49 AV	54.00	-27.51	1.56 V	203	23.96	2.53
3	*2412.00	85.20 PK			1.56 V	203	82.61	2.59
4	*2412.00	68.67 AV			1.56 V	203	66.08	2.59
5	4824.00	47.50 PK	74.00	-26.50	1.25 V	85	39.72	7.78
6	4824.00	32.11 AV	54.00	-21.89	1.25 V	85	24.33	7.78
7	7236.00	49.59 PK	65.20	-15.61	1.59 V	213	36.14	13.45
8	7236.00	34.48 AV	48.67	-14.19	1.59 V	213	21.03	13.45

## 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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2437.00	96.46 PK			1.59 H	203	93.81	2.65
2	*2437.00	77.64 AV			1.59 H	203	74.99	2.65
3	4874.00	51.12 PK	74.00	-22.88	1.59 H	247	43.27	7.85
4	4874.00	35.68 AV	54.00	-18.32	1.59 H	247	27.83	7.85
5	7311.00	51.28 PK	74.00	-22.72	1.05 H	259	37.67	13.61
6	7311.00	34.94 AV	54.00	-19.06	1.05 H	259	21.33	13.61
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	*2437.00	88.73 PK			1.19 V	205	86.08	2.65
2	*2437.00	70.42 AV			1.19 V	205	67.77	2.65
3	4874.00	47.14 PK	74.00	-26.86	2.01 V	155	39.29	7.85
4	4874.00	31.39 AV	54.00	-22.61	2.01 V	155	23.54	7.85
5	7311.00	47.78 PK	74.00	-26.22	1.56 V	205	34.17	13.61
6	7311.00	34.87 AV	54.00	-19.13	1.56 V	205	21.26	13.61

**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 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	95.57 PK			1.52 H	223	92.86	2.71
2	*2462.00	78.03 AV			1.52 H	223	75.32	2.71
3	2483.50	58.36 PK	74.00	-15.64	1.52 H	223	55.59	2.77
4	2483.50	35.34 AV	54.00	-18.66	1.52 H	223	32.57	2.77
5	4924.00	51.00 PK	74.00	-23.00	1.54 H	204	43.08	7.92
6	4924.00	34.43 AV	54.00	-19.57	1.54 H	204	26.51	7.92
7	7386.00	50.30 PK	74.00	-23.70	1.89 H	115	36.52	13.78
8	7386.00	35.57 AV	54.00	-18.43	1.89 H	115	21.79	13.78
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	*2462.00	86.85 PK			1.95 V	234	84.14	2.71
2	*2462.00	70.39 AV			1.95 V	234	67.68	2.71
3	2483.50	50.42 PK	74.00	-23.58	1.95 V	234	47.65	2.77
4	2483.50	27.67 AV	54.00	-26.33	1.95 V	234	24.90	2.77
5	4924.00	45.88 PK	74.00	-28.12	1.50 V	331	37.96	7.92
6	4924.00	29.86 AV	54.00	-24.14	1.50 V	331	21.94	7.92
7	7386.00	50.07 PK	74.00	-23.93	1.49 V	205	36.29	13.78
8	7386.00	35.55 AV	54.00	-18.45	1.49 V	205	21.77	13.78

**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.



## 802.11n (20MHz)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	57.53 PK	74.00	-16.47	1.98 H	203	55.00	2.53
2	2390.00	33.69 AV	54.00	-20.31	1.98 H	203	31.16	2.53
3	*2412.00	94.10 PK			1.58 H	230	91.51	2.59
4	*2412.00	71.00 AV			1.58 H	230	68.41	2.59
5	4824.00	50.88 PK	74.00	-23.12	1.40 H	105	43.10	7.78
6	4824.00	35.85 AV	54.00	-18.15	1.40 H	105	28.07	7.78
7	#7236.00	60.56 PK	74.10	-13.54	1.58 H	253	47.11	13.45
8	#7236.00	43.21 AV	51.00	-7.79	1.58 H	253	29.76	13.45
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	2390.00	48.02 PK	74.00	-25.98	1.85 V	256	45.49	2.53
2	2390.00	25.95 AV	54.00	-28.05	1.85 V	256	23.42	2.53
3	*2412.00	84.59 PK			1.85 V	256	82.00	2.59
4	*2412.00	62.84 AV			1.85 V	256	60.25	2.59
5	4824.00	45.67 PK	74.00	-28.33	1.20 V	224	37.89	7.78
6	4824.00	31.29 AV	54.00	-22.71	1.20 V	224	23.51	7.78
7	#7236.00	50.21 PK	64.59	-14.38	1.46 V	201	36.76	13.45
8	#7236.00	34.48 AV	42.84	-8.36	1.46 V	201	21.03	13.45

## 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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2437.00	95.54 PK			1.09 H	326	92.89	2.65
2	*2437.00	70.47 AV			1.09 H	326	67.82	2.65
3	4874.00	49.27 PK	74.00	-24.73	2.25 H	315	41.42	7.85
4	4874.00	34.10 AV	54.00	-19.90	2.25 H	315	26.25	7.85
5	7311.00	53.45 PK	74.00	-20.55	1.56 H	203	39.84	13.61
6	7311.00	38.41 AV	54.00	-15.59	1.56 H	203	24.80	13.61
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	*2437.00	88.02 PK			1.02 V	235	85.37	2.65
2	*2437.00	65.13 AV			1.02 V	235	62.48	2.65
3	4874.00	47.91 PK	74.00	-26.09	1.03 V	291	40.06	7.85
4	4874.00	33.47 AV	54.00	-20.53	1.03 V	291	25.62	7.85
5	7311.00	48.64 PK	74.00	-25.36	1.59 V	267	35.03	13.61
6	7311.00	35.21 AV	54.00	-18.79	1.59 V	267	21.60	13.61

**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 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	94.54 PK			1.55 H	230	91.83	2.71
2	*2462.00	70.08 AV			1.55 H	230	67.37	2.71
3	2483.50	59.45 PK	74.00	-14.55	1.55 H	230	56.68	2.77
4	2483.50	32.50 AV	54.00	-21.50	1.55 H	230	29.73	2.77
5	4924.00	48.91 PK	74.00	-25.09	1.12 H	298	40.99	7.92
6	4924.00	37.69 AV	54.00	-16.31	1.12 H	298	29.77	7.92
7	7386.00	49.63 PK	74.00	-24.37	1.59 H	104	35.85	13.78
8	7386.00	35.76 AV	54.00	-18.24	1.59 H	104	21.98	13.78
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	*2462.00	85.31 PK			1.85 V	200	82.60	2.71
2	*2462.00	63.06 AV			1.85 V	200	60.35	2.71
3	2483.50	44.30 PK	74.00	-29.70	1.85 V	200	41.53	2.77
4	2483.50	22.44 AV	54.00	-31.56	1.85 V	200	19.67	2.77
5	4924.00	46.70 PK	74.00	-27.30	1.56 V	94	38.78	7.92
6	4924.00	32.66 AV	54.00	-21.34	1.56 V	94	24.74	7.92
7	7386.00	50.50 PK	74.00	-23.50	1.65 V	201	36.72	13.78
8	7386.00	35.61 AV	54.00	-18.39	1.65 V	201	21.83	13.78

**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.



## 802.11n (40MHz)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	62.84 PK	74.00	-11.16	1.10 H	165	60.31	2.53
2	2390.00	35.24 AV	54.00	-18.76	1.10 H	165	32.71	2.53
3	*2422.00	93.52 PK			1.10 H	165	90.91	2.61
4	*2422.00	61.12 AV			1.10 H	165	58.51	2.61
5	4844.00	48.87 PK	74.00	-25.13	1.56 H	127	41.06	7.81
6	4844.00	33.03 AV	54.00	-20.97	1.56 H	127	25.22	7.81
7	7266.00	51.33 PK	74.00	-22.67	2.10 H	215	37.82	13.51
8	7266.00	37.11 AV	54.00	-16.89	2.10 H	215	23.60	13.51
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	2390.00	46.39 PK	74.00	-27.61	1.80 V	100	43.86	2.53
2	2390.00	24.46 AV	54.00	-29.54	1.80 V	100	21.93	2.53
3	*2422.00	84.14 PK			1.96 V	245	81.53	2.61
4	*2422.00	55.37 AV			1.96 V	245	52.76	2.61
5	4844.00	43.31 PK	74.00	-30.69	1.63 V	245	35.50	7.81
6	4844.00	31.18 AV	54.00	-22.82	1.63 V	245	23.37	7.81
7	7266.00	47.70 PK	74.00	-26.30	1.84 V	220	34.19	13.51
8	7266.00	34.28 AV	54.00	-19.72	1.84 V	220	20.77	13.51

## 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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2437.00	94.20 PK			1.60 H	201	91.55	2.65
2	*2437.00	60.58 AV			1.60 H	201	57.93	2.65
3	4874.00	45.73 PK	74.00	-28.27	2.26 H	149	37.88	7.85
4	4874.00	35.80 AV	54.00	-18.20	2.26 H	149	27.95	7.85
5	7311.00	56.03 PK	74.00	-17.97	1.56 H	220	42.42	13.61
6	7311.00	37.83 AV	54.00	-16.17	1.56 H	220	24.22	13.61
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	*2437.00	87.43 PK			1.98 V	220	84.78	2.65
2	*2437.00	56.47 AV			1.98 V	220	53.82	2.65
3	4874.00	43.40 PK	74.00	-30.60	1.50 V	274	35.55	7.85
4	4874.00	29.59 AV	54.00	-24.41	1.50 V	274	21.74	7.85
5	7311.00	48.93 PK	74.00	-25.07	1.00 V	27	35.32	13.61
6	7311.00	35.36 AV	54.00	-18.64	1.00 V	27	21.75	13.61

**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 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2452.00	94.55 PK			2.16 H	113	91.87	2.68
2	*2452.00	60.39 AV			2.16 H	113	57.71	2.68
3	2483.50	59.89 PK	74.00	-14.11	2.16 H	113	57.12	2.77
4	2483.50	29.55 AV	54.00	-24.45	2.16 H	113	26.78	2.77
5	4904.00	49.17 PK	74.00	-24.83	1.19 H	237	41.27	7.90
6	4904.00	35.69 AV	54.00	-18.31	1.19 H	237	27.79	7.90
7	7356.00	47.34 PK	74.00	-26.66	1.54 H	298	33.63	13.71
8	7356.00	34.04 AV	54.00	-19.96	1.54 H	298	20.33	13.71
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	*2452.00	83.93 PK			1.56 V	223	81.25	2.68
2	*2452.00	54.80 AV			1.56 V	223	52.12	2.68
3	2483.50	46.93 PK	74.00	-27.07	1.56 V	223	44.16	2.77
4	2483.50	22.33 AV	54.00	-31.67	1.56 V	223	19.56	2.77
5	4904.00	42.50 PK	74.00	-31.50	1.54 V	337	34.60	7.90
6	4904.00	32.50 AV	54.00	-21.50	1.54 V	337	24.60	7.90
7	7356.00	47.48 PK	74.00	-26.52	1.98 V	325	33.77	13.71
8	7356.00	34.12 AV	54.00	-19.88	1.98 V	325	20.41	13.71

**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.

## 4.2 6dB BANDWIDTH MEASUREMENT

### 4.2.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

### 4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	May 27,16	May 26,17
Power Sensor	Keysight	U2021XA	MY55060018	May 27,16	May 26,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 12, 15	Oct.11, 16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 28,15	Nov. 27,16
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 09,15	Nov. 08,16
Signal Generator	Agilent	N5183A	MY50140980	Nov. 09,15	Nov. 08,16
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Apr. 22, 16	Apr. 21, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Sep. 01,15	Aug. 31,16

#### NOTE:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

### 4.2.3 TEST PROCEDURE

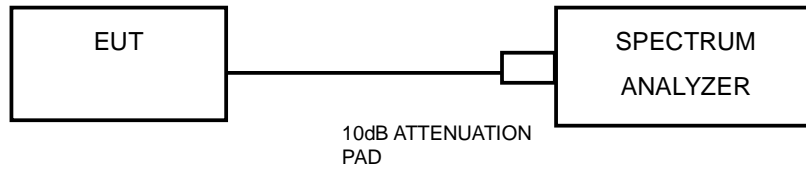
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and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

### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.



#### 4.2.5 TEST SETUP



#### 4.2.6 EUT OPERATING CONDITIONS

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



## 4.2.7 TEST RESULTS

## 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.10	0.5	PASS
6	2437	9.79	0.5	PASS
11	2462	10.11	0.5	PASS

## 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.39	0.5	PASS
6	2437	16.38	0.5	PASS
11	2462	16.39	0.5	PASS

## 802.11n 20MHz

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.09	0.5	PASS
6	2437	17.09	0.5	PASS
11	2462	17.08	0.5	PASS

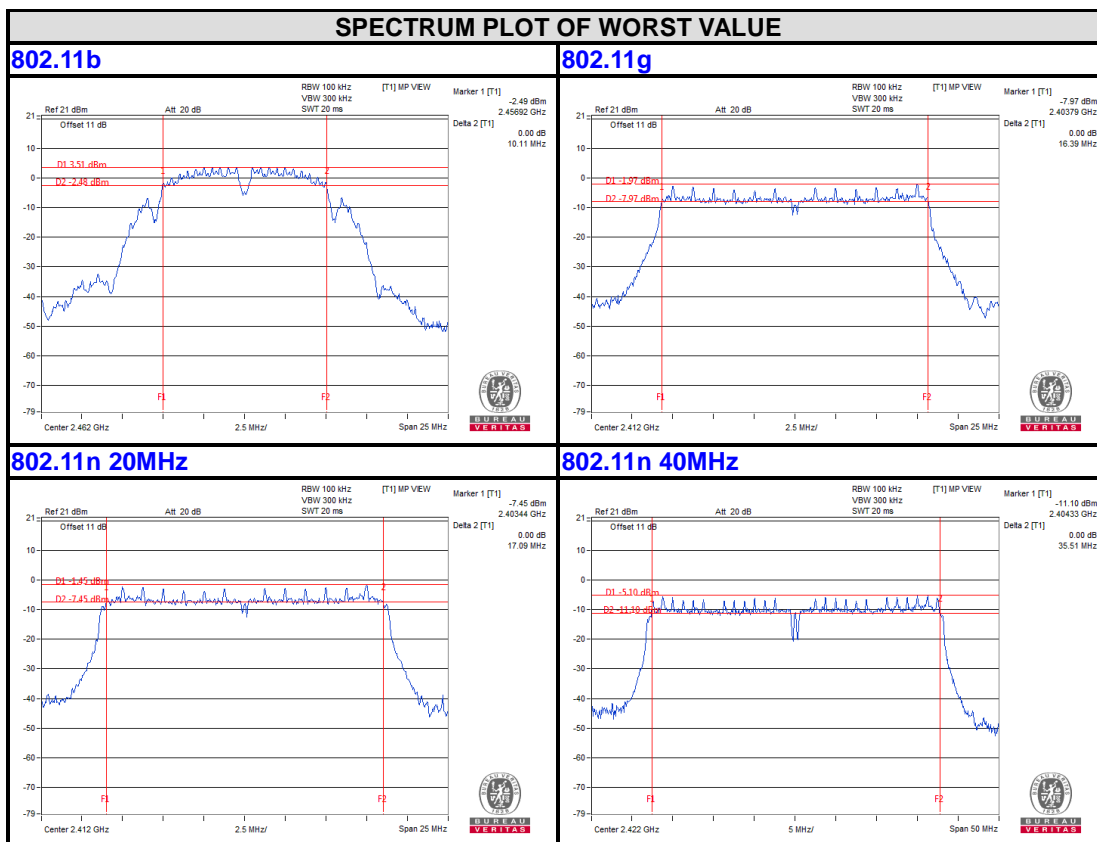
## 802.11n 40MHz

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.51	0.5	PASS
6	2437	35.40	0.5	PASS
9	2452	35.30	0.5	PASS



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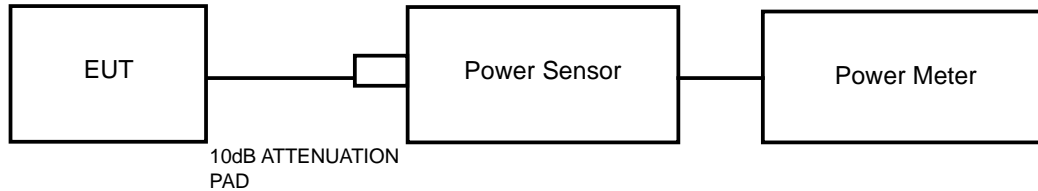


### 4.3 CONDUCTED OUTPUT POWER

#### 4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm).

#### 4.3.2 TEST SETUP



#### 4.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Feb. 18,16	Feb. 17,17
Power Sensor	Keysight	U2021XA	MY55060018	Feb. 18,16	Feb. 17,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 12, 15	Oct.11, 16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 28,15	Nov. 27,16
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 09,15	Nov. 08,16
Signal Generator	Agilent	N5183A	MY50140980	Nov. 09,15	Nov. 08,16
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Nov. 09,15	Nov. 08,16
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Sep. 01,15	Aug. 31,16

**NOTE:**

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

#### 4.3.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A peak power meter was used to read the response of the peak power sensor. Record the peak power level.

#### 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 RESULTS

##### MAXIMUM PEAK OUTPUT POWER

###### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	17.01	50.234	1	PASS
6	2437	16.84	48.306	1	PASS
11	2462	<b>17.14</b>	51.761	1	PASS

###### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	16.16	46.989	1	PASS
6	2437	16.02	41.305	1	PASS
11	2462	16.16	39.994	1	PASS

###### 802.11n 20MHz

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	16.43	43.954	1	PASS
6	2437	16.49	44.566	1	PASS
11	2462	15.92	39.084	1	PASS

###### 802.11n 40MHz

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	16.05	40.272	1	PASS
6	2437	16.09	40.644	1	PASS
9	2452	15.91	38.994	1	PASS



## AVERAGE OUTPUT POWER (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

## 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)	PEAK POWER LIMIT (W)	PASS / FAIL
1	2412	13.41	21.928	1	PASS
6	2437	13.33	21.528	1	PASS
11	2462	12.96	19.770	1	PASS

## 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)	PEAK POWER LIMIT (W)	PASS / FAIL
1	2412	7.60	5.754	1	PASS
6	2437	7.77	5.984	1	PASS
11	2462	7.17	5.212	1	PASS

## 802.11n 20MHz

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)	PEAK POWER LIMIT (W)	PASS / FAIL
1	2412	8.35	6.839	1	PASS
6	2437	7.45	5.559	1	PASS
11	2462	7.25	5.309	1	PASS

## 802.11n 40MHz

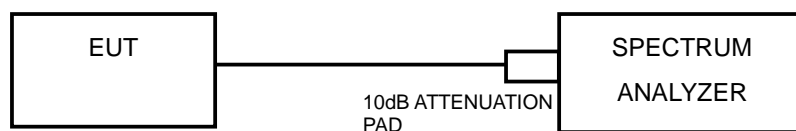
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)	PEAK POWER LIMIT (W)	PASS / FAIL
3	2422	7.24	5.297	1	PASS
6	2437	7.67	5.848	1	PASS
9	2452	7.03	5.047	1	PASS

#### 4.4 POWER SPECTRAL DENSITY MEASUREMENT

##### 4.4.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

##### 4.4.2 TEST SETUP



##### 4.4.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

##### 4.4.4 TEST PROCEDURE

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span to at least 1.5 times the OBW.
- c) Set RBW to: 3KHz
- d) Set VBW  $\geq 3 \times$  RBW.
- e) Detector = peak
- f) Ensure that the number of measurement points in the sweep  $\geq 2 \times$  span/RBW.
- g) Sweep time = auto couple.
- h) Use the peak marker function to determine the maximum amplitude level.

##### 4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.4.6 EUT OPERATING CONDITION

Same as item 4.3.6.

#### 4.4.7 TEST RESULTS

##### 802.11b

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-9.80	8.00	PASS
6	2437	-9.24	8.00	PASS
11	2462	-8.88	8.00	PASS

##### 802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.60	8.00	PASS
6	2437	-13.45	8.00	PASS
11	2462	-12.87	8.00	PASS

##### 802.11n 20MHz

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.13	8.00	PASS
6	2437	-12.99	8.00	PASS
11	2462	-12.61	8.00	PASS

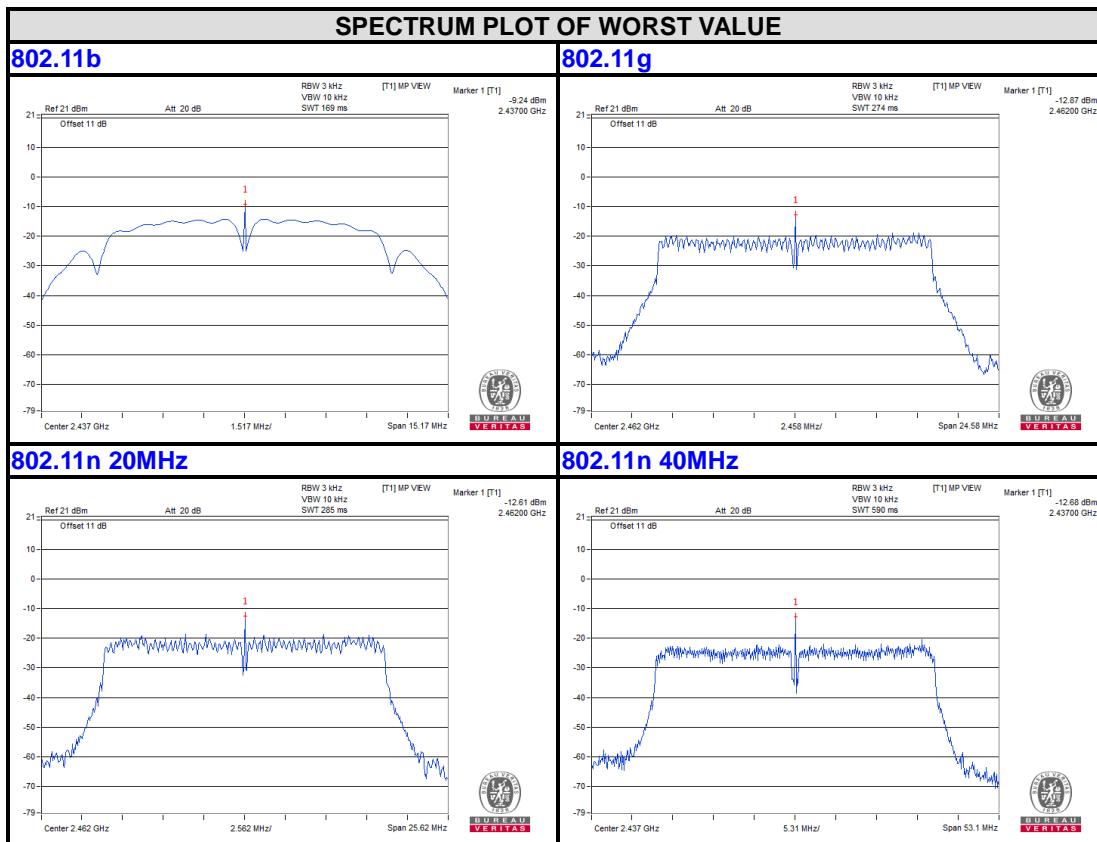
##### 802.11n 40MHz

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-12.82	8.00	PASS
6	2437	-12.68	8.00	PASS
9	2452	-12.91	8.00	PASS



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## 4.5 OUT OF BAND EMISSION MEASUREMENT

### 4.5.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 4.5.2 TEST SETUP



### 4.5.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

### 4.5.4 TEST PROCEDURE

#### Measurement Procedure - Reference Level

1. Set the RBW = 100 kHz.
2. Set the VBW  $\geq$  300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.





### Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

### 4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.5.6 EUT OPERATING CONDITION

Same as item 4.3.6



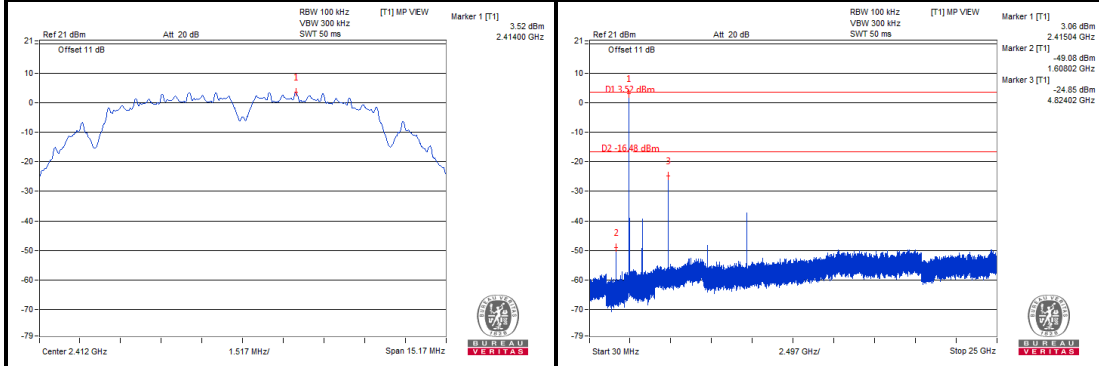
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Test Report No.: RF160705N025

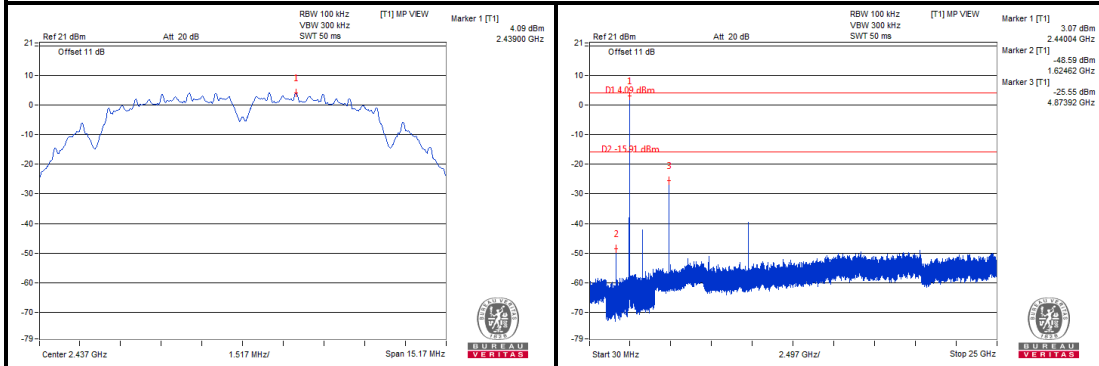
## 4.5.7 TEST RESULTS

### 802.11b

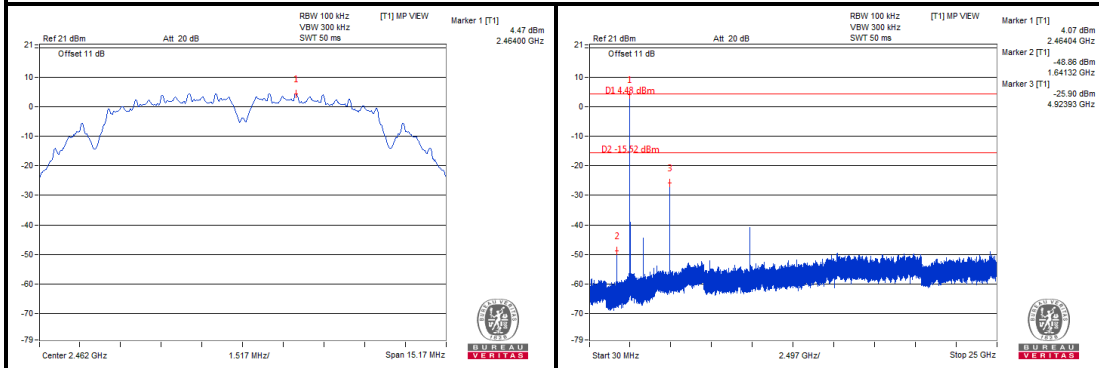
#### CH 1



#### CH 6



#### CH 11



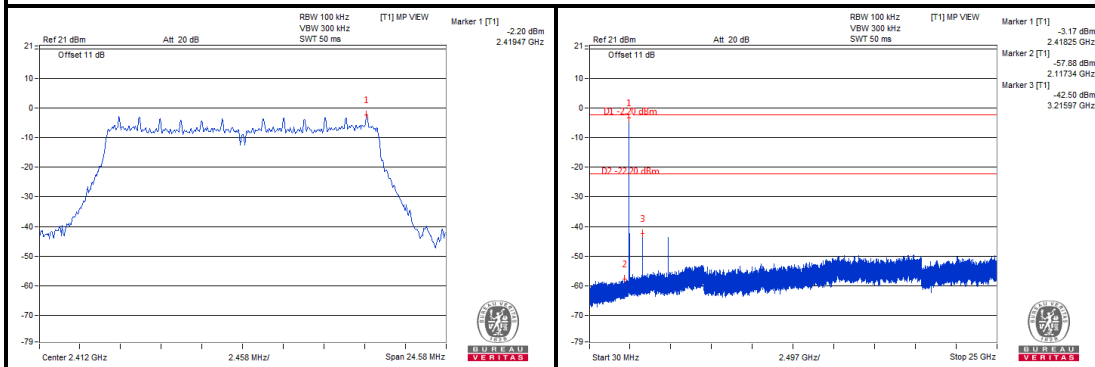


BUREAU  
VERITAS

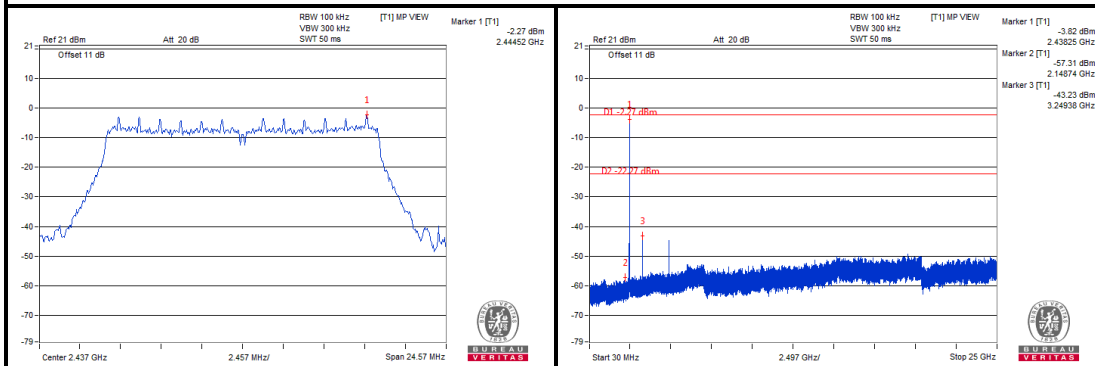
Test Report No.: RF160705N025

802.11g

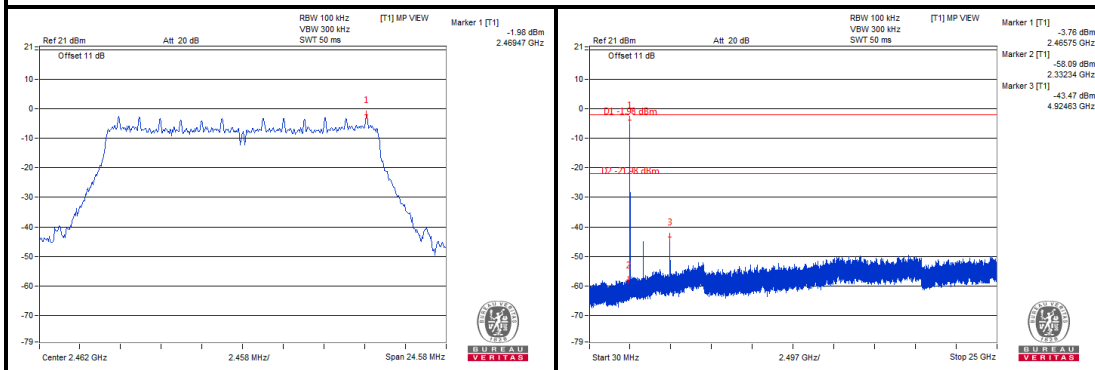
CH 1



CH 6



CH 11



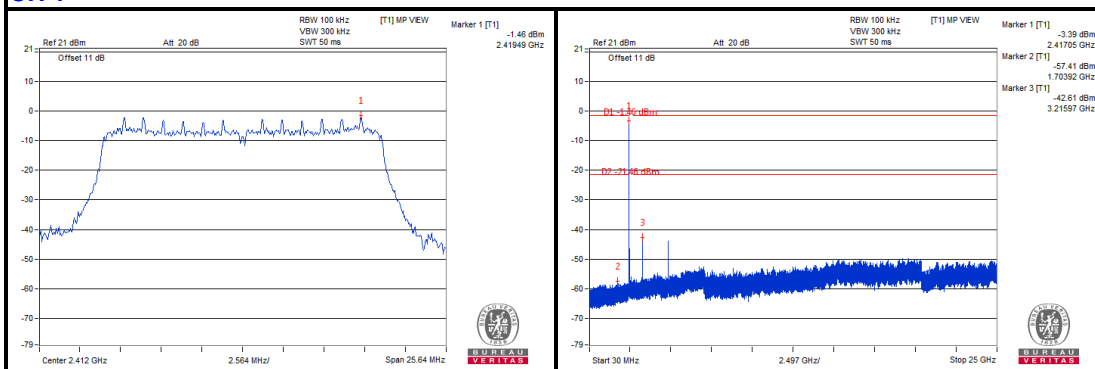


BUREAU  
VERITAS

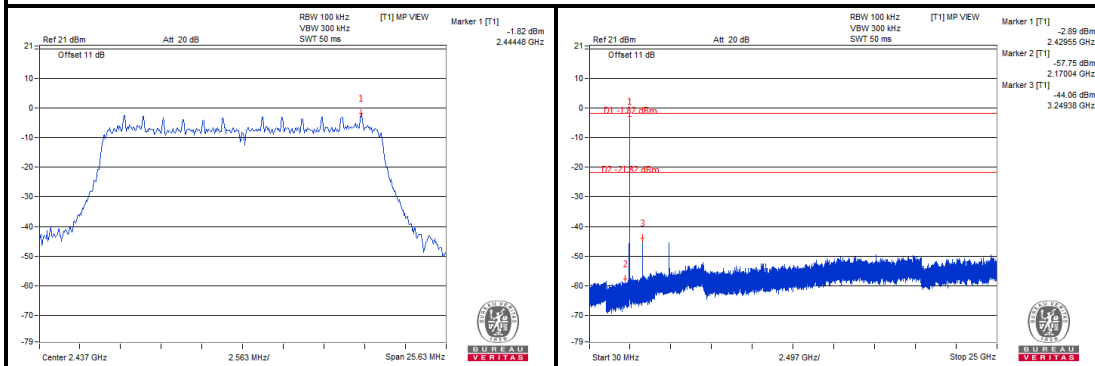
Test Report No.: RF160705N025

802.11n 20MHz

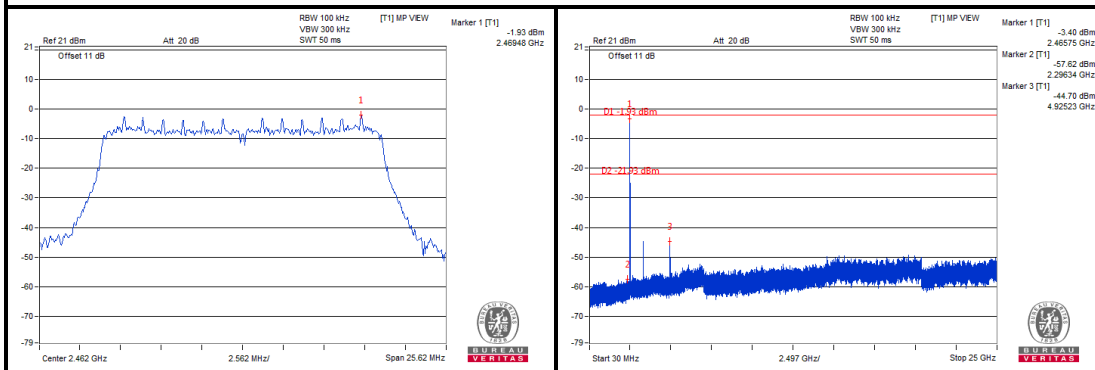
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### CH 6



### CH 11



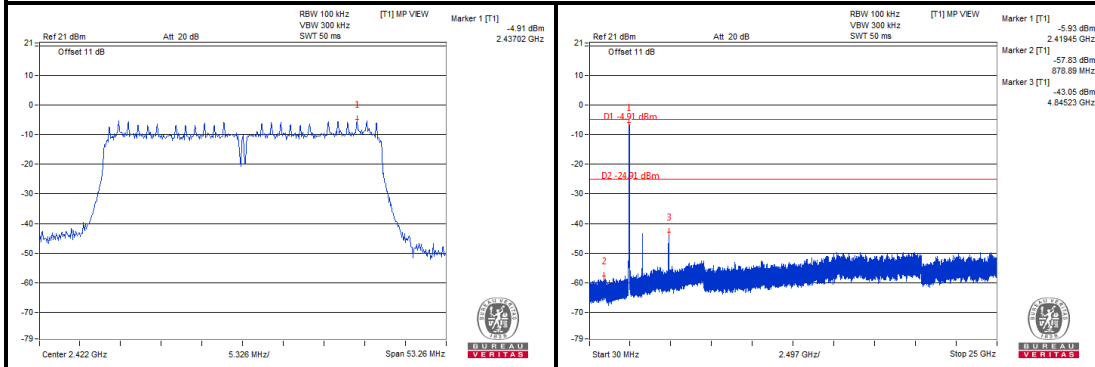


BUREAU  
VERITAS

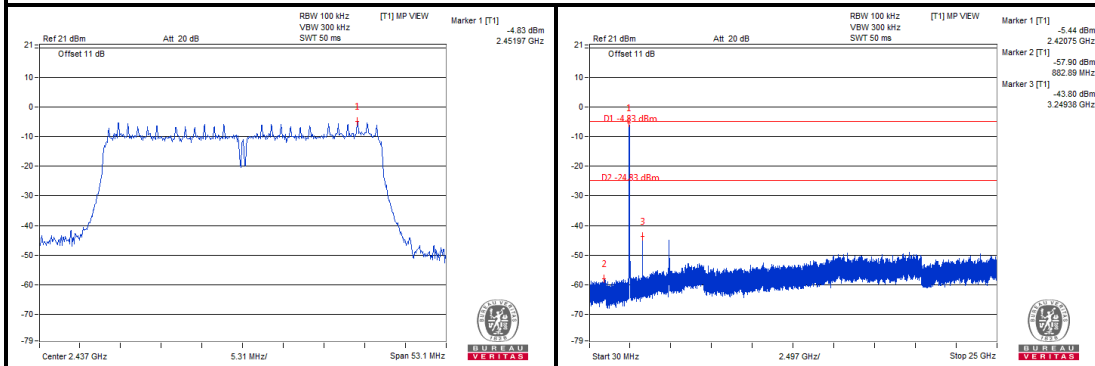
Test Report No.: RF160705N025

802.11n 40MHz

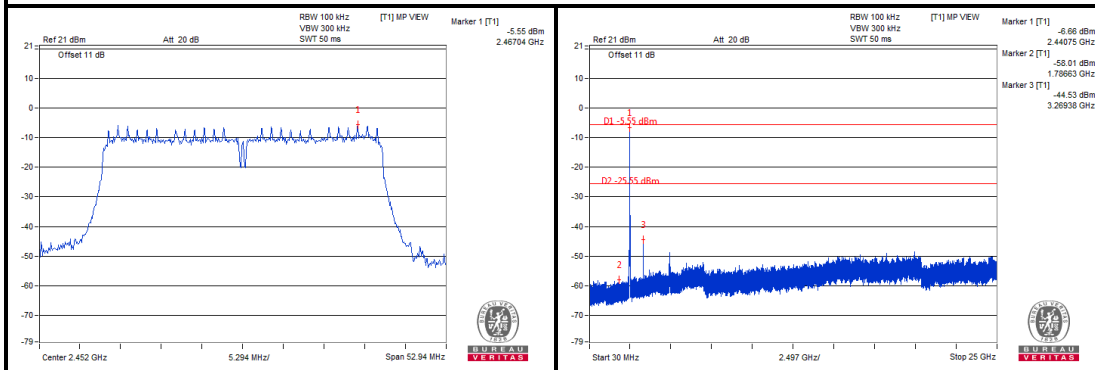
CH 0



CH 19



CH 39

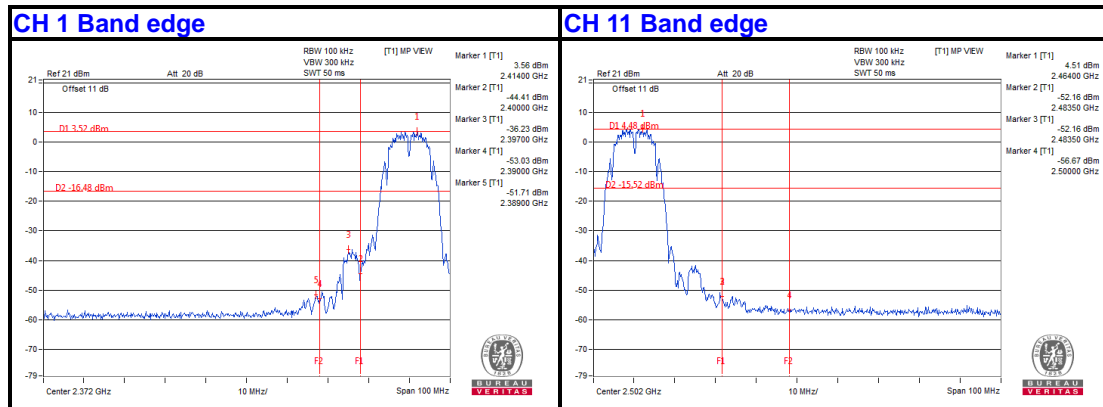




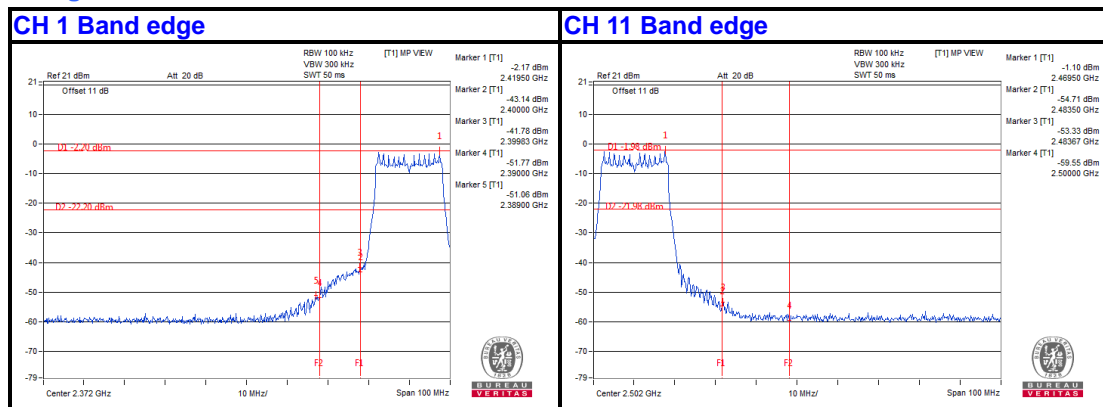
BUREAU  
VERITAS

Test Report No.: RF160705N025

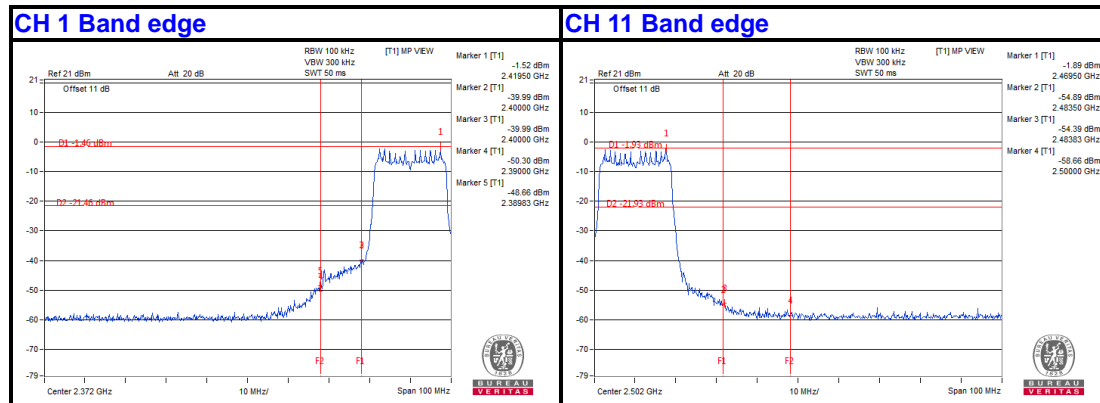
802.11b



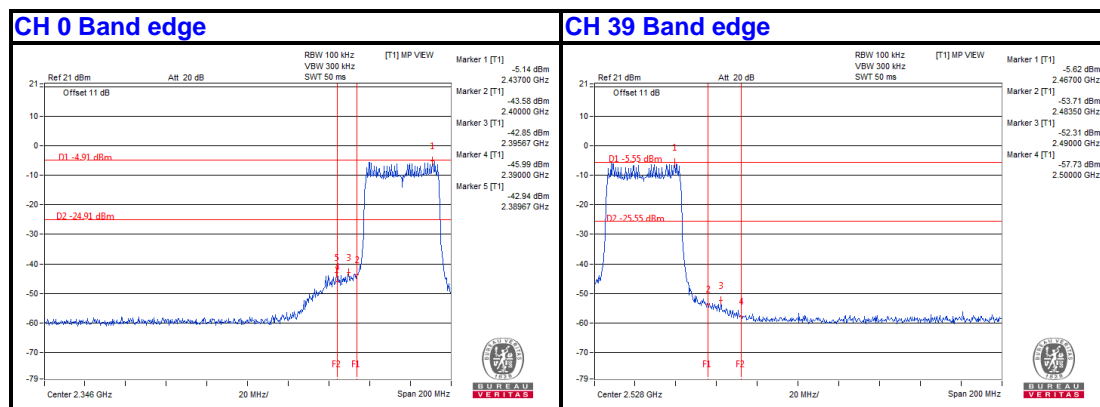
802.11g



## 802.11n 20MHz



## 802.11n 40MHz





## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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





## **6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.

**---END---**