

## FCC Test Report

**Report No.:** RF160818E03

**FCC ID:** K7SF7C063

**Test Model:** F7C063

**Received Date:** Aug. 18, 2016

**Test Date:** Aug. 25 to Sep. 10, 2016

**Issued Date:** Sep. 23, 2016

**Applicant:** Belkin International, Inc.

**Address:** 12045 East Waterfront Dr. Playa Vista, CA 90094 United States

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

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

**Test Location (1):** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
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### Release Control Record

Issue No.	Description	Date Issued
RF160818E03	Original release.	Sep. 23, 2016

## 1 Certificate of Conformity

**Product:** Wemo Switch

**Brand:** WeMo

**Test Model:** F7C063

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Belkin International, Inc.

**Test Date:** Aug. 25 to Sep. 10, 2016

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
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 :** Cindy Hsin , **Date:** Sep. 23, 2016  
Cindy Hsin / Specialist

**Approved by :** May Chen , **Date:** Sep. 23, 2016  
May Chen / Manager

## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.59dB at 0.49766MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted 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.

### 2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.83 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.43 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.72 dB
	6GHz ~ 18GHz	4.00 dB
	18GHz ~ 40GHz	4.11 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	Wemo Switch
Brand	WeMo
Test Model	F7C063
Status of EUT	ENGINEERING SAMPLE
Driver Version	mt7628-p4rev-120395
Power Supply Rating	120Vac, 60Hz, 15A
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 150Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	291.072mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

- According to the applicant's requirement two test samples were tested for radiated emission (above 1GHz) only.
- The input/output specification of EUT is as following information:
  - ◆ Input: 120Vac, 60Hz, 15A
  - ◆ Output: 120V, 15A, 1800W, 1/2 HP
- The antenna provided to the EUT, please refer to the following table:

Brand	Model	Antenna Net Gain(dBi)	Frequency range (GHz to GHz)	Antenna Type	Connector Type
NA	NA	2.76	2.4~2.4835	PIFA	NA

- The EUT incorporates a SISO function.

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

### 3.2 Description of Test Modes

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

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

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 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
1	√	√	√	√	Sample 1
2	√	-	-	-	Sample 2

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

**NOTE:** The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on X-plane (below 1GHz) and Y-plane (above 1GHz).

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

#### **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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

### Antenna Port Conducted Measurement:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

### Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 66%RH	120Vac, 60Hz	Weiwei Lo
RE<1G	23deg. C, 71%RH	120Vac, 60Hz	Andy Ho
PLC	25deg. C, 75%RH	120Vac, 60Hz	Eagle Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

### 3.3 Duty Cycle of Test Signal

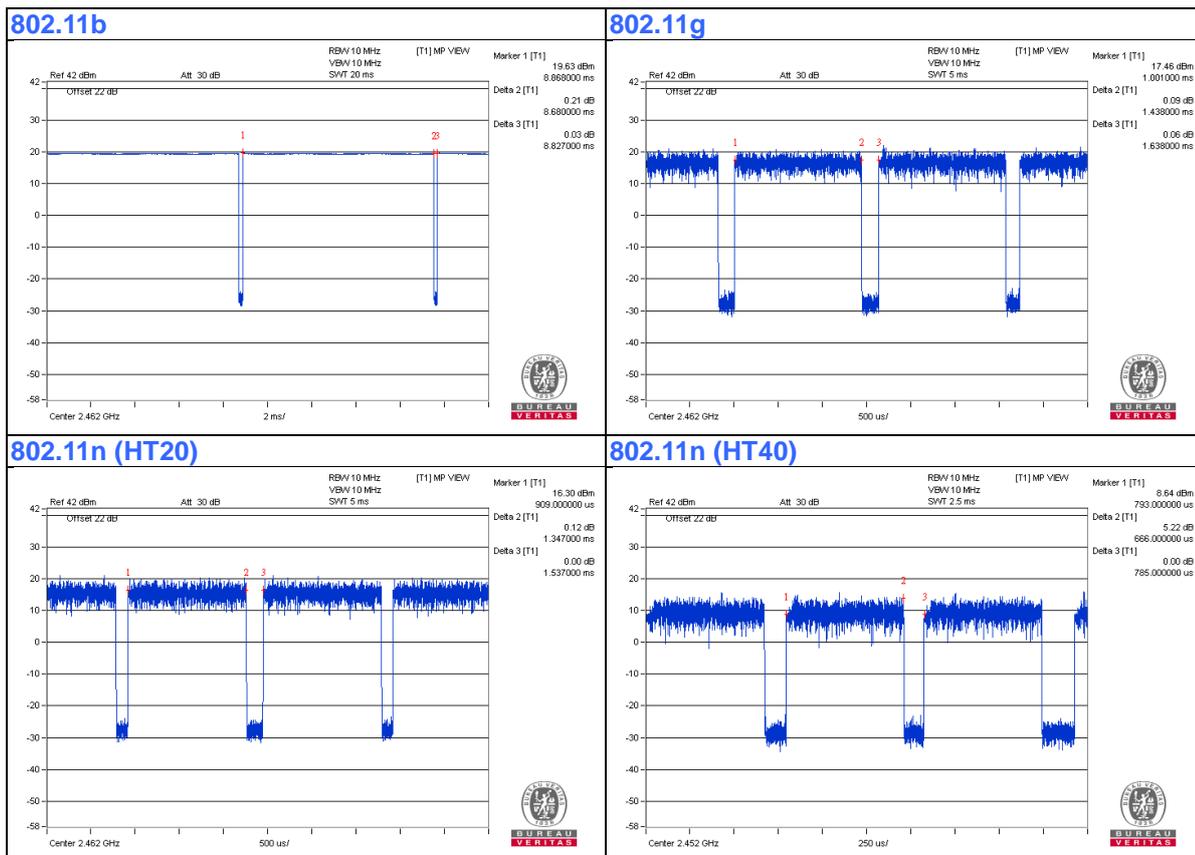
If duty cycle of test signal is  $\geq 98\%$ , duty factor is not required.  
 If duty cycle of test signal is  $< 98\%$ , duty factor shall be considered.

**802.11b:** Duty cycle =  $8.68/8.827 = 0.983$

**802.11g:** Duty cycle =  $1.438/1.638 = 0.878$ , Duty factor =  $10 * \log(1/0.878) = 0.6\text{dB}$

**802.11n (HT20):** Duty cycle =  $1.347/1.537 = 0.876$ , Duty factor =  $10 * \log(1/0.876) = 0.6\text{ dB}$

**802.11n (HT40):** Duty cycle =  $0.666/0.785 = 0.848$ , Duty factor =  $10 * \log(1/0.848) = 0.7\text{ dB}$



### 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.

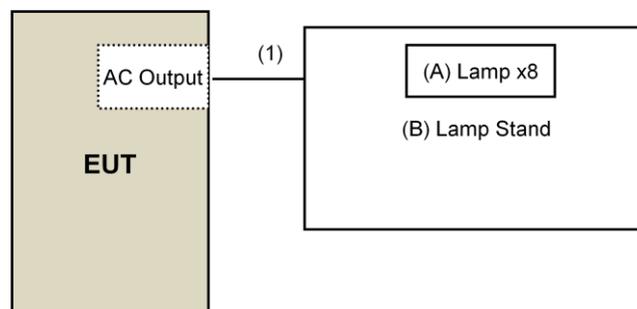
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Lamp x8	NICHIA	NA	NA	NA	Provided by Lab
B.	Lamp Stand	NA	NA	NA	NA	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	AC Power Cord	1	1.8	No	0	Provided by Lab

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

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

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

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

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

**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

#### 4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Pre-Amplifier <sup>(*)</sup> EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna <sup>(*)</sup> Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 02, 2016	Apr. 01, 2017
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Jan. 19, 2016	Jan. 18, 2017
Pre-Amplifier Agilent	8449B	3008A01922	Sep. 19, 2015	Sep. 18, 2016
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150318 150323 150324	Mar. 30, 2016	Mar. 29, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSP40	100060	May 11, 2016	May 10, 2017
Power meter Anritsu	ML2495A	1014008	May 5, 2016	May 4, 2017
Power sensor Anritsu	MA2411B	0917122	May 5, 2016	May 4, 2017

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. \*The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Loop antenna was used for all emissions below 30 MHz.
4. The test was performed in 966 Chamber No. 4.
5. The FCC Site Registration No. is 292998
6. The CANADA Site Registration No. is 20331-2
7. Tested Date: Aug. 25 to Sep. 09, 2016

#### 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:**

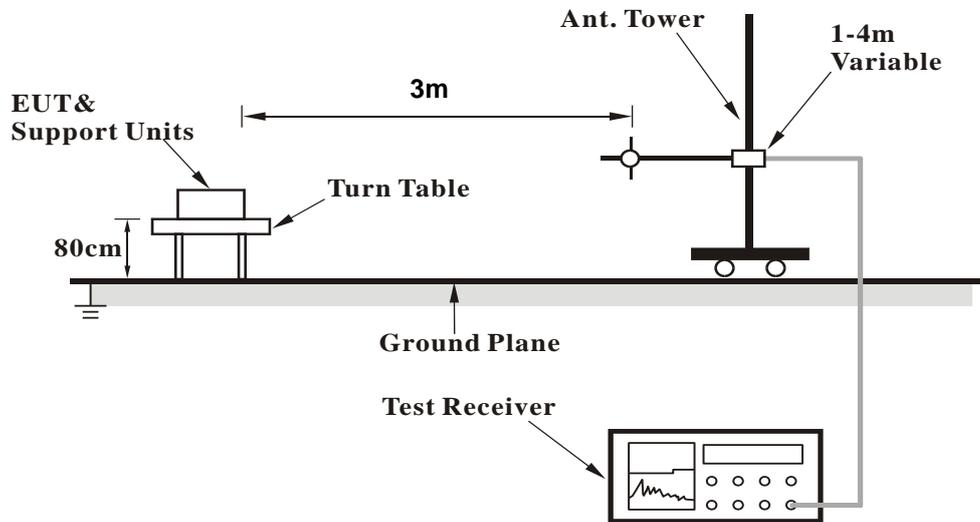
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

#### 4.1.4 Deviation from Test Standard

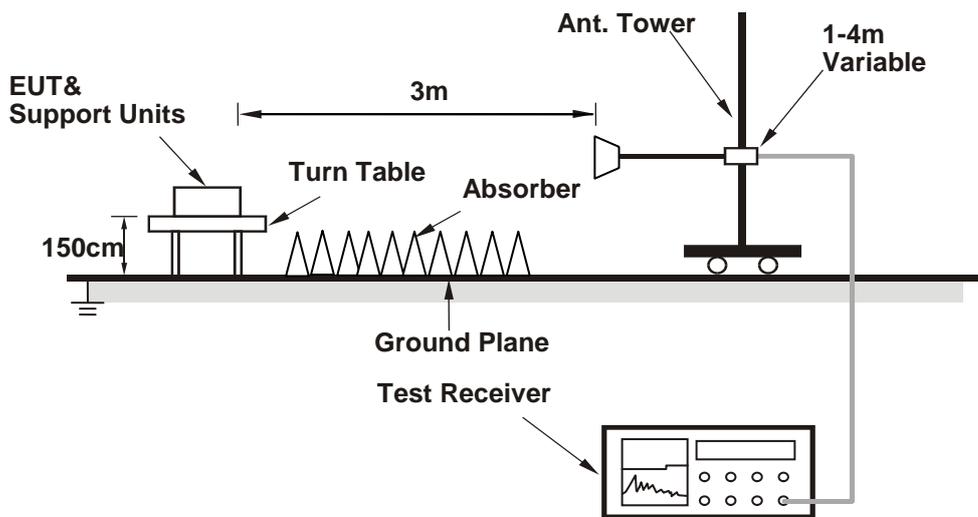
No deviation.

#### 4.1.5 Test Setup

##### <Frequency Range below 1GHz>



##### <Frequency Range above 1GHz>



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

#### 4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Contorlling software (Run hypertrm.exe paste command) has been activated to set the EUT on specific status.

#### 4.1.7 Test Results

#### Above 1GHz Data :

#### Mode 1:

#### 802.11b

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	57.4 PK	74.0	-16.6	1.89 H	360	56.5	0.9
2	2390.00	47.9 AV	54.0	-6.1	1.89 H	360	47.0	0.9
3	*2412.00	111.8 PK			1.89 H	360	110.7	1.1
4	*2412.00	108.5 AV			1.89 H	360	107.4	1.1
5	4824.00	57.7 PK	74.0	-16.3	1.18 H	232	47.0	10.7
6	4824.00	50.7 AV	54.0	-3.3	1.18 H	232	40.0	10.7

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.2 PK	74.0	-17.8	1.98 V	234	55.3	0.9
2	2390.00	46.7 AV	54.0	-7.3	1.98 V	234	45.8	0.9
3	*2412.00	110.1 PK			1.98 V	234	109.0	1.1
4	*2412.00	107.1 AV			1.98 V	234	106.0	1.1
5	4824.00	56.9 PK	74.0	-17.1	1.96 V	300	46.2	10.7
6	4824.00	50.0 AV	54.0	-4.0	1.96 V	300	39.3	10.7

#### REMARKS:

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

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	53.9 PK	74.0	-20.1	1.75 H	358	53.0	0.9
2	2390.00	42.3 AV	54.0	-11.7	1.75 H	358	41.4	0.9
3	*2437.00	110.9 PK			1.75 H	358	109.8	1.1
4	*2437.00	107.6 AV			1.75 H	358	106.5	1.1
5	2483.50	54.0 PK	74.0	-20.0	1.75 H	358	52.7	1.3
6	2483.50	41.8 AV	54.0	-12.2	1.75 H	358	40.5	1.3
7	4874.00	55.6 PK	74.0	-18.4	1.97 H	30	44.9	10.7
8	4874.00	47.9 AV	54.0	-6.1	1.97 H	30	37.2	10.7
9	7311.00	59.1 PK	74.0	-14.9	2.33 H	293	43.9	15.2
10	7311.00	45.9 AV	54.0	-8.1	2.33 H	293	30.7	15.2

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	53.4 PK	74.0	-20.6	1.21 V	313	52.5	0.9
2	2390.00	41.8 AV	54.0	-12.2	1.21 V	313	40.9	0.9
3	*2437.00	109.6 PK			1.21 V	313	108.5	1.1
4	*2437.00	106.5 AV			1.21 V	313	105.4	1.1
5	2483.50	53.1 PK	74.0	-20.9	1.21 V	313	51.8	1.3
6	2483.50	40.9 AV	54.0	-13.1	1.21 V	313	39.6	1.3
7	4874.00	55.7 PK	74.0	-18.3	1.96 V	318	45.0	10.7
8	4874.00	50.8 AV	54.0	-3.2	1.96 V	318	40.1	10.7
9	7311.00	59.6 PK	74.0	-14.4	2.33 V	189	44.4	15.2
10	7311.00	45.9 AV	54.0	-8.1	2.33 V	189	30.7	15.2

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	108.2 PK			1.90 H	360	107.1	1.1
2	*2462.00	105.2 AV			1.90 H	360	104.1	1.1
3	2483.50	53.4 PK	74.0	-20.6	1.90 H	360	52.1	1.3
4	2483.50	41.5 AV	54.0	-12.5	1.90 H	360	40.2	1.3
5	4924.00	56.8 PK	74.0	-17.2	2.38 H	299	46.0	10.8
6	4924.00	50.3 AV	54.0	-3.7	2.38 H	299	39.5	10.8
7	7386.00	59.3 PK	74.0	-14.7	2.30 H	299	43.8	15.5
8	7386.00	46.1 AV	54.0	-7.9	2.30 H	299	30.6	15.5

**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	107.4 PK			1.30 V	315	106.3	1.1
2	*2462.00	104.5 AV			1.30 V	315	103.4	1.1
3	2483.50	53.8 PK	74.0	-20.2	1.30 V	315	52.5	1.3
4	2483.50	41.3 AV	54.0	-12.7	1.30 V	315	40.0	1.3
5	4924.00	57.1 PK	74.0	-16.9	2.32 V	183	46.3	10.8
6	4924.00	50.0 AV	54.0	-4.0	2.32 V	183	39.2	10.8
7	7386.00	59.2 PK	74.0	-14.8	2.30 V	180	43.7	15.5
8	7386.00	45.7 AV	54.0	-8.3	2.30 V	180	30.2	15.5

**REMARKS:**

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

**802.11g**

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	65.7 PK	74.0	-8.3	1.80 H	0	64.8	0.9
2	2390.00	53.0 AV	54.0	-1.0	1.80 H	0	52.1	0.9
3	*2412.00	111.2 PK			1.80 H	0	110.1	1.1
4	*2412.00	102.0 AV			1.80 H	0	100.9	1.1
5	4824.00	49.0 PK	74.0	-25.0	1.55 H	199	38.3	10.7
6	4824.00	35.0 AV	54.0	-19.0	1.55 H	199	24.3	10.7

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.8 PK	74.0	-9.2	1.40 V	312	63.9	0.9
2	2390.00	50.5 AV	54.0	-3.5	1.40 V	312	49.6	0.9
3	*2412.00	110.9 PK			1.40 V	312	109.8	1.1
4	*2412.00	101.5 AV			1.40 V	312	100.4	1.1
5	4824.00	46.8 PK	74.0	-27.2	1.60 V	228	36.1	10.7
6	4824.00	33.7 AV	54.0	-20.3	1.60 V	228	23.0	10.7

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	56.9 PK	74.0	-17.1	1.76 H	0	56.0	0.9
2	2390.00	45.2 AV	54.0	-8.8	1.76 H	0	44.3	0.9
3	*2437.00	112.0 PK			1.76 H	0	110.9	1.1
4	*2437.00	102.6 AV			1.76 H	0	101.5	1.1
5	2483.50	56.4 PK	74.0	-17.6	1.76 H	0	55.1	1.3
6	2483.50	44.4 AV	54.0	-9.6	1.76 H	0	43.1	1.3
7	4874.00	49.4 PK	74.0	-24.6	1.59 H	195	38.7	10.7
8	4874.00	35.2 AV	54.0	-18.8	1.59 H	195	24.5	10.7
9	7311.00	53.6 PK	74.0	-20.4	1.55 H	205	38.4	15.2
10	7311.00	42.2 AV	54.0	-11.8	1.55 H	205	27.0	15.2

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.9 PK	74.0	-18.1	1.28 V	317	55.0	0.9
2	2390.00	43.7 AV	54.0	-10.3	1.28 V	317	42.8	0.9
3	*2437.00	111.1 PK			1.28 V	317	110.0	1.1
4	*2437.00	101.3 AV			1.28 V	317	100.2	1.1
5	2483.50	51.7 PK	74.0	-22.3	1.28 V	317	50.4	1.3
6	2483.50	39.4 AV	54.0	-14.6	1.28 V	317	38.1	1.3
7	4874.00	47.1 PK	74.0	-26.9	1.63 V	235	36.4	10.7
8	4874.00	34.2 AV	54.0	-19.8	1.63 V	235	23.5	10.7
9	7311.00	52.2 PK	74.0	-21.8	1.60 V	214	37.0	15.2
10	7311.00	40.0 AV	54.0	-14.0	1.60 V	214	24.8	15.2

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	111.1 PK			1.66 H	0	110.0	1.1
2	*2462.00	101.8 AV			1.66 H	0	100.7	1.1
3	2483.50	65.2 PK	74.0	-8.8	1.66 H	0	63.9	1.3
4	2483.50	53.1 AV	54.0	-0.9	1.66 H	0	51.8	1.3
5	4924.00	49.0 PK	74.0	-25.0	1.59 H	189	38.2	10.8
6	4924.00	34.8 AV	54.0	-19.2	1.59 H	189	24.0	10.8
7	7386.00	53.5 PK	74.0	-20.5	1.59 H	208	38.0	15.5
8	7386.00	41.9 AV	54.0	-12.1	1.59 H	208	26.4	15.5

**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	109.8 PK			1.40 V	310	108.7	1.1
2	*2462.00	100.9 AV			1.40 V	310	99.8	1.1
3	2483.50	52.2 PK	74.0	-21.8	1.40 V	310	50.9	1.3
4	2483.50	40.1 AV	54.0	-13.9	1.40 V	310	38.8	1.3
5	4924.00	47.3 PK	74.0	-26.7	1.59 V	236	36.5	10.8
6	4924.00	34.1 AV	54.0	-19.9	1.59 V	236	23.3	10.8
7	7386.00	52.5 PK	74.0	-21.5	1.61 V	209	37.0	15.5
8	7386.00	40.1 AV	54.0	-13.9	1.61 V	209	24.6	15.5

**REMARKS:**

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

**802.11n (HT20)**

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	69.3 PK	74.0	-4.7	1.76 H	354	68.4	0.9
2	2390.00	53.2 AV	54.0	-0.8	1.76 H	354	52.3	0.9
3	*2412.00	110.2 PK			1.76 H	360	109.1	1.1
4	*2412.00	101.5 AV			1.76 H	360	100.4	1.1
5	4824.00	49.2 PK	74.0	-24.8	1.66 H	163	38.5	10.7
6	4824.00	35.3 AV	54.0	-18.7	1.66 H	163	24.6	10.7

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.3 PK	74.0	-5.7	1.18 V	315	67.4	0.9
2	2390.00	51.7 AV	54.0	-2.3	1.18 V	315	50.8	0.9
3	*2412.00	109.5 PK			1.18 V	315	108.4	1.1
4	*2412.00	100.7 AV			1.18 V	315	99.6	1.1
5	4824.00	47.6 PK	74.0	-26.4	1.58 V	245	36.9	10.7
6	4824.00	34.3 AV	54.0	-19.7	1.58 V	245	23.6	10.7

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	58.8 PK	74.0	-15.2	1.75 H	355	57.9	0.9
2	2390.00	45.0 AV	54.0	-9.0	1.75 H	355	44.1	0.9
3	*2437.00	111.0 PK			1.75 H	355	109.9	1.1
4	*2437.00	102.0 AV			1.75 H	355	100.9	1.1
5	2483.50	55.4 PK	74.0	-18.6	1.75 H	355	54.1	1.3
6	2483.50	43.8 AV	54.0	-10.2	1.75 H	355	42.5	1.3
7	4874.00	49.3 PK	74.0	-24.7	1.60 H	179	38.6	10.7
8	4874.00	35.2 AV	54.0	-18.8	1.60 H	179	24.5	10.7
9	7311.00	53.3 PK	74.0	-20.7	1.55 H	191	38.1	15.2
10	7311.00	42.0 AV	54.0	-12.0	1.55 H	191	26.8	15.2

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.6 PK	74.0	-18.4	1.31 V	304	54.7	0.9
2	2390.00	43.6 AV	54.0	-10.4	1.31 V	304	42.7	0.9
3	*2437.00	110.2 PK			1.31 V	304	109.1	1.1
4	*2437.00	101.3 AV			1.31 V	304	100.2	1.1
5	2483.50	52.3 PK	74.0	-21.7	1.31 V	304	51.0	1.3
6	2483.50	39.8 AV	54.0	-14.2	1.31 V	304	38.5	1.3
7	4874.00	47.3 PK	74.0	-26.7	1.56 V	236	36.6	10.7
8	4874.00	34.2 AV	54.0	-19.8	1.56 V	236	23.5	10.7
9	7311.00	52.1 PK	74.0	-21.9	1.77 V	214	36.9	15.2
10	7311.00	40.1 AV	54.0	-13.9	1.77 V	214	24.9	15.2

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	110.1 PK			1.69 H	356	109.0	1.1
2	*2462.00	101.4 AV			1.69 H	356	100.3	1.1
3	2483.50	68.7 PK	74.0	-5.3	1.69 H	356	67.4	1.3
4	2483.50	53.4 AV	54.0	-0.6	1.69 H	356	52.1	1.3
5	4924.00	49.4 PK	74.0	-24.6	1.55 H	169	38.6	10.8
6	4924.00	35.3 AV	54.0	-18.7	1.55 H	169	24.5	10.8
7	7386.00	53.7 PK	74.0	-20.3	1.51 H	184	38.2	15.5
8	7386.00	42.4 AV	54.0	-11.6	1.51 H	184	26.9	15.5

**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	109.2 PK			1.20 V	300	108.1	1.1
2	*2462.00	100.1 AV			1.20 V	300	99.0	1.1
3	2483.50	52.9 PK	74.0	-21.1	1.20 V	300	51.6	1.3
4	2483.50	40.4 AV	54.0	-13.6	1.20 V	300	39.1	1.3
5	4924.00	46.8 PK	74.0	-27.2	1.62 V	240	36.0	10.8
6	4924.00	33.8 AV	54.0	-20.2	1.62 V	240	23.0	10.8
7	7386.00	52.5 PK	74.0	-21.5	1.80 V	201	37.0	15.5
8	7386.00	40.6 AV	54.0	-13.4	1.80 V	201	25.1	15.5

**REMARKS:**

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

**802.11n (HT40)**

<b>CHANNEL</b>	TX Channel 3	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	68.1 PK	74.0	-5.9	1.01 H	162	67.2	0.9
2	2390.00	53.4 AV	54.0	-0.6	1.01 H	162	52.5	0.9
3	*2422.00	103.0 PK			1.01 H	162	102.0	1.0
4	*2422.00	94.1 AV			1.01 H	162	93.1	1.0
5	4844.00	50.7 PK	74.0	-23.3	1.34 H	360	39.9	10.8
6	4844.00	39.3 AV	54.0	-14.7	1.34 H	360	28.5	10.8
7	7266.00	57.1 PK	74.0	-16.9	1.18 H	51	42.0	15.1
8	7266.00	46.3 AV	54.0	-7.7	1.18 H	51	31.2	15.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.5 PK	74.0	-4.5	1.35 V	239	68.6	0.9
2	<b>2390.00</b>	<b>53.8 AV</b>	<b>54.0</b>	<b>-0.2</b>	<b>1.35 V</b>	<b>239</b>	<b>52.9</b>	<b>0.9</b>
3	*2422.00	104.2 PK			1.35 V	239	103.2	1.0
4	*2422.00	96.1 AV			1.35 V	239	95.1	1.0
5	4844.00	53.1 PK	74.0	-20.9	1.50 V	15	42.3	10.8
6	4844.00	42.6 AV	54.0	-11.4	1.50 V	15	31.8	10.8
7	7266.00	58.2 PK	74.0	-15.8	1.64 V	355	43.1	15.1
8	7266.00	47.9 AV	54.0	-6.1	1.64 V	355	32.8	15.1

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	52.8 PK	74.0	-21.2	1.18 H	270	51.9	0.9
2	2390.00	40.1 AV	54.0	-13.9	1.18 H	270	39.2	0.9
3	*2437.00	108.7 PK			1.18 H	270	107.6	1.1
4	*2437.00	100.0 AV			1.18 H	270	98.9	1.1
5	2483.50	63.9 PK	74.0	-10.1	1.18 H	270	62.6	1.3
6	2483.50	50.5 AV	54.0	-3.5	1.18 H	270	49.2	1.3
7	4874.00	50.2 PK	74.0	-23.8	1.35 H	360	39.5	10.7
8	4874.00	39.0 AV	54.0	-15.0	1.35 H	360	28.3	10.7
9	7311.00	56.6 PK	74.0	-17.4	1.22 H	44	41.4	15.2
10	7311.00	46.0 AV	54.0	-8.0	1.22 H	44	30.8	15.2

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	1.56 V	227	66.2	0.9
2	2390.00	53.6 AV	54.0	-0.4	1.56 V	227	52.7	0.9
3	*2437.00	109.3 PK			1.56 V	227	108.2	1.1
4	*2437.00	101.2 AV			1.56 V	227	100.1	1.1
5	2483.50	64.6 PK	74.0	-9.4	1.56 V	227	63.3	1.3
6	2483.50	51.3 AV	54.0	-2.7	1.56 V	227	50.0	1.3
7	4874.00	53.9 PK	74.0	-20.1	1.50 V	0	43.2	10.7
8	4874.00	43.2 AV	54.0	-10.8	1.50 V	0	32.5	10.7
9	7311.00	58.3 PK	74.0	-15.7	1.60 V	360	43.1	15.2
10	7311.00	47.6 AV	54.0	-6.4	1.60 V	360	32.4	15.2

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 9	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	104.7 PK			1.20 H	250	103.6	1.1
2	*2452.00	95.9 AV			1.20 H	250	94.8	1.1
3	2483.50	67.4 PK	74.0	-6.6	1.20 H	250	66.1	1.3
4	2483.50	49.7 AV	54.0	-4.3	1.20 H	250	48.4	1.3
5	4904.00	49.9 PK	74.0	-24.1	1.40 H	360	39.1	10.8
6	4904.00	38.9 AV	54.0	-15.1	1.40 H	360	28.1	10.8
7	7356.00	57.0 PK	74.0	-17.0	1.19 H	42	41.6	15.4
8	7356.00	46.4 AV	54.0	-7.6	1.19 H	42	31.0	15.4

**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	105.4 PK			1.72 V	225	104.3	1.1
2	*2452.00	97.1 AV			1.72 V	225	96.0	1.1
3	2483.50	68.7 PK	74.0	-5.3	1.72 V	225	67.4	1.3
4	2483.50	53.2 AV	54.0	-0.8	1.72 V	225	51.9	1.3
5	4904.00	53.6 PK	74.0	-20.4	1.50 V	21	42.8	10.8
6	4904.00	42.8 AV	54.0	-11.2	1.50 V	21	32.0	10.8
7	7356.00	58.4 PK	74.0	-15.6	1.61 V	359	43.0	15.4
8	7356.00	47.9 AV	54.0	-6.1	1.61 V	359	32.5	15.4

**REMARKS:**

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

Mode 2:

802.11b

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	56.2 PK	74.0	-17.8	1.52 H	354	55.3	0.9
2	2390.00	47.3 AV	54.0	-6.7	1.52 H	354	46.4	0.9
3	*2412.00	109.3 PK			1.52 H	354	108.2	1.1
4	*2412.00	107.6 AV			1.52 H	354	106.5	1.1
5	4824.00	55.6 PK	74.0	-18.4	2.35 H	318	44.9	10.7
6	4824.00	48.9 AV	54.0	-5.1	2.35 H	318	38.2	10.7

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	52.8 PK	74.0	-21.2	1.16 V	300	51.9	0.9
2	2390.00	41.2 AV	54.0	-12.8	1.16 V	300	40.3	0.9
3	*2412.00	108.8 PK			1.16 V	300	107.7	1.1
4	*2412.00	106.6 AV			1.16 V	300	105.5	1.1
5	4824.00	57.5 PK	74.0	-16.5	1.81 V	198	46.8	10.7
6	4824.00	50.5 AV	54.0	-3.5	1.81 V	198	39.8	10.7

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	53.4 PK	74.0	-20.6	1.51 H	352	52.5	0.9
2	2390.00	42.0 AV	54.0	-12.0	1.51 H	352	41.1	0.9
3	*2437.00	109.9 PK			1.51 H	352	108.8	1.1
4	*2437.00	107.1 AV			1.51 H	352	106.0	1.1
5	2483.50	52.8 PK	74.0	-21.2	1.51 H	352	51.5	1.3
6	2483.50	41.4 AV	54.0	-12.6	1.51 H	352	40.1	1.3
7	4874.00	55.5 PK	74.0	-18.5	2.30 H	320	44.8	10.7
8	4874.00	49.1 AV	54.0	-4.9	2.30 H	320	38.4	10.7
9	7311.00	59.0 PK	74.0	-15.0	2.34 H	288	43.8	15.2
10	7311.00	45.5 AV	54.0	-8.5	2.34 H	288	30.3	15.2

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	53.2 PK	74.0	-20.8	1.19 V	304	52.3	0.9
2	2390.00	41.6 AV	54.0	-12.4	1.19 V	304	40.7	0.9
3	*2437.00	108.4 PK			1.19 V	304	107.3	1.1
4	*2437.00	106.4 AV			1.19 V	304	105.3	1.1
5	2483.50	53.4 PK	74.0	-20.6	1.19 V	304	52.1	1.3
6	2483.50	40.9 AV	54.0	-13.1	1.19 V	304	39.6	1.3
7	4874.00	56.9 PK	74.0	-17.1	1.94 V	203	46.2	10.7
8	4874.00	50.3 AV	54.0	-3.7	1.94 V	203	39.6	10.7
9	7311.00	60.3 PK	74.0	-13.7	2.29 V	174	45.1	15.2
10	7311.00	46.4 AV	54.0	-7.6	2.29 V	174	31.2	15.2

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	107.9 PK			1.71 H	354	106.8	1.1
2	*2462.00	105.0 AV			1.71 H	354	103.9	1.1
3	2483.50	53.6 PK	74.0	-20.4	1.71 H	354	52.3	1.3
4	2483.50	42.7 AV	54.0	-11.3	1.71 H	354	41.4	1.3
5	4924.00	55.1 PK	74.0	-18.9	2.10 H	300	44.3	10.8
6	4924.00	48.7 AV	54.0	-5.3	2.10 H	300	37.9	10.8
7	7386.00	59.8 PK	74.0	-14.2	2.33 H	302	44.3	15.5
8	7386.00	46.0 AV	54.0	-8.0	2.33 H	302	30.5	15.5

**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	107.8 PK			1.38 V	240	106.7	1.1
2	*2462.00	104.9 AV			1.38 V	240	103.8	1.1
3	2483.50	53.8 PK	74.0	-20.2	1.38 V	240	52.5	1.3
4	2483.50	42.7 AV	54.0	-11.3	1.38 V	240	41.4	1.3
5	4924.00	56.2 PK	74.0	-17.8	2.06 V	199	45.4	10.8
6	4924.00	50.0 AV	54.0	-4.0	2.06 V	199	39.2	10.8
7	7386.00	60.4 PK	74.0	-13.6	2.28 V	186	44.9	15.5
8	7386.00	46.6 AV	54.0	-7.4	2.28 V	186	31.1	15.5

**REMARKS:**

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

**Below 1GHz Data:**

**802.11g**

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	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	65.02	21.2 QP	40.0	-18.8	1.00 H	235	30.7	-9.5
2	193.32	28.4 QP	43.5	-15.1	2.00 H	129	39.1	-10.7
3	300.17	26.6 QP	46.0	-19.4	1.50 H	31	33.2	-6.6
4	394.50	28.4 QP	46.0	-17.6	2.00 H	9	32.6	-4.2
5	579.99	31.4 QP	46.0	-14.6	1.50 H	1	31.3	0.1
6	773.34	33.2 QP	46.0	-12.8	1.00 H	28	29.7	3.5

**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	52.12	25.7 QP	40.0	-14.3	1.00 V	167	34.3	-8.6
2	329.97	26.1 QP	46.0	-19.9	1.00 V	0	31.6	-5.5
3	455.03	28.1 QP	46.0	-17.9	1.50 V	78	30.6	-2.5
4	580.01	32.8 QP	46.0	-13.2	1.50 V	343	32.7	0.1
5	773.34	32.2 QP	46.0	-13.8	1.50 V	360	28.7	3.5
6	949.68	38.4 QP	46.0	-7.6	1.00 V	100	31.5	6.9

**REMARKS:**

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

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 09, 2016	May 08, 2017
Line-Impedance Stabilization Network (for EUT) R&S	ENV216	100072	June 13, 2016	June 12, 2017
Line-Impedance Stabilization Network (for Peripheral ) R&S	ESH3-Z5	848773/004	Oct. 28, 2015	Oct. 27, 2016
RF Cable	5D-FB	COCCAB-001	Mar. 08, 2016	Mar. 07, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-003	Sep. 14, 2015	Sep. 13, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 23, 2015	Sep. 22, 2016
50 ohms Terminator	N/A	EMC-02	Oct. 01, 2015	Sep. 30, 2016
Software BVADT	BVADT_Cond_ V7.3.7.3	NA	NA	NA

**Note:**

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Aug. 26, 2016

#### 4.2.3 Test Procedures

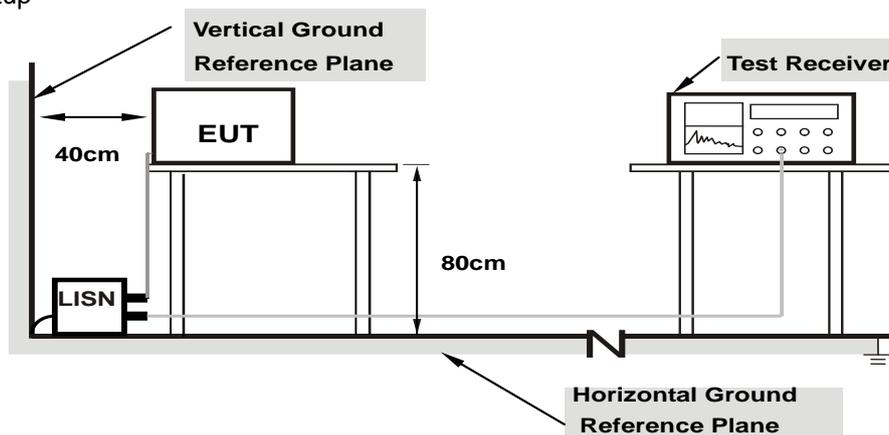
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

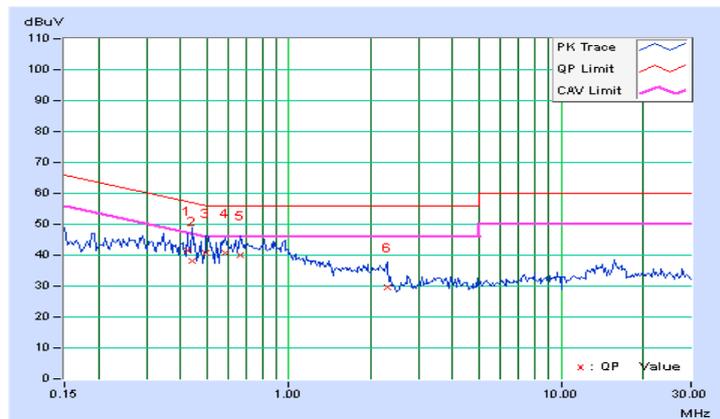
#### 4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.42344	19.91	21.39	18.34	41.30	38.25	57.38	47.38	-16.08	-9.13
2	0.44297	19.90	18.13	10.59	38.03	30.49	57.01	47.01	-18.98	-16.52
3	<b>0.49766</b>	<b>19.90</b>	<b>20.79</b>	<b>19.55</b>	<b>40.69</b>	<b>39.45</b>	<b>56.04</b>	<b>46.04</b>	<b>-15.35</b>	<b>-6.59</b>
4	0.58359	19.89	20.70	16.80	40.59	36.69	56.00	46.00	-15.41	-9.31
5	0.66172	19.88	20.18	15.56	40.06	35.44	56.00	46.00	-15.94	-10.56
6	2.29297	19.87	9.77	4.71	29.64	24.58	56.00	46.00	-26.36	-21.42

#### 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

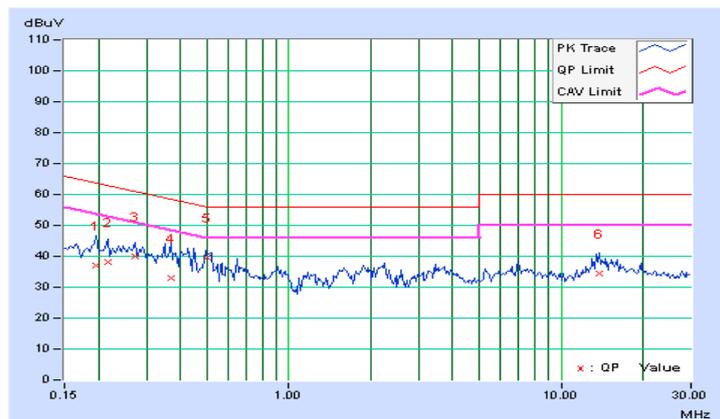


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19687	19.89	17.02	13.07	36.91	32.96	63.74	53.74	-26.83	-20.78
2	0.21641	19.89	18.22	14.09	38.11	33.98	62.96	52.96	-24.85	-18.98
3	0.27109	19.89	20.19	14.73	40.08	34.62	61.08	51.08	-21.00	-16.46
4	0.36875	19.90	12.89	7.02	32.79	26.92	58.53	48.53	-25.74	-21.61
5	0.50000	19.89	19.70	16.54	39.59	36.43	56.00	46.00	-16.41	-9.57
6	13.78516	20.22	14.17	5.50	34.39	25.72	60.00	50.00	-25.61	-24.28

**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

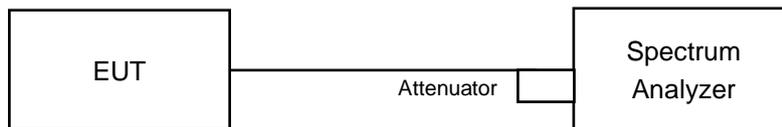


### 4.3 6dB Bandwidth Measurement

#### 4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

#### 4.3.2 Test Setup



#### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

#### 4.3.4 Test Procedure

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

#### 4.3.5 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

##### 802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	9.57	0.5	Pass
6	2437	9.60	0.5	Pass
11	2462	9.11	0.5	Pass

##### 802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.19	0.5	Pass
6	2437	15.18	0.5	Pass
11	2462	15.12	0.5	Pass

##### 802.11n (HT20)

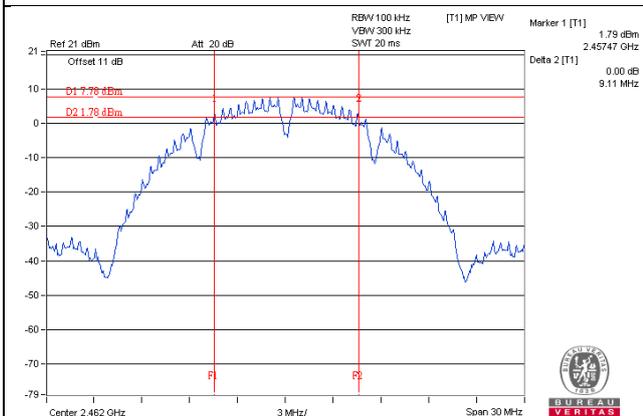
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.16	0.5	Pass
6	2437	15.15	0.5	Pass
11	2462	15.17	0.5	Pass

##### 802.11n (HT40)

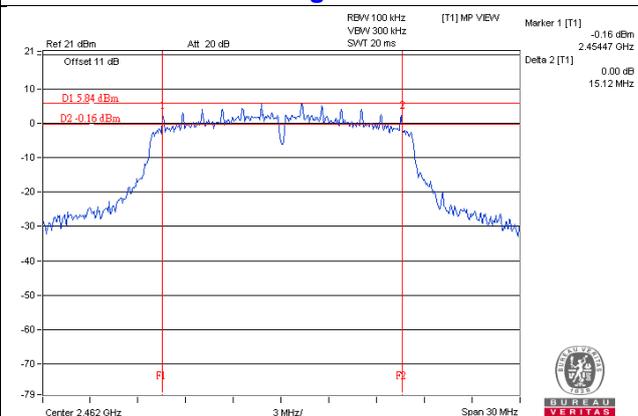
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.20	0.5	Pass
6	2437	35.20	0.5	Pass
9	2452	35.19	0.5	Pass

### Spectrum Plot of Worst Value

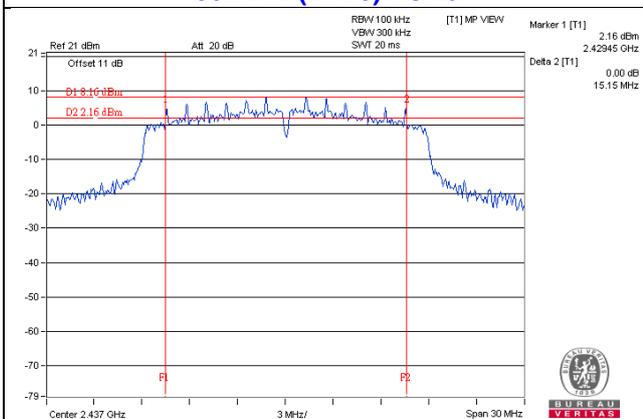
#### 802.11b : CH11



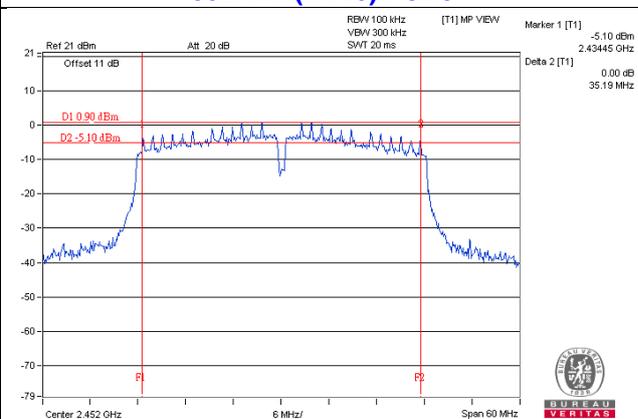
#### 802.11g : CH11



#### 802.11n (HT20) : CH6



#### 802.11n (HT40) : CH9

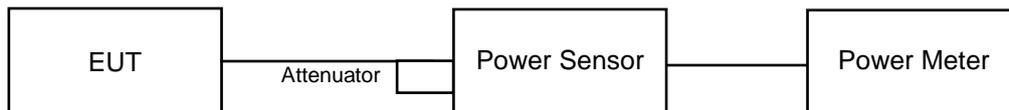


#### 4.4 Conducted Output Power Measurement

##### 4.4.1 Limits of Conducted Output Power Measurement

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

##### 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

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

##### 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 PEAK POWER

##### 802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	115.345	20.62	30	Pass
6	2437	110.662	20.44	30	Pass
11	2462	71.121	18.52	30	Pass

##### 802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	230.144	23.62	30	Pass
6	2437	291.072	24.64	30	Pass
11	2462	226.986	23.56	30	Pass

##### 802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	219.786	23.42	30	Pass
6	2437	215.774	23.34	30	Pass
11	2462	203.704	23.09	30	Pass

##### 802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	100.462	20.02	30	Pass
6	2437	231.739	23.65	30	Pass
9	2452	102.565	20.11	30	Pass

## FOR AVERAGE POWER

### 802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	76.913	18.86
6	2437	74.302	18.71
11	2462	46.452	16.67

### 802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	52.723	17.22
6	2437	70.958	18.51
11	2462	42.658	16.30

### 802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	50.933	17.07
6	2437	69.502	18.42
11	2462	41.21	16.15

### 802.11n (HT40)

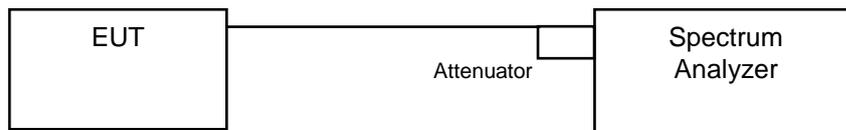
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	22.961	13.61
6	2437	66.374	18.22
9	2452	25.468	14.06

## 4.5 Power Spectral Density Measurement

### 4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

### 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. Set analyzer center frequency to DTS channel center frequency.
- b. Set the span to 1.5 times the DTS bandwidth.
- c. Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- d. Set the VBW  $\geq 3 \times \text{RBW}$ .
- e. Detector = peak.
- f. Sweep time = auto couple.
- g. Trace mode = max hold.
- h. Allow trace to fully stabilize.
- i. Use the peak marker function to determine the maximum amplitude level within the RBW.

### 4.5.5 Deviation from Test Standard

No deviation.

### 4.5.6 EUT Operating Condition

Same as Item 4.3.6

#### 4.5.7 Test Results

##### 802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-5.66	8	Pass
6	2437	-5.53	8	Pass
11	2462	-5.92	8	Pass

##### 802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-10.72	8	Pass
6	2437	-8.98	8	Pass
11	2462	-11.11	8	Pass

##### 802.11n (HT20)

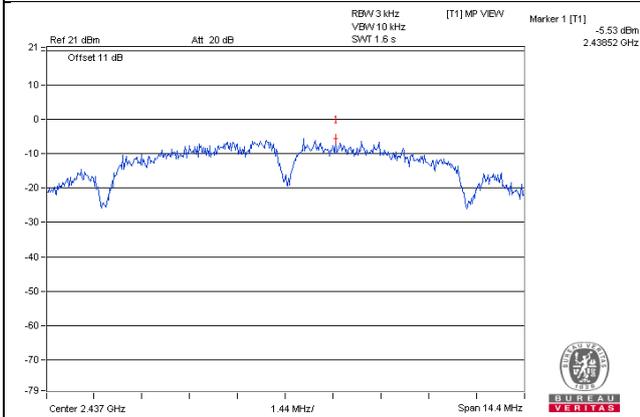
Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-9.09	8	Pass
6	2437	-8.66	8	Pass
11	2462	-10.81	8	Pass

##### 802.11n (HT40)

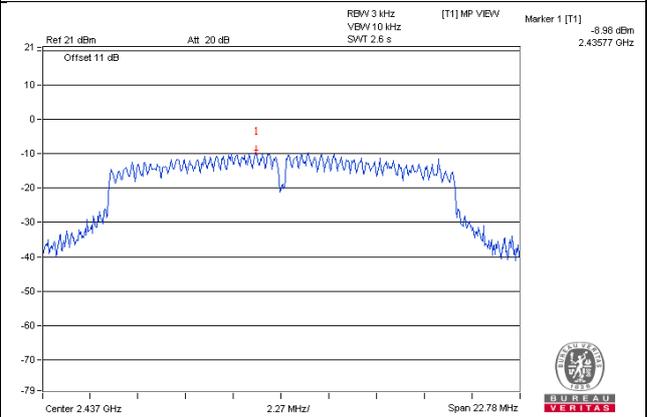
Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
3	2422	-15.02	8	Pass
6	2437	-12.12	8	Pass
9	2452	-16.44	8	Pass

### Spectrum Plot of Worst Value

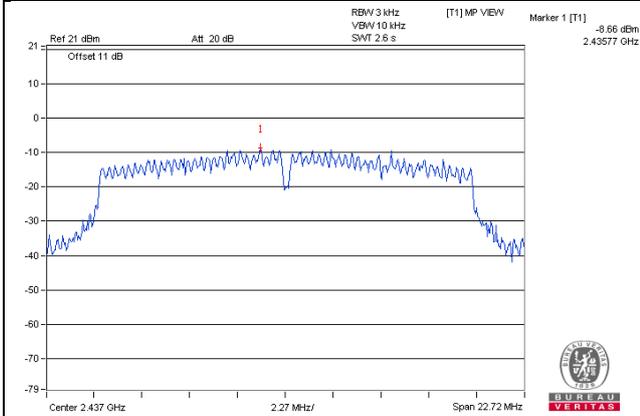
#### 802.11b : CH6



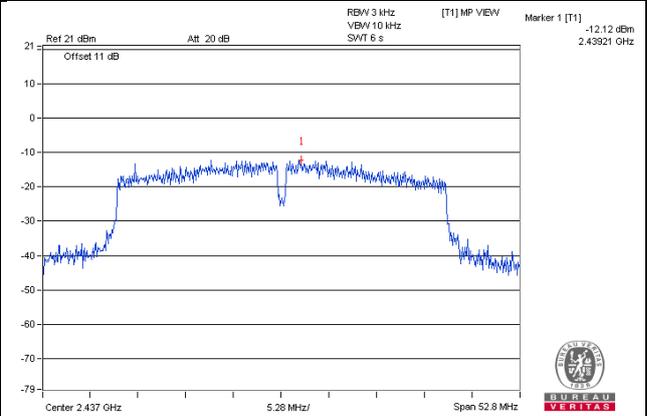
#### 802.11g : CH6



#### 802.11n (HT20) : CH6



#### 802.11n (HT40) : CH6

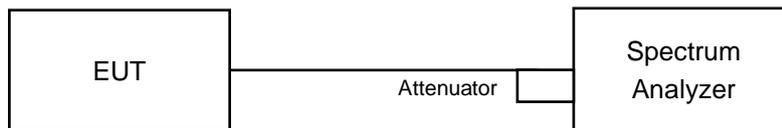


## 4.6 Conducted Out of Band Emission Measurement

### 4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 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

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 OOB

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

### 4.6.5 Deviation from Test Standard

No deviation.

### 4.6.6 EUT Operating Condition

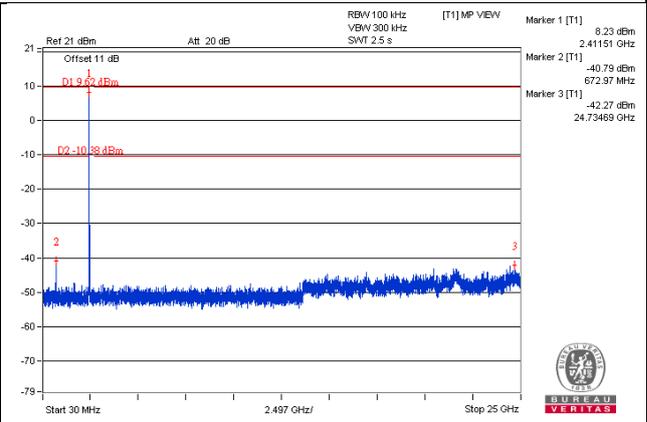
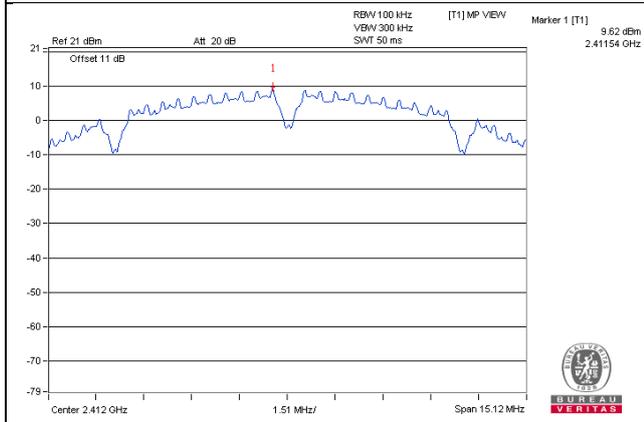
Same as Item 4.3.6

### 4.6.7 Test Results

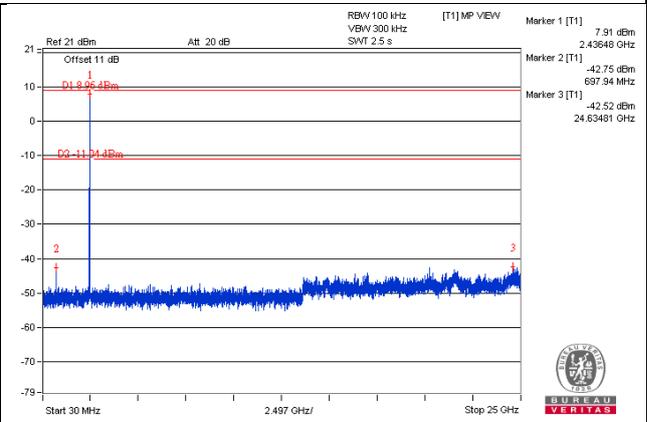
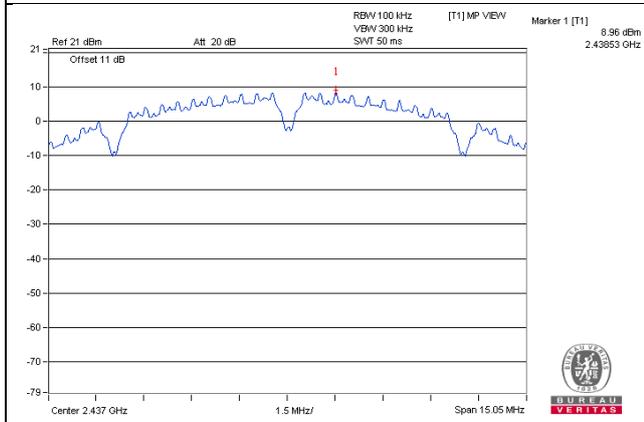
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

# 802.11b

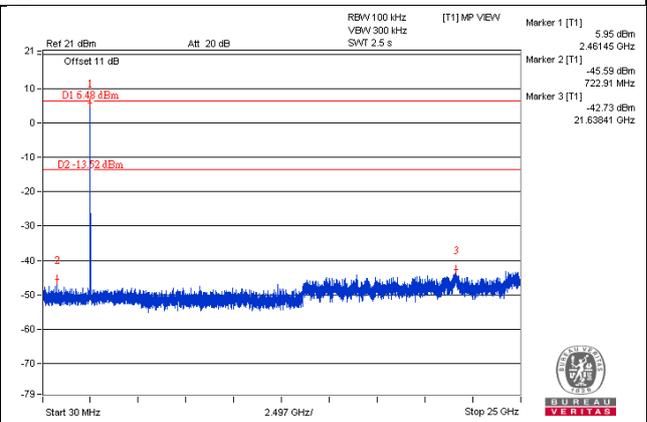
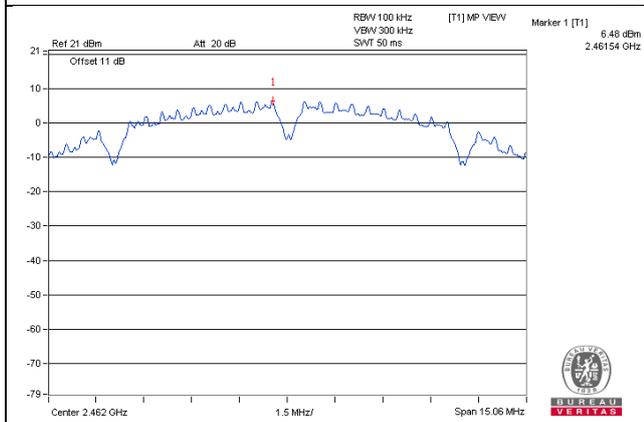
## CH 1



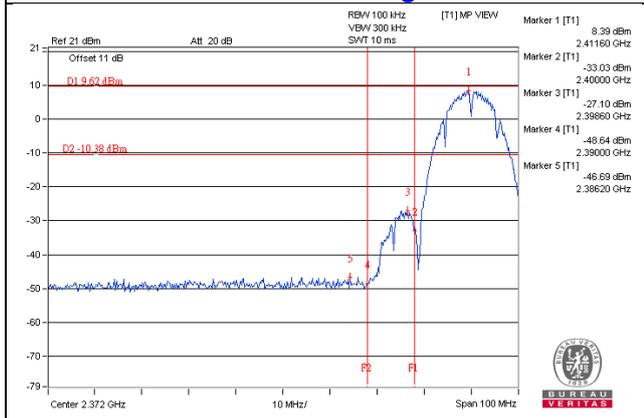
## CH 6



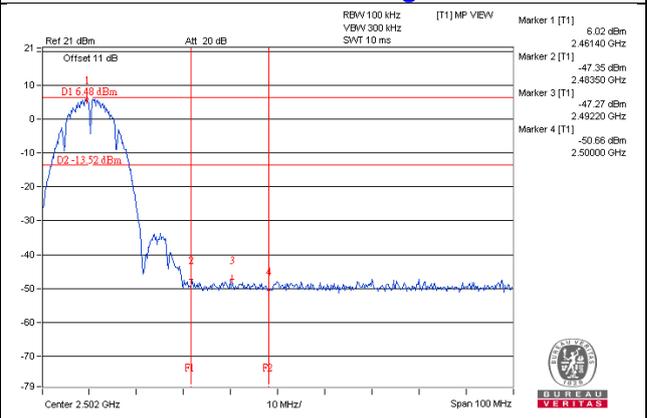
## CH 11



## CH 1 Band edge

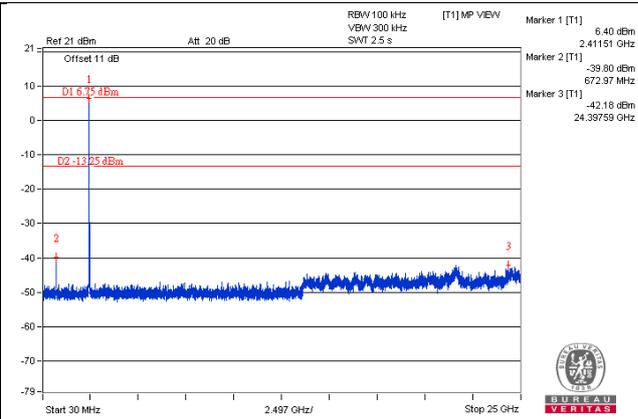
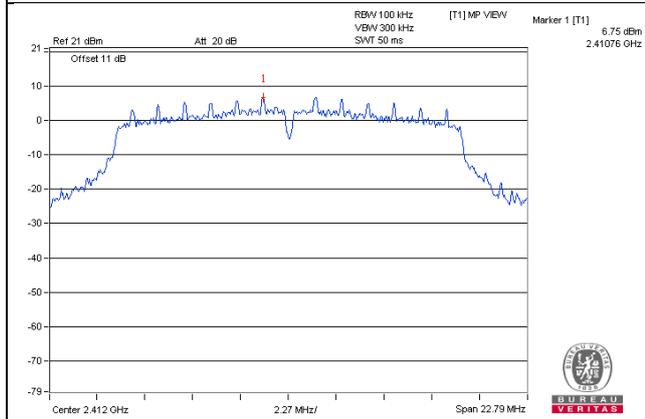


## CH 11 Band edge

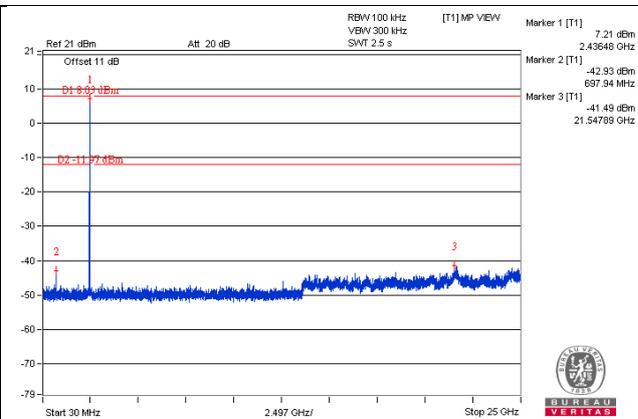
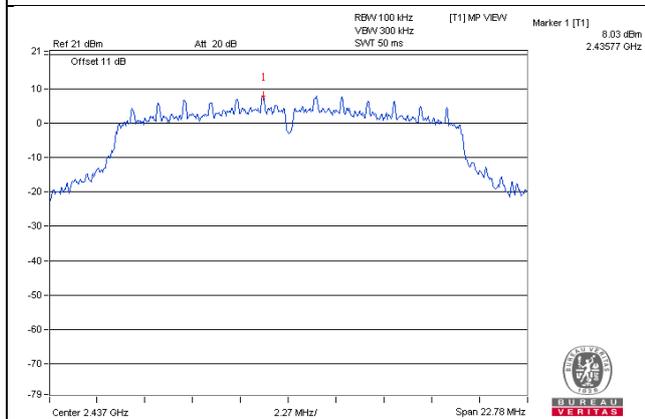


# 802.11g

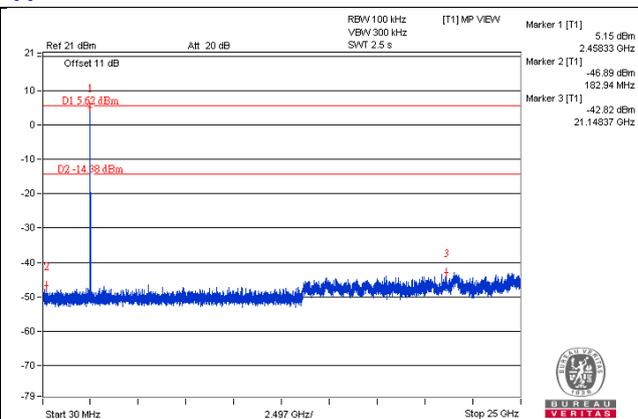
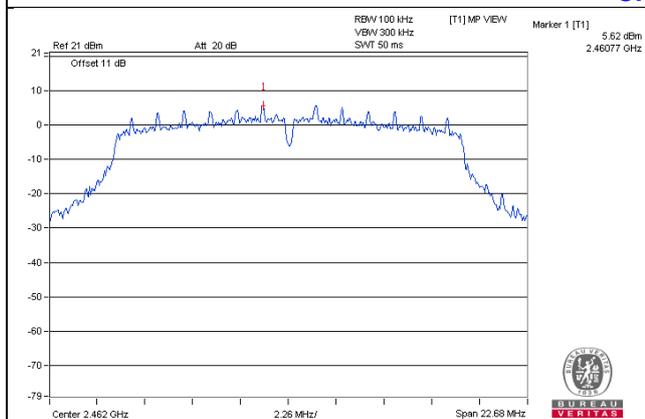
## CH 1



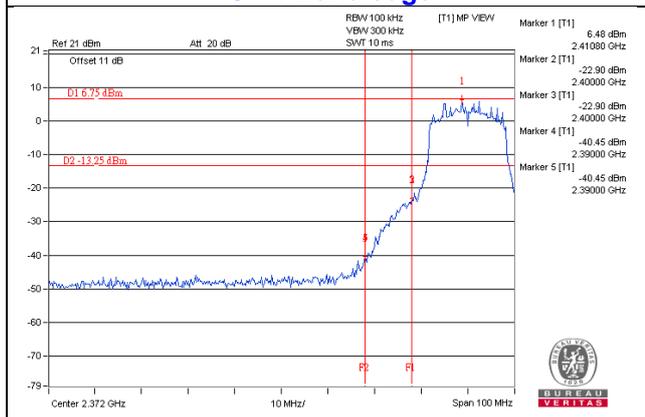
## CH 6



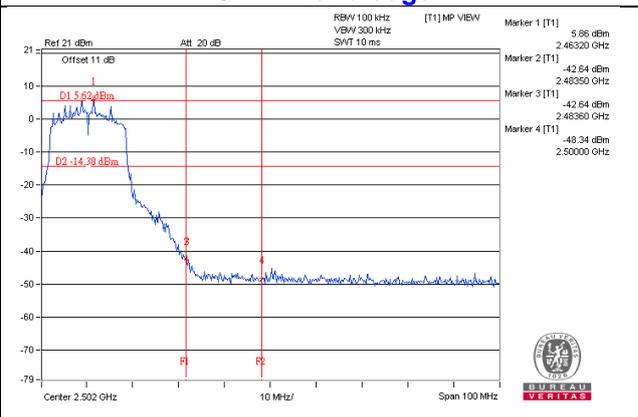
## CH 11



## CH 1 Band edge

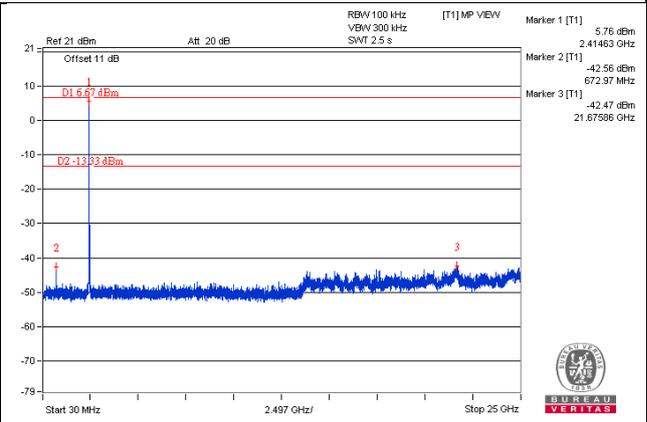
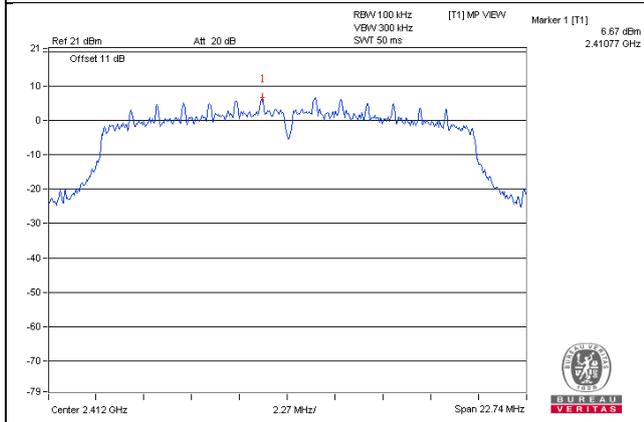


## CH 11 Band edge

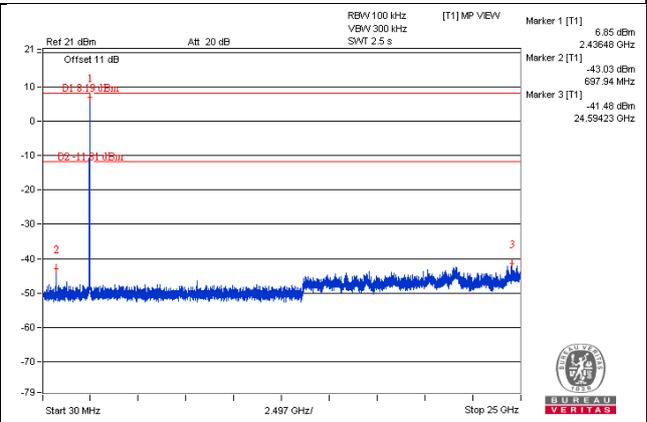
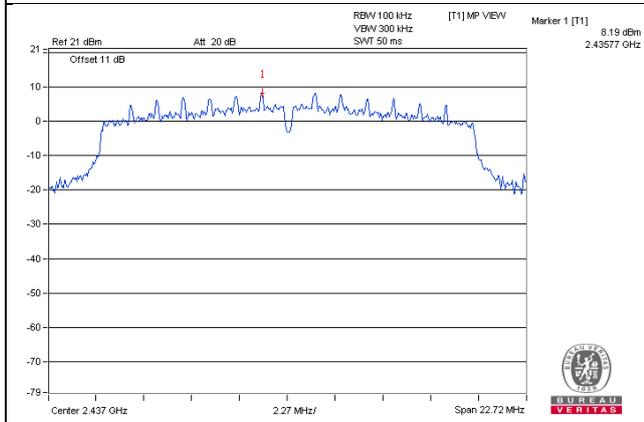


# 802.11n (HT20)

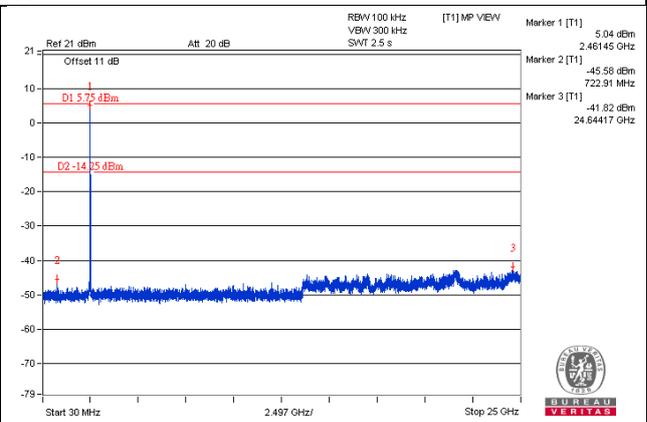
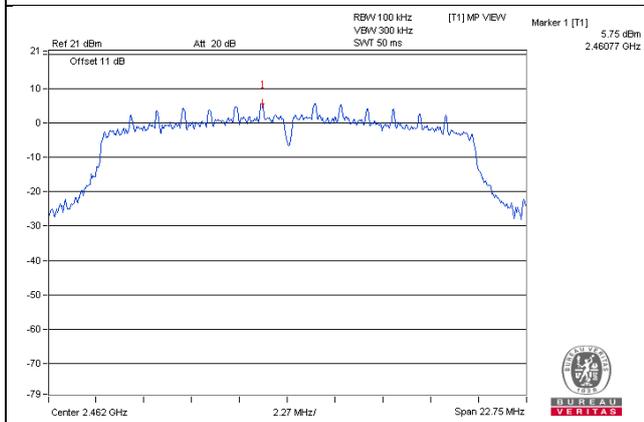
## CH 1



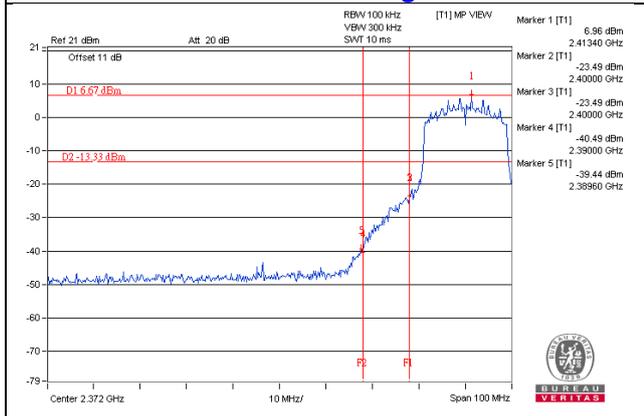
## CH 6



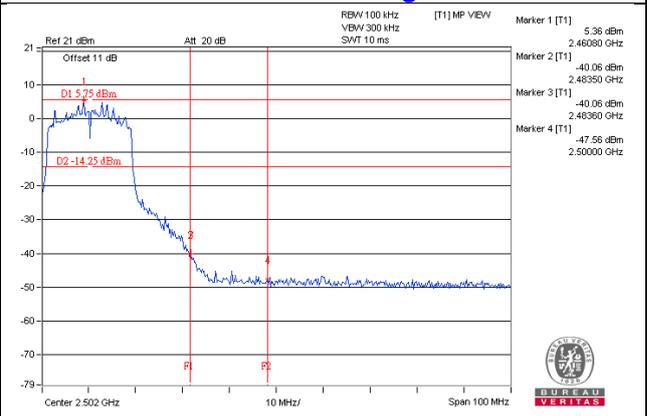
## CH 11



### CH 1 Band edge

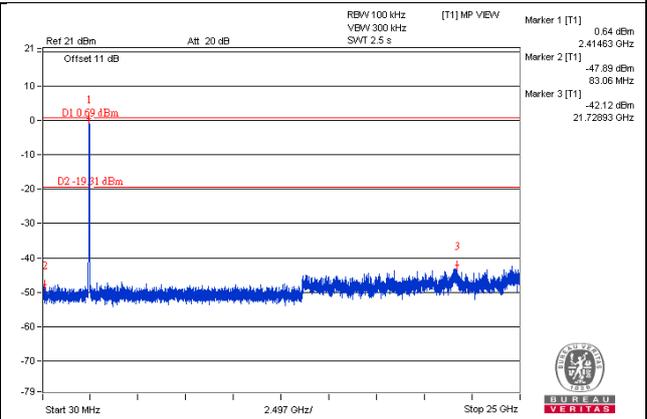
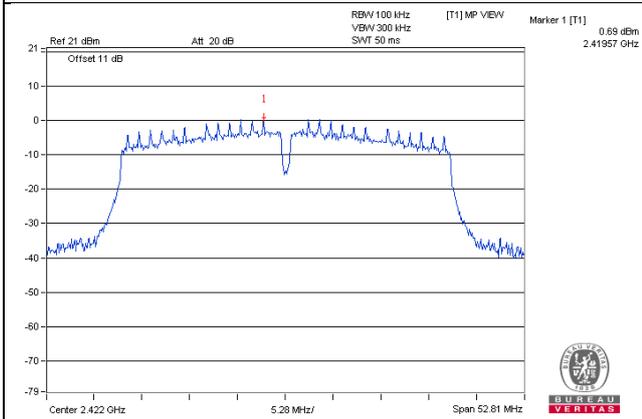


### CH 11 Band edge

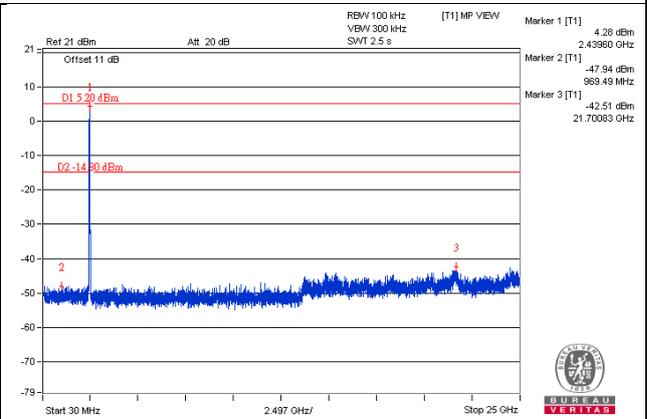
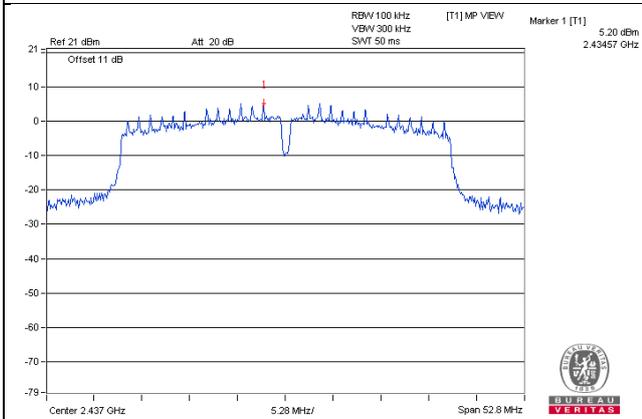


# 802.11n (HT40)

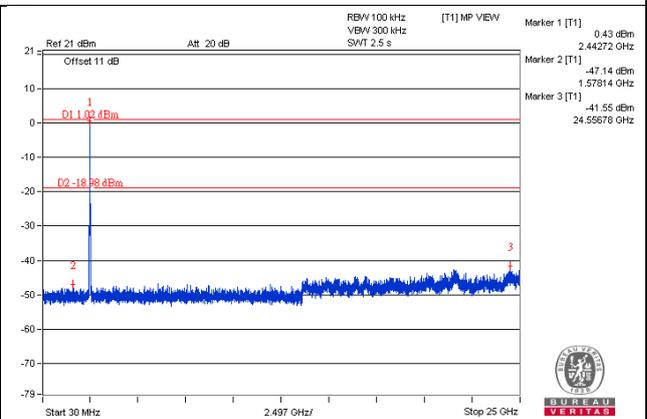
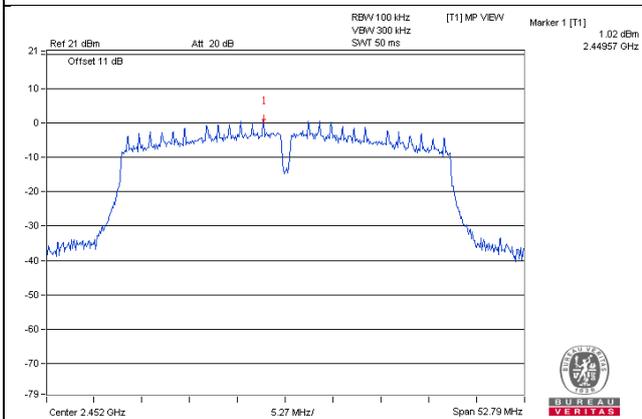
## CH 3



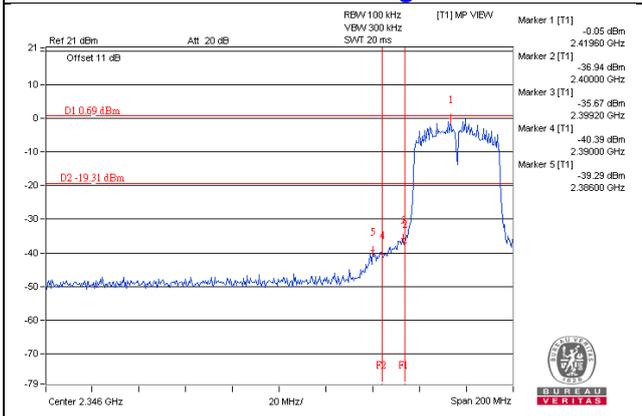
## CH 6



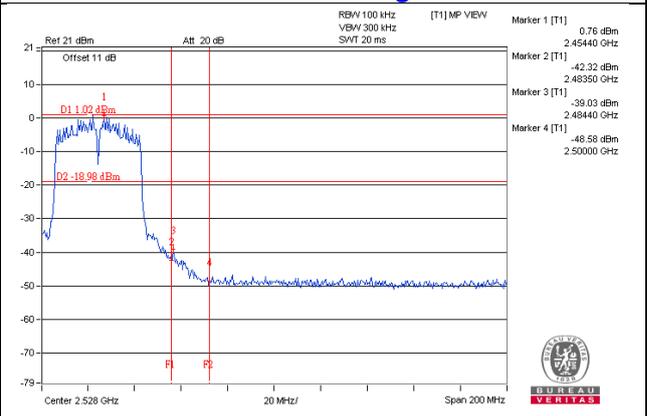
## CH 9



## CH 3 Band edge



## CH 9 Band edge



## 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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**Hsin Chu EMC/RF/Telecom Lab**

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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.

--- END ---