

## TEST REPORT



Applicant	CANON ELECTRONIC BUSINESS MACHINES (H.K) CO.,LTD
Address	17/F., Tower One, Ever Gain Plaza, 82-100 Container Port Road, Kwai Chung, New Territories, Hong Kong

Manufacturer or Supplier	CANON ELECTRONIC BUSINESS MACHINES (H.K) CO.,LTD
Address	17/F., Tower One, Ever Gain Plaza, 82-100 Container Port Road, Kwai Chung, New Territories, Hong Kong
Product	Digital Still Image Video Camera
Brand Name	Canon
Model	PG1001
Additional Model & Model Difference	N/A
Date of tests	Jul. 31, 2019 ~ Sep. 12, 2019

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 Ryan Lu Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	 Date: Sep. 16, 2019

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Test Report No.: RF190731N043-2

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF190731N043-2	Original release	Sep. 16, 2019

## 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
15.207	AC Power Conducted Emission	N/A	Powered by Battery
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	3.83dB
	1GHz ~ 18GHz	4.93dB
	18GHz ~ 40GHz	4.80dB

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>	Digital Still Image Video Camera
<b>MODEL NO.</b>	PG1001
<b>ADDITIONAL NO.</b>	N/A
<b>FCC ID</b>	Y7J-PG1001
<b>NOMINAL VOLTAGE</b>	DC 3.8V from Battery Battery Charging: DC 5V from USB Host Unit
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>OPERATING FREQUENCY</b>	2412-2462MHz for 11b/g/n(HT20)
<b>PEAK OUTPUT POWER</b>	24.76dBm(Maximum)
<b>ANTENNA TYPE</b>	Integral Antenna, with 0.5dBi gain
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB Line : Shielded, Detachable 0.5m

**NOTE:**

1. The EUT provides completed transmitters and receivers:

<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

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.: 190731N043) for detailed product photo.
5. When the EUT charging that wireless function don't working.

### 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		

### 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	
-	√	√	-	√	Powered by Fully Battery with WIFI Link

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)
-	802.11b	1 to 11	1	DSSS	DBPSK	1.0

#### 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)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5



### **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)
-	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
-	802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5

### **ANTENNA PORT CONDUCTED MEASUREMENT:**

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5

### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 53%RH	DC 3.8V from Fully Battery	Walker
RE≥1G	23deg. C, 53%RH	DC 3.8V from Fully Battery	Walker
PLC	N/A	N/A	N/A
APCM	20deg. C, 55%RH	DC 3.8V from Fully Battery	Robert

### 3.3 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 15.247 Meas Guidance v05r02**

**ANSI C63.10-2013**

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

### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit without any other necessary accessories or support units.

## 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	ESU40	100449	Mar. 12,19	Mar. 11,20
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	May 22,19	May 21,20
Bilog Antenna (30MHz~1GHz)	Teseq	CBL 6111D	30643	May 04,19	May 03,20
Loop antenna (9KHz ~30MHz)	Daze	ZN30900A	0708	Apr. 21,19	Apr. 20,20
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Aug. 11, 19	Aug. 10, 20
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	Jul. 21, 19	Jul. 20, 20
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	May 05,19	May 04,20
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Apr. 21,19	Apr. 20,20
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBEC K	BBV9718	305	Apr. 21,19	Apr. 20,20
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 09, 18	Nov. 08, 19
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A

**NOTE:**

1. The test was performed in 966 Chamber.
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.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 749762.

#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) 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. For below 1GHz was used bilog antenna, and above 1GHz was used horn 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. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- g. 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:

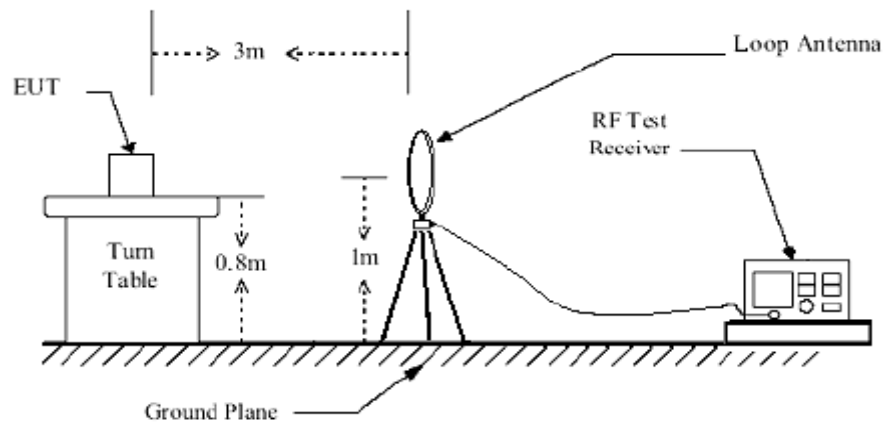
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution 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. All modes of operation were investigated and the worst-case emissions are reported.
5. 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

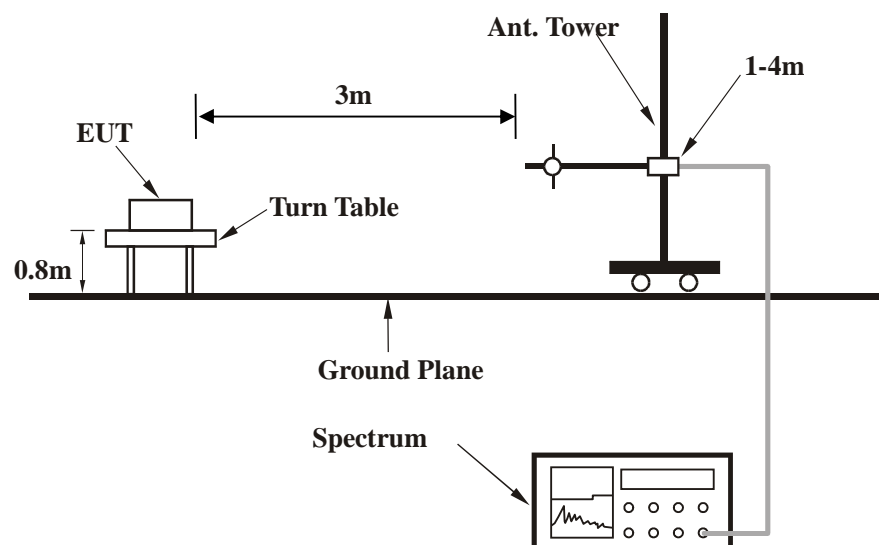
No deviation.

#### 4.1.5 TEST SETUP

##### Below 30MHz test setup

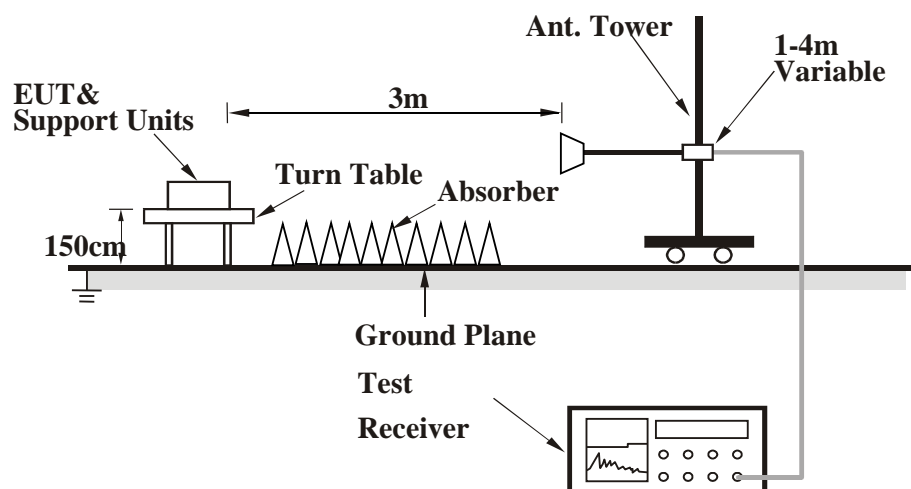


##### Below 1GHz test setup



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

### Above 1GHz test setup



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

#### 4.1.6 EUT OPERATING CONDITIONS

- Placed the EUT 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:

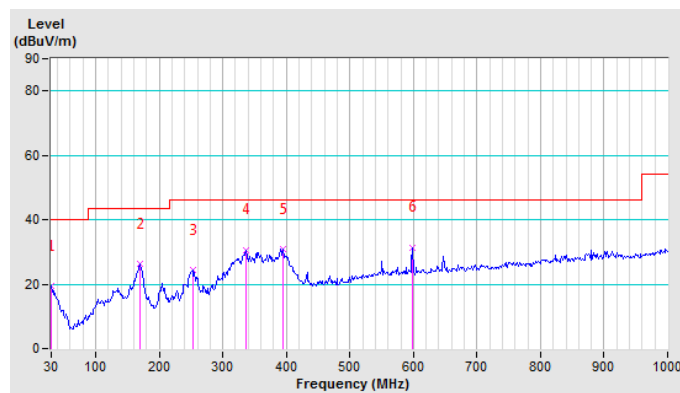
802.11b

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	19.31 QP	40.00	-20.69	1.00 H	235	30.51	-11.20
2	169.90	26.13 QP	43.50	-17.37	1.00 H	98	43.21	-17.08
3	252.29	24.42 QP	46.00	-21.58	1.00 H	114	40.06	-15.64
4	336.23	30.67 QP	46.00	-15.33	1.00 H	216	41.63	-10.96
5	395.30	30.85 QP	46.00	-15.15	1.00 H	59	40.29	-9.44
6	598.94	31.46 QP	46.00	-14.54	1.00 H	301	36.52	-5.06

### 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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



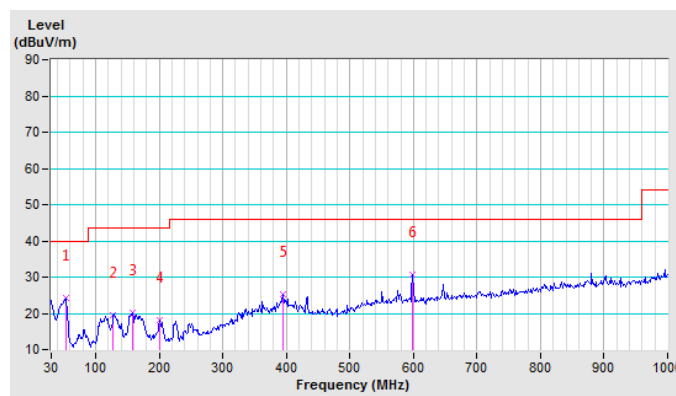


<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	9KHz ~ 1GHz		

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	53.32	24.22 QP	40.00	-15.78	1.00 V	152	46.37	-22.15
2	127.93	19.62 QP	43.50	-23.88	1.00 V	325	35.88	-16.26
3	157.47	20.16 QP	43.50	-23.34	1.00 V	251	36.62	-16.46
4	200.99	18.15 QP	43.50	-25.35	1.00 V	85	35.28	-17.13
5	395.30	25.30 QP	46.00	-20.70	1.00 V	112	34.74	-9.44
6	598.94	30.75 QP	46.00	-15.25	1.00 V	164	35.81	-5.06

**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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



**ABOVE 1GHz DATA**

**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	51.72 PK	74.00	-22.28	1.00 H	64	48.88	2.84
2	2390.00	39.52 AV	54.00	-14.48	1.00 H	64	36.68	2.84
3	*2412.00	103.72 PK			1.56 H	64	100.80	2.92
4	*2412.00	100.32 AV			1.56 H	64	97.40	2.92
5	4824.00	47.11 PK	74.00	-26.89	1.00 H	135	41.82	5.29
6	4824.00	34.52 AV	54.00	-19.48	1.00 H	135	29.23	5.29
7	#7236.00	49.77 PK	74.00	-24.23	1.00 H	0	40.47	9.30
8	#7236.00	36.82 AV	54.00	-17.18	1.00 H	0	27.52	9.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	46.78 PK	74.00	-27.22	1.00 V	194	43.94	2.84
2	2390.00	36.62 AV	54.00	-17.38	1.00 V	194	33.78	2.84
3	*2412.00	99.05 PK			1.00 V	194	96.13	2.92
4	*2412.00	95.43 AV			1.00 V	194	92.51	2.92
5	4824.00	47.62 PK	74.00	-26.38	1.00 V	0	42.33	5.29
6	4824.00	34.03 AV	54.00	-19.97	1.00 V	0	28.74	5.29
7	#7236.00	50.17 PK	74.00	-23.83	1.00 V	0	40.87	9.30
8	#7236.00	36.85 AV	54.00	-17.15	1.00 V	0	27.55	9.30

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

<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	*2437.00	108.42 PK			1.00 H	98	105.40	3.02
2	*2437.00	103.23 AV			1.00 H	98	100.21	3.02
3	4874.00	51.32 PK	74.00	-22.68	1.00 H	0	45.95	5.37
4	4874.00	36.61 AV	54.00	-17.39	1.00 H	0	31.24	5.37
5	7311.00	52.20 PK	74.00	-21.80	1.00 H	0	42.85	9.35
6	7311.00	38.60 AV	54.00	-15.40	1.00 H	0	29.25	9.35
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	100.38 PK			1.00 V	237	97.36	3.02
2	*2437.00	95.21 AV			1.00 V	237	92.19	3.02
3	4874.00	51.56 PK	74.00	-22.44	1.00 V	0	46.19	5.37
4	4874.00	36.88 AV	54.00	-17.12	1.00 V	0	31.51	5.37
5	7311.00	52.47 PK	74.00	-21.53	1.00 V	0	43.12	9.35
6	7311.00	38.92 AV	54.00	-15.08	1.00 V	0	29.57	9.35

**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 emission levels of other frequencies were less than 20dB margin 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	108.42 PK			1.00 H	78	105.31	3.11
2	*2462.00	103.05 AV			1.00 H	78	99.94	3.11
3	2483.50	53.96 PK	74.00	-20.04	1.00 H	78	50.77	3.19
4	2483.50	41.27 AV	54.00	-12.73	1.00 H	78	38.08	3.19
5	2490.00	55.33 PK	74.00	-18.67	1.00 H	78	52.12	3.21
6	2490.00	48.46 AV	54.00	-5.54	1.00 H	78	45.25	3.21
7	4924.00	52.33 PK	74.00	-21.67	1.00 H	0	46.88	5.45
8	4924.00	36.96 AV	54.00	-17.04	1.00 H	0	31.51	5.45
9	7386.00	53.29 PK	74.00	-20.71	1.00 H	0	43.89	9.40
10	7386.00	38.06 AV	54.00	-15.94	1.00 H	0	28.66	9.40
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	98.95 PK			1.00 V	240	95.84	3.11
2	*2462.00	93.57 AV			1.00 V	240	90.46	3.11
3	2483.50	47.96 PK	74.00	-26.04	1.00 V	240	44.77	3.19
4	2483.50	35.82 AV	54.00	-18.18	1.00 V	240	32.63	3.19
5	4924.00	52.06 PK	74.00	-21.94	1.00 V	0	46.61	5.45
6	4924.00	37.11 AV	54.00	-16.89	1.00 V	0	31.66	5.45
7	7386.00	53.25 PK	74.00	-20.75	1.00 V	0	43.85	9.40
8	7386.00	38.74 AV	54.00	-15.26	1.00 V	0	29.34	9.40

**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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. "\* ": Fundamental frequency.

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<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	61.92 PK	74.00	-12.08	1.00 H	63	59.08	2.84
2	2390.00	45.27 AV	54.00	-8.73	1.00 H	63	42.43	2.84
3	*2412.00	107.40 PK			1.00 H	63	104.48	2.92
4	*2412.00	91.98 AV			1.00 H	63	89.06	2.92
5	4824.00	48.03 PK	74.00	-25.97	1.00 H	103	42.74	5.29
6	4824.00	34.69 AV	54.00	-19.31	1.00 H	103	29.40	5.29
7	#7236.00	51.32 PK	74.00	-22.68	1.00 H	0	42.02	9.30
8	#7236.00	37.11 AV	54.00	-16.89	1.00 H	0	27.81	9.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.66 PK	74.00	-17.34	1.00 V	195	53.82	2.84
2	2390.00	41.59 AV	54.00	-12.41	1.00 V	195	38.75	2.84
3	*2412.00	102.08 PK			1.00 V	195	99.16	2.92
4	*2412.00	87.91 AV			1.00 V	195	84.99	2.92
5	4824.00	47.32 PK	74.00	-26.68	1.00 V	0	42.03	5.29
6	4824.00	34.19 AV	54.00	-19.81	1.00 V	0	28.90	5.29
7	#7236.00	50.65 PK	74.00	-23.35	1.00 V	144	41.35	9.30
8	#7236.00	36.87 AV	54.00	-17.13	1.00 V	144	27.57	9.30

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

<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	*2437.00	109.59 PK			1.00 H	98	106.57	3.02
2	*2437.00	95.03 AV			1.00 H	98	92.01	3.02
3	4874.00	47.85 PK	74.00	-26.15	1.00 H	107	42.48	5.37
4	4874.00	34.11 AV	54.00	-19.89	1.00 H	107	28.74	5.37
5	7311.00	50.33 PK	74.00	-23.67	1.00 H	105	40.98	9.35
6	7311.00	36.78 AV	54.00	-17.22	1.00 H	105	27.43	9.35
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	105.53 PK			1.00 V	159	102.51	3.02
2	*2437.00	91.10 AV			1.00 V	159	88.08	3.02
3	4874.00	47.72 PK	74.00	-26.28	1.00 V	95	42.35	5.37
4	4874.00	34.02 AV	54.00	-19.98	1.00 V	95	28.65	5.37
5	7311.00	50.85 PK	74.00	-23.15	1.00 V	337	41.50	9.35
6	7311.00	36.97 AV	54.00	-17.03	1.00 V	337	27.62	9.35

**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 emission levels of other frequencies were less than 20dB margin 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	109.15 PK			1.88 H	91	106.04	3.11
2	*2462.00	94.73 AV			1.88 H	91	91.62	3.11
3	2483.50	70.32 PK	74.00	-3.68	1.88 H	91	67.13	3.19
4	2483.50	50.95 AV	54.00	-3.05	1.88 H	91	47.76	3.19
5	4924.00	47.93 PK	74.00	-26.07	1.00 H	199	42.48	5.45
6	4924.00	34.32 AV	54.00	-19.68	1.00 H	199	28.87	5.45
7	7386.00	50.70 PK	74.00	-23.30	1.00 H	301	41.30	9.40
8	7386.00	37.19 AV	54.00	-16.81	1.00 H	301	27.79	9.40
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	104.41 PK			1.00 V	107	101.30	3.11
2	*2462.00	89.00 AV			1.00 V	107	85.89	3.11
3	2483.50	62.69 PK	74.00	-11.31	1.00 V	107	59.50	3.19
4	2483.50	43.56 AV	54.00	-10.44	1.00 V	107	40.37	3.19
5	4924.00	47.82 PK	74.00	-26.18	1.00 V	0	42.37	5.45
6	4924.00	33.86 AV	54.00	-20.14	1.00 V	0	28.41	5.45
7	7386.00	50.69 PK	74.00	-23.31	1.00 V	77	41.29	9.40
8	7386.00	36.52 AV	54.00	-17.48	1.00 V	77	27.12	9.40

**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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.

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<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	62.33 PK	74.00	-11.67	1.00 H	195	59.49	2.84
2	2390.00	46.02 AV	54.00	-7.98	1.00 H	195	43.18	2.84
3	*2412.00	106.89 PK			1.00 H	195	103.97	2.92
4	*2412.00	91.33 AV			1.00 H	195	88.41	2.92
5	4824.00	47.22 PK	74.00	-26.78	1.00 H	0	41.93	5.29
6	4824.00	34.59 AV	54.00	-19.41	1.00 H	0	29.30	5.29
7	#7236.00	50.52 PK	74.00	-23.48	1.00 H	360	41.22	9.30
8	#7236.00	36.71 AV	54.00	-17.29	1.00 H	360	27.41	9.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.33 PK	74.00	-11.67	1.00 H	195	59.49	2.84
2	2390.00	46.02 AV	54.00	-7.98	1.00 H	195	43.18	2.84
3	*2412.00	106.89 PK			1.00 H	195	103.97	2.92
4	*2412.00	91.33 AV			1.00 H	195	88.41	2.92
5	4824.00	47.22 PK	74.00	-26.78	1.00 H	0	41.93	5.29
6	4824.00	34.59 AV	54.00	-19.41	1.00 H	0	29.30	5.29
7	#7236.00	50.52 PK	74.00	-23.48	1.00 H	360	41.22	9.30
8	#7236.00	36.71 AV	54.00	-17.29	1.00 H	360	27.41	9.30

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



<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	*2437.00	109.55 PK			1.00 H	92	106.53	3.02
2	*2437.00	94.15 AV			1.00 H	92	91.13	3.02
3	4874.00	48.33 PK	74.00	-25.67	1.00 H	0	42.96	5.37
4	4874.00	34.17 AV	54.00	-19.83	1.00 H	0	28.80	5.37
5	7311.00	51.03 PK	74.00	-22.97	1.00 H	105	41.68	9.35
6	7311.00	37.44 AV	54.00	-16.56	1.00 H	105	28.09	9.35
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	105.15 PK			1.00 V	159	102.13	3.02
2	*2437.00	90.14 AV			1.00 V	159	87.12	3.02
3	4874.00	47.79 PK	74.00	-26.21	1.00 V	0	42.42	5.37
4	4874.00	34.05 AV	54.00	-19.95	1.00 V	0	28.68	5.37
5	7311.00	50.56 PK	74.00	-23.44	1.00 V	0	41.21	9.35
6	7311.00	37.03 AV	54.00	-16.97	1.00 V	0	27.68	9.35

**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 emission levels of other frequencies were less than 20dB margin 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	108.74 PK			1.86 H	92	105.63	3.11
2	*2462.00	93.79 AV			1.86 H	92	90.68	3.11
3	2483.50	70.81 PK	74.00	-3.19	1.86 H	92	67.62	3.19
4	<b>2483.50</b>	<b>51.52 AV</b>	<b>54.00</b>	<b>-2.48</b>	<b>1.86 H</b>	<b>92</b>	<b>48.33</b>	<b>3.19</b>
5	4924.00	48.52 PK	74.00	-25.48	1.00 H	113	43.07	5.45
6	4924.00	34.19 AV	54.00	-19.81	1.00 H	113	28.74	5.45
7	7386.00	51.77 PK	74.00	-22.23	1.00 H	207	42.37	9.40
8	7386.00	37.65 AV	54.00	-16.35	1.00 H	207	28.25	9.40
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	103.25 PK			1.00 V	106	100.14	3.11
2	*2462.00	88.24 AV			1.00 V	106	85.13	3.11
3	2483.50	61.32 PK	74.00	-12.68	1.00 V	106	58.13	3.19
4	2483.50	43.92 AV	54.00	-10.08	1.00 V	106	40.73	3.19
5	4924.00	47.05 PK	74.00	-26.95	1.00 V	169	41.60	5.45
6	4924.00	36.91 AV	54.00	-17.09	1.00 V	169	31.46	5.45
7	7386.00	50.52 PK	74.00	-23.48	1.00 V	0	41.12	9.40
8	7386.00	36.78 AV	54.00	-17.22	1.00 V	0	27.38	9.40

**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 emission levels of other frequencies were less than 20dB margin 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 22,19	May 21,20
Power Sensor	Keysight	U2021XA	MY55060018	May 22,19	May 21,20
Power Meter	Anritsu	ML2495A	1139001	Mar. 12,19	Mar. 11,20
Power Sensor	Anritsu	MA2411B	1531155	Mar. 12,19	Mar. 11,20
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 17, 18	Oct.16, 19
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Nov.15,18	Nov. 14,19
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 09,18	Nov. 08,19
Signal Analyzer	Rohde & Schwarz	FSV7	102331	May 22,19	May 21,20
Signal Generator	Agilent	N5183A	MY50140980	Dec. 07,18	Dec. 06,19
Agile Signal Generator	Agilent	8645A	Agilent	Oct.27, 18	Oct.26, 19
Spectrum Analyzer	Keysight	N9020A	MY55400499	Mar. 12,19	Mar. 11,20
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec. 07, 18	Dec. 06, 19
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A
DC Source	Keysight	E3642A	MY56146098	N/A	N/A

**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.

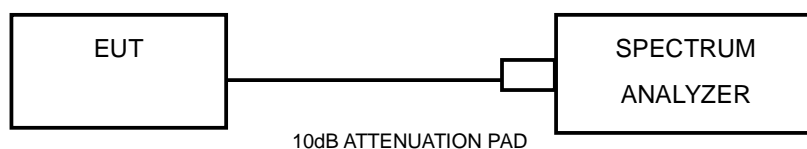
### 4.2.3 TEST PROCEDURE

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

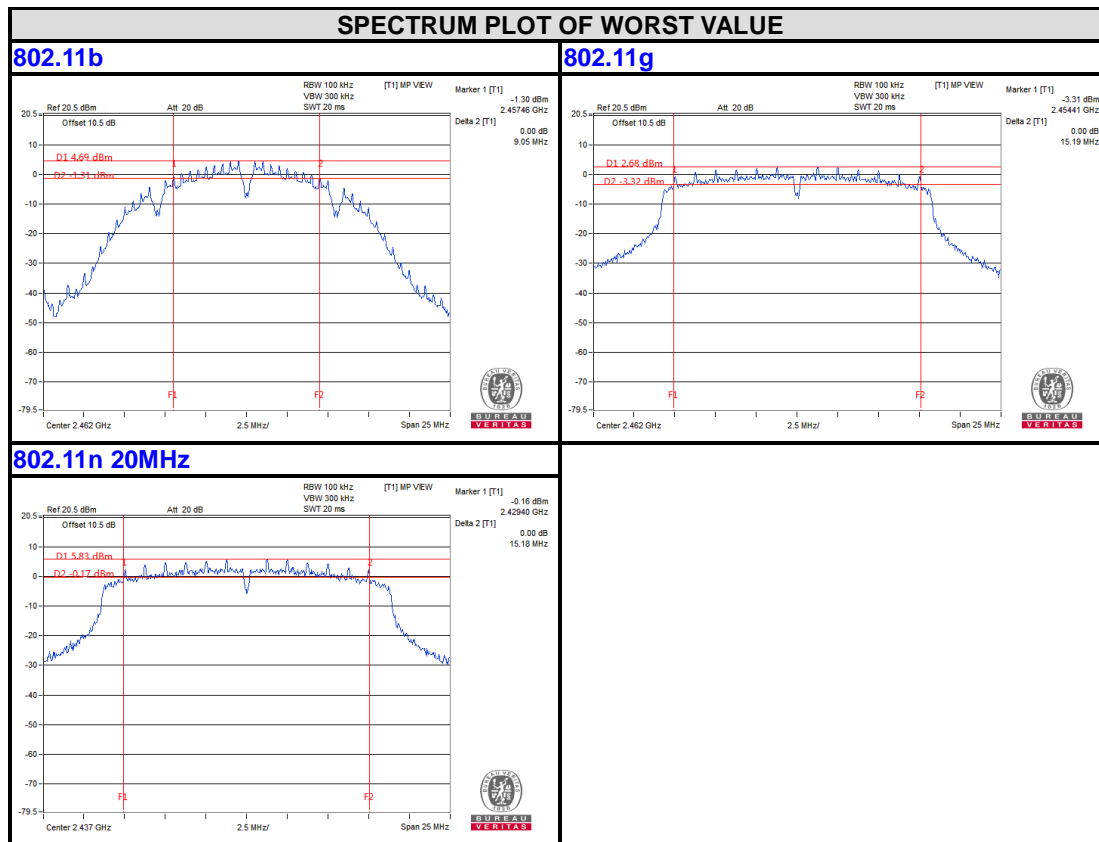
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.58	0.5	PASS
6	2437	9.06	0.5	PASS
11	2462	9.05	0.5	PASS

##### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.14	0.5	PASS
6	2437	15.16	0.5	PASS
11	2462	15.19	0.5	PASS

##### 802.11n 20MHz

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.15	0.5	PASS
6	2437	15.18	0.5	PASS
11	2462	15.18	0.5	PASS

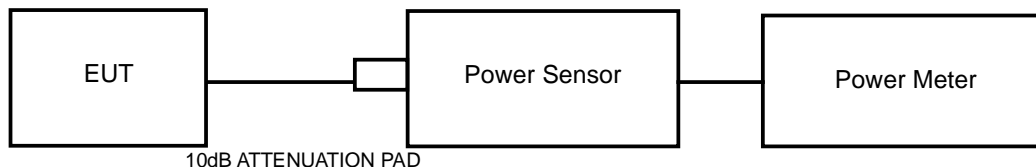


### 4.3 CONDUCTED OUTPUT POWER

#### 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	May 22,19	May 21,20
Power Sensor	Keysight	U2021XA	MY55060018	May 22,19	May 21,20
Power Meter	Anritsu	ML2495A	1139001	Mar. 12,19	Mar. 11,20
Power Sensor	Anritsu	MA2411B	1531155	Mar. 12,19	Mar. 11,20
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 17, 18	Oct.16, 19
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Nov.15,18	Nov. 14,19
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 09,18	Nov. 08,19
Signal Analyzer	Rohde & Schwarz	FSV7	102331	May 22,19	May 21,20
Signal Generator	Agilent	N5183A	MY50140980	Dec. 07,18	Dec. 06,19
Agile Signal Generator	Agilent	8645A	Agilent	Oct.27, 18	Oct.26, 19
Spectrum Analyzer	Keysight	N9020A	MY55400499	Mar. 12,19	Mar. 11,20
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec. 07, 18	Dec. 06, 19
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A
DC Source	Keysight	E3642A	MY56146098	N/A	N/A

**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	12.50	17.783	1	PASS
6	2437	18.77	75.336	1	PASS
11	2462	16.28	42.462	1	PASS

###### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	18.71	74.302	1	PASS
6	2437	24.76	299.226	1	PASS
11	2462	21.74	149.279	1	PASS

###### 802.11n HT20

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	18.52	71.121	1	PASS
6	2437	24.53	283.792	1	PASS
11	2462	21.67	146.893	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)
1	2412	9.55	9.016
6	2437	15.93	39.174
11	2462	13.05	20.184

### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	10.44	11.066
6	2437	16.72	46.989
11	2462	13.43	22.029

### 802.11n HT20

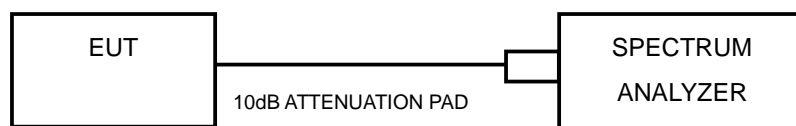
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	10.25	10.593
6	2437	16.59	45.604
11	2462	13.45	22.131

## 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 4.3.3 to get information of above instrument.

### 4.4.4 TEST PROCEDURE

- Set instrument center frequency to DTS channel center frequency.
- Set span to 1.5 times the DTS bandwidth.
- Set RBW to: 3KHz
- Set VBW  $\geq 3 \times$  RBW.
- Detector = peak
- Ensure that the number of measurement points in the sweep  $\geq 2 \times$  span/RBW.
- Sweep time = auto couple.
- 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

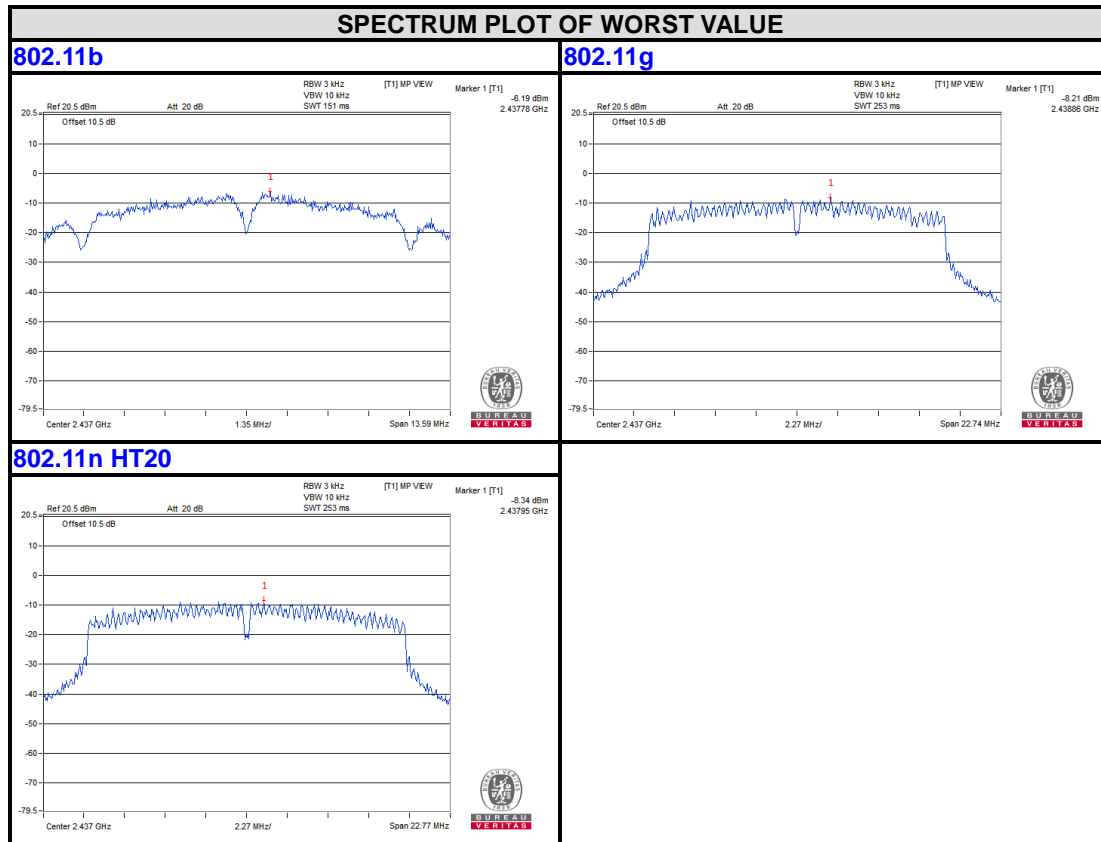
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.28	8.00	PASS
6	2437	-6.19	8.00	PASS
11	2462	-8.89	8.00	PASS

##### 802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-14.74	8.00	PASS
6	2437	-8.21	8.00	PASS
11	2462	-11.09	8.00	PASS

##### 802.11n HT20

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-14.02	8.00	PASS
6	2437	-8.34	8.00	PASS
11	2462	-10.58	8.00	PASS



## 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 4.3.3 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

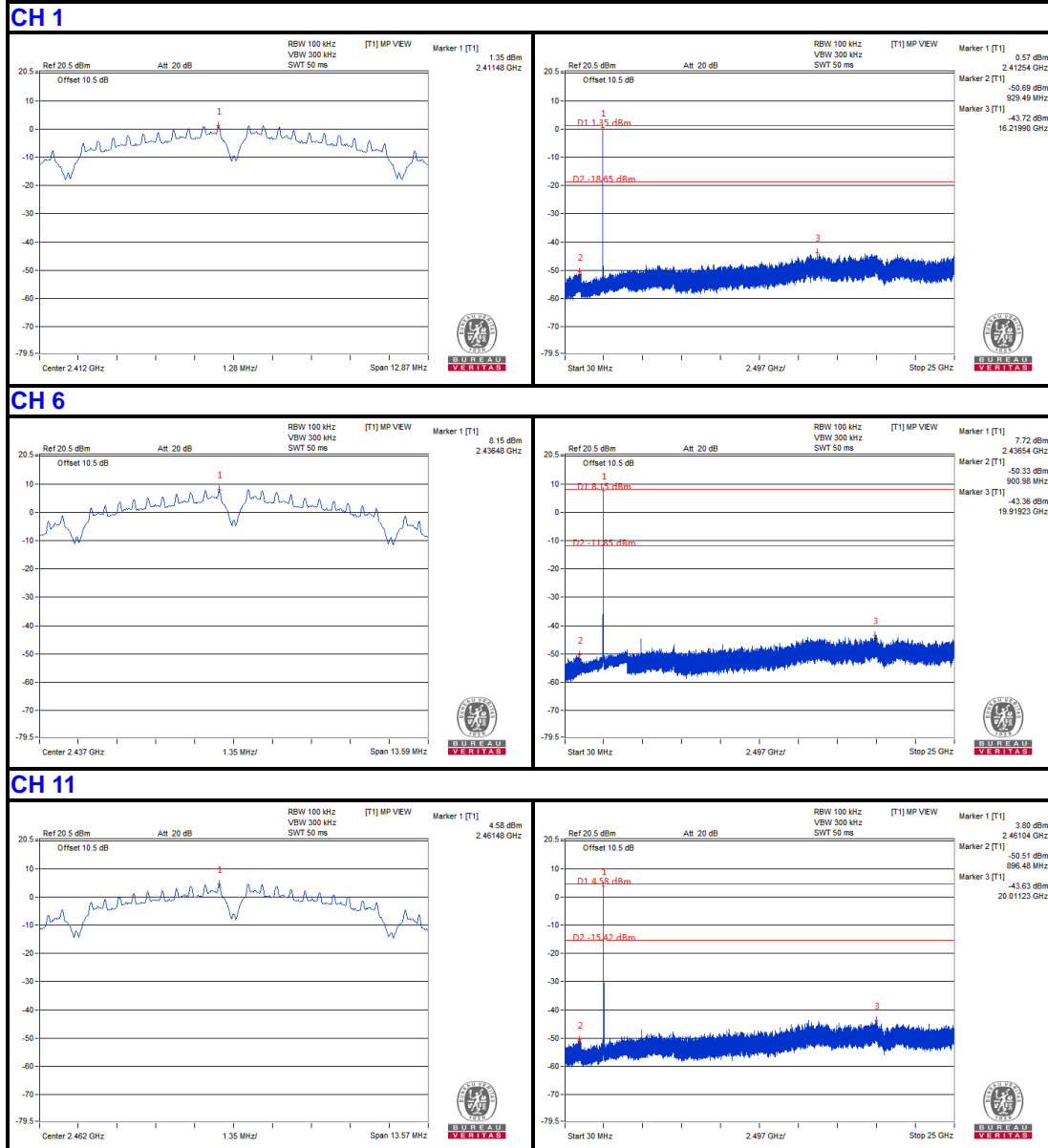
No deviation.

#### 4.5.6 EUT OPERATING CONDITION

Same as item 4.3.6

## 4.5.7 TEST RESULTS

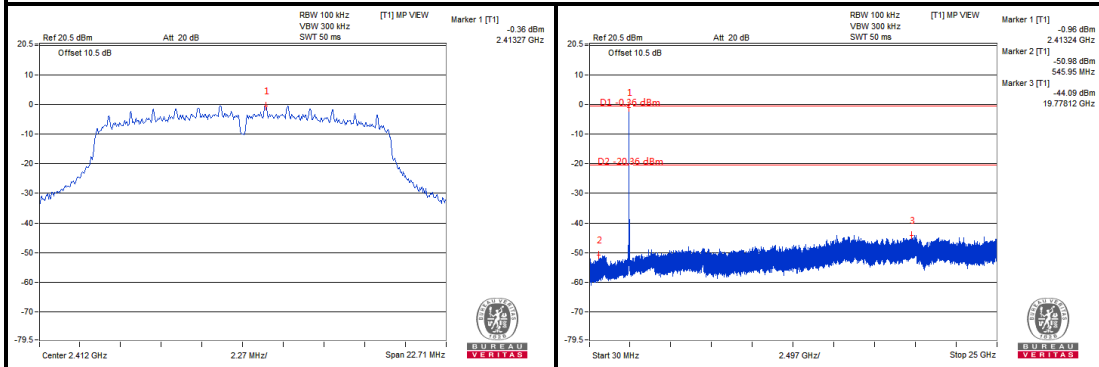
### 802.11b



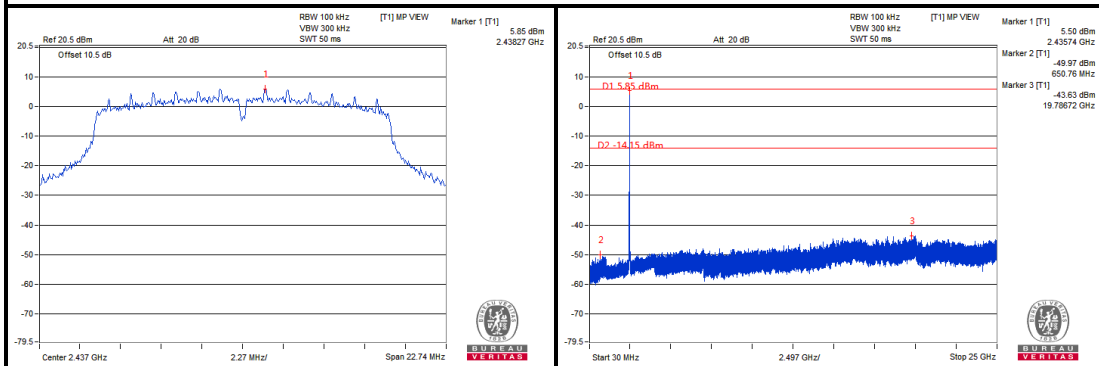


## 802.11g

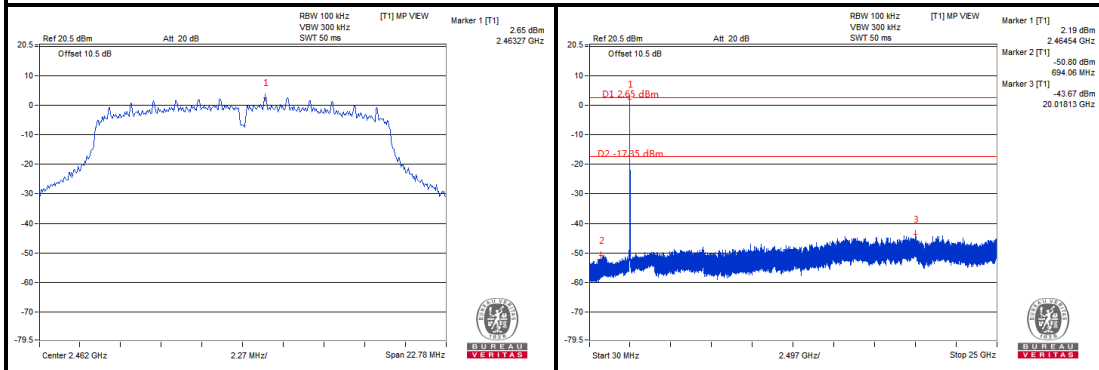
### CH 1



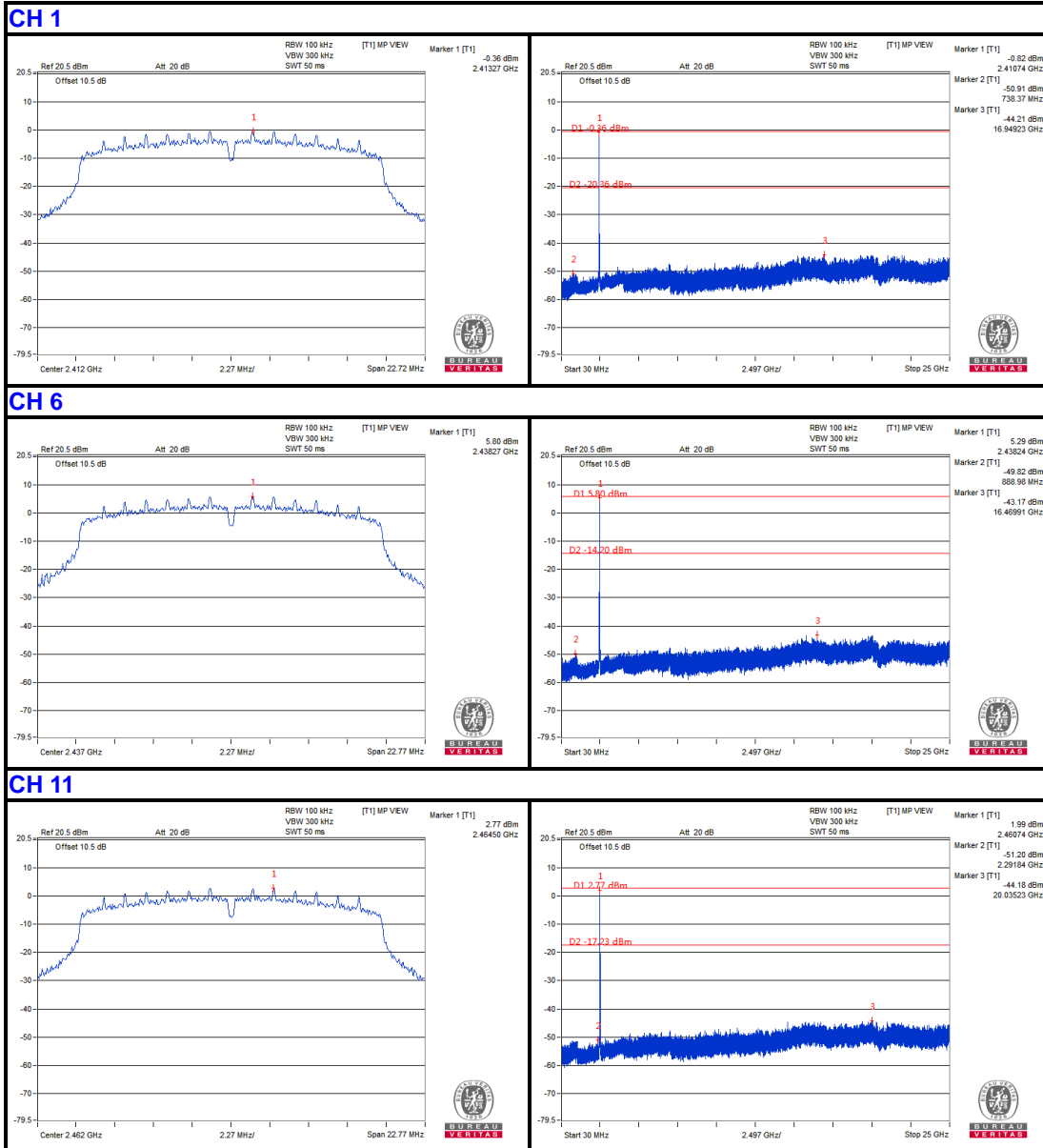
### CH 6



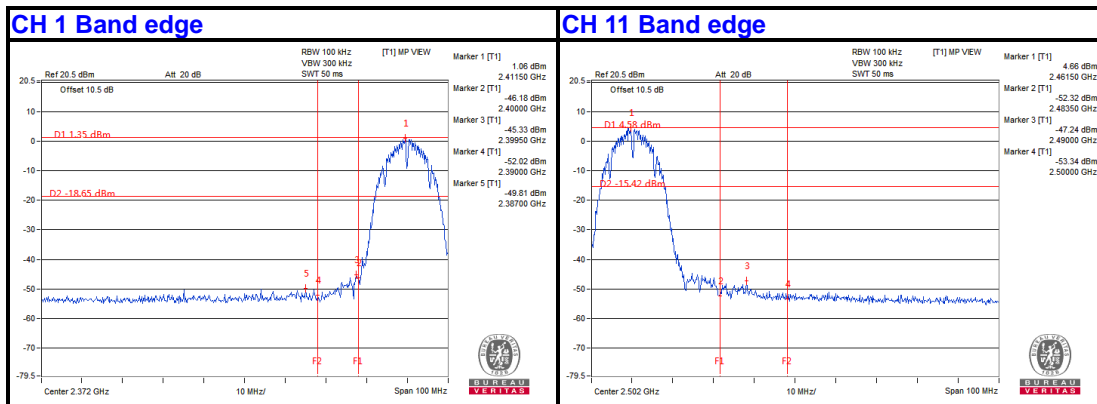
### CH 11



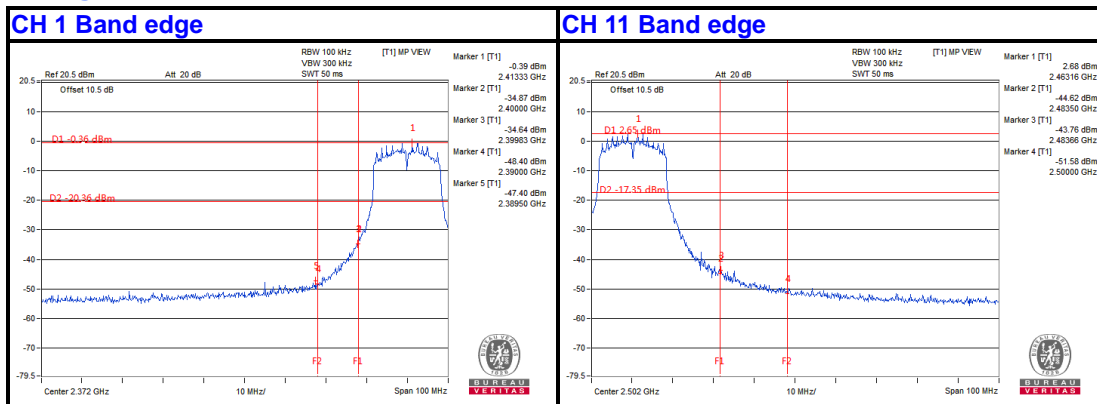
## 802.11n HT20



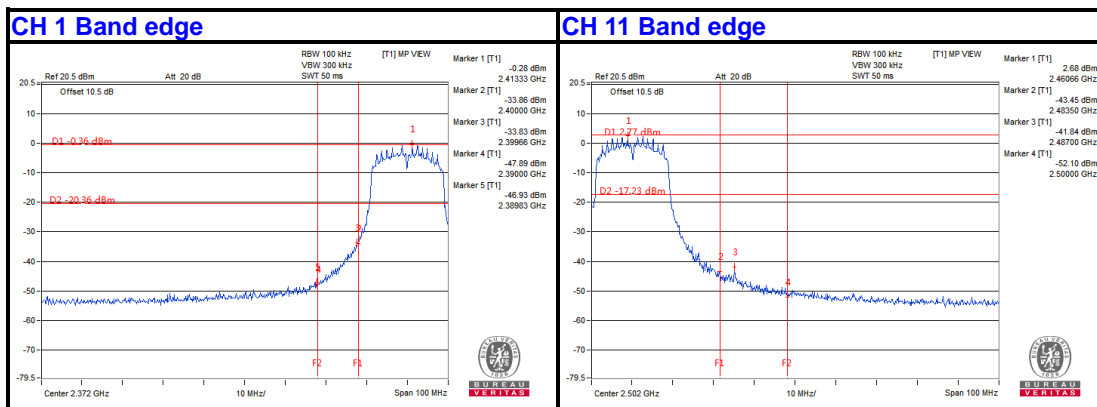
### 802.11b



### 802.11g



### 802.11n HT20





Test Report No.: RF190731N043-2

## 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---**