



## FCC Test Report

**Report No.:** BIXN-ESH-P20082510B-1

**FCC ID:** 2AXP2-MS19

**Product:** WIRELESS MOUSE

**Model:** MODEL O WIRELESS

**Received Date:** Sep.04, 2020

**Test Date:** Sep.04 to Sep.22, 2020

**Issued Date:** Sep.23, 2020

**Applicant:** GLORIOUS PC GAMING RACE LLC

**Address:** 13809 Research Blvd Suite 500 PMB 93206 Austin, TX 78750, USA

**Manufacturer:** Dongguan Chuand Electronics Technology Co., Ltd.

**Address:** Xihe Industrial Area, Sijia Village, Shijie Town, Dongguan City 523297, Guangdong Province, China

**Issued By:** BUREAU VERITAS ADT (Shanghai) Corporation

**Address:** No. 829, Xinzhuan Road, Shanghai, P.R.China (201612)

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



# TABLE OF CONTENTS

RELEASE CONTROL RECORD .....	4
1 Certificate of Conformity .....	5
2 SUMMARY OF TEST RESULTS.....	6
3 MEASUREMENT UNCERTAINTY .....	6
4 GENERAL INFORMATION.....	7
4.1 GENERAL DESCRIPTINON OF EUT.....	7
4.2 DESCRIPTION OF TEST MODES .....	8
4.3 Test Mode Applicability:.....	9
4.4 Test CONDITION .....	9
4.5 GENERAL DESCRIPTION OF APPLIED STANDARDS .....	10
4.6 DESCRIPTION OF SUPPORT UNITS .....	10
5 TEST TYPES AND RESULTS.....	11
5.1 AC Power Conducted Emission.....	11
5.1.1 LIMITS .....	11
5.1.2 TEST PROCEDURES .....	11
5.1.3 DEVIATION FROM TEST STANDARD.....	11
5.1.4 TEST SETUP .....	12
5.1.5 EUT OPERATING CONDITIONS .....	12
5.1.6 TEST RESULTS.....	13
5.2 20dB BANDWIDTH MEASUREMENT.....	15
5.2.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT .....	15
5.2.2 TEST PROCEDURE .....	15
5.2.3 DEVIATION FROM TEST STANDARD.....	15
5.2.4 TEST SETUP .....	15
5.2.5 EUT OPERATING CONDITIONS .....	15
5.2.6 TEST RESULTS.....	16
5.3 RADIATED EMISSION MEASUREMENT .....	18
5.3.1 LIMITS OF RADIATED EMISSION MEISSON MEASUREMENT .....	18
5.3.2 TEST PROCEDURES.....	19
5.3.3 DEVIATION FROM TEST STANDARD.....	20
5.3.4 TEST SETUP .....	20

5.3.5	EUT OPERATING CONDITIONS .....	21
5.3.6	TEST RESULTS.....	22
6	PHOTOGRAPHS OF THE TEST CONFIGURATION .....	29
7	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGE TO THE EUT BY THE LAB .....	30



**BUREAU  
VERITAS**

### RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
BIXN-ESH-P20082510B-1	Original release	Sep.23, 2020

## 1 Certificate of Conformity

**Product:** WIRELESS MOUSE

**Brand:** --

**Model:** MODEL O WIRELESS

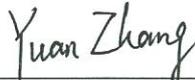
**Applicant:** GLORIOUS PC GAMING RACE LLC

**Test Date:** Sep.04 to Sep.22, 2020

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.249)  
ANSI C63.10:2013

The above equipment has been tested by **BUREAU VERITAS ADT (Shanghai) Corporation**, 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 :**

  
Yuan ZHANG

, **Date:**

Sep.23, 2020

Project Engineer

**Approved by :**

  
Daniel SUN  
EMC Lab Manager

, **Date:**

Sep.23, 2020



## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.249)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
§15.203	Antenna Requirement	PASS	No antenna connector is used
§15.207 (a)	AC Power Conducted Emission	PASS	Compliant
§15.215(c)	20dB Bandwidth Test	PASS	Compliant
§15.205	Restricted Band of Operation	PASS	Compliant
§15.209 §15.249(a)	Radiated Emission	PASS	Compliant

## 3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

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

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	5.36 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.47 dB
	6GHz ~ 18GHz	3.75 dB
	18GHz ~ 40GHz	3.30 dB

#### 4 GENERAL INFORMATION

##### 4.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	WIRELESS MOUSE
<b>MODEL NO.</b>	MODEL O WIRELESS
<b>MODEL DIFFERENCE</b>	--
<b>FCC ID</b>	2AXP2-MS19
<b>NOMINAL VOLTAGE</b>	Powered by battery, 5V --- 500mA
<b>MODULATION TECHNOLOGY</b>	GFSK
<b>OPERATING FREQUENCY</b>	2402MHz ~ 2480MHz
<b>Number of Channel</b>	79
<b>ANTENNA TYPE</b>	Chip Antenna
<b>ANTENNA GAIN</b>	2.78dBi
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	N/A

**NOTE:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

## 4.2 DESCRIPTION OF TEST MODES

79 channels are provided for Bluetooth.

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
0	2402 MHz	27	2429 MHz	54	2456 MHz
1	2403 MHz	28	2430 MHz	55	2457 MHz
2	2404 MHz	29	2431 MHz	56	2458 MHz
3	2405 MHz	30	2432 MHz	57	2459 MHz
4	2406 MHz	31	2433 MHz	58	2460 MHz
5	2407 MHz	32	2434 MHz	59	2461 MHz
6	2408 MHz	33	2435 MHz	60	2462 MHz
7	2409 MHz	34	2436 MHz	61	2463 MHz
8	2410 MHz	35	2437 MHz	62	2464 MHz
9	2411 MHz	36	2438 MHz	63	2465 MHz
10	2412 MHz	37	2439 MHz	64	2466 MHz
11	2413 MHz	38	2440 MHz	65	2467 MHz
12	2414 MHz	39	2441 MHz	66	2468 MHz
13	2415 MHz	40	2442 MHz	67	2469 MHz
14	2416 MHz	41	2443 MHz	68	2470 MHz
15	2417 MHz	42	2444 MHz	69	2471 MHz
16	2418 MHz	43	2445 MHz	70	2472 MHz
17	2419 MHz	44	2446 MHz	71	2473 MHz
18	2420 MHz	45	2447 MHz	72	2474 MHz
19	2421 MHz	46	2448 MHz	73	2475 MHz
20	2422 MHz	47	2449 MHz	74	2476 MHz
21	2423 MHz	48	2450 MHz	75	2477 MHz
22	2424 MHz	49	2451 MHz	76	2478 MHz
23	2425 MHz	50	2452 MHz	77	2479 MHz
24	2426 MHz	51	2453 MHz	78	2480 MHz
25	2427 MHz	52	2454 MHz		
26	2428 MHz	53	2455 MHz		

### 4.3 Test Mode Applicability:

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and packet type. The worst case was found when the EUT was positioned on Y axis for radiated emission. The EUT was tested under the following mode.

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE>1G	PLC	BW	
A	√	√	√	√	DC 5V

Where **RE<1G**: Radiated Emission below 1GHz      **RE<sup>></sup>1G**: Radiated Emission above 1GHz

**PLC**: Power Line Conducted Emission      **BW**: 20db bandwidth

**NOTE**: No need to concern of Conducted Emission due to the EUT is powered by battery.

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

TESTED CHANNEL	TESTED FREQUENCY
0	2402
39	2440
79	2480

Note: The more detailed channel, please refer to the product specifications

### 4.4 Test CONDITION

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE	25deg. C, 55%RH	DC 5V	Yuan ZHANG
BW	25deg. C, 54%RH	DC 5V	Yuan ZHANG
PLC	25deg. C, 54%RH	DC 5V	Yuan ZHANG



#### **4.5 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 standard:

**FCC Part 15, Subpart C, Section 15.249**

**ANSI C63.10-2013**

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

#### **4.6 DESCRIPTION OF SUPPORT UNITS**

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

## 5 TEST TYPES AND RESULTS

### 5.1 AC Power Conducted Emission

#### 5.1.1 LIMITS

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.

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

#### 5.1.2 TEST PROCEDURES

- 11 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.
- 12 Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 13 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.

#### 5.1.3 DEVIATION FROM TEST STANDARD

No deviation.

#### **5.1.4 TEST SETUP**

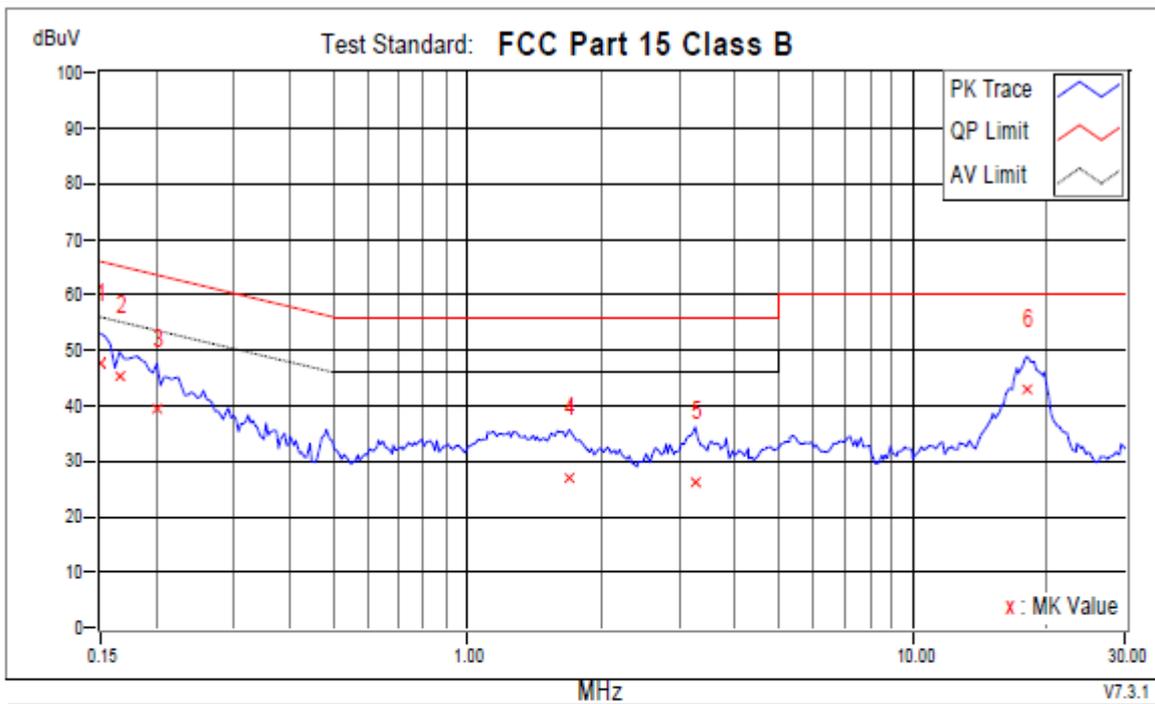
For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### **5.1.5 EUT OPERATING CONDITIONS**

Same as 4.3

### 5.1.6 TEST RESULTS

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	----------	-------------------	--------------------------------

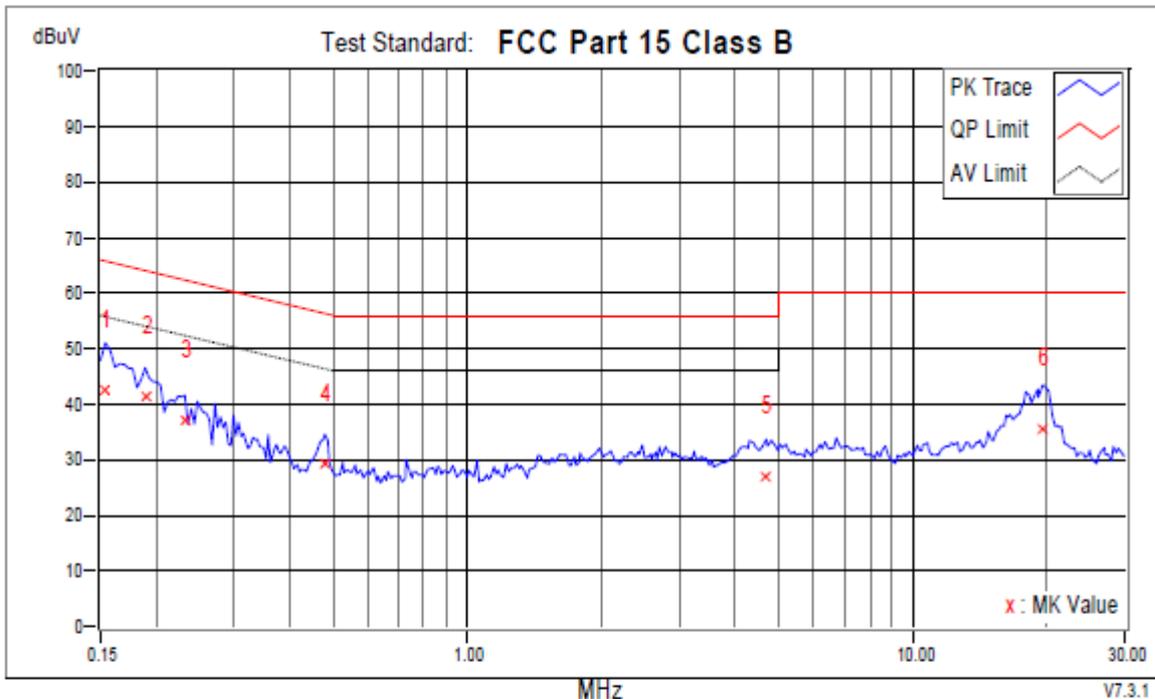


No.	Frequency	Corr. Factor	Reading dBuV		Emission dBuV		Limit dBuV		Margins dB		Notes
	MHz		QP	AV	QP	AV	QP	AV	QP	AV	
1	0.15000	9.87	37.88	17.10	47.75	26.97	66.00	56.00	-18.25	-29.03	
2	0.16564	9.88	35.42	19.38	45.30	29.26	65.18	55.18	-19.88	-25.92	
3	0.20083	9.89	29.49	10.64	39.38	20.53	63.58	53.58	-24.20	-33.05	
4	1.69207	9.74	17.24	10.91	26.98	20.65	56.00	46.00	-29.02	-25.35	
5	3.24825	9.91	16.14	10.50	26.05	20.41	56.00	46.00	-29.95	-25.59	
+6	18.03114	10.31	32.64	21.89	42.95	32.20	60.00	50.00	-17.05	-17.80	

**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)
-------	-------------	-------------------	--------------------------------



No.	Frequency	Corr. Factor	Reading dBuV		Emission dBuV		Limit dBuV		Margins dB		Notes
	MHz		QP	AV	QP	AV	QP	AV	QP	AV	
1	0.15391	9.88	32.79	10.84	42.67	20.72	65.79	55.79	-23.12	-35.07	
2	0.18910	9.84	31.53	10.89	41.37	20.73	64.08	54.08	-22.71	-33.35	
3	0.23211	9.85	27.10	8.10	36.95	17.95	62.37	52.37	-25.42	-34.42	
4	0.47844	9.88	19.32	9.90	29.20	19.78	56.37	46.37	-27.17	-26.59	
5	4.68713	9.78	17.21	11.70	26.99	21.48	56.00	46.00	-29.01	-24.52	
+6	19.55213	10.41	25.31	17.37	35.72	27.78	60.00	50.00	-24.28	-22.22	

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.

## 5.2 20dB BANDWIDTH MEASUREMENT

### 5.2.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT

According to FCC 15.215(c), must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

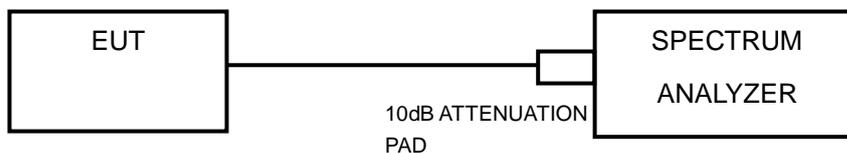
### 5.2.2 TEST PROCEDURE

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- d. Repeat above procedures until all frequencies measured were complete.

### 5.2.3 DEVIATION FROM TEST STANDARD

No deviation.

### 5.2.4 TEST SETUP



### 5.2.5 EUT OPERATING CONDITIONS

- 8 Turned on the power of all equipment.
- 9 EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

## 5.2.6 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
0	2402	1.828
38	2440	1.842
78	2480	1.882

### 2402MHz



### 2440MHz



### 2480MHz



### 5.3 RADIATED EMISSION MEASUREMENT

#### 5.3.1 LIMITS OF RADIATED EMISSION MEISSON MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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

According to §15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field strength of fundamental (milli-volts/meter)	Field strength of harmonics (micro-volts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

**NOTE:**

The lower limit shall apply at the transition frequencies.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

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.

### 5.3.2 TEST PROCEDURES

- 1 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.
- 2 The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 3 The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4 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.
- 5 The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 6 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.
- 7 If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### NOTE:

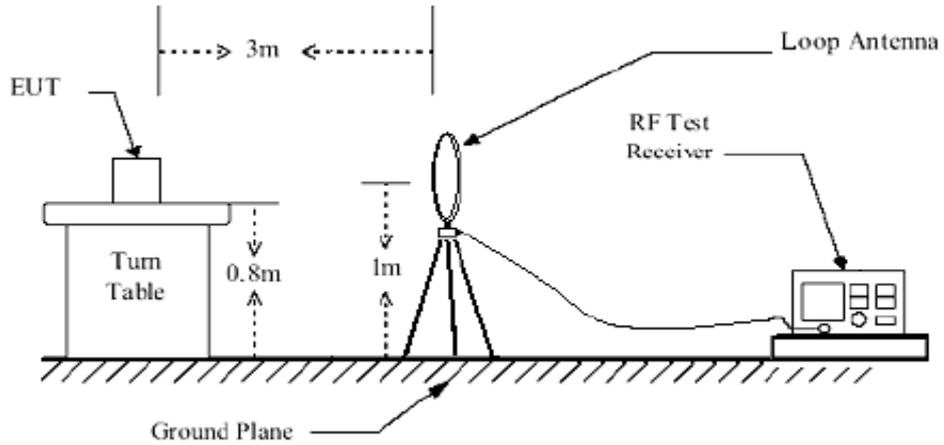
- 1 The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
- 2 The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3 The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz 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.

### 5.3.3 DEVIATION FROM TEST STANDARD

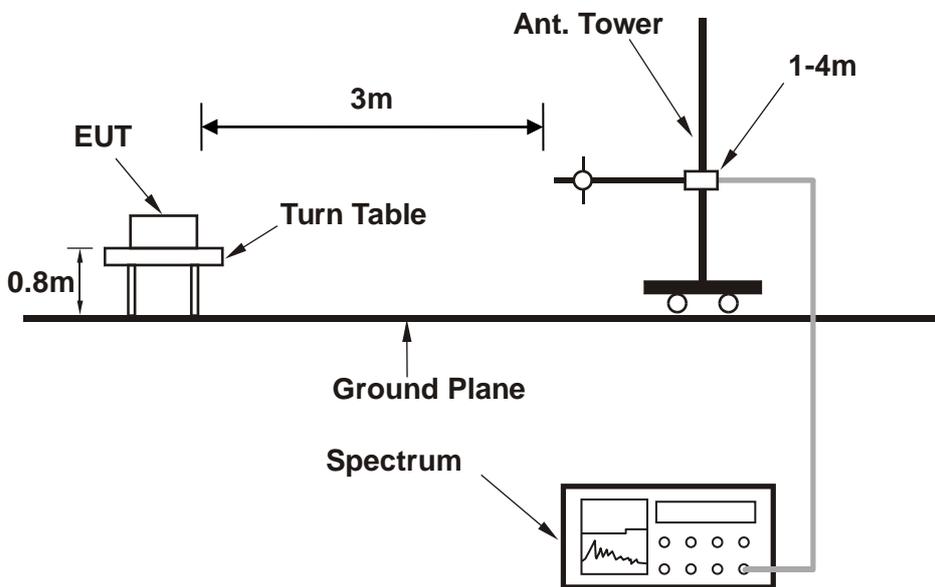
No deviation.

### 5.3.4 TEST SETUP

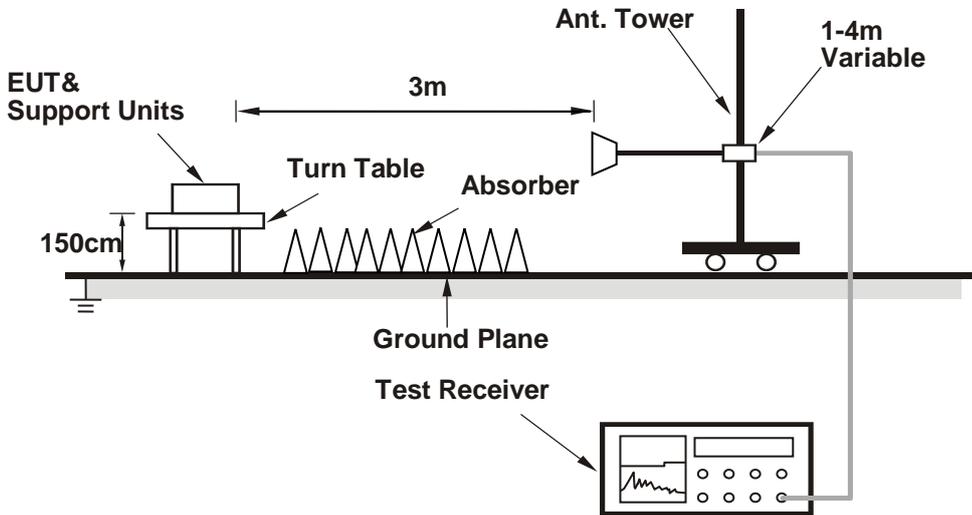
#### Below 30MHz test setup



#### Below 1GHz test setup



### Above 1GHz test setup



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

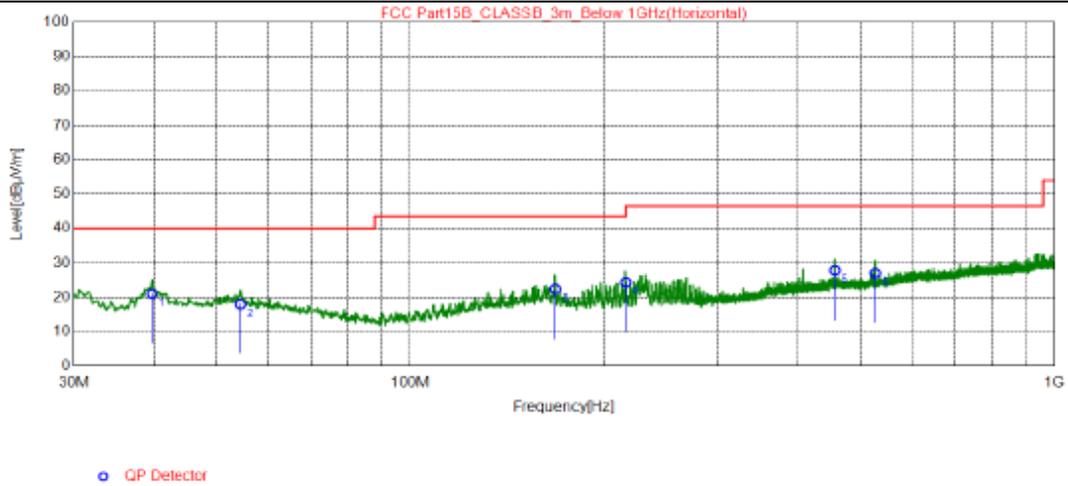
### 5.3.5 EUT OPERATING CONDITIONS

- 6 Turned on the power of all equipment.
- 7 EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

### 5.3.6 TEST RESULTS

#### BELOW 1GHz WORST-CASE DATA

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

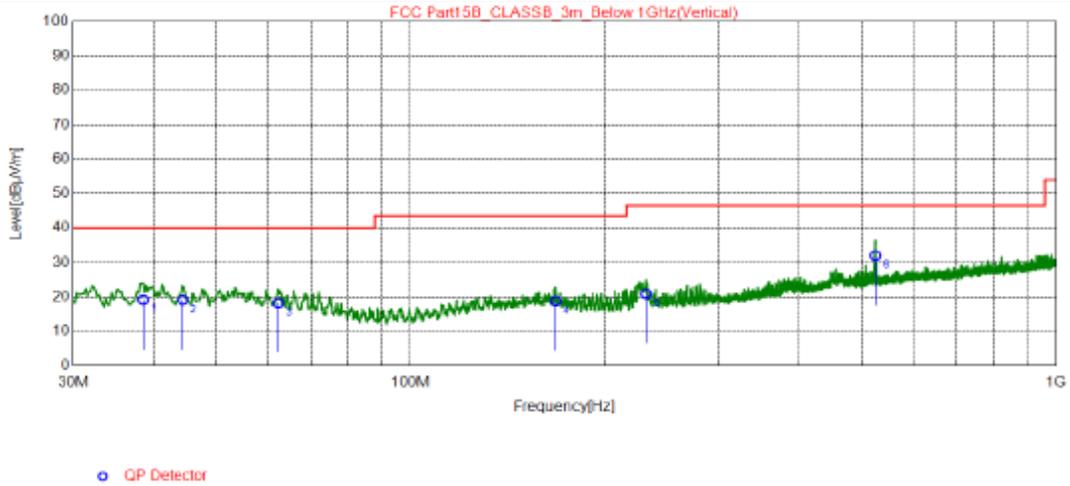


NO.	Freq. [MHz]	QP Reading [dBuV/m]	Factor [dB]	QP Value [dBuV/m]	QP Limit [dBuV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	39.70	31.49	-10.47	21.02	40.00	18.98	200	273	Horizontal
2	54.44	27.94	-9.96	17.98	40.00	22.02	200	189	Horizontal
3	167.9	32.56	-10.21	22.35	43.50	21.15	200	65	Horizontal
4	216.0	36.13	-11.82	24.31	46.50	22.19	200	252	Horizontal
5	456.0	32.85	-5.06	27.79	46.50	18.71	200	259	Horizontal
6	527.0	31.11	-4.08	27.03	46.50	19.47	200	310	Horizontal

#### 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 = Limit value – Emission level.

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



NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	38.53	29.73	-10.61	19.12	40.00	20.88	100	280	Vertical
2	44.35	29.16	-10.11	19.05	40.00	20.95	100	291	Vertical
3	62.39	28.9	-10.70	18.20	40.00	21.80	100	265	Vertical
4	167.9	28.94	-10.21	18.73	43.50	24.77	100	265	Vertical
5	231.7	32.2	-11.34	20.86	46.50	25.64	100	324	Vertical
6	525.0	36.14	-4.11	32.03	46.50	14.47	100	20	Vertical

**REMARKS:**

1. Emission level (dBµV/m) = Raw Value (dBµV) + 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 = Limit value – Emission level.

**ABOVE 1GHz WORST-CASE DATA:**

<b>CHANNEL</b>	TX Channel 0	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 30GHz		Average (AV)

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2402.00	79.50 PK	114.00	34.50	155	135	89.44	-9.94
2	*2402.00	78.65 AV	94.00	15.35	155	97	88.59	-9.94
3	7206.70	41.57 PK	74.00	32.43	155	251	46.28	-4.71
4	7206.70	40.60 AV	54.00	13.40	155	328	45.31	-4.71

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2402.00	70.62 PK	114.00	43.38	155	109	80.56	-9.94
2	*2402.00	69.10 AV	94.00	24.90	155	109	79.03	-9.93
3	7206.70	41.57 PK	74.00	32.43	155	251	46.28	-4.71
4	7206.70	40.60 AV	54.00	13.40	155	328	45.31	-4.71

**REMARKS:**

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

<b>CHANNEL</b>	TX Channel 38	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 30GHz		Average (AV)

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	73.05 PK	114.00	40.95	155	70	82.99	-9.94
2	*2440.00	71.99 AV	94.00	22.01	155	108	81.93	-9.94
3	7320.60	46.75 PK	74.00	27.25	155	174	51.13	-4.38
4	7321.45	44.98 AV	54.00	9.02	155	136	49.36	-4.38

**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	*2440.00	72.97 PK	114.00	41.03	155	251	82.91	-9.94
2	*2440.00	71.96 AV	94.00	22.04	155	251	81.90	-9.94
3	7320.60	44.49 PK	74.00	29.51	155	69	48.87	-4.38
4	7321.45	42.56 AV	54.00	11.44	155	107	46.94	-4.38

**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 = Limit value – Emission level.
5. " \* ": Fundamental frequency.

<b>CHANNEL</b>	TX Channel 78	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 30GHz		Average (AV)

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	72.76 PK	114.00	41.24	155	250	82.55	-9.79
2	*2480.00	71.09 AV	94.00	22.91	155	250	80.88	-9.79
3	7439.60	47.80 PK	74.00	26.20	155	224	46.28	-4.02
4	7440.45	46.09 AV	54.00	7.91	155	224	45.31	-4.02

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

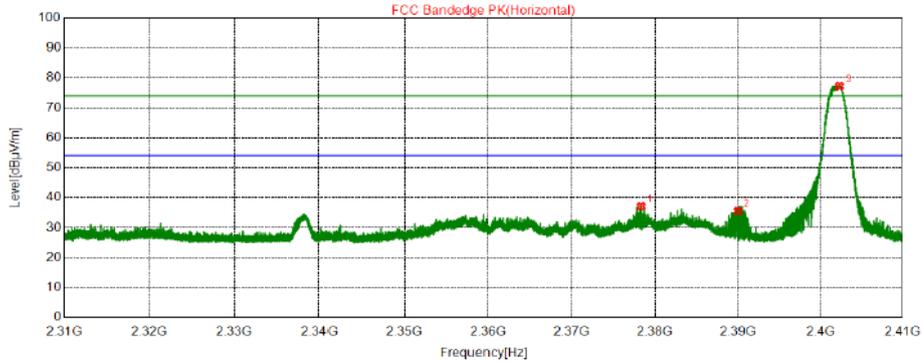
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	69.47 PK	114.00	44.26	155	225	79.26	-9.79
2	*2480.00	67.75 AV	94.00	26.25	155	225	77.54	-9.79
3	7441.30	43.66 PK	74.00	30.34	155	251	213	-4.01
4	7441.30	40.99 AV	54.00	13.01	155	328	213	-4.01

**REMARKS:**

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

## Band edge Plot

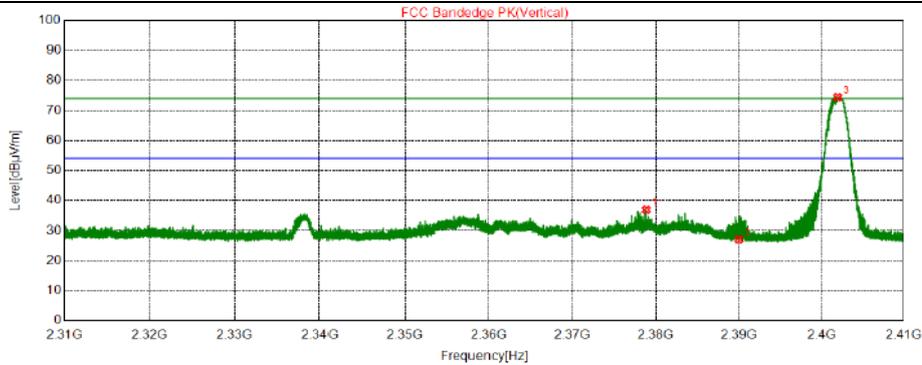
### 2402MHz/ Horizontal



○ QP Detector   \* AV Detector

NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2378.3250	47.13	37.14	74.00	36.86	150	234	Horizontal	PK
2	2390.0000	45.48	35.52	74.00	38.48	150	117	Horizontal	PK
3	2402.3300	87.19	77.25	74.00	-3.25	150	234	Horizontal	PK

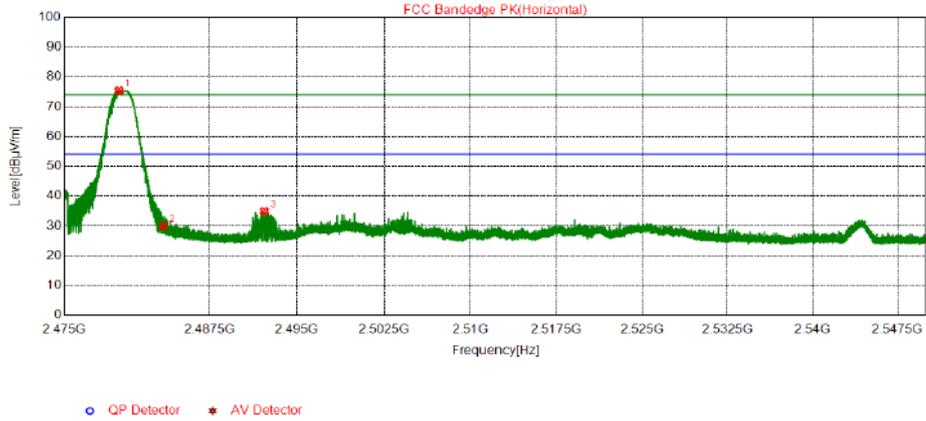
### 2402MHz/ Vertical



○ QP Detector   \* AV Detector

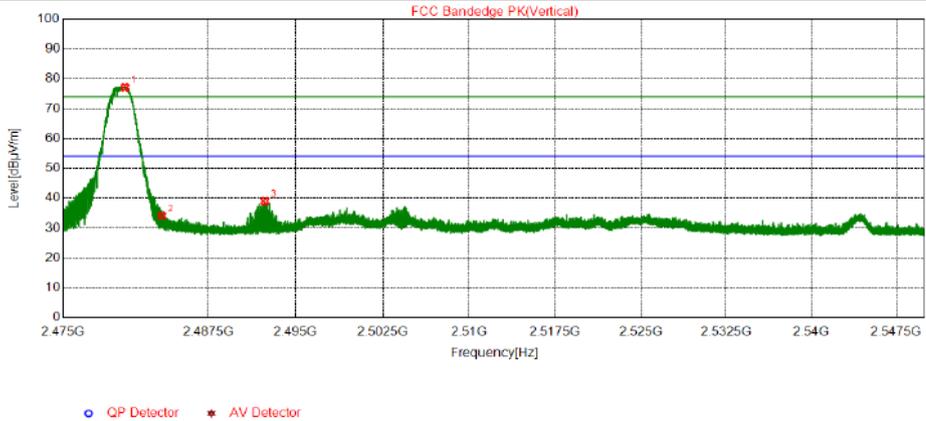
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2378.8550	46.91	36.92	74.00	37.08	150	159	Vertical	PK
2	2390.0000	36.97	27.01	74.00	46.99	150	343	Vertical	PK
3	2401.9700	84.40	74.46	74.00	-0.46	150	209	Vertical	PK

### 2480MHz/ Horizontal



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2479.6988	85.23	75.43	74.00	-1.43	150	93	Horizontal	PK
2	2483.5013	39.71	29.92	74.00	44.08	150	93	Horizontal	PK
3	2492.2275	44.65	34.88	74.00	39.12	150	226	Horizontal	PK

### 2480MHz/ Vertical



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2480.3175	86.96	77.16	74.00	-3.16	150	201	Vertical	PK
2	2483.5013	43.91	34.12	74.00	39.88	150	218	Vertical	PK
3	2492.3963	48.71	38.94	74.00	35.06	150	234	Vertical	PK

Note: The green line is the PK detection method and The red line is the AV detection method.

## 6 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

**7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGE TO THE EUT BY THE LAB**

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

**---END---**