



## FCC Test Report (2.4G Wireless)

**FCC ID** : 2AF8YMCD01

**Applicant** : **Benro Precision Industrial Co.,Ltd**  
No.59 Huoju Road, The 3rd Industrial Park, Tanzhou Town,  
Zhongshan, Guangdong Province

### Sample Description

**Product Name** : **Digital Motion Control**

**Model No.** : MCD01

**Serial No.** : N/A

**Trademark** : N/A

**Receipt Date** : 2016-05-29

**Test Date** : 2016-05-30 to 2016-06-06

**Issue Date** : 2016-06-07

**Test Standard(s)** : **FCC CFR Title 47 Part 15 Subpart C Section 15.247**  
**ANSI C63.10 : 2013**

**Conclusions** : **PASSED\***

\*In the configuration tested, the EUT complied with the standards specified above.

**Test/Witness Engineer** : *Jason Deng*

**Approved & Authorized** : *Frank Zhang*

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.



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## 1. General Information

### 1.1. Client Information

Applicant	:	Benro Precision Industrial Co.,Ltd
Address	:	No.59 Huoju Road, The 3rd Industrial Park, Tanzhou Town, Zhongshan, Guangdong Province
Manufacturer	:	Benro Precision Industrial Co.,Ltd
Address	:	No.59 Huoju Road, The 3rd Industrial Park, Tanzhou Town, Zhongshan, Guangdong Province

### 1.2. General Description of EUT (Equipment Under Test)

Product Name	:	Digital Motion Control	
Models No.	:	MCD01	
Difference	:	Only differ on model name	
Product Description	:	Operation Frequency:	2402MHz~2480MHz
		Transfer Rate:	250Kbps, 1/2Mbps/ss
		Number of Channel:	79 Channels
		Modulation Type:	250Kbps
		Modulation Technology:	250Kbps
		Antenna Type:	Integral PCB Antenna
		Antenna Gain:	2 dBi
Power Supply	:	AC adapter: Input 100-240V~, 50/60Hz 2A, Output 12V DC, 4A	

**Note:**

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462



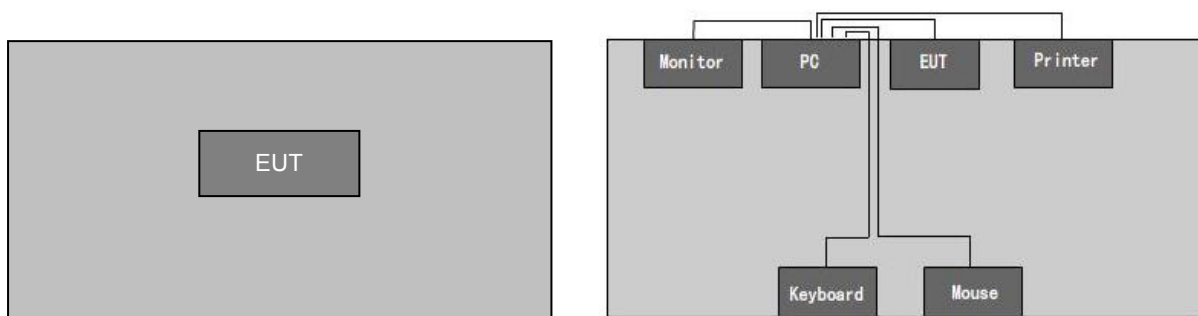
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07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		
Remark: Channel 0, 39 & 78					

## 1.3. Block Diagram Showing The Configuration of System Tested





## 1.4. Description of Support Units

Name	Model	Serial Number	Manufacturer
Printer	HP1020	CNCJ410726	HP
LCD Monitor	G205HV	10306738385	ACER
PC	ASPIREM1830	PTSF90C00305005CAC3000	ACER
Keyboard	SK-9625	KBUSB1580500037E0100	ACER
Mouse	MS.11200.014	M-UAY-ACR2	ACER

## 1.5. External I/O Cable

Cable Description	Length(m)	From/ Port	To
Shielding Detachable USB Cable	1.5	Host PC	Mouse
Shielding Detachable K/B Cable	1.5	Host PC	Keyboard
Shielding Detachable serial Cable	1.5	Host PC	Printer
Shielding Detachable VGA Cable	1.5	Host PC	LCD Monitor
Unshielding Detachable USB Cable	0.8	EUT	Host PC
Unshielding Audio Cable	0.6	EUT	Host PC

## 1.6. Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

Test Mode	Description
Charging & Working mode	Keep the EUT in Charging& working mode
Transmitting mode	Keep the EUT in Transmitting mode with worst case data rate
Remark	250Kbps(250Kbps) is the worst case mode

**Remark:** The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. 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, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.



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## 1.7. Test Instruments List

Item	Test Equipment	Manufacturer	Model No.	Cal. Date	Cal. Due date
1	Bilog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	May 22, 2016	May 21, 2017
2	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	May 27, 2016	May 26, 2017
3	Coaxial Cable	N/A	N/A	Mar. 28, 2016	Mar. 27, 2017
4	Coaxial Cable	N/A	N/A	Mar. 29, 2016	Mar. 29, 2017
5	Coaxial cable	N/A	N/A	Mar. 29, 2016	Mar. 29, 2017
6	Coaxial Cable	N/A	N/A	Mar. 29, 2016	Mar. 29, 2017
7	Coaxial Cable	N/A	N/A	Mar. 29, 2016	Mar. 29, 2017
8	Amplifier (10kHz-1.3GHz)	HP	8447D	Mar. 29, 2016	Mar. 29, 2017
9	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	Jun. 06, 2016	Mar. 29, 2017
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	Mar. 29, 2016	Mar. 29, 2017
11	Horn Antenna	ETS-LINDGREN	3160	Mar. 27, 2016	Mar. 27, 2017
12	Positioning Controller	UC	UC3000	N/A	N/A
13	Spectrum analyzer 9kHz-30GHz	Rohde & Schwarz	FSP	May 26, 2016	May 27, 2017
14	EMI Test Receiver	Rohde & Schwarz	ESPI	Mar. 29, 2016	Mar. 30, 2017
15	Loop antenna	Laplace instrument	RF300	May 22., 2016	May 23, 2017
16	Universal radio communication tester	Rhode & Schwarz	CMU200	May 26, 2016	May 27, 2017
17	Signal Analyzer	Rohde & Schwarz	FSIQ3	May 26, 2016	May 27, 2017
18	L.I.S.N.#1	Rohde & Schwarz	NSLK8126	May 26, 2016	May 27, 2017
19	L.I.S.N.#2	Rohde & Schwarz	ENV216	May 26, 2016	May 27, 2017

## 1.8. Laboratory Location

Shenzhen TOBY technology Co., Ltd

Address: 1 A/F., Bldg.6, Yusheng Industrial Zone The National Road No.107 Xixiang Section 467,  
Xixiang, Bao'an, Shenzhen, Guangdong, 518057, China

At the time of testing, the Laboratory is accredited. It is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562 7.

Tel:0086-755-26509301 Fax: 0086-755-26509195



## 2. Test Summary

Standard Section	Test Item	Judgment
15.203/15.247(c)	Antenna Requirement	PASSED
15.207	Conducted Emission	PASSED
15.249&15.209	Spurious Emission	PASSED
Section 15.249	Occupied bandwidth	PASSED
Section 15.249	Band Edge	PASSED
<b>Remark:</b> "N/A" is an abbreviation for Not Applicable.		



## 3. Antenna Requirement

### 3.1. Standard Requirement

#### 3.1.1 Test standard

FCC Part15 Section 15.203 /247(c)

#### 3.1.2 Requirement

##### 1) 15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

##### 2) 15.247(c) (1)(i) requirement:

Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

### 3.2. Antenna Connected Construction

The bluetooth antenna is an integral antenna which permanently attached, and the best case gain of the antenna is 2 dBi. It complies with the standard requirement.



## 4. Conducted Emission Test

### 4.1. Test Standard and Limit

#### 4.1.1 Test Standard

FCC Part15 Section 15.207

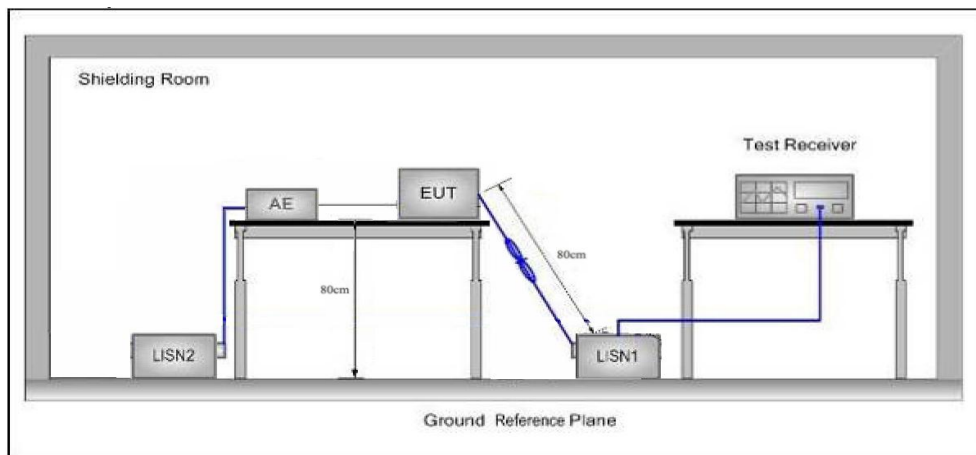
#### 4.1.2 Test Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dB $\mu$ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Remark: (1) \*Decreasing linearly with logarithm of the frequency.  
(2) The lower limit shall apply at the transition frequencies.

### 4.2. Test Setup



### 4.3. Test Procedure

- 1) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a  $50 \Omega / 50 \mu\text{H} + 5 \Omega$  linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 2) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.

The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal



ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

The Test Receiver setup: RBW=9kHz, VBW=30kHz, Sweep time= auto

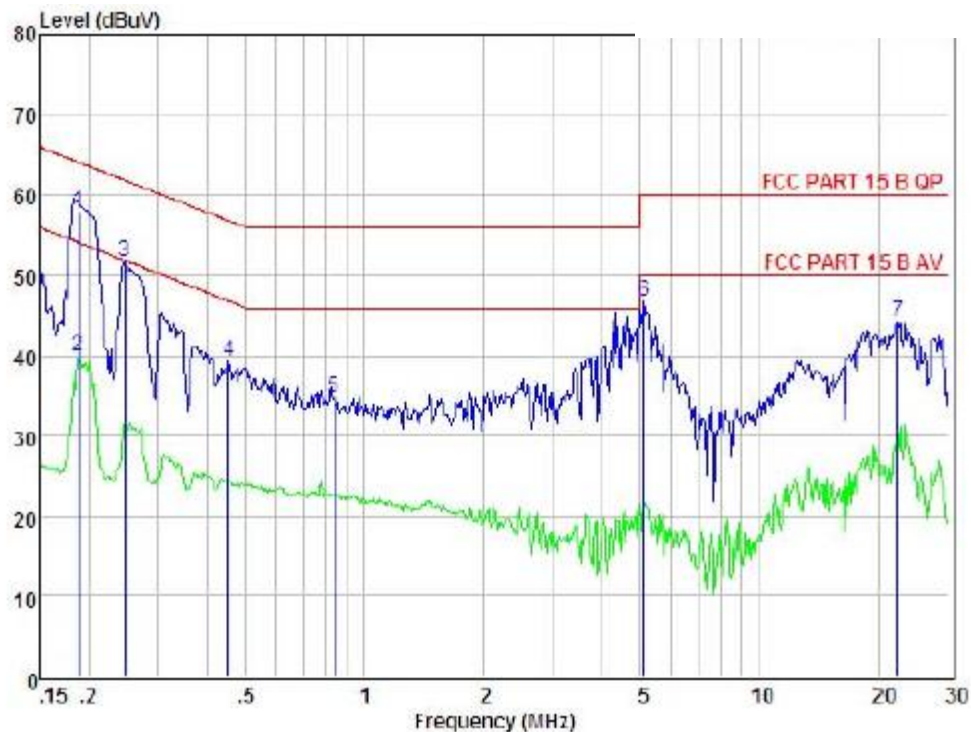
#### **4.4. Test Data**

Please to see the following pages



## Conducted Emission Test Data

EUT: Digital Motion Control M/N: MCD01  
Operating Condition: Charging & Working mode  
Test Site: Shielded room  
Operator: Jason  
Test Specification: AC120V/60Hz  
Polarization: Line  
Note: Tem:25°C Hum:50%



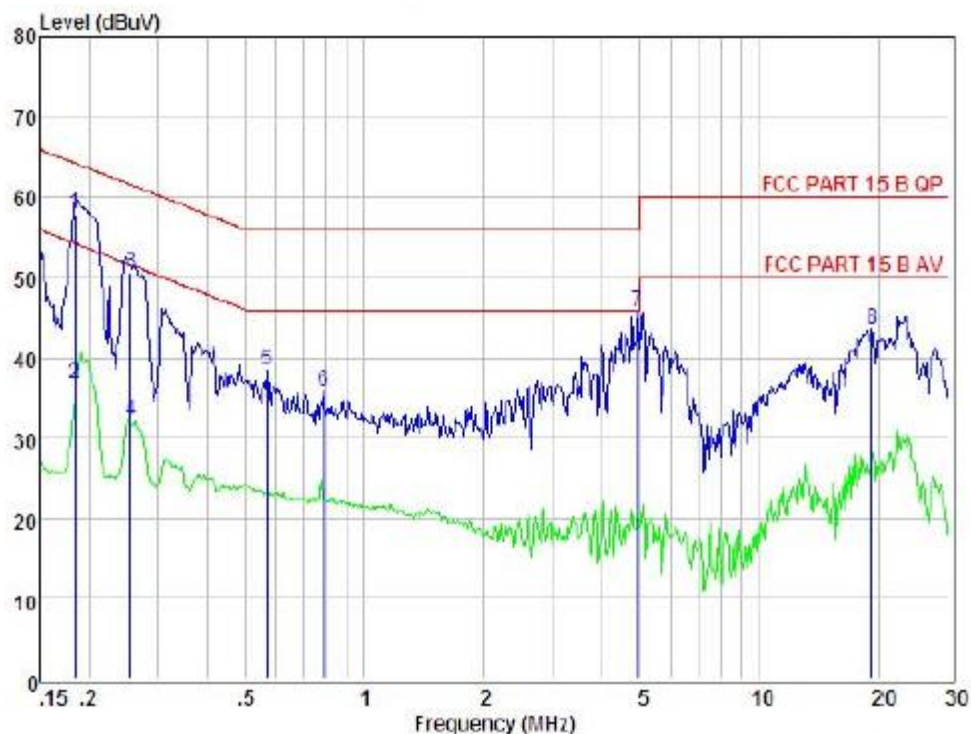
Condition : FCC PART 15 B QP									
Item	Freq	Read	LISN	Preamp	Cable	Level	Temp: 21°C	Hum: 53%	Remark
	MHz	dBuV	Factor	Factor	Loss	dBuV	Limit	Margin	
			dB	dB	dB		dBuV	dBuV	
1	0.188	48.34	0.03	-9.52	0.10	57.99	64.11	-6.12	QP
2	0.188	30.25	0.03	-9.52	0.10	39.90	54.11	-14.21	Average
3	0.247	41.94	0.03	-9.52	0.10	51.59	61.86	-10.27	Peak
4	0.452	29.50	0.03	-9.58	0.10	39.21	56.85	-17.64	Peak
5	0.839	25.10	0.04	-9.60	0.10	34.84	56.00	-21.16	Peak
6	5.112	36.57	0.10	-9.93	0.12	46.72	60.00	-13.28	Peak
7	22.298	33.66	0.40	-9.61	0.40	44.27	60.00	-15.73	Peak

Remark: Level = Read Level + LISN Factor - Preamp Factor + Cable Loss



## Conducted Emission Test Data

EUT: Digital Motion Control M/N: MCD01  
Operating Condition: Charging & Working mode  
Test Site: Shielded room  
Operator: Jason  
Test Specification: AC 120V/60Hz  
Polarization: Neutral  
Note: Tem:25°C Hum:50%



ion : FCC PART 15 B QP POL: NEUTRAL Temp: 21°C Hum: 53%									
Item	Freq MHz	Read Level dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.184	48.22	0.03	-9.52	0.10	57.87	64.28	-6.41	QP
2	0.184	27.02	0.03	-9.52	0.10	36.67	54.28	-17.61	Average
3	0.256	40.88	0.03	-9.56	0.10	50.57	61.56	-10.99	QP
4	0.256	22.50	0.03	-9.56	0.10	32.19	51.56	-19.37	Average
5	0.567	28.77	0.03	-9.59	0.10	38.49	56.00	-17.51	Peak
6	0.788	26.12	0.00	-9.60	0.10	35.82	56.00	-20.18	Peak
7	4.926	38.60	0.10	-9.92	0.12	48.74	56.00	-10.26	Peak
8	19.326	33.19	0.30	-9.81	0.34	43.64	60.00	-16.36	Peak

Remark: Level = Read Level + LISN Factor - Preamp Factor + Cable Loss



## 5. 20dB Occupy Bandwidth Test

### 5.1 Test Standard and Limit

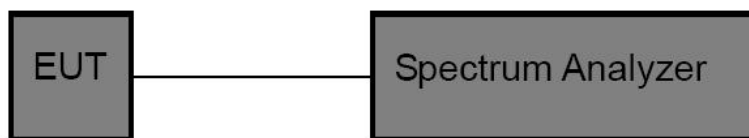
#### 5.1.1 Test Standard

FCC Part15 C Section 15.247 (a)(1)

#### 5.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	20dB bandwidth	2400~2483.5

### 5.2 Test Setup



### 5.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:  
Bandwidth: RBW=30 kHz, VBW=100 kHz, detector= Peak

### 5.4 Test Data

Channel Number	Channel Frequency	20dB Bandwidth (kHz)		
		250Kbps	1Mbps	2Mbps
CH 00	2402(MHz)	892.9	894.0	1180
CH 39	2441(MHz)	905.9	897.1	1199
CH 78	2480(MHz)	878.0	900.2	1205
Remark: Test plot as follows				







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2480MHz





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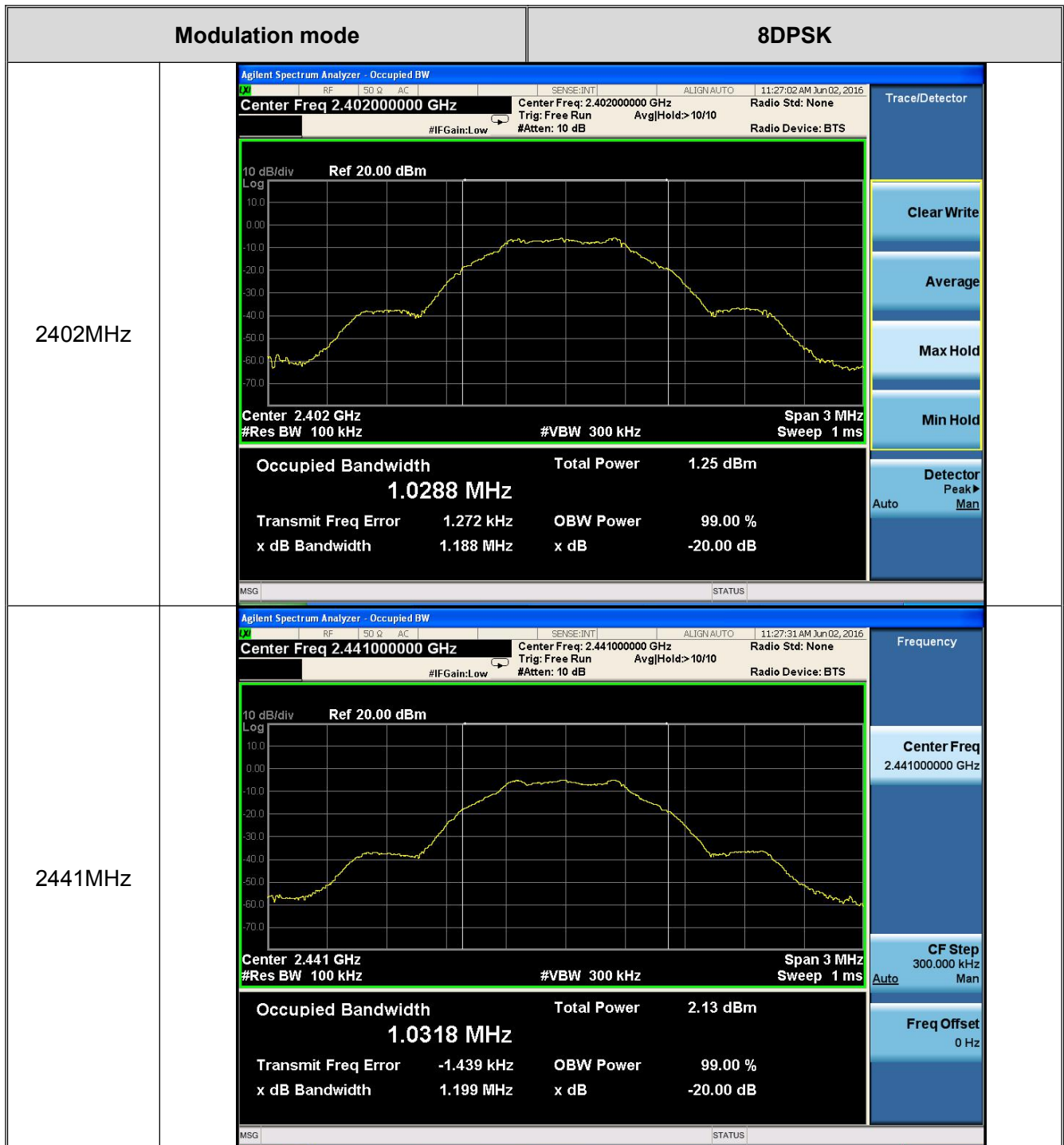




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2480MHz



## 6. Band Edge Requirement (Radiated Emission Method)

### 6.1 Test Standard and Limit

#### 6.1.1 Test Standard

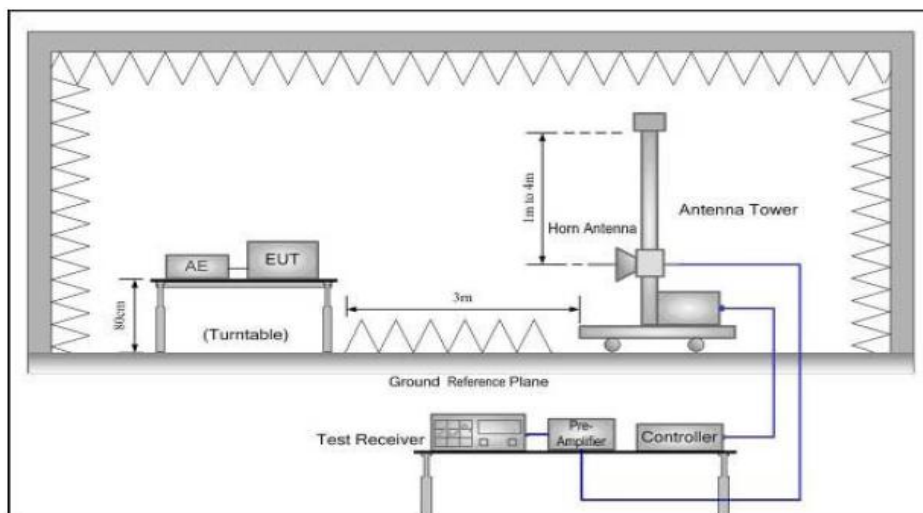
FCC Part15 C Section 15.209 and 15.205

#### 6.1.2 Test Limit

**Radiated Emission Test Limit**

Frequency	Limit (dB $\mu$ V/m @3m)	Remark
Above 1GHz	54.00	Average value
	74.00	Peak value

### 6.2 Test Setup



### 6.3 Test Procedure

- 1) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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 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. Peak Value: RBW=1MHz, VBW=3MHz; Average value: RBW=1MHz, VBW=10Hz



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- 6) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

## 6.4 Test Data

Remark:

1. During the test, pre-scan the 250Kbps, 1Mbps, 2Mbps, and all data were shown in the report.
2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.

Test mode: 250Kbps					Test channel: Lowest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
2400.00	20.69	27.58	5.67	0	53.94	74.00	-20.06	H	PEAK
2400.00	20.24	27.58	5.67	0	53.49	74.00	-20.51	V	PEAK
2400.00	8.67	27.58	5.67	0	41.92	54.00	-12.08	H	AVG.
2400.00	9.09	27.58	5.67	0	42.34	54.00	-11.66	V	AVG.
Test mode: 250Kbps					Test channel: Highest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
2483.50	21.29	27.52	5.7	0	54.51	74.00	-19.49	H	PEAK
2483.50	20.72	27.52	5.7	0	53.94	74.00	-20.06	V	PEAK
2483.50	9.09	27.52	5.7	0	42.31	54.00	-11.69	H	AVG.
2483.50	9.43	27.52	5.7	0	42.65	54.00	-11.35	V	AVG.

Remark:

1. Final Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.



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Test mode: 1Mbps					Test channel: Lowest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
2400.00	19.45	27.58	5.67	0	52.7	74.00	-21.3	H	PEAK
2400.00	19.87	27.58	5.67	0	53.12	74.00	-20.88	V	PEAK
2400.00	8.88	27.58	5.67	0	42.13	54.00	-11.87	H	AVG.
2400.00	9.34	27.58	5.67	0	42.59	54.00	-11.41	V	AVG.
Test mode: 1Mbps					Test channel: Highest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
2483.50	19.67	27.52	5.7	0	52.89	74.00	-21.11	H	PEAK
2483.50	20.56	27.52	5.7	0	53.78	74.00	-20.22	V	PEAK
2483.50	8.34	27.52	5.7	0	41.56	54.00	-12.44	H	AVG.
2483.50	8.68	27.52	5.7	0	41.9	54.00	-12.1	V	AVG.

**Remark:**

1. Final Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.



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Test mode: 2Mbps					Test channel: Lowest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
2400.00	20.78	27.58	5.67	0	54.03	74.00	-19.11	H	PEAK
2400.00	20.92	27.58	5.67	0	54.17	74.00	-18.97	V	PEAK
2400.00	8.7	27.58	5.67	0	41.95	54.00	-11.19	H	AVG.
2400.00	8.88	27.58	5.67	0	42.13	54.00	-11.01	V	AVG.
Test mode: 2Mbps					Test channel: Highest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
2483.50	19.4	27.52	5.7	0	52.62	74.00	-21.38	H	PEAK
2483.50	20.54	27.52	5.7	0	53.76	74.00	-20.24	V	PEAK
2483.50	8.65	27.52	5.7	0	41.87	54.00	-12.13	H	AVG.
2483.50	8.9	27.52	5.7	0	42.12	54.00	-11.88	V	AVG.

**Remark:**

1. Final Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

## 7. Spurious Emission (Radiated Emission Method)

### 14.1. Test Standard and Limit

#### 14.1.1 Test Standard

FCC Part15 C Section 15.209

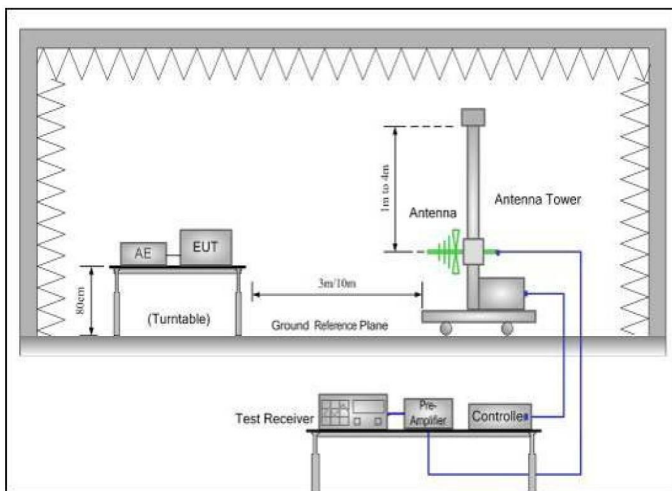
#### 14.1.2 Test Limit

Frequency (MHz)	Limit (dB $\mu$ V/m)	
	At 3m Distance	
30MHz~88MHz	40	Quasi-peak
88MHz~216MHz	43.5	Quasi-peak
216MHz~960MHz	46	Quasi-peak
960MHz~1000MHz	54	Quasi-peak
Above 1000MHz	54	Average
	74	Peak

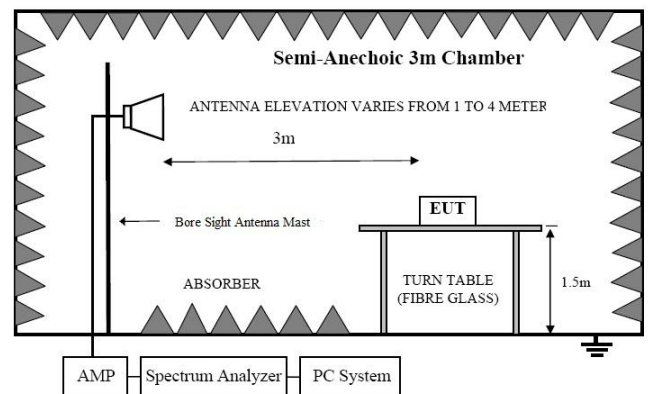
**Remark:** 1. The lower limit shall apply at the transition frequency.

### 14.2. Test Setup

#### Below 1GHz



#### Above 1GHz



### 14.3. Test Procedure

- 1) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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 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.  
Peak value: RBW=1MHz, VBW=3MHz;  
Average value: RBW=1MHz, VBW=10Hz;  
QP Value: RBW=120kHz, VBW=300kHz
- 6) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

## 14.4. Test Data

Remark:

1. During the test, pre-scan the 250Kbps, 1Mbps, 2Mbps modulation, and found the 250Kbps modulation is the worst case.
2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.
3. 9 kHz to 30 MHz is noise floor, so only shows the data of above 30MHz in this report.



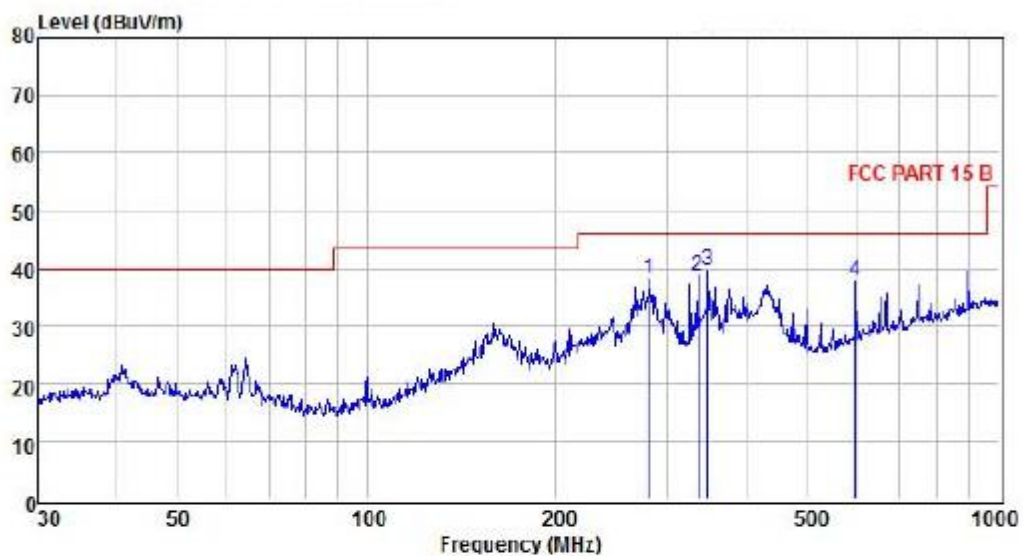
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## Radiated Emission Test Data (Below 1GHz)

EUT: Digital Motion Control M/N: MCD01  
Operating Condition: Bluetooth TX mode  
Test Site: 3m chamber  
Operator: Jason  
Test Specification: AC120V/60Hz  
Polarization: Horizontal  
Note Tem:23°C Hum:50%



Condition : FCC PART 15 B POL: HORIZONTAL									
Item	Freq	Read	Antenna	Preamp	Cable	Level	Limit	Margin	Remark
	MHz	Level	Factor	Factor	Loss	dBuV	dBuV	dBuV	
		dBuV	dB	dB	dB				
1	280.02	53.16	12.37	28.09	0.60	38.04	46.00	-7.96	Peak
2	334.86	52.20	13.58	27.84	0.82	38.76	46.00	-7.24	Peak
3	346.81	53.02	13.77	27.81	0.69	39.67	46.00	-6.33	Peak
4	595.13	44.77	18.20	26.00	0.85	37.82	46.00	-8.18	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



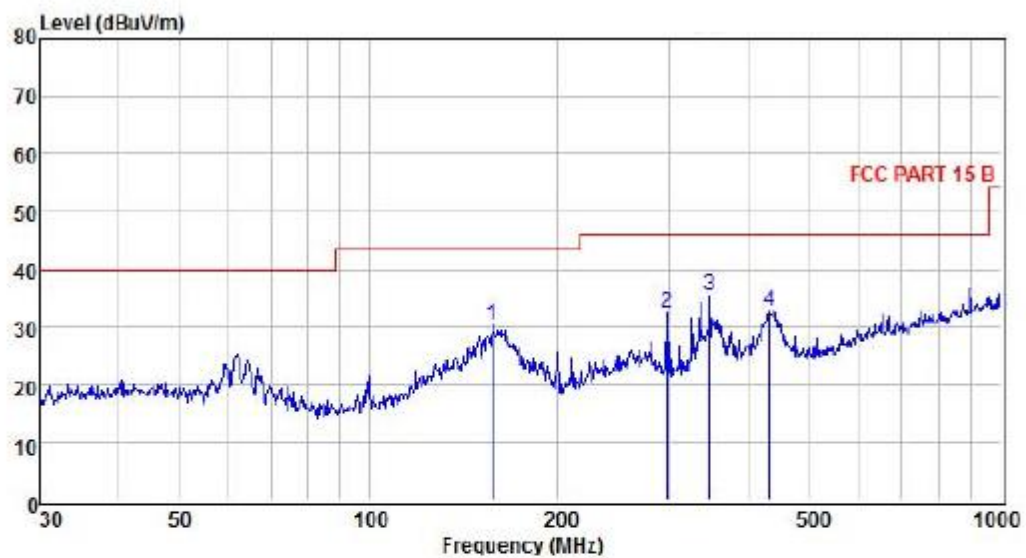
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## Radiated Emission Test Data (Below 1GHz)

EUT: Digital Motion Control M/N: MCD01  
Operating Condition: Bluetooth TX mode  
Test Site: 3m chamber  
Operator: Jason  
Test Specification: AC120V/60Hz  
Polarization: Vertical  
Note Tem:23°C Hum:50%



Condition : FCC PART 15 B					POL: VERTICAL				
Item	Freq MHz	Read Level dBuV	Antenna Factor dB	Preamplifier Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	157.01	44.96	14.15	29.24	0.38	30.25	43.50	-13.25	Peak
2	297.22	46.85	12.76	28.03	0.94	32.52	46.00	-13.48	Peak
3	346.81	48.67	13.77	27.81	0.69	35.32	46.00	-10.68	Peak
4	432.55	43.70	15.53	27.18	0.74	32.79	46.00	-13.21	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



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## Radiated Emission Test Data (Above 1GHz)

Test mode: 250Kbps					Test channel: Lowest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Remark
2402.00	94.05	30.52	6.3	38.43	92.44	114.00	-21.56	V	PEAK*
4804.00	43.87	31.53	8.9	40.24	44.06	74.00	-29.94	V	PEAK
7206.00	*					74.00		V	PEAK
9608.00	*					74.00		V	PEAK
12010.00	*					74.00		V	PEAK
2402.00	91.87	30.52	6.3	38.43	90.26	114.00	-23.74	V	PEAK*
4804.00	44.67	36.47	10.59	41.24	50.49	74.00	-23.51	H	PEAK
7206.00	*					74.00		H	PEAK
9608.00	*					74.00		H	PEAK
12010.00	*					74.00		H	PEAK
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Remark
2402.00	70.97	30.52	6.3	38.43	69.36	94.00	-24.64	V	AVG.*
4804.00	32.87	31.53	8.9	40.24	33.06	54.00	-20.94	V	AVG.
7206.00	*					54.00		V	AVG.
9608.00	*					54.00		V	AVG.
12010.00	*					54.00		V	AVG.
2402.00	68.7	30.52	6.3	38.43	67.09	94.00	-26.91	V	AVG.*
4804.00	33.28	36.47	10.59	41.24	39.1	54.00	-14.9	H	AVG.
7206.00	*					54.00		H	AVG.
9608.00	*					54.00		H	AVG.
12010.00	*					54.00		H	AVG.

### Remark:

1. Final Level = Read Level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “\*”, means this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. PEAK\* means the frequency under test is the fundermental frequency with Peak Detector.
5. AVG.\* means the frequency under test is the fundermental frequency with AVG Detector.



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## Radiated Emission Test Data (Above 1GHz)

Test mode: 250Kbps					Test channel: Middle				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Remark
2441.00	92.89	30.68	6.56	38.76	91.37	114.00	-22.63	V	PEAK*
4882.00	43.87	31.58	8.98	40.15	44.28	74.00	-29.72	V	PEAK
7323.00	*					74.00		V	PEAK
9764.00	*					74.00		V	PEAK
12205.00	*					74.00		V	PEAK
2441.00	90.73	30.68	6.56	38.76	89.21	114.00	-24.79	V	PEAK*
4882.00	44.67	36.48	10.69	41.15	50.69	74.00	-25.83	H	PEAK
7323.00	*					74.00		H	PEAK
9764.00	*					74.00		H	PEAK
12205.00	*					74.00		H	PEAK
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Remark
2441.00	67.82	30.68	6.56	38.76	66.3	94.00	-27.7	V	AVG.*
4882.00	33.43	31.58	8.98	40.15	33.84	54.00	-22.68	V	AVG.
7323.00	*					54.00		V	AVG.
9764.00	*					54.00		V	AVG.
12205.00	*					54.00		V	AVG.
2441.00	65.39	30.68	6.56	38.76	63.87	94.00	-30.13	V	AVG.*
4882.00	34.09	36.48	10.69	41.15	40.11	54.00	-16.41	H	AVG.
7323.00	*					54.00		H	AVG.
9764.00	*					54.00		H	AVG.
12205.00	*					54.00		H	AVG.

### Remark:

1. Final Level = Read Level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “\*”, means this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. PEAK\* means the frequency under test is the fundermental frequency with Peak Detector.
5. AVG.\* means the frequency under test is the fundermental frequency with AVG Detector.



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## Radiated Emission Test Data (Above 1GHz)

Test mode: 250Kbps					Test channel: Highest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Remark
2480.00	91.25	30.82	6.89	39.27	89.69	114.00	-24.31	V	PEAK*
4960.00	44.49	31.69	9.08	40.03	45.23	74.00	-31.29	V	PEAK
7440.00	*					74.00		V	PEAK
9920.00	*					74.00		V	PEAK
12400.00	*					74.00		V	PEAK
2480.00	89.93	30.82	6.89	39.27	88.37	114.00	-25.63	V	PEAK*
4960.00	42.69	36.6	10.8	41.05	49.04	74.00	-25.39	H	PEAK
7440.00	*					74.00		H	PEAK
9920.00	*					74.00		H	PEAK
12400.00	*					74.00		H	PEAK
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Remark
2480.00	66.76	30.82	6.89	39.27	65.2	94.00	-28.8	V	AVG.*
4960.00	33.76	31.69	9.08	40.03	34.5	54.00	-22.02	V	AVG.
7440.00	*					54.00		V	AVG.
9920.00	*					54.00		V	AVG.
12400.00	*					54.00		V	AVG.
2480.00	64.29	30.82	6.89	39.27	62.73	94.00	-31.27	V	AVG.*
4960.00	34.29	36.6	10.8	41.05	40.64	54.00	-15.88	H	AVG.
7440.00	*					54.00		H	AVG.
9920.00	*					54.00		H	AVG.
12400.00	*					54.00		H	AVG.

### Remark:

1. Final Level = Read Level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “\*”, means this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. PEAK\* means the frequency under test is the fundermental frequency with Peak Detector.
5. AVG.\* means the frequency under test is the fundermental frequency with AVG Detector.