

# **KDB 178919 D01**

## **RADIO TEST REPORT**

### **FCC ID:2BBDI20003502MTCA05**

**Product:** BYD Di5.0F

**Trade Mark:** 

**Model No.:** MTCA05

**Family Model:** N/A

**Report No.:** S23110303562002

**Issue Date:** Dec 20, 2023

#### **Prepared for**

Wuxi Auto-link World Information Technology Co., Ltd  
No. 2, Gaokai Road, Economic Development Zone, Wuxi City,  
Jiangsu Province, P .R. China


#### **Prepared by**

Shenzhen NTEK Testing Technology Co., Ltd.  
1/F, Building E, Fenda Science Park, Sanwei Community,  
Xixiang Street Bao'an District, Shenzhen 518126 P.R. China  
Tel. 400-800-6106, 0755-2320 0050, 0755-2320 0090  
Website: <http://www.ntek.org.cn>

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## 1 TEST RESULT CERTIFICATION

Applicant's name .....	Wuxi Auto-link World Information Technology Co., Ltd
Address .....	No. 2, Gaokai Road, Economic Development Zone, Wuxi City, Jiangsu Province, P .R. China
Manufacturer's Name .....	Wuxi Auto-link World Information Technology Co., Ltd
Address .....	No. 2, Gaokai Road, Economic Development Zone, Wuxi City, Jiangsu Province, P .R. China
Product description	
Product name .....	BYD Di5.0F
Trademark .....	
Model and/or type reference .....	MTCA05
Family Model .....	N/A
Test Sample number .....	S231103035052
Date of Test .....	Nov 03, 2023 ~ Dec 20, 2023

Measurement Procedure Used:

APPLICABLE STANDARDS	
APPLICABLE STANDARD/ TEST PROCEDURE	TEST RESULT
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C ANSI C63.10-2013 KDB 558074 D01 KDB 178919 D01	Complied

This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of Shenzhen NTEK Testing Technology Co., Ltd., this document may be altered or revised by Shenzhen NTEK Testing Technology Co., Ltd., personnel only, and shall be noted in the revision of the document.

The test results of this report relate only to the tested sample identified in this report.

Prepared By: Mukzi Lee  
 Mukzi Lee  
 (Project Engineer)

Reviewed By: Aaron Cheng  
 Aaron Cheng  
 (Supervisor)

Approved By: Alex Li  
 Alex Li  
 (Manager)

## 2 SUMMARY OF TEST RESULTS

FCC Part15 (15.247), Subpart C			
Standard Section	Test Item	Verdict	Remark
15.209 (a) 15.205 (a)	Radiated Spurious Emission	PASS	
15.209 (a) 15.205 (a)	Radiated Band Edge	PASS	
15.203	Antenna Requirement	PASS	
Remark: 1. "N/A" denotes test is not applicable in this Test Report. 2. All test items were verified and recorded according to the standards and without any deviation during the test.			

### 3 FACILITIES AND ACCREDITATIONS

#### 3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

#### 3.2 LABORATORY ACCREDITATIONS AND LISTINGS

##### Site Description

CNAS-Lab. : The Certificate Registration Number is L5516.

IC-Registration : The Certificate Registration Number is 9270A.  
CAB identifier:CN0074

FCC- Accredited : Test Firm Registration Number: 463705.

Designation Number: CN1184

A2LA-Lab. : The Certificate Registration Number is 4298.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories.

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Name of Firm : Shenzhen NTEK Testing Technology Co., Ltd.


Site Location : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

#### 3.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.80\text{dB}$
2	RF power, conducted	$\pm 0.16\text{dB}$
3	Spurious emissions, conducted	$\pm 0.21\text{dB}$
4	All emissions, radiated(30MHz~1GHz)	$\pm 2.64\text{dB}$
5	All emissions, radiated(1GHz~6GHz)	$\pm 2.40\text{dB}$
6	All emissions, radiated(>6GHz)	$\pm 2.52\text{dB}$
7	Temperature	$\pm 0.5^{\circ}\text{C}$
8	Humidity	$\pm 2\%$
9	All emissions, radiated(9KHz~30MHz)	$\pm 6\text{dB}$

#### 4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification	
Equipment	BYD Di5.0F
Trade Mark	
FCC ID	2BBDI20003502MTCA05
Model No.	MTCA05
Family Model	N/A
Model Difference	N/A
Operating Frequency	2402MHz~2480MHz
Modulation	GFSK
Number of Channels	40 Channels
Antenna Type	Ceramic Antenna
Antenna Gain	2.27 dBi
Power Setting	Default(Max)
Adapter	N/A
Battery	N/A
Power supply	DC 12.0V, 2.88A (Max)
HW Version	0.0.6
SW Version	4.00.3

Note 1: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

Note 2: The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.

## Revision History

[illegible]

## 5 DESCRIPTION OF TEST MODES

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

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (1Mbps for GFSK modulation) were used for all test.

The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

Carrier Frequency and Channel list:

Channel	Frequency(MHz)
0	2402
1	2404
...	...
19	2440
20	2442
...	...
38	2478
39	2480

Note:  $f_c = 2402\text{MHz} + k \times 2\text{MHz}$   $k=0$  to 39

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Test Cases	
Test Item	Data Rate/ Modulation
Radiated Test Cases	Mode 1: GFSK Tx Ch00_2402MHz_1Mbps
	Mode 2: GFSK Tx Ch19_2440MHz_1Mbps
	Mode 3: GFSK Tx Ch39_2480MHz_1Mbps

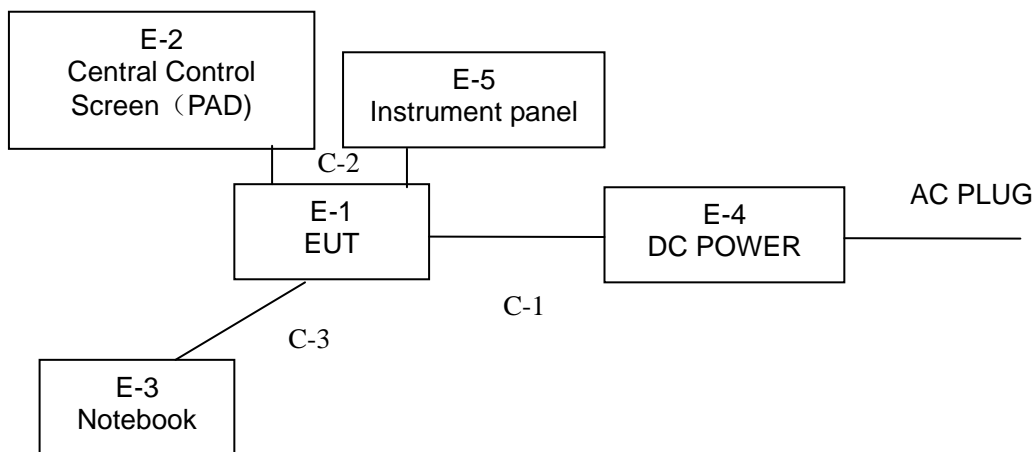
Note:

For radiated test cases, the worst mode data rate 1Mbps was reported only, because this data rate has the highest RF output power at preliminary tests, and no other significantly frequencies found in conducted spurious emission.



## 6 SETUP OF EQUIPMENT UNDER TEST

### 6.1 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



## 6.2 SUPPORT EQUIPMENT

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Manufacturer	Model	Series No.	Note
E-1	BYD Di5.0F	Auto-link	MTCA05	N/A	EUT
E-2	Central Control Screen (PAD)	Xi'an BYD Electronics Co., Ltd. Jixian Branch	D156	HCEEC-7924100AA	Peripherals
E-3	Notebook	N/A	N/A	N/A	Peripherals
E-4	DC POWER	N/A	N/A	N/A	Peripherals
E-5	Instrument panel	FinDreams Technology Co., Ltd.	YBN403	UKEA-3820010	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Note
C-1	Power Cable	N/A	NO	
C-2	Power Cable	N/A	NO	
C-3	Power Cable	N/A	NO	

### Notes:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

### 6.3 EQUIPMENTS LIST FOR ALL TEST ITEMS

#### Radiation& Conducted Test equipment

	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2023.03.27	2024.03.26	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2023.05.29	2024.05.28	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2023.05.29	2024.05.28	1 year
4	Test Receiver	R&S	ESPI7	101318	2023.03.27	2024.04.26	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2023.03.16	2024.03.16	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
7	Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2023.01.12	2024.01.11	1 year
8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2022.11.07	2025.11.06	3 year
9	Amplifier	EMC	EMC051835 SE	980246	2023.05.29	2024.05.28	1 year
10	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2023.11.03	2026.11.02	3 year
11	Power Meter	DARE	RPR3006W	15I00041SN O84	2023.05.29	2024.05.28	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
14	High Test Cable(1G-40G Hz)	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
15	Filter	TRILTHIC	2400MHz	29	2023.03.26	2026.03.25	3 year

**Note:**

Each piece of equipment is scheduled for calibration once a year except the Aux Equipment & Test Cable which is scheduled for calibration every 2 or 3 years.

## 7 TEST REQUIREMENTS

### 7.1 RADIATED SPURIOUS EMISSION

#### 7.1.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and ANSI C63.10-2013

#### 7.1.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

According to FCC Part 15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	24000/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Remark : 1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. For Frequency 9kHz~30MHz: Distance extrapolation factor =40log(Specific distance/ test distance)(dB); Limit line=Specific limits(dBuV) + distance extrapolation factor.

For Frequency above 30MHz: Distance extrapolation factor =20log(Specific distance/ test distance)(dB);

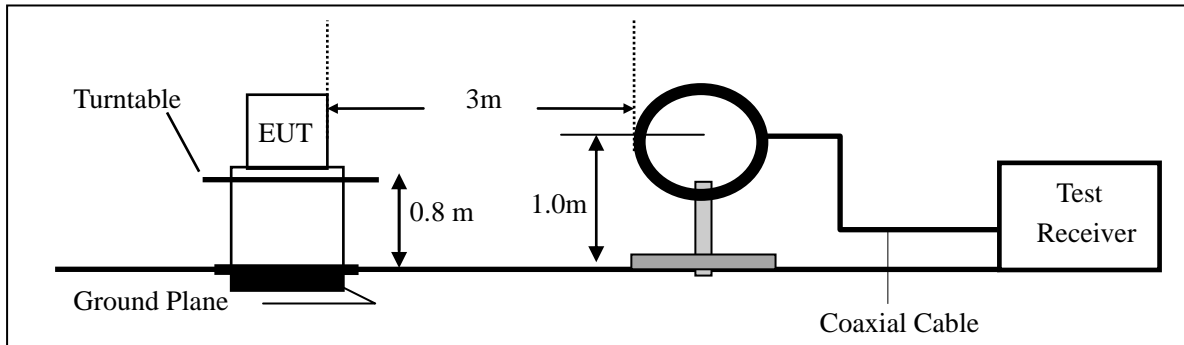
Limit line=Specific limits(dBuV) + distance extrapolation factor.

### 7.1.3 Measuring Instruments

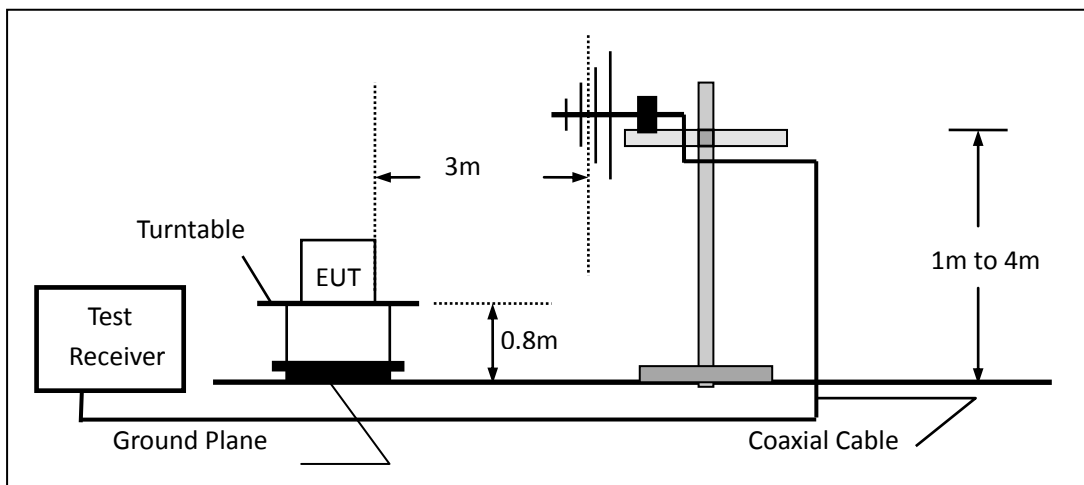
The Measuring equipment is listed in the section 6.3 of this test report.

### 7.1.4 Test Configuration

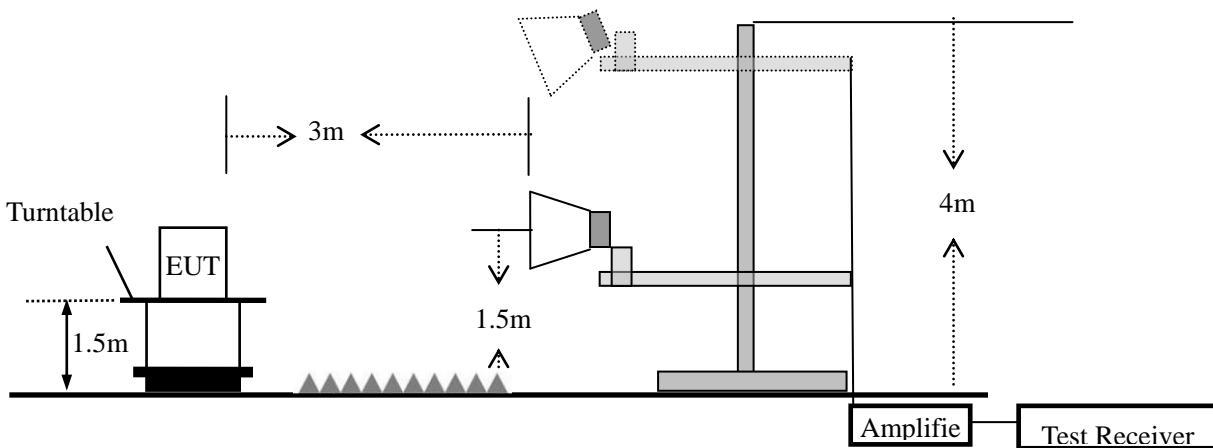
(a) For radiated emissions below 30MHz



(b) For radiated emissions from 30MHz to 1000MHz



(c) For radiated emissions above 1000MHz



### 7.1.5 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.

Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 1MHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For the radiated emission test above 1GHz:  
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	1 MHz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where  $RBWCF [dB] = 10 \cdot \lg(100 [kHz]/\text{narrower RBW [kHz]})$ . , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

### 7.1.6 Test Results

#### ■ Spurious Emission below 30MHz (9KHz to 30MHz)

EUT:	BYD Di5.0F	Model No.:	MTCA05
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	Mode1/Mode2/Mode3/ Mode4	Test By:	Mukzi Lee

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

■ Spurious Emission below 1GHz (30MHz to 1GHz)

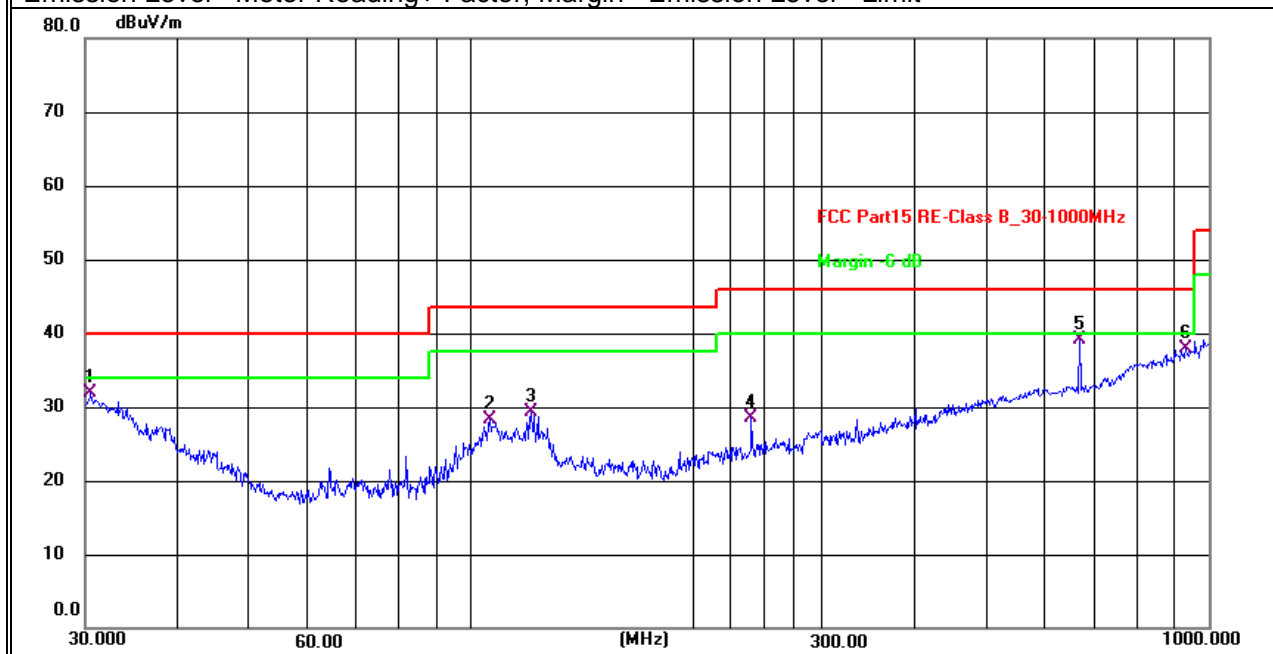
All the modulation modes have been tested, and the worst result was report as below:

EUT:	BYD Di5.0F	Model Name :	MTCA05
Temperature:	25 °C	Relative Humidity:	55%
Pressure:	1010hPa	Test Mode:	Mode 1
Test Voltage :	DC 12V		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	30.5304	5.77	26.12	31.89	40.00	-8.11	QP
V	106.0126	10.23	18.04	28.27	43.50	-15.23	QP
V	120.6991	10.66	18.63	29.29	43.50	-14.21	QP
V	239.9873	10.71	17.88	28.59	46.00	-17.41	QP
V	668.1422	11.70	27.35	39.05	46.00	-6.95	QP
V	932.2712	6.86	30.97	37.83	46.00	-8.17	QP

**Remark:**

Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit

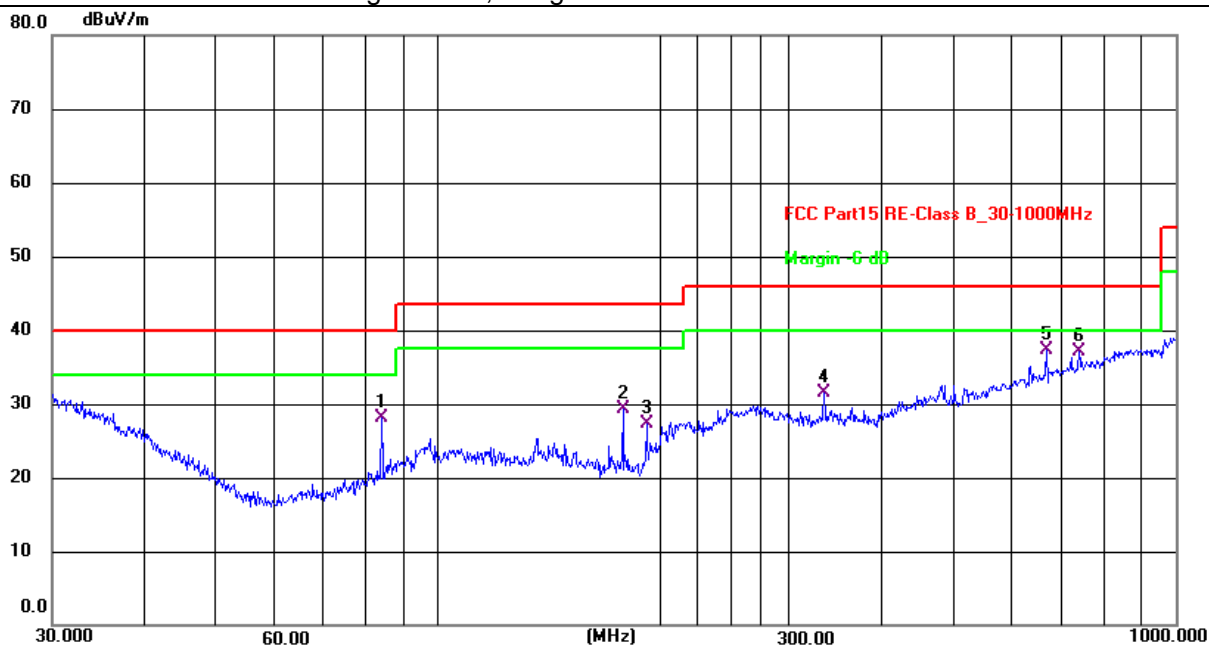




Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	83.8155	12.38	15.82	28.20	40.00	-11.80	QP
H	178.1322	12.42	16.88	29.30	43.50	-14.20	QP
H	191.7450	11.08	16.26	27.34	43.50	-16.16	QP
H	333.6865	10.57	20.87	31.44	46.00	-14.56	QP
H	668.1422	9.86	27.35	37.21	46.00	-8.79	QP
H	739.6603	8.55	28.54	37.09	46.00	-8.91	QP

**Remark:**

Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



■ Radiated Band Edge

EUT:	BYD Di5.0F	Model No.:	MTCA05
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	Mode1	Test By:	Mukzi Lee

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	2310.000	52.80	-19.18	33.62	74.00	-40.38	peak
V	2310.000	40.52	-19.18	21.34	54.00	-32.66	AVG
V	2325.200	56.79	-19.13	37.66	74.00	-36.34	peak
V	2325.200	42.34	-19.13	23.21	54.00	-30.79	AVG
V	2390.000	54.39	-18.91	35.48	74.00	-38.52	peak
V	2390.000	40.25	-18.91	21.34	54.00	-32.66	AVG

**Remark:**

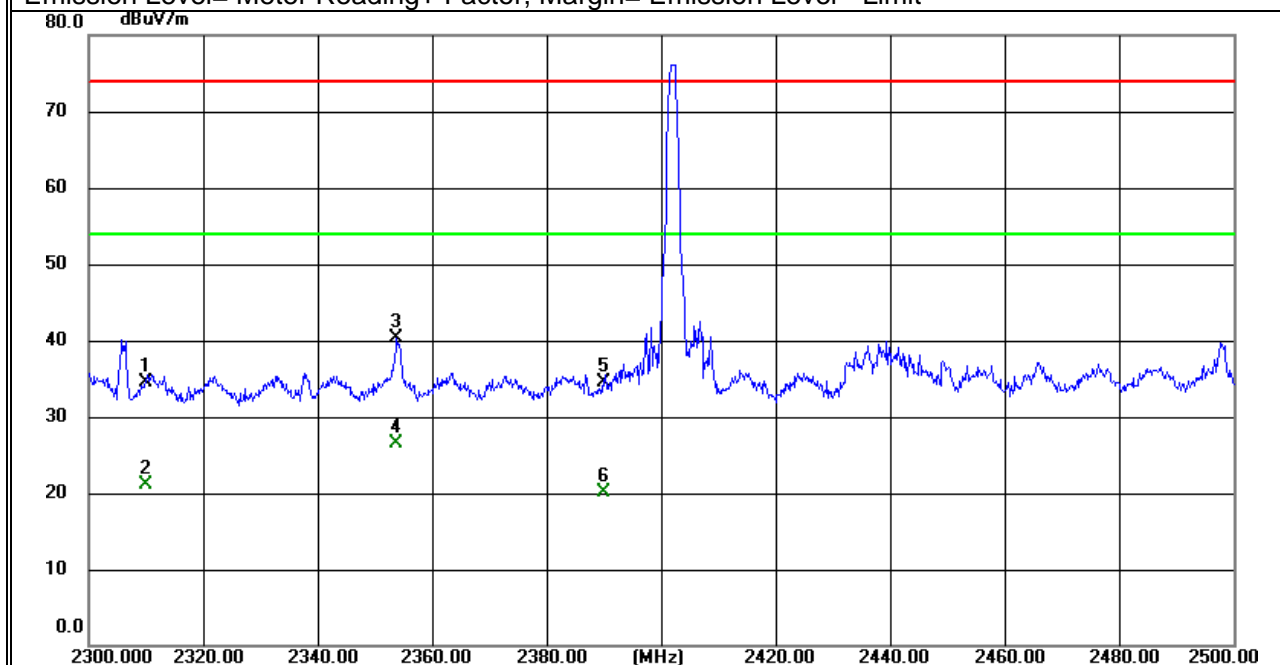
Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	2310.000	53.59	-19.18	34.41	74.00	-39.59	peak
H	2310.000	40.25	-19.18	21.07	54.00	-32.93	AVG
H	2353.800	59.27	-19.03	40.24	74.00	-33.76	peak
H	2353.800	45.63	-19.03	26.60	54.00	-27.40	AVG
H	2390.000	53.33	-18.91	34.42	74.00	-39.58	peak
H	2390.000	38.99	-18.91	20.08	54.00	-33.92	AVG

**Remark:**

Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



■

EUT:	BYD Di5.0F	Model No.:	MTCA05
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	Mode3	Test By:	Mukzi Lee

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	2483.500	54.69	-18.47	36.22	74.00	-37.78	peak
V	2483.500	41.28	-18.47	22.81	54.00	-31.19	AVG
V	2491.200	55.54	-18.46	37.08	74.00	-36.92	peak
V	2491.200	42.69	-18.46	24.23	54.00	-29.77	AVG
V	2500.000	53.58	-18.43	35.15	74.00	-38.85	peak
V	2500.000	41.47	-18.43	23.04	54.00	-30.96	AVG

**Remark:**

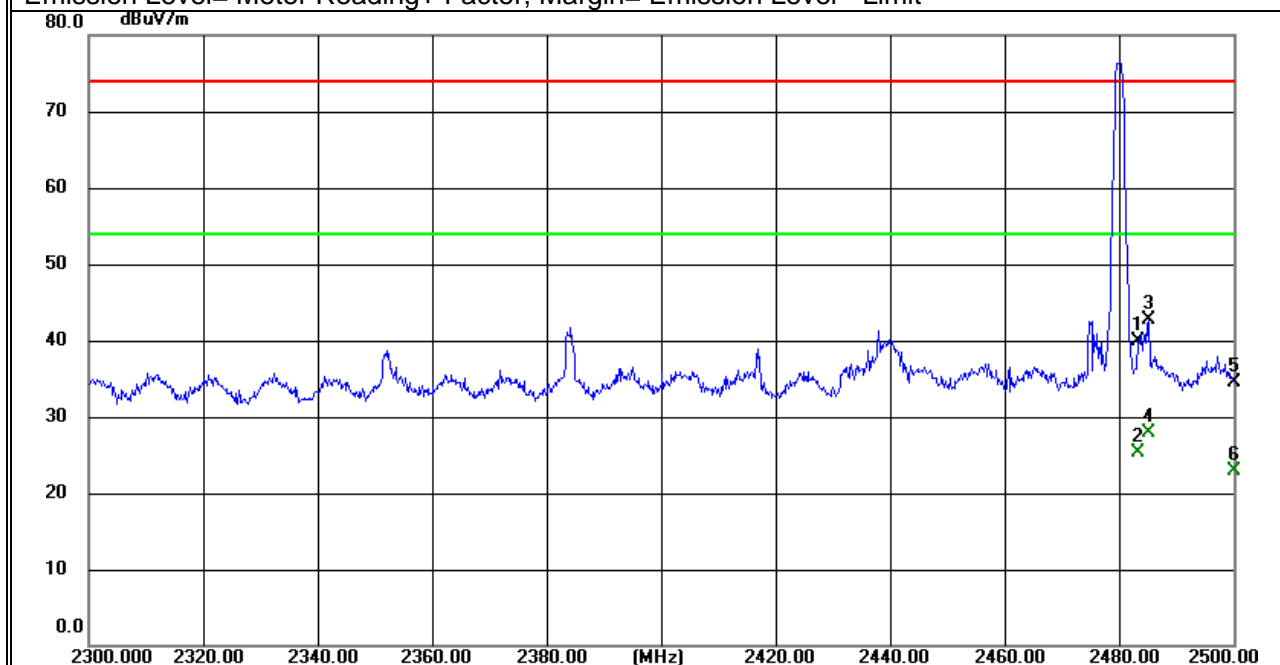
Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	2483.500	58.40	-18.47	39.93	74.00	-34.07	peak
H	2483.500	43.82	-18.47	25.35	54.00	-28.65	AVG
H	2485.200	61.27	-18.47	42.80	74.00	-31.20	peak
H	2485.200	46.29	-18.47	27.82	54.00	-26.18	AVG
H	2500.000	52.84	-18.43	34.41	74.00	-39.59	peak
H	2500.000	41.28	-18.43	22.85	54.00	-31.15	AVG

**Remark:**

Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit



■ Spurious Emission Above 1GHz (1GHz to 25GHz)

EUT:	BYD Di5.0F	Model No.:	MTCA05
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	Mode1/Mode2/Mode3	Test By:	Mukzi Lee

Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark	Comment
(MHz)	(dBμV)	(dB)	dB/m	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
Low Channel (2402 MHz)(GFSK)--Above 1G									
4804	56.91	5.21	35.59	44.30	53.41	74.00	-20.59	Pk	Vertical
4804	36.94	5.21	35.59	44.30	33.44	54.00	-20.56	AV	Vertical
7206	56.24	6.48	36.27	44.60	54.39	74.00	-19.61	Pk	Vertical
7206	33.3	6.48	36.27	44.60	31.45	54.00	-22.55	AV	Vertical
4804	56.3	5.21	35.55	44.30	52.76	74.00	-21.24	Pk	Horizontal
4804	37.16	5.21	35.55	44.30	33.62	54.00	-20.38	AV	Horizontal
7206	55.01	6.48	36.27	44.52	53.24	74.00	-20.76	Pk	Horizontal
7206	34.34	6.48	36.27	44.52	32.57	54.00	-21.43	AV	Horizontal
Mid Channel (2440 MHz)(GFSK)--Above 1G									
4880	55.53	5.21	35.66	44.20	52.20	74.00	-21.80	Pk	Vertical
4880	33.98	5.21	35.66	44.20	30.65	54.00	-23.35	AV	Vertical
7320	56.73	7.10	36.50	44.43	55.90	74.00	-18.10	Pk	Vertical
7320	37.68	7.10	36.50	44.43	36.85	54.00	-17.15	AV	Vertical
4880	57.15	5.21	35.66	44.20	53.82	74.00	-20.18	Pk	Horizontal
4880	32.8	5.21	35.66	44.20	29.47	54.00	-24.53	AV	Horizontal
7320	56.26	7.10	36.50	44.43	55.43	74.00	-18.57	Pk	Horizontal
7320	37.01	7.10	36.50	44.43	36.18	54.00	-17.82	AV	Horizontal
High Channel (2480 MHz)(GFSK)-- Above 1G									
4960	57.24	5.21	35.52	44.21	53.76	74.00	-20.24	Pk	Vertical
4960	37.79	5.21	35.52	44.21	34.31	54.00	-19.69	AV	Vertical
7440	56.16	7.10	36.53	44.60	55.19	74.00	-18.81	Pk	Vertical
7440	37.93	7.10	36.53	44.60	36.96	54.00	-17.04	AV	Vertical
4960	55.18	5.21	35.52	44.21	51.70	74.00	-22.30	Pk	Horizontal
4960	33.69	5.21	35.52	44.21	30.21	54.00	-23.79	AV	Horizontal
7440	56.93	7.10	36.53	44.60	55.96	74.00	-18.04	Pk	Horizontal
7440	34.14	7.10	36.53	44.60	33.17	54.00	-20.83	AV	Horizontal

Note:

- (1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor
- (2) All other emissions more than 20dB below the limit.

## 7.2 ANTENNA APPLICATION

### 7.2.1 Antenna Requirement

15.203 requirement: For intentional device, according to 15.203: 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.

### 7.2.2 Result

The EUT antenna is permanent attached Ceramic antenna (Gain:2.27 dBi). It comply with the standard requirement.

END OF REPORT