



# MPE Test Report

**Report No.:** MTi201225011-03E3

**Date of issue:** May 14, 2021

**Applicant:** Cherub Technology Co., Ltd

**Product name:** BASS AMPLIFIER

**Model(s):** MIGHTY BASS 50BT

**FCC ID:** 2AOAAMIGHTYBASS50BT

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



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## Table of Contents

<b>1</b>	<b>RF EXPOSURE EVALUATION.....</b>	<b>5</b>
1.1	LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE).....	5
1.2	MEASUREMENT RESULT .....	6



<b>TEST RESULT CERTIFICATION</b>	
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Manufacturer's Name.....	Cherub Technology Co., Ltd
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Factory's Name.....	Cherub Technology Co., Ltd (Zhuhai High-tech Park)
Address.....	No.10, Keji No.9Rd, Tangjiawan Town, Zhuhai National Hi-tech Industrial Development Zone, Zhuhai City, Guangdong Province, China, 519080
<b>Product description</b>	
Product name.....	BASS AMPLIFIER
Trademark.....	NUX
Model Name.....	MIGHTY BASS 50BT
Serial Model.....	N/A
Standards.....	N/A
Test procedure	KDB 447498 D01 v06
<b>Date of Test</b>	
Date (s) of performance of tests... :	Jan. 15, 2021 ~ May 14, 2021
Test Result.....:	Pass
<p>This device described above has been tested by Shenzhen Microtest 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.</p>	

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# 1 RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

## 1.1 Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz \* = Plane-wave equivalent power density

### MPE Calculation Method

Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = Numeric gain of the antenna relative to isotropic antenna

$\pi$  = 3.1415926

$R$  = distance between observation point and center of the radiator in cm(20cm)

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.



## 1.2 Measurement Result

Operation Frequency: BT GFSK,  $\pi/4$ -DQPSK, 8DPSK: 2402-2480MHz

Power density limited: 1mW/ cm<sup>2</sup>

Antenna Type: BT Antenna;

BT antenna gain: 1.5dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(2.5/10)}=1.78$

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	7.963	8±1	9	7.943	1.5	1.41	0.0022	1
2441		8.334	8±1	9	7.943	1.5	1.41	0.0022	1
2480		7.174	8±1	9	7.943	1.5	1.41	0.0022	1
2402	$\pi/4$ -DQPSK	8.026	9±1	10	10.000	1.5	1.41	0.0028	1
2441		9.196	9±1	10	10.000	1.5	1.41	0.0028	1
2480		8.389	9±1	10	10.000	1.5	1.41	0.0028	1
2402	8DPSK	8.403	9±1	10	10.000	1.5	1.41	0.0028	1
2441		9.179	9±1	10	10.000	1.5	1.41	0.0028	1
2480		8.462	9±1	10	10.000	1.5	1.41	0.0028	1

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	3.924	4±1	5	3.162	1.50	1.41	0.0009	1
2440		4.737	4±1	5	3.162	1.50	1.41	0.0009	1
2480		3.574	4±1	5	3.162	1.50	1.41	0.0009	1

### Conclusion:

For the max result: BT: 0.0028 ≤ 1.0, BLE: 0.0009 ≤ 1.0 for 1g SAR, No SAR is required.

----END OF REPORT----