



RF EXPOSURE Test Report

Report No.: MTi220826015-04E3
Date of issue: 2022-11-24
Applicant: Collective Minds Gaming Co., Ltd
Product: Cronus Zen
Model(s): CM00053
FCC ID: 2AEVW-CM00053C

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

Instructions

1. The report shall not be partially reproduced without the written consent of the laboratory;
2. The test results of this report are only responsible for the samples submitted;
3. This report is invalid without the seal and signature of the laboratory;
4. This report is invalid if transferred, altered or tampered with in any form without authorization;
5. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.



TEST RESULT CERTIFICATION	
Applicant's name.....:	Collective Minds Gaming Co., Ltd
Address.....:	5000 Jean Talon West, Suite# 250, Montreal, Quebec H4P 1W9, Canada
Manufacturer's Name.....:	DongGuan KingSheng Electronics&Technology Co., Ltd
Address.....:	Building 39, Arising Sun Industrial City, LinCun Village, TangXia Town, DongGuan City, China
Product description	
Product name.....:	Cronus Zen
Trademark.....:	CollectiveMinds
Model Name.....:	CM00053
Series Model.....:	N/A
Standards.....:	N/A
Test procedure.....:	KDB 447498 D01 v06
Date of Test	
Date (s) of performance of tests.....:	2022-09-16 ~ 2022-11-24
Test Result.....:	Pass
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.	

Testing Engineer : Yanice Xie
(Yanice Xie)

Technical Manager : Leon Chen
(Leon Chen)

Authorized Signatory : Tom Xue
(Tom Xue)



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)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*300/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	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: $Pd = (Pout * G) / (4 * \pi * R^2)$

Where

Pd= Power density in mW/cm²

Pout=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)

Pd the limit of MPE, 1mW/cm². 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.

Measurement Result

BT:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna;

BT antenna gain: 0.12dBi

R=20cm

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

antenna gain Numeric= $10^{(dBi/10)}=10^{(-2.4/10)}=0.58$

BR+EDR:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	2.17	2±1	3	1.995	0.12	1.03	0.0004	1
2441		3.55	3±1	4	2.512	0.12	1.03	0.0005	1
2480		4.19	4±1	5	3.162	0.12	1.03	0.0007	1
2402	π/4-DQPSK	-0.19	0±1	1	1.259	0.12	1.03	0.0003	1
2441		1.47	1±1	2	1.585	0.12	1.03	0.0003	1
2480		2.17	2±1	3	1.995	0.12	1.03	0.0004	1
2402	8DPSK	0.3	0±1	1	1.259	0.12	1.03	0.0003	1
2441		1.86	1±1	2	1.585	0.12	1.03	0.0003	1
2480		2.58	2±1	3	1.995	0.12	1.03	0.0004	1

BLE:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	4.5	5±1	6	3.981	0.12	1.03	0.0008	1
2441		5.58	5±1	6	3.981	0.12	1.03	0.0008	1
2480		5.48	5±1	6	3.981	0.12	1.03	0.0008	1



Conclusion:

For the max result: $0.0008 \leq 1.0$ SAR, No SAR is required.

----END OF REPORT----