Shenzhen Most Technology Service Co., Ltd.
East A, 1 floor of New Aolin Factory buiding, Langshan Erlu, North District,
Hi-tech Industry Park, Nanshan,Shenzhen,Guangdong,China

RF Exposure Evaluation Report

Report Reference No......:	**MTEB23110042-H**
FCC ID..... **:**	**2AUA5-A2**
Compiled by (position+printed name+signature)..:	File administrators Alisa Luo
Supervised by (position+printed name+signature)..:	Test Engineer Sunny Deng
Approved by (position+printed name+signature)..:	Manager Yvette Zhou
Date of issue.....:	Nov. 06,2023
Representative Laboratory Name .:	**Shenzhen Most Technology Service Co., Ltd.**
Address .....:	No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.
Applicant's name.....:	**IMachine（Xiamen）Intelligent Devices Co.,Ltd.**
Address .....:	Unit 1502-2,No.3 Jinzhong Road, Huli District, Xiamen, China
Test specification/ Standard .....**:**	**47 CFR Part 1.1307;47 CFR Part 1.1310** **KDB447498D01 General RF Exposure Guidance v06**
TRF Originator.....:	Shenzhen Most Technology Service Co., Ltd.

Test item description .....:	Smart Desktop Terminal
Trade Mark .....:	IMachine
Model/Type reference.....:	A2
Listed Models .....:	A2 PLUS、P1、P1 PLUS、A3、A3 PLUS、A5、A5 PLUS 、P3、P3 PLUS、P5、P5 PLUS、Q1、K1 PLUS、M1、N1 PLUS、Q1、R1 PLUS、T1、T1 PLUS
Modulation Type .....:	GFSK GFSK, π/4DQPSK, 8DPSK b: DSSS ,CCK g/n: BPSK,QPSK,QAM
Operation Frequency.....:	From 2402MHz to 2480MHz From 2412MHz to 2462MHz
Hardware Version.....	SY-W92PE6043G190C-L01
Software Version	Windows10
Rating .....:	DC 12V by Adapter
Result.....:	**PASS**

TEST REPORT

Equipment under Test	:	Smart Desktop Terminal
Model /Type	:	A2
Listed Models	:	A2 PLUS、P1、P1 PLUS、A3、A3 PLUS、A5、A5 PLUS 、P3、P3 PLUS、P5、P5 PLUS、Q1、K1 PLUS、M1、N1 PLUS、Q1、R1 PLUS、T1、T1 PLUS
Remark		Only the product model name and appearance color are different, other are the same
Applicant	:	IMachine（Xiamen）Intelligent Devices Co.,Ltd.
Address	:	Unit 1502-2,No.3 Jinzhong Road, Huli District, Xiamen, China
Manufacturer	:	IMachine（Xiamen）Intelligent Devices Co.,Ltd.
Address	:	7F-2, No.88-1, Tonghui South Road,Tongan, Xiamen,China

Test Result:	**PASS**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2023.11.06	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06
4.3.1. Standalone SAR test exclusion considerations
Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.1.2 Limits

According to FCC Part1.1310: 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 part1.1307(b)

TABLE 1—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 Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	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
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

F= Frequency in MHz
Friis Formula
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 = gain of antenna in linear scale
Pi = 3.1416

R = distance between observation point and center of the radiator in cm
Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.1.3 EUT RF Exposure

Antenna Gain: 3.03dBi
BLE

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	0.499	0.499±1	1.499
Middle(2440MHz)	0.765	0.765±1	1.765
Highest(2480MHz)	0.572	0.572±1	1.572

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Middle(2440MHz)	1.765	1.50	3.03	0.00060	1.0	Pass

Note: 1) Refer to report **MTEB23110042-R** for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R2)=(1.50*2)/(4*3.1416*20^2)=0.00060

Antenna Gain: 3.03dBi
BT classic

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	0.577	0.577±1	1.577
Middle(2441MHz)	1.046	1.046±1	2.046
Highest(2480MHz)	0.821	0.821±1	1.821

π /4DQPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	-0.765	-0.765±1	0.235
Middle(2441MHz)	-0.454	-0.454±1	0.546
Highest(2480MHz)	-0.442	-0.442±1	0.558

8DPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	-0.885	-0.885±1	0.115
Middle(2441MHz)	-0.414	-0.414±1	0.586
Highest(2480MHz)	-0.404	-0.404±1	0.596

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Middle(2441MHz)	2.046	1.60	3.03	0.00064	1.0	Pass

Note: 1) Refer to report **MTEB23110042-R1** for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R2)=(1.60*2)/(4*3.1416*202)=0.00064
Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

Antenna Gain: 3.03dBi
WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2412MHz)	13.25	13.25±1	14.25
Middle(2437MHz)	13.44	13.44±1	14.44
Highest(2462MHz)	13.10	13.10±1	14.1

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2412MHz)	11.64	11.64±1	12.64
Middle(2437MHz)	12.49	12.49±1	13.49
Highest(2462MHz)	12.48	12.48±1	13.48

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2412MHz)	11.96	11.96±1	12.96
Middle(2437MHz)	11.93	11.93±1	12.93
Highest(2462MHz)	11.77	11.77±1	12.77

802.11n(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2422MHz)	11.80	11.80±1	12.8
Middle(2437MHz)	13.75	13.75±1	14.75
Highest(2452MHz)	11.79	11.79±1	12.79

WIFI 2.4G

Worst case: 802.11n(H40)						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Middle(2437MHz)	14.75	29.85	3.03	0.0119	1.0	Pass

Note: 1) Refer to report **MTEB23110042-R2** for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R2)=(29.85*2)/(4*3.1416*20^2)=0.0119

.....THE END OF REPORT.....