

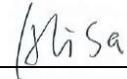
RF Exposure Evaluation Report

Report Reference No..... : MTWG2206097-H

FCC ID..... : 2A3AI-MAX1

Compiled by

(position+printed name+signature) : File administrators Alisa Luo



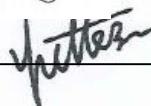
Supervised by

(position+printed name+signature) : Test Engineer Sunny Deng



Approved by

(position+printed name+signature) : Manager Yvette Zhou



Date of issue.....: June 30,2022

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.....: New Wanaka Limited

Address.....: FLAT/RM 803 8/F, EASEY COMMERCIAL BUILDING
253-261 HENNESSY ROAD, WAN CHAI HONG KONG

Test specification/ Standard.....: 47 CFR Part 1.1307

47 CFR Part 2.1093

TRF Originator.....: Shenzhen Most Technology Service Co., Ltd.

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Test item description.....: smart piano

Trade Mark.....: The ONE

Model/Type reference.....: MAX1

Listed Models: N/A

Modulation Type.....: GFSK, π/4DQPSK, 8DPSK

Operation Frequency.....: From 2402MHz to 2480MHz

Rating.....: Input: 100-240V~50Hz/60Hz 1.5A MAX
Output: 15V= 2.5A 37.5W

Hardware version.....: TOP3_MB_V01

Software version: V1.0.1

Result.....: **PASS**

TEST REPORT

Equipment under Test : smart piano

Model /Type : MAX1

Listed Models : N/A

Remark : N/A

Applicant : **New Wanaka Limited**

Address : FLAT/RM 803 8/F, EASEY COMMERCIAL BUILDING
253-261 HENNESSY ROAD, WAN CHAI HONG KONG

Manufacturer : **Medeli Musical Instrument (Zhuhai) Co.,Ltd.**

Address : Medeli Industrial Park,2 Shuang Lin East Road,Dalinshan
Area,Liangang Industrial Zone,Jinwan District,Zhuhai,China.

Test Result:	PASS
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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	2022.06.30	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

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

P_d = power density in mW/cm²

P_{out} = 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

P_d is 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

Measurement Data
BLE

GFSK				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-4.599	-4.599±1	-3.599	0.44
Middle(2440MHz)	-4.352	-4.352±1	-3.352	0.46
Highest(2480MHz)	-4.531	-4.531±1	-3.531	0.44

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/cm ²)	Limit	Result
Highest(2462 MHz)	-3.352	0.46	2.5	0.0001	1.0	Pass

Note: 1) Refer to report **MTWG2206097-R2** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (0.46 \cdot 1.78) / (4 \cdot 3.1416 \cdot 20^2) = 0.0001$

Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

Measurement Data

BT classic

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	-4.087	-4.087±1	-3.087
Middle(2441MHz)	-4.139	-4.139±1	-3.139
Highest(2480MHz)	-3.365	-3.365±1	-2.365

$\pi/4$ DQPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	-1.823	-1.823±1	-0.823
Middle(2441MHz)	-1.685	-1.685±1	-0.685
Highest(2480MHz)	0.633	0.633±1	1.633

8DPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	-1.339	-1.339±1	0.339
Middle(2441MHz)	-1.079	-1.079±1	-0.079
Highest(2480MHz)	-0.302	-0.302±1	0.698

Worst case: $\pi/4$ DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2462 MHz)	1.633	1.46	1	0.0004	1.0	Pass

Note: 1) Refer to report **MTWG2206097-R1** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (1.46 \cdot 1.25) / (4 \cdot 3.1416 \cdot 20^2) = 0.0004$

Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

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