

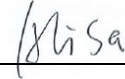
## RF Exposure Evaluation Report

**Report Reference No.**.....: **MTWG22040272-H**

**FCC ID**..... : **2A3AI-PLAY**

Compiled by

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



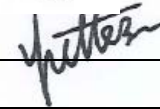
Supervised by

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



Approved by

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



Date of issue.....: **May 18,2022**

**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 1.1310**

**KDB447498D01 General RF Exposure Guidance v06**

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

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**Test item description** .....: smart piano

Trade Mark .....: The ONE

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

Model/Type reference.....: Play

Listed Models .....: N/A

Modulation Type .....: GFSK

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

Hardware Version..... V01

Software Version ..... V1.0

Rating .....: DC15V by Adapter

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

**TEST REPORT**

Equipment under Test : smart piano

Model /Type : Play

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.

<b>Test Result:</b>	<b>PASS</b>
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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	2022-05-18	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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</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
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	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
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

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

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

$P_{out}$  = 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/cm<sup>2</sup>. 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: 1.5dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.5 in linear scale. Output Power Into Antenna & RF Exposure Evaluation Distance:

BLE

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402)	-0.66	-0.66 ± 1	0.34
Middle(2440MHz)	0.12	0.12 ± 1	1.12
Highest(2480MHz)	0.18	0.18 ± 1	1.18

BLE

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 <sup>2</sup> )	Limit	Result
Highest(2480 MHz)	1.18	1.31	1.5	0.0004	1.0	Pass

Note: 1) Refer to report **MTWG22020077-R1** for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (1.31 * 1.41) / (4 * 3.1416 * 20^2) = 0.0004$

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