

# RF Exposure Evaluation

## FCC ID: 2A34Z- MP-100

### 1. Client Information

|                     |   |                                                                                        |
|---------------------|---|----------------------------------------------------------------------------------------|
| <b>Applicant</b>    | : | Qingdao Meijia Instrument Co., Ltd                                                     |
| <b>Address</b>      | : | No. 303 Songyun Road Industrial Park Zhangjialou Town Huangdao District Qingdao, China |
| <b>Manufacturer</b> | : | Qingdao Meijia Instrument Co., Ltd                                                     |
| <b>Address</b>      | : | No. 303 Songyun Road Industrial Park Zhangjialou Town Huangdao District Qingdao, China |

### 2. General Description of EUT

|                                                                                                                                                |   |                                                        |                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------------|-------------------------------------------------------------------------------|
| EUT Name                                                                                                                                       | : | DIGITAL PIANO                                          |                                                                               |
| Model(s) No.                                                                                                                                   | : | MP-100, SE-1, MP-200                                   |                                                                               |
| Product Description                                                                                                                            | : | Operation Frequency:                                   | Bluetooth V5.0(BDR+EDR): 2402~2480 MHz<br>Bluetooth 5.0(BLE): 2402MHz~2480MHz |
|                                                                                                                                                |   | Number of Channel:                                     | Bluetooth 5.0(BDR+EDR): 79 channels<br>Bluetooth 5.0(BLE): 40 channels        |
|                                                                                                                                                |   | Antenna Gain:                                          | -0.58dBi PCB Antenna                                                          |
|                                                                                                                                                |   | Modulation Type:                                       | GFSK, $\pi/4$ -DQPSK for BT<br>GFSK for BLE                                   |
|                                                                                                                                                |   | Bit Rate of Transmitter:                               | GFSK(1Mbps)<br>$\pi/4$ -DQPSK(2Mbps)                                          |
| Power Supply                                                                                                                                   | : | Input: 100-240V~ 50/60Hz 1.5V Max<br>Output: DC18V, 2A |                                                                               |
| Software Version                                                                                                                               | : | IISUPDATA V3.0                                         |                                                                               |
| Hardware Version                                                                                                                               | : | BT266 V2.0                                             |                                                                               |
| Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab. |   |                                                        |                                                                               |

**Note:** More test information about the EUT please refer the RF Test Report.

TB-RF-074-1.0



## SAR Test Exclusion Calculations

1. FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

- (1) Clause 4.3: General SAR test reduction and exclusion guidance

- Sub clause 4.31: Standalone SAR test exclusion considerations

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance  $\leq 5$  mm are determined by:

- $$\frac{[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation, mm})] \cdot [\sqrt{f_{\text{GHz}}]} \leq 3.0 \text{ for 1-g SAR}$$

- $$\frac{[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation, mm})] \cdot [\sqrt{f_{\text{GHz}}]} \leq 7.5.0 \text{ for 10-g SAR}$$



## 2. Calculation:

| Test separation: 5mm |                       |                              |                                      |                                     |                   |                 |
|----------------------|-----------------------|------------------------------|--------------------------------------|-------------------------------------|-------------------|-----------------|
| BT Mode (GFSK)       |                       |                              |                                      |                                     |                   |                 |
| Frequency (GHz)      | Conducted Power (dBm) | Turn-up Power Tolerance (dB) | Max power of tune up tolerance (dBm) | Max power of tune up tolerance (mw) | Calculation Value | Threshold Value |
| 2.402                | 3.686                 | 3±1                          | 4.0                                  | 2.51                                | 0.7863            | 3.0             |
| 2.441                | 3.035                 | 3±1                          | 4.0                                  | 2.51                                | 0.7863            | 3.0             |
| 2.480                | 2.684                 | 2±1                          | 3.0                                  | 2.00                                | 0.9899            | 3.0             |
| BT Mode (π/4-DQPSK)  |                       |                              |                                      |                                     |                   |                 |
| Frequency (GHz)      | Conducted Power (dBm) | Turn-up Power Tolerance (dB) | Max power of tune up tolerance (dBm) | Max power of tune up tolerance (mw) | Calculation Value | Threshold Value |
| 2.402                | 4.312                 | 4±1                          | 5.0                                  | 3.16                                | 0.9899            | 3.0             |
| 2.441                | 3.705                 | 3±1                          | 4.0                                  | 2.51                                | 0.7863            | 3.0             |
| 2.480                | 3.315                 | 3±1                          | 4.0                                  | 2.51                                | 0.7863            | 3.0             |
| BLE Mode (GFSK)      |                       |                              |                                      |                                     |                   |                 |
| Frequency (GHz)      | Conducted Power (dBm) | Turn-up Power Tolerance (dB) | Max power of tune up tolerance (dBm) | Max power of tune up tolerance (mw) | Calculation Value | Threshold Value |
| 2.402                | 4.034                 | 4±1                          | 5.0                                  | 3.16                                | 0.9899            | 3.0             |
| 2.442                | 3.774                 | 3±1                          | 4.0                                  | 2.51                                | 0.7863            | 3.0             |
| 2.480                | 2.956                 | 3±1                          | 4.0                                  | 2.51                                | 0.7863            | 3.0             |

### Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

-----END OF REPORT-----