



# FCC RF EXPOSURE REPORT

|            |                                                                                                                                       |
|------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Applicant  | : Beijing Xiaomi Electronics Co.,Ltd                                                                                                  |
| Address    | : Room 707,7F,Building 5,No 58,Jinghai Wulu Road,<br>Beijing economic and Technological Development<br>Zone,100176 Beijing City,China |
| Equipment  | : XIAOMI TV Stick                                                                                                                     |
| Model No.  | : MDZ-27-AA                                                                                                                           |
| Trade Name | : Xiaomi                                                                                                                              |
| FCC ID.    | : 2AIMRMITVMDZ27AA                                                                                                                    |

## I HEREBY CERTIFY THAT :

The sample was received on Oct. 28, 2022 and the testing was completed on Nov. 07, 2022 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Leevin Li /Supervisor



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### History of this test report

| Report No.  | Issue Date    | Description   |
|-------------|---------------|---------------|
| DEFJ2209018 | Nov. 09, 2022 | Initial Issue |
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Note: This is the amended report application basing on the original report DEDJ2107060. The differences between them as following:

- 1) Reduced WiFi power by software.



## 1. Test Configuration of Equipment under Test

### 1.1 Feature of Equipment

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment         | XIAOMI TV Stick                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Model Name        | MDZ-27-AA                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Model Discrepancy | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Frequency Range   | BT/BLE/ WIFI 2.4G: 2400MHz-2483.5MHz<br>WIFI 5G: 5150MHz-5350MHz, 5470-5725MHz,<br>5725MHz -5850MHz                                                                                                                                                                                                                                                                                                                                                  |
| Modulation Type   | BT: GFSK, $\pi/4$ -DQPSK, 8DPSK<br>BLE: GFSK<br>802.11b: CCK, DQPSK, DBPSK<br>802.11a/g: 64-QAM,16-QAM, QPSK, BPSK<br>802.11n: 64-QAM,16-QAM, QPSK, BPSK<br>802.11ac: 256-QAM,64-QAM,16-QAM, QPSK, BPSK                                                                                                                                                                                                                                              |
| Data Rate         | BT:<br>GFSK:1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK:3Mbps<br>BLE:<br>GFSK: 1Mbps<br>WIFI 2.4G:<br>802.11b: 1, 2 ,5.5,11Mbps<br>802.11g: 6,9,12,18,24,36,48,54Mbps<br>802.11n: HT20 reach up to 144.4Mbps, HT40 reach up to 300Mbps<br>WIFI 5G:<br>802.11a: 6,9,12,18,24,36,48,54Mbps<br>802.11n: HT20 reach up to 144.4Mbps, HT40 reach up to300Mbps<br>802.11ac: VHT20 reach up to 173.3Mbps, VHT40 reach up to<br>400Mbps, VHT80 reach up to 866.7Mbps |
| Antenna Type      | BT/BLE:PCB Antenna<br>WIFI 2.4G/5G: PCB Antenna for Antenna A;<br>PCB Antenna for Antenna B                                                                                                                                                                                                                                                                                                                                                          |
| Power Source      | POWER ADAPTER<br>A319-050100U-US1<br>Input:100-240V~ 50/60Hz 0.2A Max.<br>Output:5V---1A                                                                                                                                                                                                                                                                                                                                                             |

Note: 1) For more details, please refer to the User's manual of the EUT.



## 1.2 General Information of Test

|                      |                                                                                                                                                                                                           |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Site            | <b>Cerpass Technology Corporation(Cerpass Laboratory)</b><br>Address: Room 102, No. 5, Xing'an Road, Chang'an Town, Dongguan City, Guangdong Province<br>Tel: +86-769-8547-1212<br>Fax: +86-769-8547-1912 |
| FCC Designation No.: | CN1288                                                                                                                                                                                                    |



## 2. Radio Frequency Exposure

|                                |                                                                                                                                                                                                                                |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Device category</b>         | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)                                                                                                          |
| <b>Exposure classification</b> | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )                                  |
| <b>Antenna diversity</b>       | <input type="checkbox"/> Single antenna<br><input checked="" type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity |
| <b>Evaluation applied</b>      | <input checked="" type="checkbox"/> MPE Evaluation*<br><input type="checkbox"/> SAR Evaluation<br><input type="checkbox"/> N/A                                                                                                 |

### TEST RESULTS

No non-compliance noted.

### Calculation

Given  $E = \frac{\sqrt{30 \times P \times G}}{d}$  &  $S = \frac{E^2}{3770}$

Where  $E$  = Field strength in Volts / meter  
 $P$  = Power in Watts  
 $G$  = Numeric antenna gain  
 $d$  = Distance in meters  
 $S$  = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where  $d$  = Distance in cm  
 $P$  = Power in mW  
 $G$  = Numeric antenna gain  
 $S$  = Power density in mW / cm<sup>2</sup>

**Maximum Permissible Exposure****Bluetooth**

| Mode          | Frequency band (MHz) | Peak output power(dBm) | Peak output power(mW) | Antenna Gain (dBi) | Antenna gain (Numeric) | Distance (cm) | Power density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|---------------|----------------------|------------------------|-----------------------|--------------------|------------------------|---------------|-------------------------------------|-----------------------------|
| Bluetooth EDR | 2402-2480            | 6.79                   | 4.775292737           | 0.6                | 1.15                   | 20            | 0.001091071                         | 1                           |
| Bluetooth LE  | 2402-2480            | 3.93                   | 2.471724145           | 0.6                | 1.15                   | 20            | 0.000564746                         | 1                           |

**Wlan****MIMO****ANT A**

| Channel Frequency (MHz) | Max. Conducted output power (dBm) | Max. Tune up power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) |
|-------------------------|-----------------------------------|--------------------------|--------------------|---------------|-------------------------------------|
| 2412-2462               | 20.31                             | 22.31                    | 1.3                | 20            | 0.046                               |
| 5150-5250               | 10.40                             | 12.40                    | 4.1                | 20            | 0.009                               |
| 5250-5350               | 10.84                             | 12.84                    | 3.9                | 20            | 0.009                               |
| 5470-5725               | 10.07                             | 12.07                    | 3.5                | 20            | 0.007                               |
| 5725-5850               | 8.83                              | 10.83                    | 3.1                | 20            | 0.005                               |

**ANT B**

| Channel Frequency (MHz) | Max. Conducted output power (dBm) | Max. Tune up power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) |
|-------------------------|-----------------------------------|--------------------------|--------------------|---------------|-------------------------------------|
| 2412-2462               | 20.56                             | 22.56                    | 1.3                | 20            | 0.048                               |
| 5150-5250               | 11.46                             | 13.46                    | 4.1                | 20            | 0.011                               |
| 5250-5350               | 11.44                             | 13.44                    | 3.9                | 20            | 0.011                               |
| 5470-5725               | 10.63                             | 12.63                    | 3.5                | 20            | 0.008                               |
| 5725-5850               | 10.24                             | 12.24                    | 3.1                | 20            | 0.007                               |

The sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits :

| Simultaneous transmission mode | The sum of the ratios | Result    |
|--------------------------------|-----------------------|-----------|
| ANT A+ANT B                    | 0.046/1+0.048/1       | 0.094 < 1 |

**Maximum Permissible Exposure (Co-location)**

the sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits :

| Simultaneous transmission mode | The sum of the ratios   | Result    |
|--------------------------------|-------------------------|-----------|
| Bluetooth +WLAN                | 0.001/1+0.046/1+0.048/1 | 0.095 < 1 |

**Conclusion**

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----End of the report -----