



SAR Evaluation Report

Application No.: SZEM1811009981CR
Applicant: Beijing Miiw Technology Co., Ltd.
Address of Applicant: RM101, Building A-1, Shunshijiaye Innovation Park, Beijing, 100085, China
Manufacturer: Beijing Miiw Technology Co., Ltd.
Address of Manufacturer: RM101, Building A-1, Shunshijiaye Innovation Park, Beijing, 100085, China
Factory: TianJin ZOWEE Technology Development Co., Limited
Address of Factory: No.71 South Street Xinhuan, West Zone, Economic Development Zone of Tian Jin
Equipment Under Test (EUT):
EUT Name: MIIW Smart Pad
Model No.: MWSP01
Trade mark: MIIW
FCC ID: 2AR3N-MWSP01
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2018-11-21
Date of Test: 2018-12-05 to 2018-12-19
Date of Issue: 2018-12-21

Test Result :	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Kenx. Xu

Kenx Xu
EMC Laboratory Manager



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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2018-12-21		Original

Authorized for issue by:				
		Bill Chen		
		Bill Chen /Project Engineer		
		Eric Fu		
		Eric Fu /Reviewer		



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4 General Information

4.1 General Description of EUT

Power supply:	Adapter: Mode:CZ-A01 Input: AC 100-240VAC 50/60Hz 0.6A Output: DC 5V/2A 9V/1.2A
Cable:	USB cable:115cm unshielded
For BLE	
Frequency Range:	2402MHz to 2480MHz
Bluetooth Version:	4.2
Modulation Type:	GFSK
Number of Channels:	40
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi
For wireless charge	
Antenna Type:	Loop Antenna
Modulation Type:	Load Modulation
Operation Frequency:	128.08kHz to 175.32kHz



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4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.



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5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 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.

5.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

5.1.3 EUT RF Exposure

For BLE mode:

The Max. power (including tune-up tolerance) is -10.11 dBm on the lowest channel 2.402 GHz (*)

-10.11 dBm logarithmic terms convert to numeric result is nearly 0.10 mW

According to the formula, calculate the test exclusion thresholds:

$$\left[\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} \right] \cdot \sqrt{f(\text{GHz})}$$

$$\sqrt{f(\text{GHz})}$$

$$\text{General RF Exposure} = (0.10 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.03 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM181100998101





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For wireless charge mode:

The maximum conducted output power specified is $-51.43\text{dBm} = 0.0001\text{mW}$

The SAR Exclusion Threshold Level for 128.08kHz to 175.32kHz when the minimum test separation distance is $< 50\text{mm}$:

$$= 474 * [1 + \log(100/f(\text{MHz})]/2$$

$$= 468.2 \text{ mW}$$

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.

For Bluetooth and wireless charge mode transmit simultaneously:

According to the formula

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/7.5}] \text{ W/kg}$$

For Bluetooth:

$$\text{SAR test exclusion} = (0.10\text{mW} / 5 \text{ mm}) \times \sqrt{2.402\text{GHz}} = 0.03\text{W/kg}$$

For wireless charge mode:

$$\text{SAR test exclusion} = (0.00001\text{mW} / 5 \text{ mm}) \times \sqrt{0.01054\text{GHz}/7.5} = 5.272 \times 10^{-7} \text{ W/kg}$$

The total SAR test exclusion $\approx 0.161 \text{ W/kg} < 1.6 \text{ W/kg}$

So the SAR report is not required.

- End of the Report -



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