



SAR Evaluation Report

Application No.: SZEM1912021756CR
Applicant: Dspread Technology(Beijing) Inc
Address of Applicant: Rm.407,B12C,#10(Universal Business Park),Jiuxianqiao Road,Chaoyang District,Beijing,China
Manufacturer: Dspread Technology(Beijing) Inc
Address of Manufacturer: Rm.407,B12C,#10(Universal Business Park),Jiuxianqiao Road,Chaoyang District,Beijing,China
Factory: SHENZHEN WINSTAR PRECISION ELECTRONICS CO., LTD.
Address of Factory: The East Side of the Floor 6,Floor 5,Building 28,Shancheng Industrial Park,Shixin Community, Langxin Community,Shiyan Street,Bao'an District,Shenzhen City,Guangdong Province,P.R.China
Equipment Under Test (EUT):
EUT Name: Mobile POS
Model No.: CR100
FCC ID: 2AGQ6-CR100
Standards: 47 CFR Part 1.1310
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2019-12-31
Date of Test: 2020-01-06 to 2020-03-10
Date of Issue: 2020-03-12

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

Keny Xu

Keny Xu
EMC Laboratory Manager



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Shenzhen Branch EMC Laboratory

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-03-12		Original

Authorized for issue by:				
				
		Calvin Weng /Project Engineer		
				
		Eric Fu /Reviewer		



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4 General Information

4.1 General Description of EUT

Power Supply:	DC3.7V by li-ion battery Recharge input: DC5V/1A by USB port
BT	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	4.2
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Antenna Gain:	-6.66dBi
Antenna Type:	Integral antenna
BLE	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	4.2
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Gain:	-6.66dBi
Antenna Type:	Integral antenna



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4.2 Test Location

All tests were performed at:

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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.



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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:

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

$f(\text{GHz})$ 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

BT:

The Max. power (including tune-up tolerance) is 5.56 dBm on the highest channel 2.48 GHz (*)

5.56 dBm logarithmic terms convert to numeric result is nearly 3.60 mW

According to the formula. calculate the test exclusion thresholds:

$$\text{General RF Exposure} = \frac{(\text{Max. Power of channel, including tune-up tolerance, mW}) \cdot \sqrt{f(\text{GHz})}}{(\text{min. test separation distance, mm})}$$
$$\text{General RF Exposure} = (3.60 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.48 \text{ GHz}} = 1.13 \quad (1)$$

SAR requirement:

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

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM191202175602



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BLE:

The Max. power (including tune-up tolerance) is 7.34 dBm on the lowest channel 2.44 GHz (*)
7.34 dBm logarithmic terms convert to numeric result is nearly 5.42 mW
According to the formula. calculate the test exclusion thresholds:

$$\text{General RF Exposure} = \frac{(\text{Max. Power of channel, including tune-up tolerance, mW}) * \sqrt{f \text{ (GHz)}}}{(\text{min. test separation distance, mm})}$$

$$\text{General RF Exposure} = (5.42 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.44 \text{ GHz}} = 1.69 \quad (1)$$

SAR requirement:

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

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM191202175603

- End of the Report -



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