



RF Exposure evaluation

Report Reference No. : CTA-01-160400602

FCC ID. : 2AH74SW-B1

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Date of issue : Apr. 29, 2016

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Applicant's name : SHENZHEN LINGWU TECHNOLOGY CO.LTD

Address : Room 301, Building E, He Ping Gang Industrial Park, Gang Tou of Ban Tian Street. Long Gang District. Shen Zhen City. Guang Dong Province. P.R. China.

Test specification :

Standard : 47CFR §2.1091(d)/KDB447498 v06

TRF Originator : Shenzhen CTA Testing Technology Co., Ltd.

Master TRF : Dated 2014-12

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Test item description : Silicone intelligent

Trade Mark : /

Manufacturer : Shenzhen Crave Communication Co.,LTD

Model/Type reference : SW-B1

Listed Models : /

Operation Frequency : From 2402MHz to 2480MHz

Exposure category : General population/uncontrolled environment

EUT Type : Production Unit

Device Type : Portable Device

Rating : DC 3.7V

Result : **PASS**

TEST REPORT

Test Report No. :	CTA-01-160400602	Apr. 29, 2016
		Date of issue

Equipment under Test : Silicone intelligent

Model /Type : SW-B1

Listed Models : /

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Test Result:	PASS
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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.

Revision History

Revision	Issue Date	Revisions	Revised By
V1.0	2016-04-29	Initial Issue	Eric Wang

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1. SUMMARY

1.1. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- supplied by the manufacturer

- supplied by the lab

<input type="radio"/>	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Asia Institute Technology (DongGuan) Limited

Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.

2.2. Test Facility

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

CNAS- Registration No: L6177

Dongguan Yaxu (AiT) technology Limited is accredited 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) on Apr. 18, 2013

FCC- Registration No: 248337

The 3m Semi-Anechoic Chamber, 3m/10m Open Area Test Site and Shielding Room of Dongguan Yaxu (AiT) Technology Limited have been registered by Federal Communications Commission (FCC) on Aug.29, 2014.

Industry Canada(IC)-Registration No: IC6819A

The 3m Semi-Anechoic Chamber and 3m/10m Open Area Test Site of Dongguan Yaxu (AiT) Technology Limited have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing on Oct. 01, 2014.

2.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

2.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 " Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Asia Institute Technology (DongGuan) Limited quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Asia Institute Technology (DongGuan) Limited is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1093 RF exposure requirement

KDB447498 v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

3.2. Requirement

According to KDB447498 D01 General RF Exposure Guidance v05r01Section 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 Test Exclusion Threshold condition, listed below, is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.22 The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander (see 5) of section 4.1). To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, typically in the SAR measurement or SAR analysis report, according to the required published RF exposure KDB procedures. When no other RF exposure testing or reporting is required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for the SAR test exclusion. When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops & tablets etc.23 "

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

- f (GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

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 according to 5) in section 4.1 is applied to determine SAR test exclusion.

3.3. Conducted Power Results

BT4.0

Mode	Channel	Frequency (MHz)	Conducted PeakOutput Power (dBm)	Conducted Average Output Power (dBm)
GFSK	00	2402	-6.579	-8.172
	39	2440	-6.878	-8.368
	78	2480	-6.714	-8.297

Manufacturing tolerance

Bluetooth

BLE-GFSK (Average)

Channel	Channel 00	Channel 19	Channel 39
Target (dBm)	-8.0	-8.0	-8.0
Tolerance \pm (dB)	1	1	1

4. Evaluation Result

Evaluation Results

Band/Mode	f (GHz)	Antenna Distance (mm)	RF output power (including tune-up tolerance)		SAR Test Exclusion Threshold	SAR Test Exclusion
			dBm	mW		
BT*	2480	5	-7	0.20	0.1<3.0	Yes

BT* - Bluetooth including Lower Power Bluetooth.

5. 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.....