



Shenzhen Huaxia Testing Technology Co., Ltd

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640

Fax: +86-755-26648637

Website: www.cqa-cert.com

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RF Exposure Evaluation Report

Report No.: CQASZ20210500727E-02
Applicant: Shenzhen Shengtai smart Innovation Technology Co. Ltd
Address of Applicant: Room 1005, Jia An Da Building, NO. 110, Hua Fan Road, Tong Sheng community, Da Lang Street, Long Hua district, Shen Zhen city.
Equipment Under Test (EUT):
EUT Name: SMART EAR STICK
Model No.: WS1, WS2, WS3, WS5, WS6, WS7, WS8, WS9, WS10, AS1, AS2, AS3, AS5, AS6, AS7, AS8, AS9, AS10, VS1, VS2, VS3, VS5, VS6, VS7, VS8, VS9, VS10, HS1, HS2, HS3, HS5, HS6, HS7, HS8, MS1, MS2, MS3, MS5, MS6, MS7, MS8, T1-1, T1-2, T2-1, T2-2, T3-1, T3-2, T6-2, T8-2, T9-2, A1, A2, A3, A5, A6, V1, V2, V3, V5, V6, W1, W2, W3, W5, W6, H1, H2, H3, H5, H6, M1, M2, M3, M5, M6
Test Model No.: WS1
Brand Name: 
FCC ID: 2AZ4D-WS1
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-05-21
Date of Test: 2021-05-21 to 2021-06-03
Date of Issue: 2021-06-03
Test Result: **PASS***

*In the configuration tested, the EUT complied with the standards specified above

Tested By:

Lewis Zhou

(Lewis Zhou)

Reviewed By:

Jun Li

(Jun Li)

Approved By:

Sheek Luo

(Sheek Luo)



The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210500727E-02	Rev.01	Initial report	2021-06-03

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Shengtai smart Innovation Technology Co. Ltd
Address of Applicant:	Room 1005, Jia An Da Building, NO. 110, Hua Fan Road, Tong Sheng community, Da Lang Street, Long Hua district, Shen Zhen city.
Manufacturer:	Shenzhen Shine Tech Intel Co., Ltd
Address of Manufacturer:	New District of Longhua, Dalang Street, Shenzhen Lianjian Industrial Park 6 6th Floor
Factory:	Shenzhen Shine Tech Intel Co., Ltd
Address of Factory:	New District of Longhua, Dalang Street, Shenzhen Lianjian Industrial Park 6 6th Floor

3.2 General Description of EUT

Product Name:	SMART EAR STICK
Model No.:	WS1, WS2, WS3, WS5, WS6, WS7, WS8, WS9, WS10, AS1, AS2, AS3, AS5, AS6, AS7, AS8, AS9, AS10, VS1, VS2, VS3, VS5, VS6, VS7, VS8, VS9, VS10, HS1, HS2, HS3, HS5, HS6, HS7, HS8, MS1, MS2, MS3, MS5, MS6, MS7, MS8, T1-1, T1-2, T2-1, T2-2, T3-1, T3-2, T6-2, T8-2, T9-2, A1, A2, A3, A5, A6, V1, V2, V3, V5, V6, W1, W2, W3, W5, W6, H1, H2, H3, H5, H6, M1, M2, M3, M5, M6
Test Model No.:	WS1
Trade Mark:	
Hardware version:	V1
Software version:	1.1.10
Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20) : OFDM (64QAM, 16QAM, QPSK,BPSK)
Transfer Rate:	IEEE for 802.11b: 1Mbps/2Mbps/5.5Mbps/11Mbps IEEE for 802.11g : 6Mbps/9Mbps/12Mbps/18Mbps/24Mbps/36Mbps/48Mbps/54Mbps IEEE for 802.11n(HT20) : 6.5Mbps/13Mbps/19.5Mbps/26Mbps/39Mbps/52Mbps/58.5Mbps/65Mbps
Product Type:	☒ Mobile ☐ Portable ☐ Fix Location
Test Software of EUT:	FCCEOT with (send) V1.1
Antenna Type:	FPC antenna
Antenna Gain:	-1.67dBi
Power Supply:	lithium battery: 3.7V 271mAh AC/DC Adapter: 5V 2A

Note:

All model: WS1, WS2, WS3, WS5, WS6, WS7, WS8, WS9, WS10, AS1, AS2, AS3, AS5, AS6, AS7, AS8, AS9, AS10, VS1, VS2, VS3, VS5, VS6, VS7, VS8, VS9, VS10, HS1, HS2, HS3, HS5, HS6, HS7, HS8, MS1, MS2, MS3, MS5, MS6, MS7, MS8, T1-1, T1-2, T2-1, T2-2, T3-1, T3-2, T6-2, T8-2, T9-2, A1, A2, A3, A5, A6, V1, V2, V3, V5, V6, W1, W2, W3, W5, W6, H1, H2, H3, H5, H6, M1, M2, M3, M5, M6

Only the model WS1, was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 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.

4.1.2 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

4.1.3 EUT RF Exposure

1) For 2.4G

Measurement Data

802.11n(HT20)mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	5.27	4.5±1	5.5	3.548
Middle(2437MHz)	6.37	5.5±1	6.5	4.467
Highest(2462MHz)	6.21	5.5±1	6.5	4.467

Worst case: 802.11n(HT20)mode						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2412MHz)	5.27	4.5±1	5.5	3.548	1.102	3.0
Middle (2437MHz)	6.37	5.5±1	6.5	4.467	1.395	
Highest (2462MHz)	6.21	5.5±1	6.5	4.467	1.402	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20210500727E-01