SGS-CSTC Standards Technical Services Co., Ltd.

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057
Telephone: +86 (0) 755 2601 2053
Fax: +86 (0) 755 2671 0594
Email: ee.shenzhen@sgs.com

SAR Evaluation Report

Application No.:	SZEM1408004222RF
Applicant:	Esselte Leitz GmbH & CO KG
Manufacturer:	SKY WING COMMUNICATION ELECTRONICS CO., LIMITED
Product Name:	Bluetooth mini speaker
Model No.(EUT):	6701-XX
Add Model No.:	6358-XX-XX
Trade Mark:	Leitz
FCC ID:	2ABUI6701
Standards:	47 CFR Part 1.1307(2013) 47 CFR Part 2.1093 (2013) KDB447498D01 General RF Exposure Guidance v05r02
Date of Receipt:	2014-08-11
Date of Test:	2014-08-18 to 2014-08-22
Date of Issue:	2014-08-28
Test Result :	**PASS***

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

Authorized Signature:

Jack Zhang
EMC Laboratory Manager

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2014-07-29		Original

Authorized for issue by:				
Tested By		Owen Zhou **(Owen Zhou) /Project Engineer**		2014-08-22 **Date**
Prepared By		Molinda li **(Molinda Li) /Clerk**		2014-08-28 **Date**
Checked By		Emen_Li **(Emen Li) /Reviewer**		2014-08-29 **Date**

3 Contents

4 General Information

4.1 Client Information

Applicant:	Esselte Leitz GmbH & CO KG
Address of Applicant:	c/o Esselte Holdings, Inc., 5 High Ridge Park, Suite 101
Manufacturer:	SKY WING COMMUNICATION ELECTRONICS CO., LIMITED
Address of Manufacturer:	NO.63, 10 th, ROAD, LONGYAN, HUMEN, DONGGUAN, 523920, CHINA

4.2 General Description of EUT

Product Name:	Bluetooth mini speaker
Model No.:	6701-XX, 6358-XX-XX (the letter X stands for the number from 0~9, and the first – XX means different packaging style, and the second – XX means different color, 6701–XX, -XX means different colors. Only the model 6701 was tested, since the electrical circuit design, PCB layout, components used and internal wiring were identical for the above models, only different on color and model no..)
Trade Mark:	Leitz
Operation Frequency:	2402MHz~2480MHz
Sample Type:	Portable production
Antenna Type:	Integral
Antenna Gain:	1.5dBi
Power Supply:	USB charge
Battery:	3.7V 400mAh
USB charging and Aux in cable:	80cm (Unshield)
Test Mode:	
TX mode	Keep the EUT in transmitting mode
Charge + TX mode	Keep the EUT in transmitting mode, and charging via USB
For BLE mode:	
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK
Number of Channel:	40
Hopping Channel Type:	Adaptive Frequency Hopping systems
For BT Classic mode:	
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems

4.3 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab
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.

4.4 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.

- **VCCI**

  The 3m Semi-anechoic chamber, Full-anechoic Chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197, G-416, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

  SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

- **Industry Canada (IC)**

  Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v05r02

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:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 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[17]
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 BT Classic mode:

The Max average Conducted Power is 1.02dBm in Middle channel(2.441GHz);

The best case gain of the antenna is 1.5dBi.

EIRP= 1.02dBm + 1.5dBi = 2.52dBm

2.92dBm logarithmic terms convert to numeric result is nearly 1.8mW

According to the formula. calculate the EIRP test result:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

General RF Exposure = (1.8mW / 5 mm) x √2.441GHz = 0.6 ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.

For BLE mode:

The Max average Conducted Power is 1.38dBm in Middle channel(2.441GHz);

The best case gain of the antenna is 1.5dBi.

EIRP= 1.38dBm + 1.5dBi = 2.88dBm

3.43dBm logarithmic terms convert to numeric result is nearly1.94mW

According to the formula. calculate the EIRP test result:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

General RF Exposure = (1.94mW / 5 mm) x √2.441GHz = 0.6①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.