

SAR Evaluation Report

Application No.: SZEM1905013825CR
Applicant: EuroCB (Phils.), Inc.
Address of Applicant: SFB2, MEPZ1, Lapulapu City, 6015, Philippines
Manufacturer: EuroCB (Phils.), Inc.
Address of Manufacturer: SFB2, MEPZ1, Lapulapu City, 6015, Philippines
Factory: EuroCB (Phils.), Inc.
Address of Factory: SFB2, MEPZ1, Lapulapu City, 6015, Philippines
Equipment Under Test (EUT):
EUT Name: BTF9
Model No.: BTF9
Trade mark: Interphone
FCC ID: 2AE5MBTF9
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2019-05-15
Date of Test: 2019-05-22 to 2019-05-23
Date of Issue: 2019-06-18

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

Keny Xu
EMC Laboratory Manager



2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2019-06-18		Original

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



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4 General Information

4.1 General Description of EUT

Power supply:	Rechargeable battery DC 3.7V 1050mAh 3.89Wh (Charge by USB)
Cable:	USB cable:93cm unshielded Earphone:63cm unshielded
For BT:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0(This test report is for classic mode.)
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Sample Type:	Portable production
Number of Channels:	79
Channel Spacing:	1MHz
Antenna Type:	Antenna 1: Chip, Antenna 2: Meandre line Pifa PCB antenna
Antenna Gain:	Antenna 1: 3.09dBi, Antenna 2:2.5dBi
For BLE:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0(This test report is for BLE mode.)
Modulation Type:	GFSK
Sample Type:	Portable production
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	Antenna 1: Chip, Antenna 2: Meandre line Pifa PCB antenna
Antenna Gain:	Antenna 1: 3.09dBi, Antenna 2:2.5dBi



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.



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:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0$$
 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 calculation¹⁷

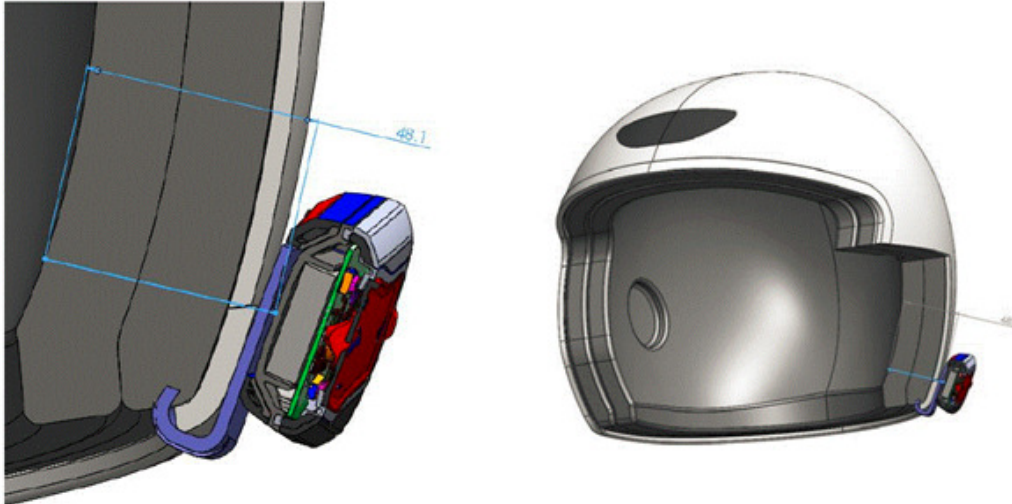
The result is rounded to one decimal place for comparison

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 Antenna: the nearest distance of antenna to the human ear is 48.1 mm, as shown below:



The EUT to the body minimum distance is 80mm

For BT:

For ANT 1:

The Max. power (including tune-up tolerance) is 8.66 dBm on the lowest channel 2.441 GHz (*)
 8.66 dBm logarithmic terms convert to numeric result is nearly 7.35 mW

According to the formula. calculate the test exclusion thresholds:

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

$$\text{General RF Exposure} = (7.35 \text{ mW} / 48.1 \text{ mm}) * \sqrt{2.441 \text{ GHz}} = 0.24 \tag{1}$$

SAR requirement:

$$S = 3.0 \tag{2}$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM190501382502



For BT

For ANT 2:

The Max. power (including tune-up tolerance) is 17.78 dBm on the lowest channel 2.48 GHz (*)
 17.78 dBm logarithmic terms convert to numeric result is nearly 59.98 mW
 According to the formula. calculate the test exclusion thresholds:

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

$$\text{General RF Exposure} = (59.98 \text{ mW} / 48.1 \text{ mm}) * \sqrt{2.48 \text{ GHz}} = 1.96 \quad (1)$$

SAR requirement:

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

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM190501382502

For BLE:

For ANT 1:

The Max. power (including tune-up tolerance) is 4.03 dBm on the lowest channel 2.44 GHz (*)
 4.03 dBm logarithmic terms convert to numeric result is nearly 2.53 mW
 According to the formula. calculate the test exclusion thresholds:

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

$$\text{General RF Exposure} = (2.53 \text{ mW} / 48.1 \text{ mm}) * \sqrt{2.44 \text{ GHz}} = 0.08 \quad (1)$$

SAR requirement:

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

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM190501382503



**For BLE:
For ANT 2:**

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

$$\text{General RF Exposure} = (2.48 \text{ mW} / 48.1 \text{ mm}) * \sqrt{2.44 \text{ GHz}} = 0.08 \quad (1)$$

SAR requirement:

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

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM190501382503

For Antenna 1 and Antenna 2 transmit simultaneously:

According to the formula

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

For Antenna 1:

$$\text{SAR test exclusion} = (7.35\text{mW} / 48.1 \text{ mm}) * \sqrt{2.441\text{GHz}} / 7.5 = 0.032\text{W/kg}$$

For Antenna 2:

$$\text{SAR test exclusion} = (59.98\text{mW} / 48.1 \text{ mm}) * \sqrt{2.48\text{GHz}} / 7.5 = 0.262\text{W/kg}$$

$$\text{The total SAR test exclusion} = 0.294 \text{ W/kg} < 1.6 \text{ W/kg}$$

So the SAR report is not required.

- End of the Report -

