



SAR Evaluation Report

Application No.: SZEM2009009568CR
Applicant: Savox Communications Oy Ab
Address of Applicant: Keilaranta 15B, Espoo 02150, Finland
Manufacturer: Savox Communications Oy Ab
Address of Manufacturer: Keilaranta 15B, Espoo 02150, Finland
Factory: Savox Communications (Shenzhen) Co., Ltd.
Address of Factory: 7th Floor, Building #2, Hong Hui Industrial Park, Liu Xian 2nd Road, 68th Subdistrict, Baoan District, Shenzhen City, Guangdong Province, P.R. China

Equipment Under Test (EUT):
EUT Name: Wireless + Bluetooth intercom controller
Model No.: TRICS
Trade Mark: SAVOX
FCC ID: TUFTRICS
Standards: 47 CFR Part 1.1307
 47 CFR Part 2.1093
 KDB447498D01 General RF Exposure Guidance v06

Date of Receipt: 2020-09-23
Date of Test: 2021-02-22 to 2021-03-05
Date of Issue: 2021-03-05

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		2021-03-05		Original

Authorized for issue by:			
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		Damon Su/Project Engineer	
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SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Testing Center EMC Laboratory

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4 General Information

4.1 General Description of EUT

Power supply	DC 4.2V by lithium battery and recharged by DC 3.3-25V.
For BT:	
Operation Frequency:	2402MHz to 2480MHz
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Antenna Type:	Chip Antenna
Antenna Gain:	1.7dBi
For 2.4G:	
Operation Frequency:	2405-2478MHz
Modulation Type:	GFSK
Channel Spacing:	1MHz
Antenna Type:	Chip Antenna
Antenna Gain:	1.7dBi



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:

- **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:

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

The BT, 2.4G could not transmit simultaneously.

For BT:

The Max. power (including tune-up tolerance) is -1.88 dBm on the highest channel 2.402 GHz (*)

-1.88 dBm logarithmic terms convert to numeric result is nearly 0.65 mW

According to the formula. calculate the test exclusion thresholds:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot$

$[\sqrt{f(\text{GHz})}]$

$\text{General RF Exposure} = (0.65 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.20$ (1)

SAR requirement:

$S = 3.0$ (2)

(1) $<$ (2)

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM200900956802



For 2.4G:

The Max. power (including tune-up tolerance) is -9.54 dBm on the highest channel 2.405 GHz (*)
 -9.54 dBm logarithmic terms convert to numeric result is nearly 0.11 mW

According to the formula. calculate the test exclusion thresholds:

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

$$\text{General RF Exposure} = (0.11 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.405 \text{ GHz}} = 0.03 \tag{1}$$

SAR requirement:

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

(1) < (2)

So the SAR report is not required.

(*) Max. power refer to Report No.:SZEM200900956803

- End of the Report -

