



1 Cover Page

RF MPE REPORT

Application No.: SHEM1908016429CR
FCC ID: ESVEVOLV
Applicant: Bosch Security Systems Inc.
Address of Applicant: 130 Perinton Parkway, Fairport, NY, USA
Manufacturer: Bosch Security Systems Inc.
Address of Manufacturer: 130 Perinton Parkway, Fairport, NY, USA
Factory: Speaker Electronic(Jiashan) Co.,Ltd
Address of Factory: No. 8 Development Zone Road, Huimin Sub-district, Jiashan County, Zhejiang, 314112, P.R. China

Equipment Under Test (EUT):
EUT Name: EVOLVE Portable Column Loudspeaker
Model No.: EVOLVE 50M
Add Model No.: EVOLVE Portable Column Loudspeaker
EVOLVE 30M-XX, EVOLVE 30M-XX-XX, EVOLVE 50M-XX,
EVOLVE 50M-XX-XX
(1, X can be a combination of English alphabets and numeric values from 0....9;
2, X can be a blank space if we only need a single digit or nothing at the end. If don't have any X,"-" can also be omitted like EVOLVE 30M and EVOLVE 50M;
3, The X can indicate the regional variances, external colors, accessories, possibly generations.)

Trade mark: Electro-Voice
Standard(s) : FCC Rules 47 CFR §2.1091
KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2019-08-20
Date of Test: 2019-08-28 to 2019-09-05
Date of Issue: 2019-10-12

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

Parlam Zhan

Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

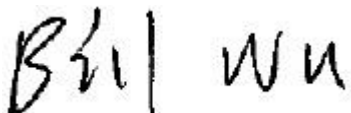
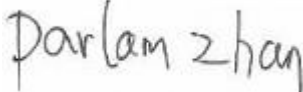
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Testing Center E&E

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Revision Record			
Version	Description	Date	Remark
00	Original	2019-10-12	/

Authorized for issue by:				
				
		Bill Wu / Project Engineer		
				
		Parlam Zhan /Reviewer		



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3 General Information

3.1 General Description of E.U.T.

Power supply:	100-240V~50/60Hz
Test voltage:	AC 120V/60Hz
Bluetooth Version	5.0

3.2 Technical Specifications

BLE

Antenna Gain	3.3dBi
Antenna Type	PCB Antenna
Channel Spacing	2MHz
Modulation Type	GFSK
Number of Channels	40
Operation Frequency	2402MHz to 2480MHz

BT

Channel Spacing	1MHz
Modulation Type	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels	79
Operation Frequency	2402MHz to 2480MHz
Spectrum Spread Technology	Frequency Hopping Spread Spectrum(FHSS)
Antenna Gain	3.3dBi
Antenna Type	PCB Antenna



3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

3.4 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. 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.

- **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

- **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

IC Registration No.: 8617A-1. CAB Identifier: CN0020.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm ²)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM190801642901 & SHEM190801642902.

Test Mode	Test Frequency (MHz)	Output Power (dBm)	Reading Power (mW)
BLE	2402	-1.98	0.63
	2440	0.29	1.07
	2480	0.89	1.23

BT

Test Mode	Test Channel	Power [dBm]	Power [mW]
DH5	2402	-1.32	0.74
DH5	2441	0.34	1.08
DH5	2480	0.87	1.22
2DH5	2402	-3.93	0.40
2DH5	2441	-2.13	0.61
2DH5	2480	-1.63	0.69
3DH5	2402	-3.82	0.41
3DH5	2441	-1.97	0.64
3DH5	2480	-1.47	0.71



5.2 MPE Calculation

For FCC:

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in meter) = 20cm
- 3) MPE limit = 1mW/cm²

For BLE

The max. antenna gain is 3.3 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
1.23	2.138	20	0.00052	1	Pass

The maximum rate of MPE is $0.00052 \leq 1.0$. according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

--End of the Report--