



1 Cover Page

RF MPE REPORT

Application No.: SHEM2011009384CR
FCC ID: ESVEVOLVE
Applicant: Bosch Security Systems, LLC
Address of Applicant: 130 Perinton Parkway, Fairport, NY, USA
Manufacturer: Bosch Security Systems, LLC
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 Portable Column Loudspeaker

EVOLVE 50M

Add Model No.: EVOLVE 50M-XX, EVOLVE 50M-XX-XX, Refer to Page 2

Trade mark: Electro-Voice

Standard(s) : FCC Rules 47 CFR §2.1091

KDB447498 D01 General RF Exposure Guidance v06

Date of Receipt: 2020-11-06

Date of Test: 2020-11-17 to 2020-11-28

Date of Issue: 2020-11-30

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

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Testing Center EMC Lab 201612

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Naming rules for wildcards:

1. The X range can indicate the regional variances, external colors, accessories, possibly generations, and blank (if we do need to use).

Model Name:	Sales area:	Difference:
EVOLVE 50M-SB-US	US	box volume is larger
EVOLVE 50M-SB-EU	EU AP	box volume is larger
EVOLVE 50M-SW	global	The exterior is white box volume is larger



Revision Record			
Version	Description	Date	Remark
00	Original	2020-11-30	/

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



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3 General Information

3.1 General Description of E.U.T.

Power supply:	AC 100-240V~50-60Hz
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3.2 Technical Specifications

BT

Antenna Gain:	3.3dBi (Provided by client)
Antenna Type:	PCB Antenna
Bluetooth Version:	V5.0 Dual mode
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)

BLE

Antenna Gain:	3.3dBi (Provided by client)
Antenna Type:	PCB Antenna
Bluetooth Version:	V5.0 Dual mode
Channel Spacing:	2MHz
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz



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 17025:2017 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 (LAB CODE: 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

- **FCC (Designation Number: CN5033)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory. Test Firm Registration Number: 479755.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. ISED#: 8617A.

- **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 SHEM201100938401 & SHEM201100938402.

BT

Test Mode	Test Channel	Power[dBm]	Power[mW]
DH5	2402	3.93	2.47
DH5	2441	3.39	2.18
DH5	2480	2.14	1.64
2DH5	2402	1.87	1.54
2DH5	2441	1.41	1.38
2DH5	2480	0.12	1.03
3DH5	2402	2.32	1.71
3DH5	2441	1.8	1.51
3DH5	2480	0.55	1.14

BLE

Test Mode	Test Channel	Power[dBm]	Power[mW]
BLE	2402	5.88	3.87
BLE	2440	5.06	3.21
BLE	2480	4.07	2.55



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

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
3.87	2.138	20	0.00165	1	Pass

--End of the Report--