



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
Email: ee.shenzhen@sgs.com

Report No.: SZEM171001057804
Page: 1 of 7

1 Cover Page

RF MPE REPORT

Application No.:	SZEM1710010578CR (SHEM1709005981CR)
Applicant:	QINGDAO TRI-LINK LOCK GROUP CO., LTD.
FCC ID:	2ACYBLHI-1742XXX
IC:	21082-LHI1742XXX
Equipment Under Test (EUT): NOTE: The following sample(s) was/were submitted and identified by the client as	
Product Name:	BLE DIGITAL LOCK
Model No.(EUT):	LHI-1742XXX
Add Model No.:	LHLP-88XXXXXX
Standards:	FCC Rules 47 CFR §2.1093 KDB447498 D01 General RF Exposure Guidance v06 RSS-102 Issue 5 (March 2015)
Date of Receipt:	2017-09-07
Date of Test:	2017-09-21 to 2017-09-29
Date of Issue:	2017-10-12
Test Result:	Pass*

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





Jack Zhang
EMC Laboratory 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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only



Revision Record				
Version	Chapter	Date	Modifier	Remark
00	/	2017-10-12	/	Original

Authorized for issue by:				
Engineer				
		Foray Chen /Project Engineer		2017-10-12 _____
Reviewer				
		Eric Fu /Reviewer		2017-10-12 _____



2 Contents

	Page
1 COVER PAGE.....	1
2 CONTENTS	3
3 GENERAL INFORMATION.....	4
3.1 CLIENT INFORMATION.....	4
3.1 TECHNICAL SPECIFICATIONS	4
3.2 TEST LOCATION	5
3.3 TEST FACILITY	5
4 TEST STANDARDS AND LIMITS	6
4.1 FCC RADIOFREQUENCY RADIATION EXPOSURE LIMITS:	6
4.2 IC RADIOFREQUENCY RADIATION EXPOSURE LIMITS:.....	6
5 MEASUREMENT AND CALCULATION	7
5.1 MAXIMUM TRANSMIT POWER	7
5.2 MPE CALCULATION.....	7



3 General Information

3.1 Client Information

Applicant:	QINGDAO TRI-LINK LOCK GROUP CO., LTD.
Address of Applicant:	11F, BUILDING 2, TIANBAO MANSION 61 HAIER ROAD QINGDAO CHINA
Manufacturer:	SUZHOU FANGHUI ELECTRONIC TECHNOLOGY CO., LTD.
Address of Manufacturer:	NO.166 JUFENG ROAD, JINFENG INDUSTRY PARK, BEIQIAO TOWN, XIANGCHENG, SUZHOU CITY, CHINA
Factory:	SUZHOU FANGHUI ELECTRONIC TECHNOLOGY CO., LTD.
Address of Factory:	NO.166 JUFENG ROAD, JINFENG INDUSTRY PARK, BEIQIAO TOWN, XIANGCHENG, SUZHOU CITY, CHINA

3.1 Technical Specifications

Power supply:	DC 6V, 4* AA size battery
Operating frequency:	2402-2480MHz
Bluetooth version:	BT4.0 LE
Modulation type	GFSK
Number of channels:	40
Antenna type	PCB
Antenna gain	0dbi



3.2 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
Tel: +86 755 2601 2053 Fax: +86 755 2671 0594
No tests were sub-contracted.

3.3 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 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 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.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.



4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in KDB447498 D01 section 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	30	35	40	45	50	mm
150	39	77	116	155	194	232	271	310	349	387	(mW)
300	27	55	82	110	137	164	192	219	246	274	
450	22	45	67	89	112	134	157	179	201	224	
835	16	33	49	66	82	98	115	131	148	164	
900	16	32	47	63	79	95	111	126	142	158	
1500	12	24	37	49	61	73	86	98	110	122	
1900	11	22	33	44	54	65	76	87	98	109	
2450	10	19	29	38	48	57	67	77	86	96	
3600	8	16	24	32	40	47	55	63	71	79	
5200	7	13	20	26	33	39	46	53	59	66	
5400	6	13	19	26	32	39	45	52	58	65	
5800	6	12	19	25	31	37	44	50	56	62	

4.2 IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).



For 2.4G device, the limit of worse case is 2.68 W

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on Appendix 15.247.

Test mode	Test Frequency (MHz)	Output Power (dBm)	Output Power (mW)
BLE	2402	-1.846	0.65
	2440	-2.611	0.55
	2480	-1.847	0.65

5.2 MPE Calculation

The Max Conducted Peak Output Power is 0.65 mW(0.00065W);

The best case gain of the antenna is 0dBi. 0dB logarithmic terms convert to numeric result is nearly 1.

For FCC:

$$E.I.R.P.=P*G=0.65mW<10mW$$

So the SAR report is not required

For IC:

$$E.I.R.P.=P*G=0.00065\times 1=0.00065W<2.68W$$

So the device is exclusion from SAR test.

--End of the Report--