

RF EXPOSURE REPORT



Report No.: 16070984-FCC-H

Supersede Report No.: N/A

Applicant	Freevision Technologies Co., Ltd	
Product Name	Magikit Box BLE	
Model No.	MAGIKIT ADV V1.1	
Serial No.	MAGIKIT ADV V1.1, MAGIKIT ADV V1.2, MAGIKIT ADV V1.3, MAGIKIT ADV V1.4, MAGIKIT ADV V1.5, MAGIKIT ADV V1.6, MAGIKIT ADV V1.7, MAGIKIT ADV V1.8, MAGIKIT ADV V1.9	
Test Standard	FCC 2.1093:2015	
Test Date	June 12 to June 22 2016	
Issue Date	August 23, 2016	
Test Result	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Equipment complied with the specification		<input checked="" type="checkbox"/>
Equipment did not comply with the specification		<input type="checkbox"/>
Loren Luo	David Huang	
Loren Luo Test Engineer	David Huang Checked By	
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only		

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
16070984-FCC-H	NONE	Original	August 23, 2016

2. Customer information

Applicant Name	Freevision Technologies Co., Ltd
Applicant Add	Floor 3 , Building 8, No.999 Jiangyue Rd Minhang Dist, Shanghai, China
Manufacturer	Freevision Technologies Co., Ltd
Manufacturer Add	Floor 3 , Building 8, No.999 Jiangyue Rd Minhang Dist, Shanghai, China

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT:	Magikit Box BLE
Main Model:	MAGIKIT ADV V1.1
Serial Model:	MAGIKIT ADV V1.1, MAGIKIT ADV V1.2, MAGIKIT ADV V1.3, MAGIKIT ADV V1.4, MAGIKIT ADV V1.5, MAGIKIT ADV V1.6, MAGIKIT ADV V1.7, MAGIKIT ADV V1.8, MAGIKIT ADV V1.9
Date EUT received:	June 12, 2016
Test Date(s):	June 12 to June 22 2016
Antenna Gain:	RFID Low Frequency: 20dBi RFID High Frequency: 20dBi BLE: 0 dBi
Type of Modulation:	RFID Low Frequency: ASK RFID High Frequency: ASK BLE: GFSK
RF Operating Frequency (ies):	RFID Low Frequency: 125-150KHz RFID High Frequency: 13.56MHz BLE: 2402-2480MHz
Number of Channels:	RFID High Frequency: 1CH (ASK) BLE: 40CH
Port:	USB Port
Input Power:	Battery: Spec: 3.7V, 260mAh, 0.962Wh USB : 5V

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Trade Name : N/A

GRPS/EGPRS Multi-slot class 8/10/12

FCC ID: 2AIM881810M

5. FCC §2.1093 - Radiofrequency radiation exposure evaluation: portable devices.

5.1 RF Exposure

Standard Requirement:

According to §15.247 (i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR,}^{16}$ 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.

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

$$\text{result} = P\sqrt{F} / D$$

P= Maximum turn-up power in mW

F= Channel frequency in GHz

D= Minimum test separation distance in mm

5.2 Test Result

BLE Mode:

Modulation	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)	Max Tune Up Power (dBm)	Max Tune Up Power (mW)	Result	Limit
GFSK	Low	2402	-1.63	-2±1	-1	0.794	0.25	3
	Mid	2440	-1.57	-2±1	-1	0.794	0.25	3
	High	2480	-2.17	-2±1	-1	0.794	0.25	3

Result: Compliance

No SAR measurement is required.