

Product Specification

产品名称: L 系列智能网关

产品型号: DSGW-040C

Revision History

Specification		Sect.	Update Description	By
Rev	Date			
1.0	2020-09-08		New version release	
2.0	2020-05-18		增加型号 040-16	
3.0	2022-01-06		替换 LTE CAT 1 模组为 EG915	
4.0	2022-05-27		国内版本号由 DSGW-040 更新为 DSGW-040C 增加带锂电池的产品自锁功能描述	

Approvals

Organization	Name	Title	Date

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Model List

Feature Model	Wi-Fi 2.4G	Bluetooth 5.2	Zigbee 3.0	Z-Wave	Sub-G 915MHZ 868MHZ 433MHZ 315MHZ	LTE Cat1	Li battery	GPS
DSGW-040C-1	•	•						
DSGW-040C-2	•	•				•		
DSGW-040C-12	•	•				•	•	
DSGW-040C-3	•		•					
DSGW-040C-4	•		•			•		
DSGW-040C-5	•			•				
DSGW-040C-6	•			•		•		
DSGW-040C-7	•	•	•	•		•		
DSGW-040C-8	•	•				•		
DSGW-040C-9	•	•	•			•		
DSGW-040C-10	•	•	•		•	•		
DSGW-040C-11	•	•	•	•	•	•	•	
DSGW-040C-13	•	•		•	•	•	•	
DSGW-040C-14	•	•	•	•				
DSGW-040C-15	•		•			•		
DSGW-040C-16	•					•		•

1 简介

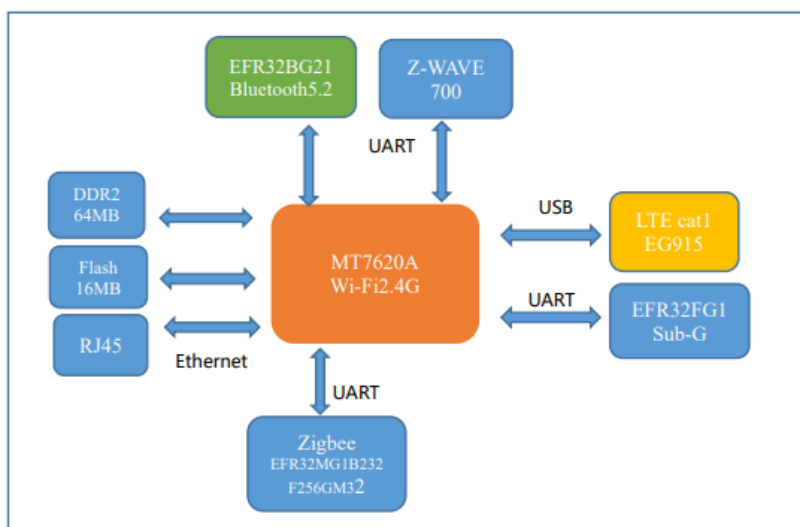
1.1 描述

这是一款支持 DC 供电的路由器网关。它可以被灵活的使用到各种场景中。通过接收和发送智能设备与服务器之间的数据，从而实现对蓝牙或者 Zigbee3.0 设备的远程控制，Wi-Fi 数据速率可以高达 300Mbps，蓝牙数据速率最高可到达 2Mbps。这款产品同时也预留 Z-WAVE, Sub-G, 4G LTE 等功能。

1.2 产品特性

- 支持 5V 适配器供电
- 支持 IEEE 802.11n, IEEE 802.11g, IEEE 802.11b Wi-Fi 协议
- 支持 LTE Cat1(LTE-TDD/LTE-FDD) **使用区域中国**
- RAM:64MB (可扩容至: 128MB) 可用空间: 16MB (如果 RAM 是 128M, 可用空间: 80M) (用户开发空间)
- Flash:16MB 可用空间: 8MB (用户开发空间)
- 支持蓝牙 5.2
- 支持 zigbee3.0
- 支持 Z-Wave
- 支持 915MHz, 868MHz, 433MHz, 315MHz 无线频段
- 一个 WAN 网口, 一个 LAN 网口
- 内置锂电池 (可选)
- 支持 GPS, GLONASS, BeiDou, Galileo, QZSS(可选)

1.3 硬件框图



2 机械需求

2.1 产品图片

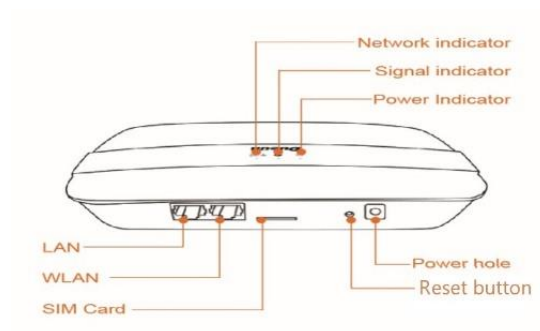


Products without Li battery

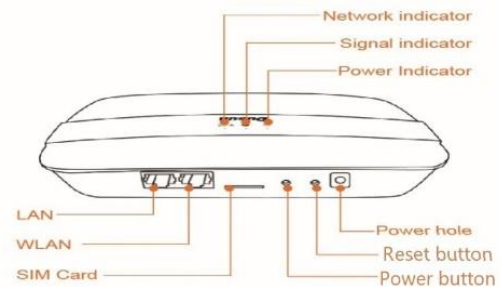


Products with Li battery

2.2 接口说明



Products without Li battery



Products with Li battery

2.3 产品清单



3 规格参数

3.1 软件参数

电源	支持直流输入，输入电压范围为4.5V至5V。电源底座孔径为 3.5 毫米。针头直径为 1.35 毫米，为正极。电源适配器：100-240V 50/60HZ，输出5V/2A
复位键	复位键为孔键，长按复位键5秒以上，网关恢复出厂设置。
电源开关	带锂电池产品具有自锁开关功能，通过自锁开关孔确保电池状态。即使是电源接入状态下，只有通过戳自锁开关孔网关才能工作。
网络接口	WLAN/LAN 接口
LED指示灯	电源指示灯 Zigbee/BLE/Z-Wave 指示灯 因特网指示灯 网络指示灯
锂电池	4100mAH
工作温度	-10°C ~ 70°C
电流	350mA@5V

3.2 性能需求

性能需求	
Wi-Fi 性能	<ul style="list-style-type: none"> • IEEE wireless LAN standard: IEEE802.11n; IEEE802.11g; IEEE 802.11b • Data Rate: IEEE 802.11b Standard Mode:1,2,5,5,11Mbps IEEE 802.11g Standard Mode:6,9,12,18,24,36,48,54 Mbps IEEE 802.11n: MCS0~MCS7 @ HT20/ 2.4GHz band • Sensitivity: HT40 MCS7 : -70dBm@10% PER(MCS7) /2.4GHz band HT20 MCS7 : -71dBm@10% PER(MCS7) /2.4GHz band • Transmit Power: IEEE 802.11n: 16dBm @HT20/40 MCS7 /2.4GHz band IEEE 802.11g: 16dBm @54MHz IEEE 802.11b: 18dBm @11MHz • Wireless Security: WPA/WPA2, WEP, TKIP, and AES • 工作模式 : Bridge、Gateway、AP Client • 覆盖范围: 50 米 (最大 空旷领域) • 发射频率:17dBm • 最高传输速率: 300Mbps • 频率偏差: +/- 50KHZ • 频率范围 (MHz): 2412.0~2483.5 • 低频率: (MHz):2400

	<ul style="list-style-type: none"> • 高频率: (MHz):2483.5 • E.i.r.p (Equivalent Isotopically Radiated power) (mW)<100mW • 带宽 (MHz):20MHz/40MHz • 调制方式: BPSK/QPSK, FHSSCCK/DSSS, 64QAM/OFDM
Zigbee3.0 性能	<ul style="list-style-type: none"> • 覆盖范围: 150 米 (最大 空旷领域) • 发射功率:17.5dBm • 最大传输速率: 300Mbps • Frequency offset: +/- 20KHZ • 接收灵敏度:-94dBm • 频率范围 (MHz):2401.0~2483.5 • 低频 (MHz):2400 • 高频 (MHz):2483.5 • E.i.r.p (Equivalent Isotopically Radiated power) (mW)<100mW • 带宽 (MHz):5MHz • 调制方式: OQPSK
Bluetooth 性能	<ul style="list-style-type: none"> • 蓝牙协议: Bluetooth 5.0 • 发射功率: 19.5dBm • 覆盖范围: 150 米 (最大 空旷领域) • 接收灵敏度: -80dBm@0.1%BER • 频率偏差: +/-20KHZ
LTE Cat1	<ul style="list-style-type: none"> • LTE-FDD B1/B3/B5/B8 • LTE-FDD B34/B38/B39/B40/B41 • GSM B3/B8 • 支持区域中国/印度
Z-wave 性能	<ul style="list-style-type: none"> • 发射功率最大到 13dBm (20mW) • 接收灵敏度 @100kbps-97.5dBm • 覆盖范围: 150 米 (最大 空旷领域) • 出厂默认频段: 916MHz
Sub-G 性能	<ul style="list-style-type: none"> • 发射功率 最大到 20dBm • 915MHZ,GFSK, 接受灵敏度 -126.4dBm@600bps • 868MHZ,GFSK, 接受灵敏度 -121.4dBm@2.4bps • 433MHZ,OOK, 接受灵敏度 -107dBm@4.8bps • 315MHZ,GFSK, 接受灵敏度 -111.9dBm@38.4bps
GPS 性能	<p>GPS/Galileo/QZSS: 1575.42±1.023MHz</p> <p>GLONASS : 1597.5~1605.8MHz</p> <p>BeiDou : 1561.098±2.046MHz</p>
网口	<ul style="list-style-type: none"> • 10/100Mbps
RF 工厂测试模式	<ul style="list-style-type: none"> • 将板设置为测试模式, 使用 Iqexl-ws 可测试 Wi-Fi, Zigbee, Bluetooth, LTE • 有关详细信息, 请参阅 DUSUN 测试规范。

3.3 Z-WAVE 频段表

国家/地区	标准	Z-WAVE 频率
中国	CNAS/EN 300 220	868.40 MHz

4 质量保证需求

4.1 质量信息

质量&测试信息	
信息描述	Standard(Yes) custom(No)
跌落测试	Yes
射频天线分析	Yes
环境测试	Yes
可靠性测试	Yes
认证	FCC,CE, Bluetooth 认证, Zigbee 认证, ROHS

5 软件说明

软件依托联发科平台开发，支持 OpenWrt 系统。支持 Wi-Fi, Zigbee3.0, QTA, MQTT,LTE,Z-WAVE,Bluetooth5.0.

5.1 软件功能定义

上电：

当网关没有进行任何设置和网关连接，红，绿，黄三种颜色的灯长亮，进行硬件初始化，初始化成功。

网关绿灯进行闪烁，进入系统初始化。绿灯长亮，初始化成功。网关自动连接网络，连接成功，红灯熄灭。连接不成功，红灯长亮。

复位：

短按复位按键：按键时间在 5s 内，网关切换到 smart config 模式。手机可以对网关

需要连接的网络热点信息进行设置，绿灯以 2HZ 的频率进行闪烁。

长按复位按键:按键时间在 5s 以外,网关恢复出厂设置,清除网关内所有的配对信息。

网关进入 AP 模式，绿灯以 2HZ 的频率进行那个闪烁。

指示灯说明:

绿灯: 用来指示系统启动

黄灯: 用来指示当网关与 Zigbee, Z-Wave 设备进行通讯是的状态

红灯: 用来指示网关与云平台的连接状态

5.2 Wi-Fi 配置

Wi-Fi 可支持和切换 AP 模式和客户端模式。

接入点名称: xxxxxxxx

密码: xxxxxx

5.3 Zigbee 配置

Zigbee 堆栈为 3.0 版本，可支持 ZHA、Greenpower、ZLL、ZSE 等，支持大多数 ZigBee 设备集群。如门磁、漏电传感器、运动传感器、Tem&Hum 传感器、智能插头、智能灯、烟雾传感器、窗帘等。可以通过网页或命令添加设备。

5.4 蓝牙配置

蓝牙协议栈为 core Specification V5.0 版本，支持 BLE 5，可以通过 web 或者命令添加设备。

5.5 Z-Wave 配置

Z-Wave 是一个标准模块，支持大多数 z-wave 设备集群，可以使用 web 或命令来

添加设备。

5.6 LTE 配置

网关一上电, LTE 就会设置, 并且检查是否有 sim 卡, 然后扫描网络加入。可以使用网页或命令来更改 APN 以适应不同的国家。

5.7 OTA

网关可通过网络进行升级。

5.8 MQTT

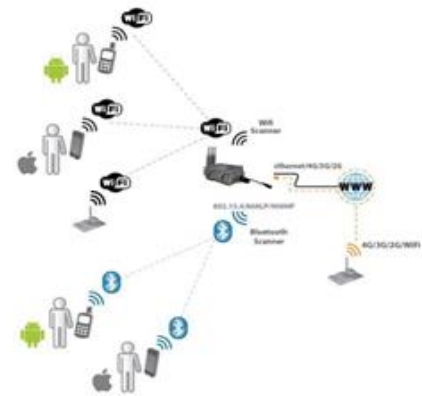
网关支持 MQTT 协议连接云端。

6 应用场景

应用场景	功能介绍	适用型号	固件版本
AP-01	WI-FI 和蓝牙扫描仪	DSGW-040-2	DSGW-040-2-Vesion1.0
AP-02	使用 Beacon 进行室内定位	DSGW-040-3	DSGW-040-3-Vesion1.0
AP-03	智能家居物联网	DSGW-040-7	DSGW-040-7-Vesion1.2
AP-04	蓝牙漫游功提供远程健康指导	DSGW-040-8	DSGW-040-8-Verision1.1

6.1 AP-01 购物和街头活动监控

智能网关无需连接到特定的访问点即可发现 iPhone 和 Android 设备, 从而能够检测到该智能设备覆盖范围内的任何智能手机, 笔记本电脑或免提设备。



6.2 AP-02 用于室内引导和定位的信标

将 Beacon 安装到需要跟踪资产的产品上面，Beacon 将 BLE 信号发送到安装在建筑物中的 Smart Gateway。网关处理提供的的数据，并通过 Wi-Fi 将其发送到服务器。最后将位置显示在地图上，并且可以检索运动统计信息。



6.3 AP-03 智能家居



作为智能家居的大脑的智能网关可以与各种智能设备无线连接设备并使它们一起工作。

- 随时随地控制照明灯，电子设备和小型电器。
- 将设备设置为在一天不同时间打开和关闭。
- 在家中发生意外活动时接收警报。
- 当人们走来走去时，将连接的灯光设置为打开和关闭。
- 监控湿度和温度



6.4 AP-04 医疗保健

健康医疗设备可通过网关接入云平台，远程发送健康医疗数据，医生远程为慢性病患者提供用药指导。

网关具有蓝牙漫游功能。在大范围内，设备可以通过蓝牙漫游从网关 A 连接到网关 B。

7 认证

FCC

TCB

GRANT OF EQUIPMENT
AUTHORIZATION

TCB

Certification
Issued Under the Authority of the
Federal Communications Commission
By:

Bay Area Compliance Laboratory Corp.
1274 Anvilwood Avenue
Sunnyvale, CA 94089

Date of Grant: 06/03/2020
Application Dated: 06/03/2020

Hangzhou Roombanker Technology Co., Ltd.
A#801 Wantong center,
Hangzhou,
China

Attention: Lin Su

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is
VALID ONLY for the equipment identified hereon for use under the Commission's
Rules and Regulations listed below.

FCC IDENTIFIER: 2AUXBDSGW-040
Name of Grantee: Hangzhou Roombanker Technology Co., Ltd.
Equipment Class: Digital Transmission System
Notes: L-Serial Smart Gateway

Grant Notes		FCC Rule Parts	Frequency Range (MHz)	Output Watts	Frequency Tolerance	Emission Designator
	Ble	15C	2402.0 - 2480.0	0.001		
	Zigbee	15C	2405.0 - 2480.0	0.081		
MO	WI-FI	15C	2412.0 - 2462.0	0.15		

Output power listed is conducted. The device contains an approved module (FCC ID: XMR201707BG96) documented in this filing. The antenna(s) used for this transmitter must be used to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures. End-users must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance. This product supports 20 MHz and 40 MHz bandwidth modes.

MO: This Multiple Input Multiple Output (MIMO) device was evaluated for multiple transmitted signals as indicated in the filing.

FCC

TCB

GRANT OF EQUIPMENT AUTHORIZATION

TCB

Certification Issued Under the Authority of the Federal Communications Commission By:

Bay Area Compliance Laboratory Corp. 1274 Anvilwood Avenue Sunnyvale, CA 94089

Date of Grant: 06/03/2020 Application Dated: 06/03/2020

Hangzhou Roombanker Technology Co., Ltd. A#801 Wantong center, Hangzhou, China

Attention: Lin Su

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: 2AUXBDSGW-040 Name of Grantee: Hangzhou Roombanker Technology Co., Ltd. Equipment Class: Part 15 Low Power Communication Device Transmitter Notes: L-Serial Smart Gateway

Table with 5 columns: Grant Notes, FCC Rule Parts, Frequency Range (MHZ), Output Watts, Frequency Tolerance, Emission Designator. Row 1: 15C, 908.4 - 908.4, Z-Wave Frequency

The device contains an approved module (FCC ID: XMR201707BG96) documented in this filing.



ROHS



ATTESTATION OF CONFORMITY

Attestation Number : AOC SH4200527-06329E -13
Date of Issue: June 11, 2020
Product: L-Serial Smart Gateway
Model: DSGW-040
Brand: /
Applicant Name & Address: Hangzhou Roombanker Technology Co., Ltd.
 A#801 Wantong center, Hangzhou, Zhejiang, China

Bay Area Compliance Laboratories Corp. (Dongguan) hereby declares that the submitted sample(s) of the above equipment has been tested for CE-marking and in accordance with the following European Directives and Standards:

**Restriction of the use of certain hazardous substances (RoHS)
 Directive 2011/65/EU**

Substances	Test methods	Test Report Number
Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP & DIBP	IEC62321	SH4200527-06329E

CE Mark is permitted only after all applicable requirements are met in accordance with the European Union Rules, including the manufacturer's issuance of a "Declaration of Conformity. The Declaration of Conformity is issued under sole responsibility of manufacturer. This attestation is specific to the standard(s) stated above and compliance with additional standards and/or European directives are applicable.

Attestation by: Bensen Huang
 Lab Manager

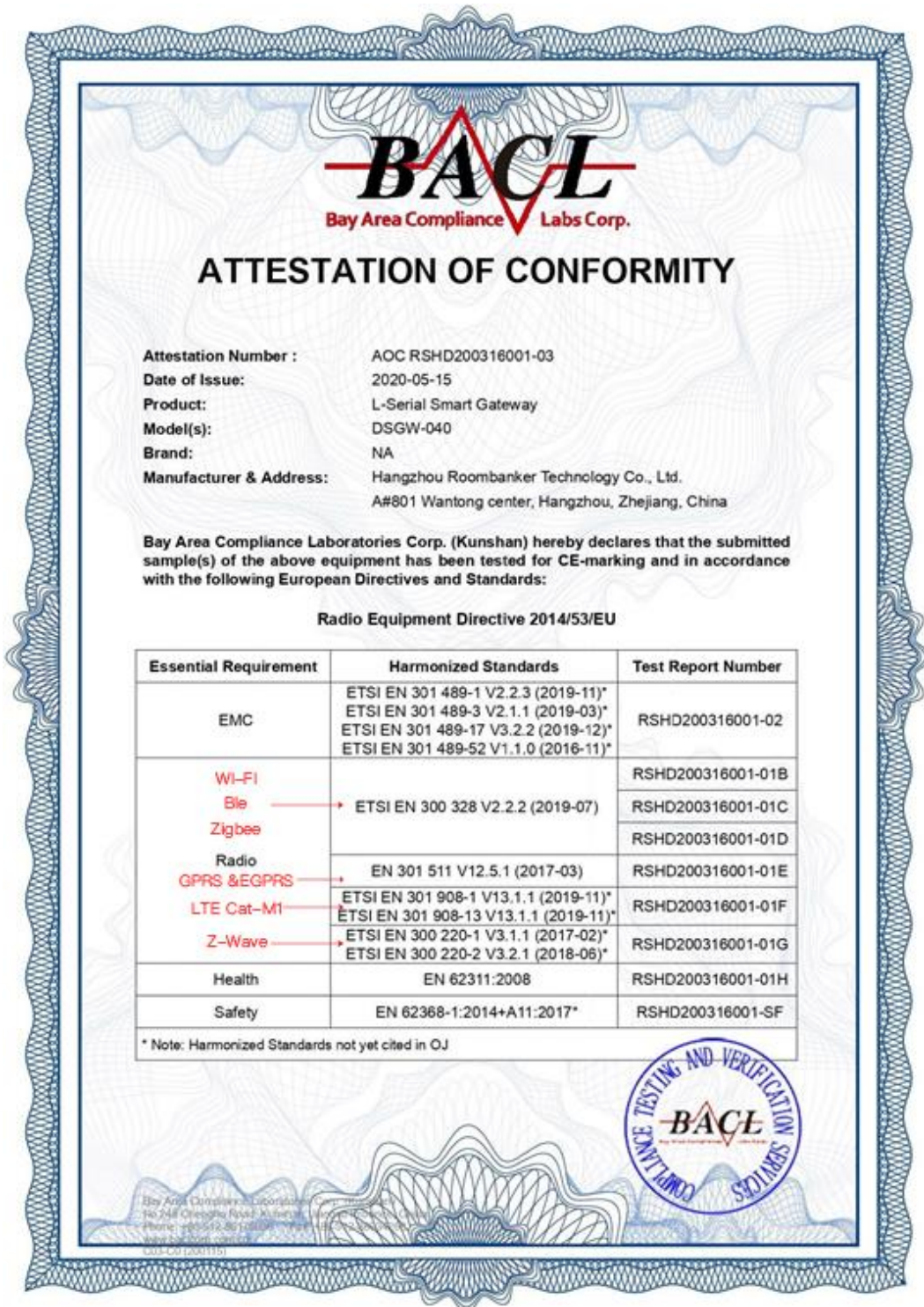
 Signature



Bay Area Compliance Laboratories Corp. (Dongguan)
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 C13-B0 (171210)

CE





zigbee alliance

CERTIFICATE

ZIGBEE CERTIFIED PRODUCT

The Zigbee Alliance is pleased to congratulate Hangzhou Roombanker Technology Co., Ltd. on the completion of the Zigbee Certification Program testing of the following product:

Type of Device	Zigbee - 2016 Combined Interface
Manufacturer	Hangzhou Roombanker Technology Co., Ltd.
Model Identification	Programmable and Multi-protocol IoT Gateway
Firmware Version	3.9.9
Hardware Version	B
Certification Date	August 9, 2019
Certification ID Number	ZIG19148ZB330390-24

This Certificate serves to confirm that the above-mentioned product has passed all relevant tests in conjunction with the Zigbee Certification Program. The manufacturer has been granted the right to use the following term and all associated logos:



The usage of this term is limited to the described device and does not encompass any changes, firmware upgrades or subsequent versions and models after the listed test date.

All usage guidelines governing Zigbee Alliance marks apply to the term above.

We congratulate you on the completion of the program!

Sincerely,

Zigbee Alliance

August 9, 2019
Date


Signature

PTCRB



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Certified Device Detail

Below are all of the certified HW/SW versions of this device.

Manufacturer: Hangzhou Roombanker Technology Co.,Ltd
Model Name/Number: DSGW-040
Marketing Names (s): Sep 08, 2020 - L-Serial Smart Gateway
Antenna Type: Internal
External Antenna less than 20 cm away: No
Is this an IoT device? Yes

In its intended application, does the IoT DUT transmit more than 100 kbytes in a transaction? Yes

On average, is the IoT DUT expected to send more than 24 transactions per day? Yes

Is the IoT DUT and its antenna intended for installation in a fixed orientation relative to the horizon? Yes

Market Segment: Advertising, Agricultural, Asset Management, Automotive, Construction, Education, Healthcare, Supply Chain, Insurance, Manufacturing, Security, Smart Cities

Device Category: Gateway
Supported Technologies and Frequency Bands: E-UTRA FDD Band 2 Band 4 Band 12 Band 13 Band 25
 Additional/Other Bands None

Regulatory Approval IDs:

Type	ID	Issuing Country	
FCC	XMR201707BG96	United States	Remove
ISED	10224A-201709BG96	Canada	Remove

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BQB



Report No.: IBA202005022B-01

Bluetooth® Qualification RF Test Report

For

L-Serial Smart Gateway

Of

Hangzhou Roombanker Technology Co., Ltd.

Report Number: IBA202005022B-01
Design Name: L-Serial Smart Gateway
Design Model Number: DSGW-040
Brand Name: N/A
Final Verdict: Pass
Testing Period: 01-Jun-2020 and 03-Jun-2020
Issue Date: 06-Jul-2020
Revision: V1.0

Tested and Report prepared by:

(Will Wu / Testing Engineer) Date: 06-Jul-2020

Tests and Report reviewed by:

(Plum Peng / Project Engineer) Date: 06-Jul-2020

Test Report approved by:

(Brian Wu / Authorized Officer) Date: 06-Jul-2020

Issued by

Shenzhen iBlue Area Technical Services Co., Ltd.

Room 1006, Block 3A, Tianan Cloud Valley, Bantian, Longgang District, Shenzhen, Guangdong, China

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