

产品规格书

产品名称: 智能网关 S系列

产品型号: DSGW-030

Revision History

Specification		Sect.	Update Description	By
Rev.	Date			
1.0	2020-01-30		New version release	Tiny
2.0	2020-05-25		Add USB port	Tiny
3.0	2020-06-01		Add new type, DSGW-030-4 , both with ZigBee and BLE	Tiny
4.0	2020-7-13		Change the Z-wave default frequency to 916M and settinglocally	Tiny
5.0	2020-7-15		Add new type, DSGW-030-5 Both with ZigBee and z-wave	Li
6.0	2020-09-01		Add Free space	Li
7.0	2020-10-24		Add new type 031-2 and ZigBee chip	Li
8.0	2020-12-02		Add new type B version that add the storage	Li
9.0	2020-12-09		Add new type 031-3	Li
10	2020-12-22		Add new type DSGW-030-B-6	Li
11	2020-12-25		Add new type DSGW-031-b-1	Li
12	2020-12-25		Add new type DSGW-031-b-2	Li
13	2021-01-07		Add SIG MESH application	Li
14	2021-04-14		Add KC certification	Li
15	2021-05-20		Hold on the type DSGW-030-B-4, 030-B-5	Li
16	2021-06-03		Add 030-6, 64MB and 2 zigbee radio, Delete the 030-B type	Li
17	2023-07-12		Major Update to Version and CN Version Release	Hubert

Approvals

Organization	Name	Title	Date

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Model List

A 类产品 (现货, 交付时间: 1~2 周)

Model Feature	RAM	Flash	Wi-Fi 2.4G	Bluetooth 5.2	Zigbee3.0	Z-Wave
DSGW-030-1	64MB	16MB	•		•	
DSGW-030-2	64MB	16MB	•	•		
DSGW-030-4	64MB	16MB	•	•	•	

C 类产品 (接单生产, 交付周期大于 8 周, 最小起订量: 500)

Model Feature	RAM	Flash	USB	Wi-Fi 2.4G	Bluetooth 5.2	Zigbee3.0	Z-Wave
DSGW-030-5	64MB	16MB		•		•	•
DSGW-030-3	64MB	16MB		•			•
DSGW-030-6	64MB	64MB		•		•	
DSGW-031-1	64MB	16MB	•	•	•		
DSGW-031-2	64MB	16MB	•	•		•	
DSGW-031-3	64MB	16MB	•	•			•

1. 产品简介

1.1. 描述

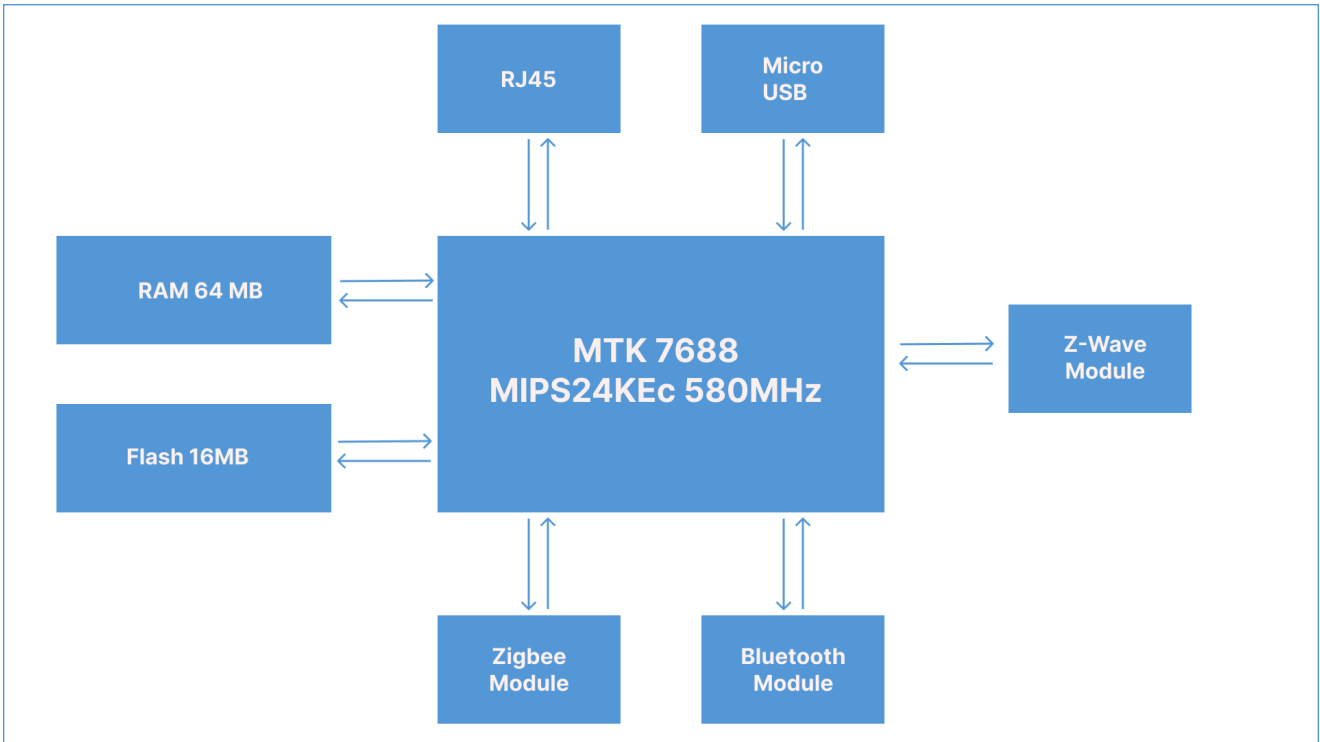
DSGW-030 智能网关是为物联网网关开发者而设计的一款智能设备，可以用于智能家居，智能安防和养老服务等行业。DSGW-030 支持多种无线协议包括 Zigbee 3.0, Bluetooth 5.2 Wi-Fi 2.4G。它支持从 Zigbee 3.0, BLE 终端设备获取数据，并通过 Wi-Fi 2.4G 和以太网将其发送到云端。

除此之外开发人员可以通过下载预集成的，充分验证过的开发资源，从硬件层面来开发自定义固件。

1.2. 产品特性

- 操作系统: OpenWrt
- 处理器: MTK7688 (MIPS24KEc, 频率 580MHz)
- RAM: 64MB 可用空间: 16MB (用户的开发空间)
- 闪存: 16MB
- 支持 IEEE802.11n, IEEE802.11g, IEEE 802.11b 协议
- 支持蓝牙 5.2, Zigbee3.0, Wi-Fi 2.4G, Z-Wave
- 一个 10/100 Mbps WAN/LAN 可变网口
- 一个 Micro USB 口
- 支持 MQTT

1.3. 硬件框图

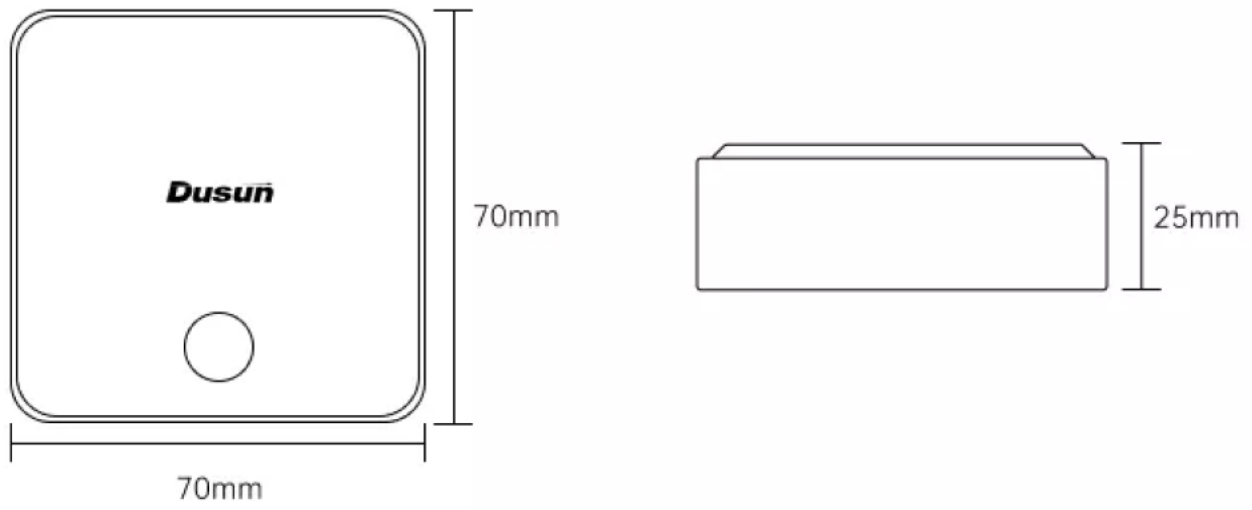


2. 机械需求

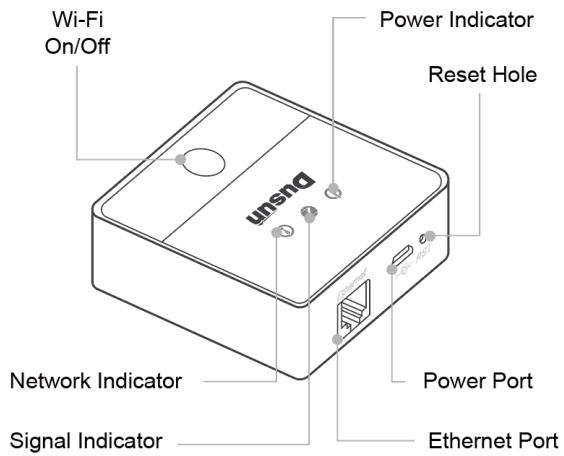
2.1. 产品图片



2.2. 产品尺寸



2.3. 接口描述



3. 规格参数

3.1. 硬件参数

类别	参数
CPU	MT7688
System	OpenWrt
RAM	64 MB
Flash	16 MB
电源	输入: AC 100V~240V 50-60Hz 输出: DC 5V/1A Micro USB
恢复出厂键	支持, 长按10秒钟, 网关恢复出厂设置
网口	1 * 10/100Mbps LAN/WLAN
指示灯	黄灯闪烁: Zigbee/Bluetooth 信号进来 红灯常亮: 未正常连接服务器 绿灯常亮: 正常连接服务器
工作温度	0°C~40°C
工作湿度	10%~90% 无冷凝
存储湿度	5%~90% 无冷凝

3.2. 性能参数

Wi-Fi	<p>IEEE Wireless LAN standard: IEEE802.11n, IEEE802.11g, IEEE802.11b</p> <ul style="list-style-type: none"> ● 传输速率: 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 MCS0~MCS7 @ HT40/ 2.4GHz band MCS0~MCS9 @ HT40/ 5GHz band ● 接收灵敏度: VHT80 MCS9: -60dBm@10% PER(MCS9) /5GHz band HT40 MCS9: -63dBm@10% PER(MCS9) /5GHz band HT40 MCS7: -70dBm@10% PER(MCS7) /2.4GHz band HT20 MCS7: -71dBm@10% PER(MCS7) /2.4GHz band ● 发射功率: IEEE 802.11n: 14dBm @HT20/40 MCS7 /5GHz band IEEE 802.11n: 16dBm @HT20/40 MCS0 /5GHz band IEEE 802.11n: 16dBm @HT20/40 MCS7 /2.4GHz band IEEE 802.11g: 16dBm @54MHz IEEE 802.11b: 18dBm @11MHz
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	<ul style="list-style-type: none"> ● 无线安全: WPA/WPA2, WEP, TKIP, and AES ● 工作模式: Bridge, AP Client ● 覆盖范围: 最大50M, 空旷范围 ● 最大传输速率: 300Mbps ● 频率偏差 +/- 50KHZ ● 频率范围(MHz): 2412.0~2483.5 ● 低频 (MHz):2400 ● 高频 (MHz):2483.5 ● E.i.r.p (Equivalent Isotopically Radiated power) (mW)<100mW ● 带宽 (MHz):20MHz/40MHz ● 调制范围: BPSK/QPSK, FHSSCCK/DSSS, 64QAM/OFDM
<p style="text-align: center;">Bluetooth 5.2</p>	<ul style="list-style-type: none"> ● 发射功率: 19.5dBm ● 覆盖范围: 最大150M, 空旷范围 ● 接收灵敏度: -92dBm@0.1%BER, 1Mbps ● 频率偏差: +/-20KHZ ● 频率范围(MHz):2401.0~2483.5 ● L低频(MHz):2400 ● 高频(MHz):2483.5 ● E.i.r.p (Equivalent Isotopically Radiated power) (mW)<10mW ● 带宽(MHz):2MHz ● 调制方式: GFSK
<p style="text-align: center;">Zigbee 3.0 Performance</p>	<ul style="list-style-type: none"> ● 覆盖范围: 最大100M, 空旷范围 ● 传输功率:17.5dBm ● 最大传输速率: 250Kbps ● 频率偏差: +/- 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
<p style="text-align: center;">Z-Wave Performance</p>	<ul style="list-style-type: none"> ● 最大发射功率: 13dBm (20mW) ● 接收灵敏度: @100kbps-97.5dBm ● 覆盖范围: 最大100M, 空旷范围 ● 初始频段: 916MHz(Different country with different frequency)
<p style="text-align: center;">WAN/LAN</p>	<p>10/100 Mbps</p>

4. 质量保证需求

Information Description	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	Zigbee, CE, FCC, TCB, KC, Canada IC, BQB

5. 软件需求

DSGW-030 基于 MTK 平台开发, 支持 OpenWrt, Wi-Fi 2.4G, Zigbee 3.0, OTA 和 MQTT 等协议和功能。

5.1. 定义

5.1.1. 开机启动

设备上电后, 绿色和黄色的 LED 灯都会亮起。一旦黄色 LED 灯熄灭, 绿色 LED 灯开始闪烁, 然后保持点亮, 代表网关成功启动。

5.1.2. 重置

长按 Reset 按钮 10 秒钟, 执行恢复出厂功能。将擦除所有信息, 设备完成恢复出厂设置

5.1.3. LED 指示灯

绿色 LED: 设备正常工作

黄色 LED: Zigbee 或 Bluetooth 信号指示灯。当网关与传感器进行通信时, 该 LED 灯会闪烁。网关进入配对模式, 该 LED 灯也会闪烁。

红色 LED: 代表设备的联网状态。如果网关入网成功, 红色 LED 灯将关闭。如果连接失败, 红灯长亮。

5.1.4. Wi-Fi 配置

支持 AP 和客户端两种模式, 可以根据需要进行切换。AP 的名称: xxxxxxxx。密码: xxxxxxxx。

5.1.5. Zigbee 配置

支持 Zigbee3.0, ZHA、GreenPower、ZLL 等。它与大多数 Zigbee 设备兼容, 如门传感器、泄漏传感器、运动传感器、温度和湿度传感器、智能插头、智能灯、烟雾传感器、窗帘等等。

5.1.6. BLE 配置

该网关支持 iBeacon、Eddystone 和 BLE 传感器, 以及 SIG Mesh。

5.1.7. OTA

支持通过 OTA 升级网关固件。

5.1.8. MQTT

该网关支持 MQTT 协议, 用于与第三方平台对接。

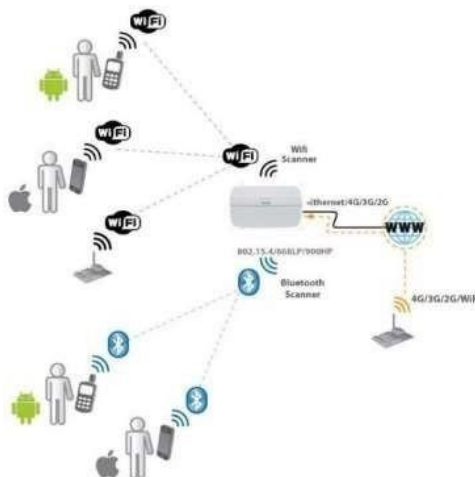
6. 应用

6.1. AP-01 购物活动追踪

DSGW-030 可以在不建立连接的情况下，监测到周围的 iPhone 和 Android 设备，包括智能手机、笔记本电脑、免提设备。通常情况下，在该智能网关的覆盖范围内，任何配备有 Wi-Fi 或蓝牙接口的设备，都会被监测到。



Working Scenario



Schematic Diagram

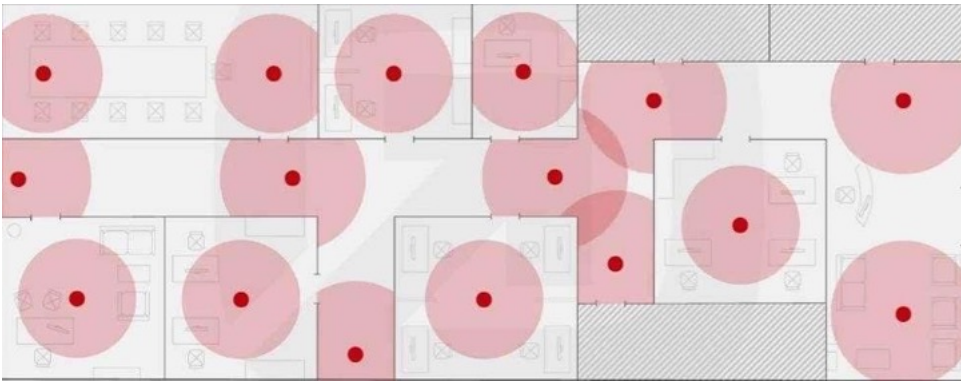
DB ID	Timestamp	MAC	AP	RSSI	Vendor
53483	2012-04-24 07:56:25	C4:2C:03:96:0E:4A		69	Apple
53482	2012-04-24 09:11:26	D8:2A:7E:10:1E:63	libelium_wsn1	60	Nokia Corporation

Example of Information Monitored by the Wi-Fi Scanner

DB ID	Timestamp	MAC	ID	RSSI	CoD	Vendor
45400	2012-05-16 16:18:12	D0:26:7E:5F:3C:18	myCar	-72	Handsfree	PARROT SA
78005	2012-04-20 12:59:27	D8:2A:7E:0E:C3:10	Tropic	-85	Smartphone	Nokia Corporation

Example of Information Monitored by the Bluetooth Scanner

6.2. AP-02 用于室内定位和资产定位



通过在重要资产上安装 BLE Beacon, DSGW-030 就可以接收到来自这些需要追踪的重要资产的 BLE 信号, 在对接收到的数据完成处理, 并通过 Wi-Fi 或以太网将其发送到服务器。最后, 资产的位置会显示在地图上, 并且可以检索运动轨迹。

6.3. AP-03 智能家居

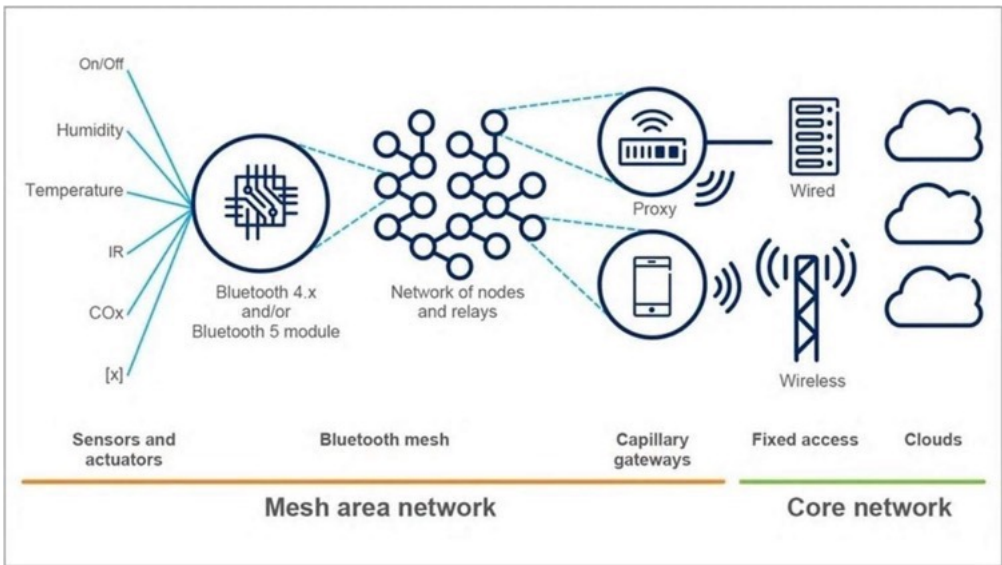


智能网关是智能家居的大脑, 通过无线方式连接各种智能终端设备, 使它们能够无缝协作。

智能网关在智能家居领域内可以实现的功能包括:

- 随时随地控制灯光、电子产品和小家电, 提供远程访问
- 安排设备在一天中的不同时间开启和关闭, 实现例行自动化并提高能源效率
- 当家中出现意外活动时接收警报, 确保您随时获取到任何潜在的安全问题
- 设置情景联动
- 监控湿度和温度, 让您随时了解家中的环境状况

6.4. AP-04 SIG Mesh




SIG MESH 网络是针对面向智能家居和楼宇自动化应用应用而生的低功耗无线技术,相比于其他网络拓扑,其不是通过 Gateway 与各个外围设备进行通信,而是通过跨连接多个节点的双向通道进行转发,将消息从网络中的一个点中继到其他任何点,克服了范围限制。

7. 认证

Zigbee



BQB



Project Details

Project Name	programmable and multi-protocol mini IoT gateway(DSI-0177-AMBER-BLE)																														
Product Type	End Product																														
TCRL Version:	TCRL 2019-1																														
Referenced Qualified Design(s)																															
Previously Qualified Design Used in this Qualification(s)	99504 101550																														
Listing Date	2019-11-19																														
Declaration ID	D048406																														
Product Listing(s)																															
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Name</th> <th>Website</th> <th>Category</th> <th>Publish Date</th> <th>Model Number</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>DUSUN programmable and multi-protocol mini IoT gateway</td> <td></td> <td>Unique Products</td> <td>11/19/2019 12:00:00 AM</td> <td>DSI-0177-AMBER-BLE</td> <td>programmable and multi-protocol mini IoT gateway</td> </tr> <tr> <td>DUSUN programmable and multi-protocol mini IoT gateway</td> <td></td> <td>Unique Products</td> <td>11/19/2019 12:00:00 AM</td> <td>DSI-0177-AMBER</td> <td>programmable and multi-protocol mini IoT gateway</td> </tr> <tr> <td>DUSUN programmable and multi-protocol mini IoT gateway</td> <td></td> <td>Unique Products</td> <td>11/19/2019 12:00:00 AM</td> <td>DSI-0177-AMBER-ZWAVE</td> <td>programmable and multi-protocol mini IoT gateway</td> </tr> <tr> <td>DUSUN programmable and multi-protocol mini IoT gateway</td> <td></td> <td>Unique Products</td> <td>11/19/2019 12:00:00 AM</td> <td>DSI-0177-AP</td> <td>programmable and multi-protocol mini IoT gateway</td> </tr> </tbody> </table>	Name	Website	Category	Publish Date	Model Number	Description	DUSUN programmable and multi-protocol mini IoT gateway		Unique Products	11/19/2019 12:00:00 AM	DSI-0177-AMBER-BLE	programmable and multi-protocol mini IoT gateway	DUSUN programmable and multi-protocol mini IoT gateway		Unique Products	11/19/2019 12:00:00 AM	DSI-0177-AMBER	programmable and multi-protocol mini IoT gateway	DUSUN programmable and multi-protocol mini IoT gateway		Unique Products	11/19/2019 12:00:00 AM	DSI-0177-AMBER-ZWAVE	programmable and multi-protocol mini IoT gateway	DUSUN programmable and multi-protocol mini IoT gateway		Unique Products	11/19/2019 12:00:00 AM	DSI-0177-AP	programmable and multi-protocol mini IoT gateway
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Member Company	Hangzhou Roombanker Technology Co.,Ltd.																														
Declaring Member Contact / Listing Contact Person	Name Address City																														

CE



FCC

TCB

GRANT OF EQUIPMENT AUTHORIZATION

Certification
 Issued Under the Authority of the
 Federal Communications Commission

By:

MICOM Labs
 575 Boulder Court
 Pleasanton, CA 94588

TCB

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

Attention: Lin Su

Date of Grant: 11/17/2019
 Application Dated: 11/17/2019

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: **2AUXBDSI-0177**


Name of Grantee: **Hangzhou Roombanker Technology Co., Ltd.**

Equipment Class: **Digital Transmission System**


Notes: **programmable and multi-protocol mini IoT gateway**

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHz)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
	15C	2412.0 - 2482.0	0.01892		

Output power listed is conducted power. The antenna used with this transmitter must be installed to provide a minimum 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 operating procedures for satisfying RF exposure compliance.



FCC

TCB	<p>GRANT OF EQUIPMENT AUTHORIZATION</p> <p>Certification Issued Under the Authority of the Federal Communications Commission</p> <p>By:</p> <p>MICOM Labs 575 Boulder Court Pleasanton, CA 94566</p>	TCB															
<p>Hangzhou Roombanker Technology Co., Ltd. A4801 Wantong center, Hangzhou, China</p> <p>Attention: Lin Su</p>	<p>Date of Grant: 11/17/2019 Application Dated: 11/17/2019</p>																
<p>NOT TRANSFERABLE</p> <p>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.</p>																	
<p>FCC IDENTIFIER: 2AUXBDSI-0177</p> <p>Name of Grantee: Hangzhou Roombanker Technology Co., Ltd.</p> <p>Equipment Class: Part 15 Low Power Communication Device - Transmitter</p> <p>Notes: programmable and multi-protocol mini IoT gateway</p>																	
<u>Grant Notes:</u>	<table border="0"> <thead> <tr> <th style="text-align: left;">FCC Rule Parts</th> <th style="text-align: center;">Frequency Range (MHz)</th> <th style="text-align: center;">Output Watts</th> <th style="text-align: center;">Frequency Tolerance</th> <th style="text-align: center;">Emission Designator</th> </tr> </thead> <tbody> <tr> <td>15C</td> <td style="text-align: center;">2402.0 - 2480.0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>15C</td> <td style="text-align: center;">2405.0 - 2480.0</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	FCC Rule Parts	Frequency Range (MHz)	Output Watts	Frequency Tolerance	Emission Designator	15C	2402.0 - 2480.0				15C	2405.0 - 2480.0				
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15C	2402.0 - 2480.0																
15C	2405.0 - 2480.0																

Canada IC



KC


|주|유씨에스
발급번호 : UCSKR-2103-0053호

방송통신기자재등(무선) 시험성적서

1. 발 급 번 호 : UCSKR-2103-0053호

2. 접 수 일 : 2021년 2월 4일

3. 시 험 기 간 : 2021년 2월 25일 ~ 2021년 3월 2일

4. 신청인(상호명) : Hangzhou Roombanker Technology Co.,Ltd

사업자등록번호 : CHN-00-18877

대표자 성명 : Yongxiao Cheng

주 소 : 801, Building A, Wantong Center, Gongshu District, Hangzhou City, Zhejiang Province, China

5. 기자재 명칭 / 모델명 : S-SERIAL SMART GATEWAY / DSGW-030

6. 제 조 자 / 제조국가 : Hangzhou Roombanker Technology Co.,Ltd / 중국

7. 시 험 결 과 : 적 합

방송통신기자재등 시험기관의 지정 및 관리에 관한 고시 제13조 규정에 의하여 시험성적서를 발급합니다.

2021년03월25일

(주)유씨에스 대표이사 (인)

주소 : 경기도 안양시 동안구 학의로 268, 702호 (관양동, 안양메가밸리)
전화번호 : 1833-5681
팩스번호 : 031-420-5685

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