

## RF Exposure Report (FCC)

**Report No.:** FCC\_RF Exposure\_SL19121701-TCG-001

**FCC ID:** HBW9545

**IC:** 2266A-9545

**WIFI FCC ID:** 2AATL-6220N-IS

**WIFI IC:** 24844-6220NIS

**Test Model:** MYQ-G0401

**Series Model:** MYQ-G0401-E, 821LMC

**Received Date:** 12/20/2019

**Test Date:** 12/23/2019 - 01/24/2020

**Issued Date:** 02/07/2020

**Applicant:** Chamberlain Group, Inc

**Address:** 300 Windsor Drive, Oakbrook, IL 60523

**Manufacturer:** Jabil, Inc.

**Address:** Jabil Circuit India Pvt. Ltd.

B -26, MIDC Industrial Area, Ranjangaon

Taluka Shirur, Pune - 412220,

Maharashtra, India

**Issued By:** Bureau Veritas Consumer Products Services, Inc.

**Lab Address:** 775 Montague Expressway, Milpitas, CA 95035

**Test Location (1):** 775 Montague Expressway, Milpitas, CA 95035

**FCC/IC Registration /  
Designation Number:** 540430/4842D



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### Release Control Record

Issue No.	Description	Date Issued
FCC_RF Exposure_SL19121701-TCG-001	Original Release	02/07/2020

## 1 Certificate of Conformity

**Product:** Smart Garage Control – C-Hub

**Brand:** Chamberlain

**Test Model:** MYQ-G0401, MYQ-G0401-E, 821LMC

**Sample Status:** Engineering Sample


**Applicant:** Chamberlain Group, Inc

**Test Date:** 12/23/2019 - 01/24/2020


KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services, Inc., Milpitas Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**  , **Date:** 02/07/2020

Yao Wei Lee / Test Engineer

**Approved by :**  , **Date:** 02/07/2020

Shuo Zhang / Engineer Reviewer

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.  
So, this device is classified as Mobile Device.

### 2.4 Antenna Gain

The BLE antenna type is an Inverted-F PCB Trace with 2dBi gain.

The Wifi antenna type is an Inverted-F PCB Trace with 2dBi gain.

The ISM antenna type is a Monopole with 5.19 dBi gain.

## 2.5 Calculation Result of Maximum Conducted Power

Type	Frequency Band (MHz)	Max Power (dBm)	Max Power (mW)	Turn-Up Tolerance	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
BLE	2402-2480	3.58	2.280	± 1dB	2	20	0.000906	1
Wi-Fi	2412-2462	16.38	43.451	± 1dB	2	20	0.017256	1
ISM 300	390	-21.66	0.0068	± 1dB	5.19	20	0.0000056	0.26
ISM 900	926.75	9.7	9.33	± 1dB	5.19	20	0.0077	0.62

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. This device contains Hunan FN-Link Technology Limited 2.4G Wi-Fi + Bluetooth V5.0 Module (FCC ID: 2AATL-6220N-IS).

## 3 Conclusion

### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

### Co-location worse case (WiFi & ISM900)

$$WIFI = (0.017256 / 1) * 100\% = 1.7\%$$

$$ISM900 = (0.0077 / 0.62) * 100\% = 1.2\%$$

$$\text{Total MPE Percentage} = (1.7\% + 1.2\%) = 2.9\% < 100\%$$

Therefore, the maximum calculations of above situations are less than the “1” limit.

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