

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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Table of Contents

Release Control Record	3
1 Certificate of Conformity.....	4
2 RF Exposure.....	5
2.1 Limits for Maximum Permissible Exposure (MPE)	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
2.4 Antenna Gain	5
2.5 Calculation Result of Maximum Conducted Power	6
3 Conclusion	6

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 ²)	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 ²)*	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

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

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 ²)	Limit (mW/cm ²)
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)

$$\text{WiFi} = (0.017256 / 1) * 100\% = 1.7\%$$

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

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

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

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