RF Exposure Report

(Mobile mode)

Report No.:	SA191225C12
FCC ID:	QOQ-GM220P
Test Model:	MGM220P22A
Series Model:	BGM220P22A, BGX220P22A
Received Date:	Dec. 25, 2019
Test Date:	Jan. 17 ~ Mar. 02, 2020
Issued Date:	Mar. 05, 2020
Applicant:	Silicon Laboratories Finland Oy
Address:	Alberga Business Park - Bldg D/Floor 5, Bertel Jungin aukio 3, 02600 ESPOO, FINLAND
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
SA191225C12	Original release	Mar. 05, 2020

1 Certificate of Conformity

Product:	Zigbee and Bluetooth Low Energy wireless radio modules, Bluetooth Low Energy wireless radio modules
Brand:	Silicon Labs
Test Model:	MGM220P22A
Series Model:	BGM220P22A, BGX220P22A
Sample Status:	Engineering sample fully representing the production model
Applicant:	Silicon Laboratories Finland Oy
Test Date:	Jan. 17 ~ Mar. 02, 2020
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance:	KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.3 -2002

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan 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 RF characteristics under the conditions specified in this report.

Prepared by : Polly Chien , **Date:** Mar. 05, 2020

Polly Chien / Specialist

Approved by : Bruce Chen , **Date:** Mar. 05, 2020

Bruce Chen / Senior Project Engineer

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

$Pd = (Pout*G) / (4*pi*r^2)$
where
Pd = power density in mW/cm^2
Pout = 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.

3 Calculation Result of Maximum Conducted Power

Mode	Frequency Band (MHz)	Max. AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
BT LE						
Hopping						
LE 1M	2402~2480	8.82	1.86	20	0.002	1
LE 2M		8.78	1.86	20	0.002	1
DTS						
LE 1M	2402~2480	8.82	1.86	20	0.002	1
LE 2M		8.78	1.86	20	0.002	1
SRD						
-	2401 & 2481	8.76	1.86	20	0.002	1
Zigbee						
-	2405 ~ 2480	8.66	1.86	20	0.002	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The EUT is capable of running the Zigbee and Bluetooth Low Energy protocols, and an additional custom protocol. However, in no circumstance the module will transmit using two or more protocols at the same time.

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