RF Exposure Evaluation Declaration

Report No.: S20250317773403
Issue Date: 05-16-2025

Applicant:	Queclink Wireless Solutions Co., Ltd.
Address:	No.30, Lane 500, Xinlong Road，Minhang District, Shanghai, China, 201101Delaware, United States
FCC ID:	YQD-GV650MG
Product:	GPS Tracker
Model No.:	GV650MG-FF, GV650MG-STD, GV650MG-LITE
Trade Mark:	Queclink
FCC Rule Part(s):	CFR 47, FCC Part 2.1091 Radio frequency radiation exposure evaluation: mobile devices.
Item Receipt date:	Mar. 24, 2025
Test Date:	Apr. 08, ~ May. 06, 2025

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FANGGUANG INSPECTION & TESTING CO.,LTD. APPROVED(02)

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 558074 D01. Test results reported herein relate only to the item(s) tested.

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The test report must not be used by the client to claim product certifications, approval, or endorsement by NVLAP, NIST or any agency of U.S. Government.

Revision History

Report No.	Version	Description	Issue Date
S20250317773403	Rev. 01	/	05-16-2025

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	GPS Tracker		
Main Test Model:	GV650MG-FF		
Additional Model:	GV650MG-STD, GV650MG-LITE		
Model Description:	For GV650MG-FF, GV650MG-STD and GV650MG-LITE, the external structure, circuit design, PCB Layout are all the same. The main difference is that some components in the STD, LITE versions are not attached to the PCB board.		
Trade Mark:	Queclink		
Input Voltage Range:	DC 8~90V (Normal Voltage DC 12V used for test.)		
Wi-Fi Specification:	802.11b/g/n-HT20		
Bluetooth Version:	4.2		
Frequency Range:	Band	TX(MHz)	RX(MHz)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	LTE Band 2	1850~1910	1930~1990
	LTE Band 4	1710~1755	2110~2155
	LTE Band 5	824~849	869~894
	LTE Band 12	699~716	729~746
	LTE Band 13	777~787	746~756
	LTE Band 25	1850~1910	1930~1990
	LTE Band 26	814~849	859~894
	LTE Band 66	1710~1780	2110~2180
	LTE Band 85	698~716	728~746
	NB-IOT Band 2	1850~1910	1930~1990
	NB-IOT Band 4	1710~1755	2110~2155
	NB-IOT Band 5	824~849	869~894
	NB-IOT Band 12	699~716	729~746
	NB-IOT Band 13	777~787	746~756
	NB-IOT Band 25	1850~1915	1930~1995
	NB-IOT Band 66	1710~1780	2110~2180
	NB-IOT Band 71	663~698	617~652
	NB-IOT Band 85	698~716	728~746
Software Version:	VER, 2, GV650_FCTR00A03V04		

Hardware Version:	VER, 4, HWR105
Note:	This information is provided by the Customer and its authenticty is the responsibility of the Customer.

1.2. Product Specification Subjective to this Report

Frequency Range:	802.11b/g/n-HT20: 2412 ~ 2472MHz BLE:2402~2480MHz		
Channel Number:	802.11b/g/n-HT20: 13 BLE: 40		
Antenna Type:	WIFI: Ceramic Antenna BLE: Ceramic Antenna LTE: PCB Antenna		
Antenna Gain:	Band	Frequency(MHz)	Gain(dBi)
	WLAN	2400~2483.5	1.86
	BLE	2400~2483.5	1.86
	GSM850 LTE Band 5 LTE Band 26 NB-IOT Band 5	820	2.43
		840	1.82
		850	2.19
	GSM1900 LTE Band 2 LTE Band 25 NB-IOT Band 2 NB-IOT Band 25	1860	0.66
		1880	0.73
		1900	1.33
	LTE Band 26	810	2.99
	LTE Band 4 LTE Band 12 LTE Band 13 LTE Band 66 LTE Band 85 NB-IOT Band 4 NB-IOT Band 12 NB-IOT Band 13	700	1.42
		710	1.86
		780	3.06
		1720	0.83
		1740	1.3

	NB-IOT Band 66 NB-IOT Band 71 NB-IOT Band 85	1780	0.93
Type of Modulation:	802.11b/g/n: CCK/DBPSK/BPSK/OFDM/QPSK//DQPSK/16QAM/64QAM BLE: GFSK LTE: QPSK, 16QAM		
Data Rate:	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0~MCS7 BLE: 1Mbps		
Note:	/		

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

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

Pd is the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Test Result of RF Exposure Evaluation

Product	GPS Tracker
Test Item	RF Exposure Evaluation

Mode	Frequency (MHz)	Maximum Conducted OutputPower (dBm)	Antenna Gain (dBi)	PG		MPE (mW/cm^2)	MPE Limits (mW/cm^2)
				(dBm)	(mW)		
WIFI	2412~2462	12.56	1.86	14.42	27.67	0.0055	1.00
BLE	2402~2480	8.50	1.86	10.36	10.86	0.0022	1.00

Mode	Frequency (MHz)	Maximum Conducted Output Powerr (dBm)	Antenna Gain (dBi)	PG		MPE (mW/cm^2)	MPE Limits (mW/cm^2)
				(dBm)	(mW)		
GSM850	824~849	25.970	2.43	28.40	691.83	0.1376	0.566
GSM1900	1850~1910	22.970	1.33	24.30	269.15	0.0535	1.00
LTE Band 2	1850~1910	25.0	1.33	26.33	429.54	0.0855	1.00
LTE Band 4	1710~1755	25.0	1.42	26.42	438.53	0.0872	1.00
LTE Band 5	824~849	25.0	2.43	27.43	553.35	0.1101	0.566
LTE Band 12	699~716	25.0	3.06	28.06	639.73	0.1273	0.477
LTE Band 13	777~787	25.0	3.06	28.06	639.73	0.1273	0.525
LTE Band 25	1850~1910	25.0	1.33	26.33	429.54	0.0855	1.00
LTE Band 26	814~849	25.0	2.99	27.99	629.51	0.1252	0.566
LTE Band 66	1710~1780	25.0	3.06	28.06	639.73	0.1273	1.00
LTE Band 85	698~716	25.0	3.06	28.06	639.73	0.1273	0.477
NB-IOT Band 2	1850~1910	25.0	1.33	26.33	429.54	0.0855	1.00
NB-IOT Band 4	1710~1755	25.0	3.06	28.06	639.73	0.1273	1.00
NB-IOT Band 5	824~849	25.0	2.43	27.43	553.35	0.1101	0.566
NB-IOT Band 12	699~716	25.0	3.06	28.06	639.73	0.1273	0.477

NB-IOT Band 13	777~787	25.0	3.06	28.06	639.73	0.1273	0.525
NB-IOT Band 25	1850~1915	25.0	1.33	26.33	429.54	0.0855	1.00
NB-IOT Band 66	1710~1780	25.0	3.06	28.06	639.73	0.1273	1.00
NB-IOT Band 71	663~698	25.0	3.06	28.06	639.73	0.1273	0.465
NB-IOT Band 85	698~716	25.0	3.06	28.06	639.73	0.1273	0.477

Remark: 1. MPE use distance is 20cm from manufacturer declaration of user manual.

Remark: 2.Use the maximum gain of all bands when evaluating.

Remark: 3. The results of LTE Maximum Conducted OutputPower please refer to the LTE module test report (Report No. R2005A0283-M1) which was issued by TA Technology (Shanghai) Co., Ltd on 2020.06.23.

Remark: 4. The device only has single WLAN/BT Antenna and single LTE Main Antenna, without LTE Diversity Antenna. WLAN/BT can operate simultaneously with the cellular mode.

CONCULISON:

The Max Power Density at R (20 cm) = 0.1376mW/cm^2 < 0.566mW/cm^2.

The Max MPE of simultaneous transmission = 0.055mW/cm^2+0.1376mW/cm^2

= 0.1926mW/cm^2 < 0.566mW/cm^2

So the EUT complies with the requirement.

Statement

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