



RF Exposure Evaluation Declaration

Report No.: S20230912283205

Issue Date: 24-10-2023

Applicant: Queclink Wireless Solutions Co., Ltd.
Address: No.30, Lane 500, Xinlong Road, Minhang District,
Shanghai, China 201101
FCC ID: YQD-SC350MG
Product: GPS Tracker
Model No.: SC350MG
Trade Mark: Queclink
FCC Rule Part(s): CFR 47, FCC Part 2.1091 Radio frequency radiation
exposure evaluation: mobile devices.
Item Receipt date: Sep 12, 2023
Test Date: Sep 21 ~ Oct 13, 2023

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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
S20230912283205	Rev. 01	/	24-10-2023

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	GPS Tracker
Model Name:	SC350MG
Trade Mark:	Queclink
Input Voltage Range:	DC 8V ~ 60V

1.2. Product Specification Subjective to this Report

Frequency Range:	BLE:2402~2480MHz GSM850: TX 824-849 MHz; RX 869-894 MHz PCS1900: TX 1850-1910 MHz; RX 1930-1990MHz LTE Band 2: TX 1850-1910 MHz; RX 1930-1990 MHz LTE Band 4: TX 1710-1755 MHz; RX 2110-2155 MHz LTE Band 5: TX 824-849 MHz; RX 869-894 MHz LTE Band 12: TX 699-716 MHz; RX 729-746 MHz LTE Band 13: TX 777-787 MHz; RX 746-756 MHz LTE Band 26: TX 824-849 MHz; 869-894 MHz LTE Band 66: TX 1710-1780 MHz; RX 2110-2180 MHz NB-IOT Band 2: TX 1850-1910 MHz; RX 1930-1990 MHz NB-IOT Band 4: TX 1710-1755 MHz; RX 2110-2155 MHz NB-IOT Band 5: TX 824-849 MHz; RX 869-894 MHz NB-IOT Band 12: TX 699-716 MHz; RX 729-746 MHz NB-IOT Band 13: TX 777-787 MHz; RX 746-756 MHz NB-IOT Band 66: TX 1710-1780 MHz; RX 2110-2180 MHz NB-IOT Band 71: TX 663-698 MHz; 617-652 MHz	
Type of Modulation:	BLE: GFSK GSM850: GPRS: GMSK; EGPRS: 8PSK PCS1900: GPRS: GMSK; EGPRS: 8PSK LTE: QPSK; 16QAM NB-IOT: BPSK; QPSK	
Antenna Type:	BLE: PIFA Antenna 2G&4G: PIFA Antenna	
Antenna Gain:	BLE: 1.8dBi GSM850: -4.53dBi LTE Band 2: -3.67dBi LTE Band 5: -4.53dBi LTE Band 13: -7.04dBi PCS1900: -3.67dBi LTE Band 4: -3.17dBi LTE Band 12: -6.8dBi LTE Band 26: -4.53dBi	

	LTE Band 66: -3.17dBi	NB-IOT Band 2: -3.67dBi
	NB-IOT Band 4: -3.17dBi	NB-IOT Band 5: -4.53dBi
	NB-IOT Band 12: -6.8dBi	NB-IOT Band 13 -7.04dBi
	NB-IOT Band 66:-3.17dBi	NB-IOT Band 71:-6.8dBi

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

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

P_d is the limit of MPE, 1mW/cm². 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 Output Power (dBm)	Antenna Gain (dBi)	PG		MPE (mW/cm ²)	MPE Limits (mW/cm ²)
				(dBm)	(mW)		
BLE	2402 - 2480	-1.11	1.8	0.69	1.172	0.0002	1.00
GSM850	824-849	32.47	-4.53	27.94	622.30	0.1238	0.566
PCS1900	1850-1910	29.97	-3.67	26.3	426.58	0.0849	1.00
LTE Band 2	1850-1910	23.64	-3.67	19.97	99.31	0.0198	1.00
LTE Band 4	1710-1755	23.69	-3.17	20.52	112.72	0.0224	1.00
LTE Band 5	824-849	23.98	-4.53	19.45	88.10	0.0175	0.566
LTE Band 12	699-716	23.60	-6.80	16.8	47.86	0.0095	0.477
LTE Band 13	777-787	23.30	-7.04	16.26	42.27	0.0084	0.525
LTE Band 26	824-849	23.99	-4.53	19.46	88.31	0.0176	0.566
LTE Band 66	1710-1780	23.89	-3.17	20.72	118.03	0.0235	1.00
NB-IOT Band 2	1850-1910	23.95	-3.67	20.28	106.66	0.0212	1.00
NB-IOT Band 4	1710-1755	23.74	-3.17	20.57	114.02	0.0227	1.00
NB-IOT Band 5	824-849	23.61	-4.53	19.08	80.91	0.0161	0.566
NB-IOT Band 12	699-716	23.44	-6.80	16.64	46.13	0.0092	0.477
NB-IOT Band 13	777-787	23.71	-7.04	16.67	46.45	0.0092	0.525
NB-IOT Band 66	1710-1780	23.67	-3.17	20.5	112.20	0.0223	1.00
NB-IOT Band 71	663-698	23.69	-6.80	16.89	48.87	0.0097	0.465

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

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

CONCLUSION:

The Max Power Density at R (20 cm) = $0.1238\text{mW/cm}^2 < 0.566\text{mW/cm}^2$.

So the EUT complies with the requirement.

_____ The End _____