RF Exposure Evaluation Declaration

Product Name: GPS Tracker

Model No.: GV300N

FCC ID: YQD-GV300N

Applicant : Queclink Wireless Solutions Co.,Ltd.

Address : Room 501, Building 9,No.99，Tianzhou Road,Shanghai,China

Date of Receipt : 04-11-2014

Issued Date : 20-11-2014

Report No. : UL12620141104FCC024-3

Report Version : V1.0

RF Exposure Evaluation Declaration

Issued Date : 20-11-2014
Report No. : UL12620141104FCC024-3

Product Name :	GPS Tracker
Model No. :	GV300N
Applicant :	Queclink Wireless Solutions Co.,Ltd
Address :	Room 501, Building 9, No 99, TianZhou Road, Shanghai, China
Manufacturer :	Queclink Wireless Solutions Co.,Ltd.
Address :	Room 501, Building 9, No 99, TianZhou Road, Shanghai, China
EUT Voltage	Extreme Low:8,Nominal:12/24V,Extreme High:32
Brand Name :	Queclink
Applicable Standard :	FCC OET Bulletin 65 Supplement C (Edition 01-01)
Test Result :	Complied
Performed Location :	Unilab (Shanghai) Co.,Ltd.
	FCC 2.948 register number is 714465
	No.1350, Lianxi Road, Pudong New District, Shangha, China
	TEL:+86-21-5027-5125/FAX:+86-21-5027-7862

Documented By : Andy Wei

(Technical Engineer: Andy Wei)

Reviewed By : Forest Cao

(Senior Engineer: Forest Cao)

Approved By : Eva Wang

(Supervisor: Eva Wang)

1. EUT Description

Product Name:	GPS Tracker
Model Name:	GV300N
Hardware Version:	V1.03
Software Version:	GV300NR00A01V06M128_MXIC
RF Exposure Environment:	Uncontrolled
GSM/GPRS	
Support Band:	GSM850/ PCS 1900
Tx Frequency Range:	GSM 850: 824.2MHz to 848.8MHz PCS 1900: 1850.2MHz to 1909.8MHz
Rx Frequency Range:	GSM 850: 869.2MHz to 893.8MHz PCS 1900: 1930.2MHz to 1989.8MHz
Type of modulation:	GMSK
Antenna Type:	Internal
Antenna Peak Gain:	GSM 850: 0dBi PCS 1900: 0dBi

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 Filed Strength (V/m)	Magnetic Filed Strength (A/m)	Power Density (mW/cm2)	Average Time (Minutes)
(A)Limits for Occupation/Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B)Limits for General Occupation/UnControlled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4*Pi*R2)

Where

Pd = power density in mW/cm2

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 id the limit of MPE, 1 mW/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 Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 26℃and 52％ RH.

2.3.Test Result of RF Exposure Evaluation

This device is evaluated by mobile device with general population/uncontrolled exposure condition

For this device, the calculation is using the most conservative values, and the results are as follows:

Test Mode	Antenna Gain (dBi)	Maximum Output Power (dBm)	Average Power (dBm)	Average EIRP (mW)	Calculated RF Exposure at d = 20cm (mW/cm2)	MPE Limit (mW/cm2)
GSM 850	0	33.5	24.5	281.8	0.06	0.55
PCS 1900	0	30.5	21.5	141.2	0.03	1.00
The averaged power calculated method are shown as below: Averaged power=Maximum burst averaged power(1 Tx Slot)-9dB Duty cycle =12.5% Average EIRP Power=Average Power+Antenna Gain						

Test Mode	ERP (dBm)	EIRP (dBm)	Peak EIRP (mW)	Average EIRP (mW)	Calculated RF Exposure at d = 20cm (mW/cm2)	MPE Limit (mW/cm2)
GSM 850	31.57	33.72	2355.0	296.5	0.06	0.55
GPRS 850	31.97	34.12	2582.3	325.1	0.06	0.55
PCS 1900	---------	28.88	772.7	97.3	0.02	1.00
GPRS 1900	---------	28.95	785.2	98.9	0.02	1.00
The frame-averaged power calculated method are shown as below: Average EIRP=Peak EIRP-9dB Duty cycle =12.5%						

This device can pass RF exposure limit.