

## RF Exposure Evaluation declaration

Product Name : Navigation system  
Model No. : GPSmile 61CS  
FCC ID. : RJI-NAV61CS

Applicant : Holux Technology, Inc.

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Date of Receipt : 2012/07/24  
Date of Declaration : 2012/09/14  
Report No. : 127436R-RF-US-Exp  
Report Version : V1.0

The declaration results relate only to the samples calculated.

The declaration shall not be reproduced except in full without the written approval of Quietek Corporation.

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## 1. RF Exposure Evaluation

### 1.1. 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 <sup>2</sup> ) | 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

Friis Formula

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

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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.

### 1.2. 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: 18°C and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

|                |                        |
|----------------|------------------------|
| Product        | Navigation system      |
| Test Mode      | Mode 1: Transmit       |
| Test Condition | RF Exposure Evaluation |

#### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2dBi or 1.585 in linear scale.

#### Output Power into Antenna & RF Exposure Evaluation Distance:

| Channel | Channel Frequency (MHz) | Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) |
|---------|-------------------------|------------------------------|--|
| 00      | 2402                    | 0.34                         | 0.0001   |
| 39      | 2441                    | 0.45                         | 0.0001   |
| 78      | 2480                    | 0.57                         | 0.0002   |

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm<sup>2</sup>.