

## RF Exposure Evaluation declaration

Product Name : PersonalMate GPS  
Model No. : 860Pro  
FCC ID. : OUP980600101

Applicant : TRANSYSTEM INC.

Address : No.1-2, Li-Hsin Rd.1, Science-Based Industrial Park,  
Hsinchu, Taiwan R.O.C.

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Version : V1.0

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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	PersonalMate GPS
Test Mode	Mode 1: Transmit
Test Condition	RF Exposure Evaluation

**Antenna Gain**

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 0 dBi or 1 in linear scale.

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

Bluetooth Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402.00	0.6902	0.00014
39	2441.00	1.0023	0.00020
78	2480.00	1.0691	0.00021

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>.