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Report No.: SZEM110600153703

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RF Exposure Evaluation declaration

Application No.: SZEM1106001537RF
Applicant/Manufacturer: Logitech Inc
Address of Applicant/Manufacturer: 6505 Kaiser Drive Fremont California 94555 United States
Factory: Dong Guan Tai Sing Manufacturing Factory
Address of Factory: Tai Sing Industrial Road, Bai Zhou Bian Village, Dong Cheng, Dongguan City, Guangdong Province 523113, P.R. China
FCC ID: DZLS00114
Fundamental Carrier Frequency : 2.402GHz-2.480GHz
Equipment Under Test (EUT):
EUT Name: Wireless module
Model No.: S-00114
Trade Name:  
Logitech Logicool
Date of Receipt: 2011-06-21
Date of Test: 2011-06-22 to 2011-06-28
Date of Issue: 2011-07-19

Test Result :	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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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
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	300

F= Frequency in MHz

Friis Formula

Friis transmission formula: $Pd = (Pout \cdot G) / (4 \cdot \pi \cdot R^2)$

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 is 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.

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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: 18°C and 78% RH.

2.3 Test Result of RF Exposure Evaluation

Product : Bluetooth hands-free system

Test Item : RF Exposure Evaluation

Test Site : No.3 OATS

Antenna Gain: 2.6dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.820 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
Lowest	2402	3.54	2.259	0.00082

The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.