

eMoMo Technology Co., Ltd

Bluetooth Control System

Main Model: iCtrl.M1P58

Serial Model: iCtrl.M1P5, iCtrl.M1P8, iCtrl.M1RP5,
iCtrl.M1RP8




May 19, 2014

Report No.: 13020926-FCC-MPE
(This report supersedes NONE)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

		
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Test result presented in this test report is applicable to the representative sample only.

MPE Calculation Report
To: FCC 2.1091

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Australia	EMC, RF, Telecom , Safety
Korea	EMI, EMS, RF , Telecom, Safety
Japan	EMI, RF/Wireless, Telecom
Singapore	EMC , RF , Telecom
Europe	EMC, RF, Telecom , Safety



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Title: RF Test Report for Bluetooth Control System
Main Model: iCtrl.M1P58
Main Model: iCtrl.M1P5, iCtrl.M1P8, iCtrl.M1RP5, iCtrl.M1RP8
To: FCC 2.1091

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1 EXECUTIVE SUMMARY & EUT INFORMATION

The purpose of this test programme was to demonstrate compliance of the eMoMo Technology Co., Ltd, Bluetooth Control System and model: iCtrl.M1P58 against the current Stipulated Standards. The Bluetooth Control System has demonstrated compliance with the FCC 2.1091.

EUT Information

EUT Description : Bluetooth Control System

Main Model : iCtrl.M1P58

Serial Model : iCtrl.M1P5, iCtrl.M1P8, iCtrl.M1RP5, iCtrl.M1RP8

Antenna Gain : Bluetooth: 3dBi

**Input Power : Adapter:
Model:ZBHWX-A290020-A
Input: AC 180-240V, 50/60Hz, 1.5A
Output: DC 29V 2.0A**

Classification Per Stipulated Test Standard : FCC 2.1091

Note: In this report, we have chosen the main model *iCtrl.M1P58* for testing, *iCtrl.M1P5*; *iCtrl.M1P8*; *iCtrl.M1RP5*; *iCtrl.M1RP8* are the abbreviated visions of *iCtrl.M1P58*. The difference among them was explained in the declaration letter.

2 TECHNICAL DETAILS

Purpose	Compliance testing of Bluetooth Control System with stipulated standard
Applicant / Client	eMoMo Technology Co., Ltd Fourth Floor, Yonghe Building, Taiwan Industrial P Shiyan, Baoan, Shenzhen, Guangdong
Manufacturer	eMoMo Technology Co., Ltd Fourth Floor, Yonghe Building, Taiwan Industrial P Shiyan, Baoan, Shenzhen, Guangdong
Laboratory performing the tests	SIEMIC (Shenzhen - China) Laboratories Zone A, Floor 1, Building 2, Wan Ye Long Technology Park, South Side of Zhoushi Road, Bao'an District, Shenzhen, Guangdong, China Tel: +86-0755-2601 4629 / 2601 4953 Fax: +86-0755-2601 4953-810 Email: China@siemic.com.cn
Test report reference number	13020926-FCC-MPE
Date EUT received	October 16 , 2013
Standard applied	FCC 2.1091
Dates of test (from – to)	November 06, 2013 to November 13, 2013
No of Units	#1
Equipment Category	DSS
Trade Name	iCtrl
RF Operating Frequency (ies)	Bluetooth: 2402-2480 MHz
Number of Channels	Bluetooth: 79CH
Modulation	Bluetooth: GFSK& $\pi/4$DQPSK&8DPSK
FCC ID	A4EICTRLXXYY

3 MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

3.1 §2.1091 –Maximum Permissible exposure (MPE)

Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

Test Data

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

2.4GHz

8DPSK modulation of Bluetooth (worst case)

Maximum peak output power at antenna input terminal: 2.53 (dBm)

Maximum peak output power at antenna input terminal: 1.791 (mW)

Prediction distance: >20 (cm)

Predication frequency: 2402 (MHz)

Antenna Gain (typical): 3 (dBi)

Antenna Gain (typical): 1.995(numeric)

The worst case is power density at predication frequency at 20 cm: 0.0007 (mW/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mW/cm²)

0.0007 (mW/cm²) < 1 (mW/cm²)

Result: Pass