

EMF TEST REPORT

Test Report No. : OT-233-RWD-004
Reception No. : 2302000534
Applicant : Fitogther
Address : #302, 95 Hangang-daero, Yongsan-gu, Seoul, 04378, South Korea
Manufacturer : Fitogther
Address : #302, 95 Hangang-daero, Yongsan-gu, Seoul, 04378, South Korea
Type of Equipment : OHCOACH Real Time Wireless Communication System
FCC ID. : 2BAGE-FITOLIVEHUBP1
Model Name : LHP1-1A
Multiple Model Name : N/A
Serial number : N/A
Total page of Report : 7 pages (including this page)
Date of Incoming : February 23, 2023
Date of issue : March 06, 2023

SUMMARY

The equipment complies with the regulation; **FCC CFR 47 PART 2.1091**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

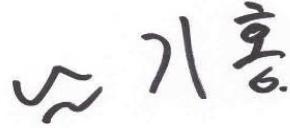
This report is not correlated with the "KS Q ISO/IEC 17025 and KOLAS accreditation" of Korean Laboratory Accreditation Scheme.



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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-233-RWD-004	March 06, 2023	Initial Release	All

1. VERIFICATION OF COMPLIANCE

Applicant : Fitogther
Address : #302, 95 Hangang-daero, Yongsan-gu, Seoul, 04378, South Korea
Contact Person : Bobby, Shin / Senior Engineer
Telephone No. : +82-10-6263-8930
FCC ID : 2BAGE-FITOLIVEHUBP1
Model Name : LHP1-1A
Brand Name : -
Serial Number : N/A
Date : March 06, 2023

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM
E.U.T. DESCRIPTION	OHCOACH Real Time Wireless Communication System
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	KDB 447498 D01 General RF Exposure Guidance v06
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT	
AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED	FCC PART 15 SUBPART C Section 15.247
UNDER FCC RULES PART(S)	KDB 558074 D01 15.247 Meas Guidance v05r02
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

- The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. GENERAL INFORMATION

2.1 Product Description

The Fitogther, Model LHP1-1A (referred to as the EUT in this report) is a OHCOACH Real Time Wireless Communication System. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	OHCOACH Real Time Wireless Communication System
OPERATING FREQUENCY	2 412 MHz ~ 2 462 MHz (802.11g)
MODULATION TYPE	OFDM Modulation (BPSK/QPSK/16QAM/64QAM)
RF OUTPUT POWER	Antenna 0: 9.67 dBm Antenna 1: 9.18 dBm Antenna 2: 8.54 dBm Multiple Antenna: 13.90 dBm
ANTENNA TYPE	Antenna 0: Patch Antenna Antenna 1: Patch Antenna Antenna 2: Dipole Antenna
ANTENNA GAIN	Antenna 0: 9.13 dBi Antenna 1: 9.13 dBi Antenna 2: 4.29 dBi Multiple Antenna: 12.80 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	25 MHz, 40 MHz
RATED SUPPLY VOLTAGE	DC 7.40 V

2.2 Alternative type(s)/model(s); also covered by this test report.

- None

3. EUT MODIFICATIONS

- None

4. MAXIMUM PERMISSIBLE EXPOSURE

4.1 RF Exposure Calculation

According to the FCC rule 1.1310 table 1B, the limit for the maximum permissible RF exposure for an uncontrolled environment are $f/1500 \text{ mW/cm}^2$ for the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm^2 for the frequency range between 1 500 MHz and 100 000 MHz.

The electric field generated for a 1 mW/cm^2 exposure is calculated as follows:

$$E = \sqrt{(30 * P * G) / d}, \text{ and } S = E^2 / Z = E^2 / 377, \text{ because } 1 \text{ mW/cm}^2 = 10 \text{ W/m}^2$$

Where

S = Power density in mW/cm^2 , Z = Impedance of free space, 377Ω

E = Electric field strength in V/m , G = Numeric antenna gain, and d = distance in meter

Combining equations and rearranging the terms to express the distance as a function of the remaining variable

$$d = \sqrt{(30 * P * G) / (377 * 10 S)}$$

Changing to units of mW and cm, using $P (\text{mW}) = P (\text{W}) / 1000$, $d (\text{cm}) = 0.01 * d (\text{m})$

$$d = 0.282 * \sqrt{(P * G) / S}$$

Where

d = distance in cm, P = Power in mW, G = Numeric antenna gain, and S = Power density in mW/cm^2

4.2 EUT Description

Kind of EUT	OHCOACH Real Time Wireless Communication System
Device Category	<input type="checkbox"/> Portable (< 20 cm separation) <input checked="" type="checkbox"/> Mobile (> 20 cm separation) <input type="checkbox"/> Others
Exposure	<input checked="" type="checkbox"/> MPE
Evaluation Applied	<input type="checkbox"/> SAR <input type="checkbox"/> N/A

4.3 Calculated MPE Safe Distance

According to above equation, the following result was obtained.

Operating Freq. Band (MHz)	Operating Mode	Target Power W/tolerance (dBm)	Max tune up power		Antenna Gain		Safe Distance (cm)	Power Density (mW/cm ²) @ 20 cm Separation	Limit (mW/cm ²)
			(dBm)	(mW)	Log	Linear			
2 400 ~ 2 483.5	802.11g [Antenna 0]	9.67 ± 1.0	10.67	11.67	9.13	8.18	2.76	0.019 0	1
	802.11g [Antenna 1]	9.18 ± 1.0	10.18	10.42	9.13	8.18	2.60	0.017 0	1
	802.11g [Antenna 2]	8.54 ± 1.0	9.54	8.99	4.29	2.69	1.39	0.004 8	1
	802.11g [Multiple Antenna]	13.90 ± 1.0	14.90	30.90	12.80	19.05	6.84	0.117 1	1

According to above table, for 2 400 ~ 2483.5 MHz Band(802.11 g [Antenna 0]), safe distance,

$$D = 0.282 * \sqrt{(11.67 * 8.18) / 1.00} = 2.76 \text{ cm.}$$

For getting power density at 20 cm separation in above table, following formula was used.

$$S = P * G / (4\pi * R^2) = 11.67 * 8.18 / (4 * \pi * 20^2) = 0.019 0$$

Where:

S = Power Density,

P = Power input to the external antenna (Output power from the EUT antenna port (dBm) – cable loss (dB)),

G = Gain of Transmit Antenna (linear gain), R = Distance from Transmitting Antenna