

RF Exposure Evaluation Report

Product Name : Wireless converter unit

Model No. : CRB-1W

FCC ID : X3X-WUSBMDL

Applicant : ELMO COMPANY, LIMITED

Address : 1-3-4, Shioya-cho, Minami-ku, Nagoya, 457-0078, JAPAN

Date of Receipt : Mar. 19, 2018

Date of Declaration : Apr. 12, 2018

Report No. : 1830278R-RFUSP02V00

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

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Issued Date: Apr. 12, 2018

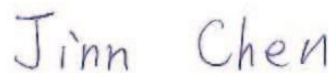
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Product Name	Wireless converter unit
Applicant	ELMO COMPANY, LIMITED
Address	1-3-4, Shioya-cho, Minami-ku, Nagoya, 457-0078, JAPAN
Manufacturer	ELMO COMPANY, LIMITED
Model No.	CRB-1W
FCC ID.	X3X-WUSBMDL
EUT Rated Voltage	DC 5V (Power by USB)
EUT Test Voltage	AC 120V/60Hz
Trade Name	ELMO
Applicable Standard	FCC 47 CFR 1.1310
Test Result	Complied

Documented By

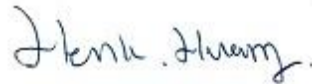
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(Senior Adm. Specialist / Jinn Chen)

Tested By

:



(Senior Engineer / Henk Huang)

Approved By

:



(Director / Vincent Lin)

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 ²)	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/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d 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.

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 : Wireless converter unit
Test Item : RF Exposure Evaluation

Operation Frequency	2402-2479MHz
Maximum Conducted output power	-3.16dBm
Antenna gain	1.16dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
0.483058802	0.0001

Power density is lower than the limit (1 mW/cm²).