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RF Exposure Evaluation Report

Report No.: CQASZ20180700091E-02

Applicant: Dongguan Finexpo Models Co., Ltd

Address of Applicant: Yayao Industrial Zone, HuaiDe Community, Humen Town, Dongguan City, Guangdong

Manufacturer: Dongguan Finexpo Models Co., Ltd

Address of Manufacturer: Yayao Industrial Zone, HuaiDe Community, Humen Town, Dongguan City, Guangdong

Equipment Under Test (EUT):

Product: Remote control

All Model No.: M6005, M6005-SN2

Test Model No.: M6005

Brand Name: Amalgam

FCC ID: 2AQYS-M6005

Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06

Date of Test: 2018-08-01 to 2018-08-14

Date of Issue: 2018-08-14

Test Result : **PASS***

Tested By:

Martin Lee

(Martin Lee)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai

(Jack Ai)



* In the configuration tested, the EUT complied with the standards specified above.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20180700091E-02	Rev.01	Initial report	2018-08-14

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3 General Information

3.1 Client Information

Applicant:	Dongguan Finexpo Models Co., Ltd
Address of Applicant:	Yayao Industrial Zone, HuaiDe Community, Humen Town, Dongguan City, Guangdong
Manufacturer:	Dongguan Finexpo Models Co., Ltd
Address of Manufacturer:	Yayao Industrial Zone, HuaiDe Community, Humen Town, Dongguan City, Guangdong

3.2 General Description of EUT

Product Name:	Remote control
All Model No.:	M6005, M6005-SN2
Test Model No.:	M6005
Trade Mark :	Amalgam
Hardware Version:	V1.1
Software Version:	V1.0
Frequency Range:	2434MHz
Modulation Type:	GFSK
Number of Channels:	1(declared by the client)
Sample Type:	Portable production
Test Software of EUT:	RF test (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	1.0dBi
Power Supply:	Button battery: DC3.0V

All model: M6005, M6005-SN2

Only the model M6005 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{[\sqrt{f(\text{GHz})}]} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where} \right.$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.1.3 EUT RF Exposure

$$\text{eirp} = \text{pt} \times \text{gt} = (\text{E} \times \text{d})^2 / 30$$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, $10^{((\text{dB}\mu\text{V}/\text{m})/20)}/10^6$,

d = measurement distance in meters (m)---3m,

$$\text{So pt} = (\text{E} \times \text{d})^2 / 30 / \text{gt}$$

The worst case (refer to report CQASZ20180700091E-01) is below:

For 2.4G wireless:

Field strength = 88.38dB μ V/m @3m

Ant. gain 1.0dBi; so Ant numeric gain=1.26

$$\text{So pt} = \{ [10^{(88.38/20)} / 10^6 \times 3]^2 / 30 / 1.26 \} \times 1000 \text{mW} = 0.164 \text{mW}$$

$$\text{So } (0.164 \text{mW} / 5 \text{mm}) \times \sqrt{2.434 \text{GHz}} = 0.051,$$

0.051 < 3.0 for 1-g SAR

So the SAR report is not required.