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Report Template Version: V03
Report Template Revision Date: Mar.1st, 2017

RF Exposure Evaluation Report

Report No. :	CQASZ20190800046EX-02
Applicant:	Zhongshan Yongbao Electrical Appliances Co., Ltd.
Address of Applicant:	No. 11 Jixi Lian'an Road, Xiaolan Town, Zhongshan City, Guangdong Province, China
Manufacturer:	Zhongshan Yongbao Electrical Appliances Co., Ltd.
Address of Manufacturer:	No. 11 Jixi Lian'an Road, Xiaolan Town, Zhongshan City, Guangdong Province, China
Equipment Under Test (EUT):	
Product:	Wireless Digital Doorbell
All models No.:	Q189, Q188, Q192, Q193, R195, S196, R188, N189, N188, N192, N193, T195, T196, P189, P188, T189, T188, T193, T192, T196, T195, U193, U189, U195, U196, U188, U192, R193, T199, N199, R199, Q199, T288, N288, R288, Q288, T289, N289, R289, Q289, T290, N290, R290, Q290, V290, V289, V288, V199, V195, V196, V193, V192, V189, V188
Test Model No.:	Q189
Brand Name:	Aibont
FCC ID:	2AUCZ-Q189X
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Test:	Aug. 20, 2019 to Sep.06, 2019
Date of Issue:	Sep.06, 2019
Test Result :	**PASS***

Tested By: Tom Chen.

(Tom Chen)

Reviewed By: Aaron Ma

(Aaron Ma)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD. CQA 华夏淮测 APPROVED

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

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RF Exposure Evaluation Report

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190800046EX-02	Rev.01	Initial report	Sep.06, 2019

2 Contents

3 General Information

3.1 Client Information

Applicant:	Zhongshan Yongbao Electrical Appliances Co., Ltd.
Address of Applicant:	No. 11 Jixi Lian'an Road, Xiaolan Town, Zhongshan City, Guangdong Province, China
Manufacturer:	Zhongshan Yongbao Electrical Appliances Co., Ltd.
Address of Manufacturer:	No. 11 Jixi Lian'an Road, Xiaolan Town, Zhongshan City, Guangdong Province, China

3.2 General Description of EUT

Product Name:	Wireless Digital Doorbell
Test Model No.:	Q189
Trade Mark:	Aibont
Hardware Version:	V1.0
Software Version:	N/A
Sample Type:	☐ Mobile ☐ Portable ☒ Fix Location
Power Supply:	DC12.0V from battery

3.3 General Description of wireless

Operation Frequency:	433.92MHz
Channel Numbers:	1
Modulation Type:	GFSK
Antenna Type:	PCB antenna
Antenna Gain:	-2.0dBi

Note:
1. Using the new battery for testing
2. All model: Q189, Q188, Q192, Q193, R195, S196, R188, N189, N188, N192, N193, T195, T196, P189, P188, T189, T188, T193, T192, T196, T195, U193, U189, U195, U196, U188, U192, R193, T199, N199, R199, Q199, T288, N288, R288, Q288, T289, N289, R289, Q289, T290, N290, R290, Q290, V290, V289, V288, V199, V195, V196, V193, V192, V189, V188
3. Only the model Q189 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:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
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

For 433.92MHz:

The worst case (refer to report CQASZ20190800046EX-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Frequency (MHz)
433.92	83.60	Peak
433.92	75.17	Average

Antenna polarization: Vertical		
Frequency (MHz)	Level (dBuV/m)	Frequency (MHz)
433.92	85.73	Peak
433.92	77.30	Average

eirp = pt x gt = $(E \times d)^2/30$
where:
pt = transmitter output power in watts,
gt = numeric gain of the transmitting antenna (unitless),
E = electric field strength in V/m, ---$10^{((dB\mu V/m)/20)}/10^6$,
d = measurement distance in meters (m)---3m,

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

For 433.92MHz wireless:
Field strength = 85.73dBμV/m @3m
Ant. gain -2.0dBi; so Ant numeric gain=0.631

So pt=$\{[(10^{85.73/20}/10^6)x3]^2/30 /0.631\}x1000mW = 0.178$

Maximum tune-up Power (mW)	Antenna Gain (dBi)	Power Density at R = 2 cm (mW/cm2)	Limit	Result
0.178	-2.0	0.0022	0.289	PASS

Note: 1) Pd = $(Pout*G)/(4* Pi * R^2)=(0.178*0.631)/(4*3.1416*2^2)= 0.0022$

2) Limit=433.92/1500=0.289