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

RF Exposure Evaluation Report

Report No. : CQASZ20180700102E-02

Applicant: DOMISI TECHNOLOGY CO., LIMITED

Address of Applicant: Zone B, Floor 4, Building A6, Tianrui Industrial Zone, Fuhai Street, Baoan district, Shenzhen, China

Manufacturer: DOMISI TECHNOLOGY CO., LIMITED

Address of Manufacturer: Zone B, Floor 4, Building A6, Tianrui Industrial Zone, Fuhai Street, Baoan district, Shenzhen, China

Equipment Under Test (EUT):

Product: Programmable Wireless Thermostat

All Model No.: WTS2000, TS-2000

Test Model No.: WTS2000

Brand Name: DOMISI

FCC ID: 2AQQ7-WTS2000

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

Date of Test: 2018-08-03 to 2018-08-14

Date of Issue: 2018-08-14

Test Result : PASS*

Tested By:

Tiny You

(Tiny You)

Reviewed By:

Jack Ai

(Jack Ai)

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
CQASZ20180700102E-02	Rev.01	Initial report	2018-08-14

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3 General Information

3.1 Client Information

Applicant:	DOMISI TECHNOLOGY CO., LIMITED
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Manufacturer:	DOMISI TECHNOLOGY CO., LIMITED
Address of Manufacturer:	Zone B, Floor 4, Building A6,Tianrui Industrial Zone,Fuhai Street, Baoan district, Shenzhen, China

3.2 General Description of EUT

Product Name:	Programmable Wireless Thermostat
Model No.:	WTS2000
Trade Mark:	DOMISI
Hardware Version:	V1.0
Software Version:	V1.0
Sample Type:	Mobile production
Operation Frequency:	433.92MHz
Channel Numbers:	1
Modulation Type:	ASK
Antenna Type:	integral antenna
Antenna Gain:	-2.5dBi
Power Supply:	2x AA battery, DC3.0V

Note: Using the new battery for testing.

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:

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

$f(\text{GHz})$ 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

$$e_{irp} = p_t \times g_t = (E \times d)^2 / 30$$

where:

p_t = transmitter output power in watts,

g_t = 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,

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

The worst case (refer to report CQASZ20180700102E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
433.92	81.03	Peak
433.92	72.53	Average

Antenna polarization: Vertical		
Frequency (MHz)	Level (dBuV/m)	Polarization
433.92	78.42	Peak
433.92	69.92	Average

For 433.92MHz wireless:

Field strength = 81.03dB μ V/m @3m

Ant. gain -2.5dBi; so Ant numeric gain=0.56

$$\text{So } p_t = \{ [10^{(81.03/20)} / 10^6 \times 3]^2 / 30 / 0.56 \} \times 1000 \text{mW} = 0.068 \text{mW}$$

$$\text{So } (0.068 \text{mW} / 5 \text{mm}) \times \sqrt{0.43392 \text{GHz}} = 0.0089,$$

$$0.0089 < 3.0 \text{ for 1-g SAR}$$

So the SAR report is not required.