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RF Exposure Evaluation Report

Report No. : CQASZ20190600025EX-02
Applicant: Okaylight Technology Co.,LTD
Address of Applicant: 1st Floor,Building 3, LiKe Science and Technology Park, Changsheng North Road, Dalang Town, Dongguan 523000, Guangdong Province, China
Manufacturer: Okaylight Technology Co.,LTD
Address of Manufacturer: 1st Floor,Building 3, LiKe Science and Technology Park, Changsheng North Road, Dalang Town, Dongguan 523000, Guangdong Province, China
Equipment Under Test (EUT):
Product: smart thermostat
Test Model No.: MTS700B
Brand Name: OKAYLIGHT / WEBER / NASHONE
FCC ID: 2ARTQ-MTS700B
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Test: 2019-06-10 to 2019-07-24
Date of Issue: 2019-07-24
Test Result : PASS*

Tested By:

Tom Chen

(Tom Chen)

Reviewed By:

Sheek Luo

(Sheek Luo)

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 |
|-----------------------|---------|----------------|------------|
| CQASZ20190600025EX-02 | Rev.01 | Initial report | 2019-07-24 |

2 Contents

| | Page |
|--|------|
| 1 VERSION | 2 |
| 2 CONTENTS | 3 |
| 3 GENERAL INFORMATION..... | 4 |
| 3.1 CLIENT INFORMATION..... | 4 |
| 3.2 GENERAL DESCRIPTION OF EUT | 4 |
| 4 SAR EVALUATION | 5 |
| 4.1 RF EXPOSURE COMPLIANCE REQUIREMENT | 5 |
| 4.1.1 <i>Standard Requirement</i> | 5 |
| 4.1.2 <i>Limits</i> | 5 |
| 4.1.3 <i>EUT RF Exposure</i> | 6 |

3 General Information

3.1 Client Information

| | |
|--------------------------|--|
| Applicant: | Okaylight Technology Co.,LTD |
| Address of Applicant: | 1st Floor,Building 3, LiKe Science and Technology Park, Changsheng North Road, Dalang Town, Dongguan 523000, Guangdong Province, China |
| Manufacturer: | Okaylight Technology Co.,LTD |
| Address of Manufacturer: | 1st Floor,Building 3, LiKe Science and Technology Park, Changsheng North Road, Dalang Town, Dongguan 523000, Guangdong Province, China |

3.2 General Description of EUT

| | |
|-----------------------|--|
| Product Name: | smart thermostat |
| Test Model No.: | MTS700B |
| Trade Mark: | OKAYLIGHT / WEBER / NASHONE |
| Hardware Version: | V2.2.3 |
| Software Version: | V3.6.4 |
| Operation Frequency: | 2402MHz~2480MHz |
| Bluetooth Version: | V4.2 |
| Modulation Technique: | Frequency Hopping Spread Spectrum(FHSS) |
| Modulation Type: | GFSK, $\pi/4$ DQPSK, 8DPSK |
| Transfer Rate: | 1Mbps, 2Mbps, 3Mbps |
| Number of Channel: | 79 |
| Hopping Channel Type: | Adaptive Frequency Hopping systems |
| Product Type: | <input type="checkbox"/> Mobile <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Fix Location |
| Antenna Type: | PCB antenna |
| Antenna Gain: | 0dBi |
| EUT Power Supply: | AC 120V 50/60Hz |

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

1) For BT

Measurement Data

| Worst case: GFSK | | | | | | |
|---|---|-------------------------|-----------------------|-------|------------------|---------------------|
| Channel | Maximum Peak Conducted Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | | Calculated value | Exclusion threshold |
| | | | (dBm) | (mW) | | |
| Lowest (2402MHz) | 1.502 | 1±1 | 2 | 1.585 | 0.491 | 3.0 |
| Middle (2441MHz) | 0.223 | 1±1 | 2 | 1.585 | 0.495 | |
| Highest (2480MHz) | 1.219 | 1±1 | 2 | 1.585 | 0.499 | |
| Conclusion: the calculated value ≤3.0, SAR is exempted. | | | | | | |

| Worst case: $\pi/4$ DQPSK | | | | | | |
|--|---|-------------------------|-----------------------|-------|------------------|---------------------|
| Channel | Maximum Peak Conducted Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | | Calculated value | Exclusion threshold |
| | | | (dBm) | (mW) | | |
| Lowest (2402MHz) | 0.849 | 0±1 | 1 | 1.259 | 0.390 | 3.0 |
| Middle (2441MHz) | -0.197 | 0±1 | 1 | 1.259 | 0.393 | |
| Highest (2480MHz) | 0.561 | 0±1 | 1 | 1.259 | 0.397 | |
| Conclusion: the calculated value ≤ 3.0 , SAR is exempted. | | | | | | |

| Worst case: 8DPSK | | | | | | |
|---|---|-------------------------|-----------------------|-------|------------------|---------------------|
| Channel | Maximum Peak Conducted Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | | Calculated value | Exclusion threshold |
| | | | (dBm) | (mW) | | |
| Lowest (2402MHz) | 0.964 | 0±1 | 1 | 1.259 | 0.390 | 3.0 |
| Middle (2441MHz) | -0.051 | 0±1 | 1 | 1.259 | 0.393 | |
| Highest (2480MHz) | 0.730 | 0±1 | 1 | 1.259 | 0.397 | |
| Conclusion: the calculated value ≤3.0, SAR is exempted. | | | | | | |

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190600025EX-01