



Shenzhen Huaxia Testing Technology Co., Ltd

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640

Fax: +86-755-26648637

Website: www.cqa-cert.com

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RF Exposure Evaluation Report

Report No. : CQASZ20200100029E-02
Applicant: Wicked Audio, Inc
Address of Applicant: 875 WEST 325 NORTH, LINDON, UT 84042, USA
Equipment Under Test (EUT):
EUT Name: Elektrix
Model No.: 18LY52, WI-BT4350, WI-BT4351, WI-BT4352, WI-BT4353, WI-BT4354, WI-BT4355, WI-BT4450, WI-BT4451, WI-BT4452, WI-BT4453, WI-BT4454, WI-BT4455
Test Model No.: WI-BT4351
Brand Name: Wicked Audio
FCC ID: 2AFM7WI-BT4XXX
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2020-01-09
Date of Test: 2020-01-09 to 2020-01-16
Date of Issue: 2020-01-16
Test Result : **PASS***

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

Tested By:

Tom Chen

(Tom Chen)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai
(Jack Ai)



1 Version

Revision History Of Report

| Report No. | Version | Description | Issue Date |
|----------------------|---------|----------------|------------|
| CQASZ20200100029E-02 | Rev.01 | Initial report | 2020-01-16 |

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3 General Information

3.1 Client Information

| | |
|--------------------------|--|
| Applicant: | Wicked Audio, Inc |
| Address of Applicant: | 875 WEST 325 NORTH, LINDON, UT 84042, USA |
| Manufacturer: | Shenzhen Jia Hua Li Dian Zi You Xian Gong Si |
| Address of Manufacturer: | NO 101,201, BUILDING E, NEW INDUSTRIAL ZONE, SHENZHU ROAD, LIUYUE SHENKENG VILLAGE, HENGGANG, LONGGANG DISTRICT, SHENZHEN CHINA. |

3.2 General Description of EUT

| | |
|-----------------------|--|
| Product Name: | Elektrix |
| Model No.: | 18LY52, WI-BT4350, WI-BT4351, WI-BT4352, WI-BT4353, WI-BT4354, WI-BT4355, WI-BT4450, WI-BT4451, WI-BT4452, WI-BT4453, WI-BT4454, WI-BT4455 |
| Test Model No.: | WI-BT4351 |
| Trade Mark: | Wicked Audio |
| Hardware Version: | V1.4 |
| Software Version: | V1.0 |
| Operation Frequency: | 2402MHz~2480MHz |
| Bluetooth Version: | V5.0 |
| 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 checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location |
| Test Software of EUT: | BK32xx RF Test – V1.8.2_en (manufacturer declare) |
| Antenna Type: | Ceramic antenna |
| Antenna Gain: | 0dBi |
| Power Supply: | lithium battery:DC3.7V, Charge by DC5.0V |

Model No.: 18LY52, WI-BT4350, WI-BT4351, WI-BT4352, WI-BT4353, WI-BT4354, WI-BT4355, WI-BT4450, WI-BT4451, WI-BT4452, WI-BT4453, WI-BT4454, WI-BT4455

Only the model WI-BT4351 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:

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

$f(\text{GHz})$ 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

Measurement Data

| GFSK mode | | | | |
|------------------|----------------------------|----------------------------|-----------------------|-------|
| Test channel | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | |
| | | | (dBm) | (mW) |
| Lowest(2402MHz) | -0.090 | -1.0±1 | 0 | 1.000 |
| Middle(2441MHz) | 0.520 | -0.5±1 | 0.5 | 1.122 |
| Highest(2480MHz) | 1.100 | 0.5±1 | 1.5 | 1.413 |
| π/4DQPSK mode | | | | |
| Test channel | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | |
| | | | (dBm) | (mW) |
| Lowest(2402MHz) | 1.650 | 1.0±1 | 2.0 | 1.585 |
| Middle(2441MHz) | 2.160 | 1.5±1 | 2.5 | 1.778 |
| Highest(2480MHz) | 2.750 | 1.5±1 | 3.0 | 1.995 |
| 8DPSK mode | | | | |
| Test channel | Peak Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power | |
| | | | (dBm) | (mW) |
| Lowest(2402MHz) | 2.040 | 1.5±1 | 2.5 | 1.778 |
| Middle(2441MHz) | 2.550 | 2.0±1 | 3.0 | 1.995 |
| Highest(2480MHz) | 3.160 | 2.5±1 | 3.5 | 2.239 |

| 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) | 2.040 | 1.5±1 | 2.5 | 1.778 | 0.551 | 3.0 |
| Middle (2441MHz) | 2.550 | 2.0±1 | 3.0 | 1.995 | 0.623 | |
| Highest (2480MHz) | 3.160 | 2.5±1 | 3.5 | 2.239 | 0.705 | |
| Conclusion: the calculated value ≤3.0, SAR is exempted. | | | | | | |

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200100029E-01