



SAR Exemption Evaluation Report

Product Name : EZ-BT WICED Module

Model No. : CYBT-213043-02

FCC ID : WAP3043

Applicant : Cypress Semiconductor

Address : 198 Champion Ct, San Jose, California
95134 United States

Date of Receipt : Jan. 11, 2019

Issued Date : Feb. 20, 2019

Report No. : 1912068R-RF-US-P20V02

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

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Product Name : EZ-BT WICED Module
Applicant : Cypress Semiconductor
Address : 198 Champion Ct, San Jose, California 95134 United States
Manufacturer : Cypress Semiconductor
Address : 198 Champion Ct, San Jose, California 95134 United States
Factory : Wujiang Sigmatron Electronics Co., Ltd
Address : 386 Huahong Rd, Wujiang, Suzhou, Jiangsu, China
Model No. : CYBT-213043-02
FCC ID : WAP3043
EUT Voltage : DC 1.8-3.6 V
Test Voltage : AC120V/60Hz
Applicable Standard : KDB 447498 D01v06
Test Result : Complied
Performed Location : DEKRA Testing & Certification (Suzhou) Co., Ltd.
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,
215006, Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Designation Number: CN1199

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1. RF Exposure Evaluation

1.1.Limits

According to **KDB 447498 D01 General RF Exposure Guidance v06**

4.3.1 Standalone SAR test exclusion considerations

1) 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:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot [f(\text{GHz})]$$

≤ 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

The result is rounded to one decimal place for comparison

3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

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 according to 5) in section 4.1 is applied to determine SAR test exclusion.

2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B:

a) $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]$ mW, at 100 MHz to 1500 MHz

b) $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10]$ mW at > 1500 MHz and ≤ 6 GHz

3) The 1-g and 10-g SAR test exclusion thresholds for below 100 MHz at test separation distances ≤ 50 mm are determined by:

a) The power threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by $[1 + \log(100/f(\text{MHz}))]$ for test separation distances > 50 mm and < 200 mm

b) The power threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$ for test separation distances ≤ 50 mm

c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable. Note: when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18 and 78% RH.

1.3. Test Result of RF Exposure Evaluation

| | | |
|-----------|---|------------------------|
| Product | : | EZ-BT WICED Module |
| Test Item | : | RF Exposure Evaluation |
| Test Site | : | AC-6 |

● **Antenna Information**

| | | | | | | |
|----------------------|-------------------------------------|-----------|-------------------------------------|----------------------------|--------------------------|-----------|
| Antenna manufacturer | N/A | | | | | |
| Antenna Delivery | <input checked="" type="checkbox"/> | 1*TX+1*RX | <input type="checkbox"/> | 2*TX+2*RX | <input type="checkbox"/> | 3*TX+3*RX |
| Antenna technology | <input checked="" type="checkbox"/> | SISO | | | | |
| | <input type="checkbox"/> | MIMO | <input type="checkbox"/> | Basic | | |
| | | | <input type="checkbox"/> | CDD | | |
| | | | <input type="checkbox"/> | Beam-forming | | |
| Antenna Type | <input type="checkbox"/> | External | <input type="checkbox"/> | Dipole | | |
| | <input checked="" type="checkbox"/> | Internal | <input type="checkbox"/> | PIFA | | |
| | | | <input checked="" type="checkbox"/> | PCB | | |
| | | | <input type="checkbox"/> | Ceramic Chip Antenna | | |
| | | | <input type="checkbox"/> | Stamping Antenna | | |
| | | | <input type="checkbox"/> | Metal plate type F antenna | | |
| | | | <input type="checkbox"/> | Monopole antenna | | |
| Antenna Gain | -0.5dBi | | | | | |

Based on The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm and the formula below:

$$\text{Estimated SAR} = \sqrt{f(\text{GHz})} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

The tune-up power is 0.5dB, so the maximum conducted power we used to calculate RF exposure is 4.91dBm.

| Band | Exposure Condition | Pmax | Pmax | Distance | f(GHz) | calculation result | Stand-alone Test exclusion threshold | SAR Test |
|------|--------------------|-------|------|----------|--------|--------------------|--------------------------------------|----------|
| | | (dBm) | (mw) | (mm) | | | | |
| BT | Body | 4.91 | 3.10 | 5 | 2.402 | 0.96 | 3.00 | No |

Conclusion: 2.4GHz SAR was not required.

_____ The End _____