



SAR Exemption Evaluation Report

Product Name : AIROC Bluetooth LE Module

Model No. : CYBLE-343072-02,
CYBLE-333073-02,
CYBLE-333074-02,
CYBLE-343176-02

FCC ID : WAP3072

Applicant : Cypress Semiconductor

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

Date of Receipt : Aug. 06, 2021

Test Date : Aug. 08, 2021~ Aug. 28, 2021

Issued Date : Sep. 03, 2021

Report No. : 2180208R-RF-US-P20V02

Report Version : V1.0

The test results presented in this report relate only to the object tested.

The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.

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Test Report Certification

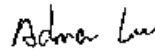
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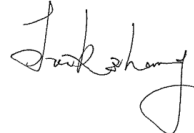
Product Name : AIROC Bluetooth LE Module
Applicant : Cypress Semiconductor
Address : 198 Champion Ct, San Jose, California 95134, United States
Manufacturer : Cypress Semiconductor
Address : 198 Champion Ct, San Jose, California 95134, United States
Model No. : CYBLE-343072-02, CYBLE-333073-02,
CYBLE-333074-02, CYBLE-343176-02
FCC ID : WAP3072
EUT Voltage : DC 2.5-3.6 V
Test Voltage : DC 3.3V
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

Documented By :



(Project Engineer: Adma Lu)

Approved By :



(Engineer Supervisor: Jack Zhang)

1. RF Exposure Evaluation

1.1. DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2180208R-RF-US-P20V02	V1.0	Initial issue of report.	2021-09-03

1.2. 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:

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

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before 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) $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)] \text{ mW, at 100 MHz to 1500 MHz}$

b) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm) · 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.

1.3. 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°C and 78% RH.

1.4. Test Result of RF Exposure Evaluation

Product	:	AIROC Bluetooth LE Module
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

● Antenna Information

CYBLE-333073-02 and CYBLE-333074-02:

Antenna manufacturer	N/A								
Antenna Delivery	☒	1*TX+1*RX		☐	2*TX+2*RX		☐	3*TX+3*RX	
Antenna technology	☒	SISO							
	☐	MIMO	☐	Basic					
			☐	CDD					
			☐	Beam-forming					
Antenna Type	☒	External	☒	Dipole					
	☐	Internal	☐	PIFA					
			☐	PCB					
			☐	Ceramic Chip Antenna					
			☐	Stamping Antenna					
			☐	Metal plate type F antenna					
			☐	Monopole antenna					
Antenna Gain	2.0dBi								

CYBLE-343176-02 and CYBLE-343072-02:

Antenna manufacturer	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	CDD		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
	☒	Internal	☐	PIFA		
			☒	PCB		
			☐	Ceramic Chip Antenna		
			☐	Stamping Antenna		
			☐	Metal plate type F antenna		
			☐	Monopole antenna		
Antenna Gain	-0.5dBi					

Note: We evaluated all the models and the report shows the worst data

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 9.26dBm.

Band	Exposure Condition	Pmax (dBm)	Pmax (mw)	Distance (mm)	f(GHz)	calculation result	Stand-alone Test exclusion threshold	SAR Test
BT	Body	9.26	8.43	5	2.440	2.60	3.00	No

Conclusion: 2.4GHz SAR was not required.

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