

1. RF Exposure Requirements

1.1 General Information

Client Information

Applicant: UBlockout, Inc,
Address of applicant: 10580 Newkirk Street Suite 301, Dallas, Texas 75220, United States

Manufacturer: The same as Applicant
Address of manufacturer: The same as Applicant

General Description of EUT:

Product Name: Connector
Trade Name: /
Model No.: DD1554E
Adding Model(s): /
Rated Voltage: /
Power Adaptor : /
FCC ID: 2BA3XDD1554E
Equipment Type: Portable device

Technical Characteristics of EUT:

Frequency Range: 433.92MHz
Max. Field Strength: 433.92MHz: 78.58dBuV/m(3m)
Data Rate: /
Modulation: FSK
Antenna Type: Integral Antenna
Antenna Gain: 0dBi

1.2 RF Exposure Exemption

According to the KDB 447498 D01 v06 section 4.3.1, for 100 MHz to 6 GHz and test separation distances \leq 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

3.0 for 1-g SAR and \leq 7.5 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

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

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

W/kg for test separation distances \leq 50 mm;

Where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.

Calculation Result:

Radio Access Technology	Prediction Frequency (MHz)	Min. test separation distance (mm)	Max. Field Strength (dBuV/m)	Output Power (dBm)	Tune-Up Power		Result	Limit
					(dBm)	(mW)		
SRD	433.92	5	78.58	-16.67	-16.00	0.03	0.1	3

Note: Output Power = $E - 104.8 + 20 \log D - \text{Antenna Gain}$

Prediction Frequency (MHz)	Tune-Up Power (mW)	Min. test separation distance (mm)	X	1-g SAR (W/kg)	Limit (W/kg)
				(W/kg)	(W/kg)
433.92	0.03	5	7.5	0.001	1.6

Mode for Simultaneous Multi-band Transmission:

Radio Access Technology	Wi-Fi SAR (W/kg)	SRD SAR (W/kg)	Simultaneous (W/kg)	Limit (W/kg)	Result
					Pass/Fail
Wi-Fi + SRD	0.229	0.001	0.230	1.6	Pass

Note:

For Wi-Fi & Bluetooth Internet of Things Module (FCC ID: 2AC7Z-ESPC3WROOM; the issue date: 07/06/2023)

1-g SAR Body Test Result: Wi-Fi is 0.229 W/kg; Bluetooth is 0.150 W/kg.

Bluetooth and Wi-Fi can't transmit at the same time. So the worst case is Wi-Fi + SRD.

Result: Pass