

RF EXPOSURE EVALUATION

EUT Specification

FCC ID:	2ABYN139
EUT	Controller
Model Name	AD00-01
Frequency band (Operating)	<input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input checked="" type="checkbox"/> Others(2402MHz to 2480MHz)
Device category	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Max. output power	85.03 dBuV/m (-10.23dBm)(0.095mW)
Antenna gain	2.61 dBi
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

Standard Requirement

Portable Device

According to §15.247(i) and §1.1307b(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See KDB 447498 D01 General RF Exposure Guidance V6, section 4.3.1.

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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,¹⁶ 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.

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Measurement Result

Channel Frequency (GHz)	Max Output power (dBm)	Max tune-up tolerance Output power (dBm)	Max Output power (dBm)	Max Output power (mW)	Calculation Value ^(Note 1)	Threshold Value
2.48	-10.23	-10.23 ± 1	-9.23	0.1195	0.038	3.0

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

$$\text{EIRP} = E - 104.8 + 20\log D = 85.03 - 104.8 + 20\log 3 = -10.23 \text{ dBm}$$

Note 1: Calculation Value = [(max. power of channel, mW)/(min. test separation distance, mm)] • [√ f(GHz)].

$$\text{Fox example: } 0.095/5 \cdot \sqrt{2.48} = 0.038 \leq 3.0$$

According to KDB447498 D01 V6, threshold at which no SAR required is ≤3.0 for 1-g SAR, separation distance is 5mm, and no simultaneous SAR measurement is required.

Channel (MHz)	Maximum output power (dBm)	Tune up tolerance (dBm)	Max Tune Up Power (dBm)	Distance (mm)	Calculation results	Limit	Operating Mode
2402	-2.04	-2.04 ± 1	-1.040	5	0.244	3	BLE_1M
2440	-3.08	-3.08 ± 1	-2.080	5	0.194	3	
2480	-3.31	-3.31 ± 1	-2.310	5	0.185	3	
2402	-2.54	-2.54 ± 1	-1.540	5	0.217	3	BLE_2M
2440	-3.40	-3.40 ± 1	-2.400	5	0.180	3	
2480	-3.59	-3.59 ± 1	-2.590	5	0.173	3	

The simultaneous transmission for BLE+SRD:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$$= S_{BLE}/S_{limit} + S_{SRD}/S_{limit}$$

$$= 0.244/3 + 0.038/3$$

$$= 0.094$$

$$< 1.0$$

The SAR measurement is not necessary.

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