

## RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

FCC ID: 2AFDGV-SPR001

### EUT Specification

EUT	DASH CAM
<b>Frequency band (Operating)</b>	<input checked="" 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: 2.402GHz~2.480GHz (BT 2.1 EDR)
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<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
<b>Max. output power</b>	15.80 dBm (0.0380W) for Wifi 7.549 dBm (0.0057W) for BT
<b>Antenna gain (Max)</b>	2.4 dBi
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

Limits for Maximum Permissible Exposure(MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm <sup>2</sup> )	Average Time
<b>(A) Limits for Occupational/Control Exposures</b>				
300-1500	--	--	<b>F/300</b>	<b>6</b>
1500-100000	--	--	<b>5</b>	<b>6</b>
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
300-1500	--	--	<b>F/1500</b>	<b>6</b>
1500-100000	--	--	<b>1</b>	<b>30</b>

## Friis transmission formula: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in Mw

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

## Measurement Result

Operating Mode	Channel Frequency (MHz)	Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
802.11b	2412	14.37	14.37±1	15.37	2.4	0.0119	1
	2437	13.64	13.64±1	14.64	2.4	0.0101	1
	2462	14.60	14.60±1	15.60	2.4	0.0126	1
802.11g	2412	13.60	13.60±1	14.60	2.4	0.0100	1
	2437	14.43	14.43±1	15.43	2.4	0.0121	1
	2462	15.80	15.80±1	16.80	2.4	0.0165	1
802.11n (HT20)	2412	13.12	13.12±1	14.12	2.4	0.0089	1
	2437	14.08	14.08±1	15.08	2.4	0.0111	1
	2462	14.34	14.34±1	15.34	2.4	0.0118	1
802.11n (HT40)	2422	14.82	14.82±1	15.82	2.4	0.0132	1
	2437	13.99	13.99±1	14.99	2.4	0.0109	1
	2452	14.81	14.81±1	15.81	2.4	0.0132	1
BT 2.1 EDR	2402	7.283	7.283±1	8.283	2.4	0.0023	1
	2441	7.188	7.188±1	8.188	2.4	0.0023	1
	2480	6.730	6.730±1	7.730	2.4	0.0020	1
	2402	7.549	7.549±1	8.549	2.4	0.0025	1
	2441	7.480	7.480±1	8.480	2.4	0.0024	1
	2480	7.020	7.020±1	8.020	2.4	0.0022	1