

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: 2ANVFHD0419-001

EUT Specification

EUT	Wifi Digital Photo Frame
Frequency band (Operating)	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input checked="" type="checkbox"/> WLAN: 5.18GHz ~ 5.24GHz <input checked="" type="checkbox"/> WLAN: 2.422GHz-2.452GHz <input checked="" type="checkbox"/> Others: 2.402GHz~2.480GHz (BLE)
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)
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	16.48 dBm (0.0445W)
Antenna gain (Max)	WiFi 2.4G: 2 dBi BLE 1: 4.67 dBi BLE 2: 4.67 dBi WiFi 5.1G: 2 dBi
Evaluation applied	<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 ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

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

Where

P_d = Power density in mW/cm^2

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, $1mW/cm^2$. 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	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits (mW/cm^2)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/cm^2)	
For BLE							
BLE 1	2402	-1.255	-1.255 ±1	-0.255	4.67	0.0005	1
	2440	-1.325	-1.325 ±1	-0.325	4.67	0.0005	1
	2480	-1.644	-1.644 ±1	-0.644	4.67	0.0005	1
BLE 2	2402	-1.246	-1.246 ±1	-0.246	4.67	0.0006	1
	2440	-1.331	-1.331 ±1	-0.331	4.67	0.0005	1
	2480	-1.683	-1.683 ±1	-0.683	4.67	0.0005	1
For 2.4G WIFI							
802.11b	2412	14.61	14.61 ±1	15.61	2	0.0115	1
	2437	14.44	14.44 ±1	15.44	2	0.0110	1
	2462	14.26	14.26 ±1	15.26	2	0.0106	1
802.11g	2412	16.35	16.35 ±1	17.35	2	0.0171	1
	2437	16.16	16.16 ±1	17.16	2	0.0164	1
	2462	16.15	16.15 ±1	17.15	2	0.0164	1
802.11n (HT20)	2412	16.44	16.44 ±1	17.44	2	0.0175	1
	2437	15.54	15.54 ±1	16.54	2	0.0142	1
	2462	15.65	15.65 ±1	16.65	2	0.0146	1
For 5.1G WIFI							
802.11a	5180	13.25	13.25 ±1	14.25	2	0.0084	1
	5200	12.82	12.82 ±1	13.82	2	0.0076	1
	5240	12.36	12.36 ±1	13.36	2	0.0068	1
802.11n20	5180	12.52	12.52 ±1	13.52	2	0.0071	1

	5200	12.18	12.18 ±1	13.18	2	0.0066	1
	5240	11.74	11.74 ±1	12.74	2	0.0059	1
802.11ac20	5180	12.26	12.26 ±1	13.26	2	0.0067	1
	5200	11.69	11.69 ±1	12.69	2	0.0059	1
	5240	11.39	11.39 ±1	12.39	2	0.0055	1
802.11n40	5190	12.95	12.95 ±1	13.95	2	0.0078	1
	5230	12.28	12.28 ±1	13.28	2	0.0067	1
802.11ac40	5190	12.87	12.87 ±1	13.87	2	0.0077	1
	5230	12.18	12.18 ±1	13.18	2	0.0066	1
802.11ac80	5210	14.29	14.29 ±1	15.29	2	0.0107	1

Note: BT & WLAN cannot support simultaneous transmission.