

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: 2A337-HP-157

EUT Specification

EUT	Receiver
Frequency band (Operating)	<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: 2.4G: 2402.4~2479.4 MHz
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 <input checked="" type="checkbox"/> General Population/Uncontrolled exposure
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Max. output power	WIFI: 18.70 dBm (0.0741W) 2.4G: ANT 1:28.51dBm (0.7096W) ANT 2:28.58dBm (0.7211W)
Antenna gain (Max)	WIFI: -0.68 dBi 2.4G: ANT 1:2.56dBi ANT 2:2.56dBi
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	30

1500-100000	--	--	1	30
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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. 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)	Maximum output power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
802.11b	2412	18.69	18.69 ± 1	19.69	-0.68	0.0158	1
	2437	18.70	18.70 ± 1	19.7	-0.68	0.0159	1
	2462	18.59	18.59 ± 1	19.59	-0.68	0.0155	1
2.4G ANT1	2402.4	28.51	28.51 ± 1	29.51	2.56	0.3204	1
	2441.4	28.32	28.32 ± 1	29.32	2.56	0.3067	1
	2479.4	28.38	28.38 ± 1	29.38	2.56	0.3110	1
2.4G ANT2	2402.4	28.58	28.58 ± 1	29.58	2.56	0.3256	1
	2441.4	28.38	28.38 ± 1	29.38	2.56	0.3110	1
	2479.4	28.4	28.4 ± 1	29.4	2.56	0.3124	1

2.4G and 2.4G WIFI cannot support simultaneous transmission.

2.4G ANT1 and ANT2 cannot support simultaneous transmission.

Result: No Standalone SAR test is required.