

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: GSS-VS16124

EUT Specification

EUT	EZCast Pro
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 type="checkbox"/> Others
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 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	14.88dBm (0.0307W)
Antenna gain (Max)	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/cm²

P_{out} = output power to antenna in Mw

G = gain of antenna in linear scale

π = 3.1416

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

P_d the limit of MPE, 1mW/cm². 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

ANT A:

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 ²)	Power density Limits (mW/cm ²)
802.11b	2412	7.84	7.84±1	8.84	2	0.00242	1
	2437	7.82	7.82±1	8.82	2	0.00240	1
	2462	8.08	8.08±1	9.08	2	0.00255	1
802.11g	2412	4.76	4.76±1	5.76	2	0.00119	1
	2437	6.65	6.65±1	7.65	2	0.00184	1
	2462	5.14	5.14±1	6.14	2	0.00130	1
802.11n (HT20)	2412	4.92	4.92±1	5.92	2	0.00123	1
	2437	6.72	6.72±1	7.72	2	0.00187	1
	2462	5.21	5.21±1	6.21	2	0.00132	1
802.11n (HT40)	2422	3.40	3.40±1	4.40	2	0.00087	1
	2437	4.35	4.35±1	5.35	2	0.00108	1
	2452	3.73	3.73±1	4.73	2	0.00094	1

ANT B:

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 ²)	Power density Limits (mW/cm ²)
802.11b	2412	12.17	12.17±1	13.17	2	0.00654	1
	2437	12.86	12.86±1	13.86	2	0.00767	1
	2462	12.42	12.42±1	13.42	2	0.00693	1
802.11g	2412	11.01	11.01±1	12.01	2	0.00501	1
	2437	11.16	11.16±1	12.16	2	0.00518	1
	2462	11.55	11.55±1	12.55	2	0.00567	1
802.11n (HT20)	2412	11.93	11.93±1	12.93	2	0.00619	1
	2437	11.12	11.12±1	12.12	2	0.00514	1
	2462	14.38	14.38±1	15.38	2	0.01088	1
802.11n (HT40)	2422	10.51	10.51±1	11.51	2	0.00446	1
	2437	10.61	10.61±1	11.61	2	0.00457	1
	2452	10.92	10.92±1	11.92	2	0.00491	1

Antenna A Gain= 2 dBi

Antenna B Gain= 2 dBi

Array Gain= 5 dBi= $10 \cdot \log((10^{(2/10)} + (10^{(2/10)})))$

Operating Mode	Channel Frequency (MHz)	ANT A Power density at 20cm (mW/ cm ²)	ANT B Power density at 20cm (mW/ cm ²)	Power density at 20cm (mW/ cm ²)	Power density Limits (mW/cm ²)
802.11n (HT20)	2412	0.00123	0.00619	0.00742	1
	2437	0.00187	0.00514	0.00701	1
	2462	0.00132	0.01088	0.01220	1
802.11n (HT40)	2422	0.00087	0.00446	0.00533	1
	2437	0.00108	0.00457	0.00565	1
	2452	0.00094	0.00491	0.00585	1