

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: **2A09I-BC300W**

EUT Specification

EUT	Bedside Interactive Terminal
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: 5.745GHz ~ 5.825GHz <input checked="" type="checkbox"/> Others: 2.402GHz~2.480GHz (BT3.0& BT4.0) <input checked="" type="checkbox"/> Others: 13.56MHz
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	BT3.0: 7.655dBm (0.0058W), BT4.0: 3.345dBm (0.0022W), 2.4GHz WiFi: 12.83dBm (0.0192W) 5.1GHz WIFI: 18.72dBm (0.0745W)
Antenna gain (Max)	BT3.0&BT4.0: 2.27 dBi; 2.4GHz WiFi: 3.41dBi, 5.1GHz WiFi: 3.69 dBi; 13.56MHz: -3.5dBi
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

2.4GHz WiFi+BT3.0&4.0

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)	
802.11b	2412	12.83	12.83±1	13.83	3.41	0.0105	1
	2437	12.76	12.76±1	13.76	3.41	0.0104	1
	2462	12.65	12.65±1	13.65	3.41	0.0101	1
802.11g	2412	12.21	12.21±1	13.21	3.41	0.0091	1
	2437	12.13	12.13±1	13.13	3.41	0.0090	1
	2462	12.16	12.16±1	13.16	3.41	0.0090	1
802.11n (HT20)	2412	11.43	11.43±1	12.43	3.41	0.0076	1
	2437	11.42	11.42±1	12.42	3.41	0.0076	1
	2462	12.04	12.04±1	13.04	3.41	0.0088	1
BT3.0	2402	7.655	7.655±1	8.655	2.27	0.0025	1
	2441	7.380	7.380±1	8.38	2.27	0.0023	1
	2480	6.916	6.916±1	7.916	2.27	0.0021	1
	2402	5.746	5.746±1	6.746	2.27	0.0016	1
	2441	5.746	5.746±1	6.746	2.27	0.0016	1
	2480	5.084	5.084±1	6.084	2.27	0.0014	1
BT4.0	2402	3.345	3.345±1	4.345	2.27	0.0009	1
	2441	3.248	3.248±1	4.248	2.27	0.0009	1
	2480	2.036	2.036±1	3.036	2.27	0.0007	1

5.1GHz WiFi:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/ cm ²)	(mW/cm ²)
802.11a	5180	18.68	18.68±1	19.68	3.69	0.0432	1
	5200	18.51	18.51±1	19.51	3.69	0.0416	1
	5240	18.72	18.72±1	19.72	3.69	0.0436	1
802.11n20	5180	18.18	18.18±1	19.18	3.69	0.0385	1
	5200	18.55	18.55±1	19.55	3.69	0.0419	1
	5240	18.70	18.70±1	19.70	3.69	0.0434	1
802.11n40	5190	17.81	17.81±1	18.81	3.69	0.0354	1
	5230	17.90	17.90±1	18.90	3.69	0.0361	1
802.11ac20	5180	18.13	18.13±1	19.13	3.69	0.0381	1
	5200	18.22	18.22±1	19.22	3.69	0.0389	1
	5240	18.55	18.55±1	19.55	3.69	0.0419	1
802.11ac40	5190	18.16	18.16±1	19.16	3.69	0.0383	1
	5230	18.03	18.03±1	19.03	3.69	0.0372	1
802.11ac80	5120	18.26	18.26±1	19.26	3.69	0.0392	1