

RF EXPOSURE EVALUATION

EUT Specification

EUT	Wi-Fi Stick
Model Number	EESW-D200, EESW-D201, EESW-D202, EESW-D203, EESW-D204, EESW-D205, EESW-D208
FCC ID	2BAGJ-EESWD204
Antenna gain (Max)	4.16dBi
Operation Frequency	BT: 2402-2480MHz WLAN:2412MHz-2462MHz
Input Rating	DC 5V
Max. output power	BT: 4.89dBm WLAN: 802.11b: 12.72dBm 802.11g: 10.99dBm 802.11n(HT20): 10.97dBm 802.11n(HT40): 10.43dBm

Test Requirement:

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)

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

11.1 Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1416

R= distance between observation point and center of the radiator in cm=20cm

Pd 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.

11.2 Measurement Result

Antenna gain: 4.16dBi

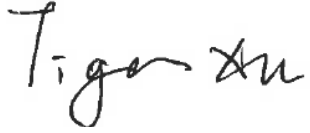
BT :

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
GFSK	2402	4.31	4±1	5	2.606	0.001639	1
GFSK	2440	4.89	5±1	6	2.606	0.002064	1
GFSK	2480	4.48	4±1	5	2.606	0.001639	1

WIFI:

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
802.11b	1	12.72	13±1	14	2.606	0.013023	1
	6	12.47	12±1	13	2.606	0.010344	1
	11	12.44	12±1	13	2.606	0.010344	1
802.11g	1	10.99	11±1	12	2.606	0.008217	1
	6	10.81	11±1	12	2.606	0.008217	1
	11	10.84	11±1	12	2.606	0.008217	1
802.11n(HT20)	1	10.97	11±1	12	2.606	0.008217	1
	6	10.67	11±1	12	2.606	0.008217	1
	11	10.76	11±1	12	2.606	0.008217	1
802.11n(HT40)	3	10.43	10±1	11	2.606	0.006527	1
	6	10.21	10±1	11	2.606	0.006527	1
	9	10.35	10±1	11	2.606	0.006527	1

Signature:



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Date: 2023-3-15