

RF EXPOSURE EVALUATION

EUT Specification

EUT	ETH+Wi-Fi+BLE Stick
Model Number	EESE-D206, EESE-D200, EESE-D201, EESE-D202, EESE-D203, EESE-D204, EESE-D205, EESE-D207, EESE-A401, EESE-A400, EESE-A402, EESE-A403, EESE-A404, EESE-A405, EESE-A406, EESE-BU03, EESE-BU00, EESE-BU01, EESE-BU02, EESE-BU04, EESE-BU05, EESE-B400, EESE-B401, EESE-B402, EESE-B403, EESE-B404, EESE-B405
FCC ID	2BAGJEESW
Antenna gain (Max)	-2.49dBi
Operation Frequency	BT: 2402-2480MHz WLAN:2412MHz-2462MHz
Input Rating	DC 5V
Max. output power	BT: 1.25dBm WLAN: 802.11b: 17.07dBm 802.11g: 16.30dBm 802.11n(HT20): 15.61dBm 802.11n(HT40): 15.51dBm

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: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

Where

P_d = Power density in mW/cm^2

P_{out} = 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

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.

11.2 Measurement Result

Antenna gain: -2.49dBi

BT :

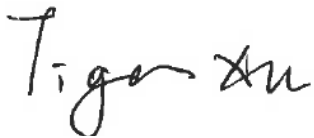
Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm^2)	Power density Limits (mW/cm^2)
GFSK	2402	0.74	1 ± 1	2	0.5636	0.000178	1
GFSK	2440	0.97	1 ± 1	2	0.5636	0.000178	1
GFSK	2480	1.25	1 ± 1	2	0.5636	0.000178	1

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	17 ± 1	18	63.096	0.5636	0.007075	1
	6	17 ± 1	18	63.096	0.5636	0.007075	1
	11	17 ± 1	18	63.096	0.5636	0.007075	1
802.11g	1	16 ± 1	17	50.119	0.5636	0.005620	1
	6	16 ± 1	17	50.119	0.5636	0.005620	1
	11	16 ± 1	17	50.119	0.5636	0.005620	1
802.11n(HT20)	1	15 ± 1	16	39.811	0.5636	0.004464	1
	6	15 ± 1	16	39.811	0.5636	0.004464	1

	11	16± 1	17	50.119	0.5636	0.005620	1
802.11n(HT40)	3	15± 1	16	39.811	0.5636	0.004464	1
	6	15± 1	16	39.811	0.5636	0.004464	1
	9	15± 1	16	39.811	0.5636	0.004464	1

Signature:



Tiger Xu
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