RF EXPOSURE EVALUATION

EUT Specification

EUT	WIFI SENSOR
Model Number	WT04, WT82, WT84, SWIFI-LEAK
FCC ID	2AZRBWT82
Antenna gain (Max)	0 dBi
Operation Frequency	WIFI:2412MHz-2462MHz
Input Rating	DC 3V
Classification Per Stipulated Test Standard	§15.247(i), §2.1093
Modulation	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n;
Max. output power	8.91dBm
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Test Requirement:

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)

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**

1 Friis transmission formula: Pd= (Pout*G)\ (4*pi*R^2)

Where

Pd= Power density in mW/cm^2

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

Pd the limit of MPE, 1mW/cm^2. If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

2 Measurement Result

Antenna gain:0 dBi

Operation Mode	Channel Number	Channel Frequency (MHz)	Measurement Level (dBm)	Limit (dBm)	Verdict
802.11b	1	2412	8.91	30	PASS
	6	2437	8.22	30	PASS
	11	2462	8.34	30	PASS
802.11g	1	2412	8.01	30	PASS
	6	2437	7.83	30	PASS
	11	2462	7.78	30	PASS
802.11n (HT20)	1	2412	7.44	30	PASS
	6	2437	7.69	30	PASS
	11	2462	7.98	30	PASS
802.11n (HT40)	3	2422	6.85	30	PASS
	6	2437	6.54	30	PASS
	9	2452	6.62	30	PASS

Operating Mode	Test Channel	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/cm2)	Power density Limits (mW/cm2)
802.11b	1	8±1	9	7.943	0	1.000	0.001580	1
	6	8±1	9	7.943	0	1.000	0.001580	1
	11	8±1	9	7.943	0	1.000	0.001580	1
802.11g	1	8±1	9	7.943	0	1.000	0.001580	1
	6	8±1	9	7.943	0	1.000	0.001580	1
	11	8±1	9	7.943	0	1.000	0.001580	1
802.11n	1	8±1	9	7.943	0	1.000	0.001580	1
	6	8±1	9	7.943	0	1.000	0.001580	1
	11	8±1	9	7.943	0	1.000	0.001580	1
802.11n	3	6±1	7	5.012	0	1.000	0.000997	1
	6	6±1	7	5.012	0	1.000	0.000997	1
	9	6±1	7	5.012	0	1.000	0.000997	1

Signature:

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Sam Lv
Date: 2021-07-05