



# K5IGN (Guangdong) Testing Co., Ltd.

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## RF EXPOSURE EVALUATION

### 1. PRODUCT INFORMATION

Product Description	Smart Tracker
Model Name	LW001-BG PRO
FCC ID	2AO94-LW001BGPRO

### 2. EVALUATION METHOD AND LIMIT

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

#### LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE

Frequency Range (MHz)	E-field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (Minutes)
0.3 -- 1.34	614	1.63	(100)*	30
1.34 -- 30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30 -- 300	27.5	0.073	0.2	30
300 -- 1500	--	--	f/1500	30
1500 -- 100,000	--	--	1.0	30

\*Note:

1. f= Frequency in MHz \* Plane-wave Equivalent Power Density
2. The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirement for mobile and portable transmitters.

$$S = PG / 4\pi R^2$$

Where:

S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna



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### 3. CALCULATION

A minimum test separation distance  $\geq 20$  cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits. The distance must be at least 20 cm and fully supported by the operating and installation configurations of the transmitter and its antenna(s), according to the source-based time-averaged maximum power requirements of § 2.1091(d)(2). In cases where cable losses or other attenuations are applied to determine compliance, the most conservative operating configurations and exposure conditions must be evaluated.

WIFI PART(Can not transmit at different band simultaneously )

Antenna Gain=3.77dBi (Numeric 2.38),  $\pi=3.14$

Mode	Frequency (MHz)	Output Power (dBm)	Tune-up power (dBm)	Output Power (mW)	Power Density (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )
802.11b	2412	8.92	8.5±1	9.500	0.0042	1
	2437	8.60	8.5±1	9.500	0.0042	1
	2462	9.14	8.5±1	9.500	0.0042	1
802.11g	2412	9.43	8.5±1	9.500	0.0042	1
	2437	9.08	8.5±1	9.500	0.0042	1
	2462	9.50	8.5±1	9.500	0.0042	1
802.11n(H T20)	2412	9.34	8.5±1	9.500	0.0042	1
	2437	8.98	8.5±1	9.500	0.0042	1
	2462	9.36	8.5±1	9.500	0.0042	1

### BLE

Antenna Gain=1.20dBi (Numeric 1.32),  $\pi=3.14$

Mode	Frequency (MHz)	Output Power (dBm)	Tune-up power (dBm)	Output Power (mW)	Power Density (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )	Results
GFSK 1Mbps	2402	2.66	2.0±1	1.995	0.0004	1	PASS
	2440	1.91	2.0±1	1.995	0.0005	1	PASS
	2480	1.01	2.0±1	1.995	0.0005	1	PASS

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Mode	Frequency (MHz)	Output Power (dBm)	Tune-up power (dBm)	Output Power (mW)	Power Density (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )	Results
GFSK 2Mbps	2402	2.62	2.0±1	1.995	0.0004	1	PASS
	2440	1.89	2.0±1	1.995	0.0005	1	PASS
	2480	0.98	2.0±1	1.995	0.0005	1	PASS

Conclusion:

WIFI and BLE can simultaneous working.

For the max result:  $0.0005+0.0042=0.0047 \leq 1$ .

Meet standard requirements.

**--THE END--**