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KDB 447498 D01 V06
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091**

RF EXPOSURE REPORT

For

NearSky 360

Model: NS360V2

Trade Name: CIMCON

Issued to

**CIMCON Lighting, Inc.
35 Crosby Drive, Bedford, MA 01730, USA**

Issued by

**Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	April 9, 2019	Initial Issue	ALL	Becca Chen
01	April 23, 2019	Added BT function.	P4, P5, P7	Becca Chen



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1. LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

2. EUT SPECIFICATION

EUT	NearSky 360
Model	NS360V2
Model Discrepancy	N/A
RF Module	TIWI-BLE
Frequency band (Operating)	☒ 802.11b/g/n HT 20: 2.412GHz ~ 2.462GHz ☒ Bluetooth 2.1 + EDR: 2402 ~ 2480 MHz ☒ Bluetooth 4.0: 2402 ~ 2480 MHz ☐ Others
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure ($S = 5\text{mW}/\text{cm}^2$) ☒ General Population/Uncontrolled exposure ($S=1\text{mW}/\text{cm}^2$)
Antenna Specification	Dipole Antenna : taoglas / FXP.830.07.0100C 2.4GHz: Antenna Gain : 3.32 dBi (Numeric gain: 2.15)
Tune-up max. average power	IEEE 802.11b Mode: 18.13 dBm (65.013 mW) IEEE 802.11g Mode: 16.37 dBm (43.351 mW) IEEE 802.11n HT 20 Mode: 12.20 dBm (16.596 mW) Bluetooth 2.1 + EDR: 8.25 dBm (6.683 mW) Bluetooth 4.0: 8.35 dBm (6.839 mW)

Maximum Tune up Power	IEEE 802.11b Mode: 19.00 dBm (79.433 mW) IEEE 802.11g Mode: 17.00 dBm (50.119 mW) IEEE 802.11n HT 20 Mode: 13.00 dBm (19.953 mW) Bluetooth 2.1 + EDR: 9.00 dBm (7.943 mW) Bluetooth 4.0: 9.00 dBm (7.943 mW)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

3. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P / 1000) \times G}{377 \times (d / 100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \textbf{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

4. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
1	2412	79.433	2.15	20	0.0340	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	50.119	2.15	20	0.0214	1

IEEE 802.11n HT 20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
11	2462	19.953	2.15	20	0.0085	1

Bluetooth 2.1 + EDR:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
0	2402	7.943	2.15	20	0.0034	1

Bluetooth 4.0 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
0	2402	7.943	2.15	20	0.0034	1