

Shandong Neon King Electronics Co., Ltd.

MPE ASSESSMENT REPORT

Report Type:

FCC MPE assessment report

Model:

SNKSS-O-3A

REPORT NUMBER:

180800495SHA-002

ISSUE DATE:

September 7, 2018

DOCUMENT CONTROL NUMBER:

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Applicant: Shandong Neon King Electronics Co., Ltd.
At the intersection of Jinyuan Road and 104 Road, Weishan
Economic Development Zone, Weishan County, Jining City,
Shandong, China

Manufacturer: Shandong Neon King Electronics Co., Ltd.
At the intersection of Jinyuan Road and 104 Road, Weishan
Economic Development Zone, Weishan County, Jining City,
Shandong, China

Manufacturing site: Shandong Neon King Electronics Co., Ltd.
At the intersection of Jinyuan Road and 104 Road, Weishan
Economic Development Zone, Weishan County, Jining City,
Shandong, China

FCC ID: 2APPP-00003

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:



Project Engineer
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REVIEWED BY:



Reviewer
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Revision History

Report No.	Version	Description	Issued Date
180800495SHA-002	Rev. 01	Initial issue of report	September 7, 2018

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	INDOOR/OUTDOOR DECORATIVE LIGHTING STRING
Type/Model:	SNKSS-O-3A
Description of EUT:	Please see the following page
Rating:	The EUT is an DECORATIVE LIGHTING STRING, which supports WIFI function, all of the models have the same RF module and circuit except for the model designations, the number of lamp and power. we tested the model SNKSS-O-3A as representative and listed the results in this report.
Category of EUT:	Class B
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	2018-8-28
Date of test:	2018-8-30~2018-9-6

1.2 Technical Specification

Frequency Range:	2400MHz ~ 2483.5MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Channel Number:	11 Channels for 802.11b, 802.11g and 802.11n(HT20)
Data Rate:	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7
Channel Separation:	5 MHz
Antenna Information:	PCB antenna , max gain is 5.3dBi

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Adding Models list:

Example showing model designation:

(C) LNK S O - 50 / 2 N - A - H - C - SU
A B C D E F G H I J

A =	CLNK description: CSA Certified lighting strings made by Shandong Neon King Electronic Co., Ltd., approved by ETL. LNK description: UL Certified lighting strings made by Shandong Neon King Electronic Co., Ltd., approved by ETL.
B =	"S" indicates Basic style lampholder; "A" indicates LP-A style lampholder; "B" indicates LP-B style lampholder; "SC" indicates C9 style lampholder.
C =	"O" for outdoor use; "I" for indoor use.
D =	total number of lights
E =	number of circuits
F =	"I" for icicle strings, "N" for net light strings, "C" for curtain lighting strings or blank for straight string configuration
G =	LED color/voltage: "A" for 2 V LEDs, "B" for 3 V LEDs, or "C" for a combination of 2 V and 3 V LEDs, "D" for double colors change LEDs, "E" for triple colors change LEDs.
H =	"H" for diffuser type, refer to sec. 4.0 Item 13-19.
I =	"C" for lighting strings with controller SNKSS-I-2B or SNKSS-O-3, "CA" with controller SNKSS-O-3A, or blank for strings without controller.
J =	"SU" for lighting strings with special use connector, or blank for strings without special use connector.

Models specification (120V 60Hz):

Model No.	Total No. of Lamps	No. of Circuits Total	Input Current, A	Input Power, W
X-20/1	20	1	0.30	36
X-40/2	40	2	0.32	38.4
X-60/3	60	3	0.34	40.8
X-80/4	80	4	0.36	43.2
X-100/5	100	5	0.38	45.6
X-120/6	120	6	0.40	48
X-140/7	140	7	0.42	50.4
X-160/8	160	8	0.44	52.8
X-180/9	180	9	0.46	55.2
X-25/1	25	1	0.30	36
X-50/2	50	2	0.32	38.4
X-75/3	75	3	0.34	40.8

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X-100/4	100	4	0.36	43.2
X-125/5	125	5	0.38	45.6
X-150/6	150	6	0.40	48
X-175/7	175	7	0.42	50.4
X-200/8	200	8	0.44	52.8
X-225/9	225	9	0.46	55.2
X-30/1	30	1	0.30	36
X-60/2	60	2	0.32	38.4
X-90/3	90	3	0.34	40.8
X-120/4	120	4	0.36	43.2
X-150/5	150	5	0.38	45.6
X-180/6	180	6	0.40	48
X-210/7	210	7	0.42	50.4
X-240/8	240	8	0.44	52.8
X-270/9	270	9	0.46	55.2
X-35/1	35	1	0.30	36
X-70/2	70	2	0.32	38.4
X-105/3	105	3	0.34	40.8
X-140/4	140	4	0.36	43.2
X-175/5	175	5	0.38	45.6
X-210/6	210	6	0.40	48
X-245/7	245	7	0.42	50.4
X-280/8	280	8	0.44	52.8
X-315/9	315	9	0.46	55.2
X-40/1	40	1	0.30	36
X-80/2	80	2	0.32	38.4
X-120/3	120	3	0.34	40.8
X-160/4	160	4	0.36	43.2
X-200/5	200	5	0.38	45.6
X-240/6	240	6	0.40	48
X-280/7	280	7	0.42	50.4
X-320/8	320	8	0.44	52.8
X-360/9	360	9	0.46	55.2
X-45/1	45	1	0.30	36
X-90/2	90	2	0.32	38.4
X-135/3	135	3	0.34	40.8
X-180/4	180	4	0.36	43.2
X-225/5	225	5	0.38	45.6
X-270/6	270	6	0.40	48
X-315/7	315	7	0.42	50.4
X-360/8	360	8	0.44	52.8
X-405/9	405	9	0.46	55.2
X-50/1	50	1	0.30	36
X-100/2	100	2	0.32	38.4

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X-150/3	150	3	0.34	40.8
X-200/4	200	4	0.36	43.2
X-250/5	250	5	0.38	45.6
X-300/6	300	6	0.40	48
X-350/7	350	7	0.42	50.4
X-400/8	400	8	0.44	52.8
X-450/9	450	9	0.46	55.2

“X” shall be replaced by the Series and indicated in MODEL NOMENCLATURE. (See model designation)

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1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN1175
	IC Registration Lab Registration code No.: 2042B-1
	VCCI Registration Lab Registration No.: R-4243, G-845, C-4723, T-2252
	NVLAP Accreditation Lab NVLAP LAB CODE: 200849-0
	A2LA Accreditation Lab Certificate Number: 3309.02

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2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	4 000/f	5 000/f	-
0,025-0,8 kHz	250/f	4/f	5/f	-
0,8-3 kHz	250/f	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	0,73/f	0,92/f	-
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

TEST REPORT**2.2 Assessment Results**

Power density (S) is calculated according to the formula:

$$S = P / (4\pi R^2)$$

Where S = power density in mW/cm²

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 180800495SHA-001:

The maximum radiated power = 26.73dBm = 470.98 mW;

Here R is chosen to be 20cm,

$$S = P / (4\pi R^2) = 470.98 / (4 * 3.14 * 20 * 20) = 0.0937 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

***** END *****