

# PURE EDGE LIGHTING

## TEST REPORT

### SCOPE OF WORK

Electrical and Photometric tests as required to the IESNA LM-79 test standard.

### MODEL NUMBER

FN-LRF5-5W-36-30K

### REPORT NUMBER

104373788CHI-005

### ISSUE DATE

August 24, 2020

### REVISION DATE

None

### DOCUMENT CONTROL NUMBER

TBD

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**REPORT DATE: August 24, 2020**

**TEST REPORT**

**TEST OF ONE LINEAR LED**

MODEL NO. FN-LRF5-5W-36-30K  
LED MODEL NO. LIANGAN/ LA-D2835P927M-3E2-00301  
DRIVER MODEL NO. HUARUI/DR-24V-2000-60D

**RENDERED TO:**

PURE EDGE LIGHTING  
1718 W. FULLERTON AVE.  
CHICAGO, IL 60614

**STATEMENT OF LIMITATIONS**

NVLAP Lab Code 600186-0. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

**AUTHORIZATION**

The testing performed was authorized by signed quote number Qu-01087644-1.

**STANDARDS USED**

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting  
ANSI NEMA ANSLG C78.377: 2015: Specifications of the Chromaticity of Solid State Lighting Products

**DESCRIPTION OF SAMPLE**

The client submitted one production sample of model number FN-LRF5-5W-36-30K. The sample was received by Intertek on August 4, 2020 in undamaged condition and one sample was tested as received. The sample designation was AH08042020023951-005.

**DATE OF TESTS**

August 7, 2020 through August 16, 2020.

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**SUMMARY**

<b>MODEL NO:</b>	FN-LRF5-5W-36-30K
<b>DESCRIPTION:</b>	LINEAR LED

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	555.1	552.3
Input Power (W) @ 120 (VAC)	16.37	16.34
Lumen Efficacy (lm/W)	33.9	33.8
Input Power Factor @ 120 (VAC)	0.977	0.977

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	14.86
Correlated Color Temperature (K)	2718
Color Rendering Index - Ra	93.2
Color Rendering - R9	59.6
DUV	0.0019
Chromaticity Coordinate (x)	0.456
Chromaticity Coordinate (y)	0.405
Chromaticity Coordinate (u')	0.262
Chromaticity Coordinate (v')	0.525

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**EQUIPMENT LIST**

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/1/2020	7/1/2021
Omega Thermometer	DPI8-C24	146920	10/3/2019	10/3/2020
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
Pacific, AC Power Supply	118-ACX	CHI0153	VBV	VBV
Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBV	VBV
Elgar AC Power Supply	CW1251M	146113	VBV	VBV
Sorenson DC Power Supply	XFR150-8	146847	VBV	VBV
Yokogawa Power Analyzer	WT1600	146767	4/6/2020	4/6/2021
Omega Temperature	MDSi8	146873	7/2/2020	7/2/2021
Newport Humidity Recorder	iTHX-SD	CHI0452	10/11/2019	10/11/2020

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**TEST METHODS**

**SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS**

No seasoning was performed in accordance with IESNA LM-79.

**PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD**

A Spectroradiometer and integrating sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

**PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD**

A Type C Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for the SSL sample.

Ambient temperature was measured equal to the height of the sample mounted on the goniometer equipment. The SSL sample was operated on the client provided driver at rated input volts in its designated orientation. The SSL sample was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

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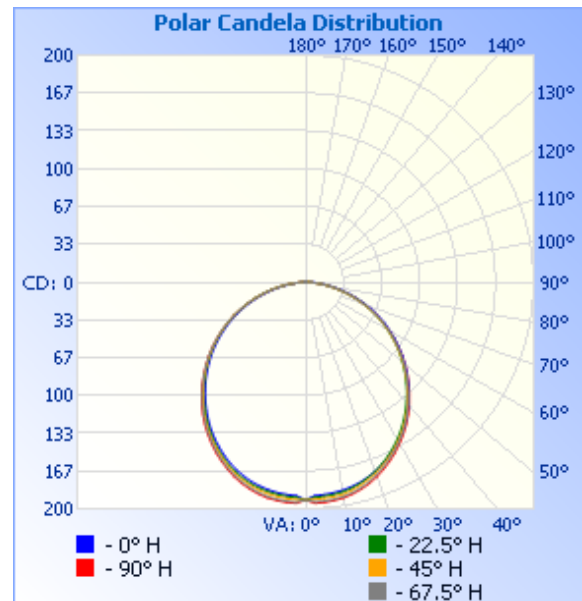
## RESULTS OF TESTS

### PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)
AH08042020023951-005	Base Up	120.1	139.3	16.34	0.977	552.3	33.8

### INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	192	192	192	192	192
5	188	190	191	194	195
10	186	188	190	192	193
15	183	184	186	188	189
20	178	178	179	181	183
25	171	170	171	173	174
30	162	160	162	163	165
35	152	150	151	152	154
40	140	138	139	140	141
45	127	125	126	127	128
50	114	111	112	113	114
55	100	97	98	98	100
60	85	83	83	84	84
65	70	68	68	68	69
70	55	52	52	52	53
75	39	37	37	37	38
80	25	22	22	22	23
85	12	10	10	10	10
90	4	3	3	3	3
95	0	2	2	1	1
100	0	2	2	1	1
105	0	1	1	1	1
110	0	1	1	1	1
115	0	0	1	1	1
120	0	0	1	1	1
125	0	0	1	1	0



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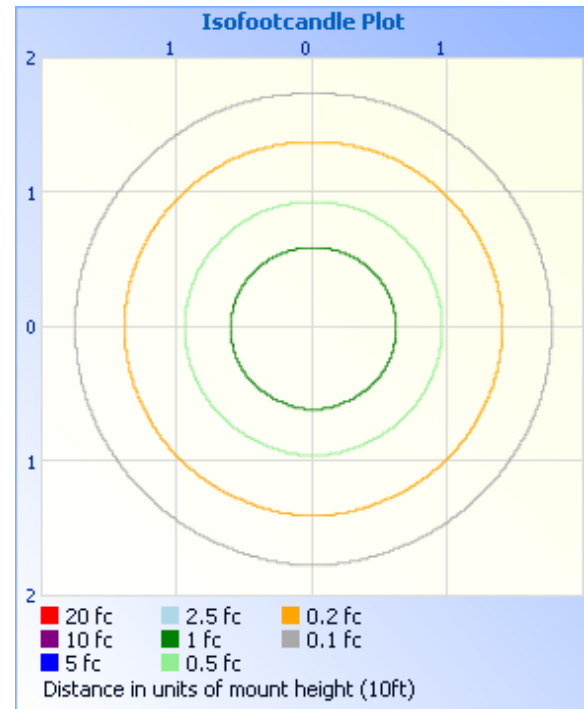
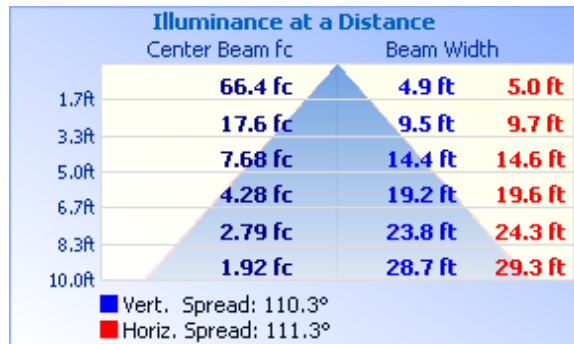
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

MOUNTING HEIGHT: 10ft	
ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	149.7	27.1
0-40	244.4	44.3
0-60	429.8	77.8
60-90	119.5	21.6
70-100	53.3	9.6
90-120	2.7	0.5
0-90	549.3	99.5
90-180	3.0	0.5
0-180	552.3	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	18.2	3.3
10-20	52.4	9.5
20-30	79.1	14.3
30-40	94.7	17.1
40-50	97.4	17.6
50-60	88.0	15.9
60-70	67.7	12.3
70-80	39.7	7.2
80-90	12.1	2.2
90-100	1.5	0.3
100-110	0.8	0.1
110-120	0.4	0.1
120-130	0.2	0.0
130-140	0.1	0.0

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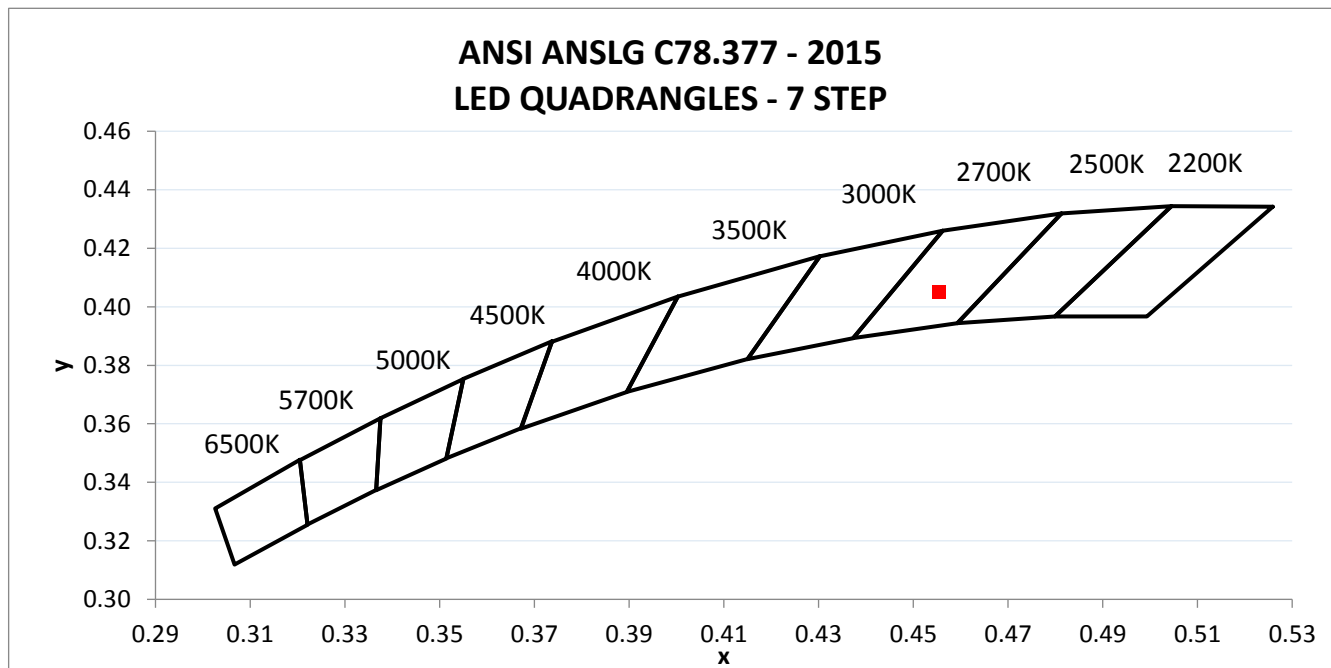
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	INPUT CURRENT ATHD (%)
AH08042020023951-005	Base Up	119.97	139.68	16.37	0.977	14.86

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
555.1	33.9	2718	93.2	59.6	0.0019

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.456	0.405	0.262	0.525





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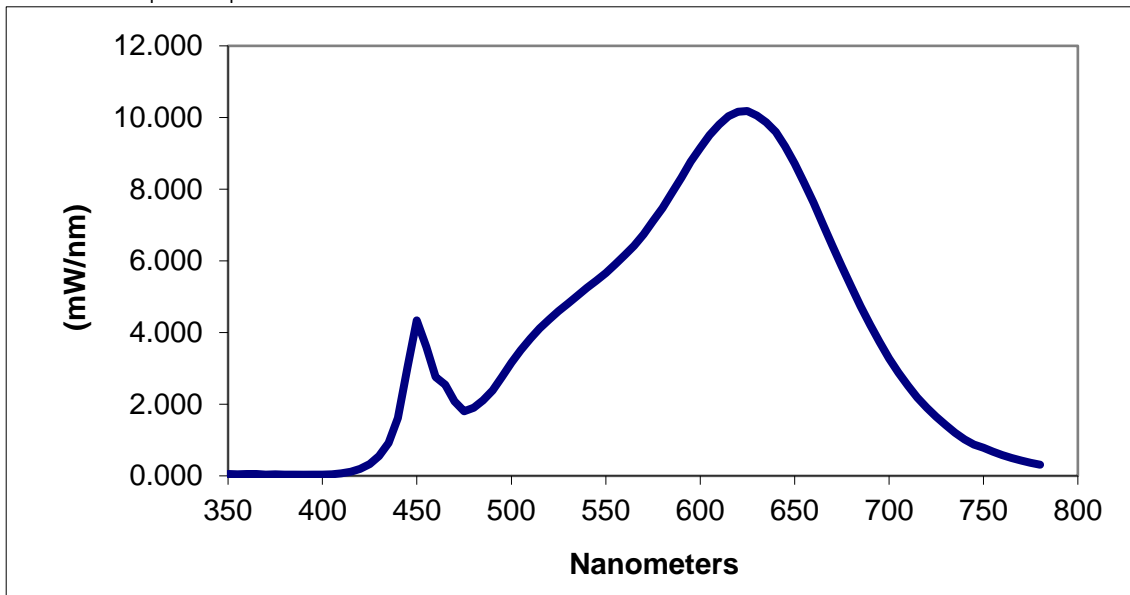
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.057	460	2.762	570	6.737	680	5.275
355	0.048	465	2.542	575	7.103	685	4.732
360	0.056	470	2.076	580	7.469	690	4.216
365	0.050	475	1.800	585	7.897	695	3.736
370	0.038	480	1.901	590	8.320	700	3.280
375	0.040	485	2.108	595	8.764	705	2.880
380	0.033	490	2.384	600	9.151	710	2.515
385	0.034	495	2.757	605	9.507	715	2.188
390	0.033	500	3.160	610	9.801	720	1.904
395	0.034	505	3.508	615	10.032	725	1.648
400	0.036	510	3.832	620	10.162	730	1.414
405	0.047	515	4.120	625	10.182	735	1.205
410	0.073	520	4.361	630	10.054	740	1.019
415	0.116	525	4.598	635	9.869	745	0.872
420	0.191	530	4.815	640	9.600	750	0.781
425	0.325	535	5.026	645	9.196	755	0.675
430	0.549	540	5.254	650	8.716	760	0.582
435	0.922	545	5.444	655	8.184	765	0.497
440	1.613	550	5.661	660	7.621	770	0.425
445	3.023	555	5.899	665	7.029	775	0.365
450	4.343	560	6.158	670	6.423	780	0.315
455	3.597	565	6.421	675	5.846		

\*Without correction of sample absorption.



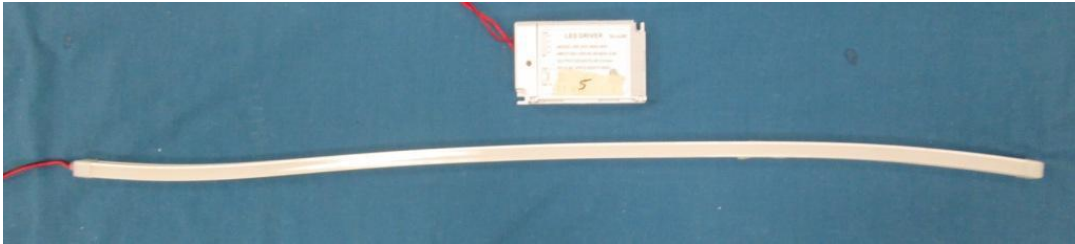
End Of Test Results

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**PICTURES**



**CONCLUSION**

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:

Timothy Quigley  
Project Engineer  
Lighting Division

Report Reviewed By:

Jeff Davis  
N.A. Technical Lead  
Lighting Division

Attachments: IES File

**REVISION HISTORY**

JOB NUMBER	DATE OF REVISION	PROJECT HANDLER	REVIEWED BY	REVISION NOTE
None				