FOR THE SCOPE OF
ACCREDITATION UNDER NVLAP LAB
CODE 100402-0.

REPORT

3933 US ROUTE 11, CORTLAND, NEW YORK 13045

Project No. G101555841 Date: March 21, 2014

REPORT NO. 101555841CRT-001

TEST OF ONE LED LOWBAY

MODEL NO. SL80N-UM-PFB(DW)
LED MODEL NO. LG LEMWH51X80HZ

RENDERED TO

DONGBU LIGHTEC CO., LTD.
739-8 OJEONG-DONG OJENOG-GU
BUCHEON-SI 421-170, SOUTH KOREA

TEST: Electrical and Photometric tests as required to the IESNA test standard.

STATEMENT OF LIMITATION: 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 500511603.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number SL80N-UM-PFB(DW). The sample was received by Intertek on March 3, 2014, in undamaged condition and one sample was tested as received. The sample designation was CRT1403031531-002-001.

DATES OF TESTS: March 14, 2014 through March 18, 2014.

SUMMARY

Model No.:	SL80N-UM-PFB(DW)
Description:	LED Lowbay

	Result	
Criteria	Sphere	Goniometer
Total Lumen Output (Lumens)	7859	8042
Total Power (W)	78.98	79.43
Luminaire Efficacy (LPW)	99.51	101.2

Criteria	Result
Power Factor at 120Vac	0.993
Power Factor at 277Vac	0.923
Current ATHD % at 120Vac	8.64
Current ATHD % at 277Vac	13.16
Correlated Color Temperature (CCT - K)	5139
Color Rendering Index (CRI - Ra)	85.5
Color Rendering Index (CRI - R9)	39.8
DUV	0.000
Chromaticity Coordinate (x)	0.341
Chromaticity Coordinate (y)	0.349
Chromaticity Coordinate (u')	0.210
Chromaticity Coordinate (v')	0.483

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date
Yokogawa Power Analyzer	WT1600	E474	03/07/14	03/07/15
LABSPHERE 3M	W/ CDS 1100	N307	VBU	VBU
Fluke Temp Meter	53 II	T1318	03/15/13	03/15/14
Elgar Power Supply	CW1251	---	---	---
Extech Hygro-Thermometer	445703	T1366	11/27/13	11/27/14
SORENSEN POWER SUPPLY	XFR 150-8	---	VBU	VBU
NIST Spectral Flux Standard Source	RF1024	N/A	09/18/10	100 hrs of use
LSI High Speed Mirror Goniometer	6440	---	02/24/14	03/24/14
Elgar Power Supply	CW1251	---	VBU	VBU
Yokogawa Power Analyzer	WT210	E464	04/17/13	04/17/14
ExTech Hygro Thermometer	445703	T1357	11/25/13	11/25/14
Fisher Scientific	14-649-9	N1405	08/13/13	08/13/14
Mitutoyo Digital Level/Protractor	3600 950-316	N1390	12/11/13	12/11/14

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 Labsphere Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot 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. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa 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 LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

RESULTS OF TEST

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

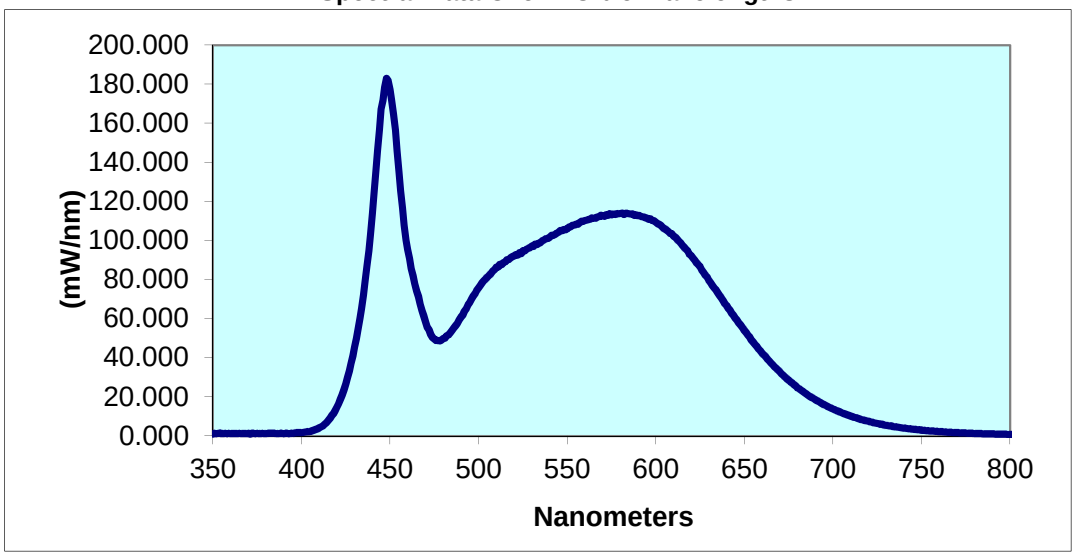
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
CRT1403031531-002-001	UP	120.0	662.7	78.98	0.993	8.64	7859	99.51
		277.0	300.7	76.88	0.923	13.16		

Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
5139	85.5	39.8	0.000	0.341	0.349	0.210	0.483

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	1.038	440	114.100	530	97.220	620	92.280	710	10.160
355	1.118	445	167.300	535	98.950	625	86.490	715	8.732
360	1.175	450	177.300	540	101.600	630	79.700	720	7.508
365	1.262	455	135.000	545	104.200	635	73.220	725	6.403
370	1.295	460	95.330	550	106.200	640	66.750	730	5.473
375	1.271	465	74.170	555	108.300	645	60.220	735	4.682
380	1.130	470	58.290	560	110.300	650	53.950	740	4.007
385	1.293	475	49.610	565	111.400	655	47.880	745	3.402
390	1.244	480	49.860	570	112.500	660	42.490	750	2.973
395	1.392	485	54.030	575	113.300	665	37.350	755	2.545
400	1.742	490	60.580	580	113.800	670	32.820	760	2.206
405	2.393	495	68.290	585	113.800	675	28.560	765	1.879
410	4.043	500	75.950	590	112.700	680	24.650	770	1.639
415	7.768	505	81.250	595	111.400	685	21.550	775	1.424
420	14.720	510	86.340	600	109.500	690	18.580	780	1.249
425	26.760	515	89.090	605	106.000	695	16.070		
430	45.470	520	92.040	610	102.200	700	13.780		
435	72.090	525	94.770	615	97.740	705	11.810		

Spectral Data Over Visible Wavelengths



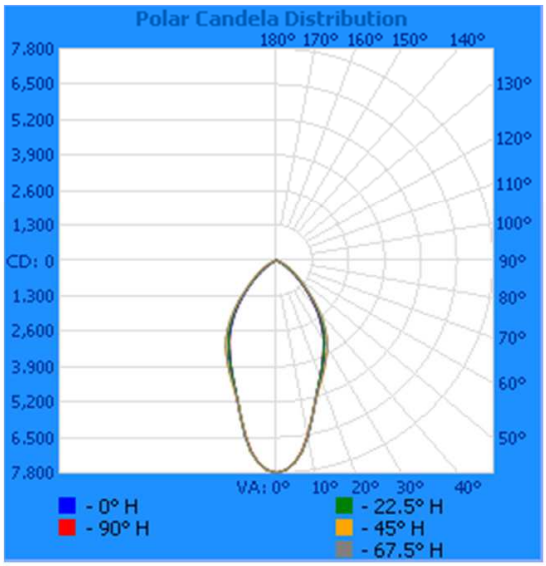
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
CRT1403031531-002-00	UP	120.1	665.4	79.43	0.994	8042	101.2

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	7793	7793	7793	7793	7793
5	7464	7465	7463	7456	7445
10	6536	6518	6504	6501	6482
15	5379	5365	5381	5380	5383
20	4594	4590	4710	4684	4588
25	3969	3984	4166	4156	3962
30	3429	3451	3660	3654	3402
35	2808	2881	3047	3055	2808
40	2136	2223	2337	2358	2152
45	1482	1560	1629	1662	1514
50	957	1023	1129	1127	984
55	581	629	800	775	592
60	304	345	552	514	316
65	124	161	324	302	136
70	41	57	154	141	45
75	4	7	44	41	6
80	0	0	0	2	0
85	0	0	0	0	0
90	0	0	0	0	0

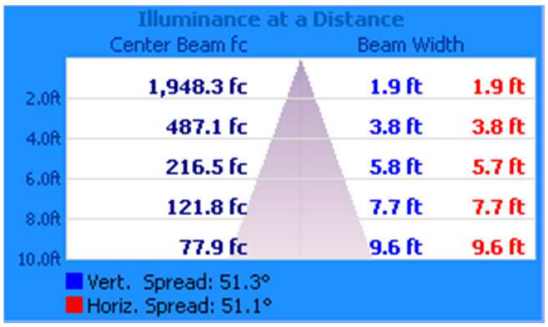


RESULTS OF TEST (cont'd)

Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



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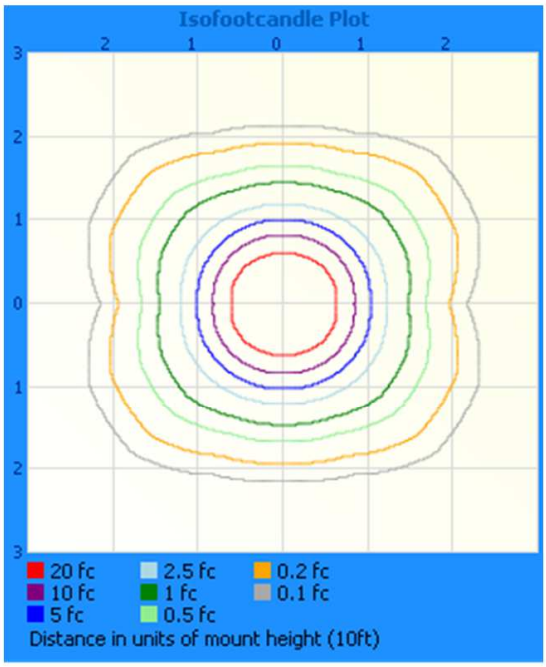


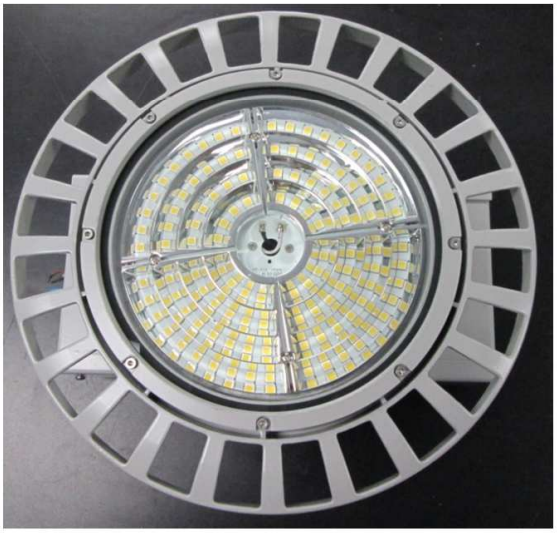
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	4068	50.6
0-40	5893	73.3
0-60	7768	96.6
60-90	273.9	3.4
0-90	8042	100.0
90-180	0.0	0.0
0-180	8042	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	680.0	8.5
10-20	1518	18.9
20-30	1870	23.3
30-40	1825	22.7
40-50	1239	15.4
50-60	636.2	7.9
60-70	238.4	3.0
70-80	35.5	0.4
80-90	0.1	0.0

PICTURE (not to scale`



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:

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Report Reviewed By:

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Attachment: None