

REPORT NUMBER: ITL84297

PAGE: 1 OF 6

ISSUE DATE: 03/13/15

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: VANLED40 (SURFACE MOUNT - DROP LENS)

LUMINAIRE: CAST METAL HOUSING, EXTRUDED FINNED METAL HEAT SINK, 1 WHITE CIRCUIT BOARD WITH 121 LEDS, MOLDED PLASTIC REFLECTOR WITH SEMI-SPECULAR FINISH, CLEAR FROSTED HOLOGRAPHIC PLASTIC DROP LENS IN CAST BROWN PAINTED METAL FRAME. LENS FROSTED SIDE IN.

LAMPS: ONE HUNDRED TWENTY-ONE WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

INPUT ELECTRICAL: 277.0 VOLTS, 38.7 WATTS, 0.145 AMPS

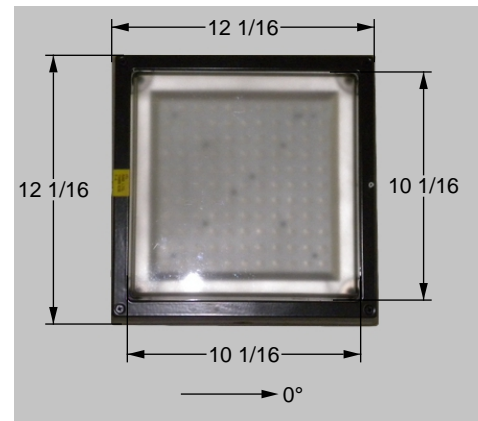
MOUNTING: SURFACE

LED DRIVER: RAB LIGHTING RD-042-A1050N

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (277VAC, 60Hz) TO THE DRIVER.

TEST PROCEDURE: IESNA LM-79-08

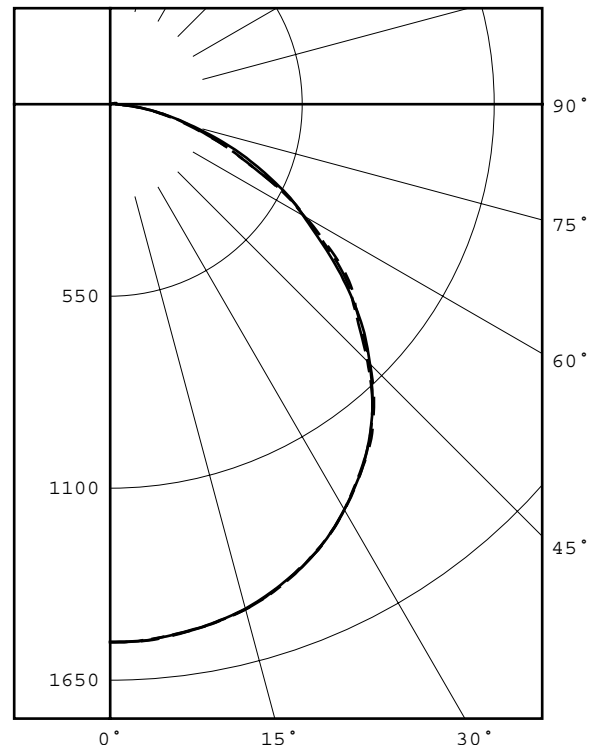
TEST DISTANCE = 35.0 FEET



CANDELA DISTRIBUTION

FLUX

	0.0	22.5	45.0	67.5	90.0	
0	1541	1541	1541	1541	1541	
5	1538	1537	1536	1536	1535	146
15	1498	1495	1496	1495	1498	422
25	1409	1405	1408	1406	1407	648
35	1264	1261	1263	1261	1261	789
45	1053	1056	1052	1050	1042	809
55	809	798	778	792	796	704
65	489	499	512	501	486	494
75	232	238	248	242	237	258
85	56	60	61	61	58	74
90	18	19	20	19	18	
95	19	18	19	20	20	20
105	13	10	9	12	14	12
115	2	1	0	2	2	2
125	0	0	0	0	0	0
135	0	0	0	0	0	0
145	0	0	0	0	0	0
155	0	0	0	0	0	0
165	0	0	0	0	0	0
175	0	0	0	0	0	0
180	0	0	0	0	0	0



LEGEND:  
0-deg    - - - - -  
45-deg    = = = = =  
90-deg    - - - - -

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	1217	27.8
0- 40	2006	45.8
0- 60	3519	80.4
0- 90	4346	99.2
90-120	34	0.8
90-130	34	0.8
90-150	34	0.8
90-180	34	0.8
0-180	4379	100.0

EFFICACY = 113.2 lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG

SPACING CRITERIA : 1.29 1.29

Checked B. HYRE  
Approved R. BEATTIE  
Lighting Engineer



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PAGE: 2 OF 6

PLANE : 0-DEG 90-DEG  
LUMINOUS LENGTH : 10.063 10.063  
HEIGHT OF SIDE : 0.625 0.625

LUMINANCE DATA IN CANDELA/SQ M

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	21463.	20936.	21239.
55	19832.	18449.	19513.
65	15631.	15606.	15535.
75	11140.	11047.	11380.
85	5752.	5346.	5958.



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PAGE: 3 OF 6

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CANDELA DISTRIBUTION  
 LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	1541	1541	1541	1541	1541
5.0	1538	1537	1536	1536	1535
10.0	1521	1519	1520	1519	1521
15.0	1498	1495	1496	1495	1498
20.0	1458	1458	1457	1456	1460
25.0	1409	1405	1408	1406	1407
30.0	1342	1342	1341	1342	1341
35.0	1264	1261	1263	1261	1261
40.0	1173	1170	1167	1168	1167
45.0	1053	1056	1052	1050	1042
50.0	922	920	924	916	915
55.0	809	798	778	792	796
60.0	647	644	639	644	642
65.0	489	499	512	501	486
70.0	350	352	381	356	352
75.0	232	238	248	242	237
80.0	138	141	143	145	144
85.0	56	60	61	61	58
90.0	18	19	20	19	18
95.0	19	18	19	20	20
100.0	18	16	17	18	20
105.0	13	10	9	12	14
110.0	6	4	2	5	8
115.0	2	1	0	2	2
120.0	0	0	0	0	1
125.0	0	0	0	0	0
130.0	0	0	0	0	0
135.0	0	0	0	0	0
140.0	0	0	0	0	0
145.0	0	0	0	0	0
150.0	0	0	0	0	0
155.0	0	0	0	0	0
160.0	0	0	0	0	0
165.0	0	0	0	0	0
170.0	0	0	0	0	0
175.0	0	0	0	0	0
180.0	0	0	0	0	0



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PAGE: 4 OF 6

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	37
5- 10	109
10- 15	179
15- 20	243
20- 25	300
25- 30	348
30- 35	383
35- 40	406
40- 45	411
45- 50	398
50- 55	372
55- 60	332
60- 65	278
65- 70	216
70- 75	156
75- 80	102
80- 85	54
85- 90	19
90- 95	10
95-100	10
100-105	8
105-110	4
110-115	1
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE  
ZONAL LUMEN SUMMARY

0- 10	146
0- 20	568
0- 30	1217
0- 40	2006
0- 50	2815
0- 60	3519
0- 70	4013
0- 80	4272
0- 90	4346
0-100	4366
0-110	4378
0-120	4379
0-130	4379
0-140	4379
0-150	4379
0-160	4379
0-170	4379
0-180	4379



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0		
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0	
0	119	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	101	101	101	99
1	109	104	100	96	96	106	102	98	95	97	94	92	93	91	89	90	88	86	84	84
2	99	91	84	79	79	96	89	83	78	85	80	76	82	78	74	79	75	72	70	70
3	91	80	72	66	66	88	79	71	65	75	69	64	73	67	63	70	65	61	59	59
4	83	71	62	56	56	81	70	62	55	67	60	54	65	59	54	62	57	53	51	51
5	76	64	55	48	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44	44
6	70	57	48	42	42	68	56	48	42	54	47	41	53	46	41	51	45	40	38	38
7	65	52	43	37	37	64	51	43	37	49	42	37	48	41	36	46	40	36	34	34
8	61	47	39	33	33	59	47	39	33	45	38	33	44	37	32	43	37	32	30	30
9	57	43	35	30	30	55	43	35	30	42	34	29	40	34	29	39	33	29	27	27
10	53	40	32	27	27	52	39	32	27	38	31	27	37	31	27	37	31	26	25	25

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS TEST SAMPLE.



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PAGE: 6 OF 6

ADDRESS: 170 LUDLOW AVE.  
NORTHVALE, NJ 07647

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Page 1 of 4

REPORT NUMBER: ITL84321  
DATE: 03/25/15  
PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: VANLED40 (SURFACE MOUNT - DROP LENS)

ADDRESS: 170 LUDLOW AVE.  
NORTHVALE, NJ 07647

LUMINAIRE: CAST METAL HOUSING, EXTRUDED FINNED METAL HEAT SINK, 1 WHITE CIRCUIT BOARD WITH 121 LEDS, MOLDED PLASTIC REFLECTOR WITH SEMI-SPECULAR FINISH, CLEAR FROSTED HOLOGRAPHIC PLASTIC DROP LENS IN CAST BROWN PAINTED METAL FRAME. LENS FROSTED SIDE IN.

LAMP: ONE HUNDRED TWENTY-ONE WHITE LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.

DRIVER: RAB LIGHTING RD-042-A1050N

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (277VAC, 60Hz) TO THE DRIVER.

INSTRUMENTS:	Associated Power Technologies APT5040 AC Power Source	Calibration Due:
	Yokogawa WT210 Digital Power Meter #6	N/A
	Ocean Optics QE65000 Spectroradiometer	11/30/15
	ITL 2.0m Diameter Integrating Sphere S20-2, 4PI Geometry	07/14/15

OBJECT OF TEST: Measure the Total Radiant Flux\*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRI<sub>a</sub>,1-14), Chromaticity Coordinates (x,y; u'v'), ANSI C78.377 Duv, Scotopic / Photopic Ratio, and electrical data including ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD) to the test sample. Report Off-State Power.

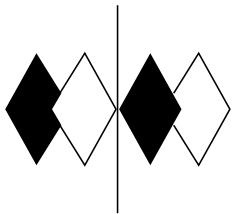
PROCEDURE: The test sample was provided by the customer and had an unknown number of burn hours. The test sample was mounted inside the integrating sphere and allowed to stabilize. After stabilization occurred, measurements were taken. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the test sample operating at 277VAC input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology. Off-State Power was reported with no voltage applied to the sample.

\*NOTE: Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

RESULTS: (continued subsequent pages)

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Checked	<i>N THOMAS</i>
Approved	<i>P O'CONNOR</i> Sphere Lab Supervisor



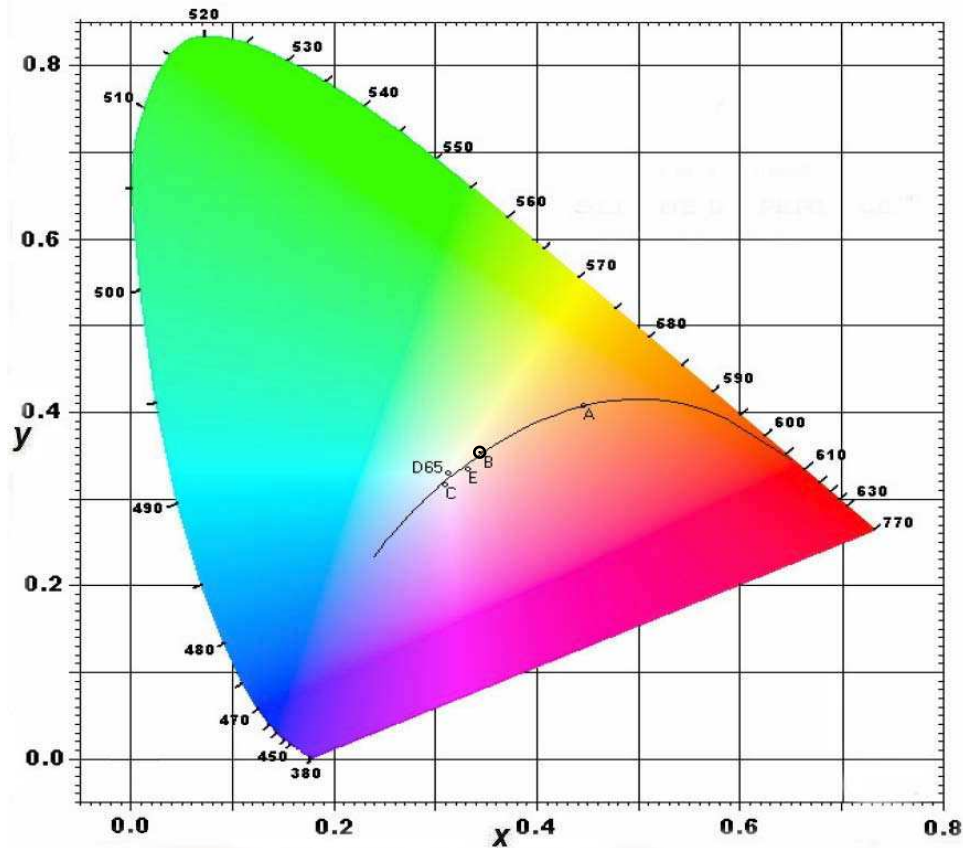
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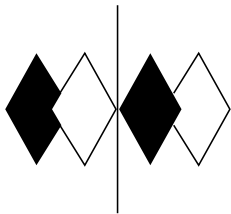
**NVLAP**  
 NVLAP LAB CODE: 200925-0

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### CIE Chromaticity Diagram





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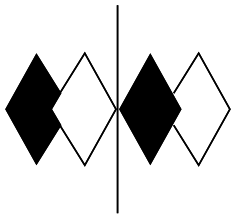
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RESULTS:

<b>SPECTRORADIOMETRIC</b>	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3434
Chromaticity Ordinate y	0.3535
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2095
Chromaticity Ordinate v'	0.4853
Correlated Color Temp CCT (K)	5072
Color Rendering Index (CRIa)	75
Color Rendering Index 1 (Light greyish red)	73
Color Rendering Index 2 (Dark greyish yellow)	79
Color Rendering Index 3 (Strong yellowish green)	82
Color Rendering Index 4 (Moderate yellowish green)	76
Color Rendering Index 5 (Light bluish green)	74
Color Rendering Index 6 (Light blue)	71
Color Rendering Index 7 (Light violet)	82
Color Rendering Index 8 (Light reddish purple)	61
Color Rendering Index 9 (Strong red)	-18
Color Rendering Index 10 (Strong yellow)	49
Color Rendering Index 11 (Strong green)	74
Color Rendering Index 12 (Strong blue)	48
Color Rendering Index 13 (Light yellowish pink (skin))	73
Color Rendering Index 14 (Moderate olive green (leaf))	90
ANSI C78.377-2008 Duv	0.002
Scotopic / Photopic Lumen Ratio	1.842
Total Radiant Flux (milliWatts)	13303 *
<b>ELECTRICAL FOR SPECTRORADIOMETRIC TEST</b>	
Input Voltage (Volts AC )	277.0
Input Current (Amps AC )	0.145
Input Power (Watts)	38.7
Input Power Factor (%)	96.4
Input Current THD (%)	5.5
Input Voltage THD (%)	0.0
Off-State Power (Watts)	0.0

\*NOTE: Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.



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### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.363	515	50.607	650	28.622
385	0.397	520	56.110	655	25.476
390	0.459	525	60.169	660	22.635
395	0.581	530	63.123	665	20.007
400	0.851	535	65.214	670	17.601
405	1.448	540	66.768	675	15.425
410	2.706	545	68.052	680	13.493
415	5.288	550	69.177	685	11.759
420	10.050	555	70.060	690	10.238
425	18.469	560	70.833	695	8.901
430	31.678	565	71.446	700	7.740
435	49.371	570	71.698	705	6.712
440	72.391	575	71.544	710	5.825
445	100.926	580	71.092	715	5.053
450	111.666	585	70.182	720	4.394
455	87.023	590	68.849	725	3.810
460	56.581	595	66.998	730	3.298
465	39.426	600	64.746	735	2.852
470	27.113	605	61.942	740	2.479
475	18.748	610	58.688	745	2.153
480	15.310	615	55.083	750	1.876
485	14.931	620	51.143	755	1.635
490	16.839	625	47.080	760	1.423
495	21.394	630	43.052	765	1.241
500	28.115	635	39.186	770	1.084
505	35.936	640	35.466	775	0.947
510	43.685	645	31.928	780	0.828

