

REPORT NUMBER: ITL84719

PAGE: 1 OF 6

ISSUE DATE: 05/27/15

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: VANLED75 (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: 120.0 VOLTS, 75.7 WATTS, 0.638 AMPS

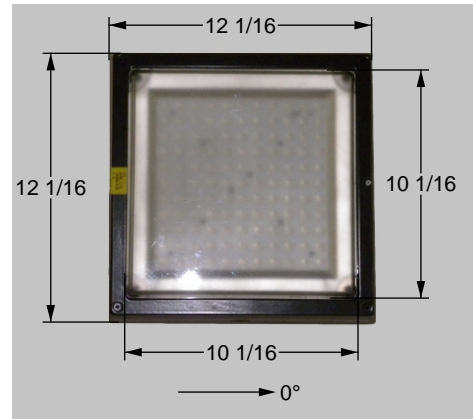
MOUNTING: SURFACE

LED DRIVER: MEAN WELL HLG-80H-36A, CLIENT STATES DRIVERS POTENTIOMETERS SET FOR MAXIMUM VOLTAGE AND 1.98A DRIVER OUTPUT.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE DRIVER.

TEST PROCEDURE: IESNA LM-79-08

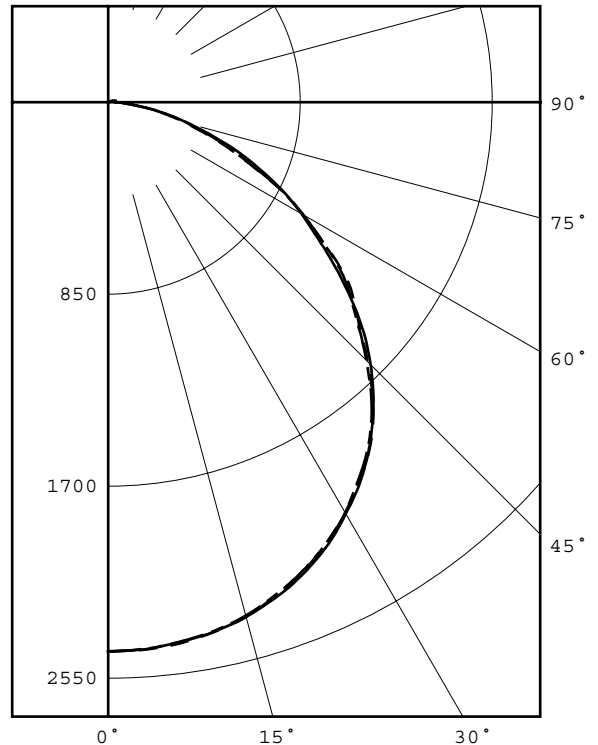
TEST DISTANCE = 35.0 FEET



CANDELA DISTRIBUTION

FLUX

0.0	22.5	45.0	67.5	90.0	FLUX
0	2431	2431	2431	2431	2431
5	2426	2425	2423	2423	2422
15	2359	2361	2359	2358	2353
25	2203	2211	2214	2214	2203
35	1977	1978	1978	1979	1967
45	1625	1642	1643	1633	1616
55	1239	1236	1198	1223	1230
65	753	765	783	774	760
75	354	365	379	377	367
85	82	85	90	88	84
90	29	30	32	30	28
95	31	31	31	32	34
105	20	17	14	18	23
115	3	2	0	2	3
125	0	0	0	0	0
135	0	0	0	0	0
145	0	0	0	0	0
155	0	0	0	0	0
165	0	0	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0



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

ZONAL ZONE	LUMEN LUMENS	SUMMARY %FIXT
0- 30	1915	28.1
0- 40	3151	46.2
0- 60	5496	80.6
0- 90	6764	99.2
90-120	54	0.8
90-130	54	0.8
90-150	54	0.8
90-180	54	0.8
0-180	6818	100.0

EFFICACY = 90.1 lm/W
CIE TYPE - DIRECT
PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.28 1.28

Checked M KLOPF
Approved R BEATTIE
Lighting Engineer



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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	33843.	34090.	33655.
55	31034.	29600.	30809.
65	24594.	24841.	24822.
75	17368.	17538.	18006.
85	8608.	8150.	8818.



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CANDELA DISTRIBUTION
 LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	2431	2431	2431	2431	2431
5.0	2426	2425	2423	2423	2422
10.0	2401	2404	2399	2402	2396
15.0	2359	2361	2359	2358	2353
20.0	2290	2297	2298	2297	2286
25.0	2203	2211	2214	2214	2203
30.0	2098	2104	2104	2109	2098
35.0	1977	1978	1978	1979	1967
40.0	1825	1832	1823	1826	1814
45.0	1625	1642	1643	1633	1616
50.0	1433	1423	1431	1419	1418
55.0	1239	1236	1198	1223	1230
60.0	998	987	988	996	997
65.0	753	765	783	774	760
70.0	534	542	579	553	546
75.0	354	365	379	377	367
80.0	210	213	216	221	218
85.0	82	85	90	88	84
90.0	29	30	32	30	28
95.0	31	31	31	32	34
100.0	30	26	26	28	33
105.0	20	17	14	18	23
110.0	10	7	4	8	12
115.0	3	2	0	2	3
120.0	0	0	0	0	0
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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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	58
5- 10	173
10- 15	282
15- 20	383
20- 25	473
25- 30	546
30- 35	601
35- 40	635
40- 45	641
45- 50	618
50- 55	576
55- 60	511
60- 65	429
65- 70	332
70- 75	240
75- 80	156
80- 85	81
85- 90	29
90- 95	16
95-100	17
100-105	12
105-110	6
110-115	2
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	231
0- 20	896
0- 30	1915
0- 40	3151
0- 50	4410
0- 60	5496
0- 70	6258
0- 80	6654
0- 90	6764
0-100	6797
0-110	6815
0-120	6818
0-130	6818
0-140	6818
0-150	6818
0-160	6818
0-170	6818
0-180	6818



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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	106	102	98	95	98	94	92	94	91	89	90	88	86	86	84	84
2	99	91	85	79	97	89	83	78	86	80	76	82	78	74	79	76	72	72	70	70
3	91	80	72	66	88	79	71	65	76	69	64	73	67	63	70	66	62	62	59	59
4	83	71	63	56	81	70	62	56	67	60	55	65	59	54	63	57	53	53	51	51
5	76	64	55	48	74	63	54	48	60	53	47	58	52	47	56	51	46	46	44	44
6	71	57	49	42	69	56	48	42	55	47	42	53	46	41	51	45	41	41	39	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	36	34	34
8	61	48	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	32	30	30
9	57	44	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	29	27	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	27	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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NVLAP LAB CODE: 200925-0

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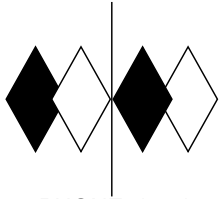
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ADDRESS: 170 LUDLOW AVE.
NORTHVALE, NJ 07647

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REPORT NUMBER: ITL84719-THD1
DATE: 06/02/15
PREPARED FOR: RAB Lighting Inc.
LUMINAIRE CAT NO: VANLED75 (Surface Mount - Drop Lens)
DRIVER CAT NO: Mean Well HLG-80H-36A, client states drivers potentiometers set for maximum voltage and 1.98A driver output.

ADDRESS: 170 Ludlow Ave.
Northvale, NJ 07647

OBJECT OF TEST: Measure Voltage, Current, Wattage, Total Harmonic Distortion (voltage & current), and Power Factor at the luminaire input under stable operating conditions.

TEST PROCEDURE: ANSI C82.77-2002

INSTRUMENTATION: Kikusui PCR500L Power Source
Yokogawa WT210 Power Analyzer
Calibration Due
NA
12/31/15

NOTE: Changes in source impedance can affect the input current, Power Factor, and Total Harmonic Distortion to the luminaire. There are currently no industry standards that ITL is aware of which address source impedance issues as they apply to lighting load analysis. However, the Illuminating Engineering Society's Testing Procedures Committee (IES TPC) is currently reviewing the topic. Until an industry standard is published, results are likely to vary between laboratories.

RESULTS:

Driver Input Electrical

Input Voltage (Volts AC):	120.0
Input Current (Amps AC):	0.641
Input Power (Watts AC):	76.0
Input Power Factor (%):	98.8
Input Voltage THD (%):	0.1
Input Current THD (%):	10.4
Input Voltage (Volts AC):	277.0
Input Current (Amps AC):	0.290
Input Power (Watts AC):	75.5
Input Power Factor (%):	94.0
Input Voltage THD (%):	0.1
Input Current THD (%):	17.3

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Checked: F. Schimpfle
Approved: N. Thomas



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REPORT NUMBER: ITL84731
DATE: 06/02/15
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: VANLED75 (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: MEAN WELL HLG-80H-36A, CLIENT STATES DRIVERS POTENTIOMETERS SET FOR MAXIMUM VOLTAGE AND 1.98A DRIVER OUTPUT.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 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

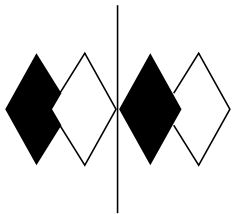
OBJECT OF TEST: Measure the Absolute Flux in lumens*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRIa,1-14), Chromaticity Coordinates (x,y; u',v'), ANSI C78.377 Duv, Total Radiant Flux*, Scotopic / Photopic Lumen Ratio, and electrical data including ANSI C82.77-2002 Power Factor (PF) to the test sample.

PROCEDURE: The test sample was provided by the customer and had an unknown number of operating 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 120VAC 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.

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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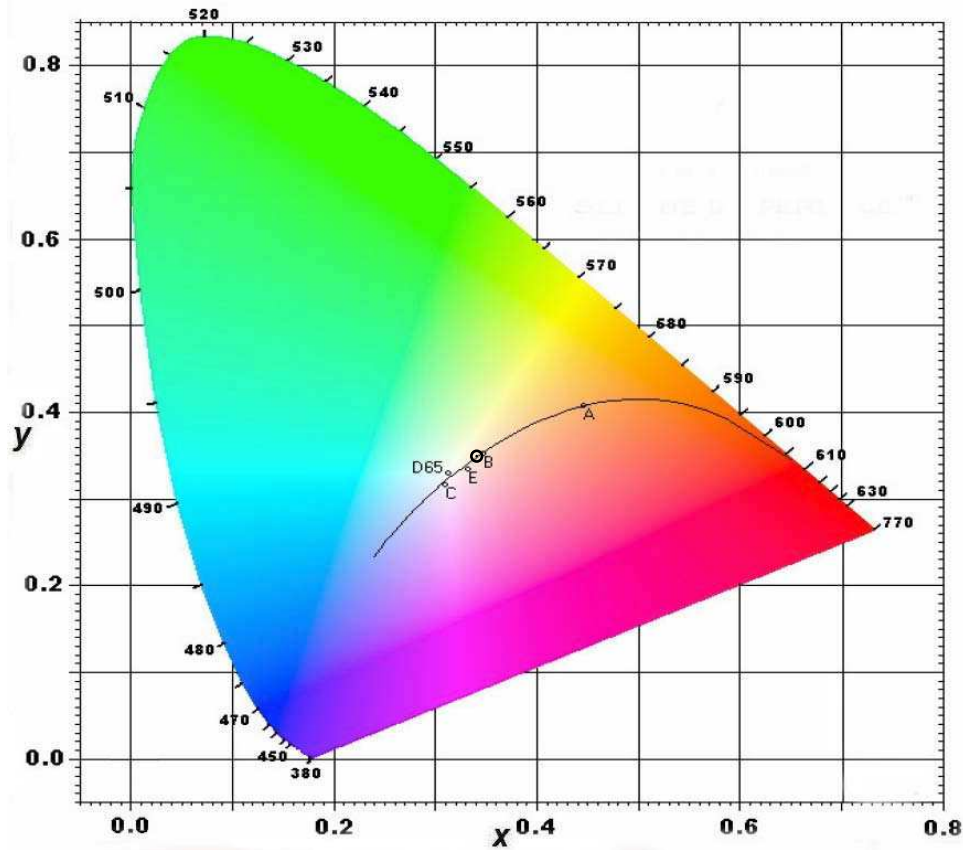


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CIE Chromaticity Diagram





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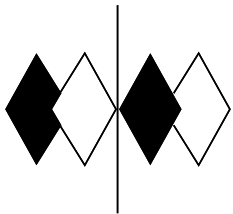
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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	6818 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3405
Chromaticity Ordinate y	0.3490
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2093
Chromaticity Ordinate v'	0.4827
Correlated Color Temp CCT (K)	5173
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	21027 *
Scotopic / Photopic Lumen Ratio	1.868
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.639
Input Power (Watts)	75.8
Input Power Factor (%)	98.9
EFFICACY (lumens/Watt)	89.9

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	75
R1 Light greyish red	73
R2 Dark greyish yellow	79
R3 Strong yellowish green	82
R4 Moderate yellowish green	76
R5 Light bluish green	74
R6 Light blue	72
R7 Light violet	82
R8 Light reddish purple	61
R9 Strong red	-15
R10 Strong yellow	50
R11 Strong green	73
R12 Strong blue	50
R13 Light yellowish pink (skin)	74
R14 Moderate olive green (leaf)	90

*NOTE: The total lumen output shown on this report was obtained from photometric test ITL84719



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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.605	515	76.935	650	44.641
385	0.690	520	85.725	655	39.876
390	0.819	525	92.449	660	35.523
395	1.125	530	97.562	665	31.502
400	1.761	535	101.308	670	27.807
405	3.158	540	104.072	675	24.483
410	6.110	545	106.388	680	21.518
415	11.677	550	108.247	685	18.834
420	21.187	555	109.765	690	16.439
425	36.403	560	111.122	695	14.347
430	58.528	565	111.852	700	12.535
435	86.109	570	112.060	705	10.920
440	115.707	575	111.761	710	9.506
445	147.168	580	110.781	715	8.276
450	163.013	585	109.236	720	7.228
455	140.279	590	106.951	725	6.290
460	98.193	595	103.869	730	5.472
465	68.382	600	100.182	735	4.749
470	48.521	605	95.766	740	4.145
475	34.542	610	90.590	745	3.614
480	27.583	615	85.025	750	3.153
485	26.057	620	78.966	755	2.765
490	28.338	625	72.705	760	2.417
495	34.351	630	66.608	765	2.107
500	43.630	635	60.724	770	1.847
505	54.877	640	55.137	775	1.619
510	66.317	645	49.717	780	1.420

