



LTL Number: 16704

Date: 09-24-2009

Prepared For: LEDnovation

Catalog Number: LEDA-19-40-1N-I

Lamp: One VBU 40 Watt A19 LED Replacement Lamp

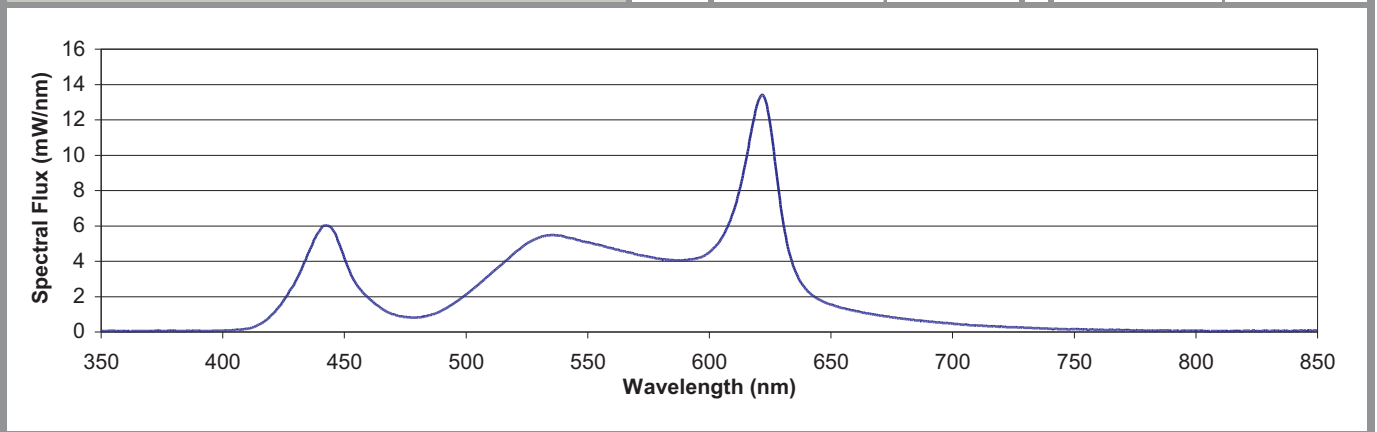
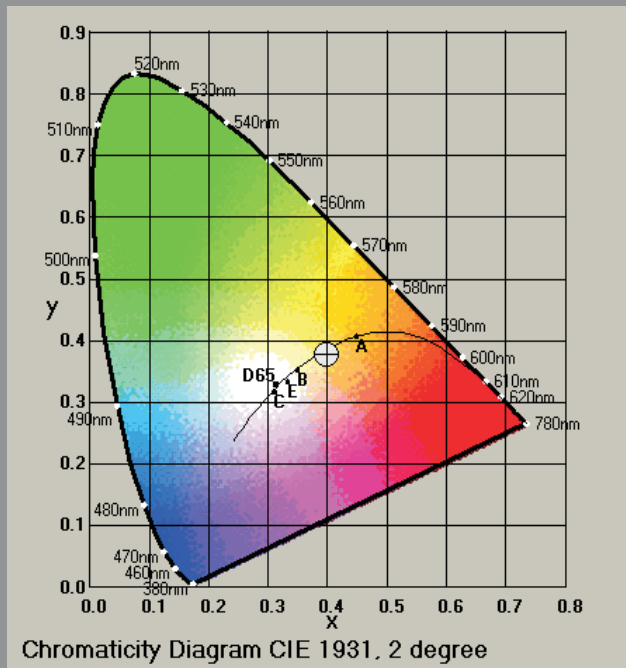
Lamp Catalog Number: LEDA-19-40-1N-I

LED Power Supply: Internal

Lamp Efficacy: 89.2 Lumens/Watt

Lamp Input Voltage	Lamp Current	Lamp Watts	Power Factor
120.0VAC	0.0352A	3.859W	0.913
Radiant Flux mW	Luminous Flux lumen	Corr. Color Temperature K	Color Rend. Index Ra
1029.683	344.356	3549	89
Chroma x	Chroma y	Chroma u	Chroma v
0.3984	0.378	0.2365	0.3365

Wavelength in nm	Spectral Flux in mW/nm	Wavelength in nm	Spectral Flux in mW/nm
350	0.0665	610	6.8474
360	0.0466	620	13.0180
370	0.0473	630	6.5069
380	0.0636	640	2.3799
390	0.0637	650	1.5452
400	0.0652	660	1.1848
410	0.1743	670	0.9228
420	0.9527	680	0.7375
430	2.8849	690	0.5849
440	5.7537	700	0.4719
450	4.1911	710	0.3687
460	1.9131	720	0.2998
470	0.9915	730	0.2286
480	0.8172	740	0.1850
490	1.2166	750	0.1552
500	2.1187	760	0.1154
510	3.2814	770	0.0945
520	4.4808	780	0.0819
530	5.3404	790	0.0654
540	5.3974	800	0.0718
550	5.0620	810	0.0555
560	4.7294	820	0.0646
570	4.3768	830	0.0527
580	4.1206	840	0.0695
590	4.0666	850	0.0730
600	4.5076		





LUMINAIRE TESTING LABORATORY, INC.

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905 Harrison Street · Allentown, PA 18103 · 610-770-1044 · Fax 610-770-8912 · www.LuminaireTesting.com

LTL NUMBER: 16700 DATE: 09-24-2009
 PREPARED FOR: LEDNOVATION
 CATALOG NUMBER: LEDA-19-40-1N-I
 LUMINAIRE: CAST ALUMINUM HOUSING, TRANSLUCENT WHITE ENCLOSURE.
 LAMP: ONE VBU 40 WATT A19 LED REPLACEMENT LAMP
 LAMP CATALOG NUMBER: LEDNOVATION LEDA-19-40-1N-I
 BALLAST: LED POWER SUPPLY: INTERNAL
 ELECTRICAL VALUES: 120.0VAC, 0.0353A, 3.870W, PF=0.912
 NOTE: THIS TEST WAS PERFORMED USING THE CALIBRATED
 PHOTODETECTOR METHOD OF ABSOLUTE PHOTOMETRY.*

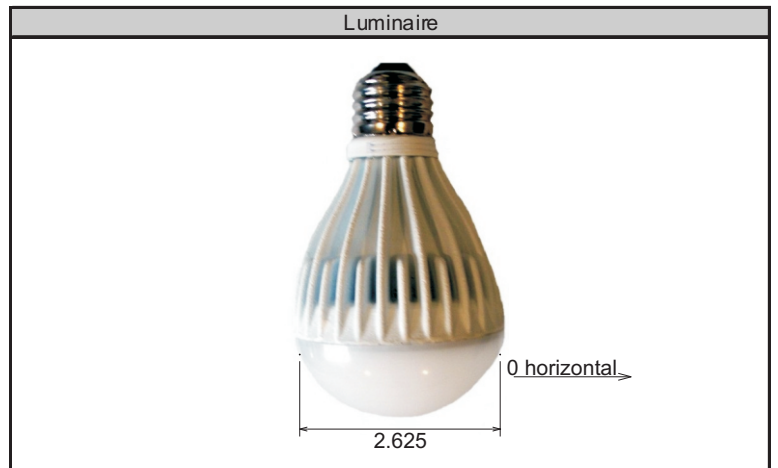
Candela Distribution

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	
5	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	6.3
15	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	18.3
25	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	28.5
35	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	35.9
45	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	40.2
55	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	41.3
65	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.4
75	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	35.0
85	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	29.2
90	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	
95	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	22.7
105	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	16.5
115	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
125	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.3
135	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.1
145	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.2
155	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2
165	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	53.1	N/A	15.9%
0-40	89.0	N/A	26.6%
0-60	170.5	N/A	50.9%
0-90	274.1	N/A	81.8%
90-180	60.9	N/A	18.2%
0-180	335.1	N/A	100.0%

Total lumen Output: 335.1 Lumens
 Luminaire efficacy: 86.6 Lumens per Watt
 CIE Type: Semi-Direct
 Spacing Criterion: 1.33



Approved By: MG

*DATA WAS ACQUIRED USING THE CALIBRATED PHOTODETECTOR METHOD OF ABSOLUTE PHOTOMETRY. A UDT MODEL #211 PHOTODETECTOR AND UDT MODEL #S370 OPTOMETER COMBINATION WERE USED AS A STANDARD. A SPECTRAL MISMATCH CORRECTION FACTOR WAS EMPLOYED BASED ON THE SPECTRAL RESPONSIVITY OF THE PHOTODETECTOR AND THE SPECTRAL POWER DISTRIBUTION OF THE TEST SUBJECT.

TESTING WAS PERFORMED IN ACCORDANCE WITH IES LM-79-08.
 TEST ANGULAR INCREMENTS AND REPORT FORMATTING WAS BASED ON IES LM-41-98 AND LM-46-04.



Candela Tabulation (5 degree Vertical Increments)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9	66.9
5	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7
10	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
15	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9	64.9
20	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4	63.4
25	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7
30	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6
35	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3	57.3
40	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8	54.8
45	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0
50	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1
55	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1
60	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9
65	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7
70	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4
75	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1	33.1
80	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
85	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
90	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7
95	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
100	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1
105	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
110	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
115	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
120	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
125	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
130	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
135	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
140	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
145	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
150	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
155	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
165	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	1.6	45-50	20.4	90-95	12.2	135-140	1.2
5-10	4.7	50-55	20.7	95-100	10.6	140-145	0.8
10-15	7.8	55-60	20.6	100-105	9.0	145-150	0.4
15-20	10.6	60-65	20.1	105-110	7.5	150-155	0.2
20-25	13.1	65-70	19.3	110-115	6.1	155-160	0.1
25-30	15.3	70-75	18.2	115-120	4.8	160-165	0.0
30-35	17.2	75-80	16.9	120-125	3.7	165-170	0.0
35-40	18.7	80-85	15.4	125-130	2.7	170-175	0.0
40-45	19.8	85-90	13.8	130-135	1.9	175-180	0.0



Utilization of Lumens - Zonal Cavity Method												
Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **											
0	401.2	401.2	401.2	401.2	384.4	384.4	384.4	384.4	368.3	368.3	368.3	368.3
1	354.8	331.3	310.5	291.8	337.9	316.9	298	281.1	322	303.1	286.1	270.7
2	318.6	281.9	251.9	226.9	302.6	269.6	242.3	219.4	287.4	257.8	233	211.9
3	288.1	243.6	209.6	182.9	273.2	233	202	177.2	259.1	222.9	194.5	171.6
4	262.2	213.2	178	151.4	248.5	204.1	171.7	146.9	235.5	195.5	165.6	142.5
5	239.9	188.6	153.5	127.9	227.4	180.8	148.3	124.3	215.6	173.3	143.2	120.8
6	220.5	168.4	134.1	109.9	209.2	161.7	129.8	106.9	198.5	155.1	125.5	104
7	203.6	151.6	118.6	95.71	193.3	145.7	114.9	93.23	183.6	140	111.2	90.78
8	188.8	137.4	105.8	84.3	179.5	132.3	102.6	82.2	170.6	127.3	99.46	80.11
9	175.8	125.4	95.16	75	167.3	120.8	92.4	73.19	159.2	116.4	89.68	71.39
10	164.3	115.1	86.23	67.26	156.5	111	83.81	65.7	149.2	107.1	81.44	64.14

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **										
0	338.4	338.4	338.4	338.4	311.1	311.1	311.1	285.9	285.9	285.9	274.1
1	292.3	277.2	263.5	250.8	253.5	242.5	232.3	231.6	222.9	214.8	203
2	259.4	235.6	215.2	197.6	215.1	198.6	184	196.2	182.9	171	159.7
3	233.2	203.8	180.2	160.7	186.2	166.6	150.2	169.8	153.8	140	129.5
4	211.8	179	153.9	133.9	163.8	142.7	125.6	149.6	132	117.4	107.5
5	194	159.1	133.5	113.8	145.9	124.1	107	133.5	115.1	100.3	91.13
6	178.8	142.8	117.3	98.24	131.2	109.3	92.58	120.4	101.7	87.03	78.48
7	165.7	129.2	104.2	85.92	119	97.34	81.15	109.5	90.77	76.45	68.49
8	154.4	117.7	93.37	75.98	108.8	87.48	71.91	100.4	81.78	67.89	60.47
9	144.4	108	84.38	67.83	100	79.24	64.32	92.53	74.25	60.84	53.93
10	135.6	99.59	76.79	61.05	92.49	72.27	58	85.78	67.89	54.98	48.51

Average Luminance Table (cd/m²)

	0	45	90
0	19172	19172	19172
45	21061	21061	21061
55	23732	23732	23732
65	22383	22383	22383
75	21231	21231	21231
85	20633	20633	20633

THIS TEST WAS CONDUCTED USING PHOTOMETRY TECHNIQUES ACCORDING TO STANDARD IES PROCEDURES. THE USER MUST THEREFORE USE CAUTION IN THE FOLLOWING SITUATIONS: 1) THIS TEST WAS PERFORMED USING A SPECIFIC BALLAST/LAMP COMBINATION. EXTRAPOLATION OF THESE DATA FOR OTHER BALLAST/LAMP COMBINATIONS MAY PRODUCE ERRONEOUS RESULTS. 2) THIS TEST WAS CONDUCTED IN A CONTROLLED LABORATORY ENVIRONMENT WHERE THE AMBIENT TEMPERATURE WAS HELD AT 25°C ±1°C. FIELD PERFORMANCE MAY DIFFER PARTICULARLY IN REGARDS TO CHANGE IN LUMINOUS OUTPUT AS A RESULT OF DIFFERENCE IN AMBIENT TEMPERATURE AND METHOD OF MOUNTING THE LUMINAIRE.

