



LTL Number: 16706

Date: 09-24-2009

Prepared For: LEDnovation

Catalog Number: LEDA-19-60-1N-I

Lamp: One VBU 60 Watt A19 LED Replacement Lamp

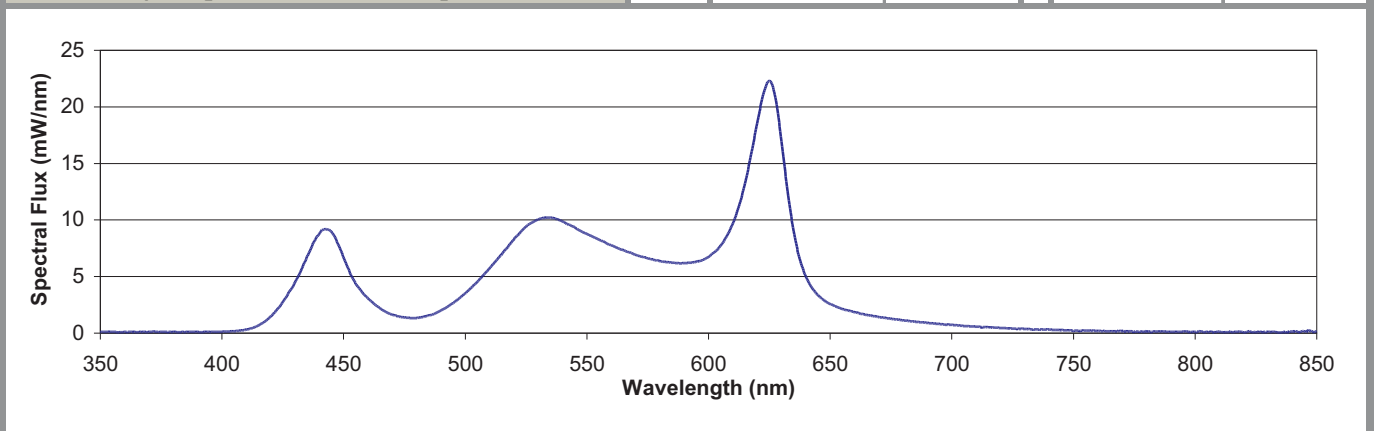
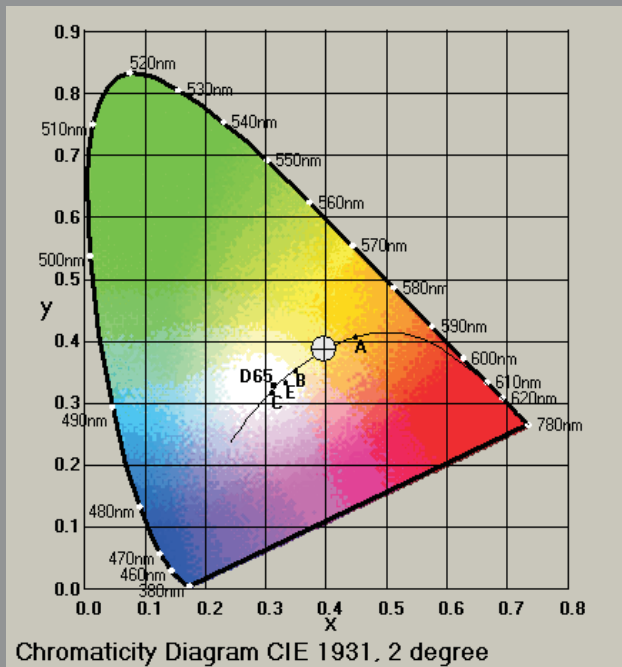
Lamp Catalog Number: LEDA-19-60-1N-I

LED Power Supply: Internal

Lamp Efficacy: 76.6 Lumens/Watt

Lamp Input Voltage	Lamp Current	Lamp Watts	Power Factor
120.0VAC	0.0685A	7.563W	0.920
Radiant Flux mW	Luminous Flux lumen	Corr.Color Temperature K	Color Rend. Index Ra
1727.501	579.550	3686	86.1
Chroma x	Chroma y	Chroma u	Chroma v
0.3962	0.3883	0.2308	0.3393

Wavelength in nm	Spectral Flux in mW/nm	Wavelength in nm	Spectral Flux in mW/nm
350	0.0905	610	9.6903
360	0.1003	620	18.5580
370	0.1020	630	16.9280
380	0.1027	640	5.0104
390	0.1097	650	2.5851
400	0.1195	660	1.8447
410	0.2998	670	1.4170
420	1.4812	680	1.1229
430	4.4661	690	0.9034
440	8.7557	700	0.7241
450	6.7001	710	0.5795
460	3.0766	720	0.4520
470	1.6234	730	0.3804
480	1.3364	740	0.3087
490	1.9998	750	0.2113
500	3.5331	760	0.1695
510	5.7421	770	0.1700
520	8.2898	780	0.1265
530	10.0530	790	0.1056
540	9.8674	800	0.1182
550	8.7759	810	0.1344
560	7.7711	820	0.0522
570	6.9158	830	0.0898
580	6.3588	840	0.1311
590	6.1946	850	0.1781
600	6.7398		





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LTL NUMBER: 16702

DATE: 09-24-2009

PREPARED FOR: LEDNOVATION

CATALOG NUMBER: LEDA-19-60-1N-I

LUMINAIRE: CAST ALUMINUM HOUSING, TRANSLUCENT WHITE ENCLOSURE.

LAMP: ONE VBU 60 WATT A19 LED REPLACEMENT LAMP

LAMP CATALOG NUMBER: LEDNOVATION LEDA-19-60-1N-I

BALLAST: LED POWER SUPPLY: INTERNAL

ELECTRICAL VALUES: 120.0VAC, 0.0686A, 7.570W, PF=0.920

NOTE: THIS TEST WAS PERFORMED USING THE CALIBRATED
PHOTODETECTOR METHOD OF ABSOLUTE PHOTOMETRY.*

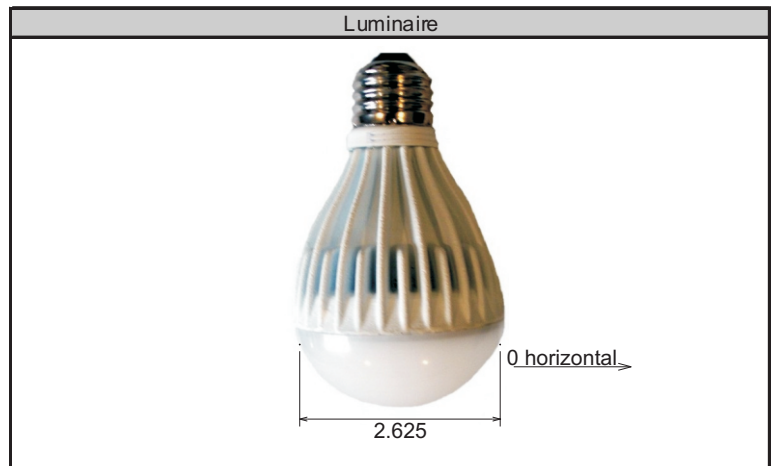
Candela Distribution

	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	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	
5	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	10.7
15	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	30.9
25	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	47.9
35	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	60.3
45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	67.6
55	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	69.3
65	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66.1
75	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	58.7
85	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	48.8
90	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
95	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	37.9
105	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	27.4
115	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18.0
125	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10.4
135	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5.0
145	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1.9
155	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4
165	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
180	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	89.4	N/A	15.9%
0-40	149.8	N/A	26.7%
0-60	286.6	N/A	51.1%
0-90	460.3	N/A	82.0%
90-180	101.0	N/A	18.0%
0-180	561.2	N/A	100.0%

Total lumen Output 561.2 Lumens
Luminaire efficacy: 74.1 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.



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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	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113
5	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112
10	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
15	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109
20	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107
25	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
30	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
35	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
40	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
50	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
55	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
60	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
65	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
70	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
75	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
80	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
85	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
90	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
95	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
100	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
105	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
110	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
115	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
120	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
125	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
130	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
135	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
140	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
145	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
150	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
155	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	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
175	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

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	2.7	45-50	34.3	90-95	20.3	135-140	2.0
5-10	8.0	50-55	34.8	95-100	17.6	140-145	1.2
10-15	13.1	55-60	34.6	100-105	14.9	145-150	0.7
15-20	17.8	60-65	33.7	105-110	12.4	150-155	0.3
20-25	22.1	65-70	32.3	110-115	10.1	155-160	0.1
25-30	25.8	70-75	30.5	115-120	7.9	160-165	0.0
30-35	28.9	75-80	28.2	120-125	6.0	165-170	0.0
35-40	31.4	80-85	25.7	125-130	4.4	170-175	0.0
40-45	33.2	85-90	23.1	130-135	3.0	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	672.1	672.1	672.1	672.1	644.1	644.1	644.1	644.1	617.4	617.4	617.4	617.4
1	594.5	555.2	520.3	489	566.4	531.1	499.6	471.1	539.7	508.1	479.6	453.8
2	533.9	472.4	422.2	380.4	507.1	451.9	406.2	367.7	481.8	432.2	390.6	355.4
3	482.7	408.2	351.3	306.6	457.9	390.6	338.5	297.1	434.4	373.7	326.1	287.8
4	439.3	357.3	298.3	253.7	416.4	342.2	287.8	246.3	394.9	327.7	277.7	239
5	401.9	316.1	257.3	214.4	381.1	303.1	248.6	208.4	361.4	290.6	240.2	202.5
6	369.5	282.3	224.9	184.2	350.6	271	217.6	179.3	332.7	260.2	210.5	174.4
7	341.2	254.1	198.7	160.5	324	244.3	192.6	156.4	307.8	234.8	186.5	152.3
8	316.5	230.4	177.3	141.4	300.8	221.8	172	137.9	286.1	213.4	166.8	134.4
9	294.6	210.2	159.6	125.8	280.4	202.6	155	122.8	267	195.2	150.4	119.8
10	275.3	192.9	144.6	112.8	262.4	186.2	140.6	110.2	250.1	179.6	136.6	107.6

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	567.5	567.5	567.5	567.5	521.9	521.9	521.9	480	480	480	460.3
1	490.2	465	441.9	420.8	425.4	406.9	389.8	388.8	374.3	360.7	341
2	435.1	395.2	361.1	331.6	361.1	333.3	308.9	329.5	307.2	287.2	268.4
3	391.1	341.9	302.3	269.6	312.5	279.7	252.1	285.3	258.3	235.3	217.6
4	355.3	300.3	258.1	224.7	274.9	239.5	210.8	251.3	221.7	197.3	180.8
5	325.4	266.9	223.9	191	244.9	208.3	179.7	224.3	193.4	168.6	153.2
6	299.9	239.5	196.8	164.9	220.3	183.6	155.5	202.3	170.8	146.3	132
7	278	216.8	174.8	144.2	199.9	163.5	136.3	184	152.5	128.5	115.2
8	258.9	197.5	156.7	127.5	182.6	146.9	120.8	168.6	137.4	114.1	101.7
9	242.2	181.2	141.6	113.9	167.9	133.1	108	155.4	124.8	102.3	90.7
10	227.5	167.1	128.9	102.5	155.3	121.4	97.44	144.1	114.1	92.42	81.59

Average Luminance Table (cd/m²)

	0	45	90
0	32298	32298	32298
45	35379	35379	35379
55	39870	39870	39870
65	37566	37566	37566
75	35580	35580	35580
85	34497	34497	34497

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.

