

TOMAR Electronics, Inc.

IES INDOOR REPORT

PHOTOMETRIC FILENAME : TLB96NHNPGR1 SERIES NARROW ANGLE HI EFFICACY 480VAC.IES

DESCRIPTION INFORMATION (From Photometric File)

[IESNA]LM-63-2002

[TEST]17762-G

[TESTLAB]Cree Inc. - Durham Technology Center

[ISSUEDATE] 5/ 8/2015

[MANUFAC]Tomar

[LUMCAT]Highbay model TLB96NHNPGR1

[LUMINAIRE]Circular 8 LED Arrays on Heatsink with reflector and glass protective cover

[LAMP]Cree

[LAMPCAT]96 CREE XM-L2. LUMINAIRE OUTPUT = 36999 LM

[OTHER]Tested at 480 VAC at 60 Hz and 319.6W.

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	36999
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	116
Total Luminaire Watts	319.6
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.12
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.60
Basic Luminous Shape	Circular
Luminous Length (0-180)	1.75 ft (Diameter)
Luminous Width (90-270)	1.75 ft (Diameter)
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	86349	84992	89038
55	52977	49662	48617
65	30471	30799	28794
75	11881	11909	10795
85	2047	1801	1436

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CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>	<u>202.5</u>
0.0	13274.4	13274.4	13274.4	13274.4	13274.4	13274.4	13274.4	13274.4	13274.4	13274.4
2.5	13303.4	13255.3	13285.7	13261.0	13283.2	13272.0	13291.9	13245.1	13311.5	13245.1
5.0	13312.4	13243.6	13245.5	13227.4	13293.6	13247.0	13280.4	13255.6	13281.0	13255.6
7.5	13269.3	13196.3	13207.3	13209.8	13217.9	13176.1	13158.5	13166.2	13203.9	13166.2
10.0	13123.0	13035.4	13044.3	12992.9	12963.0	12855.4	12821.3	12848.4	12795.0	12848.4
12.5	12581.1	12505.3	12469.8	12412.8	12303.0	12197.0	12158.8	12128.1	12075.0	12128.1
15.0	11775.8	11694.7	11639.0	11519.7	11489.5	11321.9	11327.8	11221.2	11316.5	11221.2
17.5	10861.9	10798.4	10733.9	10681.4	10601.7	10488.3	10444.4	10376.0	10399.9	10376.0
20.0	10083.4	10065.0	9964.2	9997.8	9970.1	9973.1	9825.0	9829.5	9827.3	9829.5
22.5	9715.6	9780.4	9697.6	9789.1	9855.5	9909.1	9628.8	9712.3	9830.8	9712.3
25.0	9666.2	9873.1	9788.5	9930.8	9988.7	10049.7	9694.9	9905.4	10028.4	9905.4
27.5	9780.8	10121.9	9956.8	10247.7	10138.5	10450.9	9815.6	10363.7	10163.1	10363.7
30.0	9972.7	10584.3	10132.3	10707.5	10370.0	10953.7	10012.9	10824.2	10353.4	10824.2
32.5	10189.1	11083.8	10467.6	11255.8	10801.3	11497.3	10395.4	11333.1	10841.4	11333.1
35.0	10733.9	11644.2	11089.5	11902.7	11588.5	12158.3	11139.5	11911.5	11786.7	11911.5
37.5	11676.1	12683.6	11962.5	12934.0	12572.5	13451.1	12007.5	13165.4	13067.9	13165.4
40.0	12833.5	14114.5	12877.3	14404.1	13574.6	14849.6	12886.8	14761.7	14270.0	14761.7
42.5	13639.1	15228.1	13515.7	15452.5	14133.2	15643.9	13254.8	15617.8	14642.0	15617.8
45.0	13656.7	15473.9	13442.0	15603.5	14082.0	15497.2	12937.5	15274.1	14183.7	15274.1
47.5	12929.1	14492.5	12432.0	14511.0	12968.3	14144.7	11917.9	13916.0	12841.0	13916.0
50.0	11440.4	12441.1	10568.3	12278.3	10839.9	11684.4	10016.0	11706.3	10509.7	11706.3
52.5	9173.7	9544.1	8196.7	9204.0	8200.5	8683.2	7704.4	8628.8	7661.7	8628.8
55.0	6796.5	6848.7	6371.1	6521.9	6237.1	6211.9	6052.7	6132.4	5906.4	6132.4
57.5	5517.1	5183.6	5345.4	4972.7	5249.2	4864.9	5138.1	4761.7	5020.5	4761.7
60.0	4631.4	4240.3	4571.1	4141.9	4416.0	4098.9	4326.9	3984.1	4192.8	3984.1
62.5	3740.6	3562.2	3724.0	3480.9	3516.6	3413.9	3422.3	3281.3	3265.7	3281.3
65.0	2880.3	2929.3	2911.3	2862.9	2721.8	2783.7	2658.4	2668.7	2515.3	2668.7
67.5	2186.8	2297.3	2193.2	2230.5	2044.6	2103.0	1930.8	1979.2	1847.2	1979.2
70.0	1519.8	1575.6	1492.8	1515.8	1365.1	1393.9	1245.9	1326.5	1193.2	1326.5
72.5	1006.4	1084.2	976.9	1040.6	898.9	956.2	844.3	913.4	819.9	913.4
75.0	687.8	713.2	689.4	677.8	624.9	627.3	606.3	605.3	580.0	605.3
77.5	496.4	491.4	507.2	465.8	467.1	429.3	445.5	403.9	421.0	403.9
80.0	341.9	264.0	358.8	253.1	320.1	205.9	282.8	183.3	276.7	183.3
82.5	156.6	117.8	141.4	113.8	116.7	81.0	90.8	75.8	86.4	75.8
85.0	39.9	35.5	35.1	32.4	28.0	22.4	19.5	21.1	20.0	21.1
87.5	7.8	9.2	6.9	7.7	5.4	4.2	3.7	4.0	3.6	4.0
90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Vert. Angles **Horizontal Angles**

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0.0	13274.4	13274.4	13274.4	13274.4	13274.4	13274.4	13274.4
2.5	13291.9	13272.0	13283.2	13261.0	13285.7	13255.3	13303.4
5.0	13280.4	13247.0	13293.6	13227.4	13245.5	13243.6	13312.4
7.5	13158.5	13176.1	13217.9	13209.8	13207.3	13196.3	13269.3
10.0	12821.3	12855.4	12963.0	12992.9	13044.3	13035.4	13123.0
12.5	12158.8	12197.0	12303.0	12412.8	12469.8	12505.3	12581.1
15.0	11327.8	11321.9	11489.5	11519.7	11639.0	11694.7	11775.8
17.5	10444.4	10488.3	10601.7	10681.4	10733.9	10798.4	10861.9
20.0	9825.0	9973.1	9970.1	9997.8	9964.2	10065.0	10083.4
22.5	9628.8	9909.1	9855.5	9789.1	9697.6	9780.4	9715.6
25.0	9694.9	10049.7	9988.7	9930.8	9788.5	9873.1	9666.2
27.5	9815.6	10450.9	10138.5	10247.7	9956.8	10121.9	9780.8
30.0	10012.9	10953.7	10370.0	10707.5	10132.3	10584.3	9972.7

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32.5	10395.4	11497.3	10801.3	11255.8	10467.6	11083.8	10189.1
35.0	11139.5	12158.3	11588.5	11902.7	11089.5	11644.2	10733.9
37.5	12007.5	13451.1	12572.5	12934.0	11962.5	12683.6	11676.1
40.0	12886.8	14849.6	13574.6	14404.1	12877.3	14114.5	12833.5
42.5	13254.8	15643.9	14133.2	15452.5	13515.7	15228.1	13639.1
45.0	12937.5	15497.2	14082.0	15603.5	13442.0	15473.9	13656.7
47.5	11917.9	14144.7	12968.3	14511.0	12432.0	14492.5	12929.1
50.0	10016.0	11684.4	10839.9	12278.3	10568.3	12441.1	11440.4
52.5	7704.4	8683.2	8200.5	9204.0	8196.7	9544.1	9173.7
55.0	6052.7	6211.9	6237.1	6521.9	6371.1	6848.7	6796.5
57.5	5138.1	4864.9	5249.2	4972.7	5345.4	5183.6	5517.1
60.0	4326.9	4098.9	4416.0	4141.9	4571.1	4240.3	4631.4
62.5	3422.3	3413.9	3516.6	3480.9	3724.0	3562.2	3740.6
65.0	2658.4	2783.7	2721.8	2862.9	2911.3	2929.3	2880.3
67.5	1930.8	2103.0	2044.6	2230.5	2193.2	2297.3	2186.8
70.0	1245.9	1393.9	1365.1	1515.8	1492.8	1575.6	1519.8
72.5	844.3	956.2	898.9	1040.6	976.9	1084.2	1006.4
75.0	606.3	627.3	624.9	677.8	689.4	713.2	687.8
77.5	445.5	429.3	467.1	465.8	507.2	491.4	496.4
80.0	282.8	205.9	320.1	253.1	358.8	264.0	341.9
82.5	90.8	81.0	116.7	113.8	141.4	117.8	156.6
85.0	19.5	22.4	28.0	32.4	35.1	35.5	39.9
87.5	3.7	4.2	5.4	7.7	6.9	9.2	7.8
90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	4458.46	N.A.	12.10
0-30	9094.62	N.A.	24.60
0-40	16568.38	N.A.	44.80
0-60	33397.17	N.A.	90.30
0-80	36923.39	N.A.	99.80
0-90	36998.68	N.A.	100.00
10-90	35741.64	N.A.	96.60
20-40	12109.92	N.A.	32.70
20-50	22762.61	N.A.	61.50
40-70	19592.27	N.A.	53.00
60-80	3526.22	N.A.	9.50
70-80	762.75	N.A.	2.10
80-90	75.28	N.A.	0.20
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	36998.68	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	1257.04
10-20	3201.43
20-30	4636.16
30-40	7473.76
40-50	10652.69
50-60	6176.1
60-70	2763.48
70-80	762.75
80-90	75.28
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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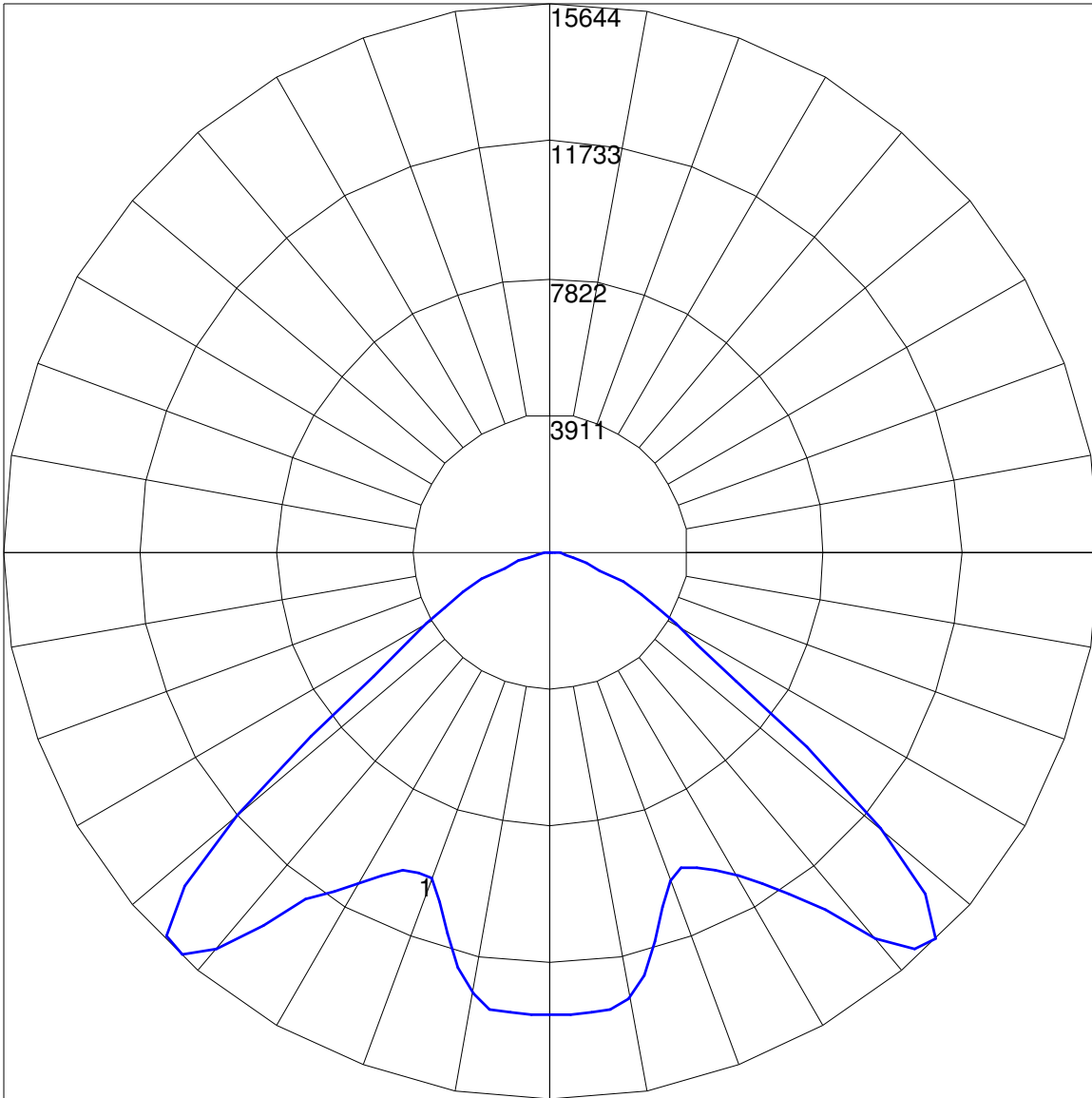
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	116	111	111	111	106	106	106	102	102	102	100
1	110	106	103	99	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87	87
2	101	94	88	83	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74	74
3	93	83	75	70	70	90	81	74	69	79	73	68	76	71	67	73	69	65	63	63
4	85	74	65	59	59	83	72	65	59	70	63	58	68	62	57	65	60	56	54	54
5	78	66	57	51	51	76	65	56	50	62	55	50	61	54	49	59	53	49	47	47
6	72	59	50	44	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41	41
7	66	53	45	39	39	65	52	44	38	51	43	38	49	43	38	48	42	38	36	36
8	62	48	40	34	34	60	47	39	34	46	39	34	45	38	33	44	38	33	31	31
9	57	44	36	30	30	56	43	36	30	42	35	30	41	35	30	40	34	30	28	28
10	53	40	32	27	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25	25

POLAR GRAPH



Maximum Candela = 15643.9 Located At Horizontal Angle = 112.5, Vertical Angle = 42.5
1 - Vertical Plane Through Horizontal Angles (112.5 - 292.5) (Through Max. Cd.)