Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
+1.508.678.2303

Spectrum Lighting Photometric Lab

Luminaire

DMD22GY 220L 35K xx AL22 MWI BC22 CNFR xx

Nom 22" diam round high bay with aluminum shade, matte white inside and frosted conical lens

Test Number

SP-01567_2

Test Date

9/18/2023

The results contained in this report pertain only to this IES file.

Summary of Results

Power

Input Watts	171 W

Lumen Output

Output Lumens	19774
Efficacy	115.63 lm/W

Luminous Dimensions

0° - 180° Size	-1.83
90° - 270° Size	-1.83
Height	0.77

Spacing Criterion

Two luminaires, plane 0°	1.4
Two luminaires, plane 90°	1.41
Four luminaires	1.41

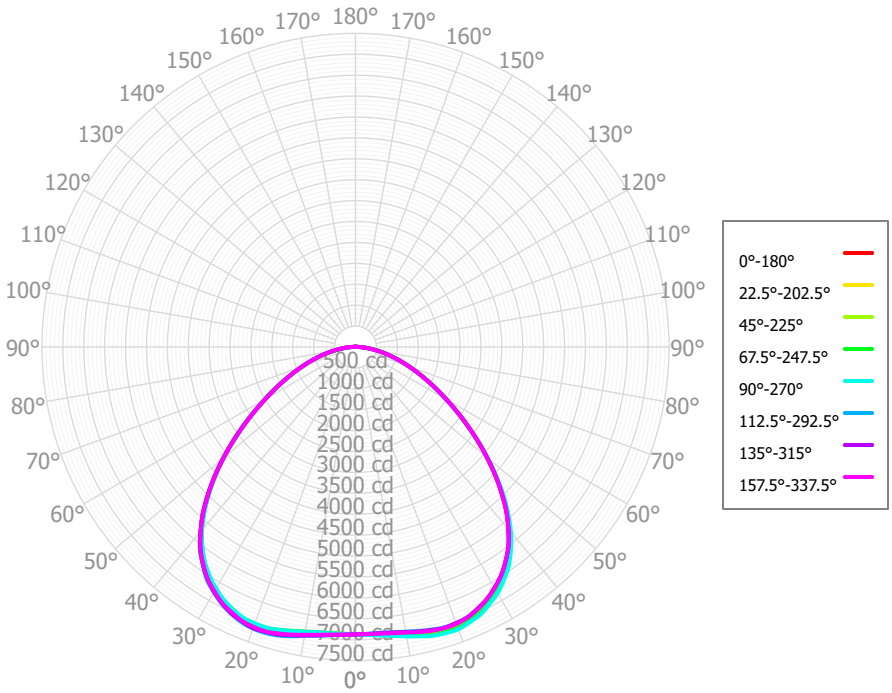
Full Beam Angle

0° - 180°	106°
90° - 270°	106°

IES File Header Contents

Keyword	Value
TEST	SP-01567_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/18/2023
ISSUEDATE	9/19/2023
LUMCAT	DMD22GY 220L 35K xx AL22 MWI BC22 CNFR xx
LUMINAIRE	Nom 22" diam round high bay with aluminum shade, matte white inside and frosted conical lens
LAMPCAT	N/A
LAMP	N/A
OTHER	Beam Angle: 106 deg
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80+
_CCTMULT	40K x 1.01
_LAMPMULT	160L x 0.73, 200L x 0.91

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	670.83	3.39%	90.00° - 100.00°	30.91	0.16%
10.00° - 20.00°	2001.89	10.12%	100.00° - 110.00°	3.07	0.02%
20.00° - 30.00°	3209.27	16.23%	100.00° - 120.00°	6.51	0.03%
30.00° - 40.00°	3930.84	19.88%	120.00° - 130.00°	3.59	0.02%
40.00° - 50.00°	3812.84	19.28%	130.00° - 140.00°	3.38	0.02%
50.00° - 60.00°	2922.91	14.78%	140.00° - 150.00°	3.11	0.02%
60.00° - 70.00°	1871.16	9.46%	150.00° - 160.00°	2.40	0.01%
70.00° - 80.00°	983.30	4.97%	160.00° - 170.00°	1.61	0.01%
80.00° - 90.00°	318.45	1.61%	170.00° - 180.00°	0.56	0.00%
0.00° - 90.00°	19721.49	99.74%	0.00° - 180.00°	19773.54	100.00%

Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°	112.50°	135.00°	157.50°	180.00°	202.50°	225.00°	247.50°	270.00°	292.50°	315.00°	337.50°	360.00°
0.00°	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89	6876.89
2.50°	6882.45	6885.60	6890.94	6892.73	6896.90	6896.21	6892.13	6886.76	6885.62	6874.38	6874.64	6866.31	6870.98	6868.12	6870.62	6877.46	6882.45
5.00°	6891.70	6901.77	6907.70	6916.11	6927.38	6918.79	6915.68	6906.66	6896.86	6885.61	6874.94	6868.40	6876.17	6862.76	6875.14	6881.67	6891.70
7.50°	6922.47	6938.25	6950.39	6959.53	6971.22	6963.19	6957.66	6945.06	6927.65	6909.72	6895.38	6880.24	6885.33	6886.21	6887.36	6907.12	6922.47
10.00°	6959.43	6980.37	6997.43	7010.32	7029.87	7015.29	7008.08	6991.76	6965.50	6949.77	6924.11	6912.96	6922.47	6914.88	6924.29	6935.57	6959.43
12.50°	7012.07	7035.71	7058.02	7073.27	7091.08	7087.68	7064.76	7047.97	7025.78	7000.25	6974.63	6956.60	6962.33	6959.76	6971.75	6985.41	7012.07
15.00°	7054.09	7090.45	7106.90	7138.17	7153.99	7143.18	7122.85	7095.86	7077.94	7048.20	7021.73	7005.92	7006.18	7001.34	7010.08	7030.17	7054.09
17.50°	7080.86	7103.67	7136.23	7152.32	7177.56	7174.05	7143.76	7138.14	7116.13	7095.23	7063.87	7056.76	7041.83	7037.32	7046.57	7052.01	7080.86
20.00°	7068.45	7104.22	7125.37	7157.22	7186.87	7166.83	7156.88	7125.67	7116.47	7083.32	7064.09	7043.00	7039.09	7034.90	7028.35	7051.08	7068.45
22.50°	7022.53	7044.58	7074.76	7098.98	7131.11	7126.44	7100.48	7092.78	7078.80	7062.40	7027.90	7020.33	7012.20	6994.58	7000.98	7000.10	7022.53
25.00°	6935.38	6965.44	6985.02	7025.61	7065.22	7039.55	7030.54	7005.20	6999.79	6966.43	6946.08	6932.47	6930.02	6911.74	6905.66	6919.72	6935.38
27.50°	6827.97	6841.92	6872.71	6907.66	6936.95	6929.33	6908.08	6908.44	6896.17	6863.04	6841.08	6832.85	6819.63	6804.45	6798.53	6802.56	6827.97
30.00°	6674.39	6692.89	6715.67	6766.39	6800.51	6775.10	6765.04	6748.65	6745.55	6709.37	6686.99	6677.94	6672.69	6651.72	6650.42	6654.17	6674.39
32.50°	6509.41	6510.50	6544.93	6587.27	6607.95	6609.45	6581.42	6579.61	6579.94	6538.52	6520.21	6503.67	6492.62	6484.85	6478.63	6482.44	6509.41
35.00°	6273.67	6284.22	6306.06	6360.30	6391.98	6368.16	6358.66	6347.66	6346.75	6317.48	6288.37	6285.65	6286.90	6259.45	6263.21	6256.53	6273.67
37.50°	6027.40	6023.66	6056.99	6087.24	6106.73	6115.16	6091.36	6091.13	6103.45	6058.74	6046.19	6027.43	6016.00	6024.73	6003.43	6007.43	6027.40
40.00°	5696.31	5699.91	5713.62	5752.84	5785.87	5768.96	5765.82	5759.82	5763.89	5740.12	5713.82	5717.67	5716.51	5695.67	5695.54	5682.35	5696.31
42.50°	5351.85	5348.16	5359.83	5384.07	5407.91	5409.53	5400.78	5397.11	5413.04	5377.51	5367.98	5356.77	5344.09	5355.74	5337.31	5341.89	5351.85
45.00°	4950.08	4946.83	4948.38	4970.52	5000.40	4991.84	4991.58	4982.18	4996.09	4973.34	4961.66	4956.70	4956.35	4955.96	4947.07	4936.03	4950.08
47.50°	4540.04	4534.93	4531.41	4543.77	4564.75	4566.34	4565.53	4554.43	4572.14	4548.34	4545.37	4531.76	4532.44	4546.81	4529.03	4525.87	4540.04
50.00°	4112.45	4106.94	4100.59	4104.59	4123.69	4123.71	4124.01	4114.21	4129.99	4111.91	4107.28	4095.88	4106.48	4113.75	4101.38	4097.74	4112.45
52.50°	3689.59	3679.44	3674.21	3664.90	3679.64	3688.40	3679.87	3678.88	3693.13	3683.30	3675.25	3667.60	3676.86	3686.71	3680.71	3673.56	3689.59
55.00°	3272.52	3266.15	3254.15	3251.67	3261.97	3262.26	3264.98	3246.36	3263.95	3256.97	3250.76	3240.92	3255.93	3268.22	3261.16	3263.16	3272.52
57.50°	2884.29	2865.74	2866.24	2849.03	2852.11	2867.06	2857.57	2855.48	2866.86	2868.12	2859.77	2855.33	2866.97	2877.87	2881.15	2870.73	2884.29
60.00°	2516.92	2513.31	2505.28	2502.11	2502.45	2494.68	2504.94	2477.29	2497.46	2485.54	2493.75	2477.11	2499.74	2511.40	2509.21	2511.62	2516.92
62.50°	2191.93	2181.40	2184.81	2171.38	2161.11	2170.12	2167.27	2161.78	2169.44	2170.97	2167.77	2158.33	2173.73	2186.76	2191.08	2181.01	2191.93
65.00°	1884.38	1888.78	1884.11	1880.06	1877.63	1865.70	1875.39	1854.88	1861.97	1864.11	1858.60	1850.60	1870.78	1882.50	1885.39	1881.03	1884.38
67.50°	1619.23	1617.10	1622.38	1607.90	1601.49	1603.43	1600.73	1593.50	1594.88	1596.32	1591.87	1582.81	1593.49	1613.12	1614.79	1610.58	1619.23
70.00°	1362.18	1368.95	1370.16	1362.29	1363.17	1349.46	1354.86	1338.38	1338.14	1341.13	1333.70	1329.64	1345.79	1352.42	1361.54	1359.01	1362.18
72.50°	1144.28	1143.62	1151.45	1138.75	1135.29	1133.62	1129.48	1117.73	1121.09	1116.42	1113.37	1104.29	1117.44	1133.16	1135.47	1135.84	1144.28
75.00°	930.53	933.34	937.21	933.22	932.50	922.18	924.14	907.77	908.73	905.50	897.18	895.85	912.52	918.58	926.34	922.57	930.53
77.50°	742.57	746.27	752.92	747.74	742.12	738.88	736.79	724.60	723.35	713.32	707.97	706.02	716.15	728.62	732.80	734.14	742.57
80.00°	563.19	567.75	574.94	571.60	568.74	563.16	559.84	554.05	544.45	541.52	528.50	533.84	545.71	546.60	559.30	549.37	563.19
82.50°	412.44	419.86	423.05	423.49	418.48	413.82	412.15	401.42	393.73	386.25	382.95	373.24	379.33	398.09	396.48	406.36	412.44
85.00°	279.18	276.89	287.02	281.95	287.14	282.01	273.44	275.58	260.48	263.74	254.17	254.25	264.26	265.71	273.92	269.73	279.18
87.50°	177.17	183.63	184.28	187.32	186.34	182.14	180.89	172.13	164.65	156.38	155.90	150.22	155.78	167.68	162.68	176.14	177.17
90.00°	98.67	96.70	103.89	98.91	99.81	103.41	94.74	98.76	89.67	89.71	81.97	85.57	91.16	92.07	96.55	94.49	98.67
92.50°	44.96	51.91	50.77	52.23	50.64	47.07	51.05	39.79	40.54	32.27	34.13	26.97	37.70	43.75	36.72	46.75	44.96
95.00°	17.75	16.50	20.98	13.72	10.07	17.86	13.02	17.29	14.49	15.36	11.37	14.04	16.83	17.39	18.77	14.81	17.75
97.50°	6.90	8.78	7.94	7.62	4.30	5.73	6.39	3.66	5.53	1.91	4.59	2.81	3.88	6.78	3.87	7.37	6.90
100.00°	3.71	3.97	3.94	3.60	1.00	2.56	1.71	1.92	2.61	1.70	2.66	2.14	3.68	3.57	3.72	3.47	3.71
102.50°	3.07	3.88	3.58	3.85	1.19	2.51	1.98	1.12	2.20	1.63	2.41	1.60	3.54	3.38	3.71	2.85	3.07
105.00°	3.67	3.80	3.74	3.83	1.47	2.51	2.24	1.59	2.18	2.07	2.48	1.46	3.47	3.85	4.03	3.21	3.67

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	ρfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	ρcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	ρw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	23528	23528	23528	23528	22974	22974	22974	22974	21942	21942	21942	20997	20997	20997	20129	20129	20129	19721
	1	21637	20752	19959	19245	21100	20301	19580	18927	19456	18864	18321	18679	18198	17753	17964	17578	17218	17203
	2	19793	18255	16984	15916	19278	17880	16713	15723	17177	16196	15350	16529	15711	14994	15929	15255	14655	14921
	3	18129	16146	14613	13391	17645	15833	14412	13267	15244	14028	13028	14699	13665	12796	14193	13320	12573	13027
	4	16653	14380	12717	11446	16204	14118	12565	11364	13622	12272	11204	13161	11993	11048	12732	11727	10896	11472
RCR	5	15348	12896	11183	9918	14937	12674	11065	9862	12254	10837	9750	11863	10618	9641	11498	10409	9535	10187
	6	14195	11640	9925	8695	13820	11452	9832	8654	11095	9651	8575	10761	9477	8496	10449	9310	8420	9117
	7	13174	10571	8883	7700	12834	10410	8808	7670	10104	8662	7611	9818	8521	7553	9550	8386	7497	8218
	8	12268	9654	8009	6879	11960	9516	7948	6856	9253	7829	6812	9006	7713	6768	8774	7602	6725	7456
	9	11463	8863	7269	6193	11184	8744	7219	6176	8516	7120	6142	8303	7025	6108	8101	6932	6074	6805
	10	10744	8176	6638	5615	10491	8072	6596	5601	7875	6514	5574	7688	6434	5547	7512	6356	5521	6244

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 m	227.3 lx	14.6 m
6.5 m	162.8 lx	17.3 m
7.5 m	122.3 lx	20.0 m
8.0 m	107.5 lx	21.3 m
10.0 m	68.8 lx	26.6 m
12.0 m	47.8 lx	31.9 m
14.0 m	35.1 lx	37.3 m
16.0 m	26.9 lx	42.6 m
20.0 m	17.2 lx	53.2 m
24.0 m	11.9 lx	63.9 m
28.0 m	8.8 lx	74.5 m

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	2615	2615	2615
45.00°	1733	1732	1751
55.00°	1229	1222	1225
65.00°	789	789	786
75.00°	456	459	457
85.00°	171	176	176

UGR CIE 190:2010

Ceiling reflectance		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall reflectance		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Plane reflectance		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
2H	2H	19.8	21.4	20.2	21.7	22.0	19.8	21.3	20.1	21.7	22.0
	3H	18.3	19.7	18.7	20.0	20.4	18.3	19.7	18.7	20.0	20.4
	4H	17.9	19.2	18.3	19.6	19.9	17.9	19.2	18.3	19.6	20.0
	6H	17.6	18.9	18.1	19.2	19.6	17.7	18.9	18.1	19.2	19.6
	8H	17.6	18.7	18.0	19.1	19.5	17.6	18.7	18.0	19.1	19.5
	12H	17.5	18.6	17.9	19.0	19.4	17.5	18.6	18.0	19.0	19.5
4H	2H	19.1	20.4	19.5	20.8	21.2	19.1	20.4	19.5	20.8	21.2
	3H	17.0	18.1	17.4	18.5	18.9	17.0	18.1	17.5	18.6	19.0
	4H	16.3	17.2	16.7	17.7	18.1	16.3	17.3	16.7	17.7	18.2
	6H	15.7	16.6	16.2	17.0	17.5	15.8	16.7	16.3	17.1	17.6
	8H	15.6	16.4	16.0	16.8	17.3	15.7	16.5	16.1	16.9	17.4
	12H	15.5	16.2	15.9	16.7	17.1	15.6	16.3	16.0	16.8	17.2
8H	4H	15.8	16.6	16.3	17.1	17.6	15.9	16.7	16.4	17.2	17.7
	6H	15.1	15.8	15.6	16.3	16.8	15.3	15.9	15.8	16.4	16.9
	8H	14.9	15.5	15.4	16.0	16.5	15.0	15.6	15.5	16.1	16.6
	12H	14.7	15.2	15.2	15.7	16.3	14.8	15.4	15.4	15.9	16.4
12H	4H	15.8	16.5	16.3	17.0	17.5	15.9	16.6	16.4	17.1	17.6
	6H	15.0	15.6	15.6	16.1	16.6	15.2	15.8	15.7	16.2	16.8
	8H	14.7	15.3	15.3	15.8	16.3	14.9	15.4	15.4	15.9	16.5

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0