Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

DMD22GY 220L 35K xx PR22 BC22 CNFR xx

Nom 22" diam round high bay with prismatic refractor and conical frosted lens

Test Number

SP-01566_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	19946
Efficacy	116.64 lm/W

Luminous Dimensions

0° - 180° Size	-1.83
90° - 270° Size	-1.83
Height	0.83

Spacing Criterion

Two luminaires, plane 0°	1.18
Two luminaires, plane 90°	1.18
Four luminaires	1.19

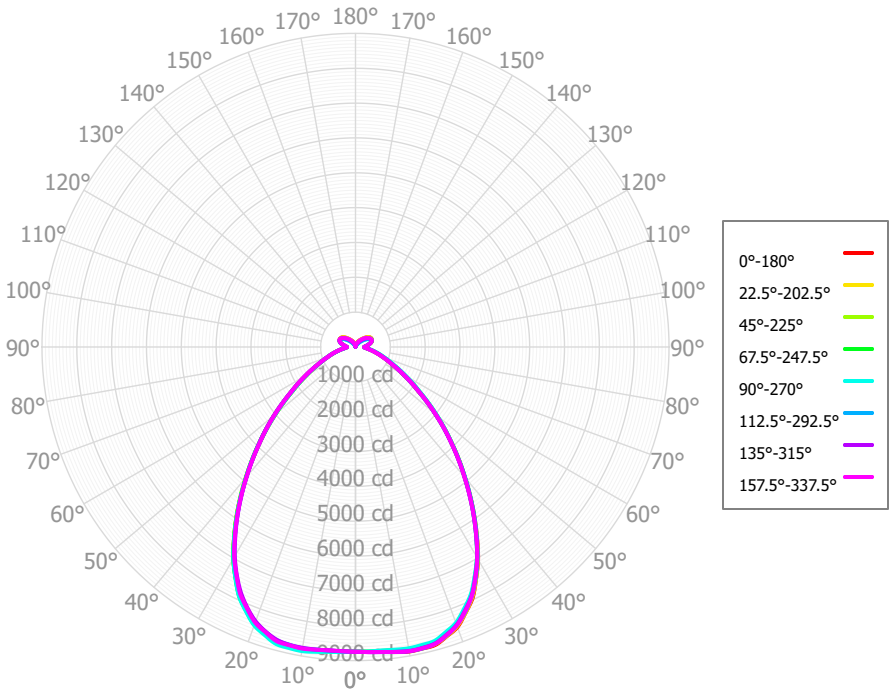
Full Beam Angle

0° - 180°	84°
90° - 270°	84°

IES File Header Contents

Keyword	Value
TEST	SP-01566_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 PR22 BC22 CNFR xx
LUMINAIRE	Nom 22" diam round high bay with prismatic refractor and conical frosted lens
LAMPCAT	N/A
LAMP	N/A
OTHER	Beam Angle: 84 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°	852.13	4.27%	90.00° - 100.00°	332.25	1.67%
10.00° - 20.00°	2465.71	12.36%	100.00° - 110.00°	461.85	2.32%
20.00° - 30.00°	3590.22	18.00%	100.00° - 120.00°	953.05	4.78%
30.00° - 40.00°	3695.57	18.53%	120.00° - 130.00°	393.50	1.97%
40.00° - 50.00°	3011.71	15.10%	130.00° - 140.00°	246.51	1.24%
50.00° - 60.00°	2022.84	10.14%	140.00° - 150.00°	125.51	0.63%
60.00° - 70.00°	1188.19	5.96%	150.00° - 160.00°	53.20	0.27%
70.00° - 80.00°	659.52	3.31%	160.00° - 170.00°	15.95	0.08%
80.00° - 90.00°	337.42	1.69%	170.00° - 180.00°	2.38	0.01%
0.00° - 90.00°	17823.32	89.36%	0.00° - 180.00°	19945.69	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°	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74	8749.74
2.50°	8764.56	8760.29	8757.01	8754.51	8747.35	8744.32	8744.05	8743.23	8748.45	8754.10	8755.37	8761.22	8767.13	8765.17	8768.15	8766.31	8764.56
5.00°	8782.42	8778.21	8766.01	8756.64	8744.96	8746.57	8745.21	8740.04	8752.36	8762.98	8764.09	8768.84	8784.92	8790.63	8791.65	8788.15	8782.42
7.50°	8827.46	8820.95	8797.51	8783.35	8764.89	8760.50	8761.48	8763.97	8781.05	8791.50	8796.37	8800.82	8825.55	8830.88	8827.73	8831.19	8827.46
10.00°	8875.63	8854.69	8830.24	8806.87	8783.43	8780.07	8769.20	8791.12	8802.96	8823.90	8823.41	8832.35	8863.02	8857.63	8868.29	8865.62	8875.63
12.50°	8866.96	8859.53	8817.37	8793.43	8765.46	8757.86	8760.00	8769.52	8792.33	8804.15	8812.25	8816.19	8849.00	8864.00	8851.42	8859.46	8866.96
15.00°	8853.46	8830.00	8803.28	8766.01	8739.81	8717.35	8705.25	8743.64	8755.66	8775.96	8781.57	8794.64	8823.44	8814.03	8816.32	8825.79	8853.46
17.50°	8708.39	8702.22	8652.61	8619.20	8590.11	8579.37	8569.74	8585.87	8613.49	8629.74	8636.57	8644.90	8670.60	8686.43	8670.00	8682.43	8708.39
20.00°	8555.45	8531.58	8498.77	8454.59	8428.71	8403.66	8381.51	8419.83	8441.31	8467.78	8468.47	8486.54	8503.13	8497.16	8492.44	8506.94	8555.45
22.50°	8256.48	8253.22	8202.12	8167.08	8139.21	8127.66	8108.14	8126.26	8164.76	8185.45	8185.54	8198.05	8215.61	8231.26	8202.07	8221.34	8256.48
25.00°	7952.82	7927.73	7898.50	7857.82	7835.18	7816.91	7782.60	7828.25	7855.12	7890.35	7876.70	7897.07	7908.36	7894.77	7884.57	7897.48	7952.82
27.50°	7496.56	7495.50	7451.70	7427.04	7412.50	7403.99	7381.29	7397.24	7443.52	7456.73	7459.47	7459.55	7469.47	7479.08	7446.03	7457.37	7496.56
30.00°	7037.46	7026.55	6998.70	6979.12	6975.76	6960.23	6932.22	6963.89	7001.15	7012.59	7018.60	7011.69	7015.72	7007.38	6982.97	6990.91	7037.46
32.50°	6492.40	6483.58	6465.61	6451.70	6445.73	6445.90	6419.72	6439.83	6475.78	6482.47	6491.28	6479.64	6479.11	6478.07	6455.20	6452.98	6492.40
35.00°	5947.71	5943.03	5933.23	5924.06	5916.50	5912.78	5902.80	5915.53	5947.03	5948.28	5962.36	5947.11	5942.63	5947.20	5916.32	5916.36	5947.71
37.50°	5412.33	5406.83	5407.69	5395.50	5391.68	5390.65	5380.59	5384.81	5410.09	5412.14	5428.39	5411.56	5406.80	5414.86	5388.08	5382.83	5412.33
40.00°	4879.75	4883.22	4886.61	4874.74	4873.31	4871.02	4868.59	4856.66	4885.58	4876.04	4902.45	4881.49	4879.22	4894.24	4861.31	4861.82	4879.75
42.50°	4388.45	4380.27	4399.70	4381.45	4384.70	4386.86	4367.63	4368.16	4387.77	4381.08	4399.17	4380.93	4384.07	4383.59	4369.49	4367.37	4388.45
45.00°	3900.14	3900.34	3917.49	3900.94	3907.24	3909.43	3901.24	3884.90	3910.14	3887.21	3910.17	3889.51	3898.62	3900.04	3881.52	3888.18	3900.14
47.50°	3442.52	3454.87	3463.95	3459.59	3473.44	3469.09	3469.12	3457.22	3471.79	3437.58	3456.61	3439.23	3446.70	3437.31	3434.79	3438.38	3442.52
50.00°	2990.22	3020.73	3017.34	3028.37	3046.50	3034.67	3045.90	3032.85	3044.21	2990.61	3014.99	2997.88	3005.30	2995.92	2991.35	2999.73	2990.22
52.50°	2580.86	2601.87	2605.45	2624.34	2643.22	2642.09	2630.76	2635.87	2635.40	2594.92	2599.62	2591.46	2595.44	2569.53	2595.45	2580.29	2580.86
55.00°	2185.20	2230.74	2213.83	2249.47	2265.30	2254.99	2270.45	2252.82	2265.16	2206.29	2219.79	2210.56	2215.82	2204.83	2202.17	2202.29	2185.20
57.50°	1879.46	1917.63	1909.75	1944.83	1963.25	1950.08	1955.13	1960.42	1955.19	1910.26	1910.71	1915.61	1915.75	1879.13	1903.70	1889.35	1879.46
60.00°	1584.36	1631.56	1618.52	1657.54	1677.71	1653.35	1672.76	1675.41	1668.12	1620.53	1627.24	1636.23	1633.35	1602.33	1607.85	1602.90	1584.36
62.50°	1346.16	1375.60	1375.76	1407.36	1436.33	1416.40	1414.78	1430.69	1413.75	1389.84	1390.06	1403.34	1392.77	1353.26	1374.67	1353.88	1346.16
65.00°	1122.83	1161.41	1152.18	1183.79	1216.58	1183.61	1197.56	1199.55	1193.01	1167.71	1179.42	1188.21	1176.90	1153.64	1143.13	1138.85	1122.83
67.50°	965.90	989.22	991.04	1011.75	1047.84	1023.87	1007.92	1030.16	1016.20	1007.34	1011.79	1019.62	1013.80	979.49	986.67	967.72	965.90
70.00°	816.77	843.08	840.50	857.02	892.07	867.44	858.78	870.73	863.88	853.63	864.67	864.04	864.09	839.60	831.79	818.72	816.77
72.50°	697.96	720.94	720.09	732.29	763.92	749.12	734.28	750.64	740.43	739.66	747.44	738.61	739.90	715.70	712.93	695.54	697.96
75.00°	585.10	608.36	606.16	616.76	642.97	631.55	624.21	634.59	627.93	627.65	635.17	620.23	623.05	606.68	595.61	583.97	585.10
77.50°	492.12	503.75	508.72	515.76	535.68	529.03	522.15	532.26	527.09	525.58	529.50	516.65	518.71	503.83	499.75	484.65	492.12
80.00°	405.86	416.28	419.05	426.10	439.39	427.45	434.43	436.57	436.66	429.38	436.02	423.75	425.78	418.24	406.75	401.03	405.86
82.50°	339.16	341.88	346.87	352.56	361.83	356.96	353.81	360.52	356.41	358.16	357.18	351.10	350.59	338.97	341.66	332.57	339.16
85.00°	283.91	291.24	288.69	296.09	300.21	288.76	298.95	295.61	297.33	295.26	298.09	293.21	293.96	289.65	281.76	283.47	283.91
87.50°	258.50	256.94	258.55	261.46	263.31	263.30	255.62	260.09	256.92	262.61	260.73	260.40	263.29	250.11	261.99	251.50	258.50
90.00°	248.85	256.34	249.03	253.96	249.99	241.81	253.39	242.49	248.78	243.45	251.63	250.15	257.23	256.90	248.90	250.98	248.85
92.50°	276.12	276.56	277.04	278.26	270.07	268.22	267.44	267.41	266.70	267.54	270.66	274.33	282.68	276.80	276.93	275.57	276.12
95.00°	305.58	304.39	308.01	306.69	296.43	295.32	293.09	294.55	292.72	294.56	297.38	301.63	311.88	306.87	306.00	305.15	305.58
97.50°	339.58	336.51	343.87	339.55	330.80	328.43	322.78	326.40	324.63	329.76	331.13	333.28	345.43	339.45	340.48	338.32	339.58
100.00°	375.16	373.02	381.13	374.83	365.93	362.19	361.08	360.62	360.59	365.91	367.07	367.96	379.36	375.91	375.43	374.35	375.16
102.50°	413.67	411.79	420.46	412.44	401.95	400.50	402.05	399.30	399.24	404.43	404.82	406.44	413.70	413.18	412.44	412.26	413.67
105.00°	449.06	447.17	454.41	446.27	433.39	436.76	435.62	434.60	432.92	439.35	437.55	438.51	443.59	443.57	446.61	445.68	449.06

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	23240	23240	23240	23240	22452	22452	22452	22452	20983	20983	20983	19638	19638	19638	18404	18404	18404	17823
	1	21486	20660	19921	19254	20744	20008	19345	18744	18787	18258	17773	17665	17248	16862	16631	16307	16005	15786
	2	19818	18399	17227	16243	19124	17852	16790	15889	16824	15957	15208	15877	15174	14558	15000	14438	13937	13977
	3	18297	16470	15057	13931	17654	16007	14715	13674	15135	14059	13174	14328	13439	12692	13579	12850	12226	12445
	4	16927	14829	13292	12118	16336	14434	13019	11924	13689	12492	11543	12998	11990	11173	12354	11511	10814	11156
RCR	5	15699	13427	11839	10667	15159	13088	11616	10515	12448	11185	10216	11852	10772	9925	11295	10377	9639	10066
	6	14600	12223	10627	9482	14106	11931	10443	9361	11377	10085	9121	10860	9741	8886	10376	9410	8655	9138
	7	13614	11183	9607	8502	13165	10930	9452	8403	10448	9151	8206	9996	8860	8013	9572	8580	7823	8341
	8	12731	10281	8740	7680	12322	10059	8608	7598	9637	8351	7434	9241	8104	7272	8867	7864	7113	7653
	9	11939	9494	7996	6984	11565	9299	7883	6914	8927	7662	6776	8576	7449	6639	8246	7241	6504	7055
	10	11226	8804	7354	6389	10884	8631	7256	6329	8301	7064	6210	7989	6878	6093	7695	6697	5977	6532

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 m	289.2 lx	10.0 m
6.5 m	207.1 lx	11.8 m
7.5 m	155.6 lx	13.6 m
8.0 m	136.7 lx	14.5 m
10.0 m	87.5 lx	18.2 m
12.0 m	60.8 lx	21.8 m
14.0 m	44.6 lx	25.4 m
16.0 m	34.2 lx	29.1 m
20.0 m	21.9 lx	36.3 m
24.0 m	15.2 lx	43.6 m
28.0 m	11.2 lx	50.9 m

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	3327	3327	3327
45.00°	1329	1335	1332
55.00°	794	804	823
65.00°	451	463	489
75.00°	272	282	299
85.00°	163	166	172

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	18.5	19.8	19.1	20.3	20.9	18.6	19.9	19.2	20.4	21.0
	3H	17.9	19.0	18.5	19.6	20.2	18.0	19.1	18.6	19.7	20.3
	4H	17.7	18.8	18.3	19.3	20.0	17.8	18.9	18.4	19.4	20.0
	6H	17.6	18.5	18.2	19.1	19.8	17.7	18.6	18.2	19.2	19.8
	8H	17.5	18.4	18.1	19.0	19.7	17.6	18.5	18.2	19.1	19.7
	12H	17.5	18.3	18.1	18.9	19.6	17.5	18.4	18.1	19.0	19.6
4H	2H	18.1	19.2	18.7	19.7	20.3	18.2	19.3	18.8	19.8	20.5
	3H	17.4	18.3	18.0	18.9	19.5	17.5	18.4	18.1	19.0	19.6
	4H	17.1	17.9	17.7	18.5	19.2	17.2	18.0	17.8	18.6	19.3
	6H	16.9	17.6	17.6	18.2	18.9	17.0	17.7	17.6	18.3	19.0
	8H	16.8	17.5	17.5	18.1	18.8	16.9	17.5	17.5	18.1	18.8
	12H	16.8	17.3	17.4	18.0	18.7	16.8	17.4	17.4	18.0	18.7
8H	4H	16.9	17.6	17.6	18.2	18.9	17.0	17.6	17.6	18.2	19.0
	6H	16.7	17.2	17.3	17.9	18.6	16.7	17.2	17.4	17.9	18.6
	8H	16.5	17.0	17.2	17.7	18.4	16.6	17.0	17.2	17.7	18.4
	12H	16.4	16.9	17.1	17.5	18.3	16.5	16.9	17.1	17.5	18.3
12H	4H	16.9	17.4	17.5	18.1	18.8	16.9	17.5	17.6	18.2	18.9
	6H	16.6	17.1	17.3	17.7	18.5	16.6	17.1	17.3	17.8	18.5
	8H	16.5	16.9	17.1	17.6	18.3	16.5	16.9	17.2	17.6	18.4

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0