Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

DMD22GY 220L 35K xx AL22 MWI xx

Nom 22" diam round high bay with aluminum shade and matte white inside

Test Number

SP-01567

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	21474
Efficacy	125.58 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	1.27
Two luminaires, plane 90°	1.3
Four luminaires	1.38

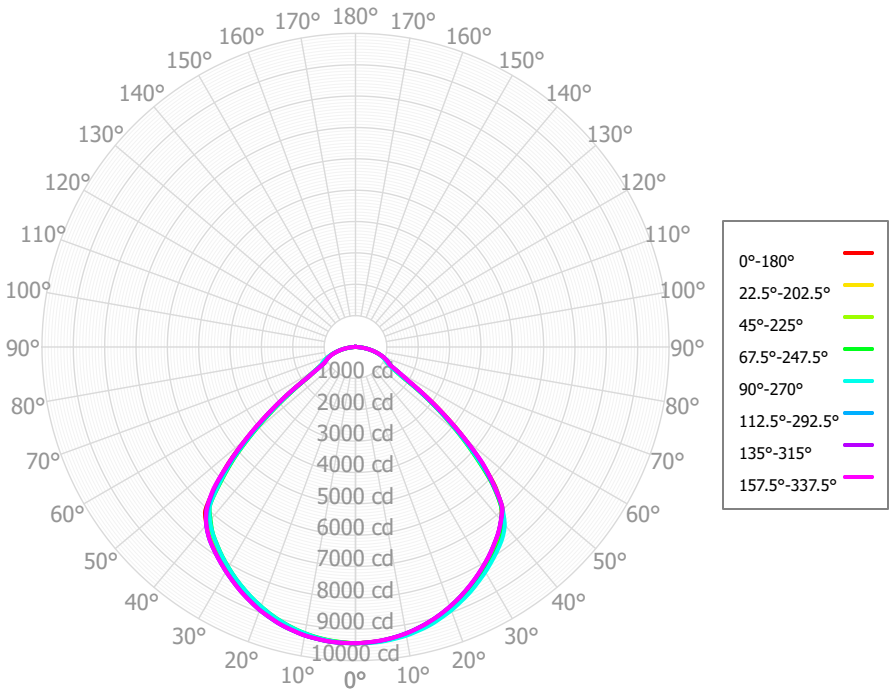
Full Beam Angle

0° - 180°	99°
90° - 270°	98°

IES File Header Contents

Keyword	Value
TEST	SP-01567
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 xx
LUMINAIRE	Nom 22" diam round high bay with aluminum shade and matte white inside
LAMPCAT	N/A
LAMP	N/A
OTHER	Beam Angle: 98 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°	908.55	4.23%	90.00° - 100.00°	5.54	0.03%
10.00° - 20.00°	2573.73	11.99%	100.00° - 110.00°	2.85	0.01%
20.00° - 30.00°	3941.20	18.35%	100.00° - 120.00°	6.34	0.03%
30.00° - 40.00°	4869.42	22.68%	120.00° - 130.00°	3.93	0.02%
40.00° - 50.00°	4696.24	21.87%	130.00° - 140.00°	3.97	0.02%
50.00° - 60.00°	2417.08	11.26%	140.00° - 150.00°	3.35	0.02%
60.00° - 70.00°	1111.73	5.18%	150.00° - 160.00°	2.77	0.01%
70.00° - 80.00°	714.26	3.33%	160.00° - 170.00°	1.85	0.01%
80.00° - 90.00°	213.11	0.99%	170.00° - 180.00°	0.67	0.00%
0.00° - 90.00°	21445.33	99.87%	0.00° - 180.00°	21473.75	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°	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56	9448.56
2.50°	9427.48	9433.16	9435.31	9435.51	9449.92	9450.29	9447.71	9441.37	9443.20	9438.46	9429.40	9425.24	9438.02	9434.93	9432.30	9426.19	9427.48
5.00°	9402.37	9410.88	9413.98	9418.30	9435.98	9434.24	9434.38	9425.95	9427.65	9424.49	9401.22	9394.61	9404.29	9399.72	9401.05	9394.58	9402.37
7.50°	9348.44	9359.47	9366.83	9376.27	9397.24	9393.68	9390.63	9387.07	9390.45	9371.71	9352.87	9341.48	9349.69	9345.59	9344.37	9346.66	9348.44
10.00°	9285.60	9298.79	9313.56	9328.19	9347.34	9342.00	9344.01	9339.03	9334.24	9316.13	9288.80	9271.74	9275.86	9272.82	9275.43	9276.99	9285.60
12.50°	9189.85	9209.75	9227.54	9246.15	9270.33	9264.08	9260.96	9258.83	9257.99	9232.02	9205.12	9181.38	9187.14	9185.55	9181.58	9188.09	9189.85
15.00°	9088.26	9108.46	9137.52	9159.90	9185.30	9178.46	9174.64	9170.83	9160.52	9140.74	9101.30	9072.84	9075.85	9077.41	9074.72	9077.62	9088.26
17.50°	8955.57	8982.13	9009.73	9039.50	9065.09	9059.37	9054.49	9052.30	9047.20	9015.77	8979.66	8948.30	8952.18	8957.92	8949.60	8953.72	8955.57
20.00°	8820.26	8844.74	8879.45	8916.32	8939.04	8934.79	8928.60	8929.89	8913.50	8883.78	8841.92	8806.35	8804.91	8811.48	8808.83	8809.05	8820.26
22.50°	8659.21	8691.68	8726.07	8761.80	8789.84	8778.69	8775.37	8776.54	8769.05	8731.95	8694.17	8653.46	8648.99	8655.07	8652.50	8655.58	8659.21
25.00°	8495.83	8524.50	8569.00	8604.76	8638.63	8620.12	8616.36	8621.01	8605.35	8571.03	8526.32	8482.16	8478.37	8483.01	8482.11	8479.50	8495.83
27.50°	8312.13	8343.17	8390.04	8432.23	8463.59	8442.97	8440.88	8444.17	8434.88	8392.71	8349.81	8302.95	8304.38	8307.42	8301.68	8297.23	8312.13
30.00°	8124.85	8152.11	8206.59	8255.58	8286.92	8264.70	8260.65	8265.68	8251.30	8207.72	8157.79	8108.70	8111.27	8114.14	8108.55	8105.89	8124.85
32.50°	7922.15	7954.06	8007.88	8064.77	8097.23	8077.25	8071.24	8077.06	8064.89	8013.87	7961.40	7910.34	7916.03	7918.93	7909.15	7913.20	7922.15
35.00°	7713.21	7745.61	7804.16	7867.77	7903.68	7885.68	7876.55	7883.51	7862.88	7810.09	7747.15	7696.64	7702.19	7701.98	7694.91	7696.03	7713.21
37.50°	7487.42	7531.91	7589.42	7657.12	7694.41	7677.14	7674.68	7672.80	7659.29	7596.94	7530.15	7480.59	7484.53	7482.02	7475.77	7476.32	7487.42
40.00°	7222.69	7248.27	7292.38	7340.42	7407.90	7406.12	7397.41	7408.39	7398.23	7316.69	7248.59	7191.77	7219.03	7224.55	7210.85	7223.32	7222.69
42.50°	6886.60	6941.31	6869.04	6860.27	6921.87	6972.26	7047.58	7023.70	7097.86	6991.10	6946.27	6881.00	6877.71	6899.20	6937.03	6919.64	6886.60
45.00°	6313.85	6213.87	6209.58	6160.52	6264.24	6351.65	6375.23	6422.21	6325.48	6288.48	6152.39	6069.90	6117.65	6193.97	6241.67	6245.29	6313.85
47.50°	5438.38	5403.72	5294.56	5222.08	5303.28	5403.34	5483.62	5487.76	5517.79	5407.61	5336.38	5240.34	5309.11	5424.78	5508.12	5510.32	5438.38
50.00°	4541.65	4468.88	4386.69	4311.04	4369.21	4462.17	4538.93	4544.75	4526.88	4464.45	4358.22	4276.97	4343.19	4450.00	4539.12	4541.67	4541.65
52.50°	3625.64	3523.19	3484.37	3421.10	3468.40	3529.75	3568.98	3592.33	3555.22	3502.13	3399.97	3333.60	3405.79	3508.83	3580.30	3602.84	3625.64
55.00°	2756.59	2666.13	2630.86	2567.99	2607.30	2644.56	2662.26	2688.37	2643.28	2617.43	2520.17	2468.64	2528.64	2639.24	2723.48	2736.43	2756.59
57.50°	1917.98	1852.30	1803.84	1734.98	1781.02	1801.10	1775.16	1822.14	1884.46	1746.38	1792.86	1761.43	1852.52	1947.44	1948.22	2014.38	1917.98
60.00°	1491.10	1499.45	1423.47	1373.66	1352.62	1354.71	1403.44	1374.17	1437.28	1434.82	1442.54	1442.20	1473.71	1516.59	1562.95	1534.05	1491.10
62.50°	1247.14	1193.49	1205.07	1187.44	1173.37	1155.20	1123.43	1153.45	1143.57	1167.22	1191.75	1211.14	1239.18	1254.73	1253.51	1233.42	1247.14
65.00°	1127.44	1114.11	1100.65	1091.23	1067.25	1042.89	1036.74	1040.38	1069.19	1088.27	1110.29	1127.15	1155.34	1168.11	1165.48	1147.10	1127.44
67.50°	1043.90	1028.82	1021.94	1015.46	992.37	968.17	964.02	967.10	983.91	1006.35	1017.18	1030.00	1054.13	1067.36	1069.06	1050.66	1043.90
70.00°	934.57	926.13	919.98	914.79	897.88	874.03	866.03	871.21	887.62	897.78	910.16	917.21	939.90	956.09	956.43	945.65	934.57
72.50°	821.04	816.90	815.49	811.38	797.95	774.56	766.26	770.09	779.59	786.74	792.45	795.43	814.44	832.12	837.03	827.14	821.04
75.00°	694.37	694.93	696.58	693.85	683.30	659.90	650.37	654.58	663.06	664.86	665.69	665.97	683.12	701.48	708.54	700.61	694.37
77.50°	566.91	570.88	576.95	575.76	566.42	542.90	533.90	537.45	543.62	541.31	538.08	535.60	549.84	568.10	576.99	571.07	566.91
80.00°	439.57	444.01	450.85	453.40	443.83	422.48	414.85	415.11	422.72	413.23	409.96	404.69	415.88	433.76	442.49	440.29	439.57
82.50°	312.20	316.17	324.86	330.56	321.05	302.06	294.95	293.04	298.63	287.12	280.28	273.06	280.64	298.54	308.44	306.35	312.20
85.00°	184.67	187.39	199.50	205.04	201.09	186.02	172.69	176.11	173.47	164.62	149.97	141.13	145.12	163.14	174.68	171.60	184.67
87.50°	73.90	94.31	91.24	96.12	89.76	78.80	76.79	70.97	87.80	74.53	73.31	67.77	71.33	81.73	86.40	86.93	73.90
90.00°	31.92	25.75	37.93	40.79	40.44	36.02	29.26	31.71	10.04	25.72	10.78	9.71	3.85	5.73	19.49	9.01	31.92
92.50°	2.08	3.27	1.93	2.99	1.24	1.89	2.27	1.65	2.75	2.31	2.71	2.17	3.16	4.15	3.36	4.39	2.08
95.00°	3.16	2.95	2.18	2.65	1.43	1.80	2.00	1.76	1.99	2.16	2.26	1.61	2.97	3.06	3.05	2.66	3.16
97.50°	3.68	3.25	2.44	2.60	1.53	1.73	2.10	1.82	1.88	2.28	2.14	1.74	2.96	3.18	3.40	2.88	3.68
100.00°	3.21	3.75	2.72	2.95	1.40	1.68	2.53	1.80	1.79	2.58	2.04	1.88	2.98	3.23	3.87	3.15	3.21
102.50°	3.12	4.21	3.02	3.18	1.34	1.60	2.42	1.73	1.92	2.49	2.05	1.87	3.14	2.94	3.72	3.70	3.12
105.00°	3.48	4.66	3.33	3.28	1.41	1.47	1.97	1.58	2.07	2.21	2.01	1.89	3.31	2.87	3.52	4.04	3.48

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	25557	25557	25557	25557	24960	24960	24960	24960	23844	23844	23844	22823	22823	22823	21886	21886	21886	21445
	1	23744	22884	22115	21421	23177	22403	21705	21072	21501	20930	20408	20672	20211	19784	19908	19541	19198	19133
	2	21930	20421	19174	18126	21394	20025	18882	17912	19281	18324	17498	18596	17801	17104	17962	17309	16727	16942
	3	20250	18284	16764	15552	19749	17956	16549	15415	17336	16136	15147	16764	15745	14889	16232	15374	14640	15049
	4	18723	16448	14782	13509	18260	16172	14619	13418	15653	14305	13239	15171	14007	13064	14722	13722	12895	13435
RCR	5	17344	14867	13136	11858	16919	14635	13010	11795	14196	12767	11671	13787	12534	11550	13406	12311	11432	12060
	6	16104	13503	11756	10503	15716	13306	11657	10459	12933	11465	10370	12584	11280	10284	12258	11103	10199	10883
	7	14991	12321	10591	9378	14638	12154	10511	9345	11834	10357	9281	11535	10208	9217	11255	10064	9155	9872
	8	13992	11295	9598	8433	13671	11151	9534	8408	10876	9408	8360	10618	9286	8312	10375	9168	8265	9000
	9	13095	10399	8748	7632	12804	10275	8694	7613	10037	8590	7576	9813	8490	7540	9602	8392	7504	8245
	10	12289	9615	8014	6948	12025	9507	7970	6934	9300	7883	6905	9104	7799	6876	8920	7717	6848	7587

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 m	312.3 lx	12.9 m
6.5 m	223.6 lx	15.2 m
7.5 m	168.0 lx	17.6 m
8.0 m	147.6 lx	18.7 m
10.0 m	94.5 lx	23.4 m
12.0 m	65.6 lx	28.1 m
14.0 m	48.2 lx	32.8 m
16.0 m	36.9 lx	37.5 m
20.0 m	23.6 lx	46.8 m
24.0 m	16.4 lx	56.2 m
28.0 m	12.1 lx	65.6 m

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	3592	3592	3592
45.00°	2211	2174	2193
55.00°	1035	988	979
65.00°	472	461	447
75.00°	340	341	335
85.00°	113	122	123

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	16.9	18.3	17.2	18.6	19.0	16.3	17.8	16.7	18.1	18.4
	3H	15.4	16.7	15.8	17.0	17.4	14.7	16.0	15.1	16.3	16.7
	4H	14.9	16.1	15.3	16.5	16.8	14.1	15.3	14.5	15.7	16.1
	6H	14.6	15.7	15.0	16.1	16.5	13.7	14.9	14.2	15.2	15.6
	8H	14.5	15.5	14.9	15.9	16.3	13.6	14.7	14.1	15.1	15.5
	12H	14.4	15.4	14.8	15.8	16.2	13.6	14.6	14.0	15.0	15.4
4H	2H	16.3	17.5	16.7	17.8	18.2	15.7	16.9	16.1	17.3	17.7
	3H	14.2	15.2	14.7	15.6	16.1	13.4	14.4	13.8	14.8	15.2
	4H	13.3	14.2	13.8	14.7	15.1	12.4	13.2	12.8	13.7	14.1
	6H	12.7	13.4	13.1	13.9	14.3	11.5	12.3	12.0	12.7	13.2
	8H	12.4	13.2	12.9	13.6	14.1	11.2	11.9	11.7	12.4	12.9
	12H	12.3	12.9	12.8	13.4	13.9	11.1	11.7	11.6	12.2	12.7
8H	4H	12.8	13.6	13.3	14.0	14.5	11.8	12.5	12.3	13.0	13.4
	6H	11.9	12.5	12.4	13.0	13.4	10.6	11.2	11.1	11.6	12.1
	8H	11.5	12.0	12.0	12.6	13.0	10.1	10.6	10.6	11.1	11.6
	12H	11.3	11.8	11.8	12.3	12.8	9.8	10.3	10.3	10.8	11.3
12H	4H	12.8	13.4	13.3	13.9	14.4	11.7	12.3	12.2	12.8	13.3
	6H	11.7	12.3	12.3	12.7	13.3	10.4	10.9	10.9	11.4	11.9
	8H	11.3	11.8	11.8	12.3	12.9	9.9	10.4	10.4	10.8	11.4

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0