

Family Correlated Photometric Data

The following photometric information is developed using correlated data. Finelite considers a family to be a group of luminaires where critical performance metrics such as photometric performance, thermal performance, and electrical performance can be accurately projected via a combination of LM79 tests at the luminaire level and well-documented specifications at the component level.

For more information, please download [Finelite's Family Correlated White Paper](#)

Additional links:

- [Solid-State Lighting: Early Lessons Learned on the Way to Market](#)
(U.S. Department of Energy)
- [Lighting Facts®](#)
- [Design Lights Consortium®](#)

IES INDOOR REPORT
PHOTOMETRIC FILENAME : HP-WS-4W-2D-4ft-B-8-TW-
ITL86712.902.IES
DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST]ITL86712.902 Family Correlation File

[TESTLAB]INDEPENDENT TESTING LABORATORIES, INC.

[TESTDATE]02/10/16

[ISSUEDATE]03/30/16

[MANUFAC]FINELITE, INC.

[LUMCAT]HP-WS-4W-2D-4ft-B-8-TW

[OTHER]ies file is based on 3500K; see luminaire tech sheet at www.finelite.com for lumen adjustment factors for other CCT's & CRI

[OTHER]INPUT ELECTRICAL: 120.0 VOLTS, 20.3 WATTS

[OTHER]INPUT ELECTRICAL: 277.0 VOLTS, 21.7 WATTS

[ABSOLUTE]LUMENS]1594

[OTHER]see www.finelite.com for source file ITL86712. For further details on Finelite family correlation files, go to

[more]http://www.finelite.com/download_files/series_downloads/photometry_pdf/FL_Family_Correlation_WhitePaper.pdf

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1594
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	79
Total Luminaire Watts	20.3
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.54
Spacing Criterion (90-270)	1.20
Spacing Criterion (Diagonal)	1.24
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.32 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.19 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	4342	4245	4249
55	3900	3886	3879
65	3296	3352	3446
75	2637	2678	2863
85	1854	1836	1649

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CANDELA TABULATION

	<u>0.0</u>	<u>5.0</u>	<u>15.0</u>	<u>25.0</u>	<u>35.0</u>	<u>45.0</u>	<u>55.0</u>	<u>65.0</u>	<u>75.0</u>	<u>85.0</u>
0.0	635.645	635.645	635.645	635.645	635.645	635.645	635.645	635.645	635.645	635.645
2.5	647.483	646.453	645.938	645.424	644.394	642.850	641.306	639.247	637.703	636.674
5.0	658.806	658.806	658.291	656.747	654.688	650.571	646.453	642.336	637.703	634.101
7.5	668.070	667.556	667.041	663.953	660.350	655.718	650.571	643.365	636.159	629.983
10.0	677.335	675.791	674.761	671.158	666.011	658.806	651.085	642.336	632.042	623.292
12.5	682.482	680.938	680.423	676.305	669.614	659.835	650.056	638.218	626.380	616.086
15.0	686.084	684.540	684.026	678.879	670.644	659.320	647.997	632.042	618.660	606.307
17.5	687.629	686.599	685.055	679.393	670.129	657.262	643.365	624.836	609.910	594.984
20.0	687.114	686.084	684.026	677.849	667.556	653.144	637.189	616.086	599.101	583.146
22.5	684.540	684.026	681.452	673.732	662.923	646.453	628.439	605.792	586.234	568.735
25.0	680.938	679.393	676.820	668.070	655.718	638.733	618.660	594.469	572.338	553.294
27.5	674.761	673.732	670.644	660.865	647.997	629.468	607.337	581.602	557.926	536.309
30.0	668.070	666.011	662.409	652.115	638.218	618.145	594.469	567.705	541.971	518.810
32.5	658.806	657.262	653.144	642.336	626.895	605.792	581.087	552.265	524.986	499.766
35.0	647.483	647.483	641.821	630.498	614.028	591.896	566.161	535.794	506.972	481.237
37.5	635.645	635.645	629.468	617.116	600.131	576.970	549.691	518.810	487.928	461.164
40.0	622.777	621.748	615.057	602.704	584.690	561.014	531.677	499.766	468.370	439.547
42.5	607.337	607.337	600.131	586.749	568.735	544.029	514.177	481.237	448.297	417.930
45.0	588.808	588.808	582.117	569.249	550.720	524.986	494.619	461.164	427.194	395.283
47.5	571.823	570.279	563.588	550.720	531.677	505.942	475.061	441.091	406.607	373.152
50.0	550.206	548.662	542.485	529.618	511.089	485.355	453.958	419.474	384.475	349.991
52.5	524.986	524.986	518.810	507.486	489.472	464.252	432.856	398.372	362.858	327.344
55.0	497.707	497.707	492.560	482.266	466.311	442.120	411.239	376.240	340.211	304.698
57.5	468.884	469.914	464.767	454.988	441.606	418.959	388.592	354.108	317.565	282.566
60.0	440.576	441.091	435.944	426.165	413.298	393.739	365.946	331.462	294.919	258.890
62.5	411.239	411.754	406.607	396.828	383.960	365.946	341.241	307.786	272.272	235.729
65.0	381.387	382.416	377.269	369.034	354.623	336.609	316.021	285.139	249.111	213.082
67.5	352.564	353.593	348.446	339.697	325.800	308.301	289.257	261.464	226.979	190.951
70.0	323.741	324.256	318.594	310.359	296.463	279.478	260.949	237.273	203.303	168.304
72.5	294.404	294.919	290.801	281.537	268.669	251.170	233.155	210.509	181.172	146.687
75.0	264.552	264.037	261.464	252.714	240.361	224.920	205.877	183.745	156.981	125.070
77.5	235.729	235.729	232.641	223.891	212.568	197.642	178.598	158.010	134.849	103.453
80.0	207.936	207.421	204.333	196.612	185.289	170.878	152.864	133.305	110.144	82.351
82.5	180.142	179.628	176.539	168.819	158.525	145.143	128.158	109.629	87.498	61.248
85.0	151.834	151.319	149.261	141.540	131.761	119.409	104.482	86.468	65.366	39.631
87.5	123.526	125.070	121.467	115.806	104.997	93.159	79.777	63.822	45.808	19.044
90.0	96.762	97.277	94.703	89.042	78.748	67.939	55.072	40.661	26.249	9.264
92.5	79.777	79.777	77.204	72.057	61.763	51.469	39.117	25.735	12.867	3.088
95.0	60.219	60.219	57.646	53.013	44.264	34.999	24.191	12.353	5.662	1.029
97.5	43.234	43.749	40.661	36.543	28.823	20.588	11.323	7.206	3.603	0.515
100.0	27.793	27.793	25.220	21.617	14.926	10.294	7.720	5.147	1.544	0.515
102.5	14.411	13.897	11.838	10.809	9.779	8.235	6.176	3.603	1.029	0.000
105.0	9.779	9.264	9.264	8.750	7.720	6.691	4.632	1.544	0.515	0.000
107.5	7.720	7.720	7.720	7.206	6.691	5.147	3.603	1.029	0.515	0.000
110.0	6.691	6.691	6.176	6.176	5.662	4.118	1.029	1.029	0.515	0.000
112.5	5.662	5.662	5.662	5.147	4.632	2.573	1.029	0.515	0.000	0.000
115.0	4.632	4.632	4.632	4.118	3.603	1.029	0.515	0.515	0.000	0.000
117.5	3.603	3.603	3.603	3.603	0.515	0.515	0.515	0.000	0.000	0.000
120.0	3.088	2.573	1.544	0.515	0.515	0.515	0.515	0.000	0.000	0.000
122.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
127.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
132.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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CANDELA TABULATION - (Cont.)

135.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
137.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
140.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
142.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
145.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
147.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
152.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
155.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
157.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
160.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
162.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
165.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
167.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
170.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Vert. Angles **Horizontal Angles**

	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>
0.0	635.645	635.645	635.645	635.645	635.645
2.5	635.645	633.586	631.527	627.924	627.924
5.0	632.556	627.410	616.601	603.219	601.160
7.5	627.410	616.086	591.381	577.999	573.882
10.0	621.233	600.131	570.279	549.176	540.941
12.5	613.513	579.029	544.544	516.236	504.913
15.0	603.219	558.441	515.721	479.693	464.767
17.5	590.866	538.368	485.355	441.606	426.165
20.0	577.484	516.236	451.900	403.004	381.387
22.5	562.044	491.531	418.445	363.887	341.755
25.0	545.574	466.826	383.960	325.285	301.610
27.5	527.559	440.576	351.535	287.713	263.008
30.0	509.030	413.298	317.565	250.655	224.920
32.5	488.957	386.019	284.625	214.112	188.377
35.0	467.855	359.255	251.684	179.113	152.864
37.5	446.753	331.462	219.259	145.658	119.409
40.0	424.106	303.154	187.348	113.232	87.498
42.5	401.974	275.875	156.981	82.865	57.646
45.0	378.299	248.082	127.644	54.043	30.882
47.5	355.652	221.318	99.336	28.308	8.235
50.0	331.976	194.554	72.572	7.206	2.573
52.5	308.815	168.819	47.866	3.088	1.544
55.0	285.654	143.084	25.220	2.059	1.029
57.5	261.978	118.379	6.691	1.544	0.515
60.0	238.817	94.703	3.088	1.029	0.000
62.5	215.656	71.542	2.573	0.515	0.000
65.0	193.010	49.925	1.544	0.515	0.000
67.5	170.363	29.852	1.544	0.515	0.000
70.0	148.231	11.838	1.029	0.515	0.000
72.5	126.100	3.603	1.029	0.515	0.000
75.0	104.997	2.573	1.029	0.515	0.000
77.5	84.924	2.059	0.515	0.515	0.000
80.0	65.366	1.544	0.515	0.515	0.000

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CANDELA TABULATION - (Cont.)

82.5	45.808	1.029	0.515	0.515	0.000
85.0	26.764	0.515	0.515	0.000	0.000
87.5	9.264	0.515	0.515	0.000	0.000
90.0	0.000	0.000	0.000	0.000	0.000
92.5	0.000	0.000	0.000	0.000	0.000
95.0	0.000	0.000	0.000	0.000	0.000
97.5	0.000	0.000	0.000	0.000	0.000
100.0	0.000	0.000	0.000	0.000	0.000
102.5	0.000	0.000	0.000	0.000	0.000
105.0	0.000	0.000	0.000	0.000	0.000
107.5	0.000	0.000	0.000	0.000	0.000
110.0	0.000	0.000	0.000	0.000	0.000
112.5	0.000	0.000	0.000	0.000	0.000
115.0	0.000	0.000	0.000	0.000	0.000
117.5	0.000	0.000	0.000	0.000	0.000
120.0	0.000	0.000	0.000	0.000	0.000
122.5	0.000	0.000	0.000	0.000	0.000
125.0	0.000	0.000	0.000	0.000	0.000
127.5	0.000	0.000	0.000	0.000	0.000
130.0	0.000	0.000	0.000	0.000	0.000
132.5	0.000	0.000	0.000	0.000	0.000
135.0	0.000	0.000	0.000	0.000	0.000
137.5	0.000	0.000	0.000	0.000	0.000
140.0	0.000	0.000	0.000	0.000	0.000
142.5	0.000	0.000	0.000	0.000	0.000
145.0	0.000	0.000	0.000	0.000	0.000
147.5	0.000	0.000	0.000	0.000	0.000
150.0	0.000	0.000	0.000	0.000	0.000
152.5	0.000	0.000	0.000	0.000	0.000
155.0	0.000	0.000	0.000	0.000	0.000
157.5	0.000	0.000	0.000	0.000	0.000
160.0	0.000	0.000	0.000	0.000	0.000
162.5	0.000	0.000	0.000	0.000	0.000
165.0	0.000	0.000	0.000	0.000	0.000
167.5	0.000	0.000	0.000	0.000	0.000
170.0	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	225.19	N.A.	14.10
0-30	461.85	N.A.	29.00
0-40	728.89	N.A.	45.70
0-60	1211.79	N.A.	76.00
0-80	1508.53	N.A.	94.60
0-90	1570.63	N.A.	98.50
10-90	1510.84	N.A.	94.80
20-40	503.70	N.A.	31.60
20-50	761.98	N.A.	47.80
40-70	659.77	N.A.	41.40
60-80	296.74	N.A.	18.60
70-80	119.88	N.A.	7.50
80-90	62.10	N.A.	3.90
90-110	22.22	N.A.	1.40
90-120	23.27	N.A.	1.50
90-130	23.31	N.A.	1.50
90-150	23.31	N.A.	1.50
90-180	23.31	N.A.	1.50
110-180	1.09	N.A.	0.10
0-180	1593.94	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	59.79
10-20	165.40
20-30	236.67
30-40	267.03
40-50	258.28
50-60	224.61
60-70	176.87
70-80	119.88
80-90	62.10
90-100	18.88
100-110	3.35
110-120	1.05
120-130	0.04
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

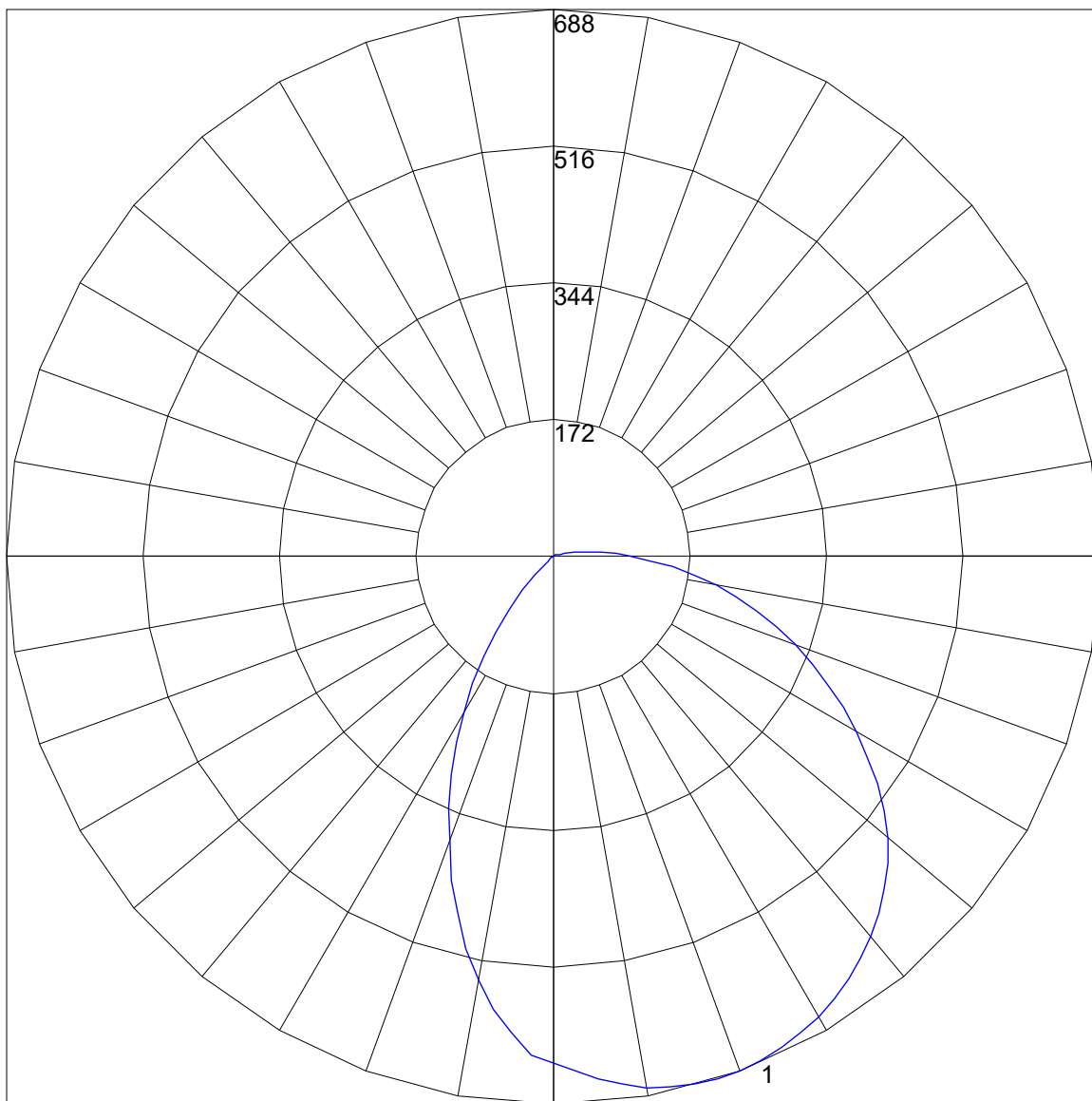
Effective Floor Cavity Reflectance 0.20

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	116	116	116	116	110	110	110	105	105	105	101	101	101	99
1	108	103	98	94	105	100	96	92	96	92	89	91	89	86	88	85	83	81
2	98	89	82	77	95	87	81	76	84	78	74	80	76	72	77	73	70	68
3	89	79	71	64	87	77	69	63	74	67	62	71	65	61	68	63	59	57
4	82	70	61	54	80	69	60	54	66	59	53	63	57	52	61	56	51	49
5	76	63	54	47	73	62	53	47	59	52	46	57	51	46	55	50	45	43
6	70	57	48	41	68	56	47	41	54	46	41	52	45	40	50	44	40	38
7	65	52	43	37	63	51	43	37	49	42	36	48	41	36	46	40	36	34
8	61	47	39	33	59	47	38	33	45	38	33	44	37	32	42	36	32	30
9	57	44	35	30	55	43	35	30	42	35	30	40	34	29	39	33	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

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POLAR GRAPH



Maximum Candela = 687.629 Located At Horizontal Angle = 0, Vertical Angle = 17.5

1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)