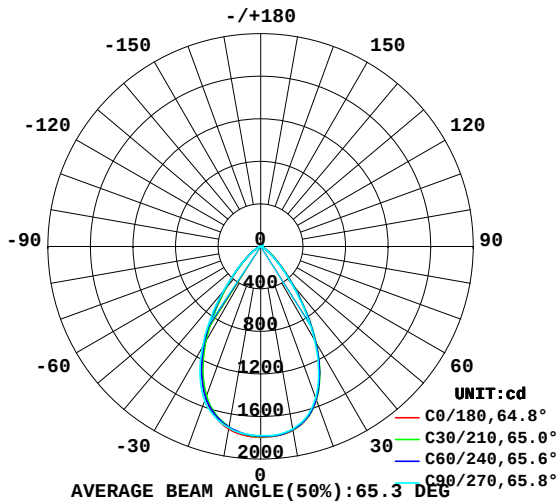


LUMINAIRE PHOTOMETRIC TEST REPORT

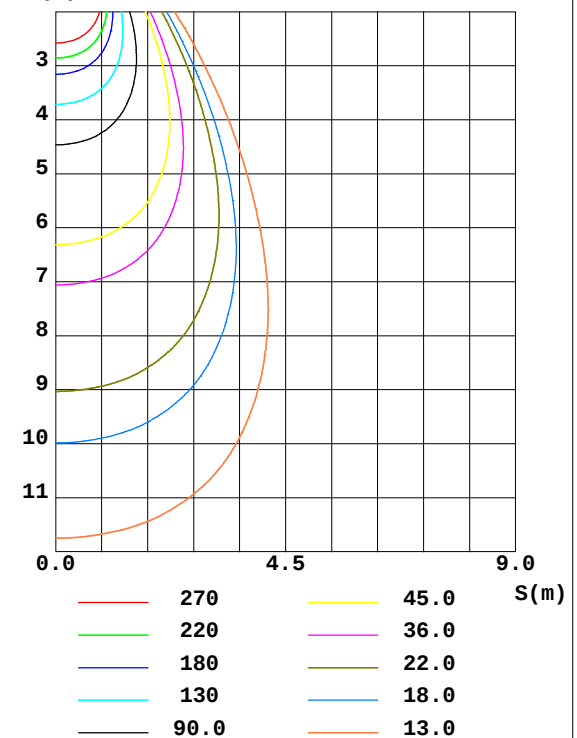
Test:U:220.6V I:0.0970A P:19.60W PF:0.9190 Lamp Flux:2143.71x1 lm		
NAME: PS-TL20W40KD6080RA-D	TYPE: LED	
MFR.:		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 109.37 lm/W			
MODEL	PS-TL20W40KD6080RA-D	I _{max} (cd)	1794	S/MH(C0/180)	0.96
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	0.95
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	2143.7	η UP, DN(C0-180)	1.7, 46.5
NOMINAL FLUX(lm)	2143.71	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.6, 50.1
LAMPS INSIDE	1	η up(%)	3.4	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	220.6	η down(%)	96.6	CIBSE SHR MAX	1.00

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-11-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1755	1751	1742	1721	1741	1723	1731	1746	0- 10	168.2	168.2	7.85,7.85
20	1531	1530	1514	1468	1511	1502	1542	1575	10- 20	464.2	632.4	29.5,29.5
30	1033	1039	1013	959.4	1043	1053	1099	1125	20- 30	595.4	1228	57.3,57.3
40	476.1	476.4	451.0	424.5	503.7	516.5	539.1	551.7	30- 40	469.8	1698	79.2,79.2
50	174.4	169.9	156.6	149.5	193.0	192.0	194.7	203.1	40- 50	238.7	1936	90.3,90.3
60	55.84	55.10	51.97	47.91	63.48	63.26	66.61	70.32	50- 60	97.64	2034	94.9,94.9
70	8.538	8.493	8.572	7.276	11.58	11.68	13.80	14.44	60- 70	29.58	2063	96.3,96.3
80	1.654	1.660	1.619	1.608	3.892	3.859	3.838	3.883	70- 80	5.152	2069	96.5,96.5
90	2.400	2.440	2.500	2.541	4.206	4.273	4.195	4.120	80- 90	3.180	2072	96.6,96.6
100	4.234	4.287	4.387	4.466	5.562	5.536	5.436	5.332	90-100	4.441	2076	96.9,96.9
110	6.816	6.867	7.033	7.114	7.323	7.273	7.141	7.015	100-110	6.274	2083	97.1,97.1
120	10.01	10.03	10.19	10.34	9.771	9.688	9.482	9.309	110-120	8.330	2091	97.5,97.5
130	13.97	13.92	13.97	14.24	12.90	12.88	12.58	12.40	120-130	10.33	2101	98.08
140	18.07	17.94	17.95	18.20	16.74	16.50	16.12	15.96	130-140	11.78	2113	98.6,98.6
150	21.45	21.25	21.27	21.29	20.07	19.75	19.48	19.29	140-150	11.83	2125	99.1,99.1
160	23.54	23.27	23.20	22.99	22.34	21.86	21.67	21.58	150-160	9.956	2135	99.6,99.6
170	25.26	24.76	24.51	24.35	24.31	23.61	23.35	23.35	160-170	6.581	2141	99.9,99.9
180	26.16	25.43	25.10	25.12	26.23	25.44	25.05	25.12	170-180	2.354	2144	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-11-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

Range: 0 - 180DEG
Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

WEC AND CCEC

Test:U:220.6V I:0.0970A P:19.60W PF:0.9190 Lamp Flux:2143.71x1 lm											
NAME: PS-TL20W40KD6080RA-D						TYPE:LED					
MFR.:											

ρ_{CC}	80%			70%			50%			30%			10%			0
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.199	.113	.036	.191	.109	.035	.177	.101	.032	.163	.094	.030	.151	.087	.028	
2.0	.192	.105	.032	.185	.102	.031	.173	.096	.030	.161	.090	.028	.151	.085	.027	
3.0	.183	.098	.029	.178	.095	.029	.167	.090	.027	.157	.086	.026	.147	.081	.025	
4.0	.175	.091	.027	.169	.089	.026	.160	.085	.025	.151	.081	.024	.143	.077	.024	
5.0	.166	.085	.024	.161	.083	.024	.153	.080	.023	.145	.076	.023	.137	.073	.022	
6.0	.158	.079	.023	.154	.078	.022	.146	.075	.022	.139	.072	.021	.132	.070	.021	
7.0	.150	.074	.021	.147	.073	.021	.140	.071	.020	.133	.068	.020	.127	.066	.019	
8.0	.143	.070	.020	.140	.069	.019	.134	.067	.019	.128	.065	.019	.122	.063	.018	
9.0	.137	.066	.018	.134	.065	.018	.128	.063	.018	.123	.062	.018	.118	.060	.017	
10.0	.131	.063	.017	.128	.062	.017	.123	.060	.017	.118	.059	.017	.113	.057	.016	

ρ_{CC}	80%			70%			50%			30%			10%			0
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.216	.216	.216	.185	.185	.185	.126	.126	.126	.072	.072	.072	.023	.023	.023	
1.0	.198	.183	.169	.170	.157	.145	.116	.108	.101	.067	.062	.058	.021	.020	.019	
2.0	.185	.158	.136	.158	.136	.118	.109	.094	.082	.063	.055	.048	.020	.018	.016	
3.0	.174	.140	.113	.149	.121	.098	.102	.084	.068	.059	.049	.040	.019	.016	.013	
4.0	.165	.126	.096	.141	.108	.083	.097	.076	.058	.056	.044	.035	.018	.014	.011	
5.0	.157	.114	.083	.135	.099	.072	.093	.069	.051	.054	.041	.030	.017	.013	.010	
6.0	.150	.105	.074	.129	.091	.064	.089	.064	.045	.052	.038	.027	.017	.012	.009	
7.0	.143	.098	.066	.123	.085	.058	.085	.060	.041	.050	.035	.024	.016	.011	.008	
8.0	.138	.092	.061	.119	.080	.053	.082	.056	.037	.048	.033	.022	.015	.011	.007	
9.0	.133	.087	.056	.114	.076	.049	.079	.053	.035	.046	.031	.021	.015	.010	.007	
10.0	.128	.083	.053	.110	.072	.046	.077	.051	.033	.045	.030	.019	.014	.010	.006	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-11-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

Uncorrected UGR Table

Test:U:220.6V I:0.0970A P:19.60W PF:0.9190 Lamp Flux:2143.71x1 lm										
NAME: PS-TL20W40KD6080RA-D						TYPE:LED				
MFR.:										
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	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				
x = 2H y = 2H	23.2	24.2	23.5	24.5	24.7	22.9	23.9	23.2	24.2	24.4
3H	23.0	24.0	23.3	24.3	24.5	22.7	23.7	23.1	24.0	24.2
4H	22.9	23.8	23.3	24.1	24.4	22.6	23.6	23.0	23.8	24.1
6H	22.8	23.7	23.2	24.0	24.3	22.5	23.4	22.9	23.7	24.0
8H	22.8	23.6	23.2	23.9	24.3	22.5	23.3	22.9	23.6	24.0
12H	22.7	23.5	23.1	23.8	24.2	22.5	23.2	22.8	23.6	23.9
4H 2H	23.0	23.9	23.3	24.2	24.5	22.7	23.6	23.1	23.9	24.2
3H	22.9	23.6	23.2	24.0	24.3	22.6	23.4	23.0	23.7	24.0
4H	22.8	23.5	23.2	23.8	24.2	22.5	23.2	22.9	23.5	23.9
6H	22.7	23.3	23.1	23.7	24.1	22.4	23.0	22.8	23.4	23.8
8H	22.6	23.2	23.1	23.6	24.0	22.3	22.9	22.8	23.3	23.8
12H	22.6	23.1	23.0	23.5	24.0	22.3	22.8	22.8	23.2	23.7
8H 4H	22.6	23.2	23.1	23.6	24.0	22.3	22.9	22.8	23.3	23.7
6H	22.5	23.0	23.0	23.4	23.9	22.2	22.7	22.7	23.1	23.6
8H	22.5	22.9	23.0	23.3	23.8	22.2	22.6	22.7	23.1	23.6
12H	22.4	22.8	22.9	23.3	23.8	22.1	22.5	22.7	23.0	23.5
12H 4H	22.6	23.1	23.0	23.5	24.0	22.3	22.8	22.7	23.2	23.7
6H	22.4	22.9	23.0	23.3	23.8	22.2	22.6	22.7	23.1	23.6
8H	22.4	22.7	22.9	23.2	23.8	22.1	22.5	22.6	23.0	23.5
Variations with the observer position at spacings:										
S = 1.0H	+ 2.0 / - 4.7					+ 2.1 / - 5.1				
1.5H	+ 3.0 / - 3.2					+ 3.1 / - 3.3				
2.0H	+ 4.1 / - 5.3					+ 4.0 / - 5.2				

CIE Pub.117 Corrected 2144 lm Total Lamp Luminous Flux. (8log(F/F0) = 2.6)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-11-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:220.6V I:0.0970A P:19.60W PF:0.9190 Lamp Flux:2143.71x1 lm		
NAME: PS-TL20W40KD6080RA-D	TYPE: LED	
MFR.:		

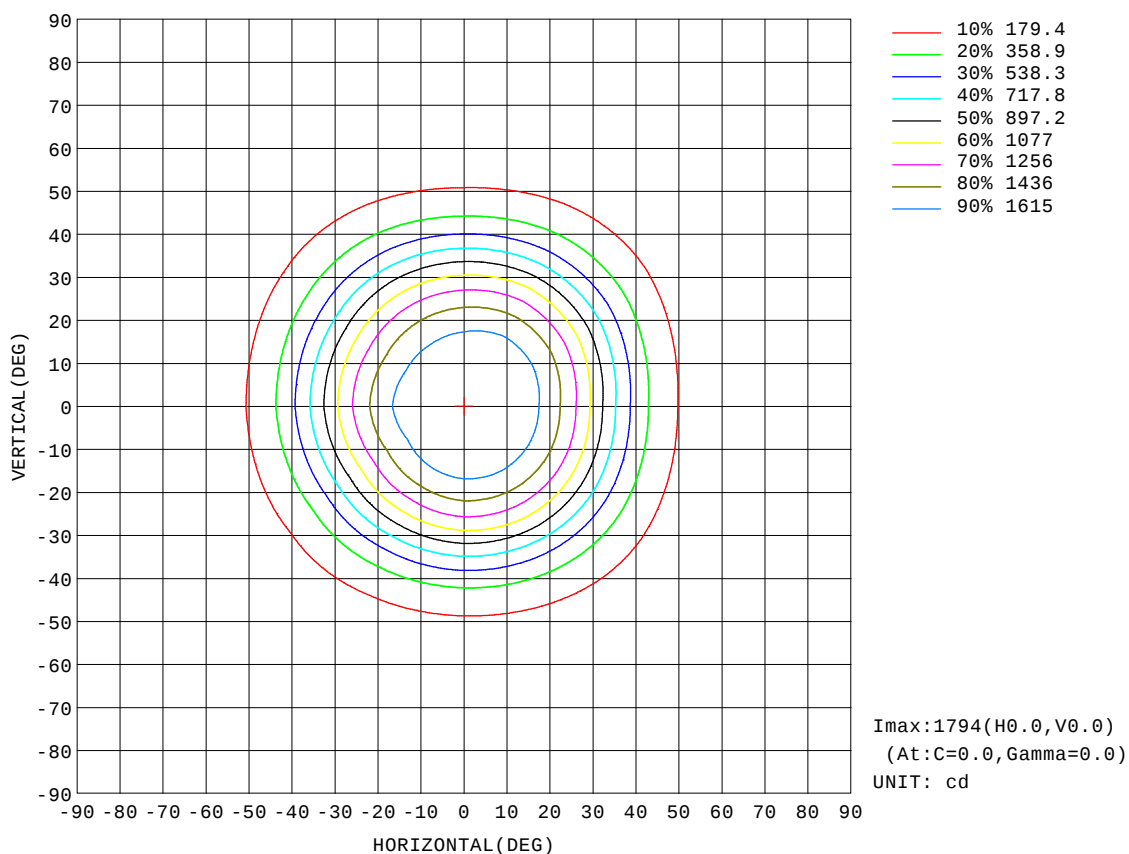
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	78	71	66	78	70	66	76	70	66	61
0.80	87	80	75	86	79	75	84	78	74	69
1.00	93	86	81	92	85	81	90	85	80	75
1.25	98	91	87	97	91	87	94	89	86	80
1.50	101	95	91	100	94	91	97	92	89	84
2.00	105	100	96	103	99	95	100	96	93	87
2.50	107	102	99	105	101	98	101	98	95	88
3.00	109	105	102	107	103	100	103	100	98	90
4.00	111	108	105	109	106	104	105	102	100	92
5.00	113	110	108	110	108	106	106	104	102	93
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-11-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

ISOCANDELA DIAGRAM

Test:U:220.6V I:0.0970A P:19.60W PF:0.9190 Lamp Flux:2143.71x1 lm		
NAME: PS-TL20W40KD6080RA-D	TYPE: LED	
MFR.:		



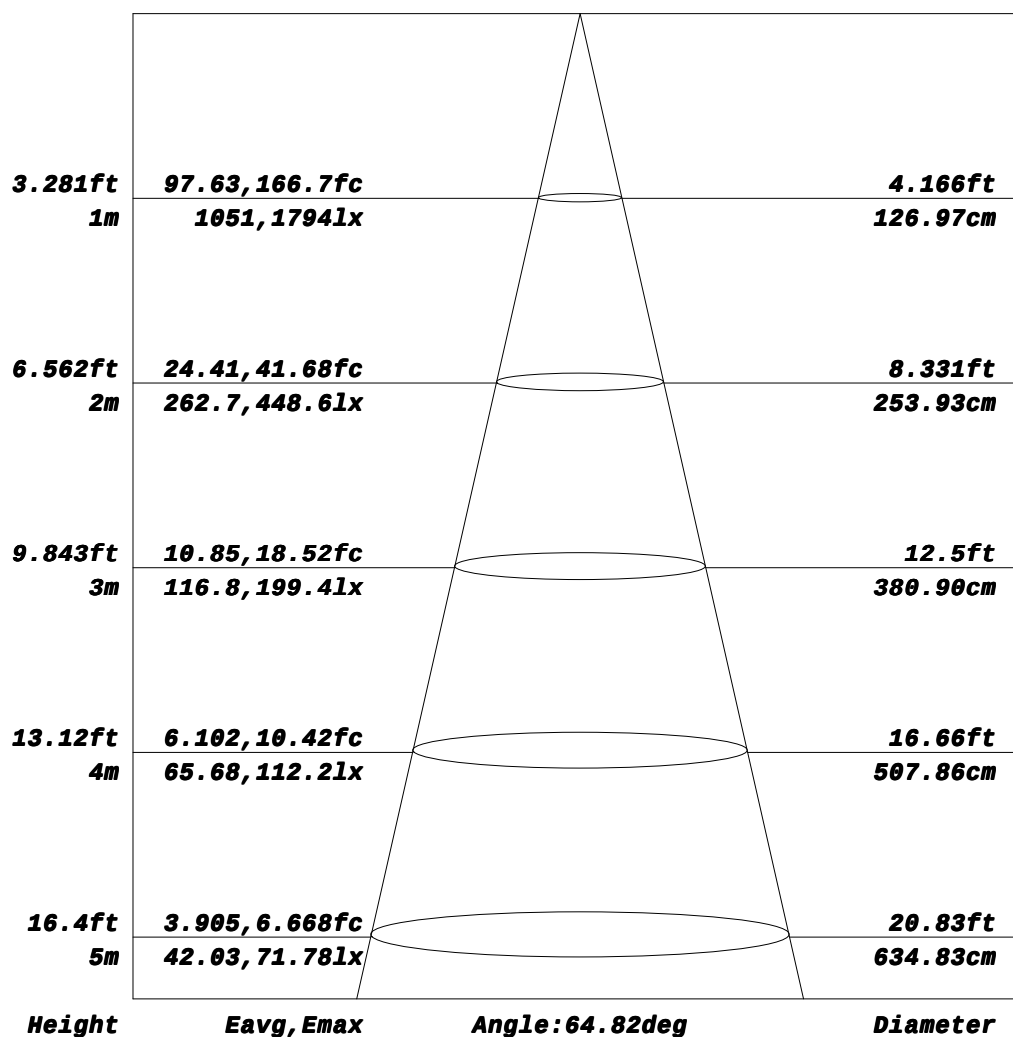
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-11-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

AAI Figure

Test:U:220.6V I:0.0970A P:19.60W PF:0.9190 Lamp Flux:2143.71x1 lm		
NAME: PS-TL20W40KD6080RA-D	TYPE: LED	
MFR.:		

Flux out:1392 lm



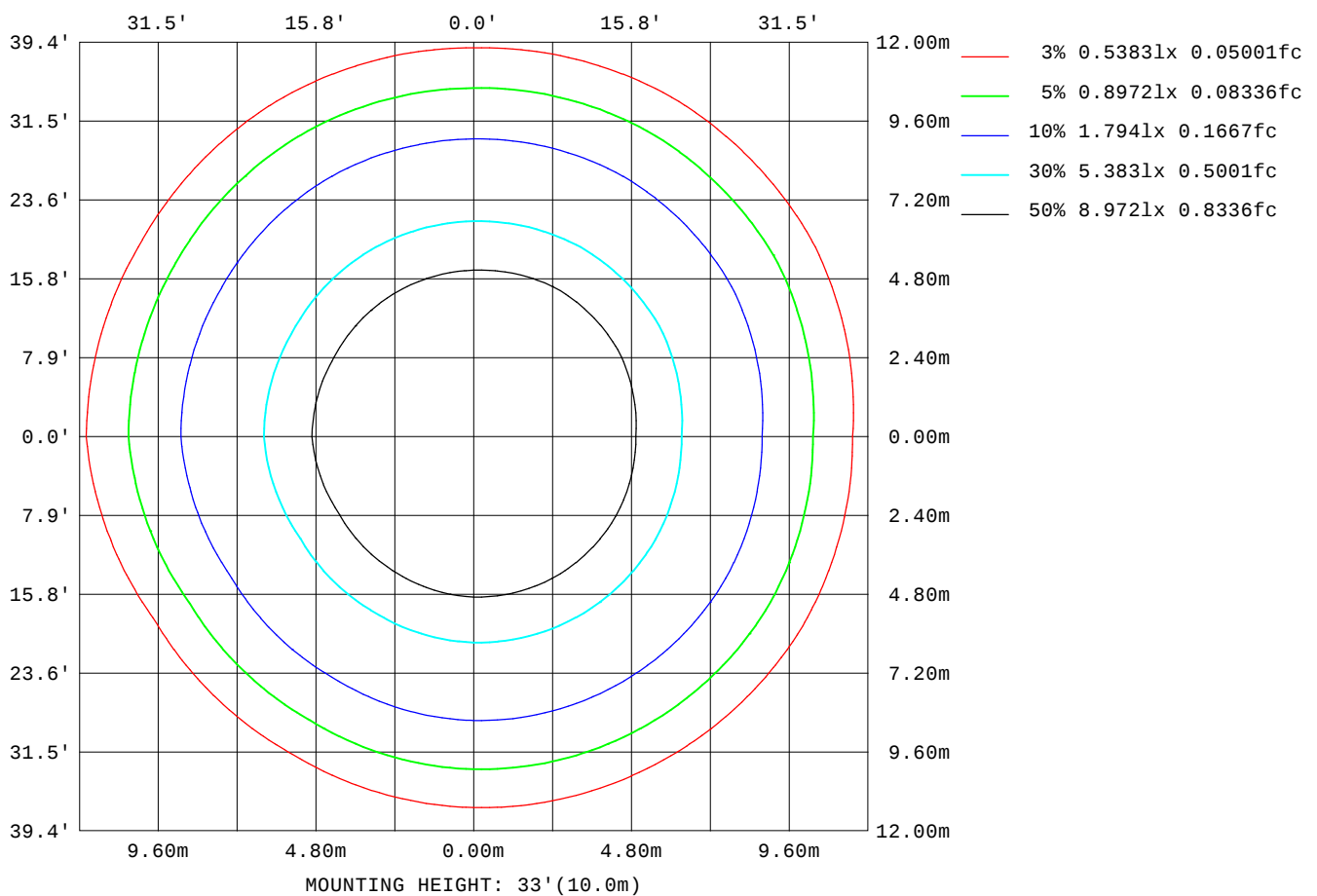
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-11-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

ISOLUX DIAGRAM

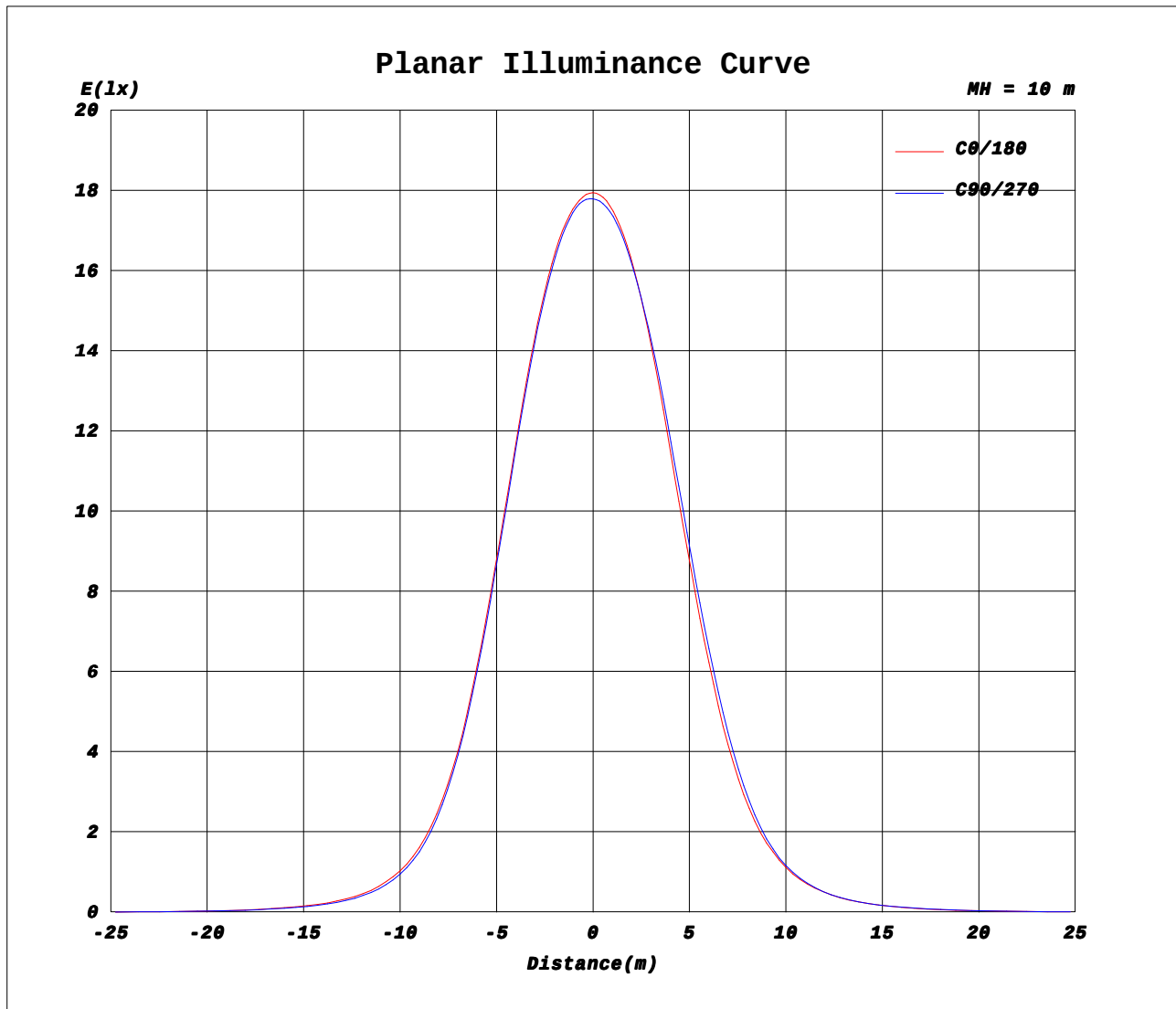
Test:U:220.6V I:0.0970A P:19.60W PF:0.9190 Lamp Flux:2143.71x1 lm		
NAME: PS-TL20W40KD6080RA-D	TYPE: LED	
MFR.:		



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-11-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-11-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.6V I:0.0970A P:19.60W PF:0.9190 Lamp Flux:2143.71x1 lm																	
NAME: PS-TL20W40KD6080RA-D									TYPE: LED								
MFR.:																	

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330						
0	1794	1789	1784	1779	1775	1772	1794	1789	1784	1779	1775	1772						
5	1785	1784	1782	1778	1769	1758	1782	1771	1769	1768	1770	1768						
10	1755	1753	1749	1742	1729	1713	1741	1721	1724	1731	1746	1745						
15	1676	1675	1671	1662	1641	1620	1656	1634	1644	1661	1687	1687						
20	1531	1532	1528	1514	1478	1457	1511	1491	1513	1542	1578	1572						
25	1312	1318	1313	1293	1247	1229	1298	1288	1317	1352	1384	1380						
30	1033	1046	1033	1013	964	954	1043	1035	1071	1099	1134	1116						
35	732	746	732	713	669	673	761	757	795	816	841	821						
40	476	484	469	451	421	428	504	503	530	539	559	545						
45	293	295	282	269	251	257	317	313	329	329	346	336						
50	174	175	165	157	146	153	193	188	196	195	206	201						
55	103	103	96.7	91.2	86.2	89.8	114	111	114	115	119	120						
60	55.8	56.6	53.8	52.0	47.0	48.8	63.5	61.4	65.1	66.6	70.2	70.5						
65	24.8	24.8	24.2	23.7	21.0	20.4	30.2	28.8	31.7	33.9	36.2	35.4						
70	8.54	8.60	8.39	8.57	7.46	7.09	11.6	11.1	12.2	13.8	14.8	14.0						
75	2.23	2.28	2.14	2.04	1.95	2.02	4.71	4.55	4.99	5.43	6.36	6.34						
80	1.65	1.66	1.66	1.62	1.61	1.61	3.89	3.85	3.87	3.84	3.88	3.89						
85	1.86	1.85	1.89	1.90	1.94	1.91	3.92	3.90	3.87	3.82	3.77	3.76						
90	2.41	2.41	2.47	2.51	2.56	2.52	4.30	4.30	4.24	4.19	4.11	4.12						
95	3.22	3.23	3.29	3.35	3.44	3.37	4.86	4.87	4.80	4.75	4.66	4.67						
100	4.23	4.24	4.33	4.39	4.50	4.43	5.56	5.58	5.49	5.44	5.32	5.34						
105	5.45	5.43	5.56	5.62	5.75	5.68	6.39	6.38	6.30	6.23	6.12	6.12						
110	6.82	6.81	6.92	7.03	7.14	7.08	7.32	7.32	7.22	7.14	7.02	7.01						
115	8.36	8.35	8.46	8.56	8.70	8.66	8.44	8.45	8.30	8.22	8.08	8.07						
120	10.0	9.98	10.1	10.2	10.4	10.3	9.77	9.76	9.62	9.48	9.31	9.31						
125	11.9	11.8	11.9	12.0	12.2	12.2	11.3	11.3	11.1	10.9	10.7	10.8						
130	14.0	13.9	14.0	14.0	14.2	14.2	13.0	13.0	12.8	12.6	12.4	12.4						
135	16.1	16.0	16.0	16.0	16.2	16.3	14.8	14.8	14.5	14.3	14.1	14.2						
140	18.1	18.0	17.9	17.9	18.1	18.3	16.7	16.6	16.4	16.1	15.9	16.0						
145	19.9	19.8	19.7	19.7	19.8	20.0	18.5	18.4	18.1	18.0	17.6	17.8						
150	21.4	21.3	21.2	21.3	21.3	21.3	20.1	19.9	19.6	19.5	19.2	19.3						
155	22.6	22.5	22.3	22.4	22.3	22.3	21.3	21.0	20.8	20.7	20.5	20.6						
160	23.5	23.4	23.1	23.2	23.0	22.9	22.3	21.9	21.8	21.7	21.5	21.6						
165	24.4	24.1	23.9	23.8	23.7	23.6	23.3	22.7	22.6	22.5	22.4	22.5						
170	25.3	24.9	24.6	24.5	24.4	24.3	24.3	23.7	23.5	23.3	23.3	23.4						
175	26.0	25.6	25.2	25.1	25.0	25.1	25.3	24.7	24.4	24.2	24.2	24.4						
180	26.2	25.6	25.2	25.1	25.0	25.2	26.2	25.6	25.3	25.1	25.0	25.2						

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-11-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks: