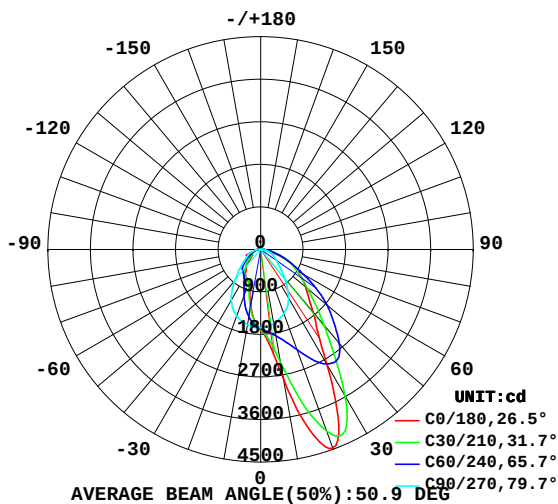


LUMINAIRE PHOTOMETRIC TEST REPORT

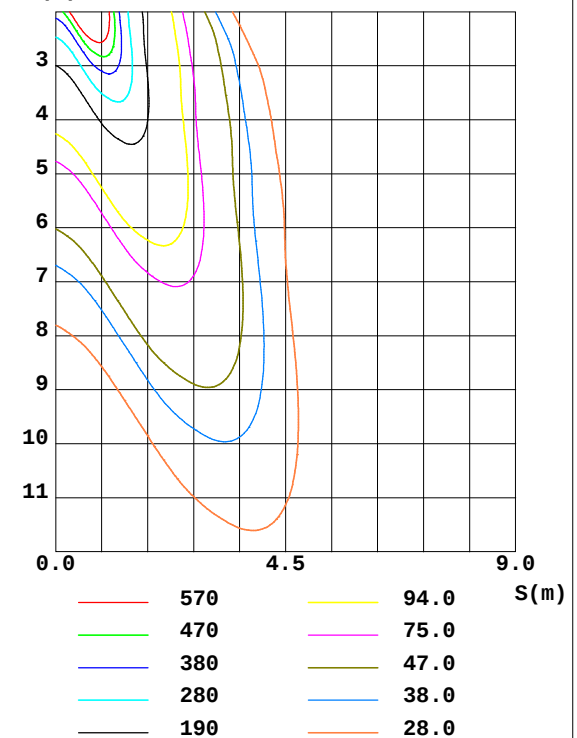
Test:U:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm		
NAME: PS-TLL-40W-B	TYPE:LED	
MFR.:		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 106.00 lm/W			
MODEL	PS-TLL-40W-B	I _{max} (cd)	4469	S/MH(C0/180)	1.53
NOMINAL POWER(W)	48	LOR(%)	100.0	S/MH(C90/270)	1.10
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	5013.7	η UP, DN(C0-180)	1.6, 51.5
NOMINAL FLUX(lm)	5013.67	CIE CLASS	DIRECT	η UP, DN(C180-360)	2.0, 44.8
LAMPS INSIDE	1	η up(%)	3.6	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	220.2	η down(%)	96.4	CIBSE SHR MAX	0.70

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: 2018-04-23

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	2774	2134	1592	1272	1219	1352	1618	2030	0- 10	161.4	161.4	3.22,3.22
20	4469	3173	1442	833.1	738.1	897.6	1497	3054	10- 20	536.5	697.8	13.9,13.9
30	2796	3183	1182	638.6	643.1	678.3	1251	3281	20- 30	900.2	1598	31.9,31.9
40	1727	2339	794.7	501.5	485.8	545.3	855.7	2491	30- 40	961.9	2560	51.1,51.1
50	1248	1567	497.3	338.4	274.4	391.4	535.9	1682	40- 50	832.1	3392	67.7,67.7
60	890.6	955.1	342.1	221.2	233.7	252.7	354.5	1044	50- 60	635.4	4027	80.3,80.3
70	503.3	527.6	232.8	190.9	271.3	221.2	255.8	588.4	60- 70	454.6	4482	89.4,89.4
80	146.1	205.2	105.6	85.04	127.7	103.6	122.8	251.1	70- 80	255.6	4738	94.5,94.5
90	43.35	37.93	8.357	33.79	64.82	43.53	14.24	58.26	80- 90	94.54	4832	96.4,96.4
100	32.90	20.63	10.22	28.41	48.16	33.81	13.13	24.35	90-100	32.13	4864	97,97
110	32.26	23.58	14.07	30.11	37.98	30.01	16.41	27.43	100-110	28.12	4892	97.6,97.6
120	22.86	17.01	18.43	32.03	48.50	34.03	20.15	21.42	110-120	27.55	4920	98.1,98.1
130	16.93	15.91	23.07	34.22	46.33	35.50	24.02	19.19	120-130	23.58	4944	98.6,98.6
140	17.28	19.49	27.37	37.21	42.91	37.43	27.57	21.54	130-140	21.29	4965	99,99
150	23.16	24.84	31.17	39.31	45.05	39.13	30.68	25.59	140-150	19.21	4984	99.4,99.4
160	30.36	30.67	34.68	39.56	43.18	39.08	33.76	30.32	150-160	15.58	5000	99.7,99.7
170	37.93	35.93	37.85	40.14	44.51	39.78	36.86	35.04	160-170	10.33	5010	99.9,99.9
180	44.25	40.13	39.25	39.37	44.38	40.13	39.09	39.38	170-180	3.742	5014	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

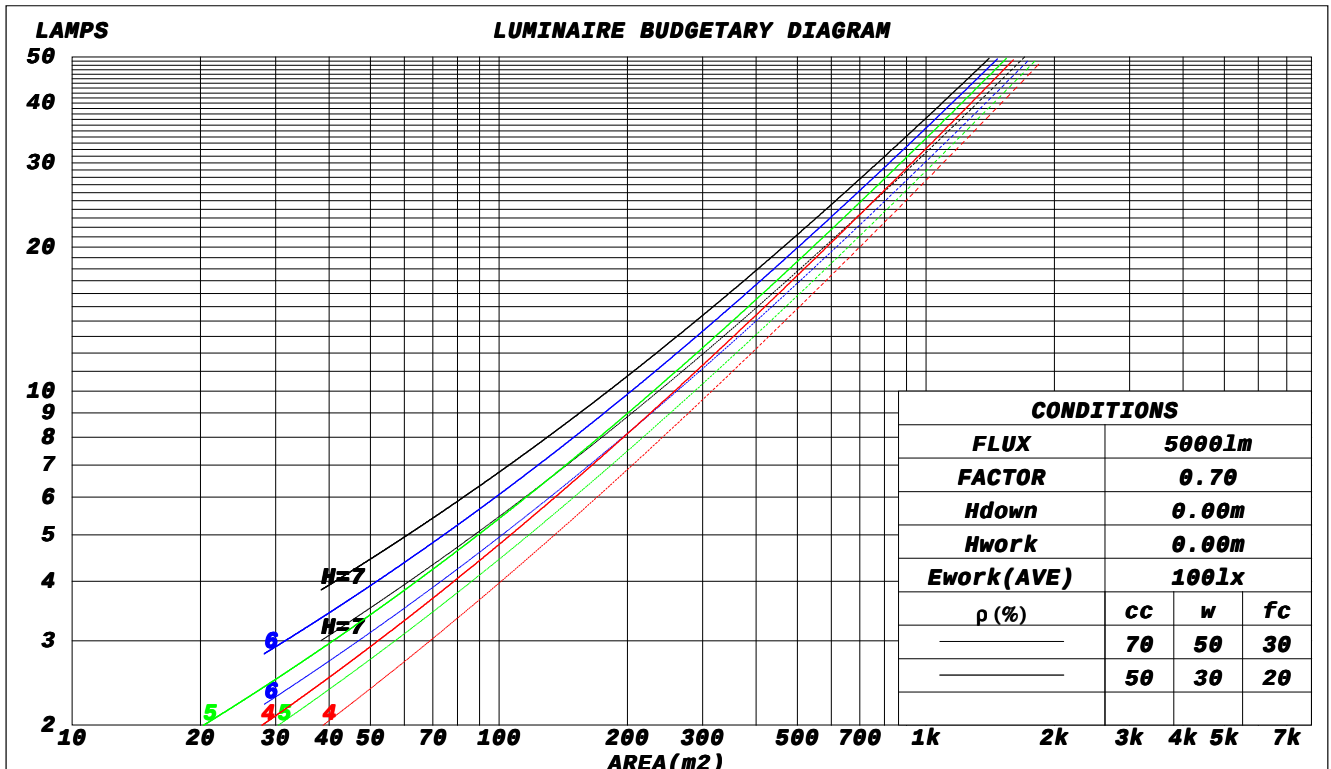
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-04-23

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:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm		
NAME: PS-TLL-40W-B	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						Coefficients of Utilization(CU)									
0.0	1.18	1.18	1.18	1.15	1.15	1.15	1.09	1.09	1.09	1.04	1.04	1.04	.99	.99	.99	.96
1.0	1.04	1.00	.97	1.02	.98	.95	.97	.94	.91	.92	.90	.88	.88	.86	.84	.82
2.0	.92	.85	.80	.90	.84	.79	.86	.81	.77	.82	.78	.74	.78	.75	.72	.70
3.0	.81	.74	.68	.80	.73	.67	.76	.70	.65	.73	.68	.64	.70	.66	.62	.60
4.0	.73	.64	.58	.71	.64	.58	.68	.62	.56	.66	.60	.55	.63	.58	.54	.52
5.0	.65	.57	.51	.64	.56	.50	.62	.55	.49	.59	.53	.49	.57	.52	.48	.46
6.0	.59	.51	.45	.58	.50	.44	.56	.49	.44	.54	.48	.43	.52	.47	.42	.40
7.0	.54	.46	.40	.53	.45	.39	.51	.44	.39	.49	.43	.38	.48	.42	.38	.36
8.0	.49	.41	.36	.49	.41	.35	.47	.40	.35	.45	.39	.35	.44	.38	.34	.32
9.0	.45	.38	.32	.45	.37	.32	.43	.36	.32	.42	.36	.31	.41	.35	.31	.29
10.0	.42	.34	.29	.41	.34	.29	.40	.33	.29	.39	.33	.29	.38	.32	.28	.27



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2018-04-23

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:

WEC AND CCEC

Test:U:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm											
NAME: PS-TLL-40W-B						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	.288	.164	.052	.280	.160	.051	.264	.152	.048	.250	.144	.046	.238	.138	.044			
2.0	.270	.148	.045	.263	.145	.045	.250	.139	.043	.237	.133	.042	.226	.128	.040			
3.0	.251	.134	.040	.245	.131	.039	.233	.126	.038	.222	.122	.037	.212	.117	.036			
4.0	.233	.121	.036	.227	.119	.035	.217	.115	.034	.207	.111	.034	.198	.107	.033			
5.0	.216	.110	.032	.211	.109	.032	.202	.105	.031	.193	.102	.030	.185	.099	.030			
6.0	.202	.101	.029	.197	.100	.029	.189	.097	.028	.181	.094	.028	.173	.091	.027			
7.0	.189	.093	.026	.185	.092	.026	.177	.089	.026	.170	.087	.025	.163	.085	.025			
8.0	.177	.086	.024	.173	.085	.024	.166	.083	.024	.160	.081	.023	.154	.079	.023			
9.0	.167	.081	.022	.163	.080	.022	.157	.078	.022	.151	.076	.022	.145	.074	.021			
10.0	.157	.075	.021	.154	.074	.021	.148	.073	.020	.143	.071	.020	.138	.069	.020			

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	.218	.218	.218	.186	.186	.186	.127	.127	.127	.073	.073	.073	.023	.023	.023	
1.0	.207	.184	.164	.177	.158	.141	.121	.109	.098	.070	.063	.057	.022	.020	.018	
2.0	.197	.160	.129	.169	.138	.111	.116	.095	.078	.067	.055	.045	.021	.018	.015	
3.0	.189	.142	.105	.162	.123	.091	.111	.085	.064	.064	.050	.038	.021	.016	.012	
4.0	.181	.129	.089	.155	.111	.077	.107	.078	.054	.062	.045	.032	.020	.015	.011	
5.0	.174	.118	.078	.149	.102	.068	.103	.072	.048	.060	.042	.028	.019	.014	.009	
6.0	.167	.110	.069	.143	.095	.060	.099	.067	.043	.057	.039	.025	.019	.013	.008	
7.0	.160	.103	.063	.138	.089	.055	.095	.063	.039	.055	.037	.023	.018	.012	.008	
8.0	.154	.097	.058	.133	.084	.051	.092	.059	.036	.053	.035	.022	.017	.011	.007	
9.0	.148	.092	.055	.128	.080	.048	.088	.056	.034	.052	.033	.020	.017	.011	.007	
10.0	.143	.088	.052	.123	.077	.045	.085	.054	.032	.050	.032	.019	.016	.010	.006	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-04-23

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:

Uncorrected UGR Table

Test:U:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm										
NAME: PS-TLL-40W-B					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	28.2	29.6	28.5	29.8	30.1	27.6	28.9	27.9	29.2	29.5
3H	29.4	30.7	29.8	31.0	31.3	28.1	29.4	28.5	29.7	30.0
4H	29.7	30.9	30.1	31.2	31.6	28.3	29.5	28.7	29.8	30.2
6H	29.9	31.0	30.3	31.3	31.7	28.5	29.6	28.8	29.9	30.3
8H	29.9	31.0	30.3	31.4	31.7	28.5	29.6	28.9	29.9	30.3
12H	29.9	31.0	30.3	31.4	31.7	28.5	29.5	28.9	29.9	30.3
4H 2H	28.7	29.9	29.1	30.2	30.6	28.2	29.4	28.6	29.7	30.1
3H	30.1	31.2	30.5	31.5	31.9	29.1	30.2	29.5	30.5	30.9
4H	30.6	31.5	31.0	31.9	32.3	29.5	30.4	29.9	30.8	31.2
6H	30.8	31.7	31.3	32.1	32.5	29.7	30.6	30.2	31.0	31.4
8H	30.9	31.7	31.4	32.1	32.6	29.8	30.6	30.3	31.0	31.5
12H	31.0	31.7	31.4	32.1	32.6	29.8	30.5	30.3	31.0	31.5
8H 4H	30.7	31.5	31.2	31.9	32.4	29.8	30.6	30.2	31.0	31.4
6H	31.1	31.8	31.6	32.2	32.7	30.2	30.9	30.7	31.3	31.8
8H	31.3	31.9	31.8	32.3	32.9	30.4	31.0	30.9	31.4	32.0
12H	31.4	31.9	31.9	32.4	33.0	30.5	31.0	31.0	31.5	32.1
12H 4H	30.7	31.4	31.2	31.9	32.4	29.8	30.5	30.3	30.9	31.4
6H	31.2	31.7	31.7	32.2	32.8	30.3	30.8	30.8	31.3	31.9
8H	31.4	31.8	31.9	32.4	32.9	30.5	31.0	31.0	31.5	32.1
Variations with the observer position at spacings:										
S = 1.0H	+ 0.3 / - 0.4					+ 0.7 / - 0.5				
1.5H	+ 0.2 / - 0.3					+ 1.0 / - 1.5				
2.0H	+ 0.2 / - 0.3					+ 1.0 / - 2.0				

CIE Pub.117 Corrected 5014 lm Total Lamp Luminous Flux. (8log(F/F0) = 5.6)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-04-23

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:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm		
NAME: PS-TLL-40W-B	TYPE: LED	
MFR.:		

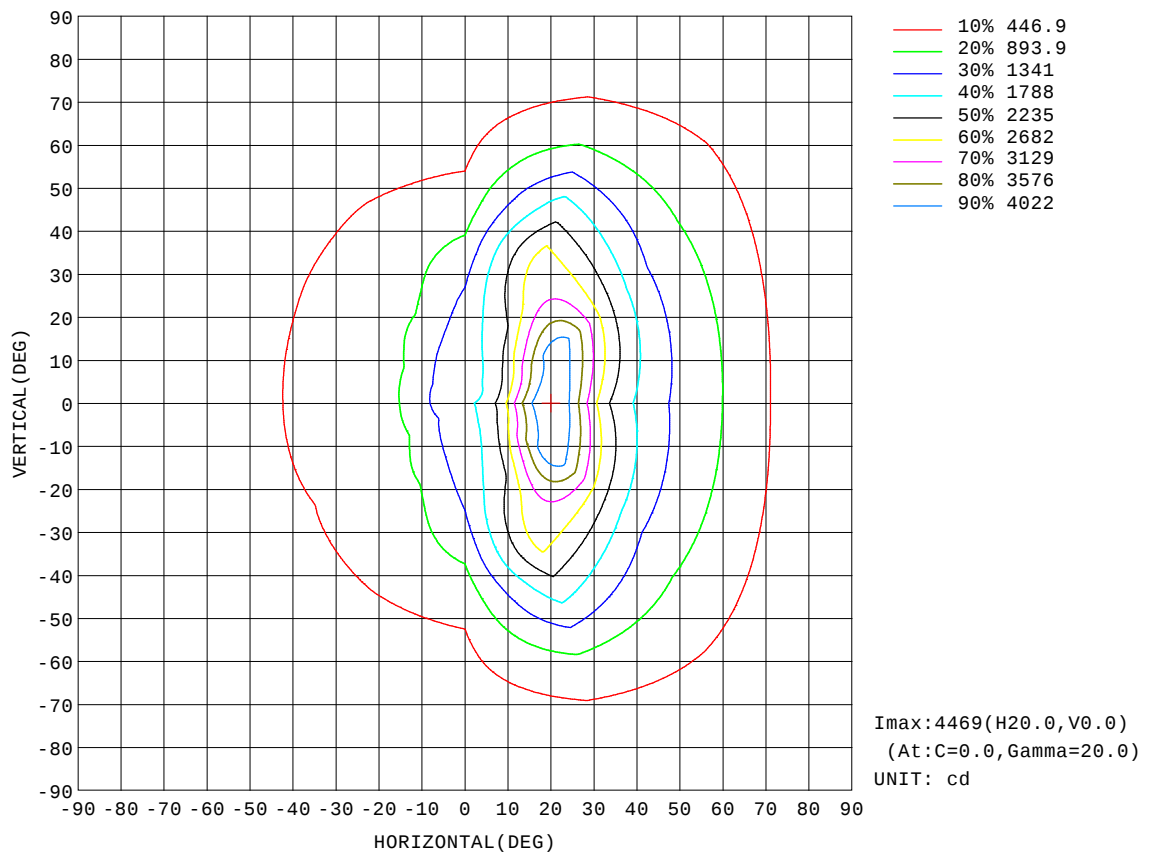
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	61	51	44	60	50	44	59	50	44	38
0.80	71	60	54	70	60	53	68	59	53	46
1.00	79	69	62	78	68	62	75	69	61	54
1.25	85	76	69	84	75	69	81	73	68	61
1.50	90	81	75	88	80	74	85	78	73	65
2.00	96	88	82	94	87	81	90	84	80	72
2.50	100	93	87	98	91	86	93	88	84	75
3.00	103	96	91	100	95	90	96	91	87	78
4.00	106	101	97	104	99	95	99	95	92	82
5.00	109	104	100	106	102	98	101	98	95	85
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHR _{NOM} = 1.25		

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-04-23

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:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm		
NAME: PS-TLL-40W-B	TYPE: LED	
MFR.:		

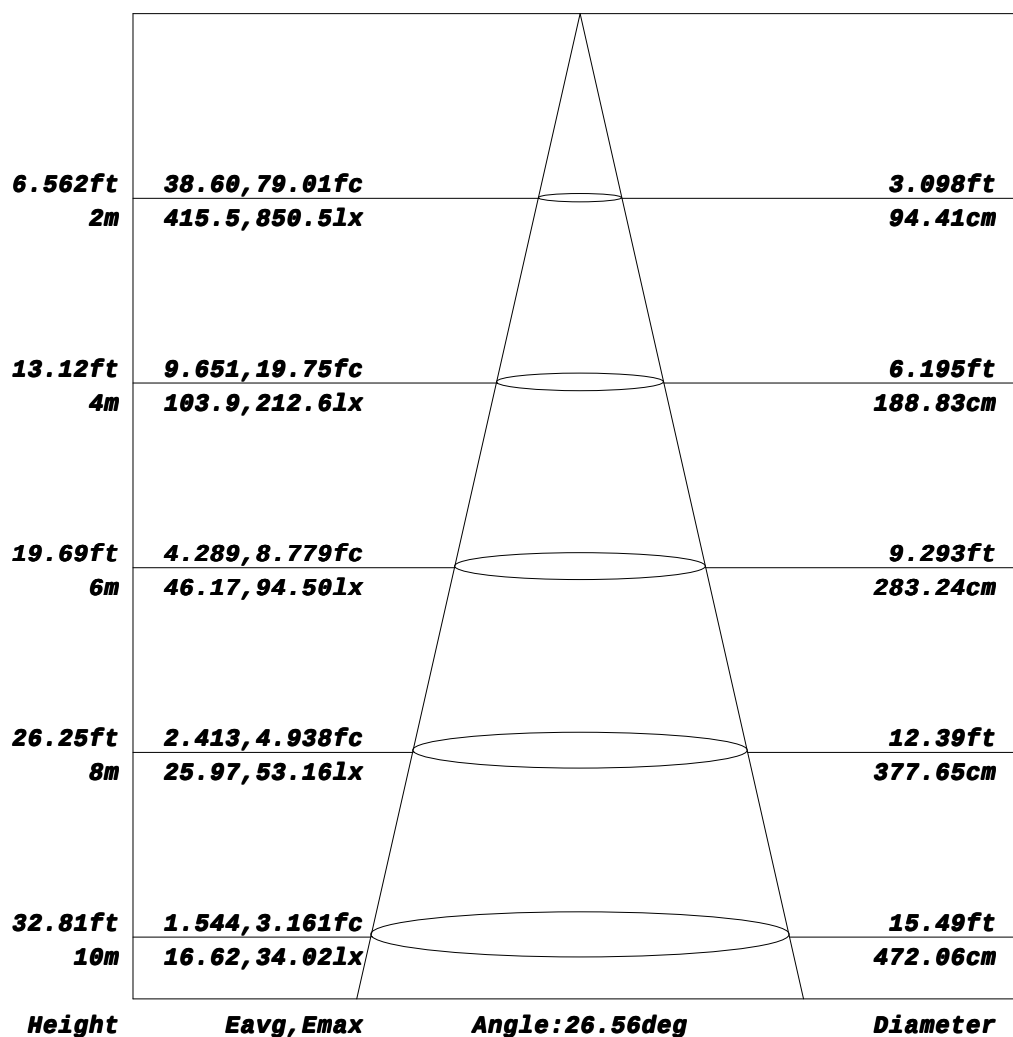


C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-04-23

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:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm		
NAME: PS-TLL-40W-B	TYPE: LED	
MFR.:		

Flux out:324.6 lm


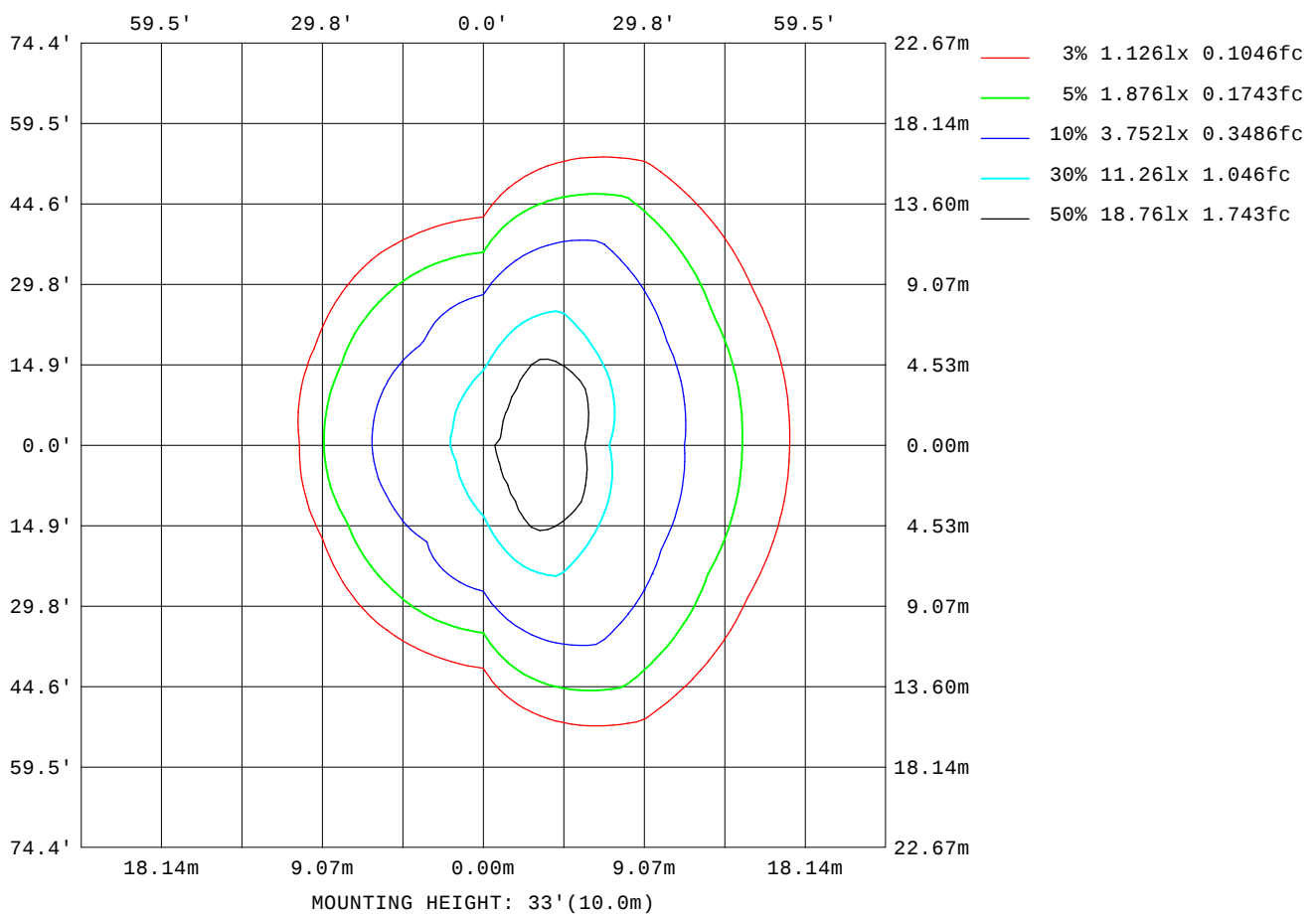
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-04-23

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

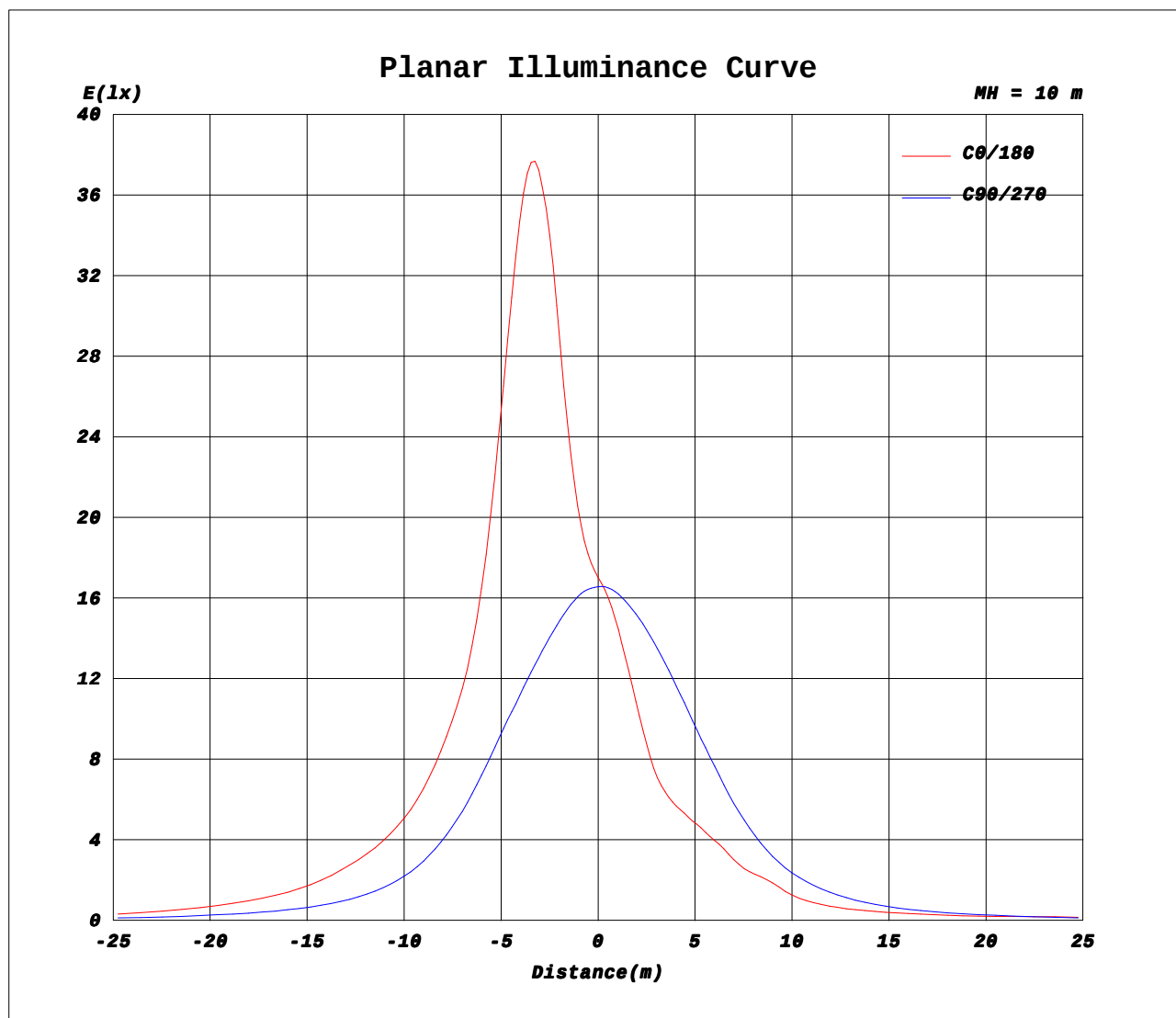
Test:U:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm		
NAME: PS-TLL-40W-B	TYPE: LED	
MFR.:		



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-04-23

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: 2018-04-23

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:220.2V I:0.2180A P:47.30W PF:0.9820 Lamp Flux:5013.67x1 lm																	
NAME: PS-TLL-40W-B									TYPE: LED								
MFR.:																	

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330						
0	1705	1693	1678	1657	1639	1629	1705	1693	1678	1657	1639	1629						
5	1984	1897	1752	1642	1535	1443	1519	1530	1591	1652	1719	1799						
10	2774	2413	1855	1592	1371	1172	1219	1257	1448	1618	1824	2236						
15	3923	3332	2020	1525	1164	888	907	965	1263	1570	1988	3059						
20	4469	4088	2257	1442	949	717	738	756	1039	1497	2215	3893						
25	3871	4229	2563	1339	765	660	689	686	840	1393	2507	4246						
30	2796	3570	2796	1182	655	623	643	652	704	1251	2770	3791						
35	2095	2715	2840	988	592	555	551	610	637	1058	2882	2954						
40	1727	2094	2584	795	547	457	486	497	594	856	2719	2263						
45	1440	1639	2194	624	495	379	359	446	550	672	2341	1777						
50	1248	1305	1830	497	399	278	274	319	464	536	1962	1402						
55	1060	1062	1430	405	315	231	243	264	363	428	1549	1135						
60	891	879	1031	342	243	199	234	225	280	354	1152	936						
65	741	718	729	289	201	198	278	207	224	306	811	770						
70	503	547	508	233	163	218	271	259	183	256	575	601						
75	277	348	343	170	123	116	163	142	150	191	401	409						
80	146	200	210	106	84.1	85.9	128	102	105	123	256	246						
85	82.2	97.2	106	44.8	44.0	59.2	94.5	73.7	61.8	60.6	142	127						
90	43.3	43.1	32.7	8.36	26.5	41.1	64.8	52.6	34.5	14.2	56.1	60.4						
95	32.0	26.4	19.5	9.18	24.3	36.6	43.6	41.0	29.1	12.4	25.6	32.5						
100	32.9	26.7	14.6	10.2	22.4	34.4	48.2	40.6	27.0	13.1	19.0	29.7						
105	32.2	30.7	14.5	12.1	23.2	35.0	41.7	38.2	26.0	14.7	18.5	34.2						
110	32.3	33.0	14.1	14.1	23.9	36.4	38.0	35.3	24.7	16.4	17.8	37.1						
115	28.7	27.6	12.7	16.2	24.0	41.8	49.3	44.0	26.8	18.2	17.1	32.5						
120	22.9	21.4	12.7	18.4	25.6	38.5	48.5	41.1	27.0	20.1	15.7	27.1						
125	19.0	17.4	14.3	20.7	28.0	39.1	44.2	40.7	28.8	22.1	16.9	22.5						
130	16.9	15.4	16.4	23.1	30.3	38.1	46.3	40.3	30.7	24.0	18.6	19.8						
135	15.9	15.9	18.6	25.3	32.2	38.7	44.3	39.6	32.3	25.8	20.4	19.3						
140	17.3	18.1	20.9	27.4	33.7	40.7	42.9	41.3	33.6	27.6	22.4	20.7						
145	20.0	20.6	23.5	29.3	35.0	42.1	44.4	42.5	34.5	29.2	24.4	22.5						
150	23.2	23.6	26.1	31.2	36.2	42.4	45.1	42.8	35.5	30.7	26.5	24.7						
155	26.6	26.9	28.6	32.9	37.3	41.8	44.4	42.0	36.4	32.2	28.6	27.2						
160	30.4	30.3	31.0	34.7	38.4	40.7	43.2	40.8	37.3	33.8	30.7	29.9						
165	34.4	33.5	33.4	36.4	39.3	40.1	42.9	40.1	38.3	35.3	32.8	32.7						
170	37.9	36.2	35.6	37.8	39.7	40.5	44.5	40.5	39.1	36.9	34.8	35.3						
175	41.1	38.9	37.7	39.0	39.7	41.1	45.7	41.2	39.5	38.1	36.8	37.7						
180	44.2	41.0	39.2	39.2	38.6	40.1	44.4	40.9	39.4	39.1	38.8	40.0						

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2018-04-23

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: