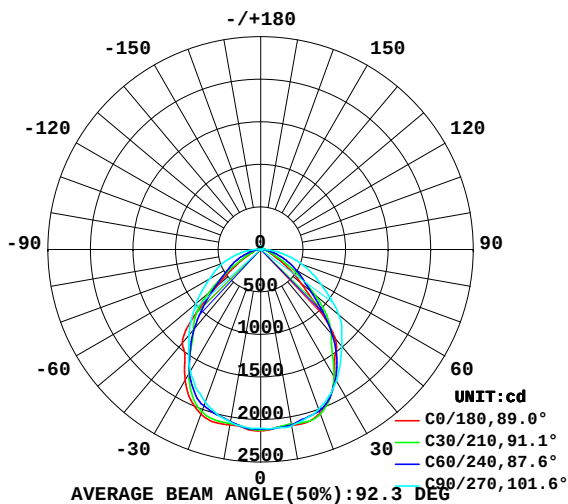


LUMINAIRE PHOTOMETRIC TEST REPORT

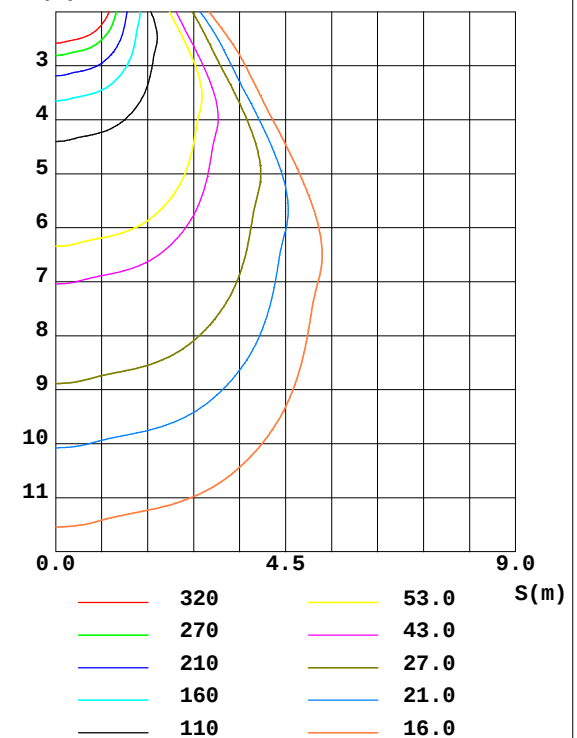
Test:U:220.2V I:0.2180A P:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm		
NAME: PS-TLL-40W-A	TYPE: LED	
MFR.:		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 98.67 lm/W			
MODEL	PS-TLL-40W-A	I _{max} (cd)	2133	S/MH(C0/180)	1.20
NOMINAL POWER(W)	48	LOR(%)	100.0	S/MH(C90/270)	1.25
RATED VOLTAGE(V)	220.2	TOTAL FLUX(lm)	4657.2	η UP, DN(C0-180)	1.7, 48.8
NOMINAL FLUX(lm)	4657.19	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.8, 47.8
LAMPS INSIDE	1	η up(%)	3.5	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	220.2	η down(%)	96.5	CIBSE SHR MAX	1.25

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	2100	2088	2107	2061	2094	2066	2058	2052	0- 10	199.3	199.3	4.28,4.28
20	2046	2038	1997	2001	2059	1992	1908	1977	10- 20	579.5	778.8	16.7,16.7
30	1733	1742	1782	1671	1777	1682	1654	1716	20- 30	865.7	1644	35.3,35.3
40	1359	1299	1483	1244	1438	1222	1311	1265	30- 40	939.5	2584	55.5,55.5
50	620.1	805.6	1201	756.9	676.1	768.5	992.5	802.0	40- 50	820.0	3404	73.1,73.1
60	261.6	425.8	816.8	380.1	267.2	369.1	696.3	410.0	50- 60	539.8	3944	84.7,84.7
70	110.8	196.5	518.4	175.2	111.5	172.7	472.2	196.9	60- 70	316.1	4260	91.5,91.5
80	61.77	76.10	240.0	70.43	80.40	76.67	235.0	85.74	70- 80	170.0	4430	95.1,95.1
90	42.17	28.47	6.971	25.75	45.65	29.25	13.36	29.12	80- 90	64.61	4494	96.5,96.5
100	30.49	23.87	10.01	22.53	34.39	26.10	14.72	25.40	90-100	27.77	4522	97.1,97.1
110	23.74	18.71	13.85	18.78	27.82	23.04	18.32	22.03	100-110	23.41	4546	97.6,97.6
120	20.85	18.63	18.25	19.44	24.08	23.24	22.36	21.87	110-120	20.27	4566	98,98
130	24.10	22.42	23.20	23.36	26.44	26.57	26.70	24.86	120-130	20.37	4586	98.5,98.5
140	28.11	27.32	28.17	28.25	29.55	30.70	30.82	28.82	130-140	20.64	4607	98.9,98.9
150	32.47	32.05	32.78	32.58	33.11	34.21	34.43	32.56	140-150	19.41	4626	99.3,99.3
160	36.98	36.48	37.00	36.56	36.94	37.42	37.70	36.04	150-160	16.09	4642	99.7,99.7
170	41.18	40.66	40.60	40.23	40.89	40.47	40.46	39.42	160-170	10.89	4653	99.9,99.9
180	43.10	42.65	42.40	41.81	43.27	42.64	42.26	41.82	170-180	3.941	4657	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT: lm		

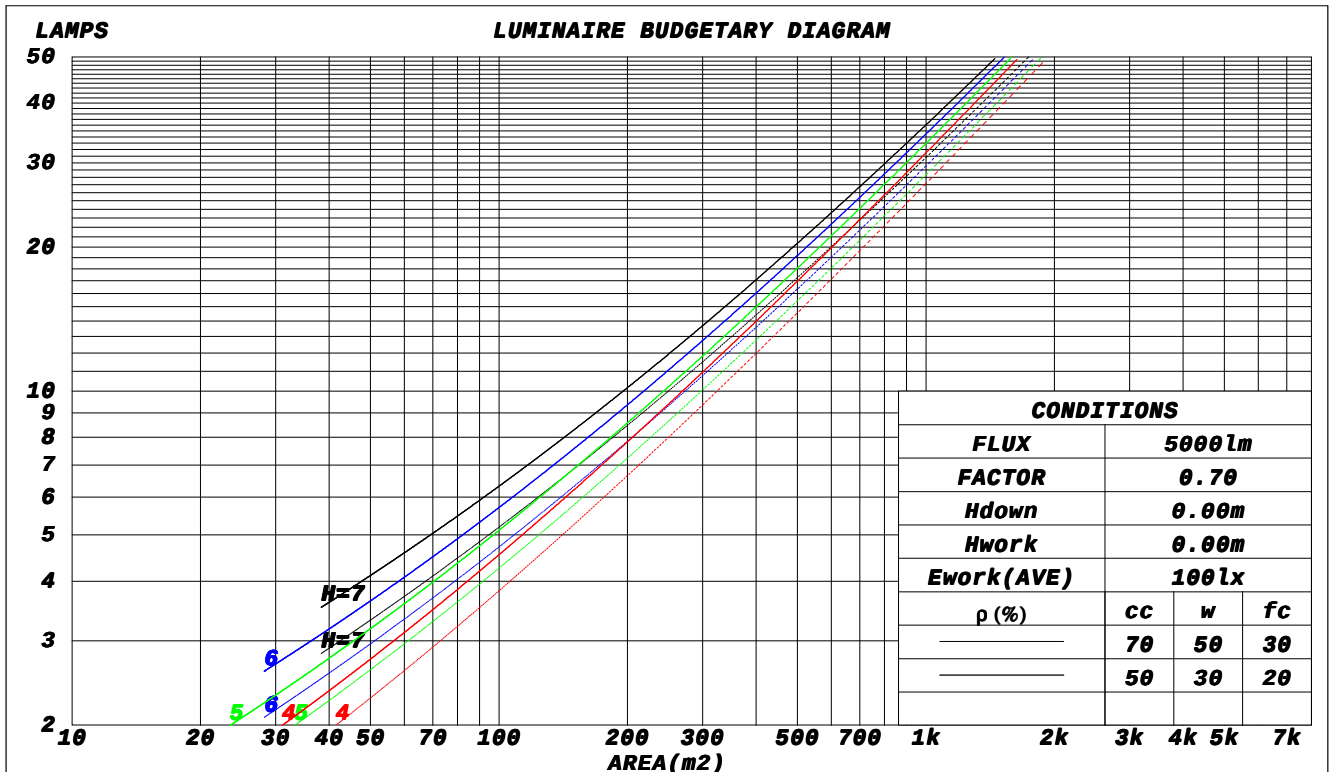
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-04-23

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:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm		
NAME: PS-TLL-40W-A	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	.97
1.0	1.05	1.02	.98	1.03	.99	.96	.98	.95	.93	.93	.91	.89	.89	.88	.86	.84
2.0	.94	.88	.83	.92	.86	.82	.88	.83	.79	.84	.80	.77	.80	.77	.75	.72
3.0	.84	.77	.71	.82	.75	.70	.79	.73	.68	.75	.71	.67	.73	.69	.65	.63
4.0	.75	.67	.61	.74	.67	.61	.71	.65	.60	.68	.63	.59	.66	.61	.57	.55
5.0	.68	.60	.54	.67	.59	.54	.64	.58	.53	.62	.56	.52	.60	.55	.51	.49
6.0	.62	.54	.48	.61	.53	.48	.59	.52	.47	.57	.51	.46	.55	.50	.46	.44
7.0	.57	.49	.43	.56	.48	.43	.54	.47	.42	.52	.46	.42	.51	.45	.41	.39
8.0	.52	.44	.39	.51	.44	.38	.50	.43	.38	.48	.42	.38	.47	.41	.37	.35
9.0	.48	.40	.35	.47	.40	.35	.46	.39	.35	.45	.39	.34	.43	.38	.34	.32
10.0	.44	.37	.32	.44	.37	.32	.43	.36	.32	.41	.36	.31	.40	.35	.31	.29



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:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm											
NAME: PS-TLL-40W-A						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	.266	.152	.048	.258	.147	.047	.243	.140	.045	.230	.132	.042	.217	.126	.041	
2.0	.252	.138	.042	.245	.135	.042	.232	.129	.040	.220	.123	.039	.209	.118	.037	
3.0	.236	.126	.038	.230	.123	.037	.219	.118	.036	.208	.114	.035	.198	.109	.034	
4.0	.221	.115	.034	.215	.113	.033	.205	.109	.032	.195	.105	.032	.186	.101	.031	
5.0	.206	.105	.030	.202	.103	.030	.192	.100	.029	.184	.097	.029	.176	.094	.028	
6.0	.193	.097	.028	.189	.095	.027	.181	.093	.027	.173	.090	.026	.166	.087	.026	
7.0	.181	.090	.025	.178	.088	.025	.170	.086	.025	.163	.084	.024	.156	.081	.024	
8.0	.171	.083	.023	.167	.082	.023	.160	.080	.023	.154	.078	.023	.148	.076	.022	
9.0	.161	.078	.022	.158	.077	.022	.152	.075	.021	.146	.073	.021	.141	.071	.021	
10.0	.152	.073	.020	.149	.072	.020	.144	.070	.020	.139	.069	.020	.134	.067	.019	

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	.217	.217	.217	.186	.186	.186	.127	.127	.127	.073	.073	.073	.023	.023	.023	
1.0	.204	.183	.165	.175	.157	.142	.119	.108	.098	.069	.063	.057	.022	.020	.018	
2.0	.194	.159	.130	.166	.137	.112	.114	.095	.078	.066	.055	.046	.021	.018	.015	
3.0	.185	.141	.106	.159	.122	.092	.109	.085	.065	.063	.049	.038	.020	.016	.012	
4.0	.177	.128	.090	.152	.110	.078	.105	.077	.055	.060	.045	.033	.019	.015	.011	
5.0	.170	.117	.078	.146	.101	.068	.100	.071	.048	.058	.042	.028	.019	.014	.009	
6.0	.163	.109	.070	.140	.094	.061	.097	.066	.043	.056	.039	.025	.018	.013	.008	
7.0	.156	.102	.063	.135	.088	.055	.093	.062	.039	.054	.036	.023	.017	.012	.008	
8.0	.150	.096	.058	.129	.083	.051	.090	.058	.036	.052	.034	.021	.017	.011	.007	
9.0	.145	.091	.054	.125	.079	.047	.086	.055	.034	.050	.033	.020	.016	.011	.007	
10.0	.140	.087	.051	.120	.075	.045	.083	.053	.032	.049	.031	.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 GO-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:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm										
NAME: PS-TLL-40W-A					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	23.5	24.8	23.8	25.1	25.3	26.0	27.3	26.3	27.6	27.9
3H	23.7	24.9	24.0	25.2	25.5	27.6	28.8	27.9	29.1	29.4
4H	23.8	24.9	24.1	25.2	25.6	28.3	29.4	28.6	29.7	30.0
6H	23.9	25.0	24.3	25.3	25.6	28.8	29.9	29.2	30.2	30.6
8H	24.0	25.0	24.3	25.3	25.7	29.1	30.1	29.4	30.4	30.8
12H	24.1	25.1	24.5	25.4	25.8	29.2	30.2	29.6	30.5	30.9
4H 2H	23.8	25.0	24.2	25.3	25.6	26.0	27.2	26.4	27.5	27.8
3H	24.1	25.1	24.5	25.5	25.8	27.7	28.7	28.1	29.0	29.4
4H	24.3	25.2	24.7	25.6	26.0	28.5	29.4	28.9	29.8	30.2
6H	24.5	25.3	24.9	25.7	26.1	29.2	30.0	29.7	30.4	30.9
8H	24.6	25.4	25.1	25.8	26.2	29.5	30.2	30.0	30.7	31.1
12H	24.8	25.5	25.3	25.9	26.4	29.7	30.4	30.2	30.8	31.3
8H 4H	24.5	25.3	25.0	25.7	26.1	28.4	29.2	28.9	29.6	30.1
6H	24.8	25.4	25.3	25.9	26.4	29.2	29.8	29.7	30.3	30.8
8H	25.0	25.5	25.5	26.0	26.5	29.6	30.1	30.1	30.6	31.1
12H	25.3	25.7	25.8	26.2	26.8	29.9	30.3	30.4	30.9	31.4
12H 4H	24.5	25.2	25.0	25.7	26.1	28.4	29.1	28.9	29.5	30.0
6H	24.9	25.4	25.4	25.9	26.4	29.2	29.7	29.7	30.2	30.7
8H	25.1	25.5	25.6	26.0	26.6	29.6	30.0	30.1	30.5	31.1
Variations with the observer position at spacings:										
S = 1.0H	+ 0.8 / - 1.0					+ 0.2 / - 0.2				
1.5H	+ 0.3 / - 0.9					+ 0.5 / - 0.5				
2.0H	+ 1.5 / - 1.8					+ 1.1 / - 1.0				

CIE Pub.117 Corrected 4657 lm Total Lamp Luminous Flux. (8log(F/F0) = 5.3)

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:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm		
NAME: PS-TLL-40W-A	TYPE: LED	
MFR.:		

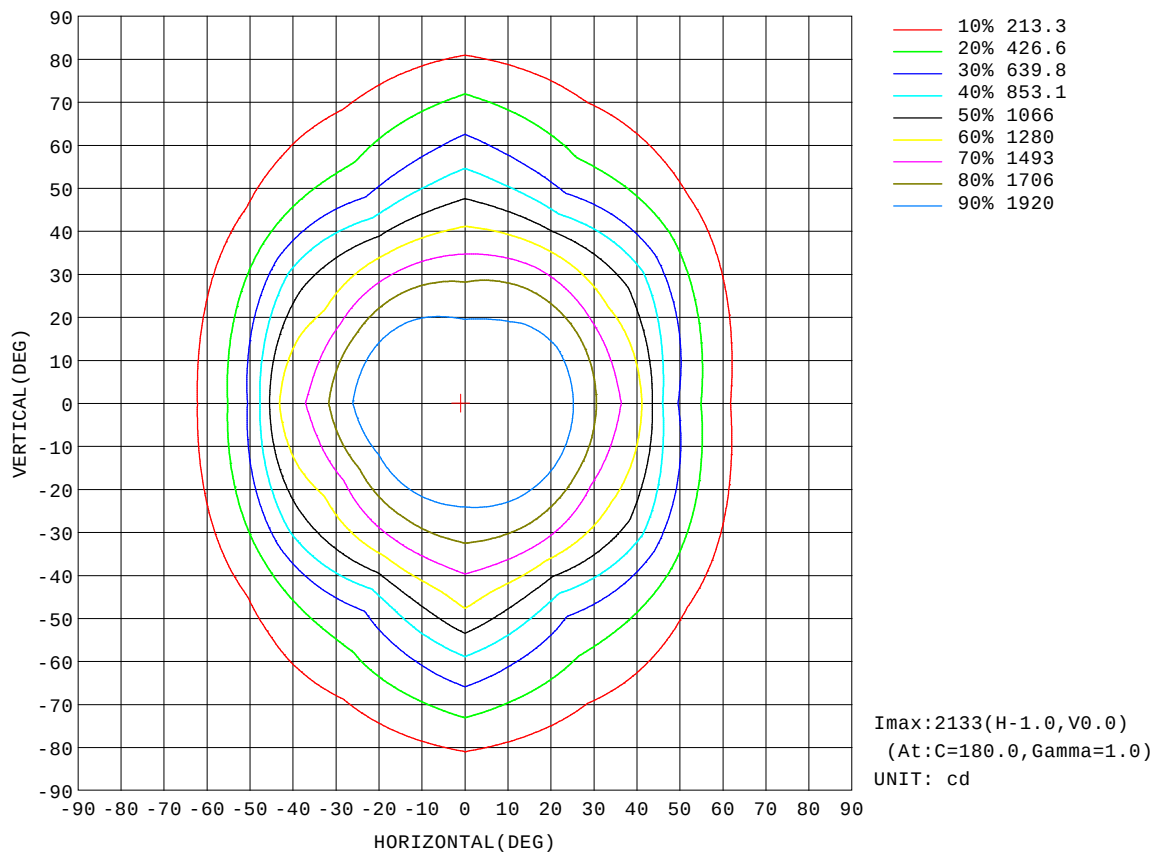
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	64	53	47	63	53	47	62	53	47	41
0.80	74	63	57	72	63	57	71	62	56	50
1.00	81	72	65	80	71	65	78	72	64	58
1.25	88	79	73	86	78	72	84	76	71	64
1.50	92	84	78	91	83	77	87	81	76	69
2.00	98	91	85	96	89	84	92	87	83	75
2.50	101	95	89	99	93	88	95	90	86	78
3.00	104	98	93	102	96	92	97	93	90	81
4.00	107	102	98	105	101	97	100	97	94	84
5.00	109	105	102	107	103	100	102	99	96	86
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: 2018-04-23

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:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm		
NAME: PS-TLL-40W-A	TYPE: LED	
MFR.:		



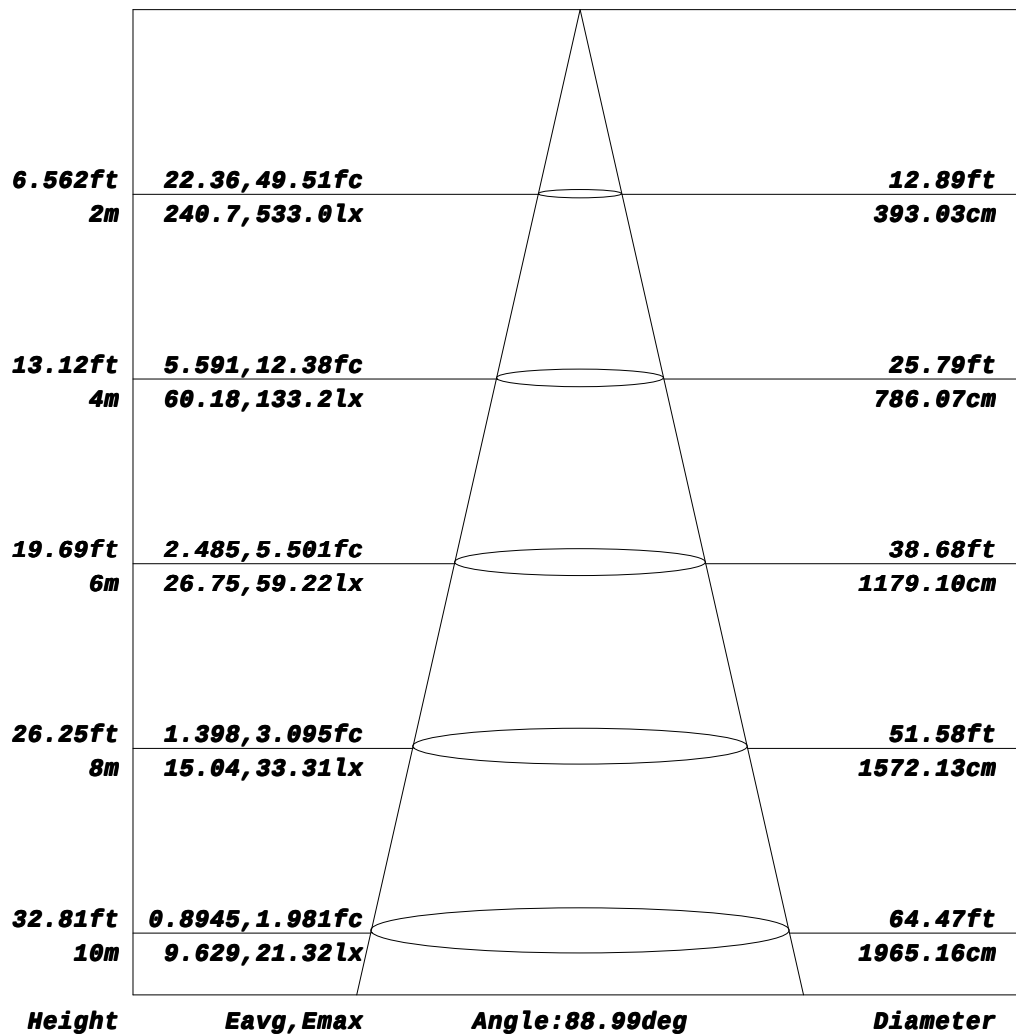
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-04-23

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:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm		
NAME: PS-TLL-40W-A	TYPE: LED	
MFR.:		

Flux out:3025 lm



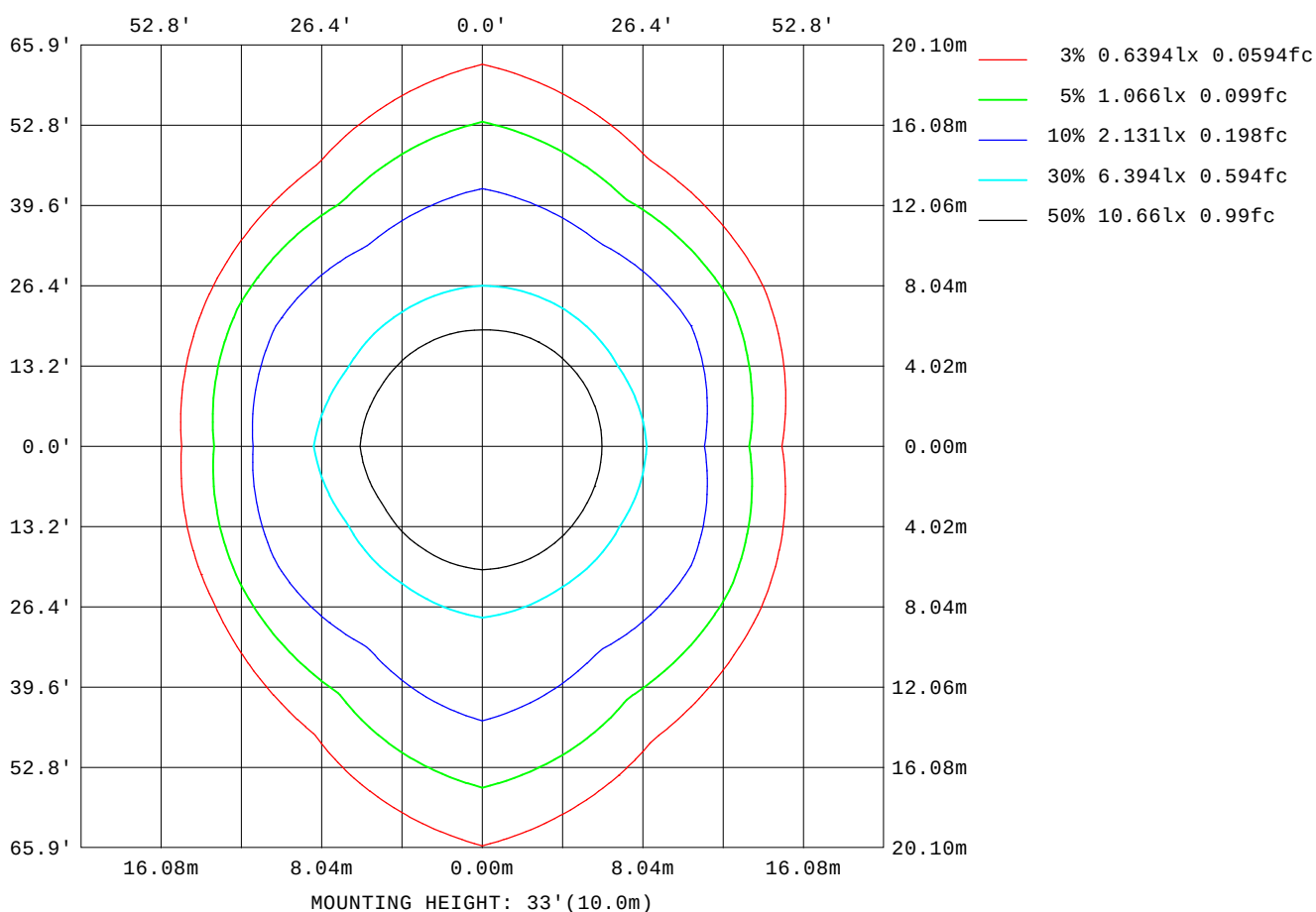
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

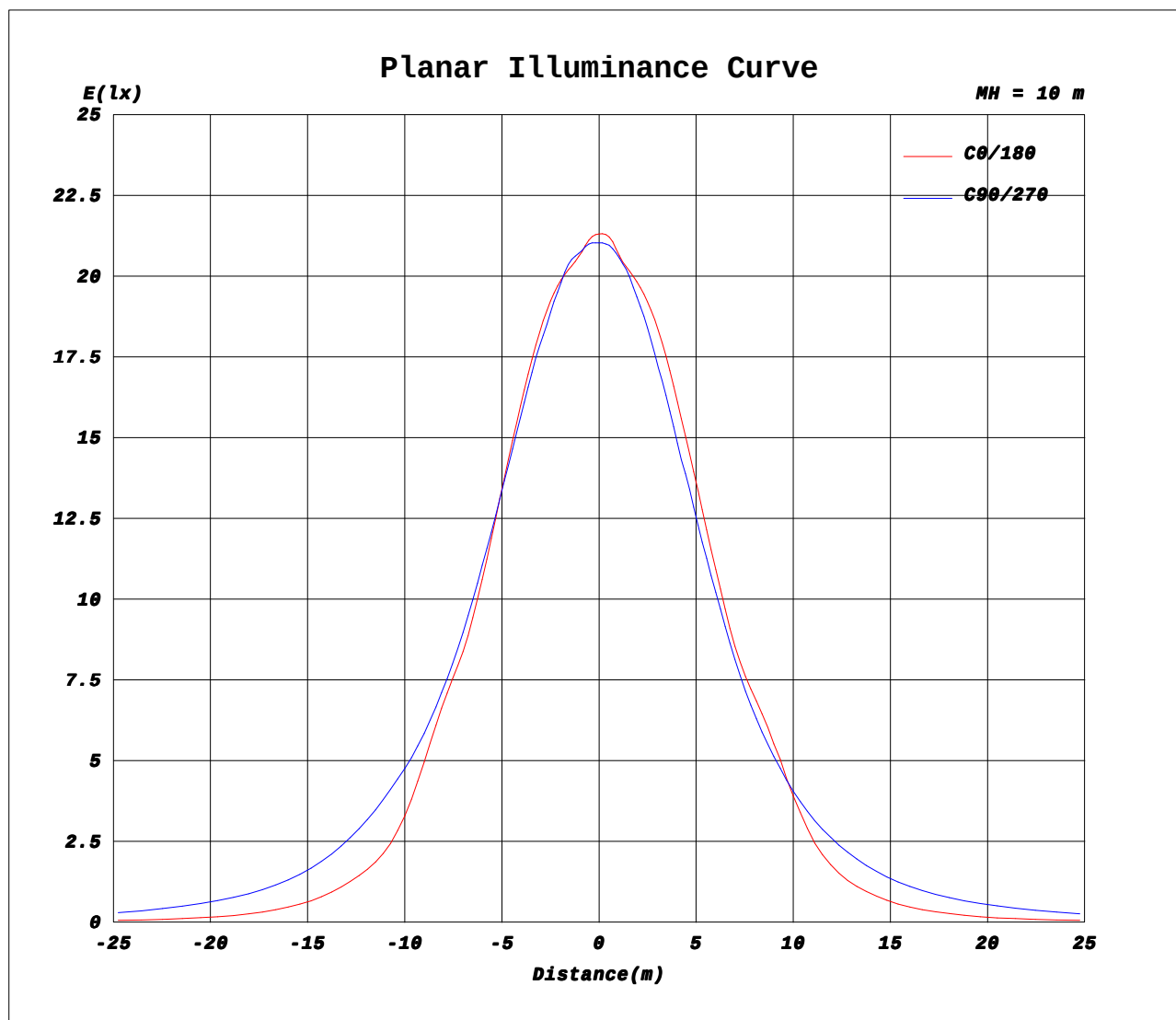
Test:U:220.2V I:0.2180A P:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm		
NAME: PS-TLL-40W-A	TYPE: LED	
MFR.:		



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:47.20W PF:0.9830 Lamp Flux:4657.19x1 lm											
NAME: PS-TLL-40W-A						TYPE: LED					
MFR.:											

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330							
0	2131	2121	2112	2104	2097	2090	2131	2121	2112	2104	2097	2090							
5	2100	2103	2109	2104	2084	2059	2110	2102	2104	2097	2091	2082							
10	2100	2082	2094	2107	2067	2054	2094	2077	2055	2058	2056	2047							
15	2103	2097	2054	2055	2034	2065	2104	2076	2009	2001	1995	2050							
20	2046	2056	2021	1997	2002	2000	2059	2029	1956	1908	1936	2019							
25	1927	1929	1922	1901	1885	1857	1950	1903	1847	1802	1846	1916							
30	1733	1724	1760	1782	1701	1640	1777	1691	1674	1654	1706	1726							
35	1526	1468	1564	1634	1502	1401	1556	1433	1448	1480	1501	1473							
40	1359	1290	1309	1483	1260	1229	1438	1233	1211	1311	1272	1258							
45	933	1101	1031	1348	983	1054	1107	1072	961	1149	1013	1079							
50	620	837	774	1201	725	788	676	814	724	993	763	841							
55	422	573	602	1001	569	504	434	526	538	839	567	582							
60	262	370	482	817	454	306	267	316	422	696	443	377							
65	159	218	369	668	350	174	157	186	328	590	348	230							
70	120	134	259	518	241	109	111	114	231	472	254	140							
75	91.4	96.8	167	375	151	80.4	99.6	85.0	150	353	172	97.9							
80	61.8	59.8	92.4	240	82.5	58.3	80.4	64.7	88.7	235	105	66.8							
85	52.2	43.3	41.1	106	34.6	41.3	55.2	46.7	45.2	116	53.8	45.1							
90	42.2	37.8	19.1	6.97	18.0	33.5	45.6	36.6	21.9	13.4	22.3	35.9							
95	36.2	32.9	19.3	8.37	18.1	29.8	39.0	32.5	21.7	13.1	20.8	31.5							
100	30.5	29.4	18.4	10.0	17.8	27.3	34.4	30.4	21.8	14.7	20.5	30.3							
105	26.7	25.5	16.6	11.9	16.3	24.6	30.3	28.2	21.1	16.5	20.0	27.0							
110	23.7	22.1	15.3	13.9	15.2	22.4	27.8	26.1	20.0	18.3	18.9	25.2							
115	21.2	20.1	15.5	16.0	15.9	20.0	25.5	24.1	20.3	20.3	19.2	24.2							
120	20.8	19.9	17.3	18.3	18.4	20.5	24.1	24.2	22.2	22.4	20.8	22.9							
125	22.4	21.0	19.8	20.7	20.9	21.6	25.2	25.1	24.6	24.5	23.0	23.6							
130	24.2	22.4	22.5	23.2	23.6	23.2	26.4	26.2	26.9	26.7	25.2	24.5							
135	25.9	24.7	25.0	25.7	26.0	25.7	27.6	28.3	29.0	28.8	27.4	26.2							
140	28.1	27.3	27.4	28.2	28.3	28.2	29.5	30.3	31.1	30.8	29.4	28.2							
145	30.3	29.8	29.7	30.5	30.6	30.4	31.4	32.2	32.9	32.7	31.3	30.2							
150	32.5	32.1	32.0	32.8	32.7	32.4	33.1	33.9	34.5	34.4	33.0	32.1							
155	34.7	34.3	34.2	34.9	34.8	34.4	34.9	35.5	36.1	36.1	34.8	33.9							
160	37.0	36.5	36.5	37.0	36.7	36.4	36.9	37.2	37.7	37.7	36.5	35.5							
165	39.1	38.6	38.6	38.9	38.6	38.3	38.9	38.8	39.2	39.2	38.2	37.3							
170	41.2	40.8	40.5	40.6	40.3	40.1	40.9	40.3	40.6	40.5	39.8	39.0							
175	42.6	42.3	41.9	41.9	41.6	41.4	42.3	41.7	41.8	41.5	41.1	40.5							
180	43.1	42.9	42.4	42.4	41.9	41.7	43.3	42.7	42.6	42.3	42.0	41.6							

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: