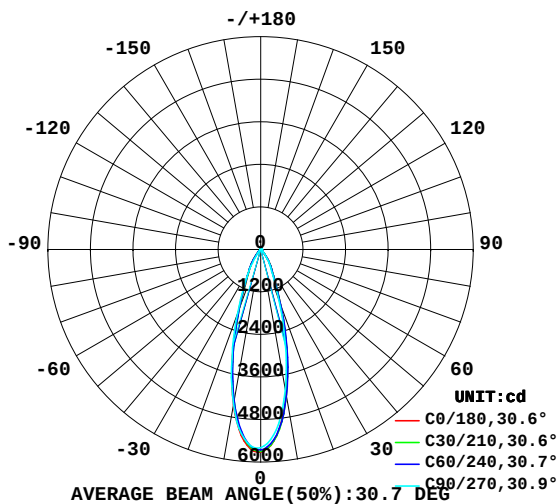


LUMINAIRE PHOTOMETRIC TEST REPORT

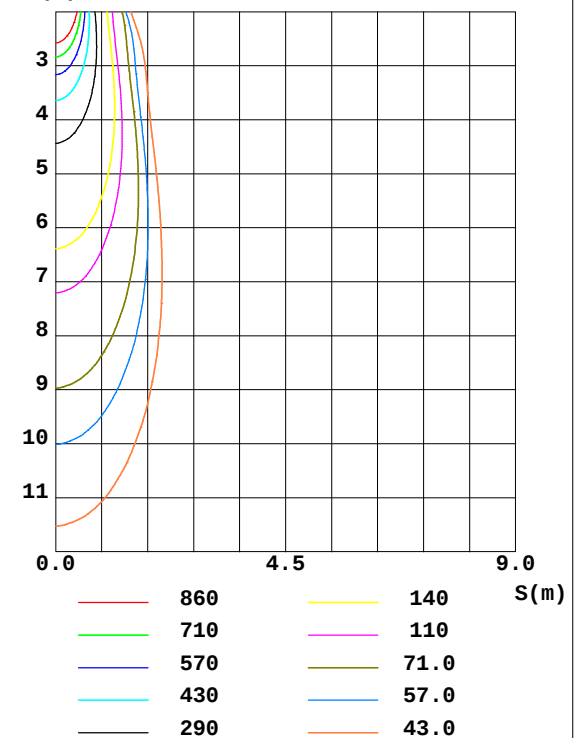
Test:U:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm		
NAME: 30W 3500K	TYPE:LED	
MFR.:		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 75.71 lm/W			
MODEL	30W 3500K	I _{max} (cd)	5718	S/MH(C0/180)	0.49
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH(C90/270)	0.49
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	2188.0	η UP, DN(C0-180)	1.7, 44.7
NOMINAL FLUX(lm)	2188.01	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.7, 51.9
LAMPS INSIDE	1	η up(%)	3.4	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	220.9	η down(%)	96.6	CIBSE SHR MAX	0.50

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



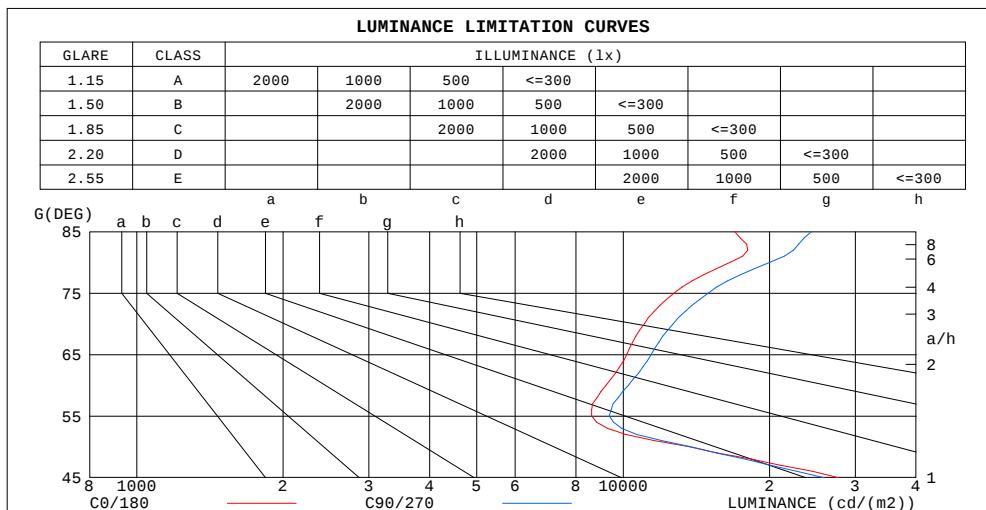
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-03-10

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 AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	4160	4197	4018	3801	4435	4334	4421	4663	0- 10	470.3	470.3	21.5,21.5
20	1611	1644	1497	1344	1798	1769	1919	2099	10- 20	795.5	1266	57.9,57.9
30	612.6	598.2	542.7	501.1	629.3	641.2	619.0	734.9	20- 30	461.3	1727	78.9,78.9
40	196.1	194.9	173.6	151.4	207.0	209.0	104.5	267.0	30- 40	236.2	1963	89.7,89.7
50	42.99	46.36	43.24	36.64	52.62	48.21	23.29	60.79	40- 50	78.91	2042	93.3,93.3
60	22.60	24.31	25.11	23.57	23.45	21.19	15.65	21.68	50- 60	24.94	2067	94.5,94.5
70	18.53	20.48	21.25	19.02	19.33	17.51	9.473	18.18	60- 70	20.41	2088	95.4,95.4
80	14.11	16.19	17.04	14.89	16.71	13.81	5.052	14.25	70- 80	17.18	2105	96.2,96.2
90	1.415	3.137	4.221	3.431	5.381	4.495	4.288	4.825	80- 90	9.843	2115	96.6,96.6
100	2.269	3.747	4.349	4.100	5.577	5.152	5.014	4.953	90-100	4.460	2119	96.8,96.8
110	4.129	5.283	3.892	5.700	6.806	6.431	6.210	6.035	100-110	5.183	2124	97.1,97.1
120	7.552	7.998	7.382	8.630	9.153	8.796	8.464	8.221	110-120	6.812	2131	97.4,97.4
130	12.55	12.75	12.38	13.61	12.53	12.21	11.76	11.41	120-130	9.165	2140	97.8,97.8
140	18.33	18.38	18.10	19.26	17.45	17.06	16.36	16.01	130-140	11.52	2152	98.3,98.3
150	24.27	24.22	23.91	24.88	23.48	23.00	21.99	21.87	140-150	12.82	2165	98.9,98.9
160	29.80	29.56	29.09	29.72	29.02	28.06	26.88	27.18	150-160	12.06	2177	99.5,99.5
170	32.28	31.70	31.05	30.96	31.24	29.88	28.73	29.25	160-170	8.460	2185	99.9,99.9
180	32.92	31.75	30.66	30.95	33.02	31.82	30.48	30.97	170-180	2.936	2188	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m ²)		
G(°)	C0/180	C90/270
85	16956	24380
80	16588	20025
75	12734	14965
70	11058	12680
65	10175	11415
60	9225	10247
55	8609	9356
50	13649	13727
45	27700	25862

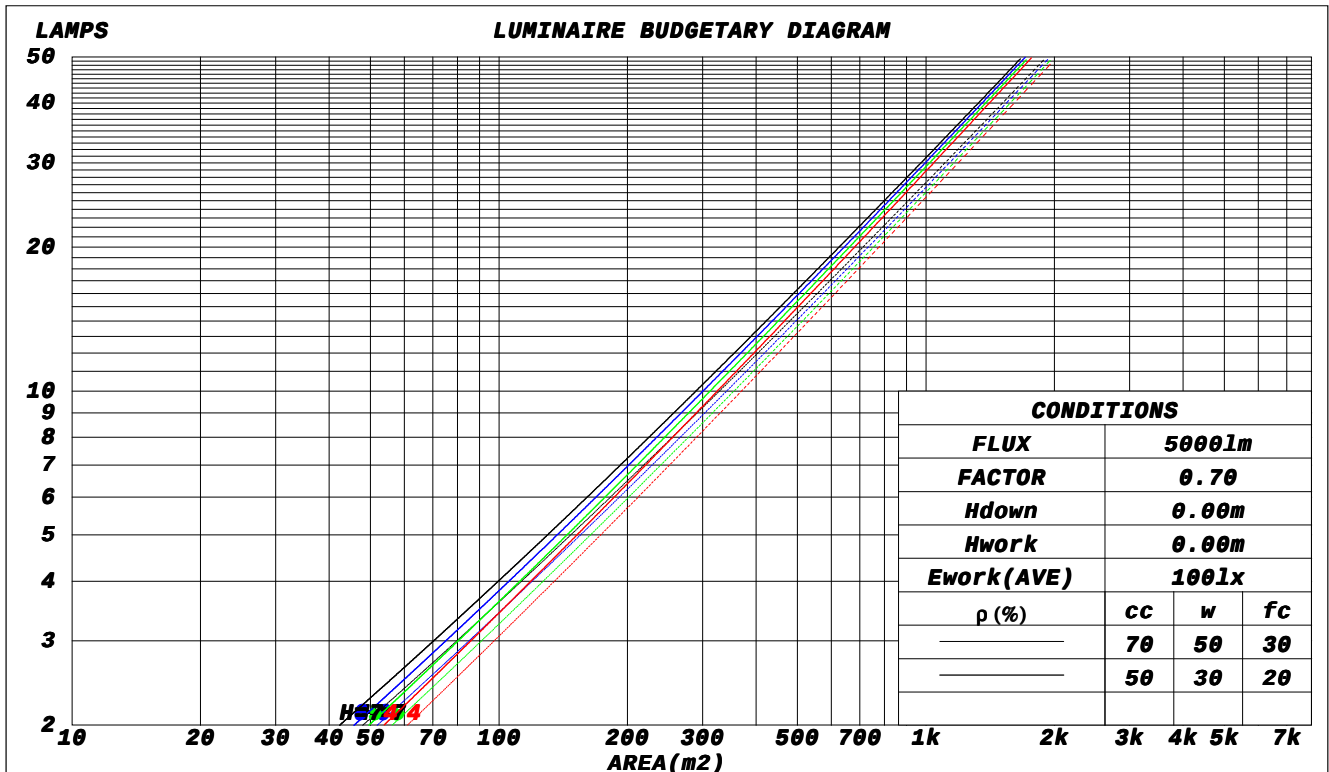
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-03-10

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:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm		
NAME: 30W 3500K	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	1.10	1.08	1.06	1.08	1.06	1.04	1.03	1.01	.99	.99	.98	.96	.95	.94	.93	.91
2.0	1.03	.99	.96	1.01	.98	.95	.98	.95	.93	.94	.92	.90	.91	.89	.88	.86
3.0	.97	.93	.89	.96	.92	.88	.93	.89	.86	.90	.87	.85	.87	.85	.83	.81
4.0	.92	.87	.83	.91	.86	.83	.88	.84	.81	.86	.83	.80	.84	.81	.79	.77
5.0	.87	.82	.78	.86	.81	.78	.84	.80	.77	.82	.79	.76	.80	.77	.75	.73
6.0	.83	.78	.74	.82	.77	.74	.80	.76	.73	.79	.75	.72	.77	.74	.71	.70
7.0	.79	.74	.70	.78	.74	.70	.77	.73	.69	.76	.72	.69	.74	.71	.68	.67
8.0	.76	.71	.67	.75	.70	.67	.74	.69	.66	.73	.69	.66	.71	.68	.65	.64
9.0	.73	.67	.64	.72	.67	.64	.71	.67	.63	.70	.66	.63	.69	.65	.63	.62
10.0	.70	.65	.61	.69	.64	.61	.68	.64	.61	.67	.63	.61	.66	.63	.60	.59



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2017-03-10

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:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm											
NAME: 30W 3500K						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	.172	.098	.031	.164	.093	.030	.149	.086	.027	.136	.079	.025	.124	.072	.023		
2.0	.160	.088	.027	.153	.084	.026	.141	.078	.024	.130	.073	.023	.119	.067	.021		
3.0	.149	.080	.024	.144	.077	.023	.133	.072	.022	.124	.068	.021	.115	.063	.020		
4.0	.140	.073	.021	.136	.071	.021	.126	.067	.020	.118	.063	.019	.110	.060	.018		
5.0	.132	.067	.020	.128	.066	.019	.120	.063	.018	.113	.059	.018	.106	.056	.017		
6.0	.125	.063	.018	.122	.061	.018	.114	.059	.017	.108	.056	.016	.102	.054	.016		
7.0	.119	.059	.017	.116	.058	.016	.109	.055	.016	.103	.053	.015	.098	.051	.015		
8.0	.113	.055	.016	.110	.054	.015	.105	.052	.015	.099	.050	.015	.094	.048	.014		
9.0	.108	.052	.015	.105	.051	.014	.100	.050	.014	.096	.048	.014	.091	.046	.013		
10.0	.103	.050	.014	.101	.049	.014	.096	.047	.013	.092	.046	.013	.088	.044	.013		

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	.197	.183	.171	.168	.157	.147	.115	.108	.102	.066	.063	.059	.021	.020	.019	
2.0	.181	.158	.140	.155	.136	.121	.106	.094	.084	.061	.055	.049	.020	.018	.016	
3.0	.167	.140	.117	.143	.120	.102	.098	.084	.071	.057	.049	.042	.018	.016	.014	
4.0	.156	.125	.101	.134	.108	.088	.092	.075	.062	.053	.044	.036	.017	.014	.012	
5.0	.147	.113	.088	.126	.098	.077	.087	.068	.054	.050	.040	.032	.016	.013	.011	
6.0	.139	.103	.078	.119	.090	.068	.082	.063	.048	.048	.037	.029	.015	.012	.009	
7.0	.132	.096	.071	.113	.083	.061	.078	.058	.044	.045	.034	.026	.015	.011	.009	
8.0	.126	.089	.064	.108	.077	.056	.075	.054	.040	.044	.032	.024	.014	.011	.008	
9.0	.120	.084	.060	.104	.073	.052	.072	.051	.037	.042	.030	.022	.014	.010	.007	
10.0	.115	.079	.056	.099	.069	.048	.069	.049	.034	.040	.029	.021	.013	.009	.007	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-03-10

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:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm										
NAME: 30W 3500K					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	17.9	18.7	18.1	18.9	19.1	17.6	18.4	17.9	18.6	18.8
3H	18.2	19.0	18.5	19.2	19.5	18.1	18.9	18.4	19.1	19.4
4H	18.5	19.3	18.9	19.5	19.8	18.6	19.3	18.9	19.5	19.8
6H	19.0	19.7	19.4	20.0	20.3	19.2	19.9	19.6	20.2	20.5
8H	19.3	20.0	19.7	20.3	20.6	19.6	20.3	20.0	20.6	20.9
12H	19.5	20.1	19.9	20.4	20.8	20.0	20.6	20.3	20.9	21.3
4H 2H	17.8	18.6	18.2	18.8	19.1	17.6	18.3	17.9	18.6	18.8
3H	18.4	19.0	18.8	19.4	19.7	18.4	19.0	18.7	19.3	19.6
4H	18.9	19.5	19.3	19.9	20.2	19.0	19.6	19.4	19.9	20.3
6H	19.7	20.2	20.1	20.6	21.0	20.0	20.5	20.4	20.9	21.3
8H	20.1	20.6	20.5	21.0	21.4	20.5	21.0	21.0	21.4	21.9
12H	20.4	20.8	20.9	21.2	21.7	21.0	21.4	21.5	21.9	22.3
8H 4H	19.2	19.7	19.6	20.1	20.5	19.3	19.7	19.7	20.1	20.6
6H	20.2	20.6	20.7	21.0	21.5	20.5	20.9	21.0	21.4	21.8
8H	20.8	21.1	21.3	21.6	22.1	21.2	21.6	21.8	22.1	22.6
12H	21.2	21.5	21.7	22.0	22.5	21.9	22.2	22.4	22.7	23.2
12H 4H	19.3	19.7	19.7	20.1	20.6	19.3	19.7	19.8	20.2	20.6
6H	20.4	20.7	20.9	21.2	21.7	20.7	21.0	21.2	21.5	22.0
8H	21.0	21.3	21.5	21.8	22.3	21.5	21.8	22.0	22.3	22.8
Variations with the observer position at spacings:										
S = 1.0H	+ 1.1 / - 1.0					+ 0.7 / - 0.8				
1.5H	+ 2.3 / - 1.1					+ 1.5 / - 0.8				
2.0H	+ 1.1 / - 0.4					+ 0.8 / - 0.3				

CIE Pub.117 Corrected 2188 lm Total Lamp Luminous Flux. (8log(F/F0) = 2.7)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-03-10

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:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm		
NAME: 30W 3500K	TYPE: LED	
MFR.:		

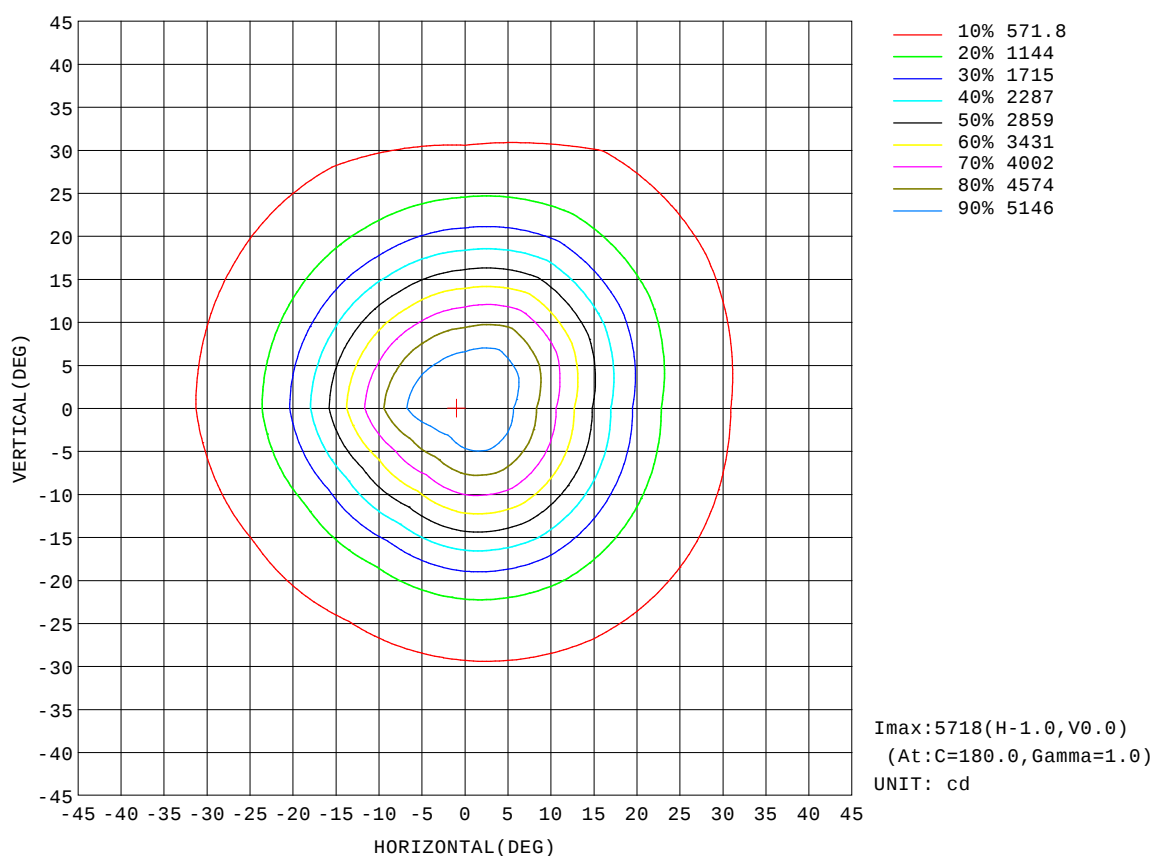
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	85	79	75	85	79	75	84	78	75	71
0.80	93	87	83	92	86	82	90	85	82	78
1.00	97	91	87	96	91	87	94	90	86	82
1.25	101	96	92	100	95	91	97	93	90	86
1.50	104	99	95	102	98	95	100	96	93	88
2.00	107	102	99	105	101	98	102	99	96	90
2.50	109	104	101	107	103	100	103	100	98	91
3.00	110	106	104	108	105	102	104	102	100	92
4.00	112	109	107	110	107	105	106	104	102	94
5.00	114	111	109	111	109	107	107	105	104	95
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: 2017-03-10

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:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm		
NAME: 30W 3500K	TYPE: LED	
MFR.:		



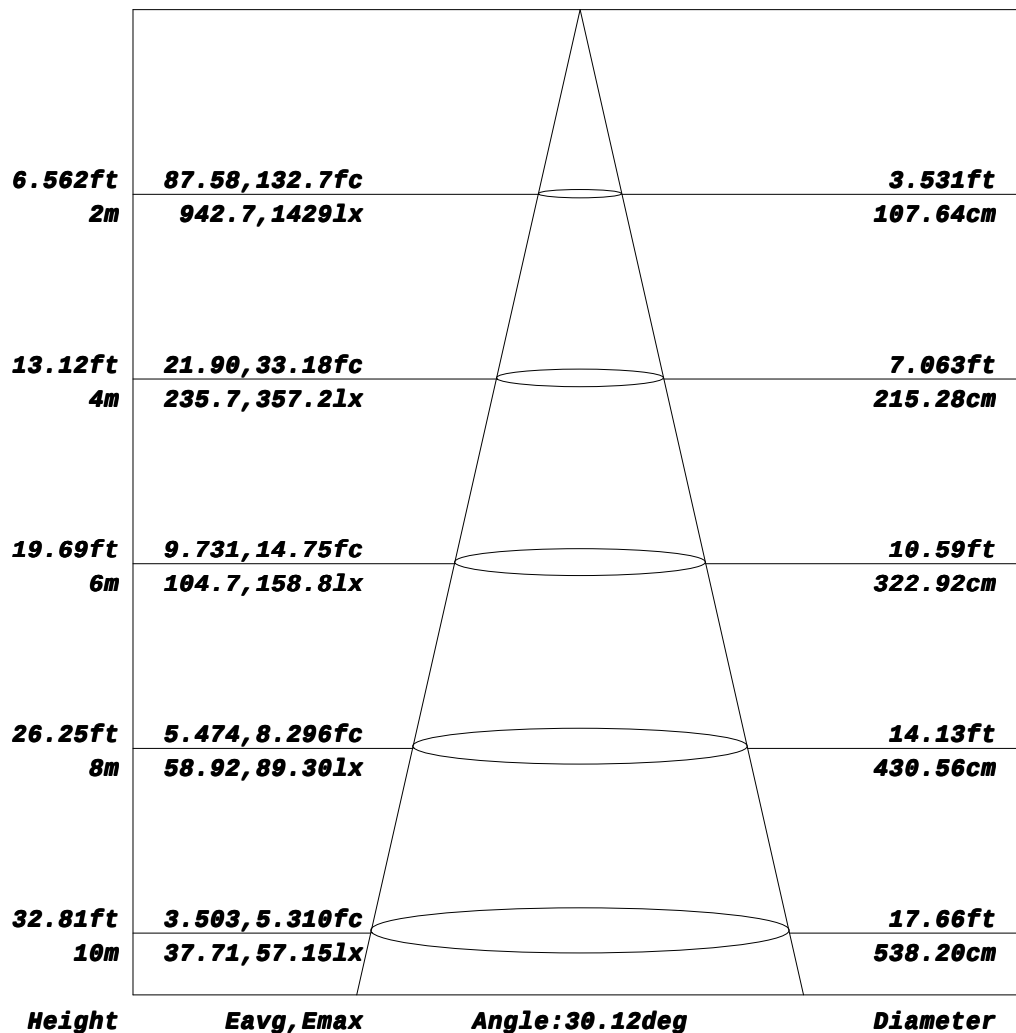
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-03-10

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:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm		
NAME: 30W 3500K	TYPE: LED	
MFR.:		

Flux out:974.1 lm



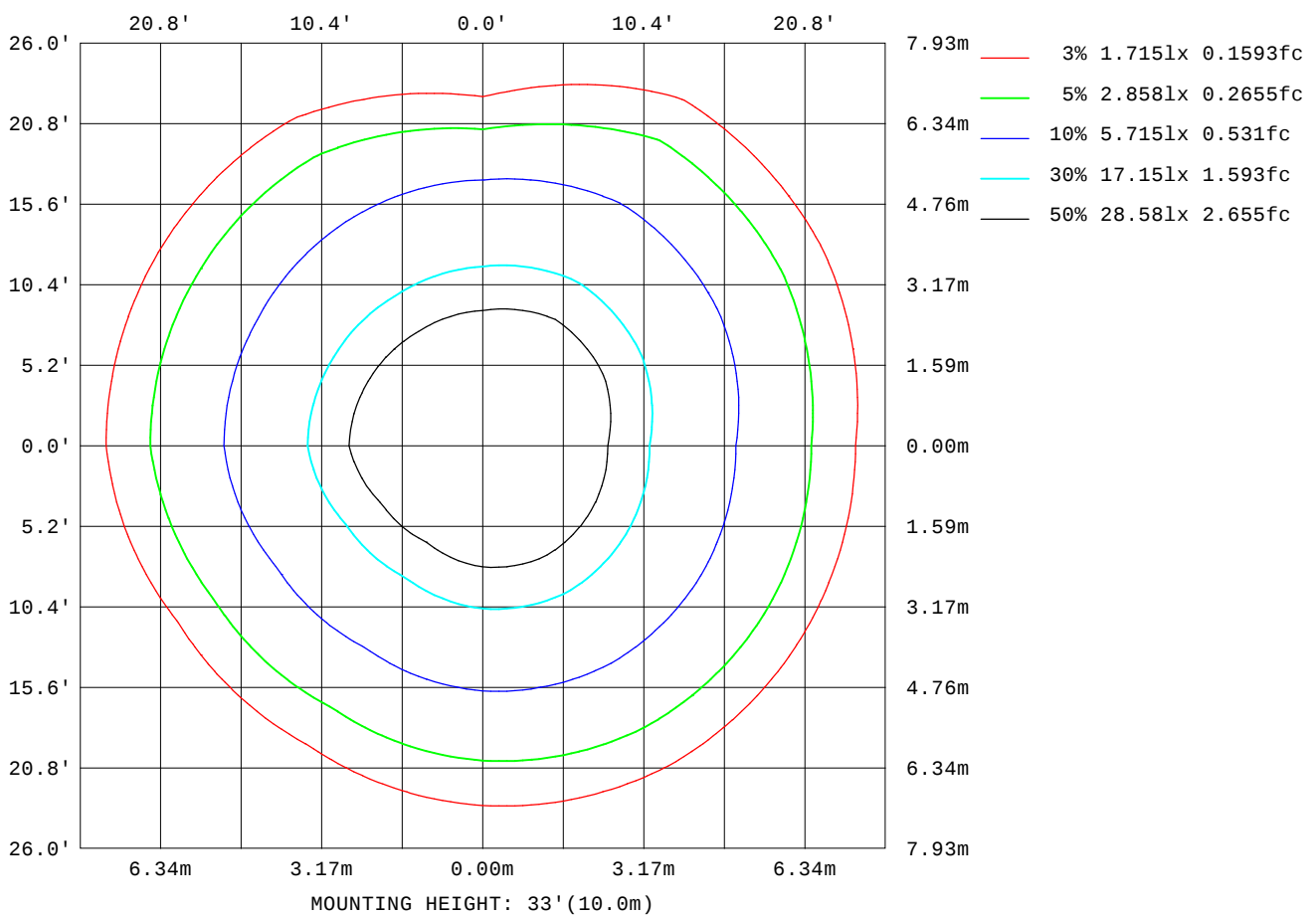
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-03-10

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

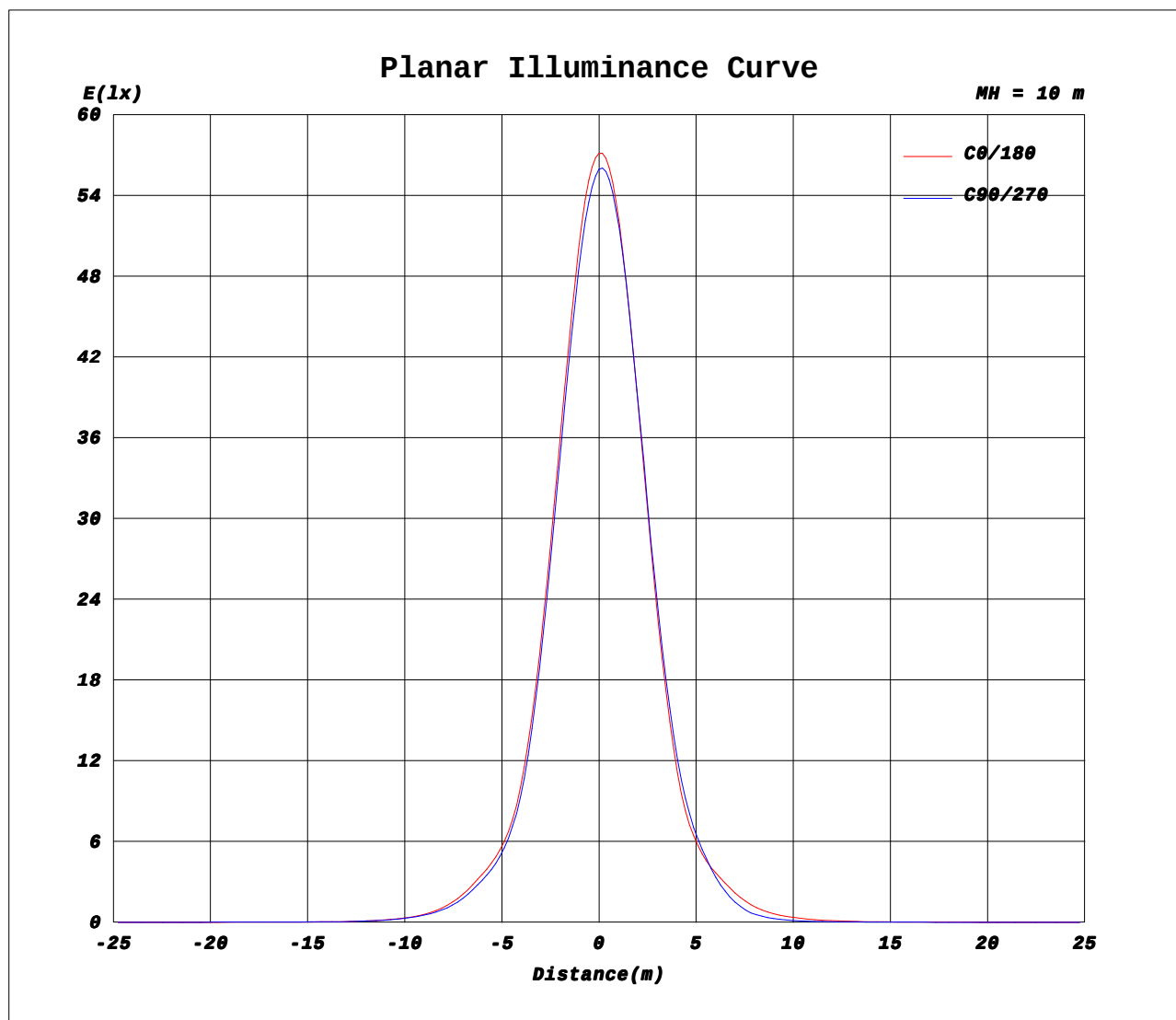
Test:U:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm		
NAME: 30W 3500K	TYPE: LED	
MFR.:		



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-03-10

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: 2017-03-10

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:220.9V I:0.1340A P:28.90W PF:0.9740 Lamp Flux:2188.01x1 lm											
NAME: 30W 3500K						TYPE: LED					
MFR.:											

Table--1

UNIT: cd

γ (DEG)	C (DEG)																			
	0	30	60	90	120	150	180	210	240	270	300	330								
0	5712	5694	5657	5593	5561	5612	5712	5694	5657	5593	5561	5612								
5	5268	5272	5245	5100	4913	5030	5421	5358	5326	5354	5506	5450								
10	4160	4191	4204	4018	3721	3881	4435	4337	4331	4421	4754	4571								
15	2804	2840	2870	2682	2380	2527	3090	3008	2998	3134	3497	3288								
20	1611	1630	1658	1497	1299	1388	1798	1768	1771	1919	2185	2013								
25	908	923	913	839	741	788	972	978	1007	1086	1230	1135								
30	613	607	590	543	483	519	629	632	651	619	757	712								
35	383	381	370	327	279	298	401	403	407	276	506	470								
40	196	196	194	174	146	157	207	208	210	104	280	253								
45	96.0	98.6	97.5	89.6	75.4	81.4	106	105	103	43.2	137	124								
50	43.0	45.2	47.5	43.2	35.6	37.7	52.6	49.5	47.0	23.3	63.3	58.2								
55	24.2	25.3	26.8	26.3	25.2	24.2	26.4	25.4	22.6	19.8	26.6	27.4								
60	22.6	23.7	24.9	25.1	24.2	22.9	23.5	22.8	19.6	15.7	20.0	23.3								
65	21.1	22.4	23.6	23.6	22.5	21.2	21.8	21.6	17.9	13.4	18.4	22.4								
70	18.5	19.8	21.1	21.3	20.1	18.0	19.3	19.4	15.7	9.47	16.0	20.4								
75	16.1	17.5	18.8	19.0	17.9	15.8	17.8	17.4	13.9	8.13	14.1	18.3								
80	14.1	15.5	16.8	17.0	15.8	14.0	16.7	15.9	11.8	5.05	12.0	16.5								
85	7.24	9.01	10.9	10.4	8.31	7.70	13.0	11.8	6.99	3.88	7.14	12.8								
90	1.41	2.54	3.74	4.22	3.96	2.90	5.38	4.57	4.42	4.29	4.75	4.90								
95	1.75	2.84	3.88	4.20	4.08	3.23	5.25	4.88	4.76	4.65	4.57	4.70								
100	2.27	3.32	4.18	4.35	4.46	3.74	5.58	5.21	5.09	5.01	4.89	5.01								
105	3.04	4.05	4.74	3.17	5.06	4.52	6.05	5.69	5.60	5.48	5.30	5.43								
110	4.13	5.11	5.46	3.89	5.76	5.64	6.81	6.48	6.39	6.21	5.95	6.12								
115	5.62	6.56	6.34	5.43	6.73	7.16	7.83	7.52	7.45	7.22	6.92	7.10								
120	7.55	8.42	7.58	7.38	8.17	9.09	9.15	8.84	8.76	8.46	8.11	8.33								
125	9.89	10.7	9.53	9.74	10.4	11.4	10.7	10.4	10.3	9.97	9.54	9.81								
130	12.5	13.3	12.2	12.4	13.2	14.0	12.5	12.3	12.1	11.8	11.2	11.6								
135	15.4	16.0	15.0	15.2	16.0	16.8	14.7	14.5	14.3	13.9	13.3	13.7								
140	18.3	18.9	17.8	18.1	18.9	19.6	17.4	17.2	16.9	16.4	15.8	16.2								
145	21.3	21.8	20.9	21.0	21.8	22.4	20.4	20.1	19.8	19.1	18.6	19.1								
150	24.3	24.7	23.8	23.9	24.6	25.2	23.5	23.2	22.8	22.0	21.6	22.2								
155	27.2	27.5	26.6	26.7	27.2	27.8	26.5	26.1	25.5	24.7	24.4	25.2								
160	29.8	30.0	29.1	29.1	29.4	30.0	29.0	28.4	27.7	26.9	26.8	27.6								
165	31.5	31.5	30.8	30.6	30.7	31.1	30.6	29.9	29.0	28.3	28.3	29.2								
170	32.3	32.1	31.3	31.0	30.8	31.1	31.2	30.3	29.4	28.7	28.9	29.6								
175	32.7	32.3	31.4	31.1	30.8	31.2	31.7	30.7	29.8	29.0	29.2	29.9								
180	32.9	32.3	31.2	30.7	30.6	31.3	33.0	32.2	31.4	30.5	30.7	31.3								

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-03-10

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: