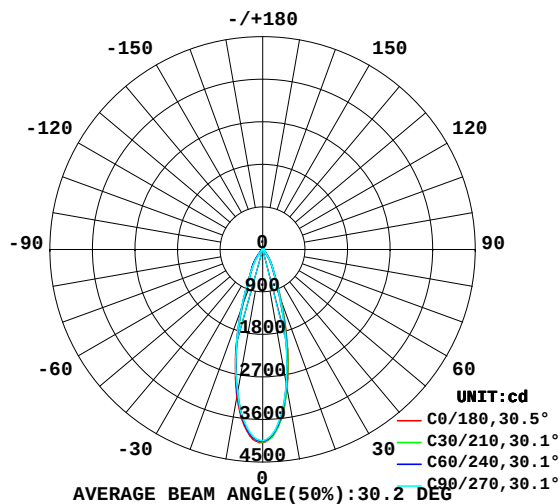


LUMINAIRE PHOTOMETRIC TEST REPORT

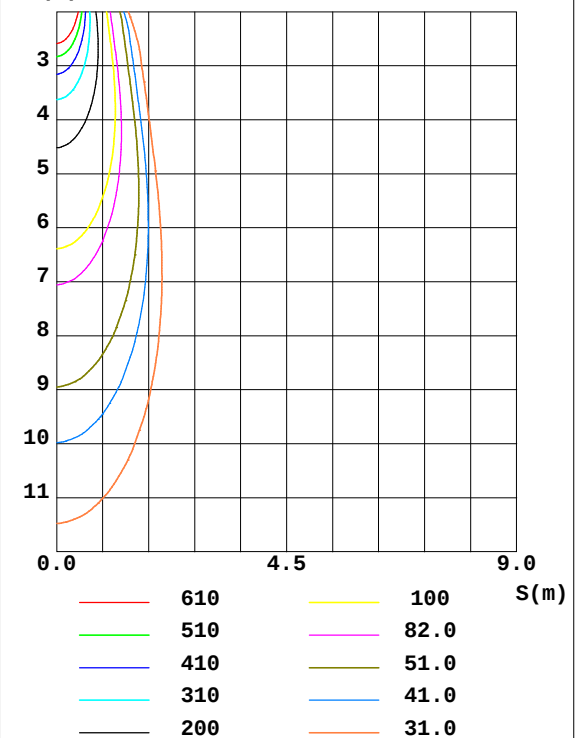
Test:U:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm		
NAME: 30W 3000K	TYPE:LED	
MFR.:		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 50.56 lm/W			
MODEL	30W 3000K	I _{max} (cd)	4084	S/MH(C0/180)	0.49
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH(C90/270)	0.48
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	1471.4	η UP, DN(C0-180)	1.6, 44.7
NOMINAL FLUX(lm)	1471.38	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.7, 52.1
LAMPS INSIDE	1	η up(%)	3.2	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	220.8	η down(%)	96.8	CIBSE SHR MAX	0.50

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT: lx)



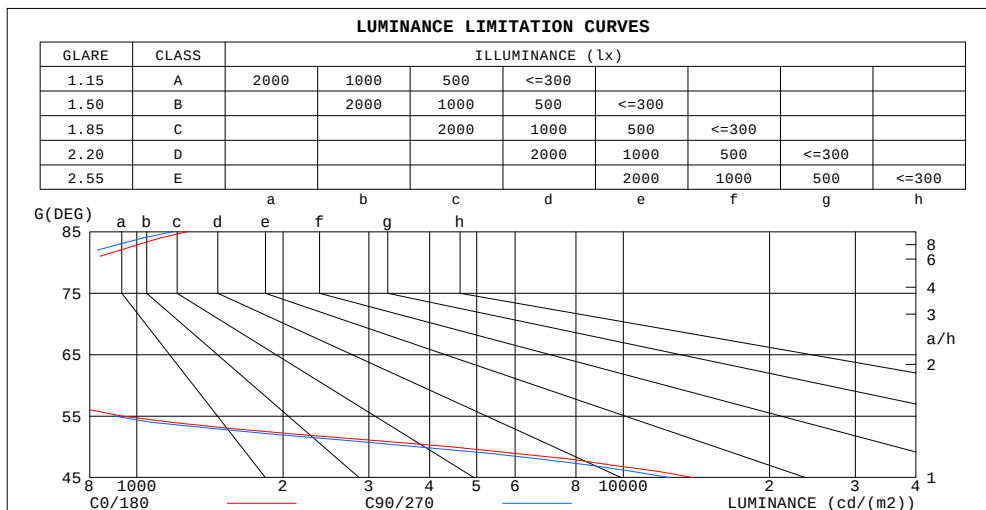
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-03-10

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	2970	2938	2889	2830	3157	3082	3071	3177	0- 10	335.4	335.4	22.8,22.8
20	1121	1065	1039	1027	1283	1281	1312	1373	10- 20	557.9	893.3	60.7,60.7
30	387.6	385.0	386.7	385.6	460.1	460.3	442.7	452.4	20- 30	317.2	1210	82.3,82.3
40	111.6	105.2	101.6	100.0	140.5	151.7	97.32	154.3	30- 40	159.0	1369	93.1,93.1
50	13.82	12.38	11.78	11.78	22.90	25.23	6.975	26.00	40- 50	44.24	1414	96.1,96.1
60	1.479	1.347	1.335	1.364	2.488	2.683	2.439	2.545	50- 60	4.900	1419	96.4,96.4
70	0.8949	0.7958	0.7834	0.8178	2.252	2.363	1.826	2.227	60- 70	1.670	1420	96.5,96.5
80	0.6532	0.5963	0.5750	0.6076	2.636	2.692	2.297	2.575	70- 80	1.614	1422	96.6,96.6
90	0.5137	0.5203	0.5114	0.5109	2.817	2.786	2.764	2.778	80- 90	1.753	1424	96.8,96.8
100	1.121	1.121	1.105	1.122	3.256	3.219	3.207	3.211	90-100	2.059	1426	96.9,96.9
110	2.465	2.464	2.450	2.482	4.117	4.056	4.021	4.009	100-110	2.787	1428	97.1,97.1
120	4.931	4.927	4.891	4.900	5.759	5.701	5.638	5.609	110-120	4.156	1433	97.4,97.4
130	8.496	8.485	8.412	8.527	8.149	8.044	7.949	7.917	120-130	5.984	1439	97.8,97.8
140	12.64	12.59	12.45	12.56	11.62	11.44	11.23	11.25	130-140	7.740	1446	98.3,98.3
150	16.80	16.73	16.53	16.67	15.98	15.67	15.27	15.39	140-150	8.760	1455	98.9,98.9
160	20.64	20.56	20.26	20.34	20.00	19.40	18.86	19.05	150-160	8.324	1463	99.5,99.5
170	22.38	22.21	21.89	21.65	21.60	20.84	20.38	20.45	160-170	5.892	1469	99.9,99.9
180	22.80	22.24	21.66	21.63	22.06	22.24	21.61	21.64	170-180	2.055	1471	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT: lm		



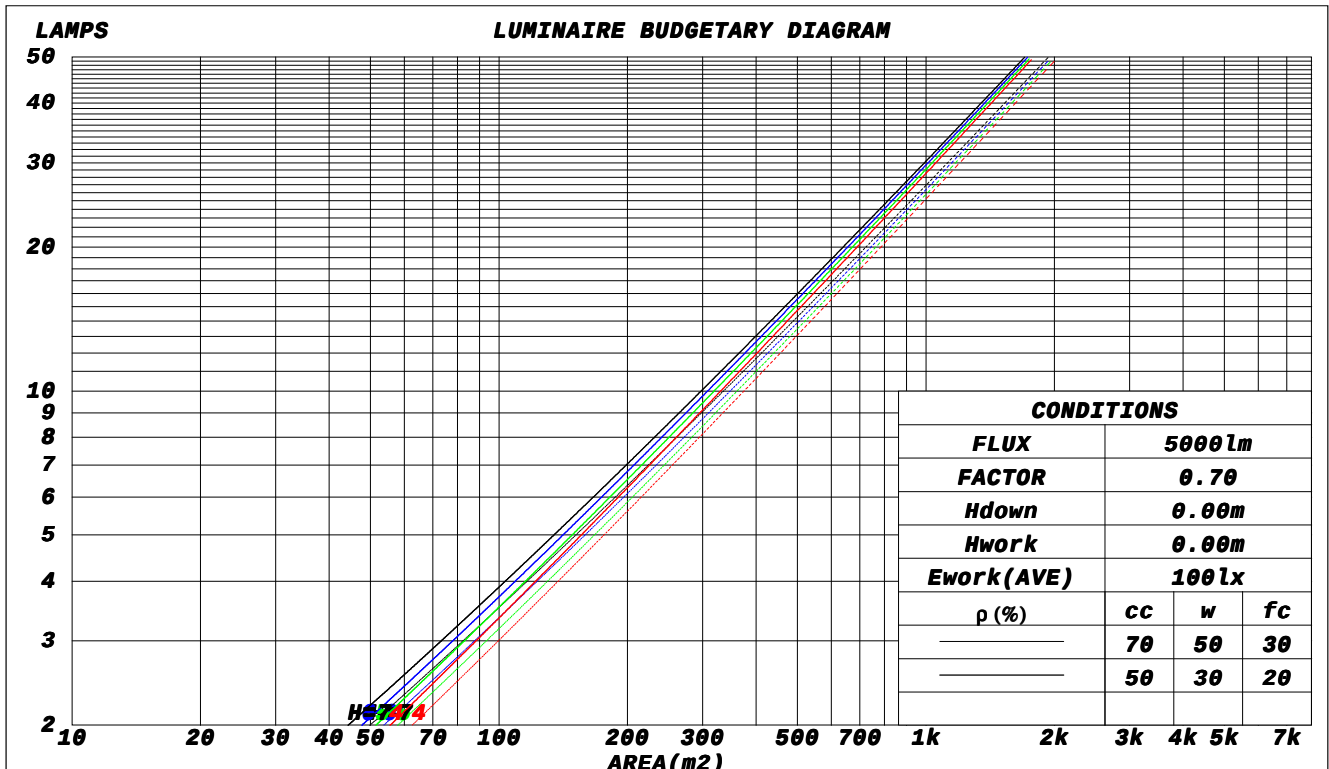
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-03-10

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:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm		
NAME: 30W 3000K	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	1.11	1.09	1.07	1.09	1.07	1.05	1.04	1.02	1.01	.99	.99	.97	.96	.95	.94	.92
2.0	1.05	1.01	.98	1.03	.99	.97	.99	.96	.94	.95	.93	.92	.92	.91	.89	.88
3.0	.99	.95	.91	.97	.93	.90	.94	.91	.88	.91	.89	.87	.89	.87	.85	.83
4.0	.94	.89	.85	.92	.88	.85	.90	.86	.83	.88	.85	.82	.86	.83	.81	.79
5.0	.89	.84	.81	.88	.84	.80	.86	.82	.79	.84	.81	.78	.82	.80	.77	.76
6.0	.85	.80	.76	.84	.79	.76	.82	.78	.75	.81	.77	.75	.79	.76	.74	.73
7.0	.81	.76	.73	.80	.76	.72	.79	.75	.72	.78	.74	.71	.76	.73	.71	.69
8.0	.78	.73	.69	.77	.72	.69	.76	.72	.69	.75	.71	.68	.74	.70	.68	.67
9.0	.75	.70	.66	.74	.69	.66	.73	.69	.66	.72	.68	.66	.71	.68	.65	.64
10.0	.72	.67	.64	.71	.67	.64	.70	.66	.63	.69	.66	.63	.69	.65	.63	.62



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:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm											
NAME: 30W 3000K						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	.159	.090	.029	.151	.086	.027	.137	.078	.025	.124	.071	.023	.111	.065	.021	
2.0	.149	.082	.025	.142	.078	.024	.130	.072	.023	.119	.067	.021	.109	.062	.019	
3.0	.140	.075	.022	.135	.072	.022	.124	.067	.020	.115	.063	.019	.106	.059	.018	
4.0	.132	.069	.020	.128	.067	.020	.119	.063	.019	.110	.059	.018	.102	.056	.017	
5.0	.125	.064	.019	.121	.062	.018	.113	.059	.017	.106	.056	.017	.099	.053	.016	
6.0	.119	.060	.017	.115	.058	.017	.109	.056	.016	.102	.053	.016	.096	.051	.015	
7.0	.113	.056	.016	.110	.055	.016	.104	.053	.015	.098	.050	.015	.093	.048	.014	
8.0	.108	.053	.015	.105	.052	.015	.100	.050	.014	.095	.048	.014	.090	.046	.013	
9.0	.104	.050	.014	.101	.049	.014	.096	.048	.013	.091	.046	.013	.087	.044	.013	
10.0	.099	.048	.013	.097	.047	.013	.093	.045	.013	.088	.044	.012	.084	.042	.012	

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	.215	.215	.215	.184	.184	.184	.126	.126	.126	.072	.072	.072	.023	.023	.023	
1.0	.195	.182	.171	.167	.157	.147	.114	.108	.102	.066	.062	.059	.021	.020	.019	
2.0	.178	.158	.140	.153	.136	.121	.105	.094	.085	.060	.055	.050	.019	.018	.016	
3.0	.165	.139	.118	.141	.120	.102	.097	.083	.072	.056	.049	.042	.018	.016	.014	
4.0	.153	.124	.101	.132	.107	.088	.091	.075	.062	.052	.044	.037	.017	.014	.012	
5.0	.144	.112	.088	.124	.097	.077	.085	.068	.054	.049	.040	.032	.016	.013	.011	
6.0	.136	.102	.078	.117	.089	.068	.080	.062	.048	.047	.036	.029	.015	.012	.009	
7.0	.129	.094	.070	.111	.082	.061	.077	.057	.043	.044	.034	.026	.014	.011	.009	
8.0	.123	.088	.064	.106	.076	.056	.073	.054	.040	.043	.032	.024	.014	.010	.008	
9.0	.117	.083	.059	.101	.072	.052	.070	.050	.037	.041	.030	.022	.013	.010	.007	
10.0	.113	.078	.055	.097	.068	.048	.067	.048	.034	.039	.028	.020	.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:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm										
NAME: 30W 3000K					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	14.9	15.7	15.2	15.9	16.1	14.6	15.4	14.9	15.6	15.8
3H	14.8	15.5	15.1	15.7	16.0	14.5	15.2	14.8	15.4	15.7
4H	14.7	15.3	15.0	15.6	15.9	14.4	15.1	14.7	15.3	15.6
6H	14.6	15.2	14.9	15.5	15.8	14.3	14.9	14.6	15.2	15.5
8H	14.5	15.2	14.9	15.5	15.8	14.3	14.9	14.6	15.2	15.5
12H	14.5	15.1	14.9	15.4	15.7	14.2	14.8	14.6	15.1	15.5
4H 2H	14.7	15.3	15.0	15.6	15.9	14.4	15.1	14.7	15.3	15.6
3H	14.5	15.1	14.8	15.4	15.7	14.2	14.8	14.6	15.1	15.4
4H	14.4	14.9	14.8	15.3	15.6	14.1	14.6	14.5	15.0	15.4
6H	14.3	14.8	14.7	15.1	15.6	14.0	14.5	14.4	14.9	15.3
8H	14.2	14.7	14.7	15.1	15.5	14.0	14.4	14.4	14.8	15.2
12H	14.2	14.6	14.7	15.0	15.5	13.9	14.3	14.4	14.7	15.2
8H 4H	14.2	14.7	14.7	15.1	15.5	13.9	14.4	14.4	14.8	15.2
6H	14.1	14.5	14.6	14.9	15.4	13.8	14.2	14.3	14.6	15.1
8H	14.1	14.4	14.6	14.9	15.4	13.8	14.1	14.3	14.6	15.1
12H	14.0	14.3	14.5	14.8	15.3	13.7	14.0	14.3	14.5	15.0
12H 4H	14.2	14.6	14.6	15.0	15.4	13.9	14.3	14.3	14.7	15.2
6H	14.1	14.4	14.6	14.8	15.4	13.8	14.1	14.3	14.6	15.1
8H	14.0	14.3	14.5	14.8	15.3	13.7	14.0	14.3	14.5	15.0
Variations with the observer position at spacings:										
S = 1.0H	+ 3.4 / -13.6					+ 3.4 / -13.6				
1.5H	+ 5.7 / -13.5					+ 5.7 / -13.5				
2.0H	+ 7.6 / - 7.6					+ 7.5 / - 7.4				

CIE Pub.117 Corrected 1471 lm Total Lamp Luminous Flux. (8log(F/F0) = 1.3)

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:

UTILIZATION FACTORS TABLE

Test:U:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm		
NAME: 30W 3000K	TYPE: LED	
MFR.:		

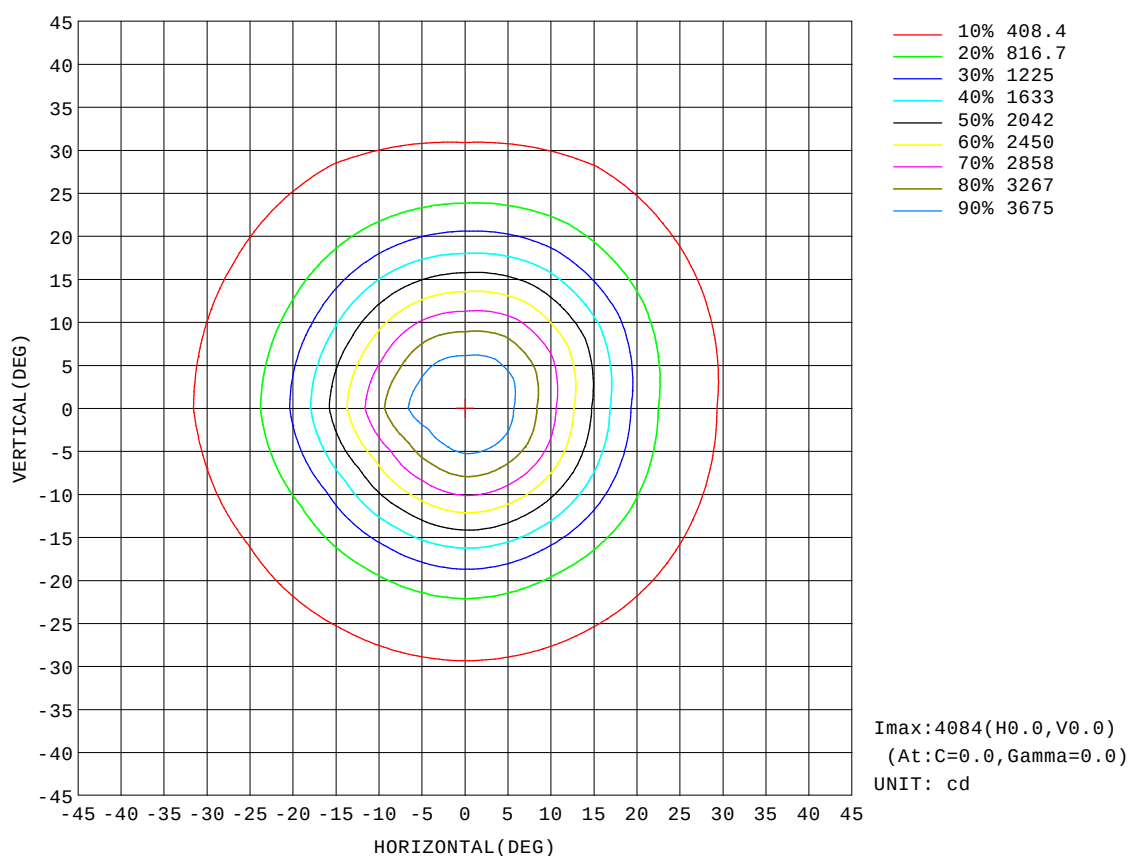
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	87	81	77	87	81	77	86	80	77	74
0.80	95	89	85	94	88	85	92	88	84	81
1.00	99	93	90	98	93	89	96	92	89	84
1.25	103	98	94	101	97	94	99	95	93	88
1.50	105	101	97	104	100	97	101	98	95	90
2.00	108	104	101	106	102	100	103	100	98	92
2.50	109	106	103	108	104	102	104	101	99	93
3.00	111	108	105	109	106	104	105	103	101	94
4.00	113	110	108	111	108	106	107	105	103	95
5.00	114	112	110	112	110	108	107	106	105	96
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:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm		
NAME: 30W 3000K	TYPE: LED	
MFR.:		



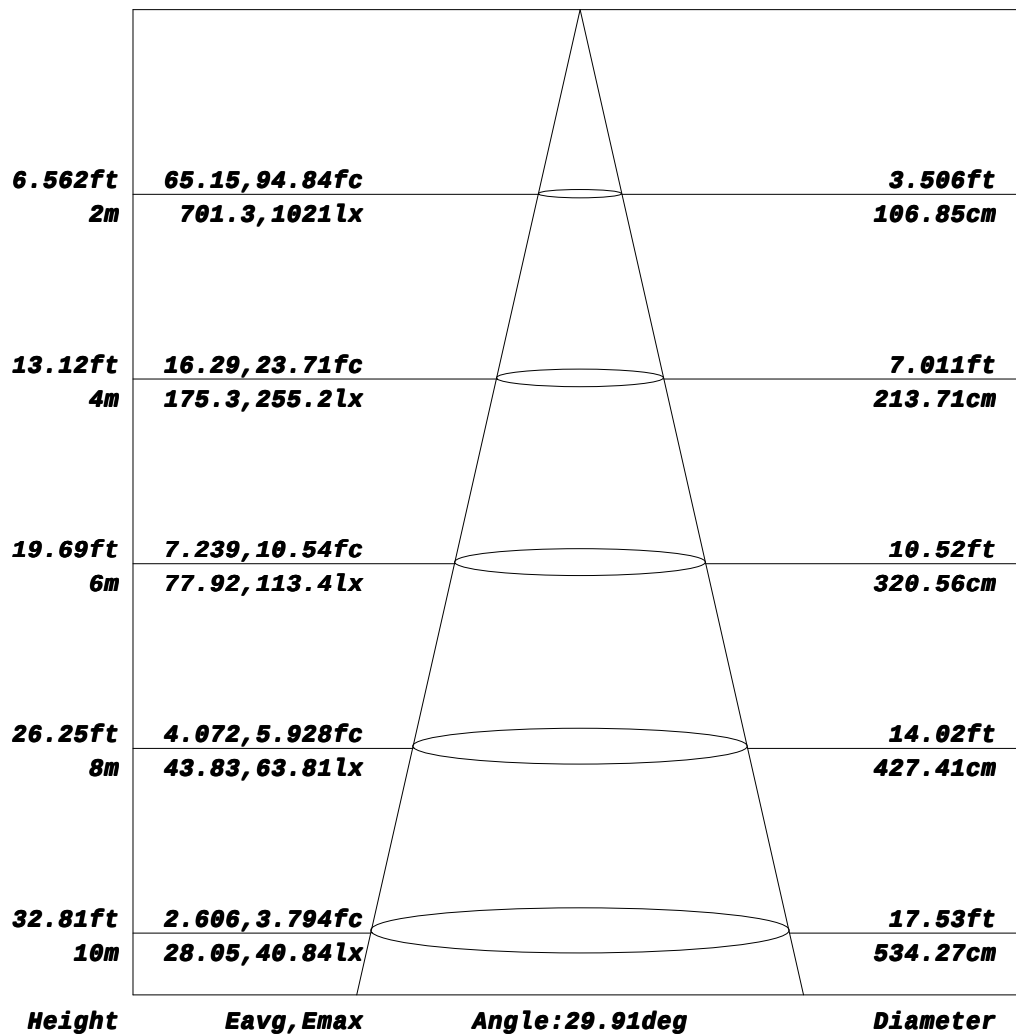
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-03-10

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:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm		
NAME: 30W 3000K	TYPE: LED	
MFR.:		

Flux out:632.7 lm



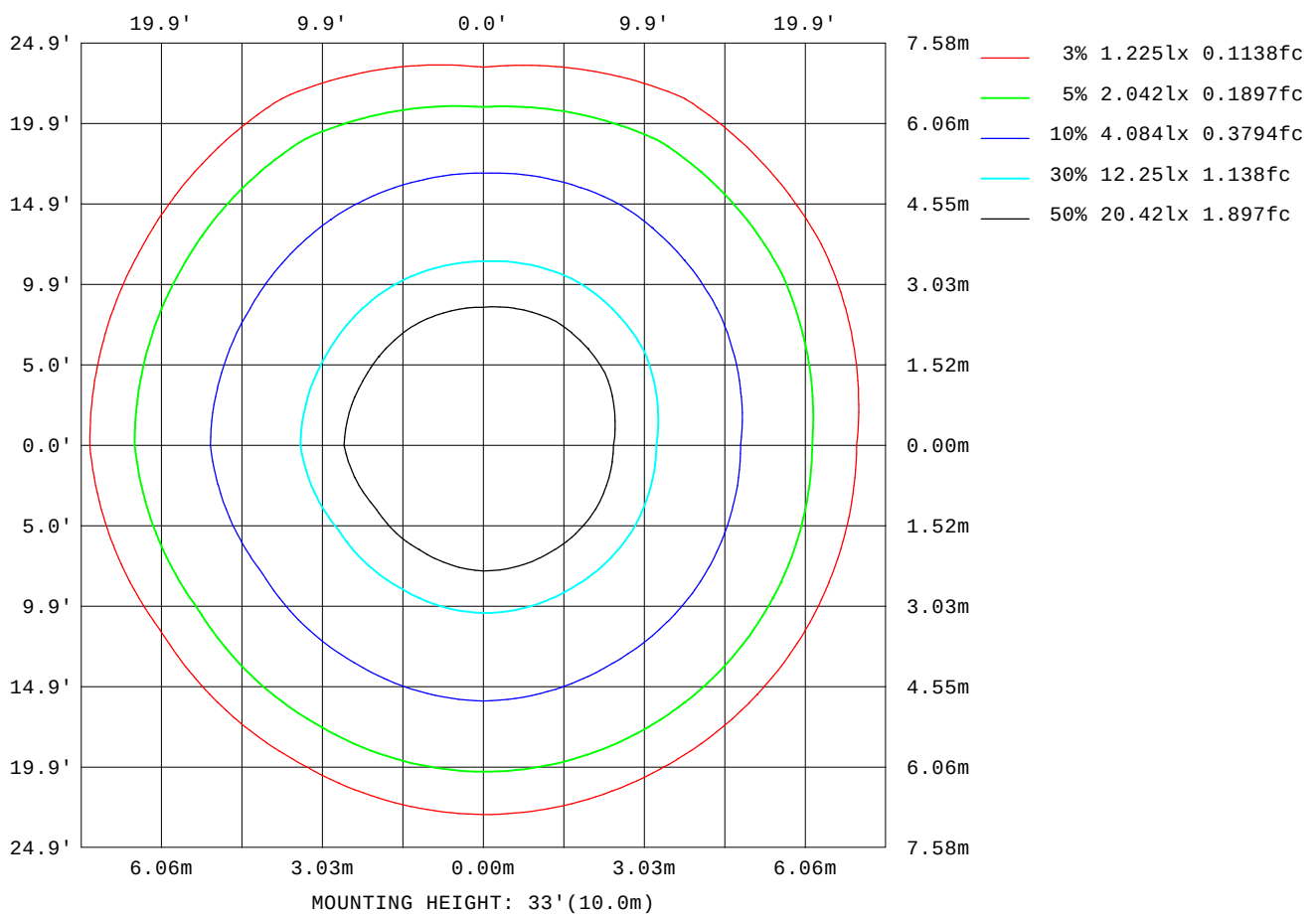
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

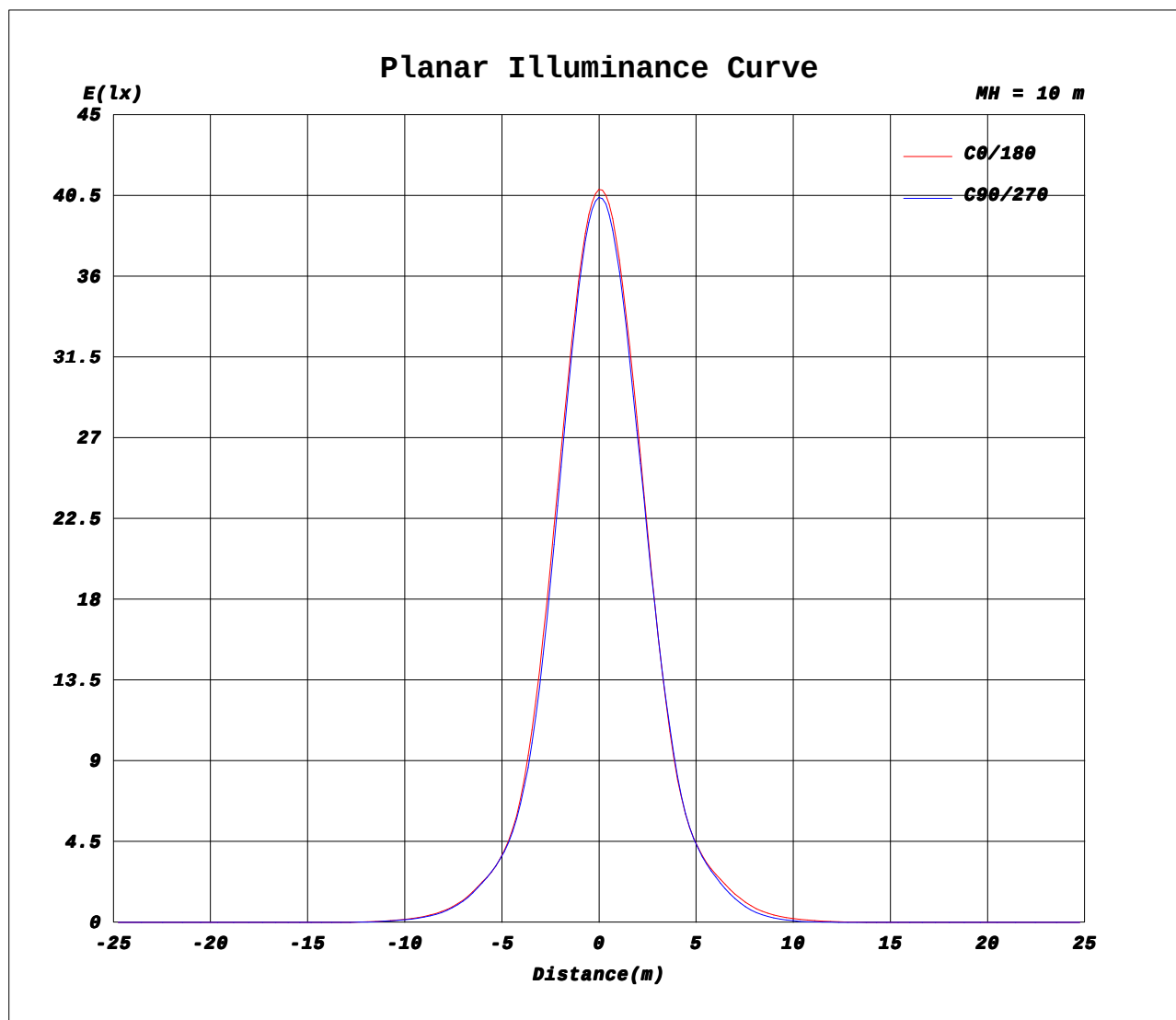
Test:U:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm		
NAME: 30W 3000K	TYPE: LED	
MFR.:		



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:220.8V I:0.1350A P:29.10W PF:0.9750 Lamp Flux:1471.38x1 lm																	
NAME: 30W 3000K									TYPE:LED								
MFR.:																	

Table--1

UNIT: cd

γ (DEG)	C (DEG)																	
	0	30	60	90	120	150	180	210	240	270	300	330						
0	4084	4071	4057	4040	4021	4013	4084	4071	4057	4040	4021	4013						
5	3762	3765	3730	3714	3655	3662	3858	3805	3817	3793	3849	3831						
10	2970	2967	2909	2889	2812	2848	3157	3060	3103	3071	3197	3158						
15	1987	1958	1887	1877	1816	1869	2198	2130	2181	2170	2294	2247						
20	1121	1089	1041	1039	1010	1043	1283	1265	1298	1312	1392	1354						
25	611	604	582	596	578	595	710	693	709	713	760	722						
30	388	386	384	387	379	392	460	453	468	443	468	437						
35	226	221	215	216	209	224	289	294	311	242	305	283						
40	112	108	103	102	96.3	104	141	144	159	97.3	162	147						
45	48.4	46.4	43.3	43.3	40.9	44.7	61.2	64.1	71.0	28.9	74.2	67.8						
50	13.8	13.3	11.5	11.8	10.7	12.8	22.9	23.5	27.0	6.98	27.5	24.5						
55	2.61	2.52	2.50	2.52	2.37	2.48	4.70	4.80	5.25	3.24	5.54	4.87						
60	1.48	1.36	1.33	1.34	1.33	1.40	2.49	2.62	2.74	2.44	2.54	2.55						
65	1.14	1.04	1.00	1.01	1.01	1.08	2.26	2.38	2.42	2.03	2.25	2.30						
70	0.89	0.81	0.78	0.78	0.79	0.85	2.25	2.35	2.37	1.83	2.17	2.28						
75	0.73	0.67	0.64	0.64	0.65	0.70	2.40	2.50	2.50	1.93	2.31	2.41						
80	0.65	0.61	0.58	0.57	0.59	0.63	2.64	2.71	2.68	2.30	2.54	2.61						
85	0.54	0.54	0.53	0.51	0.50	0.51	2.77	2.78	2.65	2.49	2.57	2.74						
90	0.51	0.52	0.52	0.51	0.52	0.52	2.82	2.80	2.77	2.76	2.76	2.80						
95	0.75	0.75	0.76	0.74	0.76	0.75	3.04	3.02	2.99	2.99	2.98	3.01						
100	1.12	1.12	1.13	1.11	1.13	1.11	3.26	3.23	3.20	3.21	3.20	3.22						
105	1.68	1.67	1.68	1.65	1.69	1.67	3.58	3.56	3.51	3.51	3.49	3.53						
110	2.47	2.46	2.47	2.45	2.50	2.46	4.12	4.08	4.03	4.02	3.98	4.04						
115	3.54	3.55	3.54	3.52	3.59	3.55	4.85	4.82	4.78	4.75	4.68	4.75						
120	4.93	4.92	4.93	4.89	5.00	4.92	5.76	5.73	5.67	5.64	5.58	5.64						
125	6.60	6.60	6.59	6.54	6.66	6.58	6.84	6.82	6.72	6.70	6.62	6.71						
130	8.50	8.50	8.47	8.41	8.59	8.47	8.15	8.12	7.97	7.95	7.84	8.00						
135	10.5	10.5	10.5	10.4	10.6	10.5	9.70	9.68	9.48	9.46	9.32	9.53						
140	12.6	12.6	12.5	12.5	12.6	12.5	11.6	11.5	11.4	11.2	11.2	11.3						
145	14.7	14.7	14.6	14.5	14.7	14.6	13.7	13.6	13.4	13.2	13.2	13.3						
150	16.8	16.8	16.7	16.5	16.6	16.7	16.0	15.8	15.5	15.3	15.3	15.5						
155	18.8	18.9	18.6	18.5	18.6	18.7	18.2	17.9	17.5	17.2	17.3	17.6						
160	20.6	20.7	20.4	20.3	20.3	20.4	20.0	19.6	19.2	18.9	18.8	19.3						
165	21.9	22.0	21.6	21.5	21.4	21.4	21.2	20.7	20.3	20.0	19.9	20.3						
170	22.4	22.4	22.0	21.9	21.6	21.7	21.7	21.1	20.6	20.4	20.3	20.6						
175	22.7	22.6	22.2	22.0	21.7	21.7	22.0	21.3	20.9	20.6	20.6	20.8						
180	22.9	22.5	22.0	21.7	21.5	21.7	23.0	22.4	22.0	21.6	21.6	21.7						

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: