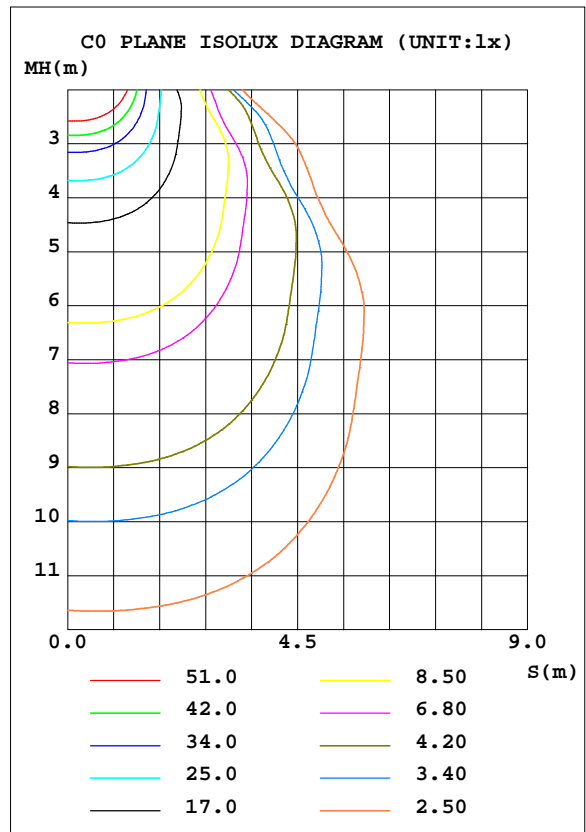
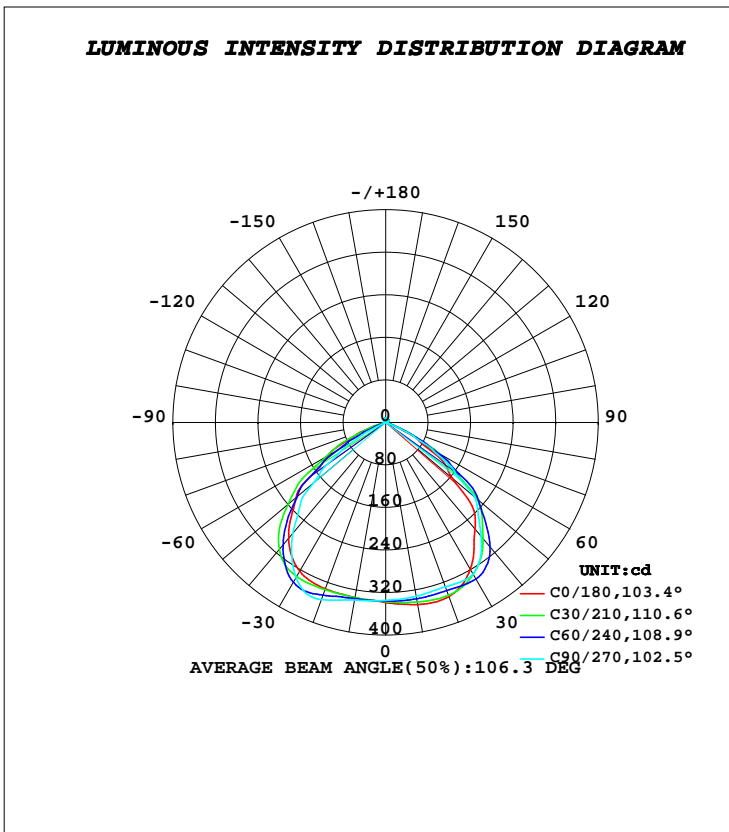


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.8V I:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 85.23 lm/W
MODEL	GFL-10W-5730	I _{max} (cd)	360.5	S/MH(C0/180)	1.35	
NOMINAL POWER(W)	10	LOR(%)	100.0	S/MH(C90/270)	1.42	
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	912.00	η UP, DN(C0-180)	1.4, 48.3	
NOMINAL FLUX(lm)	912.002	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.5, 48.7	
LAMPS INSIDE	1	η up(%)	3.0	CIBSE SHR NOM	1.50	
TEST VOLTAGE(V)	220.8	η down(%)	97.0	CIBSE SHR MAX	1.55	



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2016-11-03

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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	347.6	339.7	332.0	328.7	334.3	335.2	339.1	341.3	0- 10	32.10	32.10	3.52,3.52
20	348.3	341.1	329.0	323.5	332.7	340.1	354.6	351.2	10- 20	95.93	128.0	14,14
30	318.7	334.6	328.8	318.5	323.3	340.9	337.4	345.6	20- 30	156.4	284.5	31.2,31.2
40	261.6	295.3	279.8	291.0	284.3	305.8	271.5	293.2	30- 40	196.6	481.1	52.7,52.7
50	164.6	226.4	219.3	226.7	220.2	229.1	178.0	213.5	40- 50	196.0	677.1	74.2,74.2
60	75.75	111.8	101.7	131.0	125.1	118.2	64.35	97.43	50- 60	144.3	821.3	90.1,90.1
70	4.058	11.03	7.777	30.73	34.47	21.06	3.026	7.390	60- 70	56.43	877.8	96.2,96.2
80	1.190	1.356	1.345	1.774	2.717	2.040	1.782	1.776	70- 80	5.511	883.3	96.9,96.9
90	1.421	1.337	1.156	1.188	1.681	1.730	1.693	1.797	80- 90	1.622	884.9	97,97
100	2.177	2.051	1.812	1.816	2.235	2.328	2.379	2.479	90-100	1.967	886.9	97.2,97.2
110	3.189	3.056	2.755	2.756	3.134	3.261	3.324	3.427	100-110	2.770	889.6	97.5,97.5
120	4.275	4.172	3.898	3.859	4.188	4.320	4.402	4.450	110-120	3.618	893.3	97.9,97.9
130	5.261	5.234	5.062	4.938	5.203	5.306	5.401	5.363	120-130	4.229	897.5	98.4,98.4
140	6.040	6.066	5.974	5.805	5.941	6.020	6.090	6.033	130-140	4.345	901.8	98.9,98.9
150	6.776	6.801	6.713	6.554	6.567	6.633	6.670	6.656	140-150	3.967	905.8	99.3,99.3
160	7.557	7.545	7.443	7.334	7.303	7.304	7.308	7.333	150-160	3.242	909.0	99.7,99.7
170	8.282	8.195	8.138	8.038	8.052	7.978	7.976	7.971	160-170	2.183	911.2	99.9,99.9
180	8.541	8.422	8.367	8.292	8.567	8.423	8.350	8.295	170-180	0.7844	912.0	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

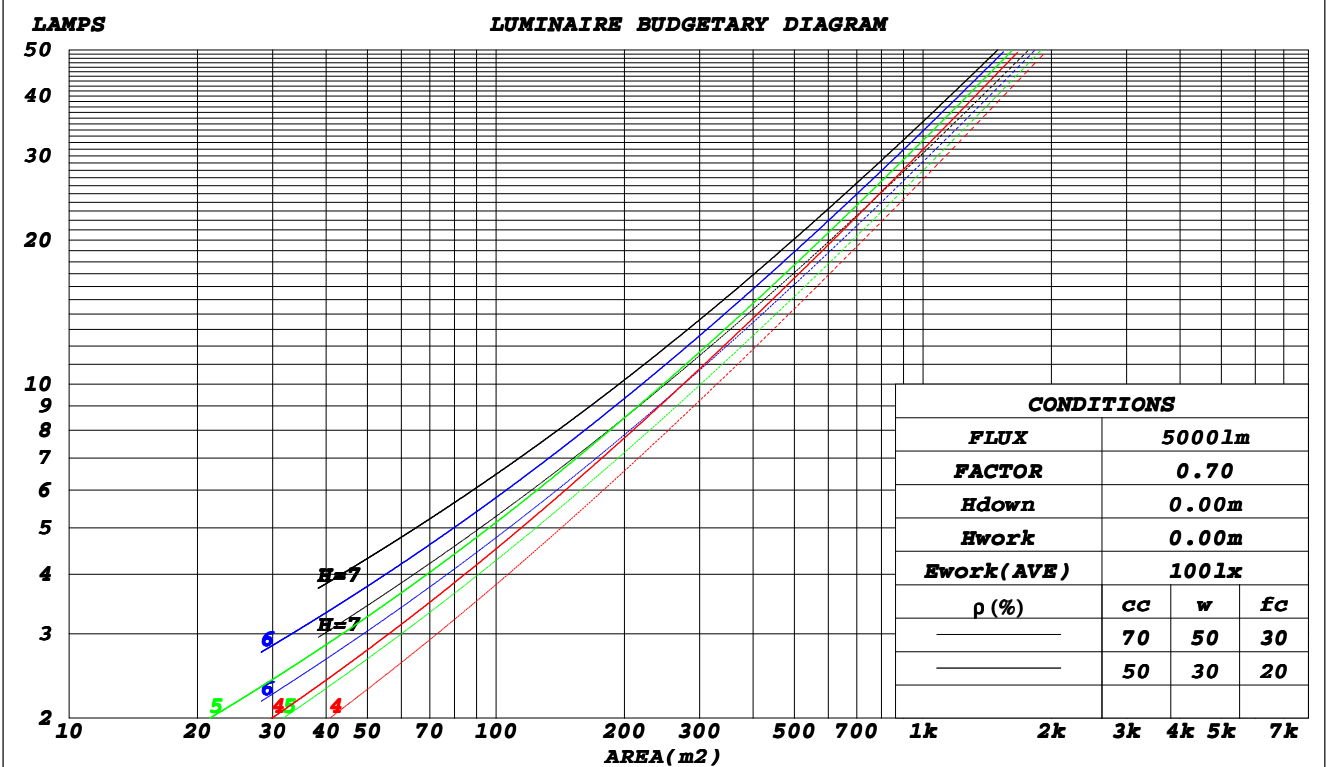
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2016-11-03

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:220.8V I:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		

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	1.06	1.03	.90	1.04	1.01	.98	.99	.97	.95	.95	.93	.91	.91	.89	.88	.86														
2.0	.95	.89	.84	.93	.88	.83	.89	.85	.81	.85	.82	.79	.82	.79	.77	.74														
3.0	.85	.78	.72	.83	.76	.71	.80	.74	.70	.77	.72	.68	.74	.70	.67	.64														
4.0	.76	.68	.62	.74	.67	.61	.71	.65	.60	.69	.63	.59	.66	.62	.58	.56														
5.0	.68	.60	.54	.67	.59	.53	.64	.58	.53	.62	.56	.52	.60	.55	.51	.49														
6.0	.61	.53	.47	.60	.53	.47	.58	.51	.46	.56	.50	.46	.55	.49	.45	.43														
7.0	.56	.48	.42	.55	.47	.42	.53	.46	.41	.51	.45	.41	.50	.44	.40	.38														
8.0	.51	.43	.37	.50	.42	.37	.49	.42	.37	.47	.41	.36	.46	.40	.36	.34														
9.0	.47	.39	.34	.46	.39	.33	.45	.38	.33	.43	.37	.33	.42	.37	.32	.31														
10.0	.43	.35	.30	.42	.35	.30	.41	.35	.30	.40	.34	.30	.39	.33	.29	.28														



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2016-11-03

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:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		

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	.246	.140	.044	.238	.136	.043	.223	.128	.041	.210	.121	.039	.198	.115	.037	
2.0	.242	.133	.041	.235	.130	.040	.222	.124	.038	.211	.118	.037	.200	.113	.036	
3.0	.232	.123	.037	.226	.121	.036	.214	.116	.035	.204	.112	.034	.194	.107	.033	
4.0	.220	.114	.034	.214	.112	.033	.204	.108	.032	.195	.105	.032	.186	.101	.031	
5.0	.207	.106	.031	.203	.104	.030	.194	.101	.030	.185	.098	.029	.177	.095	.028	
6.0	.195	.098	.028	.191	.097	.028	.183	.094	.027	.175	.091	.027	.168	.089	.026	
7.0	.184	.091	.026	.180	.090	.026	.173	.087	.025	.166	.085	.025	.160	.083	.024	
8.0	.174	.085	.024	.170	.084	.024	.164	.082	.023	.157	.080	.023	.152	.078	.023	
9.0	.164	.079	.022	.161	.079	.022	.155	.077	.022	.149	.075	.021	.144	.073	.021	
10.0	.156	.075	.021	.153	.074	.021	.147	.072	.020	.142	.071	.020	.137	.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	.213	.213	.213	.182	.182	.182	.124	.124	.124	.071	.071	.071	.023	.023	.023	
1.0	.199	.180	.162	.170	.154	.140	.116	.106	.097	.067	.061	.056	.021	.020	.018	
2.0	.189	.155	.127	.162	.134	.110	.111	.092	.077	.064	.054	.045	.020	.017	.015	
3.0	.180	.137	.103	.155	.118	.089	.106	.082	.063	.061	.048	.037	.020	.016	.012	
4.0	.173	.124	.086	.148	.107	.075	.102	.074	.053	.059	.044	.031	.019	.014	.010	
5.0	.166	.113	.074	.142	.098	.064	.098	.068	.045	.057	.040	.027	.018	.013	.009	
6.0	.159	.105	.065	.137	.091	.057	.095	.063	.040	.055	.037	.024	.018	.012	.008	
7.0	.153	.098	.059	.132	.085	.051	.091	.059	.036	.053	.035	.022	.017	.011	.007	
8.0	.148	.092	.054	.127	.080	.047	.088	.056	.033	.051	.033	.020	.017	.011	.007	
9.0	.142	.087	.050	.122	.076	.043	.085	.053	.031	.049	.031	.018	.016	.010	.006	
10.0	.137	.083	.047	.118	.072	.041	.082	.051	.029	.048	.030	.017	.015	.010	.006	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2016-11-03

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:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		

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	27.3	28.6	27.6	28.9	29.1	27.8	29.2	28.1	29.4	29.7
3H	27.2	28.5	27.6	28.7	29.0	27.7	29.0	28.1	29.2	29.5
4H	27.1	28.3	27.5	28.6	28.9	27.6	28.8	28.0	29.1	29.4
6H	27.0	28.1	27.4	28.4	28.8	27.5	28.6	27.9	28.9	29.3
8H	27.0	28.0	27.4	28.3	28.7	27.5	28.5	27.9	28.8	29.2
12H	26.9	27.9	27.3	28.3	28.6	27.4	28.4	27.8	28.8	29.1
4H 2H	27.5	28.6	27.8	28.9	29.2	27.9	29.1	28.3	29.4	29.7
3H	27.4	28.4	27.8	28.8	29.1	27.8	28.8	28.2	29.2	29.5
4H	27.3	28.2	27.8	28.6	29.0	27.7	28.6	28.2	29.0	29.4
6H	27.3	28.0	27.7	28.4	28.8	27.7	28.4	28.1	28.8	29.2
8H	27.2	27.9	27.7	28.3	28.8	27.6	28.3	28.1	28.7	29.2
12H	27.2	27.8	27.6	28.2	28.7	27.6	28.2	28.0	28.6	29.1
8H 4H	27.2	27.9	27.7	28.3	28.8	27.6	28.3	28.1	28.7	29.2
6H	27.1	27.7	27.6	28.2	28.6	27.5	28.1	28.0	28.6	29.0
8H	27.1	27.6	27.6	28.1	28.6	27.5	28.0	28.0	28.5	29.0
12H	27.0	27.5	27.6	28.0	28.5	27.4	27.9	28.0	28.4	28.9
12H 4H	27.2	27.8	27.6	28.2	28.7	27.6	28.2	28.0	28.6	29.1
6H	27.1	27.6	27.6	28.1	28.6	27.5	28.0	28.0	28.5	29.0
8H	27.0	27.5	27.5	28.0	28.5	27.4	27.9	27.9	28.4	28.9
Variations with the observer position at spacings:										
S = 1.0H	+ 1.0 / - 0.8					+ 0.8 / - 1.1				
1.5H	+ 0.9 / - 1.2					+ 0.7 / - 1.2				
2.0H	+ 1.3 / - 3.3					+ 1.5 / - 2.8				

CIE Pub.117 Corrected 912.0 lm Total Lamp Luminous Flux.(8log(F/F0) = -0.3)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2016-11-03

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:220.8V I:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		

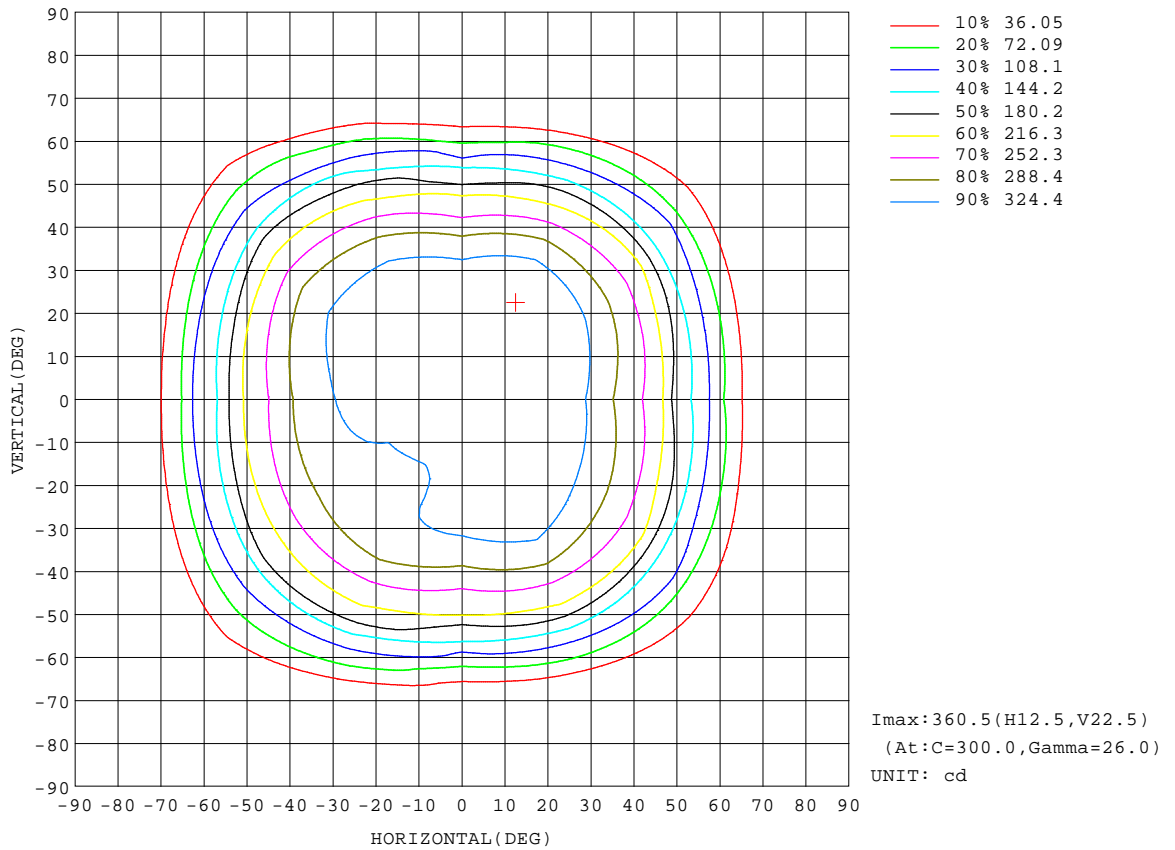
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	61	50	44	60	50	44	59	49	43	37
0.80	72	62	55	71	61	55	69	60	54	48
1.00	81	71	65	80	71	65	77	71	64	57
1.25	88	79	73	87	78	73	84	77	72	65
1.50	93	85	79	91	84	78	88	82	77	70
2.00	99	92	87	97	91	86	94	88	84	77
2.50	102	96	91	100	94	90	96	91	88	80
3.00	105	100	95	103	98	94	99	95	91	83
4.00	108	104	100	106	102	98	101	98	95	86
5.00	110	106	103	107	104	101	103	100	97	88
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:2016-11-03

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:

ISOCANDELA DIAGRAM

Test:U:220.8V I:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		



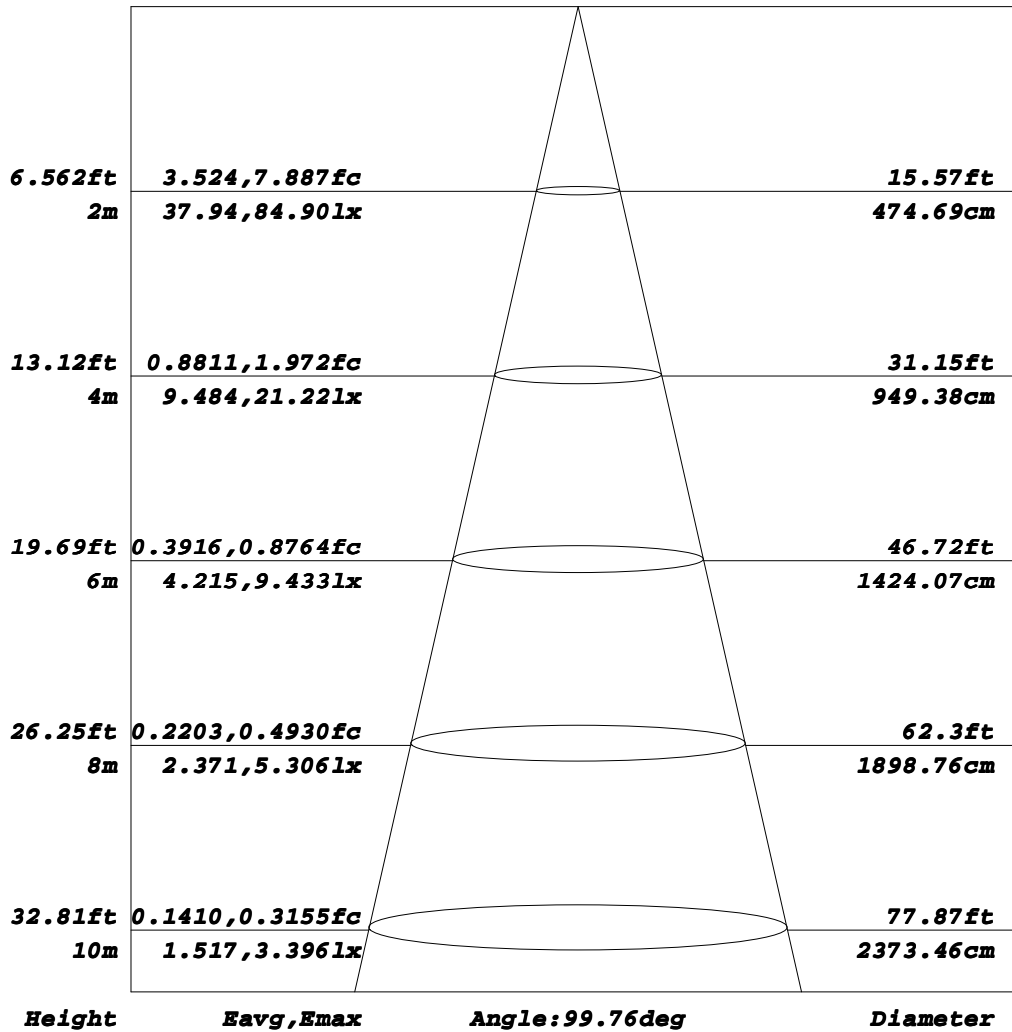
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2016-11-03

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:

AAI Figure

Test:U:220.8V I:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		

Flux out:677.1 lm



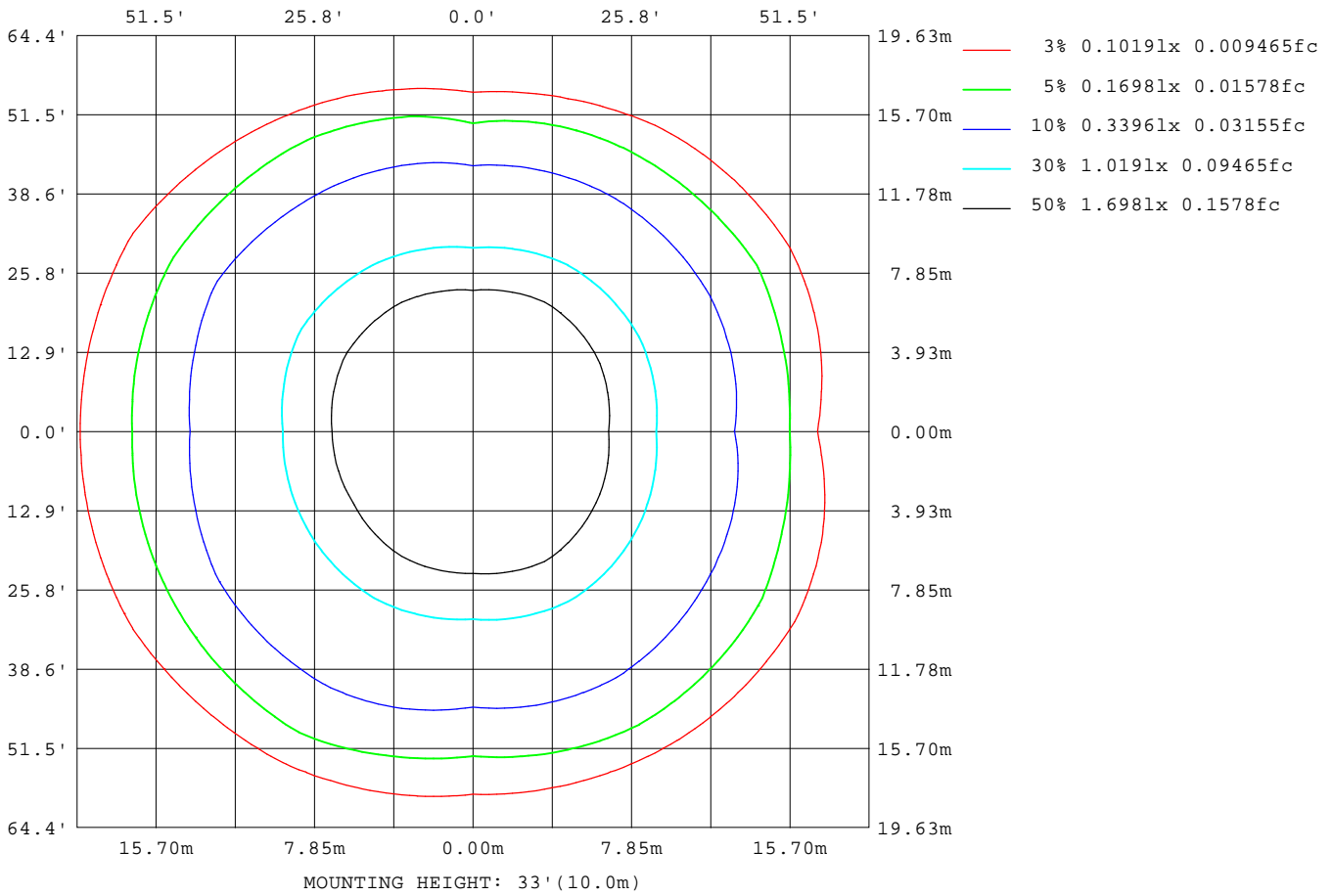
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2016-11-03

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:

ISOLUX DIAGRAM

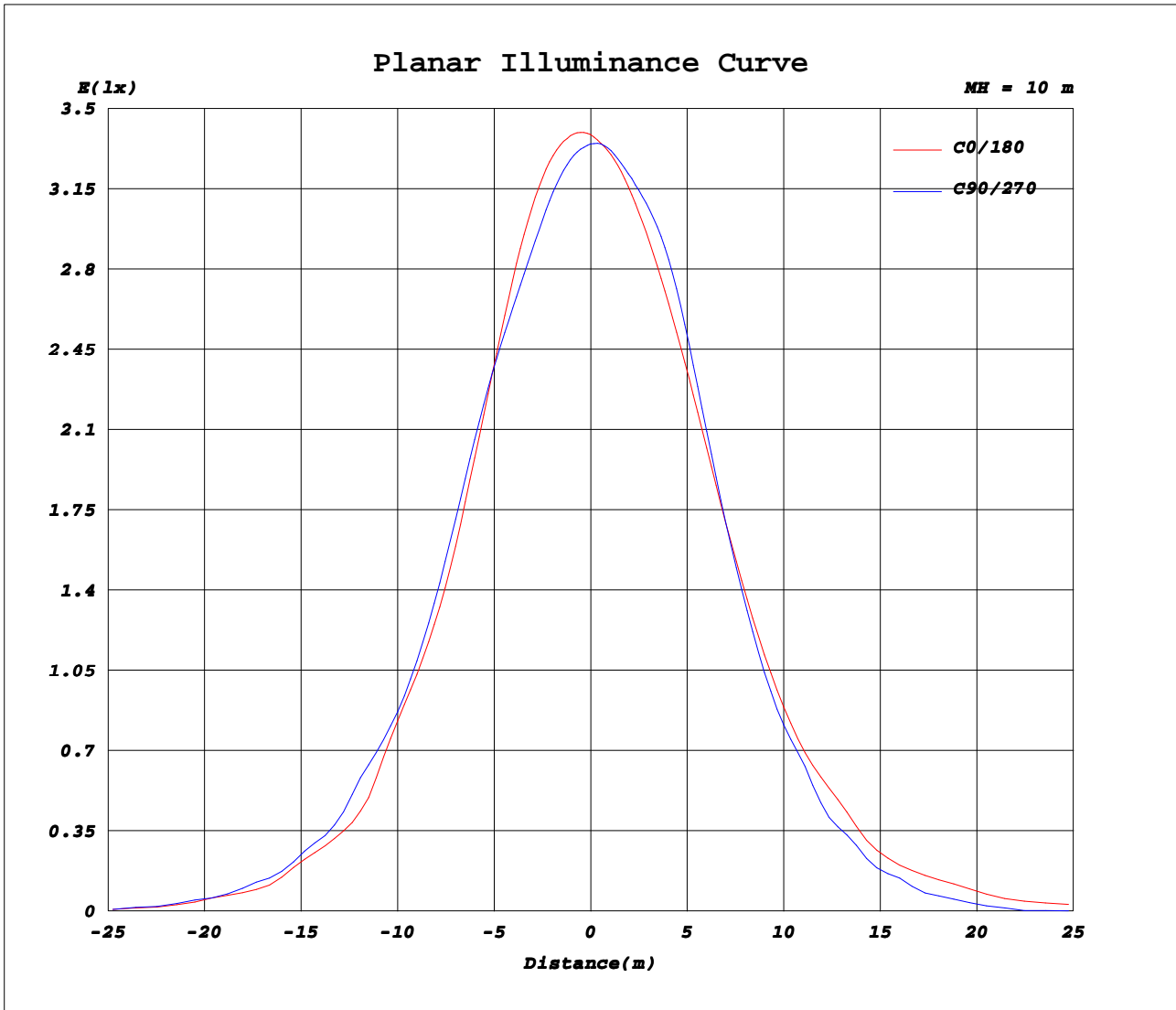
Test:U:220.8V I:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2016-11-03

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:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2016-11-03

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:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.8V I:0.0500A P:10.70W PF:0.9520 Lamp Flux:912.002x1 lm		
NAME: GFL-10W-5730	TYPE:LED	
DIM.: 135*115MM	SUR.:65*55mm	
MFR.: GRANDOL INDUSTRY LIMITED		

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330							
0	339	337	336	335	334	333	339	337	336	335	334	333							
5	343	340	337	333	331	330	336	335	336	337	337	338							
10	348	343	337	332	329	329	334	334	336	339	341	342							
15	351	345	336	330	326	326	334	334	339	346	346	346							
20	348	346	337	329	323	324	333	335	346	355	354	348							
25	338	341	339	332	322	322	330	335	351	355	360	346							
30	319	330	340	329	322	315	323	335	347	337	354	337							
35	289	312	330	311	316	304	308	328	329	308	332	319							
40	262	285	305	280	296	286	284	311	300	271	297	289							
45	235	257	266	246	263	260	252	283	263	230	253	257							
50	165	225	228	219	228	225	220	240	218	178	208	218							
55	136	152	169	158	195	194	164	200	163	122	143	143							
60	75.8	115	109	102	134	128	125	131	106	64.4	87.9	107							
65	37.7	58.7	51.1	44.0	74.4	93.9	73.5	91.5	49.4	19.1	32.0	51.2							
70	4.06	15.6	6.48	7.78	20.7	40.8	34.5	37.7	4.44	3.03	2.85	11.9							
75	1.83	2.04	2.47	2.84	3.39	8.92	5.46	4.68	2.40	2.09	2.05	2.24							
80	1.19	1.35	1.36	1.35	1.64	1.90	2.72	2.15	1.92	1.78	1.78	1.77							
85	1.15	1.16	1.12	1.04	1.15	1.22	1.79	1.74	1.73	1.60	1.63	1.65							
90	1.42	1.39	1.29	1.16	1.17	1.21	1.68	1.74	1.72	1.69	1.77	1.83							
95	1.75	1.71	1.59	1.44	1.44	1.49	1.93	1.98	1.97	1.99	2.05	2.11							
100	2.18	2.12	1.98	1.81	1.80	1.83	2.24	2.31	2.34	2.38	2.45	2.51							
105	2.66	2.60	2.45	2.25	2.24	2.27	2.66	2.75	2.79	2.82	2.91	2.97							
110	3.19	3.14	2.97	2.76	2.74	2.77	3.13	3.23	3.29	3.32	3.41	3.45							
115	3.73	3.69	3.52	3.31	3.28	3.31	3.65	3.76	3.81	3.86	3.92	3.96							
120	4.28	4.25	4.09	3.90	3.86	3.86	4.19	4.29	4.35	4.40	4.45	4.45							
125	4.80	4.78	4.67	4.50	4.43	4.41	4.72	4.81	4.87	4.93	4.95	4.92							
130	5.26	5.26	5.21	5.06	4.97	4.91	5.20	5.27	5.34	5.40	5.40	5.32							
135	5.67	5.67	5.67	5.55	5.43	5.36	5.59	5.66	5.72	5.79	5.77	5.67							
140	6.04	6.06	6.07	5.97	5.83	5.77	5.94	6.00	6.03	6.09	6.08	5.99							
145	6.41	6.42	6.44	6.35	6.20	6.16	6.25	6.32	6.33	6.38	6.37	6.30							
150	6.78	6.81	6.79	6.71	6.57	6.54	6.57	6.63	6.64	6.67	6.67	6.64							
155	7.17	7.20	7.16	7.08	6.96	6.93	6.93	6.95	6.97	6.98	6.99	6.99							
160	7.56	7.58	7.51	7.44	7.36	7.31	7.30	7.29	7.32	7.31	7.32	7.35							
165	7.95	7.94	7.83	7.80	7.74	7.67	7.70	7.63	7.67	7.66	7.65	7.70							
170	8.28	8.24	8.15	8.14	8.06	8.01	8.05	7.96	7.99	7.98	7.95	7.99							
175	8.45	8.40	8.32	8.30	8.21	8.18	8.38	8.27	8.27	8.23	8.20	8.22							
180	8.54	8.46	8.38	8.37	8.28	8.30	8.57	8.44	8.41	8.35	8.29	8.30							

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2016-11-03

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: