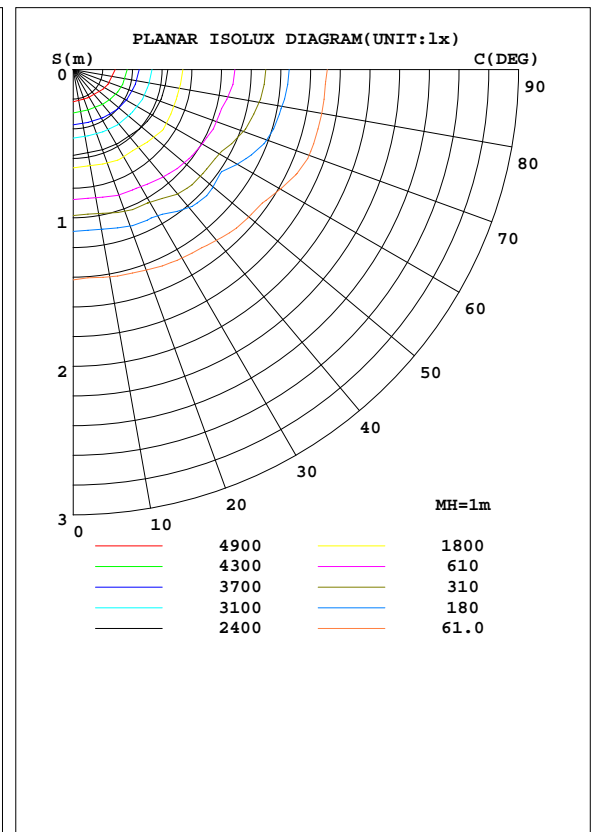
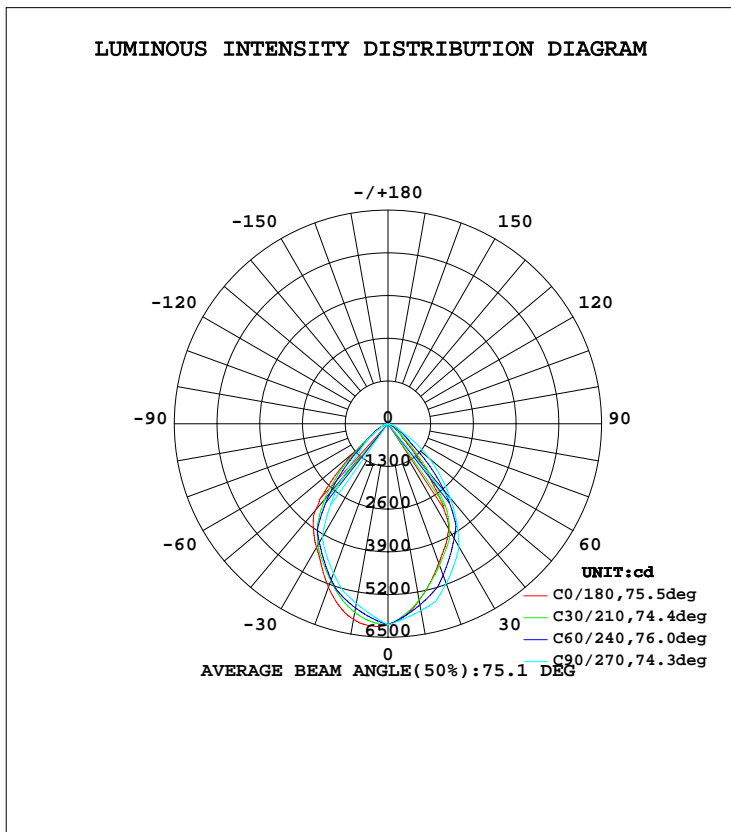


EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.0V I:0.2200A P:100.0W PF:0.9300 Lamp Flux:8368.6x1 lm		
NAME:	TYPE:LED	WEIGHT:g
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:395mm	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 83.69 lm/W			
MODEL	HB-100WA	I _{max} (cd)	6177	S/MH(C0/180)	1.08
NOMINAL POWER(W)	100	LOR(%)	100.0	S/MH(C90/270)	1.01
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	8368.6	η UP, DN(C0-180)	0.0, 52.9
NOMINAL FLUX(lm)	8368.6	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 47.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)		η down(%)	100.0	CIBSE SHR MAX	1.15



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:20.0DEG
 Operators:
 Test Date:2014-12-08

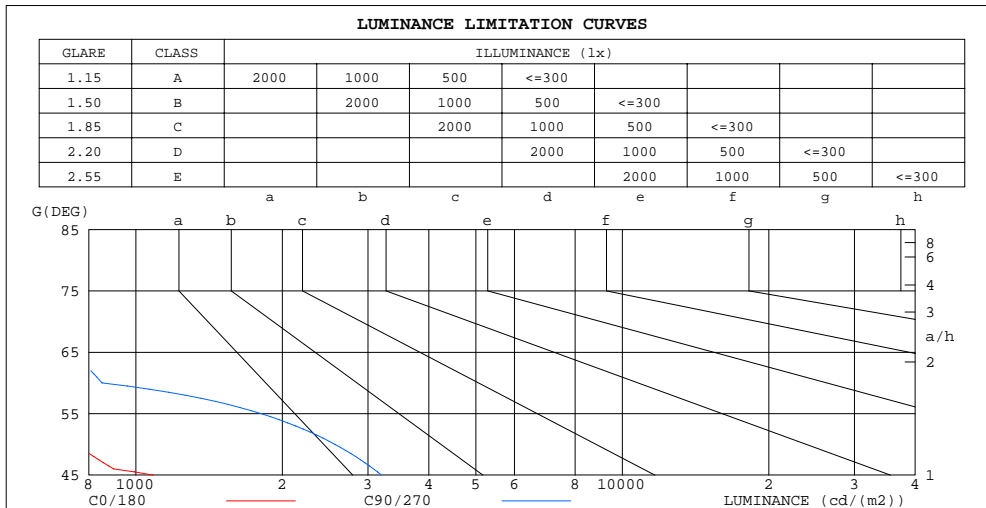
γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity:65.0%
 Test Distance:7.000m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ZONAL FLUX DIAGRAM
AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	$\$lum, lamp$
5	5871	5846	5945	6053	6174	5977	5835	5766	0- 5	143.4	143.4	1.71,1.71
10	5464	5512	5773	5884	6041	5756	5553	5353	5- 10	413.6	557.1	6.66,6.66
15	4987	5139	5601	5646	5740	5458	5270	4924	10- 15	650.5	1208	14.4,14.4
20	4518	4760	5176	5347	5298	5100	4848	4539	15- 20	843.9	2051	24.5,24.5
25	4118	4301	4751	4876	4782	4646	4425	4049	20- 25	984.5	3036	36.3,36.3
30	3699	3834	4326	4403	4349	4211	4003	3424	25- 30	1076	4112	49.1,49.1
35	2753	3256	3638	3978	3955	3744	3087	2577	30- 35	1096	5208	62.2,62.2
40	1654	2361	2950	3532	3437	3064	2172	1732	35- 40	991.6	6200	74.1,74.1
45	767.8	1441	2261	2556	2375	2092	1256	1041	40- 45	781.2	6981	83.4,83.4
50	482.3	831.0	1650	1565	1203	1172	923.0	587.9	45- 50	535.9	7517	89.8,89.8
55	308.7	425.9	1038	781.3	604.1	535.6	589.6	339.8	50- 55	346.7	7864	94,94
60	174.6	280.8	426.0	504.8	432.4	371.8	256.1	218.7	55- 60	216.6	8080	96.6,96.6
65	97.89	157.3	309.6	328.8	256.8	221.3	184.7	123.5	60- 65	129.7	8210	98.1,98.1
70	53.11	83.63	193.2	200.4	146.3	120.4	113.3	65.28	65- 70	82.51	8293	99.1,99.1
75	26.04	48.89	76.82	123.8	82.40	72.44	41.90	36.27	70- 75	48.50	8341	99.7,99.7
80	9.070	18.05	0	51.46	43.91	27.61	0	10.99	75- 80	21.82	8363	99.9,99.9
85	0.6380	0	0	0	20.13	0	0	0	80- 85	5.067	8368	100,100
90	0.7182	0	0	0	4.275	0	0	0	85- 90	0.6100	8369	100,100
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	7	0
80	52	0
75	101	297
70	155	565
65	232	733
60	349	852
55	538	1809
50	750	2566
45	1086	3198

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 20.0DEG
Operators:
Test Date: 2014-12-08

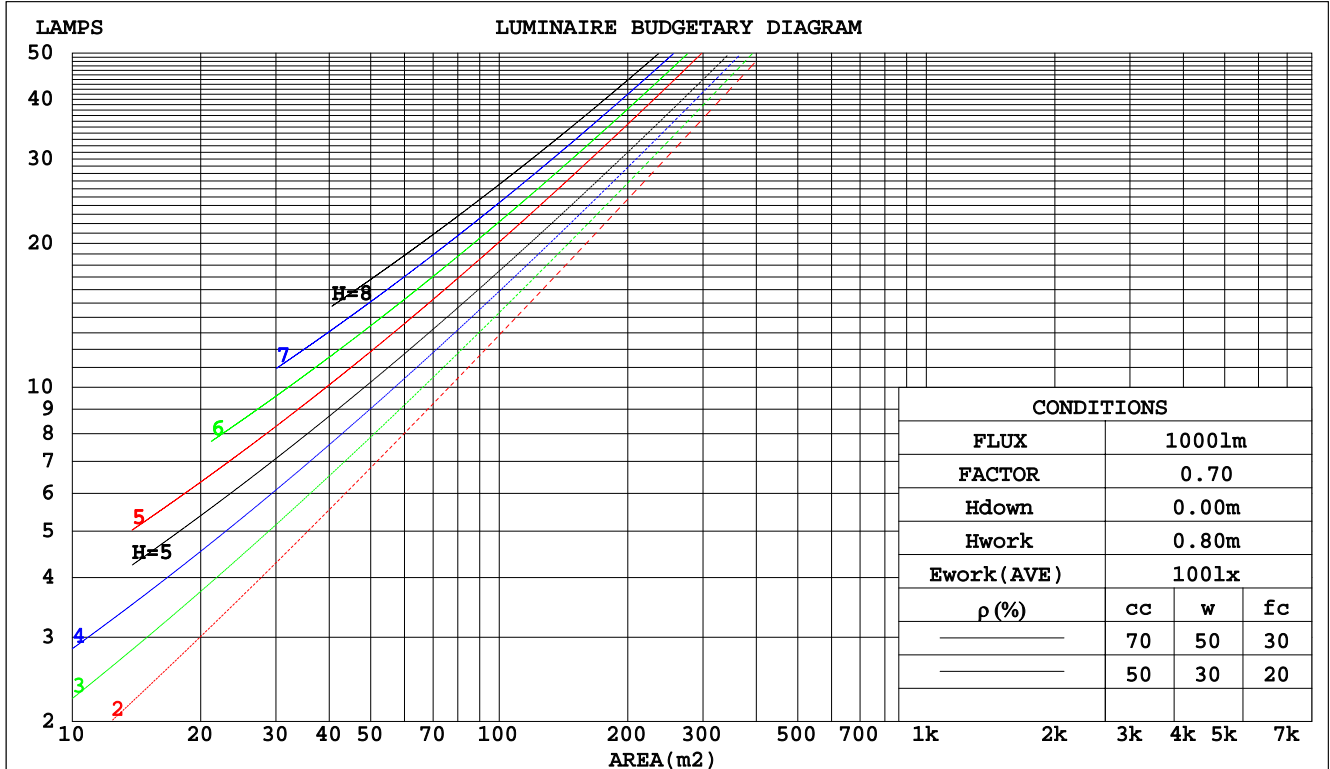
γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.288
Humidity: 65.0%
Test Distance: 7.000m [K=1.0000]
Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.0V I:0.2200A P:100.0W PF:0.9300 Lamp Flux:8368.6x1 lm		
NAME:	TYPE:LED	WEIGHT:g
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:395mm	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio Coefficients of Utilization(CU)															
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1.0	1.09	1.06	1.03	1.07	1.04	1.02	1.03	1.01	.99	.99	.97	.96	.95	.94	.93	.91
2.0	.99	.94	.90	.98	.93	.89	.94	.90	.87	.91	.88	.85	.88	.86	.84	.82
3.0	.91	.85	.80	.89	.84	.79	.86	.82	.78	.84	.80	.77	.82	.78	.75	.74
4.0	.83	.76	.71	.82	.76	.71	.79	.74	.70	.77	.73	.69	.75	.71	.68	.66
5.0	.76	.69	.64	.75	.69	.64	.73	.67	.63	.71	.66	.62	.70	.65	.62	.60
6.0	.70	.63	.58	.69	.63	.58	.68	.62	.57	.66	.61	.57	.65	.60	.56	.55
7.0	.65	.58	.53	.64	.57	.53	.63	.57	.52	.61	.56	.52	.60	.55	.52	.50
8.0	.60	.53	.48	.60	.53	.48	.58	.52	.48	.57	.52	.48	.56	.51	.47	.46
9.0	.56	.49	.44	.55	.49	.44	.54	.48	.44	.53	.48	.44	.53	.47	.44	.42
10.0	.52	.46	.41	.52	.45	.41	.51	.45	.41	.50	.45	.41	.49	.44	.41	.39



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:20.0DEG
 Operators:
 Test Date:2014-12-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity:65.0%
 Test Distance:7.000m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

WEC AND CCEC

Test:U:220.0V I:0.2200A P:100.0W PF:0.9300 Lamp Flux:8368.6x1 lm									
NAME:					TYPE:LED			WEIGHT:g	
SPEC.:					DIM.:			SERIAL No.:	
MFR.:					SUR.:395mm			PROTECTION ANGLE:	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.212	.121	.038	.205	.117	.037	.193	.111	.035	.181	.104	.033	.170	.099	.032	
2.0	.207	.113	.035	.201	.111	.034	.190	.106	.033	.180	.101	.032	.171	.096	.030	
3.0	.198	.105	.032	.193	.103	.031	.183	.099	.030	.174	.096	.029	.166	.092	.029	
4.0	.188	.098	.029	.184	.096	.028	.175	.093	.028	.168	.090	.027	.161	.087	.027	
5.0	.179	.091	.026	.175	.090	.026	.167	.087	.026	.161	.085	.025	.154	.082	.025	
6.0	.169	.085	.024	.166	.084	.024	.160	.082	.024	.154	.080	.023	.148	.078	.023	
7.0	.161	.080	.023	.158	.079	.022	.152	.077	.022	.147	.075	.022	.142	.074	.022	
8.0	.153	.075	.021	.150	.074	.021	.145	.073	.021	.140	.071	.020	.136	.070	.020	
9.0	.146	.070	.020	.143	.070	.020	.139	.068	.019	.134	.067	.019	.130	.066	.019	
10.0	.139	.067	.018	.137	.066	.018	.132	.065	.018	.128	.064	.018	.125	.063	.018	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.174	.157	.142	.149	.135	.122	.102	.093	.085	.058	.054	.049	.019	.017	.016	
2.0	.161	.132	.108	.138	.114	.094	.094	.079	.065	.054	.046	.038	.017	.015	.012	
3.0	.151	.114	.085	.129	.098	.073	.089	.068	.051	.051	.040	.030	.016	.013	.010	
4.0	.142	.100	.067	.122	.086	.059	.084	.060	.041	.048	.035	.024	.016	.011	.008	
5.0	.134	.089	.055	.115	.077	.048	.079	.054	.034	.046	.031	.020	.015	.010	.007	
6.0	.127	.080	.045	.109	.069	.040	.075	.048	.028	.044	.028	.017	.014	.009	.006	
7.0	.121	.072	.038	.104	.063	.033	.072	.044	.024	.042	.026	.014	.014	.008	.005	
8.0	.115	.067	.033	.099	.058	.029	.069	.041	.020	.040	.024	.012	.013	.008	.004	
9.0	.110	.062	.029	.095	.053	.025	.066	.038	.018	.038	.022	.011	.012	.007	.003	
10.0	.106	.057	.025	.091	.050	.022	.063	.035	.016	.037	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:20.0DEG
 Operators:
 Test Date:2014-12-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity:65.0%
 Test Distance:7.000m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

UGR(Unified Glare Rating) Table

Test:U:220.0V I:0.2200A P:100.0W PF:0.9300 Lamp Flux:8368.6x1 lm										
NAME:					TYPE:LED			WEIGHT:g		
SPEC.:					DIM.:			SERIAL No.:		
MFR.:					SUR.:395mm			PROTECTION ANGLE:		
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	9.7	10.9	10.0	11.1	11.3	13.3	14.5	13.5	14.6	14.8
3H	9.6	10.7	9.9	10.9	11.1	13.4	14.4	13.6	14.6	14.9
4H	9.6	10.6	9.9	10.8	11.1	13.3	14.3	13.6	14.6	14.8
6H	9.5	10.4	9.8	10.7	10.9	13.3	14.2	13.6	14.5	14.7
8H	9.4	10.4	9.8	10.6	10.9	13.2	14.1	13.5	14.4	14.7
12H	9.4	10.3	9.7	10.5	10.8	13.2	14.0	13.5	14.3	14.6
4H 2H	9.7	10.7	10.0	11.0	11.2	13.1	14.1	13.4	14.3	14.6
3H	9.7	10.5	10.0	10.8	11.1	13.2	14.1	13.5	14.4	14.6
4H	9.6	10.4	10.0	10.7	11.0	13.2	14.0	13.6	14.3	14.6
6H	9.5	10.2	9.9	10.6	10.9	13.1	13.8	13.5	14.1	14.5
8H	9.5	10.1	9.9	10.5	10.9	13.1	13.7	13.5	14.1	14.4
12H	9.4	10.0	9.9	10.4	10.8	13.0	13.6	13.4	14.0	14.4
8H 4H	9.5	10.2	9.9	10.5	10.9	13.1	13.7	13.5	14.1	14.4
6H	9.5	10.0	9.9	10.4	10.8	13.0	13.5	13.4	13.9	14.3
8H	9.4	9.9	9.9	10.3	10.7	13.0	13.4	13.4	13.8	14.3
12H	9.4	9.8	9.8	10.2	10.7	12.9	13.3	13.4	13.7	14.2
12H 4H	9.5	10.1	9.9	10.4	10.8	13.0	13.6	13.4	14.0	14.4
6H	9.4	9.9	9.9	10.3	10.7	13.0	13.4	13.4	13.8	14.3
8H	9.4	9.8	9.9	10.2	10.7	12.9	13.3	13.4	13.7	14.2
Variations with the observer position at spacings:										
S = 1.0H	+ 2.1 / - 4.8					+ 1.3 / - 1.9				
1.5H	+ 3.1 / - 3.0					+ 1.9 / - 3.8				
2.0H	+ 2.6 / - 3.1					+ 4.4 / - 6.1				

CIE Pub.117 Corrected 8369 lm Total Lamp Luminous Flux.(8log(F/F0) = 7.4)

C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:20.0DEG
 Operators:
 Test Date:2014-12-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity:65.0%
 Test Distance:7.000m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

UTILIZATION FACTORS TABLE

Test:U:220.0V I:0.2200A P:100.0W PF:0.9300 Lamp Flux:8368.6x1 lm		
NAME:	TYPE:LED	WEIGHT:g
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:395mm	PROTECTION ANGLE:

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	75	66	61	74	66	61	73	66	61	56
0.80	84	76	71	83	76	71	82	75	70	66
1.00	91	84	79	90	83	78	88	83	78	73
1.25	97	90	85	95	89	85	93	88	84	79
1.50	100	94	89	99	93	89	96	92	88	82
2.00	105	99	95	103	98	94	100	96	93	87
2.50	107	102	98	105	101	97	102	98	95	89
3.00	109	105	101	107	103	100	104	100	98	91
4.00	112	108	105	109	106	104	106	103	101	93
5.00	113	110	107	111	108	106	107	105	103	95
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:20.0DEG
 Operators:
 Test Date:2014-12-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity:65.0%
 Test Distance:7.000m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOCANDELA DIAGRAM

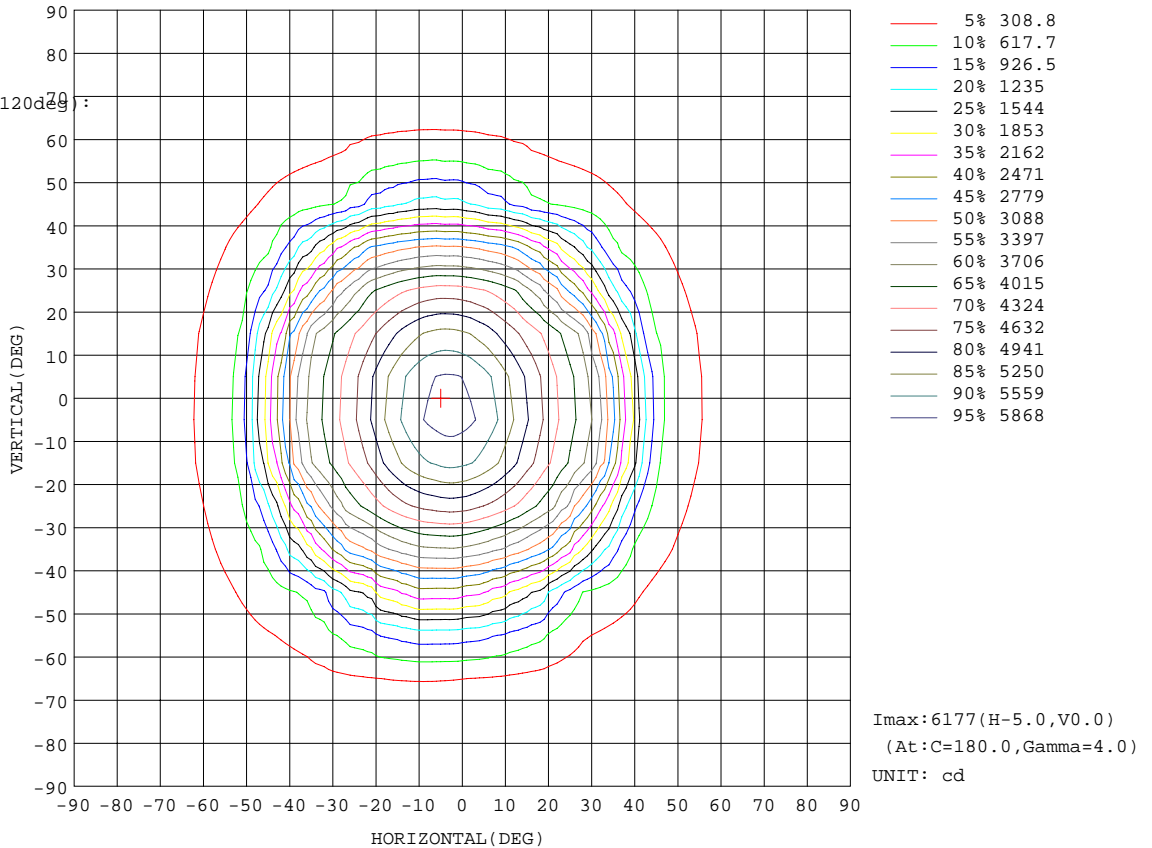
Test:U:220.0V I:0.2200A P:100.0W PF:0.9300 Lamp Flux:8368.6x1 lm		
NAME:	TYPE:LED	WEIGHT:g
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:395mm	PROTECTION ANGLE:

Conical surface Flux(90deg):

6981.1 lm
 %lum = 83.4%
 %lamp = 83.4%

Conical surface Flux(120deg):

8080.4 lm
 %lum = 96.6%
 %lamp = 96.6%



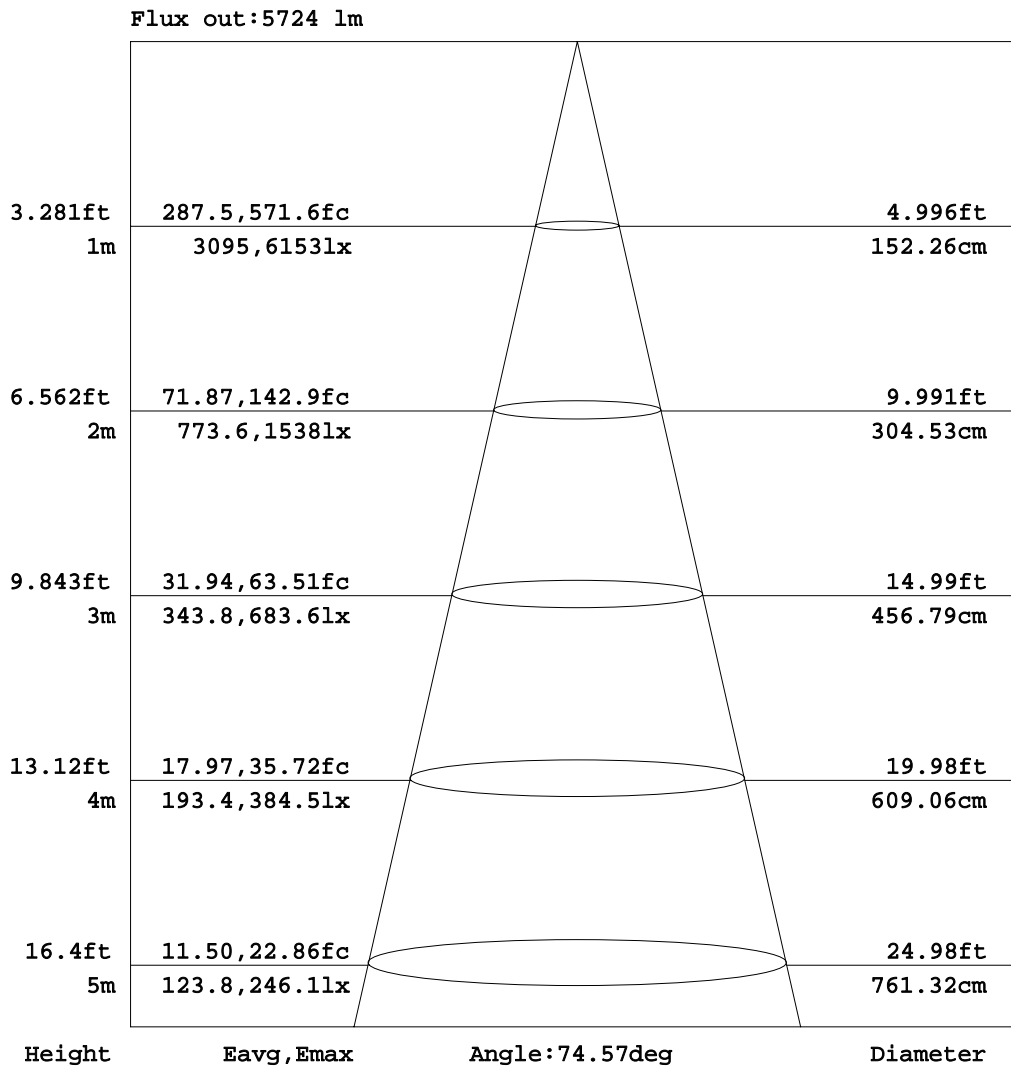
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:20.0DEG
 Operators:
 Test Date:2014-12-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity:65.0%
 Test Distance:7.000m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

AAI Figure

Test:U:220.0V I:0.2200A P:100.0W PF:0.9300 Lamp Flux:8368.6x1 lm		
NAME:	TYPE:LED	WEIGHT:g
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:395mm	PROTECTION ANGLE:



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

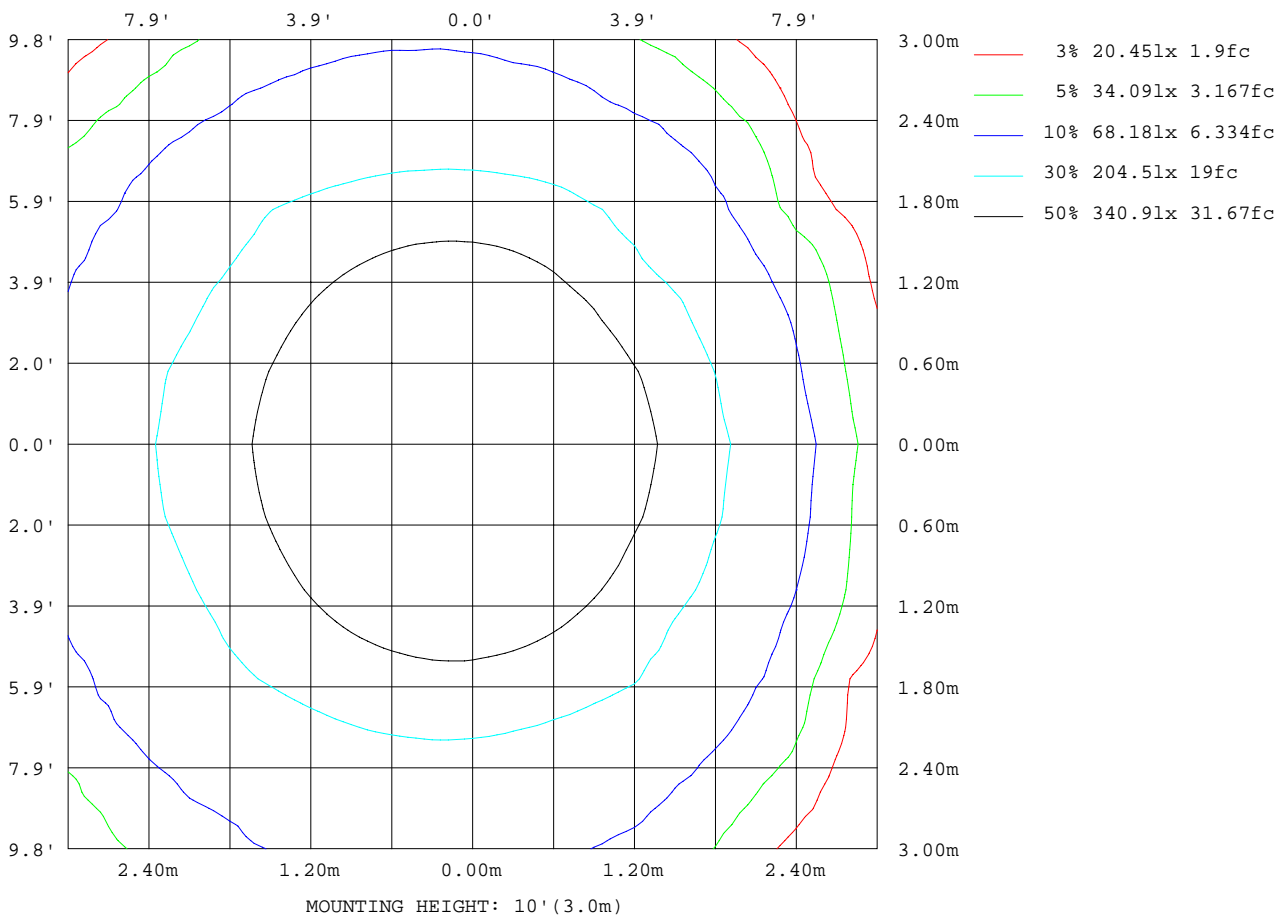
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:20.0DEG
 Operators:
 Test Date:2014-12-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity:65.0%
 Test Distance:7.000m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM

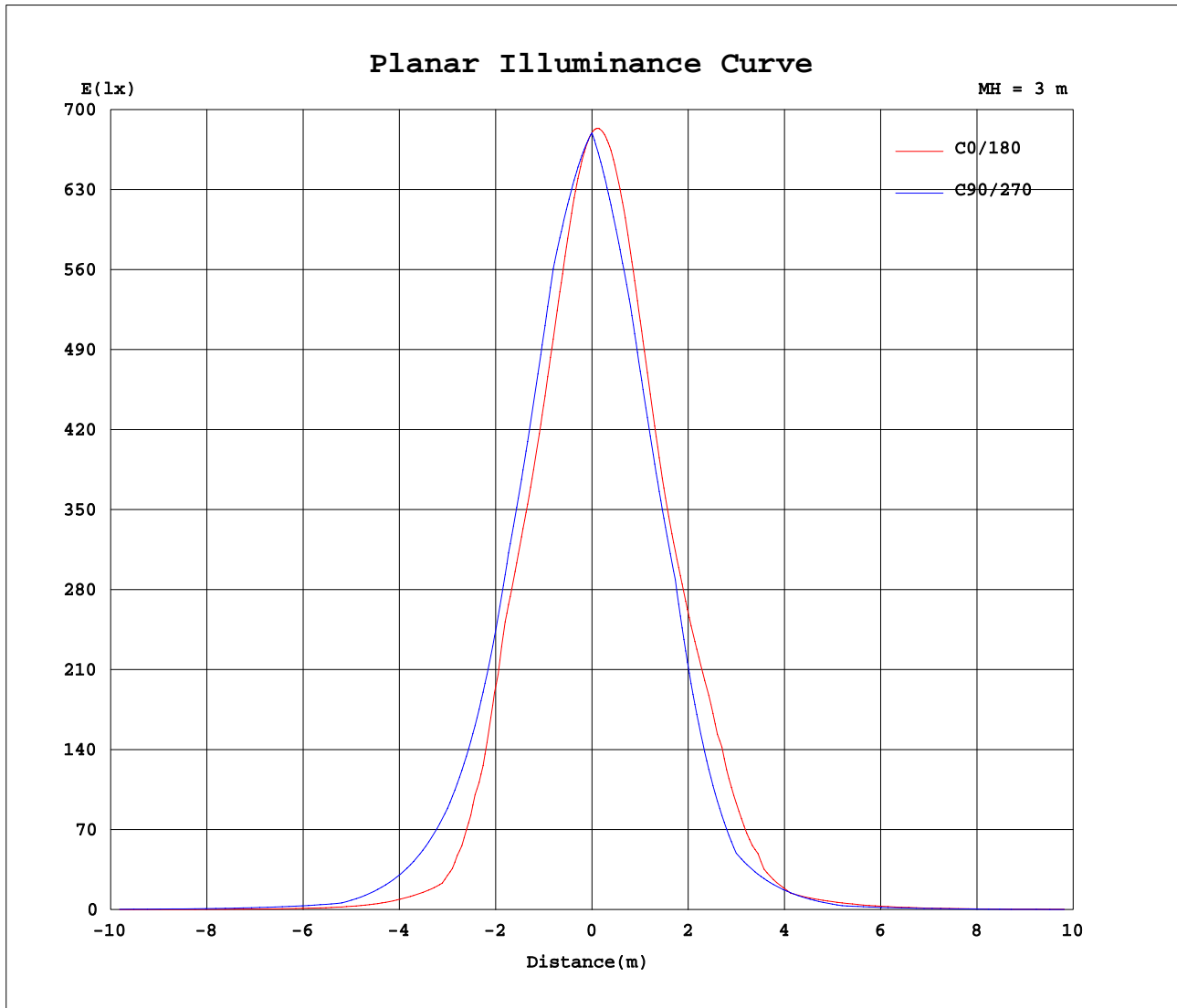
Test:U:220.0V I:0.2200A P:100.0W PF:0.9300 Lamp Flux:8368.6x1 lm		
NAME:	TYPE:LED	WEIGHT:g
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:395mm	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:20.0DEG
 Operators:
 Test Date:2014-12-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity:65.0%
 Test Distance:7.000m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 20.0DEG
 Operators:
 Test Date: 2014-12-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.288
 Humidity: 65.0%
 Test Distance: 7.000m [K=1.0000]
 Remarks:

