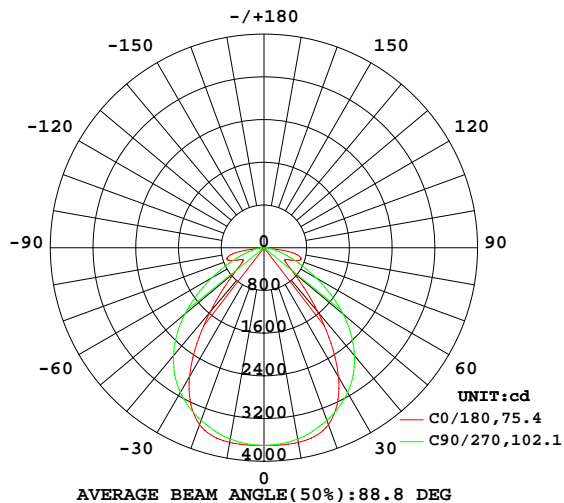


LUMINAIRE PHOTOMETRIC TEST REPORT

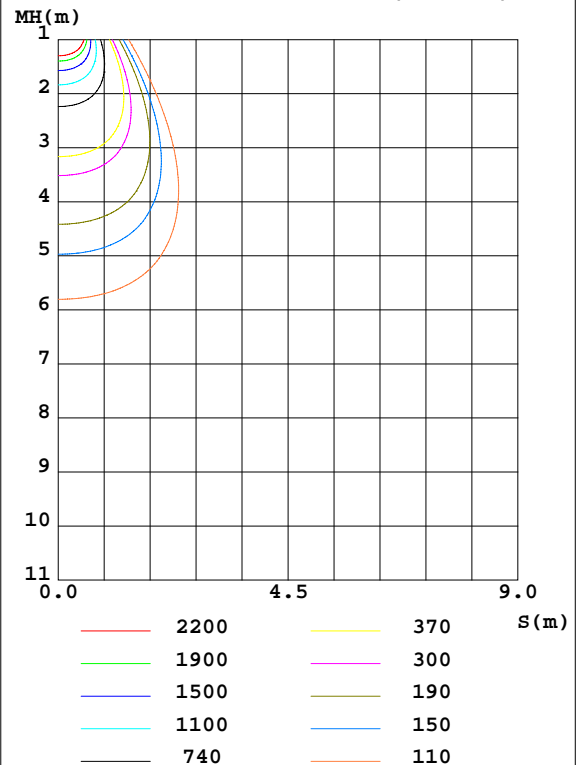
Test:U:220.1V I:0.3010A P:64.29W PF:0.9701 Lamp Flux:7901.75x1 lm		
NAME: LHB04-65	TYPE:65W	WEIGHT:
SPEC.:5000K Ra70 80*100DEG L00303	DIM.: 1.447*0.06*0.05	SERIAL No.:
MFR.:	SUR.:1.425*0.05	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 122.91 lm/W			
MODEL	LHB04-65	Imax(cd)	3707	S/MH(C0/180)	1.09
NOMINAL POWER(W)	65	LOR(%)	100.0	S/MH(C90/270)	1.26
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	7901.8	η UP,DN(C0-180)	0.0,50.1
NOMINAL FLUX(lm)	7901.75	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.9
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.30

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2016-07-19

Checker:

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:9.470m [K=1.0000]
 Remarks:

Assessor:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	3702	3675	3637	3675	3702	3672	3637	3672	0- 10	352.0	352.0	4.45,4.45
20	3527	3527	3440	3527	3527	3523	3440	3523	10- 20	1019	1371	17.4,17.4
30	2790	3125	3131	3125	2790	3121	3131	3121	20- 30	1523	2894	36.6,36.6
40	1573	2346	2635	2346	1573	2331	2635	2331	30- 40	1658	4552	57.6,57.6
50	718.4	1371	1935	1371	718.4	1344	1935	1344	40- 50	1361	5913	74.8,74.8
60	455.2	659.7	1126	659.7	455.2	642.5	1126	642.5	50- 60	894.4	6808	86.2,86.2
70	695.8	338.2	503.4	338.2	695.8	334.9	503.4	334.9	60- 70	558.7	7366	93.2,93.2
80	546.4	192.7	171.4	192.7	546.4	202.3	171.4	202.3	70- 80	410.8	7777	98.4,98.4
90	2.554	3.019	3.767	3.019	2.554	3.282	3.767	3.282	80- 90	124.4	7902	100,100
100									90-100			
110									100-110			
120									110-120			
130									120-130			
140									130-140			
150									140-150			
160									150-160			
170									160-170			
180									170-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 5288.3 lm

%lum = 66.9%

%lamp = 66.9%

Conical surface Flux(120deg): 6807.8 lm

%lum = 86.2%

%lamp = 86.2%

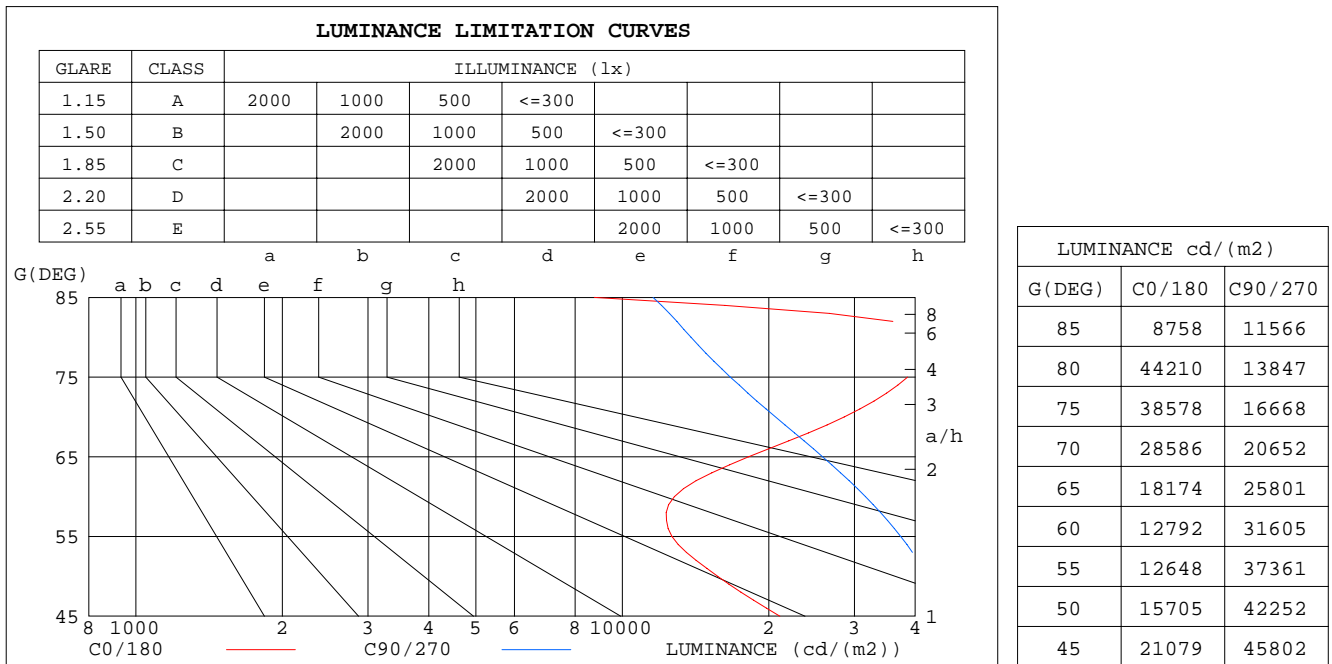
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2016-07-19

Checker:

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:9.470m [K=1.0000]
 Remarks:

Assessor:

LUMINANCE LIMITATION CURVES



C Range: 0 - 360°
C Interval: 10.0°
Test Speed: HIGH
Temperature: 25.3°
Operators:
Test Date: 2016-07-19

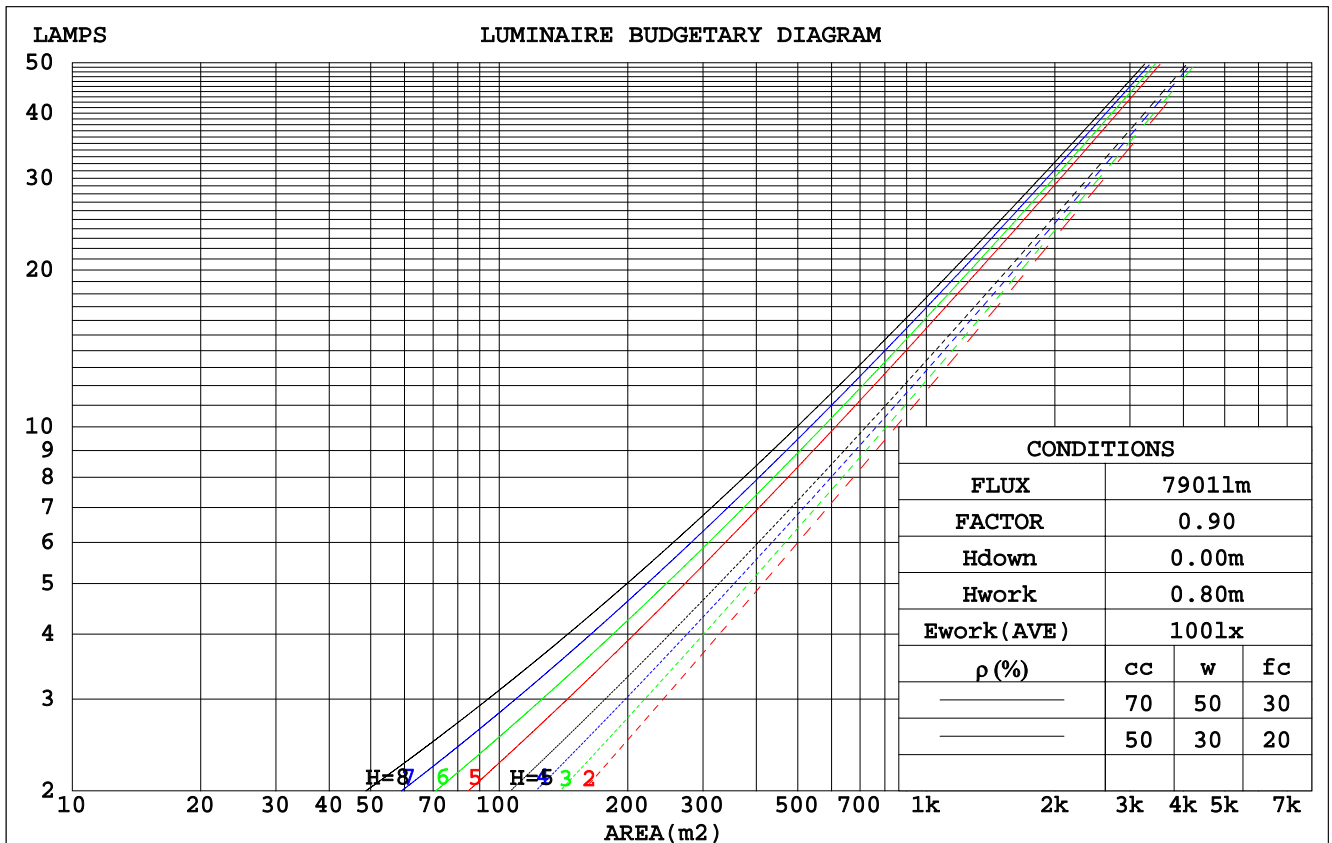
Checker:

γ Range: 0 - 90°
γ Interval: 1.0°
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

pcc	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						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	1.06	1.02	.98	1.03	1.00	.97	.99	.96	.94	.95	.93	.91	.92	.90	.88	.86
2.0	.94	.88	.83	.92	.86	.82	.89	.84	.80	.85	.82	.78	.82	.79	.76	.74
3.0	.84	.77	.71	.82	.76	.70	.80	.74	.69	.77	.72	.68	.74	.70	.67	.65
4.0	.76	.68	.62	.74	.67	.61	.72	.65	.60	.70	.64	.60	.67	.63	.59	.57
5.0	.68	.60	.54	.67	.60	.54	.65	.58	.53	.63	.57	.53	.62	.56	.52	.50
6.0	.62	.54	.48	.61	.54	.48	.60	.53	.48	.58	.52	.47	.56	.51	.47	.45
7.0	.57	.49	.43	.56	.49	.43	.55	.48	.43	.53	.47	.42	.52	.46	.42	.40
8.0	.52	.44	.39	.52	.44	.39	.50	.44	.39	.49	.43	.38	.48	.42	.38	.37
9.0	.48	.41	.36	.48	.40	.35	.47	.40	.35	.46	.40	.35	.45	.39	.35	.33
10.0	.45	.37	.33	.44	.37	.32	.43	.37	.32	.43	.36	.32	.42	.36	.32	.30



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2016-07-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.470m [K=1.0000]
 Remarks:

Checker:

Assessor:

WEC AND CCEC

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.274	.156	.049	.267	.152	.048	.254	.146	.047	.242	.140	.045	.231	.134	.043	
2.0	.258	.142	.043	.252	.139	.043	.241	.134	.042	.230	.129	.040	.221	.125	.039	
3.0	.241	.128	.038	.235	.126	.038	.225	.122	.037	.216	.118	.036	.207	.115	.036	
4.0	.224	.116	.034	.219	.115	.034	.210	.112	.033	.202	.109	.033	.194	.106	.032	
5.0	.209	.106	.031	.204	.105	.031	.197	.102	.030	.189	.100	.030	.183	.098	.029	
6.0	.195	.098	.028	.191	.097	.028	.184	.094	.027	.178	.092	.027	.172	.090	.027	
7.0	.183	.090	.026	.180	.089	.025	.173	.088	.025	.168	.086	.025	.162	.084	.025	
8.0	.172	.084	.024	.169	.083	.024	.163	.082	.023	.158	.080	.023	.153	.079	.023	
9.0	.162	.078	.022	.159	.078	.022	.154	.076	.022	.150	.075	.021	.145	.074	.021	
10.0	.153	.073	.020	.151	.073	.020	.146	.072	.020	.142	.071	.020	.138	.069	.020	

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	.178	.156	.137	.152	.134	.118	.104	.092	.082	.060	.053	.047	.019	.017	.015	
2.0	.168	.132	.102	.144	.114	.088	.098	.079	.062	.057	.046	.036	.018	.015	.012	
3.0	.159	.114	.078	.136	.098	.068	.093	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.151	.100	.062	.129	.087	.054	.089	.060	.038	.051	.035	.022	.017	.012	.007	
5.0	.143	.090	.050	.123	.078	.044	.085	.054	.031	.049	.032	.018	.016	.010	.006	
6.0	.136	.081	.042	.117	.070	.036	.081	.049	.026	.047	.029	.015	.015	.009	.005	
7.0	.129	.074	.035	.111	.064	.031	.077	.045	.022	.045	.027	.013	.014	.009	.004	
8.0	.123	.068	.030	.106	.059	.027	.073	.042	.019	.043	.025	.011	.014	.008	.004	
9.0	.118	.063	.027	.101	.055	.023	.070	.039	.016	.041	.023	.010	.013	.007	.003	
10.0	.112	.059	.024	.097	.051	.021	.067	.036	.015	.039	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-07-19

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

UGR(Unified Glare Rating) Table

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	20.9	22.3	21.2	22.5	22.7	25.1	26.5	25.4	26.7	26.9
3H	23.3	24.6	23.6	24.8	25.1	25.9	27.1	26.1	27.3	27.6
4H	25.4	26.6	25.7	26.9	27.1	26.1	27.3	26.4	27.5	27.8
6H	27.3	28.4	27.6	28.7	28.9	26.2	27.4	26.6	27.6	27.9
8H	27.7	28.8	28.1	29.1	29.4	26.3	27.4	26.6	27.6	27.9
12H	27.7	28.8	28.1	29.1	29.4	26.3	27.3	26.6	27.6	27.9
4H 2H	21.6	22.8	21.9	23.0	23.3	25.1	26.3	25.4	26.6	26.8
3H	24.0	25.0	24.3	25.3	25.6	26.0	27.1	26.4	27.3	27.6
4H	26.2	27.2	26.6	27.5	27.8	26.4	27.3	26.7	27.6	28.0
6H	28.4	29.2	28.8	29.6	29.9	26.6	27.5	27.0	27.8	28.2
8H	28.9	29.7	29.4	30.1	30.5	26.7	27.5	27.1	27.9	28.2
12H	29.0	29.7	29.4	30.1	30.5	26.8	27.5	27.2	27.9	28.3
8H 4H	26.3	27.1	26.7	27.5	27.8	26.4	27.2	26.8	27.6	28.0
6H	28.7	29.4	29.2	29.8	30.2	26.8	27.5	27.2	27.9	28.3
8H	29.5	30.1	29.9	30.5	30.9	27.0	27.5	27.4	28.0	28.4
12H	29.6	30.1	30.0	30.5	31.0	27.1	27.6	27.6	28.0	28.5
12H 4H	26.3	27.0	26.7	27.4	27.8	26.5	27.2	26.9	27.6	28.0
6H	28.7	29.3	29.2	29.7	30.2	26.9	27.5	27.4	27.9	28.4
8H	29.5	30.0	30.0	30.5	30.9	27.1	27.6	27.6	28.1	28.5
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.4 / - 0.4				
1.5H	+ 0.2 / - 0.2					+ 0.3 / - 0.6				
2.0H	+ 0.2 / - 0.4					+ 1.1 / - 1.3				

CIE Pub.117 Corrected 7902 lm Total Lamp Luminous Flux.(8log(F/F0) = 7.2)

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-07-19

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

UTILIZATION FACTORS TABLE

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) $k(RI) \times RCR = 5$									
$k = 0.60$	65	55	49	65	55	49	64	54	49	43
0.80	75	65	58	74	64	58	72	64	58	52
1.00	83	73	67	81	72	66	79	73	66	60
1.25	89	80	74	88	79	73	85	78	73	66
1.50	93	85	79	92	84	78	89	82	77	71
2.00	99	92	86	97	91	85	94	88	84	77
2.50	102	95	90	100	94	89	97	92	88	80
3.00	105	99	94	103	98	93	99	95	91	83
4.00	108	103	99	106	102	98	102	98	95	87
5.00	110	106	103	108	104	101	104	101	98	89
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended				SHRNOM = 1.25		

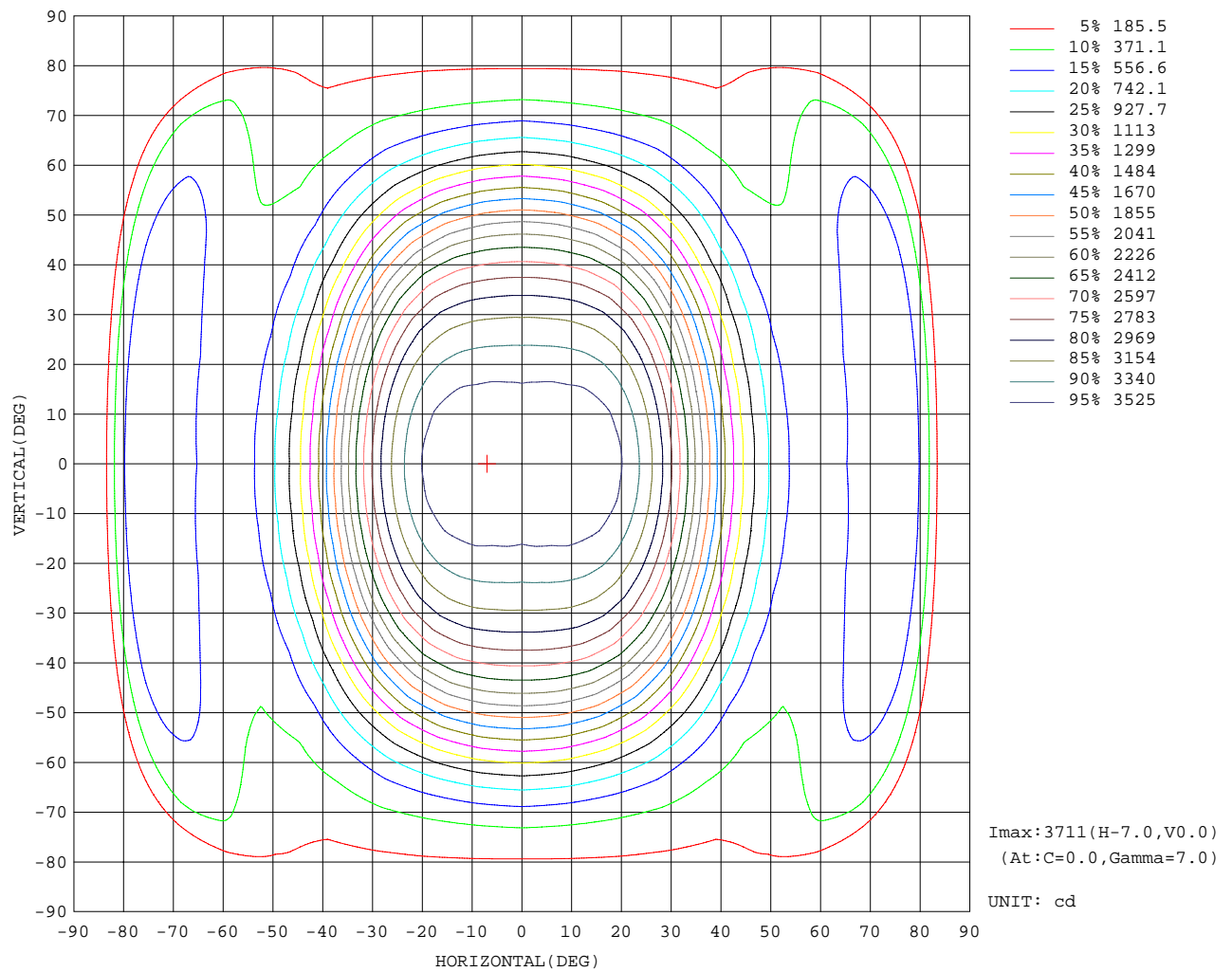
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2016-07-19

Checker:

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.470m [K=1.0000]
 Remarks:

Assessor:

ISOCANDELA DIAGRAM



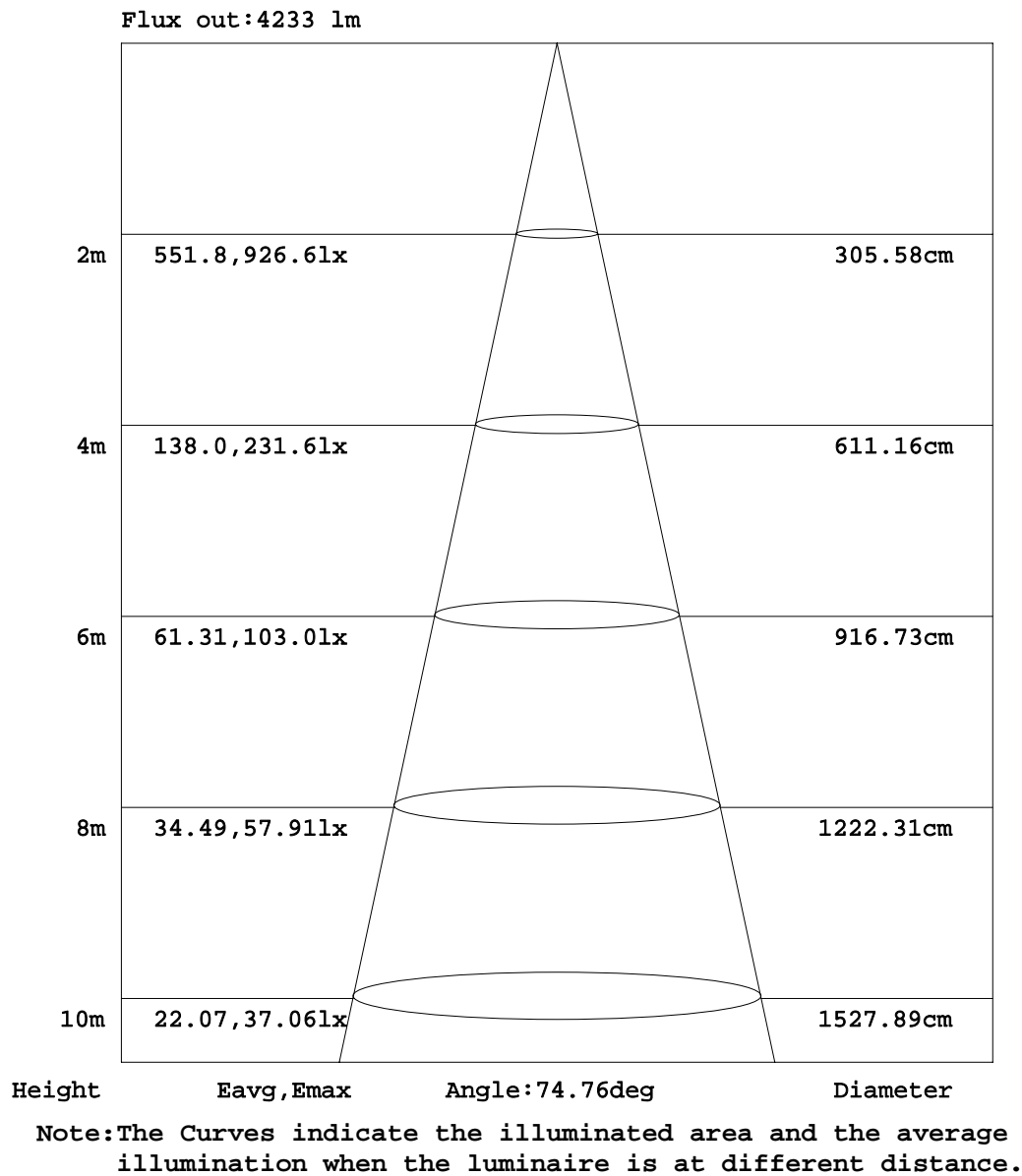
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-07-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

AAI Figure



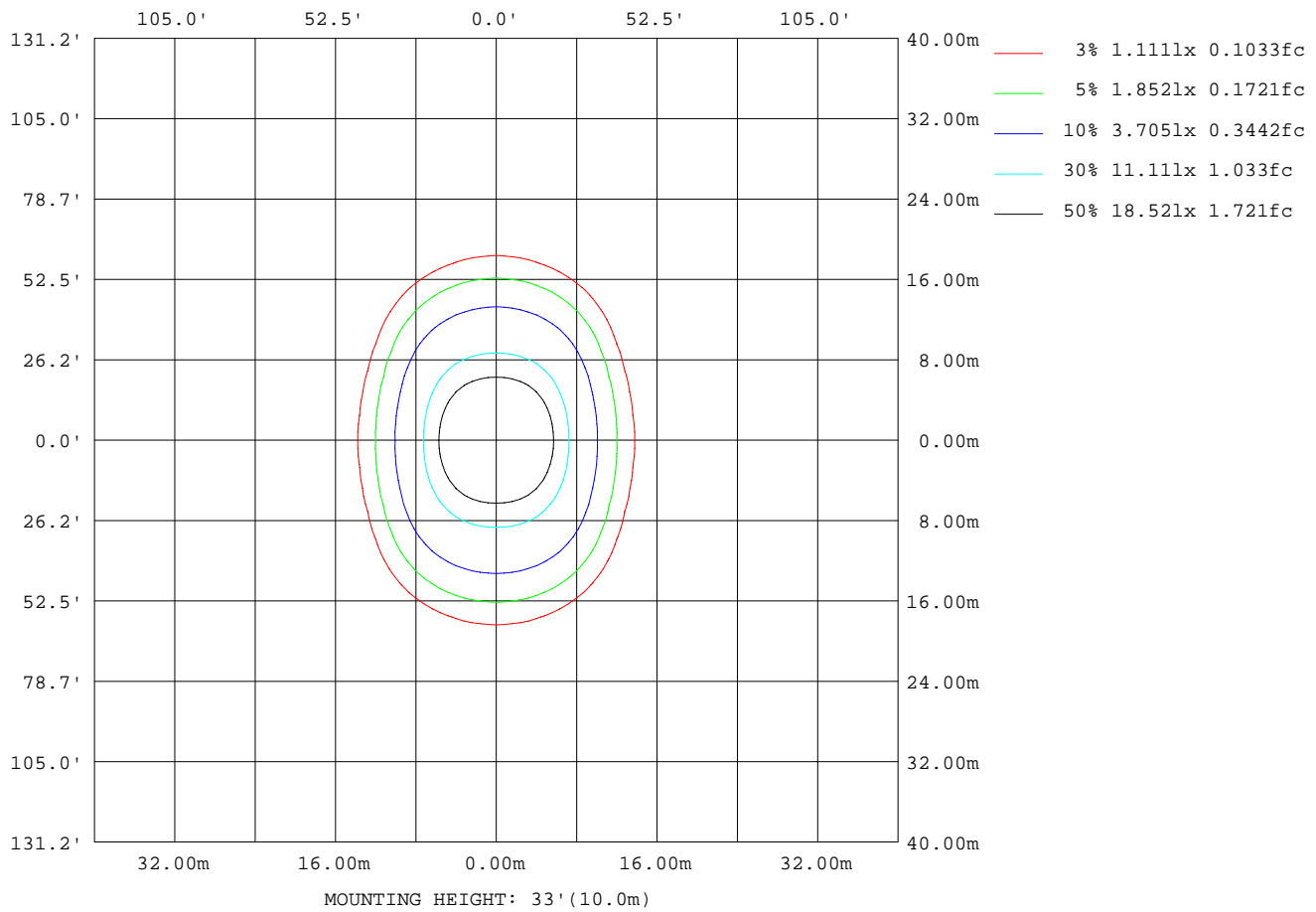
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-07-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

ISOLUX DIAGRAM



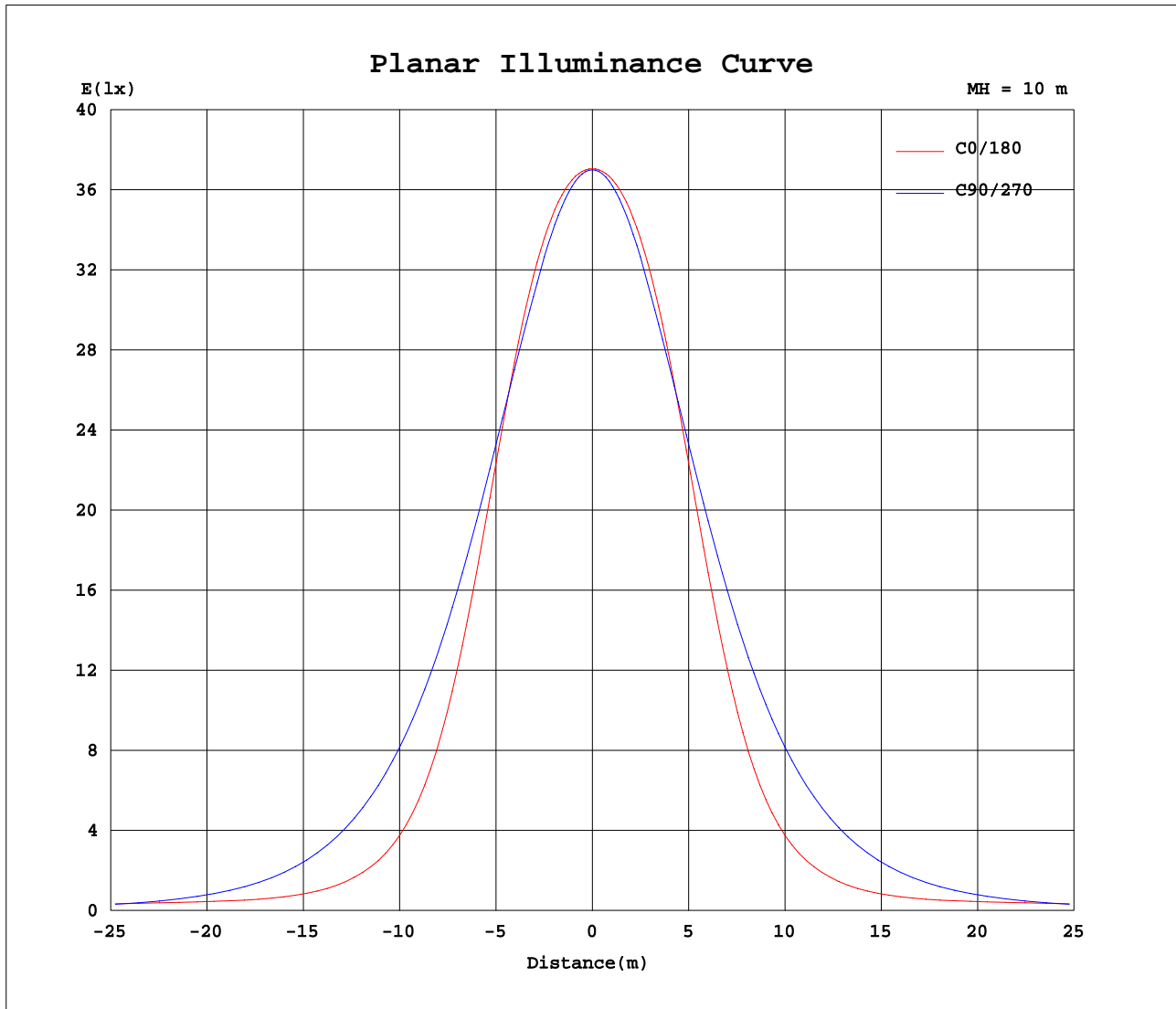
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-07-19

Checker:

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-07-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

Assessor:

Assessor: