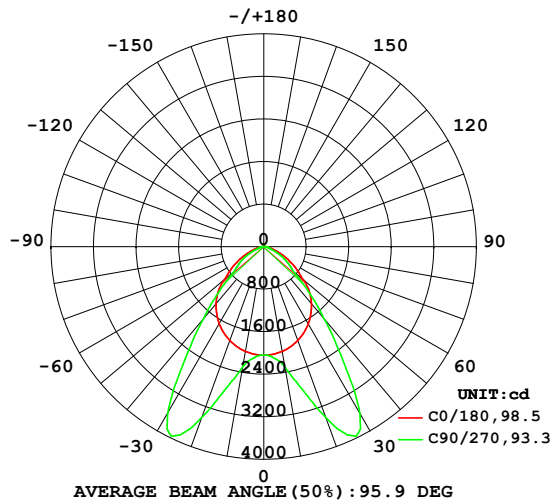


LUMINAIRE PHOTOMETRIC TEST REPORT

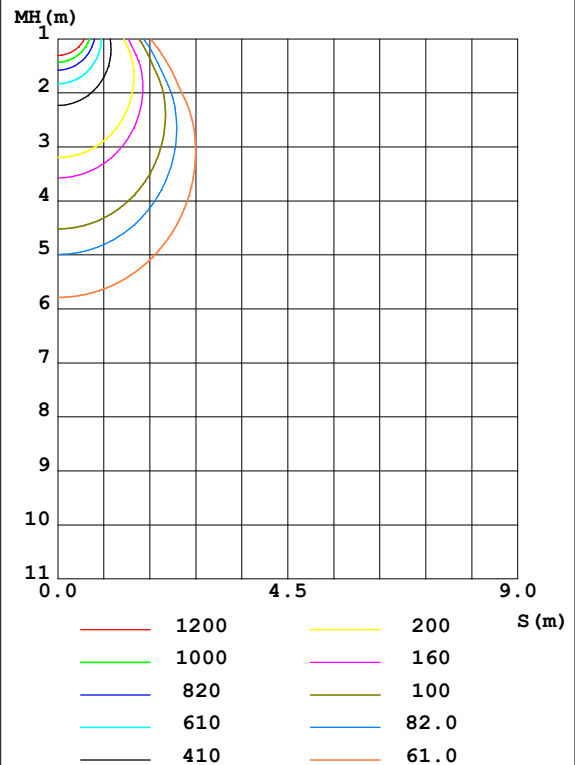
Test:U:230.1V I:0.2724A P:59.37W PF:0.9471 Lamp Flux:6772.05x1 lm		
NAME: LHB03-060	TYPE:60W	WEIGHT:
SPEC.:5000K Ra80 L00304	DIM.: 0.336*0.307*0.061	SERIAL No.:
MFR.:	SUR.:0.28*0.27	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 114.06 lm/W			
MODEL	NICHIA3030	Imax(cd)	3967	S/MH(C0/180)	1.22
NOMINAL POWER(W)	60	LOR(%)	100.0	S/MH(C90/270)	1.35
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	6772.1	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	6772.05	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	0.80

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-06-08

Checker: LI

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.500m [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
5	2032	2058	2096	2057	2032	2057	2096	2058	0- 5	48.98	48.98	0.72,0.72
10	2001	2131	2294	2132	2001	2132	2294	2131	5- 10	150.0	199.0	2.94,2.94
15	1950	2302	2768	2305	1950	2305	2768	2302	10- 15	265.0	464.0	6.85,6.85
20	1878	2574	3420	2579	1878	2579	3420	2574	15- 20	407.2	871.2	12.9,12.9
25	1787	2926	3921	2931	1787	2931	3921	2926	20- 25	580.1	1451	21.4,21.4
30	1676	3275	3612	3282	1676	3282	3612	3275	25- 30	747.1	2198	32.5,32.5
35	1546	3452	2586	3455	1546	3455	2586	3452	30- 35	833.7	3032	44.8,44.8
40	1397	3248	1759	3257	1397	3257	1759	3248	35- 40	821.4	3853	56.9,56.9
45	1223	2640	1182	2625	1223	2625	1182	2640	40- 45	749.1	4603	68,68
50	976.0	1773	723.6	1741	976.0	1741	723.6	1773	45- 50	634.2	5237	77.3,77.3
55	763.0	1014	574.9	989.2	763.0	989.2	574.9	1014	50- 55	491.5	5728	84.6,84.6
60	581.3	540.3	426.1	534.1	581.3	534.1	426.1	540.3	55- 60	368.1	6096	90,90
65	411.2	408.0	277.3	400.2	411.2	400.2	277.3	408.0	60- 65	271.5	6368	94,94
70	254.8	276.1	128.5	269.1	254.8	269.1	128.5	276.1	65- 70	188.1	6556	96.8,96.8
75	152.8	131.8	96.52	129.9	152.8	129.9	96.52	131.8	70- 75	113.7	6670	98.5,98.5
80	71.88	80.42	64.51	79.64	71.88	79.64	64.51	80.42	75- 80	62.32	6732	99.4,99.4
85	9.334	41.01	32.49	40.72	9.334	40.72	32.49	41.01	80- 85	30.73	6763	99.9,99.9
90	0	1.087	0.4751	1.255	0	1.255	0.4751	1.087	85- 90	9.420	6772	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		

Conical surface Flux(90deg): 4602.5 lm

%lum = 68.0%

%lamp = 68.0%

Conical surface Flux(120deg): 6096.3 lm

%lum = 90.0%

%lamp = 90.0%

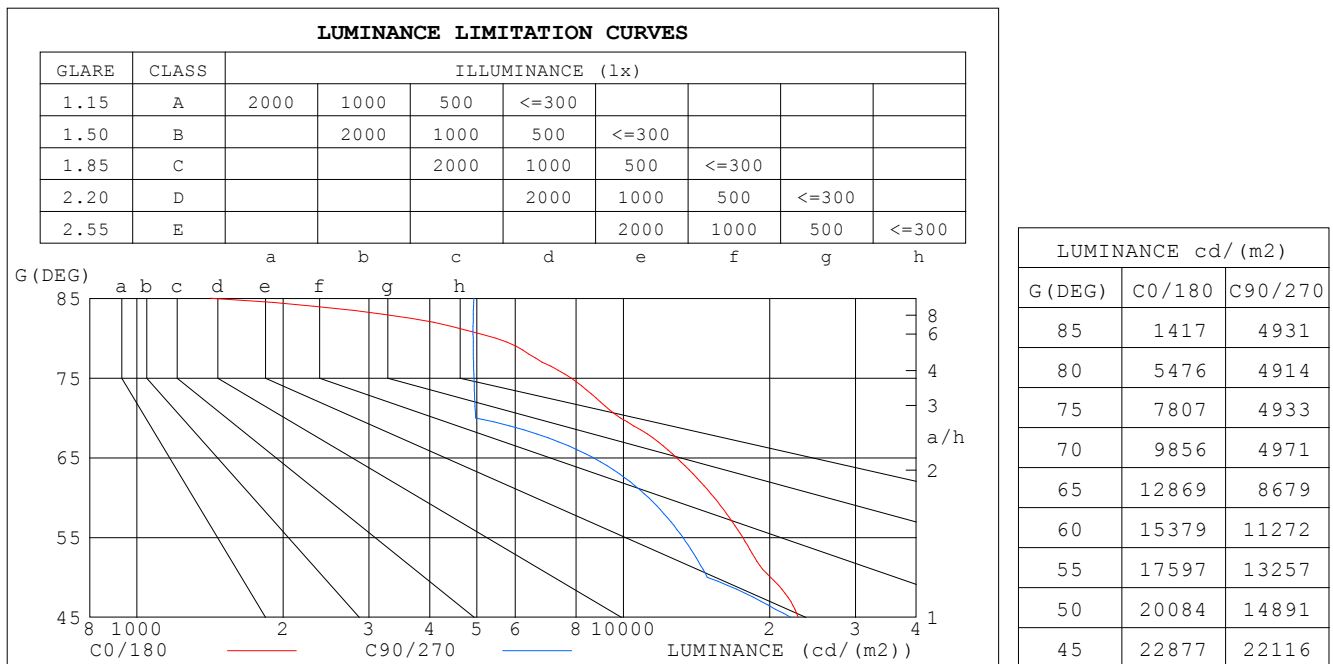
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2018-06-08

Checker: LI

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:9.500m [K=1.0000]
 Remarks:

Assessor:

LUMINANCE LIMITATION CURVES



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-06-08

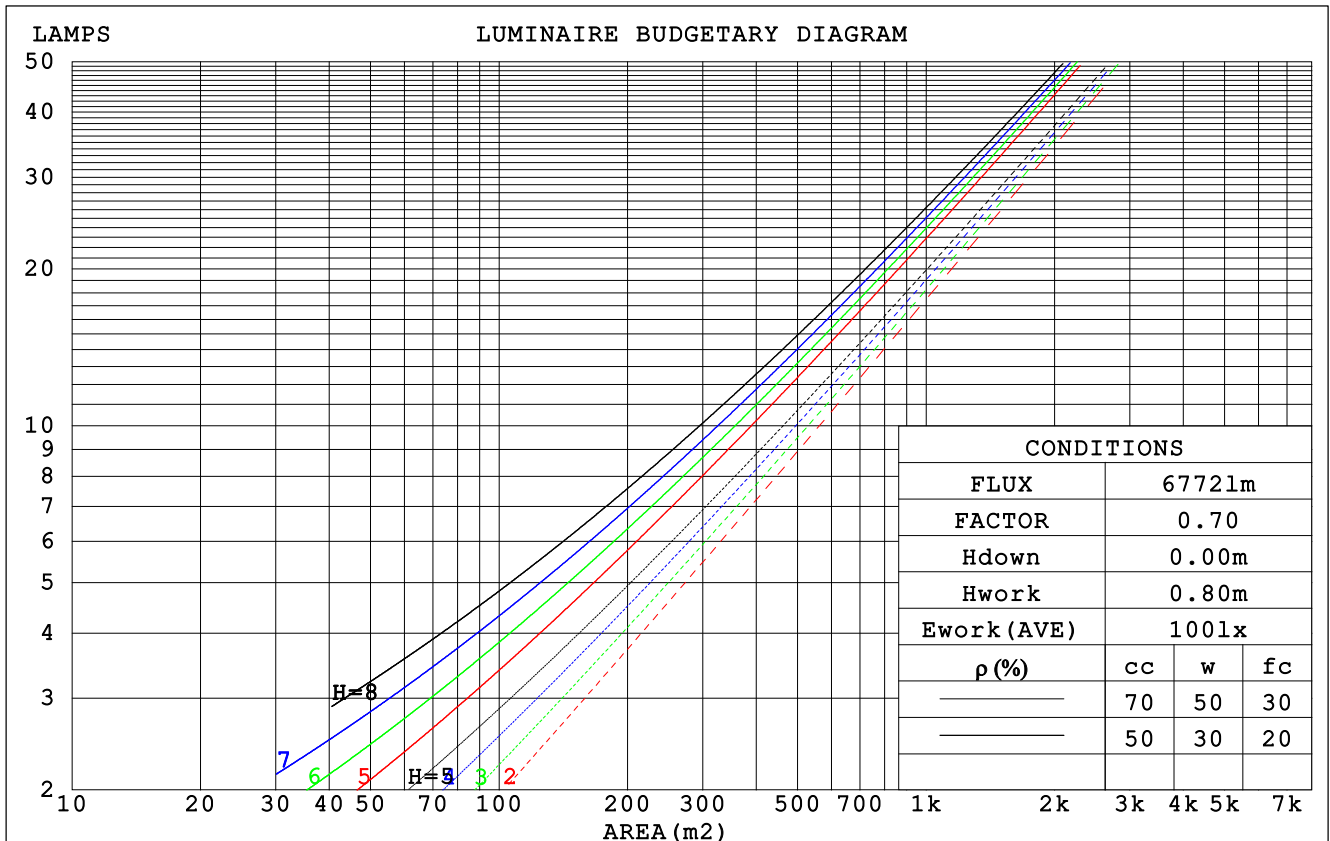
Checker: LI

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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	1.19	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	.00
1.0	1.07	1.03	.00	1.04	1.01	.98	1.00	.98	.95	.96	.94	.92	.93	.91	.90	.88
2.0	.95	.89	.84	.93	.88	.83	.90	.85	.81	.86	.83	.79	.83	.80	.78	.76
3.0	.85	.77	.72	.83	.76	.71	.80	.75	.70	.78	.73	.69	.75	.71	.68	.66
4.0	.76	.68	.62	.75	.67	.61	.72	.66	.61	.70	.64	.60	.68	.63	.59	.57
5.0	.68	.60	.54	.67	.59	.54	.65	.58	.53	.63	.57	.53	.61	.56	.52	.50
6.0	.62	.53	.47	.61	.53	.47	.59	.52	.47	.57	.51	.46	.56	.50	.46	.44
7.0	.56	.48	.42	.55	.47	.42	.54	.47	.42	.52	.46	.41	.51	.45	.41	.39
8.0	.51	.43	.38	.51	.43	.37	.49	.42	.37	.48	.42	.37	.47	.41	.37	.35
9.0	.47	.39	.34	.46	.39	.34	.45	.38	.34	.44	.38	.33	.43	.37	.33	.31
10.0	.43	.36	.31	.43	.35	.31	.42	.35	.30	.41	.35	.30	.40	.34	.30	.28



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2018-06-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.500m [K=1.0000]
 Remarks:

Checker: LI

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	.257	.146	.046	.250	.143	.045	.237	.136	.043	.225	.130	.042	.214	.124	.040	
2.0	.249	.137	.042	.243	.134	.041	.232	.129	.040	.221	.124	.039	.212	.120	.038	
3.0	.236	.126	.038	.231	.124	.037	.221	.120	.036	.212	.116	.036	.203	.113	.035	
4.0	.223	.116	.034	.218	.114	.034	.209	.111	.033	.201	.108	.033	.193	.105	.032	
5.0	.209	.107	.031	.205	.105	.031	.197	.103	.030	.190	.100	.030	.183	.098	.029	
6.0	.197	.099	.028	.193	.098	.028	.186	.095	.028	.180	.093	.027	.174	.091	.027	
7.0	.185	.092	.026	.182	.091	.026	.176	.089	.026	.170	.087	.025	.165	.085	.025	
8.0	.175	.085	.024	.172	.085	.024	.166	.083	.024	.161	.082	.024	.156	.080	.023	
9.0	.165	.080	.022	.163	.079	.022	.158	.078	.022	.153	.077	.022	.148	.075	.022	
10.0	.156	.075	.021	.154	.074	.021	.150	.073	.021	.145	.072	.020	.141	.071	.020	

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						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.177	.157	.139	.151	.134	.119	.103	.092	.082	.060	.054	.048	.019	.017	.016	
2.0	.167	.132	.103	.143	.114	.089	.098	.079	.062	.056	.046	.036	.018	.015	.012	
3.0	.158	.114	.079	.135	.098	.069	.093	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.150	.100	.062	.129	.087	.054	.089	.060	.038	.051	.035	.023	.017	.012	.007	
5.0	.143	.090	.050	.123	.078	.044	.085	.054	.031	.049	.032	.018	.016	.010	.006	
6.0	.137	.081	.042	.117	.070	.036	.081	.049	.026	.047	.029	.015	.015	.009	.005	
7.0	.130	.074	.035	.112	.064	.031	.077	.045	.022	.045	.027	.013	.015	.009	.004	
8.0	.124	.069	.030	.107	.059	.026	.074	.042	.019	.043	.025	.011	.014	.008	.004	
9.0	.119	.064	.026	.102	.055	.023	.071	.039	.016	.041	.023	.010	.013	.008	.003	
10.0	.114	.059	.023	.098	.052	.020	.068	.036	.014	.040	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-06-08

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.500m [K=1.0000]
Remarks:

Checker: LI

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	24.7	26.1	25.0	26.3	26.5	22.1	23.5	22.3	23.7	23.9
3H	25.2	26.5	25.5	26.7	26.9	22.2	23.5	22.5	23.7	23.9
4H	25.2	26.4	25.6	26.7	26.9	22.2	23.4	22.5	23.6	23.9
6H	25.2	26.3	25.5	26.6	26.9	22.2	23.3	22.5	23.6	23.9
8H	25.2	26.3	25.5	26.5	26.8	22.2	23.3	22.5	23.6	23.8
12H	25.1	26.2	25.5	26.5	26.8	22.2	23.2	22.5	23.5	23.8
4H 2H	24.8	26.0	25.1	26.2	26.5	22.6	23.8	22.9	24.1	24.3
3H	25.6	26.7	26.0	26.9	27.2	22.8	23.8	23.1	24.1	24.4
4H	25.8	26.8	26.2	27.1	27.4	22.8	23.8	23.2	24.1	24.4
6H	25.9	26.7	26.2	27.0	27.4	22.9	23.7	23.3	24.1	24.4
8H	25.8	26.6	26.2	27.0	27.3	22.9	23.7	23.3	24.0	24.4
12H	25.8	26.5	26.2	26.9	27.3	22.9	23.6	23.4	24.0	24.4
8H 4H	25.8	26.5	26.2	26.9	27.3	23.0	23.8	23.4	24.1	24.5
6H	25.9	26.5	26.3	26.9	27.4	23.1	23.7	23.6	24.1	24.6
8H	25.9	26.5	26.4	26.9	27.3	23.2	23.7	23.6	24.1	24.6
12H	25.9	26.4	26.4	26.8	27.3	23.2	23.7	23.7	24.1	24.6
12H 4H	25.7	26.4	26.2	26.8	27.2	23.0	23.7	23.4	24.1	24.5
6H	25.9	26.4	26.3	26.9	27.3	23.1	23.7	23.6	24.1	24.6
8H	25.9	26.4	26.4	26.8	27.3	23.2	23.7	23.7	24.1	24.6
Variations with the observer position at spacings:										
S = 1.0H	+ 1.1 / - 0.8					+ 1.4 / - 2.2				
1.5H	+ 1.9 / - 2.0					+ 2.0 / - 2.1				
2.0H	+ 1.5 / - 2.7					+ 1.5 / - 1.2				

CIE Pub.117 Corrected 6772 lm Total Lamp Luminous Flux.(8log(F/F0) = 6.6)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-06-08

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.500m [K=1.0000]
Remarks:

Checker: LI

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) $k(RI) \times RCR = 5$									
$k = 0.60$	64	54	48	64	54	48	63	53	47	42
0.80	75	64	58	74	64	58	72	63	57	51
1.00	83	73	67	82	73	67	80	74	66	60
1.25	90	81	75	88	80	74	86	79	74	67
1.50	94	86	80	93	85	80	90	83	79	72
2.00	100	93	88	98	92	87	95	90	85	79
2.50	103	97	92	101	95	91	98	93	89	82
3.00	106	100	96	104	99	95	100	96	92	85
4.00	109	104	101	107	103	99	103	99	97	88
5.00	111	107	104	109	105	102	104	101	99	90
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

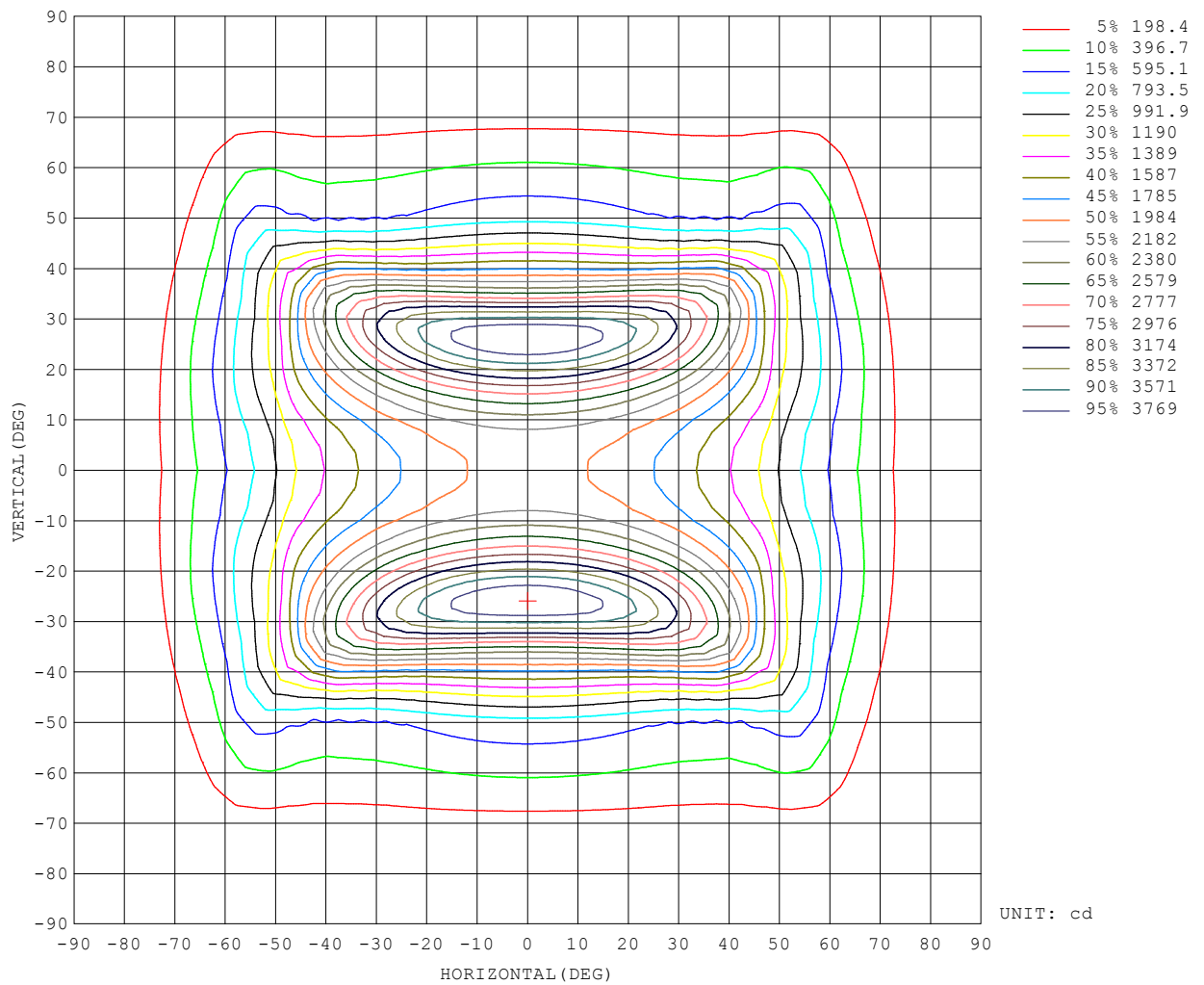
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-06-08

Checker: LI

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Assessor:

ISOCANDELA DIAGRAM



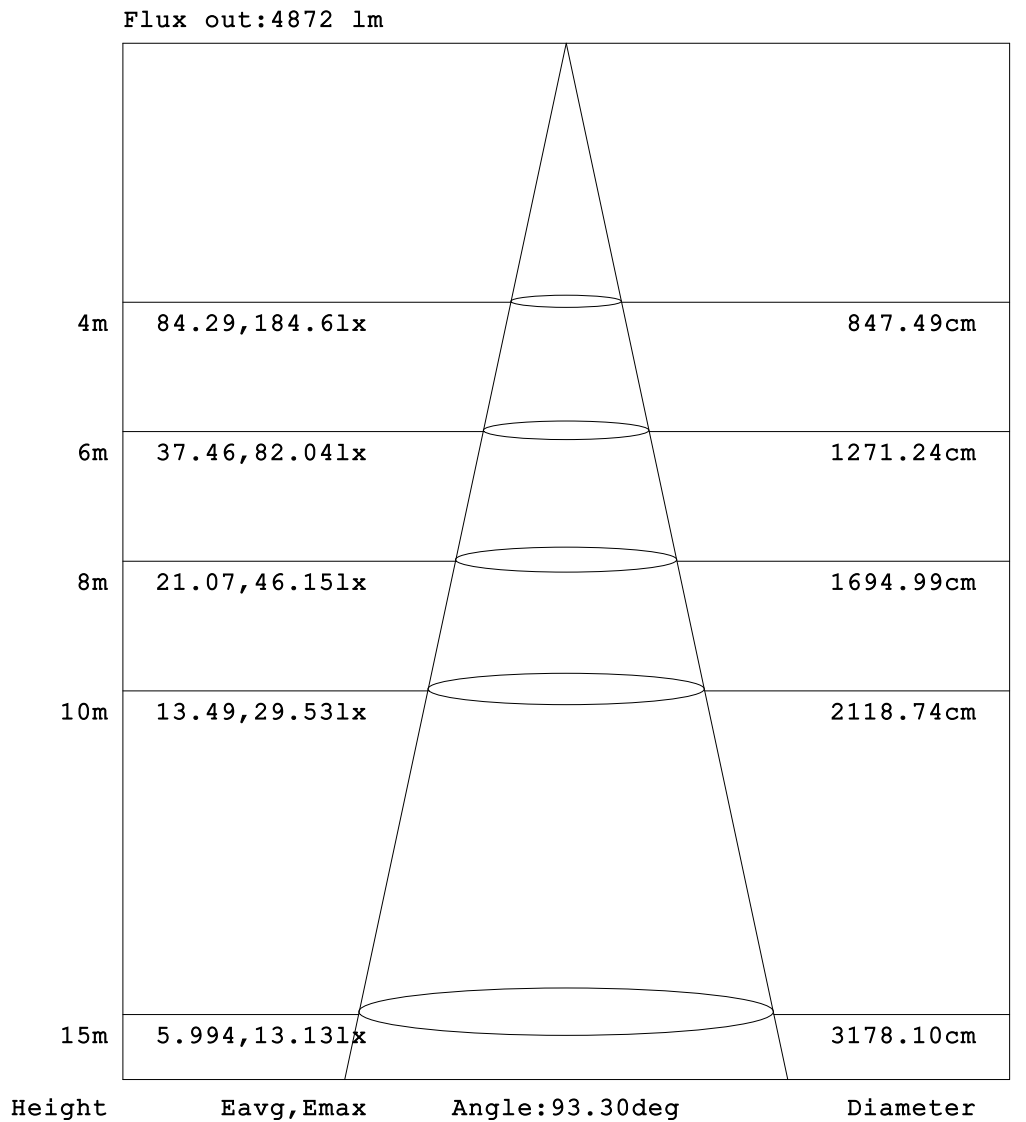
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-06-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Checker: LI

Assessor:

AAI Figure



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

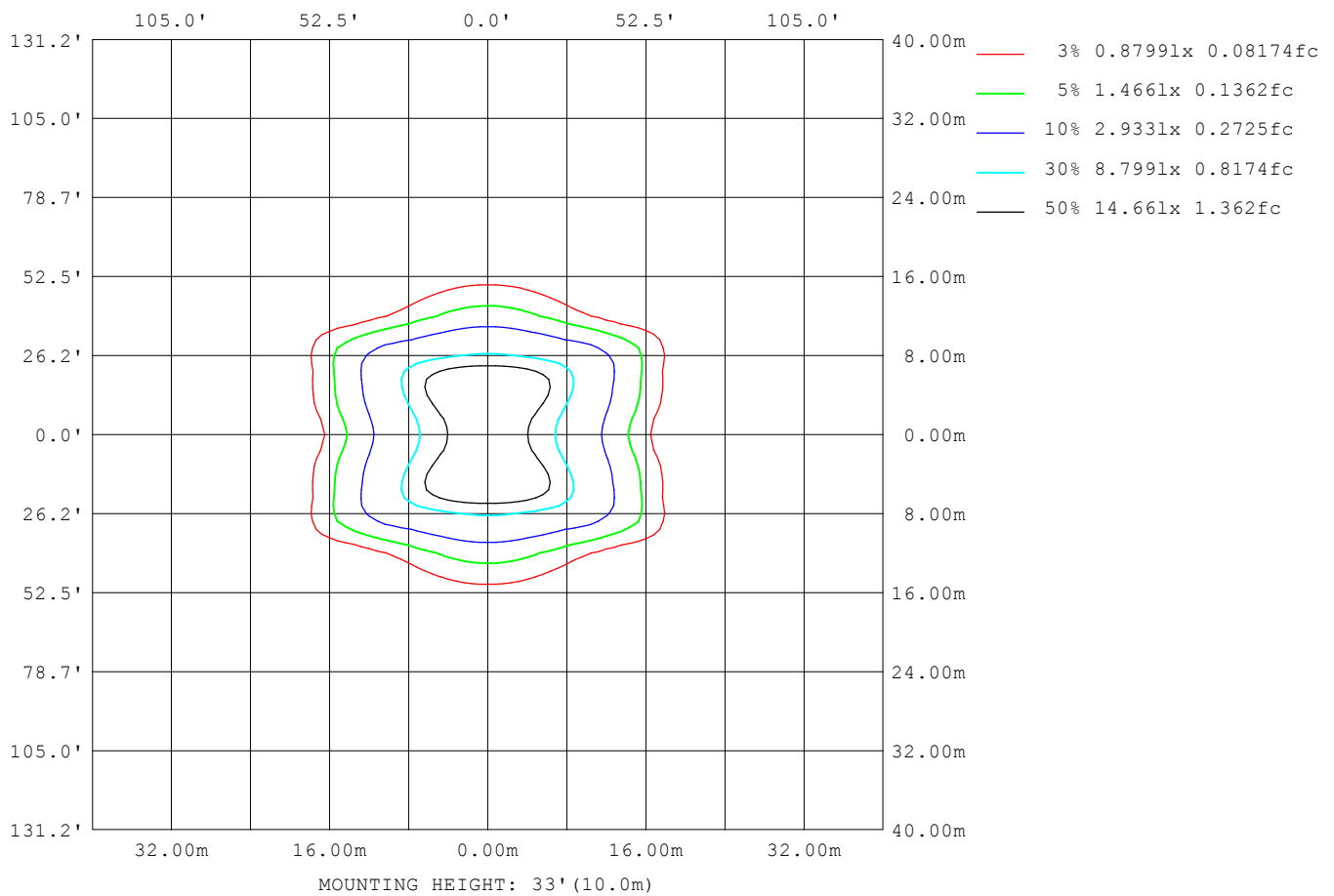
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-06-08

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Checker: LI

Assessor:

ISOLUX DIAGRAM



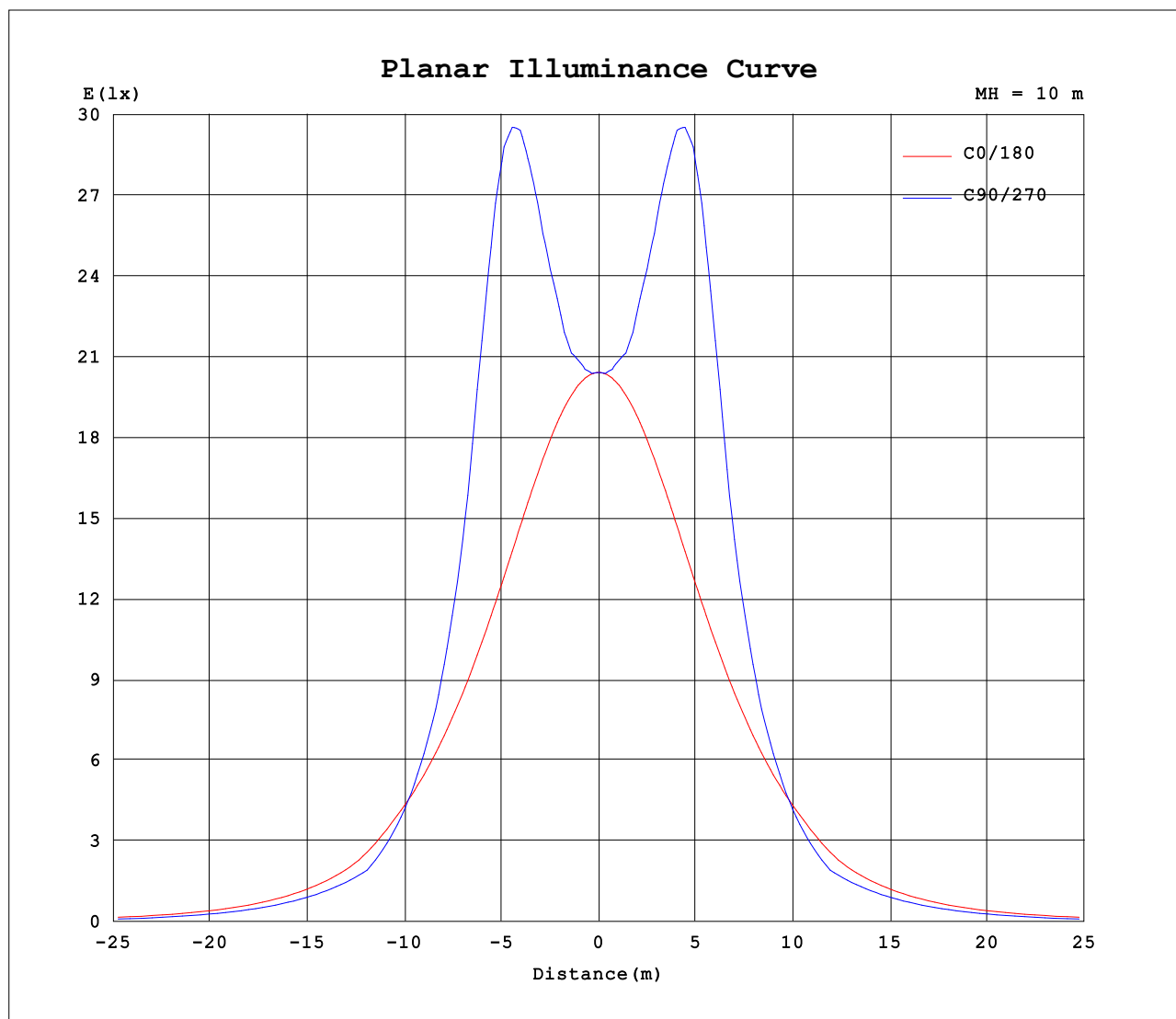
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-06-08

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.500m [K=1.0000]
Remarks:

Checker: LI

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-06-08

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Checker: LI

Assessor:

Assessor:

Assessor:

Assessor:

UNIT: cd

Assessor: