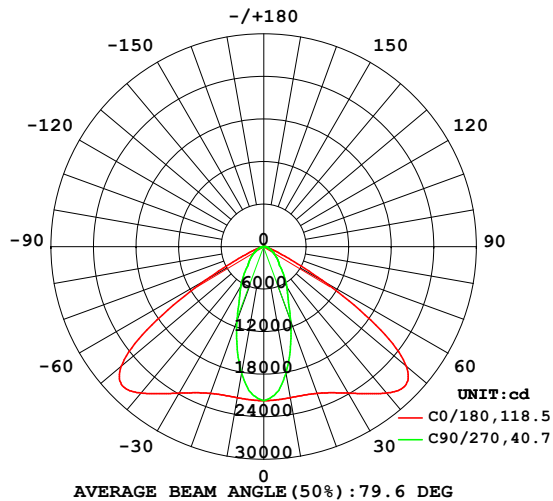


LUMINAIRE PHOTOMETRIC TEST REPORT

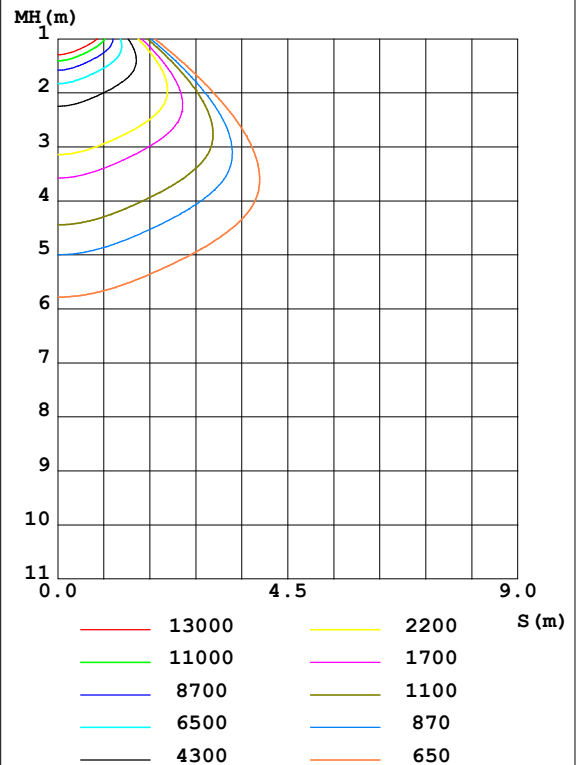
Test:U:229.9V I:1.059A P:238.3W PF:0.9787 Lamp Flux:37170x1 lm		
NAME: LHB01-240H	TYPE:240W	WEIGHT:
SPEC.:5000K Ra70 L06404	DIM.: 0.632*0.515*0.102	SERIAL No.:
MFR.:	SUR.:0.48*0.44	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 155.98 lm/W			
MODEL	NICHIA3030	Imax(cd)	27979	S/MH(C0/180)	1.84
NOMINAL POWER(W)	240	LOR(%)	100.0	S/MH(C90/270)	0.65
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	37170	η UP,DN(C0-180)	0.0,50.3
NOMINAL FLUX(lm)	37170	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.7
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:2017-09-26

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	2168	2112	2070	2112	2168	2112	2070	2112	0- 5	511.4	511.4	1.38,1.38
10	2163	1974	1810	1974	2163	1972	1810	1972	5- 10	1463	1975	5.31,5.31
15	2170	1761	1463	1761	2170	1756	1463	1756	10- 15	2229	4203	11.3,11.3
20	2203	1517	1109	1517	2203	1506	1109	1506	15- 20	2768	6972	18.8,18.8
25	2274	1262	819.0	1262	2274	1245	819.0	1245	20- 25	3113	10085	27.1,27.1
30	2386	1019	653.3	1019	2386	997.7	653.3	997.7	25- 30	3353	13439	36.2,36.2
35	2532	825.9	501.8	825.9	2532	803.3	501.8	803.3	30- 35	3568	17006	45.8,45.8
40	2696	699.0	350.3	699.0	2696	677.1	350.3	677.1	35- 40	3726	20732	55.8,55.8
45	2798	550.9	292.3	550.9	2798	532.9	292.3	532.9	40- 45	3824	24556	66.1,66.1
50	2624	374.3	234.3	374.3	2624	366.1	234.3	366.1	45- 50	3800	28356	76.3,76.3
55	1930	306.5	178.6	306.5	1930	300.1	178.6	300.1	50- 55	3373	31728	85.4,85.4
60	955.0	227.6	140.9	227.6	955.0	223.7	140.9	223.7	55- 60	2389	34117	91.8,91.8
65	356.5	150.6	105.5	150.6	356.5	149.0	105.5	149.0	60- 65	1373	35490	95.5,95.5
70	138.4	106.3	70.10	106.3	138.4	105.0	70.10	105.0	65- 70	766.6	36256	97.5,97.5
75	59.38	61.15	52.91	61.15	59.38	60.08	52.91	60.08	70- 75	446.1	36703	98.7,98.7
80	28.60	39.12	35.72	39.12	28.60	38.37	35.72	38.37	75- 80	266.3	36969	99.5,99.5
85	7.335	20.29	18.53	20.29	7.335	19.97	18.53	19.97	80- 85	147.7	37117	99.9,99.9
90	1.486	1.561	1.334	1.561	1.486	1.743	1.334	1.743	85- 90	53.33	37170	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:×10cd									UNIT:lm		

Conical surface Flux(90deg): 24556 lm

%lum = 66.1%

%lamp = 66.1%

Conical surface Flux(120deg): 34117 lm

%lum = 91.8%

%lamp = 91.8%

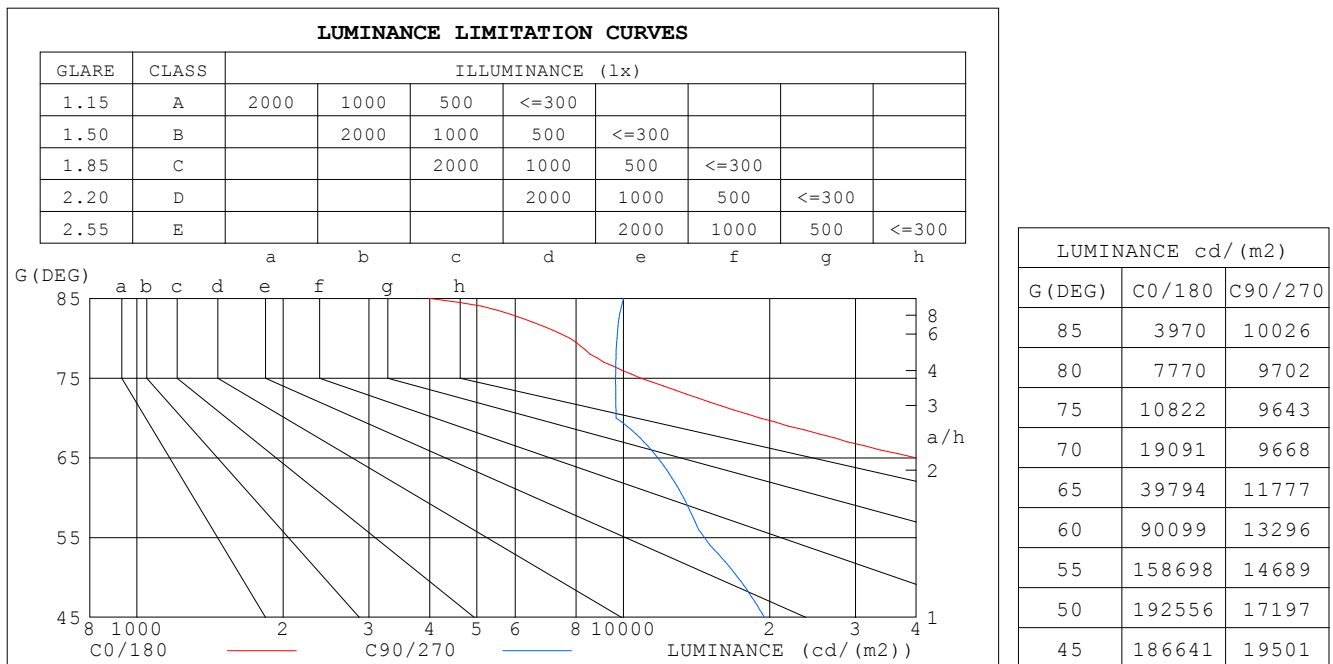
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-09-26

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: 2017-09-26

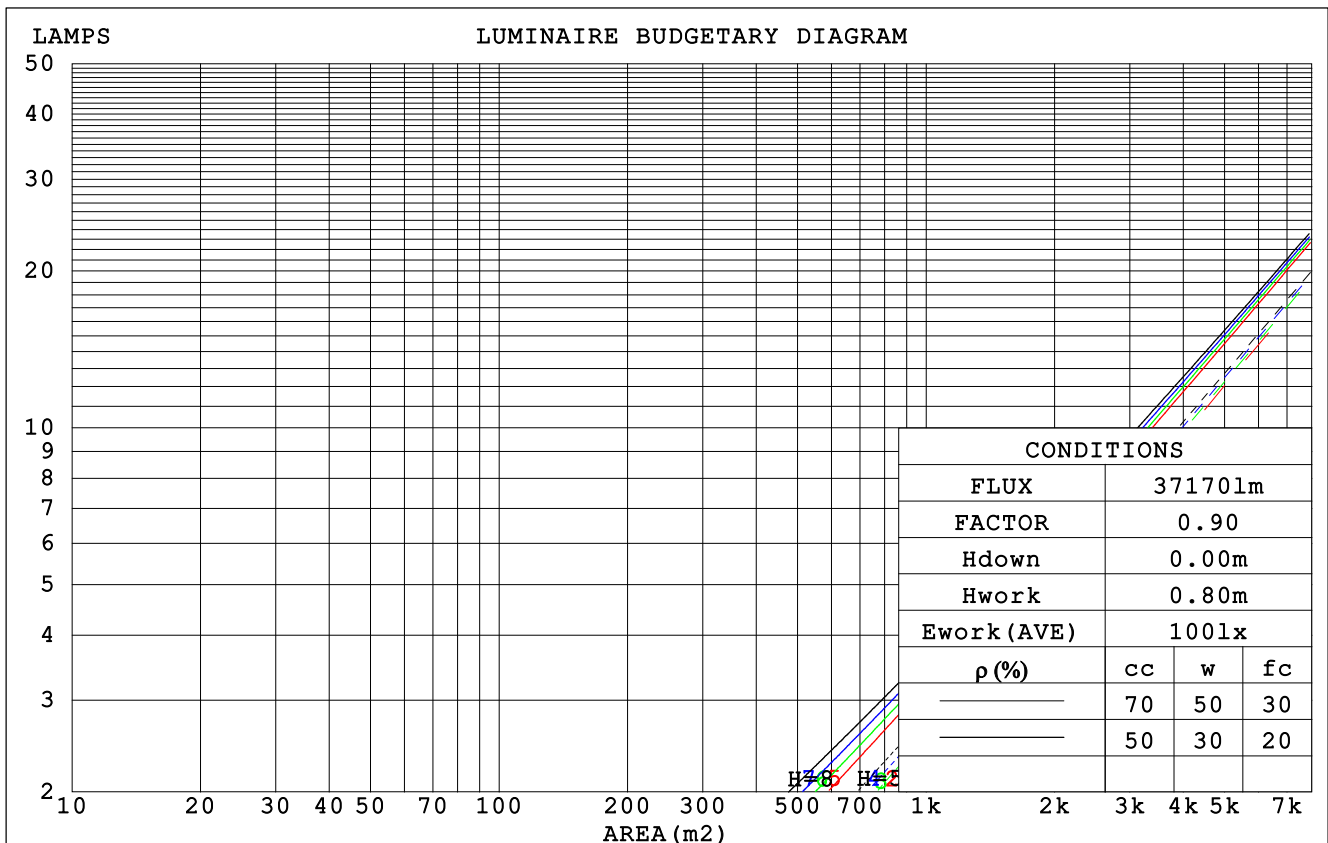
Checker: LI

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

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			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	1.04	1.00	1.05	1.02	.99	1.01	.98	.96	.97	.95	.93	.93	.92	.90	.88
2.0	.96	.90	.85	.94	.89	.84	.90	.86	.82	.87	.84	.80	.84	.81	.79	.77
3.0	.86	.79	.73	.84	.78	.72	.81	.76	.71	.79	.74	.70	.76	.72	.69	.67
4.0	.77	.69	.63	.76	.69	.63	.73	.67	.62	.71	.66	.61	.69	.64	.61	.59
5.0	.70	.62	.56	.68	.61	.55	.66	.60	.55	.65	.59	.54	.63	.58	.54	.52
6.0	.63	.55	.49	.62	.55	.49	.61	.54	.49	.59	.53	.48	.57	.52	.48	.46
7.0	.58	.50	.44	.57	.49	.44	.56	.49	.44	.54	.48	.43	.53	.47	.43	.41
8.0	.53	.45	.40	.52	.45	.40	.51	.44	.39	.50	.44	.39	.49	.43	.39	.37
9.0	.49	.41	.36	.48	.41	.36	.47	.41	.36	.46	.40	.36	.45	.40	.36	.34
10.0	.45	.38	.33	.45	.38	.33	.44	.37	.33	.43	.37	.33	.42	.37	.33	.31



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-09-26

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	.249	.141	.045	.242	.138	.044	.229	.131	.042	.217	.125	.040	.206	.119	.039	
2.0	.242	.133	.041	.236	.130	.040	.225	.125	.039	.214	.120	.038	.205	.116	.037	
3.0	.230	.122	.037	.225	.120	.036	.215	.116	.035	.206	.113	.035	.197	.109	.034	
4.0	.217	.113	.033	.212	.111	.033	.204	.108	.032	.195	.105	.032	.188	.102	.031	
5.0	.204	.104	.030	.200	.103	.030	.192	.100	.029	.185	.098	.029	.178	.095	.029	
6.0	.192	.096	.028	.188	.095	.027	.181	.093	.027	.175	.091	.027	.169	.089	.026	
7.0	.181	.089	.025	.177	.088	.025	.171	.087	.025	.165	.085	.025	.160	.083	.024	
8.0	.170	.083	.023	.167	.082	.023	.162	.081	.023	.157	.079	.023	.152	.078	.023	
9.0	.161	.078	.022	.158	.077	.022	.153	.076	.021	.149	.074	.021	.144	.073	.021	
10.0	.152	.073	.020	.150	.072	.020	.145	.071	.020	.141	.070	.020	.137	.069	.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	.176	.157	.139	.151	.134	.120	.103	.093	.083	.059	.054	.048	.019	.017	.016		
2.0	.166	.132	.104	.142	.114	.090	.097	.079	.063	.056	.046	.037	.018	.015	.012		
3.0	.157	.114	.080	.134	.098	.069	.092	.068	.049	.053	.040	.029	.017	.013	.009		
4.0	.149	.100	.063	.128	.087	.055	.088	.060	.039	.051	.035	.023	.016	.012	.008		
5.0	.142	.090	.051	.122	.077	.044	.084	.054	.031	.049	.032	.019	.016	.010	.006		
6.0	.135	.081	.042	.116	.070	.037	.080	.049	.026	.046	.029	.015	.015	.009	.005		
7.0	.129	.074	.036	.111	.064	.031	.076	.045	.022	.044	.026	.013	.014	.009	.004		
8.0	.123	.068	.031	.106	.059	.027	.073	.041	.019	.042	.024	.011	.014	.008	.004		
9.0	.117	.063	.027	.101	.055	.023	.070	.039	.017	.041	.023	.010	.013	.007	.003		
10.0	.112	.059	.024	.096	.051	.021	.067	.036	.015	.039	.021	.009	.013	.007	.003		

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-09-26

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	30.8	32.1	31.0	32.3	32.5	19.3	20.7	19.6	20.9	21.0
3H	30.8	32.0	31.1	32.2	32.5	19.9	21.2	20.2	21.4	21.6
4H	30.7	31.9	31.0	32.1	32.4	20.2	21.4	20.5	21.6	21.9
6H	30.6	31.7	31.0	32.0	32.3	20.5	21.6	20.8	21.8	22.1
8H	30.6	31.6	30.9	31.9	32.2	20.6	21.6	20.9	21.9	22.2
12H	30.5	31.5	30.9	31.8	32.1	20.7	21.7	21.0	22.0	22.3
4H 2H	30.5	31.7	30.8	31.9	32.2	20.6	21.8	20.9	22.0	22.3
3H	30.6	31.6	30.9	31.9	32.2	21.2	22.3	21.6	22.5	22.8
4H	30.5	31.5	30.9	31.8	32.1	21.5	22.5	21.9	22.8	23.1
6H	30.5	31.3	30.9	31.6	32.0	21.9	22.7	22.3	23.0	23.4
8H	30.5	31.2	30.9	31.6	31.9	22.0	22.7	22.4	23.1	23.5
12H	30.4	31.1	30.8	31.5	31.9	22.1	22.8	22.5	23.2	23.6
8H 4H	30.4	31.2	30.8	31.5	31.9	21.8	22.5	22.2	22.9	23.3
6H	30.4	31.0	30.8	31.4	31.8	22.2	22.8	22.7	23.2	23.6
8H	30.4	30.9	30.8	31.3	31.8	22.4	23.0	22.9	23.4	23.8
12H	30.4	30.8	30.8	31.3	31.7	22.6	23.1	23.1	23.5	24.0
12H 4H	30.4	31.1	30.8	31.4	31.8	21.8	22.5	22.2	22.8	23.2
6H	30.4	30.9	30.8	31.3	31.8	22.3	22.8	22.7	23.2	23.7
8H	30.4	30.8	30.8	31.3	31.7	22.5	23.0	23.0	23.4	23.9
Variations with the observer position at spacings:										
S = 1.0H	+ 0.7 / - 1.3					+ 0.7 / - 0.9				
1.5H	+ 3.2 / - 5.5					+ 0.6 / - 0.7				
2.0H	+ 4.2 / - 7.5					+ 0.7 / - 0.8				

CIE Pub.117 Corrected 37170 lm Total Lamp Luminous Flux.(8log(F/F0) = 12.6)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-09-26

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) $k(RI) \times RCR = 5$									
$k = 0.60$	63	53	46	62	52	46	61	52	46	40
0.80	74	64	57	73	63	57	71	62	56	50
1.00	83	73	67	81	73	67	79	73	66	60
1.25	89	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	86	79
2.50	103	97	92	101	95	91	98	93	89	82
3.00	106	100	96	104	99	95	100	96	93	85
4.00	109	104	101	107	103	99	103	99	97	88
5.00	111	107	104	108	105	102	104	101	99	90
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

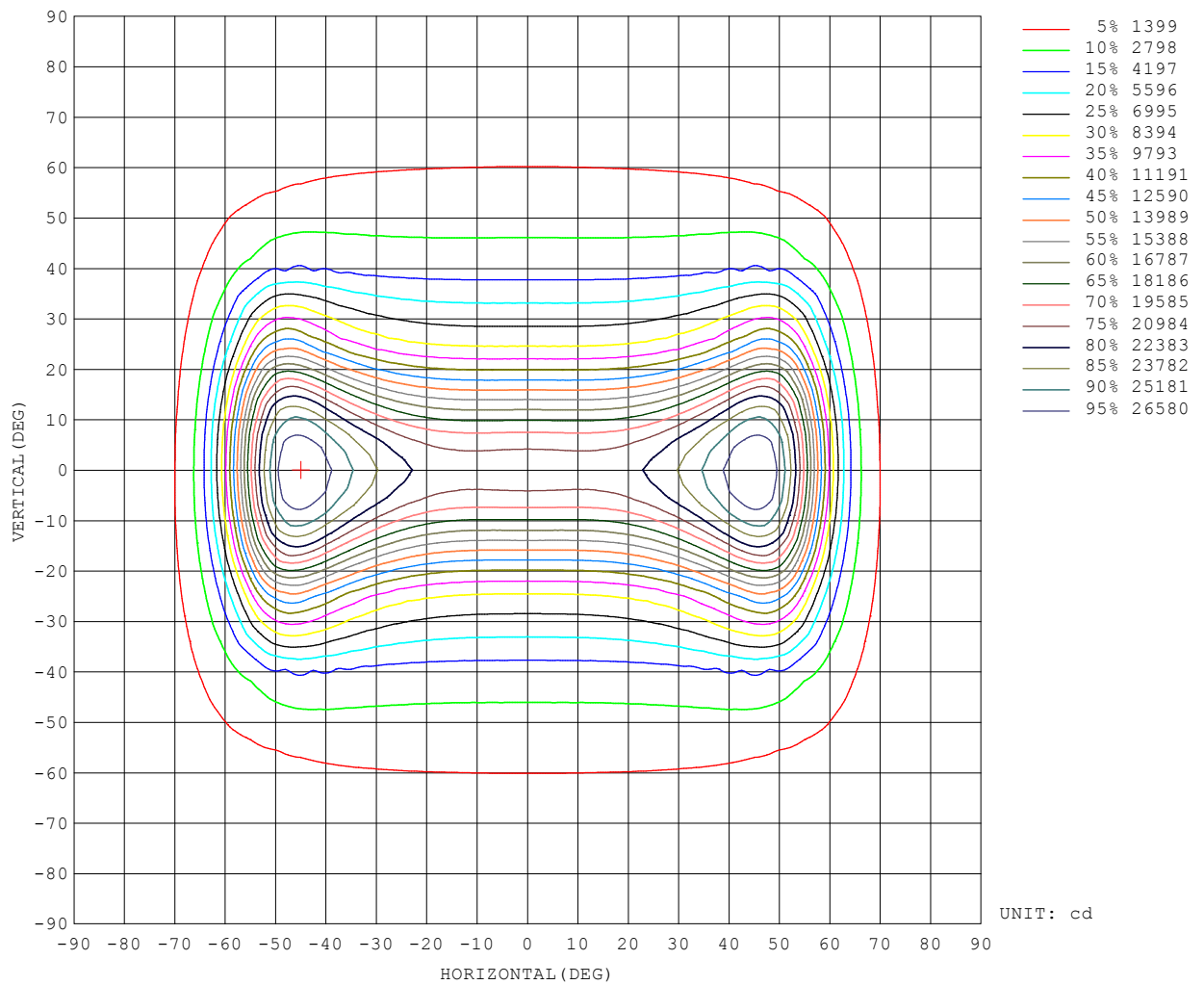
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-09-26

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



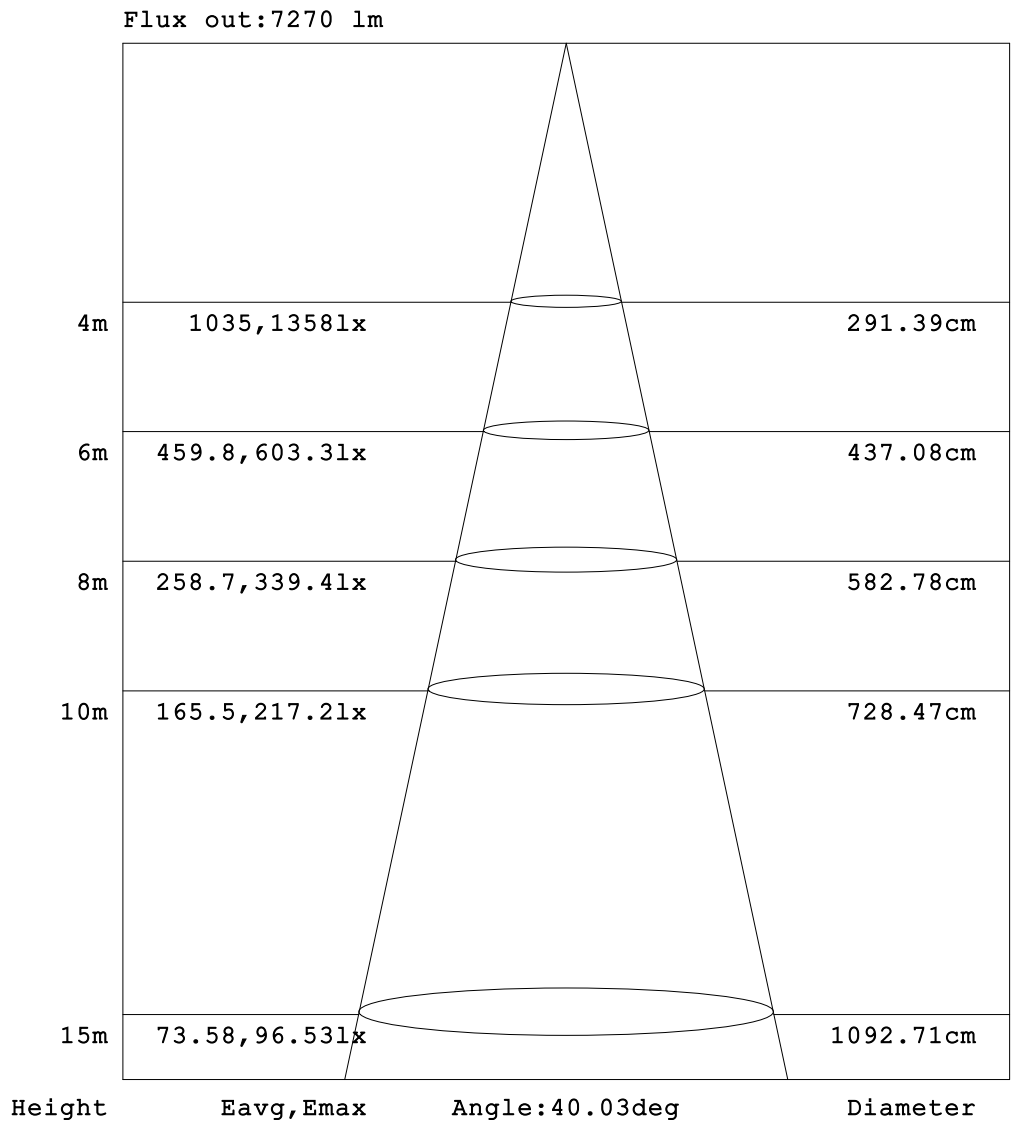
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-09-26

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.

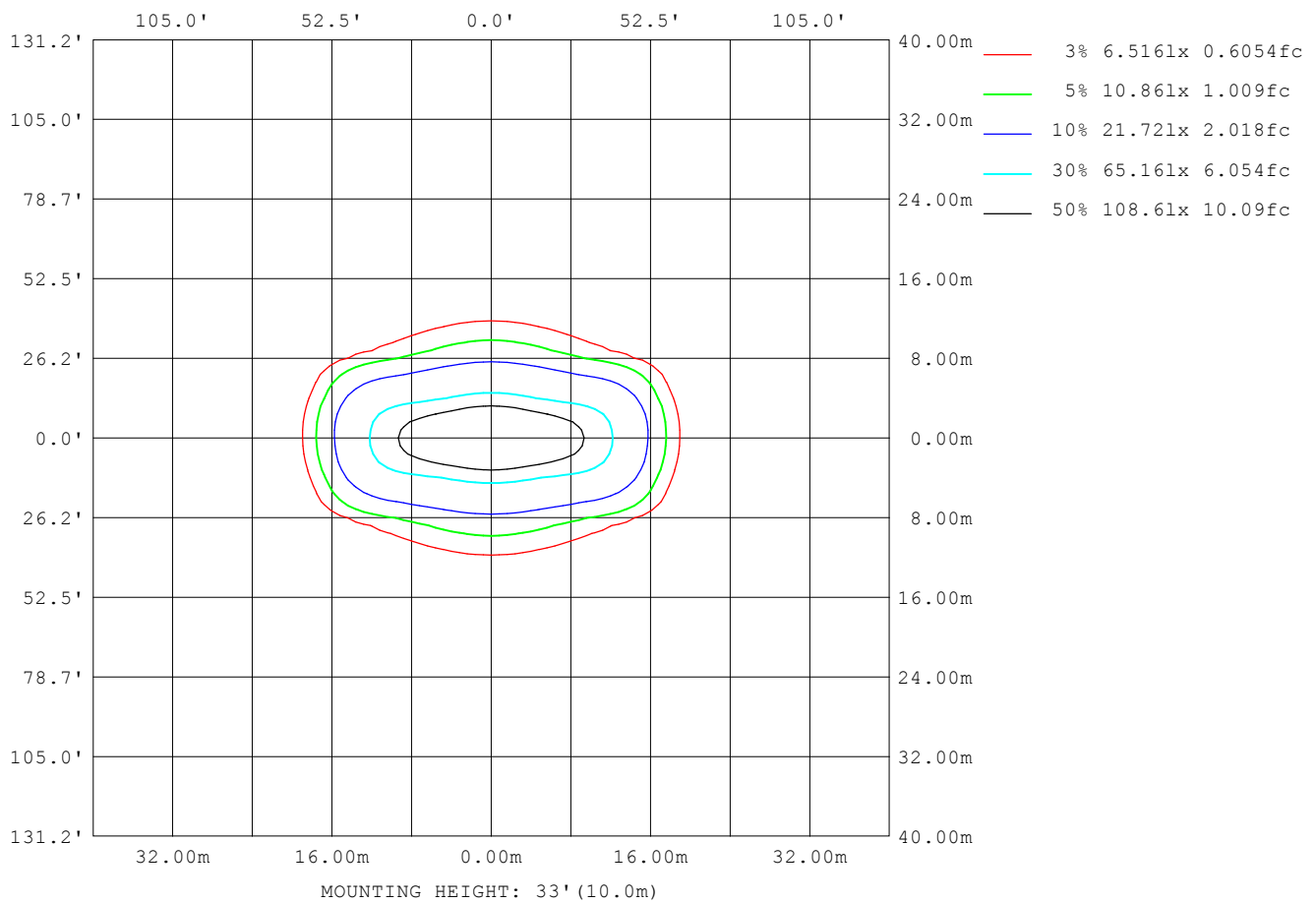
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-09-26

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



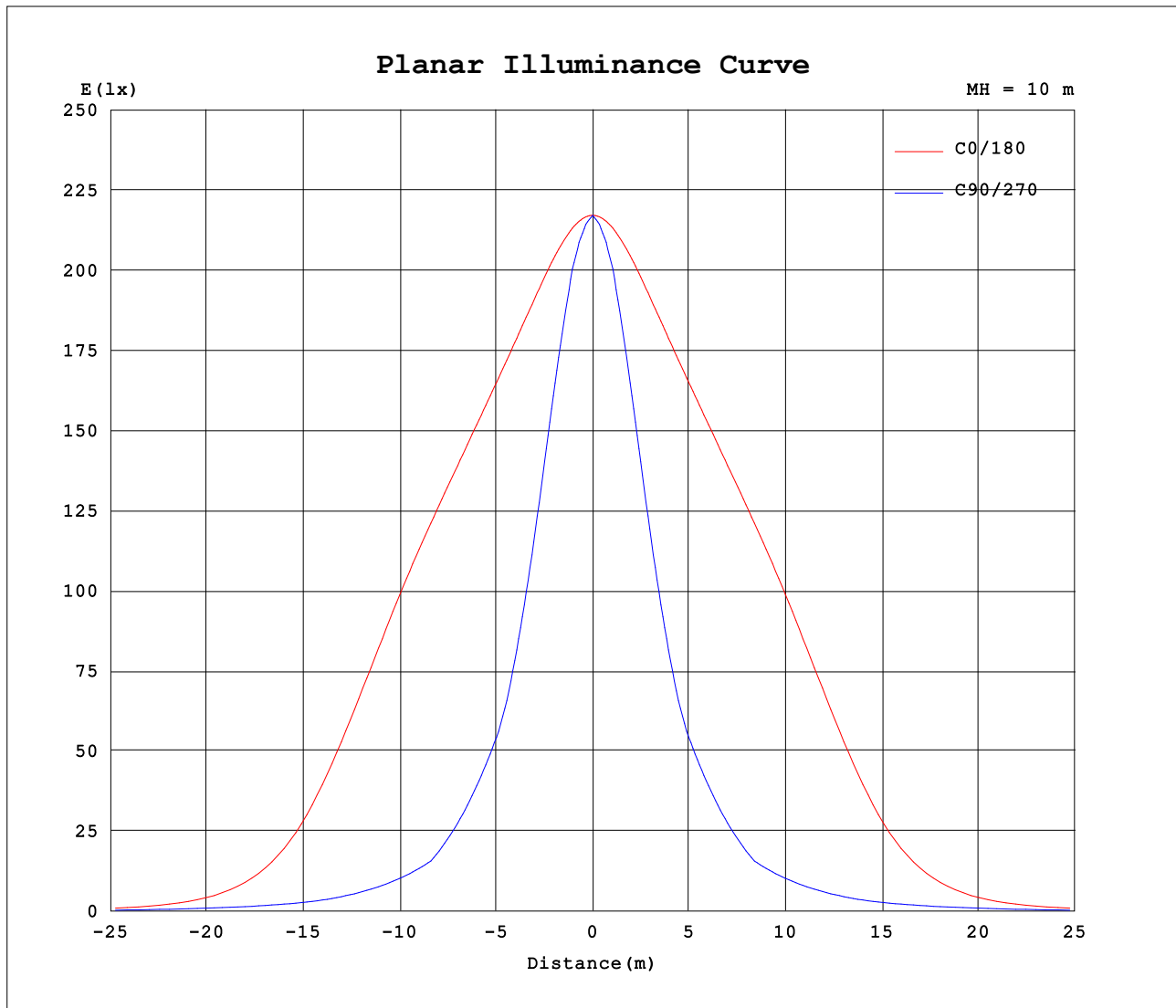
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-09-26

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: 2017-09-26

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:

Assessor:

Assessor:

Assessor:

Assessor: