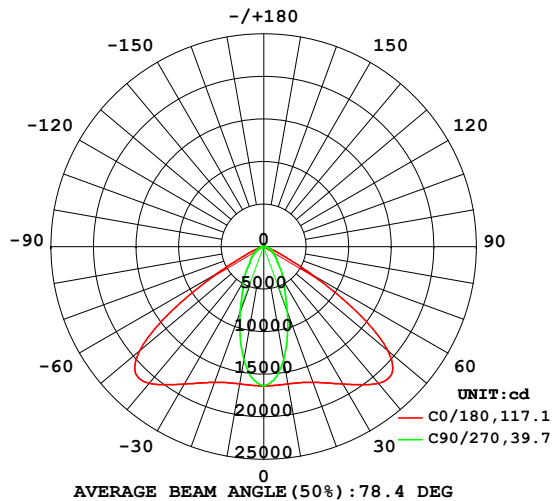


LUMINAIRE PHOTOMETRIC TEST REPORT

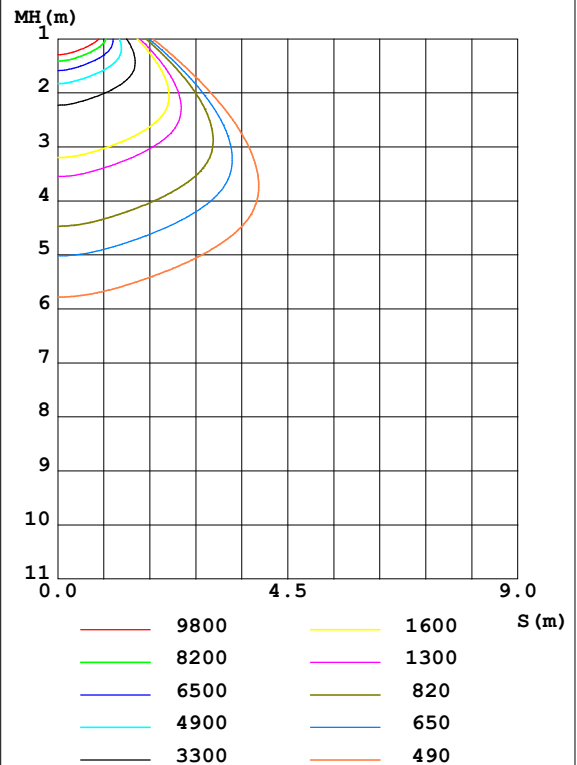
Test:U:230.0V I:0.8049A P:179.1W PF:0.9675 Lamp Flux:27712.1x1 lm		
NAME: LHB01-180H	TYPE:180W	WEIGHT:
SPEC.:5000K Ra70 L06404	DIM.: 0.718*0.275*0.102	SERIAL No.:
MFR.:	SUR.:0.255*0.69	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 154.73 lm/W			
MODEL	NICHIA3030	Imax(cd)	21323	S/MH(C0/180)	1.80
NOMINAL POWER(W)	180	LOR(%)	100.0	S/MH(C90/270)	0.63
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	27712	η UP,DN(C0-180)	0.0,50.2
NOMINAL FLUX(lm)	27712.1	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.8
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:2017-10-26

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	1636	1588	1553	1588	1636	1587	1553	1587	0- 5	384.9	384.9	1.39,1.39
10	1639	1480	1348	1480	1639	1478	1348	1478	5- 10	1099	1484	5.36,5.36
15	1656	1317	1080	1317	1656	1313	1080	1313	10- 15	1672	3156	11.4,11.4
20	1698	1132	812.2	1132	1698	1125	812.2	1125	15- 20	2079	5235	18.9,18.9
25	1768	941.6	597.3	941.6	1768	932.4	597.3	932.4	20- 25	2347	7582	27.4,27.4
30	1865	759.7	477.7	759.7	1865	748.3	477.7	748.3	25- 30	2541	10123	36.5,36.5
35	1982	613.1	369.0	613.1	1982	602.4	369.0	602.4	30- 35	2714	12838	46.3,46.3
40	2096	518.2	260.4	518.2	2096	508.9	260.4	508.9	35- 40	2839	15676	56.6,56.6
45	2123	406.9	218.7	406.9	2123	400.5	218.7	400.5	40- 45	2896	18573	67,67
50	1907	275.5	177.1	275.5	1907	273.7	177.1	273.7	45- 50	2821	21393	77.2,77.2
55	1331	225.5	137.0	225.5	1331	224.3	137.0	224.3	50- 55	2423	23816	85.9,85.9
60	631.5	167.8	109.2	167.8	631.5	167.2	109.2	167.2	55- 60	1668	25484	92,92
65	241.1	112.3	82.88	112.3	241.1	112.2	82.88	112.2	60- 65	961.4	26445	95.4,95.4
70	99.71	80.51	56.60	80.51	99.71	80.26	56.60	80.26	65- 70	558.8	27004	97.4,97.4
75	45.86	48.47	42.69	48.47	45.86	47.97	42.69	47.97	70- 75	339.3	27343	98.7,98.7
80	22.85	31.34	28.79	31.34	22.85	30.94	28.79	30.94	75- 80	209.0	27552	99.4,99.4
85	6.189	16.20	14.89	16.20	6.189	16.04	14.89	16.04	80- 85	117.7	27670	99.8,99.8
90	1.044	1.129	0.9897	1.129	1.044	1.261	0.9897	1.261	85- 90	42.24	27712	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): 18573 lm

%lum = 67.0%

%lamp = 67.0%

Conical surface Flux(120deg): 25484 lm

%lum = 92.0%

%lamp = 92.0%

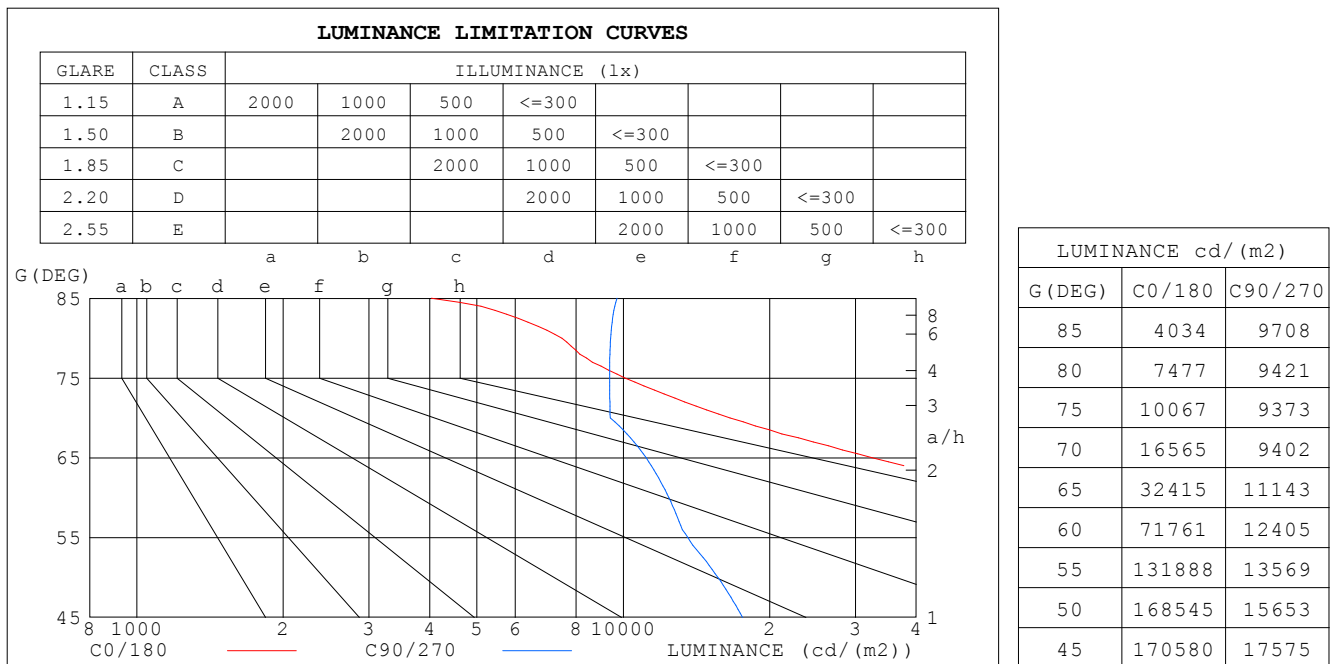
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-10-26

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: 2017-10-26

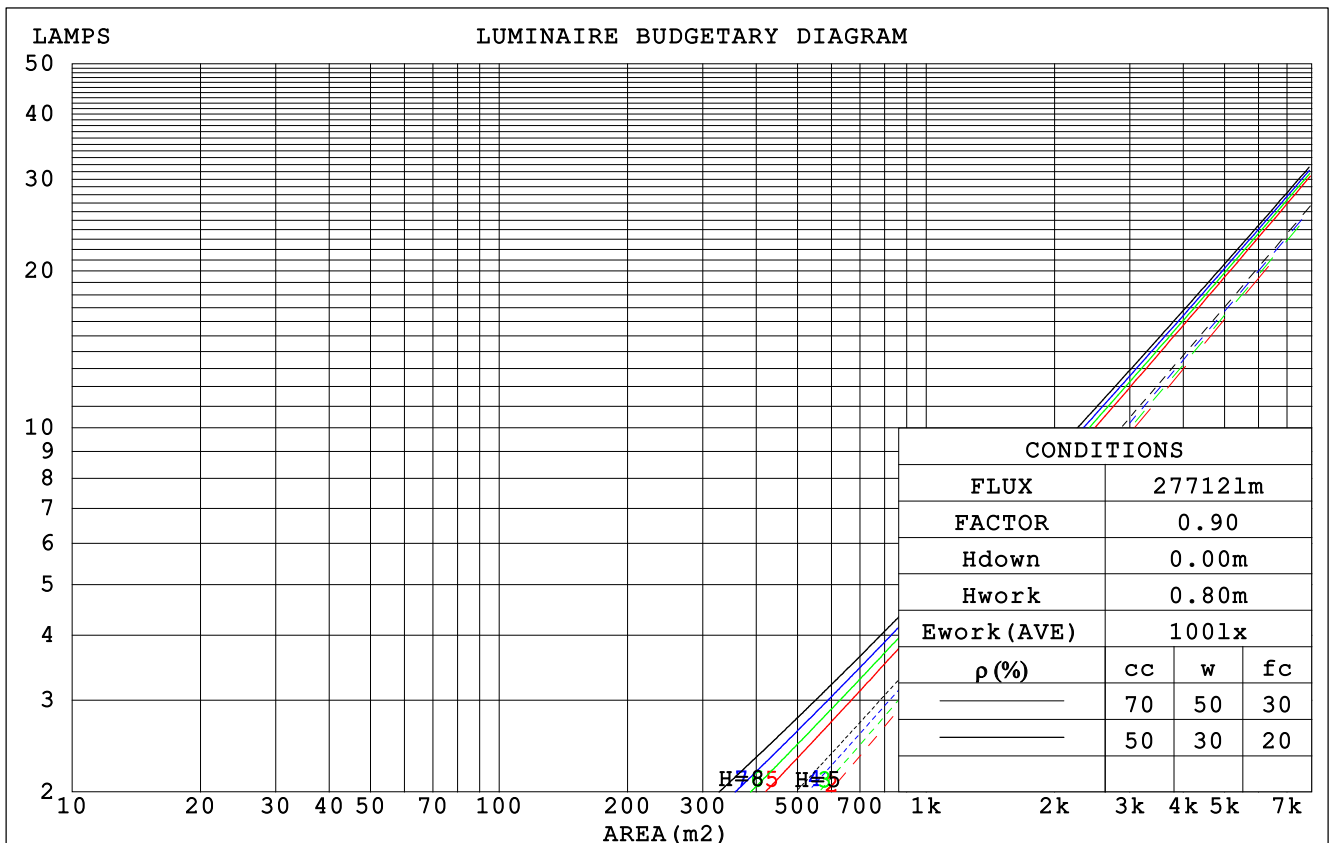
Checker: LI

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	1.01	1.05	1.02	.99	1.01	.98	.96	.97	.95	.93	.93	.92	.90	.88
2.0	.96	.90	.85	.94	.89	.84	.91	.86	.82	.87	.84	.81	.84	.81	.79	.77
3.0	.86	.79	.73	.84	.78	.73	.81	.76	.71	.79	.74	.70	.76	.72	.69	.67
4.0	.77	.70	.64	.76	.69	.63	.74	.67	.62	.71	.66	.62	.69	.65	.61	.59
5.0	.70	.62	.56	.69	.61	.56	.67	.60	.55	.65	.59	.55	.63	.58	.54	.52
6.0	.64	.55	.50	.63	.55	.49	.61	.54	.49	.59	.53	.49	.58	.52	.48	.46
7.0	.58	.50	.44	.57	.50	.44	.56	.49	.44	.54	.48	.44	.53	.48	.43	.42
8.0	.53	.46	.40	.53	.45	.40	.51	.45	.40	.50	.44	.40	.49	.44	.39	.38
9.0	.49	.42	.37	.49	.41	.36	.48	.41	.36	.47	.40	.36	.46	.40	.36	.34
10.0	.46	.38	.33	.45	.38	.33	.44	.38	.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: 2017-10-26

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	.248	.141	.045	.241	.137	.044	.228	.131	.042	.216	.125	.040	.205	.119	.038	
2.0	.241	.132	.040	.235	.129	.040	.223	.124	.039	.213	.120	.037	.204	.115	.036	
3.0	.229	.122	.036	.223	.120	.036	.214	.116	.035	.204	.112	.034	.196	.109	.034	
4.0	.216	.112	.033	.211	.110	.033	.202	.107	.032	.194	.104	.031	.187	.101	.031	
5.0	.203	.103	.030	.199	.102	.030	.191	.100	.029	.184	.097	.029	.177	.095	.028	
6.0	.191	.096	.027	.187	.095	.027	.180	.092	.027	.174	.090	.027	.168	.088	.026	
7.0	.180	.089	.025	.177	.088	.025	.170	.086	.025	.165	.084	.025	.159	.083	.024	
8.0	.170	.083	.023	.167	.082	.023	.161	.081	.023	.156	.079	.023	.151	.078	.023	
9.0	.160	.078	.022	.158	.077	.022	.153	.075	.021	.148	.074	.021	.144	.073	.021	
10.0	.152	.073	.020	.149	.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	.165	.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	.141	.089	.051	.121	.077	.045	.084	.054	.031	.048	.032	.019	.016	.010	.006	
6.0	.135	.081	.042	.116	.070	.037	.080	.049	.026	.046	.029	.016	.015	.009	.005	
7.0	.128	.074	.036	.110	.064	.031	.076	.045	.022	.044	.026	.013	.014	.009	.004	
8.0	.122	.068	.031	.105	.059	.027	.073	.041	.019	.042	.024	.011	.014	.008	.004	
9.0	.117	.063	.027	.101	.055	.023	.070	.038	.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:2017-10-26

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	30.1	31.4	30.3	31.6	31.8	19.0	20.3	19.3	20.5	20.7
3H	30.1	31.3	30.4	31.5	31.8	19.7	20.9	20.0	21.2	21.4
4H	30.0	31.2	30.3	31.4	31.7	20.0	21.2	20.3	21.4	21.7
6H	29.9	31.0	30.3	31.3	31.6	20.3	21.4	20.6	21.7	21.9
8H	29.9	30.9	30.2	31.2	31.5	20.4	21.5	20.8	21.8	22.0
12H	29.9	30.9	30.2	31.1	31.4	20.5	21.5	20.9	21.8	22.1
4H 2H	29.8	31.0	30.1	31.2	31.5	20.2	21.4	20.5	21.6	21.8
3H	29.9	30.9	30.2	31.2	31.5	20.9	21.9	21.3	22.2	22.5
4H	29.9	30.8	30.2	31.1	31.4	21.3	22.2	21.6	22.5	22.8
6H	29.8	30.6	30.2	31.0	31.3	21.6	22.4	22.0	22.8	23.1
8H	29.8	30.5	30.2	30.9	31.3	21.8	22.5	22.2	22.9	23.3
12H	29.7	30.4	30.2	30.8	31.2	21.9	22.6	22.3	23.0	23.4
8H 4H	29.8	30.5	30.2	30.9	31.2	21.5	22.3	21.9	22.6	23.0
6H	29.7	30.3	30.2	30.7	31.2	22.0	22.6	22.4	23.0	23.4
8H	29.7	30.2	30.2	30.7	31.1	22.2	22.8	22.7	23.2	23.6
12H	29.7	30.1	30.2	30.6	31.1	22.5	22.9	22.9	23.4	23.8
12H 4H	29.7	30.4	30.1	30.8	31.2	21.5	22.2	21.9	22.6	23.0
6H	29.7	30.2	30.2	30.7	31.1	22.1	22.6	22.5	23.0	23.5
8H	29.7	30.1	30.2	30.6	31.1	22.3	22.8	22.8	23.2	23.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.6 / - 1.4					+ 0.6 / - 0.8				
1.5H	+ 3.1 / - 5.6					+ 0.5 / - 0.6				
2.0H	+ 4.3 / - 7.3					+ 0.6 / - 0.7				

CIE Pub.117 Corrected 27712 lm Total Lamp Luminous Flux.(8log(F/F0) = 11.5)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-10-26

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) $k(RI) \times RCR = 5$									
$k = 0.60$	64	53	47	63	53	47	62	52	47	41
0.80	74	64	58	73	64	57	72	63	57	51
1.00	83	74	67	82	73	67	80	74	67	60
1.25	90	81	75	88	80	75	86	79	74	68
1.50	94	86	81	93	85	80	90	84	79	73
2.00	100	93	88	99	92	87	95	90	86	79
2.50	103	97	92	101	96	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	109	105	102	104	101	99	90
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

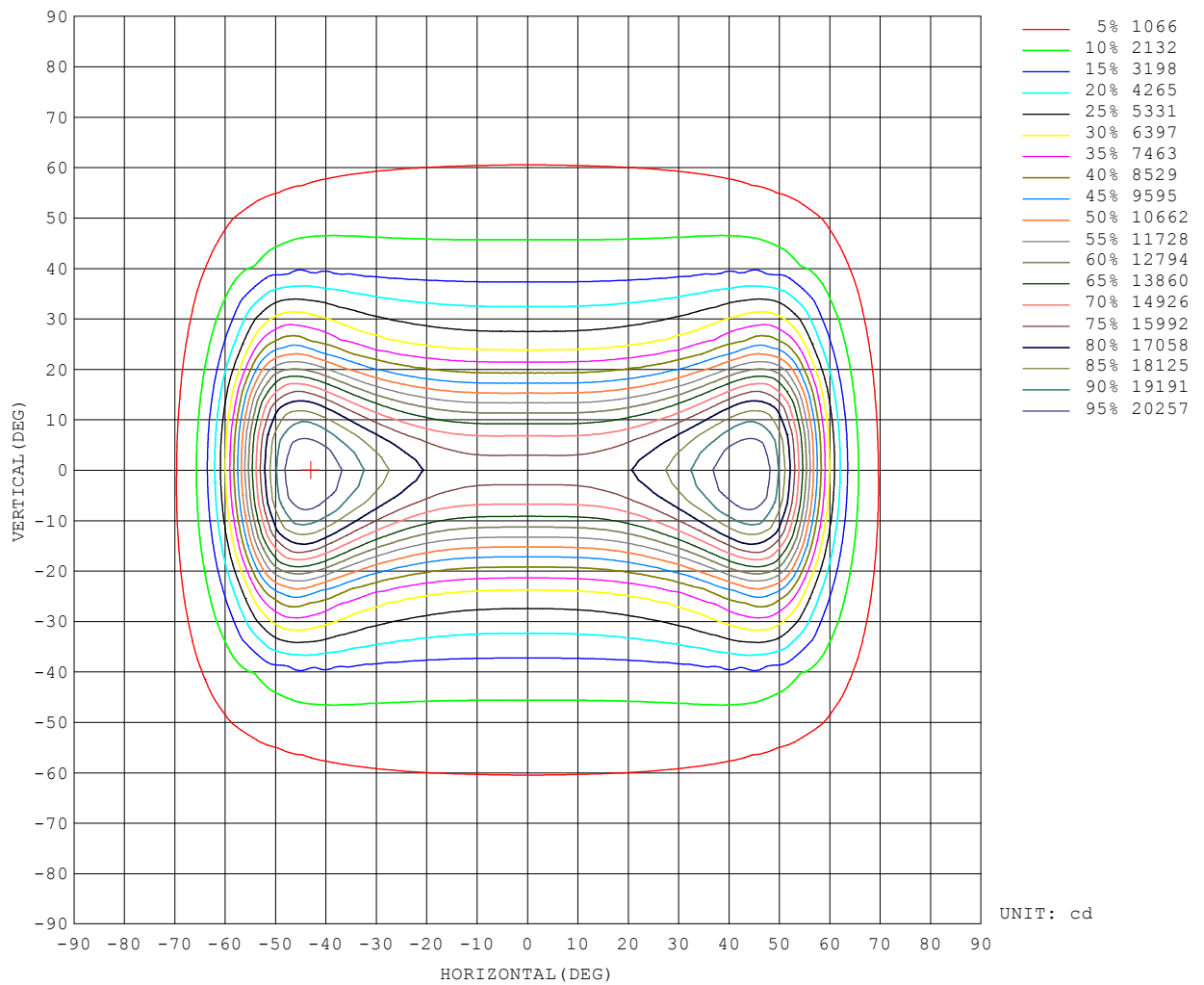
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-10-26

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



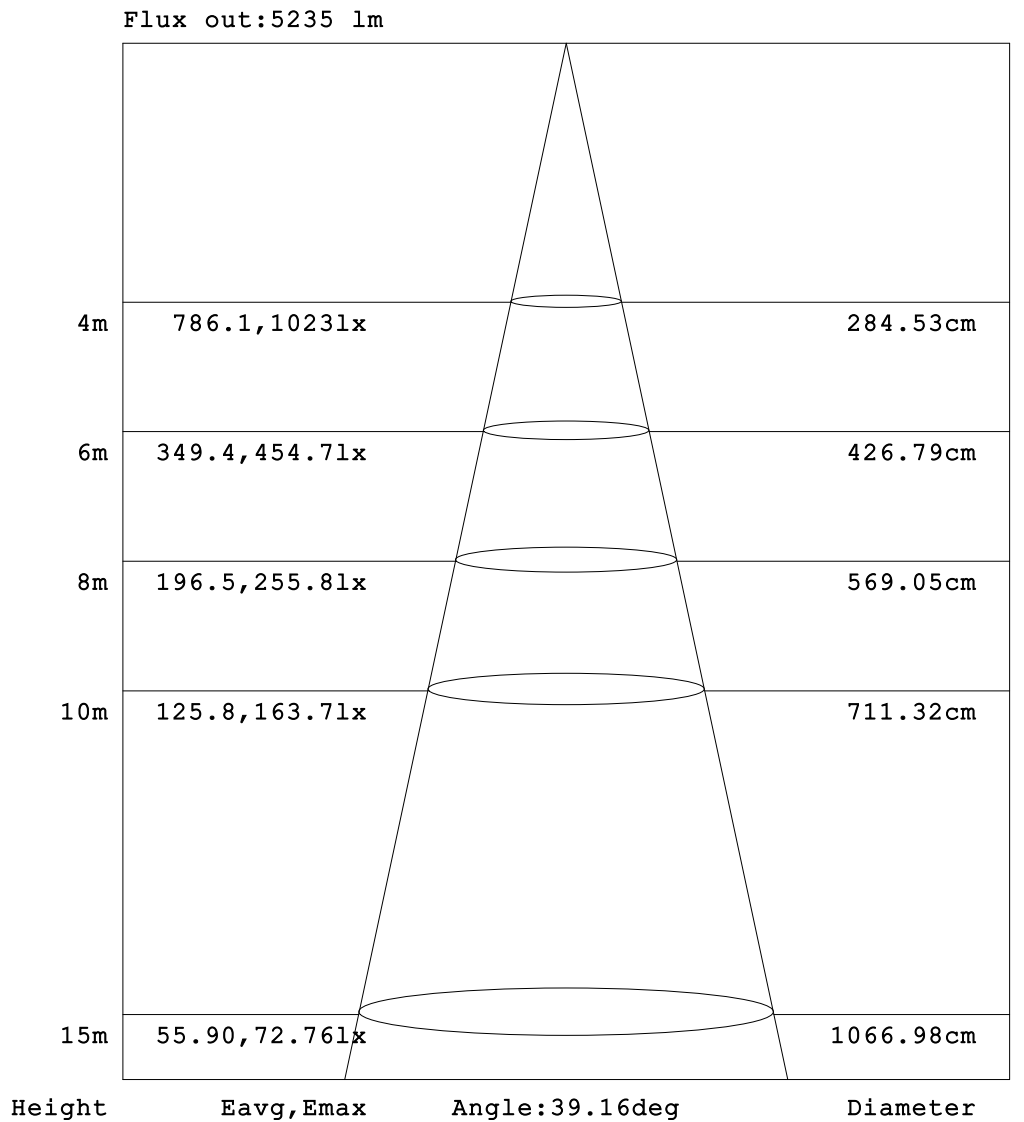
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-10-26

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.

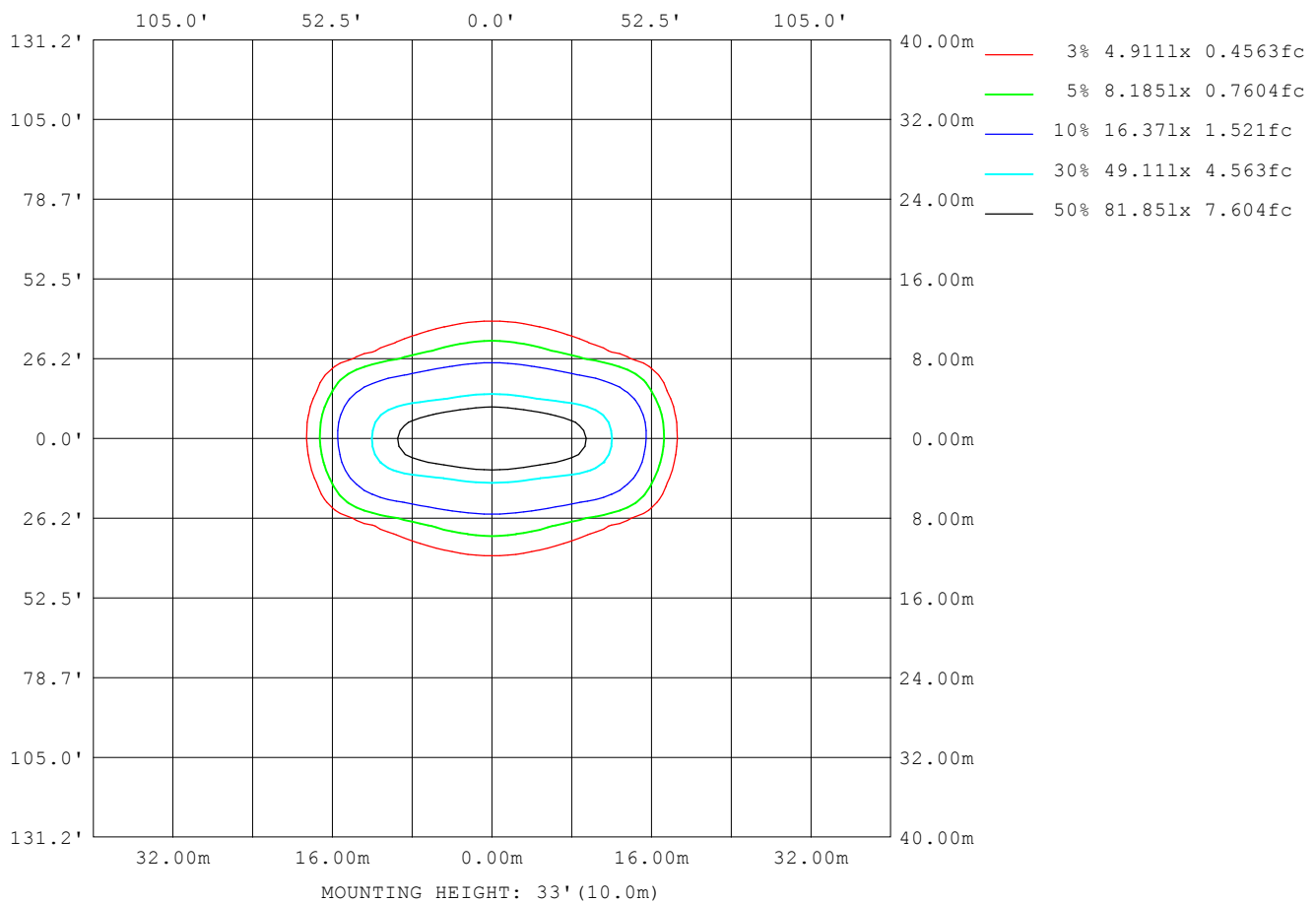
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-10-26

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



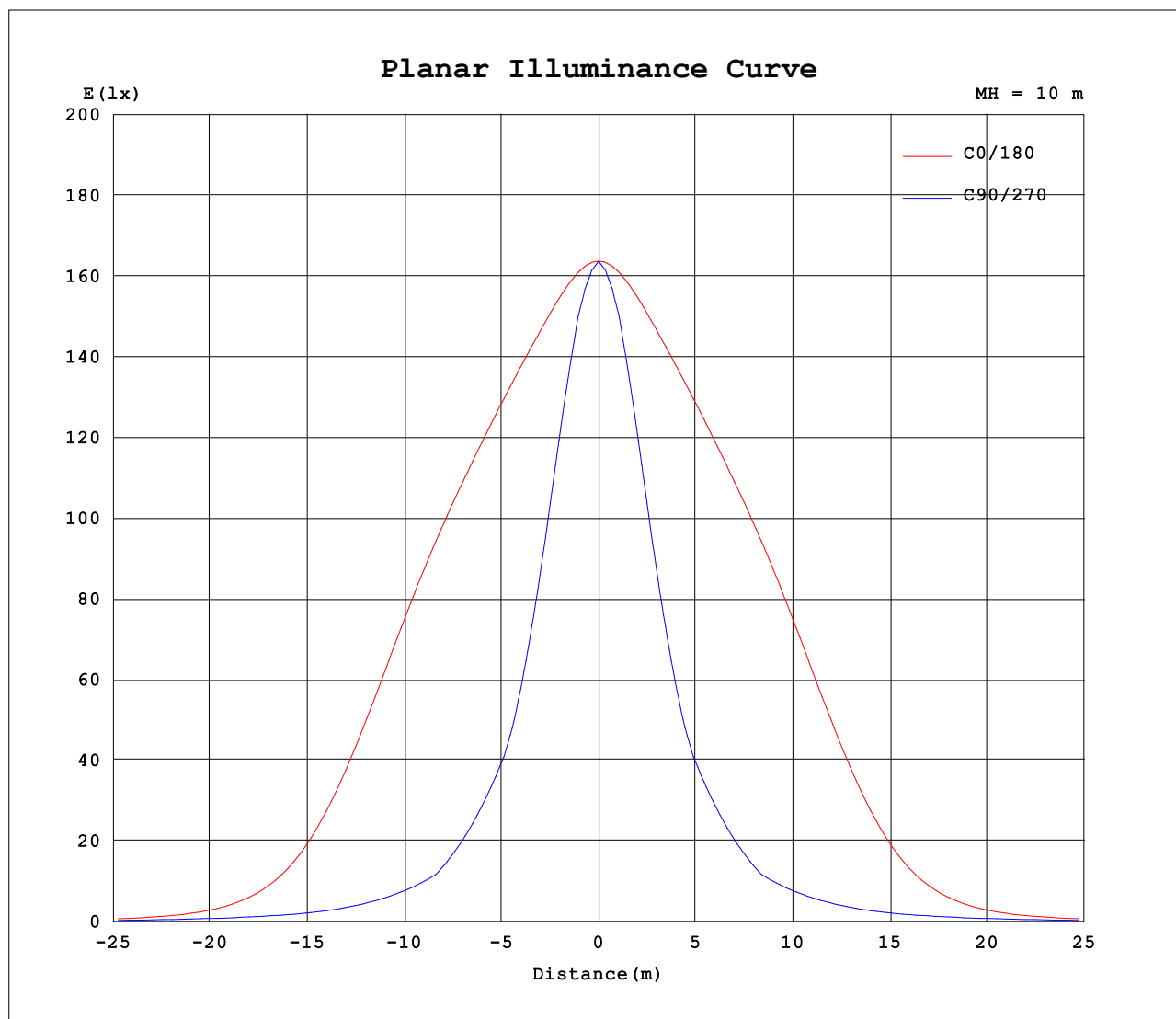
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-10-26

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:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-10-26

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:

Assessor:

Assessor:

Assessor:

Assessor: