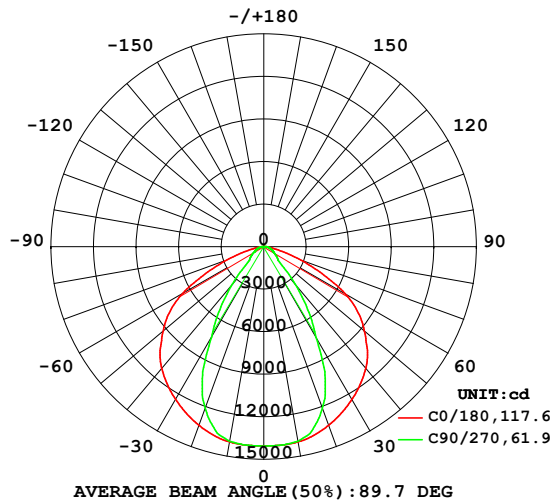


LUMINAIRE PHOTOMETRIC TEST REPORT

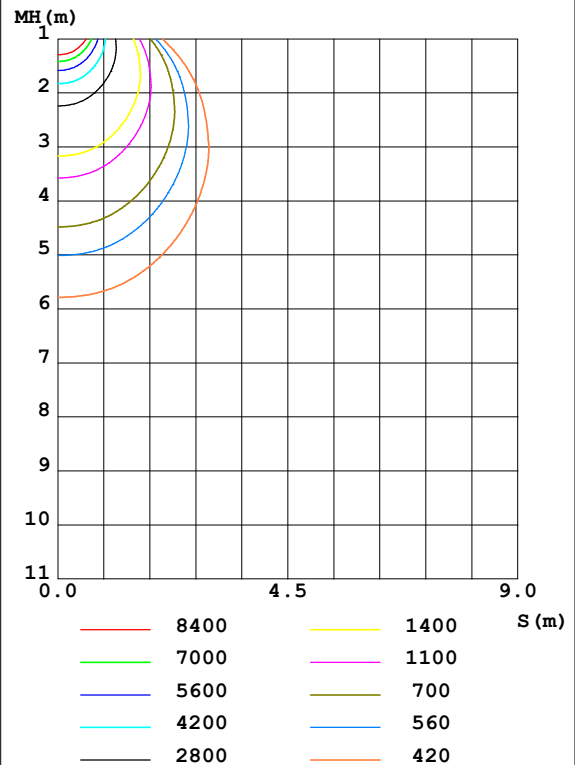
Test:U:230.0V I:0.8041A P:178.7W PF:0.9661 Lamp Flux:24578.4x1 lm		
NAME: LHB03-180	TYPE:180W	WEIGHT:
SPEC.:5000K Ra70 L00302	DIM.: 0.621*0.307*0.061	SERIAL No.:
MFR.:	SUR.:0.57*0.27	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 137.54 lm/W			
MODEL	NICHIA3030	Imax(cd)	14058	S/MH(C0/180)	1.32
NOMINAL POWER(W)	180	LOR(%)	100.0	S/MH(C90/270)	0.94
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	24578	η UP,DN(C0-180)	0.0,50.1
NOMINAL FLUX(lm)	24578.4	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.9
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.05

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:2017-12-25

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	1405	1405	1404	1405	1405	1405	1404	1405	0- 5	336.0	336.0	1.37,1.37
10	1398	1399	1393	1399	1398	1399	1393	1399	5- 10	1003	1339	5.45,5.45
15	1376	1377	1335	1377	1376	1377	1335	1377	10- 15	1642	2980	12.1,12.1
20	1340	1319	1211	1319	1340	1318	1211	1318	15- 20	2196	5177	21.1,21.1
25	1296	1199	1026	1199	1296	1198	1026	1198	20- 25	2606	7783	31.7,31.7
30	1244	1046	739.3	1046	1244	1045	739.3	1045	25- 30	2796	10579	43,43
35	1186	807.0	542.6	807.0	1186	802.2	542.6	802.2	30- 35	2734	13313	54.2,54.2
40	1120	556.4	345.8	556.4	1120	549.7	345.8	549.7	35- 40	2519	15832	64.4,64.4
45	1034	421.3	166.4	421.3	1034	415.8	166.4	415.8	40- 45	2164	17996	73.2,73.2
50	926.9	304.4	126.0	304.4	926.9	301.2	126.0	301.2	45- 50	1752	19748	80.3,80.3
55	814.8	206.5	102.9	206.5	814.8	206.8	102.9	206.8	50- 55	1421	21169	86.1,86.1
60	660.4	156.5	79.89	156.5	660.4	156.7	79.89	156.7	55- 60	1118	22287	90.7,90.7
65	453.1	115.6	66.70	115.6	453.1	114.9	66.70	114.9	60- 65	827.7	23115	94,94
70	279.3	87.71	53.51	87.71	279.3	86.93	53.51	86.93	65- 70	594.0	23709	96.5,96.5
75	137.1	68.00	40.33	68.00	137.1	67.74	40.33	67.74	70- 75	412.9	24122	98.1,98.1
80	53.49	46.32	27.14	46.32	53.49	46.32	27.14	46.32	75- 80	264.2	24386	99.2,99.2
85	12.74	23.81	13.95	23.81	12.74	23.92	13.95	23.92	80- 85	144.0	24530	99.8,99.8
90	0.3713	1.112	0.7642	1.112	0.3713	1.236	0.7642	1.236	85- 90	48.25	24578	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): 17996 lm

%lum = 73.2%

%lamp = 73.2%

Conical surface Flux(120deg): 22287 lm

%lum = 90.7%

%lamp = 90.7%

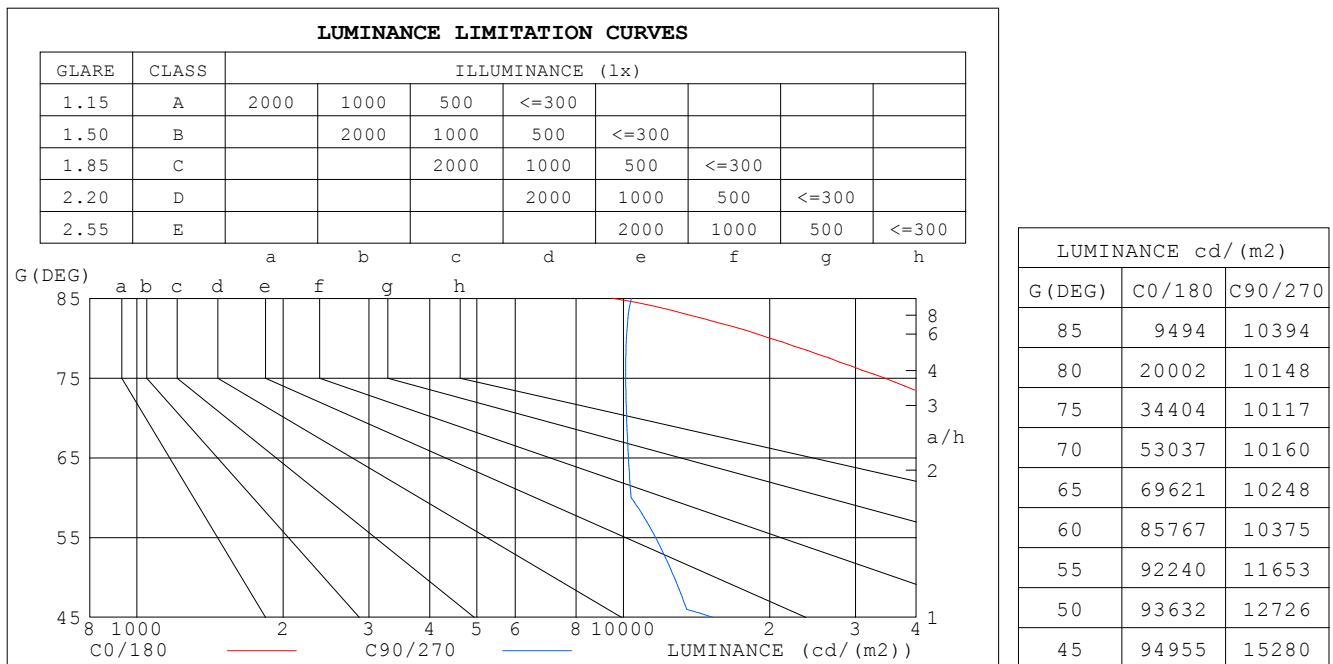
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-12-25

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: 2017-12-25

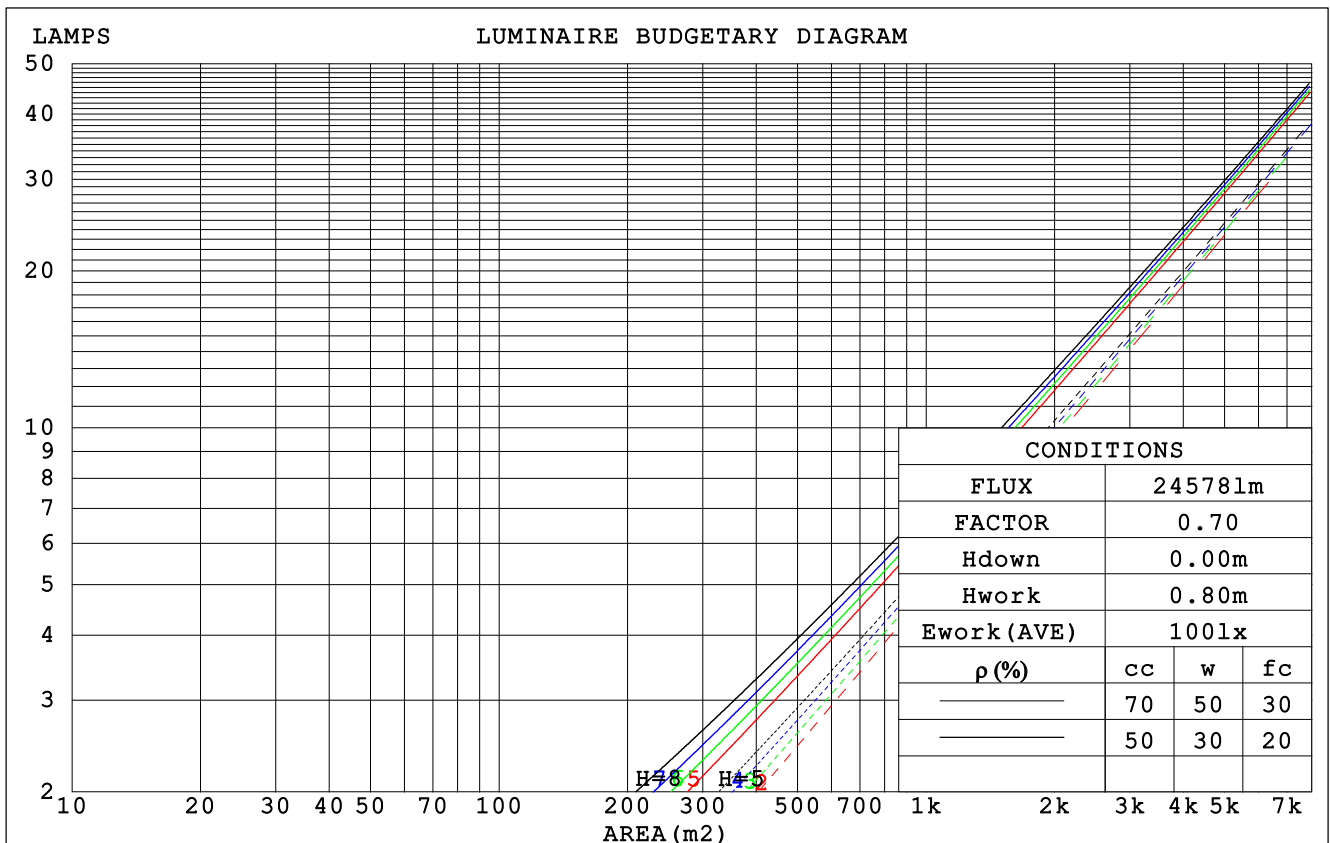
Checker: LI

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	.94	.92	.90	.88
2.0	.96	.91	.86	.95	.90	.85	.91	.87	.83	.88	.85	.81	.85	.82	.80	.78
3.0	.87	.80	.75	.85	.79	.74	.83	.77	.73	.80	.76	.72	.78	.74	.71	.69
4.0	.79	.71	.66	.78	.71	.65	.75	.69	.65	.73	.68	.64	.71	.67	.63	.61
5.0	.72	.64	.58	.71	.64	.58	.69	.62	.58	.67	.61	.57	.65	.60	.56	.55
6.0	.66	.58	.52	.65	.58	.52	.63	.57	.52	.62	.56	.51	.60	.55	.51	.49
7.0	.60	.53	.47	.60	.52	.47	.58	.52	.47	.57	.51	.47	.56	.50	.46	.45
8.0	.56	.48	.43	.55	.48	.43	.54	.47	.43	.53	.47	.43	.52	.46	.42	.41
9.0	.52	.44	.40	.51	.44	.39	.50	.44	.39	.49	.43	.39	.48	.43	.39	.37
10.0	.48	.41	.36	.48	.41	.36	.47	.41	.36	.46	.40	.36	.45	.40	.36	.34



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-12-25

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	.245	.139	.044	.238	.136	.043	.225	.129	.041	.213	.123	.039	.202	.117	.038	
2.0	.235	.129	.039	.229	.126	.039	.218	.121	.038	.207	.116	.036	.198	.112	.035	
3.0	.221	.118	.035	.216	.116	.035	.206	.112	.034	.197	.108	.033	.189	.105	.032	
4.0	.208	.108	.032	.203	.106	.031	.195	.103	.031	.187	.100	.030	.179	.098	.030	
5.0	.195	.100	.029	.191	.098	.029	.184	.096	.028	.177	.093	.028	.170	.091	.027	
6.0	.184	.092	.026	.180	.091	.026	.173	.089	.026	.167	.087	.026	.161	.085	.025	
7.0	.173	.086	.024	.170	.085	.024	.164	.083	.024	.158	.081	.024	.153	.079	.023	
8.0	.163	.080	.022	.161	.079	.022	.155	.078	.022	.150	.076	.022	.145	.075	.022	
9.0	.155	.075	.021	.152	.074	.021	.147	.073	.021	.143	.072	.020	.138	.070	.020	
10.0	.147	.070	.020	.144	.070	.019	.140	.069	.019	.136	.067	.019	.132	.066	.019	

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	.140	.150	.134	.120	.103	.093	.083	.059	.054	.048	.019	.017	.016	
2.0	.165	.132	.105	.141	.114	.091	.097	.079	.063	.056	.046	.037	.018	.015	.012	
3.0	.155	.114	.081	.133	.098	.070	.091	.068	.049	.053	.040	.029	.017	.013	.010	
4.0	.147	.100	.064	.126	.086	.056	.087	.060	.039	.050	.035	.023	.016	.011	.008	
5.0	.139	.089	.052	.119	.077	.046	.082	.054	.032	.048	.032	.019	.015	.010	.006	
6.0	.132	.080	.043	.114	.070	.038	.078	.049	.027	.045	.029	.016	.015	.009	.005	
7.0	.126	.073	.037	.108	.064	.032	.075	.045	.023	.043	.026	.013	.014	.009	.004	
8.0	.120	.067	.032	.103	.059	.027	.071	.041	.020	.042	.024	.012	.013	.008	.004	
9.0	.114	.062	.027	.098	.054	.024	.068	.038	.017	.040	.023	.010	.013	.007	.003	
10.0	.109	.058	.024	.094	.051	.021	.065	.036	.015	.038	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-12-25

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	27.6	28.9	27.9	29.1	29.3	19.6	20.8	19.8	21.0	21.2
3H	28.5	29.7	28.8	29.9	30.1	20.1	21.3	20.4	21.5	21.7
4H	28.7	29.8	29.0	30.1	30.3	20.4	21.6	20.7	21.8	22.0
6H	28.8	29.8	29.1	30.1	30.3	20.8	21.8	21.1	22.1	22.3
8H	28.8	29.8	29.1	30.0	30.3	20.9	21.9	21.2	22.2	22.4
12H	28.7	29.7	29.1	30.0	30.3	21.0	22.0	21.3	22.2	22.5
4H 2H	27.4	28.5	27.7	28.8	29.0	20.3	21.4	20.6	21.7	21.9
3H	28.4	29.3	28.7	29.6	29.9	21.0	22.0	21.4	22.3	22.6
4H	28.6	29.5	29.0	29.8	30.1	21.4	22.3	21.8	22.6	22.9
6H	28.8	29.5	29.1	29.9	30.2	21.8	22.6	22.2	22.9	23.3
8H	28.8	29.5	29.2	29.8	30.2	22.0	22.7	22.4	23.1	23.5
12H	28.7	29.4	29.2	29.8	30.2	22.1	22.8	22.6	23.2	23.6
8H 4H	28.6	29.3	29.0	29.7	30.0	21.9	22.6	22.3	23.0	23.4
6H	28.8	29.4	29.2	29.8	30.2	22.4	23.0	22.9	23.4	23.9
8H	28.8	29.3	29.3	29.7	30.2	22.7	23.2	23.1	23.6	24.1
12H	28.8	29.3	29.3	29.7	30.2	22.9	23.3	23.4	23.8	24.3
12H 4H	28.5	29.2	29.0	29.6	30.0	22.0	22.6	22.4	23.0	23.4
6H	28.7	29.3	29.2	29.7	30.1	22.6	23.1	23.1	23.5	24.0
8H	28.8	29.3	29.3	29.7	30.2	22.9	23.3	23.4	23.8	24.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.9 / - 1.5					+ 0.7 / - 0.9				
1.5H	+ 1.9 / - 2.9					+ 0.8 / - 0.8				
2.0H	+ 3.0 / - 4.2					+ 0.9 / - 0.7				

CIE Pub.117 Corrected 24578 lm Total Lamp Luminous Flux.(8log(F/F0) = 11.1)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-12-25

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:

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) $k(RI) \times RCR = 5$									
$k = 0.60$	69	60	54	69	59	54	68	59	54	48
0.80	79	69	64	78	69	63	76	68	63	57
1.00	86	77	72	85	77	71	83	78	71	65
1.25	92	84	78	91	83	78	88	82	77	71
1.50	96	89	83	95	88	83	92	86	82	76
2.00	101	95	90	100	94	89	97	92	88	81
2.50	104	98	94	102	97	93	99	94	91	84
3.00	107	102	97	105	100	96	101	97	94	87
4.00	110	105	102	108	104	101	104	100	98	90
5.00	112	108	105	109	106	103	105	102	100	92
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

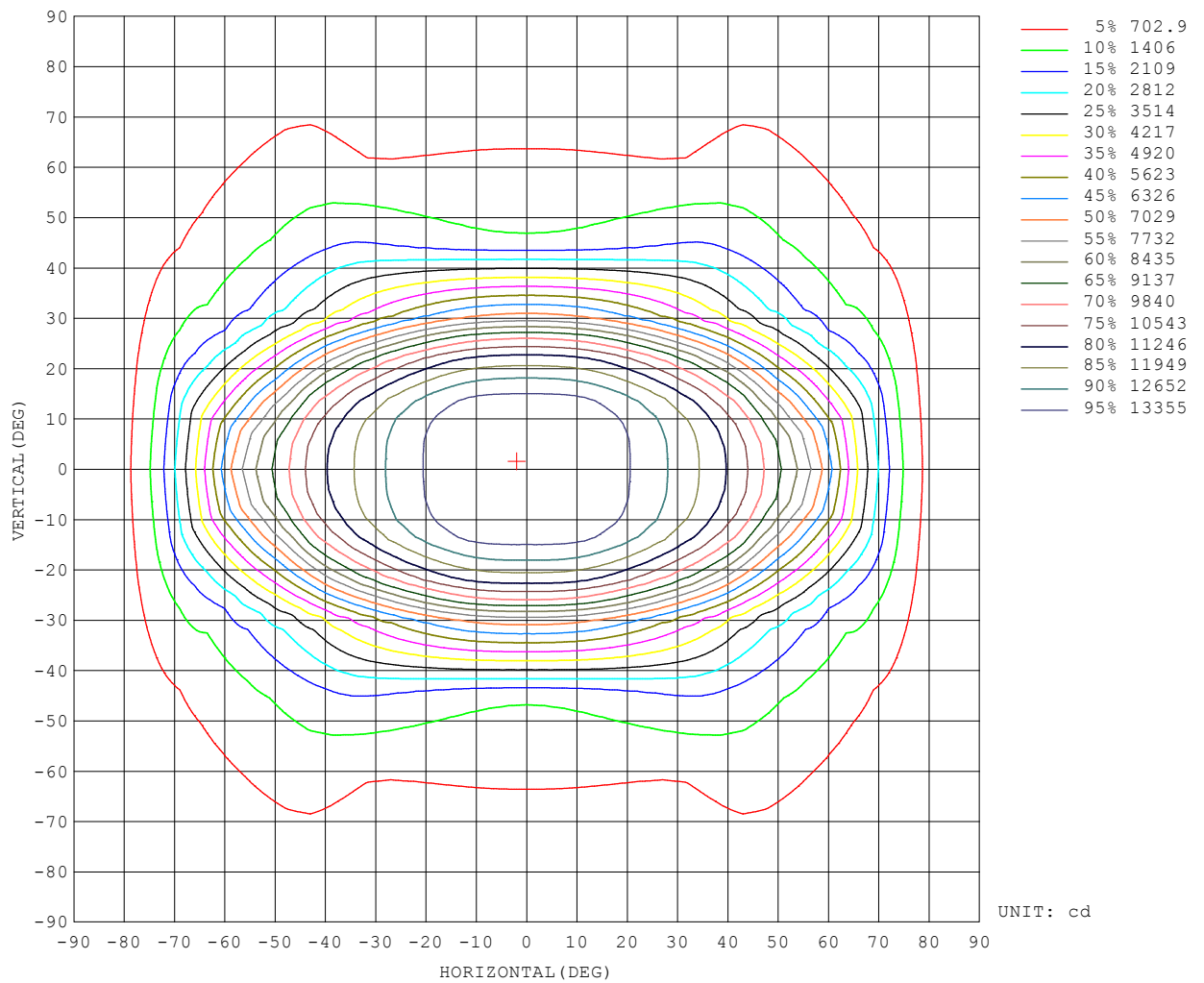
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-12-25

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



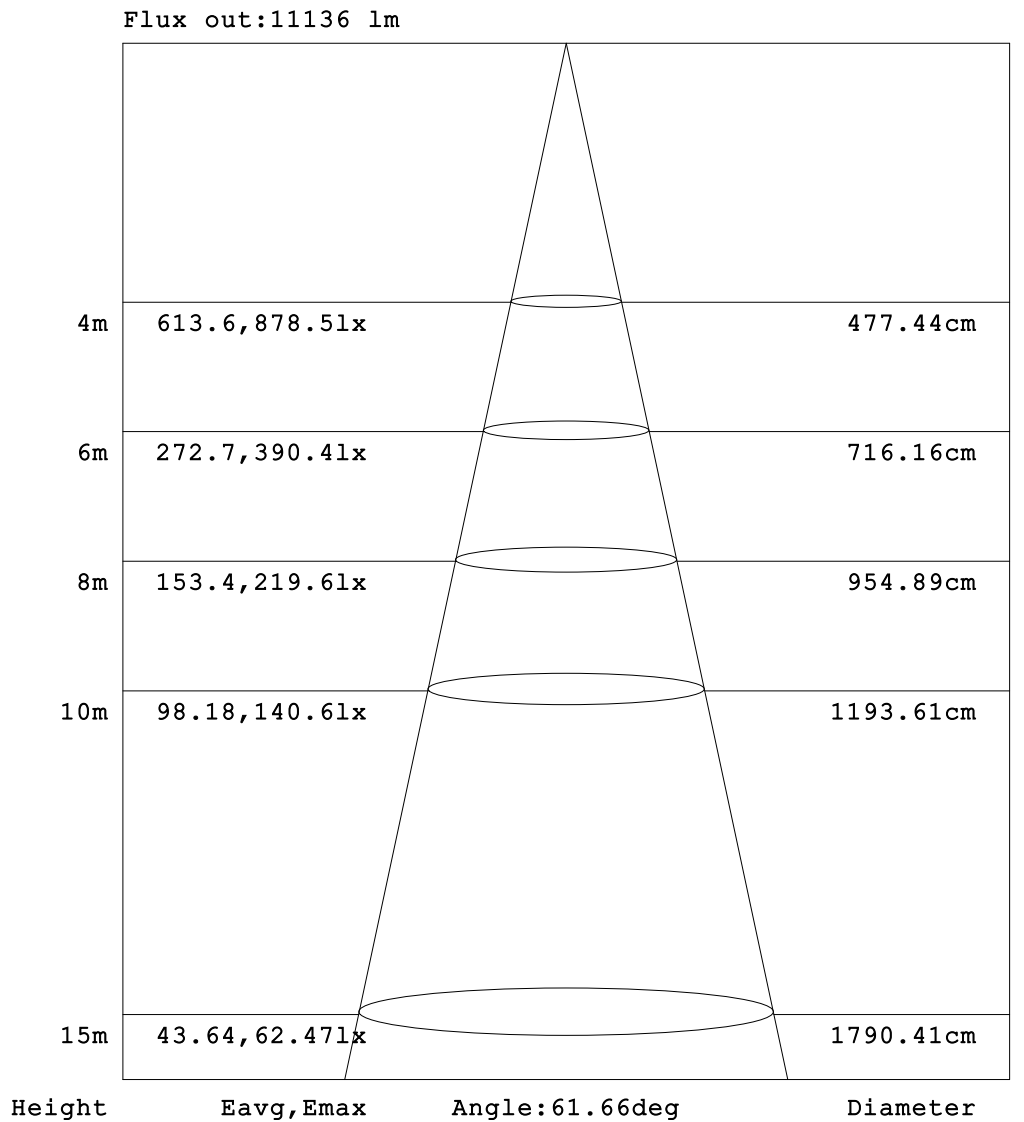
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-12-25

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.

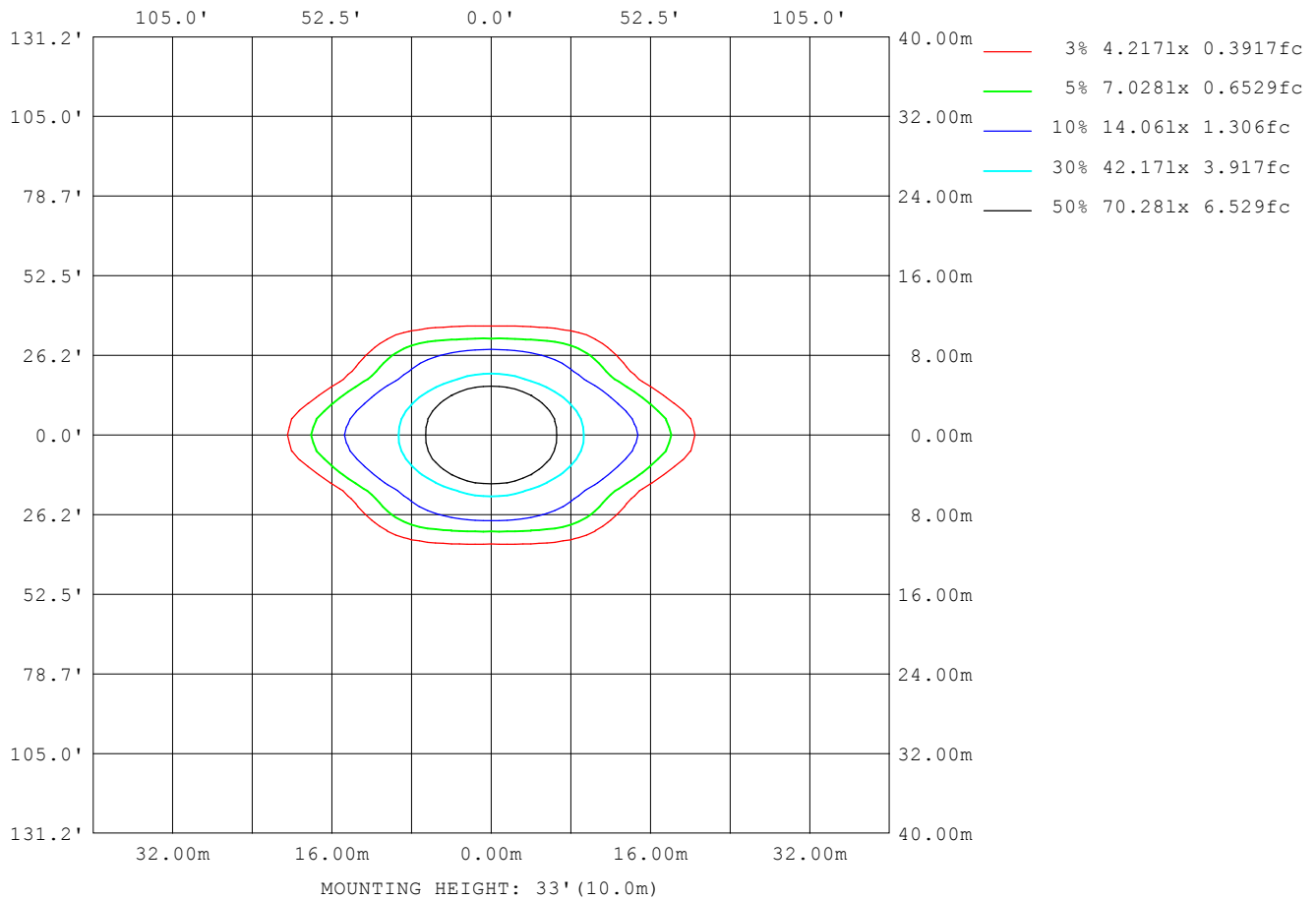
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-12-25

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



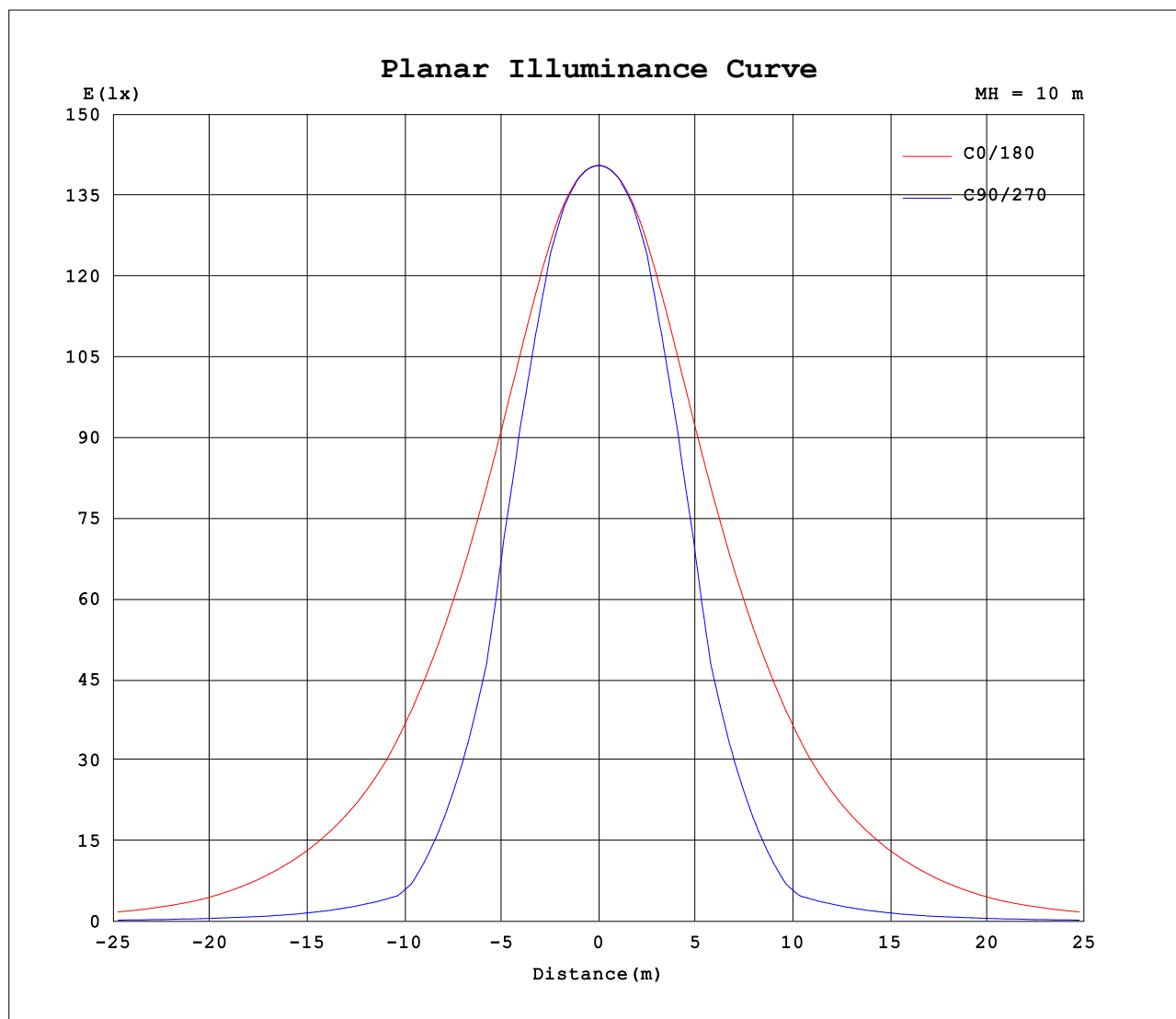
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-12-25

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: 2017-12-25

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:

UNIT: $\times 10 \text{cd}$

Assessor: