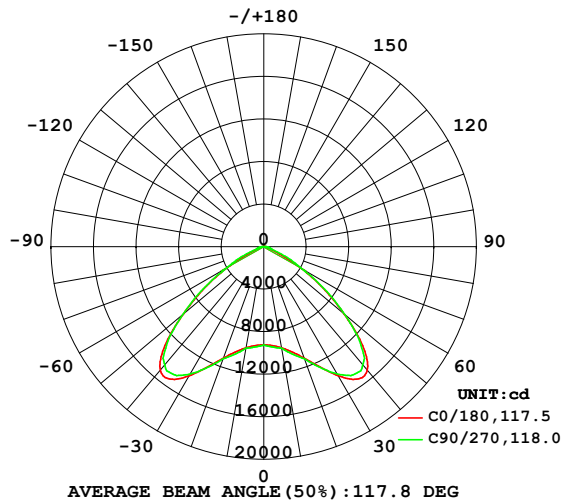


LUMINAIRE PHOTOMETRIC TEST REPORT

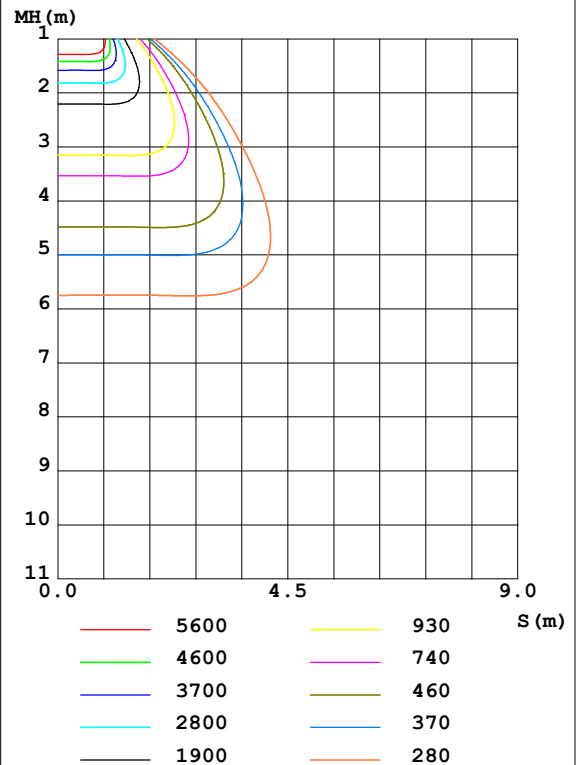
Test:U:229.9V I:1.059A P:238.3W PF:0.9787 Lamp Flux:37801.5x1 lm		
NAME: LHB01-240H	TYPE:240W	WEIGHT:
SPEC.:5000K Ra80 L06403	DIM.: 0.632*0.515*0.102	SERIAL No.:
MFR.:	SUR.:0.44*0.48	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 158.63 lm/W			
MODEL	NICHIA3030	I _{max} (cd)	15406	S/MH (C0/180)	1.75
NOMINAL POWER(W)	240	LOR(%)	100.0	S/MH (C90/270)	1.75
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	37801	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	37801.5	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	230	η down (%)	100.0	CIBSE SHR MAX	1.55

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:2017-11-03

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	935.3	945.8	947.5	945.8	935.3	946.5	947.5	946.5	0- 5	224.1	224.1	0.59,0.59
10	967.3	977.0	969.8	977.0	967.3	979.5	969.8	979.5	5- 10	687.2	911.2	2.41,2.41
15	1025	1029	1046	1029	1025	1035	1046	1035	10- 15	1193	2105	5.57,5.57
20	1116	1131	1123	1131	1116	1139	1123	1139	15- 20	1786	3891	10.3,10.3
25	1247	1251	1254	1251	1247	1260	1254	1260	20- 25	2498	6389	16.9,16.9
30	1401	1385	1384	1385	1401	1387	1384	1387	25- 30	3355	9744	25.8,25.8
35	1523	1484	1469	1484	1523	1479	1469	1479	30- 35	4274	14018	37.1,37.1
40	1515	1492	1450	1492	1515	1489	1450	1489	35- 40	5009	19027	50.3,50.3
45	1314	1300	1285	1300	1314	1304	1285	1304	40- 45	5194	24221	64.1,64.1
50	988.1	993.2	994.9	993.2	988.1	992.3	994.9	992.3	45- 50	4634	28855	76.3,76.3
55	683.5	691.2	699.3	691.2	683.5	680.6	699.3	680.6	50- 55	3624	32479	85.9,85.9
60	391.0	411.0	403.6	411.0	391.0	412.9	403.6	412.9	55- 60	2516	34996	92.6,92.6
65	157.0	204.6	240.0	204.6	157.0	208.4	240.0	208.4	60- 65	1410	36406	96.3,96.3
70	72.55	86.60	76.36	86.60	72.55	87.87	76.36	87.87	65- 70	675.2	37081	98.1,98.1
75	43.45	48.78	57.48	48.78	43.45	48.78	57.48	48.78	70- 75	332.9	37414	99.99
80	24.70	31.22	38.61	31.22	24.70	31.17	38.61	31.17	75- 80	216.1	37630	99.5,99.5
85	9.243	15.99	19.74	15.99	9.243	16.01	19.74	16.01	80- 85	127.0	37757	99.9,99.9
90	0.6534	0.9485	0.8663	0.9485	0.6534	1.017	0.8663	1.017	85- 90	44.20	37801	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): 24221 lm

%lum = 64.1%

%lamp = 64.1%

Conical surface Flux(120deg): 34996 lm

%lum = 92.6%

%lamp = 92.6%

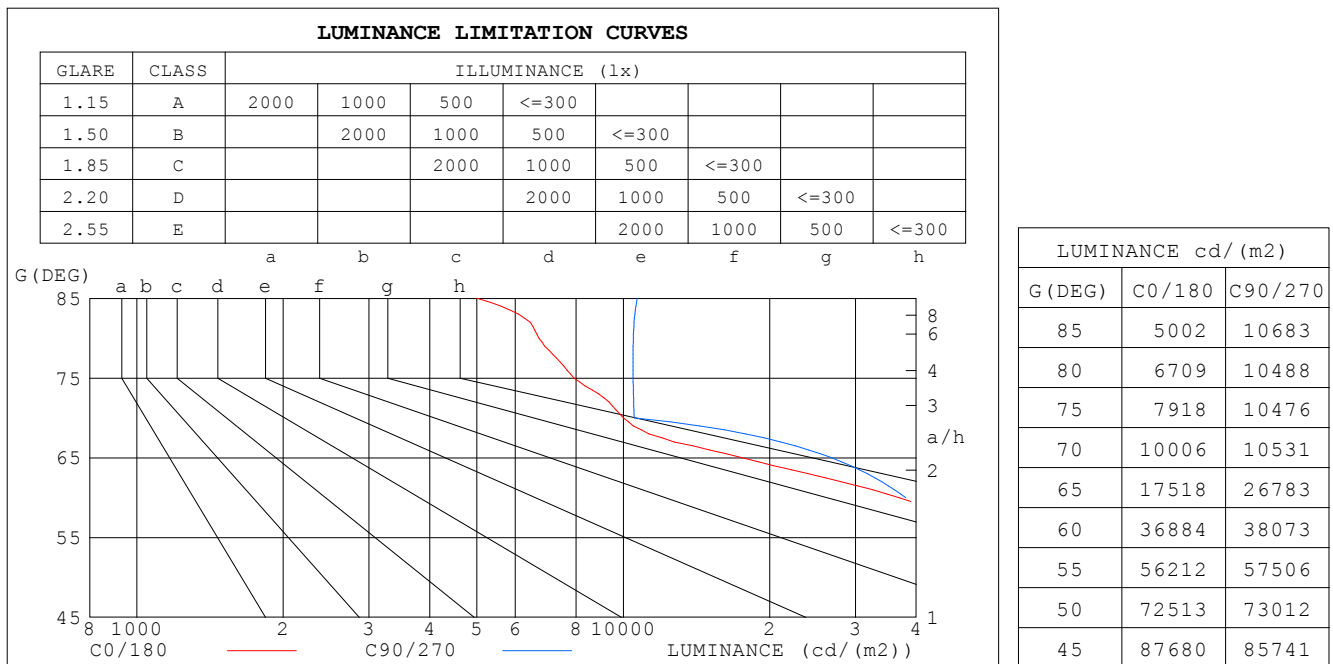
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-11-03

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: 2017-11-03

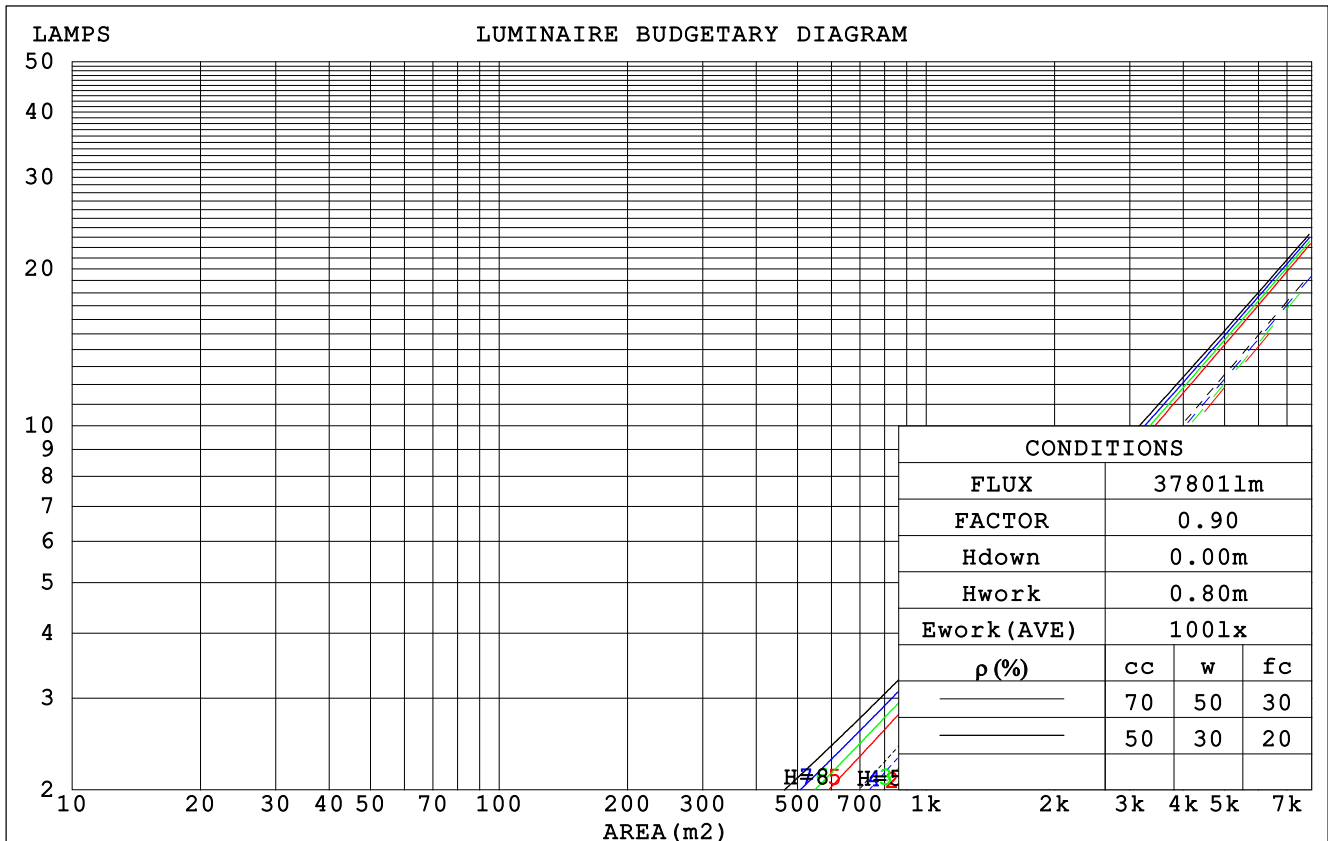
Checker: LI

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	.87	.83	.89	.85	.81	.86	.82	.79	.83	.80	.77	.75
3.0	.84	.77	.71	.82	.76	.70	.80	.74	.69	.77	.72	.68	.74	.70	.67	.65
4.0	.75	.67	.60	.73	.66	.60	.71	.64	.59	.69	.63	.58	.67	.62	.58	.56
5.0	.67	.58	.52	.66	.58	.52	.64	.57	.51	.62	.55	.51	.60	.54	.50	.48
6.0	.60	.51	.45	.59	.51	.45	.57	.50	.45	.56	.49	.44	.54	.48	.44	.42
7.0	.54	.46	.40	.53	.45	.39	.52	.44	.39	.50	.44	.39	.49	.43	.39	.37
8.0	.49	.41	.35	.48	.40	.35	.47	.40	.35	.46	.39	.34	.45	.39	.34	.32
9.0	.45	.36	.31	.44	.36	.31	.43	.36	.31	.42	.35	.31	.41	.35	.30	.29
10.0	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.27	.37	.32	.27	.26



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-11-03

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	.142	.045	.237	.136	.043	.225	.130	.042	.214	.124	.040		
2.0	.252	.138	.042	.246	.135	.042	.234	.130	.040	.224	.126	.039	.214	.121	.038		
3.0	.241	.128	.038	.235	.126	.038	.225	.122	.037	.216	.118	.036	.208	.115	.036		
4.0	.228	.118	.035	.223	.117	.035	.214	.114	.034	.206	.111	.033	.198	.108	.033		
5.0	.215	.110	.032	.211	.108	.032	.203	.106	.031	.196	.103	.031	.189	.101	.030		
6.0	.203	.102	.029	.199	.101	.029	.192	.098	.029	.185	.096	.028	.179	.094	.028		
7.0	.191	.094	.027	.188	.094	.027	.181	.092	.026	.175	.090	.026	.170	.088	.026		
8.0	.180	.088	.025	.177	.087	.025	.172	.086	.024	.166	.084	.024	.161	.083	.024		
9.0	.170	.082	.023	.168	.082	.023	.162	.080	.023	.158	.079	.023	.153	.078	.022		
10.0	.161	.077	.021	.159	.077	.021	.154	.075	.021	.150	.074	.021	.146	.073	.021		

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	.059	.054	.048	.019	.017	.016	
2.0	.167	.132	.103	.143	.114	.089	.098	.079	.062	.056	.046	.036	.018	.015	.012	
3.0	.159	.114	.078	.136	.098	.068	.093	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.152	.101	.061	.130	.087	.053	.089	.061	.038	.052	.035	.022	.017	.012	.007	
5.0	.145	.090	.049	.124	.078	.043	.086	.054	.030	.050	.032	.018	.016	.010	.006	
6.0	.139	.082	.041	.119	.071	.035	.082	.049	.025	.048	.029	.015	.015	.010	.005	
7.0	.132	.075	.034	.114	.065	.030	.079	.045	.021	.046	.027	.013	.015	.009	.004	
8.0	.127	.069	.029	.109	.060	.026	.075	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.121	.064	.026	.104	.056	.022	.072	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.069	.037	.014	.040	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-11-03

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	26.9	28.3	27.2	28.5	28.7	27.0	28.4	27.3	28.6	28.8
3H	26.8	28.1	27.1	28.4	28.6	27.1	28.4	27.4	28.6	28.8
4H	26.8	28.0	27.1	28.2	28.5	27.0	28.2	27.3	28.5	28.7
6H	26.7	27.8	27.0	28.1	28.4	27.0	28.1	27.3	28.4	28.7
8H	26.7	27.8	27.0	28.0	28.3	26.9	28.1	27.3	28.3	28.6
12H	26.6	27.7	27.0	28.0	28.3	26.9	28.0	27.3	28.3	28.6
4H 2H	26.9	28.2	27.2	28.4	28.7	27.0	28.3	27.3	28.5	28.8
3H	26.9	27.9	27.2	28.2	28.5	27.1	28.2	27.5	28.5	28.8
4H	26.9	27.8	27.2	28.1	28.5	27.1	28.1	27.5	28.4	28.7
6H	26.8	27.7	27.2	28.0	28.4	27.1	27.9	27.5	28.3	28.6
8H	26.8	27.6	27.2	27.9	28.3	27.1	27.9	27.5	28.2	28.6
12H	26.8	27.5	27.2	27.9	28.3	27.1	27.8	27.5	28.2	28.6
8H 4H	26.8	27.5	27.2	27.9	28.3	27.0	27.8	27.4	28.1	28.5
6H	26.8	27.4	27.2	27.8	28.2	27.0	27.7	27.5	28.1	28.5
8H	26.8	27.3	27.2	27.7	28.2	27.1	27.6	27.5	28.0	28.5
12H	26.8	27.2	27.2	27.7	28.1	27.1	27.6	27.6	28.0	28.5
12H 4H	26.7	27.4	27.2	27.8	28.2	27.0	27.7	27.4	28.1	28.5
6H	26.7	27.3	27.2	27.7	28.2	27.0	27.6	27.5	28.0	28.4
8H	26.7	27.2	27.2	27.7	28.1	27.0	27.5	27.5	28.0	28.4
Variations with the observer position at spacings:										
S = 1.0H	+ 1.0 / - 1.3					+ 1.0 / - 1.0				
1.5H	+ 0.7 / - 0.7					+ 0.6 / - 0.7				
2.0H	+ 2.2 / - 4.0					+ 2.1 / - 3.6				

CIE Pub.117 Corrected 37802 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:2017-11-03

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) $k(RI) \times RCR = 5$									
$k = 0.60$	60	48	42	59	48	41	58	48	41	35
0.80	71	60	53	70	60	53	68	59	53	46
1.00	81	71	64	79	70	64	77	71	63	57
1.25	88	79	73	87	78	72	84	77	71	65
1.50	93	84	78	91	83	78	88	82	77	70
2.00	99	92	87	98	91	86	94	89	84	77
2.50	102	96	91	101	95	90	97	92	88	81
3.00	105	100	95	103	98	94	99	95	92	84
4.00	109	104	100	106	102	98	102	99	96	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		

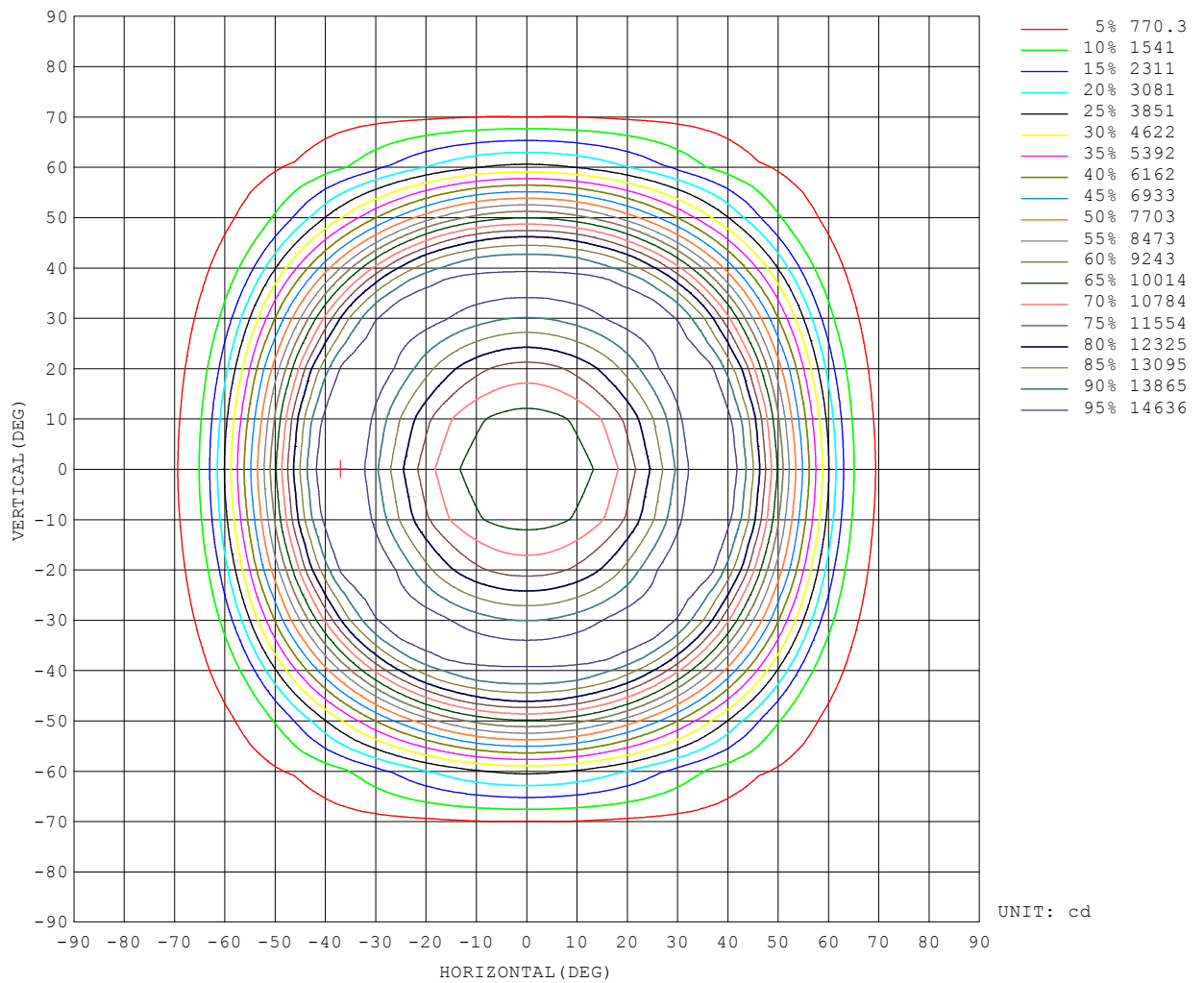
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-11-03

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



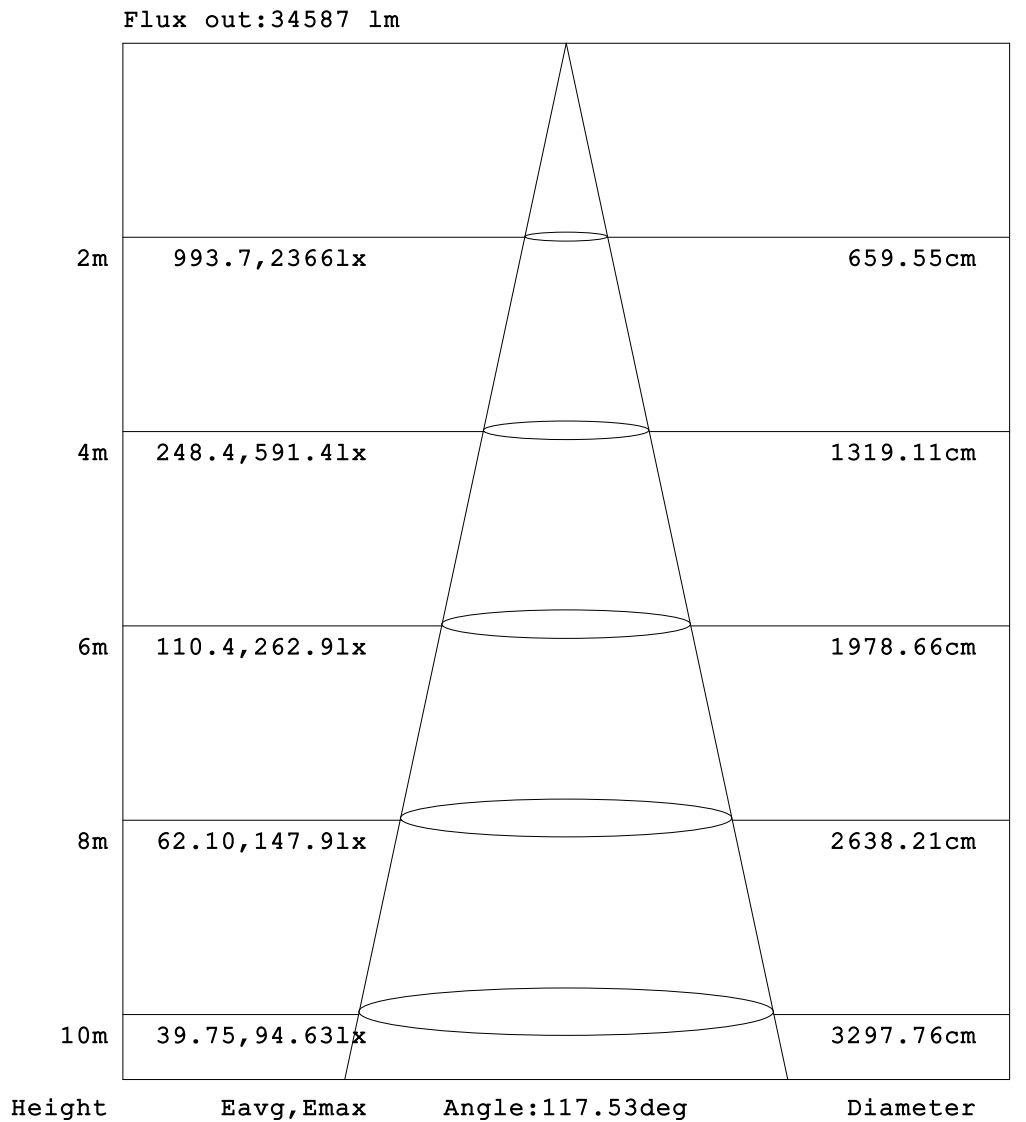
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-11-03

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:

AAI Figure



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

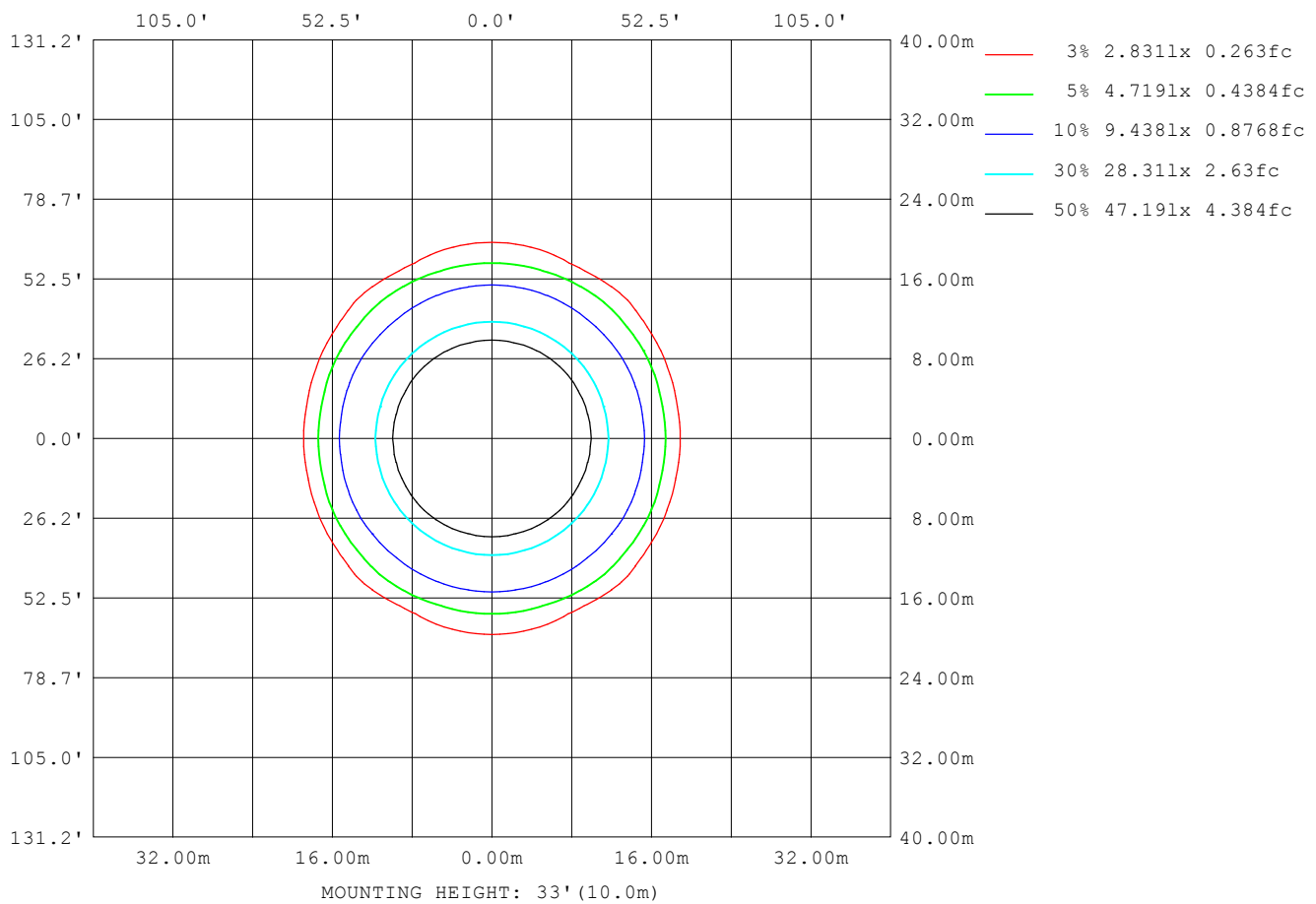
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-11-03

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



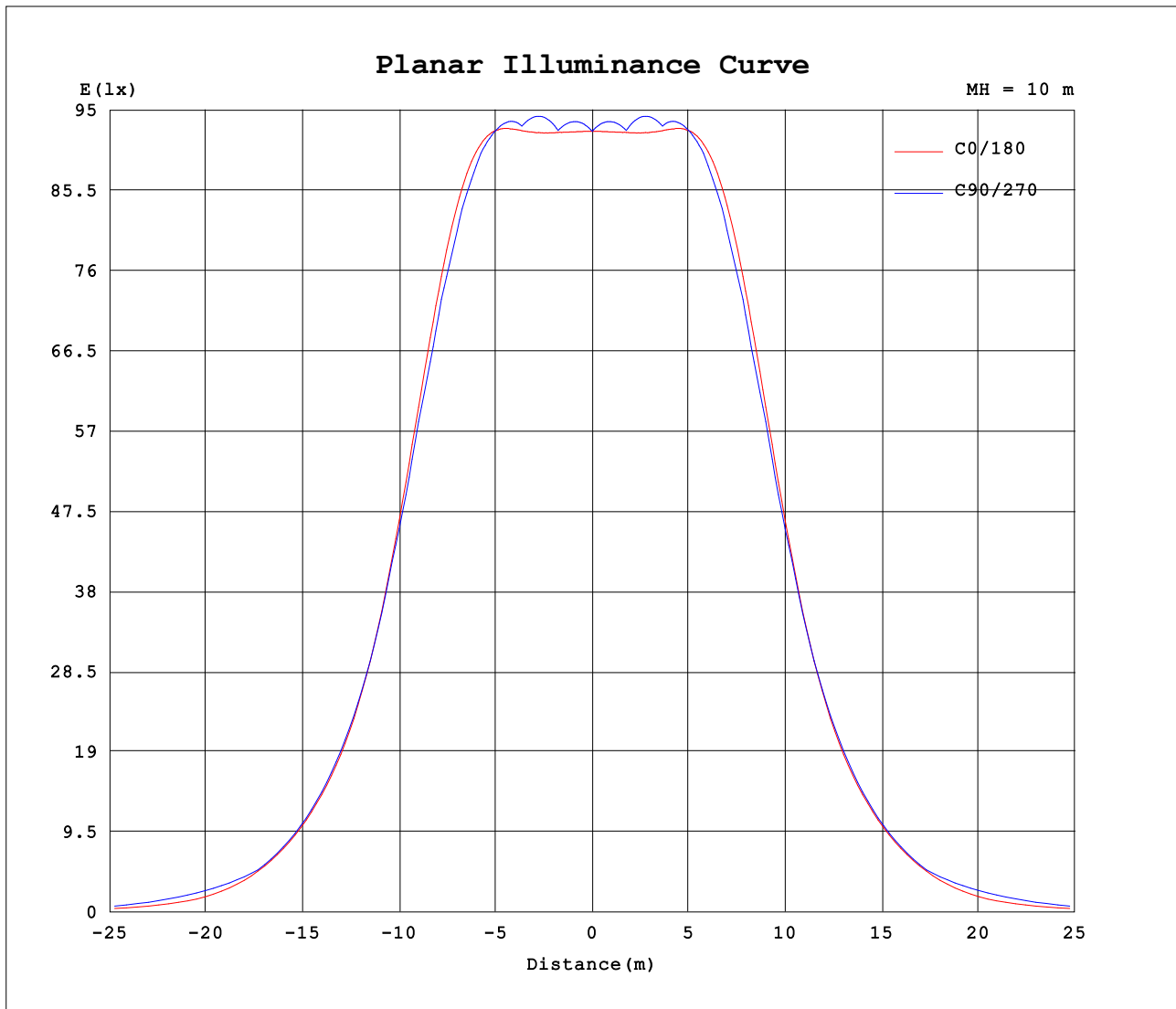
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-11-03

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: 2017-11-03

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:

