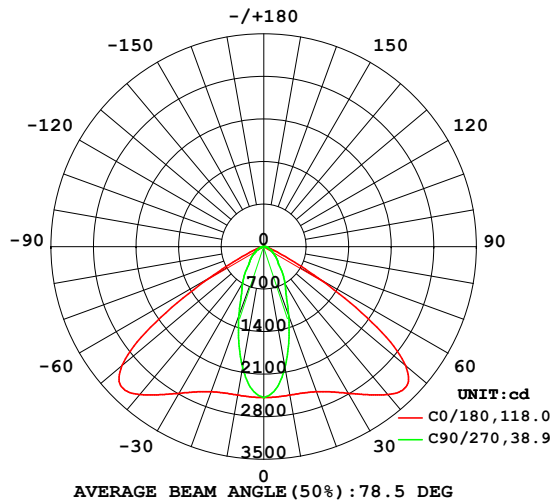


LUMINAIRE PHOTOMETRIC TEST REPORT

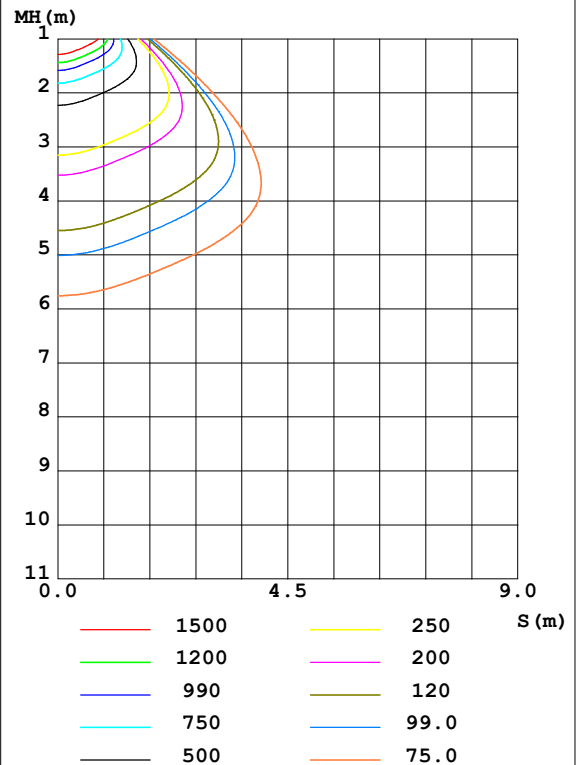
Test:U:230.0V I:0.1376A P:30.21W PF:0.9546 Lamp Flux:4165.03x1 lm		
NAME: LHB01-30H	TYPE:30W	WEIGHT:
SPEC.:5000K Ra80 L06404	DIM.: 0.28*0.137*0.102	SERIAL No.:
MFR.:	SUR.:0.25*0.1	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 137.88 lm/W			
MODEL	LHB01-30H	I _{max} (cd)	3289	S/MH (C0/180)	1.84
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH (C90/270)	0.62
RATED VOLTAGE(V)	230	TOTAL FLUX (lm)	4165.0	η UP,DN (C0-180)	0.0,50.3
NOMINAL FLUX(lm)	4165.03	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	0.75

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:

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	2482	2403	2346	2403	2482	2404	2346	2404	0- 5	58.32	58.32	1.4,1.4
10	2480	2226	2020	2226	2480	2228	2020	2228	5- 10	166.0	224.3	5.38,5.38
15	2494	1963	1604	1963	2494	1964	1604	1964	10- 15	250.8	475.1	11.4,11.4
20	2541	1669	1201	1669	2541	1664	1201	1664	15- 20	309.7	784.8	18.8,18.8
25	2637	1376	879.4	1376	2637	1362	879.4	1362	20- 25	347.4	1132	27.2,27.2
30	2787	1104	703.2	1104	2787	1083	703.2	1083	25- 30	374.8	1507	36.2,36.2
35	2973	888.4	543.5	888.4	2973	866.9	543.5	866.9	30- 35	400.7	1908	45.8,45.8
40	3176	752.5	383.9	752.5	3176	732.9	383.9	732.9	35- 40	421.1	2329	55.9,55.9
45	3289	593.8	320.3	593.8	3289	579.5	320.3	579.5	40- 45	434.4	2763	66.3,66.3
50	3044	406.2	256.7	406.2	3044	401.3	256.7	401.3	45- 50	430.7	3194	76.7,76.7
55	2178	330.5	195.6	330.5	2178	327.4	195.6	327.4	50- 55	377.1	3571	85.7,85.7
60	1038	243.7	154.5	243.7	1038	242.5	154.5	242.5	55- 60	260.4	3831	92,92
65	395.7	160.9	116.0	160.9	395.7	160.7	116.0	160.7	60- 65	147.0	3978	95.5,95.5
70	159.6	114.4	77.46	114.4	159.6	114.0	77.46	114.0	65- 70	83.31	4062	97.5,97.5
75	75.92	67.62	58.41	67.62	75.92	66.59	58.41	66.59	70- 75	49.69	4111	98.7,98.7
80	42.66	43.52	39.36	43.52	42.66	42.60	39.36	42.60	75- 80	30.47	4142	99.4,99.4
85	3.773	22.44	20.31	22.44	3.773	21.96	20.31	21.96	80- 85	17.20	4159	99.9,99.9
90	1.420	1.439	1.263	1.439	1.420	1.517	1.263	1.517	85- 90	5.939	4165	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): 2763.3 lm

%lum = 66.3%

%lamp = 66.3%

Conical surface Flux(120deg): 3831.5 lm

%lum = 92.0%

%lamp = 92.0%

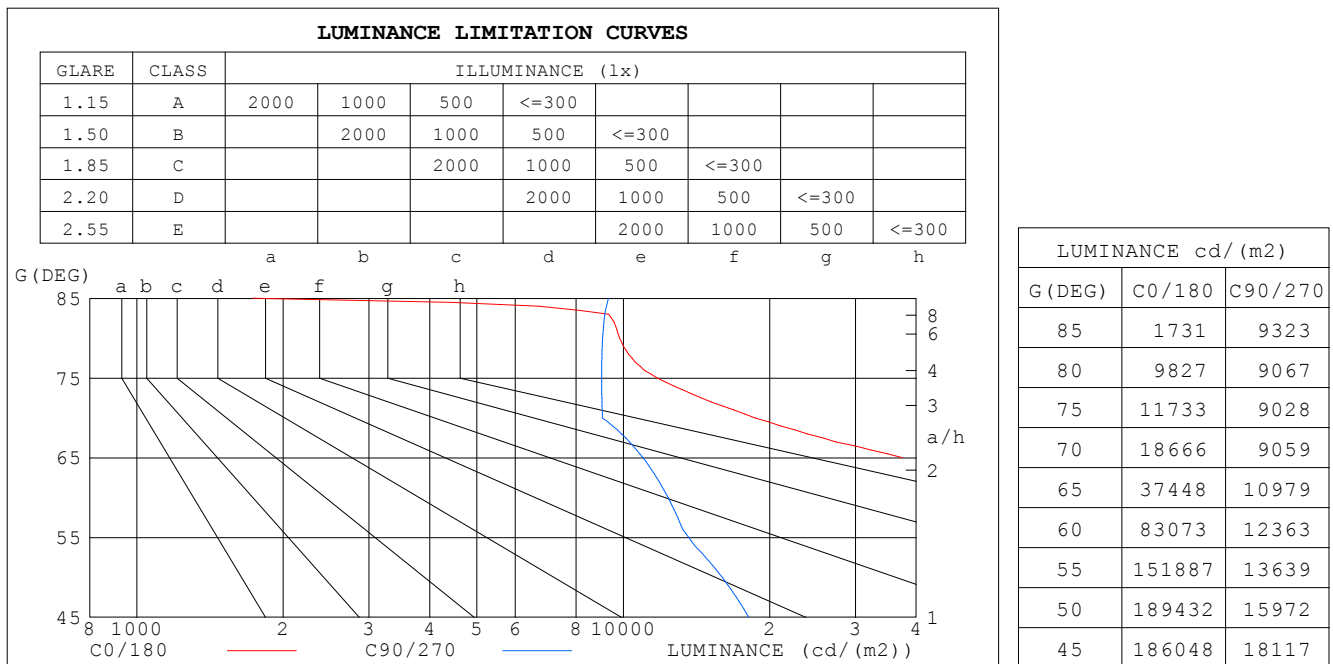
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-09-26

Checker:

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

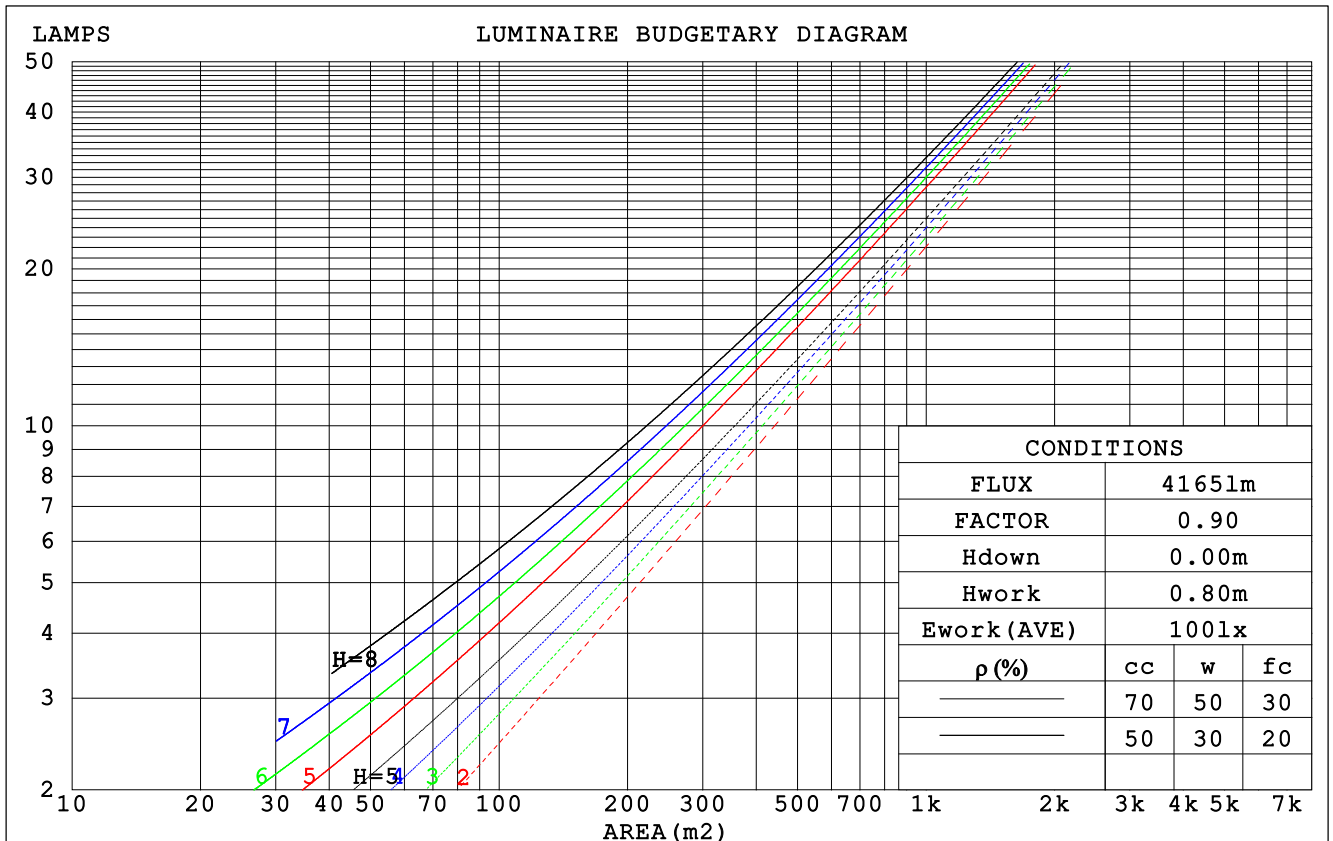
Checker:

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	1.00
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	.90	.86	.82	.87	.84	.80	.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	.69	.64	.76	.69	.63	.73	.67	.62	.71	.66	.61	.69	.65	.61	.59
5.0	.70	.62	.56	.69	.61	.55	.67	.60	.55	.65	.59	.54	.63	.58	.54	.52
6.0	.63	.55	.49	.62	.55	.49	.61	.54	.49	.59	.53	.48	.58	.52	.48	.46
7.0	.58	.50	.44	.57	.50	.44	.56	.49	.44	.54	.48	.44	.53	.47	.43	.41
8.0	.53	.45	.40	.52	.45	.40	.51	.44	.40	.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	.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: 2017-09-26

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:

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	.138	.044	.228	.131	.042	.217	.125	.040	.206	.119	.038	
2.0	.241	.132	.041	.235	.130	.040	.224	.125	.039	.214	.120	.038	.204	.115	.036	
3.0	.229	.122	.037	.224	.120	.036	.214	.116	.035	.205	.112	.034	.197	.109	.034	
4.0	.216	.112	.033	.212	.111	.033	.203	.108	.032	.195	.105	.032	.187	.102	.031	
5.0	.204	.104	.030	.200	.102	.030	.192	.100	.029	.185	.097	.029	.178	.095	.029	
6.0	.192	.096	.027	.188	.095	.027	.181	.093	.027	.175	.091	.027	.169	.089	.026	
7.0	.180	.089	.025	.177	.088	.025	.171	.086	.025	.165	.085	.025	.160	.083	.024	
8.0	.170	.083	.023	.167	.082	.023	.162	.081	.023	.156	.079	.023	.152	.078	.023	
9.0	.161	.078	.022	.158	.077	.022	.153	.076	.021	.148	.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	.048	.032	.019	.016	.010	.006		
6.0	.135	.081	.042	.116	.070	.037	.080	.049	.026	.046	.029	.015	.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	.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:

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	30.6	31.9	30.9	32.1	32.3	18.9	20.3	19.2	20.5	20.7
3H	30.6	31.8	30.9	32.1	32.3	19.6	20.8	19.9	21.0	21.3
4H	30.5	31.7	30.8	32.0	32.2	19.9	21.0	20.2	21.3	21.5
6H	30.5	31.6	30.8	31.8	32.1	20.1	21.2	20.4	21.5	21.7
8H	30.4	31.5	30.8	31.8	32.0	20.2	21.3	20.6	21.6	21.8
12H	30.4	31.4	30.7	31.7	32.0	20.3	21.3	20.7	21.6	21.9
4H 2H	30.3	31.5	30.6	31.7	32.0	20.2	21.3	20.5	21.6	21.8
3H	30.4	31.4	30.7	31.7	32.0	20.8	21.8	21.2	22.1	22.4
4H	30.4	31.3	30.7	31.6	31.9	21.1	22.1	21.5	22.4	22.7
6H	30.3	31.1	30.7	31.5	31.8	21.5	22.3	21.9	22.6	23.0
8H	30.3	31.0	30.7	31.4	31.8	21.6	22.4	22.0	22.7	23.1
12H	30.3	30.9	30.7	31.3	31.7	21.7	22.4	22.2	22.8	23.2
8H 4H	30.3	31.0	30.7	31.4	31.7	21.4	22.1	21.8	22.5	22.9
6H	30.2	30.8	30.7	31.2	31.7	21.8	22.4	22.3	22.8	23.3
8H	30.2	30.8	30.7	31.2	31.6	22.1	22.6	22.5	23.0	23.5
12H	30.2	30.7	30.7	31.1	31.6	22.2	22.7	22.7	23.1	23.6
12H 4H	30.2	30.9	30.6	31.3	31.7	21.4	22.1	21.8	22.4	22.8
6H	30.2	30.7	30.7	31.2	31.6	21.9	22.4	22.3	22.8	23.3
8H	30.2	30.6	30.7	31.1	31.6	22.1	22.6	22.6	23.0	23.5
Variations with the observer position at spacings:										
S = 1.0H	+ 0.8 / - 1.5					+ 0.7 / - 0.9				
1.5H	+ 3.3 / - 5.8					+ 0.5 / - 0.7				
2.0H	+ 4.4 / - 7.6					+ 0.7 / - 0.8				

CIE Pub.117 Corrected 4165 lm Total Lamp Luminous Flux.(8log(F/F0) = 5.0)

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:

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	63	52	46	61	52	46	40
0.80	74	64	57	73	63	57	71	62	57	50
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	84	79	72
2.00	100	93	88	98	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	108	105	102	104	101	99	90
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

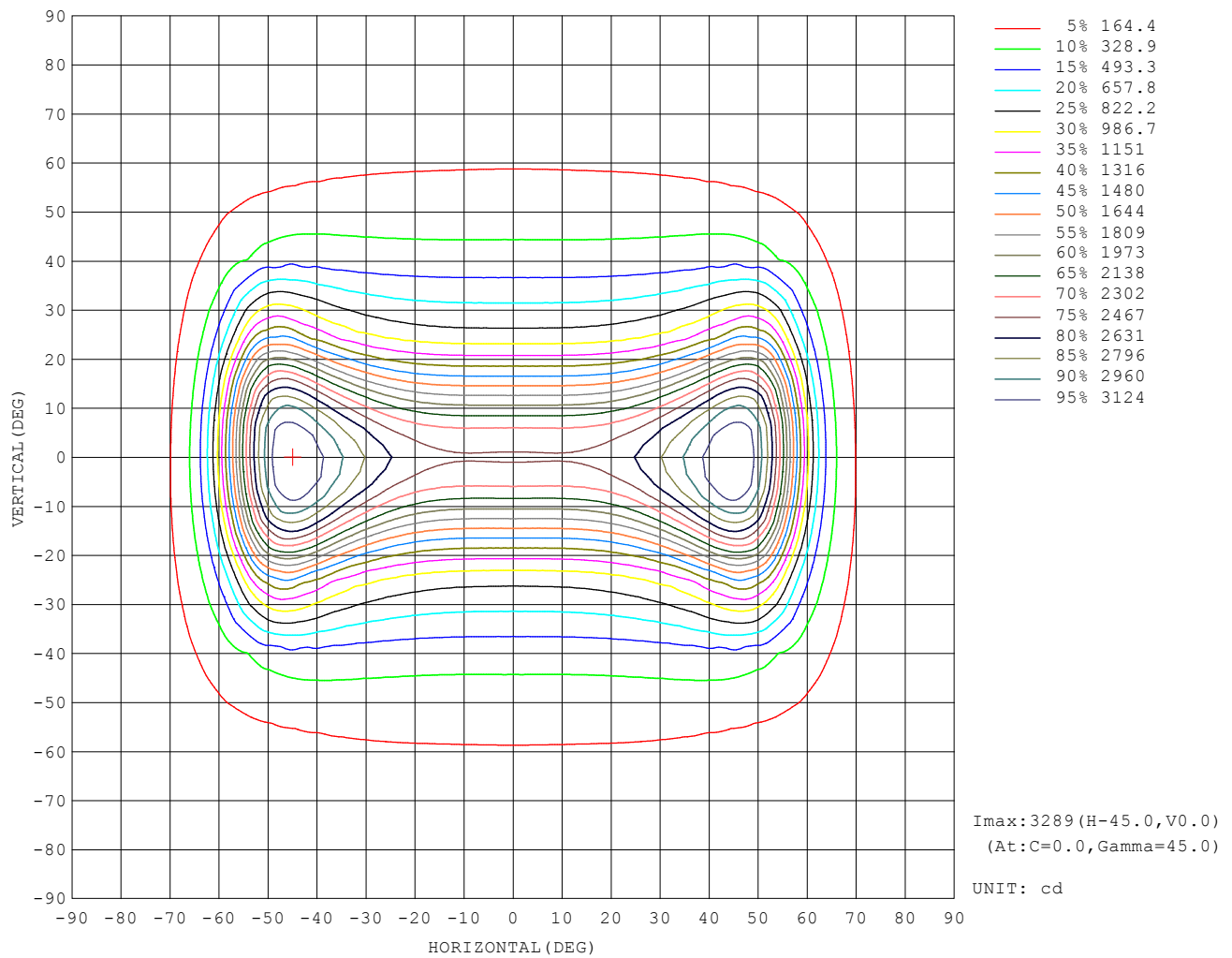
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-09-26

Checker:

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



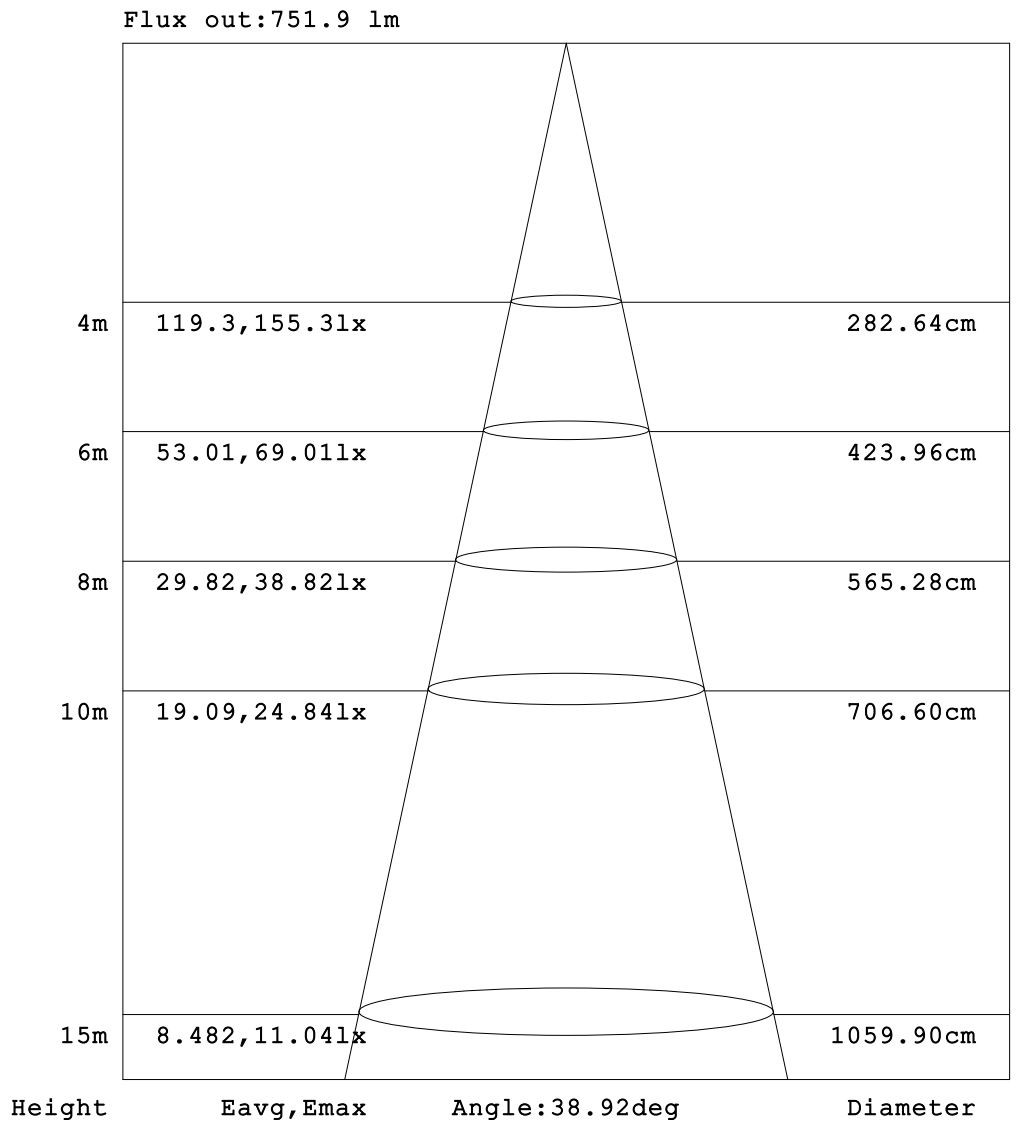
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-09-26

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:

Assessor:

AAI Figure



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

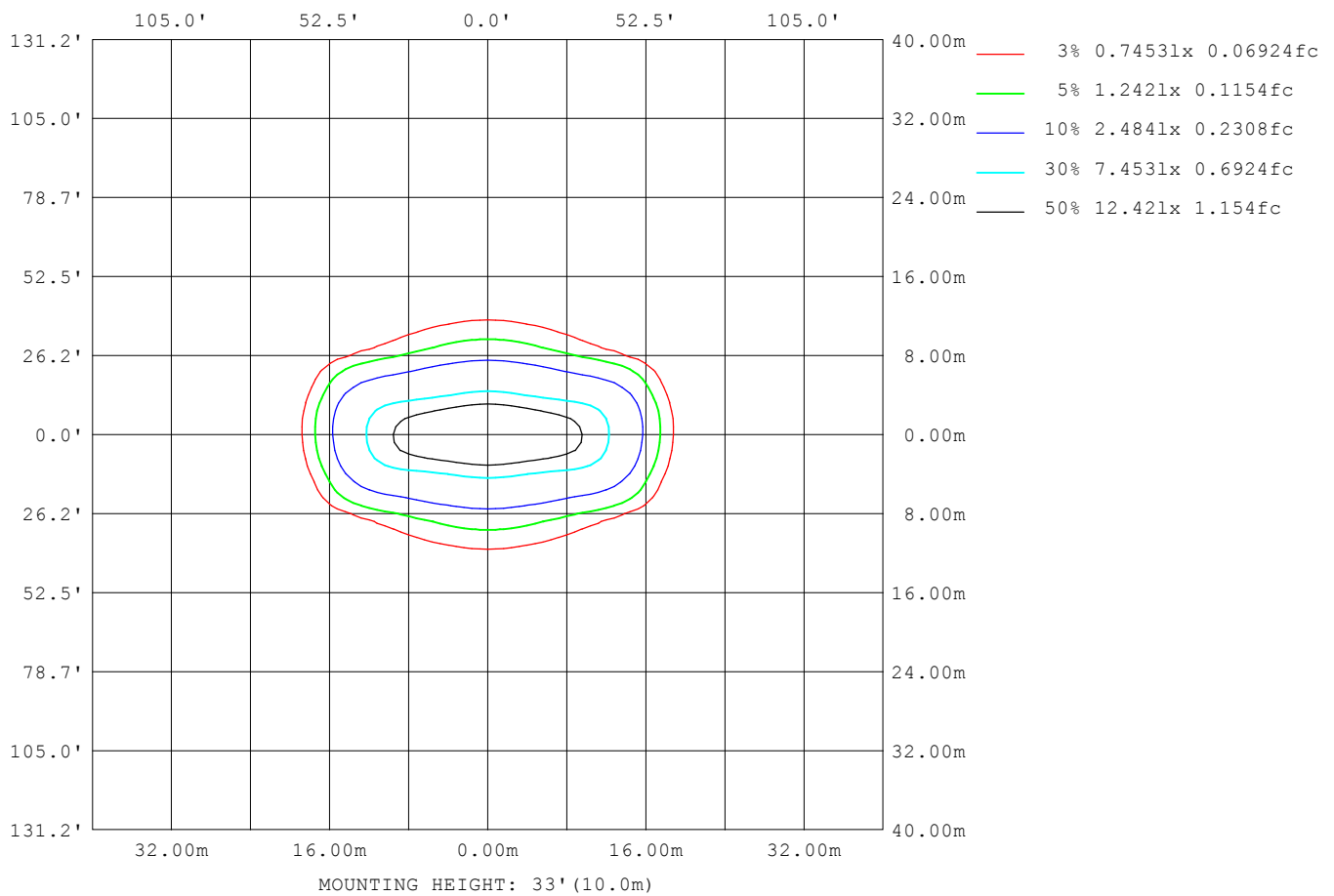
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-09-26

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:

Assessor:

ISOLUX DIAGRAM



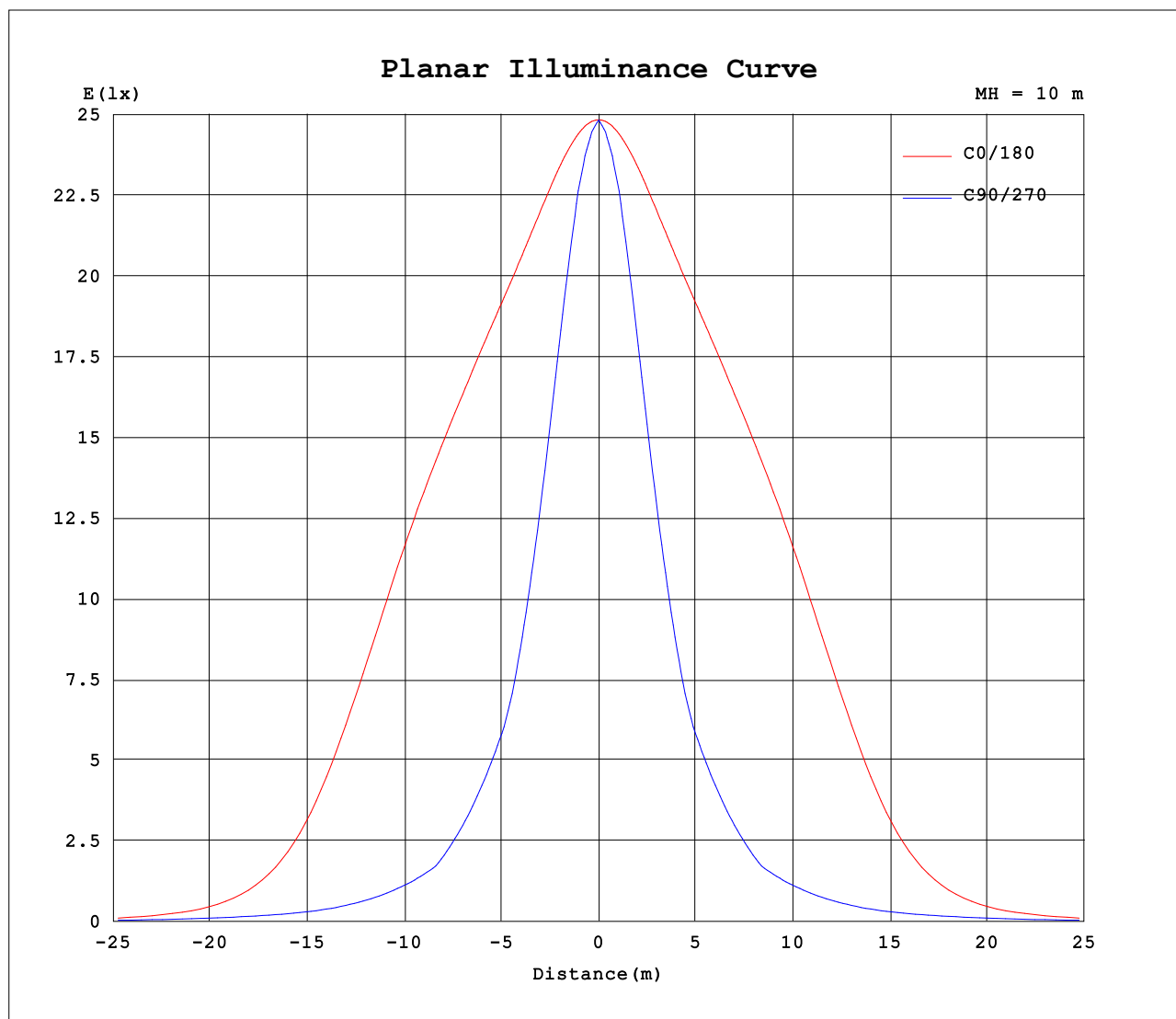
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-09-26

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:

Assessor:

Planar Illuminance Curve



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:

Assessor:

Assessor:

Assessor:

Assessor:

Assessor: