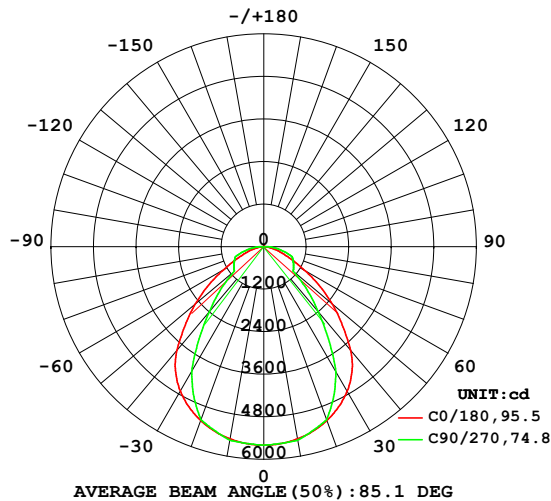


LUMINAIRE PHOTOMETRIC TEST REPORT

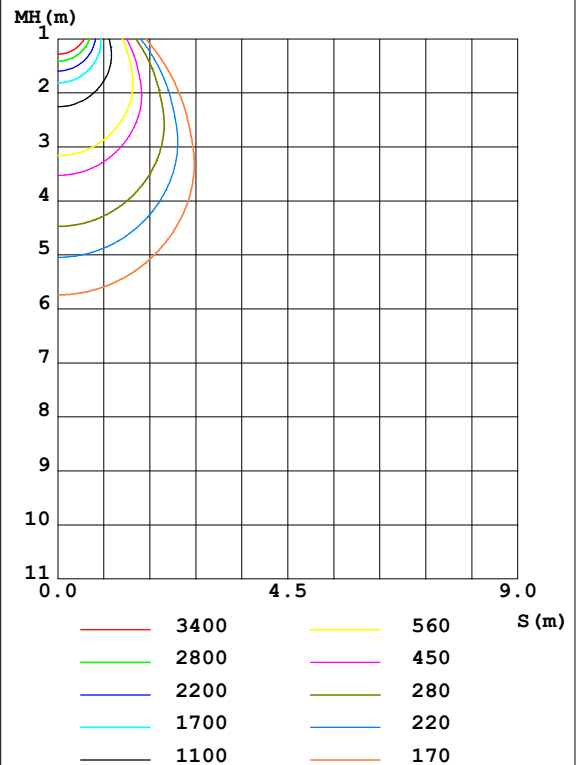
Test:U:220.1V I:0.4290A P:91.63W PF:0.9704 Lamp Flux:11281.8x1 lm					
NAME: LHB03-090			TYPE:90W		WEIGHT:
SPEC.:5000K Ra70 80100DEG L00303			DIM.: 0.34*0.3*0.065		SERIAL No.:
MFR.:			SUR.:0.28*0.27		Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 123.12 lm/W			
MODEL	LHB03-090	I _{max} (cd)	5600	S/MH (C0/180)	1.25
NOMINAL POWER(W)	90	LOR(%)	100.0	S/MH (C90/270)	1.09
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	11282	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	11281.8	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	220	η down (%)	100.0	CIBSE SHR MAX	1.30

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:2017-01-09

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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
5	5576	5567	5571	5567	5576	5568	5571	5568	0- 5	133.5	133.5	1.18,1.18
10	5506	5510	5542	5510	5506	5510	5542	5510	5- 10	396.4	529.9	4.7,4.7
15	5388	5408	5369	5408	5388	5408	5369	5408	10- 15	646.8	1177	10.4,10.4
20	5218	5193	5196	5193	5218	5193	5196	5193	15- 20	872.3	2049	18.2,18.2
25	4994	4945	4672	4945	4994	4944	4672	4944	20- 25	1059	3108	27.5,27.5
30	4709	4533	4075	4533	4709	4529	4075	4529	25- 30	1181	4289	38,38
35	4338	3976	3180	3976	4338	3965	3180	3965	30- 35	1227	5516	48.9,48.9
40	3815	3349	2384	3349	3815	3336	2384	3336	35- 40	1180	6696	59.4,59.4
45	3135	2600	1736	2600	3135	2593	1736	2593	40- 45	1055	7751	68.7,68.7
50	2526	1928	1088	1928	2526	1925	1088	1925	45- 50	878.7	8630	76.5,76.5
55	1907	1356	1030	1356	1907	1358	1030	1358	50- 55	696.6	9326	82.7,82.7
60	1319	904.0	972.5	904.0	1319	903.5	972.5	903.5	55- 60	559.7	9886	87.6,87.6
65	872.2	720.7	914.7	720.7	872.2	719.6	914.7	719.6	60- 65	447.7	10334	91.6,91.6
70	563.0	531.6	856.9	531.6	563.0	530.5	856.9	530.5	65- 70	356.3	10690	94.8,94.8
75	346.4	341.5	648.0	341.5	346.4	340.9	648.0	340.9	70- 75	268.8	10959	97.1,97.1
80	183.9	222.3	439.0	222.3	183.9	222.0	439.0	222.0	75- 80	181.1	11140	98.7,98.7
85	36.60	116.7	230.1	116.7	36.60	116.6	230.1	116.6	80- 85	104.2	11244	99.7,99.7
90	3.026	13.53	21.14	13.53	3.026	13.72	21.14	13.72	85- 90	37.52	11282	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): 7751.1 lm

%lum = 68.7%

%lamp = 68.7%

Conical surface Flux(120deg): 9886.1 lm

%lum = 87.6%

%lamp = 87.6%

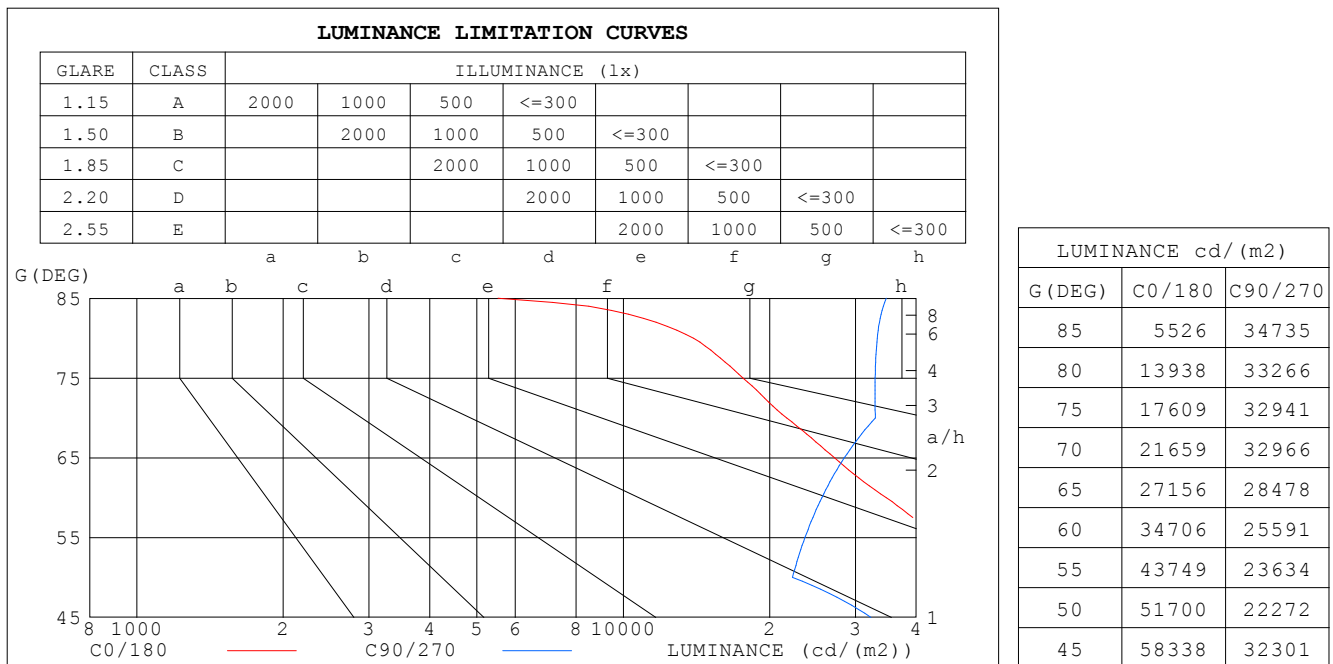
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-01-09

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: 2017-01-09

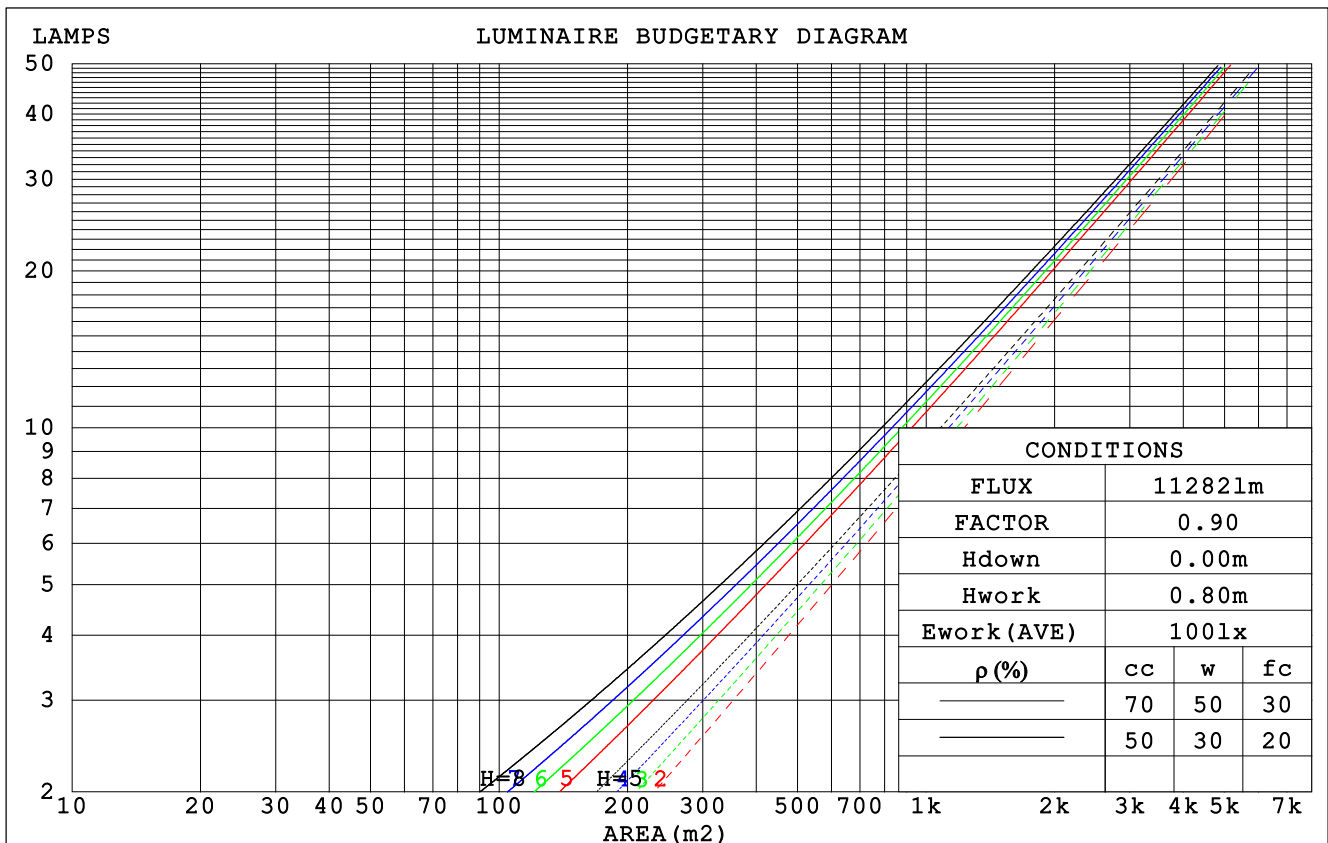
Checker:

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	.00
1.0	1.06	1.03	.99	1.04	1.01	.98	.00	.97	.95	.96	.94	.92	.92	.91	.89	.87
2.0	.95	.89	.84	.93	.87	.83	.89	.85	.81	.86	.83	.79	.83	.80	.77	.75
3.0	.85	.78	.72	.83	.77	.71	.80	.75	.70	.78	.73	.69	.75	.71	.68	.66
4.0	.76	.69	.63	.75	.68	.62	.73	.67	.62	.71	.65	.61	.69	.64	.60	.58
5.0	.69	.61	.55	.68	.61	.55	.66	.60	.55	.64	.59	.54	.63	.57	.53	.51
6.0	.63	.55	.49	.62	.55	.49	.61	.54	.49	.59	.53	.48	.57	.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	.53	.45	.40	.51	.45	.40	.50	.44	.40	.49	.43	.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	.43	.37	.33	.31



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-01-09

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	.264	.150	.048	.257	.146	.047	.244	.140	.045	.232	.134	.043	.221	.128	.041		
2.0	.250	.137	.042	.244	.135	.041	.233	.130	.040	.223	.125	.039	.213	.120	.038		
3.0	.235	.125	.037	.229	.123	.037	.219	.119	.036	.210	.115	.035	.202	.112	.035		
4.0	.219	.114	.033	.215	.112	.033	.206	.109	.033	.198	.106	.032	.190	.103	.031		
5.0	.205	.104	.030	.201	.103	.030	.193	.101	.030	.186	.098	.029	.179	.096	.029		
6.0	.192	.096	.028	.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	.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	.177	.157	.138	.152	.134	.119	.104	.092	.082	.060	.053	.048	.019	.017	.015	
2.0	.167	.132	.103	.143	.114	.089	.098	.079	.062	.056	.046	.036	.018	.015	.012	
3.0	.158	.114	.079	.135	.098	.069	.093	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.149	.100	.063	.128	.087	.055	.088	.060	.038	.051	.035	.023	.016	.012	.007	
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	.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:2017-01-09

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	25.4	26.7	25.6	26.9	27.1	23.0	24.4	23.3	24.6	24.8
3H	25.9	27.2	26.2	27.4	27.6	24.9	26.1	25.2	26.3	26.6
4H	26.1	27.3	26.4	27.5	27.8	25.8	27.0	26.1	27.2	27.5
6H	26.2	27.3	26.5	27.5	27.8	26.6	27.7	26.9	28.0	28.2
8H	26.1	27.2	26.5	27.5	27.8	26.9	28.0	27.3	28.3	28.5
12H	26.1	27.1	26.5	27.4	27.7	27.2	28.2	27.5	28.5	28.8
4H 2H	25.5	26.6	25.8	26.9	27.1	23.5	24.7	23.8	24.9	25.2
3H	26.2	27.2	26.5	27.5	27.8	25.4	26.5	25.8	26.7	27.0
4H	26.4	27.3	26.8	27.7	28.0	26.5	27.4	26.9	27.8	28.1
6H	26.6	27.4	26.9	27.7	28.1	27.5	28.3	27.9	28.6	29.0
8H	26.6	27.3	27.0	27.7	28.1	27.9	28.7	28.3	29.0	29.4
12H	26.5	27.2	27.0	27.6	28.0	28.2	28.9	28.6	29.3	29.7
8H 4H	26.5	27.3	26.9	27.6	28.0	26.6	27.4	27.0	27.7	28.1
6H	26.7	27.4	27.2	27.8	28.2	27.7	28.3	28.1	28.7	29.2
8H	26.8	27.4	27.2	27.8	28.2	28.2	28.8	28.7	29.2	29.7
12H	26.8	27.3	27.3	27.7	28.2	28.7	29.2	29.2	29.6	30.1
12H 4H	26.5	27.2	26.9	27.6	28.0	26.6	27.3	27.0	27.7	28.1
6H	26.8	27.3	27.2	27.8	28.2	27.7	28.3	28.2	28.7	29.1
8H	26.9	27.4	27.3	27.8	28.3	28.3	28.7	28.7	29.2	29.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.5					+ 0.4 / - 0.4				
1.5H	+ 0.4 / - 0.7					+ 0.3 / - 0.4				
2.0H	+ 1.3 / - 1.4					+ 0.3 / - 0.3				

CIE Pub.117 Corrected 11282 lm Total Lamp Luminous Flux.(8log(F/F0) = 8.4)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-01-09

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) $k(RI) \times RCR = 5$									
$k = 0.60$	66	56	50	66	56	50	65	56	50	44
0.80	76	66	60	75	66	60	73	65	59	53
1.00	84	74	68	82	74	68	80	75	67	61
1.25	90	81	75	88	80	75	86	79	74	68
1.50	94	86	80	93	85	80	90	83	79	72
2.00	100	93	87	98	92	87	95	89	85	78
2.50	103	96	91	101	95	91	97	93	89	81
3.00	106	100	95	104	98	94	100	96	92	84
4.00	109	104	100	107	102	99	102	99	96	88
5.00	111	107	103	108	105	102	104	101	99	90
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

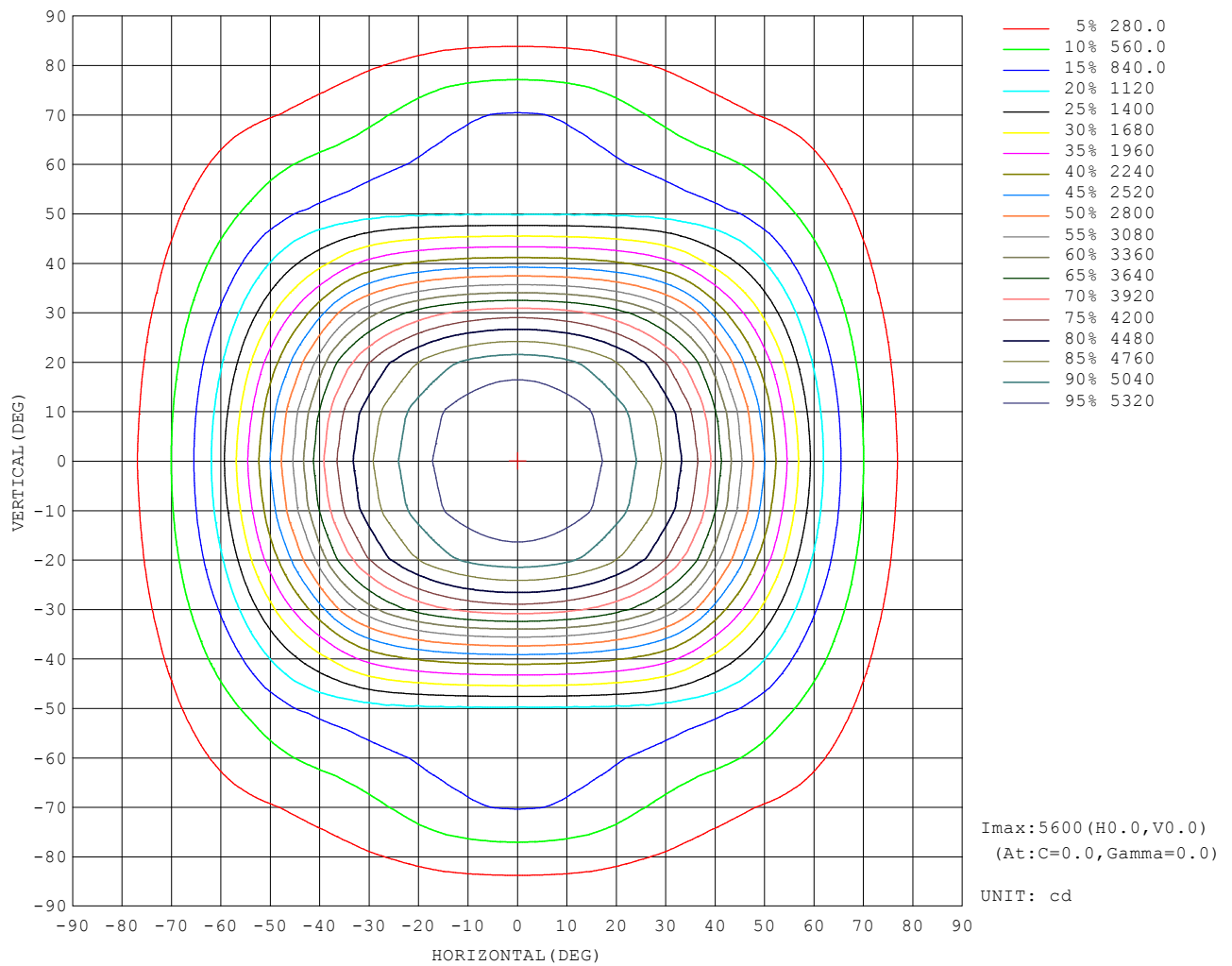
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-01-09

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



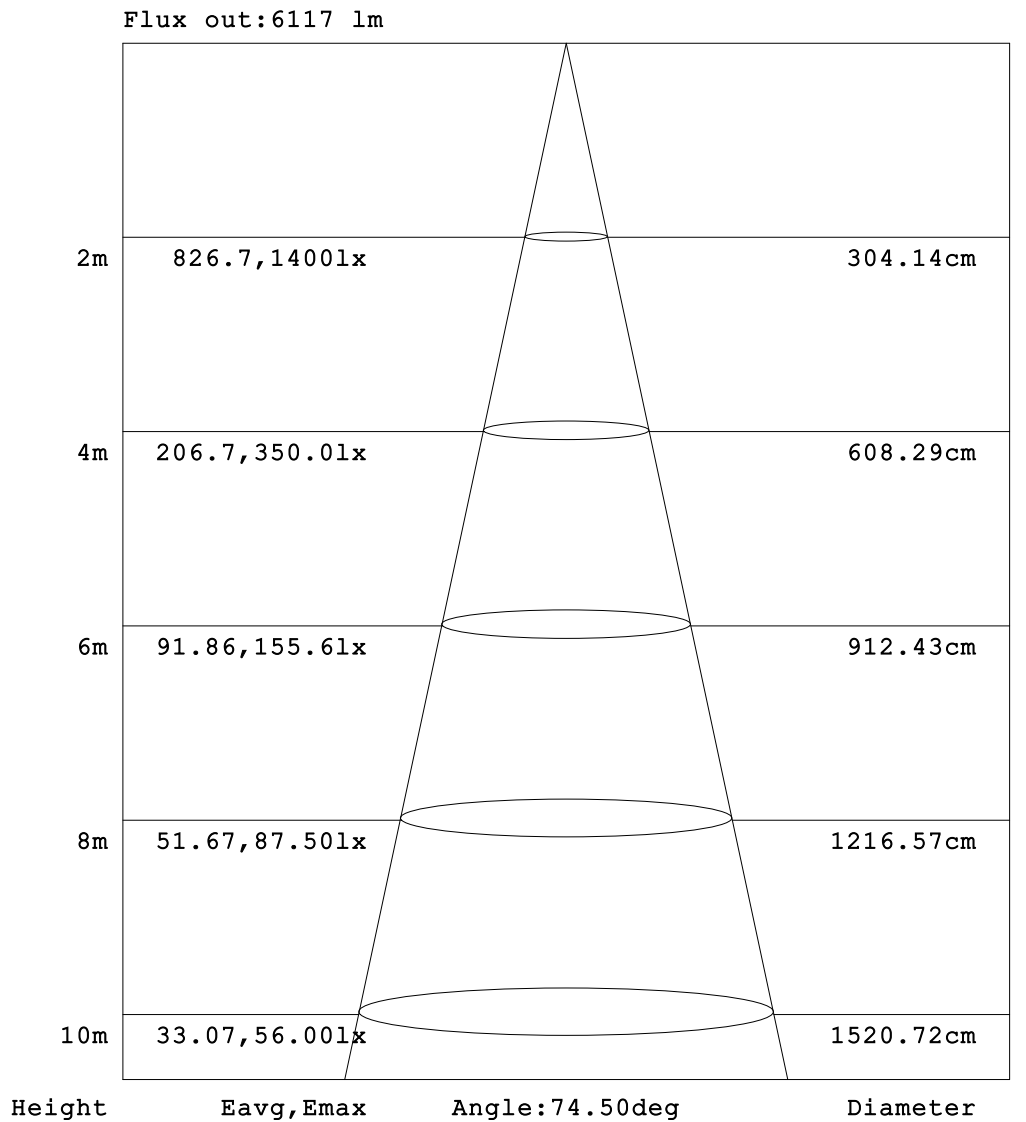
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-01-09

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.

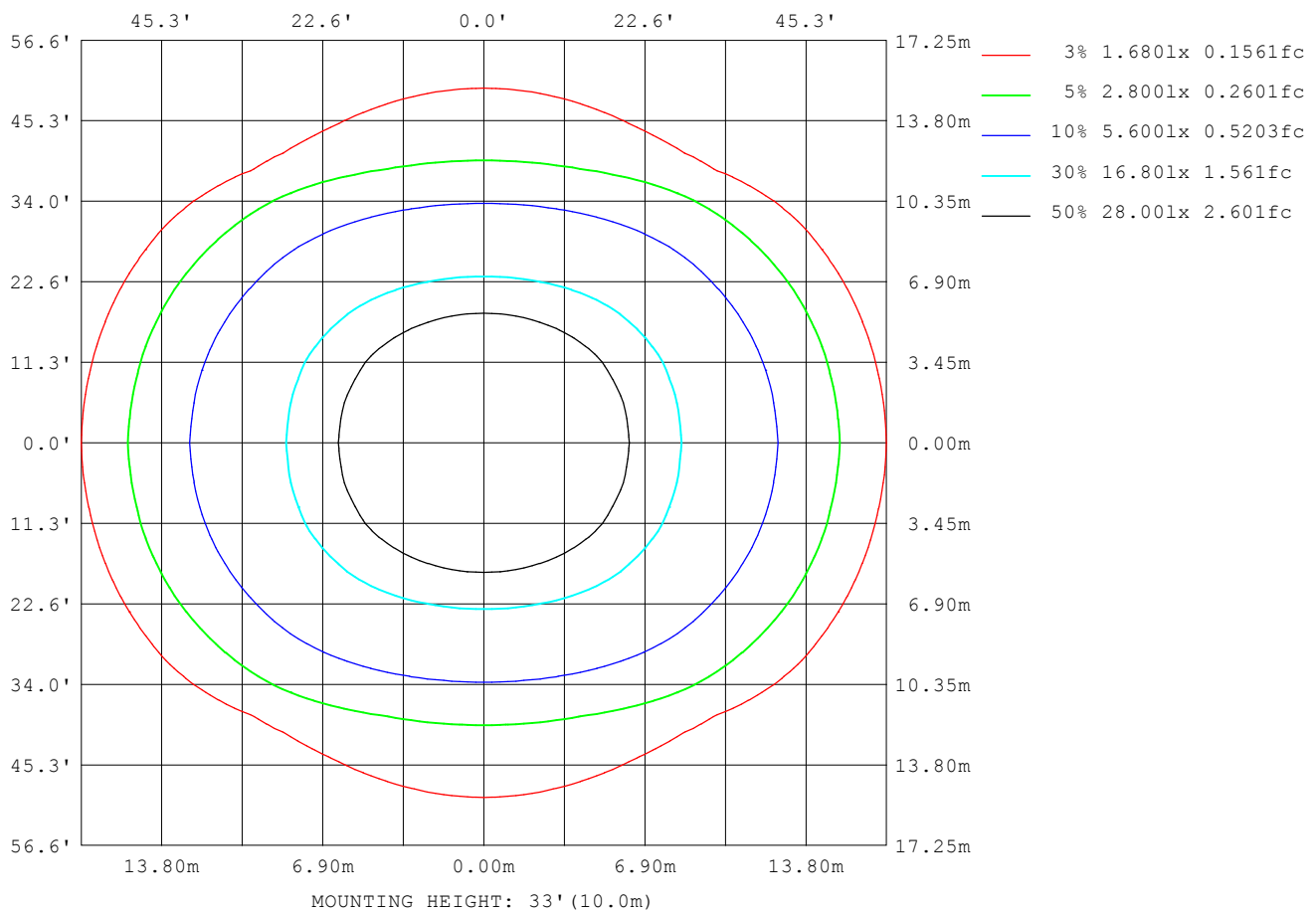
C Range: 0 - 360 DEG
C Interval: 5.0 DEG
Test Speed: HIGH
Temperature: 25.3 DEG
Operators:
Test Date: 2017-01-09

γ Range: 0 - 90 DEG
γ Interval: 0.5 DEG
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



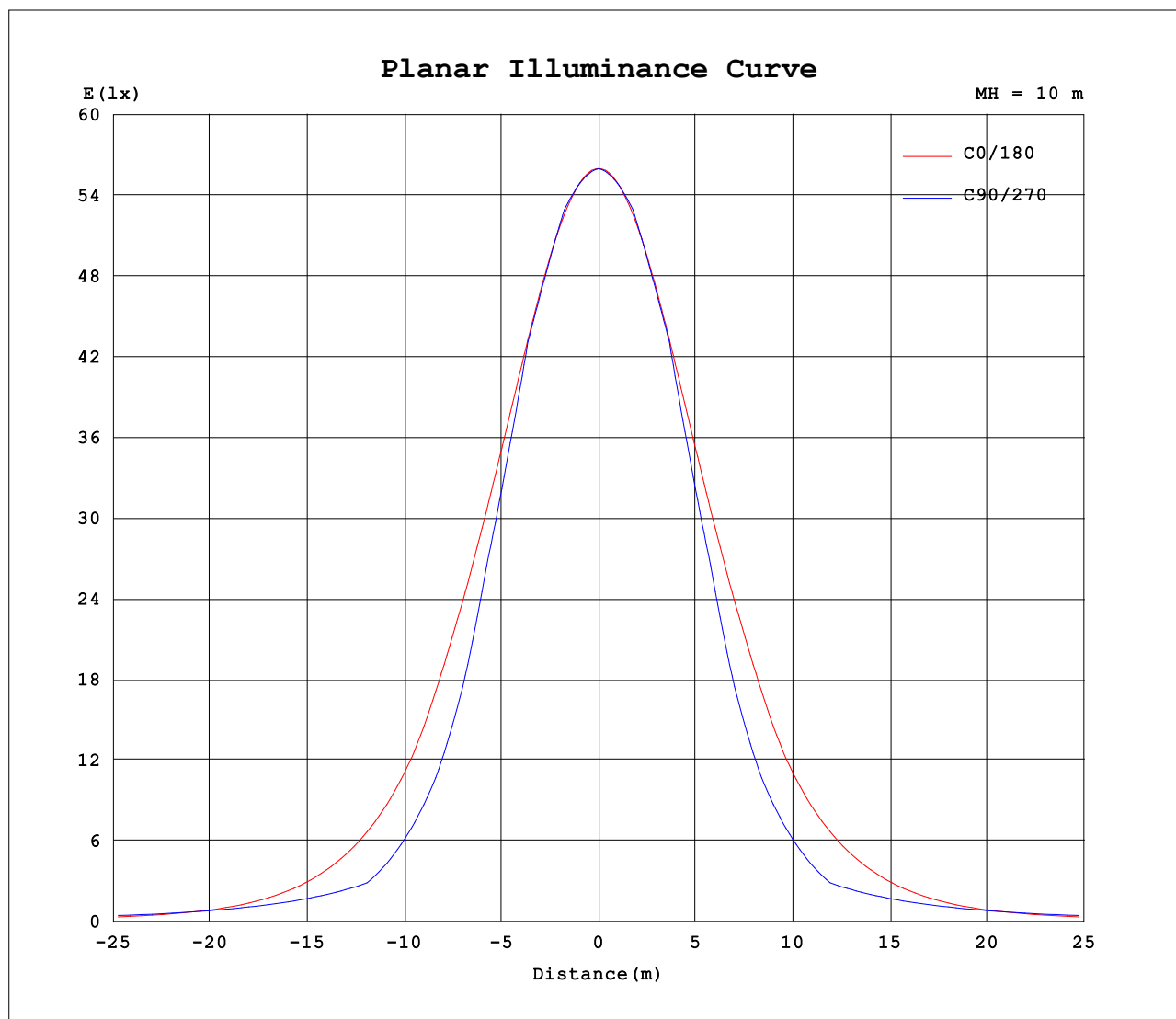
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-01-09

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:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-01-09

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: