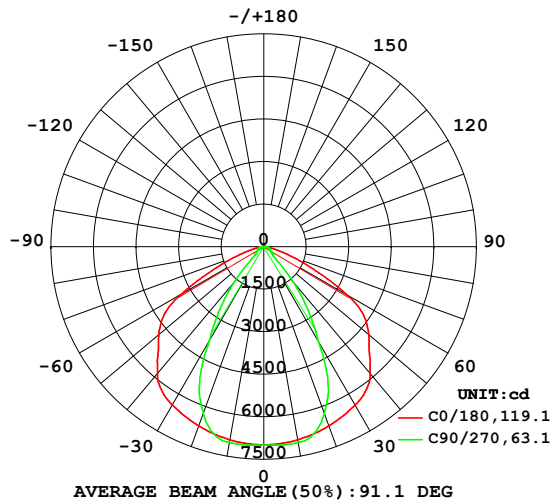


LUMINAIRE PHOTOMETRIC TEST REPORT

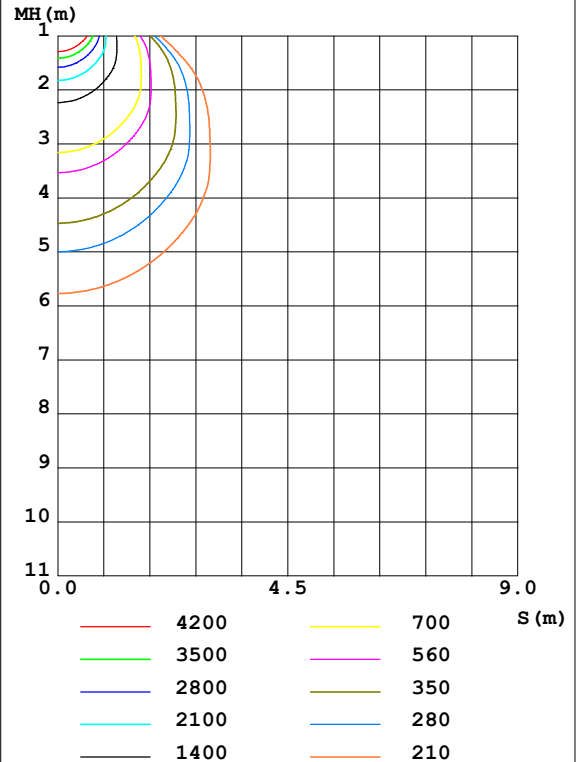
Test:U:230.1V I:0.4234A P:93.94W PF:0.9644 Lamp Flux:11957.1x1 lm		
NAME: LHB03-090	TYPE:90W	WEIGHT:
SPEC.:5000K Ra80 60120DEG L00302	DIM.: 0.336*0.307*0.061	SERIAL No.:
MFR.:	SUR.:0.28*0.27	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 127.29 lm/W			
MODEL	LHB03-090	I _{max} (cd)	7025	S/MH (C0/180)	1.38
NOMINAL POWER(W)	90	LOR(%)	100.0	S/MH (C90/270)	0.94
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	11957	η UP,DN (C0-180)	0.0,50.0
NOMINAL FLUX(lm)	11957.1	CIE CLASS	DIRECT	η UP,DN (C180-360)	0.0,50.0
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: 2017-07-01

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	6968	6998	7019	6998	6968	7000	7019	7000	0- 5	167.3	167.3	1.4,1.4
10	6914	6980	7008	6980	6914	6983	7008	6983	5- 10	499.9	667.2	5.58,5.58
15	6831	6917	6828	6917	6831	6919	6828	6919	10- 15	822.8	1490	12.5,12.5
20	6723	6705	6247	6705	6723	6702	6247	6702	15- 20	1112	2602	21.8,21.8
25	6593	6217	5383	6217	6593	6205	5383	6205	20- 25	1335	3937	32.9,32.9
30	6449	5460	3840	5460	6449	5453	3840	5453	25- 30	1454	5391	45.1,45.1
35	6244	4221	2717	4221	6244	4204	2717	4204	30- 35	1429	6820	57,57
40	5840	2732	1595	2732	5840	2709	1595	2709	35- 40	1301	8121	67.9,67.9
45	5266	2000	576.9	2000	5266	1979	576.9	1979	40- 45	1072	9193	76.9,76.9
50	4834	1370	395.0	1370	4834	1347	395.0	1347	45- 50	821.4	10015	83.8,83.8
55	4335	844.9	317.6	844.9	4335	829.6	317.6	829.6	50- 55	641.3	10656	89.1,89.1
60	3362	606.2	240.3	606.2	3362	599.6	240.3	599.6	55- 60	481.0	11137	93.1,93.1
65	2036	433.2	216.2	433.2	2036	428.0	216.2	428.0	60- 65	325.9	11463	95.9,95.9
70	1093	309.4	192.1	309.4	1093	303.7	192.1	303.7	65- 70	218.3	11681	97.7,97.7
75	484.4	202.3	165.0	202.3	484.4	198.3	165.0	198.3	70- 75	140.8	11822	98.9,98.9
80	159.9	96.78	114.2	96.78	159.9	96.91	114.2	96.91	75- 80	81.09	11903	99.5,99.5
85	32.27	54.64	60.42	54.64	32.27	54.67	60.42	54.67	80- 85	39.38	11942	99.9,99.9
90	3.288	11.47	6.633	11.47	3.288	11.41	6.633	11.41	85- 90	14.66	11957	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): 9193.3 lm

%lum = 76.9%

%lamp = 76.9%

Conical surface Flux(120deg): 11137 lm

%lum = 93.1%

%lamp = 93.1%

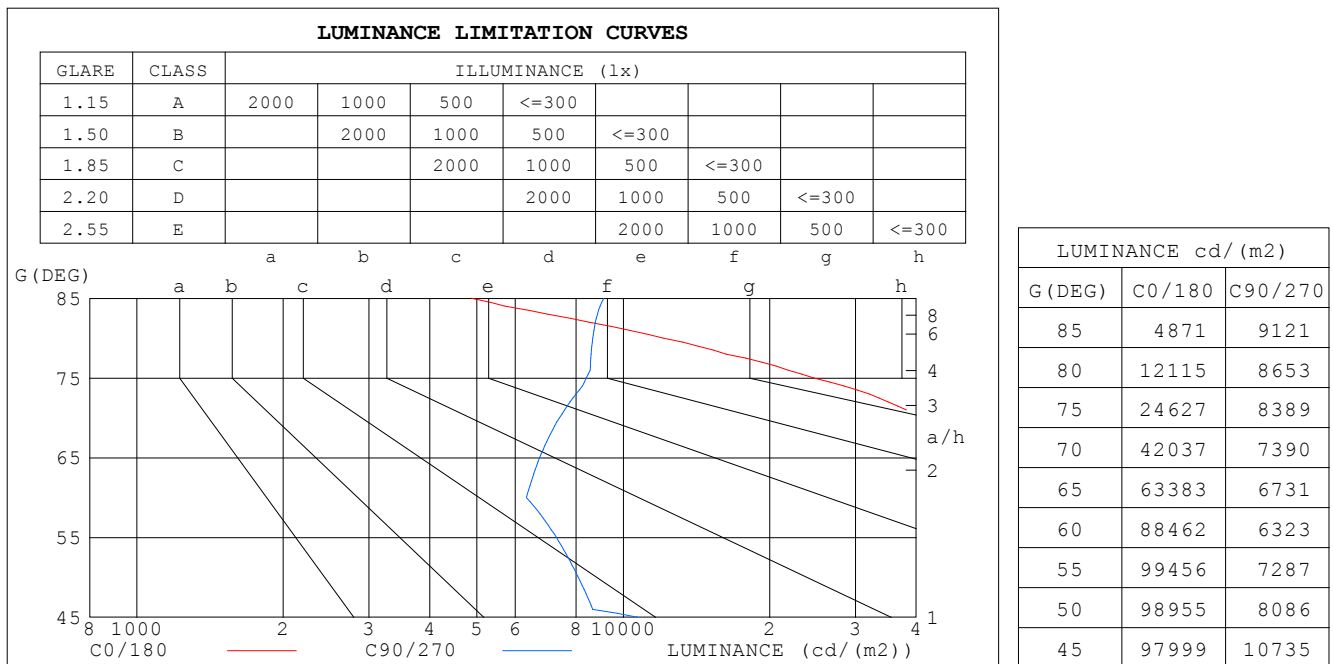
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-07-01

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: 2017-07-01

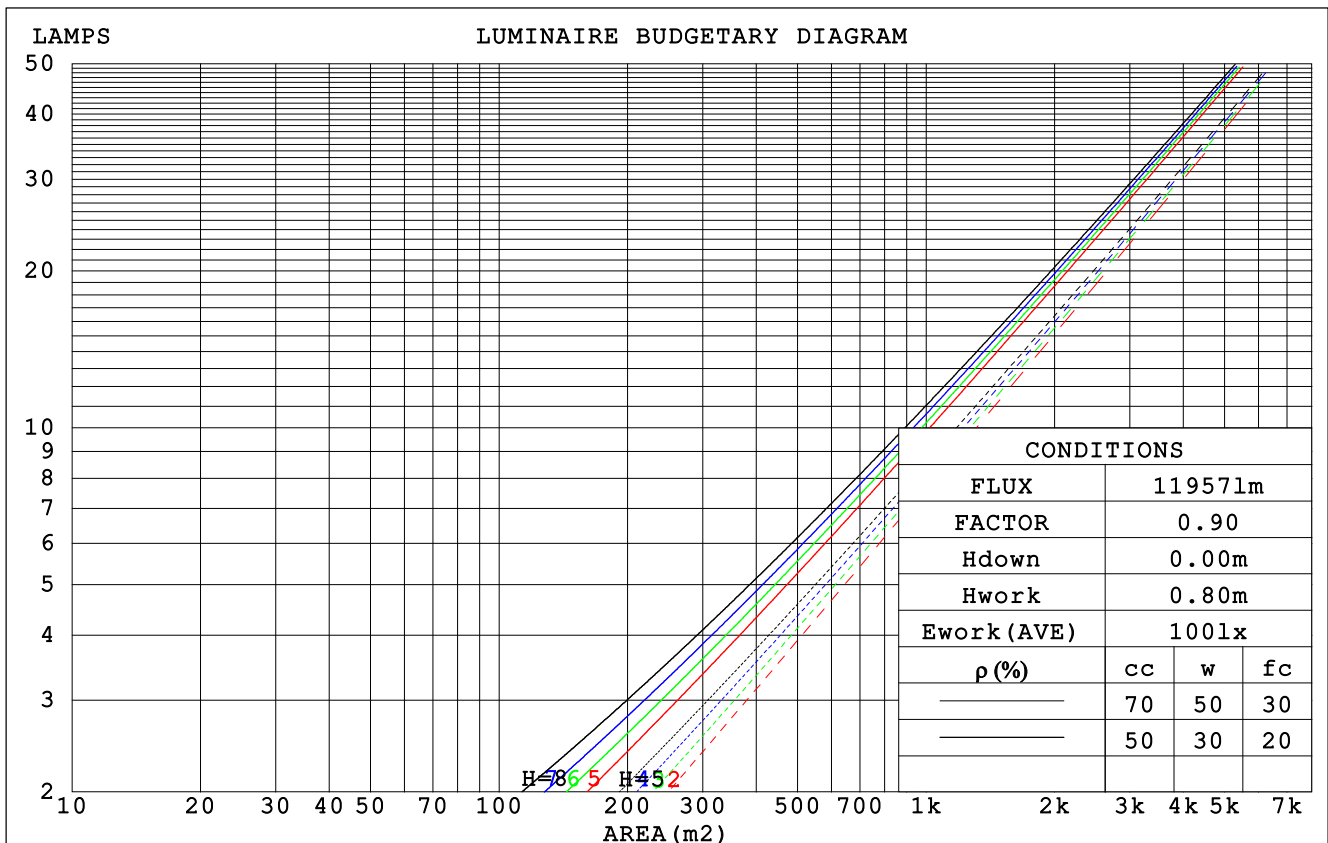
Checker:

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

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	1.00
1.0	1.08	1.05	1.02	1.06	1.03	1.00	1.02	.99	.97	.98	.96	.94	.94	.93	.91	.89
2.0	.97	.92	.88	.96	.91	.87	.92	.88	.85	.89	.86	.83	.86	.84	.81	.79
3.0	.88	.82	.77	.87	.81	.76	.84	.79	.75	.81	.77	.74	.79	.75	.72	.70
4.0	.80	.73	.68	.79	.72	.67	.77	.71	.66	.75	.70	.66	.73	.68	.65	.63
5.0	.73	.66	.60	.72	.65	.60	.70	.64	.59	.68	.63	.59	.67	.62	.58	.57
6.0	.67	.60	.54	.66	.59	.54	.65	.58	.54	.63	.58	.53	.62	.57	.53	.51
7.0	.62	.54	.49	.61	.54	.49	.60	.53	.49	.58	.53	.48	.57	.52	.48	.46
8.0	.57	.50	.45	.57	.50	.45	.55	.49	.44	.54	.48	.44	.53	.48	.44	.42
9.0	.53	.46	.41	.53	.46	.41	.52	.45	.41	.51	.45	.41	.50	.44	.40	.39
10.0	.50	.43	.38	.49	.42	.38	.48	.42	.38	.47	.42	.38	.46	.41	.37	.36



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-01

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	.232	.132	.042	.225	.128	.041	.212	.122	.039	.200	.116	.037	.189	.110	.035		
2.0	.224	.123	.038	.218	.120	.037	.207	.115	.036	.197	.110	.035	.187	.106	.033		
3.0	.213	.113	.034	.208	.111	.033	.198	.107	.033	.189	.104	.032	.181	.100	.031		
4.0	.201	.104	.031	.196	.103	.030	.188	.100	.030	.180	.097	.029	.173	.094	.029		
5.0	.190	.097	.028	.186	.095	.028	.178	.093	.027	.171	.090	.027	.165	.088	.026		
6.0	.179	.090	.026	.175	.089	.025	.169	.086	.025	.163	.084	.025	.157	.082	.024		
7.0	.169	.084	.024	.166	.083	.024	.160	.081	.023	.154	.079	.023	.149	.078	.023		
8.0	.160	.078	.022	.157	.077	.022	.152	.076	.022	.147	.074	.021	.142	.073	.021		
9.0	.152	.073	.021	.149	.073	.020	.145	.071	.020	.140	.070	.020	.136	.069	.020		
10.0	.144	.069	.019	.142	.069	.019	.138	.067	.019	.134	.066	.019	.130	.065	.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	.175	.157	.141	.150	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.163	.132	.106	.140	.114	.092	.096	.079	.064	.055	.046	.038	.018	.015	.012	
3.0	.153	.114	.082	.132	.098	.071	.090	.068	.050	.052	.040	.030	.017	.013	.010	
4.0	.145	.100	.066	.124	.086	.057	.086	.060	.040	.049	.035	.024	.016	.011	.008	
5.0	.137	.089	.053	.118	.077	.046	.081	.054	.033	.047	.032	.019	.015	.010	.006	
6.0	.130	.080	.044	.112	.069	.038	.077	.049	.027	.045	.029	.016	.014	.009	.005	
7.0	.124	.073	.037	.107	.063	.032	.074	.044	.023	.043	.026	.014	.014	.009	.005	
8.0	.118	.067	.032	.102	.058	.028	.071	.041	.020	.041	.024	.012	.013	.008	.004	
9.0	.113	.062	.028	.097	.054	.024	.067	.038	.017	.039	.022	.010	.013	.007	.003	
10.0	.108	.058	.025	.093	.050	.021	.065	.035	.015	.038	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-01

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	27.5	28.8	27.8	29.0	29.1	18.6	19.9	18.9	20.1	20.2
3H	28.2	29.3	28.5	29.5	29.8	18.9	20.1	19.2	20.3	20.5
4H	28.3	29.4	28.6	29.6	29.8	19.2	20.3	19.5	20.5	20.7
6H	28.3	29.3	28.6	29.5	29.8	19.5	20.5	19.8	20.8	21.0
8H	28.2	29.2	28.6	29.5	29.8	19.6	20.6	20.0	20.9	21.2
12H	28.2	29.1	28.5	29.4	29.7	19.8	20.7	20.1	21.0	21.3
4H 2H	27.3	28.4	27.6	28.6	28.8	19.1	20.2	19.4	20.5	20.7
3H	28.0	28.9	28.3	29.2	29.5	19.5	20.5	19.9	20.7	21.0
4H	28.1	29.0	28.5	29.3	29.6	19.9	20.7	20.2	21.0	21.3
6H	28.1	28.9	28.5	29.2	29.6	20.3	21.0	20.7	21.4	21.7
8H	28.1	28.8	28.5	29.1	29.5	20.5	21.2	20.9	21.5	21.9
12H	28.1	28.7	28.5	29.1	29.5	20.6	21.3	21.1	21.6	22.0
8H 4H	28.0	28.7	28.4	29.1	29.4	20.1	20.8	20.5	21.1	21.5
6H	28.0	28.6	28.5	29.0	29.4	20.6	21.1	21.0	21.5	22.0
8H	28.0	28.5	28.5	28.9	29.4	20.8	21.3	21.3	21.7	22.2
12H	28.0	28.4	28.5	28.9	29.3	21.1	21.5	21.6	22.0	22.4
12H 4H	28.0	28.6	28.4	29.0	29.4	20.1	20.7	20.5	21.1	21.5
6H	28.0	28.5	28.5	28.9	29.4	20.6	21.1	21.1	21.5	22.0
8H	28.0	28.4	28.5	28.9	29.3	20.9	21.3	21.4	21.8	22.2
Variations with the observer position at spacings:										
S = 1.0H	+ 1.2 / - 2.4					+ 1.1 / - 1.5				
1.5H	+ 2.4 / - 4.3					+ 1.4 / - 1.5				
2.0H	+ 3.9 / - 7.0					+ 1.5 / - 1.2				

CIE Pub.117 Corrected 11957 lm Total Lamp Luminous Flux.(8log(F/F0) = 8.6)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-01

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) $k(RI) \times RCR = 5$									
$k = 0.60$	71	62	57	71	62	56	70	61	56	51
0.80	81	72	66	80	71	66	78	71	66	60
1.00	88	80	74	87	79	74	85	80	73	68
1.25	94	86	81	93	85	81	90	84	80	74
1.50	98	91	86	96	90	85	94	88	84	78
2.00	103	97	92	101	95	91	98	93	90	83
2.50	105	100	95	103	98	94	100	96	93	86
3.00	108	103	99	106	101	98	102	98	96	88
4.00	110	106	103	108	105	102	104	101	99	91
5.00	112	109	106	110	107	104	106	103	101	93
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

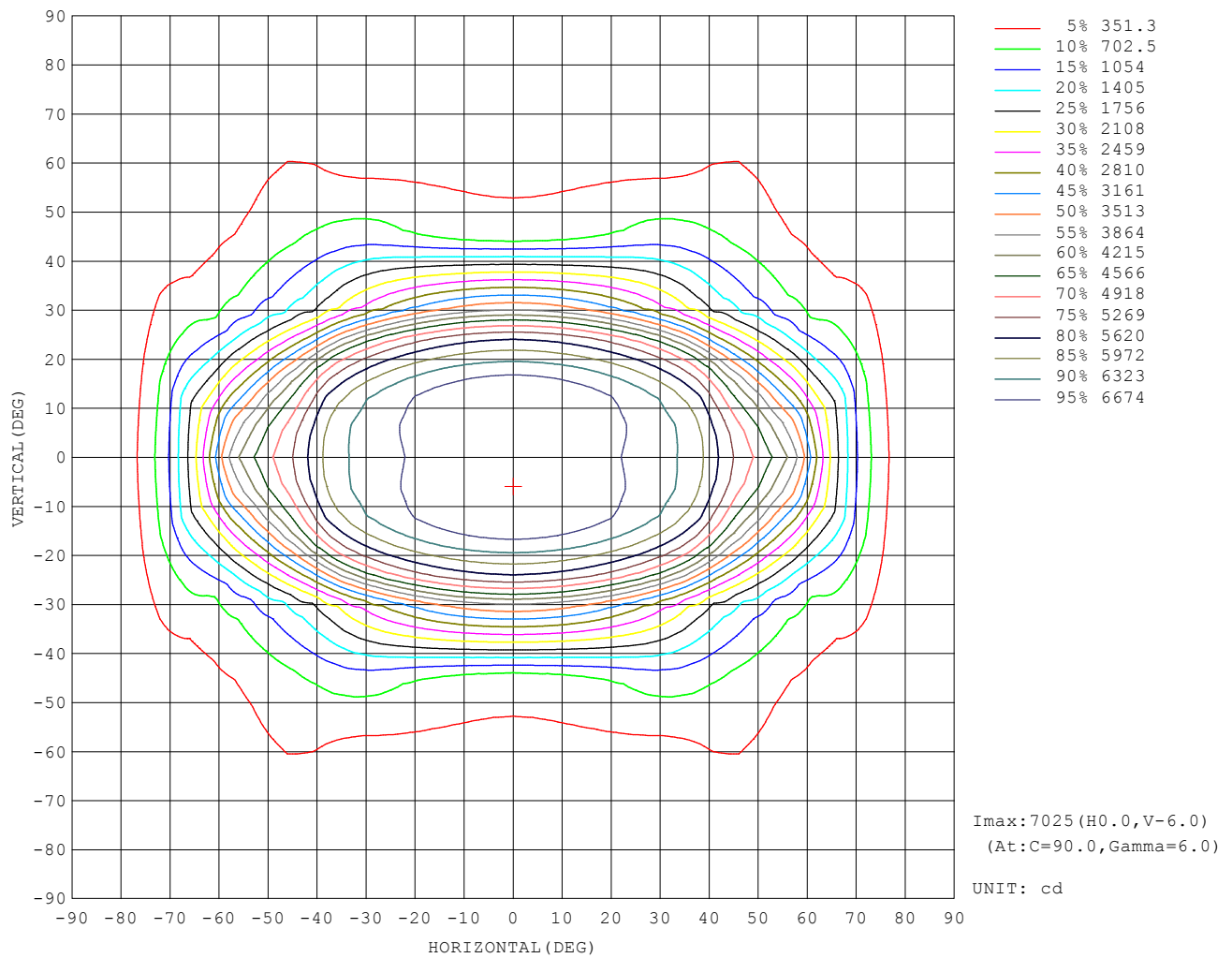
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-01

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



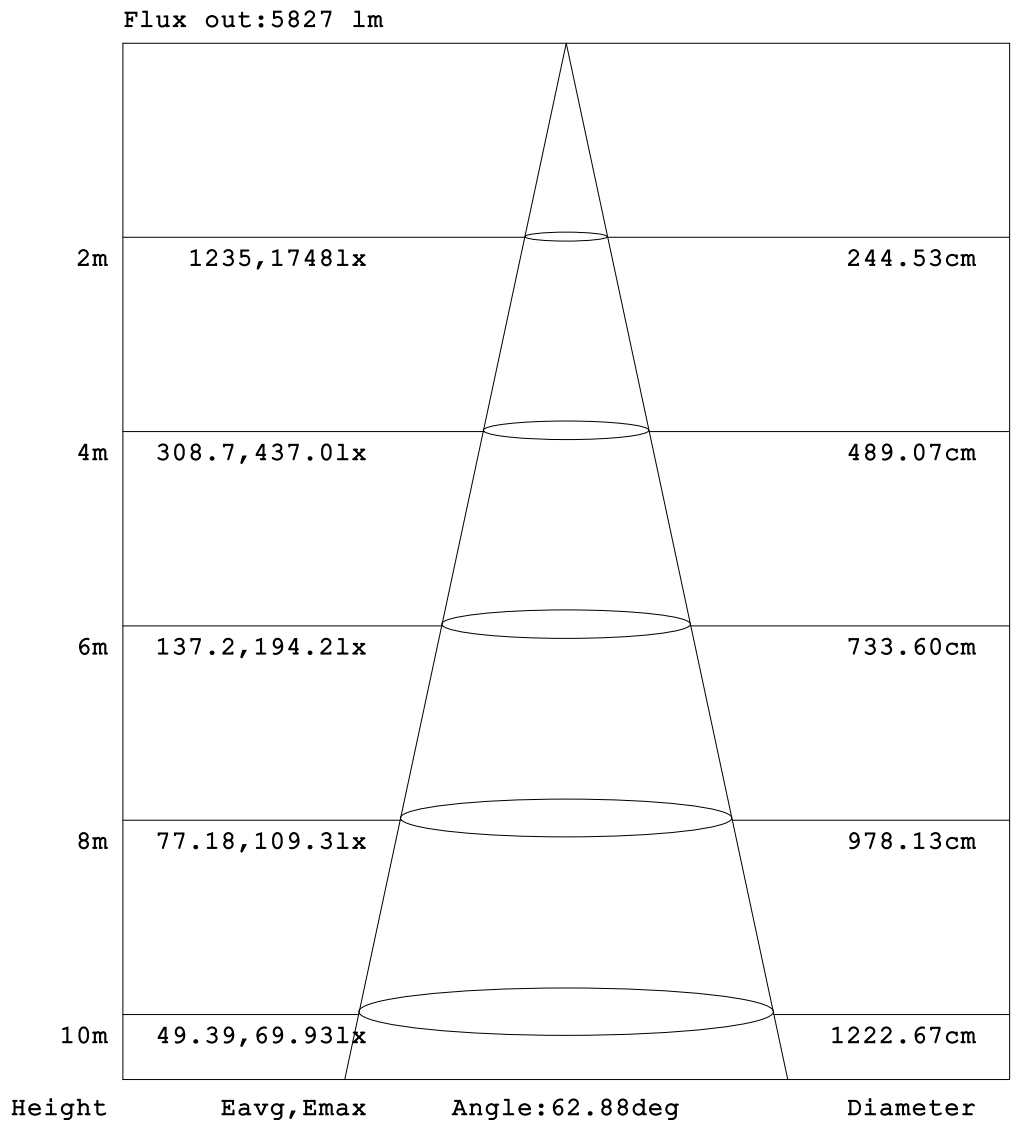
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-01

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.

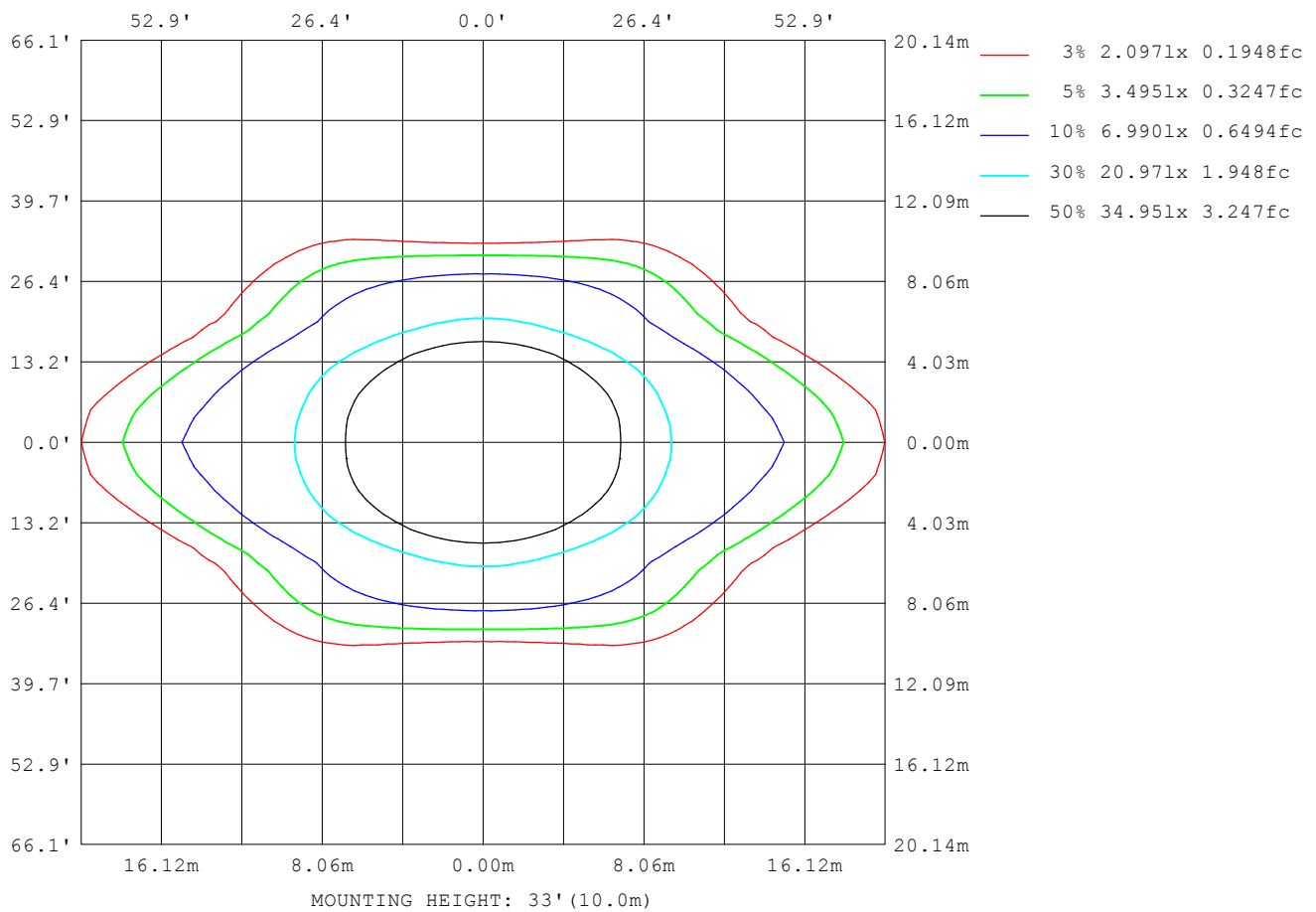
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-01

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



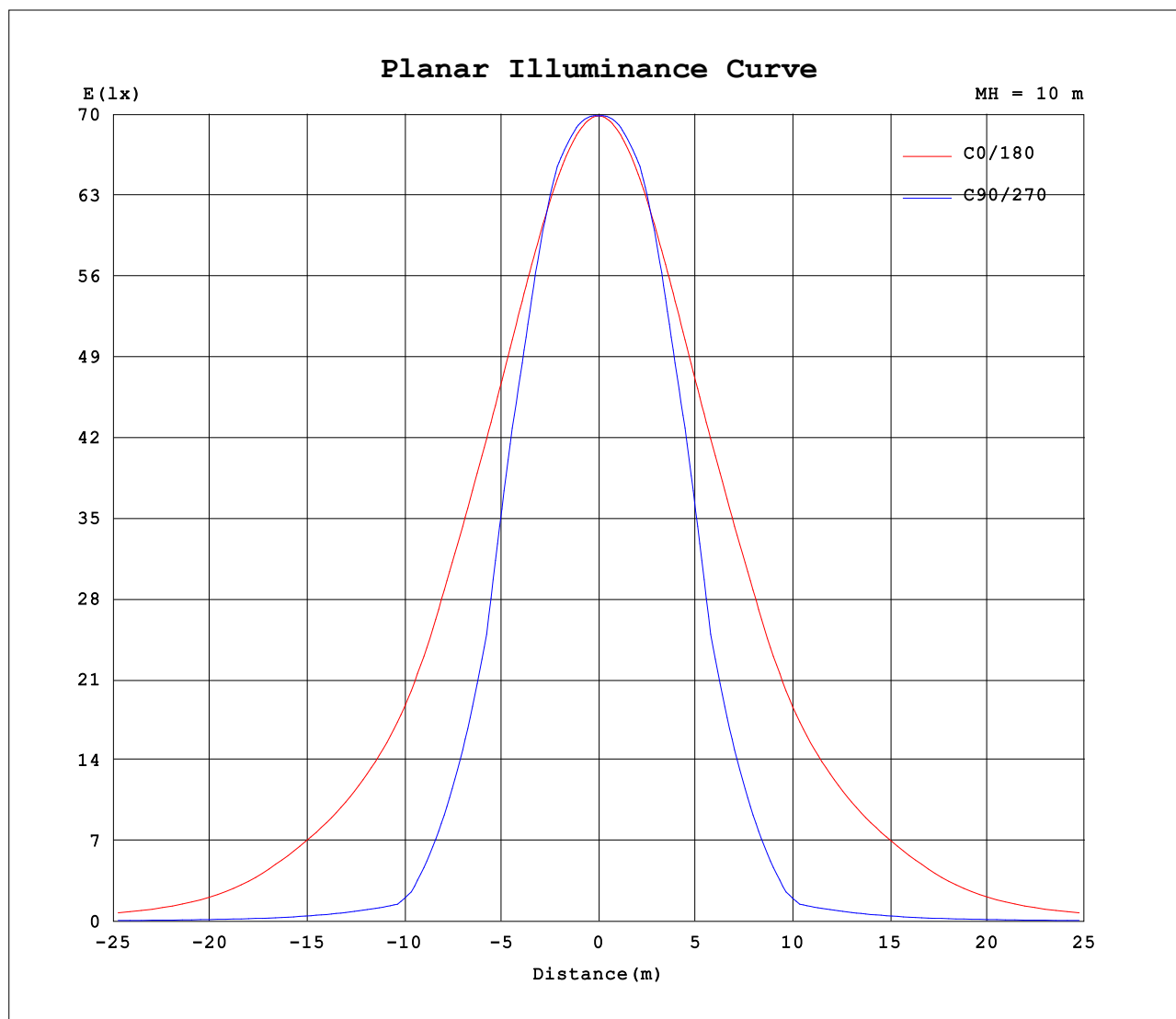
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-01

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: 2017-07-01

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:

UNIT: cd

Assessor: