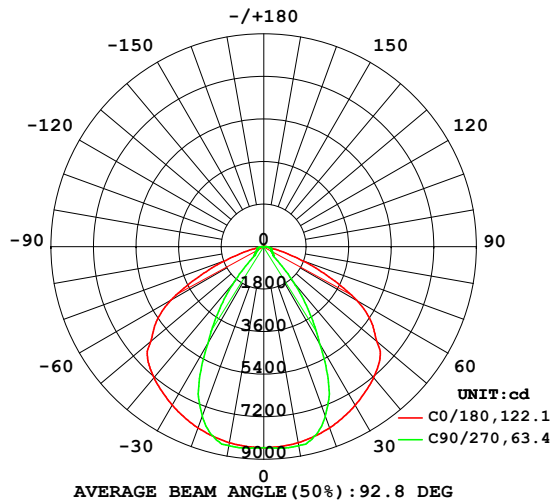


LUMINAIRE PHOTOMETRIC TEST REPORT

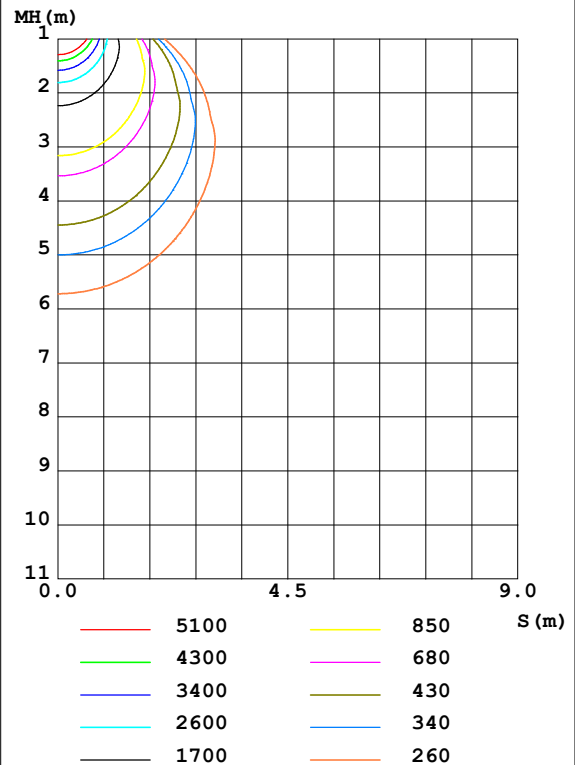
Test:U:230.0V I:0.5342A P:120.4W PF:0.9797 Lamp Flux:14903.2x1 lm		
NAME: LHB03-120	TYPE:120W	WEIGHT:
SPEC.:5000K Ra80 60120DEG L00302	DIM.: 0.621*0.307*0.061	SERIAL No.:
MFR.:	SUR.:0.57*0.27	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 123.78 lm/W			
MODEL	LHB03-120	Imax(cd)	8570	S/MH(C0/180)	1.36
NOMINAL POWER(W)	120	LOR(%)	100.0	S/MH(C90/270)	0.95
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	14903	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	14903.2	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:2017-07-03

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	8481	8531	8559	8531	8481	8530	8559	8530	0- 5	203.7	203.7	1.37,1.37
10	8422	8519	8550	8519	8422	8518	8550	8518	5- 10	609.6	813.3	5.46,5.46
15	8308	8436	8308	8436	8308	8437	8308	8437	10- 15	1003	1817	12.2,12.2
20	8155	8142	7624	8142	8155	8148	7624	8148	15- 20	1354	3170	21.3,21.3
25	7967	7551	6520	7551	7967	7564	6520	7564	20- 25	1622	4793	32.2,32.2
30	7743	6610	4727	6610	7743	6637	4727	6637	25- 30	1760	6553	44,44
35	7499	5108	3347	5108	7499	5138	3347	5138	30- 35	1733	8286	55.6,55.6
40	7236	3374	1967	3374	7236	3402	1967	3402	35- 40	1588	9874	66.3,66.3
45	6911	2452	717.4	2452	6911	2463	717.4	2463	40- 45	1339	11213	75.2,75.2
50	6245	1673	510.5	1673	6245	1666	510.5	1666	45- 50	1057	12270	82.3,82.3
55	5559	1057	433.8	1057	5559	1040	433.8	1040	50- 55	822.7	13093	87.9,87.9
60	4533	775.1	357.2	775.1	4533	767.1	357.2	767.1	55- 60	627.3	13720	92.1,92.1
65	3061	548.9	339.3	548.9	3061	543.8	339.3	543.8	60- 65	450.5	14171	95.1,95.1
70	1714	396.2	321.4	396.2	1714	393.2	321.4	393.2	65- 70	312.8	14484	97.2,97.2
75	706.7	265.2	296.2	265.2	706.7	264.7	296.2	264.7	70- 75	206.2	14690	98.6,98.6
80	215.7	133.3	212.7	133.3	215.7	132.7	212.7	132.7	75- 80	122.9	14813	99.4,99.4
85	45.14	75.80	121.9	75.80	45.14	75.03	121.9	75.03	80- 85	63.93	14877	99.8,99.8
90	5.102	16.74	31.15	16.74	5.102	15.87	31.15	15.87	85- 90	26.70	14903	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): 11213 lm

%lum = 75.2%

%lamp = 75.2%

Conical surface Flux(120deg): 13720 lm

%lum = 92.1%

%lamp = 92.1%

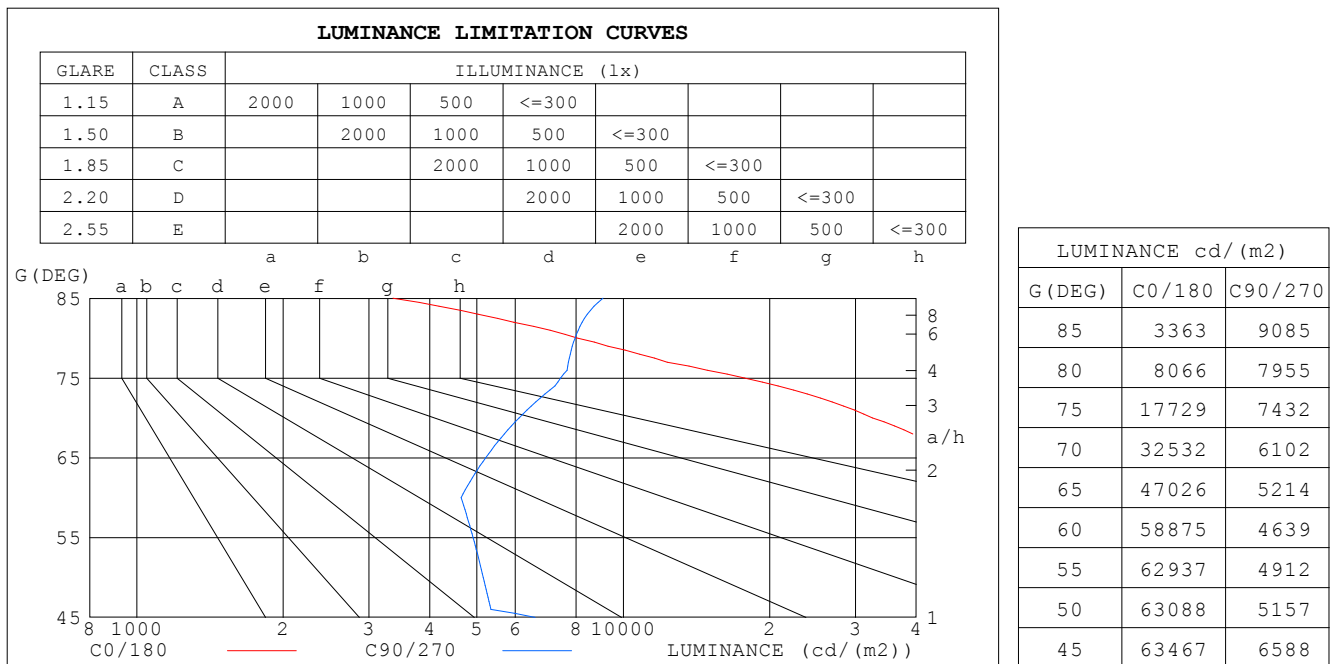
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-07-03

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: 2017-07-03

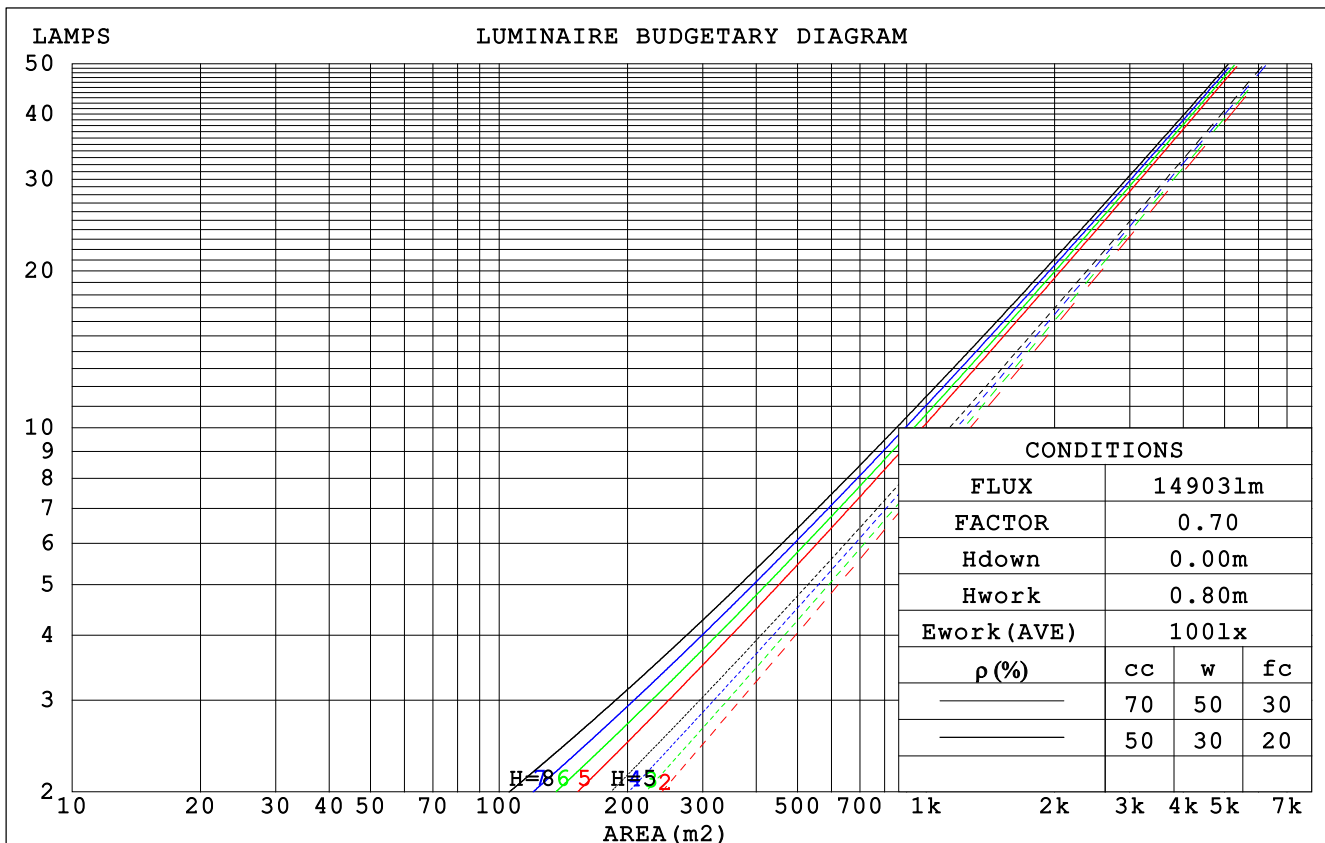
Checker:

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	1.08	1.04	1.01	1.05	1.02	.00	1.01	.99	.97	.97	.96	.94	.94	.92	.91	.89
2.0	.97	.92	.87	.95	.90	.86	.92	.88	.84	.89	.85	.82	.86	.83	.80	.79
3.0	.88	.81	.76	.86	.80	.75	.83	.78	.74	.81	.76	.73	.78	.75	.72	.70
4.0	.80	.72	.67	.78	.72	.66	.76	.70	.66	.74	.69	.65	.72	.67	.64	.62
5.0	.73	.65	.59	.72	.64	.59	.70	.63	.59	.68	.62	.58	.66	.61	.57	.56
6.0	.67	.59	.53	.66	.58	.53	.64	.58	.53	.62	.57	.52	.61	.56	.52	.50
7.0	.61	.54	.48	.60	.53	.48	.59	.53	.48	.58	.52	.48	.56	.51	.47	.46
8.0	.57	.49	.44	.56	.49	.44	.55	.48	.44	.54	.48	.43	.52	.47	.43	.42
9.0	.52	.45	.40	.52	.45	.40	.51	.44	.40	.50	.44	.40	.49	.44	.40	.38
10.0	.49	.42	.37	.48	.42	.37	.47	.41	.37	.47	.41	.37	.46	.40	.37	.35



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-03

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:

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	.238	.135	.043	.231	.132	.042	.218	.125	.040	.206	.119	.038	.195	.113	.036		
2.0	.229	.125	.038	.223	.123	.038	.212	.118	.037	.202	.113	.035	.192	.109	.034		
3.0	.217	.115	.035	.212	.113	.034	.202	.109	.033	.193	.106	.032	.185	.102	.032		
4.0	.204	.106	.031	.200	.104	.031	.191	.101	.030	.183	.098	.030	.176	.096	.029		
5.0	.192	.098	.028	.188	.097	.028	.181	.094	.028	.174	.092	.027	.167	.089	.027		
6.0	.181	.091	.026	.178	.090	.026	.171	.088	.025	.165	.086	.025	.159	.084	.025		
7.0	.171	.085	.024	.168	.084	.024	.162	.082	.024	.156	.080	.023	.151	.078	.023		
8.0	.162	.079	.022	.159	.078	.022	.154	.077	.022	.149	.075	.022	.144	.074	.022		
9.0	.153	.074	.021	.151	.073	.021	.146	.072	.020	.141	.071	.020	.137	.070	.020		
10.0	.145	.070	.019	.143	.069	.019	.139	.068	.019	.135	.067	.019	.131	.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	.175	.157	.140	.150	.135	.121	.103	.093	.083	.059	.054	.048	.019	.017	.016	
2.0	.164	.132	.106	.140	.114	.091	.096	.079	.064	.055	.046	.037	.018	.015	.012	
3.0	.154	.114	.082	.132	.098	.071	.091	.068	.050	.052	.040	.029	.017	.013	.010	
4.0	.146	.100	.065	.125	.086	.056	.086	.060	.040	.050	.035	.024	.016	.011	.008	
5.0	.138	.089	.053	.119	.077	.046	.082	.054	.032	.047	.032	.019	.015	.010	.006	
6.0	.131	.080	.044	.113	.070	.038	.078	.049	.027	.045	.029	.016	.015	.009	.005	
7.0	.125	.073	.037	.107	.063	.032	.074	.045	.023	.043	.026	.014	.014	.009	.004	
8.0	.119	.067	.032	.103	.058	.028	.071	.041	.020	.041	.024	.012	.013	.008	.004	
9.0	.114	.062	.028	.098	.054	.024	.068	.038	.017	.040	.022	.010	.013	.007	.003	
10.0	.109	.058	.024	.094	.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:2017-07-03

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:

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	26.2	27.4	26.4	27.6	27.8	16.9	18.2	17.2	18.4	18.5
3H	27.0	28.2	27.3	28.4	28.6	17.5	18.6	17.7	18.8	19.1
4H	27.2	28.3	27.5	28.5	28.7	18.0	19.1	18.3	19.4	19.6
6H	27.1	28.2	27.5	28.4	28.7	18.7	19.7	19.0	19.9	20.2
8H	27.1	28.1	27.4	28.4	28.6	18.9	19.9	19.3	20.2	20.5
12H	27.1	28.0	27.4	28.3	28.6	19.2	20.1	19.5	20.4	20.7
4H 2H	26.0	27.0	26.2	27.3	27.5	17.5	18.6	17.8	18.8	19.1
3H	26.8	27.8	27.2	28.0	28.3	18.1	19.1	18.5	19.4	19.7
4H	27.0	27.8	27.3	28.1	28.5	18.8	19.6	19.2	20.0	20.3
6H	27.0	27.7	27.4	28.1	28.4	19.6	20.3	19.9	20.7	21.0
8H	27.0	27.7	27.4	28.0	28.4	19.9	20.6	20.3	21.0	21.4
12H	26.9	27.6	27.3	27.9	28.3	20.3	20.9	20.7	21.3	21.7
8H 4H	26.9	27.6	27.3	27.9	28.3	19.0	19.7	19.4	20.1	20.5
6H	26.9	27.5	27.3	27.9	28.3	19.9	20.5	20.3	20.9	21.3
8H	26.9	27.4	27.3	27.8	28.3	20.4	20.9	20.8	21.3	21.8
12H	26.9	27.3	27.3	27.7	28.2	20.8	21.3	21.3	21.7	22.2
12H 4H	26.8	27.5	27.2	27.8	28.2	19.0	19.7	19.4	20.0	20.4
6H	26.9	27.4	27.3	27.8	28.2	19.9	20.4	20.4	20.9	21.3
8H	26.9	27.3	27.3	27.7	28.2	20.4	20.9	20.9	21.3	21.8
Variations with the observer position at spacings:										
S = 1.0H	+ 1.2 / - 2.3					+ 0.8 / - 1.0				
1.5H	+ 2.4 / - 4.3					+ 1.1 / - 1.0				
2.0H	+ 3.7 / - 6.7					+ 1.0 / - 0.7				

CIE Pub.117 Corrected 14903 lm Total Lamp Luminous Flux.(8log(F/F0) = 9.4)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-03

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:

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) $k(RI) \times RCR = 5$									
$k = 0.60$	70	61	55	70	61	55	69	60	55	50
0.80	80	71	65	79	70	65	77	70	64	59
1.00	87	79	73	86	78	73	84	79	72	67
1.25	93	85	80	92	85	79	89	83	79	73
1.50	97	90	85	96	89	84	93	87	83	77
2.00	102	96	91	100	95	90	97	93	89	82
2.50	105	99	95	103	98	94	100	95	92	85
3.00	107	102	98	105	101	97	102	98	95	88
4.00	110	106	103	108	104	101	104	101	98	91
5.00	112	108	105	110	106	104	105	103	101	92
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

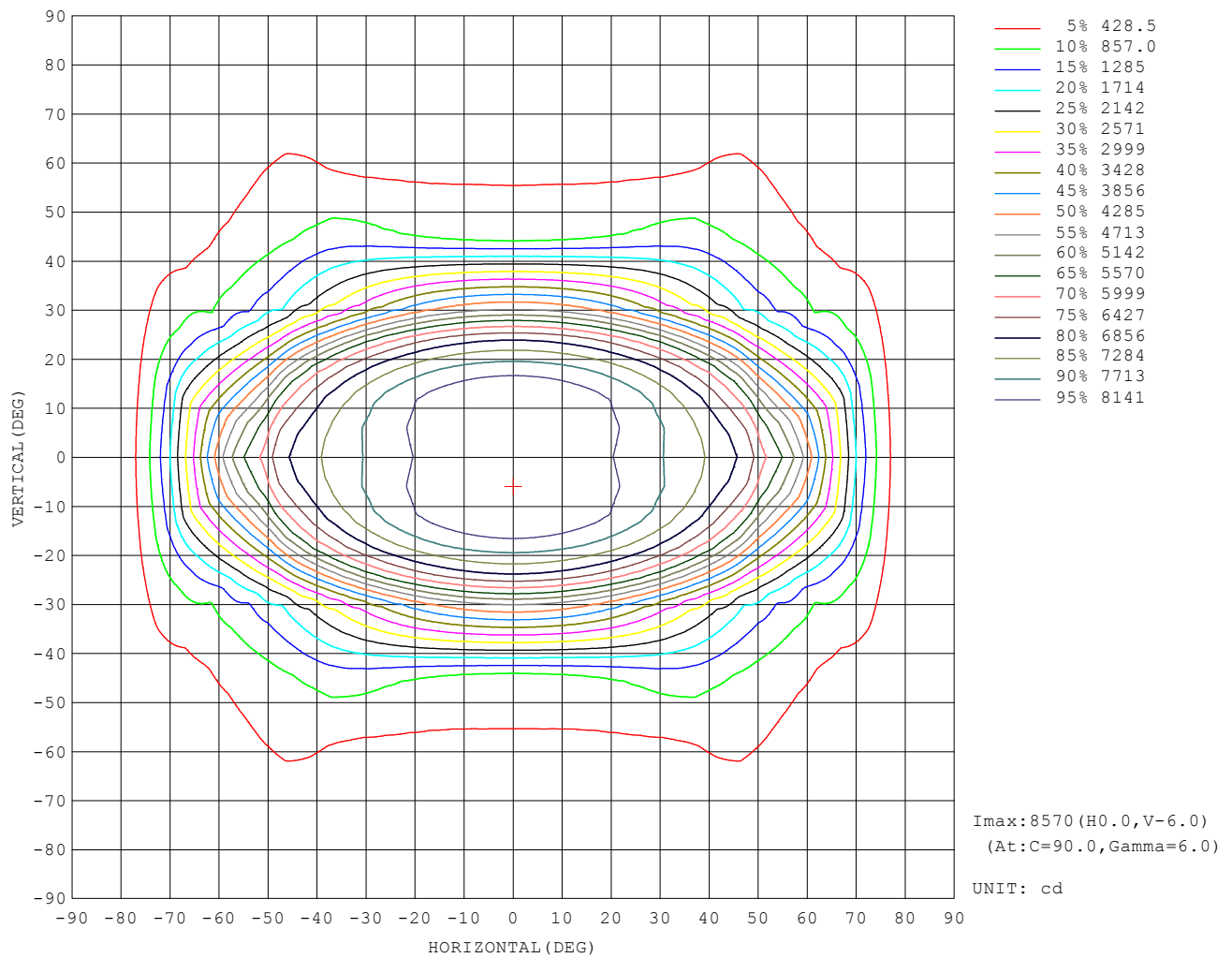
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-03

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



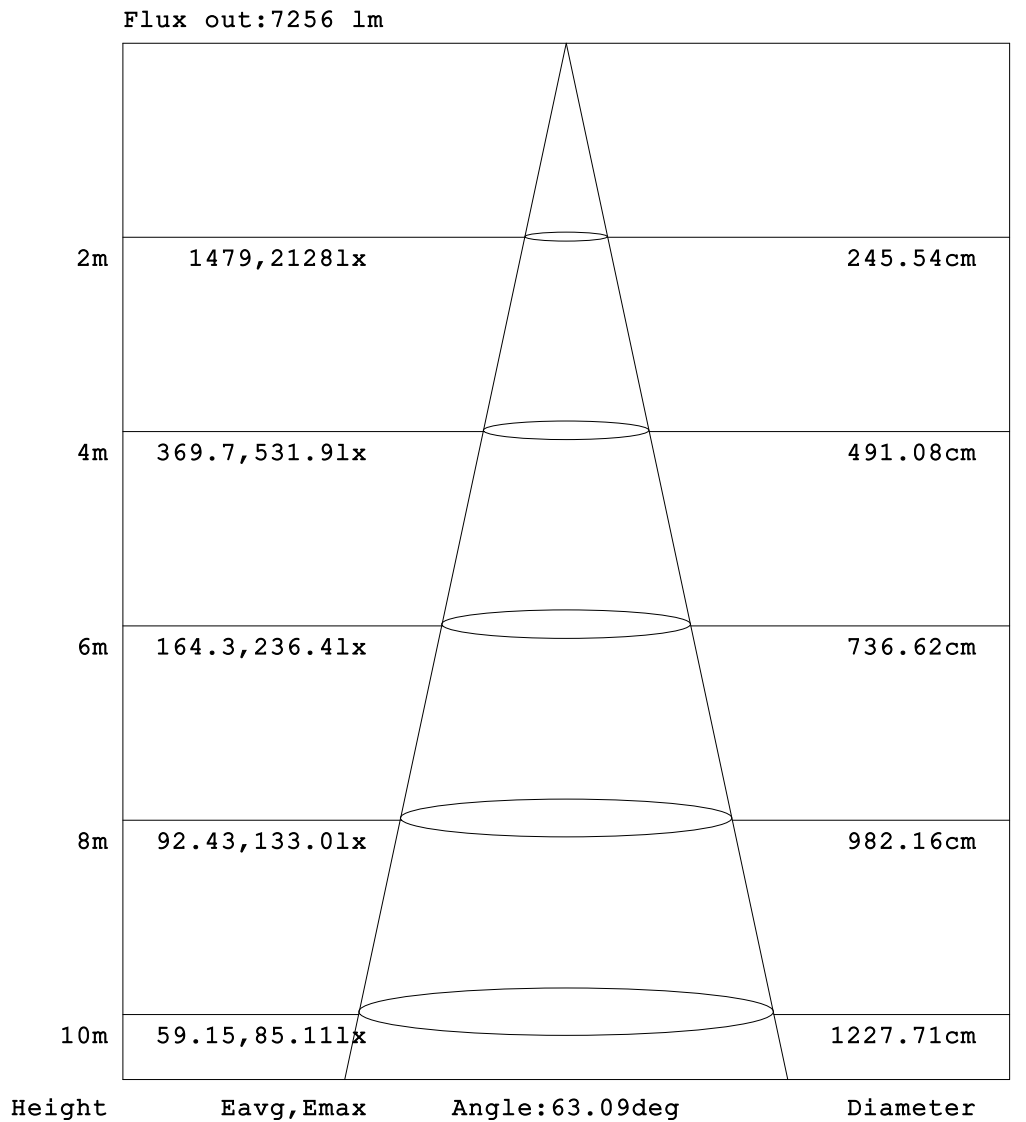
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-03

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:

Assessor:

AAI Figure



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

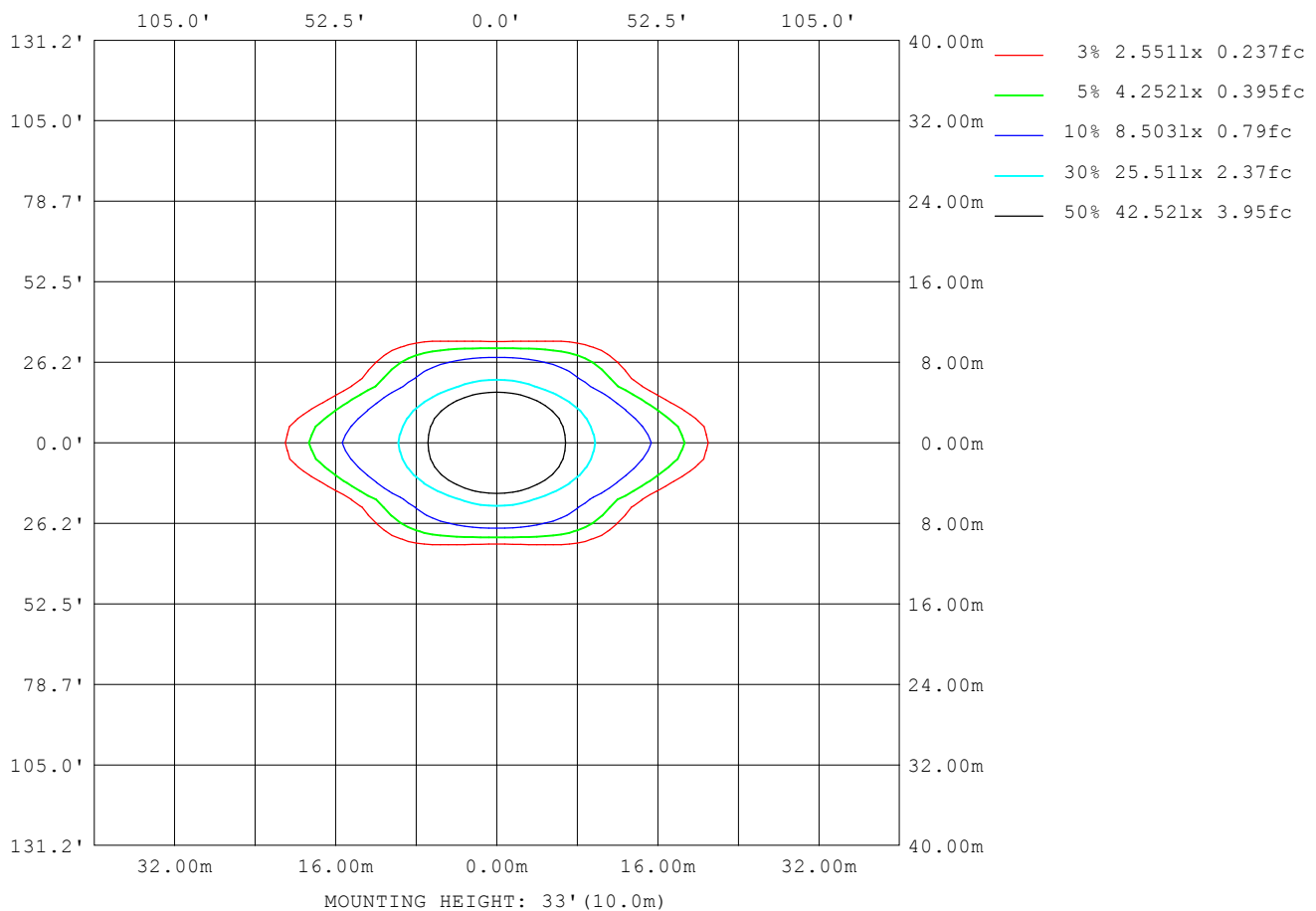
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-03

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:

Assessor:

ISOLUX DIAGRAM



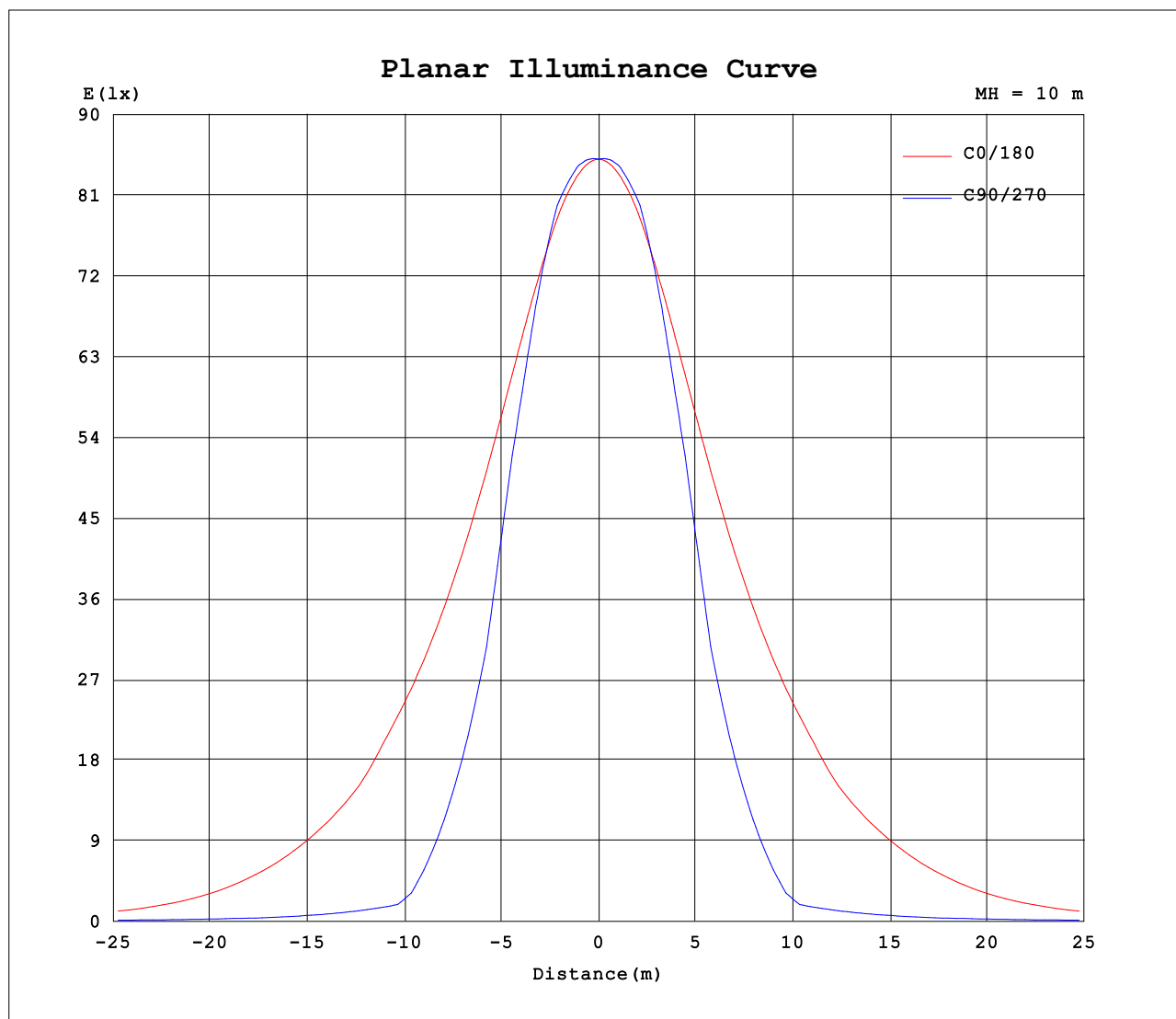
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-03

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: 2017-07-03

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:

Assessor:

Assessor:

Assessor:

Assessor:

Assessor: