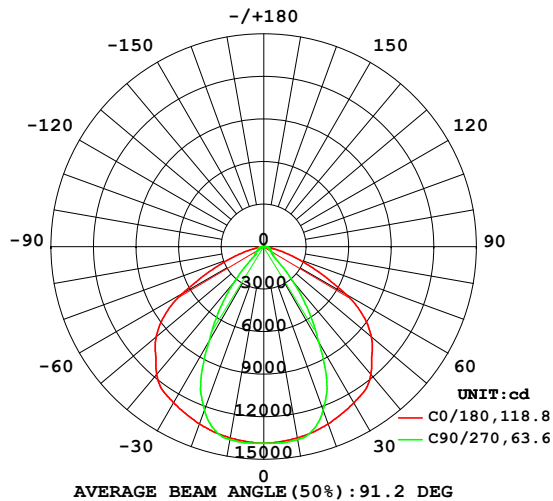


LUMINAIRE PHOTOMETRIC TEST REPORT

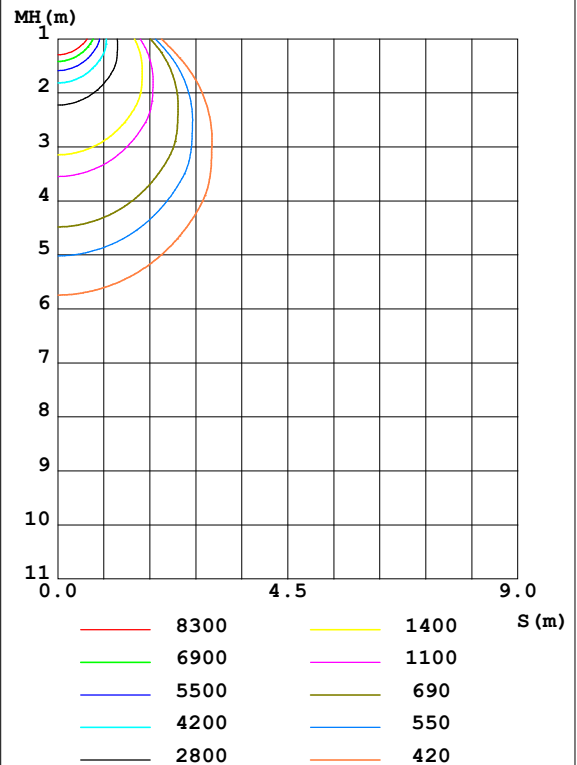
Test:U:229.8V I:0.8226A P:182.6W PF:0.9658 Lamp Flux:23935.5x1 lm		
NAME: LHB03-180	TYPE:180W	WEIGHT:
SPEC.:5000K Ra80 60120DEG L00302	DIM.: 0.621*0.307*0.061	SERIAL No.:
MFR.:	SUR.:0.57*0.27	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 131.10 lm/W			
MODEL	LHB03-180	Imax(cd)	13897	S/MH(C0/180)	1.38
NOMINAL POWER(W)	180	LOR(%)	100.0	S/MH(C90/270)	0.95
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	23935	η UP,DN(C0-180)	0.0,50.1
NOMINAL FLUX(lm)	23935.5	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.9
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

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	1380	1385	1389	1385	1380	1385	1389	1385	0- 5	331.3	331.3	1.38,1.38
10	1369	1378	1380	1378	1369	1378	1380	1378	5- 10	988.3	1320	5.51,5.51
15	1353	1360	1339	1360	1353	1360	1339	1360	10- 15	1622	2941	12.3,12.3
20	1330	1314	1226	1314	1330	1313	1226	1313	15- 20	2187	5129	21.4,21.4
25	1302	1218	1053	1218	1302	1217	1053	1217	20- 25	2621	7750	32.4,32.4
30	1271	1068	773.7	1068	1271	1067	773.7	1067	25- 30	2853	10602	44.3,44.3
35	1240	835.2	547.3	835.2	1240	832.2	547.3	832.2	30- 35	2825	13427	56.1,56.1
40	1176	565.3	320.8	565.3	1176	561.0	320.8	561.0	35- 40	2597	16023	66.9,66.9
45	1079	416.7	115.5	416.7	1079	412.3	115.5	412.3	40- 45	2175	18199	76,76
50	990.9	287.1	79.57	287.1	990.9	283.8	79.57	283.8	45- 50	1702	19900	83.1,83.1
55	861.4	179.9	64.75	179.9	861.4	178.3	64.75	178.3	50- 55	1334	21235	88.7,88.7
60	665.0	130.0	49.93	130.0	665.0	129.0	49.93	129.0	55- 60	986.3	22221	92.8,92.8
65	431.8	92.51	44.70	92.51	431.8	91.34	44.70	91.34	60- 65	668.7	22890	95.6,95.6
70	256.1	66.28	39.46	66.28	256.1	65.41	39.46	65.41	65- 70	454.1	23344	97.5,97.5
75	121.0	42.67	33.65	42.67	121.0	42.32	33.65	42.32	70- 75	300.1	23644	98.8,98.8
80	41.88	20.05	23.21	20.05	41.88	19.86	23.21	19.86	75- 80	175.6	23820	99.5,99.5
85	8.280	11.08	12.19	11.08	8.280	10.97	12.19	10.97	80- 85	85.52	23905	99.9,99.9
90	0.7377	1.906	1.168	1.906	0.7377	1.877	1.168	1.877	85- 90	30.46	23935	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): 18199 lm

%lum = 76.0%

%lamp = 76.0%

Conical surface Flux(120deg): 22221 lm

%lum = 92.8%

%lamp = 92.8%

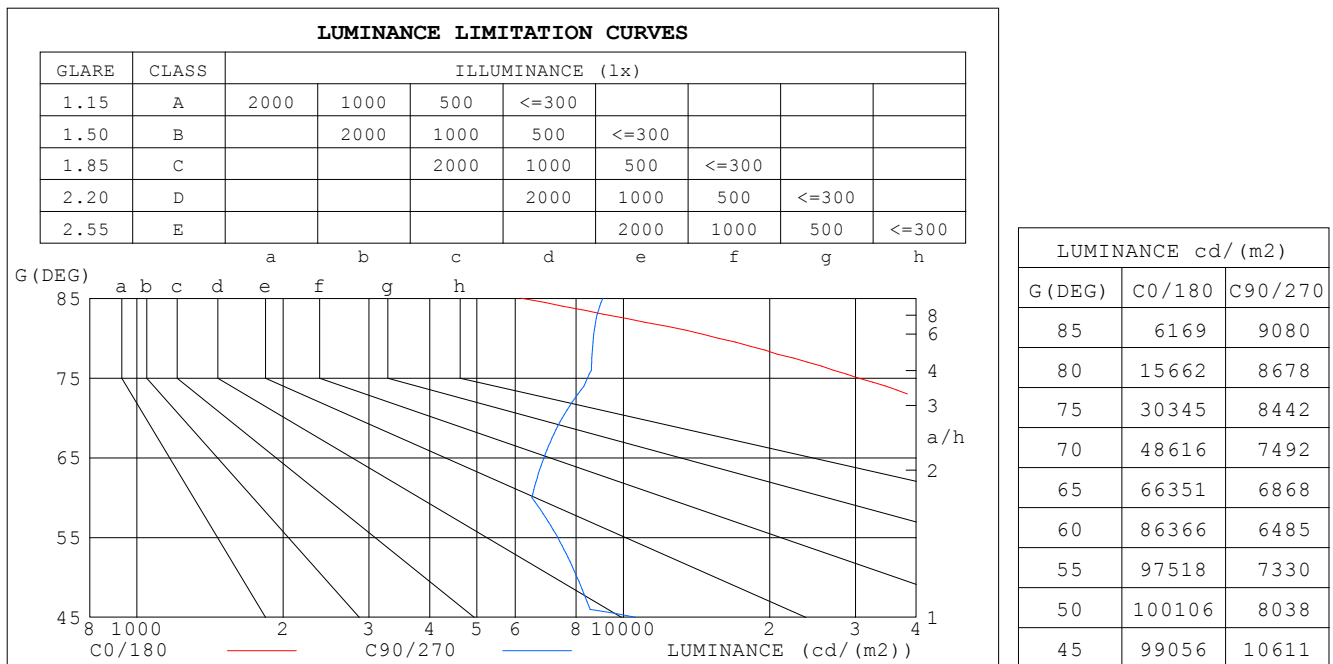
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-07-03

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

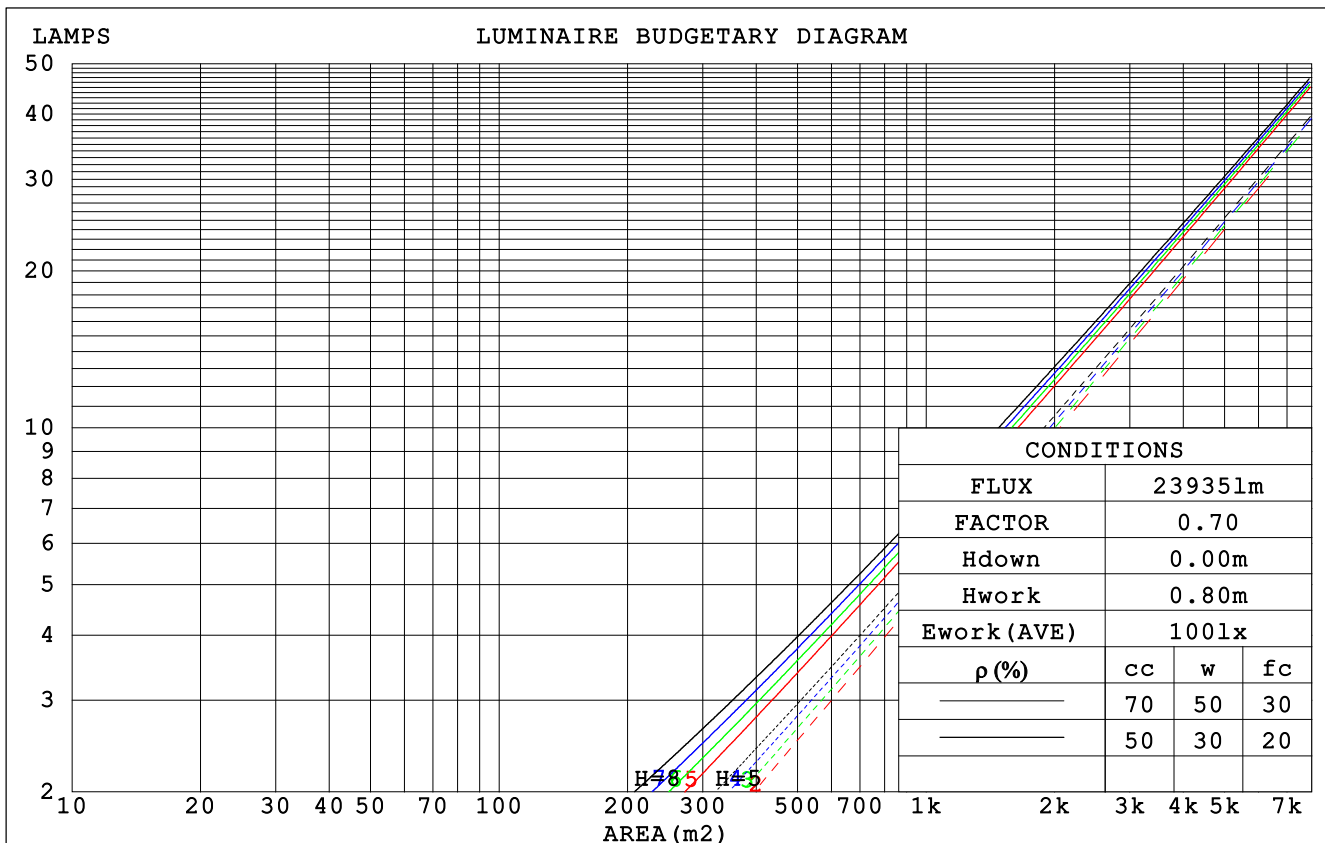
Checker:

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

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	.00	1.01	.99	.97	.98	.96	.94	.94	.93	.91	.89
2.0	.97	.92	.87	.95	.91	.86	.92	.88	.85	.89	.86	.83	.86	.83	.81	.79
3.0	.88	.81	.76	.87	.80	.76	.84	.79	.74	.81	.77	.73	.79	.75	.72	.70
4.0	.80	.73	.67	.79	.72	.67	.76	.71	.66	.74	.69	.65	.72	.68	.64	.63
5.0	.73	.65	.60	.72	.65	.60	.70	.64	.59	.68	.63	.58	.66	.62	.58	.56
6.0	.67	.59	.54	.66	.59	.54	.64	.58	.53	.63	.57	.53	.61	.56	.52	.51
7.0	.62	.54	.49	.61	.54	.49	.59	.53	.48	.58	.52	.48	.57	.52	.48	.46
8.0	.57	.49	.44	.56	.49	.44	.55	.49	.44	.54	.48	.44	.53	.48	.44	.42
9.0	.53	.46	.41	.52	.45	.41	.51	.45	.40	.50	.44	.40	.49	.44	.40	.38
10.0	.49	.42	.37	.49	.42	.37	.48	.41	.37	.47	.41	.37	.46	.41	.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	.234	.133	.042	.227	.130	.041	.214	.123	.039	.203	.117	.037	.192	.111	.036	
2.0	.226	.124	.038	.220	.121	.037	.209	.116	.036	.199	.112	.035	.189	.107	.034	
3.0	.215	.114	.034	.209	.112	.034	.200	.108	.033	.191	.105	.032	.182	.101	.031	
4.0	.202	.105	.031	.198	.104	.031	.189	.100	.030	.182	.098	.029	.174	.095	.029	
5.0	.191	.097	.028	.187	.096	.028	.179	.093	.028	.172	.091	.027	.166	.089	.027	
6.0	.180	.090	.026	.177	.089	.026	.170	.087	.025	.164	.085	.025	.158	.083	.025	
7.0	.170	.084	.024	.167	.083	.024	.161	.081	.023	.155	.080	.023	.150	.078	.023	
8.0	.161	.079	.022	.158	.078	.022	.153	.076	.022	.148	.075	.022	.143	.073	.021	
9.0	.153	.074	.021	.150	.073	.021	.145	.072	.020	.141	.071	.020	.137	.069	.020	
10.0	.145	.070	.019	.143	.069	.019	.138	.068	.019	.134	.067	.019	.130	.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	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.163	.132	.106	.140	.114	.092	.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	.145	.100	.065	.125	.086	.057	.086	.060	.040	.050	.035	.024	.016	.011	.008	
5.0	.138	.089	.053	.118	.077	.046	.082	.054	.033	.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	.044	.023	.043	.026	.014	.014	.009	.005	
8.0	.119	.067	.032	.102	.058	.028	.071	.041	.020	.041	.024	.012	.013	.008	.004	
9.0	.113	.062	.028	.098	.054	.024	.068	.038	.017	.039	.022	.010	.013	.007	.003	
10.0	.108	.058	.024	.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:2017-07-03

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	27.6	28.9	27.9	29.1	29.2	18.7	20.0	19.0	20.2	20.3
3H	28.3	29.5	28.6	29.7	29.9	19.0	20.2	19.3	20.4	20.6
4H	28.5	29.6	28.8	29.8	30.0	19.3	20.4	19.6	20.6	20.8
6H	28.5	29.5	28.8	29.8	30.0	19.6	20.6	19.9	20.9	21.1
8H	28.5	29.4	28.8	29.7	30.0	19.7	20.7	20.0	21.0	21.2
12H	28.4	29.4	28.8	29.6	29.9	19.8	20.8	20.2	21.0	21.3
4H 2H	27.4	28.5	27.7	28.7	28.9	19.3	20.4	19.6	20.6	20.9
3H	28.1	29.1	28.5	29.3	29.6	19.7	20.6	20.0	20.9	21.2
4H	28.3	29.1	28.7	29.4	29.8	20.0	20.9	20.4	21.2	21.5
6H	28.3	29.1	28.7	29.4	29.8	20.4	21.1	20.8	21.5	21.8
8H	28.3	29.0	28.7	29.4	29.8	20.6	21.3	21.0	21.6	22.0
12H	28.3	28.9	28.7	29.3	29.7	20.7	21.4	21.2	21.7	22.1
8H 4H	28.2	28.9	28.6	29.2	29.6	20.2	20.9	20.6	21.3	21.7
6H	28.3	28.8	28.7	29.2	29.6	20.7	21.3	21.1	21.7	22.1
8H	28.3	28.8	28.7	29.2	29.6	20.9	21.4	21.4	21.9	22.3
12H	28.2	28.7	28.7	29.1	29.6	21.2	21.6	21.6	22.0	22.5
12H 4H	28.1	28.8	28.6	29.2	29.5	20.2	20.9	20.7	21.2	21.6
6H	28.2	28.7	28.7	29.1	29.6	20.7	21.2	21.2	21.7	22.1
8H	28.2	28.7	28.7	29.1	29.6	21.0	21.4	21.5	21.9	22.3
Variations with the observer position at spacings:										
S = 1.0H	+ 1.2 / - 2.2					+ 1.1 / - 1.6				
1.5H	+ 2.4 / - 4.2					+ 1.4 / - 1.5				
2.0H	+ 3.7 / - 6.8					+ 1.6 / - 1.2				

CIE Pub.117 Corrected 23935 lm Total Lamp Luminous Flux.(8log(F/F0) = 11.0)

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) $k(RI) \times RCR = 5$									
$k = 0.60$	71	61	56	70	61	56	69	61	56	50
0.80	80	71	66	79	71	65	78	70	65	60
1.00	87	79	74	86	79	73	85	79	73	67
1.25	93	86	80	92	85	80	90	84	79	73
1.50	97	90	85	96	89	85	93	88	84	78
2.00	102	96	92	101	95	91	98	93	89	83
2.50	105	99	95	103	98	94	100	96	92	85
3.00	107	103	99	106	101	97	102	98	95	88
4.00	110	106	103	108	104	101	104	101	99	91
5.00	112	108	106	110	107	104	105	103	101	93
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

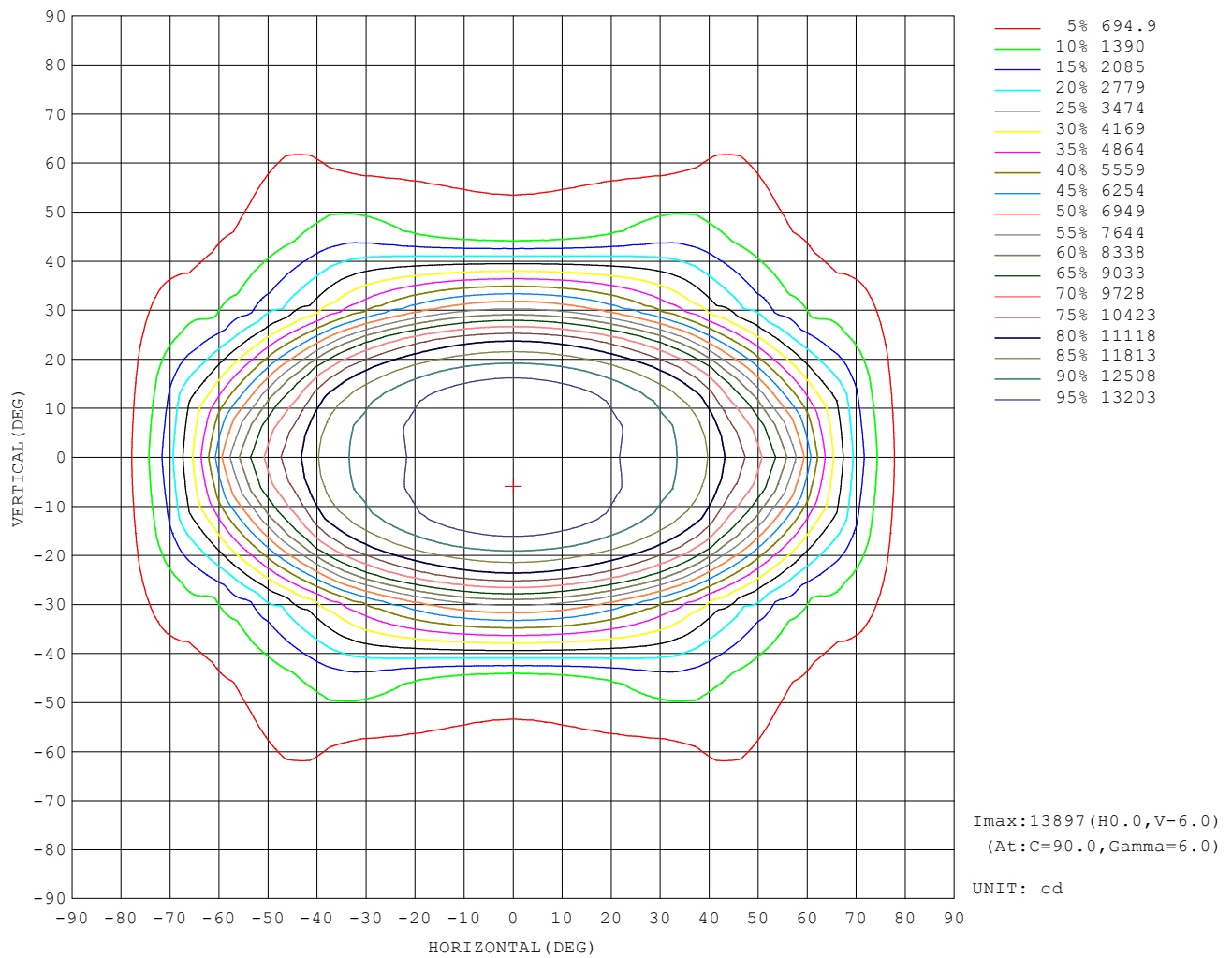
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-03

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



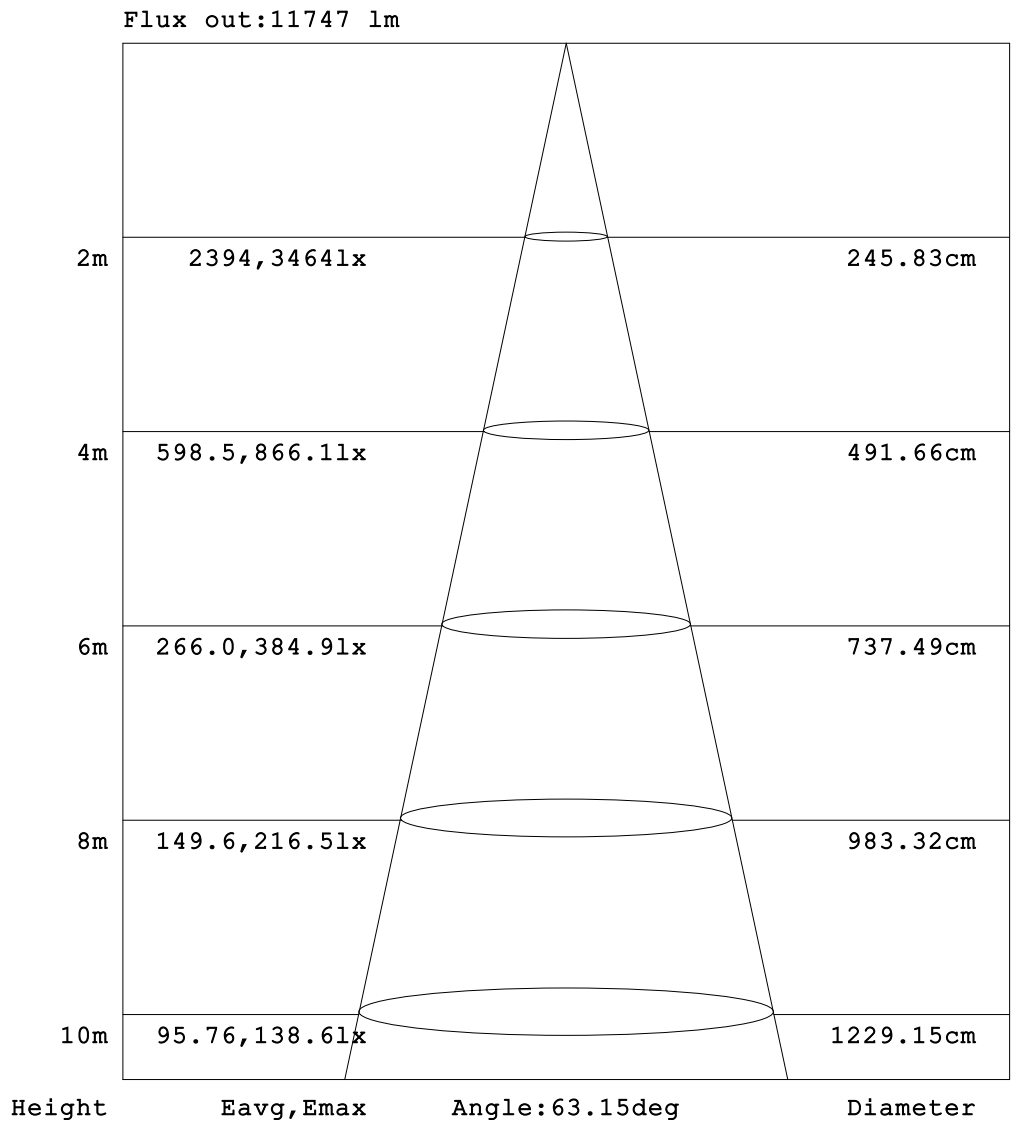
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-03

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.

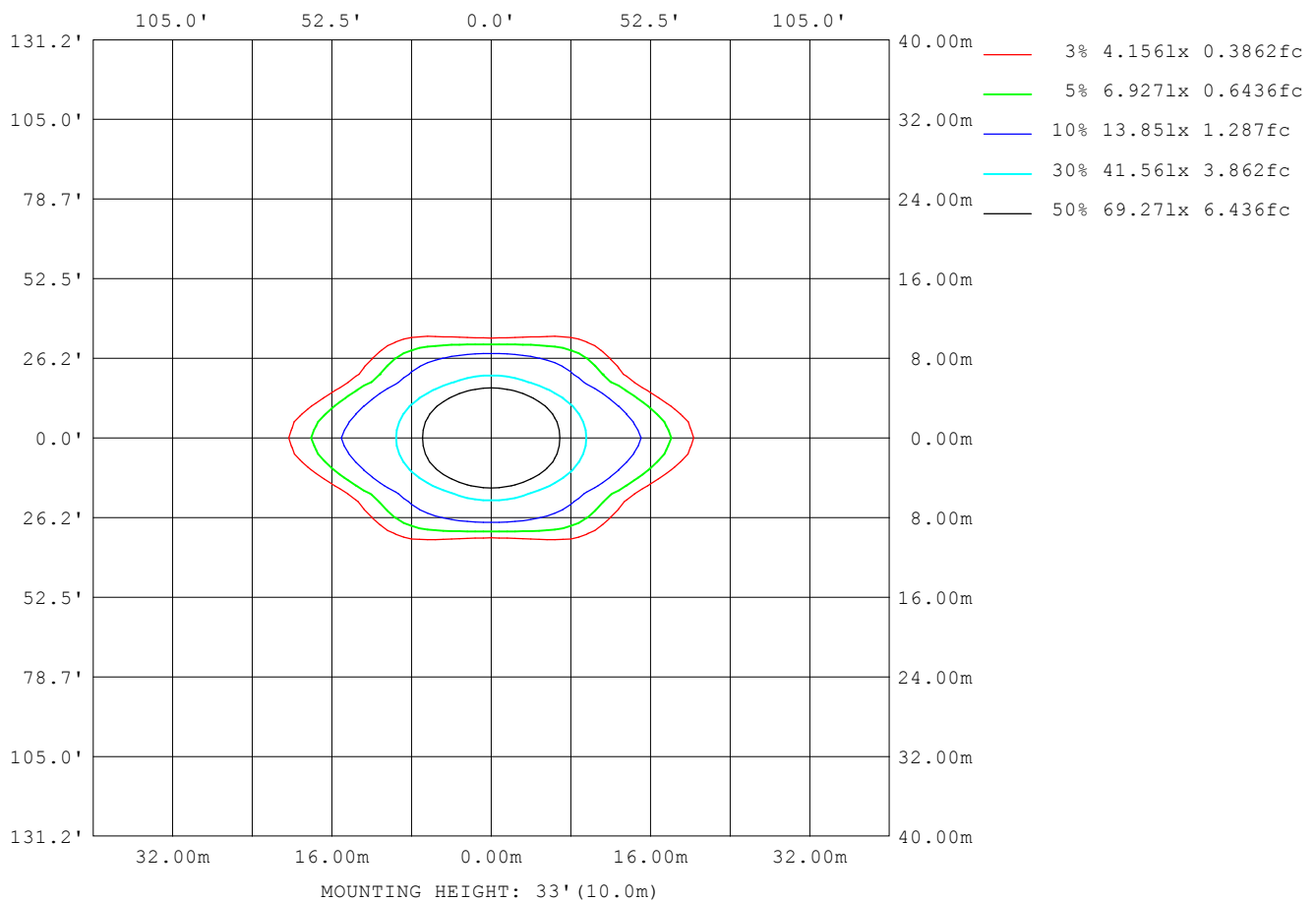
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-03

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



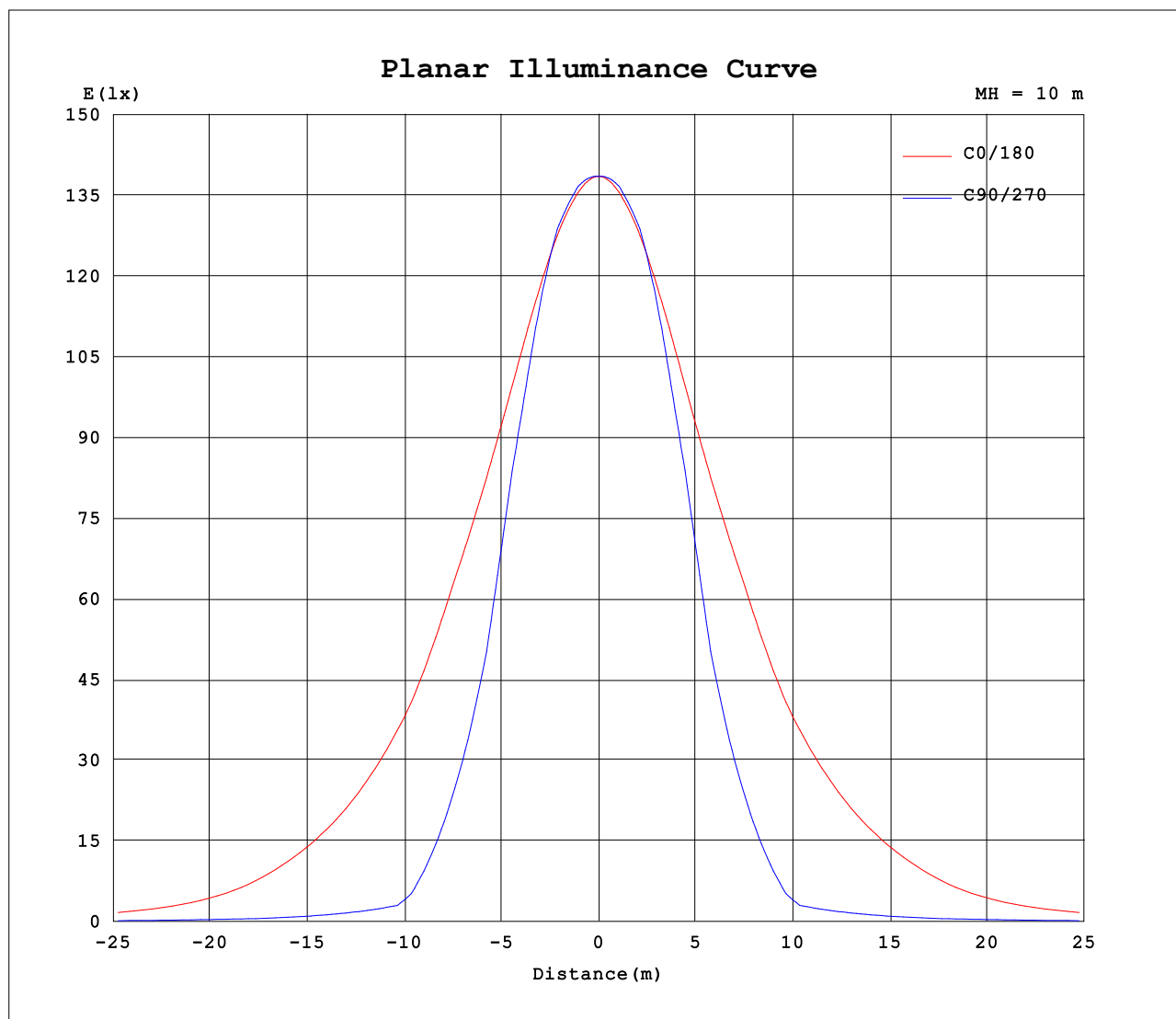
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-03

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: 2017-07-03

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: