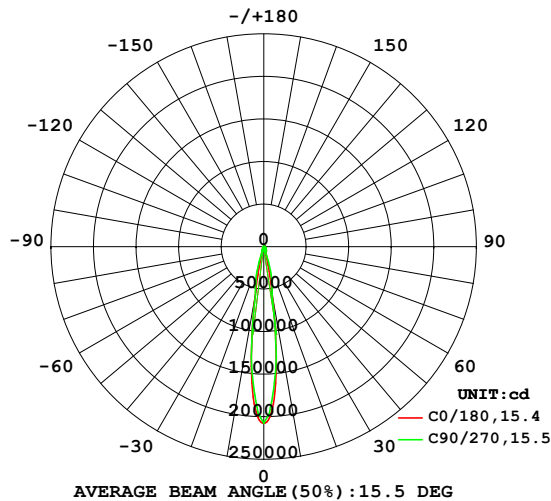


LUMINAIRE PHOTOMETRIC TEST REPORT

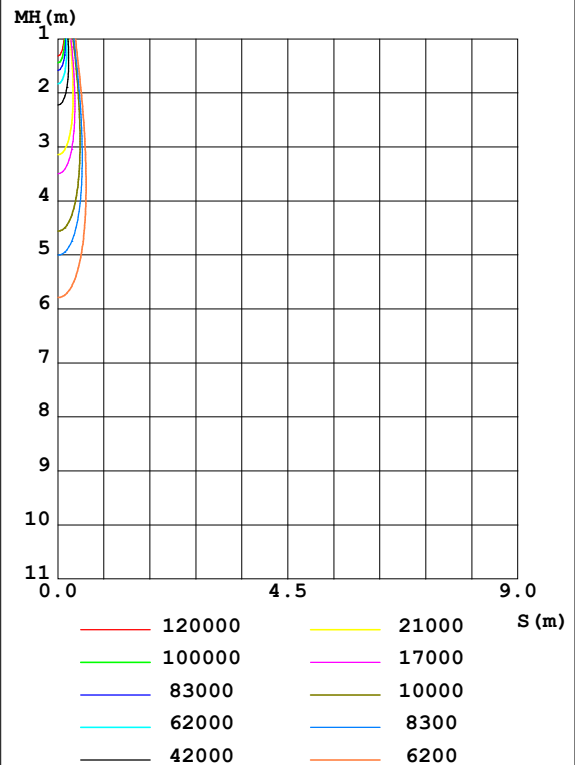
Test:U:230.0V I:0.8868A P:198.8W PF:0.9743 Lamp Flux:23149.8x1 lm		
NAME: FL13-200	TYPE:200W	WEIGHT:
SPEC.:5000K Ra70 F06002	DIM.: 0.285*0.135*08	SERIAL No.:
MFR.:	SUR.:0.255*0.105	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 116.47 lm/W			
MODEL	SQUARE	Imax(cd)	207722	S/MH(C0/180)	0.26
NOMINAL POWER(W)	200	LOR(%)	100.0	S/MH(C90/270)	0.27
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	23150	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	23149.8	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.00

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:2018-01-17

Checker: LI

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	1610	1560	1537	1615	1610	1615	1537	1560	0- 5	4330	4330	18.7,18.7
10	599.5	604.2	579.7	636.7	599.5	636.7	579.7	604.2	5- 10	7380	11710	50.6,50.6
15	154.5	166.4	321.6	172.0	154.5	172.0	321.6	166.4	10- 15	4128	15839	68.4,68.4
20	64.86	78.53	63.55	79.44	64.86	79.44	63.55	78.53	15- 20	2134	17973	77.6,77.6
25	45.61	46.12	44.54	45.93	45.61	45.93	44.54	46.12	20- 25	1161	19134	82.7,82.7
30	25.97	28.02	25.54	28.27	25.97	28.27	25.54	28.02	25- 30	902.2	20036	86.5,86.5
35	17.99	18.62	20.93	18.78	17.99	18.78	20.93	18.62	30- 35	656.5	20693	89.4,89.4
40	13.58	13.56	16.32	13.65	13.58	13.65	16.32	13.56	35- 40	548.4	21241	91.8,91.8
45	10.34	10.57	11.70	10.63	10.34	10.63	11.70	10.57	40- 45	463.4	21704	93.8,93.8
50	7.975	8.114	7.090	8.144	7.975	8.144	7.090	8.114	45- 50	375.6	22080	95.4,95.4
55	6.174	6.083	5.839	6.107	6.174	6.107	5.839	6.083	50- 55	297.2	22377	96.7,96.7
60	4.716	4.453	4.589	4.475	4.716	4.475	4.589	4.453	55- 60	243.1	22620	97.7,97.7
65	3.440	3.328	3.338	3.358	3.440	3.358	3.338	3.328	60- 65	192.5	22813	98.5,98.5
70	2.312	2.252	2.087	2.287	2.312	2.287	2.087	2.252	65- 70	140.4	22953	99.2,99.2
75	1.327	1.224	1.606	1.258	1.327	1.258	1.606	1.224	70- 75	92.55	23046	99.6,99.6
80	0.4835	0.7958	1.125	0.8060	0.4835	0.8060	1.125	0.7958	75- 80	57.78	23104	99.8,99.8
85	0.0558	0.4597	0.6438	0.4429	0.0558	0.4429	0.6438	0.4597	80- 85	32.38	23136	99.9,99.9
90	0	0.1339	0.1626	0.0900	0	0.0900	0.1626	0.1339	85- 90	13.87	23150	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:×100cd									UNIT:lm		

Conical surface Flux(90deg): 21704 lm

%lum = 93.8%

%lamp = 93.8%

Conical surface Flux(120deg): 22620 lm

%lum = 97.7%

%lamp = 97.7%

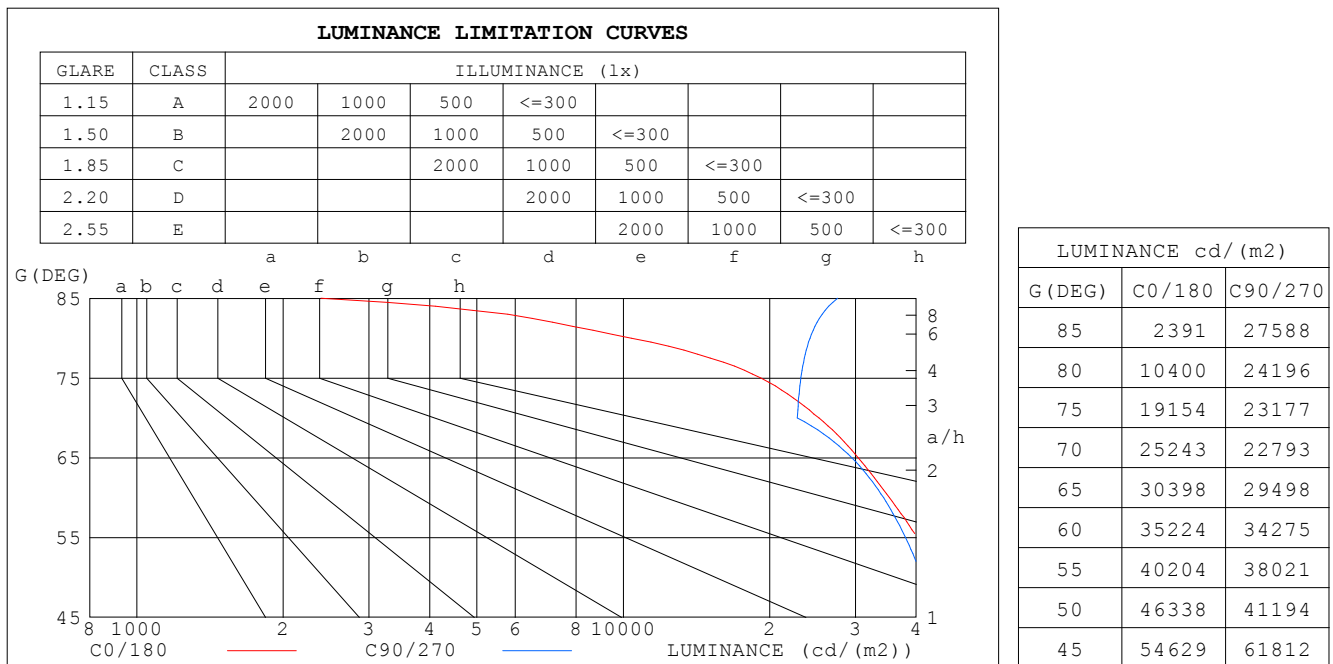
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2018-01-17

Checker: LI

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: 2018-01-17

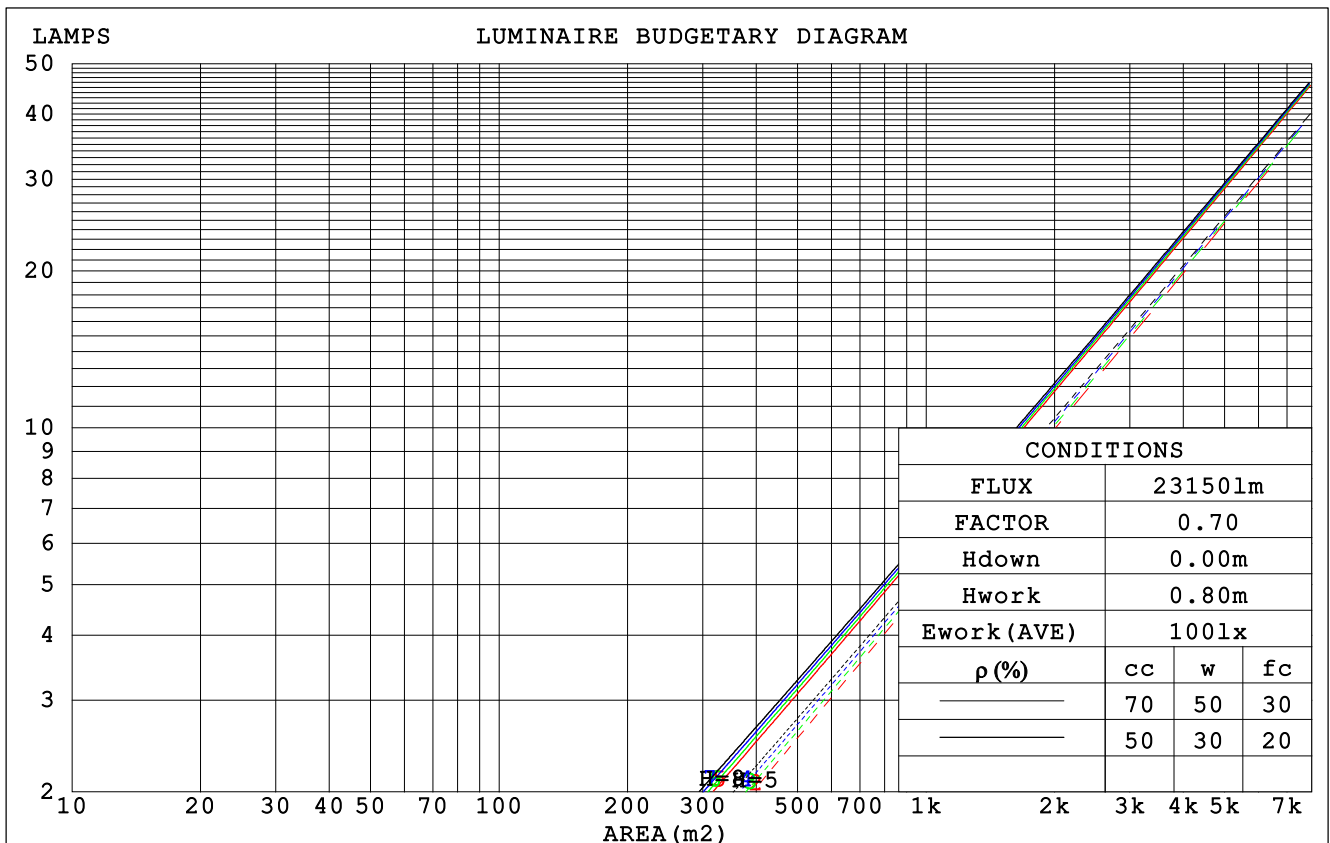
Checker: LI

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
p _w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
p _{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	1.13	1.11	1.09	1.10	1.09	1.07	1.06	1.05	1.04	1.03	1.02	1.01	.99	.99	.98	.96
2.0	1.07	1.04	1.01	1.05	1.02	1.00	1.02	.00	.98	.99	.97	.96	.97	.95	.94	.92
3.0	1.02	.99	.96	1.01	.98	.95	.98	.96	.93	.96	.94	.92	.94	.92	.91	.89
4.0	.98	.94	.91	.97	.93	.91	.95	.92	.90	.93	.91	.89	.92	.89	.88	.86
5.0	.95	.91	.88	.94	.90	.87	.92	.89	.86	.91	.88	.86	.89	.87	.85	.84
6.0	.92	.88	.85	.91	.87	.84	.90	.86	.84	.89	.86	.83	.87	.85	.83	.82
7.0	.89	.85	.82	.89	.85	.82	.88	.84	.82	.86	.83	.81	.86	.83	.81	.80
8.0	.87	.83	.80	.86	.83	.80	.85	.82	.80	.85	.81	.79	.84	.81	.79	.78
9.0	.85	.81	.78	.84	.81	.78	.84	.80	.78	.83	.80	.78	.82	.79	.77	.76
10.0	.83	.79	.76	.82	.79	.76	.82	.78	.76	.81	.78	.76	.81	.78	.76	.75



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2018-01-17

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: LI

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	.144	.082	.026	.137	.078	.025	.125	.072	.023	.113	.065	.021	.103	.060	.019	
2.0	.133	.073	.022	.128	.070	.022	.117	.065	.020	.108	.061	.019	.099	.056	.018	
3.0	.123	.066	.020	.119	.064	.019	.110	.060	.018	.102	.056	.017	.095	.052	.016	
4.0	.114	.059	.017	.110	.058	.017	.103	.055	.016	.097	.052	.016	.090	.049	.015	
5.0	.107	.054	.016	.103	.053	.015	.097	.051	.015	.091	.048	.014	.086	.046	.014	
6.0	.100	.050	.014	.097	.049	.014	.092	.047	.014	.087	.045	.013	.082	.043	.013	
7.0	.094	.046	.013	.091	.046	.013	.087	.044	.013	.082	.042	.012	.078	.041	.012	
8.0	.088	.043	.012	.086	.043	.012	.082	.041	.012	.079	.040	.011	.075	.039	.011	
9.0	.084	.041	.011	.082	.040	.011	.078	.039	.011	.075	.038	.011	.072	.037	.011	
10.0	.079	.038	.011	.078	.038	.010	.075	.037	.010	.072	.036	.010	.069	.035	.010	

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	.169	.158	.147	.144	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.017		
2.0	.151	.133	.117	.129	.114	.101	.089	.079	.071	.051	.046	.041	.016	.015	.013		
3.0	.136	.113	.095	.117	.098	.082	.080	.068	.058	.046	.040	.034	.015	.013	.011		
4.0	.124	.098	.078	.106	.085	.068	.073	.059	.048	.042	.035	.028	.014	.011	.009		
5.0	.113	.086	.066	.097	.074	.057	.067	.052	.040	.039	.030	.024	.012	.010	.008		
6.0	.104	.076	.056	.089	.066	.048	.061	.046	.034	.036	.027	.020	.012	.009	.007		
7.0	.096	.067	.048	.082	.058	.041	.057	.041	.029	.033	.024	.017	.011	.008	.006		
8.0	.089	.061	.041	.076	.053	.036	.053	.037	.025	.031	.022	.015	.010	.007	.005		
9.0	.083	.055	.036	.071	.048	.031	.049	.033	.022	.029	.020	.013	.009	.006	.004		
10.0	.078	.050	.032	.067	.043	.028	.046	.031	.020	.027	.018	.012	.009	.006	.004		

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-01-17

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: LI

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	19.7	20.4	19.9	20.5	20.7	19.7	20.4	19.9	20.6	20.7
3H	20.5	21.1	20.7	21.3	21.5	20.4	21.1	20.7	21.2	21.4
4H	20.7	21.3	21.0	21.5	21.7	20.7	21.3	21.0	21.5	21.8
6H	20.8	21.3	21.0	21.5	21.8	21.0	21.6	21.3	21.8	22.1
8H	20.7	21.3	21.0	21.5	21.8	21.2	21.7	21.5	22.0	22.2
12H	20.7	21.2	21.0	21.5	21.7	21.3	21.8	21.6	22.1	22.4
4H 2H	20.1	20.7	20.3	20.9	21.1	20.1	20.7	20.3	20.9	21.1
3H	21.0	21.5	21.3	21.7	22.0	20.9	21.4	21.2	21.7	22.0
4H	21.2	21.7	21.6	22.0	22.3	21.3	21.8	21.6	22.1	22.4
6H	21.3	21.8	21.7	22.1	22.4	21.7	22.1	22.1	22.5	22.8
8H	21.3	21.7	21.7	22.1	22.4	21.9	22.3	22.3	22.7	23.0
12H	21.3	21.6	21.7	22.0	22.4	22.1	22.5	22.5	22.8	23.2
8H 4H	21.3	21.7	21.7	22.0	22.4	21.3	21.7	21.7	22.1	22.5
6H	21.4	21.8	21.8	22.1	22.6	21.9	22.2	22.3	22.6	23.0
8H	21.4	21.7	21.9	22.1	22.6	22.2	22.5	22.6	22.9	23.3
12H	21.4	21.6	21.8	22.1	22.5	22.5	22.7	22.9	23.1	23.6
12H 4H	21.3	21.6	21.7	22.0	22.4	21.3	21.7	21.7	22.0	22.4
6H	21.4	21.7	21.9	22.1	22.6	21.9	22.2	22.3	22.6	23.0
8H	21.5	21.7	21.9	22.1	22.6	22.2	22.4	22.7	22.9	23.4
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.7					+ 0.5 / - 0.7				
1.5H	+ 0.4 / - 0.4					+ 0.8 / - 0.7				
2.0H	+ 0.9 / - 0.8					+ 1.1 / - 0.5				

CIE Pub.117 Corrected 23150 lm Total Lamp Luminous Flux.(8log(F/F0) = 10.9)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-01-17

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: LI

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) $k(RI) \times RCR = 5$									
$k = 0.60$	86	80	76	86	80	76	85	79	76	72
0.80	94	88	84	93	87	84	92	87	83	80
1.00	98	93	89	98	92	89	96	92	88	84
1.25	102	97	93	101	96	93	99	95	92	88
1.50	105	100	97	104	100	96	102	98	95	91
2.00	108	104	100	107	103	100	104	101	98	93
2.50	110	106	103	108	105	102	105	102	100	94
3.00	111	108	105	110	106	104	106	104	102	95
4.00	113	111	108	111	109	107	108	106	104	97
5.00	115	112	111	113	111	109	109	107	106	98
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

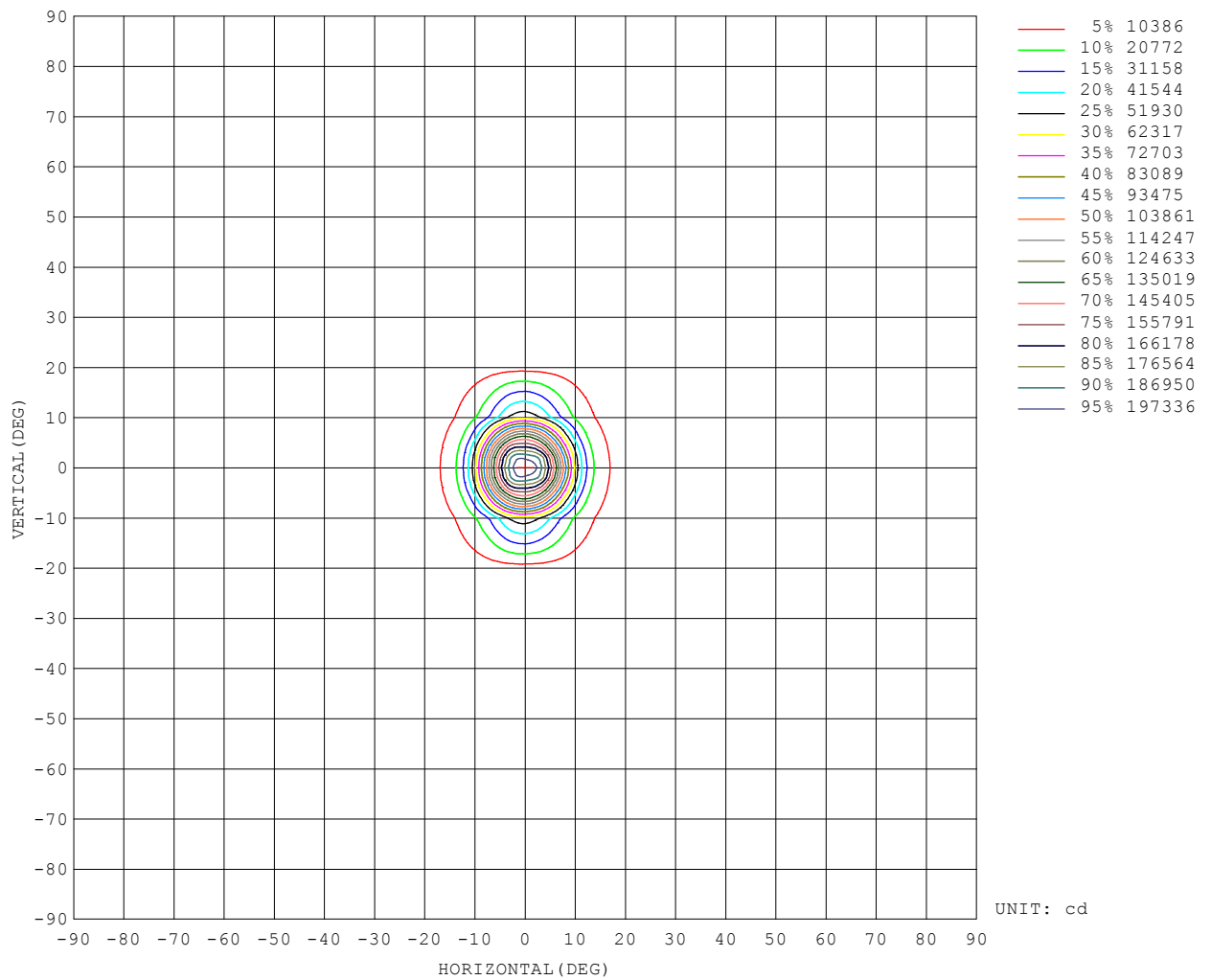
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2018-01-17

Checker: LI

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



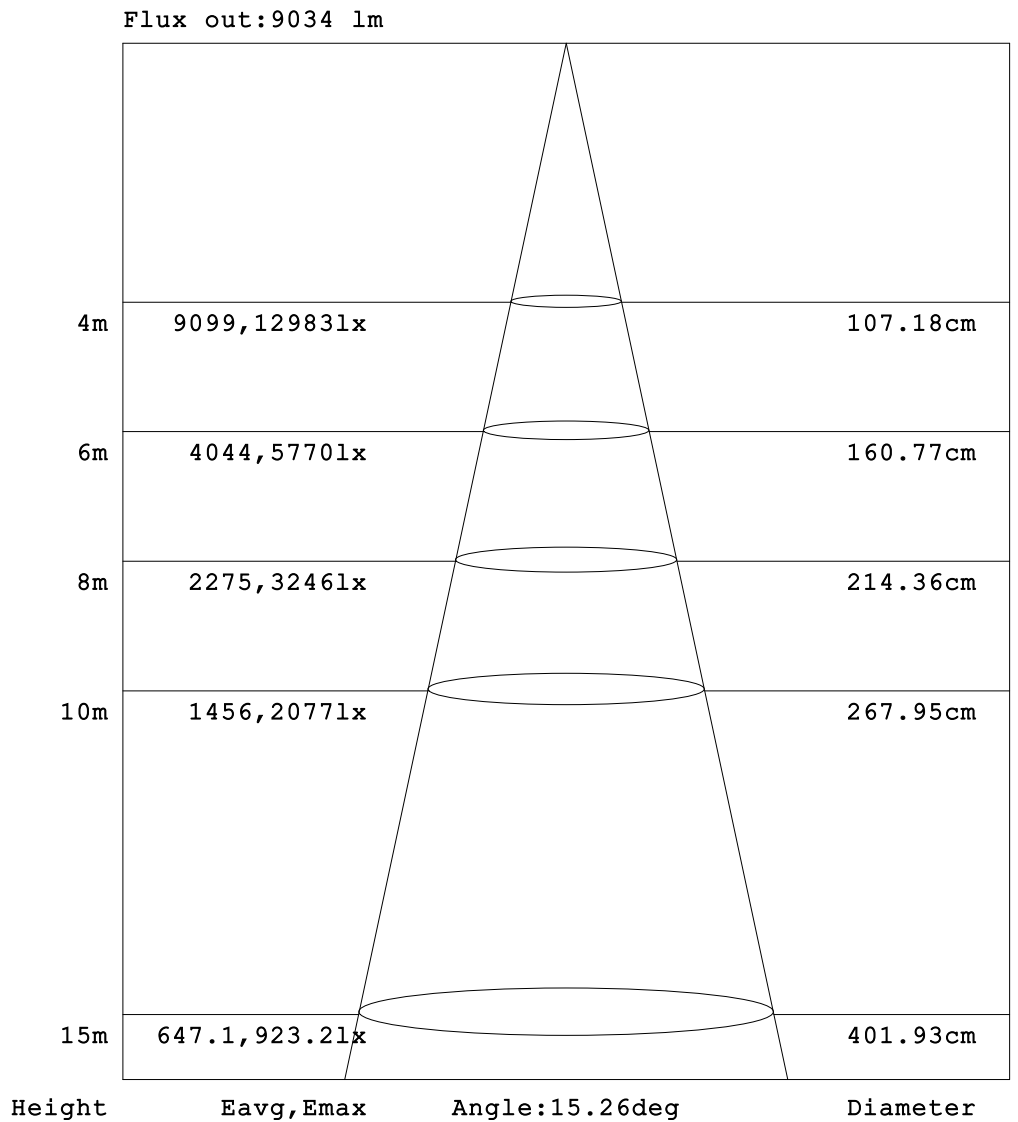
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-01-17

Checker: LI

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:

AAI Figure



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

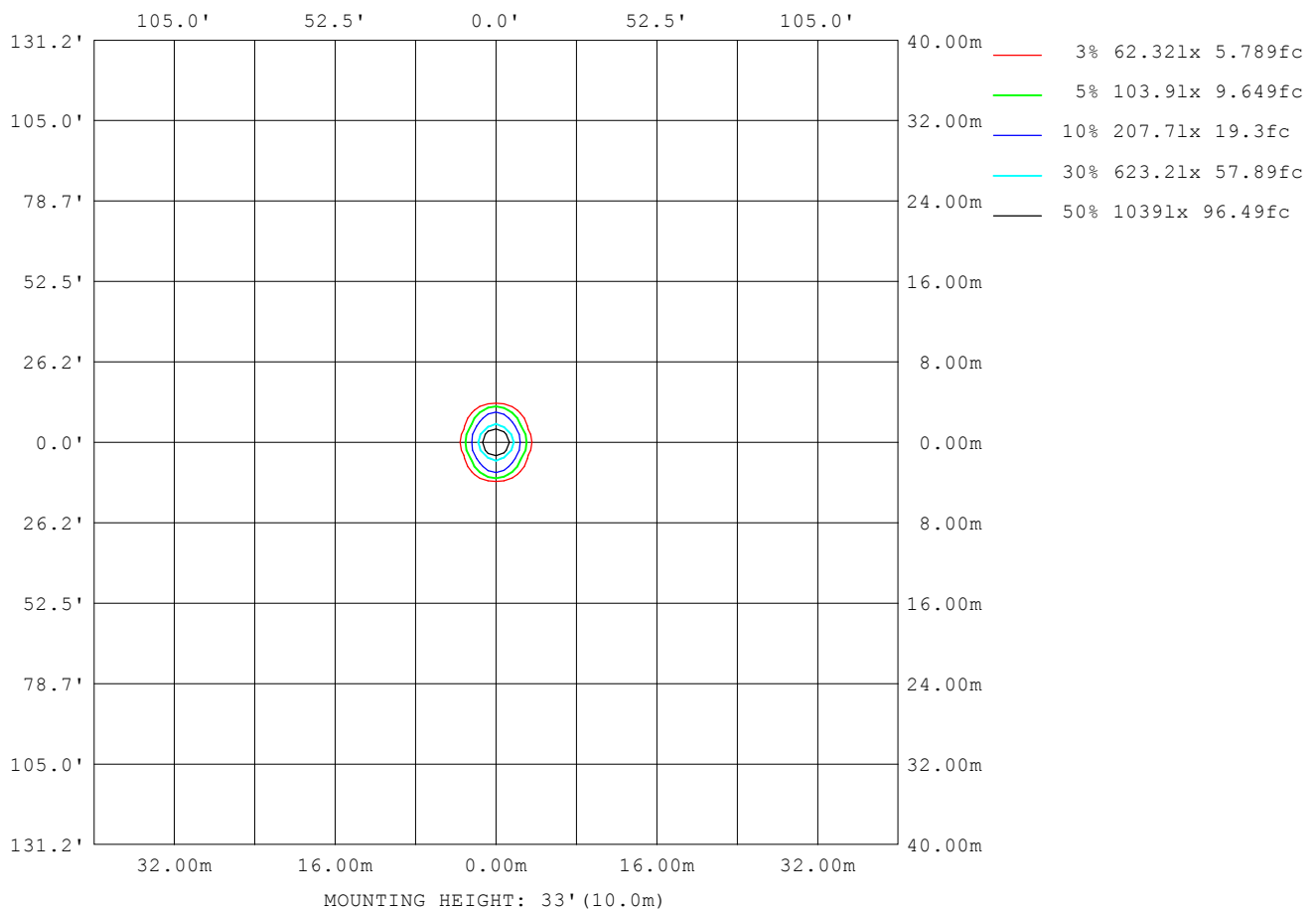
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-01-17

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: LI

Assessor:

ISOLUX DIAGRAM



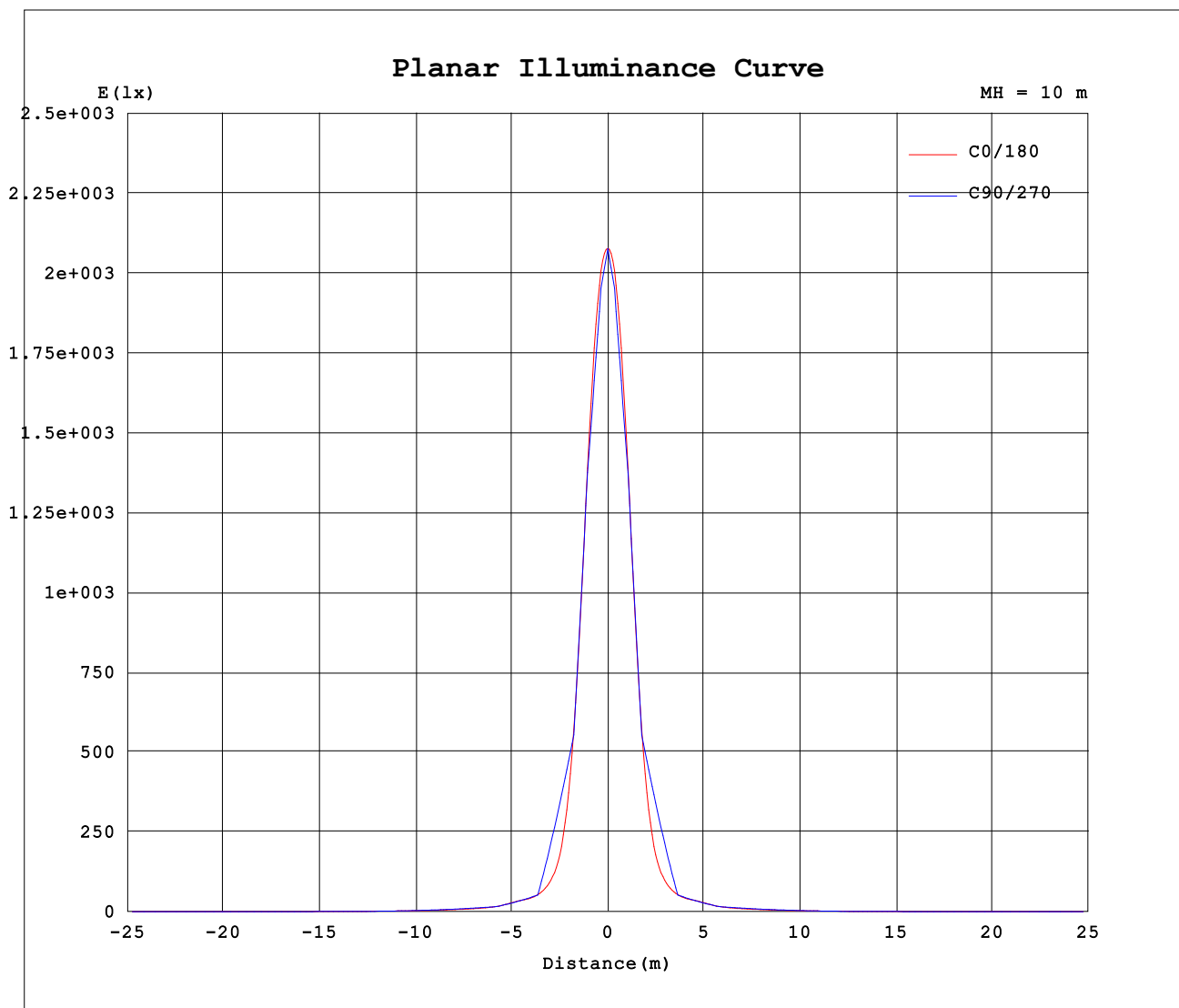
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-01-17

Checker: LI

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: 2018-01-17

Checker: LI

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:

UNIT: x100cd

Assessor:

Assessor:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--3

UNIT: $\times 100\text{cd}$ [illegible]

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-01-17

Checker: LI

```

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:

UNIT: x100cd

Assessor: