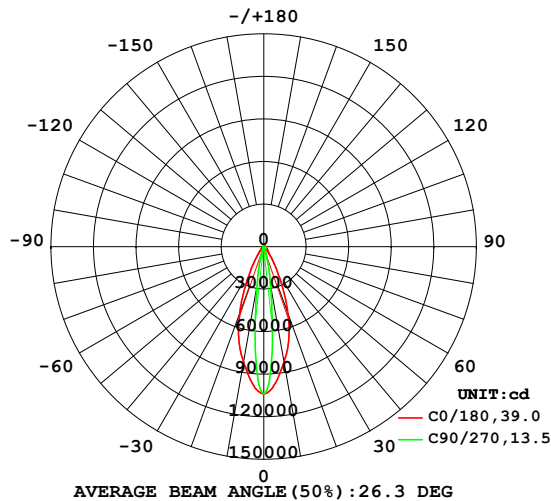


LUMINAIRE PHOTOMETRIC TEST REPORT

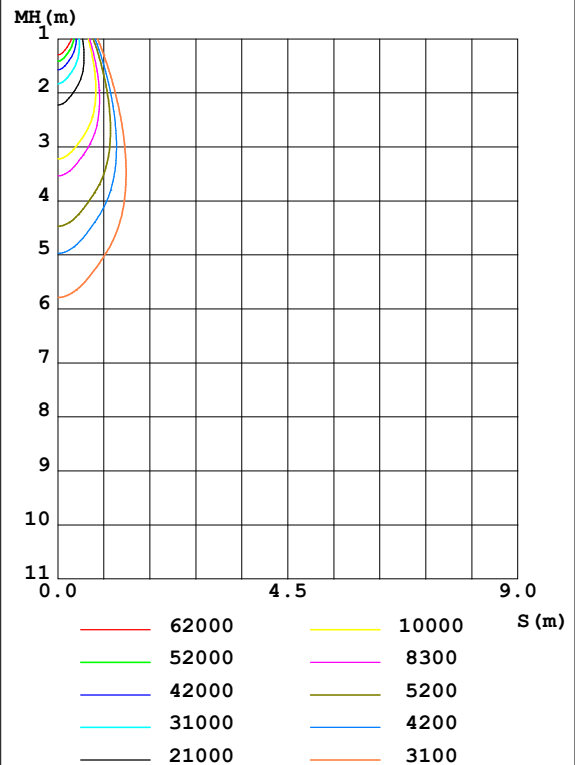
Test:U:230.0V I:0.9025A P:202.1W PF:0.9734 Lamp Flux:22982x1 lm		
NAME: FL13-200	TYPE:200W	WEIGHT:
SPEC.:5000K Ra70 F06004	DIM.: 0.285*0.135*08	SERIAL No.:
MFR.:	SUR.:0.255*0.105	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 113.72 lm/W			
MODEL	SQUARE	Imax(cd)	103785	S/MH(C0/180)	0.63
NOMINAL POWER(W)	200	LOR(%)	100.0	S/MH(C90/270)	0.23
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	22982	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	22982	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: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-05-19

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	963.7	819.9	701.6	816.7	963.7	816.7	701.6	819.9	0- 5	2214	2214	9.63,9.63
10	826.1	438.7	281.3	433.2	826.1	433.2	281.3	438.7	5- 10	4520	6734	29.3,29.3
15	682.9	210.2	108.7	209.6	682.9	209.6	108.7	210.2	10- 15	4495	11229	48.9,48.9
20	500.1	94.53	37.91	95.78	500.1	95.78	37.91	94.53	15- 20	3624	14852	64.6,64.6
25	312.5	40.14	17.71	40.85	312.5	40.85	17.71	40.14	20- 25	2519	17371	75.6,75.6
30	172.6	19.21	11.40	19.51	172.6	19.51	11.40	19.21	25- 30	1603	18974	82.6,82.6
35	90.36	12.09	8.688	12.12	90.36	12.12	8.688	12.09	30- 35	1004	19978	86.9,86.9
40	48.49	9.253	7.299	9.225	48.49	9.225	7.299	9.253	35- 40	663.7	20642	89.8,89.8
45	27.53	8.012	6.333	7.978	27.53	7.978	6.333	8.012	40- 45	483.3	21125	91.9,91.9
50	17.03	7.305	5.701	7.261	17.03	7.261	5.701	7.305	45- 50	390.0	21515	93.6,93.6
55	11.41	6.564	5.113	6.548	11.41	6.548	5.113	6.564	50- 55	336.3	21851	95.1,95.1
60	8.438	5.537	4.505	5.528	8.438	5.528	4.505	5.537	55- 60	294.7	22146	96.4,96.4
65	7.148	4.526	3.901	4.520	7.148	4.520	3.901	4.526	60- 65	258.5	22404	97.5,97.5
70	6.152	3.636	3.019	3.668	6.152	3.668	3.019	3.636	65- 70	225.1	22629	98.5,98.5
75	4.470	2.706	1.959	2.727	4.470	2.727	1.959	2.706	70- 75	178.9	22808	99.2,99.2
80	2.709	1.426	0.9487	1.426	2.709	1.426	0.9487	1.426	75- 80	115.0	22923	99.7,99.7
85	1.027	0.3590	0.1830	0.3608	1.027	0.3608	0.1830	0.3590	80- 85	51.44	22975	100,100
90	0	0	0	0	0	0	0	0	85- 90	7.215	22982	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): 21125 lm

%lum = 91.9%

%lamp = 91.9%

Conical surface Flux(120deg): 22146 lm

%lum = 96.4%

%lamp = 96.4%

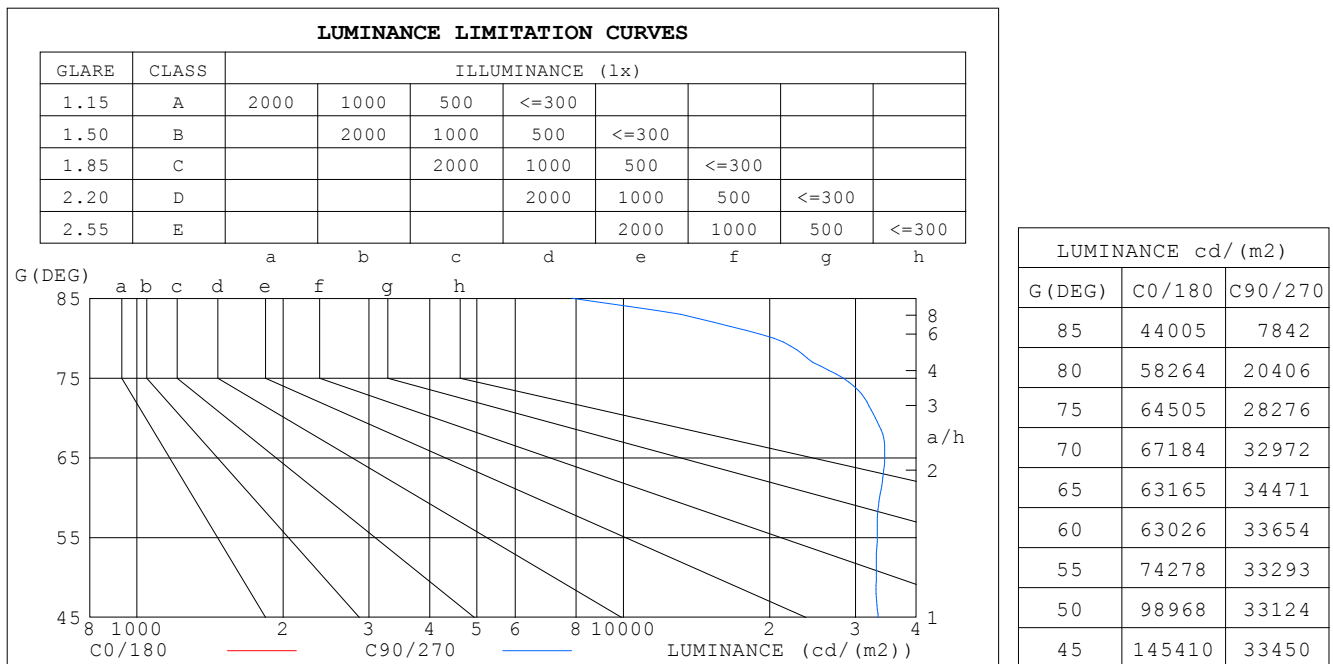
C Range: 0 - 360DEG
 C Interval: 2.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2018-05-19

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: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-05-19

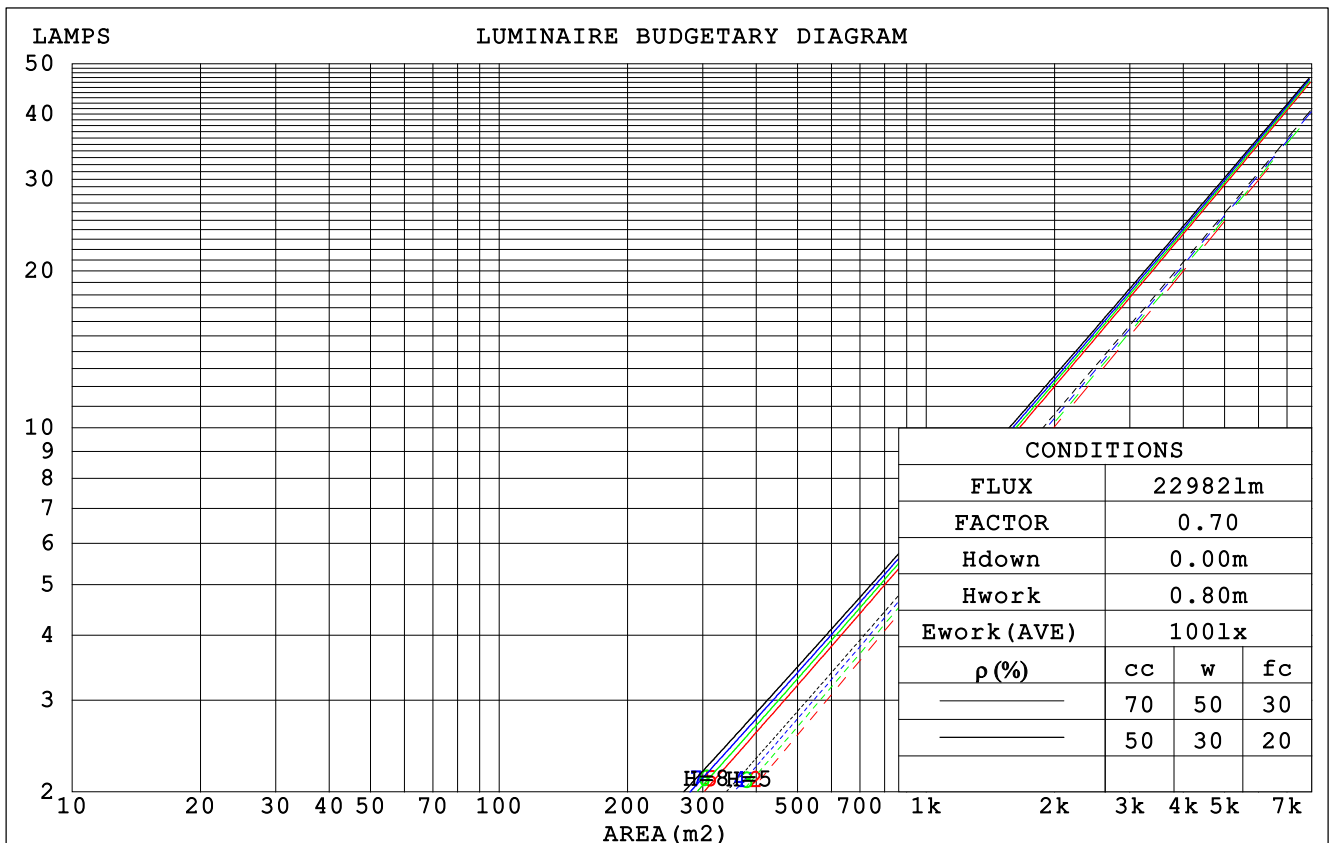
Checker: LI

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

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	1.11	1.09	1.07	1.09	1.07	1.05	1.05	1.03	1.02	1.01	1.00	.99	.98	.97	.96	.94
2.0	1.05	1.01	.98	1.03	.90	.97	.90	.97	.95	.97	.95	.93	.94	.92	.91	.89
3.0	.99	.94	.91	.97	.93	.90	.95	.91	.89	.92	.90	.87	.90	.88	.86	.84
4.0	.94	.89	.85	.93	.88	.85	.91	.87	.84	.89	.85	.83	.87	.84	.82	.80
5.0	.89	.84	.81	.88	.84	.80	.87	.83	.80	.85	.82	.79	.84	.81	.78	.77
6.0	.85	.80	.77	.85	.80	.77	.83	.79	.76	.82	.78	.76	.81	.78	.75	.74
7.0	.82	.77	.73	.81	.77	.73	.80	.76	.73	.79	.75	.73	.78	.75	.72	.71
8.0	.79	.74	.71	.78	.74	.70	.77	.73	.70	.76	.73	.70	.76	.72	.70	.68
9.0	.76	.71	.68	.76	.71	.68	.75	.71	.68	.74	.70	.67	.73	.70	.67	.66
10.0	.73	.69	.66	.73	.69	.65	.72	.68	.65	.72	.68	.65	.71	.68	.65	.64



C Range: 0 - 360DEG
 C Interval: 2.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2018-05-19

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	.167	.095	.030	.161	.092	.029	.148	.085	.027	.136	.079	.025	.126	.073	.024		
2.0	.156	.086	.026	.151	.083	.026	.140	.078	.024	.131	.073	.023	.122	.069	.022		
3.0	.146	.078	.023	.141	.076	.023	.132	.072	.022	.124	.068	.021	.116	.064	.020		
4.0	.136	.071	.021	.132	.069	.020	.125	.066	.020	.118	.063	.019	.111	.060	.018		
5.0	.128	.065	.019	.124	.064	.019	.118	.061	.018	.112	.059	.018	.106	.057	.017		
6.0	.120	.060	.017	.117	.059	.017	.112	.057	.017	.106	.055	.016	.101	.053	.016		
7.0	.114	.056	.016	.111	.055	.016	.106	.054	.015	.101	.052	.015	.097	.050	.015		
8.0	.108	.053	.015	.105	.052	.015	.101	.051	.014	.097	.049	.014	.093	.048	.014		
9.0	.102	.050	.014	.100	.049	.014	.097	.048	.014	.093	.047	.013	.089	.045	.013		
10.0	.098	.047	.013	.096	.046	.013	.092	.045	.013	.089	.044	.013	.086	.043	.012		

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	.170	.157	.146	.146	.135	.125	.100	.093	.087	.057	.054	.050	.018	.017	.016		
2.0	.154	.133	.114	.132	.114	.099	.090	.079	.069	.052	.046	.040	.017	.015	.013		
3.0	.141	.113	.092	.120	.098	.080	.083	.068	.056	.048	.040	.033	.015	.013	.011		
4.0	.129	.098	.075	.111	.085	.065	.076	.059	.046	.044	.035	.027	.014	.011	.009		
5.0	.119	.087	.062	.102	.075	.054	.070	.052	.038	.041	.031	.023	.013	.010	.007		
6.0	.111	.077	.053	.095	.067	.046	.066	.047	.032	.038	.027	.019	.012	.009	.006		
7.0	.103	.069	.045	.089	.060	.039	.061	.042	.028	.036	.025	.016	.012	.008	.005		
8.0	.097	.062	.039	.083	.054	.034	.058	.038	.024	.034	.022	.014	.011	.007	.005		
9.0	.091	.057	.034	.079	.049	.029	.054	.035	.021	.032	.020	.012	.010	.007	.004		
10.0	.086	.052	.030	.074	.045	.026	.052	.032	.018	.030	.019	.011	.010	.006	.004		

C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-05-19

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	23.9	24.7	24.1	24.8	25.0	18.6	19.4	18.8	19.6	19.7
3H	24.9	25.7	25.2	25.9	26.1	20.3	21.0	20.5	21.2	21.4
4H	25.5	26.2	25.8	26.4	26.7	20.9	21.6	21.1	21.8	22.0
6H	25.9	26.6	26.2	26.9	27.1	21.1	21.8	21.4	22.1	22.3
8H	26.1	26.7	26.4	27.0	27.2	21.2	21.8	21.5	22.1	22.3
12H	26.1	26.8	26.5	27.0	27.3	21.2	21.8	21.5	22.0	22.3
4H 2H	23.9	24.6	24.2	24.9	25.1	19.6	20.3	19.9	20.5	20.7
3H	25.2	25.8	25.5	26.1	26.4	21.4	22.0	21.7	22.3	22.6
4H	25.9	26.5	26.2	26.8	27.1	22.1	22.6	22.4	22.9	23.2
6H	26.4	26.9	26.8	27.3	27.6	22.4	22.9	22.8	23.3	23.6
8H	26.6	27.1	27.0	27.4	27.8	22.5	22.9	22.8	23.3	23.7
12H	26.7	27.1	27.1	27.5	27.9	22.4	22.9	22.8	23.2	23.6
8H 4H	25.9	26.4	26.3	26.8	27.1	22.5	23.0	22.9	23.3	23.7
6H	26.5	26.9	27.0	27.3	27.7	23.0	23.4	23.4	23.8	24.2
8H	26.8	27.1	27.2	27.5	28.0	23.0	23.4	23.5	23.8	24.3
12H	26.9	27.2	27.4	27.6	28.1	23.0	23.3	23.5	23.8	24.2
12H 4H	25.9	26.3	26.3	26.7	27.1	22.5	23.0	22.9	23.3	23.7
6H	26.5	26.9	27.0	27.3	27.7	23.0	23.4	23.5	23.8	24.2
8H	26.7	27.0	27.2	27.5	28.0	23.1	23.4	23.6	23.9	24.3
Variations with the observer position at spacings:										
S = 1.0H	+ 2.3 / - 0.8					+ 0.1 / - 0.2				
1.5H	+ 3.8 / - 1.3					+ 0.2 / - 0.3				
2.0H	+ 2.8 / - 0.9					+ 0.3 / - 0.5				

CIE Pub.117 Corrected 22982 lm Total Lamp Luminous Flux.(8log(F/F0) = 10.9)

C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2018-05-19

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:

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) $k(RI) \times RCR = 5$									
$k = 0.60$	85	79	75	85	78	75	84	78	74	71
0.80	93	87	83	92	86	82	91	86	82	78
1.00	97	91	87	96	91	87	95	91	87	82
1.25	101	96	92	100	95	92	98	94	91	86
1.50	104	99	96	103	98	95	101	97	94	89
2.00	107	103	99	106	102	98	103	100	97	92
2.50	109	105	102	108	104	101	104	101	99	93
3.00	111	107	104	109	106	103	106	103	101	94
4.00	113	110	108	111	108	106	107	105	104	96
5.00	115	112	110	112	110	108	108	107	105	98
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

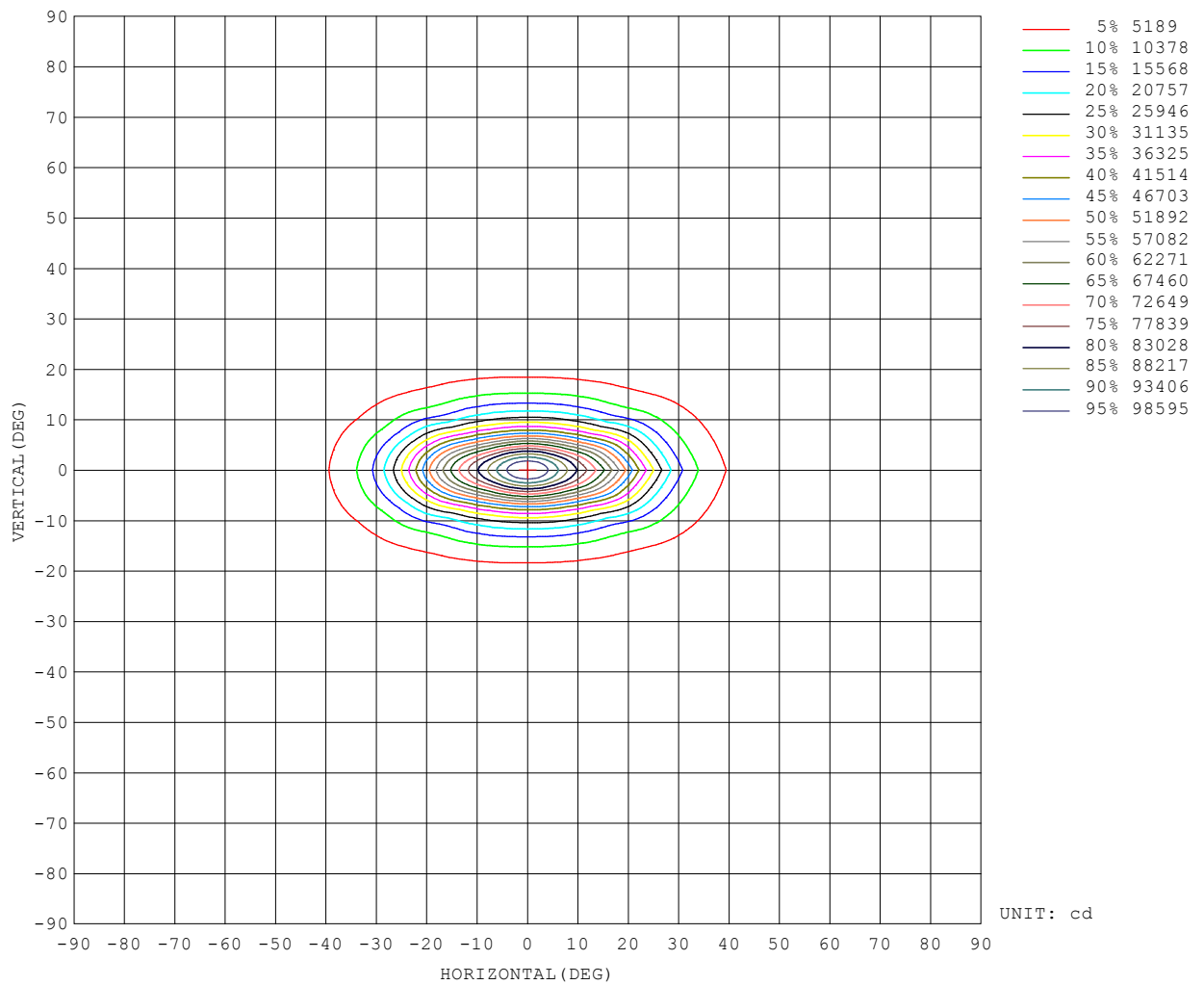
C Range: 0 - 360DEG
 C Interval: 2.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2018-05-19

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



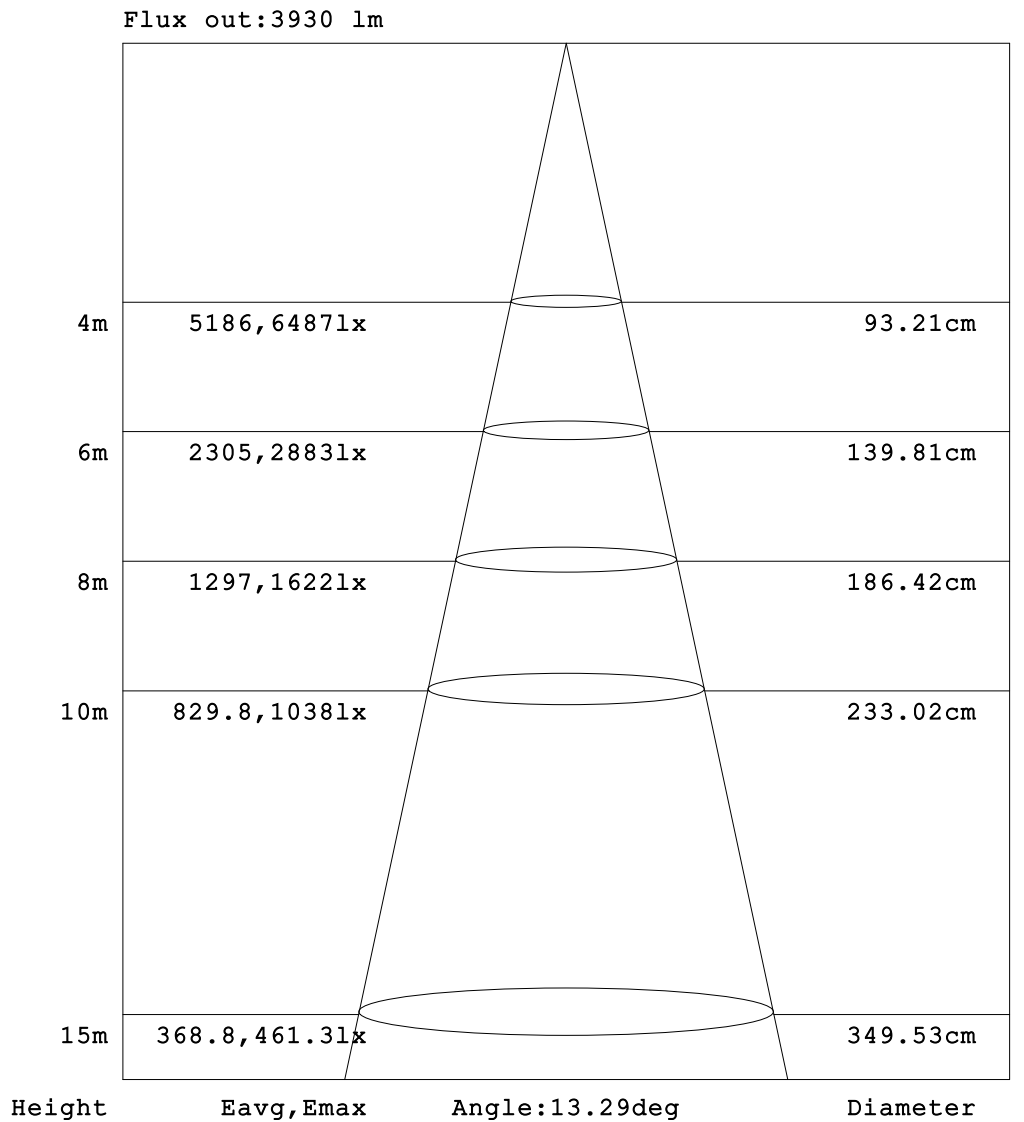
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-05-19

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:

AAI Figure



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

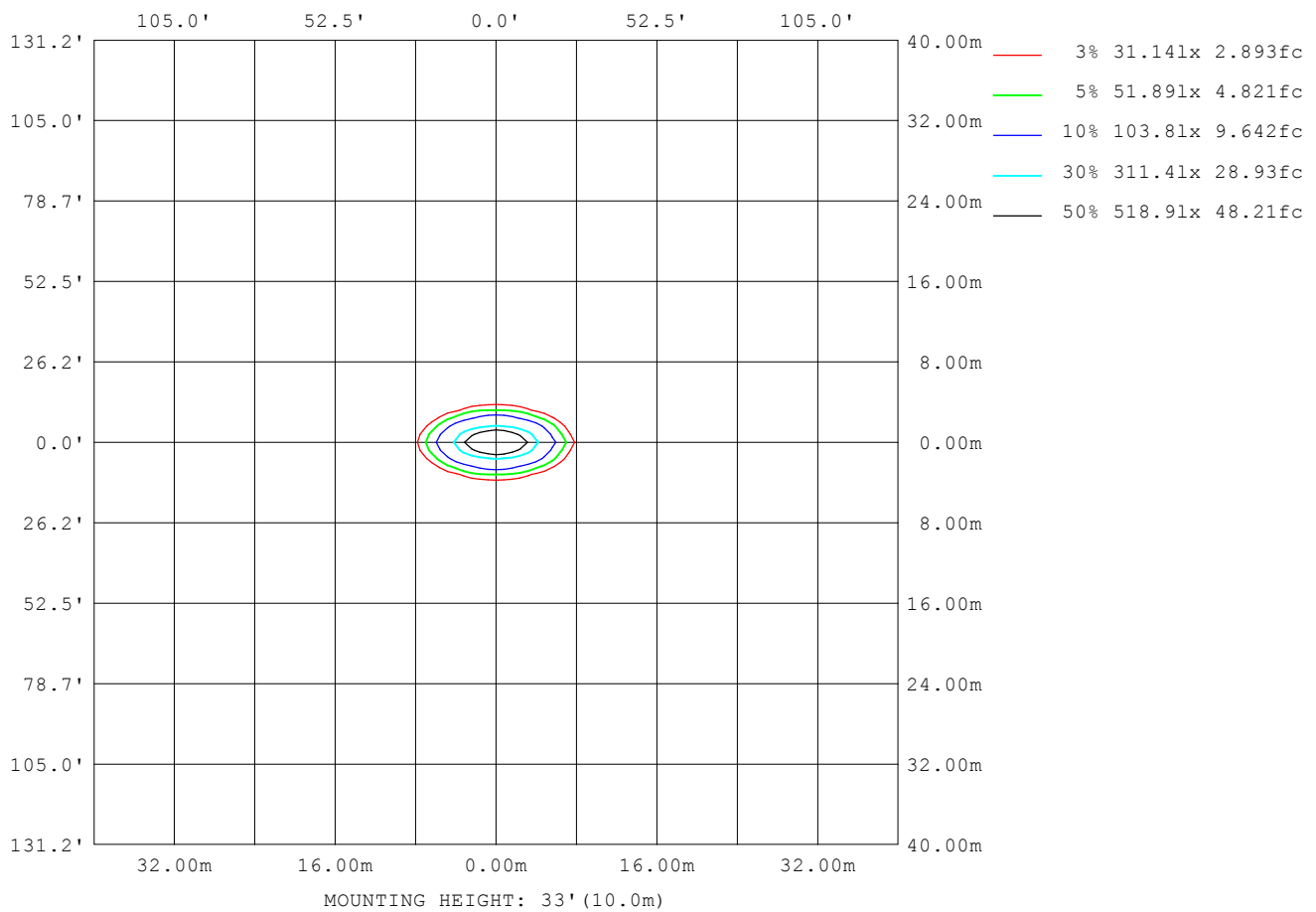
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-05-19

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



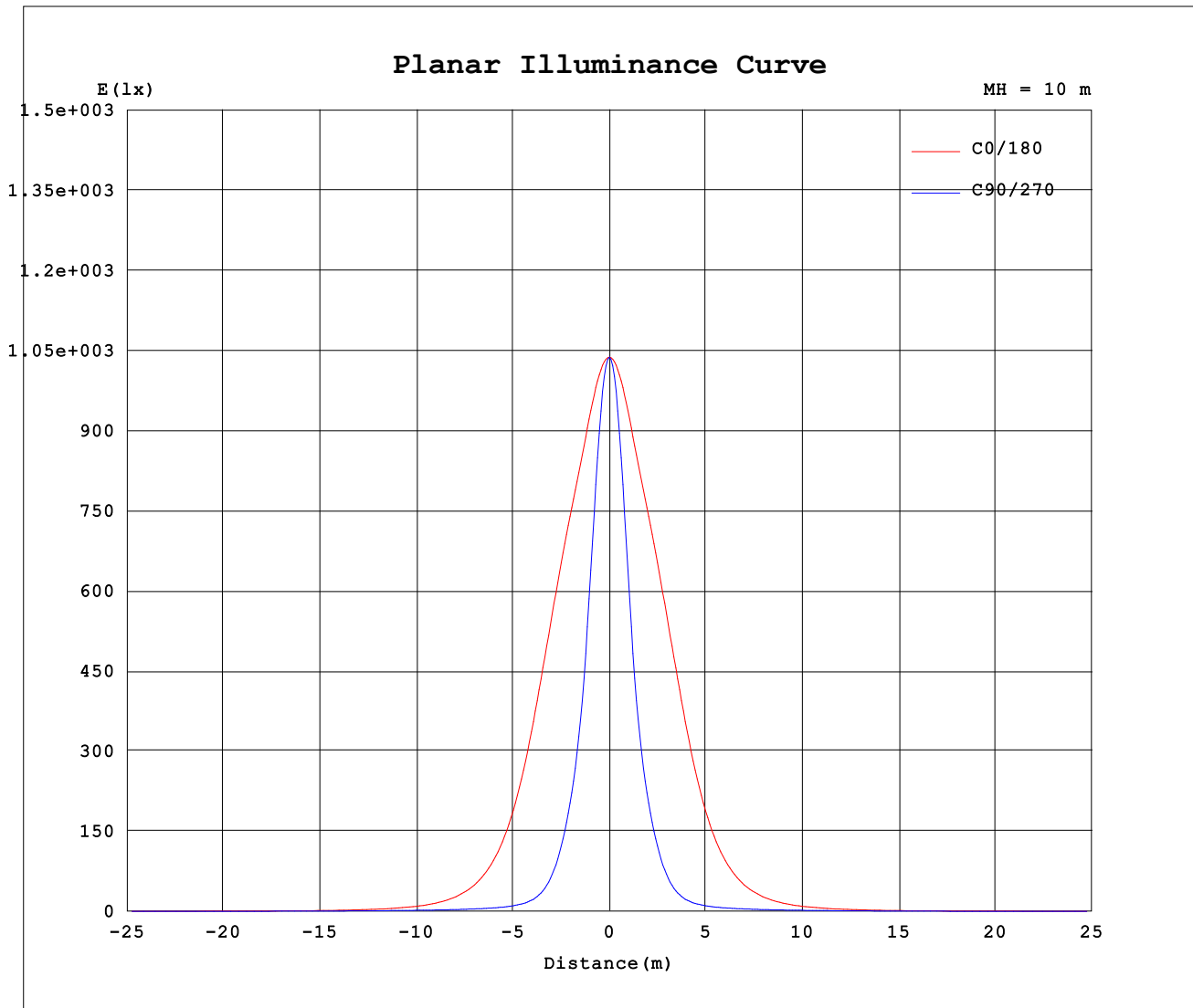
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-05-19

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: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2018-05-19

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:

Assessor:

Assessor:

Assessor:

Assessor:

Assessor: