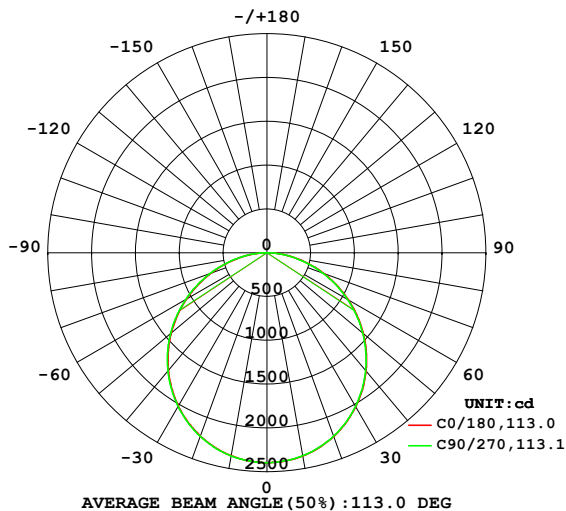


**LUMINAIRE PHOTOMETRIC TEST REPORT**

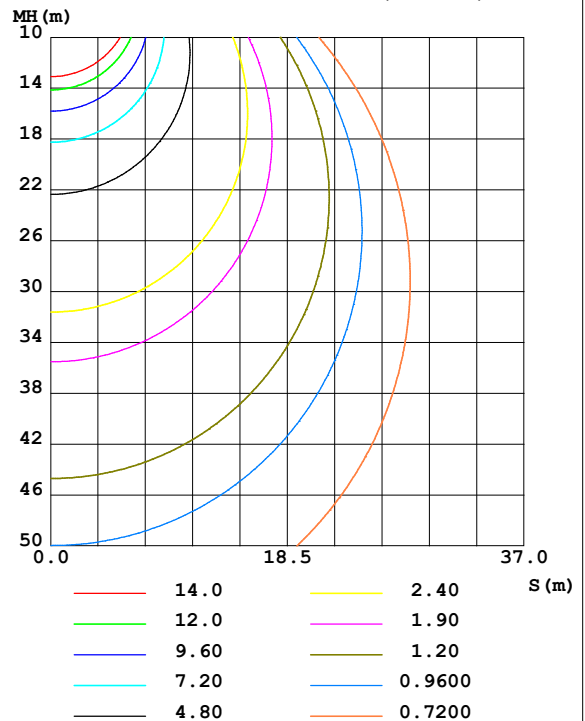
Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
4x CLE Quantum G3 401mm 2500lm 830 ADV		Eff: 117.26 lm/W			
NOMINAL POWER(W)		Imax(cd)	2396	S/MH(C0/180)	1.25
RATED VOLTAGE(V)	230.0	LOR(%)	100.0	S/MH(C90/270)	1.26
NOMINAL FLUX(lm)	6939.06	TOTAL FLUX(lm)	6939.1	$\eta$ UP,DN(C0-180)	0.0,49.9
LAMPS INSIDE	1	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.0,50.1
TEST VOLTAGE(V)	230	$\eta$ up(%)	0.0	CIBSE SHR NOM	1.25
		$\eta$ down(%)	100.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

### ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	2355	2355	2353	2352	2352	2353	2354	2355	0- 10	226.7	226.7	3.27,3.27
20	2231	2230	2227	2226	2226	2227	2230	2231	10- 20	649.4	876.1	12.6,12.6
30	2029	2028	2024	2023	2023	2025	2028	2030	20- 30	984.5	1861	26.8,26.8
40	1761	1758	1754	1751	1751	1755	1759	1762	30- 40	1188	3048	43.9,43.9
50	1437	1433	1428	1424	1427	1432	1437	1440	40- 50	1234	4283	61.7,61.7
60	1072	1067	1061	1057	1061	1067	1074	1077	50- 60	1121	5403	77.9,77.9
70	688.5	683.2	677.1	673.2	675.3	681.5	688.0	691.1	60- 70	866.7	6270	90.4,90.4
80	310.0	305.0	299.6	296.3	298.9	304.7	310.3	312.9	70- 80	518.4	6788	97.8,97.8
90	5.634	4.541	4.442	4.459	4.631	4.811	5.784	6.563	80- 90	150.8	6939	100,100
100									90-100			
110									100-110			
120									110-120			
130									120-130			
140									130-140			
150									140-150			
160									150-160			
170									160-170			
180									170-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 3669.8 lm

%lum = 52.9%

%lamp = 52.9%

Conical surface Flux(120deg): 5403.2 lm

%lum = 77.9%

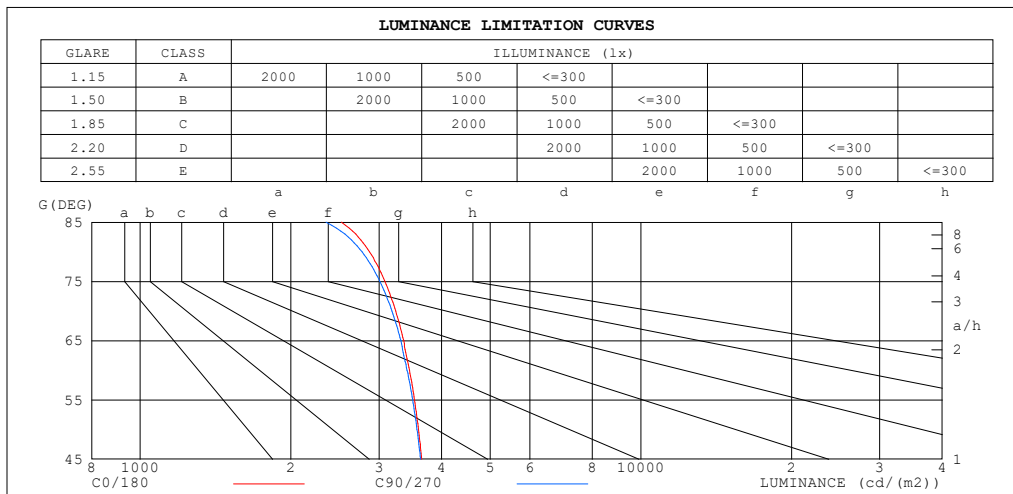
%lamp = 77.9%

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2524	2351
80	2873	2775
75	3083	3012
70	3239	3185
65	3360	3317
60	3451	3414
55	3531	3502
50	3598	3574
45	3653	3633

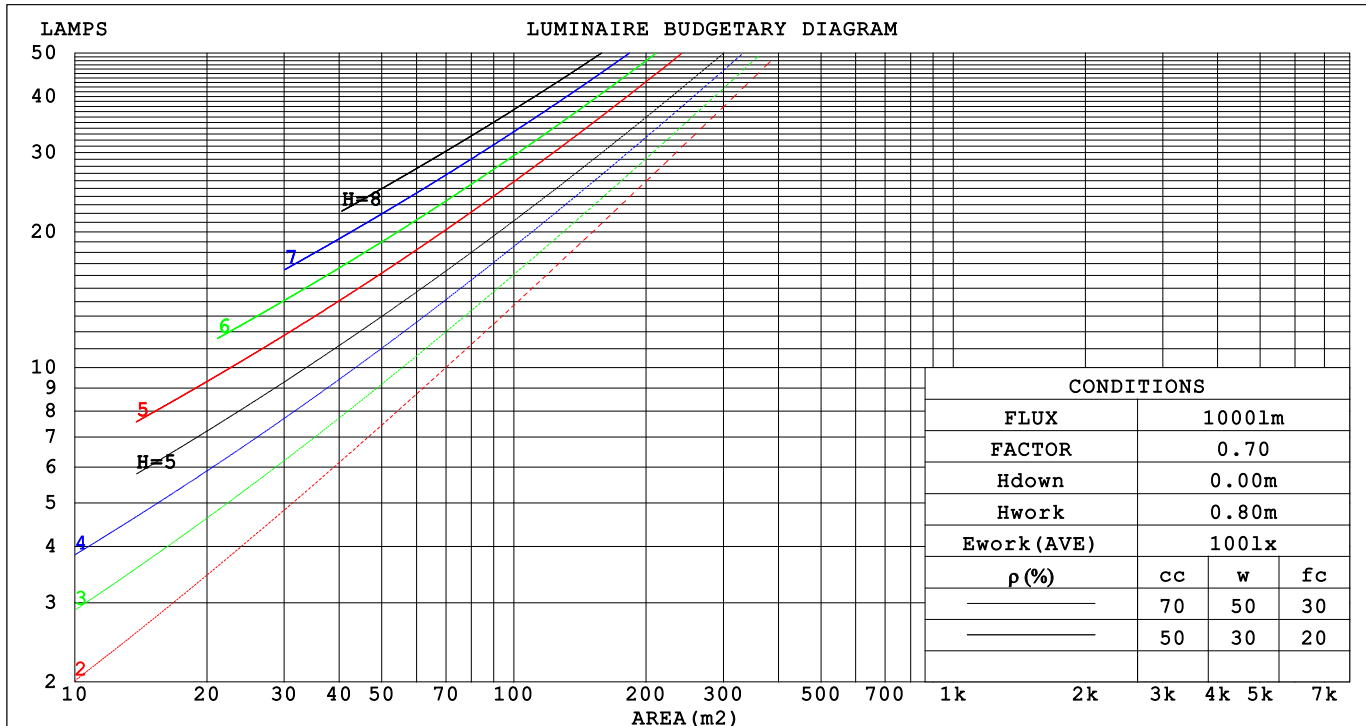
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

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															



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

## WEC AND CCEC

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

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	.316	.180	.057	.309	.176	.056	.295	.169	.054	.283	.163	.052	.272	.158	.051	
2.0	.296	.162	.050	.289	.159	.049	.278	.154	.048	.267	.150	.047	.257	.145	.046	
3.0	.273	.145	.043	.267	.143	.043	.257	.139	.042	.247	.136	.042	.238	.132	.041	
4.0	.251	.131	.038	.246	.129	.038	.237	.126	.038	.229	.123	.037	.221	.120	.037	
5.0	.232	.118	.034	.228	.117	.034	.220	.114	.034	.212	.112	.033	.205	.109	.033	
6.0	.215	.108	.031	.211	.107	.031	.204	.104	.030	.197	.102	.030	.191	.100	.030	
7.0	.200	.099	.028	.196	.098	.028	.190	.096	.028	.184	.094	.027	.178	.093	.027	
8.0	.187	.091	.026	.184	.090	.026	.178	.089	.025	.172	.087	.025	.167	.086	.025	
9.0	.175	.085	.024	.172	.084	.024	.167	.082	.023	.162	.081	.023	.157	.080	.023	
10.0	.164	.079	.022	.162	.078	.022	.157	.077	.022	.153	.076	.022	.148	.075	.021	

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	.181	.156	.134	.155	.134	.115	.106	.092	.080	.061	.053	.046	.019	.017	.015	
2.0	.173	.132	.098	.148	.114	.084	.101	.079	.059	.058	.046	.034	.019	.015	.011	
3.0	.165	.114	.074	.141	.099	.064	.097	.069	.045	.056	.040	.026	.018	.013	.009	
4.0	.157	.101	.058	.135	.087	.050	.093	.061	.035	.054	.036	.021	.017	.012	.007	
5.0	.150	.091	.047	.129	.078	.041	.089	.055	.029	.051	.032	.017	.017	.010	.006	
6.0	.143	.082	.039	.123	.071	.034	.085	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.136	.075	.033	.117	.065	.029	.081	.046	.020	.047	.027	.012	.015	.009	.004	
8.0	.129	.070	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.003	
9.0	.123	.065	.025	.106	.056	.022	.074	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.022	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

**UGR(Unified Glare Rating) Table**

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm											
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K						TYPE:LED		WEIGHT:			
SPEC.:						DIM.:		SERIAL No.:1			
MFR.: DARKON						SUR.:		Shielding Angle:			
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	10.5	12.1	10.8	12.3	12.5	10.5	12.0	10.8	12.2	12.4	
	12.1	13.6	12.4	13.8	14.0	12.1	13.5	12.4	13.7	14.0	
	12.8	14.1	13.1	14.4	14.7	12.7	14.1	13.0	14.3	14.6	
	13.3	14.6	13.6	14.8	15.1	13.2	14.5	13.5	14.7	15.0	
	13.5	14.7	13.8	15.0	15.3	13.4	14.6	13.7	14.9	15.2	
	13.6	14.7	13.9	15.0	15.3	13.5	14.6	13.8	14.9	15.2	
4H	2H	11.2	12.5	11.5	12.8	13.0	11.1	12.5	11.5	12.7	13.0
	3H	12.9	14.1	13.3	14.4	14.7	12.9	14.1	13.3	14.4	14.7
	4H	13.7	14.8	14.1	15.1	15.5	13.7	14.8	14.1	15.1	15.4
	6H	14.4	15.3	14.8	15.7	16.1	14.3	15.3	14.7	15.6	16.0
	8H	14.6	15.5	15.0	15.9	16.2	14.5	15.4	14.9	15.8	16.2
	12H	14.8	15.6	15.2	16.0	16.4	14.6	15.5	15.1	15.9	16.3
8H	4H	14.0	14.9	14.4	15.3	15.7	14.0	14.9	14.4	15.2	15.6
	6H	14.8	15.6	15.3	16.0	16.4	14.7	15.5	15.2	15.9	16.3
	8H	15.1	15.8	15.6	16.2	16.7	15.1	15.7	15.5	16.1	16.6
	12H	15.4	16.0	15.9	16.4	16.9	15.3	15.8	15.8	16.3	16.8
12H	4H	14.0	14.9	14.5	15.3	15.7	14.0	14.8	14.4	15.2	15.6
	6H	14.9	15.6	15.3	16.0	16.4	14.8	15.5	15.3	15.9	16.4
	8H	15.2	15.8	15.7	16.3	16.7	15.2	15.7	15.6	16.2	16.7
Variations with the observer position at spacings:											
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2					
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3					
2.0H	+ 0.1 / - 0.3					+ 0.1 / - 0.3					

CIE Pub.117, 6939 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 6.7)

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

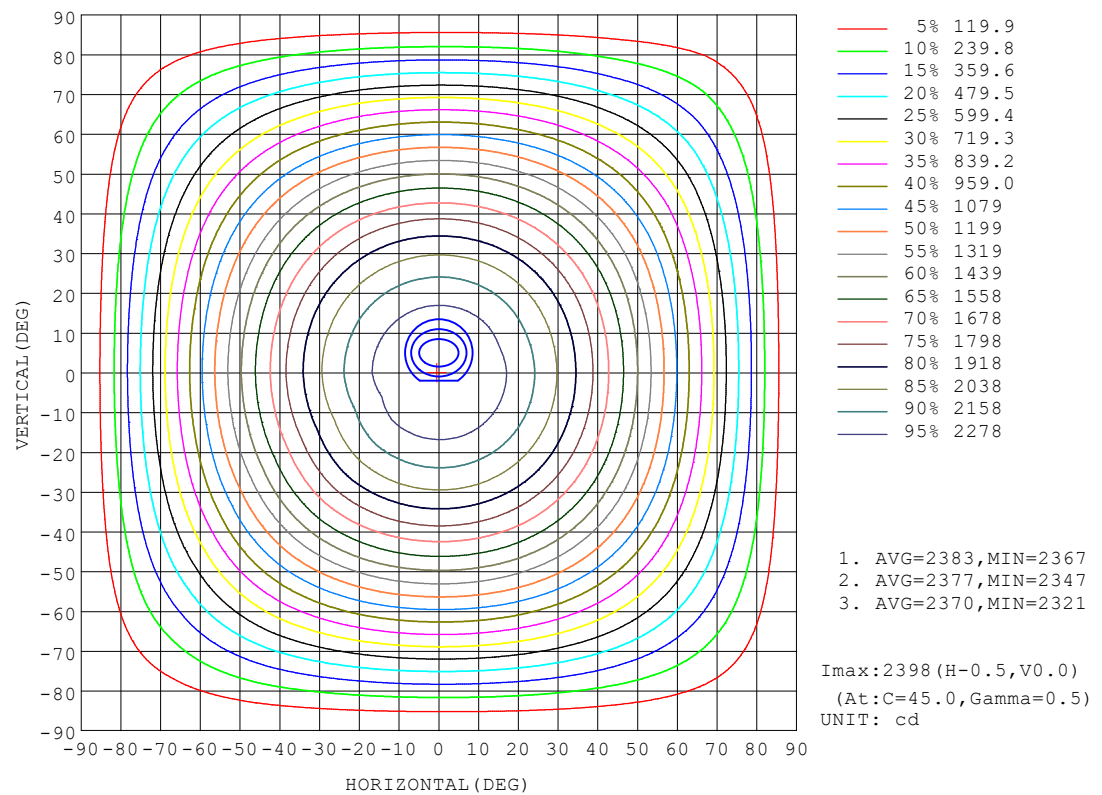
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	57	45	38	56	45	38	55	45	38	32
0.80	67	55	48	66	55	48	64	54	47	40
1.00	76	64	57	74	64	57	72	65	56	49
1.25	83	72	65	81	71	64	78	70	64	56
1.50	88	78	71	86	77	70	83	75	69	61
2.00	95	86	79	93	85	79	89	82	77	69
2.50	99	91	84	96	89	84	93	87	82	73
3.00	102	95	89	100	93	88	96	90	86	78
4.00	106	100	95	104	98	94	99	95	91	82
5.00	108	104	99	106	102	98	101	98	95	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

**ISOCANDELA DIAGRAM**

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:



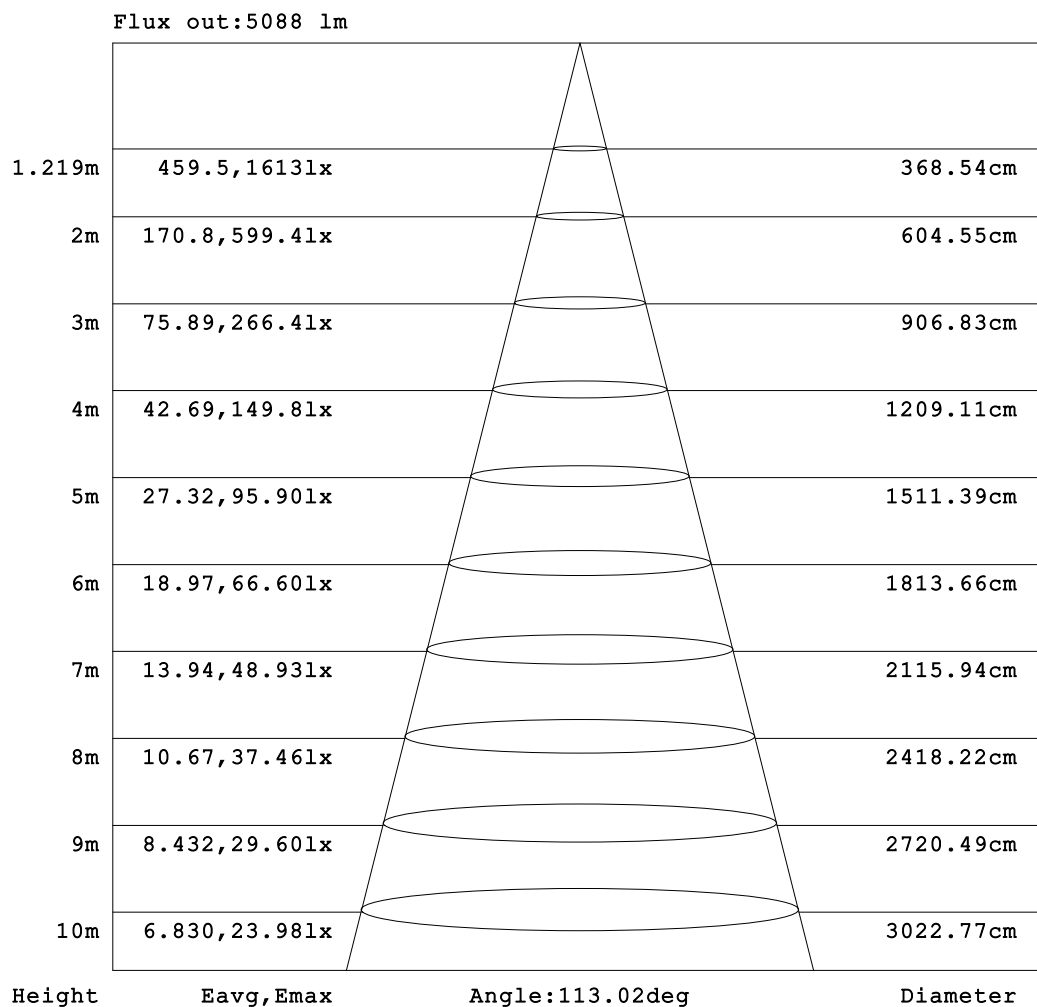
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:



**AAI Figure**

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:



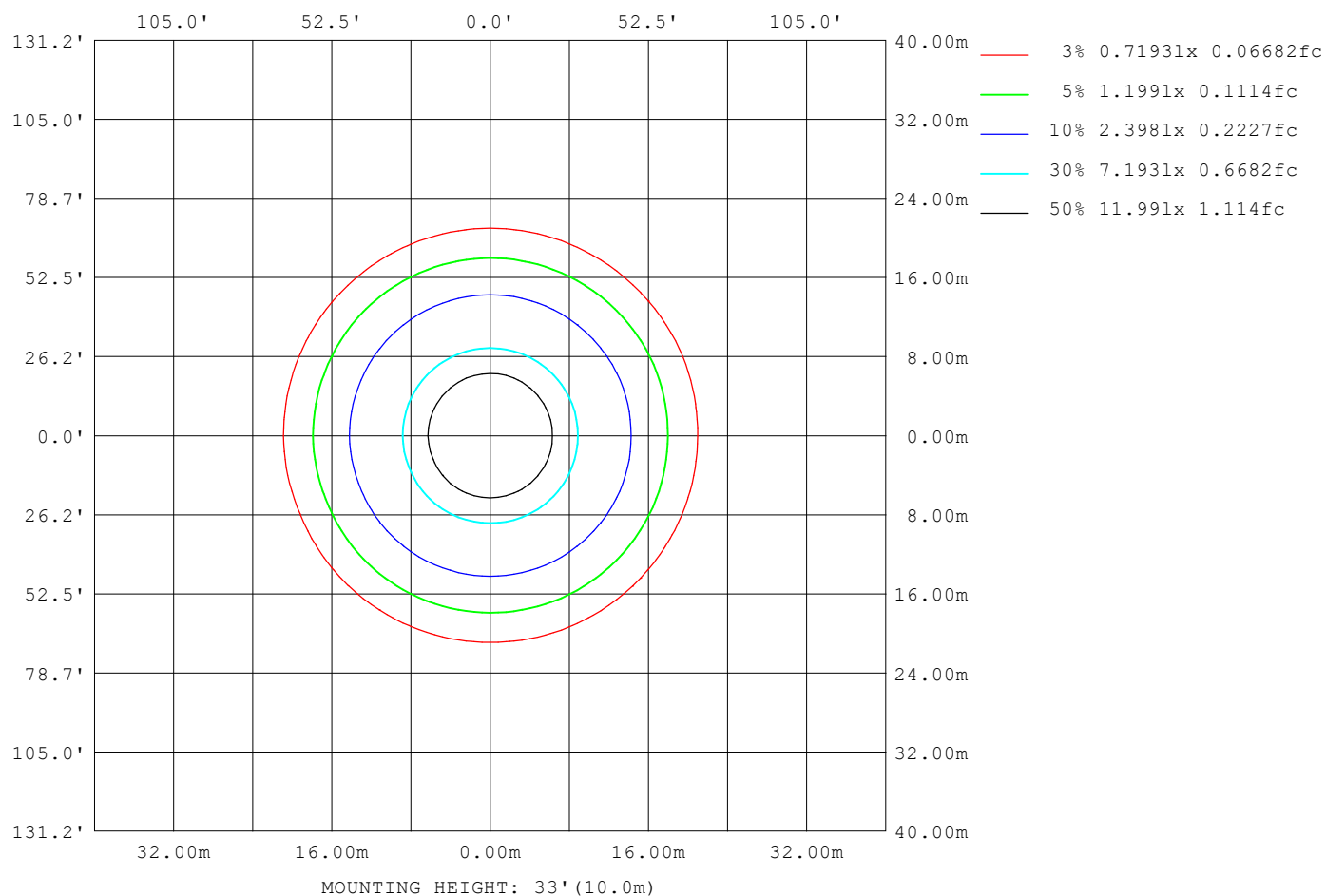
**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

## ISOLUX DIAGRAM

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: LOW  
 Temperature:25.3DEG  
 Operators:JEFF  
 Test Date:01 November 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:7.220m [K=1.0000]  
 Remarks:

**LED Avg.L Report**

Test:U:240.05V I:0.2532A P:59.175W PF:0.9734 Freq:50.09Hz Lamp Flux:6939.06x1 lm		
NAME: MRS C 900_WHT_OPAL 445M_450mA_3000K	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

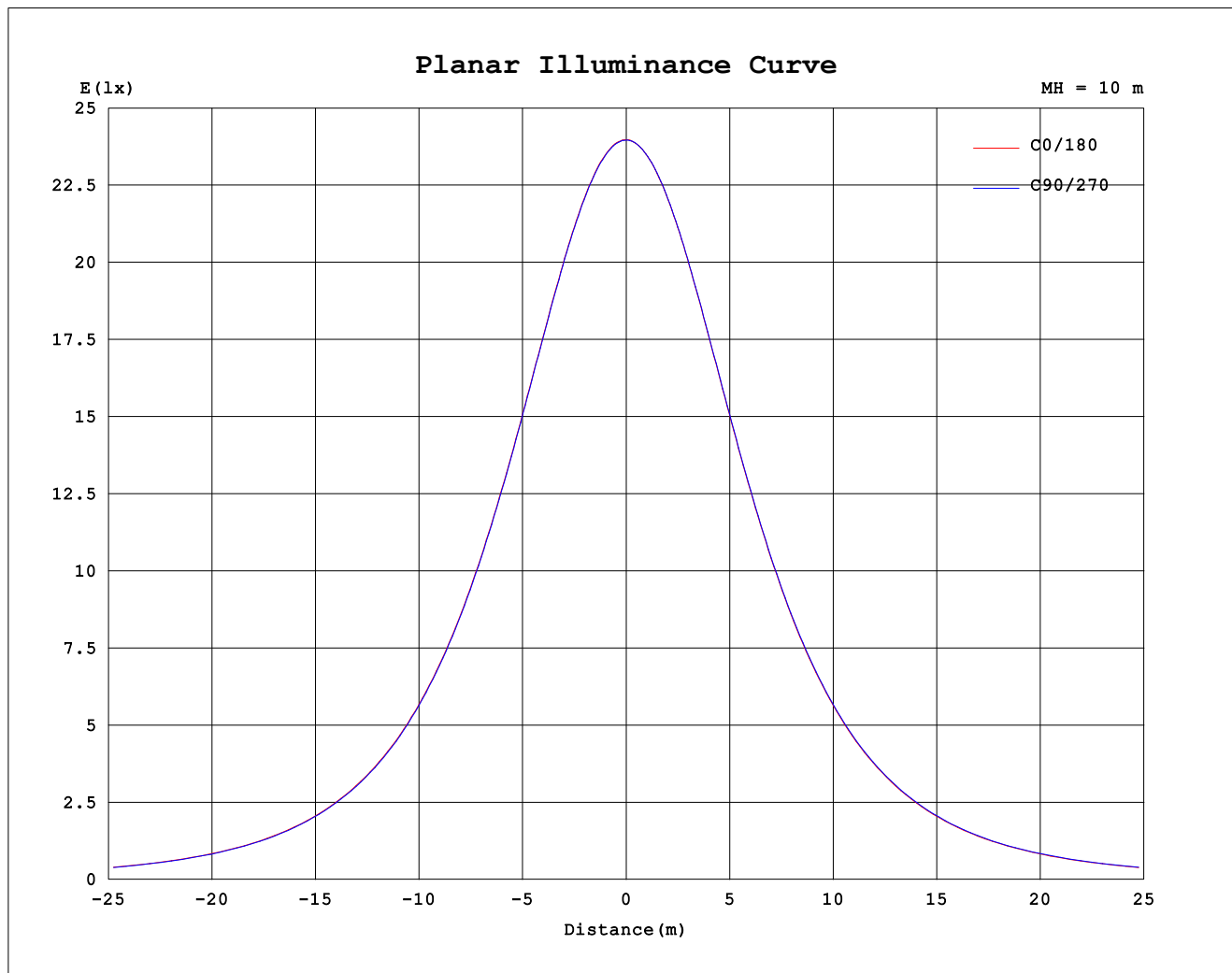
AvgL	cd/m2
L_0~180 (65) av	3332
L_0~180 (75) av	3042
L_0~180 (85) av	2442
L_90~270 (65) av	3335
L_90~270 (75) av	3045
L_90~270 (85) av	2446
L_45 (65) av	3333
L_45 (75) av	3043
L_45 (85) av	2445

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:01 November 2019

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity:65.0%  
Test Distance:7.220m [K=1.0000]  
Remarks:

### Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: LOW  
Temperature: 25.3DEG  
Operators: JEFF  
Test Date: 01 November 2019

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
Humidity: 65.0%  
Test Distance: 7.220m [K=1.0000]  
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.220m [K=1.0000]
Remarks:

```