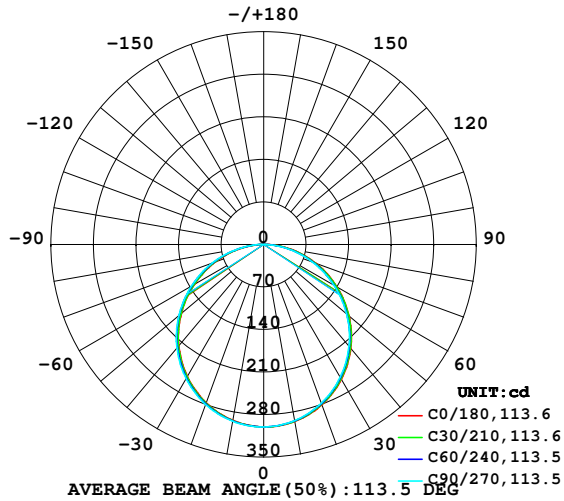


LUMINAIRE PHOTOMETRIC TEST REPORT

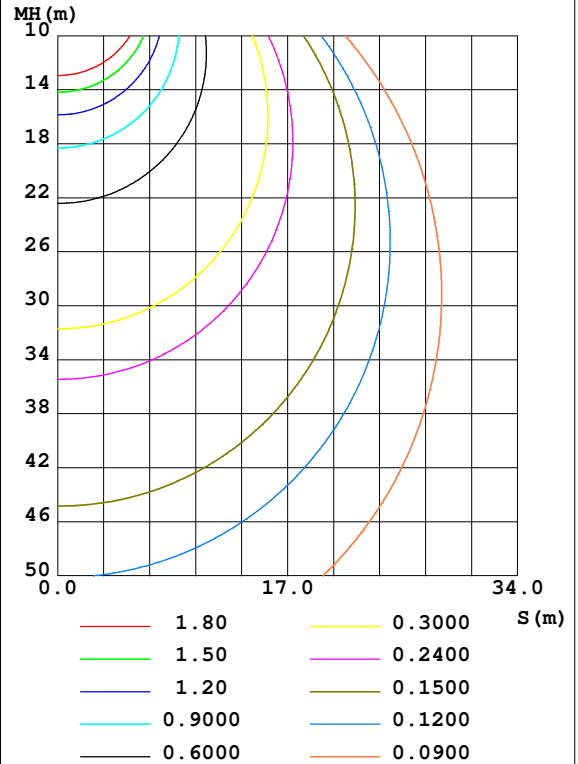
Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 63.43 lm/W
MODEL	MSG160	I _{max} (cd)	300.4	S/MH (C0/180)	1.24	
NOMINAL POWER (W)	14	LOR (%)	100.0	S/MH (C90/270)	1.26	
RATED VOLTAGE (V)	230.0	TOTAL FLUX (lm)	876.56	η UP, DN (C0-180)	0.0, 49.6	
NOMINAL FLUX (lm)	876.56	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 50.4	
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25	
TEST VOLTAGE (V)	230	η down (%)	100.0	CIBSE SHR MAX	1.35	

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT: lx)



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 20DEG
 Operators: LITPA
 Test Date: 16/12/2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
 Humidity: 65.0%
 Test Distance: 7.200m [K=1.0000]
 Remarks: MSG160-3000K-14W-OPAL

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	295.8	295.1	294.2	293.9	293.9	294.6	295.3	295.7	0- 10	28.40	28.40	3.24, 3.24
20	280.6	279.3	277.8	277.1	277.1	278.6	280.1	280.8	10- 20	81.30	109.7	12.5, 12.5
30	256.1	254.2	252.1	251.1	251.1	253.2	255.3	256.3	20- 30	123.2	232.9	26.6, 26.6
40	223.2	220.8	218.5	217.2	217.4	219.7	222.2	223.3	30- 40	148.8	381.7	43.5, 43.5
50	183.5	181.0	178.4	176.8	177.1	179.7	182.3	184.0	40- 50	155.1	536.8	61.2, 61.2
60	138.8	136.0	133.0	131.3	131.8	134.6	137.4	139.3	50- 60	141.4	678.3	77.4, 77.4
70	92.04	88.83	85.54	84.14	84.43	87.45	90.50	92.20	60- 70	110.7	788.9	90, 90
80	45.02	41.81	38.03	37.24	37.53	40.18	42.13	44.48	70- 80	67.99	856.9	97.8, 97.8
90	1.356	0.0362	0.0181	0.0254	0.0469	0.0488	0.0544	0.3520	80- 90	19.65	876.6	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): 459.76 lm

%lum = 52.5%

%lamp = 52.5%

Conical surface Flux(120deg): 678.27 lm

%lum = 77.4%

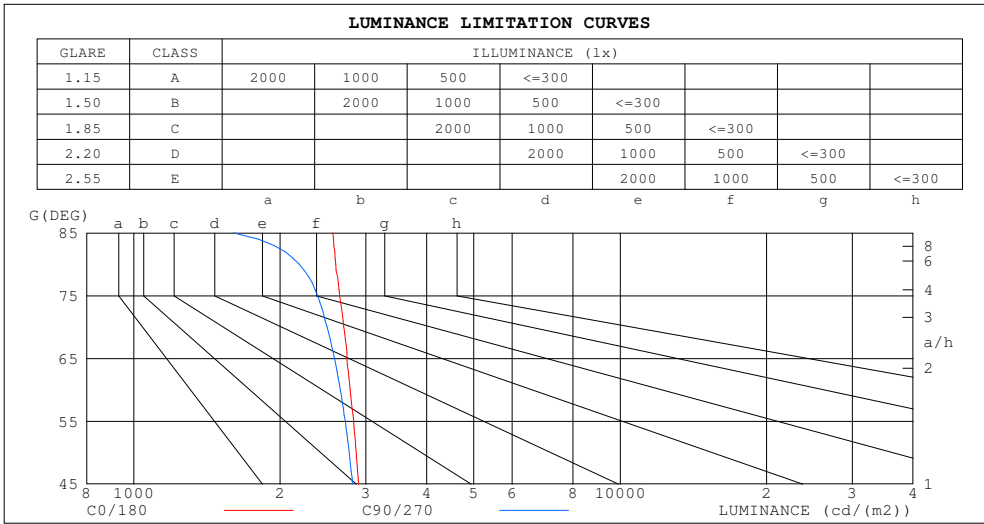
%lamp = 77.4%

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 20DEG
 Operators: LITPA
 Test Date: 16/12/2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
 Humidity: 65.0%
 Test Distance: 7.200m [K=1.0000]
 Remarks: MSG160-3000K-14W-OPAL

LUMINANCE LIMITATION CURVES

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	2567	1605
80	2603	2188
75	2651	2387
70	2702	2499
65	2746	2585
60	2788	2658
55	2831	2722
50	2866	2773
45	2899	2818

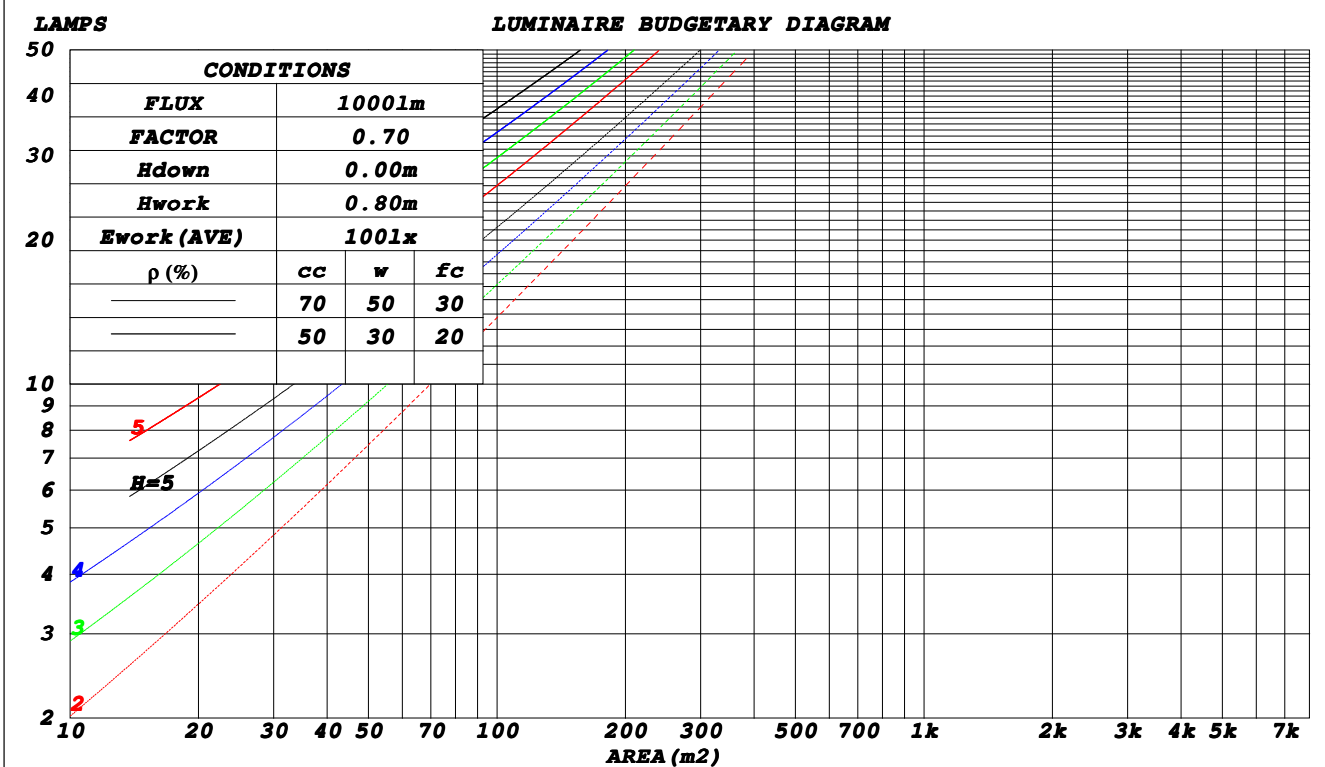
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity: 65.0%
Test Distance: 7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

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	1.03	.99	.95	1.01	.97	.93	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.77	.88	.81	.76	.84	.79	.74	.81	.76	.72	.78	.74	.71	.69
3.0	.79	.70	.64	.77	.69	.63	.74	.67	.62	.71	.66	.61	.69	.64	.60	.58
4.0	.70	.61	.54	.68	.60	.53	.66	.58	.53	.63	.57	.52	.61	.56	.51	.49
5.0	.62	.53	.46	.61	.52	.46	.59	.51	.45	.57	.50	.45	.55	.49	.44	.42
6.0	.56	.47	.40	.55	.46	.40	.53	.45	.40	.51	.45	.39	.50	.44	.39	.37
7.0	.51	.42	.35	.50	.41	.35	.48	.41	.35	.47	.40	.35	.45	.39	.35	.33
8.0	.46	.38	.32	.45	.37	.31	.44	.37	.31	.43	.36	.31	.42	.35	.31	.29
9.0	.42	.34	.28	.42	.34	.28	.41	.33	.28	.39	.33	.28	.38	.32	.28	.26
10.0	.39	.31	.26	.39	.31	.26	.38	.30	.26	.37	.30	.25	.36	.30	.25	.24



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity: 65.0%
Test Distance: 7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL

WEC AND CCEC

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE:INDOOR	WEIGHT:450gr
SPEC.:14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

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						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.318	.181	.057	.311	.177	.056	.298	.171	.055	.286	.165	.053	.274	.159	.051		
2.0	.298	.163	.050	.291	.160	.049	.280	.155	.048	.269	.151	.047	.259	.146	.046		
3.0	.274	.146	.044	.269	.144	.043	.258	.140	.043	.249	.136	.042	.240	.133	.041		
4.0	.252	.131	.039	.248	.130	.038	.238	.126	.038	.230	.123	.037	.222	.121	.037		
5.0	.233	.119	.034	.229	.117	.034	.220	.115	.034	.213	.112	.033	.206	.110	.033		
6.0	.216	.108	.031	.212	.107	.031	.205	.105	.030	.198	.103	.030	.191	.101	.030		
7.0	.200	.099	.028	.197	.098	.028	.191	.096	.028	.184	.095	.028	.179	.093	.027		
8.0	.187	.091	.026	.184	.091	.026	.178	.089	.025	.173	.087	.025	.168	.086	.025		
9.0	.175	.085	.024	.172	.084	.024	.167	.083	.023	.162	.081	.023	.158	.080	.023		
10.0	.165	.079	.022	.162	.078	.022	.157	.077	.022	.153	.076	.022	.149	.075	.021		

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						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	.020	.017	.015	
2.0	.173	.132	.097	.148	.114	.084	.102	.079	.059	.059	.046	.034	.019	.015	.011	
3.0	.165	.114	.074	.142	.099	.064	.097	.069	.045	.056	.040	.026	.018	.013	.009	
4.0	.158	.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	.011	.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	.130	.070	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.015	.008	.003	
9.0	.123	.065	.025	.106	.056	.022	.074	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.118	.060	.022	.101	.052	.019	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity: 65.0%
Test Distance: 7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL

UGR(Unified Glare Rating) Table

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm										
NAME: MSG160					TYPE: INDOOR			WEIGHT: 450gr		
SPEC.: 14W					DIM.: Ø200-H50mm			SERIAL No.:		
MFR.: LITPA AYDINLATMA					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				
x = 2H y = 2H						16.6	18.1	16.8	18.3	18.5
						18.2	19.7	18.5	19.9	20.1
						19.0	20.3	19.3	20.6	20.8
						19.6	20.8	19.9	21.1	21.4
						19.8	21.0	20.1	21.3	21.6
						20.0	21.1	20.3	21.4	21.7
4H						16.3	17.9	16.6	18.1	18.3
						17.9	19.4	18.2	19.6	19.8
						18.6	20.0	18.9	20.2	20.5
						19.1	20.4	19.4	20.6	20.9
						19.2	20.5	19.6	20.8	21.1
						19.3	20.5	19.7	20.8	21.1
8H						17.0	18.4	17.3	18.6	18.9
						18.8	20.0	19.1	20.3	20.6
						19.6	20.7	20.0	21.0	21.3
						20.2	21.2	20.6	21.5	21.9
						20.4	21.3	20.8	21.7	22.1
						20.5	21.4	21.0	21.8	22.2
12H						17.2	18.5	17.5	18.8	19.0
						19.1	20.2	19.4	20.5	20.8
						19.9	21.0	20.3	21.3	21.7
						20.7	21.6	21.1	22.0	22.4
						21.0	21.9	21.4	22.2	22.6
						21.2	22.0	21.6	22.4	22.8
8H						19.9	20.8	20.3	21.2	21.6
						20.7	21.5	21.2	21.9	22.3
						21.0	21.7	21.5	22.1	22.6
						21.2	21.8	21.7	22.2	22.7
						20.2	20.8	20.4	21.2	21.6
						20.8	21.5	21.3	21.9	22.4
12H						21.2	21.7	21.6	22.2	22.7
						20.2	21.1	20.7	21.5	21.9
						21.2	21.9	21.7	22.3	22.8
						21.7	22.2	22.1	22.7	23.2
						21.2	21.7	21.6	22.2	22.7
						21.2	21.7	21.6	22.2	22.7
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, 876.6 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = -0.5$)

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 20DEG
 Operators: LITPA
 Test Date: 16/12/2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
 Humidity: 65.0%
 Test Distance: 7.200m [K=1.0000]
 Remarks: MSG160-3000K-14W-OPAL

UTILIZATION FACTORS TABLE

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

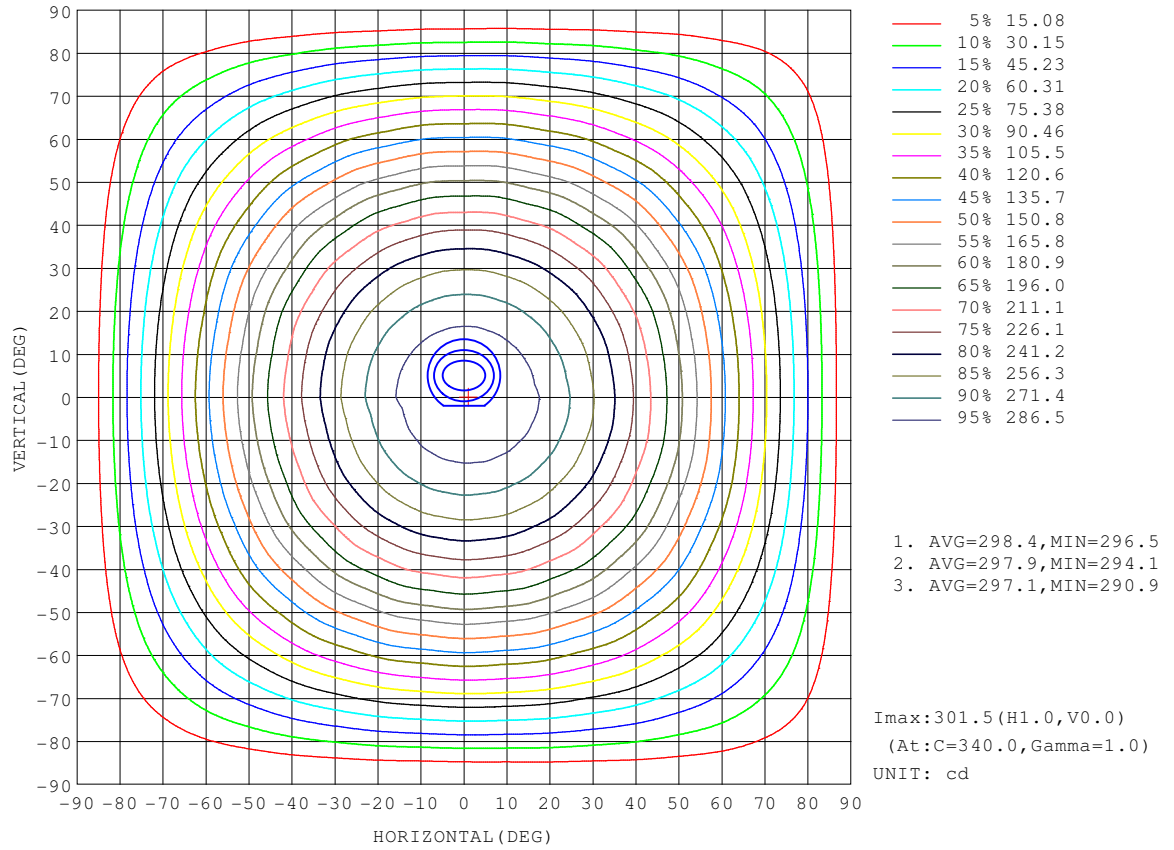
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	57	45	38	56	45	38	55	45	38	31
0.80	67	55	48	66	55	48	64	54	47	40
1.00	75	64	57	74	63	56	72	65	56	49
1.25	82	72	64	81	71	64	78	70	63	56
1.50	87	77	70	86	76	70	83	75	69	61
2.00	94	86	79	93	84	78	89	82	77	69
2.50	98	90	84	96	89	83	92	86	81	73
3.00	102	95	89	100	93	88	95	90	86	77
4.00	106	100	95	103	98	94	99	95	91	82
5.00	108	103	99	106	101	98	101	98	95	85
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 20DEG
 Operators: LITPA
 Test Date: 16/12/2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
 Humidity: 65.0%
 Test Distance: 7.200m [K=1.0000]
 Remarks: MSG160-3000K-14W-OPAL

ISOCANDELA DIAGRAM

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

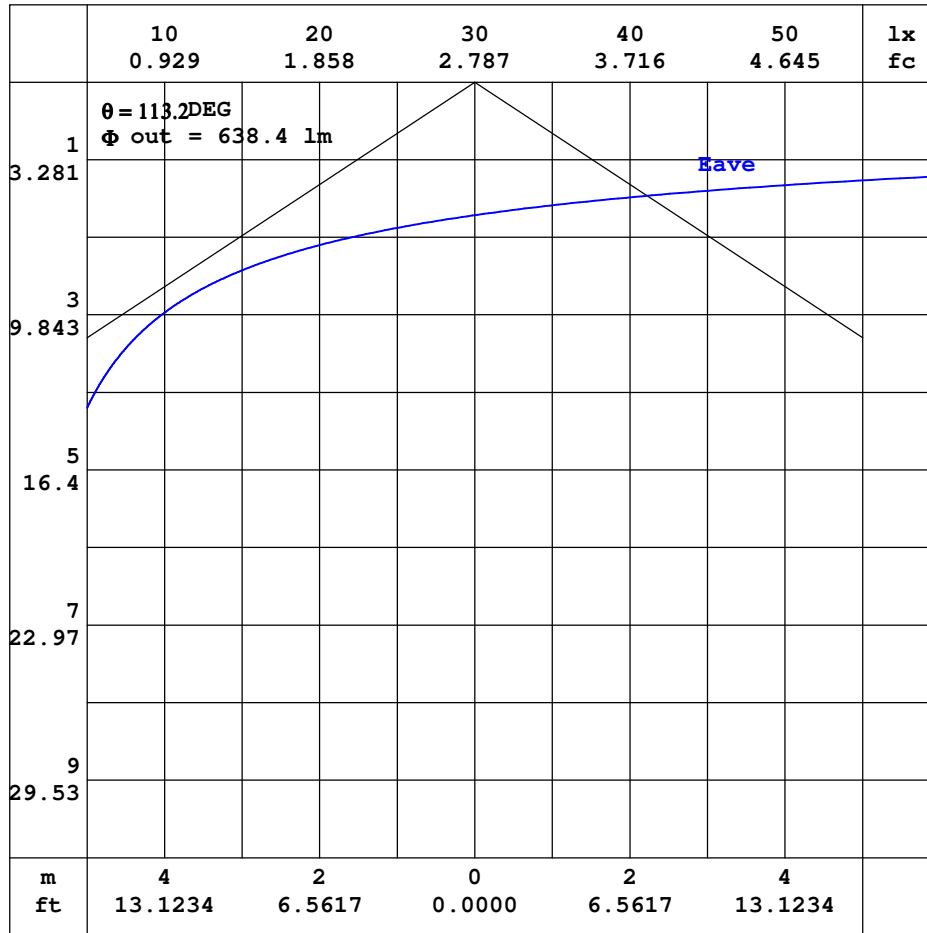


C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity: 65.0%
Test Distance: 7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL

AAI CURVES

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



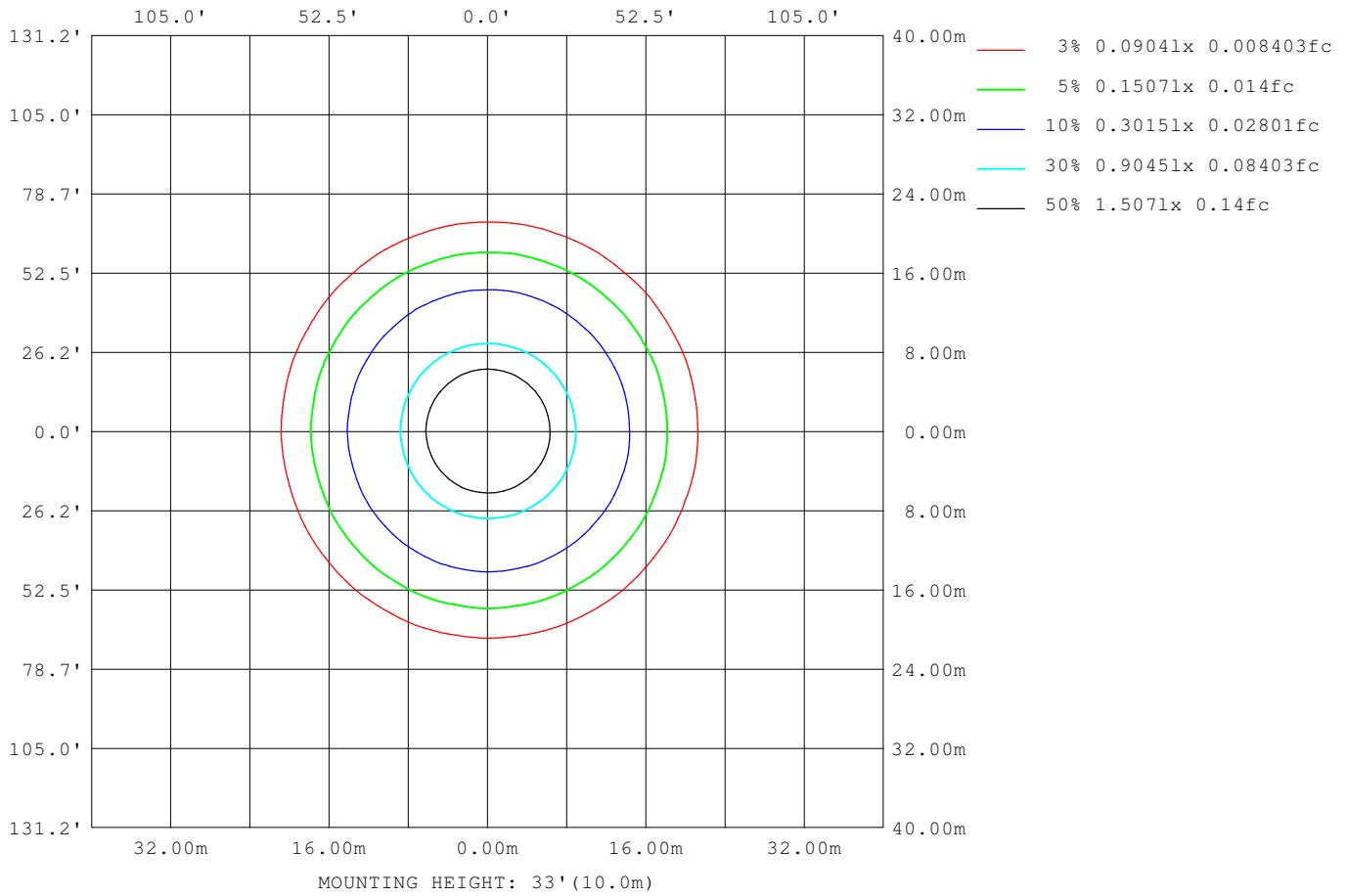
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 20DEG
 Operators: LITPA
 Test Date: 16/12/2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
 Humidity: 65.0%
 Test Distance: 7.200m [K=1.0000]
 Remarks: MSG160-3000K-14W-OPAL

ISOLUX DIAGRAM

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity: 65.0%
Test Distance: 7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL

LED Avg.L Report

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

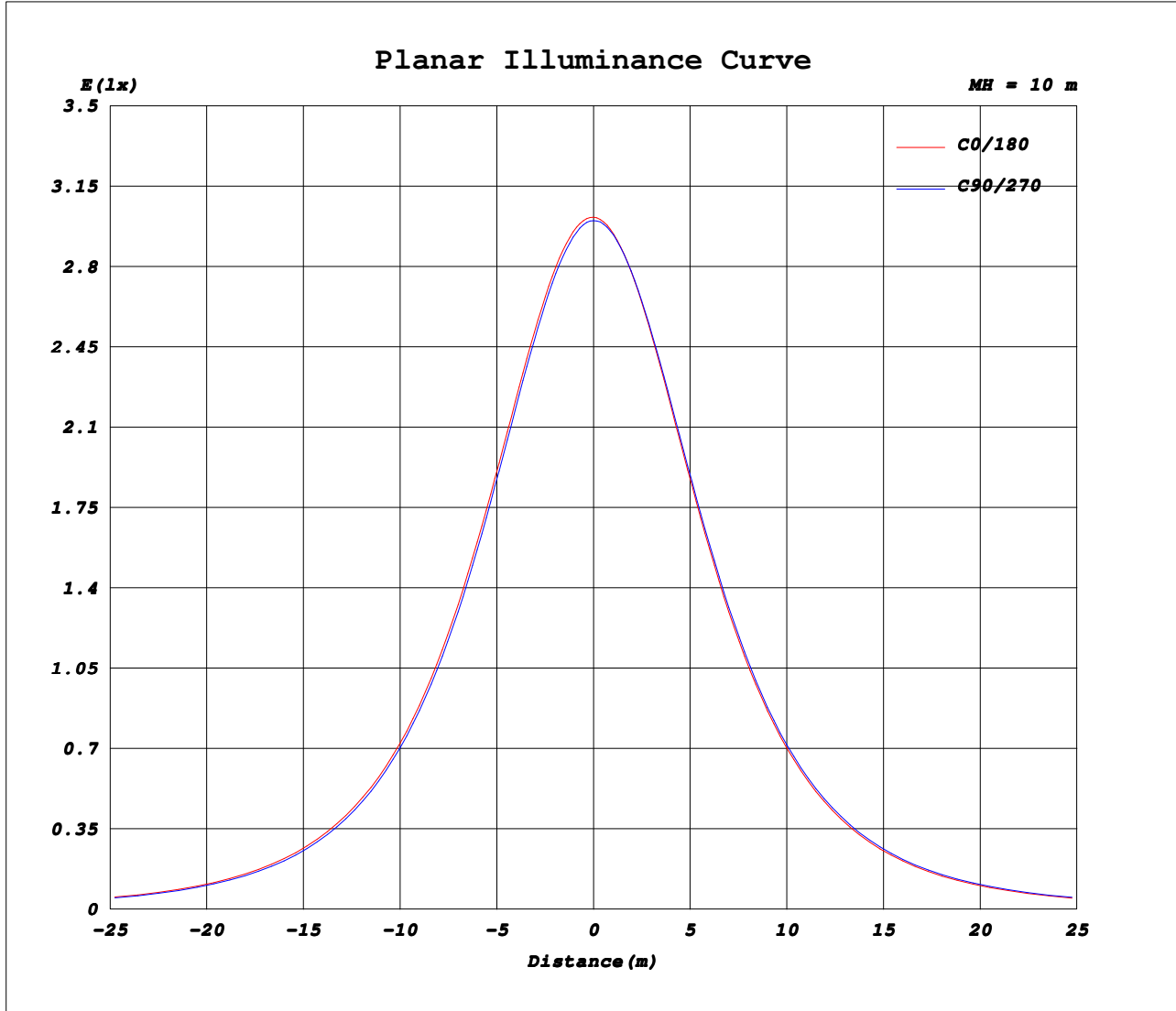
AvgL	cd/m2
L_0~180 (65) av	2649
L_0~180 (75) av	2494
L_0~180 (85) av	2137
L_90~270 (65) av	2643
L_90~270 (75) av	2480
L_90~270 (85) av	1829
L_45 (65) av	2648
L_45 (75) av	2490
L_45 (85) av	1992

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity: 65.0%
Test Distance: 7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity: 65.0%
Test Distance: 7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE:INDOOR	WEIGHT:450gr
SPEC.:14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

Table--1

UNIT: cd

[illegible]

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity:65.0%
Test Distance:7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.57V I:0.1102A P:13.820W PF:0.5437 Freq:50.01Hz Lamp Flux:876.56x1 lm		
NAME: MSG160	TYPE: INDOOR	WEIGHT: 450gr
SPEC.: 14W	DIM.: Ø200-H50mm	SERIAL No.:
MFR.: LITPA AYDINLATMA	SUR.:	Shielding Angle:

Table--2

UNIT: cd

[illegible]

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 20DEG
Operators: LITPA
Test Date: 16/12/2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.400
Humidity:65.0%
Test Distance:7.200m [K=1.0000]
Remarks: MSG160-3000K-14W-OPAL