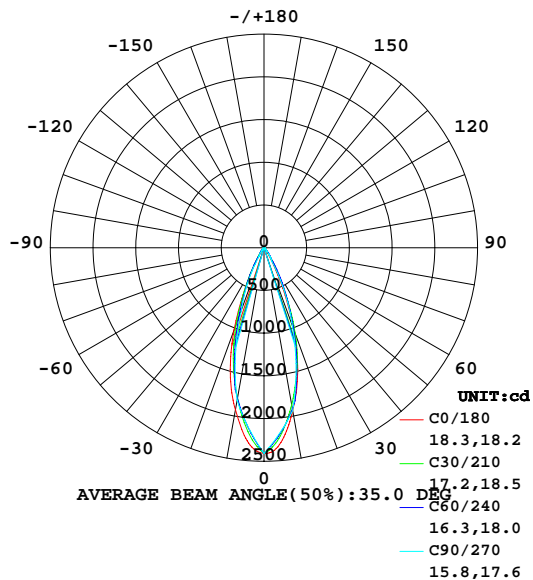


LUMINAIRE PHOTOMETRIC TEST REPORT

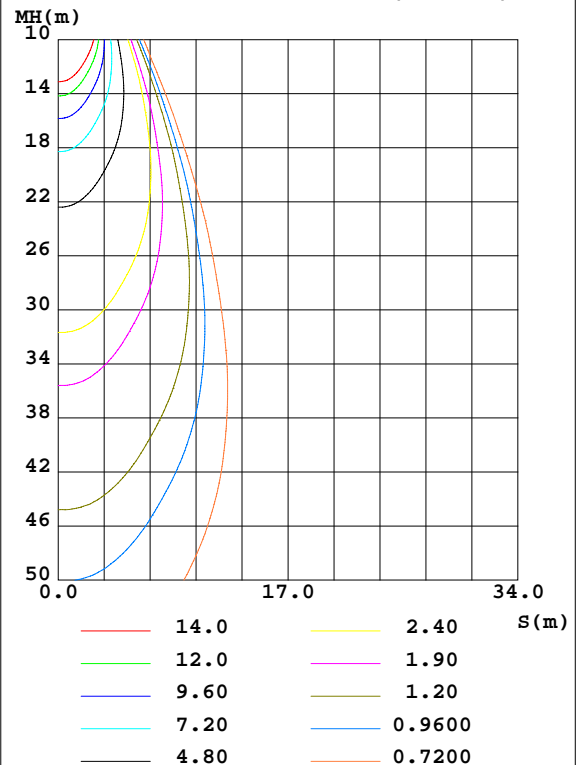
Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm		
NAME: MDL-4S-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 70.16 lm/W			
MODEL	MDL-4S-30-WH	Imax(cd)	2408	S/MH(C0/180)	0.59
NOMINAL POWER(W)	15	LOR(%)	69.7	S/MH(C90/270)	0.52
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	985.12	η UP,DN(C0-180)	0.0,36.6
NOMINAL FLUX(lm)	1412.57	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,33.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	120	η down(%)	69.7	CIBSE SHR MAX	0.60

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



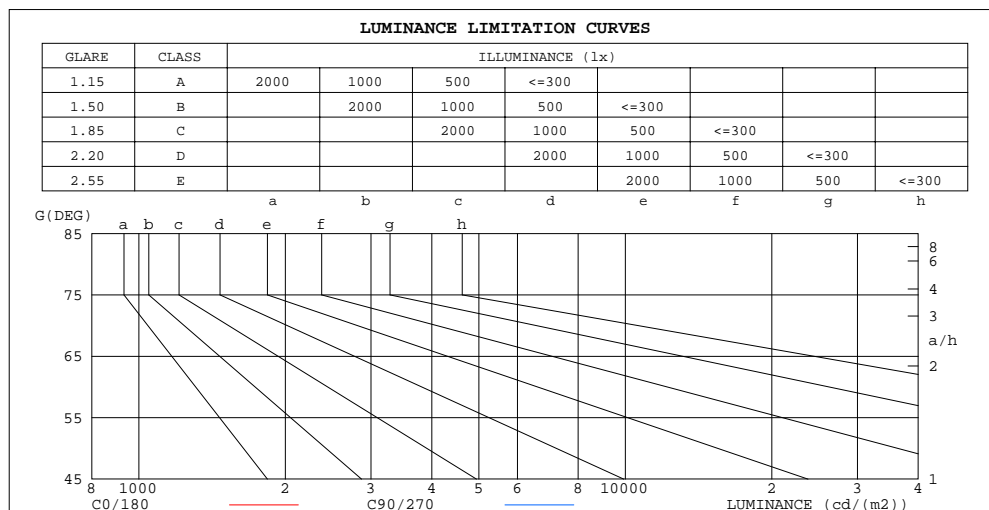
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LIU
Test Date:2019-04-26

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.291
Humidity:65.0%
Test Distance:8.460m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
5	2287	2192	2172	2173	2268	2132	2110	2148	0- 5	54.14	54.14	5.5,3.83
10	1935	1882	1936	1859	1928	1782	1812	1795	5- 10	143.2	197.3	20.14
15	1526	1525	1454	1489	1527	1386	1292	1401	10- 15	193.8	391.2	39.7,27.7
20	1024	1048	972.1	1010	1024	910.2	772.0	928.9	15- 20	194.3	585.4	59.4,41.4
25	523.3	618.0	579.0	584.3	511.8	508.0	447.0	524.4	20- 25	152.2	737.6	74.9,52.2
30	191.7	329.1	186.0	307.7	193.6	262.4	122.0	272.3	25- 30	93.16	830.7	84.3,58.8
35	71.73	166.4	117.8	151.4	75.60	125.1	78.92	133.2	30- 35	45.24	876.0	88.9,62
40	44.32	79.82	49.50	69.78	48.44	51.76	35.85	56.62	35- 40	25.58	901.6	91.5,63.8
45	30.73	46.02	38.53	43.38	34.92	34.85	28.15	34.91	40- 45	16.11	917.7	93.2,65
50	25.62	31.09	27.55	32.14	29.05	27.03	20.45	26.64	45- 50	12.44	930.1	94.4,65.8
55	24.07	27.11	25.33	27.72	27.02	23.30	19.61	23.05	50- 55	11.03	941.1	95.5,66.6
60	22.80	23.53	23.11	23.97	25.05	19.93	18.78	20.05	55- 60	10.59	951.7	96.6,67.4
65	20.20	20.15	19.57	20.33	22.06	16.80	15.98	17.05	60- 65	9.966	961.7	97.6,68.1
70	16.30	16.07	16.04	16.07	17.70	13.14	13.17	13.43	65- 70	8.665	970.4	98.5,68.7
75	12.32	11.54	11.77	11.48	13.39	9.261	9.677	9.539	70- 75	6.859	977.2	99.2,69.2
80	8.371	7.752	7.508	7.638	9.313	6.015	6.182	6.268	75- 80	4.877	982.1	99.7,69.5
85	5.048	2.306	0	2.242	5.712	1.720	0	1.812	80- 85	2.608	984.7	100,69.7
90	2.523	0	0	0	2.424	0	0	0	85- 90	0.4053	985.1	100,69.7
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:cd									UNIT:lm		



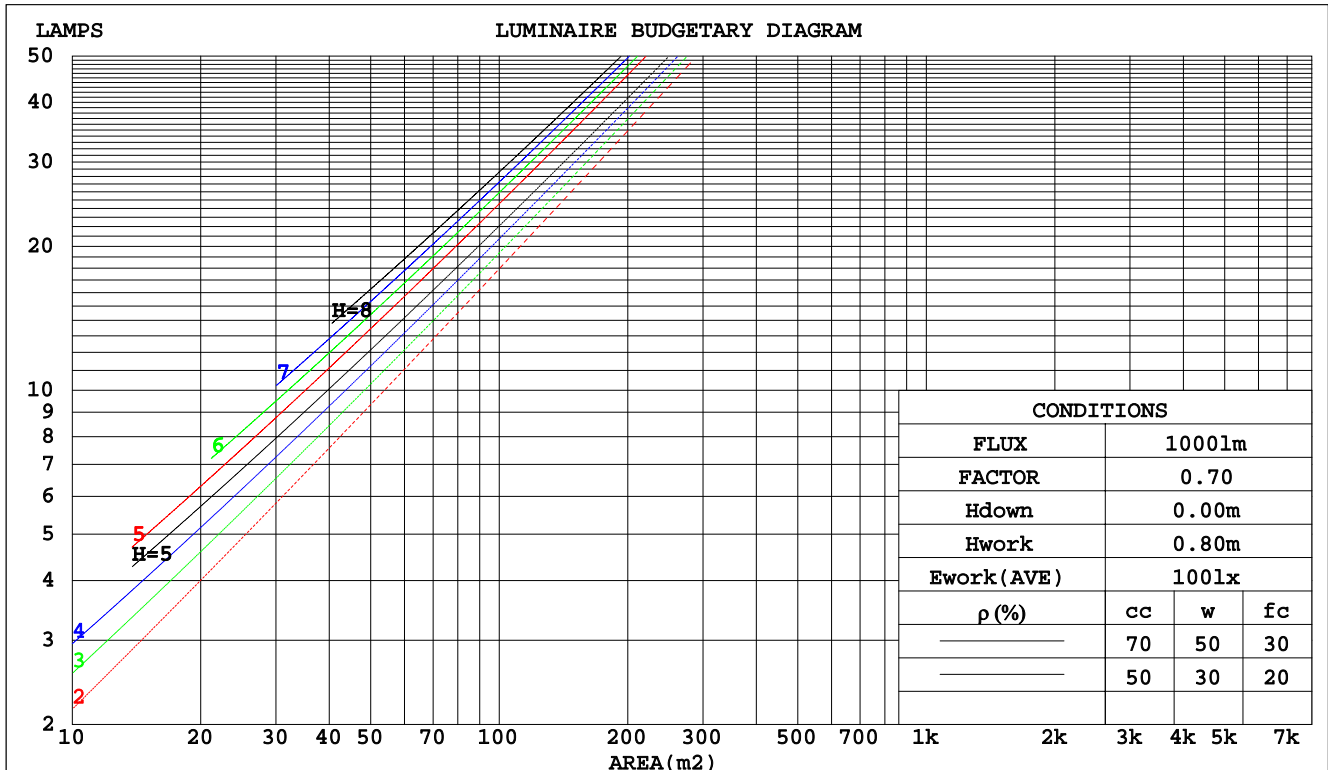
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LIU
 Test Date: 2019-04-26

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.291
 Humidity: 65.0%
 Test Distance: 8.460m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm		
NAME: MDL-4S-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION 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						Coefficients of Utilization(CU)									
0.0	.83	.83	.83	.81	.81	.81	.77	.77	.77	.74	.74	.74	.71	.71	.71	.70
1.0	.77	.76	.74	.76	.74	.73	.73	.72	.71	.71	.70	.69	.68	.67	.67	.66
2.0	.73	.70	.68	.71	.69	.67	.69	.67	.65	.67	.65	.64	.65	.64	.63	.62
3.0	.68	.65	.63	.67	.64	.62	.66	.63	.61	.64	.62	.60	.62	.61	.59	.58
4.0	.65	.61	.58	.64	.61	.58	.62	.60	.57	.61	.59	.57	.60	.58	.56	.55
5.0	.61	.58	.55	.61	.57	.55	.60	.57	.54	.58	.56	.54	.57	.55	.53	.52
6.0	.58	.55	.52	.58	.54	.52	.57	.54	.52	.56	.53	.51	.55	.53	.51	.50
7.0	.56	.52	.50	.55	.52	.49	.55	.51	.49	.54	.51	.49	.53	.51	.49	.48
8.0	.53	.50	.47	.53	.50	.47	.52	.49	.47	.52	.49	.47	.51	.48	.47	.46
9.0	.51	.48	.45	.51	.47	.45	.50	.47	.45	.50	.47	.45	.49	.47	.45	.44
10.0	.49	.46	.43	.49	.46	.43	.48	.45	.43	.48	.45	.43	.47	.45	.43	.42



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LIU
Test Date:2019-04-26

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.291
Humidity:65.0%
Test Distance:8.460m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm					
NAME: MDL-4S-30-WH			TYPE:		WEIGHT:
SPEC.:			DIM.:		SERIAL No.:
MFR.: HM			SUR.:		PROTECTION 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	.120	.068	.022	.115	.066	.021	.107	.061	.020	.099	.057	.018	.091	.053	.017	
2.0	.112	.062	.019	.108	.060	.018	.101	.056	.017	.094	.053	.017	.088	.050	.016	
3.0	.105	.056	.017	.102	.054	.016	.095	.052	.016	.090	.049	.015	.084	.047	.014	
4.0	.098	.051	.015	.096	.050	.015	.090	.048	.014	.085	.046	.014	.081	.044	.013	
5.0	.093	.047	.014	.090	.046	.013	.086	.045	.013	.081	.043	.013	.077	.041	.012	
6.0	.088	.044	.013	.086	.043	.012	.082	.042	.012	.078	.040	.012	.074	.039	.012	
7.0	.083	.041	.012	.081	.040	.012	.078	.039	.011	.074	.038	.011	.071	.037	.011	
8.0	.079	.039	.011	.077	.038	.011	.074	.037	.011	.071	.036	.010	.069	.035	.010	
9.0	.075	.037	.010	.074	.036	.010	.071	.035	.010	.069	.034	.010	.066	.034	.010	
10.0	.072	.035	.010	.071	.034	.010	.068	.034	.009	.066	.033	.009	.064	.032	.009	

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	.133	.133	.133	.114	.114	.114	.077	.077	.077	.045	.045	.045	.014	.014	.014	
1.0	.119	.110	.101	.102	.094	.087	.070	.065	.060	.040	.037	.035	.013	.012	.011	
2.0	.108	.092	.079	.092	.080	.069	.063	.055	.048	.037	.032	.028	.012	.010	.009	
3.0	.099	.079	.064	.085	.068	.055	.058	.047	.039	.034	.028	.023	.011	.009	.007	
4.0	.091	.069	.052	.078	.059	.045	.054	.041	.032	.031	.024	.019	.010	.008	.006	
5.0	.084	.060	.043	.072	.052	.037	.050	.037	.026	.029	.021	.016	.009	.007	.005	
6.0	.078	.054	.036	.067	.047	.031	.047	.033	.022	.027	.019	.013	.009	.006	.004	
7.0	.073	.048	.031	.063	.042	.027	.044	.029	.019	.025	.017	.011	.008	.006	.004	
8.0	.069	.044	.026	.060	.038	.023	.041	.027	.016	.024	.016	.010	.008	.005	.003	
9.0	.065	.040	.023	.056	.035	.020	.039	.024	.014	.023	.014	.008	.007	.005	.003	
10.0	.062	.037	.020	.053	.032	.018	.037	.023	.013	.022	.013	.007	.007	.004	.002	

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LIU
Test Date:2019-04-26

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.291
Humidity:65.0%
Test Distance:8.460m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm											
NAME: MDL-4S-30-WH					TYPE:			WEIGHT:			
SPEC.:					DIM.:			SERIAL No.:			
MFR.: HM					SUR.:			PROTECTION 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	4.4	5.2	4.6	5.4	5.6	5.2	6.0	5.4	6.2	6.3	
	3H	6.0	6.8	6.3	7.0	7.2	6.5	7.3	6.8	7.5	7.7
	4H	6.7	7.5	7.0	7.7	7.9	7.2	7.9	7.4	8.1	8.3
	6H	7.3	8.0	7.6	8.3	8.5	7.7	8.4	8.0	8.6	8.9
	8H	7.6	8.3	7.9	8.5	8.8	7.8	8.5	8.1	8.7	9.0
	12H	7.8	8.5	8.1	8.7	9.0	7.8	8.4	8.1	8.7	8.9
4H	2H	5.1	5.8	5.3	6.0	6.2	5.7	6.4	5.9	6.6	6.8
	3H	6.9	7.5	7.2	7.8	8.1	7.3	7.9	7.6	8.2	8.5
	4H	7.7	8.3	8.1	8.6	8.9	8.1	8.7	8.4	9.0	9.3
	6H	8.5	9.0	8.8	9.3	9.7	8.7	9.3	9.1	9.6	9.9
	8H	8.8	9.3	9.2	9.6	10.0	8.9	9.4	9.3	9.7	10.1
	12H	9.1	9.5	9.5	9.9	10.3	8.9	9.3	9.3	9.7	10.1
8H	4H	8.0	8.5	8.4	8.9	9.3	8.3	8.8	8.7	9.2	9.6
	6H	9.0	9.4	9.4	9.8	10.2	9.2	9.6	9.6	10.0	10.4
	8H	9.4	9.8	9.8	10.2	10.6	9.4	9.7	9.8	10.1	10.6
	12H	9.8	10.1	10.3	10.5	11.0	9.4	9.7	9.8	10.1	10.6
12H	4H	8.1	8.5	8.5	8.9	9.3	8.4	8.8	8.8	9.2	9.6
	6H	9.0	9.4	9.5	9.8	10.3	9.2	9.6	9.7	10.0	10.4
	8H	9.5	9.8	10.0	10.3	10.7	9.5	9.8	9.9	10.2	10.7
Variations with the observer position at spacings:											
S = 1.0H	+ 0.2 / - 0.2					+ 0.3 / - 0.4					
1.5H	+ 0.2 / - 0.2					+ 0.6 / - 0.5					
2.0H	+ 0.1 / - 0.2					+ 0.2 / - 0.4					

CIE Pub.117 Corrected 1413 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.2)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LIU
Test Date:2019-04-26

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.291
Humidity:65.0%
Test Distance:8.460m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm		
NAME: MDL-4S-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION 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) $k(RI) \times RCR = 5$									
$k = 0.60$	60	56	53	60	56	53	59	55	53	50
0.80	65	61	58	65	61	58	64	60	58	55
1.00	68	64	62	68	64	61	67	64	61	58
1.25	71	67	65	70	67	65	69	66	64	61
1.50	73	70	67	72	69	67	71	68	66	63
2.00	75	72	70	74	71	69	72	70	68	64
2.50	76	74	71	75	73	71	73	71	69	65
3.00	78	75	73	76	74	72	74	72	71	66
4.00	79	77	75	78	76	74	75	74	72	67
5.00	80	78	77	78	77	76	76	75	74	68
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:LIU
Test Date:2019-04-26

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.291
Humidity:65.0%
Test Distance:8.460m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm		
NAME: MDL-4S-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):

917.68 lm

%lum = 93.2%

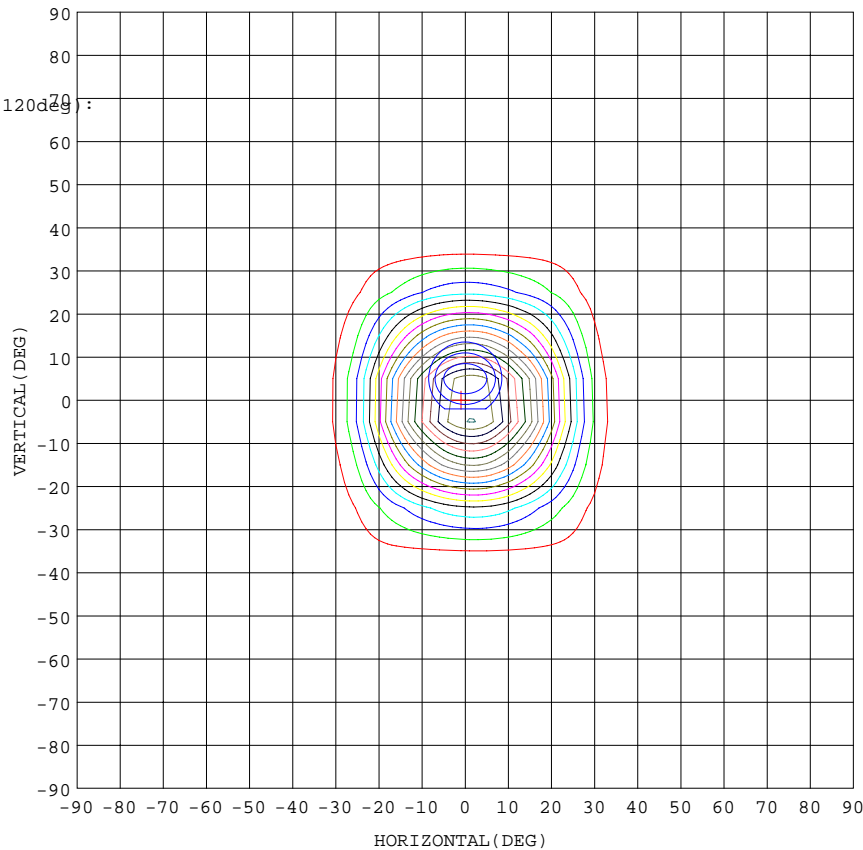
%lamp = 65.0%

Conical surface Flux(120deg):

951.74 lm

%lum = 96.6%

%lamp = 67.4%



5%	120.4
10%	240.8
15%	361.2
20%	481.6
25%	602.0
30%	722.4
35%	842.8
40%	963.2
45%	1084
50%	1204
55%	1324
60%	1445
65%	1565
70%	1686
75%	1806
80%	1926
85%	2047
90%	2167
95%	2288

1. AVG=0,MIN=0
2. AVG=2091,MIN=1762
3. AVG=2046,MIN=1648

Imax:2408(H-1.0,V0.0)
(At:C=0.0,Gamma=0.0)

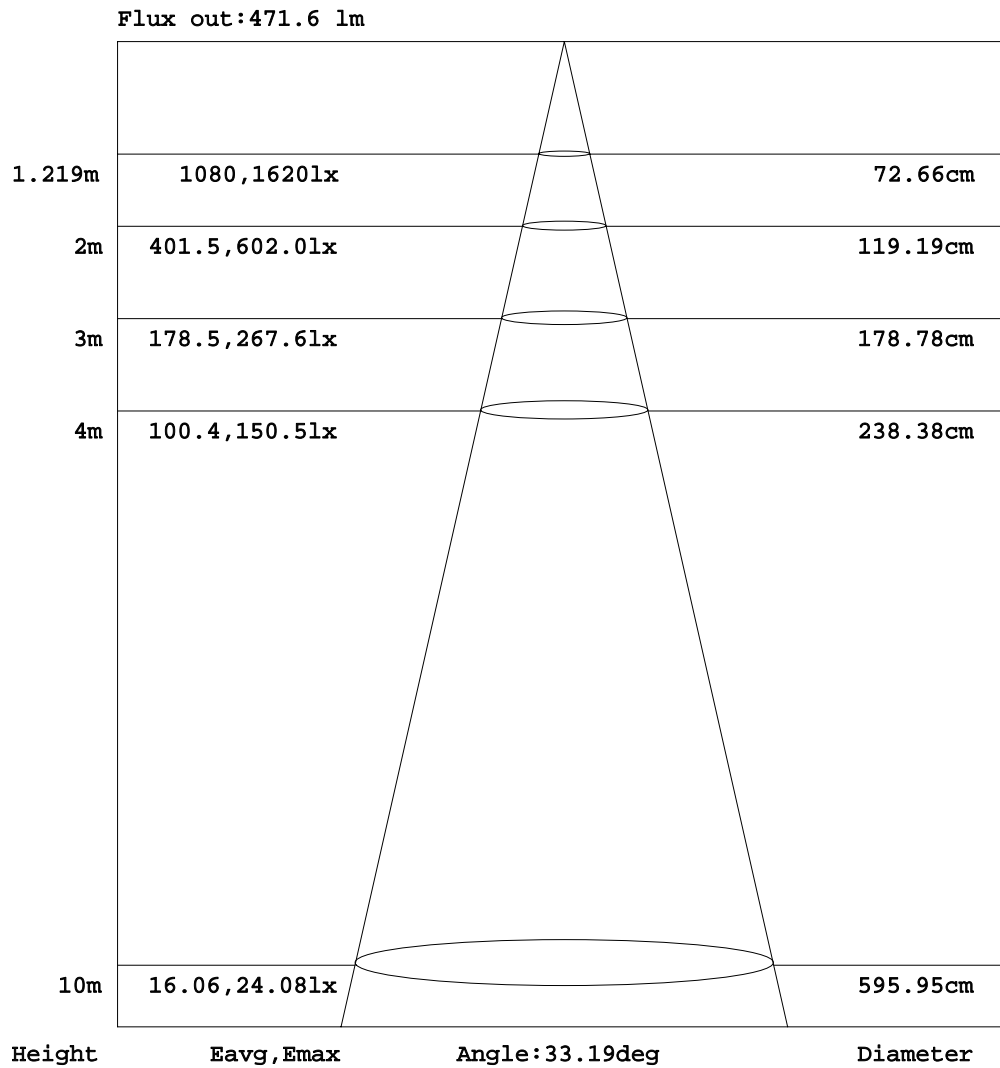
UNIT: cd

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LIU
Test Date:2019-04-26

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.291
Humidity:65.0%
Test Distance:8.460m [K=1.0000]
Remarks:

AAI Figure

Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm		
NAME: MDL-4S-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:



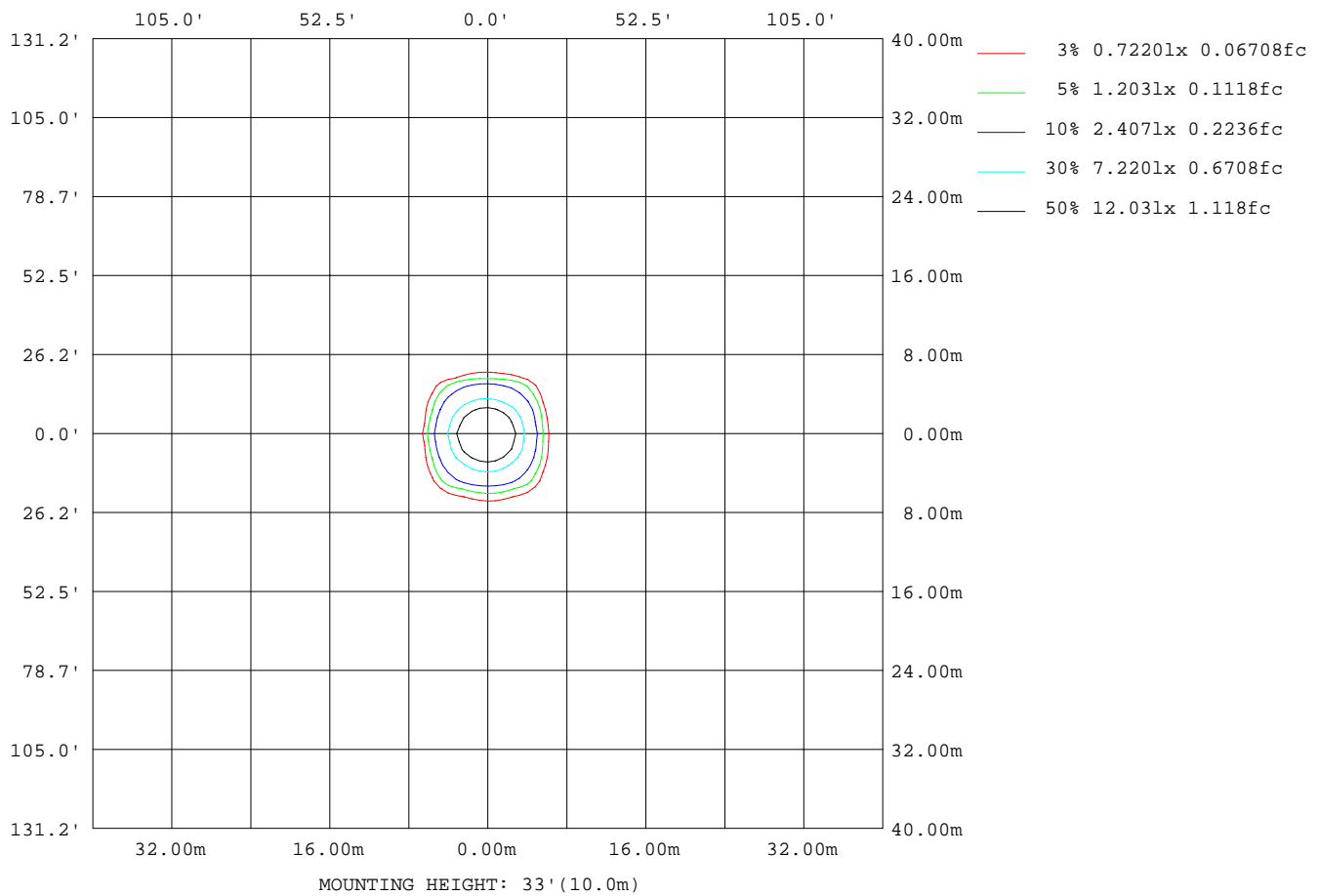
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LIU
Test Date:2019-04-26

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.291
Humidity:65.0%
Test Distance:8.460m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm		
NAME: MDL-4S-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LIU
 Test Date: 2019-04-26

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.291
 Humidity: 65.0%
 Test Distance: 8.460m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:120.0V I:0.1189A P:14.04W PF:0.9834 Lamp Flux:1412.57x1 lm		
NAME: MDL-4S-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:

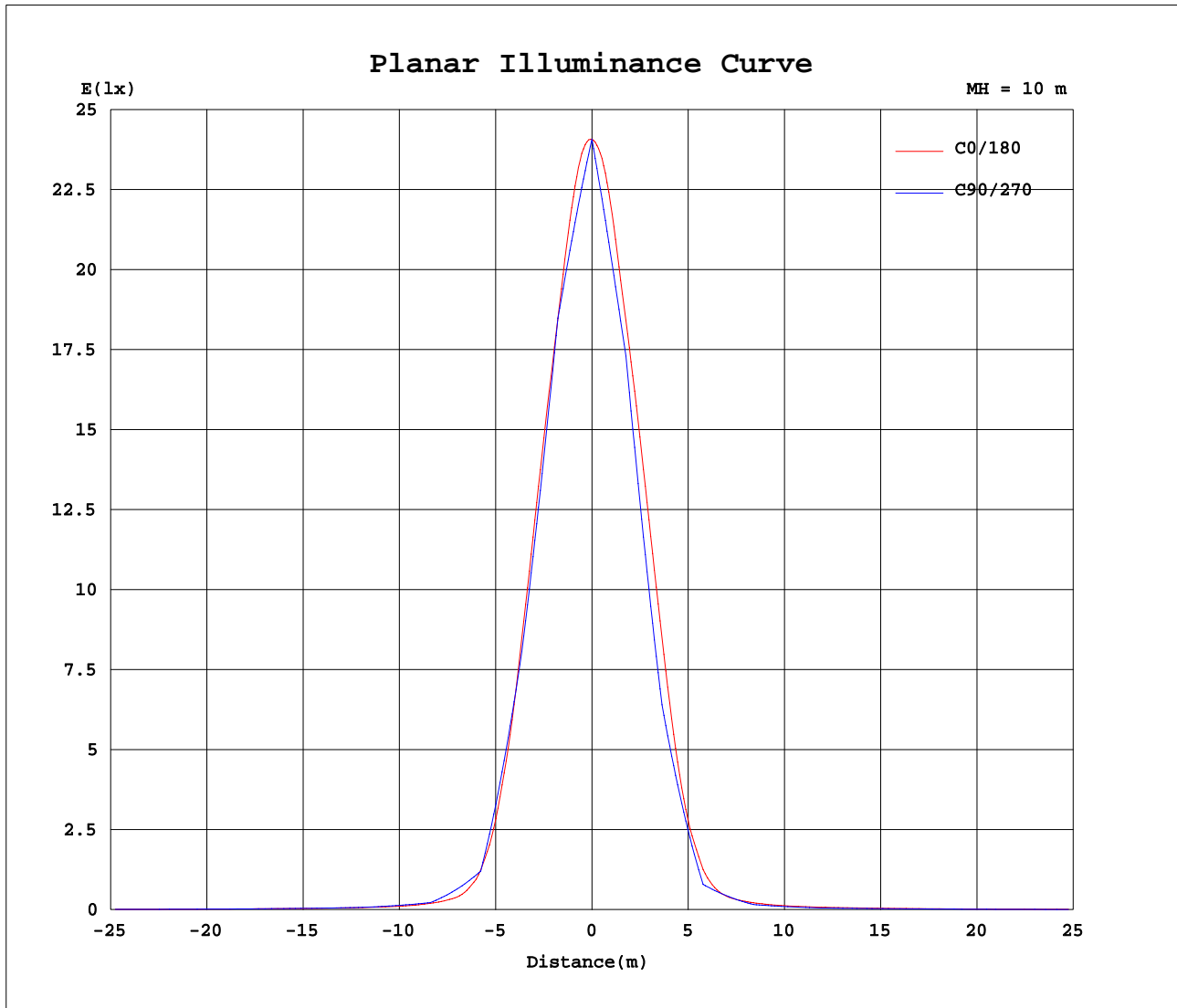
AvgL	cd/m2
L_0~180(65)av	500
L_0~180(75)av	497
L_0~180(85)av	617
L_90~270(65)av	421
L_90~270(75)av	414
L_90~270(85)av	0
L_45(65)av	440
L_45(75)av	404
L_45(85)av	232

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LIU
Test Date:2019-04-26

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.291
Humidity:65.0%
Test Distance:8.460m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LIU
 Test Date: 2019-04-26

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.291
 Humidity: 65.0%
 Test Distance: 8.460m [K=1.0000]
 Remarks:

```

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γ Interval: 0.5DEG
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