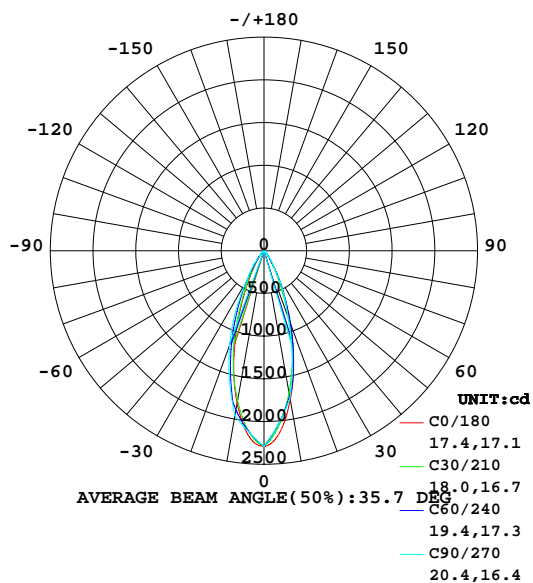


LUMINAIRE PHOTOMETRIC TEST REPORT

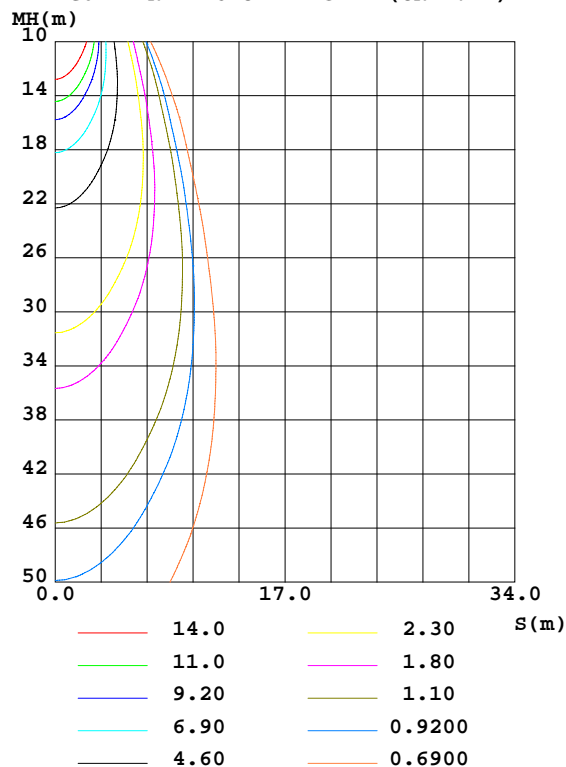
Test:U:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm		
NAME: MDL-4R-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 71.37 lm/W			
MODEL	MDL-4R-30-WH	I _{max} (cd)	2290	S/MH(C0/180)	0.57
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	0.65
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	1000.5	η UP,DN(C0-180)	0.0,46.6
NOMINAL FLUX(lm)	1000.54	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,53.4
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	120	η down(%)	100.0	CIBSE SHR MAX	0.60

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



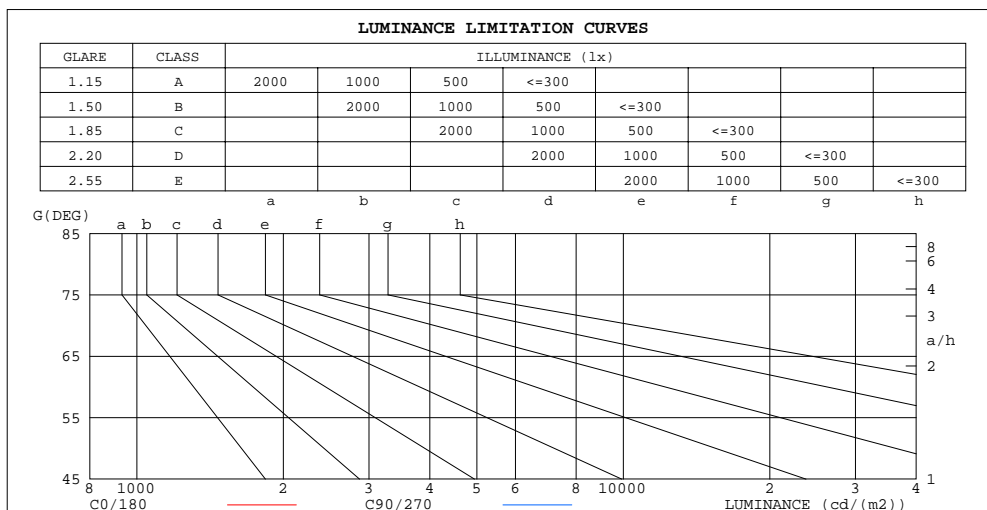
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LIU
 Test Date:2019-04-26

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	2133	2030	2021	2040	2163	2113	2124	2097	0- 5	51.70	51.70	5.17,5.17
10	1771	1699	1751	1699	1812	1830	1958	1814	5- 10	137.4	189.1	18.9,18.9
15	1343	1329	1280	1305	1372	1475	1566	1480	10- 15	186.9	376.1	37.6,37.6
20	886.1	883.2	809.3	856.4	915.4	1020	1174	1026	15- 20	190.4	566.4	56.6,56.6
25	503.6	500.8	537.4	482.0	527.4	626.3	787.0	619.8	20- 25	157.4	723.8	72.3,72.3
30	277.7	264.6	265.5	254.2	287.7	348.9	400.0	342.5	25- 30	109.2	833.0	83.3,83.3
35	132.1	125.6	156.1	118.8	139.2	177.3	236.8	174.9	30- 35	65.17	898.1	89.8,89.8
40	49.87	47.67	46.76	44.54	54.60	68.29	73.48	68.31	35- 40	34.29	932.4	93.2,93.2
45	29.04	31.33	35.37	30.93	33.36	34.74	47.72	33.13	40- 45	16.34	948.8	94.8,94.8
50	22.56	22.13	23.99	23.05	25.98	21.56	21.95	20.40	45- 50	11.13	959.9	95.9,95.9
55	18.43	18.71	20.37	19.58	21.82	17.39	17.83	16.42	50- 55	8.928	968.8	96.8,96.8
60	16.79	16.09	16.74	16.87	19.37	14.34	13.70	13.83	55- 60	7.861	976.7	97.6,97.6
65	15.10	13.77	13.57	14.27	17.32	12.77	12.17	12.29	60- 65	7.166	983.9	98.3,98.3
70	11.77	10.99	10.39	11.22	14.02	10.41	10.64	10.02	65- 70	6.208	990.1	99.99
75	9.010	7.988	7.641	7.990	10.54	7.271	7.864	7.092	70- 75	4.830	994.9	99.4,99.4
80	6.381	5.325	4.890	5.230	7.508	4.963	5.089	4.810	75- 80	3.469	998.4	99.8,99.8
85	3.756	1.560	0	1.510	4.132	1.508	0	1.448	80- 85	1.887	1000	100,100
90	2.666	0	0	0	2.493	0	0	0	85- 90	0.2890	1001	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:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(°)	C0/180	C90/270
85	431	0
80	367	282
75	348	295
70	344	304
65	357	321
60	336	335
55	321	355
50	351	373
45	411	500

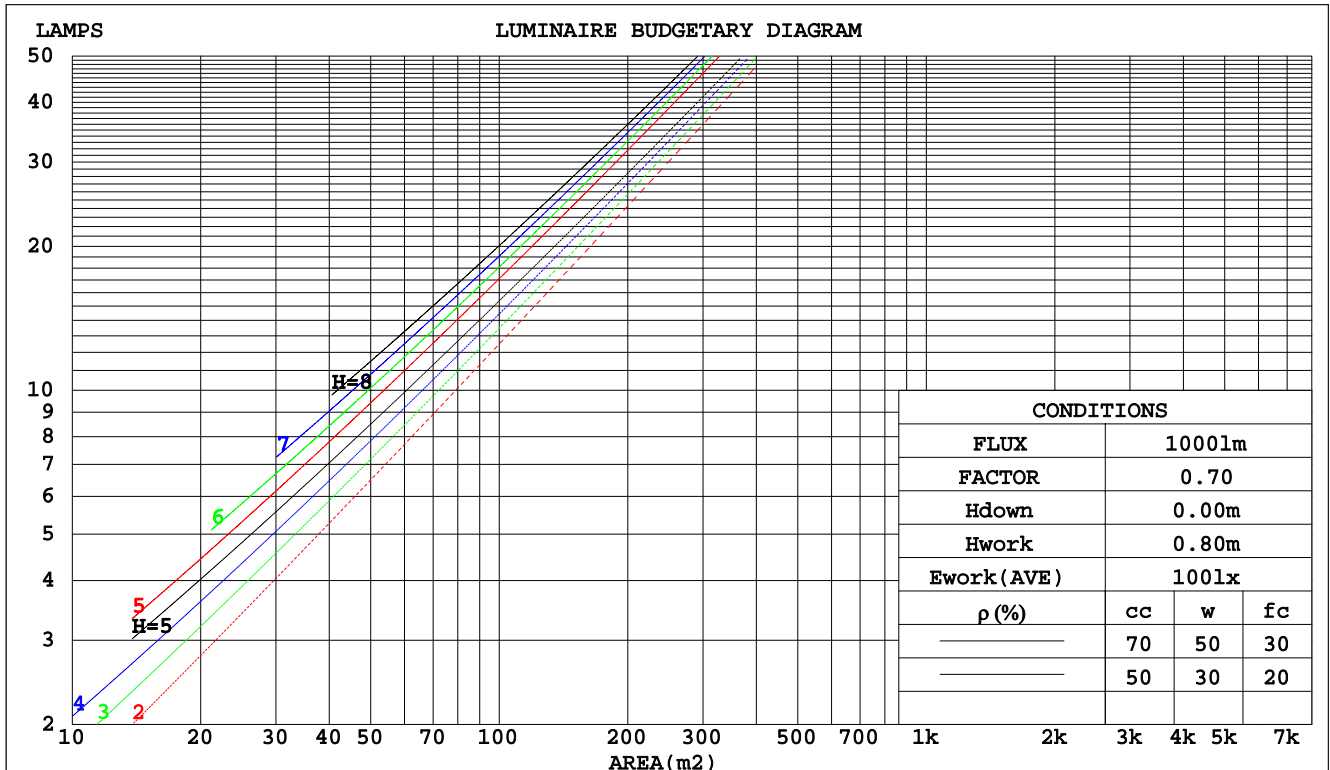
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LIU
Test Date: 2019-04-26

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:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm		
NAME: MDL-4R-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	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	1.11	1.09	1.07	1.09	1.07	1.05	1.05	1.03	1.02	1.01	.00	.99	.98	.97	.96	.94
2.0	1.04	1.00	.97	1.03	.99	.96	.99	.97	.94	.96	.94	.92	.94	.92	.90	.89
3.0	.98	.94	.90	.97	.93	.89	.94	.91	.88	.92	.89	.86	.90	.87	.85	.84
4.0	.93	.88	.84	.92	.87	.83	.90	.86	.82	.88	.84	.82	.86	.83	.81	.79
5.0	.88	.83	.79	.87	.82	.79	.85	.81	.78	.84	.80	.77	.82	.79	.77	.75
6.0	.84	.78	.74	.83	.78	.74	.81	.77	.74	.80	.76	.73	.79	.75	.73	.71
7.0	.80	.74	.71	.79	.74	.70	.78	.73	.70	.77	.73	.70	.76	.72	.69	.68
8.0	.76	.71	.67	.76	.71	.67	.75	.70	.67	.74	.70	.67	.73	.69	.66	.65
9.0	.73	.68	.64	.72	.67	.64	.71	.67	.64	.71	.67	.64	.70	.66	.63	.62
10.0	.70	.65	.61	.69	.65	.61	.69	.64	.61	.68	.64	.61	.67	.63	.61	.60



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:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm		
NAME: MDL-4R-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0	
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
ρfc	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.169	.096	.031	.163	.093	.029	.150	.086	.028	.139	.080	.026	.128	.074	.024		
2.0	.159	.087	.027	.154	.085	.026	.143	.080	.025	.134	.075	.023	.125	.070	.022		
3.0	.150	.080	.024	.145	.078	.023	.136	.074	.022	.128	.070	.021	.120	.067	.021		
4.0	.141	.073	.022	.137	.072	.021	.129	.069	.020	.122	.066	.020	.116	.063	.019		
5.0	.133	.068	.020	.130	.067	.019	.123	.064	.019	.117	.062	.018	.111	.059	.018		
6.0	.126	.063	.018	.123	.062	.018	.117	.060	.018	.112	.058	.017	.107	.056	.017		
7.0	.120	.059	.017	.117	.058	.017	.112	.057	.016	.108	.055	.016	.103	.054	.016		
8.0	.114	.056	.016	.112	.055	.016	.108	.054	.015	.103	.052	.015	.099	.051	.015		
9.0	.109	.053	.015	.107	.052	.015	.103	.051	.014	.100	.050	.014	.096	.049	.014		
10.0	.105	.050	.014	.103	.050	.014	.099	.049	.014	.096	.048	.014	.093	.047	.013		

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	.171	.157	.145	.146	.135	.125	.100	.093	.087	.057	.054	.050	.018	.017	.016		
2.0	.155	.133	.114	.132	.114	.099	.091	.079	.069	.052	.046	.040	.017	.015	.013		
3.0	.141	.113	.091	.121	.098	.079	.083	.068	.056	.048	.040	.033	.015	.013	.011		
4.0	.130	.099	.074	.112	.085	.065	.077	.059	.046	.044	.035	.027	.014	.011	.009		
5.0	.121	.087	.062	.104	.075	.054	.071	.052	.038	.041	.031	.022	.013	.010	.007		
6.0	.113	.077	.052	.097	.067	.045	.067	.047	.032	.039	.028	.019	.013	.009	.006		
7.0	.106	.069	.044	.091	.060	.038	.063	.042	.027	.036	.025	.016	.012	.008	.005		
8.0	.100	.063	.038	.086	.055	.033	.059	.038	.023	.035	.023	.014	.011	.007	.005		
9.0	.094	.058	.033	.081	.050	.029	.056	.035	.020	.033	.021	.012	.011	.007	.004		
10.0	.089	.053	.029	.077	.046	.025	.054	.032	.018	.031	.019	.011	.010	.006	.004		

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:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm											
NAME: MDL-4R-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	3H	3.6	4.5	3.8	4.6	4.8	4.2	5.1	4.5	5.2	5.4
	4H	4.7	5.4	4.9	5.6	5.8	5.0	5.8	5.3	6.0	6.2
	6H	5.2	5.9	5.4	6.1	6.3	5.4	6.1	5.7	6.3	6.6
	8H	5.7	6.4	5.9	6.6	6.8	5.7	6.4	6.0	6.7	6.9
	12H	5.9	6.6	6.2	6.8	7.1	5.8	6.5	6.1	6.7	7.0
	12H	6.1	6.8	6.4	7.0	7.3	5.7	6.4	6.1	6.7	6.9
4H	2H	3.9	4.7	4.2	4.9	5.1	4.5	5.2	4.7	5.4	5.6
	3H	5.2	5.8	5.5	6.1	6.4	5.5	6.1	5.8	6.4	6.7
	4H	5.9	6.4	6.2	6.7	7.0	6.0	6.6	6.3	6.9	7.2
	6H	6.5	7.0	6.9	7.3	7.7	6.5	7.0	6.8	7.3	7.7
	8H	6.8	7.3	7.2	7.6	8.0	6.6	7.0	6.9	7.4	7.8
	12H	7.1	7.6	7.5	7.9	8.3	6.5	7.0	6.9	7.3	7.7
8H	4H	6.1	6.6	6.5	6.9	7.3	6.2	6.7	6.6	7.0	7.4
	6H	6.9	7.3	7.3	7.7	8.1	6.8	7.2	7.2	7.6	8.0
	8H	7.3	7.6	7.7	8.1	8.5	6.9	7.3	7.4	7.7	8.2
	12H	7.7	8.0	8.2	8.5	8.9	6.9	7.2	7.4	7.7	8.1
12H	4H	6.1	6.5	6.5	6.9	7.3	6.2	6.7	6.6	7.0	7.4
	6H	6.9	7.3	7.4	7.7	8.1	6.9	7.2	7.3	7.6	8.1
	8H	7.4	7.7	7.9	8.1	8.6	7.0	7.3	7.5	7.8	8.2
Variations with the observer position at spacings:											
S = 1.0H	+ 0.7 / - 0.4					+ 1.0 / - 0.8					
1.5H	+ 1.5 / - 0.4					+ 2.2 / - 0.7					
2.0H	+ 0.2 / - 0.3					+ 0.4 / - 0.4					

CIE Pub.117 Corrected 1001 lm Total Lamp Luminous Flux.(8log(F/F0) = 0.0)

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:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm		
NAME: MDL-4R-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) $k(RI) \times RCR = 5$									
$k = 0.60$	87	81	77	87	81	77	86	81	77	74
0.80	95	89	85	94	88	85	93	88	85	81
1.00	99	93	90	98	93	89	97	93	89	85
1.25	103	98	94	102	97	94	100	96	93	89
1.50	106	101	97	104	100	97	102	98	96	91
2.00	108	104	101	107	103	100	104	101	98	93
2.50	110	106	103	108	105	102	105	102	100	94
3.00	112	108	105	110	107	104	106	104	102	96
4.00	114	111	109	112	109	107	108	106	104	97
5.00	115	113	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: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:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm		
NAME: MDL-4R-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):

948.77 lm

%lum = 94.8%

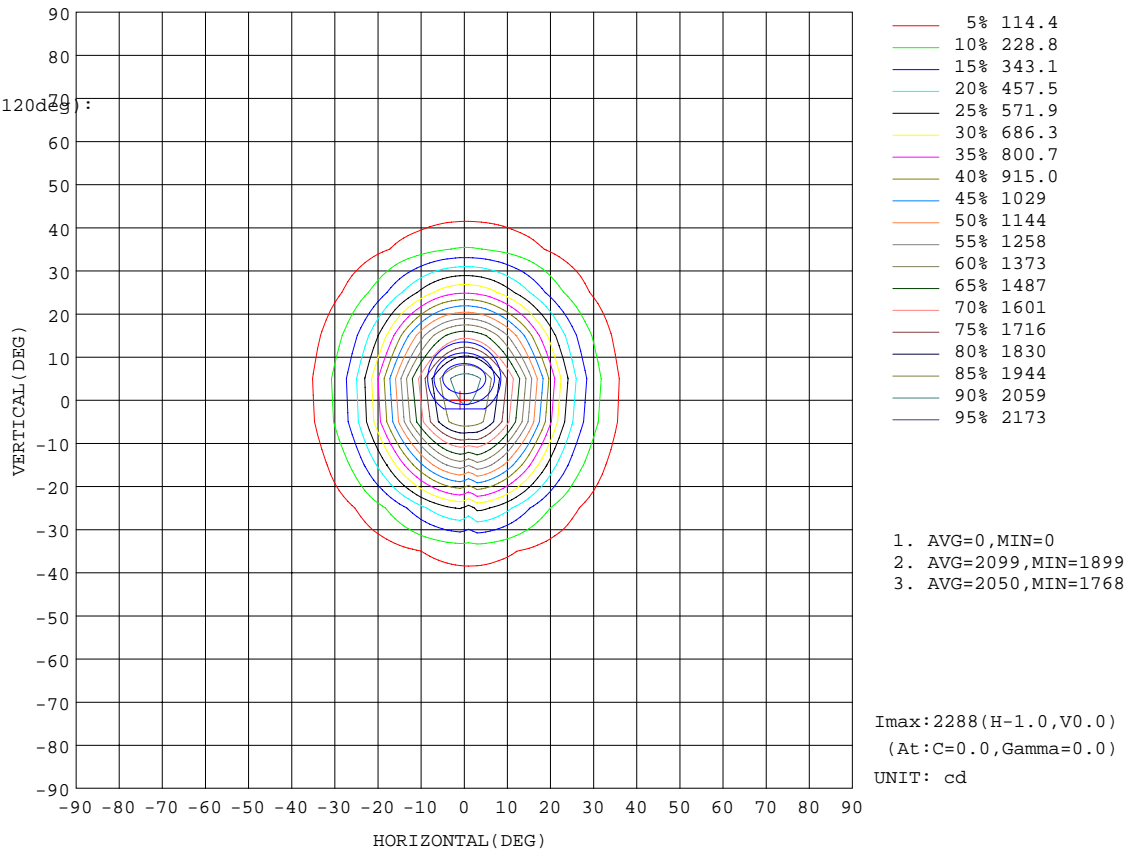
%lamp = 94.8%

Conical surface Flux(120deg):

976.69 lm

%lum = 97.6%

%lamp = 97.6%

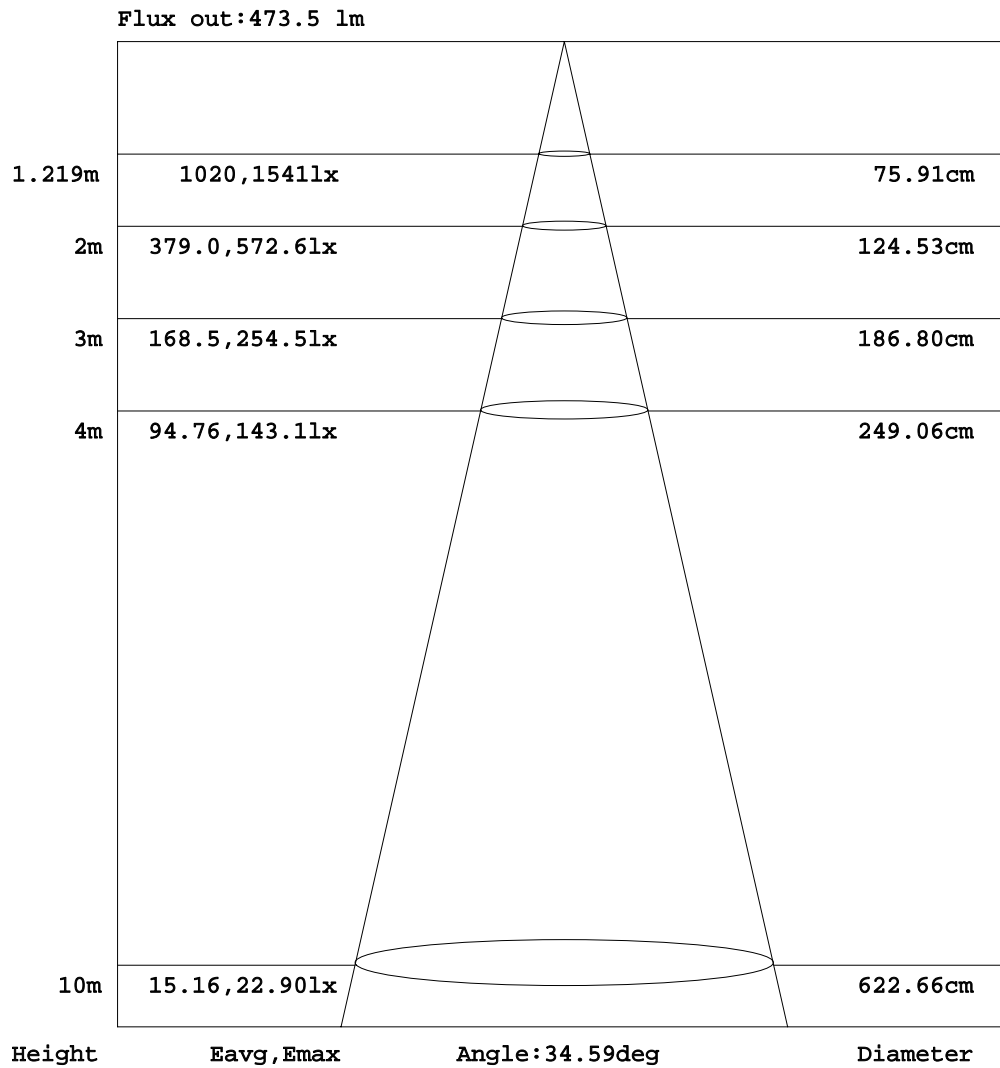


C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LIU
Test Date:2019-04-26

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:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm		
NAME: MDL-4R-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:



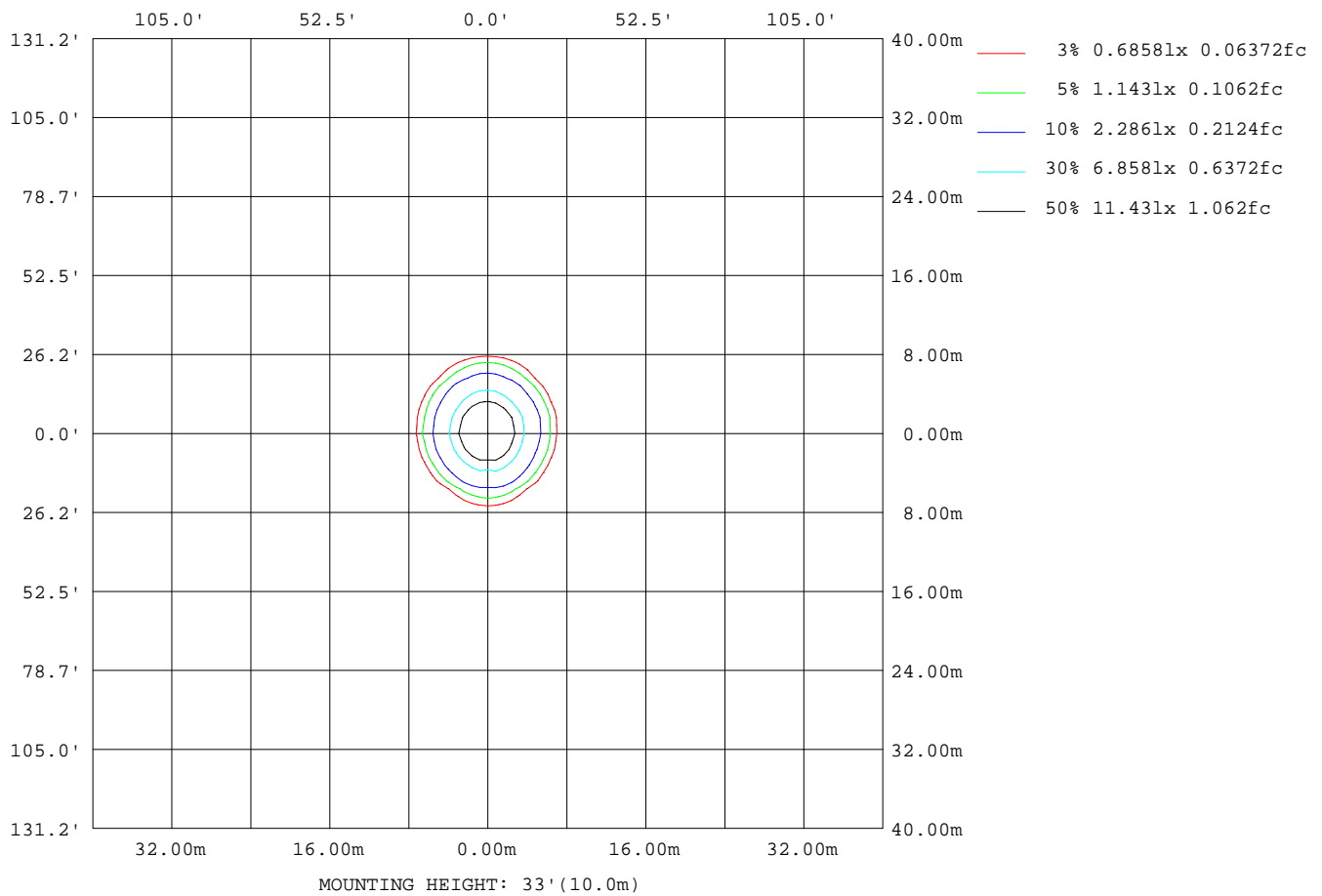
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm		
NAME: MDL-4R-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:120.2V I:0.1185A P:14.02W PF:0.9848 Lamp Flux:1000.54x1 lm		
NAME: MDL-4R-30-WH	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HM	SUR.:	PROTECTION ANGLE:

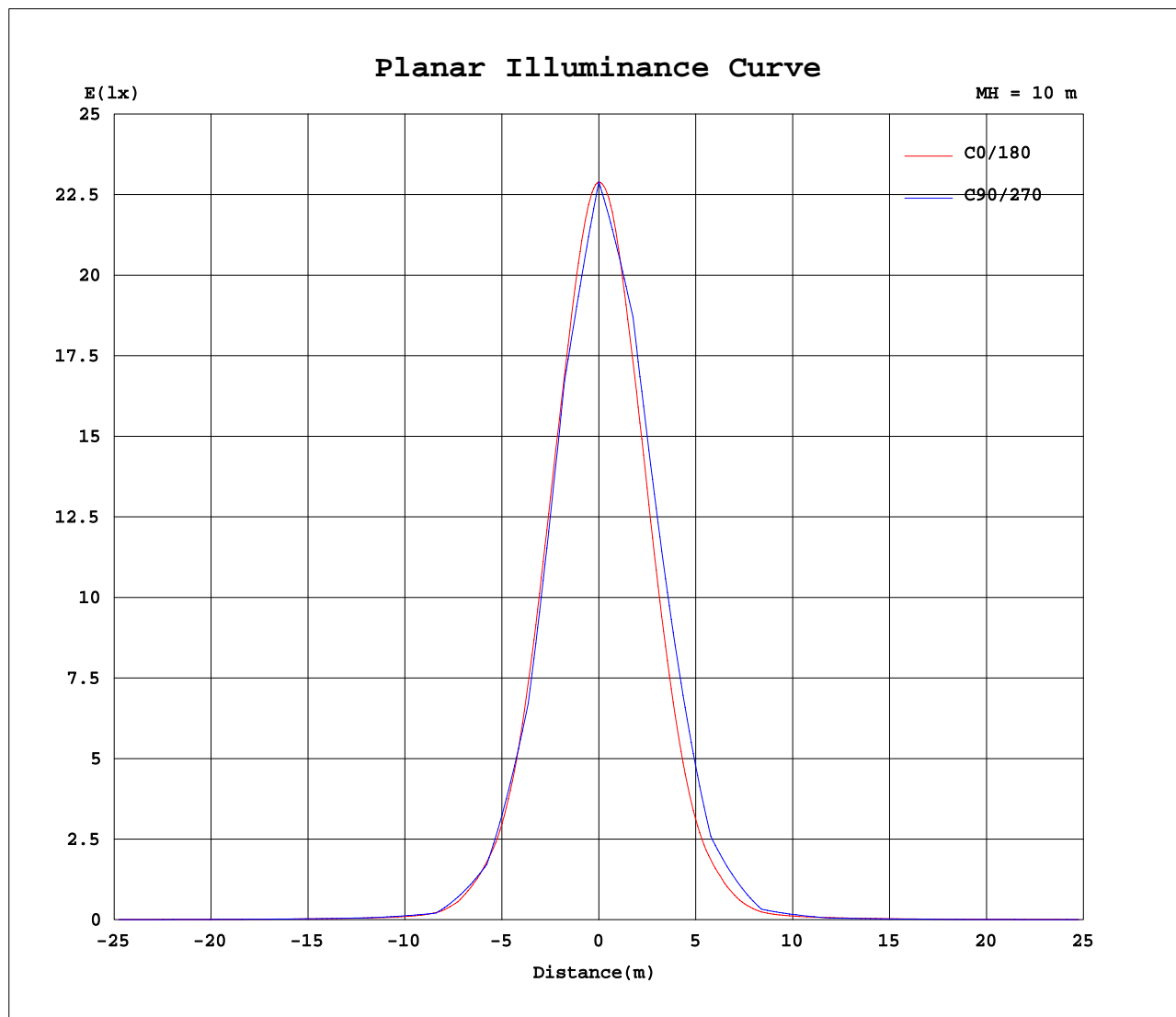
AvgL	cd/m2
L_0~180(65)av	384
L_0~180(75)av	378
L_0~180(85)av	453
L_90~270(65)av	305
L_90~270(75)av	300
L_90~270(85)av	0
L_45(65)av	314
L_45(75)av	293
L_45(85)av	173

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:

