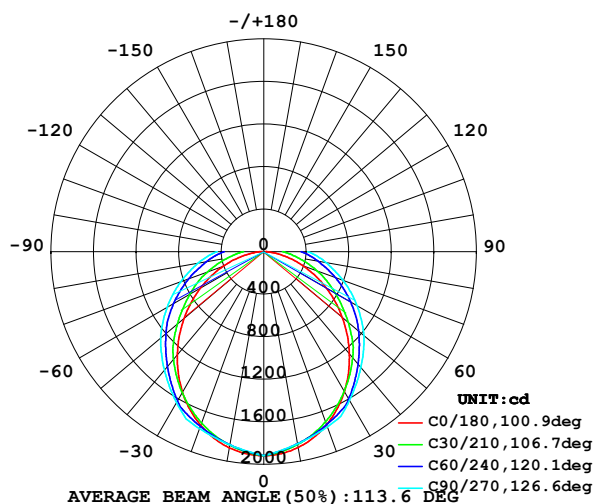


# LUMINAIRE PHOTOMETRIC TEST REPORT

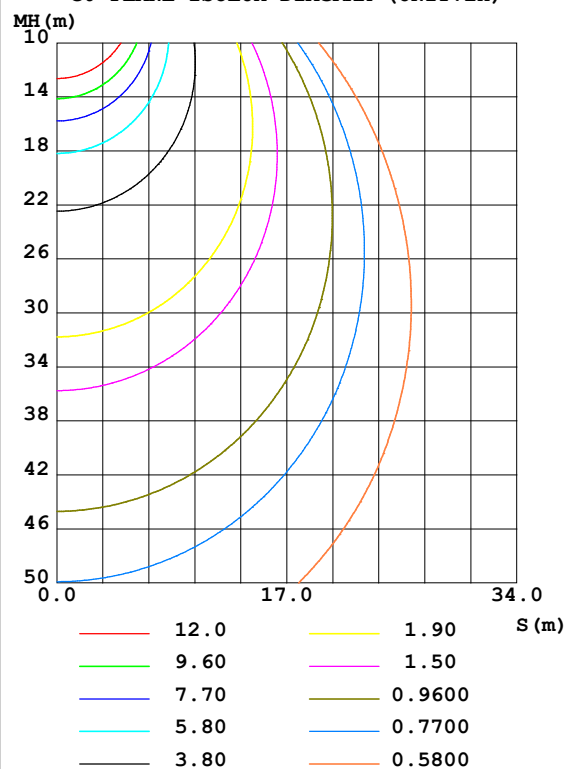
Test:U:120.1V I:0.3710A P:44.49W PF:0.9983 Lamp Flux:5852.6x1 lm		
NAME: MLSN4-44/D10/U/50	TYPE:LED	WEIGHT:
SPEC.:	DIM.: 1219*66*68mm	SERIAL No.:
MFR.:	SUR.:1219*66*68mm	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 131.54 lm/W			
MODEL	5000K	I <sub>max</sub> (cd)	1918	S/MH (C0/180)	1.19
NOMINAL POWER(W)	44	LOR(%)	100.0	S/MH (C90/270)	1.27
RATED VOLTAGE(V)	120-277	TOTAL FLUX(lm)	5852.6	η UP,DN (C0-180)	0.0,49.4
NOMINAL FLUX(lm)	5852.6	CIE CLASS	DIRECT	η UP,DN (C180-360)	0.0,50.6
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	120	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: 5.0DEG  
Test Speed: HIGH  
Temperature:25DEG  
Operators:Peter  
Test Date:2020-03-25

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
Humidity:50%  
Test Distance:8.900m [K=1.0000]  
Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

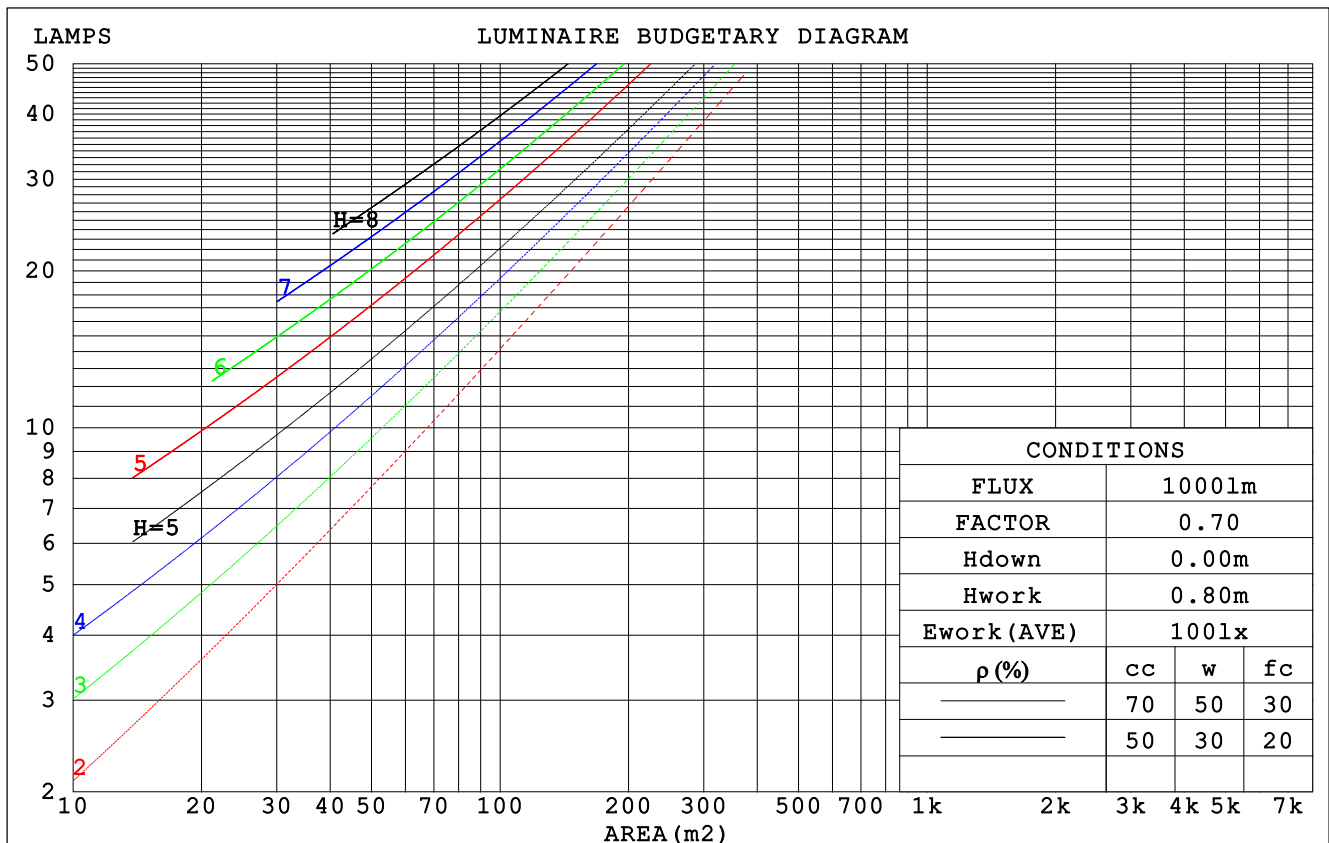
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum,lamp
5	1905	1882	1876	1883	1907	1886	1881	1885	0- 5	45.39	45.39	0.78,0.78
10	1869	1835	1835	1837	1872	1844	1844	1842	5- 10	133.4	178.8	3.05,3.05
15	1810	1779	1793	1781	1815	1790	1807	1788	10- 15	215.6	394.4	6.74,6.74
20	1731	1714	1752	1715	1737	1728	1770	1726	15- 20	290.1	684.5	11.7,11.7
25	1632	1641	1710	1642	1641	1659	1733	1656	20- 25	355.2	1040	17.8,17.8
30	1518	1563	1614	1564	1529	1583	1640	1581	25- 30	408.4	1448	24.7,24.7
35	1390	1468	1518	1469	1401	1491	1547	1488	30- 35	445.8	1894	32.4,32.4
40	1253	1343	1422	1346	1265	1370	1454	1366	35- 40	468.3	2362	40.4,40.4
45	1110	1220	1326	1223	1124	1248	1361	1244	40- 45	476.9	2839	48.5,48.5
50	965.2	1099	1230	1103	978.8	1130	1268	1125	45- 50	472.9	3312	56.6,56.6
55	819.2	981.7	1121	986.7	833.3	1016	1159	1010	50- 55	457.0	3769	64.4,64.4
60	675.3	868.0	1012	873.9	689.3	904.1	1050	898.2	55- 60	429.6	4199	71.7,71.7
65	533.2	748.1	903.0	752.7	547.5	781.6	941.1	777.0	60- 65	393.0	4592	78.5,78.5
70	396.4	634.1	794.1	637.4	409.9	665.0	832.1	661.7	65- 70	349.0	4941	84.4,84.4
75	266.0	526.3	685.2	528.1	279.1	554.5	723.1	552.7	70- 75	299.9	5241	89.5,89.5
80	148.4	426.9	595.0	427.0	159.0	452.6	628.2	451.7	75- 80	249.4	5490	93.8,93.8
85	56.61	347.9	504.9	346.1	66.17	370.0	533.3	368.9	80- 85	202.4	5692	97.3,97.3
90	18.35	272.8	414.7	269.2	26.67	291.4	438.4	290.0	85- 90	160.2	5853	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		

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Peter  
 Test Date:2020-03-25

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity:50%  
 Test Distance:8.900m [K=1.0000]  
 Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	1.01	.96	.91	.99	.94	.90	.94	.90	.87	.90	.87	.84	.87	.84	.82	.79
2.0	.87	.79	.73	.85	.78	.72	.81	.75	.70	.78	.73	.69	.75	.71	.67	.65
3.0	.76	.67	.60	.74	.66	.59	.71	.64	.58	.68	.62	.57	.66	.61	.56	.54
4.0	.67	.58	.50	.66	.57	.50	.63	.55	.49	.61	.54	.49	.58	.53	.48	.46
5.0	.60	.50	.43	.59	.50	.43	.56	.49	.42	.54	.47	.42	.52	.46	.41	.39
6.0	.54	.44	.38	.53	.44	.37	.51	.43	.37	.49	.42	.37	.48	.41	.36	.34
7.0	.49	.40	.33	.48	.39	.33	.46	.38	.33	.45	.38	.33	.43	.37	.32	.30
8.0	.44	.36	.30	.44	.35	.29	.42	.35	.29	.41	.34	.29	.40	.34	.29	.27
9.0	.41	.32	.27	.40	.32	.26	.39	.32	.26	.38	.31	.26	.37	.31	.26	.24
10.0	.38	.29	.24	.37	.29	.24	.36	.29	.24	.35	.28	.24	.34	.28	.24	.22



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25DEG  
 Operators: Peter  
 Test Date: 2020-03-25

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity: 50%  
 Test Distance: 8.900m [K=1.0000]  
 Remarks:

## 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	.367	.209	.066	.360	.205	.065	.346	.199	.063	.334	.193	.062	.322	.187	.060		
2.0	.325	.178	.055	.319	.176	.054	.307	.171	.053	.296	.166	.052	.285	.161	.051		
3.0	.292	.155	.047	.286	.153	.046	.276	.149	.045	.266	.146	.045	.257	.142	.044		
4.0	.265	.138	.040	.260	.136	.040	.250	.133	.040	.242	.130	.039	.234	.127	.039		
5.0	.242	.123	.036	.237	.122	.036	.229	.119	.035	.221	.117	.035	.214	.114	.034		
6.0	.222	.112	.032	.219	.110	.032	.211	.108	.031	.204	.106	.031	.198	.104	.031		
7.0	.206	.102	.029	.202	.101	.029	.196	.099	.028	.189	.097	.028	.184	.095	.028		
8.0	.191	.093	.026	.188	.093	.026	.182	.091	.026	.177	.090	.026	.171	.088	.026		
9.0	.179	.086	.024	.176	.086	.024	.170	.084	.024	.165	.083	.024	.161	.082	.024		
10.0	.167	.080	.022	.165	.080	.022	.160	.078	.022	.156	.077	.022	.151	.076	.022		

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	.184	.156	.130	.158	.134	.112	.108	.092	.077	.062	.053	.045	.020	.017	.015	
2.0	.177	.132	.094	.151	.113	.081	.104	.078	.057	.060	.046	.033	.019	.015	.011	
3.0	.169	.114	.071	.145	.099	.062	.099	.069	.043	.057	.040	.026	.018	.013	.008	
4.0	.161	.101	.056	.138	.088	.049	.095	.061	.034	.055	.036	.020	.018	.012	.007	
5.0	.153	.091	.045	.131	.079	.040	.090	.055	.028	.052	.032	.017	.017	.011	.005	
6.0	.145	.083	.038	.125	.072	.033	.086	.050	.023	.050	.029	.014	.016	.010	.005	
7.0	.138	.076	.032	.119	.066	.028	.082	.046	.020	.048	.027	.012	.015	.009	.004	
8.0	.131	.070	.028	.113	.061	.024	.078	.043	.017	.045	.025	.010	.015	.008	.003	
9.0	.125	.065	.025	.108	.056	.022	.075	.040	.015	.043	.023	.009	.014	.008	.003	
10.0	.119	.061	.022	.103	.053	.019	.071	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Peter  
 Test Date:2020-03-25

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity:50%  
 Test Distance:8.900m [K=1.0000]  
 Remarks:

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	22.4	24.0	22.6	24.2	24.4	24.1	25.7	24.4	25.9	26.1
3H	23.7	25.2	24.0	25.4	25.7	26.4	27.8	26.7	28.1	28.3
4H	24.2	25.6	24.5	25.9	26.1	27.6	29.0	27.9	29.2	29.5
6H	24.5	25.9	24.9	26.1	26.4	28.8	30.2	29.2	30.5	30.8
8H	24.6	25.9	25.0	26.2	26.5	29.6	30.9	29.9	31.2	31.4
12H	24.6	25.9	25.0	26.2	26.5	30.4	31.6	30.7	31.9	32.2
4H 2H	23.4	24.8	23.7	25.0	25.3	24.7	26.1	25.0	26.3	26.6
3H	25.0	26.2	25.3	26.5	26.8	27.2	28.4	27.5	28.7	29.0
4H	25.6	26.8	26.0	27.1	27.5	28.5	29.7	28.9	30.0	30.4
6H	26.1	27.2	26.5	27.5	27.9	30.1	31.1	30.5	31.5	31.8
8H	26.3	27.3	26.7	27.6	28.0	30.9	31.9	31.3	32.3	32.7
12H	26.4	27.3	26.8	27.7	28.1	31.9	32.8	32.3	33.2	33.6
8H 4H	26.5	27.4	26.9	27.8	28.2	28.9	29.8	29.3	30.2	30.6
6H	27.3	28.1	27.7	28.5	29.0	30.7	31.5	31.1	31.9	32.4
8H	27.6	28.4	28.1	28.8	29.2	31.7	32.5	32.2	32.9	33.4
12H	27.9	28.5	28.3	29.0	29.4	33.0	33.6	33.4	34.1	34.5
12H 4H	26.7	27.6	27.1	28.0	28.4	28.9	29.8	29.3	30.2	30.6
6H	27.7	28.5	28.2	28.9	29.4	30.8	31.5	31.3	32.0	32.4
8H	28.2	28.9	28.7	29.3	29.8	32.0	32.6	32.4	33.1	33.5
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.2					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.3					+ 0.2 / - 0.4				

CIE Pub.117 Corrected 5853 lm Total Lamp Luminous Flux. (8log(F/F0) = 6.1)

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25DEG  
 Operators: Peter  
 Test Date: 2020-03-25

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity: 50%  
 Test Distance: 8.900m [K=1.0000]  
 Remarks:

## 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) $k(RI) \times RCR = 5$									
$k = 0.60$	55	43	36	55	43	36	53	43	36	29
0.80	65	53	45	64	52	45	62	52	45	37
1.00	73	61	53	72	61	53	69	62	53	45
1.25	80	69	61	78	68	60	76	66	60	52
1.50	85	74	66	83	73	66	80	71	65	57
2.00	92	82	75	90	81	74	86	79	73	64
2.50	96	87	80	94	86	79	90	83	78	69
3.00	99	92	85	97	90	84	93	87	82	73
4.00	104	97	92	101	95	90	97	92	88	78
5.00	106	101	96	104	99	94	99	95	91	82
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: 25DEG  
 Operators: Peter  
 Test Date: 2020-03-25

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity: 50%  
 Test Distance: 8.900m [K=1.0000]  
 Remarks:

## ISOCANDELA DIAGRAM

Conical surface Flux(90deg):

2839.1 lm

%lum = 48.5%

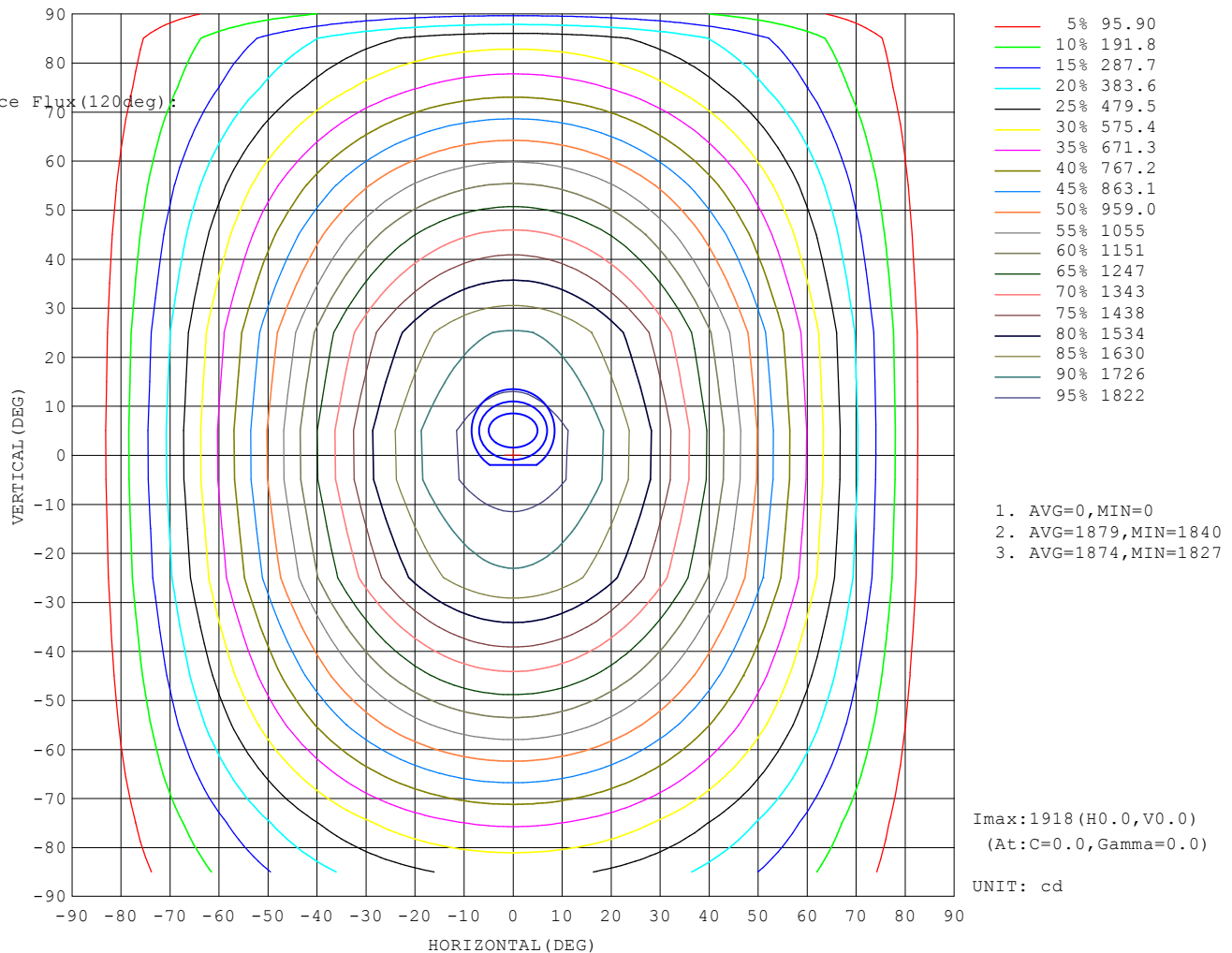
%lamp = 48.5%

Conical surface Flux(120deg):

4198.7 lm

%lum = 71.7%

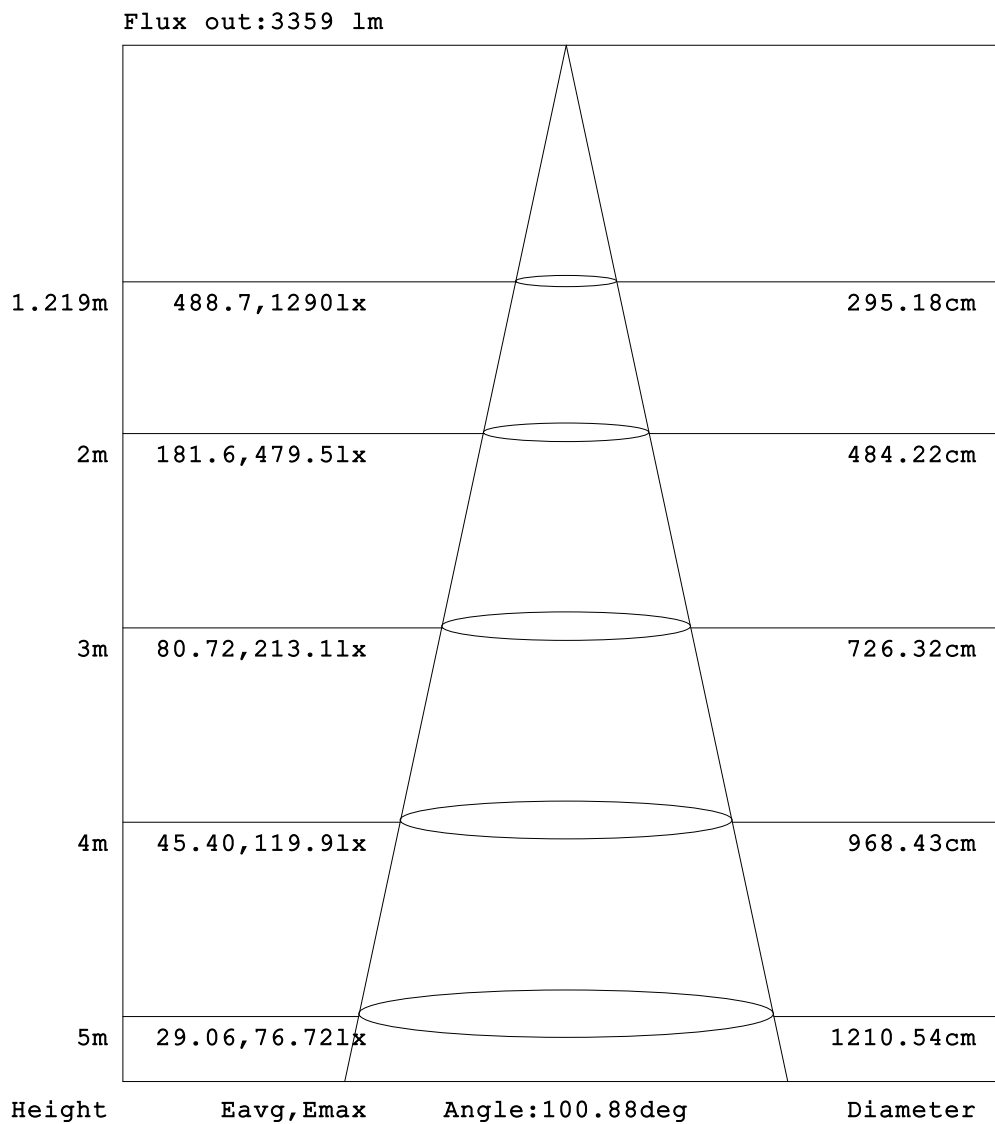
%lamp = 71.7%



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25DEG  
Operators:Peter  
Test Date:2020-03-25

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
Humidity:50%  
Test Distance:8.900m [K=1.0000]  
Remarks:

## AAI Figure



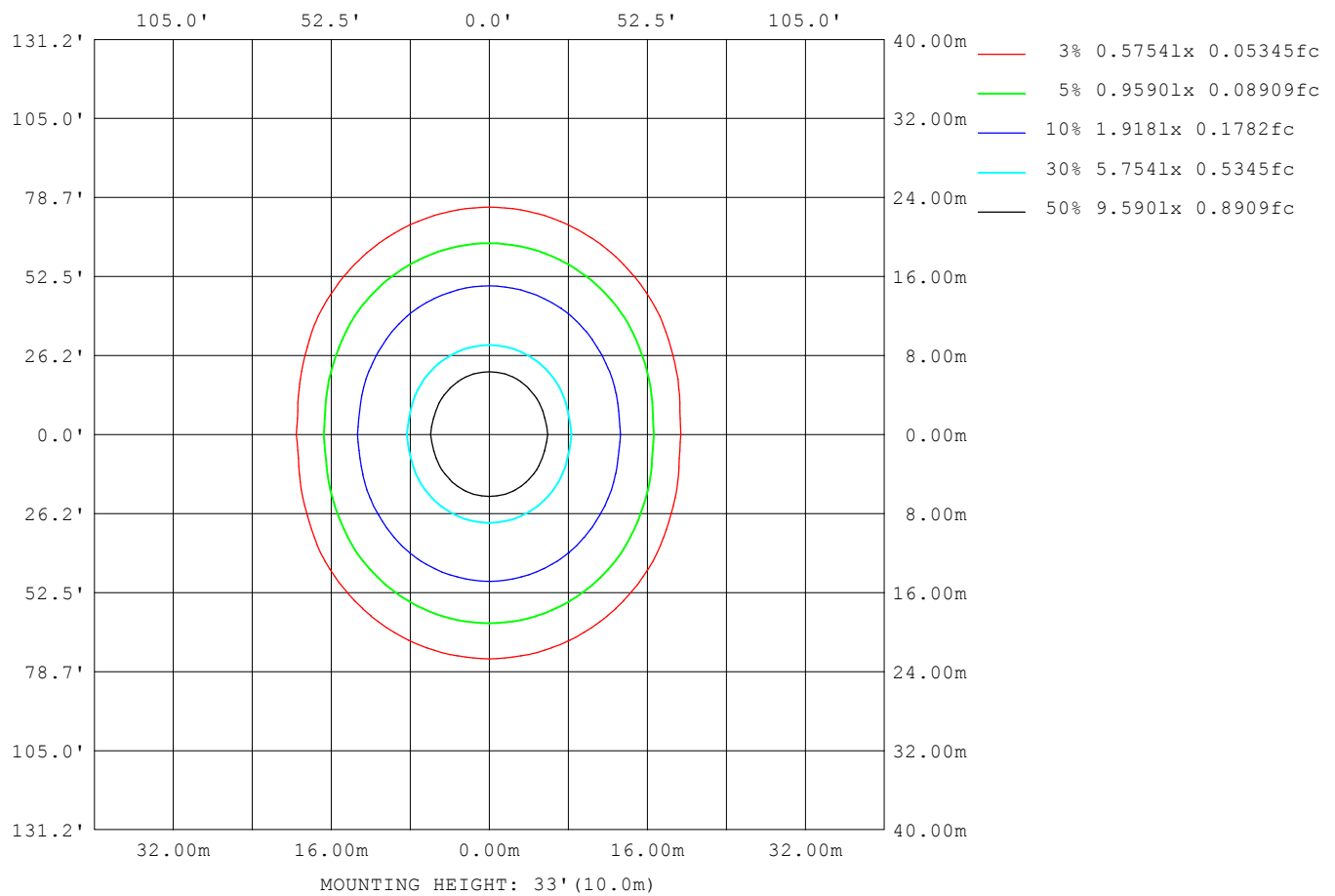
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25DEG  
Operators: Peter  
Test Date: 2020-03-25

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
Humidity: 50%  
Test Distance: 8.900m [K=1.0000]  
Remarks:



## ISOLUX DIAGRAM



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25DEG  
 Operators: Peter  
 Test Date: 2020-03-25

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity: 50%  
 Test Distance: 8.900m [K=1.0000]  
 Remarks:

## LED Avg.L Report

Test:U:120.1V I:0.3710A P:44.49W PF:0.9983 Lamp Flux:5852.6x1 lm		
NAME: MLSN4-44/D10/U/50	TYPE:LED	WEIGHT:
SPEC.:	DIM.: 1219*66*68mm	SERIAL No.:
MFR.:	SUR.:1219*66*68mm	PROTECTION ANGLE:

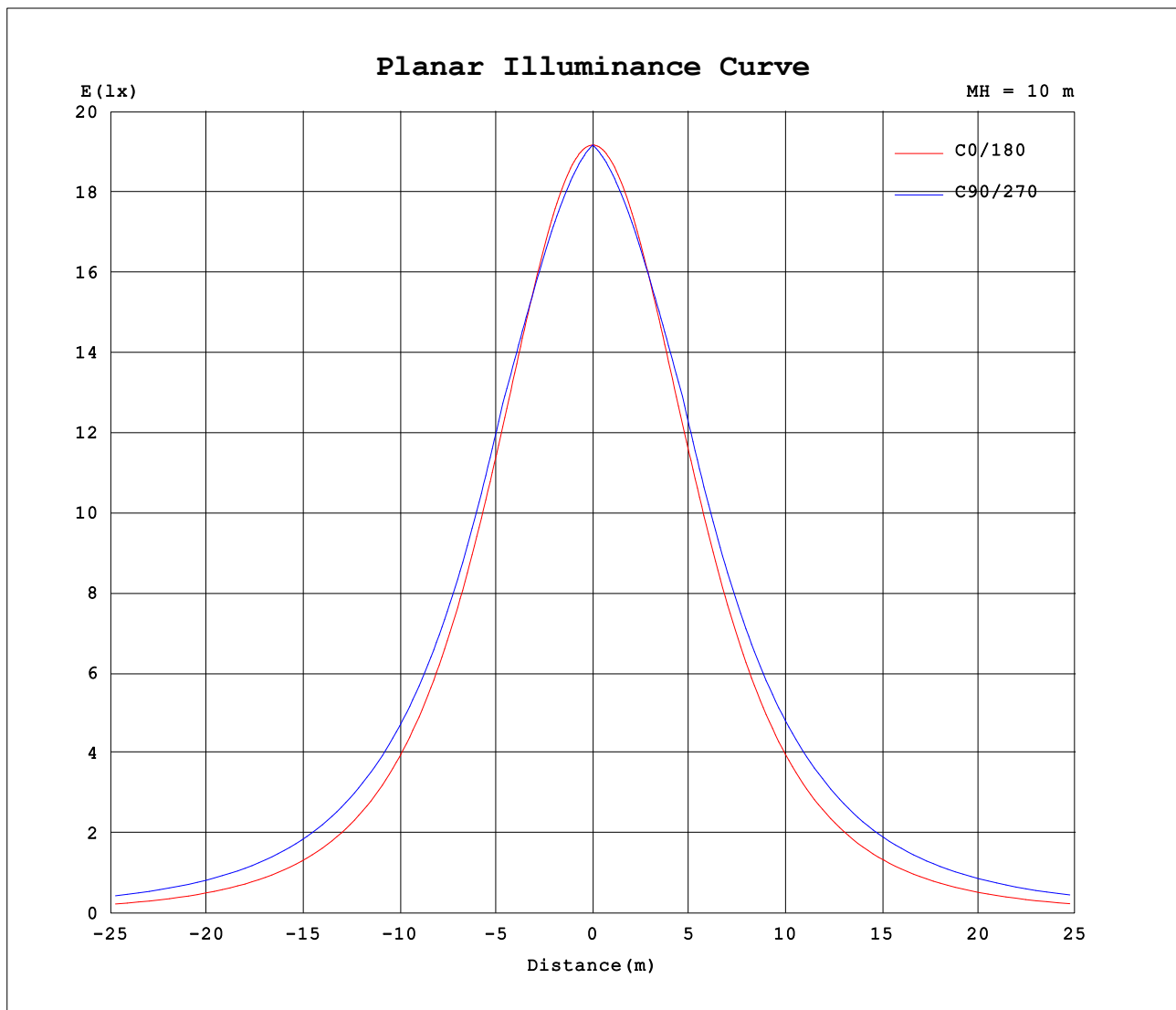
AvgL	cd/m2
L_0~180 (65) av	16014
L_0~180 (75) av	13188
L_0~180 (85) av	8822
L_90~270 (65) av	27326
L_90~270 (75) av	34077
L_90~270 (85) av	74596
L_45 (65) av	22667
L_45 (75) av	26151
L_45 (85) av	51480

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25DEG  
 Operators:Peter  
 Test Date:2020-03-25

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity:50%  
 Test Distance:8.900m [K=1.0000]  
 Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25DEG  
Operators: Peter  
Test Date: 2020-03-25

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
Humidity: 50%  
Test Distance: 8.900m [K=1.0000]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1

UNIT: cd

[illegible]

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25DEG  
Operators: Peter  
Test Date: 2020-03-25

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.290
Humidity:50%
Test Distance:8.900m [K=1.0000]
Remarks:

```

## LUMINOUS DISTRIBUTION INTENSITY DATA

Table--2

UNIT: cd

[illegible]

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25DEG  
Operators: Peter  
Test Date: 2020-03-25

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.290
Humidity:50%
Test Distance:8.900m [K=1.0000]
Remarks:

```

## LUMINOUS DISTRIBUTION INTENSITY DATA

Table--3

UNIT: cd

[illegible]

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25DEG  
Operators: Peter  
Test Date: 2020-03-25

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.290
Humidity:50%
Test Distance:8.900m [K=1.0000]
Remarks:

```

## LUMINOUS DISTRIBUTION INTENSITY DATA

Table--4

UNIT: cd

[illegible]

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25DEG  
Operators: Peter  
Test Date: 2020-03-25

```

Range: 0 - 90DEG
Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.290
Humidity:50%
Test Distance:8.900m [K=1.0000]
Remarks:

```