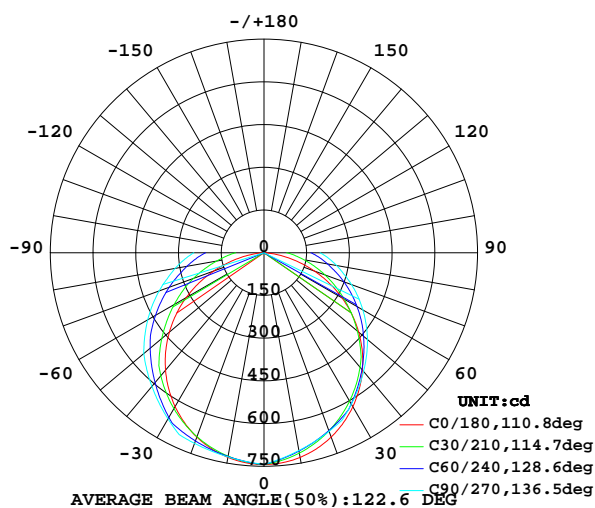


## LUMINAIRE PHOTOMETRIC TEST REPORT

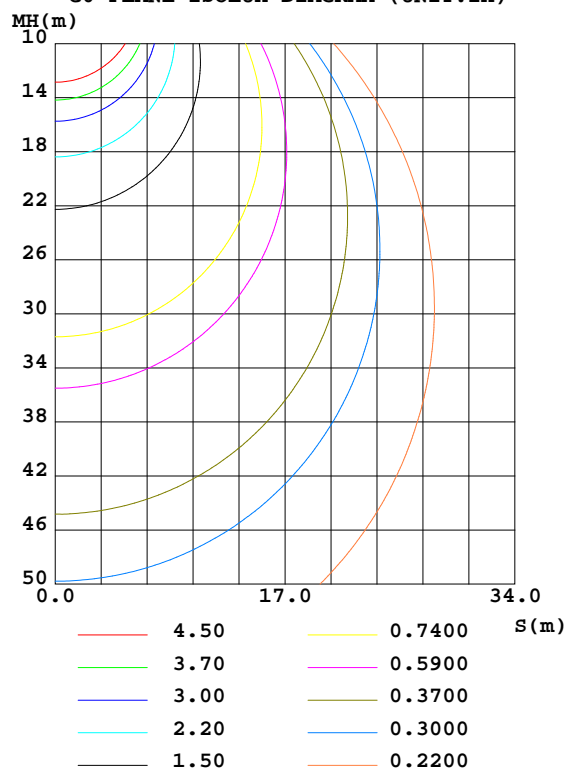
Test:U:120.4V I:0.1730A P:20.66W PF:0.9914 Lamp Flux:2469.15x1 lm		
NAME: MSS4-20/30/40/347/D10/W/35-40-50	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 119.52 lm/W			
MODEL	3500K	I <sub>max</sub> (cd)	743.7	S/MH(C0/180)	1.25
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	1.34
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	2469.2	η UP,DN(C0-180)	0.0,47.4
NOMINAL FLUX(lm)	2469.15	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,52.6
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:25.3DEG  
 Operators:DAMIN  
 Test Date:2021-04-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity:65.0%  
 Test Distance:8.800m [K=1.0000]  
 Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

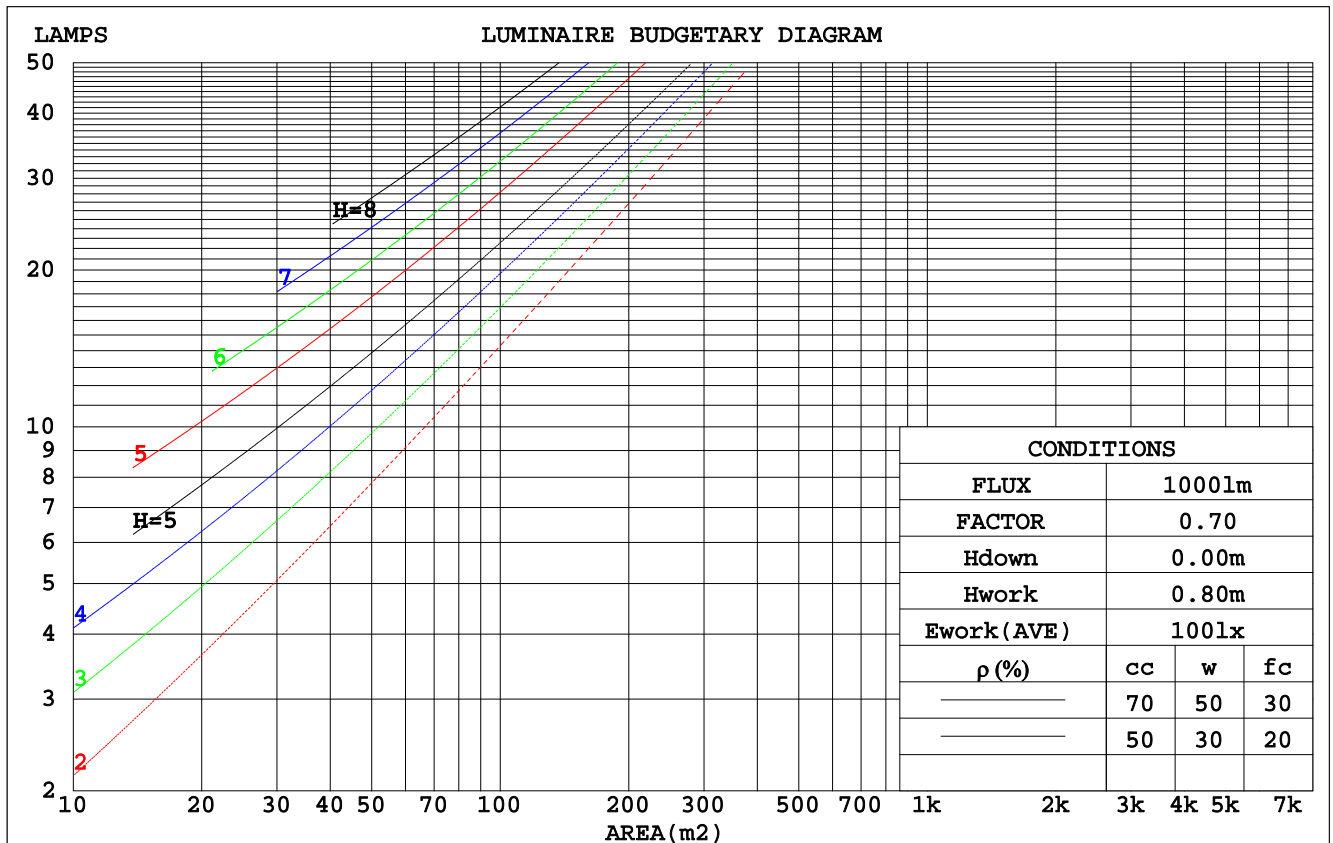
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\%lum, lamp$
5	740.0	728.2	724.4	728.3	739.9	736.2	735.6	736.2	0- 5	17.62	17.62	0.71,0.71
10	729.8	709.9	705.4	709.9	729.6	725.7	727.9	725.9	5- 10	51.94	69.56	2.82,2.82
15	712.6	688.2	686.4	688.2	712.4	711.7	720.2	711.9	10- 15	84.33	153.9	6.23,6.23
20	689.0	663.8	667.4	663.7	689.1	694.9	712.4	695.0	15- 20	114.1	268.0	10.9,10.9
25	659.3	636.7	648.4	636.5	659.3	674.8	704.7	675.4	20- 25	140.8	408.8	16.6,16.6
30	624.1	607.6	613.6	607.3	624.1	652.7	674.0	653.4	25- 30	163.2	572.0	23.2,23.2
35	583.2	572.9	578.9	572.4	583.3	623.2	643.2	624.1	30- 35	180.0	752.0	30.5,30.5
40	538.0	529.1	544.1	528.8	537.8	580.4	612.5	581.6	35- 40	191.4	943.4	38.2,38.2
45	488.0	484.6	509.3	484.2	487.9	536.8	581.7	538.0	40- 45	197.4	1141	46.2,46.2
50	434.2	440.0	474.5	439.8	434.1	493.4	551.0	494.6	45- 50	198.2	1339	54.2,54.2
55	376.8	395.7	437.7	395.9	376.4	450.3	511.1	451.5	50- 55	194.0	1533	62.1,62.1
60	316.1	352.2	400.8	352.5	315.6	406.9	471.3	408.2	55- 60	184.7	1718	69.6,69.6
65	252.9	308.4	363.9	308.9	252.4	358.8	431.5	360.3	60- 65	171.3	1889	76.5,76.5
70	188.5	266.6	327.1	267.0	187.8	312.6	391.7	314.5	65- 70	154.5	2044	82.8,82.8
75	124.9	226.4	290.2	226.8	124.1	268.6	351.9	270.7	70- 75	135.3	2179	88.2,88.2
80	65.96	188.9	259.2	189.2	65.24	227.3	316.6	229.7	75- 80	115.2	2294	92.9,92.9
85	19.66	157.5	228.1	158.1	19.13	191.9	281.4	194.2	80- 85	96.16	2390	96.8,96.8
90	0.4514	127.7	197.1	128.6	0.3664	158.5	246.2	160.5	85- 90	78.95	2469	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:25.3DEG  
 Operators:DAMIN  
 Test Date:2021-04-29

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity:65.0%  
 Test Distance:8.800m [K=1.0000]  
 Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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						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	1.00	.95	.90	.98	.93	.88	.93	.89	.86	.89	.86	.83	.86	.83	.80	.78
2.0	.86	.78	.71	.84	.77	.70	.80	.74	.69	.77	.72	.67	.74	.69	.66	.63
3.0	.75	.66	.58	.73	.65	.58	.70	.63	.57	.67	.61	.56	.64	.59	.55	.52
4.0	.66	.56	.49	.64	.55	.48	.62	.54	.48	.59	.53	.47	.57	.51	.46	.44
5.0	.59	.49	.42	.57	.48	.41	.55	.47	.41	.53	.46	.40	.51	.45	.40	.38
6.0	.53	.43	.36	.52	.43	.36	.50	.42	.36	.48	.41	.35	.46	.40	.35	.33
7.0	.48	.38	.32	.47	.38	.32	.45	.37	.31	.44	.36	.31	.42	.36	.31	.29
8.0	.43	.34	.28	.43	.34	.28	.41	.33	.28	.40	.33	.28	.39	.32	.28	.26
9.0	.40	.31	.25	.39	.31	.25	.38	.30	.25	.37	.30	.25	.36	.29	.25	.23
10.0	.37	.28	.23	.36	.28	.23	.35	.28	.23	.34	.27	.23	.33	.27	.23	.21



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2021-04-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity: 65.0%  
 Test Distance: 8.800m [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	.383	.218	.069	.375	.214	.068	.362	.207	.066	.349	.201	.065	.338	.196	.063	
2.0	.335	.184	.056	.329	.181	.056	.317	.176	.055	.306	.172	.054	.295	.167	.053	
3.0	.300	.160	.048	.294	.157	.047	.283	.154	.047	.273	.150	.046	.264	.146	.045	
4.0	.271	.141	.041	.266	.139	.041	.256	.136	.041	.247	.133	.040	.239	.130	.040	
5.0	.247	.126	.036	.242	.124	.036	.234	.122	.036	.226	.119	.035	.219	.117	.035	
6.0	.226	.113	.032	.222	.112	.032	.215	.110	.032	.208	.108	.032	.201	.106	.031	
7.0	.209	.103	.029	.205	.102	.029	.199	.100	.029	.192	.099	.029	.187	.097	.028	
8.0	.194	.095	.027	.191	.094	.027	.185	.092	.026	.179	.091	.026	.174	.089	.026	
9.0	.181	.087	.024	.178	.087	.024	.173	.085	.024	.168	.084	.024	.163	.083	.024	
10.0	.169	.081	.023	.167	.081	.022	.162	.079	.022	.157	.078	.022	.153	.077	.022	

ρcc	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						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.185	.155	.129	.159	.133	.111	.108	.092	.077	.062	.053	.045	.020	.017	.014	
2.0	.178	.132	.093	.153	.113	.080	.105	.078	.056	.060	.046	.033	.019	.015	.011	
3.0	.170	.114	.070	.146	.099	.061	.100	.069	.043	.058	.040	.025	.019	.013	.008	
4.0	.162	.101	.055	.139	.088	.048	.096	.061	.034	.055	.036	.020	.018	.012	.007	
5.0	.154	.091	.045	.132	.079	.039	.091	.055	.027	.053	.032	.016	.017	.011	.005	
6.0	.147	.083	.037	.126	.072	.033	.087	.050	.023	.050	.030	.014	.016	.010	.005	
7.0	.139	.076	.032	.120	.066	.028	.083	.046	.020	.048	.027	.012	.016	.009	.004	
8.0	.132	.070	.028	.114	.061	.024	.079	.043	.017	.046	.025	.010	.015	.008	.003	
9.0	.126	.065	.024	.108	.057	.021	.075	.040	.015	.044	.024	.009	.014	.008	.003	
10.0	.120	.061	.022	.103	.053	.019	.072	.037	.014	.042	.022	.008	.014	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2021-04-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity: 65.0%  
 Test Distance: 8.800m [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	20.3	21.9	20.6	22.1	22.3	21.4	23.1	21.7	23.3	23.5
3H	21.7	23.2	22.0	23.5	23.7	23.8	25.4	24.1	25.6	25.8
4H	22.3	23.7	22.6	24.0	24.2	25.1	26.6	25.5	26.8	27.1
6H	22.6	24.0	22.9	24.2	24.5	26.6	27.9	26.9	28.2	28.5
8H	22.7	24.0	23.0	24.3	24.6	27.3	28.7	27.7	29.0	29.3
12H	22.7	24.0	23.0	24.3	24.6	28.3	29.5	28.6	29.8	30.2
4H 2H	21.2	22.6	21.5	22.9	23.2	22.1	23.5	22.4	23.8	24.0
3H	22.9	24.2	23.2	24.5	24.8	24.7	26.0	25.1	26.3	26.6
4H	23.6	24.8	24.0	25.1	25.5	26.2	27.4	26.6	27.7	28.0
6H	24.1	25.2	24.5	25.5	25.9	27.8	28.9	28.2	29.3	29.6
8H	24.2	25.2	24.7	25.6	26.0	28.8	29.8	29.2	30.1	30.5
12H	24.3	25.2	24.7	25.6	26.0	29.8	30.8	30.3	31.1	31.6
8H 4H	24.4	25.4	24.8	25.8	26.2	26.5	27.5	27.0	27.9	28.3
6H	25.3	26.1	25.7	26.5	27.0	28.5	29.4	28.9	29.8	30.2
8H	25.6	26.4	26.1	26.8	27.2	29.6	30.4	30.1	30.8	31.3
12H	25.8	26.5	26.3	26.9	27.4	31.0	31.6	31.4	32.1	32.6
12H 4H	24.7	25.6	25.1	26.0	26.4	26.6	27.5	27.0	27.9	28.3
6H	25.7	26.5	26.2	26.9	27.4	28.6	29.4	29.1	29.8	30.3
8H	26.2	26.9	26.7	27.3	27.8	29.9	30.5	30.3	31.0	31.5
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.1 / - 0.2					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.2					+ 0.2 / - 0.4				

CIE Pub.117 Corrected 2469 lm Total Lamp Luminous Flux.(8log(F/F0) = 3.1)

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2021-04-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity:65.0%  
 Test Distance:8.800m [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	54	42	35	53	42	35	52	41	34	28
0.80	64	51	43	63	51	43	61	50	43	35
1.00	72	60	52	71	59	51	68	61	51	43
1.25	79	67	59	77	66	59	74	65	58	50
1.50	84	73	65	82	72	64	79	70	63	55
2.00	91	81	74	89	80	73	85	77	71	63
2.50	95	86	79	93	85	78	89	82	76	67
3.00	99	90	84	96	89	83	92	86	81	71
4.00	103	96	90	101	94	89	96	91	86	77
5.00	106	100	95	103	98	93	98	94	90	80
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: DAMIN  
 Test Date: 2021-04-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity: 65.0%  
 Test Distance: 8.800m [K=1.0000]  
 Remarks:

## ISOCANDELA DIAGRAM

Conical surface Flux(90deg):

1140.8 lm

%lum = 46.2%

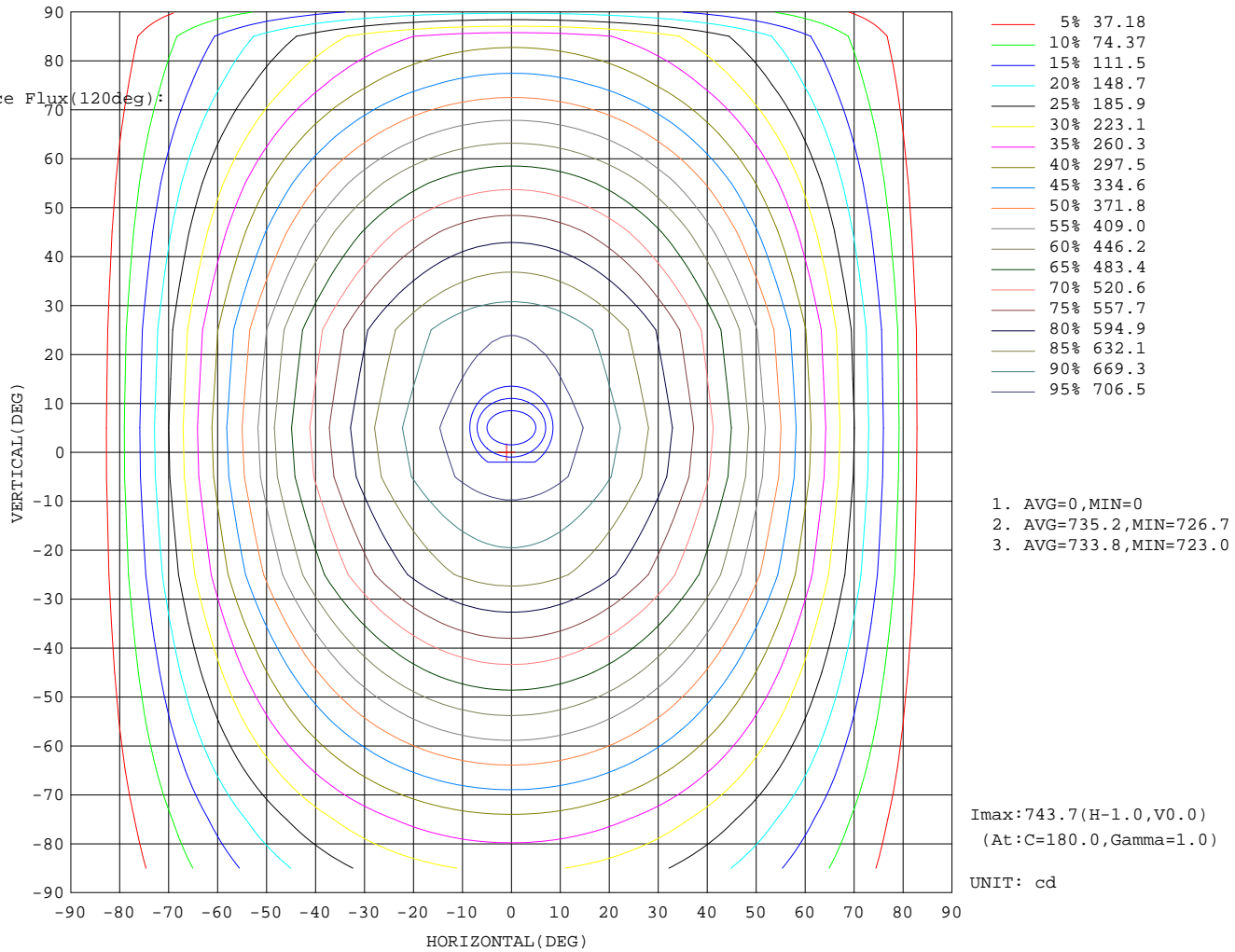
%lamp = 46.2%

Conical surface Flux(120deg):

1717.8 lm

%lum = 69.6%

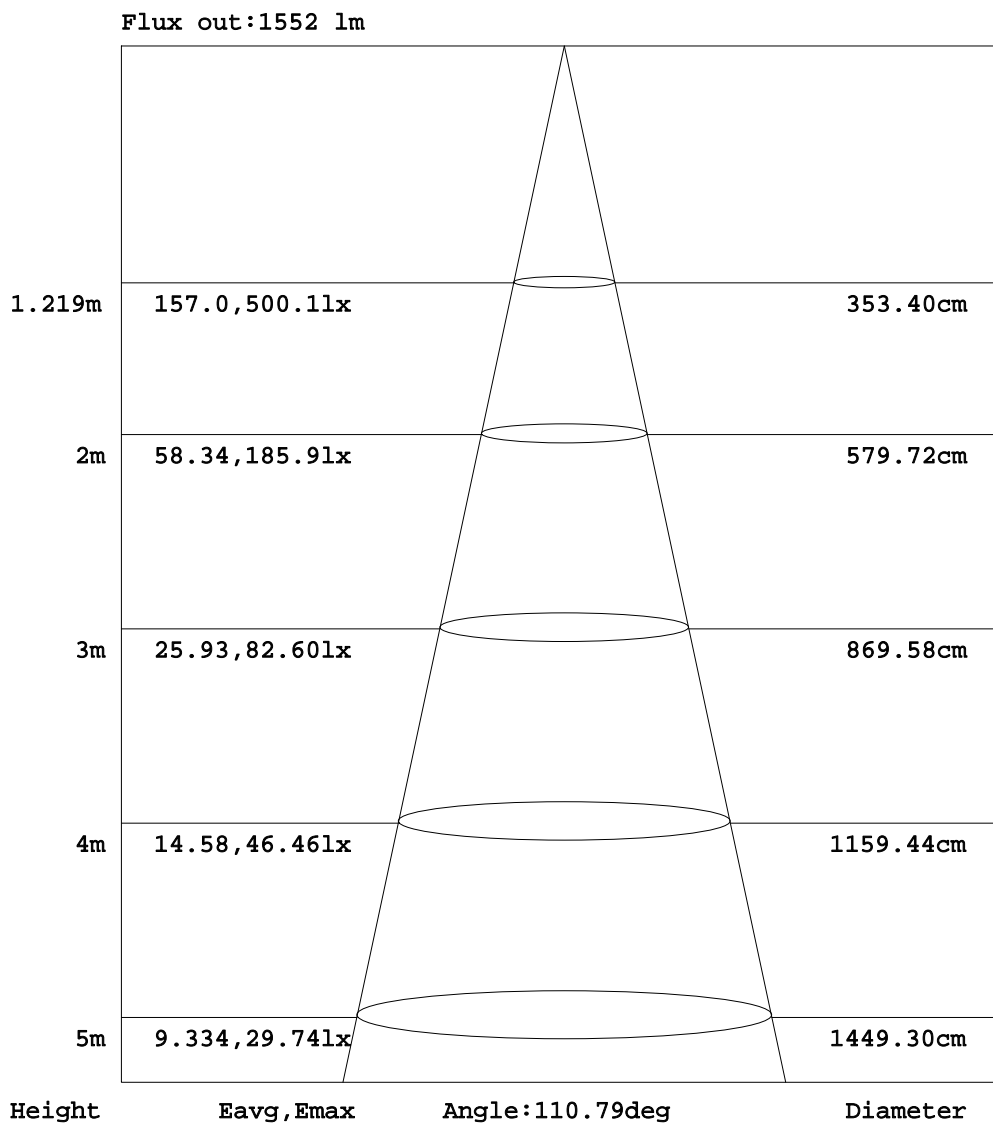
%lamp = 69.6%



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2021-04-29

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
Humidity: 65.0%  
Test Distance: 8.800m [K=1.0000]  
Remarks:

## AAI Figure



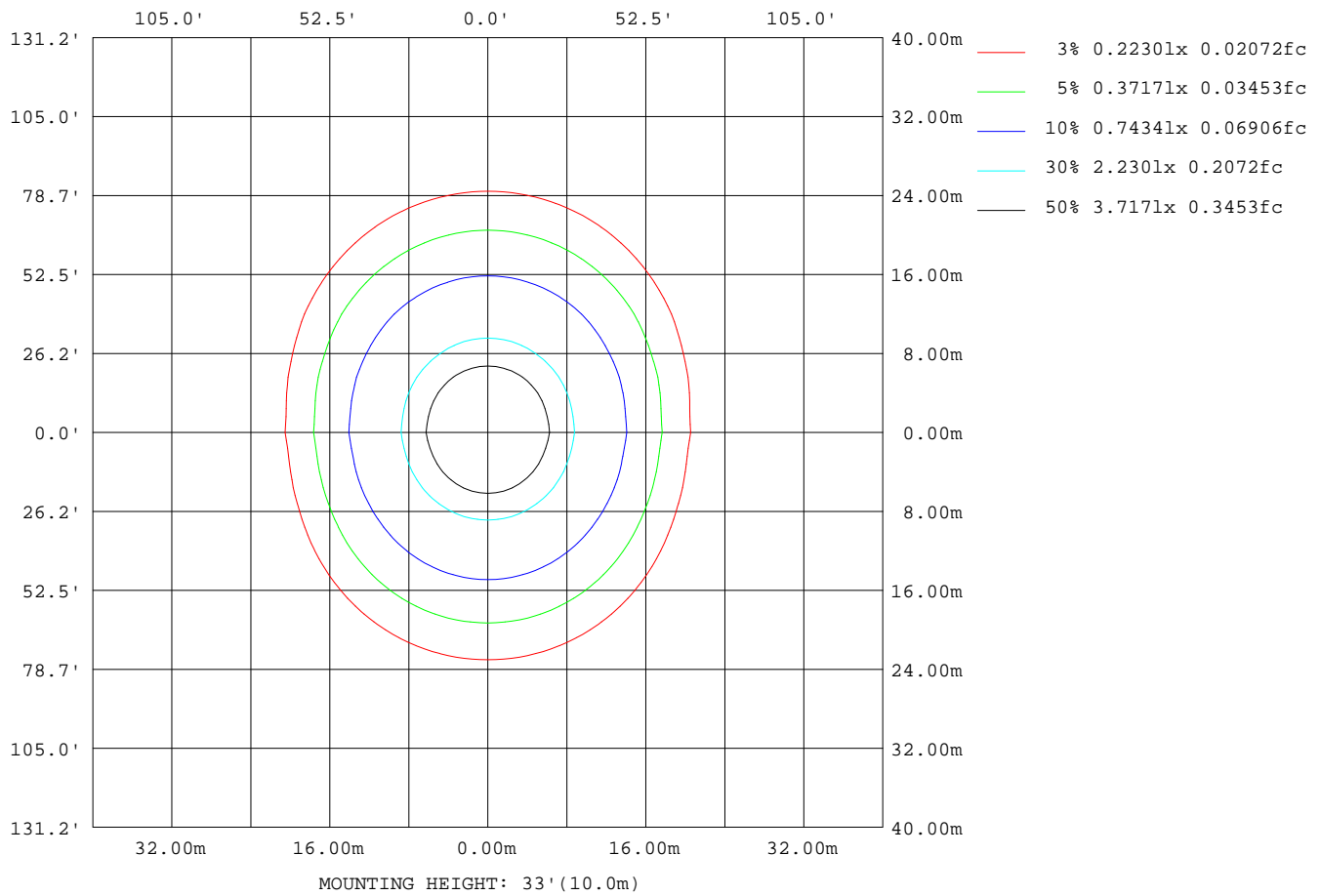
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2021-04-29

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
Humidity: 65.0%  
Test Distance: 8.800m [K=1.0000]  
Remarks:



## ISOLUX DIAGRAM



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2021-04-29

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity: 65.0%  
 Test Distance: 8.800m [K=1.0000]  
 Remarks:

## LED Avg.L Report

Test:U:120.4V I:0.1730A P:20.66W PF:0.9914 Lamp Flux:2469.15x1 lm		
NAME: MRS4-20/D10/U/35	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	PROTECTION ANGLE:

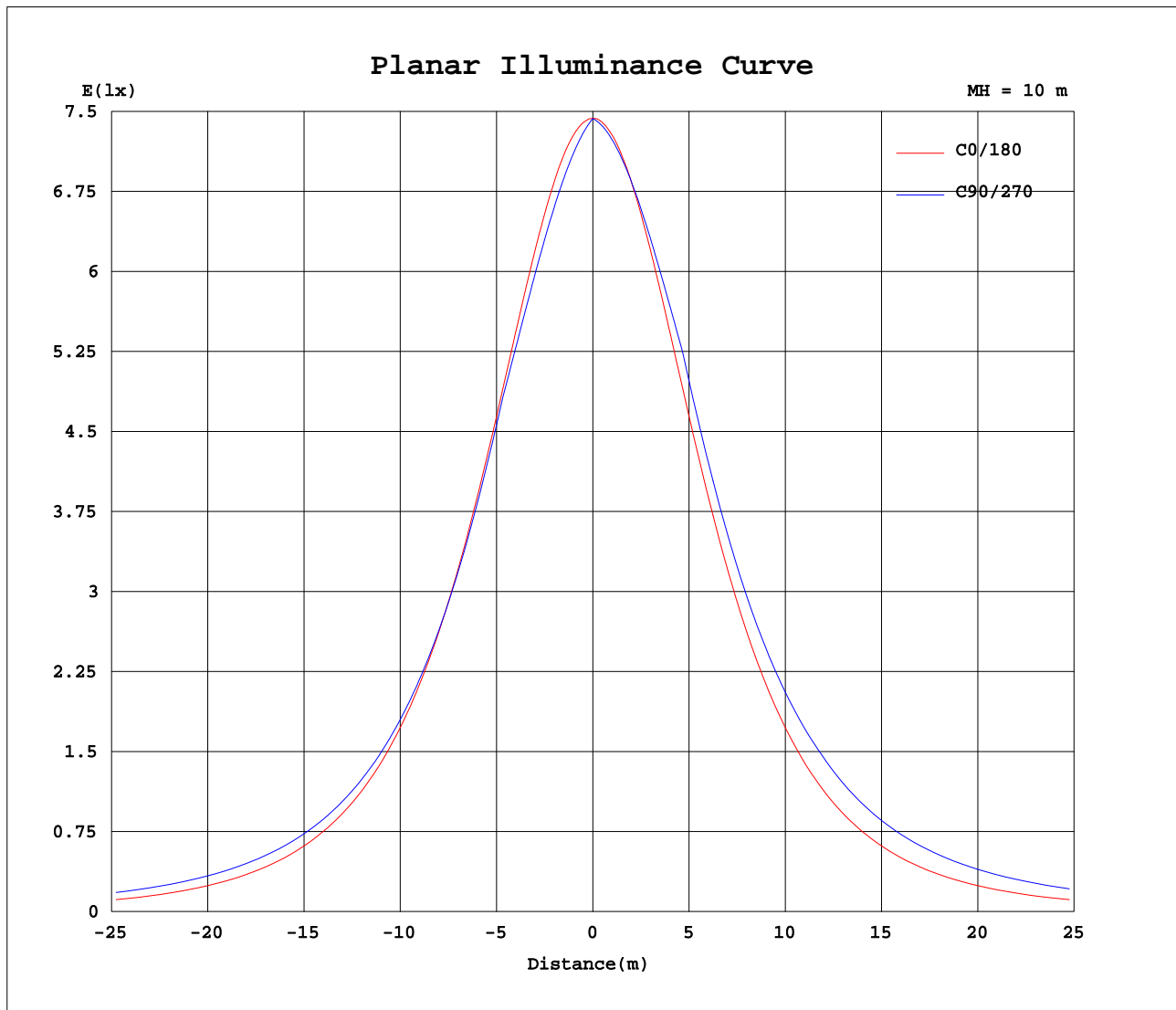
AvgL	cd/m2
L_0~180(65)av	9431
L_0~180(75)av	7588
L_0~180(85)av	3511
L_90~270(65)av	14846
L_90~270(75)av	19567
L_90~270(85)av	46115
L_45(65)av	12472
L_45(75)av	15123
L_45(85)av	31754

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2021-04-29

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
 Humidity:65.0%  
 Test Distance:8.800m [K=1.0000]  
 Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2021-04-29

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.290  
Humidity: 65.0%  
Test Distance: 8.800m [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: 25.3DEG  
Operators: DAMIN  
Test Date: 2021-04-29

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.290
Humidity:65.0%
Test Distance:8.800m [K=1.0000]
Remarks:

```

## LUMINOUS DISTRIBUTION INTENSITY DATA

UNIT: cd

[illegible]

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.290
Humidity:65.0%
Test Distance:8.800m [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: 25.3DEG  
Operators: DAMIN  
Test Date: 2021-04-29

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.290
Humidity:65.0%
Test Distance:8.800m [K=1.0000]
Remarks:

```