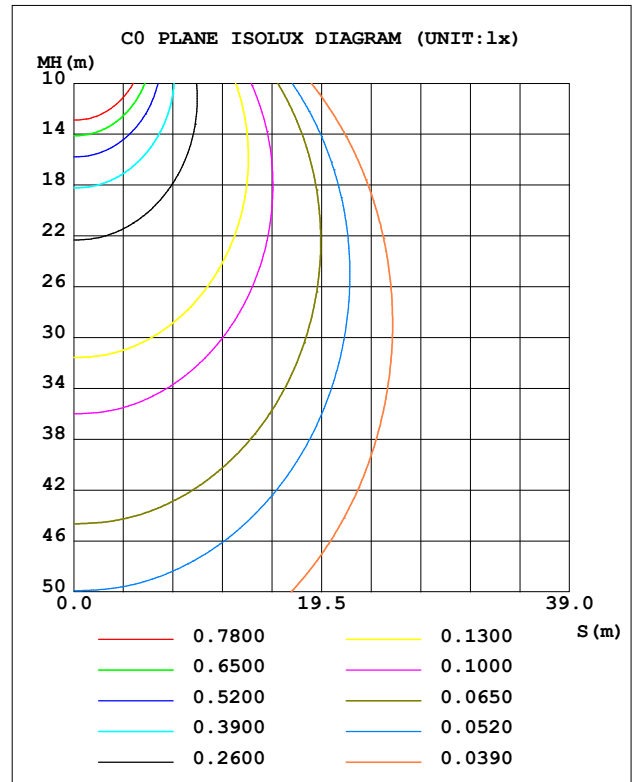
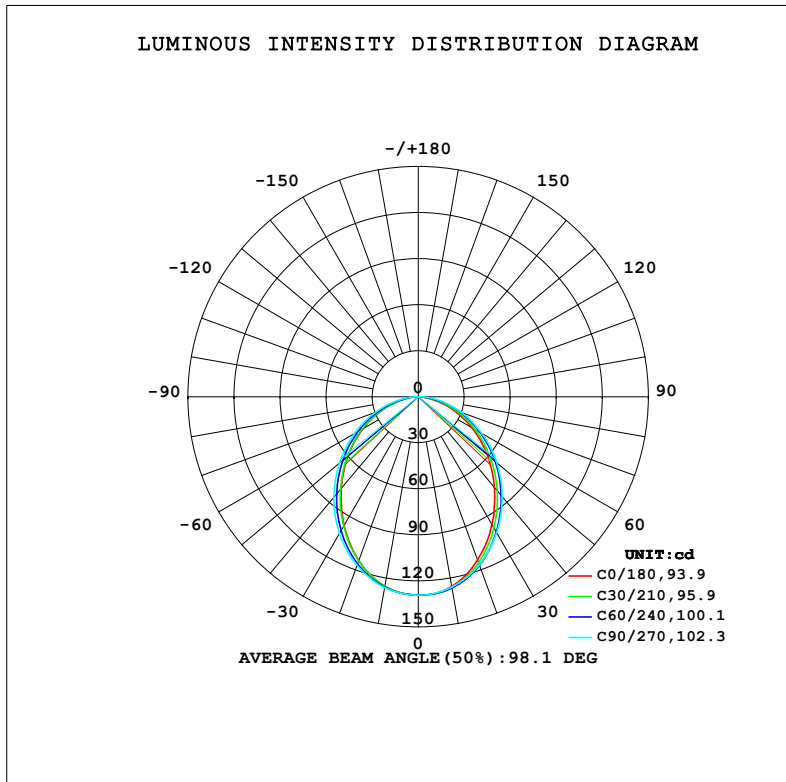


## LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: 93M20FFL0630/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 106 x 108 x 20	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: paralelepiped	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	93M20FFL0630/BL	Imax (cd)	129.4	S/MH (C0/180)	1.13
NOMINAL POWER (W)	6	LOR (%)	87.9	S/MH (C90/270)	1.19
RATED VOLTAGE (V)	48	TOTAL FLUX (lm)	316.59	$\eta$ UP, DN (C0-180)	0.0, 43.9
NOMINAL FLUX (lm)	360	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 44.1
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	48	$\eta$ down (%)	87.9	CIBSE SHR MAX	1.30



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 08 November 2022

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 2.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
Humidity: 65.0%  
Test Distance: 6.265m [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
10	125.5	126.6	126.0	125.5	125.5	125.6	126.2	126.8	0- 10	12.19	12.19	3.85,3.39
20	113.2	116.1	116.5	114.3	113.5	114.7	116.9	116.5	10- 20	34.19	46.38	14.6,12.9
30	96.17	100.4	102.3	98.40	96.72	98.83	102.9	101.0	20- 30	49.67	96.05	30.3,26.7
40	77.33	82.24	85.16	80.30	78.15	80.69	85.58	82.73	30- 40	56.79	152.8	48.3,42.5
50	58.55	63.43	66.72	61.78	59.67	61.98	67.03	63.79	40- 50	55.78	208.6	65.9,58
60	40.39	44.97	48.03	43.58	41.81	43.69	48.17	45.19	50- 60	48.02	256.6	81.1,71.3
70	23.35	27.18	29.74	26.07	24.80	26.05	29.63	27.24	60- 70	35.19	291.8	92.2,81.1
80	8.479	11.05	12.97	10.29	9.757	10.16	12.69	10.99	70- 80	19.55	311.4	98.4,86.5
90	0.1359	0.2042	0.8255	0.1919	0.1672	0.1660	0.6321	0.1756	80- 90	5.208	316.6	100,87.9
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): 181.32 lm

%lum = 57.3%

%lamp = 50.4%

Conical surface Flux(130deg): 276.08 lm

%lum = 87.2%

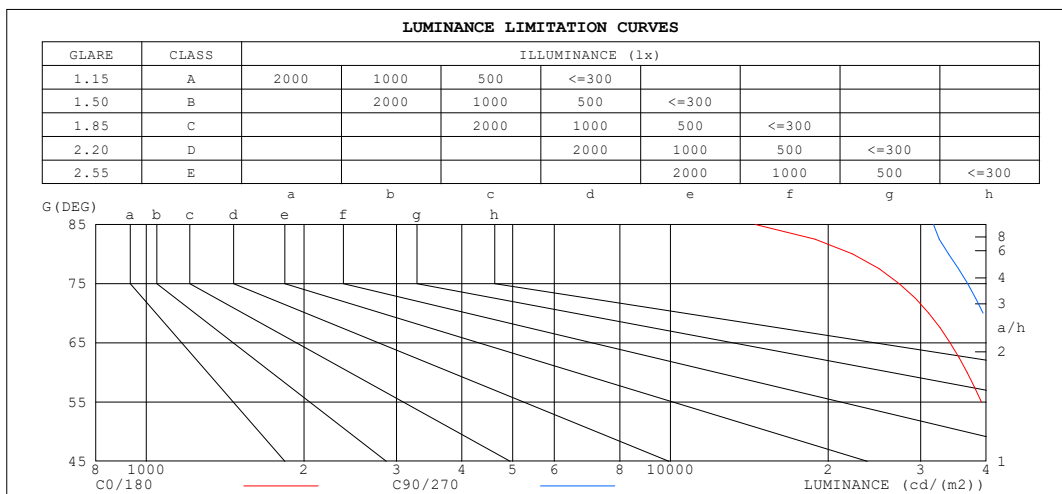
%lamp = 76.7%

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:08 November 2022

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 2.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
Humidity:65.0%  
Test Distance:6.265m [K=1.0000]  
Remarks:

### LUMINANCE LIMITATION CURVES

NAME: 93M20FFL0630/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 106 x 108 x 20	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: paralelepiped	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	14502	31748
80	22232	33919
75	27311	36885
70	31088	39493
65	34143	41690
60	36783	43626
55	39205	45431
50	41470	47141
45	43708	48822

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 08 November 2022

γ Range: 0 - 90DEG  
γ Interval: 2.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
Humidity: 65.0%  
Test Distance: 6.265m [K=1.0000]  
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

```

## WEC AND CCEC

NAME: 93M20FFL0630/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 106 x 108 x 20	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: paralelepiped	Shielding 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	.261	.149	.047	.255	.145	.046	.243	.140	.045	.233	.134	.043	.223	.129	.042	
2.0	.247	.135	.041	.241	.133	.041	.231	.129	.040	.222	.124	.039	.213	.121	.038	
3.0	.229	.122	.037	.224	.120	.036	.215	.117	.035	.207	.113	.035	.199	.110	.034	
4.0	.212	.110	.032	.208	.109	.032	.200	.106	.032	.193	.103	.031	.186	.101	.031	
5.0	.197	.100	.029	.193	.099	.029	.186	.097	.028	.179	.095	.028	.173	.092	.028	
6.0	.183	.092	.026	.179	.091	.026	.173	.089	.026	.167	.087	.026	.162	.085	.025	
7.0	.170	.084	.024	.167	.083	.024	.162	.082	.024	.157	.080	.023	.152	.079	.023	
8.0	.159	.078	.022	.157	.077	.022	.152	.076	.022	.147	.075	.021	.143	.073	.021	
9.0	.150	.072	.020	.147	.072	.020	.143	.071	.020	.139	.069	.020	.135	.068	.020	
10.0	.141	.068	.019	.139	.067	.019	.135	.066	.019	.131	.065	.018	.127	.064	.018	

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	.168	.168	.168	.143	.143	.143	.098	.098	.098	.056	.056	.056	.018	.018	.018	
1.0	.158	.137	.119	.135	.118	.102	.092	.081	.071	.053	.047	.041	.017	.015	.013	
2.0	.150	.116	.087	.129	.100	.076	.088	.069	.053	.051	.040	.031	.016	.013	.010	
3.0	.143	.100	.067	.123	.087	.058	.084	.060	.040	.049	.035	.024	.016	.011	.008	
4.0	.136	.089	.052	.117	.077	.045	.080	.053	.032	.046	.031	.019	.015	.010	.006	
5.0	.130	.079	.042	.111	.069	.037	.077	.048	.026	.044	.028	.015	.014	.009	.005	
6.0	.123	.072	.035	.106	.062	.031	.073	.044	.022	.042	.026	.013	.014	.008	.004	
7.0	.117	.066	.030	.101	.057	.026	.070	.040	.018	.041	.024	.011	.013	.008	.004	
8.0	.112	.061	.026	.096	.053	.022	.067	.037	.016	.039	.022	.009	.013	.007	.003	
9.0	.107	.056	.023	.092	.049	.020	.064	.034	.014	.037	.020	.008	.012	.007	.003	
10.0	.102	.053	.020	.088	.046	.017	.061	.032	.012	.035	.019	.007	.011	.006	.002	

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:08 November 2022

γ Range: 0 - 90DEG  
γ Interval: 2.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
Humidity:65.0%  
Test Distance:6.265m [K=1.0000]  
Remarks:

## UGR(Unified Glare Rating) Table

NAME: 93M20FFL0630/BL					TYPE:			WEIGHT: 1			
SPEC.:					DIM.: 106 x 108 x 20			SERIAL No.: 0			
MFR.: Elmark Industries JSC					SUR.: paralelepiped			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					Viewed endwise				
x = 2H	y = 2H	28.9	30.4	29.2	30.6	30.8	29.7	31.1	29.9	31.3	31.5
	3H	30.1	31.5	30.4	31.7	32.0	31.1	32.5	31.4	32.7	33.0
	4H	30.6	31.9	30.9	32.1	32.4	31.7	33.0	32.0	33.3	33.5
	6H	30.9	32.1	31.2	32.4	32.6	32.2	33.4	32.5	33.7	33.9
	8H	30.9	32.1	31.3	32.4	32.7	32.3	33.5	32.7	33.8	34.1
	12H	30.9	32.1	31.3	32.4	32.7	32.4	33.5	32.8	33.8	34.1
4H	2H	29.6	30.9	29.9	31.1	31.4	30.1	31.4	30.5	31.7	31.9
	3H	31.0	32.1	31.3	32.4	32.7	31.8	33.0	32.2	33.2	33.5
	4H	31.6	32.6	31.9	32.9	33.2	32.5	33.6	32.9	33.9	34.2
	6H	31.9	32.9	32.3	33.2	33.6	33.1	34.0	33.5	34.4	34.8
	8H	32.0	32.9	32.4	33.2	33.6	33.3	34.2	33.7	34.6	34.9
	12H	32.1	32.8	32.5	33.2	33.6	33.5	34.3	33.9	34.6	35.1
8H	4H	31.9	32.7	32.3	33.1	33.5	32.7	33.6	33.2	34.0	34.3
	6H	32.4	33.1	32.8	33.5	33.9	33.5	34.2	33.9	34.6	35.0
	8H	32.5	33.2	33.0	33.6	34.0	33.8	34.4	34.2	34.8	35.3
	12H	32.6	33.1	33.1	33.6	34.1	34.0	34.5	34.5	35.0	35.5
12H	4H	31.9	32.7	32.3	33.0	33.5	32.7	33.5	33.2	33.9	34.3
	6H	32.4	33.1	32.9	33.5	33.9	33.5	34.1	34.0	34.5	35.0
	8H	32.6	33.2	33.1	33.6	34.1	33.8	34.4	34.3	34.8	35.3
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H		+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H		+ 0.2 / - 0.4					+ 0.2 / - 0.3				

CIE Pub.117, 360.0 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -3.5)  
Area: 0.0022 m2

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:08 November 2022

γ Range: 0 - 90DEG  
γ Interval: 2.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
Humidity:65.0%  
Test Distance:6.265m [K=1.0000]  
Remarks:

### UTILIZATION FACTORS TABLE

NAME: 93M20FFL0630/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 106 x 108 x 20	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: paralelepiped	Shielding Angle:

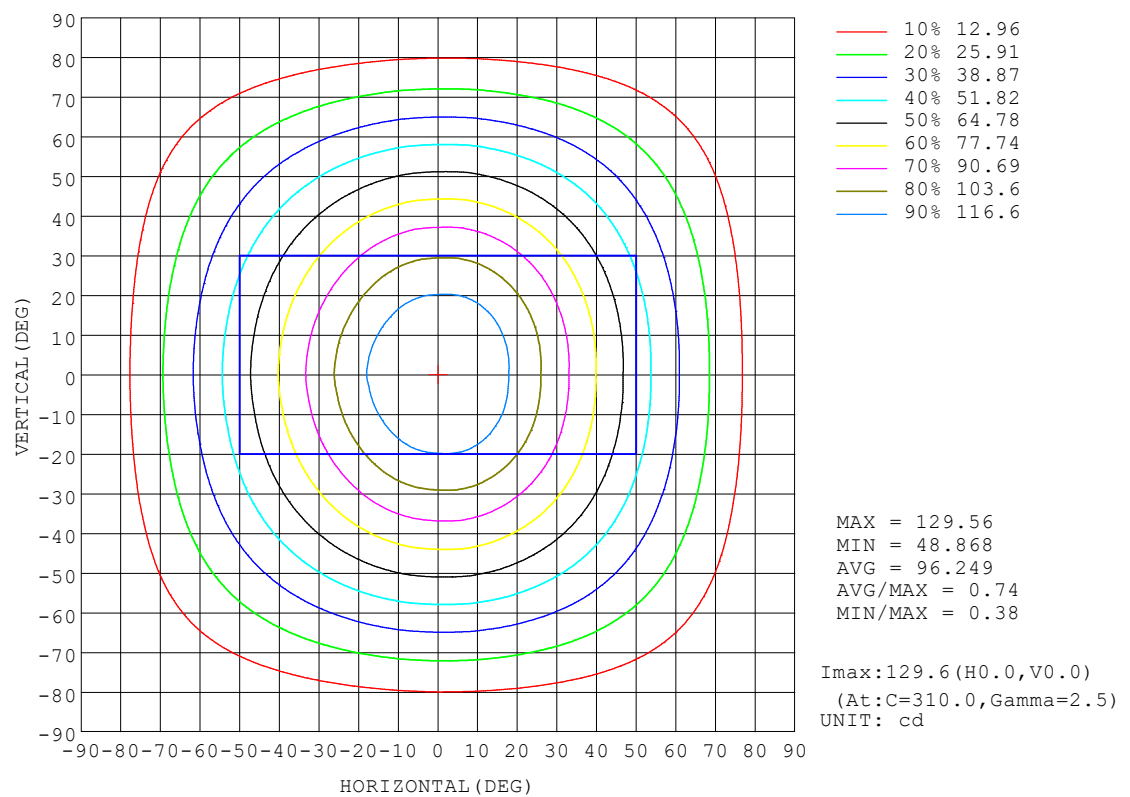
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	52	43	37	52	42	37	51	42	36	31
0.80	61	51	45	60	51	45	59	50	45	39
1.00	68	59	53	67	59	53	65	60	52	46
1.25	75	66	60	73	65	59	71	64	59	52
1.50	79	70	65	77	70	64	75	68	63	57
2.00	85	77	72	83	76	71	80	74	70	63
2.50	88	81	76	86	80	75	83	78	74	67
3.00	91	85	80	89	84	79	85	81	77	70
4.00	94	89	85	92	88	84	88	85	82	74
5.00	96	92	89	94	90	87	90	87	85	77
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: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 08 November 2022

γ Range: 0 - 90DEG  
γ Interval: 2.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
Humidity: 65.0%  
Test Distance: 6.265m [K=1.0000]  
Remarks:

# ISOCANDELA DIAGRAM

NAME: 93M20FFL0630/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 106 x 108 x 20	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: paralelepiped	Shielding Angle:



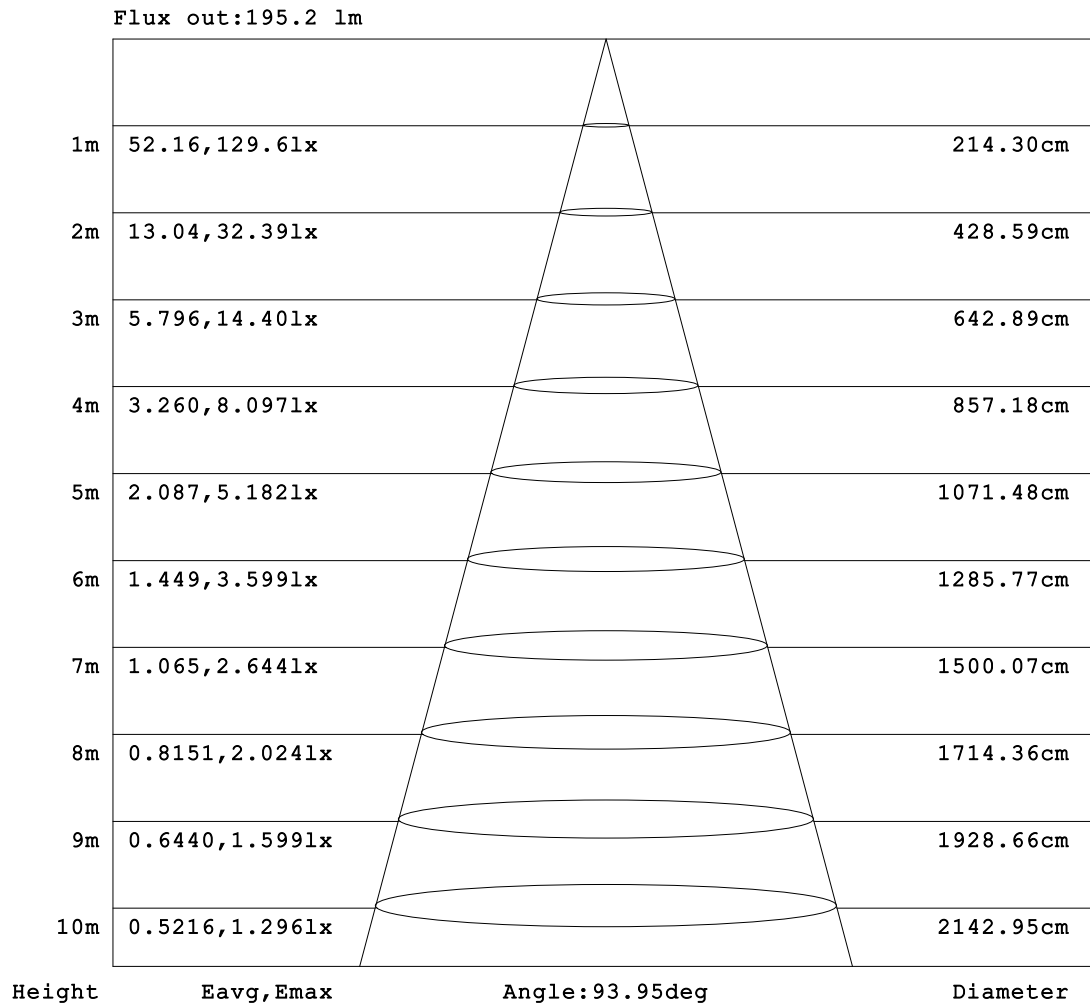
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: MEDIUM  
 Temperature:25.3°C  
 Operators:  
 Test Date:08 November 2022

γ Range: 0 - 90DEG  
 γ Interval: 2.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
 Humidity:65.0%  
 Test Distance:6.265m [K=1.0000]  
 Remarks:



**AAI Figure**

NAME: 93M20FFL0630/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 106 x 108 x 20	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: paralelepiped	Shielding Angle:



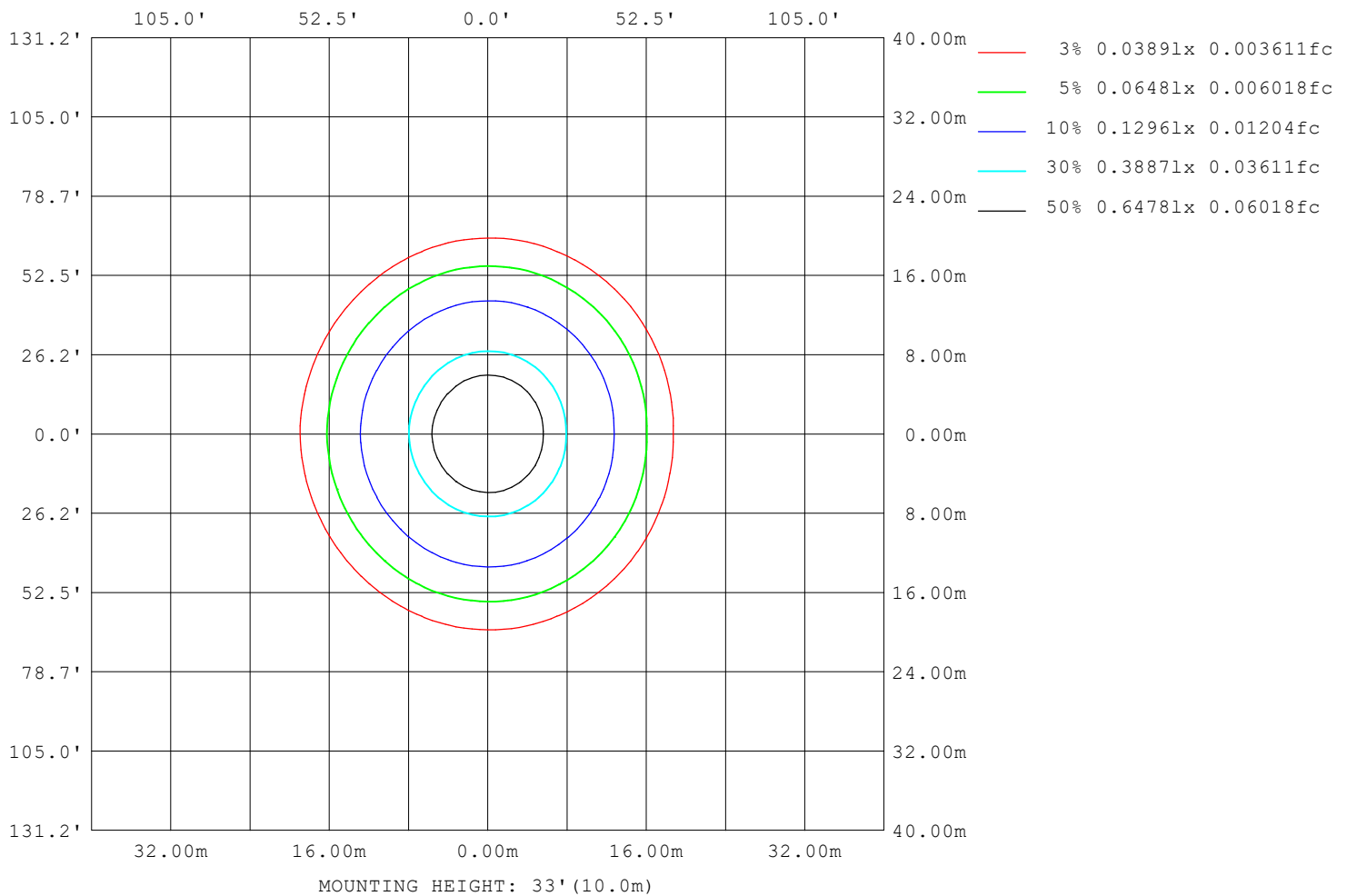
**Note:** The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: MEDIUM  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 08 November 2022

γ Range: 0 - 90DEG  
 γ Interval: 2.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
 Humidity: 65.0%  
 Test Distance: 6.265m [K=1.0000]  
 Remarks:

**ISOLUX DIAGRAM**

NAME: 93M20FFL0630/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 106 x 108 x 20	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: paralelepiped	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: MEDIUM  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 08 November 2022

γ Range: 0 - 90DEG  
 γ Interval: 2.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
 Humidity: 65.0%  
 Test Distance: 6.265m [K=1.0000]  
 Remarks:

### LED Avg.L Report

NAME: 93M20FFL0630/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 106 x 108 x 20	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: paralelepiped	Shielding Angle:

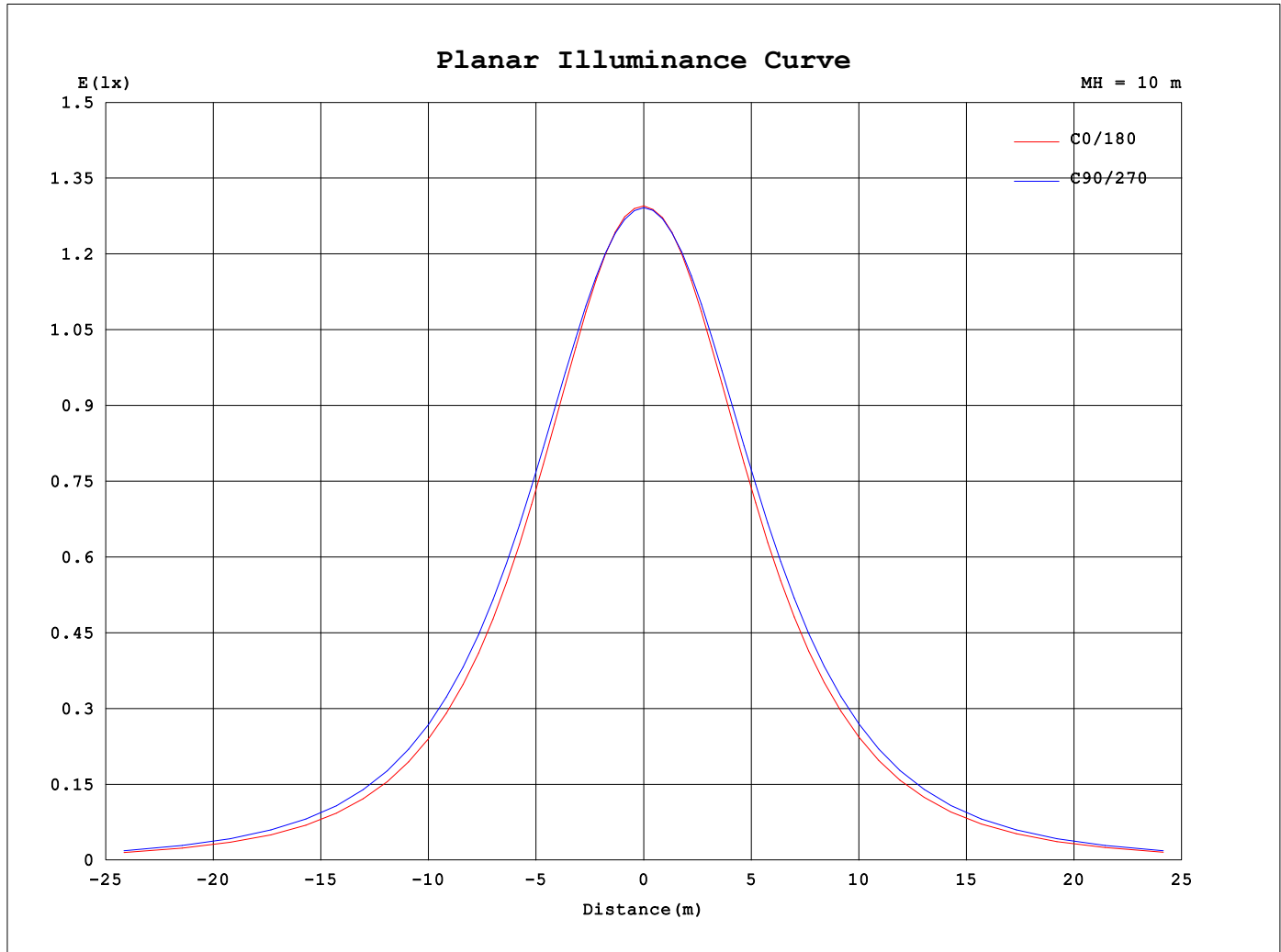
AvgL	cd/m2
L_0~180 (65) av	34885
L_0~180 (75) av	28478
L_0~180 (85) av	17107
L_90~270 (65) av	41730
L_90~270 (75) av	36738
L_90~270 (85) av	30868
L_45 (65) av	38053
L_45 (75) av	32071
L_45 (85) av	21928

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:08 November 2022

γ Range: 0 - 90DEG  
γ Interval: 2.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
Humidity:65.0%  
Test Distance:6.265m [K=1.0000]  
Remarks:

# Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: MEDIUM  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 08 November 2022

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 2.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.456  
 Humidity: 65.0%  
 Test Distance: 6.265m [K=1.0000]  
 Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

```