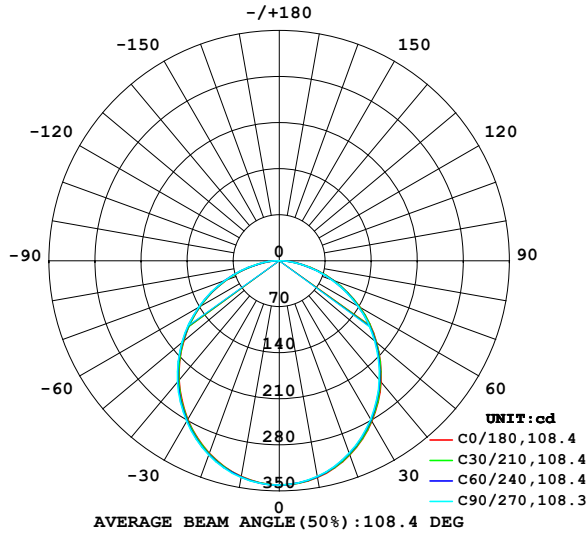


**LUMINAIRE PHOTOMETRIC TEST REPORT**

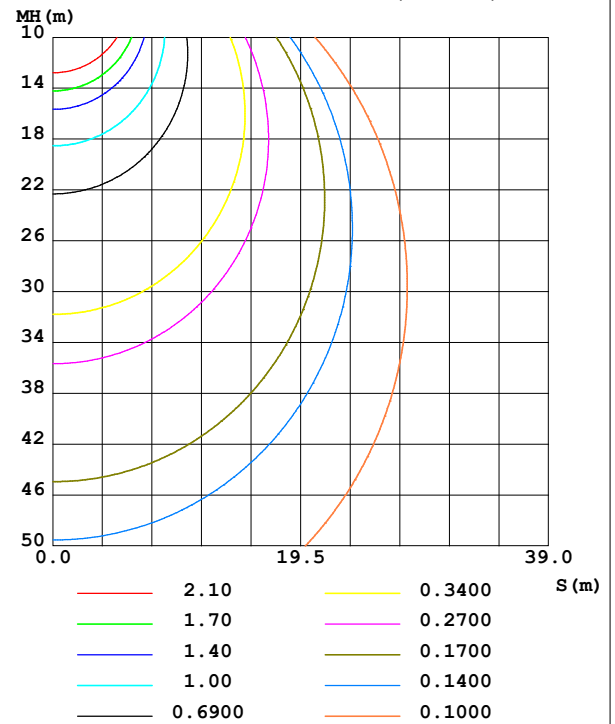
NAME: 99LED961	TYPE: 99LED961	WEIGHT: 1
SPEC.:	DIM.: F 0.135 x 0.024	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cylinder	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	99LED961	I <sub>max</sub> (cd)	341.0	S/MH (C0/180)	1.22
NOMINAL POWER (W)	12	LOR (%)	91.5	S/MH (C90/270)	1.23
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	933.04	η UP, DN (C0-180)	0.0, 45.5
NOMINAL FLUX (lm)	1020	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 46.0
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	91.5	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 03 August 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:

### ZONAL FLUX DIAGRAM

#### ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	334.5	333.7	332.9	332.6	333.0	333.7	334.5	334.9	0- 10	32.20	32.20	3.45, 3.16
20	314.0	312.6	311.1	310.5	311.3	312.7	314.1	314.8	10- 20	91.59	123.8	13.3, 12.1
30	281.8	280.0	278.1	277.2	278.3	280.1	281.8	282.7	20- 30	137.1	260.9	28, 25.6
40	240.7	238.8	236.6	235.6	236.9	238.9	240.7	241.7	30- 40	162.8	423.7	45.4, 41.5
50	193.4	191.5	189.5	188.5	189.7	191.5	193.3	194.4	40- 50	166.4	590.0	63.2, 57.8
60	141.9	140.2	138.6	137.6	138.8	140.3	141.8	143.0	50- 60	148.6	738.7	79.2, 72.4
70	88.16	86.83	85.35	84.57	85.44	86.76	88.19	89.06	60- 70	112.4	851.1	91.2, 83.4
80	37.03	35.95	35.09	34.53	35.01	35.93	37.05	37.61	70- 80	64.15	915.2	98.1, 89.7
90	1.124	0.6512	0.7526	0.6384	0.8620	0.6553	0.9435	0.6957	80- 90	17.82	933.0	100, 91.5
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): 507.77 lm

%lum = 54.4%

%lamp = 49.8%

Conical surface Flux(130deg): 800.35 lm

%lum = 85.8%

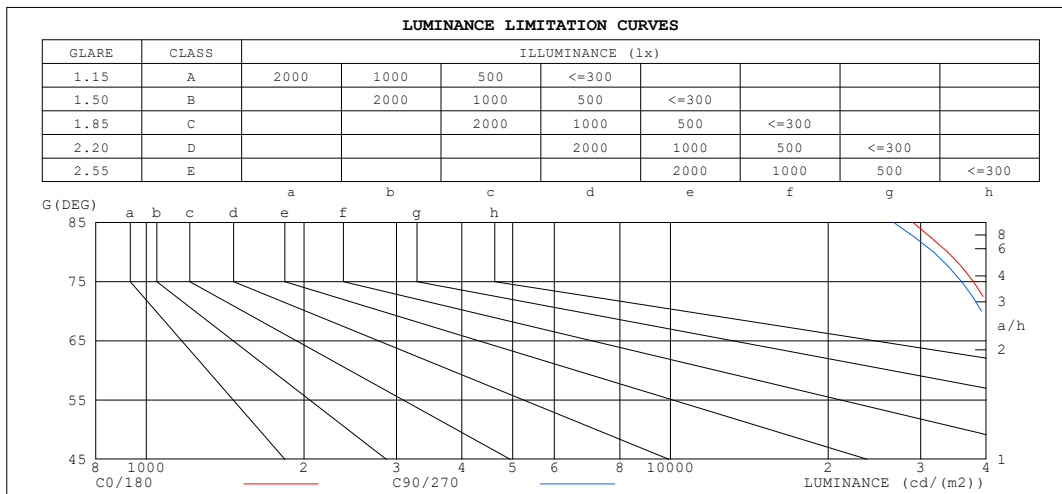
%lamp = 78.5%

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:25.3°C  
Operators:  
Test Date:03 August 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: 99LED961	TYPE: 99LED961	WEIGHT: 1
SPEC.:	DIM.: F 0.135 x 0.024	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cylinder	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	29004	26657
80	33780	31723
75	37815	35915
70	40833	39176
65	43161	41630
60	44959	43523
55	46426	44998
50	47659	46278
45	48759	47439

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 03 August 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: 99LED961	TYPE: 99LED961	WEIGHT: 1
SPEC.:	DIM.: F 0.135 x 0.024	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cylinder	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	.282	.160	.051	.275	.157	.050	.263	.151	.048	.252	.145	.047	.242	.140	.045	
2.0	.265	.145	.045	.259	.143	.044	.249	.138	.043	.239	.134	.042	.230	.130	.041	
3.0	.245	.131	.039	.240	.129	.039	.231	.125	.038	.222	.122	.037	.214	.119	.037	
4.0	.227	.118	.035	.222	.116	.034	.214	.113	.034	.206	.111	.033	.199	.108	.033	
5.0	.209	.107	.031	.206	.106	.031	.198	.103	.030	.191	.101	.030	.185	.099	.030	
6.0	.194	.097	.028	.191	.096	.028	.184	.094	.027	.178	.093	.027	.172	.091	.027	
7.0	.181	.089	.025	.178	.089	.025	.172	.087	.025	.166	.085	.025	.161	.084	.025	
8.0	.169	.083	.023	.166	.082	.023	.161	.080	.023	.156	.079	.023	.151	.078	.023	
9.0	.158	.077	.021	.156	.076	.021	.151	.075	.021	.147	.074	.021	.143	.072	.021	
10.0	.149	.071	.020	.147	.071	.020	.142	.070	.020	.138	.069	.020	.135	.068	.019	

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	.174	.174	.174	.149	.149	.149	.102	.102	.102	.058	.058	.058	.019	.019	.019	
1.0	.165	.143	.123	.141	.123	.106	.096	.084	.073	.056	.049	.043	.018	.016	.014	
2.0	.157	.121	.090	.135	.104	.078	.092	.072	.054	.053	.042	.032	.017	.014	.010	
3.0	.150	.105	.068	.129	.090	.059	.088	.063	.041	.051	.037	.024	.016	.012	.008	
4.0	.143	.092	.054	.123	.080	.047	.084	.056	.033	.049	.033	.019	.016	.011	.006	
5.0	.136	.083	.043	.117	.072	.038	.081	.050	.027	.047	.029	.016	.015	.010	.005	
6.0	.130	.075	.036	.112	.065	.031	.077	.046	.022	.045	.027	.013	.014	.009	.004	
7.0	.124	.069	.030	.106	.060	.027	.073	.042	.019	.043	.025	.011	.014	.008	.004	
8.0	.118	.064	.026	.101	.055	.023	.070	.039	.016	.041	.023	.010	.013	.007	.003	
9.0	.112	.059	.023	.097	.051	.020	.067	.036	.014	.039	.021	.009	.013	.007	.003	
10.0	.107	.055	.021	.092	.048	.018	.064	.034	.013	.037	.020	.008	.012	.007	.003	

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:25.3°C  
Operators:  
Test Date:03 August 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: 99LED961					TYPE: 99LED961			WEIGHT: 1			
SPEC.:					DIM.: F 0.135 x 0.024			SERIAL No.: 0			
MFR.: Elmark Industries JSC					SUR.: cylinder			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	26.1	27.6	26.4	27.8	28.0	26.0	27.5	26.2	27.7	27.9
	3H	27.6	29.0	27.9	29.3	29.5	27.4	28.8	27.7	29.1	29.3
	4H	28.2	29.6	28.5	29.8	30.1	28.0	29.3	28.3	29.6	29.8
	6H	28.6	29.9	29.0	30.2	30.4	28.4	29.7	28.7	29.9	30.2
	8H	28.8	30.0	29.1	30.3	30.6	28.5	29.7	28.9	30.0	30.3
	12H	28.8	30.0	29.2	30.3	30.6	28.6	29.7	28.9	30.0	30.3
4H	2H	26.7	28.0	27.0	28.3	28.5	26.6	27.9	26.9	28.2	28.4
	3H	28.4	29.6	28.7	29.9	30.2	28.2	29.4	28.6	29.7	30.0
	4H	29.1	30.2	29.5	30.5	30.8	28.9	30.0	29.3	30.3	30.6
	6H	29.7	30.6	30.1	30.9	31.3	29.4	30.4	29.8	30.7	31.1
	8H	29.8	30.7	30.2	31.1	31.5	29.6	30.5	30.0	30.9	31.2
	12H	30.0	30.8	30.4	31.1	31.6	29.7	30.5	30.1	30.9	31.3
8H	4H	29.4	30.2	29.8	30.6	31.0	29.2	30.1	29.6	30.4	30.8
	6H	30.0	30.8	30.5	31.2	31.6	29.8	30.6	30.3	31.0	31.4
	8H	30.3	31.0	30.8	31.4	31.8	30.1	30.7	30.6	31.2	31.6
	12H	30.5	31.1	31.0	31.5	32.0	30.3	30.8	30.7	31.3	31.7
12H	4H	29.4	30.2	29.8	30.6	31.0	29.2	30.0	29.6	30.4	30.8
	6H	30.1	30.7	30.5	31.2	31.6	29.9	30.6	30.4	31.0	31.4
	8H	30.4	30.9	30.9	31.4	31.9	30.2	30.7	30.7	31.2	31.7
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 / - 0.2					+ 0.2 / - 0.3				

CIE Pub.117, 1020 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.1)  
Area: 0.0063585 m2

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:25.3°C  
Operators:  
Test Date:03 August 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: 99LED961	TYPE: 99LED961	WEIGHT: 1
SPEC.:	DIM.: F 0.135 x 0.024	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cylinder	Shielding Angle:

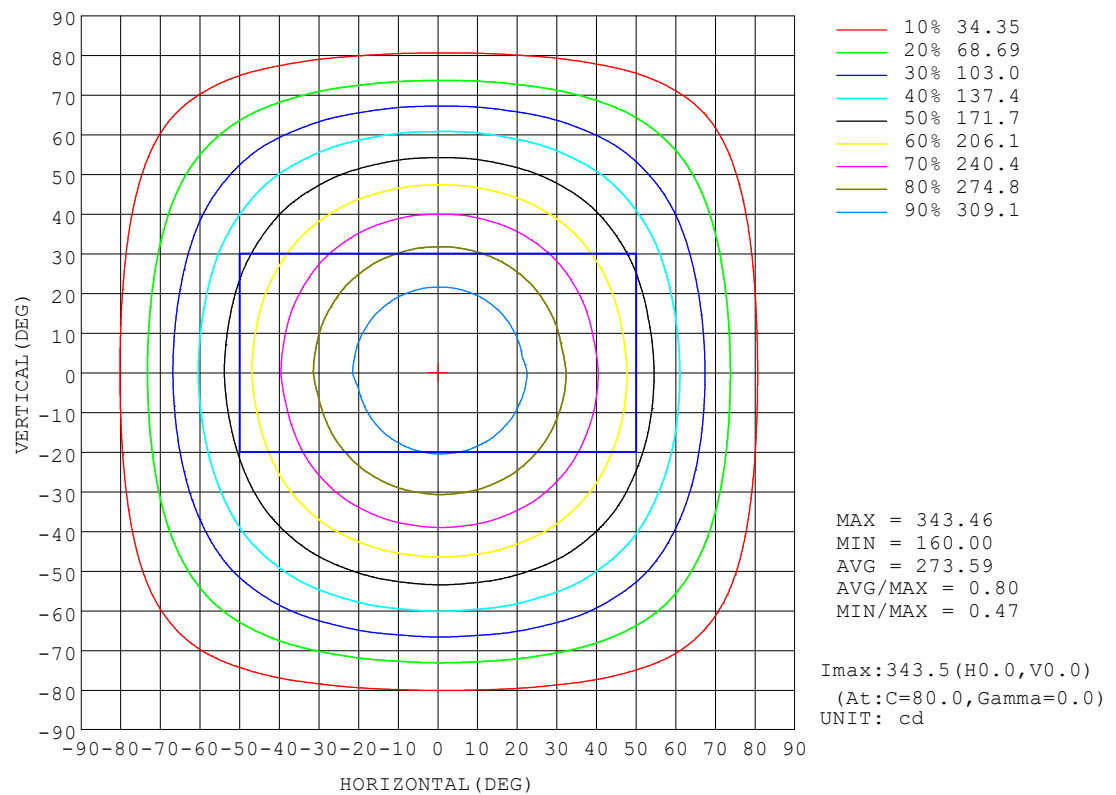
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	53	42	36	52	42	36	51	42	36	30
0.80	62	52	45	61	51	45	60	51	44	38
1.00	70	60	53	69	59	53	67	60	52	46
1.25	76	67	60	75	66	60	73	65	59	53
1.50	81	72	66	79	71	65	77	69	64	57
2.00	87	79	73	85	78	73	82	76	71	64
2.50	91	84	78	89	82	77	85	80	76	68
3.00	94	87	82	92	86	81	88	83	79	72
4.00	97	92	88	95	90	87	91	87	84	76
5.00	99	95	91	97	93	90	93	90	87	79
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: HIGH  
Temperature: 25.3°C  
Operators:  
Test Date: 03 August 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: 99LED961	TYPE: 99LED961	WEIGHT: 1
SPEC.:	DIM.: F 0.135 x 0.024	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cylinder	Shielding Angle:



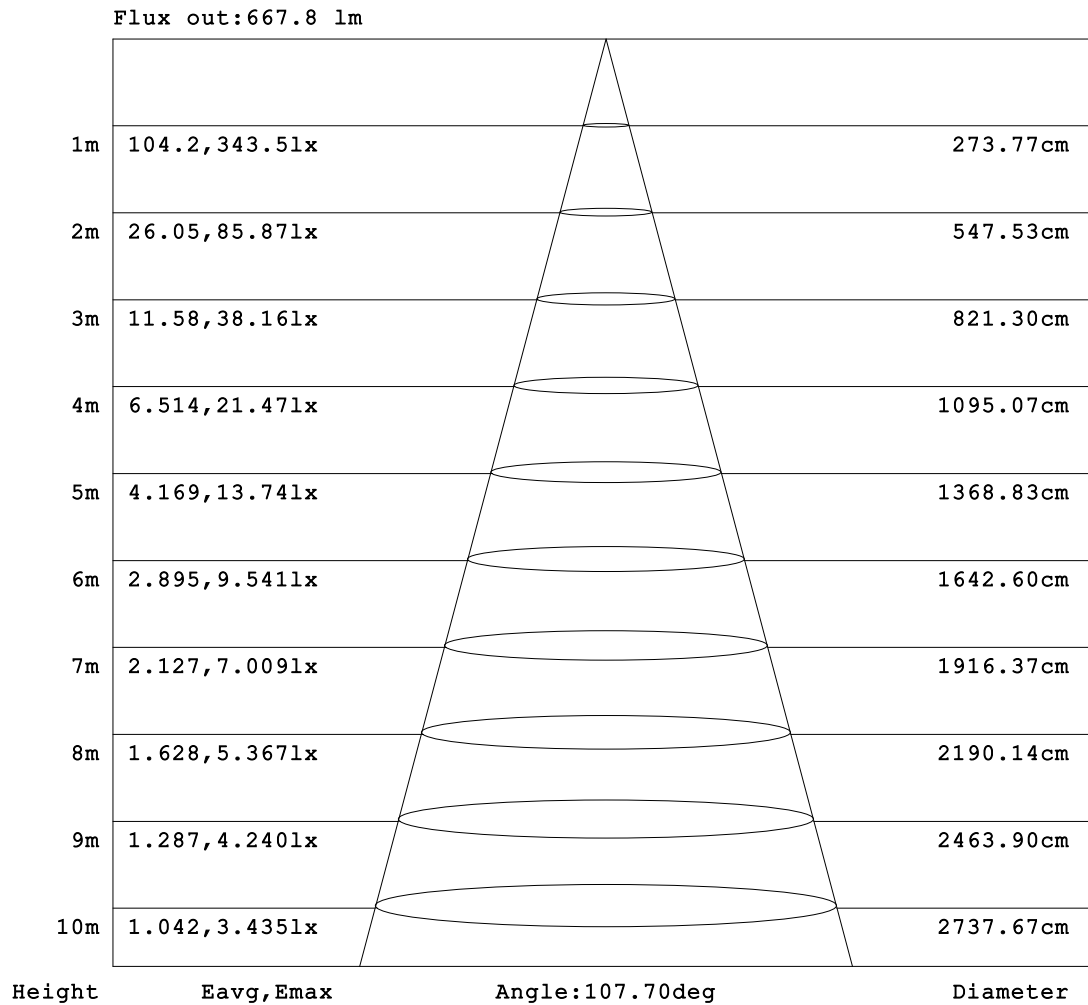
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:03 August 2022

$\gamma$  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:



**AAI Figure**

NAME: 99LED961	TYPE: 99LED961	WEIGHT: 1
SPEC.:	DIM.: F 0.135 x 0.024	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cylinder	Shielding Angle:



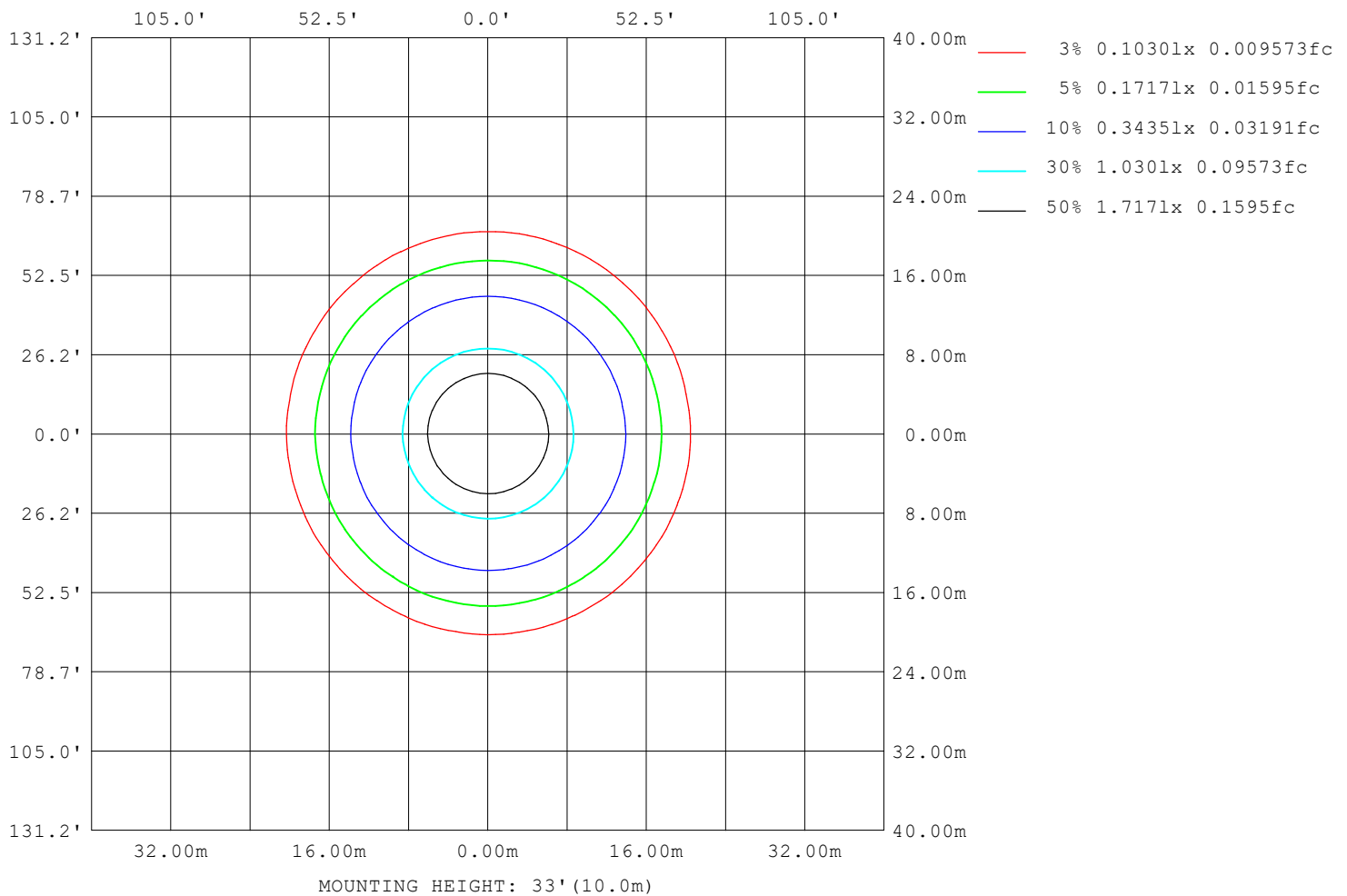
**Note:** The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 03 August 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: 99LED961	TYPE: 99LED961	WEIGHT: 1
SPEC.:	DIM.: F 0.135 x 0.024	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cylinder	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 03 August 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: 99LED961	TYPE: 99LED961	WEIGHT: 1
SPEC.:	DIM.: F 0.135 x 0.024	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cylinder	Shielding Angle:

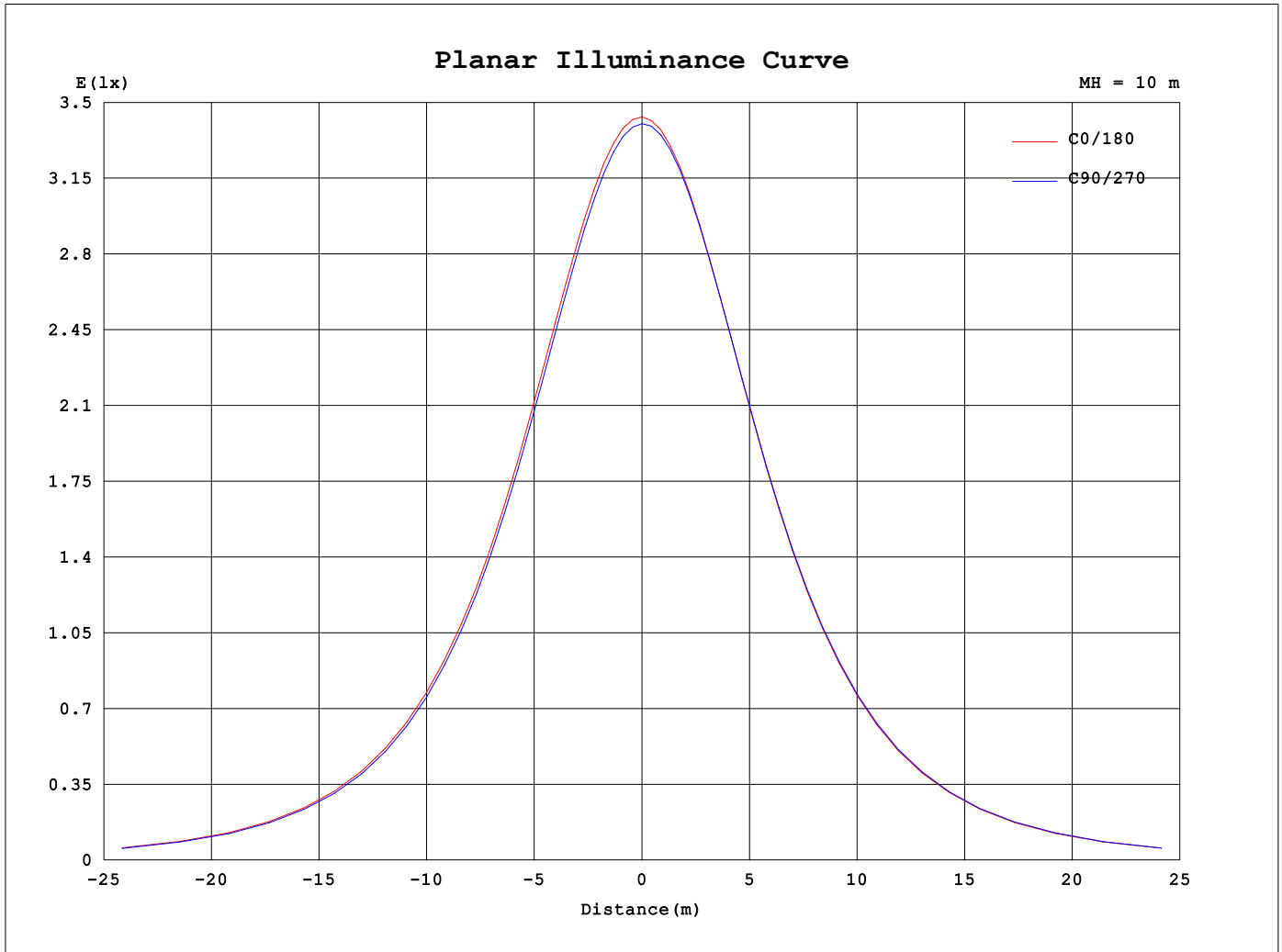
AvgL	cd/m2
L_0~180 (65) av	42308
L_0~180 (75) av	36759
L_0~180 (85) av	27874
L_90~270 (65) av	42250
L_90~270 (75) av	36748
L_90~270 (85) av	27957
L_45 (65) av	42287
L_45 (75) av	36748
L_45 (85) av	27771

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature:25.3°C  
Operators:  
Test Date:03 August 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: HIGH  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 03 August 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:

```