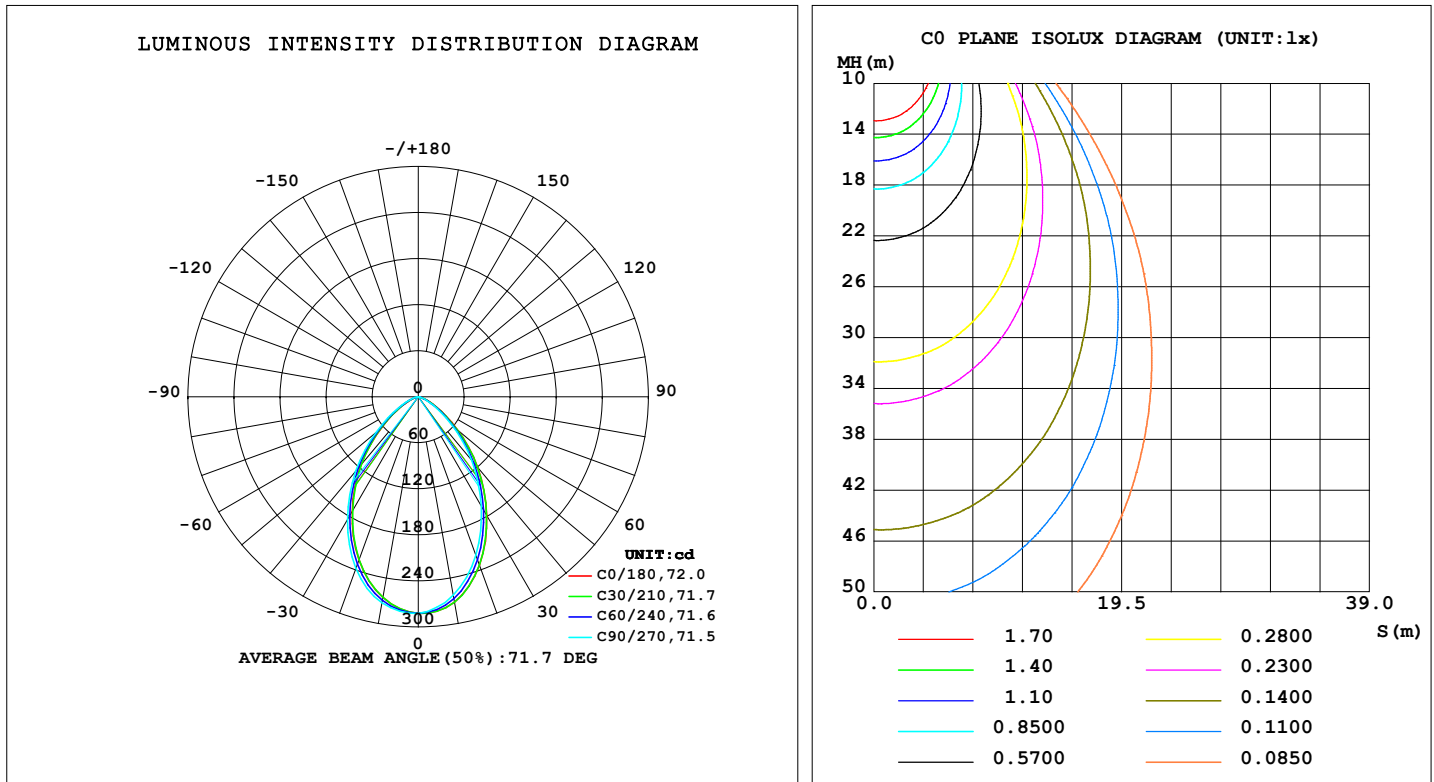


## LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: 95Livial80/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	95Livial80/BL	Imax(cd)	282.9	S/MH(C0/180)	0.98
NOMINAL POWER(W)	15	LOR(%)	26.5	S/MH(C90/270)	1.03
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	409.41	$\eta$ UP,DN(C0-180)	0.0,12.9
NOMINAL FLUX(lm)	1545	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.0,13.6
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	230	$\eta$ down (%)	26.5	CIBSE SHR MAX	1.10



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 30 December 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	272.0	270.5	262.7	264.3	265.7	266.3	272.8	271.8	0- 10	26.25	26.25	6.41,1.7
20	233.8	231.2	219.7	222.8	226.4	226.9	237.9	234.7	10- 20	70.35	96.60	23.6,6.25
30	178.7	175.9	164.2	168.1	172.4	173.3	184.8	180.8	20- 30	92.94	189.5	46.3,12.3
40	121.1	118.1	108.7	112.4	116.5	117.4	127.3	123.4	30- 40	90.98	280.5	68.5,18.2
50	66.81	63.73	56.66	59.70	62.33	63.90	71.07	68.34	40- 50	69.35	349.9	85.5,22.6
60	28.67	26.76	23.19	24.54	25.82	27.11	31.21	29.68	50- 60	39.02	388.9	95,25.2
70	8.713	8.101	6.908	7.297	7.752	8.398	9.984	9.243	60- 70	16.25	405.1	99,26.2
80	0.7738	0.6277	0.5563	0.6009	0.6579	0.8442	1.020	0.8821	70- 80	4.103	409.3	100,26.5
90	0.0458	0.0460	0.0516	0.0494	0.0378	0.0365	0.0272	0.0302	80- 90	0.1566	409.4	100,26.5
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): 318.95 lm

%lum = 77.9%

%lamp = 20.6%

Conical surface Flux(130deg): 399.17 lm

%lum = 97.5%

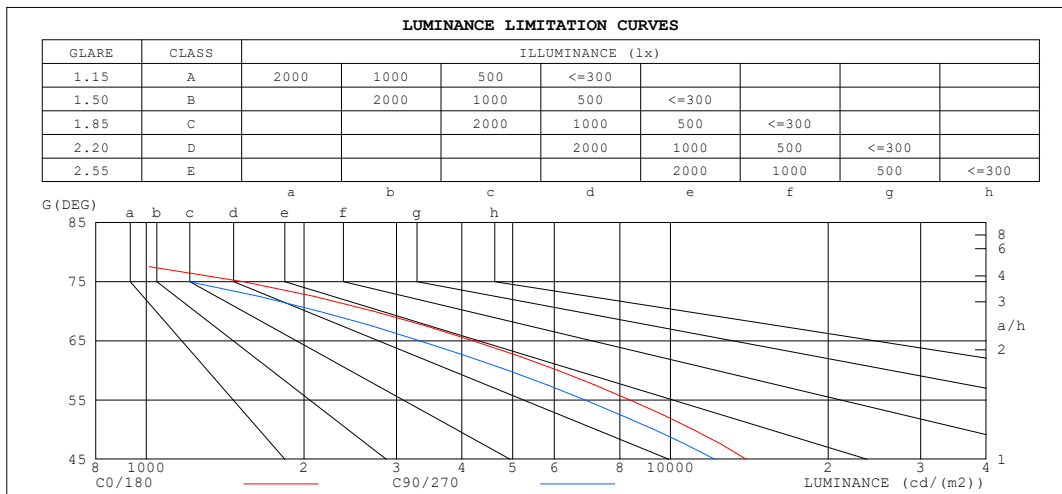
%lamp = 25.8%

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:30 December 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: 95Livia180/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	102	66
80	474	338
75	1531	1205
70	2707	2131
65	4203	3327
60	6094	4892
55	8376	6874
50	11046	9299
45	13942	12145

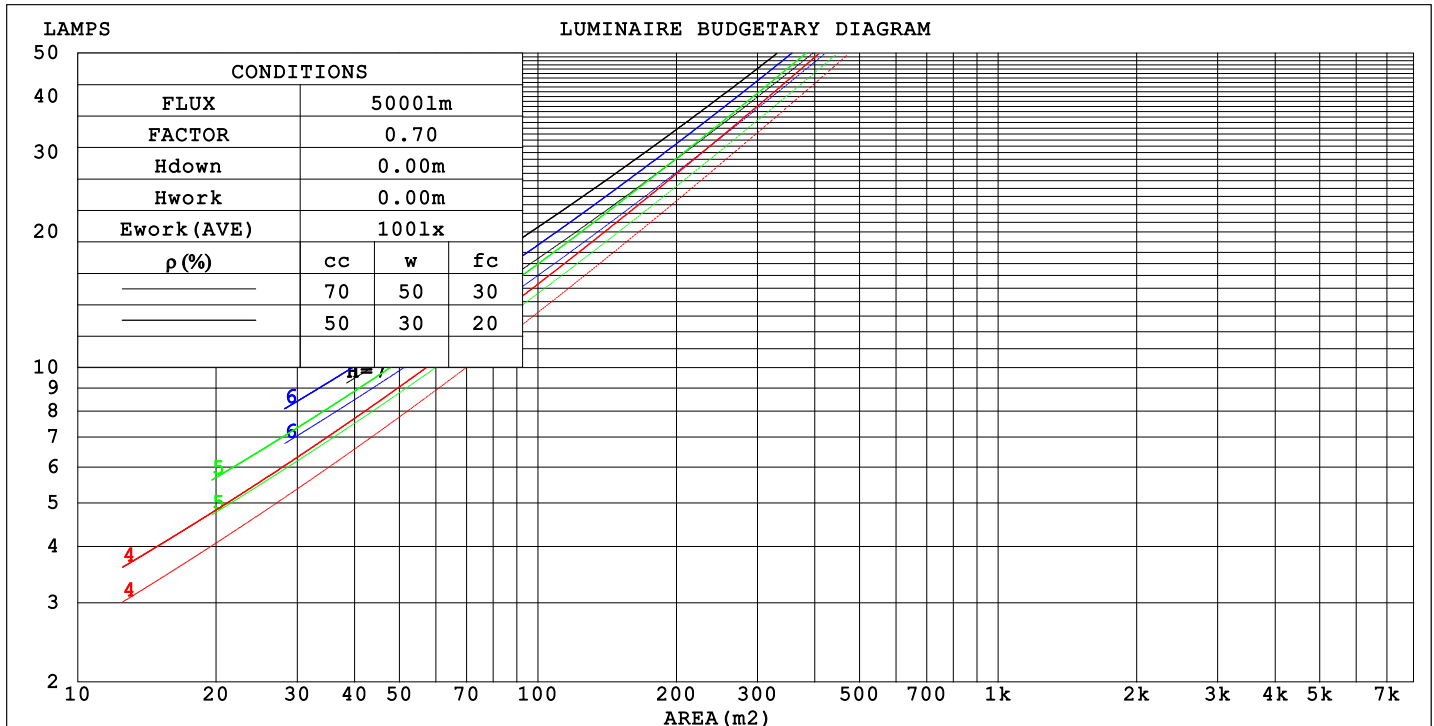
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 30 December 2022

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:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: 95Livial80/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	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			Coefficients of Utilization(CU)												
0.0	.32	.32	.32	.31	.31	.31	.29	.29	.29	.28	.28	.28	.27	.27	.27	.26
1.0	.29	.28	.27	.28	.27	.27	.27	.26	.26	.26	.26	.25	.25	.25	.24	.24
2.0	.26	.25	.24	.26	.24	.23	.25	.24	.23	.24	.23	.22	.23	.22	.22	.21
3.0	.24	.22	.21	.23	.22	.20	.23	.21	.20	.22	.21	.20	.21	.20	.19	.19
4.0	.22	.20	.18	.21	.20	.18	.21	.19	.18	.20	.19	.18	.20	.18	.18	.17
5.0	.20	.18	.16	.19	.18	.16	.19	.17	.16	.18	.17	.16	.18	.17	.16	.15
6.0	.18	.16	.15	.18	.16	.15	.17	.16	.15	.17	.16	.14	.17	.15	.14	.14
7.0	.17	.15	.13	.16	.15	.13	.16	.14	.13	.16	.14	.13	.15	.14	.13	.13
8.0	.15	.14	.12	.15	.13	.12	.15	.13	.12	.15	.13	.12	.14	.13	.12	.12
9.0	.14	.12	.11	.14	.12	.11	.14	.12	.11	.14	.12	.11	.13	.12	.11	.11
10.0	.13	.12	.10	.13	.12	.10	.13	.11	.10	.13	.11	.10	.13	.11	.10	.10



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:30 December 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:

## WEC AND CCEC

NAME: 95Livial80/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	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 Coeffcients(WEC)									
0.0																
1.0	.059	.033	.011	.057	.032	.010	.053	.031	.010	.050	.029	.009	.047	.027	.009	
2.0	.057	.031	.010	.056	.031	.009	.053	.029	.009	.050	.028	.009	.048	.027	.008	
3.0	.055	.029	.009	.053	.029	.009	.051	.028	.008	.048	.027	.008	.046	.026	.008	
4.0	.052	.027	.008	.051	.027	.008	.049	.026	.008	.046	.025	.008	.045	.024	.007	
5.0	.049	.025	.007	.048	.025	.007	.046	.024	.007	.044	.023	.007	.043	.023	.007	
6.0	.047	.023	.007	.046	.023	.007	.044	.022	.007	.042	.022	.006	.041	.021	.006	
7.0	.044	.022	.006	.043	.022	.006	.042	.021	.006	.040	.021	.006	.039	.020	.006	
8.0	.042	.020	.006	.041	.020	.006	.040	.020	.006	.038	.019	.006	.037	.019	.006	
9.0	.040	.019	.005	.039	.019	.005	.038	.019	.005	.037	.018	.005	.035	.018	.005	
10.0	.038	.018	.005	.037	.018	.005	.036	.018	.005	.035	.017	.005	.034	.017	.005	

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	.050	.050	.050	.043	.043	.043	.029	.029	.029	.017	.017	.017	.005	.005	.005	
1.0	.046	.042	.037	.039	.036	.032	.027	.025	.022	.016	.014	.013	.005	.005	.004	
2.0	.043	.035	.028	.037	.030	.025	.025	.021	.017	.015	.012	.010	.005	.004	.003	
3.0	.040	.030	.022	.035	.026	.019	.024	.018	.013	.014	.011	.008	.004	.003	.003	
4.0	.038	.026	.018	.033	.023	.015	.022	.016	.011	.013	.009	.006	.004	.003	.002	
5.0	.036	.024	.014	.031	.020	.012	.021	.014	.009	.012	.008	.005	.004	.003	.002	
6.0	.034	.021	.012	.029	.018	.010	.020	.013	.007	.012	.008	.004	.004	.002	.001	
7.0	.033	.019	.010	.028	.017	.009	.019	.012	.006	.011	.007	.004	.004	.002	.001	
8.0	.031	.018	.009	.027	.015	.007	.019	.011	.005	.011	.006	.003	.003	.002	.001	
9.0	.030	.016	.007	.026	.014	.006	.018	.010	.005	.010	.006	.003	.003	.002	.001	
10.0	.028	.015	.007	.024	.013	.006	.017	.009	.004	.010	.006	.002	.003	.002	.001	

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:30 December 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: 95Livial80/BL					TYPE:			WEIGHT: 1			
SPEC.:					DIM.: 220 x 180			SERIAL No.: 0			
MFR.: Elmark Industries JSC					SUR.: cilinder			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	17.8	19.0	18.0	19.2	19.3	17.0	18.2	17.2	18.4	18.6
	3H	17.9	19.0	18.1	19.2	19.4	17.1	18.2	17.3	18.4	18.6
	4H	17.8	18.9	18.1	19.1	19.4	17.0	18.1	17.3	18.3	18.5
	6H	17.7	18.7	18.1	19.0	19.2	16.9	17.9	17.2	18.2	18.4
	8H	17.7	18.6	18.0	18.9	19.2	16.9	17.8	17.2	18.1	18.4
	12H	17.7	18.6	18.0	18.8	19.1	16.8	17.7	17.2	18.0	18.3
4H	2H	17.8	18.8	18.0	19.0	19.3	17.1	18.1	17.4	18.4	18.6
	3H	17.9	18.8	18.3	19.1	19.4	17.2	18.1	17.5	18.4	18.7
	4H	17.9	18.7	18.3	19.0	19.4	17.2	18.0	17.5	18.3	18.6
	6H	17.8	18.6	18.2	18.9	19.2	17.1	17.8	17.5	18.1	18.5
	8H	17.8	18.5	18.2	18.8	19.2	17.0	17.7	17.4	18.1	18.4
	12H	17.7	18.3	18.2	18.7	19.1	17.0	17.6	17.4	18.0	18.4
8H	4H	17.8	18.5	18.2	18.8	19.2	17.1	17.7	17.5	18.1	18.5
	6H	17.7	18.3	18.2	18.7	19.1	17.0	17.5	17.4	17.9	18.4
	8H	17.7	18.2	18.1	18.6	19.0	16.9	17.4	17.4	17.8	18.3
	12H	17.6	18.0	18.1	18.5	19.0	16.9	17.3	17.4	17.8	18.2
12H	4H	17.8	18.4	18.2	18.7	19.1	17.0	17.6	17.4	18.0	18.4
	6H	17.7	18.2	18.1	18.6	19.0	16.9	17.4	17.4	17.8	18.3
	8H	17.6	18.0	18.1	18.5	19.0	16.9	17.3	17.4	17.8	18.2
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 1.2 / - 1.7					+ 1.4 / - 2.1				
1.5H		+ 0.9 / - 1.1					+ 1.0 / - 1.1				
2.0H		+ 2.5 / - 2.9					+ 2.5 / - 2.9				

CIE Pub.117, 1545 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.5)  
Area: 0.0094985 m2

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:30 December 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: 95Livial80/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

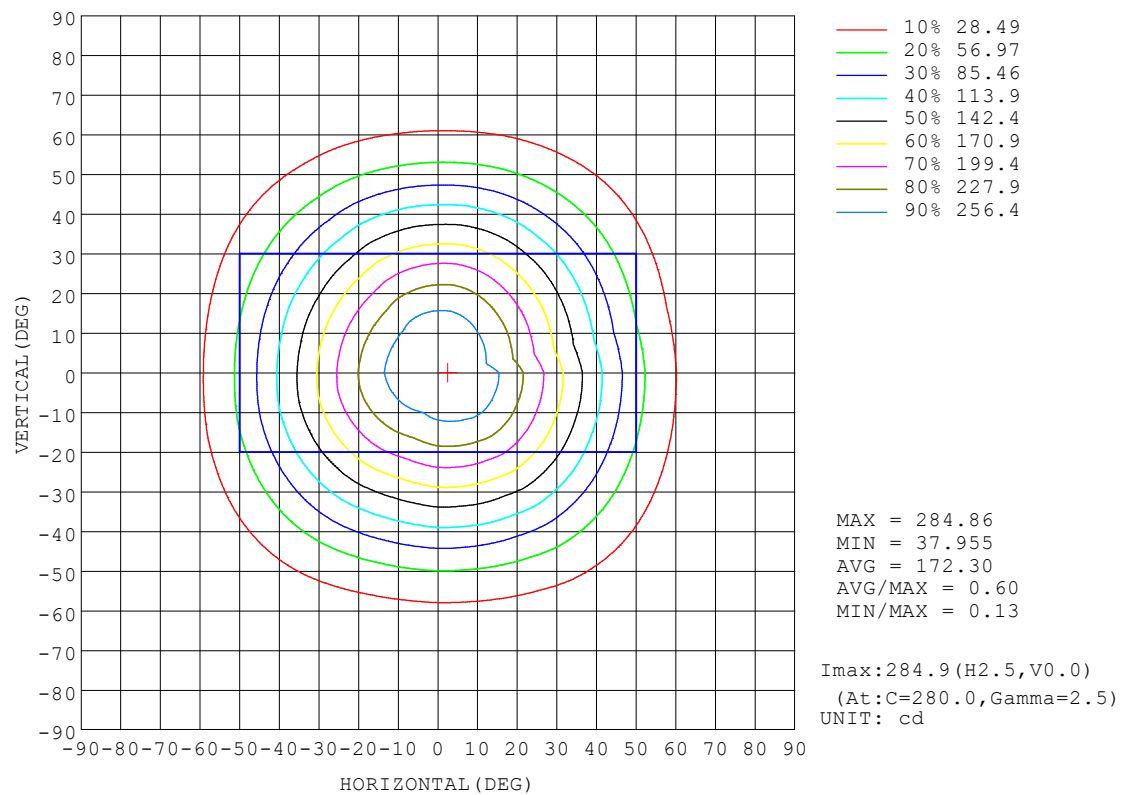
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	19	17	15	19	16	15	18	16	15	14
0.80	21	19	18	21	19	18	21	19	18	16
1.00	23	21	20	23	21	20	23	21	20	18
1.25	25	23	22	25	23	22	24	23	21	20
1.50	26	24	23	26	24	23	25	24	23	21
2.00	27	26	25	27	26	24	26	25	24	22
2.50	28	27	26	28	26	25	27	26	25	23
3.00	29	27	26	28	27	26	27	26	26	24
4.00	29	28	27	29	28	27	28	27	26	24
5.00	30	29	28	29	28	28	28	27	27	25
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: 30 December 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: 95Livia180/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



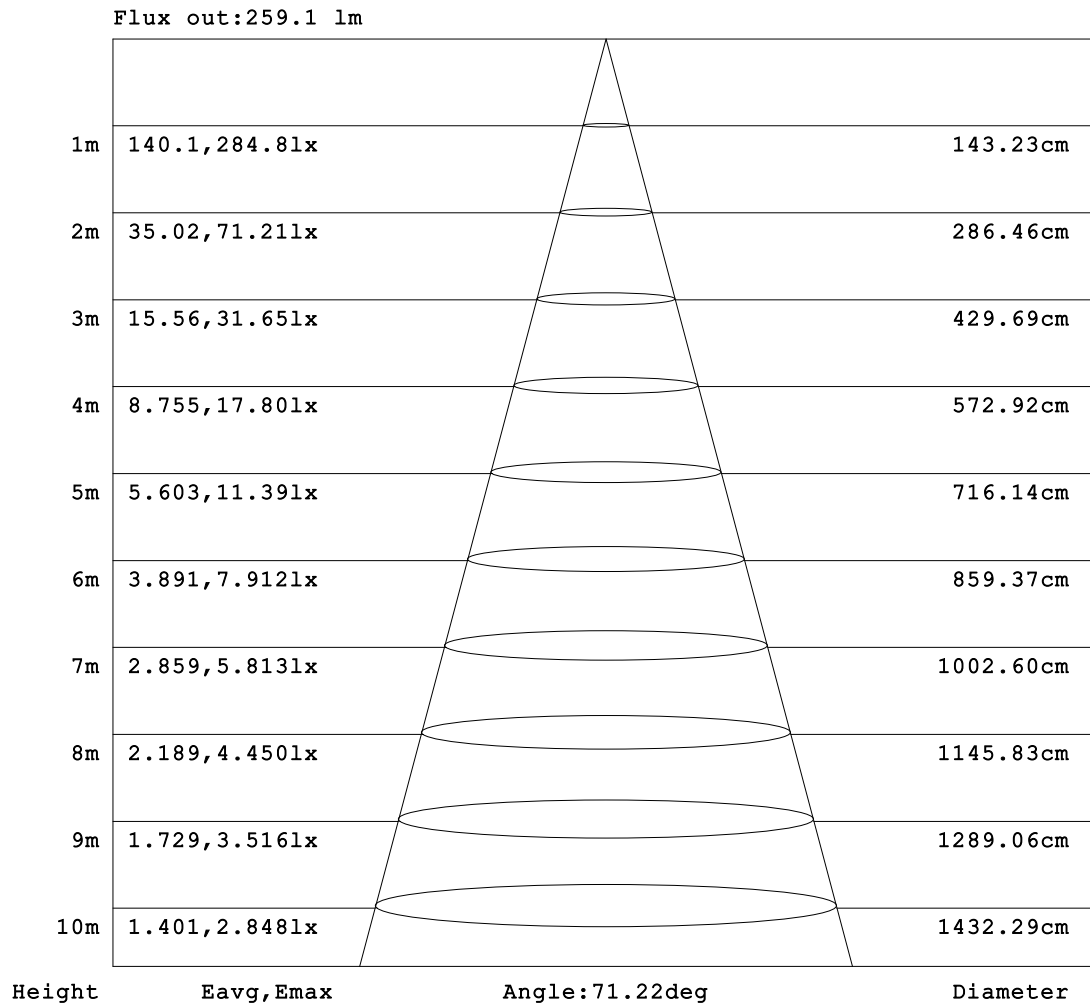
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:30 December 2022

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: 95Livia180/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



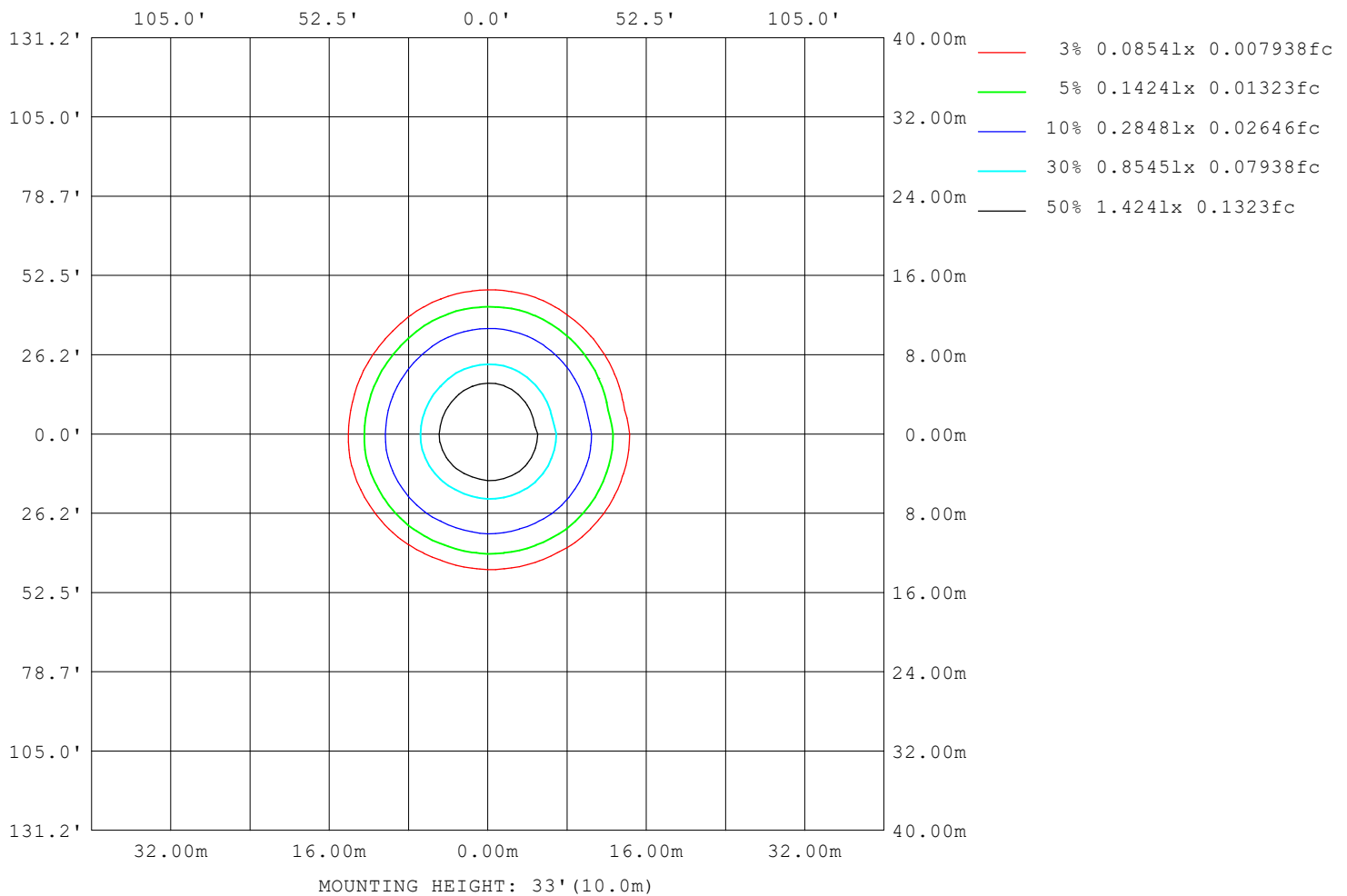
**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: MEDIUM  
 Temperature:25.3°C  
 Operators:  
 Test Date:30 December 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: 95Livia180/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 30 December 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: 95Livia180/BL	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 220 x 180	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

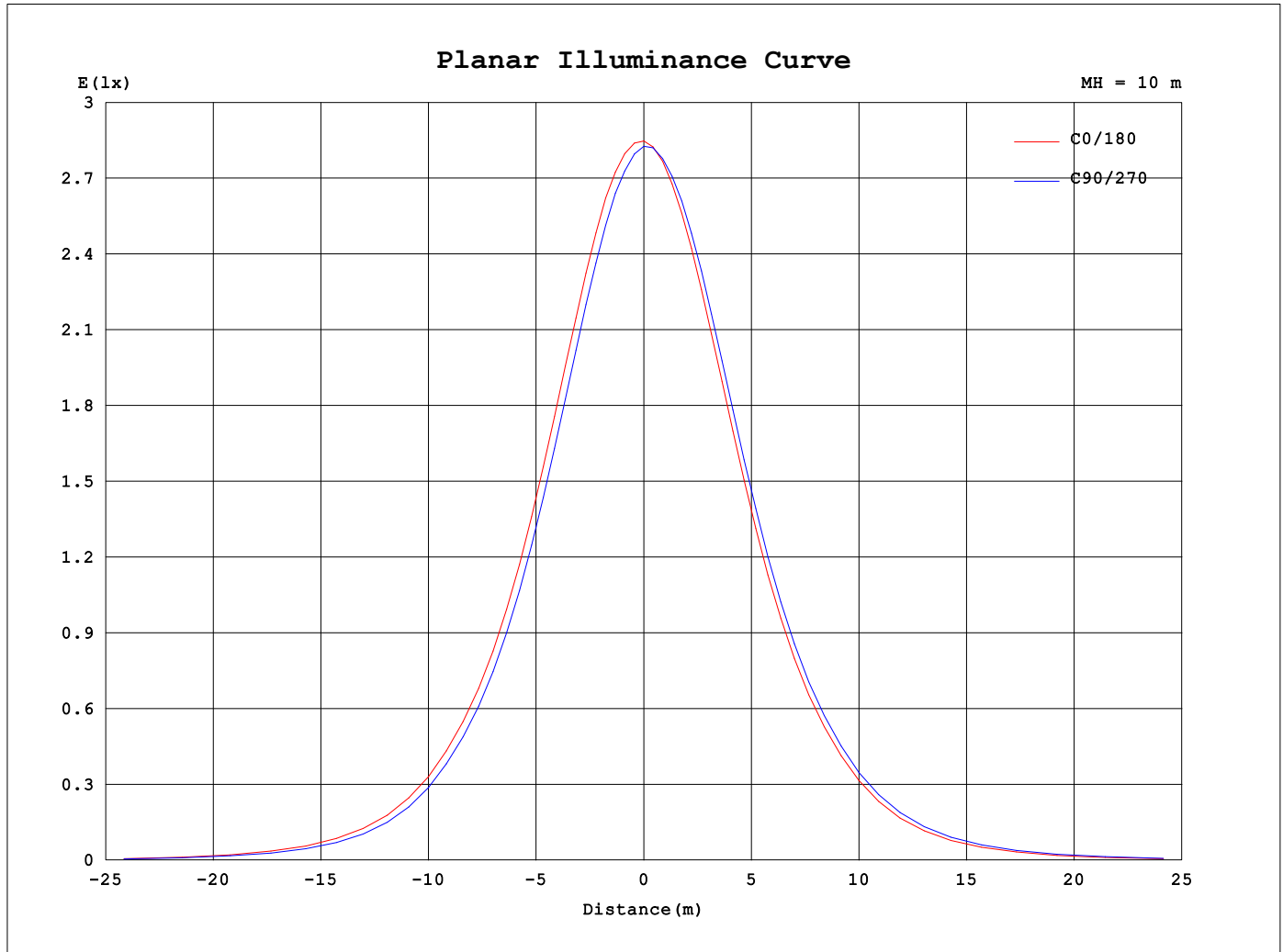
AvgL	cd/m2
L_0~180 (65) av	3942
L_0~180 (75) av	1424
L_0~180 (85) av	81
L_90~270 (65) av	3979
L_90~270 (75) av	1489
L_90~270 (85) av	75
L_45 (65) av	3931
L_45 (75) av	1440
L_45 (85) av	75

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:30 December 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: 30 December 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:

```

```

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:

```