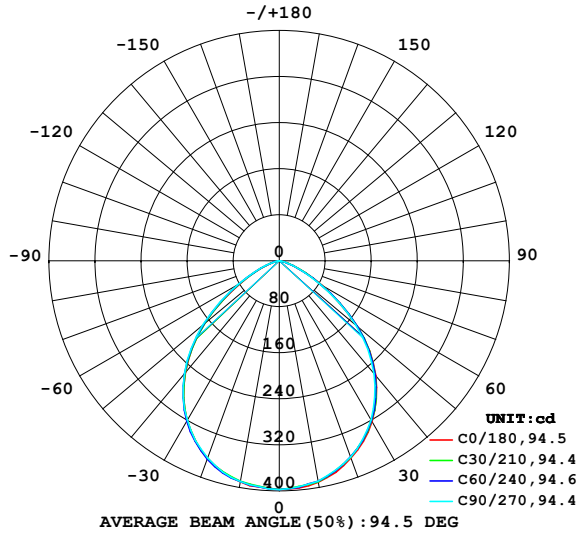


## LUMINAIRE PHOTOMETRIC TEST REPORT

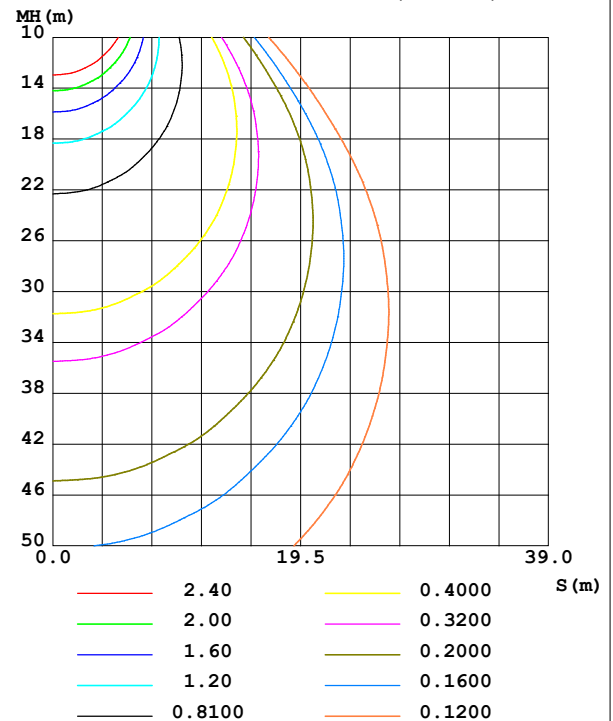
NAME: 95Livial60/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	95Livial60/GR	Imax(cd)	397.5	S/MH(C0/180)	1.20
NOMINAL POWER(W)	10	LOR(%)	84.9	S/MH(C90/270)	1.20
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	828.11	$\eta$ UP,DN(C0-180)	0.0,42.4
NOMINAL FLUX(lm)	975	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.0,42.5
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	$\eta$ down (%)	84.9	CIBSE SHR MAX	1.30

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 19 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	390.4	389.5	388.8	390.0	390.2	390.4	389.3	389.7	0- 10	37.52	37.52	4.53,3.85
20	364.2	362.8	362.5	361.5	365.1	367.0	364.6	366.0	10- 20	106.9	144.4	17.4,14.8
30	322.6	322.0	319.1	316.9	320.2	321.2	320.0	322.3	20- 30	158.5	302.9	36.6,31.1
40	261.2	260.0	256.1	252.9	253.7	255.2	256.2	259.3	30- 40	181.6	484.5	58.5,49.7
50	176.0	177.7	173.8	168.6	169.7	170.2	173.4	177.0	40- 50	167.0	651.4	78.7,66.8
60	86.52	84.51	82.08	79.44	75.90	81.08	82.81	85.64	50- 60	112.4	763.8	92.2,78.3
70	25.72	25.87	25.79	23.59	24.16	24.75	26.79	27.23	60- 70	49.96	813.8	98.3,83.5
80	3.478	3.367	3.292	3.384	3.511	3.635	3.671	3.775	70- 80	12.42	826.2	99.8,84.7
90	0.1931	0.1991	0.1991	0.2043	0.1636	0.1734	0.1691	0.1796	80- 90	1.907	828.1	100,84.9
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): 572.35 lm

%lum = 69.1%  
%lamp = 58.7%

Conical surface Flux(130deg): 795.31 lm

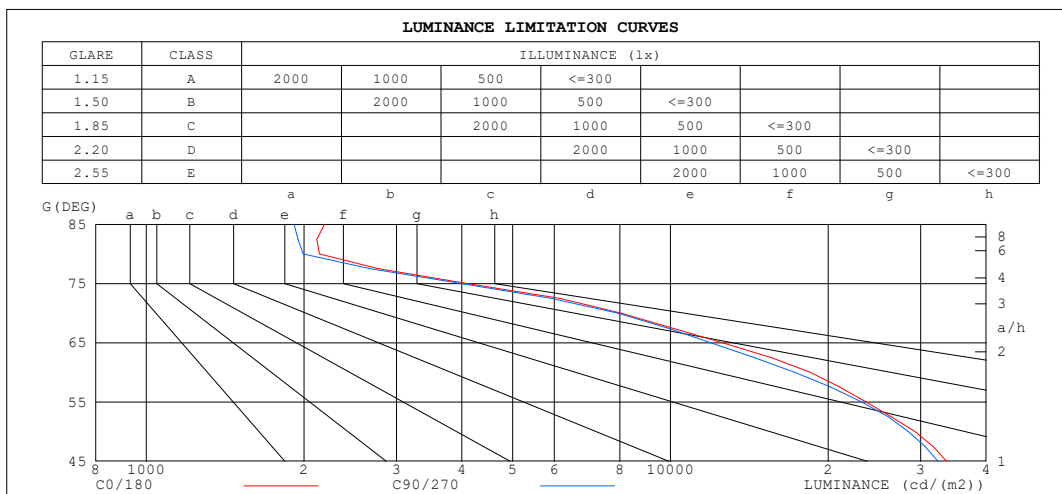
%lum = 96.0%  
%lamp = 81.6%

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:19 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: 95Livial60/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	2187	1914
80	2140	1992
75	4108	4000
70	8035	7922
65	12591	11943
60	18487	17247
55	23637	23182
50	29255	28407
45	33623	32353

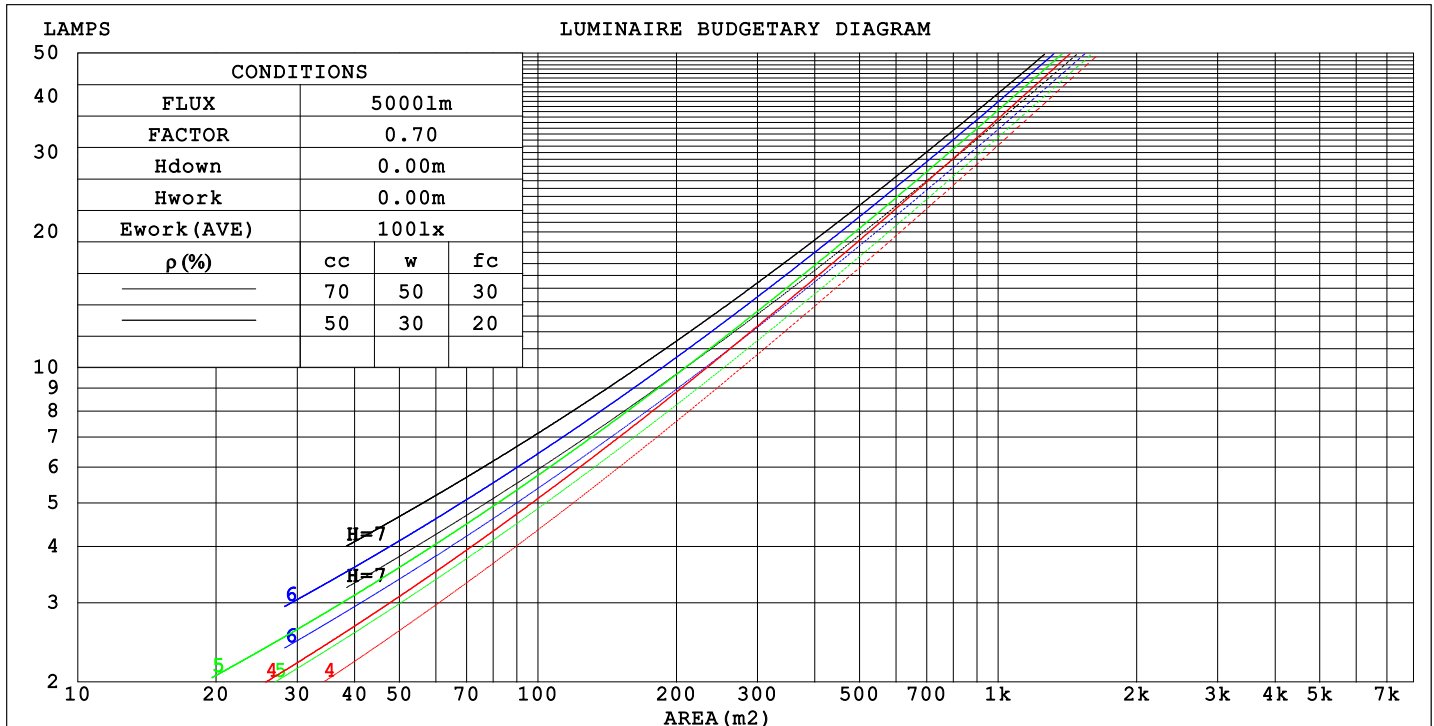
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: MEDIUM  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 19 December 2022

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: 95Livial60/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	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	1.01	1.01	1.01	.99	.99	.99	.94	.94	.94	.90	.90	.90	.87	.87	.87	.85														
1.0	.91	.88	.86	.89	.87	.84	.86	.84	.82	.83	.81	.79	.80	.78	.77	.75														
2.0	.82	.77	.73	.80	.76	.72	.77	.74	.70	.74	.71	.69	.72	.70	.67	.66														
3.0	.73	.67	.63	.72	.66	.62	.69	.65	.61	.67	.63	.60	.65	.62	.59	.57														
4.0	.66	.59	.54	.65	.59	.54	.63	.57	.53	.61	.56	.53	.59	.55	.52	.50														
5.0	.60	.53	.48	.59	.52	.48	.57	.51	.47	.55	.50	.47	.54	.50	.46	.45														
6.0	.54	.47	.42	.53	.47	.42	.52	.46	.42	.50	.45	.42	.49	.45	.41	.40														
7.0	.49	.43	.38	.49	.42	.38	.47	.42	.38	.46	.41	.37	.45	.41	.37	.35														
8.0	.45	.39	.34	.45	.38	.34	.44	.38	.34	.43	.37	.34	.42	.37	.33	.32														
9.0	.42	.35	.31	.41	.35	.31	.40	.35	.31	.39	.34	.31	.39	.34	.30	.29														
10.0	.39	.32	.28	.38	.32	.28	.37	.32	.28	.37	.32	.28	.36	.31	.28	.26														



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:19 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: 95Livial60/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	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 Coefficients(WEC)									
0.0																
1.0	.206	.117	.037	.200	.114	.036	.189	.109	.035	.179	.103	.033	.170	.099	.032	
2.0	.202	.111	.034	.197	.108	.033	.187	.104	.032	.178	.100	.031	.170	.096	.030	
3.0	.192	.102	.031	.188	.101	.030	.180	.097	.030	.172	.094	.029	.165	.091	.028	
4.0	.182	.095	.028	.178	.093	.028	.171	.091	.027	.164	.088	.027	.158	.086	.026	
5.0	.172	.087	.025	.168	.086	.025	.162	.084	.025	.156	.082	.024	.150	.080	.024	
6.0	.162	.081	.023	.159	.080	.023	.153	.078	.023	.147	.077	.023	.142	.075	.022	
7.0	.153	.075	.021	.150	.075	.021	.145	.073	.021	.140	.072	.021	.135	.070	.021	
8.0	.144	.070	.020	.142	.070	.020	.137	.068	.020	.133	.067	.019	.128	.066	.019	
9.0	.136	.066	.018	.134	.065	.018	.130	.064	.018	.126	.063	.018	.122	.062	.018	
10.0	.129	.062	.017	.127	.061	.017	.123	.060	.017	.120	.059	.017	.116	.058	.017	

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	.162	.162	.162	.138	.138	.138	.094	.094	.094	.054	.054	.054	.017	.017	.017	
1.0	.149	.133	.119	.128	.114	.102	.087	.079	.071	.050	.045	.041	.016	.015	.013	
2.0	.140	.112	.089	.120	.097	.077	.082	.067	.054	.047	.039	.031	.015	.013	.010	
3.0	.133	.097	.068	.114	.084	.059	.078	.058	.042	.045	.034	.024	.014	.011	.008	
4.0	.126	.085	.054	.108	.074	.047	.074	.051	.033	.043	.030	.020	.014	.010	.006	
5.0	.120	.076	.044	.103	.066	.038	.071	.046	.027	.041	.027	.016	.013	.009	.005	
6.0	.114	.069	.036	.098	.059	.031	.068	.042	.022	.039	.024	.013	.013	.008	.004	
7.0	.109	.063	.030	.094	.054	.027	.065	.038	.019	.038	.022	.011	.012	.007	.004	
8.0	.104	.058	.026	.089	.050	.023	.062	.035	.016	.036	.021	.010	.012	.007	.003	
9.0	.099	.054	.023	.085	.047	.020	.059	.033	.014	.034	.019	.008	.011	.006	.003	
10.0	.095	.050	.020	.082	.043	.018	.057	.031	.012	.033	.018	.007	.011	.006	.002	

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:19 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: 95Livial60/GR					TYPE:			WEIGHT: 1			
SPEC.:					DIM.: 145 x10			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	23.6	24.9	23.8	25.1	25.3	23.4	24.8	23.7	24.9	25.1
	3H	23.8	25.0	24.0	25.2	25.4	23.6	24.8	23.9	25.1	25.3
	4H	23.7	24.9	24.0	25.1	25.4	23.6	24.7	23.9	25.0	25.2
	6H	23.6	24.7	24.0	25.0	25.2	23.5	24.6	23.8	24.8	25.1
	8H	23.6	24.6	23.9	24.9	25.2	23.4	24.5	23.8	24.8	25.0
	12H	23.6	24.5	23.9	24.8	25.1	23.4	24.4	23.7	24.7	25.0
4H	2H	23.7	24.8	24.0	25.1	25.3	23.6	24.7	23.9	25.0	25.2
	3H	24.0	24.9	24.3	25.2	25.5	23.8	24.8	24.2	25.1	25.4
	4H	23.9	24.8	24.3	25.1	25.5	23.8	24.7	24.2	25.0	25.3
	6H	23.9	24.7	24.3	25.0	25.4	23.7	24.5	24.1	24.9	25.2
	8H	23.8	24.6	24.2	24.9	25.3	23.7	24.4	24.1	24.8	25.2
	12H	23.8	24.5	24.2	24.8	25.2	23.7	24.3	24.1	24.7	25.1
8H	4H	23.8	24.6	24.2	24.9	25.3	23.7	24.4	24.1	24.8	25.2
	6H	23.8	24.4	24.2	24.8	25.2	23.7	24.3	24.1	24.7	25.1
	8H	23.8	24.3	24.2	24.7	25.2	23.6	24.2	24.1	24.6	25.0
	12H	23.7	24.2	24.2	24.6	25.1	23.6	24.0	24.1	24.5	25.0
12H	4H	23.8	24.5	24.2	24.8	25.2	23.7	24.3	24.1	24.7	25.1
	6H	23.7	24.3	24.2	24.7	25.1	23.6	24.1	24.1	24.6	25.0
	8H	23.7	24.2	24.2	24.6	25.1	23.6	24.0	24.1	24.5	25.0
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 0.8 / - 1.1					+ 0.8 / - 1.0				
1.5H		+ 0.5 / - 0.4					+ 0.4 / - 0.5				
2.0H		+ 1.7 / - 2.2					+ 1.6 / - 2.3				

CIE Pub.117, 975.0 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.1)  
Area: 0.0094985 m2

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:19 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: 95Livial60/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

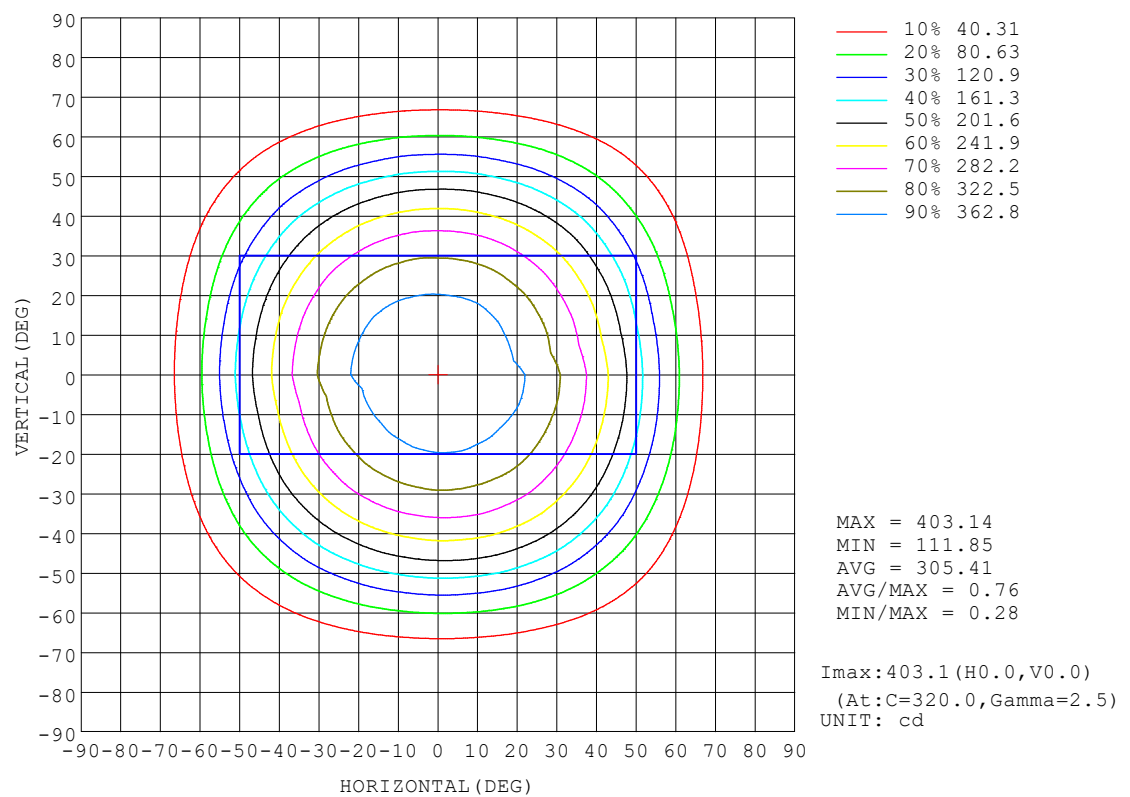
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	55	47	41	55	46	41	54	46	41	36
0.80	64	56	50	63	55	50	62	55	50	45
1.00	71	63	58	70	63	58	69	64	58	52
1.25	77	70	65	76	69	64	74	68	64	59
1.50	81	74	69	79	73	69	77	72	68	63
2.00	86	80	76	84	79	75	82	77	74	68
2.50	88	83	79	87	82	78	84	80	77	70
3.00	90	86	82	89	85	81	86	82	79	73
4.00	93	89	86	91	88	85	88	85	83	76
5.00	95	91	89	93	90	87	89	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:19 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: 95Livia160/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



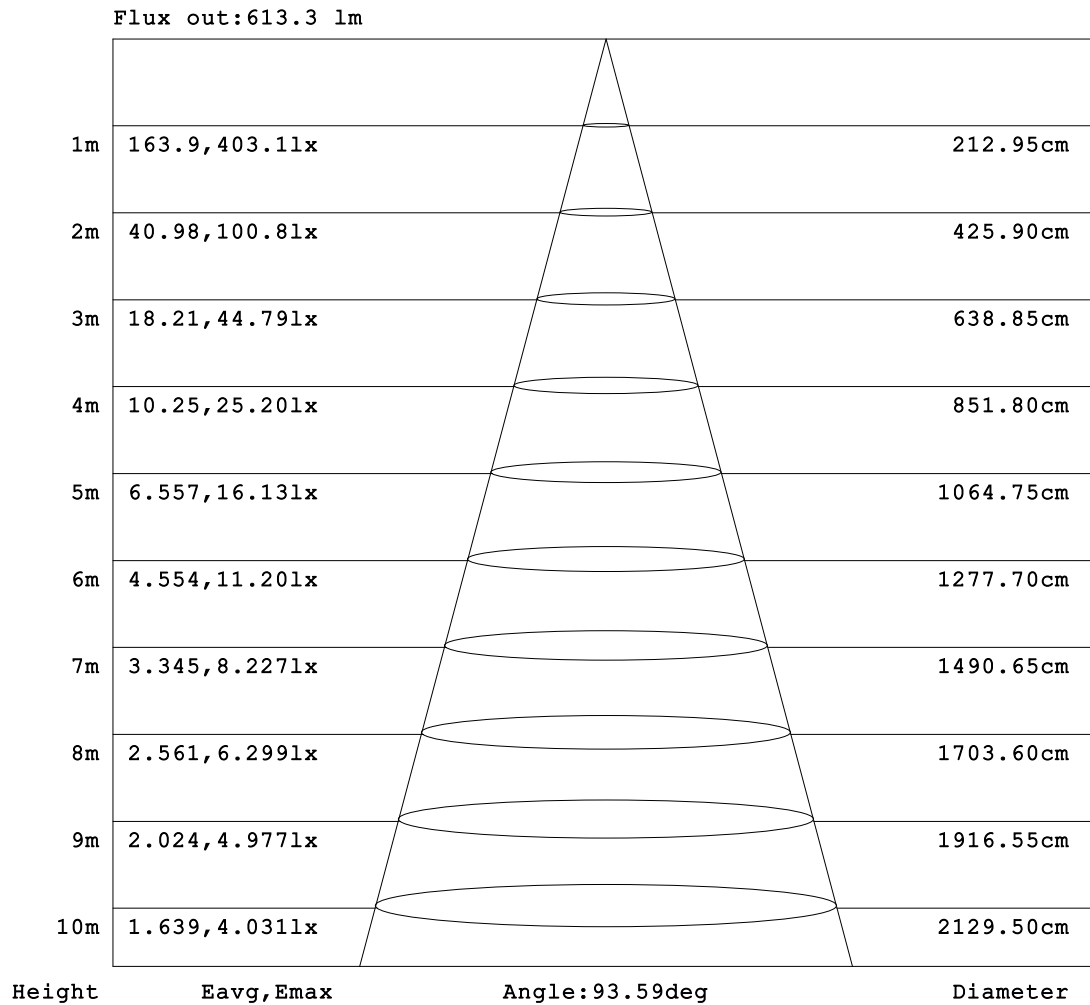
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: MEDIUM  
 Temperature:25.3°C  
 Operators:  
 Test Date:19 December 2022

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: 95Livial60/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



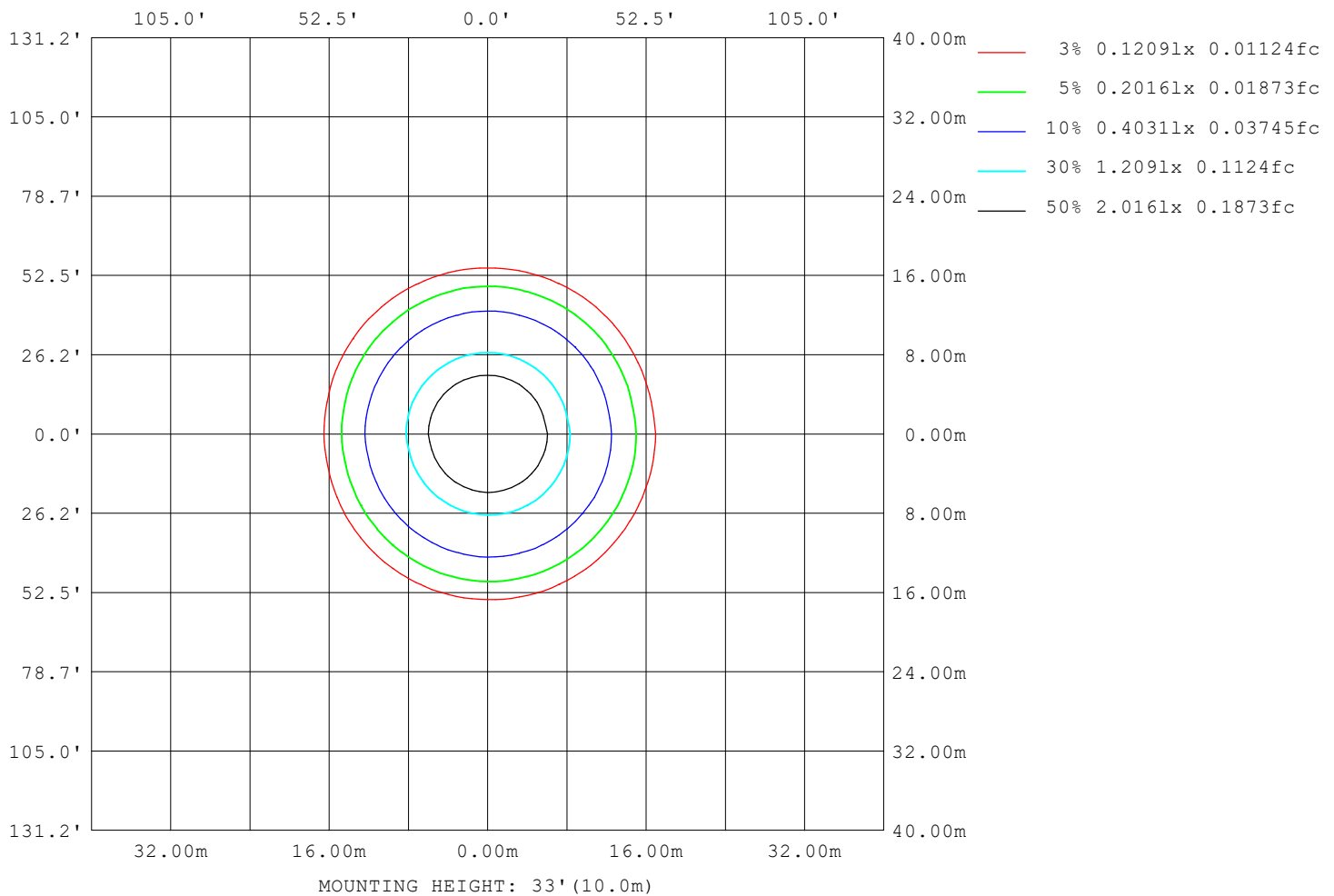
**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:19 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: 95Livial60/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	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: 19 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: 95Livial60/GR	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 145 x10	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

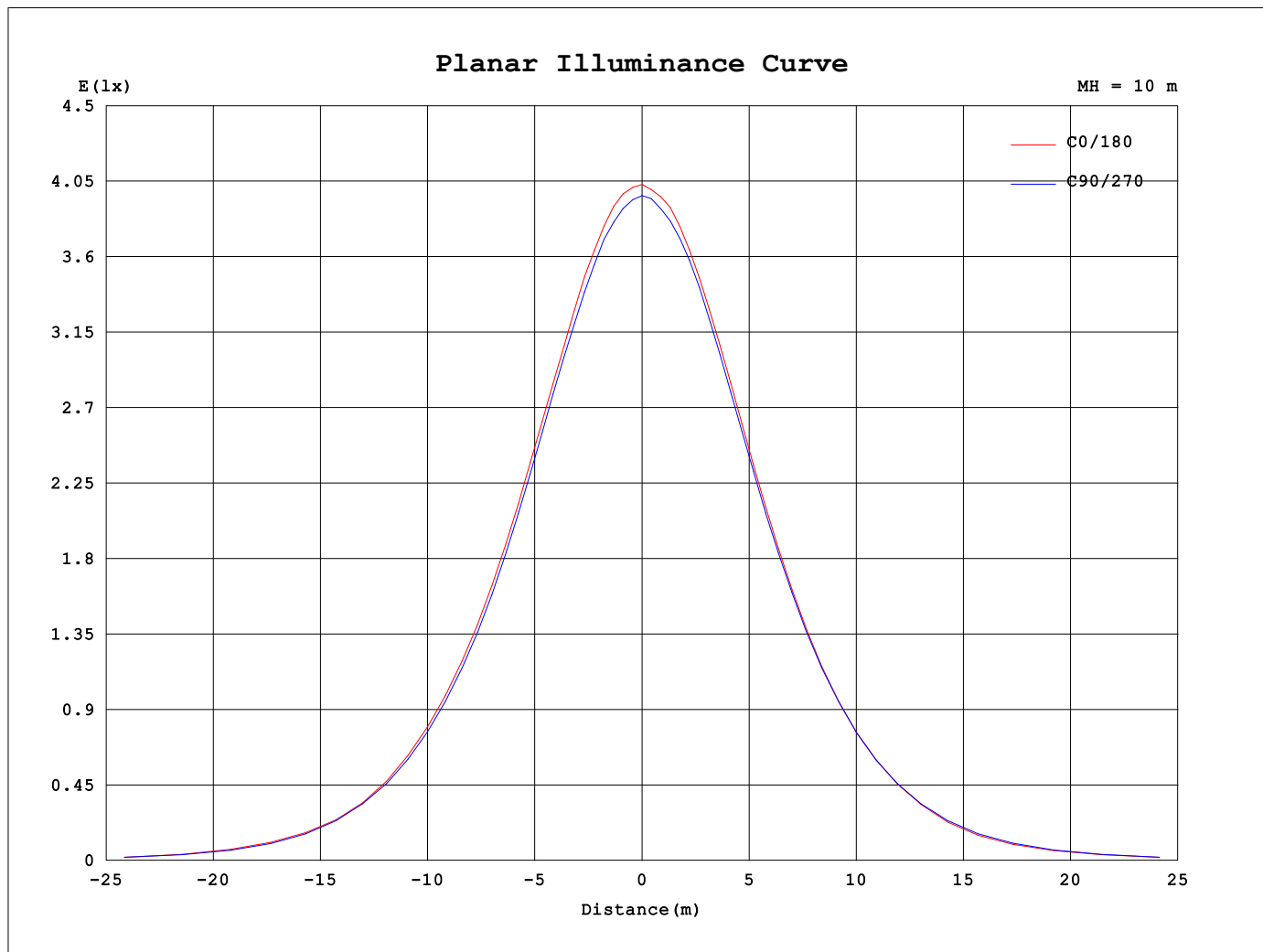
AvgL	cd/m2
L_0~180 (65) av	12027
L_0~180 (75) av	3981
L_0~180 (85) av	2156
L_90~270 (65) av	12107
L_90~270 (75) av	4214
L_90~270 (85) av	2075
L_45 (65) av	12220
L_45 (75) av	4169
L_45 (85) av	2123

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:19 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: 19 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:

```

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:

```