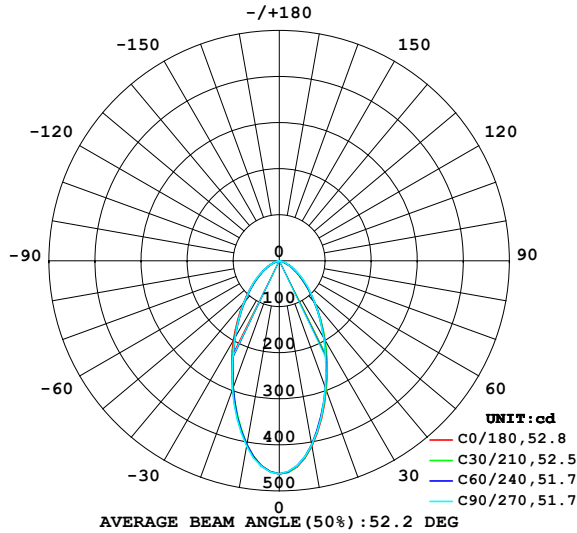


## LUMINAIRE PHOTOMETRIC TEST REPORT

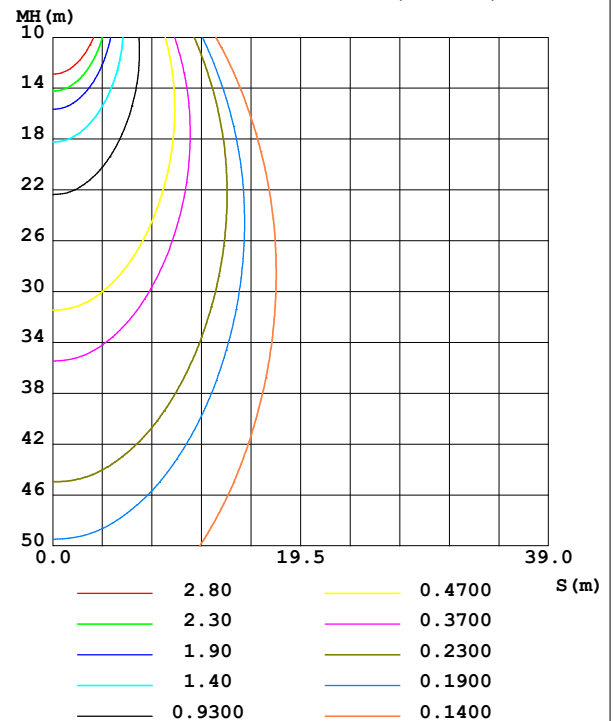
NAME: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	95Livia90/WH	Imax(cd)	462.8	S/MH(C0/180)	0.77
NOMINAL POWER(W)	6	LOR(%)	113.1	S/MH(C90/270)	0.77
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	497.55	$\eta$ UP,DN(C0-180)	0.0,56.8
NOMINAL FLUX(lm)	440	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.0,56.3
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	230	$\eta$ down (%)	113.1	CIBSE SHR MAX	0.90

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: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	408.6	406.1	406.4	407.7	405.8	405.9	408.8	409.7	0- 10	41.45	41.45	8.33,9.42
20	298.0	295.6	293.4	298.2	296.5	292.9	296.9	300.5	10- 20	98.45	139.9	28.1,31.8
30	198.0	197.9	193.1	197.7	198.7	193.4	192.9	197.1	20- 30	111.8	251.7	50.6,57.2
40	120.8	121.1	122.0	123.4	122.9	118.4	120.3	121.3	30- 40	97.48	349.1	70.2,79.3
50	67.97	68.72	72.21	72.10	69.92	67.22	70.73	70.49	40- 50	72.17	421.3	84.7,95.8
60	34.45	35.52	38.11	37.44	35.23	34.00	36.63	36.40	50- 60	46.30	467.6	94,106
70	11.59	12.59	14.19	13.42	11.52	10.97	11.90	12.22	60- 70	23.17	490.8	98.6,112
80	1.641	1.818	1.988	1.937	1.734	1.572	1.519	1.542	70- 80	5.997	496.8	99.8,113
90	0.0677	0.0666	0.0763	0.0778	0.0542	0.0557	0.0599	0.0587	80- 90	0.7826	497.6	100,113
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): 388.57 lm

%lum = 78.1%

%lamp = 88.3%

Conical surface Flux(130deg): 481.9 lm

%lum = 96.9%

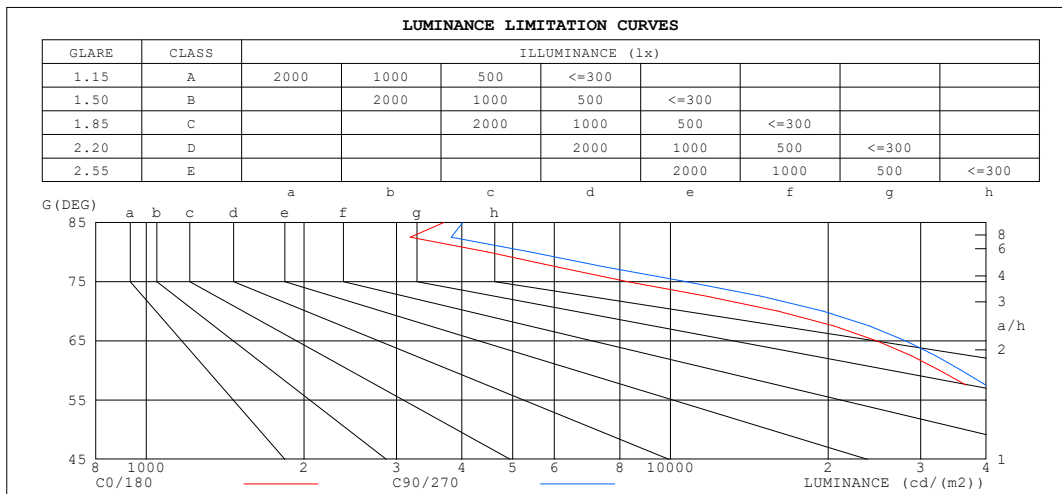
%lamp = 109.5%

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	3694	4014
80	4474	5392
75	8279	10714
70	16039	19531
65	24738	28075
60	32623	35896
55	40842	44083
50	50062	52898
45	61035	63139

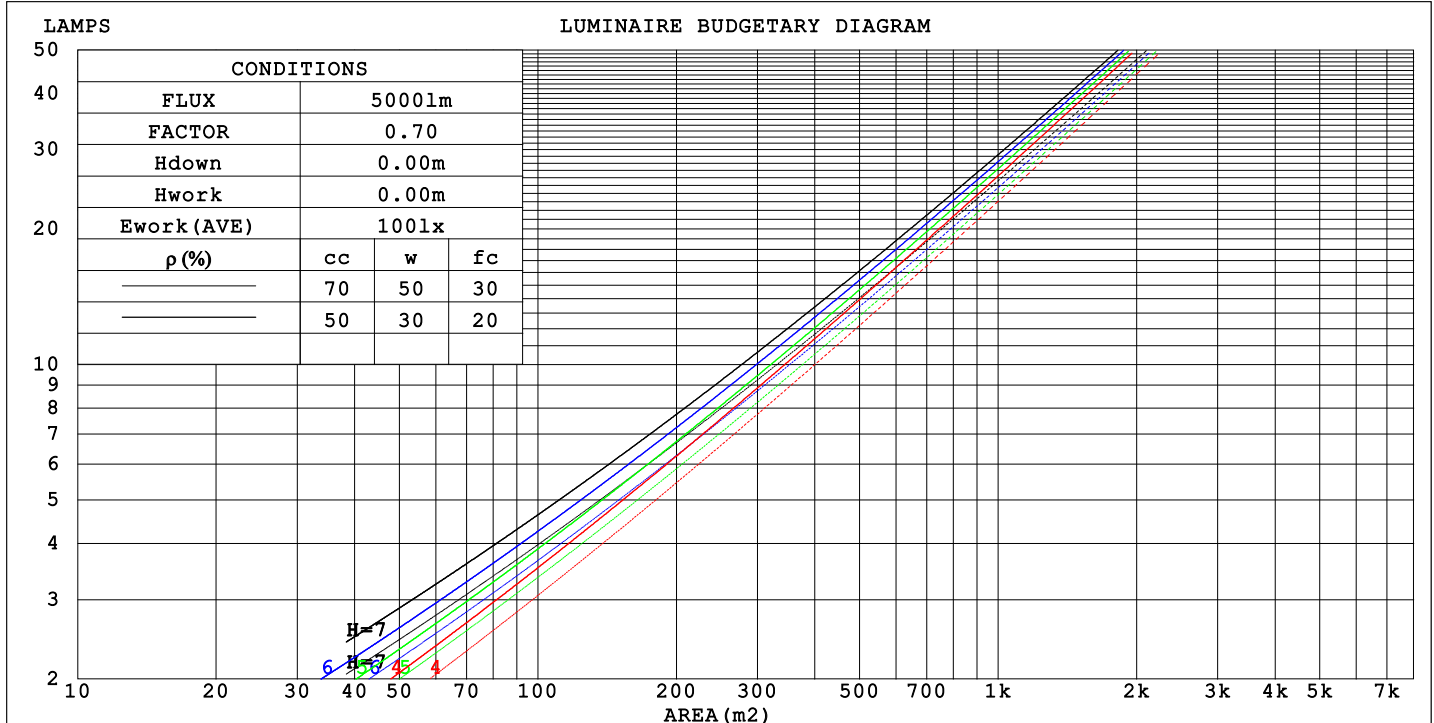
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature: 25.3°C  
Operators:  
Test Date: 19 December 2022

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: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	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															



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	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	.248	.141	.045	.240	.137	.044	.226	.130	.041	.213	.123	.039	.200	.116	.037	
2.0	.241	.132	.041	.234	.129	.040	.222	.123	.038	.210	.118	.037	.200	.113	.036	
3.0	.229	.122	.037	.224	.120	.036	.213	.115	.035	.203	.111	.034	.194	.107	.033	
4.0	.217	.113	.033	.212	.111	.033	.202	.107	.032	.194	.104	.031	.186	.101	.031	
5.0	.205	.104	.030	.200	.103	.030	.192	.100	.029	.184	.097	.029	.177	.095	.028	
6.0	.193	.097	.028	.189	.096	.028	.182	.093	.027	.175	.091	.027	.169	.089	.026	
7.0	.183	.090	.026	.179	.089	.025	.173	.087	.025	.167	.085	.025	.161	.084	.025	
8.0	.173	.085	.024	.170	.084	.024	.164	.082	.023	.159	.080	.023	.153	.079	.023	
9.0	.164	.079	.022	.161	.079	.022	.156	.077	.022	.151	.076	.022	.147	.074	.022	
10.0	.156	.075	.021	.154	.074	.021	.149	.073	.021	.144	.072	.020	.140	.070	.020	

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	.215	.215	.215	.184	.184	.184	.126	.126	.126	.072	.072	.072	.023	.023	.023	
1.0	.197	.177	.160	.168	.152	.138	.115	.105	.095	.066	.061	.055	.021	.020	.018	
2.0	.183	.150	.122	.157	.129	.105	.107	.089	.073	.062	.052	.043	.020	.017	.014	
3.0	.171	.129	.095	.147	.111	.082	.101	.077	.058	.058	.045	.034	.019	.015	.011	
4.0	.161	.113	.076	.138	.097	.066	.095	.068	.046	.055	.040	.027	.018	.013	.009	
5.0	.153	.100	.062	.131	.087	.054	.090	.061	.038	.052	.036	.022	.017	.012	.007	
6.0	.145	.090	.051	.124	.078	.045	.086	.055	.032	.050	.032	.019	.016	.011	.006	
7.0	.137	.082	.043	.118	.071	.038	.082	.050	.027	.047	.029	.016	.015	.010	.005	
8.0	.131	.075	.037	.112	.065	.032	.078	.046	.023	.045	.027	.014	.015	.009	.005	
9.0	.125	.069	.032	.107	.060	.028	.074	.042	.020	.043	.025	.012	.014	.008	.004	
10.0	.119	.065	.028	.102	.056	.025	.071	.039	.018	.041	.023	.011	.013	.008	.003	

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: 95Livia90/WH					TYPE:			WEIGHT: 1			
SPEC.:					DIM.: 105 x 96			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	27.2	28.4	27.4	28.6	28.7	27.4	28.6	27.7	28.8	29.0
	3H	27.5	28.6	27.8	28.8	29.0	27.8	28.9	28.1	29.1	29.3
	4H	27.5	28.5	27.8	28.7	29.0	27.8	28.9	28.1	29.1	29.3
	6H	27.4	28.3	27.7	28.6	28.9	27.8	28.7	28.1	29.0	29.2
	8H	27.3	28.3	27.7	28.5	28.8	27.7	28.6	28.0	28.9	29.2
	12H	27.3	28.2	27.6	28.5	28.8	27.7	28.6	28.0	28.8	29.1
4H	2H	27.4	28.4	27.7	28.6	28.9	27.6	28.6	27.9	28.9	29.1
	3H	27.7	28.6	28.1	28.9	29.2	28.1	28.9	28.4	29.2	29.5
	4H	27.7	28.5	28.1	28.8	29.2	28.1	28.9	28.4	29.2	29.5
	6H	27.7	28.4	28.1	28.7	29.1	28.0	28.7	28.4	29.1	29.4
	8H	27.6	28.3	28.0	28.6	29.0	28.0	28.6	28.4	29.0	29.4
	12H	27.6	28.2	28.0	28.6	29.0	28.0	28.6	28.4	28.9	29.3
8H	4H	27.7	28.3	28.1	28.7	29.0	28.0	28.7	28.4	29.0	29.4
	6H	27.6	28.1	28.0	28.5	29.0	28.0	28.5	28.4	28.9	29.3
	8H	27.6	28.0	28.0	28.5	28.9	27.9	28.4	28.4	28.8	29.3
	12H	27.5	27.9	28.0	28.4	28.9	27.9	28.3	28.4	28.7	29.2
12H	4H	27.6	28.2	28.0	28.6	29.0	28.0	28.6	28.4	28.9	29.3
	6H	27.6	28.0	28.0	28.5	28.9	27.9	28.4	28.4	28.8	29.3
	8H	27.5	27.9	28.0	28.4	28.9	27.9	28.3	28.4	28.7	29.2
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 0.9 / - 1.3					+ 0.8 / - 1.1				
1.5H		+ 0.7 / - 0.6					+ 0.6 / - 0.5				
2.0H		+ 1.6 / - 1.6					+ 1.6 / - 1.6				

CIE Pub.117, 440.0 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -2.9)  
Area: 0.00212264 m2

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

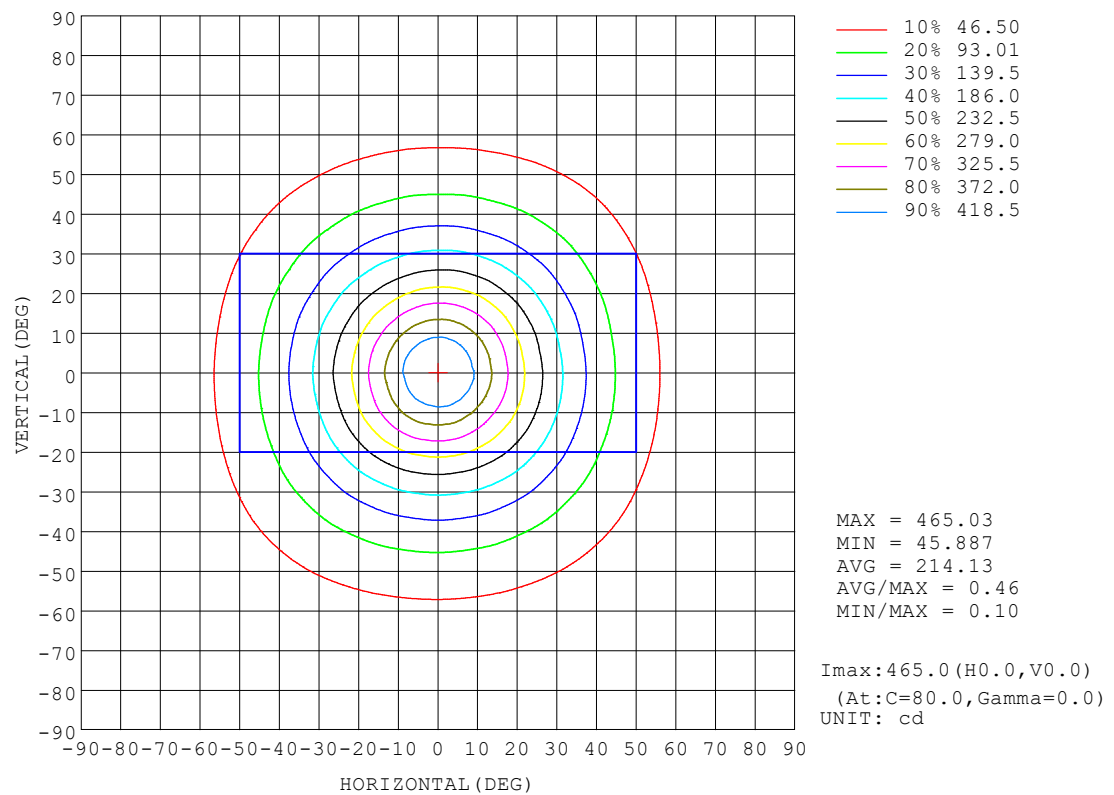
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	82	72	66	81	72	66	80	71	66	60
0.80	93	83	77	92	83	77	90	82	76	70
1.00	101	92	86	99	91	85	97	92	85	79
1.25	107	99	93	106	98	93	103	97	92	85
1.50	111	104	98	110	103	98	107	101	96	90
2.00	117	110	105	115	109	104	112	107	103	96
2.50	120	114	109	118	112	108	114	109	106	98
3.00	122	117	113	120	115	112	116	112	109	101
4.00	125	121	117	123	119	116	119	115	113	104
5.00	127	124	121	125	121	119	120	117	115	106
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: 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: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



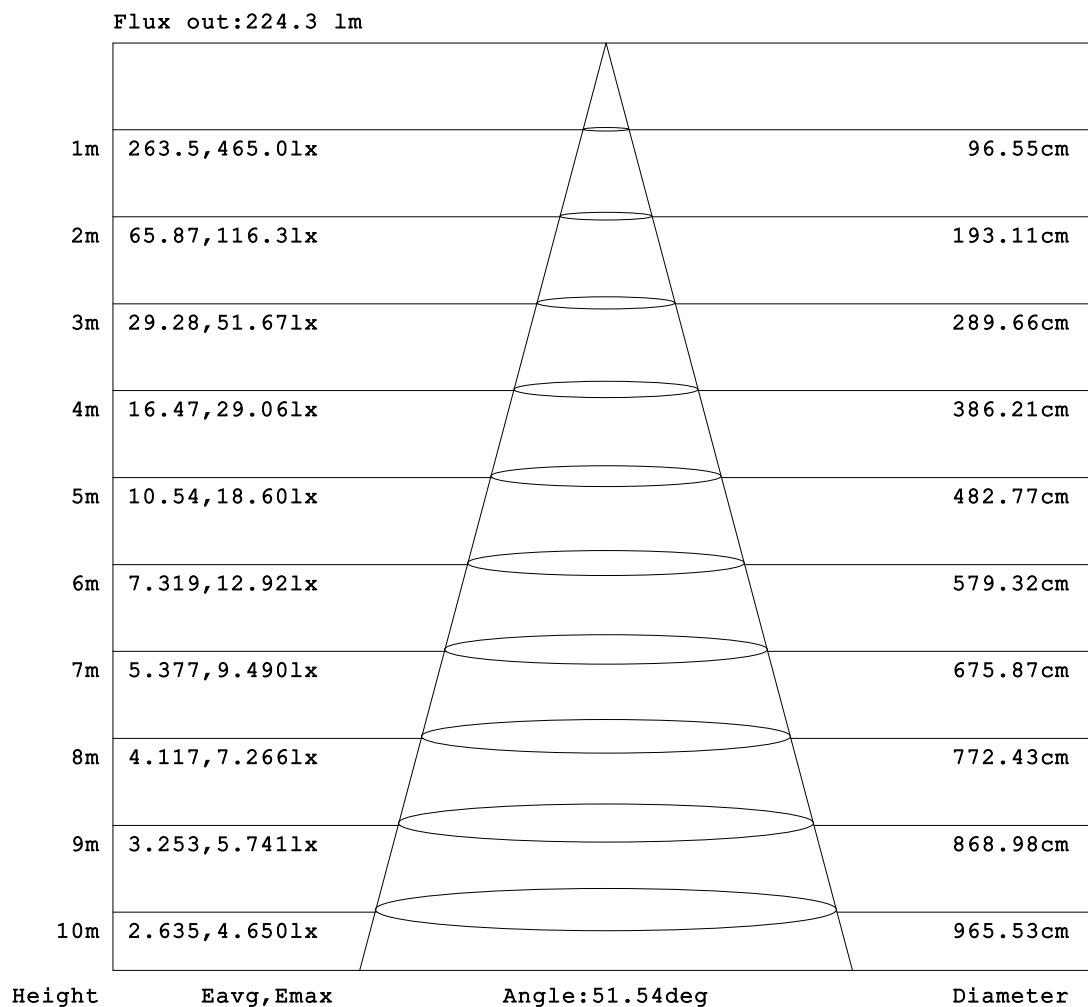
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature: 25.3°C  
Operators:  
Test Date: 19 December 2022

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: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



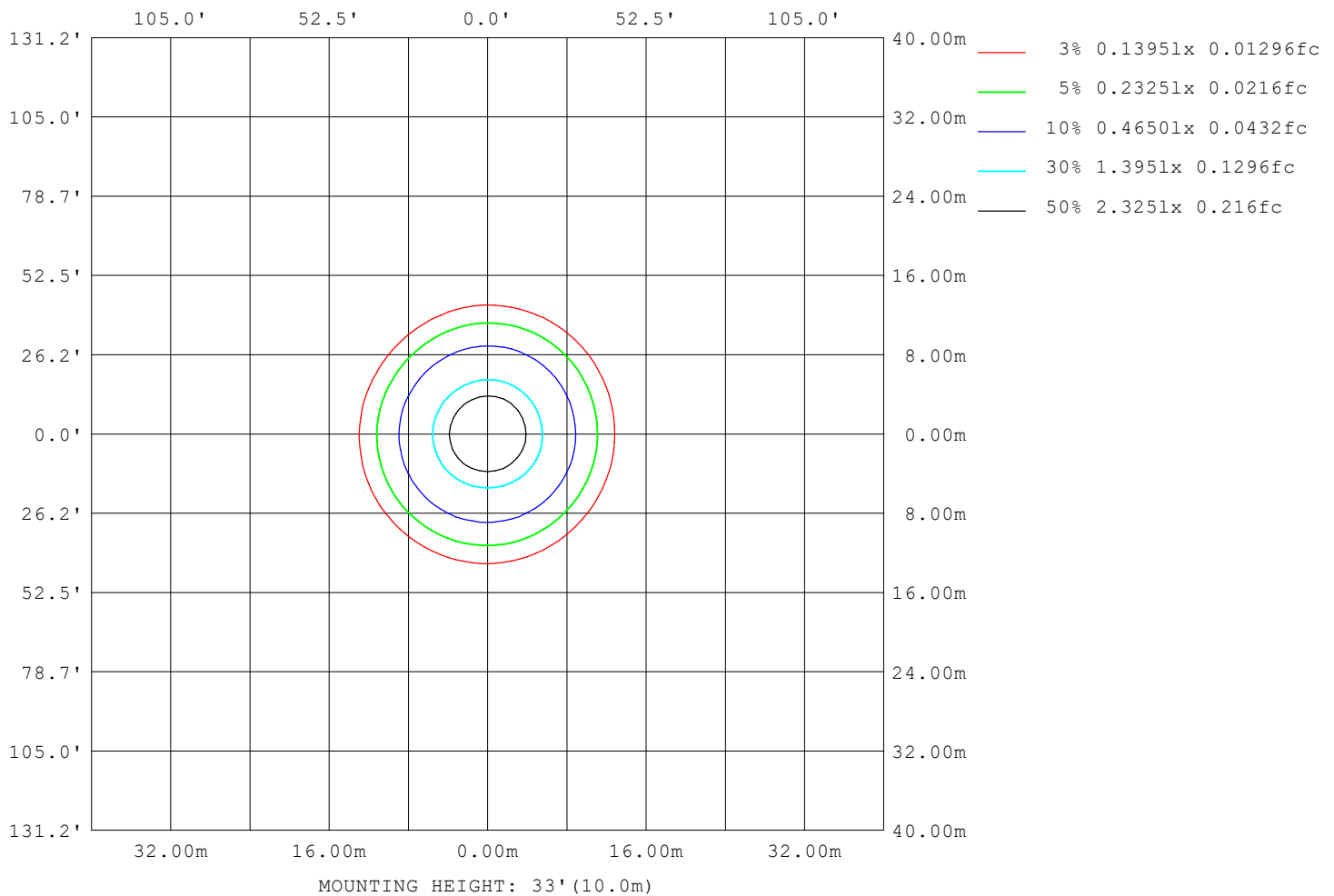
**Note:** The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 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: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: 95Livia90/WH	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 105 x 96	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: cilinder	Shielding Angle:

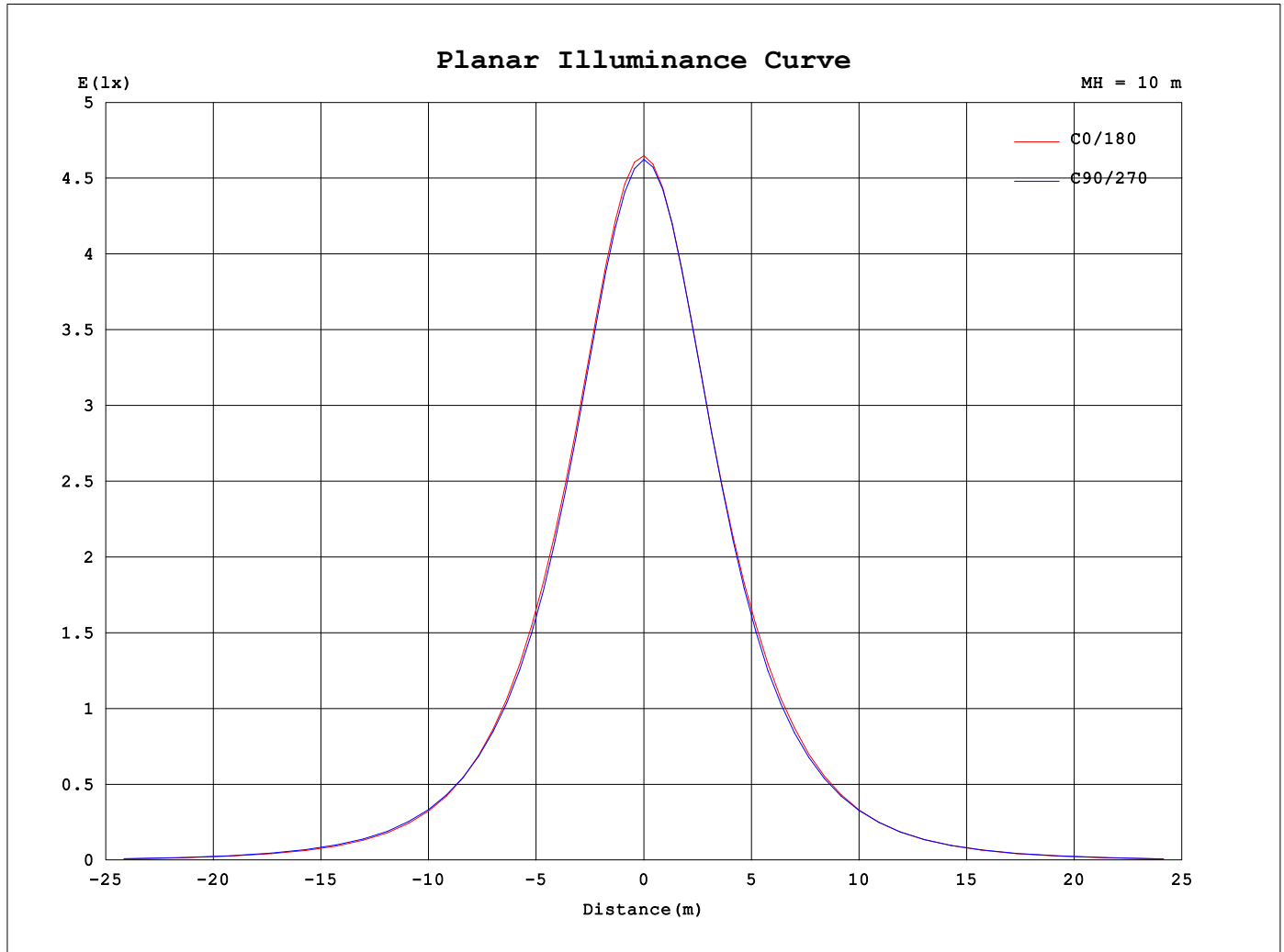
AvgL	cd/m2
L_0~180 (65) av	24734
L_0~180 (75) av	8350
L_0~180 (85) av	3680
L_90~270 (65) av	27015
L_90~270 (75) av	9477
L_90~270 (85) av	3701
L_45 (65) av	25768
L_45 (75) av	8872
L_45 (85) av	3700

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: HIGH  
 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:

```