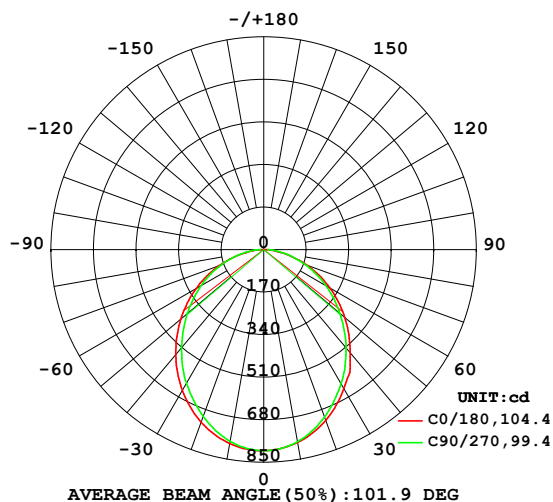


**LUMINAIRE PHOTOMETRIC TEST REPORT**

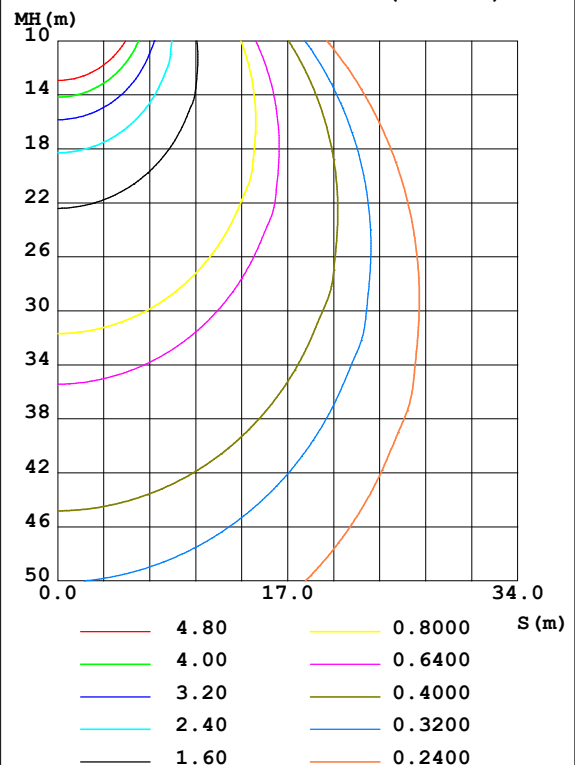
Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90		
MFR.: DARKON		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 80.47 lm/W			
LED MODULE	1300lm 930 HV ADV5	Imax(cd)	803.8	S/MH(C0/180)	1.21
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	1.15
RATED VOLTAGE(V)	230.0	TOTAL FLUX(lm)	2057.7	η UP,DN(C0-180)	0.0,49.9
NOMINAL FLUX(lm)	2057.74	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.995m [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	782.3	780.6	779.7	783.6	786.7	782.6	777.9	779.8	0- 10	75.66	75.66	3.68,3.68
20	725.8	717.9	711.4	722.9	733.3	720.7	708.7	716.3	10- 20	212.7	288.3	14,14
30	641.1	626.6	618.5	632.7	650.4	630.8	617.8	625.3	20- 30	311.9	600.2	29.2,29.2
40	537.8	522.5	512.0	528.6	547.4	529.1	511.1	523.3	30- 40	363.1	963.3	46.8,46.8
50	423.5	410.3	398.2	416.1	432.9	416.8	398.8	411.6	40- 50	362.7	1326	64.4,64.4
60	305.4	294.3	286.2	299.2	312.9	301.7	289.5	297.2	50- 60	318.0	1644	79.9,79.9
70	184.0	179.5	176.9	183.3	190.6	188.0	182.0	184.4	60- 70	238.3	1882	91.5,91.5
80	69.42	73.62	77.63	76.05	73.86	80.60	82.04	78.07	70- 80	135.7	2018	98.1,98.1
90	0.6665	10.32	16.19	10.68	0.8194	8.243	12.81	7.309	80- 90	39.72	2058	100,100
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): 1147.7 lm

%lum = 55.8%

%lamp = 55.8%

Conical surface Flux(120deg): 1644 lm

%lum = 79.9%

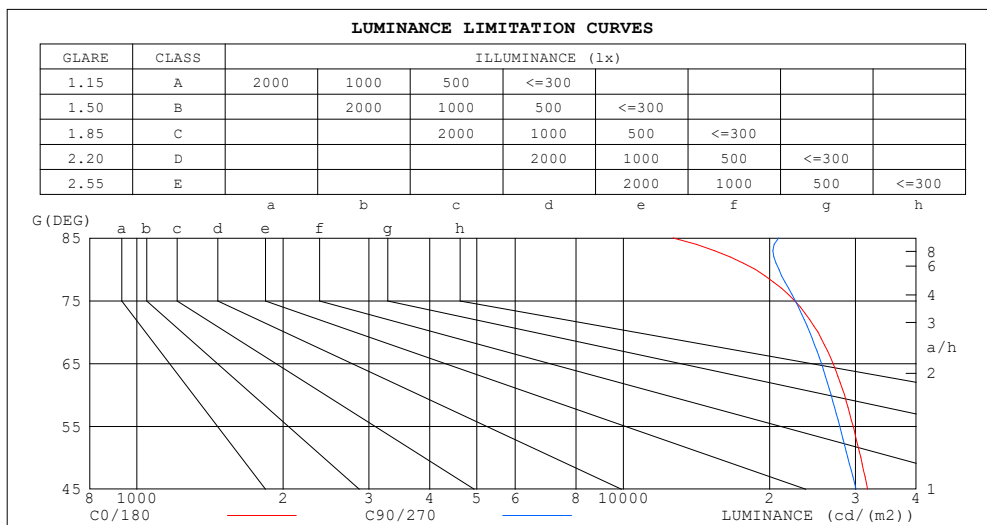
%lamp = 79.9%

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.995m [K=1.0000]  
Remarks:

## LUMINANCE LIMITATION CURVES

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90		
MFR.: DARKON		



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	12654	20868
80	18676	20892
75	22510	22561
70	25126	24172
65	26989	25549
60	28528	26755
55	29678	27855
50	30777	28952
45	31792	30089

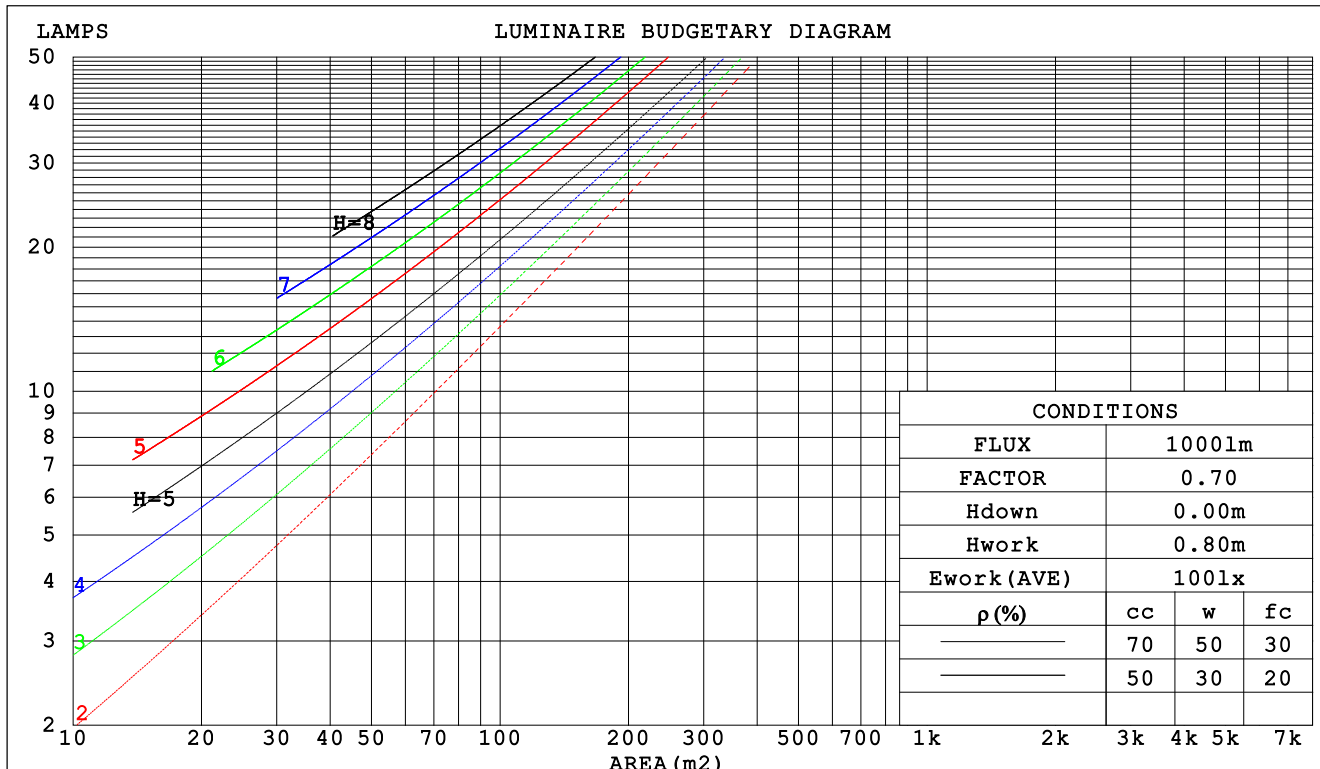
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: JEFF  
Test Date: 17 March 2023

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 7.995m [K=1.0000]  
Remarks:

**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90		
MFR.: DARKON		

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1.0	1.04	.90	.96	1.02	.98	.95	.98	.94	.92	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.84	.79	.89	.83	.78	.86	.80	.76	.82	.78	.74	.79	.76	.72	.70
3.0	.80	.72	.66	.79	.71	.65	.76	.69	.64	.73	.67	.63	.70	.66	.62	.60
4.0	.71	.62	.56	.70	.62	.55	.67	.60	.55	.65	.59	.54	.63	.58	.53	.51
5.0	.64	.55	.48	.63	.54	.48	.61	.53	.47	.59	.52	.47	.57	.51	.46	.44
6.0	.58	.49	.42	.57	.48	.42	.55	.47	.42	.53	.46	.41	.52	.46	.41	.39
7.0	.52	.44	.37	.51	.43	.37	.50	.42	.37	.48	.42	.37	.47	.41	.37	.35
8.0	.48	.39	.34	.47	.39	.33	.46	.38	.33	.45	.38	.33	.43	.37	.33	.31
9.0	.44	.36	.30	.43	.36	.30	.42	.35	.30	.41	.35	.30	.40	.34	.30	.28
10.0	.41	.33	.28	.40	.33	.27	.39	.32	.27	.38	.32	.27	.37	.31	.27	.25



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.995m [K=1.0000]  
Remarks:

**WEC AND CCEC**

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm											
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90											
MFR.: DARKON											

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	.304	.173	.055	.297	.170	.054	.284	.163	.052	.272	.157	.050	.261	.151	.049	
2.0	.286	.157	.048	.280	.154	.047	.268	.149	.046	.258	.144	.045	.248	.140	.044	
3.0	.265	.141	.042	.259	.139	.042	.249	.135	.041	.240	.131	.040	.231	.128	.040	
4.0	.245	.127	.037	.240	.126	.037	.231	.122	.037	.222	.119	.036	.214	.117	.035	
5.0	.226	.115	.033	.222	.114	.033	.214	.111	.033	.207	.109	.032	.200	.107	.032	
6.0	.210	.105	.030	.206	.104	.030	.199	.102	.030	.193	.100	.029	.186	.098	.029	
7.0	.196	.097	.027	.192	.096	.027	.186	.094	.027	.180	.092	.027	.174	.091	.027	
8.0	.183	.089	.025	.180	.089	.025	.174	.087	.025	.169	.086	.025	.164	.084	.025	
9.0	.172	.083	.023	.169	.082	.023	.164	.081	.023	.159	.080	.023	.154	.078	.023	
10.0	.162	.077	.022	.159	.077	.021	.155	.076	.021	.150	.075	.021	.146	.073	.021	

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.180	.156	.135	.154	.134	.116	.105	.092	.080	.061	.053	.047	.019	.017	.015	
2.0	.171	.132	.099	.147	.114	.085	.101	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.164	.114	.075	.140	.099	.065	.096	.068	.046	.056	.040	.027	.018	.013	.009	
4.0	.156	.101	.059	.134	.087	.051	.092	.061	.036	.053	.036	.021	.017	.012	.007	
5.0	.148	.090	.048	.127	.078	.042	.088	.055	.029	.051	.032	.017	.016	.010	.006	
6.0	.141	.082	.040	.121	.071	.035	.084	.050	.024	.049	.029	.015	.016	.010	.005	
7.0	.134	.075	.034	.116	.065	.029	.080	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.128	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.122	.064	.025	.105	.056	.022	.073	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.995m [K=1.0000]  
Remarks:

**UGR(Unified Glare Rating) Table**

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm										
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90										
MFR.: DARKON										
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	24.5	26.0	24.8	26.2	26.4	24.2	25.7	24.5	25.9	26.1
3H	26.0	27.3	26.3	27.6	27.8	25.7	27.1	26.0	27.3	27.5
4H	26.5	27.8	26.8	28.1	28.3	26.3	27.6	26.6	27.8	28.1
6H	26.8	28.1	27.2	28.4	28.6	26.7	27.9	27.0	28.2	28.5
8H	26.9	28.1	27.3	28.4	28.7	26.8	28.0	27.2	28.3	28.6
12H	27.0	28.1	27.3	28.4	28.7	27.0	28.1	27.3	28.4	28.7
4H 2H	25.1	26.4	25.4	26.6	26.9	24.8	26.2	25.2	26.4	26.7
3H	26.7	27.8	27.0	28.1	28.4	26.5	27.6	26.8	27.9	28.2
4H	27.4	28.4	27.7	28.7	29.1	27.2	28.2	27.5	28.5	28.9
6H	27.8	28.8	28.2	29.1	29.5	27.7	28.7	28.1	29.0	29.4
8H	28.0	28.8	28.4	29.2	29.6	27.9	28.8	28.4	29.2	29.6
12H	28.0	28.8	28.4	29.2	29.6	28.1	28.9	28.5	29.3	29.7
8H 4H	27.6	28.5	28.0	28.8	29.2	27.4	28.3	27.8	28.7	29.1
6H	28.2	28.9	28.6	29.3	29.7	28.1	28.9	28.6	29.3	29.7
8H	28.4	29.0	28.9	29.5	29.9	28.4	29.1	28.9	29.5	30.0
12H	28.5	29.1	29.0	29.5	30.0	28.7	29.2	29.2	29.7	30.2
12H 4H	27.6	28.4	28.0	28.8	29.2	27.4	28.2	27.9	28.6	29.0
6H	28.2	28.9	28.7	29.3	29.8	28.2	28.8	28.6	29.3	29.7
8H	28.5	29.0	29.0	29.5	30.0	28.5	29.1	29.0	29.5	30.0
Variations with the observer position at spacings:										
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 / - 0.3					+ 0.2 / - 0.2				

CIE Pub.117 Corrected 2058 lm Total Lamp Luminous Flux. (8log(F/F0) = 2.5)

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.995m [K=1.0000]  
Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90		
MFR.: DARKON		

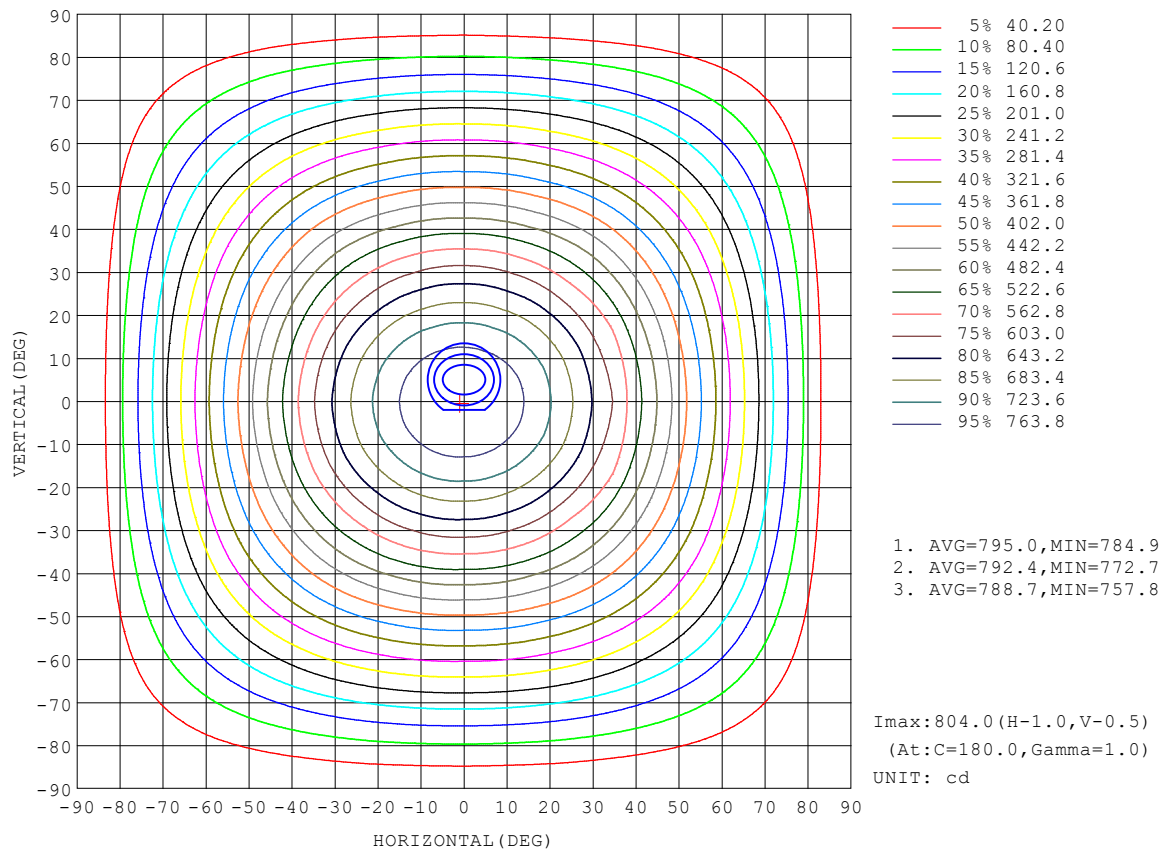
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	59	47	41	58	47	40	57	47	40	34
0.80	69	57	50	68	57	50	66	56	50	43
1.00	77	66	59	76	66	59	74	67	58	51
1.25	84	74	67	83	73	66	80	72	66	58
1.50	89	79	72	87	78	72	84	77	71	63
2.00	96	87	81	94	86	80	90	84	79	71
2.50	99	92	86	97	90	85	94	88	83	75
3.00	103	96	91	101	94	89	96	91	87	79
4.00	107	101	96	104	99	95	100	96	92	84
5.00	109	104	100	106	102	99	102	99	96	86
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: JEFF  
Test Date: 17 March 2023

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 7.995m [K=1.0000]  
Remarks:

**ISOCANDELA DIAGRAM**

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90		
MFR.: DARKON		



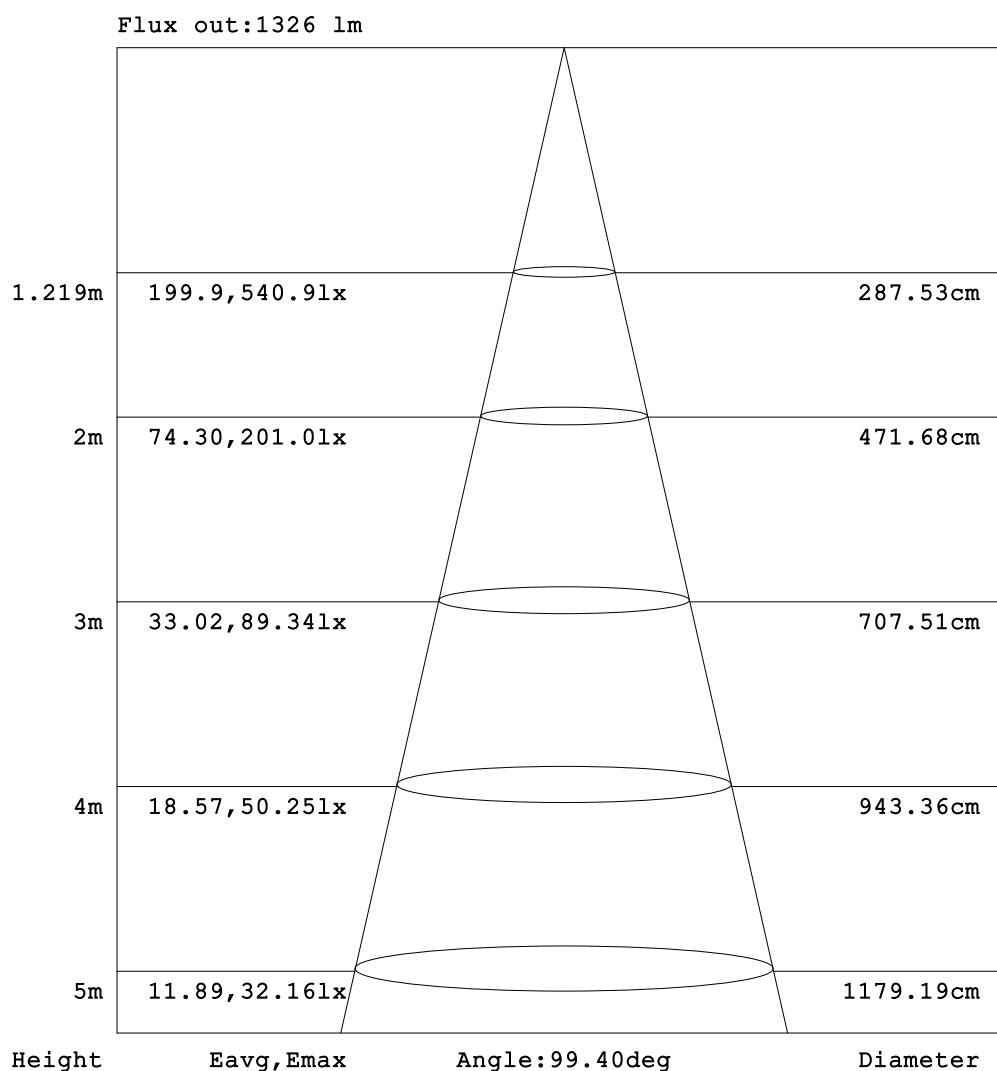
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.995m [K=1.0000]  
Remarks:



**AAI Figure**

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90		
MFR.: DARKON		



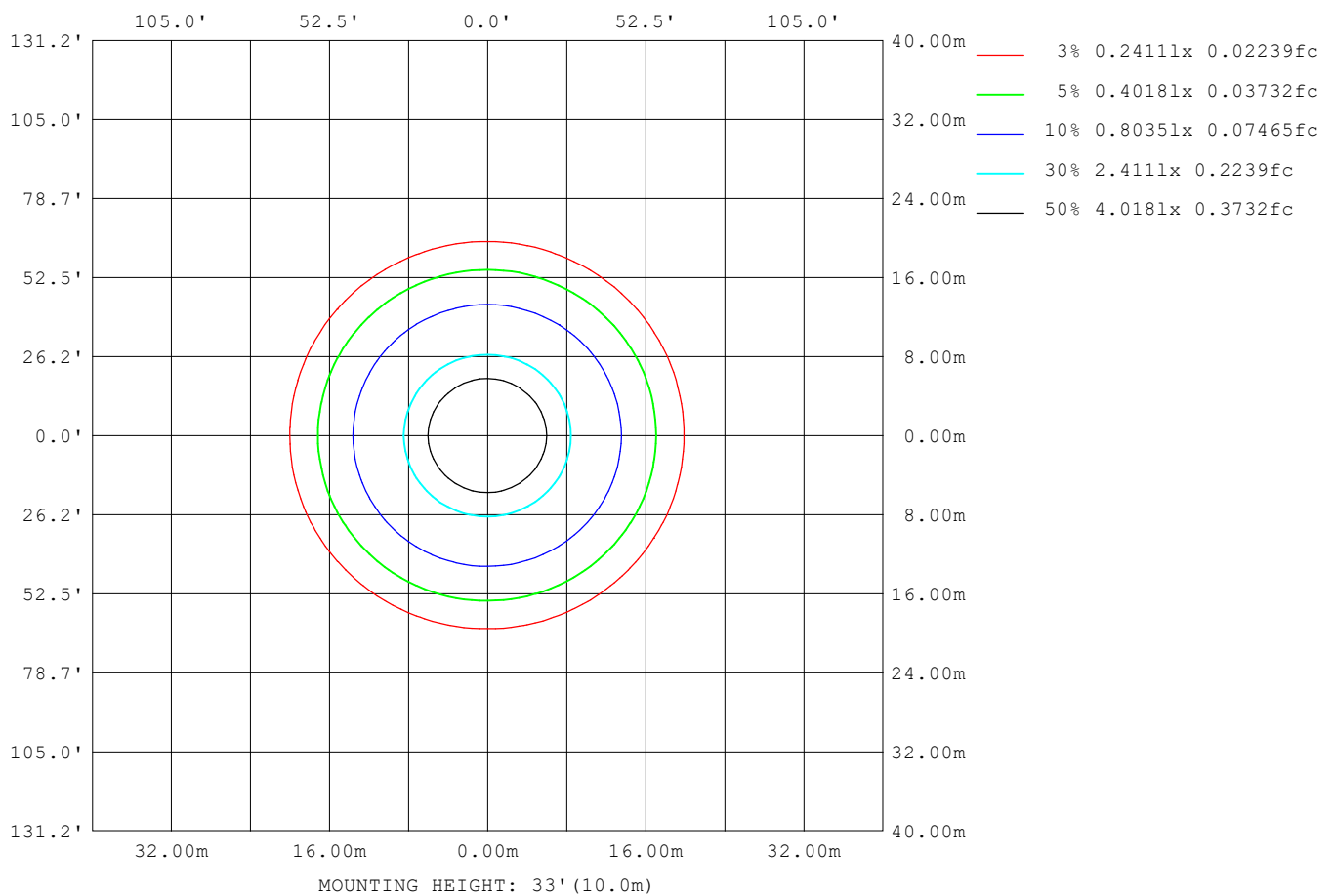
**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: JEFF  
Test Date: 17 March 2023

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 7.995m [K=1.0000]  
Remarks:

**ISOLUX DIAGRAM**

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90		
MFR.: DARKON		



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.995m [K=1.0000]  
Remarks:

### LED Avg.L Report

Test:U:239.9V I:0.1148A P:25.57W PF:0.9282 Lamp Flux:2057.74x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_350mA_3000K CRI90		
MFR.: DARKON		

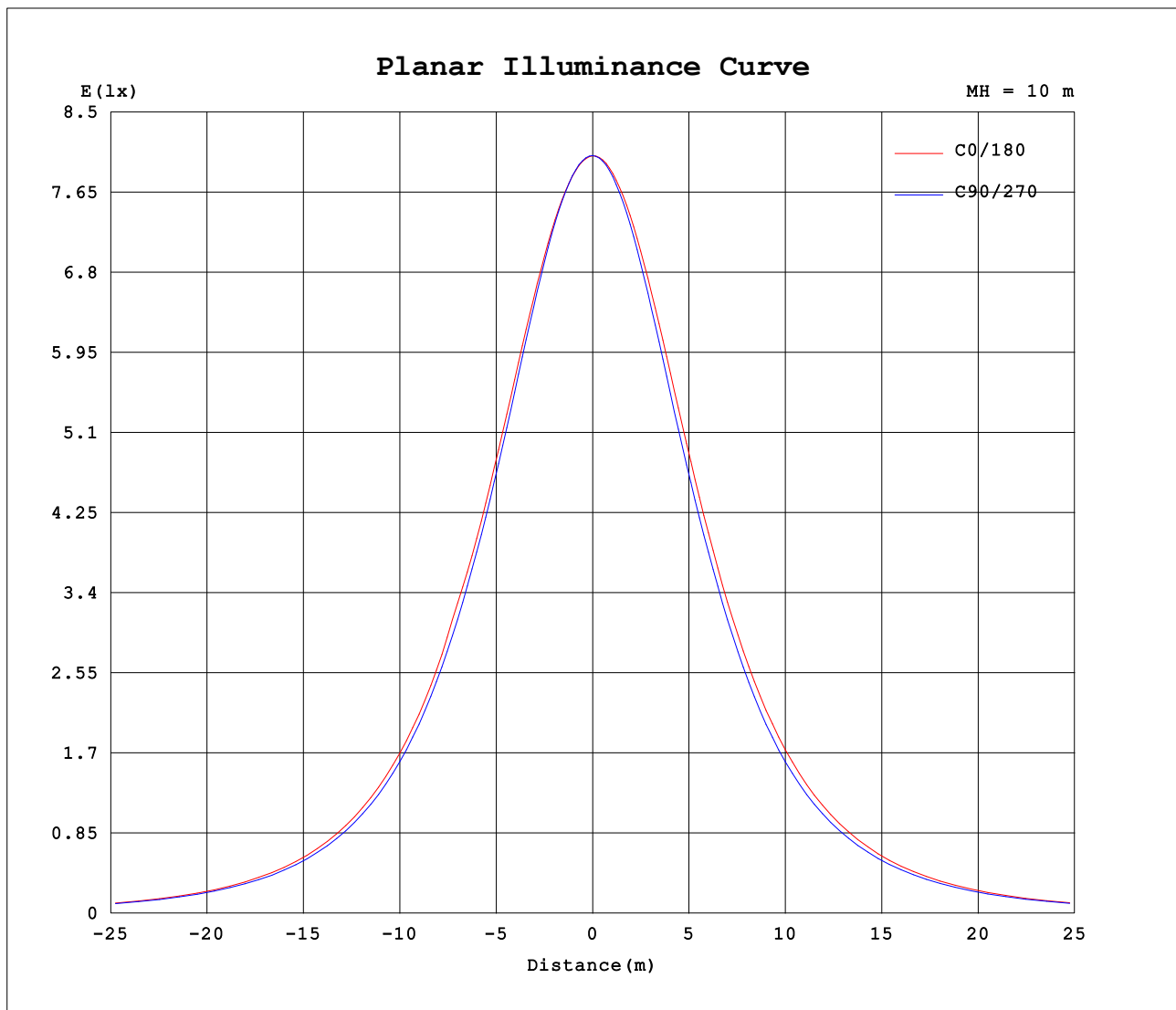
AvgL	cd/m2
L_0~180 (65) av	27419
L_0~180 (75) av	23028
L_0~180 (85) av	13435
L_90~270 (65) av	25791
L_90~270 (75) av	23039
L_90~270 (85) av	21390
L_45 (65) av	26612
L_45 (75) av	23190
L_45 (85) av	18388

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.995m [K=1.0000]  
Remarks:

### Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: JEFF  
Test Date: 17 March 2023

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 7.995m [K=1.0000]  
Remarks:

