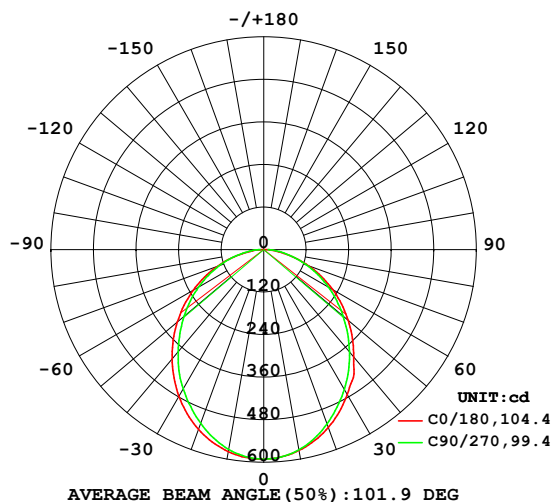


**LUMINAIRE PHOTOMETRIC TEST REPORT**

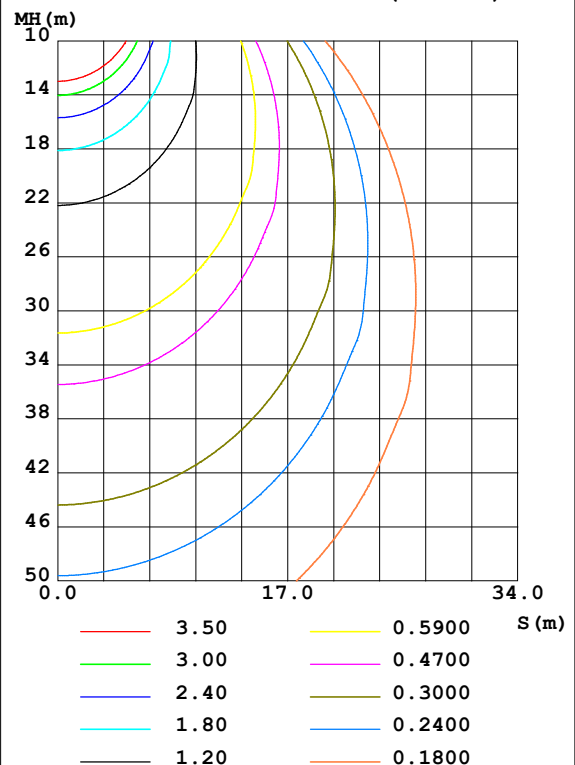
Test:U:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_3000K CRI90		
MFR.: DARKON		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 82.04 lm/W			
LED MODULE	1300lm 930 HV ADV5	Imax(cd)	591.2	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)	1513.1	η UP,DN(C0-180)	0.0,49.9
NOMINAL FLUX(lm)	1513.07	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	575.3	574.1	573.3	576.2	578.6	575.5	572.1	573.5	0- 10	55.64	55.64	3.68,3.68
20	533.7	527.9	523.1	531.5	539.3	530.0	521.2	526.7	10- 20	156.4	212.0	14,14
30	471.4	460.7	454.9	465.2	478.4	463.9	454.3	459.8	20- 30	229.4	441.4	29.2,29.2
40	395.5	384.2	376.4	388.7	402.6	389.0	375.9	384.9	30- 40	267.0	708.4	46.8,46.8
50	311.4	301.7	292.8	306.0	318.3	306.4	293.4	302.7	40- 50	266.7	975.1	64.4,64.4
60	224.5	216.3	210.4	219.9	230.2	221.8	212.8	218.6	50- 60	233.8	1209	79.9,79.9
70	135.2	132.0	130.1	134.8	140.2	138.2	133.9	135.6	60- 70	175.2	1384	91.5,91.5
80	51.02	54.12	57.06	55.90	54.30	59.25	60.29	57.41	70- 80	99.79	1484	98.1,98.1
90	0.4807	7.573	11.88	7.831	0.6009	6.018	9.378	5.348	80- 90	29.19	1513	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): 843.99 lm

%lum = 55.8%

%lamp = 55.8%

Conical surface Flux(120deg): 1208.9 lm

%lum = 79.9%

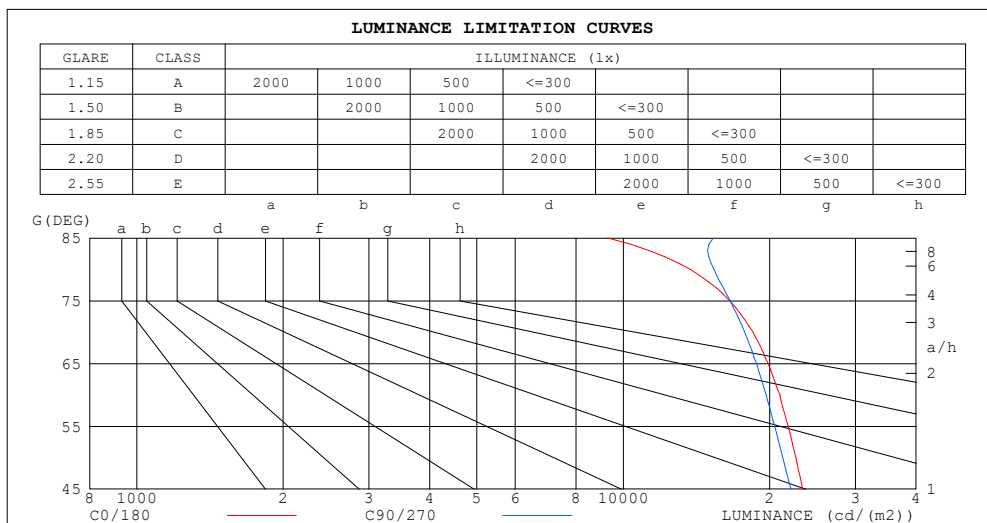
%lamp = 79.9%

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:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_3000K CRI90		
MFR.: DARKON		



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	9297	15320
80	13726	15355
75	16557	16590
70	18472	17770
65	19849	18782
60	20978	19667
55	21825	20480
50	22628	21290
45	23383	22121

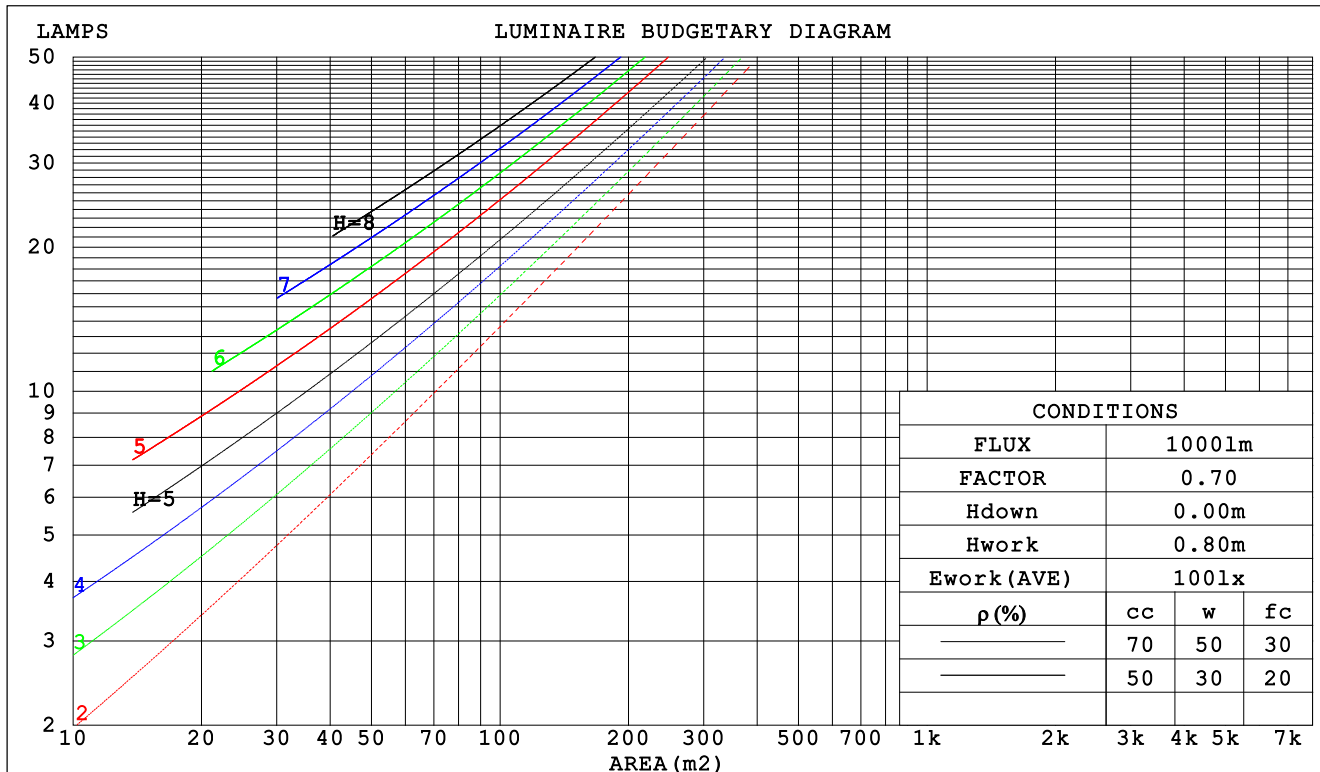
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:17 March 2023

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:

**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

Test:U:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_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:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm											
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_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	.257	.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	.154	.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:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm										
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_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	23.5	25.0	23.7	25.2	25.4	23.2	24.7	23.4	24.9	25.1
3H	24.9	26.3	25.2	26.5	26.7	24.6	26.0	24.9	26.2	26.5
4H	25.4	26.7	25.7	27.0	27.3	25.2	26.5	25.5	26.8	27.0
6H	25.8	27.0	26.1	27.3	27.6	25.6	26.9	26.0	27.1	27.4
8H	25.9	27.1	26.2	27.3	27.6	25.8	27.0	26.1	27.2	27.5
12H	25.9	27.0	26.2	27.3	27.6	25.9	27.0	26.2	27.3	27.6
4H 2H	24.0	25.3	24.3	25.6	25.8	23.8	25.1	24.1	25.3	25.6
3H	25.6	26.8	26.0	27.1	27.4	25.4	26.5	25.7	26.8	27.1
4H	26.3	27.3	26.7	27.7	28.0	26.1	27.2	26.5	27.5	27.8
6H	26.8	27.7	27.1	28.0	28.4	26.7	27.6	27.1	27.9	28.3
8H	26.9	27.8	27.3	28.1	28.5	26.9	27.7	27.3	28.1	28.5
12H	26.9	27.7	27.4	28.1	28.5	27.0	27.8	27.5	28.2	28.6
8H 4H	26.5	27.4	26.9	27.8	28.1	26.4	27.2	26.8	27.6	28.0
6H	27.1	27.8	27.6	28.2	28.7	27.1	27.8	27.5	28.2	28.6
8H	27.3	28.0	27.8	28.4	28.8	27.4	28.0	27.8	28.4	28.9
12H	27.4	28.0	27.9	28.4	28.9	27.6	28.2	28.1	28.6	29.1
12H 4H	26.5	27.3	27.0	27.7	28.1	26.4	27.2	26.8	27.6	28.0
6H	27.2	27.8	27.6	28.2	28.7	27.1	27.8	27.6	28.2	28.6
8H	27.4	28.0	27.9	28.4	28.9	27.5	28.0	27.9	28.5	28.9
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 / - 0.3				

CIE Pub.117 Corrected 1513 lm Total Lamp Luminous Flux. (8log(F/F0) = 1.4)

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:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_3000K CRI90		
MFR.: DARKON		

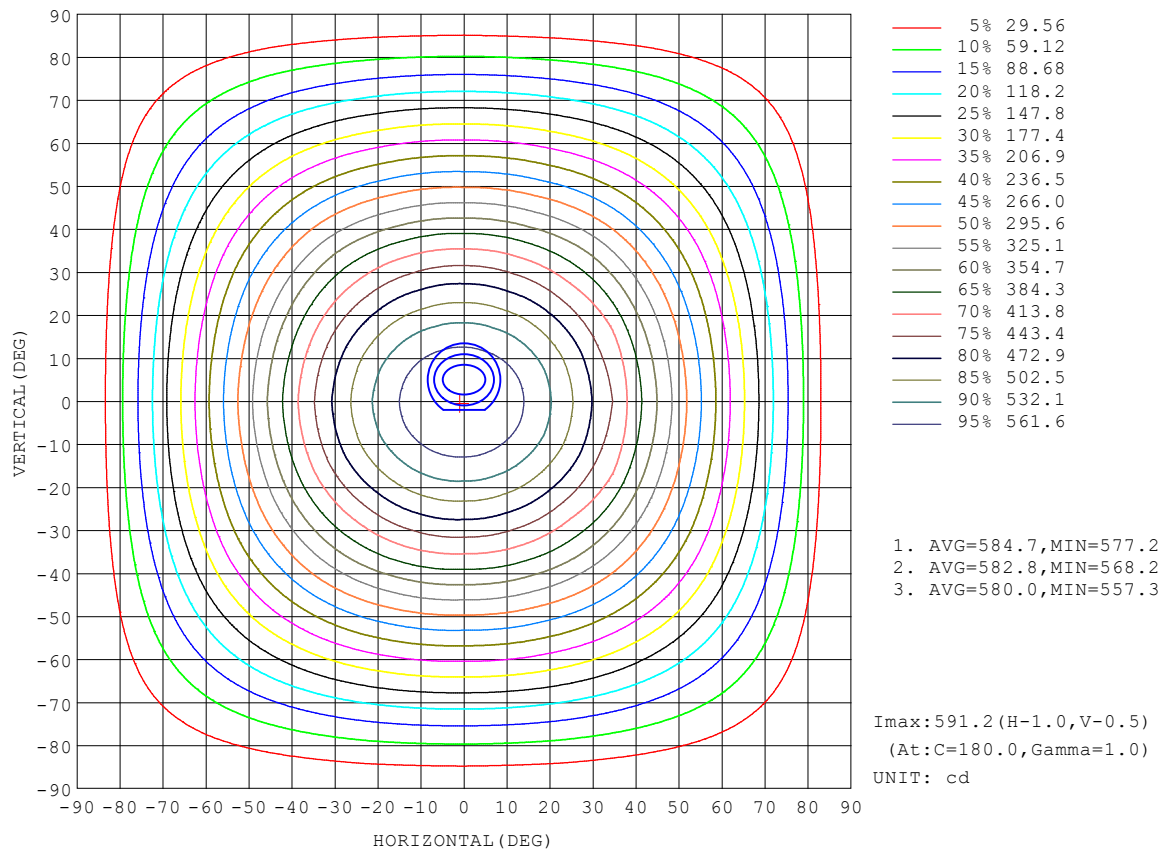
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	59	47	41	58	47	41	57	47	40	34
0.80	69	57	50	68	57	50	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:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_3000K CRI90		
MFR.: DARKON		



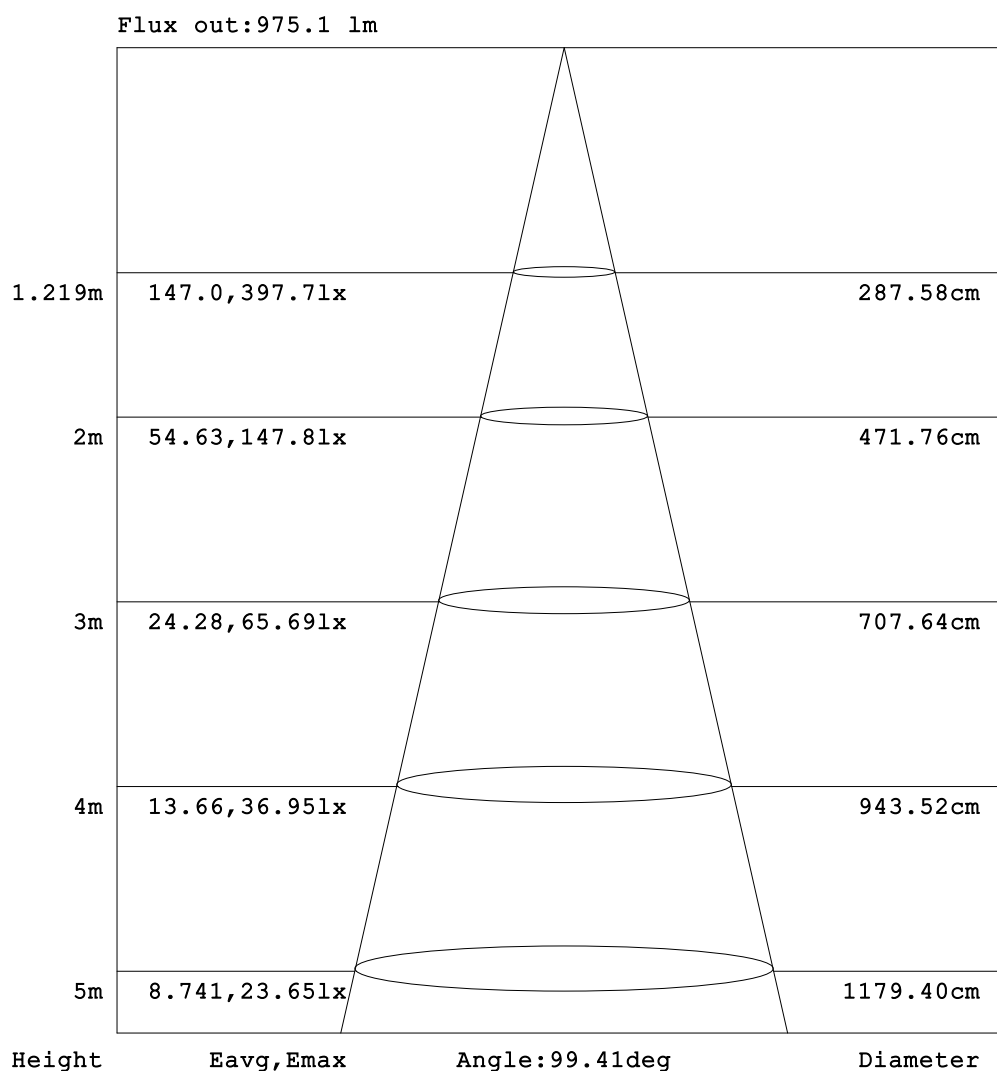
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: JEFF  
Test Date: 17 March 2023

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:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_3000K CRI90		
MFR.: DARKON		



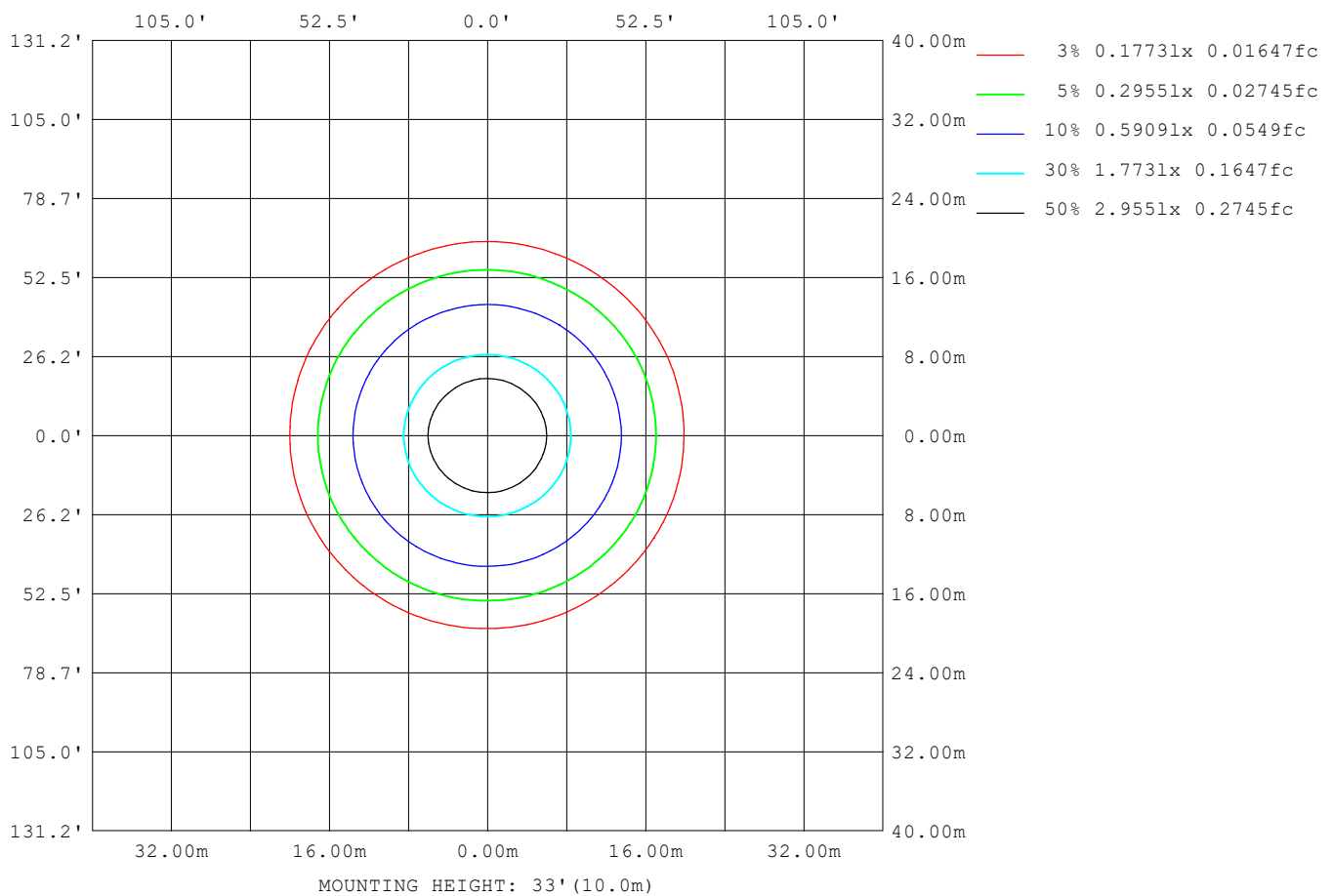
**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_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:240.0V I:0.0874A P:18.44W PF:0.8798 Lamp Flux:1513.07x1 lm		
NAME: GRAZER_1146_NA_WHT_OV_HE_250mA_3000K CRI90		
MFR.: DARKON		

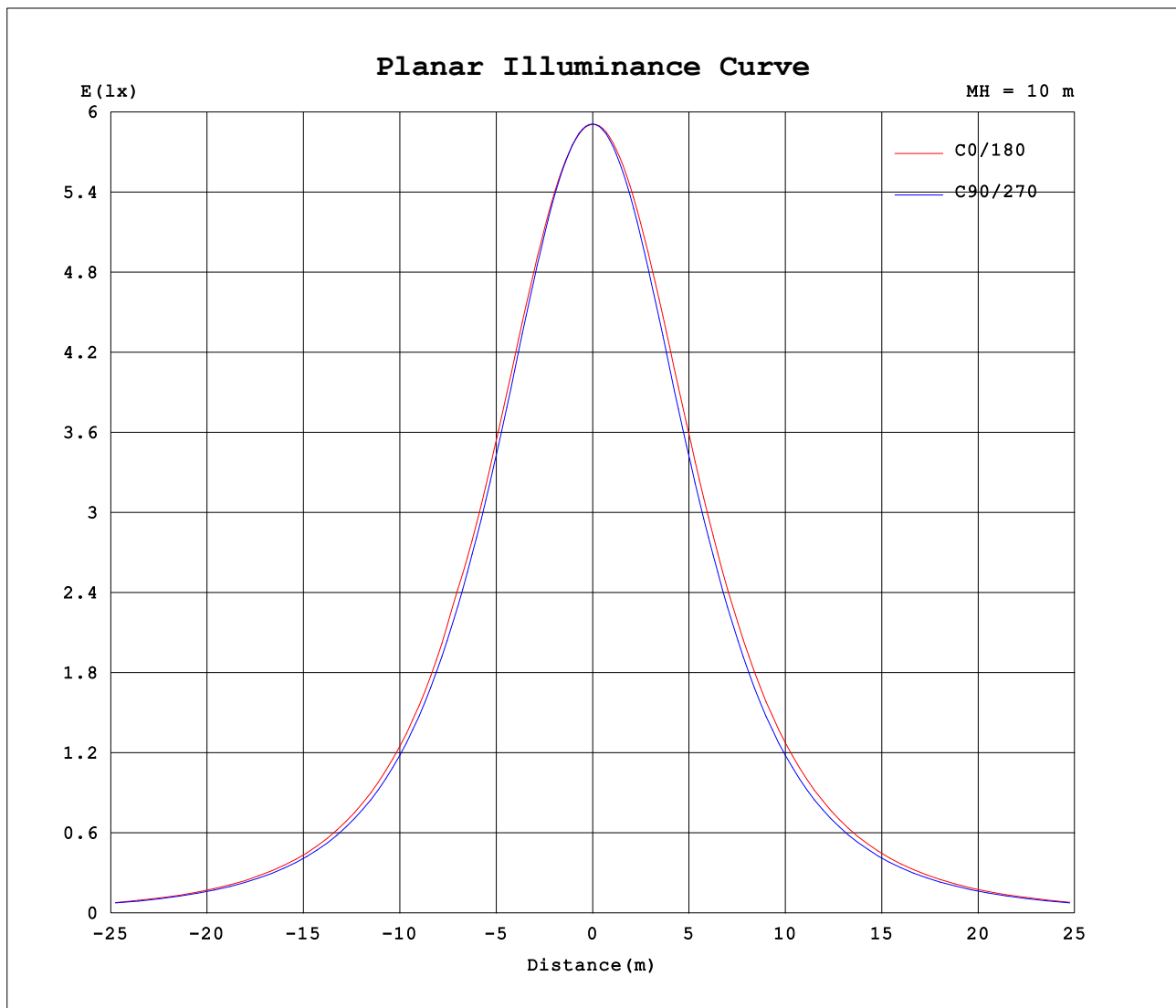
AvgL	cd/m2
L_0~180 (65) av	20159
L_0~180 (75) av	16935
L_0~180 (85) av	9868
L_90~270 (65) av	18955
L_90~270 (75) av	16940
L_90~270 (85) av	15706
L_45 (65) av	19560
L_45 (75) av	17055
L_45 (85) av	13517

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:

