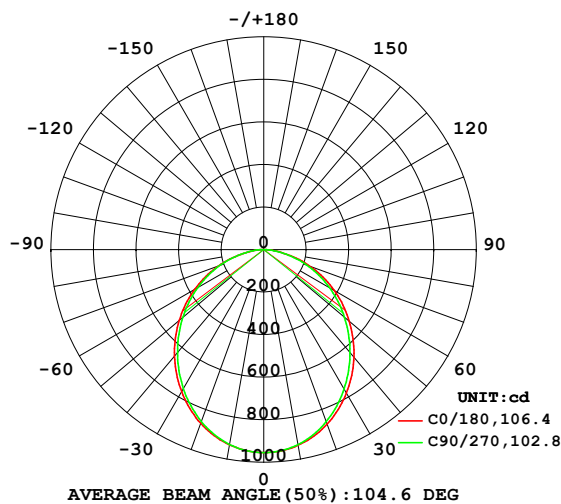


## LUMINAIRE PHOTOMETRIC TEST REPORT

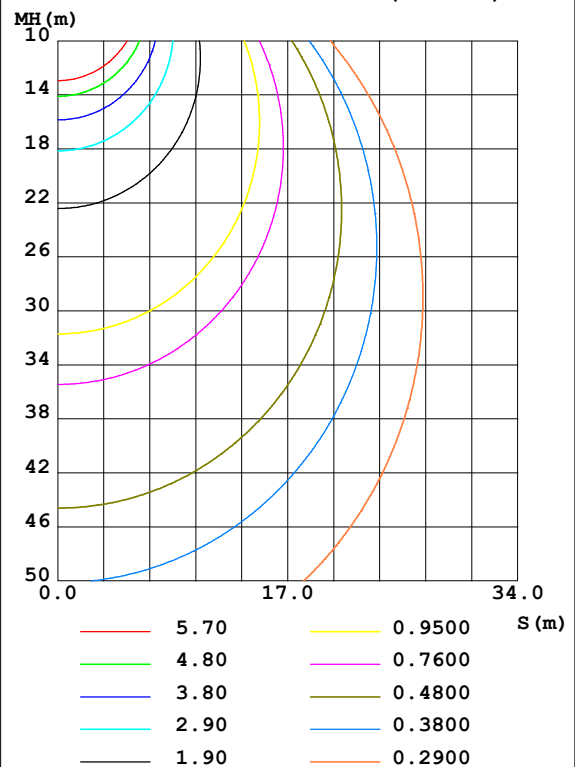
Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 96.99 lm/W			
MODEL	2000A	Imax(cd)	954.5	S/MH(C0/180)	1.21
SIZE	13001mm	LOR(%)	100.0	S/MH(C90/270)	1.19
NOMINAL POWER(W)	25.73	TOTAL FLUX(lm)	2495.4	$\eta$ UP,DN(C0-180)	0.0,50.0
RATED VOLTAGE(V)	230.0	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.0,50.0
NOMINAL FLUX(lm)	2495.42	$\eta$ up(%)	0.0	CIBSE SHR NOM	1.25
LAMPS INSIDE	1	$\eta$ down(%)	100.0	CIBSE SHR MAX	1.35
TEST VOLTAGE(V)	230				

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:11 January 2024

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [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	934.2	932.7	931.0	931.7	931.7	931.3	930.1	932.3	0- 10	90.04	90.04	3.61,3.61
20	873.0	867.0	860.7	865.1	868.5	864.6	859.6	866.3	10- 20	254.7	344.7	13.8,13.8
30	778.5	767.2	756.4	764.8	772.4	764.5	755.6	766.9	20- 30	377.2	722.0	28.9,28.9
40	659.8	644.8	631.2	642.2	652.9	642.4	631.3	645.2	30- 40	442.1	1164	46.6,46.6
50	525.9	509.9	496.0	507.3	518.7	508.3	497.2	511.0	40- 50	445.6	1610	64.5,64.5
60	382.5	368.3	356.8	366.0	375.4	367.9	359.1	370.3	50- 60	392.8	2002	80.2,80.2
70	233.5	223.6	216.2	221.7	227.1	224.3	219.6	226.3	60- 70	293.1	2296	92,92
80	89.16	85.31	83.32	84.07	83.84	86.65	86.79	88.12	70- 80	161.8	2457	98.5,98.5
90	1.124	1.911	2.439	1.714	0.6956	3.219	4.984	3.564	80- 90	38.10	2495	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): 1390.1 lm

%lum = 55.7%

%lamp = 55.7%

Conical surface Flux(120deg): 2002.4 lm

%lum = 80.2%

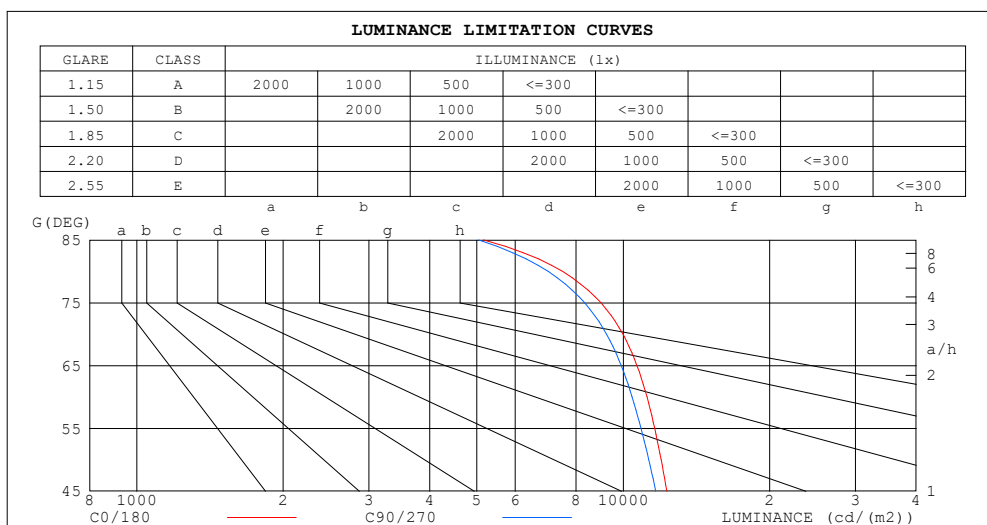
%lamp = 80.2%

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:JEFF  
 Test Date:11 January 2024

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:7.886m [K=1.0000]  
 Remarks:

## LUMINANCE LIMITATION CURVES

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:



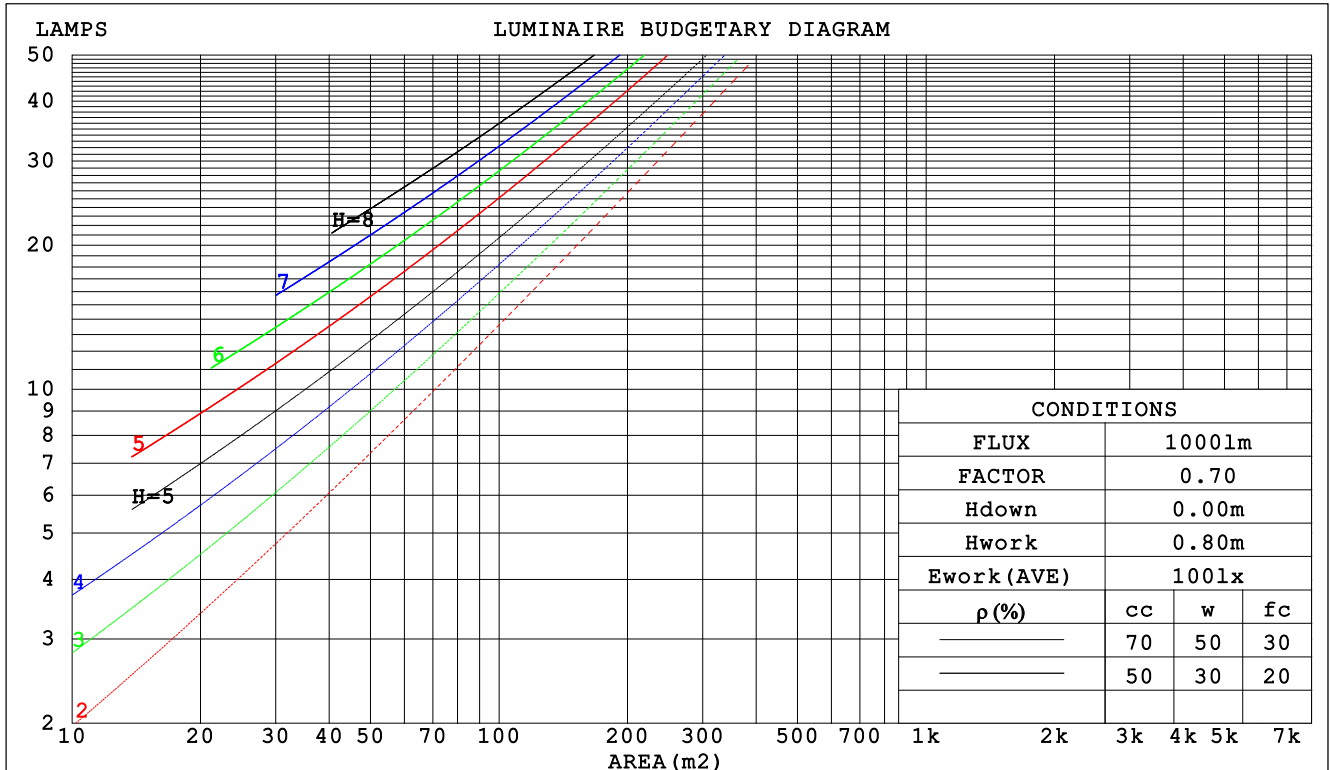
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:11 January 2024

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [K=1.0000]  
Remarks:

**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

$\rho_{cc}$	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	Coefficients of Utilization(CU)															
RCR:Room Cavity Ratio																
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	1.00	.96	1.02	.98	.95	.98	.95	.92	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.84	.79	.89	.83	.78	.86	.81	.76	.82	.78	.74	.79	.76	.73	.71
3.0	.80	.72	.66	.79	.71	.65	.76	.69	.64	.73	.68	.63	.70	.66	.62	.60
4.0	.71	.63	.56	.70	.62	.56	.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	.57	.49	.42	.57	.48	.42	.55	.47	.42	.53	.46	.41	.51	.46	.41	.39
7.0	.52	.44	.37	.51	.43	.37	.50	.42	.37	.48	.42	.37	.47	.41	.36	.34
8.0	.48	.39	.33	.47	.39	.33	.46	.38	.33	.44	.38	.33	.43	.37	.33	.31
9.0	.44	.36	.30	.43	.35	.30	.42	.35	.30	.41	.34	.30	.40	.34	.30	.28
10.0	.40	.33	.27	.40	.32	.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:11 January 2024

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [K=1.0000]  
Remarks:

**WEC AND CCEC**

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	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	.300	.171	.054	.293	.167	.053	.280	.161	.051	.268	.155	.050	.257	.149	.048		
2.0	.285	.156	.048	.278	.153	.047	.267	.148	.046	.256	.144	.045	.246	.139	.044		
3.0	.264	.141	.042	.259	.139	.042	.248	.135	.041	.239	.131	.040	.230	.127	.039		
4.0	.244	.127	.037	.240	.125	.037	.231	.122	.037	.222	.119	.036	.214	.116	.035		
5.0	.226	.115	.033	.222	.114	.033	.214	.111	.033	.207	.109	.032	.200	.107	.032		
6.0	.210	.105	.030	.207	.104	.030	.199	.102	.030	.193	.100	.029	.186	.098	.029		
7.0	.196	.097	.027	.193	.096	.027	.186	.094	.027	.180	.092	.027	.175	.091	.027		
8.0	.183	.090	.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	.155	.079	.023		
10.0	.162	.078	.022	.159	.077	.021	.155	.076	.021	.150	.075	.021	.146	.074	.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	.163	.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	.034	.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:11 January 2024

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [K=1.0000]  
Remarks:

**UGR(Unified Glare Rating) Table**

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm										
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90					TYPE:LED			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:1		
MFR.: DARKON					SUR.:			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	21.4	22.9	21.6	23.1	23.3	21.1	22.5	21.3	22.8	23.0
3H	22.8	24.2	23.1	24.4	24.7	22.5	23.8	22.8	24.1	24.3
4H	23.4	24.7	23.7	24.9	25.2	23.0	24.3	23.3	24.6	24.8
6H	23.7	25.0	24.1	25.2	25.5	23.4	24.6	23.7	24.9	25.1
8H	23.8	25.0	24.2	25.3	25.6	23.4	24.6	23.8	24.9	25.2
12H	23.9	25.0	24.2	25.3	25.6	23.5	24.6	23.8	24.9	25.2
4H 2H	21.9	23.2	22.2	23.5	23.7	21.7	23.0	22.0	23.2	23.5
3H	23.6	24.7	23.9	25.0	25.3	23.3	24.4	23.6	24.7	25.0
4H	24.2	25.3	24.6	25.6	25.9	23.9	25.0	24.3	25.3	25.6
6H	24.7	25.6	25.1	26.0	26.4	24.4	25.3	24.8	25.7	26.0
8H	24.8	25.7	25.3	26.1	26.5	24.5	25.4	24.9	25.7	26.1
12H	24.9	25.7	25.3	26.1	26.5	24.6	25.4	25.0	25.8	26.2
8H 4H	24.5	25.3	24.9	25.7	26.1	24.2	25.0	24.6	25.4	25.8
6H	25.0	25.8	25.5	26.2	26.6	24.8	25.5	25.2	25.9	26.3
8H	25.2	25.9	25.7	26.3	26.8	24.9	25.6	25.4	26.0	26.5
12H	25.4	25.9	25.8	26.4	26.8	25.1	25.6	25.5	26.1	26.5
12H 4H	24.4	25.2	24.9	25.6	26.0	24.2	25.0	24.6	25.3	25.8
6H	25.1	25.7	25.5	26.1	26.6	24.8	25.4	25.3	25.9	26.3
8H	25.3	25.9	25.8	26.3	26.8	25.0	25.6	25.5	26.0	26.5
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 2495 lm Total Lamp Luminous Flux. (8log(F/F0) = 3.2)

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:11 January 2024

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [K=1.0000]  
Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

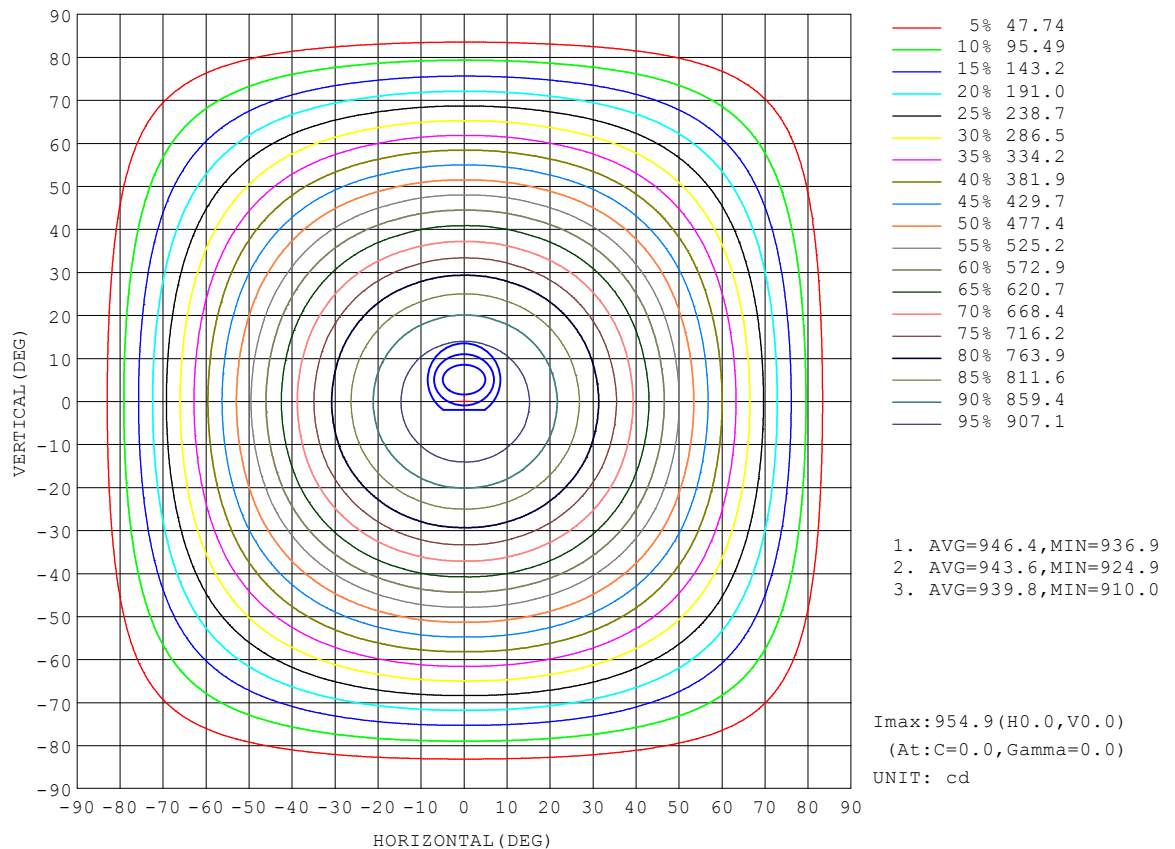
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	59	47	40	58	47	40	57	47	40	34
0.80	69	57	50	68	57	50	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	73	87	78	72	84	77	71	64
2.00	96	87	81	94	86	80	90	84	79	71
2.50	100	92	86	97	91	85	94	88	83	75
3.00	103	96	91	101	95	90	97	92	88	79
4.00	107	101	97	104	99	95	100	96	93	84
5.00	109	104	100	107	102	99	102	99	96	87
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:11 January 2024

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [K=1.0000]  
Remarks:

### ISOCANDELA DIAGRAM

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:



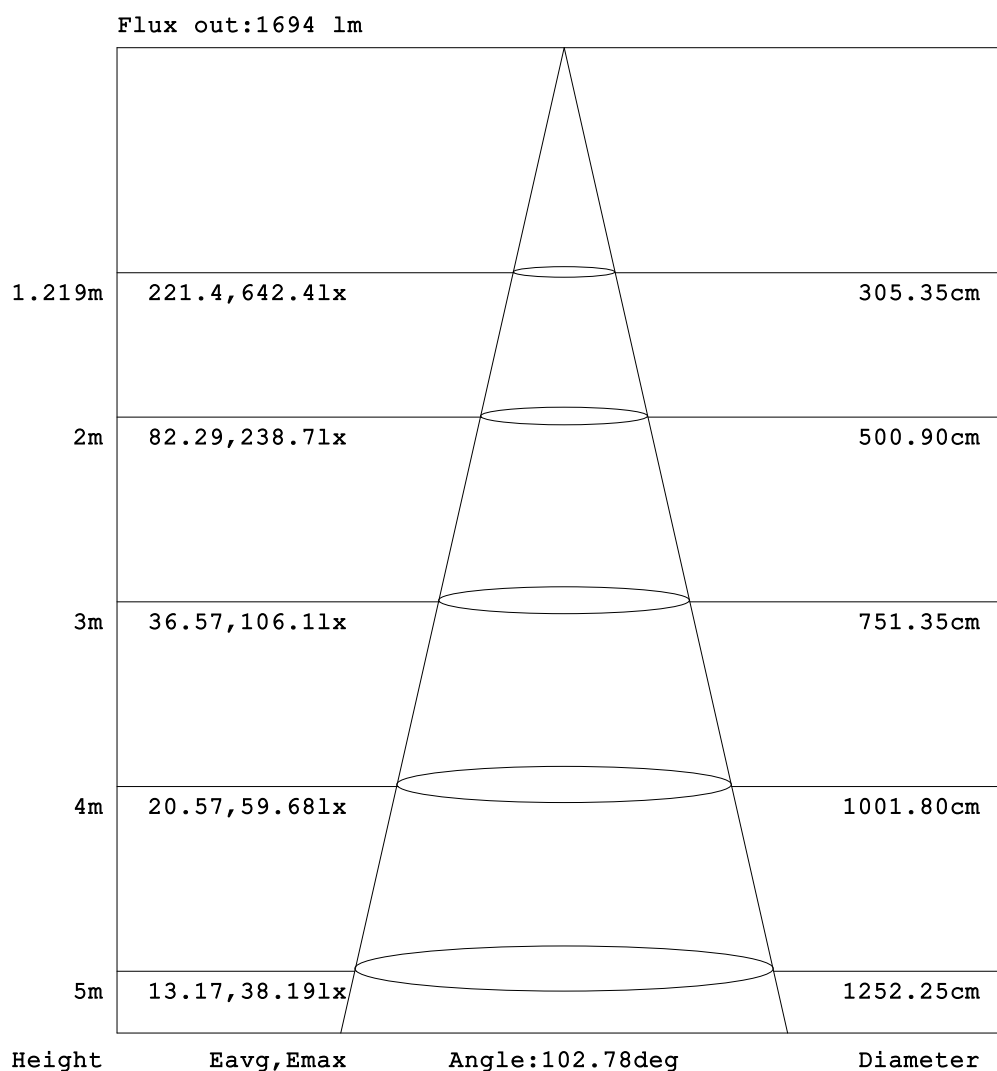
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:11 January 2024

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [K=1.0000]  
Remarks:



**AAI Figure**

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:



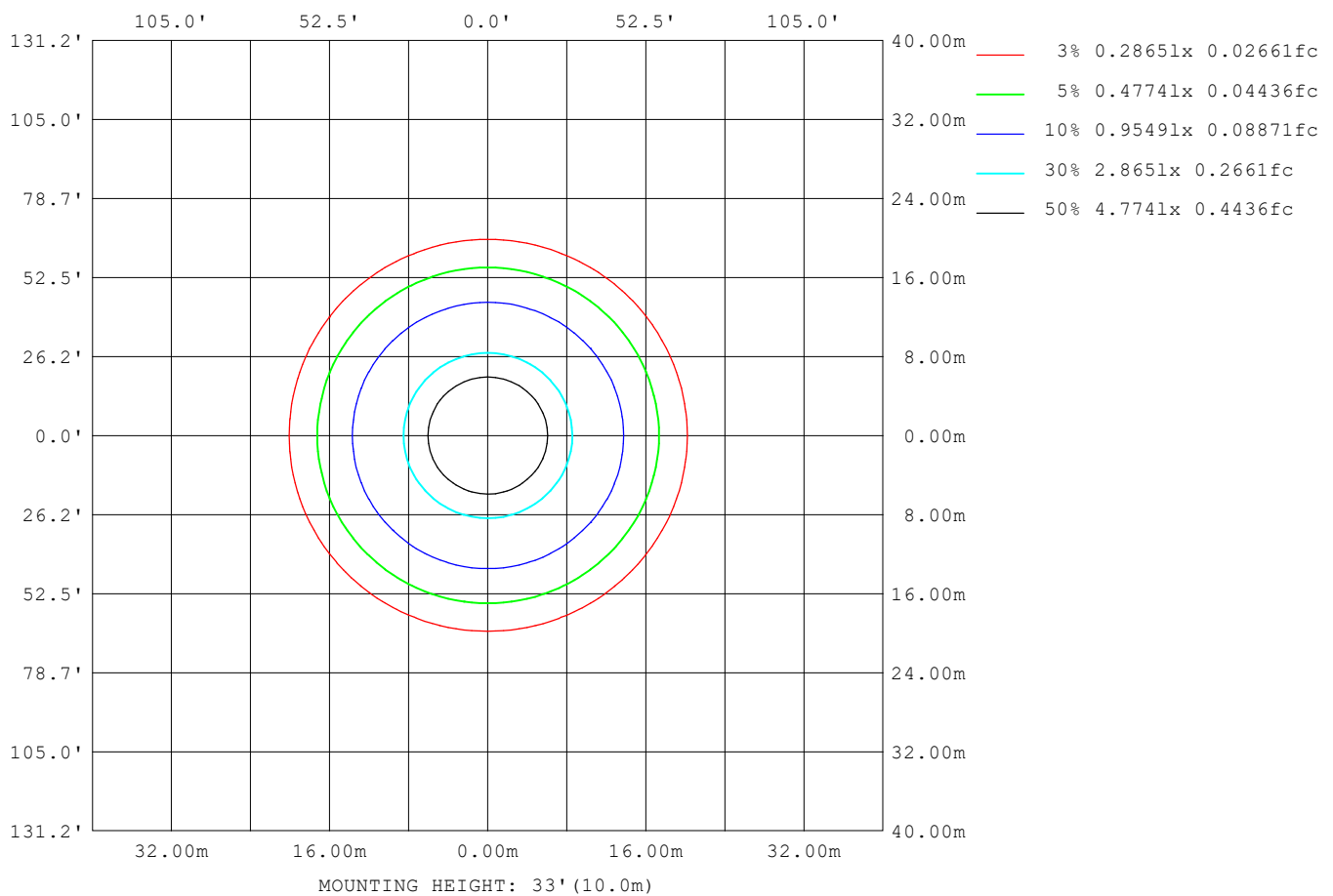
**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:11 January 2024

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [K=1.0000]  
Remarks:

### ISOLUX DIAGRAM

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:11 January 2024

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [K=1.0000]  
Remarks:

### LED Avg.L Report

Test:U:239.8V I:0.1142A P:25.73W PF:0.9395 Lamp Flux:2495.42x1 lm		
NAME: HIP_1160_NA_WHT_OPAL_HE_500mA_3000K CRI90	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: DARKON	SUR.:	Shielding Angle:

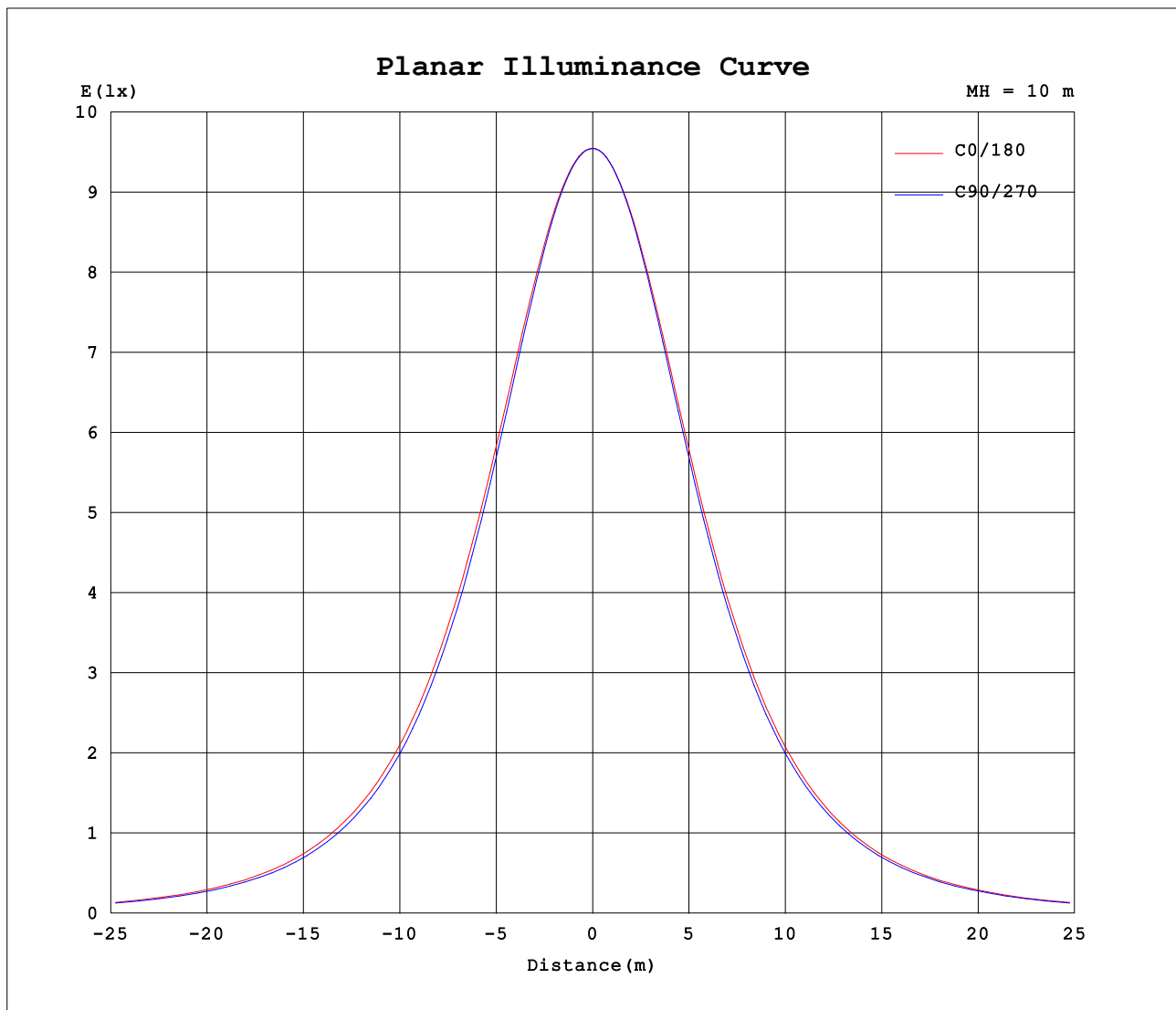
AvgL	cd/m2
L_0~180 (65) av	10550
L_0~180 (75) av	8827
L_0~180 (85) av	4838
L_90~270 (65) av	9959
L_90~270 (75) av	8427
L_90~270 (85) av	5310
L_45 (65) av	10244
L_45 (75) av	8629
L_45 (85) av	5141

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:JEFF  
Test Date:11 January 2024

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:7.886m [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: 11 January 2024

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 7.886m [K=1.0000]  
Remarks:

