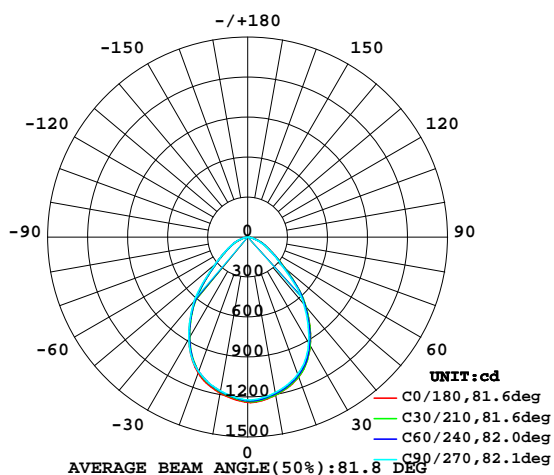


## LUMINAIRE PHOTOMETRIC TEST REPORT

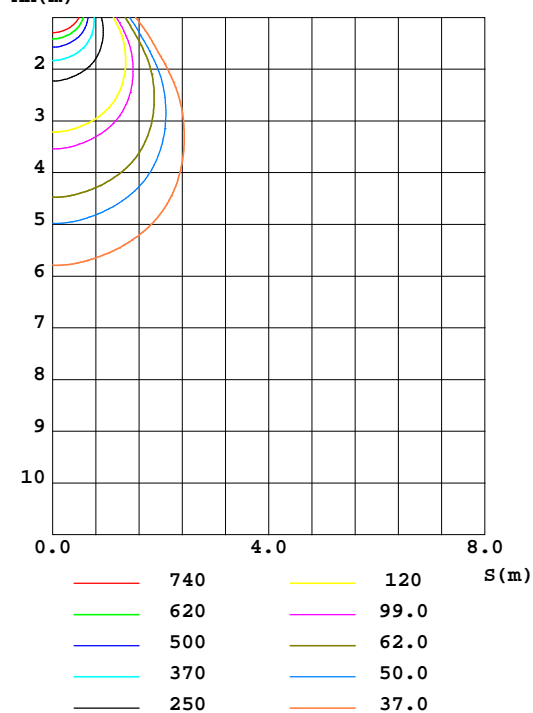
Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 lm		
NAME: LPA-DR-HAL6-25-857-D90-C3	TYPE:25W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:
MFR.:	SUR.:0.018376065	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 88.95 lm/W			
MODEL		I <sub>max</sub> (cd)	1241	S/MH(C0/180)	1.14
NOMINAL POWER(W)	25	LOR(%)	100.0	S/MH(C90/270)	1.14
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	2143.7	η UP,DN(C0-180)	0.0,51.0
NOMINAL FLUX(lm)	2143.74	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	230.4	η down(%)	100.0	CIBSE SHR MAX	1.15

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-07-01

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
Humidity:65.0%  
Test Distance:9.700m [K=1.0000]  
Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\Phi$ lum, lamp
10	1204	1197	1185	1171	1189	1178	1172	1175	0- 10	114.7	114.7	5.35,5.35
20	1117	1111	1095	1076	1086	1075	1075	1086	10- 20	322.0	436.7	20.4,20.4
30	937.6	934.6	915.4	882.2	883.2	873.8	885.6	905.8	20- 30	462.2	898.9	41.9,41.9
40	677.4	675.1	656.3	618.4	609.2	604.9	624.9	649.3	30- 40	482.2	1381	64.4,64.4
50	364.0	362.2	339.8	319.2	316.3	310.6	319.8	342.8	40- 50	370.2	1751	81.7,81.7
60	188.7	187.4	178.6	165.0	163.6	161.5	166.5	177.8	50- 60	218.1	1969	91.9,91.9
70	96.24	93.80	84.40	74.46	72.58	73.57	79.69	89.66	60- 70	124.9	2094	97.7,97.7
80	18.02	17.18	12.30	7.113	6.030	6.421	9.111	14.69	70- 80	46.52	2141	99.9,99.9
90	0.5114	0.5303	0.5177	0.4609	0.4230	0.4167	0.4040	0.4198	80- 90	2.896	2144	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		

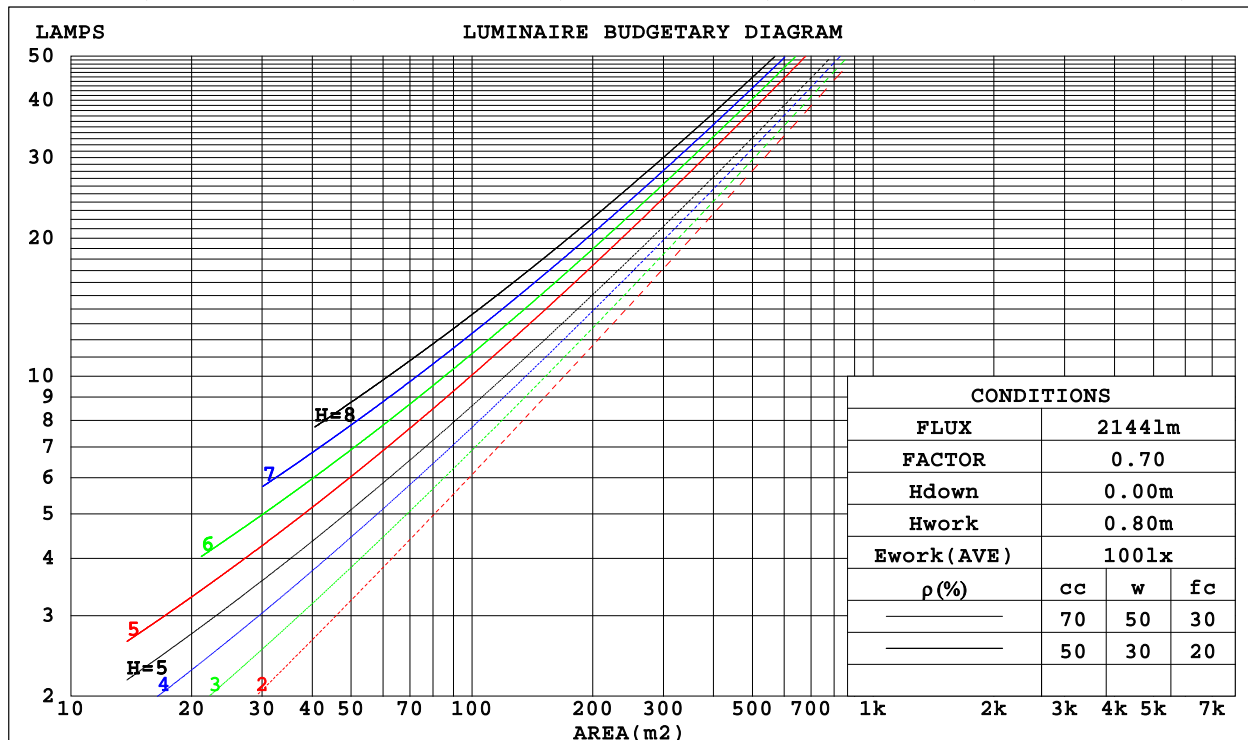
C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-07-01

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.700m [K=1.0000]  
 Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 lm		
NAME: LPA-DR-HAL6-25-857-D90-C3	TYPE:25W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:
MFR.:	SUR.:0.018376065	PROTECTION 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	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	.00
1.0	1.08	1.04	1.01	1.05	1.03	.00	1.01	.99	.97	.98	.96	.94	.94	.92	.91	.89
2.0	.97	.91	.87	.95	.90	.86	.92	.88	.84	.89	.85	.82	.86	.83	.80	.78
3.0	.87	.81	.75	.86	.80	.75	.83	.78	.73	.80	.76	.72	.78	.74	.71	.69
4.0	.79	.72	.66	.78	.71	.66	.76	.70	.65	.73	.68	.64	.71	.67	.63	.61
5.0	.72	.64	.59	.71	.64	.58	.69	.63	.58	.67	.62	.57	.65	.61	.57	.55
6.0	.66	.58	.53	.65	.58	.52	.63	.57	.52	.62	.56	.52	.60	.55	.51	.49
7.0	.60	.53	.47	.60	.52	.47	.58	.52	.47	.57	.51	.47	.56	.50	.46	.45
8.0	.56	.48	.43	.55	.48	.43	.54	.47	.43	.53	.47	.43	.52	.46	.42	.41
9.0	.52	.44	.39	.51	.44	.39	.50	.44	.39	.49	.43	.39	.48	.43	.39	.37
10.0	.48	.41	.36	.48	.41	.36	.47	.40	.36	.46	.40	.36	.45	.40	.36	.34



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-07-01

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.700m [K=1.0000]  
 Remarks:

## WEC AND CCEC

Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 lm		
NAME: LPA-DR-HAL6-25-857-D90-C3	TYPE:25W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:
MFR.:	SUR.:0.018376065	PROTECTION 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	.236	.134	.043	.230	.131	.042	.217	.124	.040	.205	.118	.038	.194	.112	.036	
2.0	.230	.126	.039	.224	.123	.038	.213	.118	.037	.203	.114	.036	.193	.109	.034	
3.0	.219	.116	.035	.214	.114	.034	.204	.110	.034	.195	.107	.033	.187	.103	.032	
4.0	.206	.107	.032	.202	.106	.031	.193	.103	.031	.185	.100	.030	.178	.097	.029	
5.0	.195	.099	.029	.191	.098	.028	.183	.095	.028	.176	.093	.028	.169	.090	.027	
6.0	.183	.092	.026	.180	.091	.026	.173	.089	.026	.167	.087	.025	.161	.085	.025	
7.0	.173	.086	.024	.170	.085	.024	.164	.083	.024	.158	.081	.024	.153	.079	.023	
8.0	.164	.080	.022	.161	.079	.022	.155	.078	.022	.150	.076	.022	.146	.075	.022	
9.0	.155	.075	.021	.152	.074	.021	.148	.073	.021	.143	.072	.021	.139	.070	.020	
10.0	.147	.070	.020	.145	.070	.019	.140	.069	.019	.136	.068	.019	.132	.067	.019	

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	.175	.157	.140	.150	.135	.121	.103	.093	.083	.059	.054	.049	.019	.017	.016		
2.0	.164	.132	.105	.140	.114	.091	.096	.079	.064	.056	.046	.037	.018	.015	.012		
3.0	.155	.114	.082	.133	.098	.071	.091	.068	.050	.053	.040	.029	.017	.013	.010		
4.0	.146	.100	.065	.126	.086	.056	.086	.060	.040	.050	.035	.023	.016	.011	.008		
5.0	.139	.089	.052	.119	.077	.046	.082	.054	.032	.048	.032	.019	.015	.010	.006		
6.0	.132	.080	.043	.113	.070	.038	.078	.049	.027	.045	.029	.016	.015	.009	.005		
7.0	.126	.073	.037	.108	.064	.032	.075	.045	.023	.043	.026	.013	.014	.009	.004		
8.0	.120	.067	.032	.103	.059	.027	.071	.041	.019	.042	.024	.012	.013	.008	.004		
9.0	.114	.063	.027	.099	.054	.024	.068	.038	.017	.040	.023	.010	.013	.007	.003		
10.0	.109	.058	.024	.094	.051	.021	.065	.036	.015	.038	.021	.009	.012	.007	.003		

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-07-01

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.700m [K=1.0000]  
 Remarks:

Uncorrected UGR Table

Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 lm											
NAME: LPA-DR-HAL6-25-857-D90-C3					TYPE:25W			WEIGHT:			
DIM.:					SPEC.:5700K			SERIAL No.:			
MFR.:					SUR.:0.018376065			PROTECTION 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	23.5	24.8	23.8	25.0	25.2	23.3	24.6	23.6	24.8	25.0	
	3H	24.2	25.3	24.4	25.6	25.8	23.9	25.1	24.2	25.3	25.5
	4H	24.3	25.4	24.6	25.7	25.9	24.0	25.1	24.3	25.3	25.6
	6H	24.3	25.4	24.7	25.6	25.9	24.0	25.0	24.3	25.3	25.5
	8H	24.3	25.3	24.6	25.6	25.9	23.9	24.9	24.3	25.2	25.5
	12H	24.3	25.2	24.6	25.5	25.8	23.9	24.8	24.2	25.1	25.4
4H	2H	23.7	24.9	24.0	25.1	25.3	23.6	24.7	23.9	24.9	25.2
	3H	24.5	25.5	24.9	25.8	26.1	24.3	25.2	24.6	25.5	25.8
	4H	24.8	25.7	25.2	26.0	26.3	24.5	25.3	24.8	25.7	26.0
	6H	24.8	25.6	25.2	26.0	26.3	24.5	25.2	24.9	25.6	25.9
	8H	24.8	25.5	25.2	25.9	26.3	24.4	25.2	24.8	25.5	25.9
	12H	24.8	25.4	25.2	25.8	26.2	24.4	25.0	24.8	25.4	25.8
8H	4H	24.8	25.5	25.2	25.9	26.3	24.5	25.2	24.9	25.6	26.0
	6H	24.9	25.5	25.3	25.9	26.3	24.5	25.1	25.0	25.5	25.9
	8H	24.9	25.4	25.3	25.8	26.2	24.5	25.0	25.0	25.4	25.9
	12H	24.8	25.3	25.3	25.7	26.2	24.5	24.9	24.9	25.4	25.8
12H	4H	24.8	25.4	25.2	25.8	26.2	24.5	25.1	24.9	25.5	25.9
	6H	24.9	25.4	25.3	25.8	26.2	24.5	25.0	25.0	25.4	25.9
	8H	24.8	25.3	25.3	25.7	26.2	24.5	24.9	25.0	25.4	25.8
Variations with the observer position at spacings:											
S = 1.0H	+ 0.8 / - 0.9					+ 0.9 / - 1.1					
1.5H	+ 0.6 / - 0.6					+ 0.6 / - 0.8					
2.0H	+ 1.7 / - 1.2					+ 1.7 / - 1.2					

CIE Pub.117 Corrected 2144 lm Total Lamp Luminous Flux.(8log(F/F0) = 2.6)

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-07-01

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.700m [K=1.0000]  
 Remarks:

## UTILIZATION FACTORS TABLE

Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 lm		
NAME: LPA-DR-HAL6-25-857-D90-C3	TYPE:25W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:
MFR.:	SUR.:0.018376065	PROTECTION ANGLE:

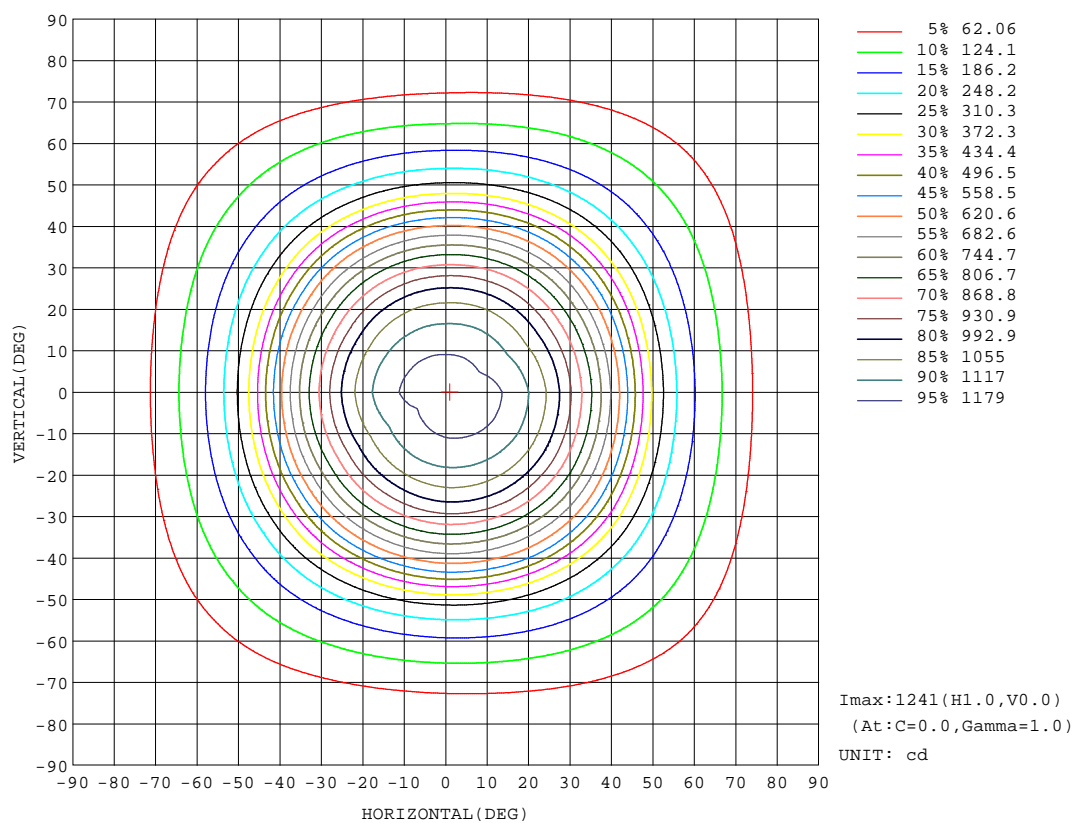
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	69	60	54	69	59	54	67	59	54	48
0.80	79	70	64	78	69	64	76	68	63	58
1.00	86	78	72	85	77	72	83	78	71	65
1.25	92	84	79	91	84	79	89	82	78	72
1.50	97	89	84	95	88	83	92	87	82	76
2.00	102	95	91	100	94	90	97	92	88	82
2.50	105	99	94	103	98	93	99	95	92	84
3.00	107	102	98	105	101	97	101	98	95	87
4.00	110	106	103	108	104	101	104	101	98	90
5.00	112	108	105	110	106	104	105	103	101	92
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-07-01

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.700m [K=1.0000]  
 Remarks:

## ISOCANDELA DIAGRAM

Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 lm		
NAME: LPA-DR-HAL6-25-857-D90-C3	TYPE:25W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:
MFR.:	SUR.:0.018376065	PROTECTION ANGLE:

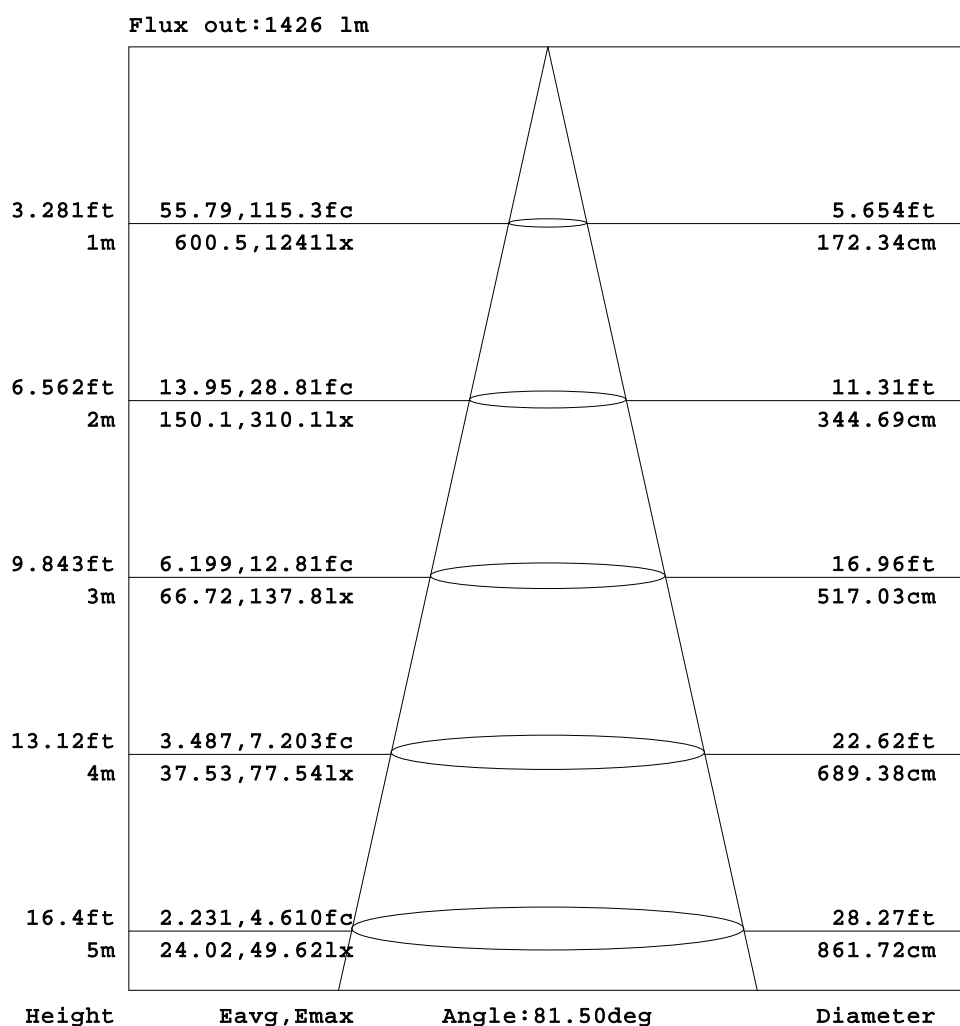


C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-07-01

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
Humidity:65.0%  
Test Distance:9.700m [K=1.0000]  
Remarks:

## AAI Figure

Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 lm		
NAME: LPA-DR-HAL6-25-857-D90-C3	TYPE:25W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:
MFR.:	SUR.:0.018376065	PROTECTION ANGLE:



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

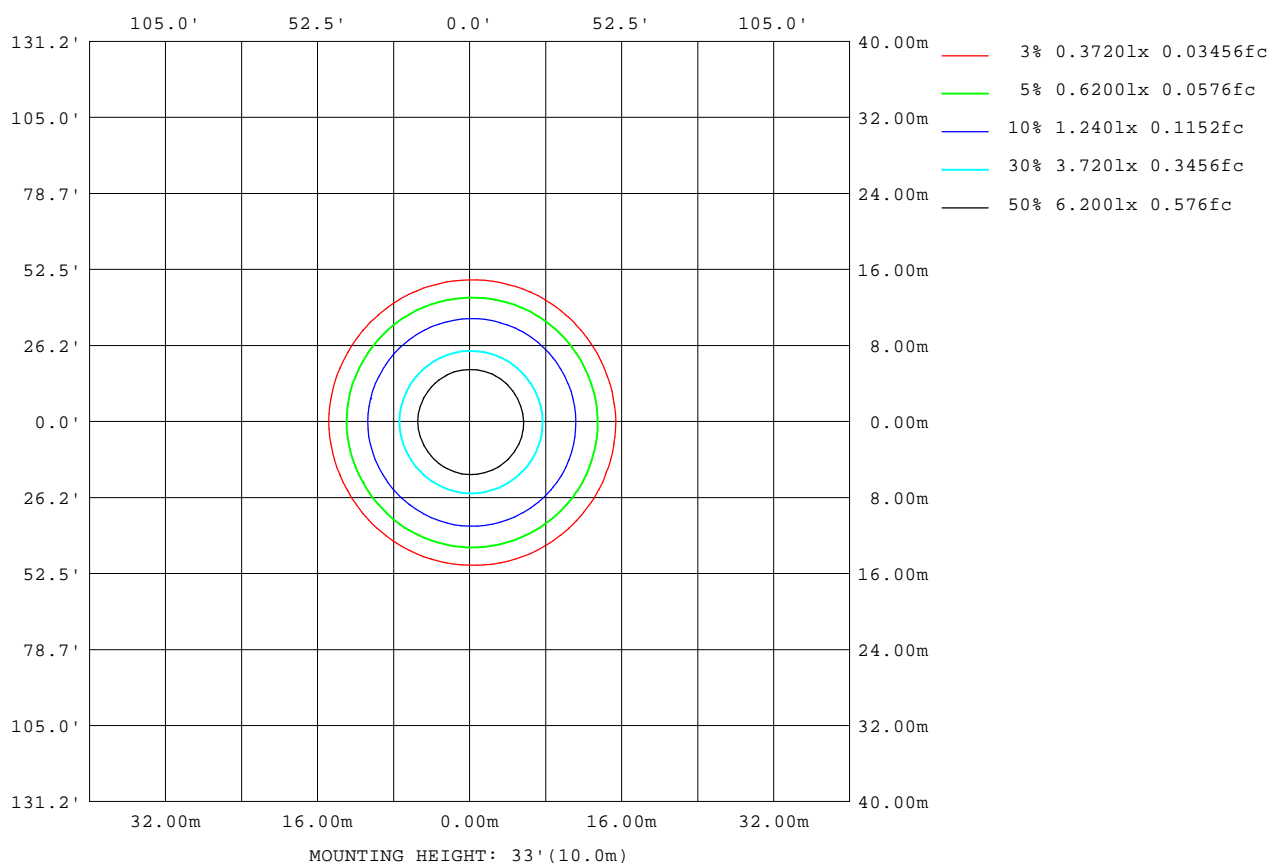
C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2017-07-01

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
Humidity: 65.0%  
Test Distance: 9.700m [K=1.0000]  
Remarks:



## ISOLUX DIAGRAM

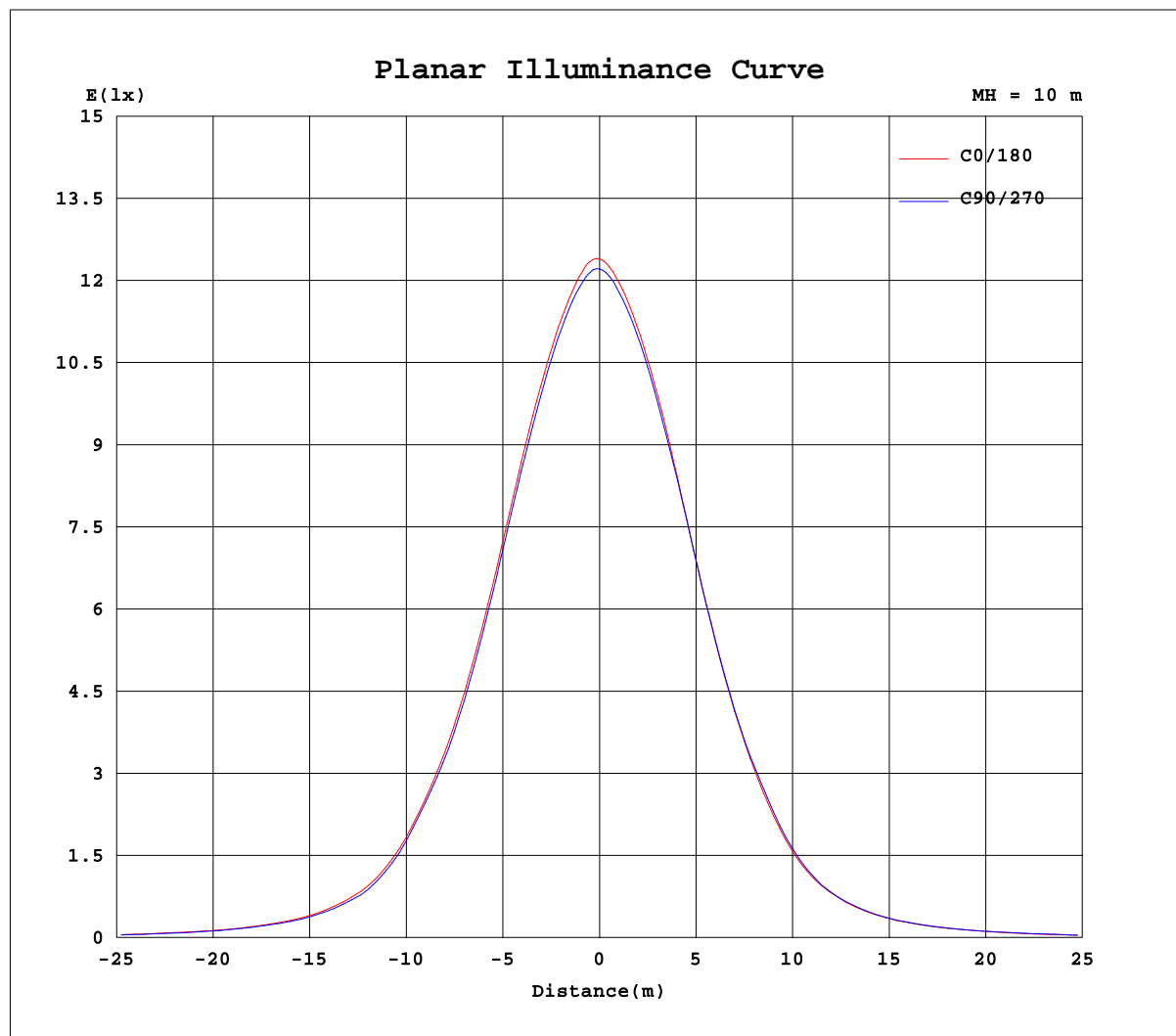
Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 lm		
NAME: LPA-DR-HAL6-25-857-D90-C3	TYPE:25W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:
MFR.:	SUR.:0.018376065	PROTECTION ANGLE:



C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:DAMIN  
Test Date:2017-07-01

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
Humidity:65.0%  
Test Distance:9.700m [K=1.0000]  
Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2017-07-01

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
Humidity: 65.0%  
Test Distance: 9.700m [K=1.0000]  
Remarks:

Test:U:230.4V I:0.1120A P:24.10W PF:0.9340 Lamp Flux:2143.74x1 1m		
NAME: LPA-DR-HAL6-25-857-D90-C3	TYPE:25W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:
MFR.:	SUR.:0.018376065	PROTECTION ANGLE:

UNIT: cd

C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: DAMIN  
Test Date: 2017-07-01

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity: 65.0%
Test Distance: 9.700m [K=1.0000]
Remarks:

```