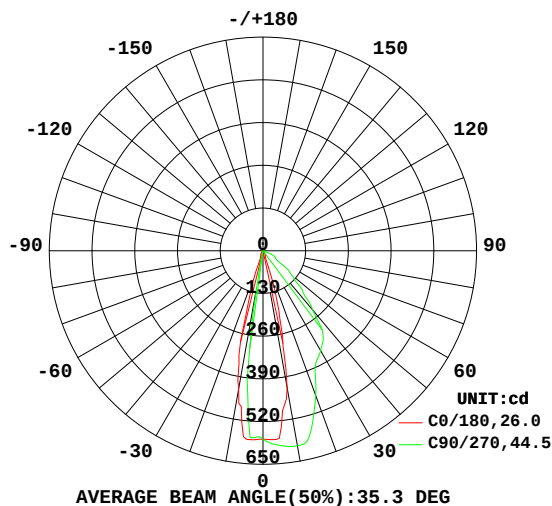


LUMINAIRE PHOTOMETRIC TEST REPORT

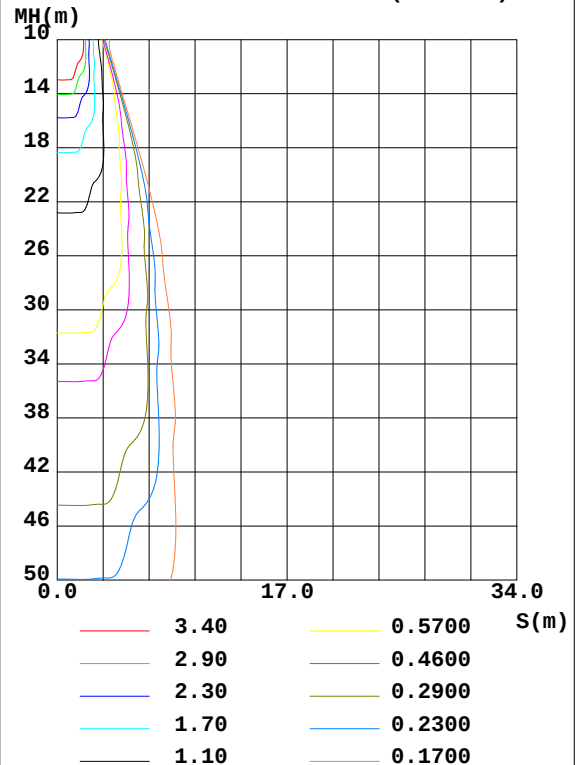
Test:U:120.24V I:0.1228A P:14.575W PF:0.9875 Freq:60.01Hz Lamp Flux:219.8x1 lm		
NAME:ASD-LWS29-14D15BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.:ASD Lighting Corp	SUR.:	Shielding Angle:N/A

DATA OF LAMP		PHOTOMETRIC DATA Eff: 15.08 lm/W			
MODEL	ASD-LWS29-14D15BK	I _{max} (cd)	602.6	S/MH(C0/180)	0.41
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	0.24
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	219.80	η UP, DN(C0-180)	0.0,81.9
NOMINAL FLUX(lm)	219.8	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,18.0
LAMPS INSIDE	1	η up(%)	0.1	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	120	η down(%)	99.9	CIBSE SHR MAX	1.00

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-23

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
Humidity:55%
Test Distance:26.000m [K=1.5850]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	425.0	490.4	602.6	497.4	427.8	355.8	111.5	394.5	0- 10	48.70	48.70	22.2,22.2
20	22.88	239.3	469.3	295.2	25.54	11.43	0.0029	13.68	10- 20	65.98	114.7	52.2,52.2
30	14.67	98.96	351.0	107.7	13.97	0	0	0	20- 30	44.32	159.0	72.3,72.3
40	6.387	6.522	235.4	12.40	5.030	0	0	0	30- 40	34.62	193.6	88.1,88.1
50	2.190	1.668	112.4	2.277	1.326	0	0	0	40- 50	16.91	210.5	95.8,95.8
60	0.6660	0.7511	42.91	0.9097	0	0	0	0	50- 60	5.953	216.5	98.5,98.5
70	0	0.3715	8.199	0.4544	0	0	0	0	60- 70	2.562	219.0	99.7,99.7
80	0	0.0978	1.884	0.1386	0	0	0	0	70- 80	0.4574	219.5	99.9,99.9
90	0	0	0.5970	0	0	0	0	0	80- 90	0.1511	219.7	99.9,99.9
100	0	0	0	0	0	0	0	0	90-100	0.0357	219.7	100,100
110	0	0	0	0	0	0	0	0	100-110	0	219.7	100,100
120	0	0	0	0	0	0	0	0	110-120	0	219.7	100,100
130	0	0	0	0	0	0	0.0002	0	120-130	0.0006	219.7	100,100
140	0	0	0	0	0	0	0.1982	0	130-140	0.0183	219.7	100,100
150	0	0	0	0	0	0.0978	0.1982	0.0909	140-150	0.0293	219.7	100,100
160	0	0	0	0	0.1538	0.0978	0.1982	0.0909	150-160	0.0323	219.8	100,100
170	0	0	0	0	0.0951	0.0978	0.1968	0.0914	160-170	0.0224	219.8	100,100
180	0.0951	0.0978	0	0.0901	0.0951	0.0978	0.0991	0.6379	170-180	0.0055	219.8	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 203.73 lm

%lum = 92.7%

%lamp = 92.7%

Conical surface Flux(120deg): 216.49 lm

%lum = 98.5%

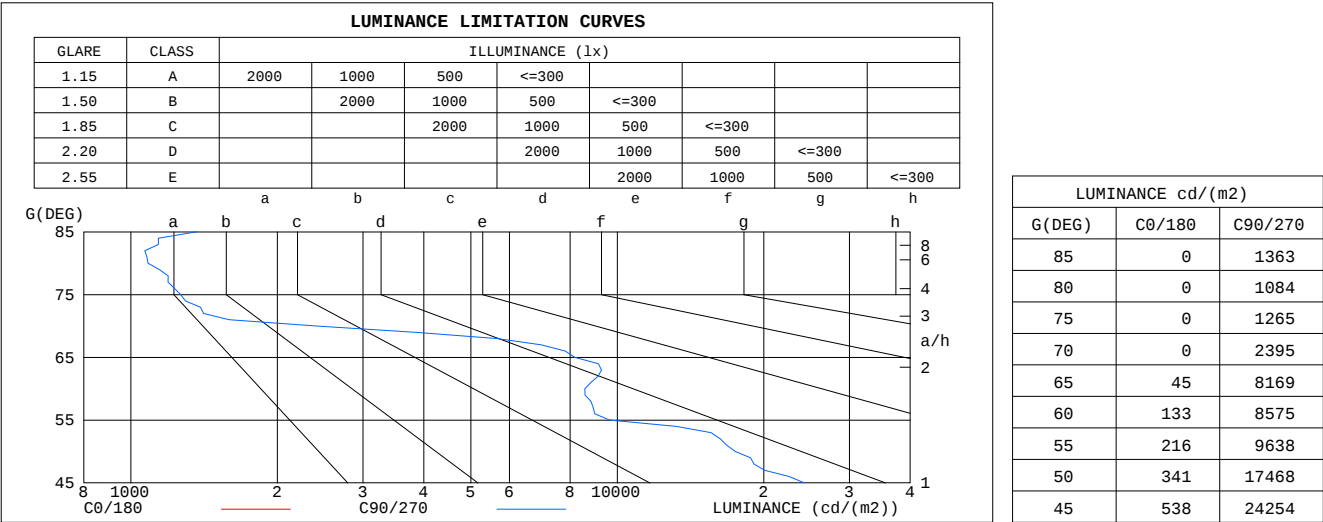
%lamp = 98.5%

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-23

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
Humidity:55%
Test Distance:26.000m [K=1.5850]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:120.24V I:0.1228A P:14.575W PF:0.9875 Freq:60.01Hz Lamp Flux:219.8x1 lm		
NAME:ASD-LWS29-14D15BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.:ASD Lighting Corp	SUR.:	Shielding Angle:N/A



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-23

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
Humidity:55%
Test Distance:26.000m [K=1.5850]
Remarks:

WEC AND CCEC

Test:U:120.24V I:0.1228A P:14.575W PF:0.9875 Freq:60.01Hz Lamp Flux:219.8x1 lm								
NAME:ASD-LWS29-14D15BK				TYPE:LED			WEIGHT:N/A	
SPEC.:5000K				DIM.:			SERIAL No.:N/A	
MFR.:ASD Lighting Corp				SUR.:			Shielding Angle:N/A	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.171	.098	.031	.165	.094	.030	.152	.087	.028	.141	.081	.026	.130	.075	.024	
2.0	.164	.090	.028	.158	.087	.027	.147	.082	.025	.138	.077	.024	.129	.073	.023	
3.0	.155	.083	.025	.150	.080	.024	.141	.077	.023	.133	.073	.022	.125	.069	.021	
4.0	.147	.076	.022	.143	.075	.022	.135	.072	.021	.128	.069	.021	.121	.066	.020	
5.0	.139	.071	.021	.136	.070	.020	.129	.067	.020	.123	.065	.019	.117	.062	.019	
6.0	.132	.066	.019	.129	.065	.019	.123	.063	.018	.118	.061	.018	.113	.059	.018	
7.0	.126	.062	.018	.123	.061	.017	.118	.059	.017	.113	.058	.017	.108	.056	.017	
8.0	.120	.058	.016	.117	.058	.016	.113	.056	.016	.108	.055	.016	.104	.054	.016	
9.0	.114	.055	.015	.112	.055	.015	.108	.053	.015	.104	.052	.015	.100	.051	.015	
10.0	.109	.052	.015	.107	.052	.014	.103	.051	.014	.100	.050	.014	.097	.049	.014	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.191	.191	.191	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.171	.158	.146	.147	.135	.125	.100	.093	.087	.058	.054	.050	.018	.017	.016	
2.0	.156	.133	.114	.133	.115	.099	.091	.079	.069	.053	.046	.040	.017	.015	.013	
3.0	.143	.114	.091	.122	.098	.079	.084	.068	.055	.049	.040	.033	.016	.013	.011	
4.0	.132	.099	.074	.113	.086	.064	.078	.060	.045	.045	.035	.027	.015	.011	.009	
5.0	.123	.087	.061	.106	.076	.053	.073	.053	.038	.042	.031	.022	.014	.010	.007	
6.0	.115	.078	.051	.099	.068	.045	.068	.047	.032	.040	.028	.019	.013	.009	.006	
7.0	.108	.070	.044	.093	.061	.038	.064	.043	.027	.037	.025	.016	.012	.008	.005	
8.0	.102	.064	.038	.088	.055	.033	.061	.039	.023	.035	.023	.014	.011	.008	.005	
9.0	.097	.059	.033	.083	.051	.029	.058	.036	.020	.034	.021	.012	.011	.007	.004	
10.0	.092	.054	.029	.079	.047	.025	.055	.033	.018	.032	.020	.011	.010	.006	.004	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:John Yao
 Test Date:2025-12-23

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
 Humidity:55%
 Test Distance:26.000m [K=1.5850]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.24V I:0.1228A P:14.575W PF:0.9875 Freq:60.01Hz Lamp Flux:219.8x1 lm										
NAME:ASD-LWS29-14D15BK					TYPE:LED			WEIGHT:N/A		
SPEC.:5000K					DIM.:			SERIAL No.:N/A		
MFR.:ASD Lighting Corp					SUR.:			Shielding Angle:N/A		
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	3.1	4.0	3.3	4.1	4.3	21.3	22.2	21.5	22.3	22.5
3H	3.0	3.8	3.2	4.0	4.2	21.5	22.3	21.8	22.5	22.7
4H	2.9	3.7	3.2	3.9	4.1	21.4	22.2	21.7	22.4	22.7
6H	2.8	3.5	3.1	3.8	4.0	21.4	22.1	21.7	22.3	22.6
8H	2.7	3.5	3.1	3.7	4.0	21.3	22.0	21.6	22.3	22.5
12H	2.7	3.4	3.0	3.6	3.9	21.3	22.0	21.6	22.2	22.5
4H 2H	3.8	4.5	4.0	4.7	5.0	21.0	21.8	21.3	22.0	22.2
3H	3.7	4.3	4.0	4.6	4.9	21.2	21.9	21.6	22.2	22.5
4H	3.6	4.2	3.9	4.5	4.8	21.2	21.8	21.5	22.1	22.4
6H	3.5	4.0	3.9	4.4	4.7	21.1	21.6	21.5	22.0	22.3
8H	3.4	3.9	3.8	4.3	4.7	21.1	21.6	21.4	21.9	22.3
12H	3.4	3.9	3.8	4.2	4.6	21.0	21.5	21.4	21.9	22.2
8H 4H	3.6	4.1	4.0	4.4	4.8	21.0	21.5	21.4	21.9	22.2
6H	3.5	3.9	3.9	4.3	4.7	20.9	21.4	21.4	21.7	22.2
8H	3.4	3.8	3.9	4.2	4.7	20.9	21.3	21.3	21.7	22.1
12H	3.4	3.7	3.9	4.2	4.6	20.9	21.2	21.3	21.6	22.1
12H 4H	3.6	4.0	4.0	4.4	4.8	21.0	21.4	21.4	21.8	22.2
6H	3.5	3.9	3.9	4.3	4.7	20.9	21.2	21.3	21.7	22.1
8H	3.4	3.7	3.9	4.2	4.7	20.8	21.2	21.3	21.6	22.1
Variations with the observer position at spacings:										
S = 1.0H	+ 3.5 / - 4.7					+ 4.6 / - 6.5				
1.5H	+ 2.9 / - 3.4					+ 5.4 / -12.8				
2.0H	+ 3.7 / - 5.5					+ 7.2 / -13.5				

CIE Pub.117, 219.8 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = -5.3$)

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-23

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 γ Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
Humidity:55%
Test Distance:26.000m [K=1.5850]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.24V I:0.1228A P:14.575W PF:0.9875 Freq:60.01Hz Lamp Flux:219.8x1 lm		
NAME: ASD-LWS29-14D15BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:N/A

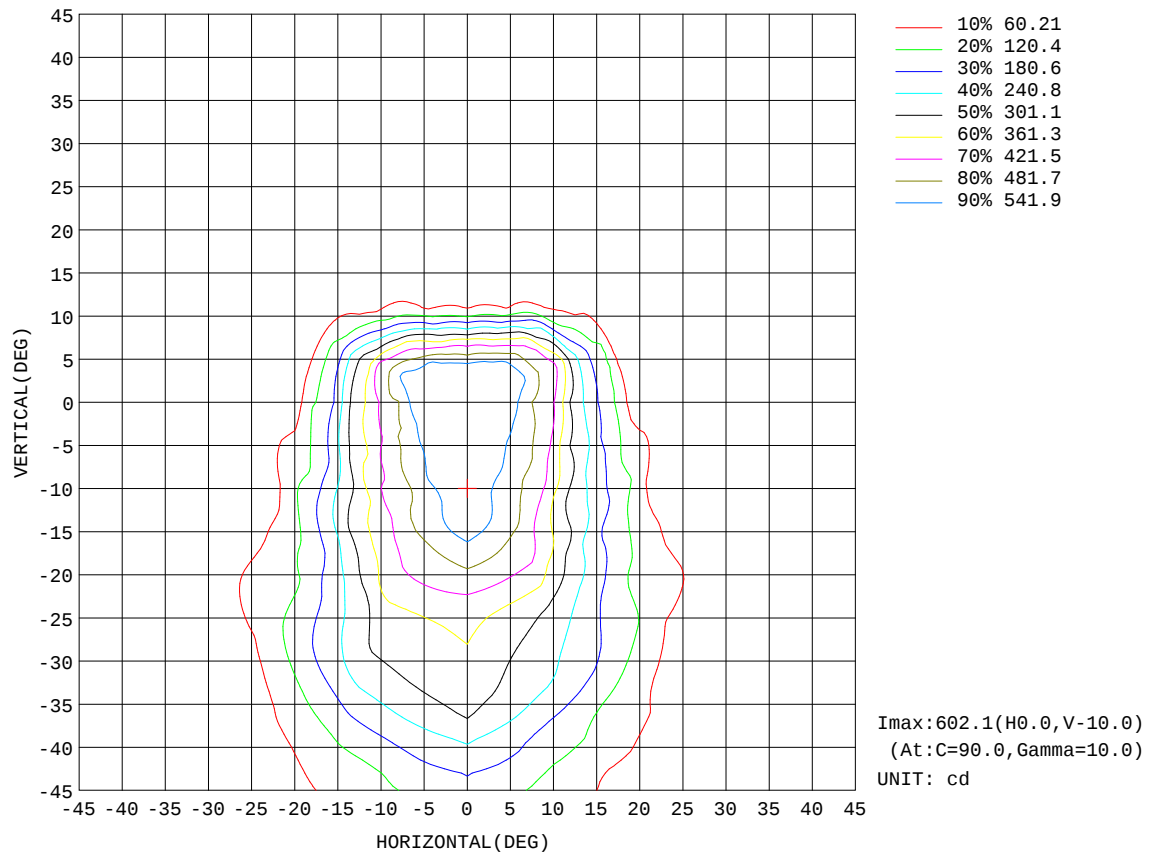
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	84	77	73	83	77	73	83	76	73	69
0.80	92	86	81	91	85	81	90	85	81	77
1.00	97	91	87	96	90	87	95	90	86	82
1.25	101	96	92	100	95	92	98	94	91	86
1.50	104	99	96	103	99	95	101	97	94	89
2.00	108	103	100	106	102	99	103	100	97	92
2.50	109	105	102	108	104	101	105	102	99	93
3.00	111	107	105	109	106	103	106	103	101	95
4.00	113	110	108	111	109	106	107	105	104	97
5.00	115	112	110	112	110	108	108	107	105	98
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:24.5DEG
Operators:John Yao
Test Date:2025-12-23

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
Humidity:55%
Test Distance:26.000m [K=1.5850]
Remarks:

ISOCANDELA DIAGRAM

Test:U:120.24V I:0.1228A P:14.575W PF:0.9875 Freq:60.01Hz Lamp Flux:219.8x1 lm		
NAME: ASD-LWS29-14D15BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:N/A

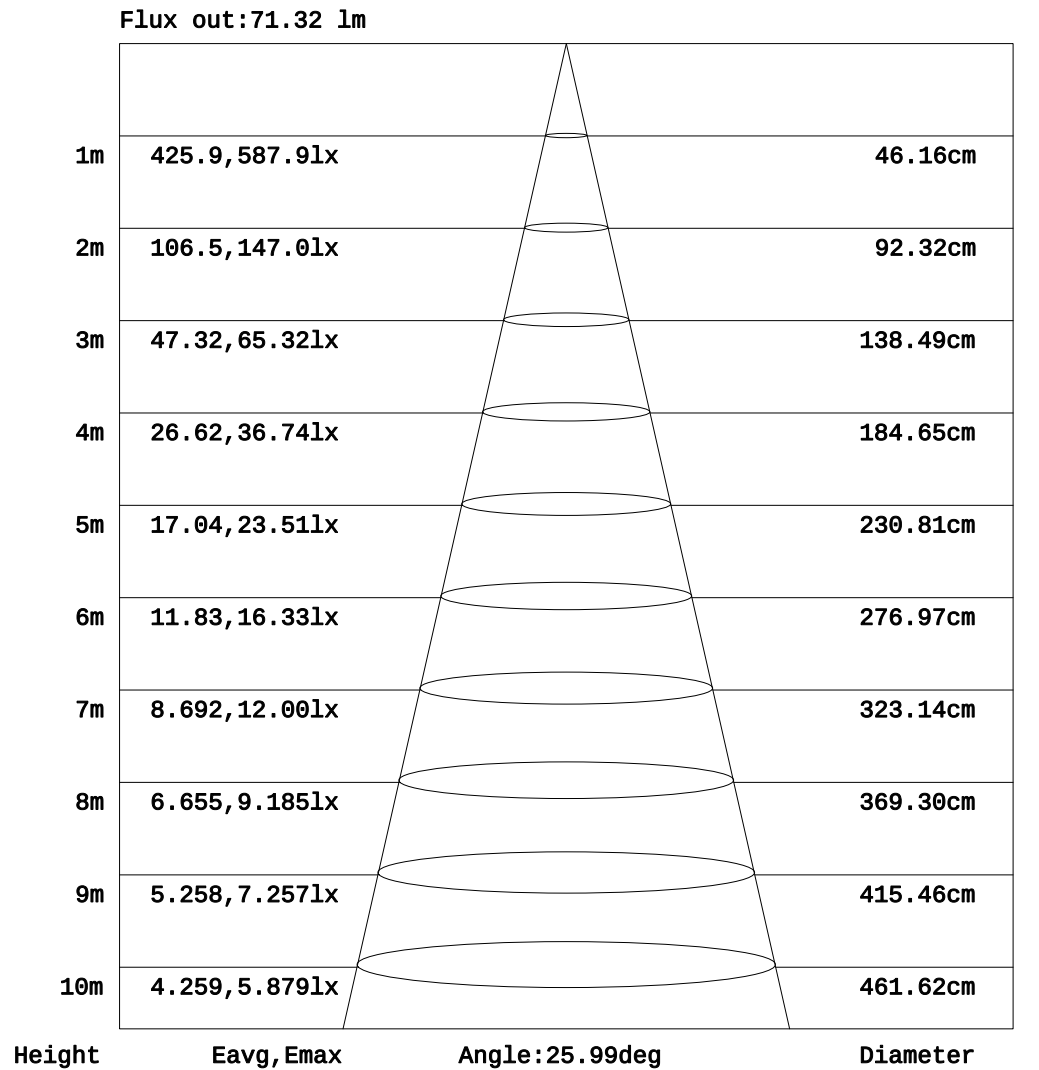


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-23

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
Humidity:55%
Test Distance:26.000m [K=1.5850]
Remarks:

AAI Figure

Test:U:120.24V I:0.1228A P:14.575W PF:0.9875 Freq:60.01Hz Lamp Flux:219.8x1 lm		
NAME:ASD-LWS29-14D15BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.:ASD Lighting Corp	SUR.:	Shielding Angle:N/A

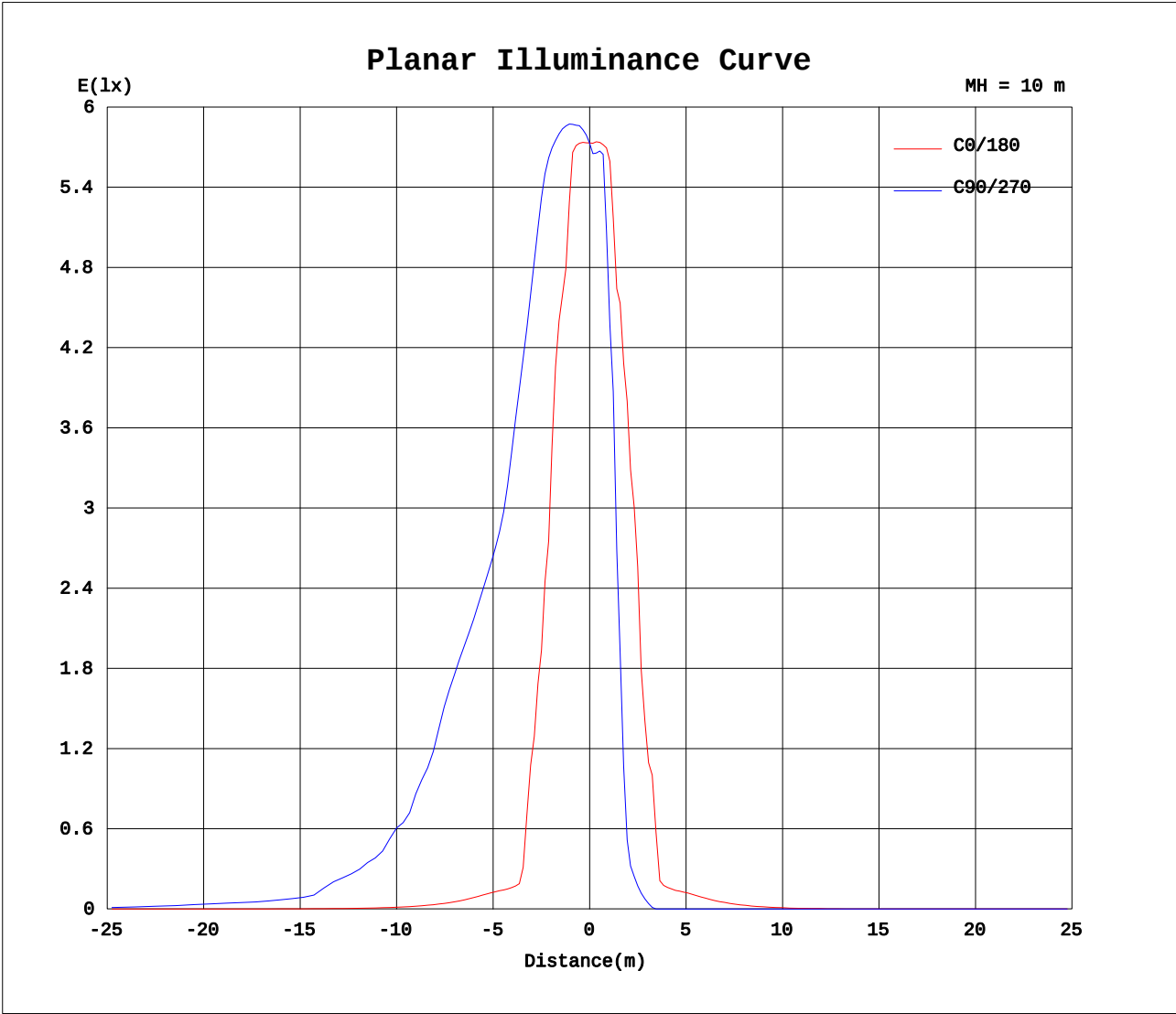


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:John Yao
 Test Date:2025-12-23

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
 Humidity:55%
 Test Distance:26.000m [K=1.5850]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 24.5DEG
Operators: John Yao
Test Date: 2025-12-23

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-R5000_V2 SYSTEM V2.0.366
Humidity: 55%
Test Distance: 26.000m [K=1.5850]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.24V I:0.1228A P:14.575W PF:0.9875 Freq:60.01Hz Lamp Flux:219.8x1 lm		
NAME: ASD-LWS29-14D15BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:N/A

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	573	573	573	573	573	573	573	573	573	573	573	573	573	573	573	573			
5	573	577	586	595	594	594	587	580	576	574	571	541	513	551	570	571			
10	425	446	490	526	603	554	497	439	428	468	356	157	112	174	395	472			
15	187	253	339	492	566	497	401	294	198	220	47.4	17.0	13.2	19.0	58.3	184			
20	22.9	121	239	422	469	423	295	115	25.5	25.5	11.4	0.00	0.00	0.00	13.7	25.6			
25	18.5	17.6	153	307	380	354	158	23.9	18.0	16.8	0.00	0.00	0.00	0.00	0.00	18.1			
30	14.7	12.7	99.0	243	351	308	108	12.5	14.0	6.63	0.00	0.00	0.00	0.00	0.00	7.40			
35	9.92	10.4	43.5	195	319	242	73.6	9.85	9.03	1.04	0.00	0.00	0.00	0.00	0.00	1.63			
40	6.39	8.38	6.52	119	235	151	12.4	7.96	5.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
45	3.81	5.98	3.33	63.3	172	80.5	3.92	5.80	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
50	2.19	3.85	1.67	29.0	112	38.8	2.28	3.89	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
55	1.24	2.22	1.02	7.01	55.3	8.44	1.45	2.45	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
60	0.67	1.44	0.75	4.37	42.9	4.83	0.91	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
65	0.19	0.78	0.59	2.79	34.6	3.06	0.67	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
70	0.00	0.39	0.37	1.69	8.20	1.87	0.45	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
75	0.00	0.31	0.20	1.10	3.28	1.08	0.26	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
80	0.00	0.10	0.10	0.70	1.88	0.73	0.14	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
85	0.00	0.10	0.00	0.42	1.19	0.47	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
90	0.00	0.00	0.00	0.33	0.60	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
95	0.00	0.00	0.00	0.10	0.30	0.20	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00			
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.20	0.10	0.00	0.00			
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.20	0.18	0.00	0.00			
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.20	0.14	0.09	0.00			
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.30	0.20	0.11	0.09	0.09			
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.10	0.10	0.33	0.20	0.10	0.09	0.12			
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.10	0.10	0.36	0.20	0.10	0.09	0.17			
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.10	0.10	0.38	0.20	0.10	0.09	0.23			
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.20	0.10	0.09	0.18			
175	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.18	0.09			
180	0.10	0.10	0.10	0.00	0.00	0.00	0.09	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.64	0.09			

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-23

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.366
Humidity:55%
Test Distance:26.000m [K=1.5850]
Remarks: