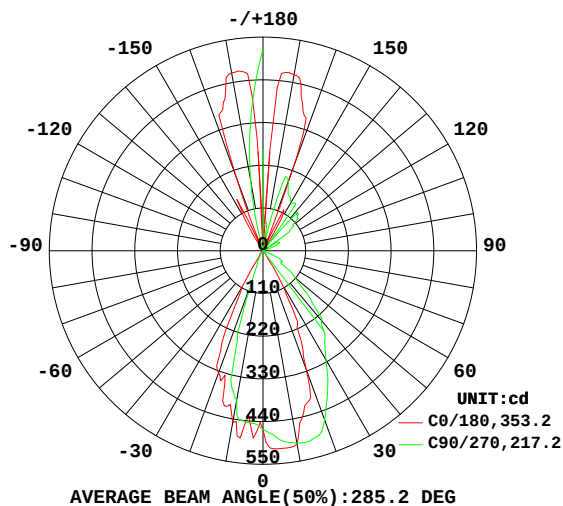


LUMINAIRE PHOTOMETRIC TEST REPORT

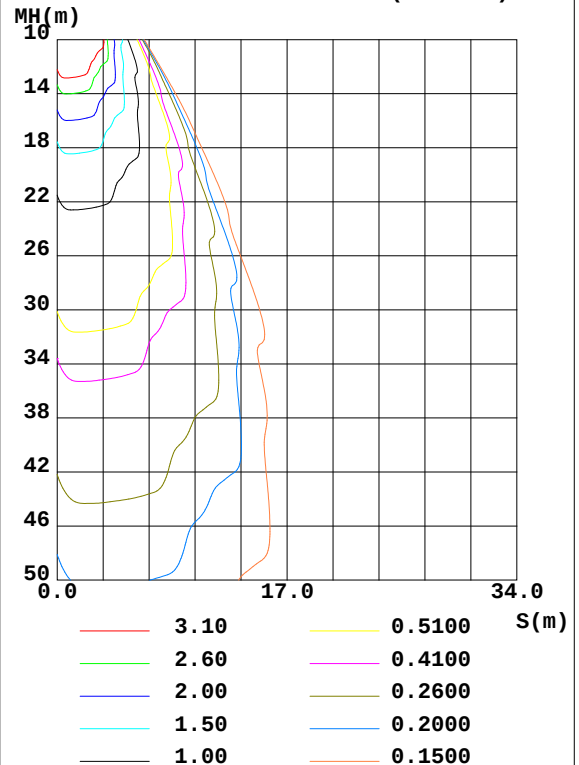
Test:U:120.16V I:0.1888A P:22.233W PF:0.9801 Freq:60.01Hz Lamp Flux:561.358x1 lm		
NAME:ASD-LWS29-14D22BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.:ASD Lighting Corp	SUR.:	Shielding Angle:N/A

DATA OF LAMP		PHOTOMETRIC DATA Eff: 25.25 lm/W			
MODEL	ASD-LWS29-14D22BK	I _{max} (cd)	1357	S/MH(C0/180)	0.71
NOMINAL POWER(W)	22	LOR(%)	100.0	S/MH(C90/270)	0.48
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	561.36	η UP, DN(C0-180)	26.0, 40.2
NOMINAL FLUX(lm)	561.358	CIE CLASS	SEMI-D.	η UP, DN(C180-360)	13.2, 20.6
LAMPS INSIDE	1	η up(%)	39.3	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	120	η down(%)	60.7	CIBSE SHR MAX	0.50

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:2025-12-29

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	505.5	494.8	502.9	442.3	449.3	457.8	390.6	494.0	0- 10	45.76	45.76	8.15, 8.15
20	326.9	377.2	464.4	293.8	334.1	296.0	82.51	297.9	10- 20	110.8	156.6	27.9, 27.9
30	94.93	210.4	325.3	168.8	106.7	31.24	17.84	19.94	20- 30	98.02	254.6	45.3, 45.3
40	10.77	59.62	236.2	77.46	12.20	8.451	2.141	7.189	30- 40	49.42	304.0	54.2, 54.2
50	6.590	5.266	107.3	6.843	6.757	0.8628	0.1945	0.1800	40- 50	22.70	326.7	58.2, 58.2
60	3.244	2.924	57.49	3.336	3.049	0	0	0.0900	50- 60	8.270	335.0	59.7, 59.7
70	1.620	2.050	8.733	2.341	0.8969	0	0	0	60- 70	3.998	339.0	60.4, 60.4
80	0.7654	1.265	3.037	1.530	0.5426	0	0	0	70- 80	1.266	340.2	60.6, 60.6
90	0.4518	0.8962	1.760	1.082	0.5103	0	0	0	80- 90	0.7533	341.0	60.7, 60.7
100	0.4761	1.107	1.843	0.8488	0.4780	0	0	0	90-100	0.6247	341.6	60.9, 60.9
110	0.5292	1.318	20.55	0.9194	0.7638	0	0	0	100-110	0.8756	342.5	61, 61
120	0.6695	1.528	45.33	0.9899	2.289	0.1188	0	0	110-120	3.497	346.0	61.6, 61.6
130	3.713	3.306	100.3	4.582	5.735	0.3333	0.0987	0	120-130	5.779	351.8	62.7, 62.7
140	7.713	53.98	58.94	85.36	10.50	1.655	0.5905	0.5909	130-140	13.80	365.6	65.1, 65.1
150	93.73	5.733	143.2	113.4	91.49	11.10	0.9787	2.521	140-150	32.23	397.8	70.9, 70.9
160	246.6	87.12	190.9	269.2	204.7	304.8	6.492	35.61	150-160	53.39	451.2	80.4, 80.4
170	460.4	466.6	25.91	405.2	465.6	467.2	184.9	319.1	160-170	74.68	525.9	93.7, 93.7
180	11.10	26.10	65.87	43.43	9.529	468.2	520.5	637.8	170-180	35.49	561.4	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 318.07 lm

%lum = 56.7%

%lamp = 56.7%

Conical surface Flux(120deg): 334.97 lm

%lum = 59.7%

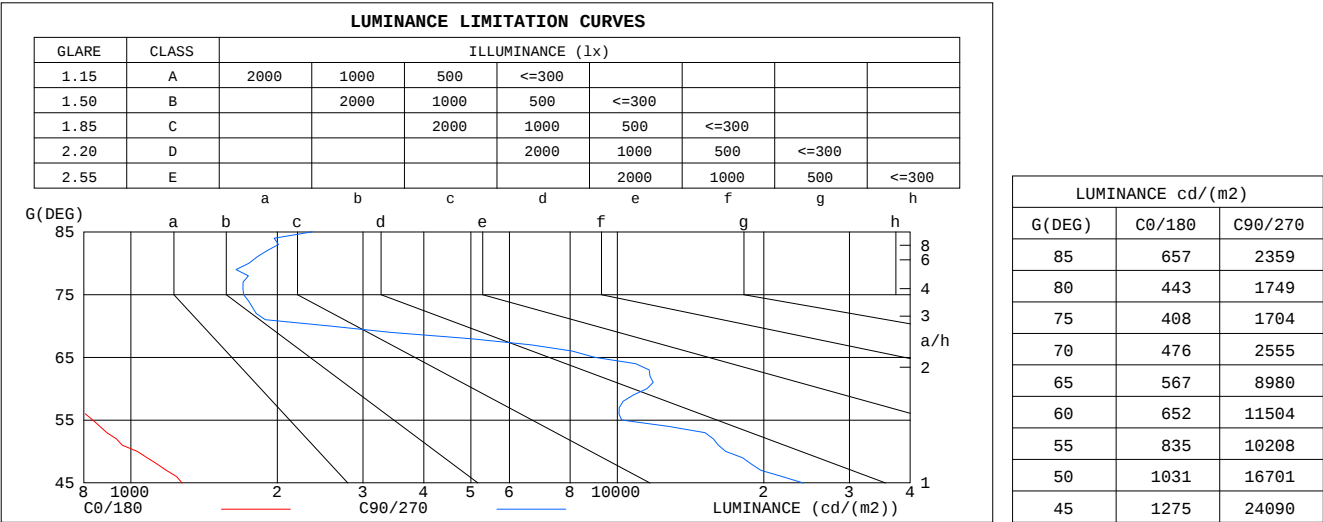
%lamp = 59.7%

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-29

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:120.16V I:0.1888A P:22.233W PF:0.9801 Freq:60.01Hz Lamp Flux:561.358x1 lm		
NAME:ASD-LWS29-14D22BK	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:2025-12-29

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:120.16V I:0.1888A P:22.233W PF:0.9801 Freq:60.01Hz Lamp Flux:561.358x1 lm														
NAME:ASD-LWS29-14D22BK							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	.210	.119	.038	.191	.109	.035	.156	.090	.029	.124	.072	.023	.095	.055	.018	
2.0	.196	.108	.033	.180	.099	.030	.148	.082	.026	.119	.067	.021	.092	.052	.016	
3.0	.184	.098	.029	.169	.090	.027	.140	.076	.023	.114	.062	.019	.089	.049	.015	
4.0	.172	.090	.026	.159	.083	.025	.133	.070	.021	.109	.058	.018	.086	.047	.014	
5.0	.162	.083	.024	.150	.077	.022	.126	.065	.019	.103	.055	.016	.083	.044	.013	
6.0	.153	.077	.022	.141	.071	.021	.119	.061	.018	.099	.051	.015	.080	.042	.012	
7.0	.144	.071	.020	.134	.067	.019	.113	.057	.017	.094	.048	.014	.077	.040	.012	
8.0	.137	.067	.019	.127	.062	.018	.108	.054	.015	.090	.046	.013	.074	.038	.011	
9.0	.130	.063	.018	.120	.059	.016	.103	.051	.014	.086	.043	.012	.071	.036	.010	
10.0	.123	.059	.016	.115	.055	.015	.098	.048	.014	.083	.041	.012	.068	.034	.010	

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	.490	.490	.490	.418	.418	.418	.286	.286	.286	.164	.164	.164	.052	.052	.052	
1.0	.475	.459	.444	.406	.394	.382	.278	.271	.264	.160	.157	.154	.051	.050	.050	
2.0	.463	.436	.413	.397	.375	.357	.272	.260	.249	.157	.151	.146	.050	.049	.048	
3.0	.453	.419	.392	.388	.361	.340	.267	.251	.238	.154	.147	.140	.049	.048	.046	
4.0	.444	.406	.376	.381	.351	.327	.262	.244	.230	.152	.143	.136	.049	.047	.045	
5.0	.437	.396	.365	.375	.342	.318	.258	.239	.224	.150	.140	.133	.048	.046	.044	
6.0	.430	.387	.356	.370	.335	.310	.255	.235	.220	.148	.138	.131	.048	.045	.043	
7.0	.424	.381	.350	.365	.330	.305	.252	.231	.216	.146	.136	.129	.047	.045	.043	
8.0	.419	.375	.345	.360	.325	.301	.249	.228	.213	.145	.135	.127	.047	.044	.042	
9.0	.414	.370	.341	.356	.321	.297	.247	.226	.211	.144	.133	.126	.047	.044	.042	
10.0	.409	.366	.338	.353	.318	.295	.245	.224	.209	.143	.132	.125	.046	.043	.041	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-29

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:120.16V I:0.1888A P:22.233W PF:0.9801 Freq:60.01Hz Lamp Flux:561.358x1 lm											
NAME:ASD-LWS29-14D22BK					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		5.2	6.0	5.9	6.7	7.5	18.0	18.8	18.7	19.5	20.3
3H		5.3	6.0	6.0	6.7	7.6	18.1	18.8	18.8	19.5	20.4
4H		5.3	5.9	6.1	6.7	7.6	18.0	18.6	18.7	19.4	20.3
6H		5.3	5.9	6.1	6.7	7.7	17.8	18.4	18.7	19.2	20.2
8H		5.4	5.9	6.2	6.7	7.7	17.8	18.4	18.6	19.2	20.1
12H		5.4	5.9	6.2	6.7	7.7	17.7	18.3	18.6	19.1	20.1
4H	2H	5.2	5.9	6.0	6.6	7.6	17.6	18.2	18.3	19.0	19.9
	3H	5.4	6.0	6.2	6.8	7.7	17.6	18.2	18.4	19.0	19.9
	4H	5.5	6.0	6.4	6.8	7.9	17.5	18.0	18.4	18.8	19.8
	6H	5.7	6.1	6.6	7.0	8.0	17.4	17.8	18.3	18.7	19.7
	8H	5.8	6.2	6.7	7.0	8.1	17.4	17.7	18.2	18.6	19.7
	12H	5.8	6.2	6.8	7.1	8.2	17.3	17.7	18.2	18.6	19.7
8H	4H	5.5	5.9	6.4	6.8	7.9	17.2	17.6	18.1	18.5	19.6
	6H	5.9	6.2	6.8	7.1	8.2	17.2	17.5	18.1	18.4	19.5
	8H	6.1	6.4	7.0	7.3	8.4	17.1	17.4	18.1	18.3	19.5
	12H	6.3	6.5	7.2	7.5	8.6	17.1	17.3	18.1	18.3	19.4
12H	4H	5.5	5.9	6.4	6.8	7.9	17.2	17.5	18.1	18.4	19.5
	6H	5.9	6.2	6.9	7.1	8.3	17.1	17.3	18.0	18.3	19.4
	8H	6.2	6.4	7.1	7.4	8.5	17.0	17.3	18.0	18.2	19.4
Variations with the observer position at spacings:											
S = 1.0H		+ 0.9 / - 0.8					+ 3.5 / - 5.4				
1.5H		+ 1.4 / - 0.7					+ 4.3 / - 8.8				
2.0H		+ 0.7 / - 0.4					+ 6.4 / - 9.1				

CIE Pub.117, 561.4 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = -2.0)

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-29

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:

UTILIZATION FACTORS TABLE

Test:U:120.16V I:0.1888A P:22.233W PF:0.9801 Freq:60.01Hz Lamp Flux:561.358x1 lm		
NAME:ASD-LWS29-14D22BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.:ASD Lighting Corp	SUR.:	Shielding Angle:N/A

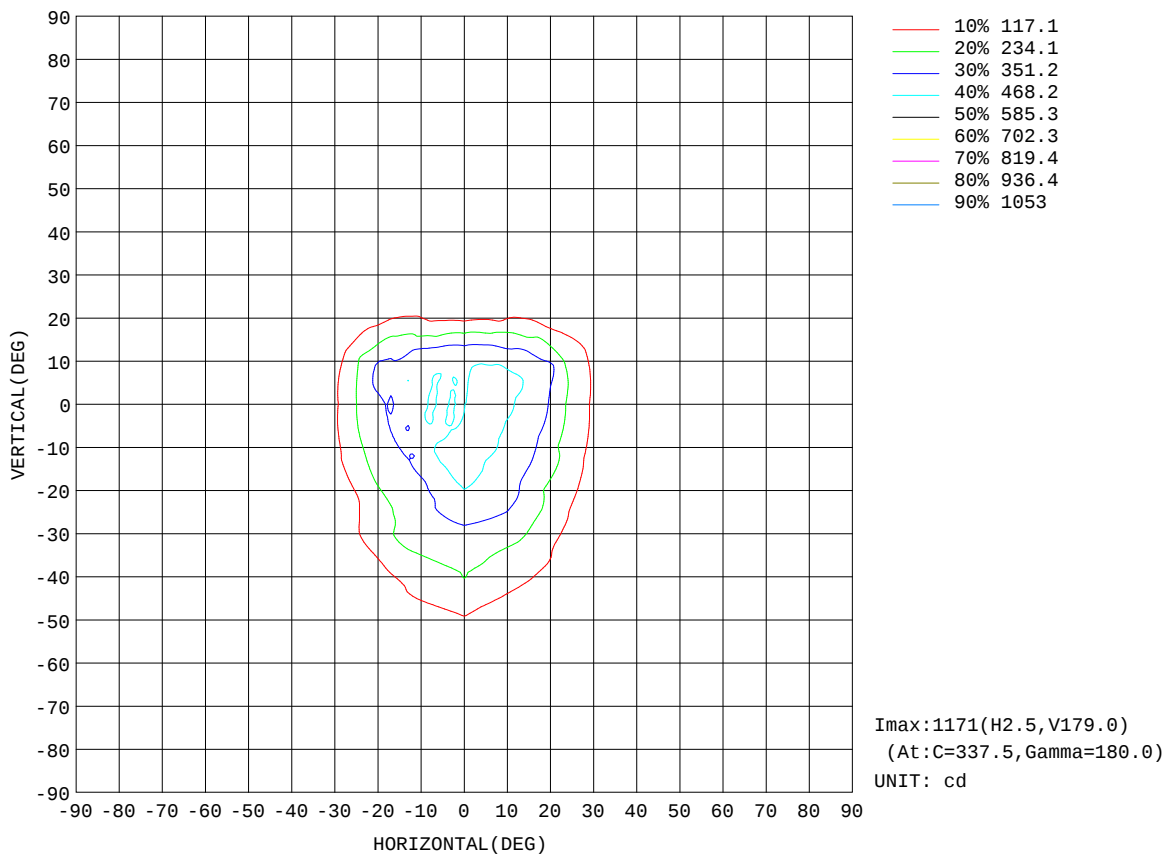
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	64	56	51	62	55	50	58	52	49	42
0.80	72	64	59	69	62	58	64	59	55	47
1.00	78	70	65	74	68	63	68	64	60	50
1.25	83	75	70	79	73	68	72	67	64	53
1.50	87	80	75	83	76	72	75	70	67	54
2.00	92	85	80	87	81	77	78	74	71	56
2.50	95	89	84	89	85	81	80	76	74	57
3.00	97	92	88	92	87	84	81	78	76	58
4.00	100	96	92	94	91	88	83	81	79	59
5.00	102	99	96	96	93	91	85	83	81	59
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:2025-12-29

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:120.16V I:0.1888A P:22.233W PF:0.9801 Freq:60.01Hz Lamp Flux:561.358x1 lm		
NAME:ASD-LWS29-14D22BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.:ASD Lighting Corp	SUR.:	Shielding Angle:N/A

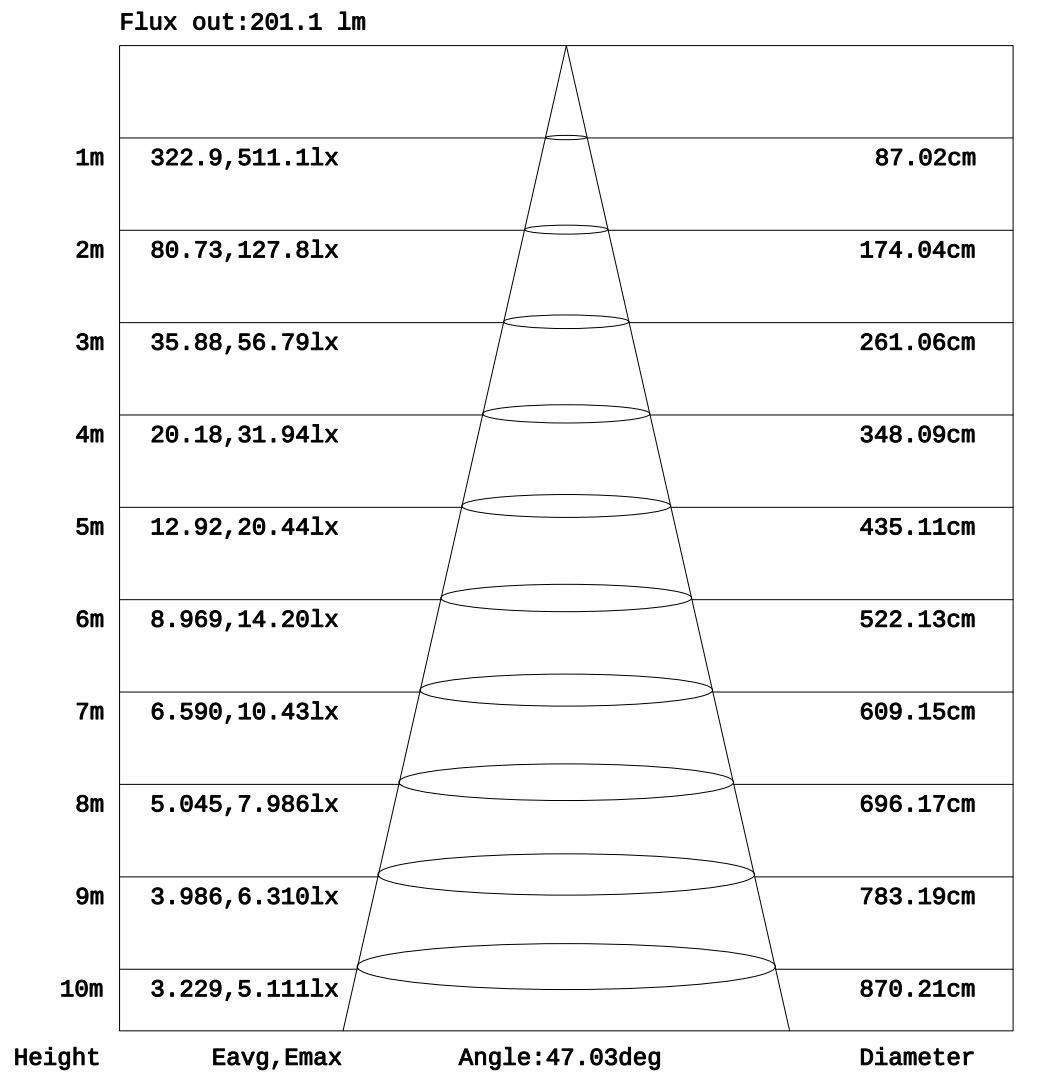


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-29

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:120.16V I:0.1888A P:22.233W PF:0.9801 Freq:60.01Hz Lamp Flux:561.358x1 lm		
NAME:ASD-LWS29-14D22BK	TYPE:LED	WEIGHT:N/A
SPEC.:5000K	DIM.:	SERIAL No.:N/A
MFR.:ASD Lighting Corp	SUR.:	Shielding Angle:N/A

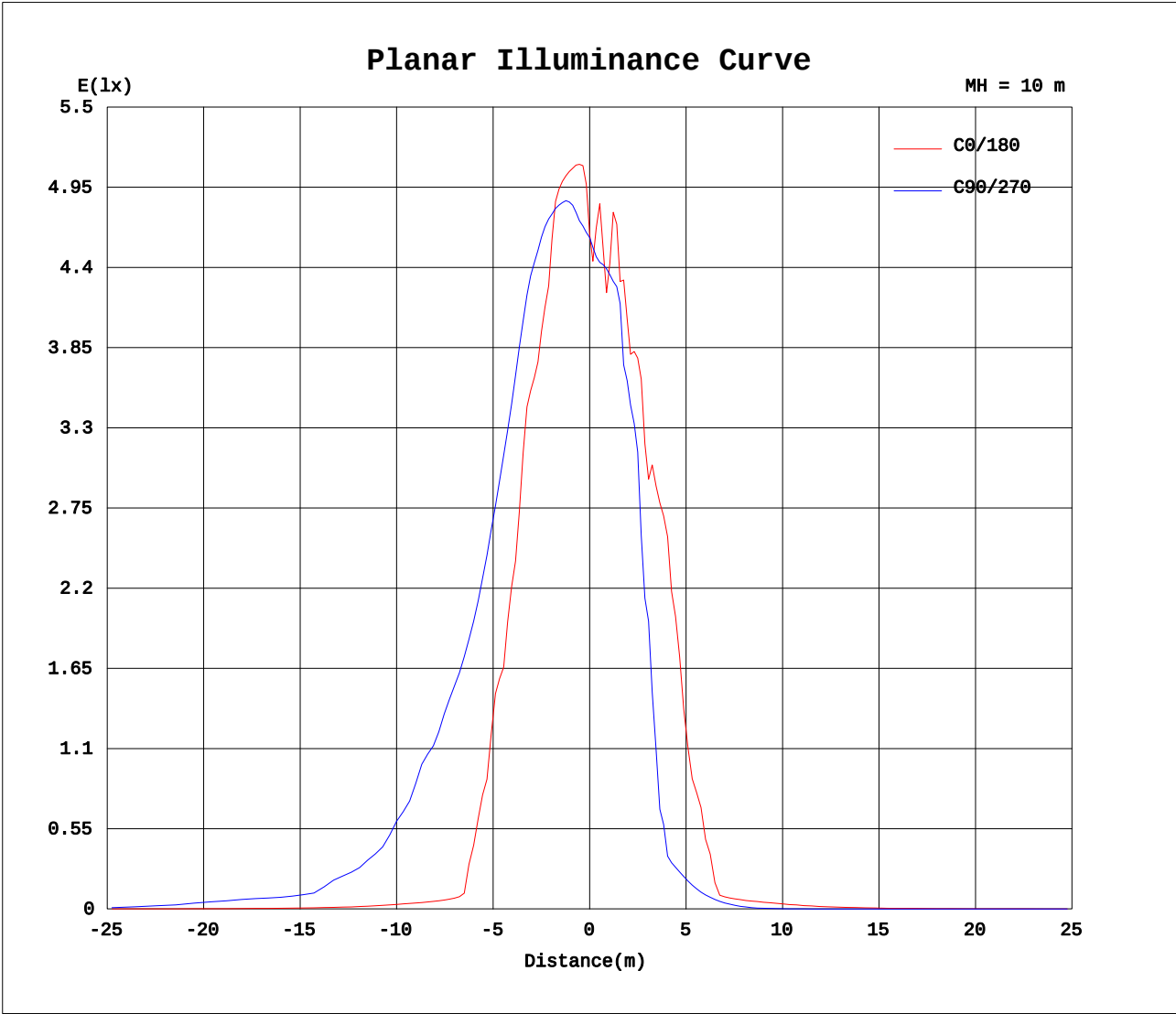


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:John Yao
 Test Date:2025-12-29

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:2025-12-29

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:120.16V I:0.1888A P:22.233W PF:0.9801 Freq:60.01Hz Lamp Flux:561.358x1 lm																	
NAME:ASD-LWS29-14D22BK									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	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460			
5	511	509	516	514	488	457	489	450	425	421	451	471	444	499	499	503			
10	506	475	495	517	503	493	442	457	449	445	458	404	391	474	494	501			
15	414	414	430	458	501	461	371	354	401	457	396	331	284	349	422	466			
20	327	307	377	421	464	369	294	286	334	384	296	133	82.5	149	298	395			
25	211	223	277	387	394	334	294	250	231	262	154	33.8	34.2	31.3	137	237			
30	94.9	120	210	287	325	310	169	124	107	115	31.2	19.5	17.8	17.1	19.9	136			
35	13.6	23.0	118	206	278	265	121	51.5	15.2	18.5	14.7	9.52	7.63	8.38	11.9	17.5			
40	10.8	9.96	59.6	163	236	153	77.5	11.9	12.2	14.0	8.45	3.66	2.14	3.12	7.19	11.8			
45	8.97	7.58	9.06	81.1	170	108	20.1	8.47	9.90	9.82	3.87	1.18	0.78	0.68	2.96	8.08			
50	6.59	5.88	5.27	37.2	107	45.0	6.84	6.36	6.76	5.43	0.86	0.44	0.19	0.20	0.18	4.51			
55	4.76	4.45	3.80	12.9	58.5	22.1	4.51	4.42	4.57	2.55	0.18	0.00	0.00	0.00	0.09	1.93			
60	3.24	3.51	2.92	7.45	57.5	13.3	3.34	3.41	3.05	1.23	0.00	0.00	0.00	0.00	0.09	0.45			
65	2.39	2.65	2.44	4.77	37.9	6.37	2.70	2.67	1.81	0.28	0.00	0.00	0.00	0.00	0.00	0.09			
70	1.62	1.99	2.05	3.48	8.73	4.12	2.34	2.12	0.90	0.28	0.00	0.00	0.00	0.00	0.00	0.18			
75	1.05	1.52	1.65	2.59	4.41	3.03	1.80	1.75	0.56	0.28	0.00	0.00	0.00	0.00	0.00	0.00			
80	0.77	1.23	1.27	1.99	3.04	2.35	1.53	1.29	0.54	0.28	0.00	0.00	0.00	0.00	0.00	0.09			
85	0.57	0.93	1.07	1.39	2.06	1.67	1.17	1.10	0.53	0.28	0.00	0.00	0.00	0.00	0.00	0.00			
90	0.45	0.73	0.90	1.09	1.76	1.47	1.08	0.94	0.51	0.28	0.00	0.00	0.00	0.00	0.00	0.00			
95	0.45	0.72	1.00	1.17	1.76	1.47	0.95	0.84	0.49	0.28	0.00	0.00	0.00	0.00	0.00	0.00			
100	0.48	0.70	1.11	1.24	1.84	1.47	0.85	0.78	0.48	0.28	0.00	0.00	0.00	0.00	0.00	0.00			
105	0.50	0.69	1.21	1.31	3.03	1.75	0.88	0.82	0.61	0.28	0.00	0.00	0.00	0.00	0.00	0.00			
110	0.53	0.67	1.32	1.38	20.5	2.54	0.92	0.88	0.76	0.28	0.00	0.00	0.00	0.00	0.00	0.00			
115	0.56	1.23	1.42	3.07	45.6	6.15	0.95	0.95	1.53	0.28	0.00	0.00	0.00	0.00	0.00	0.00			
120	0.67	1.35	1.53	5.44	45.3	11.7	0.99	1.09	2.29	0.28	0.12	0.00	0.00	0.00	0.00	0.09			
125	1.80	2.36	1.87	11.9	52.7	9.09	2.07	1.47	3.06	1.14	0.23	0.00	0.00	0.00	0.00	0.83			
130	3.71	3.78	3.31	43.2	100	5.87	4.58	3.30	5.73	3.13	0.33	0.00	0.10	0.00	0.00	2.58			
135	5.80	5.21	7.56	3.27	124	108	33.2	4.96	8.31	6.83	0.98	0.10	0.24	0.20	0.40	5.26			
140	7.71	7.47	54.0	23.3	58.9	26.4	85.4	8.63	10.5	11.6	1.65	0.50	0.59	0.49	0.59	8.74			
145	9.98	20.4	106	240	148	256	5.05	54.6	13.1	14.3	1.66	0.60	1.86	1.16	0.78	10.6			
150	93.7	108	5.73	303	143	347	113	113	91.5	86.4	11.1	3.96	0.98	1.09	2.52	58.8			
155	8.58	5.11	259	332	157	386	254	7.63	9.94	21.5	67.6	5.76	12.3	9.77	6.01	38.3			
160	247	301	87.1	355	191	397	269	194	205	212	305	86.2	6.49	6.26	35.6	289			
165	393	371	214	103	127	238	36.6	376	395	398	409	286	17.1	3.23	160	556			
170	460	457	467	326	25.9	133	405	461	466	462	467	378	185	4.19	319	823			
175	422	426	364	226	69.9	121	272	401	457	455	468	444	353	5.15	478	1090			
180	11.1	9.18	26.1	59.1	65.9	67.0	43.4	8.71	9.53	431	468	509	520	6.12	638	1357			

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:John Yao
Test Date:2025-12-29

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: