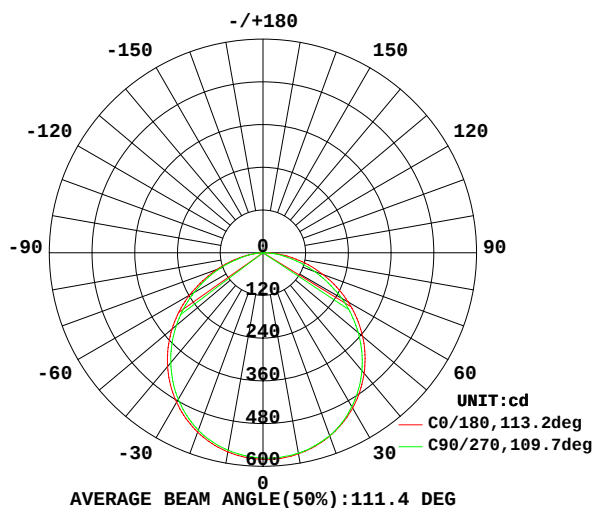


LUMINAIRE PHOTOMETRIC TEST REPORT

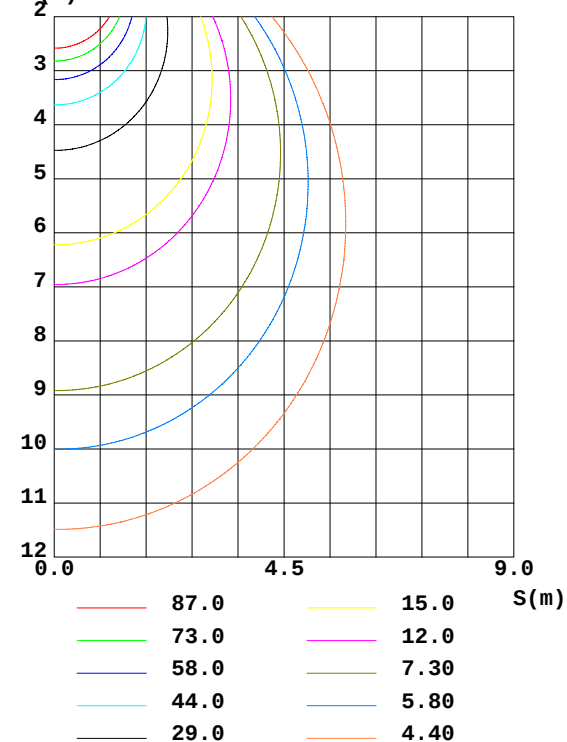
Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm		
NAME: led panel light	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 89.86 lm/W
MODEL	ASD-MNPR-9D1840-W	I _{max} (cd)	580.7	S/MH(C0/180)	1.24	
NOMINAL POWER(W)	18	LOR(%)	100.0	S/MH(C90/270)	1.23	
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	1635.5	η UP, DN(C0-180)	0.0, 52.6	
NOMINAL FLUX(lm)	1635.47	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 47.4	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25	
TEST VOLTAGE(V)	120	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: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 8.600m [K=1.0000]
 Remarks: led panel light

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	573.5	571.4	568.3	563.4					0- 10	54.78	54.78	3.35, 3.35
20	547.9	547.2	536.4	530.8					10- 20	157.3	212.1	13, 13
30	503.8	499.2	485.4	475.6					20- 30	238.8	450.8	27.6, 27.6
40	442.0	432.2	417.0	403.1					30- 40	287.2	738.0	45.1, 45.1
50	365.3	349.2	333.4	317.4					40- 50	296.1	1034	63.2, 63.2
60	276.2	255.3	239.3	223.7					50- 60	264.4	1299	79.4, 79.4
70	179.7	154.9	138.3	128.6					60- 70	196.7	1495	91.4, 91.4
80	84.80	63.72	49.55	45.39					70- 80	109.6	1605	98.1, 98.1
90	8.265	1.054	0.0080	0.1233					80- 90	29.80	1635	100, 100
100	0	0	0.0636	0					90-100	0.2259	1635	100, 100
110	0	0	0.1114	0					100-110	0.0240	1635	100, 100
120	0	0	0.1668	0					110-120	0.0359	1635	100, 100
130	0	0	0.1788	0					120-130	0.0394	1635	100, 100
140	0.0556	0	0.2185	0.1308					130-140	0.0528	1635	100, 100
150	0.1271	0.0677	0.3218	0.2661					140-150	0.0898	1635	100, 100
160	0.2700	0.1988	0.4091	0.3336					150-160	0.1135	1635	100, 100
170	0.4170	0.3297	0.4608	0.3774					160-170	0.0986	1635	100, 100
180	0.4846	0.3893	0.4886	0.3853					170-180	0.0394	1635	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

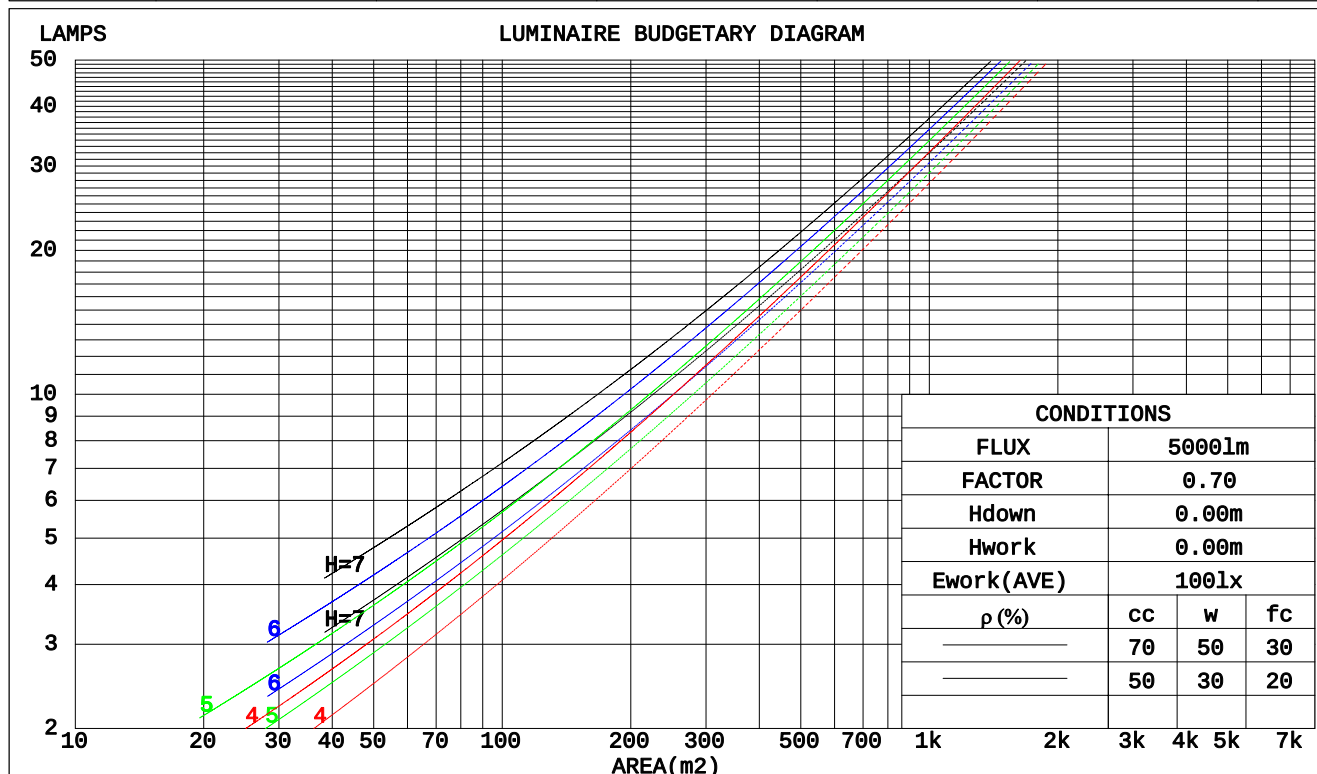
C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 8.600m [K=1.0000]
 Remarks: led panel light

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm		
NAME: led panel light	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	1.04	.00	.96	1.02	.98	.94	.97	.94	.91	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.84	.78	.89	.83	.77	.85	.80	.75	.82	.78	.74	.79	.75	.72	.70
3.0	.80	.71	.65	.78	.70	.64	.75	.69	.63	.72	.67	.62	.70	.65	.61	.59
4.0	.71	.62	.55	.69	.61	.55	.67	.60	.54	.64	.58	.53	.62	.57	.52	.50
5.0	.63	.54	.47	.62	.53	.47	.60	.52	.47	.58	.51	.46	.56	.50	.46	.43
6.0	.57	.48	.41	.56	.47	.41	.54	.46	.41	.52	.46	.40	.51	.45	.40	.38
7.0	.51	.43	.36	.51	.42	.36	.49	.42	.36	.48	.41	.36	.46	.40	.36	.34
8.0	.47	.38	.33	.46	.38	.32	.45	.38	.32	.44	.37	.32	.42	.36	.32	.30
9.0	.43	.35	.29	.42	.35	.29	.41	.34	.29	.40	.34	.29	.39	.33	.29	.27
10.0	.40	.32	.27	.39	.32	.26	.38	.31	.26	.37	.31	.26	.36	.30	.26	.24



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-04-26

```

Range: 0 - 180DEG
Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:8.600m [K=1.0000]
Remarks: led panel light

```

WEC AND CCEC

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm									
NAME: led panel light					TYPE:LED			WEIGHT:	
SPEC.:					DIM.:			SERIAL No.:	
MFR.: ASD Lighting Corp					SUR.:			Shielding Angle:	

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	.307	.174	.055	.300	.171	.054	.286	.164	.052	.274	.158	.051	.263	.152	.049		
2.0	.289	.159	.049	.283	.156	.048	.271	.151	.047	.261	.146	.046	.251	.142	.045		
3.0	.268	.143	.043	.263	.141	.042	.252	.137	.042	.243	.133	.041	.234	.129	.040		
4.0	.248	.129	.038	.243	.127	.038	.234	.124	.037	.225	.121	.036	.217	.118	.036		
5.0	.229	.117	.034	.225	.115	.034	.217	.113	.033	.209	.110	.033	.202	.108	.032		
6.0	.213	.107	.031	.209	.106	.030	.202	.103	.030	.195	.101	.030	.189	.099	.029		
7.0	.198	.098	.028	.195	.097	.028	.188	.095	.027	.182	.093	.027	.176	.092	.027		
8.0	.185	.090	.025	.182	.090	.025	.176	.088	.025	.171	.087	.025	.166	.085	.025		
9.0	.174	.084	.023	.171	.083	.023	.166	.082	.023	.161	.081	.023	.156	.079	.023		
10.0	.163	.078	.022	.161	.078	.022	.156	.076	.022	.152	.075	.021	.147	.074	.021		

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	.180	.156	.135	.154	.134	.116	.106	.092	.080	.061	.053	.047	.019	.017	.015	
2.0	.172	.132	.099	.148	.114	.085	.101	.079	.059	.058	.046	.035	.019	.015	.011	
3.0	.164	.115	.075	.141	.099	.065	.097	.069	.046	.056	.040	.027	.018	.013	.009	
4.0	.157	.101	.059	.135	.088	.051	.093	.061	.036	.054	.036	.021	.017	.012	.007	
5.0	.149	.091	.048	.128	.079	.041	.088	.055	.029	.051	.032	.017	.017	.011	.006	
6.0	.142	.083	.040	.122	.071	.034	.084	.050	.024	.049	.029	.015	.016	.010	.005	
7.0	.135	.076	.034	.117	.066	.029	.081	.046	.021	.047	.027	.012	.015	.009	.004	
8.0	.129	.070	.029	.111	.061	.025	.077	.043	.018	.045	.025	.011	.014	.008	.004	
9.0	.123	.065	.026	.106	.056	.022	.073	.040	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.061	.023	.101	.053	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:8.600m [K=1.0000]
 Remarks: led panel light

UGR(Unified Glare Rating) Table

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm											
NAME: led panel light					TYPE:LED			WEIGHT:			
SPEC.:					DIM.:			SERIAL No.:			
MFR.: ASD Lighting Corp					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		19.1	20.6	19.4	20.8	21.0	18.8	20.3	19.1	20.5	20.7
	3H	20.7	22.1	21.0	22.4	22.6	20.3	21.7	20.6	21.9	22.1
	4H	21.4	22.7	21.7	23.0	23.3	20.8	22.2	21.2	22.4	22.7
	6H	22.0	23.2	22.3	23.5	23.8	21.2	22.5	21.6	22.8	23.0
	8H	22.2	23.4	22.5	23.7	24.0	21.4	22.6	21.7	22.9	23.2
	12H	22.3	23.5	22.7	23.8	24.1	21.5	22.6	21.8	22.9	23.2
4H	2H	19.7	21.0	20.0	21.3	21.5	19.5	20.8	19.8	21.0	21.3
	3H	21.5	22.7	21.8	23.0	23.3	21.1	22.3	21.5	22.6	22.9
	4H	22.3	23.4	22.7	23.7	24.0	21.8	22.9	22.2	23.2	23.5
	6H	23.0	24.0	23.4	24.3	24.7	22.3	23.3	22.7	23.6	24.0
	8H	23.3	24.2	23.7	24.5	24.9	22.5	23.4	22.9	23.8	24.2
	12H	23.5	24.3	23.9	24.7	25.1	22.7	23.5	23.1	23.9	24.3
8H	4H	22.6	23.5	23.0	23.8	24.2	22.1	23.0	22.5	23.4	23.8
	6H	23.4	24.2	23.9	24.6	25.0	22.8	23.5	23.3	24.0	24.4
	8H	23.8	24.5	24.3	24.9	25.3	23.1	23.8	23.6	24.2	24.6
	12H	24.1	24.7	24.6	25.1	25.6	23.4	23.9	23.8	24.4	24.8
12H	4H	22.6	23.4	23.0	23.8	24.2	22.2	23.0	22.6	23.4	23.8
	6H	23.5	24.1	23.9	24.6	25.0	22.9	23.5	23.4	24.0	24.4
	8H	23.9	24.5	24.4	24.9	25.4	23.2	23.8	23.7	24.2	24.7
Variations with the observer position at spacings:											
S = 1.0H		+ 0.1 / - 0.2					+ 0.2 / - 0.2				
1.5H		+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H		+ 0.1 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117 Corrected 1635 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.7)

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:8.600m [K=1.0000]
 Remarks: led panel light

UTILIZATION FACTORS TABLE

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm		
NAME: led panel light	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:

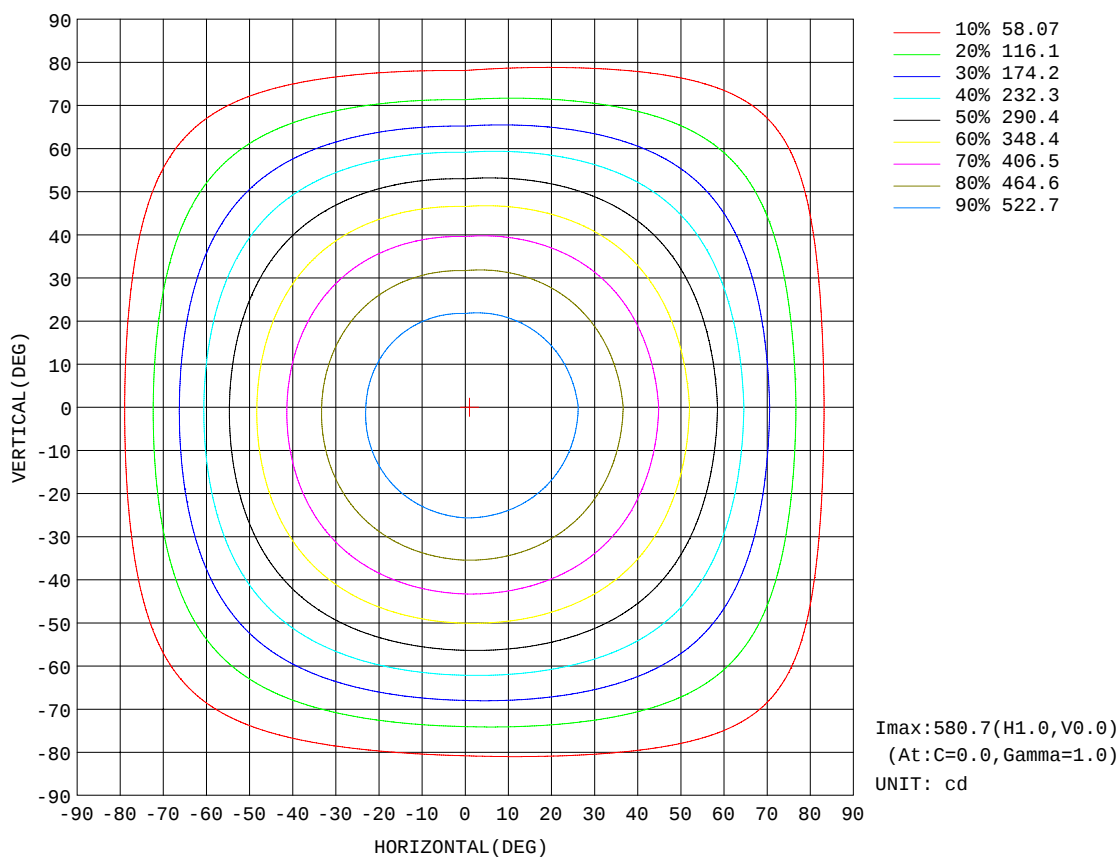
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	58	46	39	57	46	39	56	45	39	33
0.80	68	56	49	67	56	49	65	55	48	41
1.00	76	65	58	75	65	58	73	66	57	50
1.25	83	73	66	82	72	65	79	71	65	57
1.50	88	79	72	87	78	71	84	76	70	63
2.00	95	87	80	93	86	80	90	83	78	70
2.50	99	91	85	97	90	84	93	87	83	74
3.00	102	96	90	100	94	89	96	91	87	78
4.00	106	101	96	104	99	95	100	96	92	83
5.00	109	104	100	106	102	98	102	98	95	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:8.600m [K=1.0000]
 Remarks: led panel light

ISOCANDELA DIAGRAM

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm		
NAME: led panel light	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:

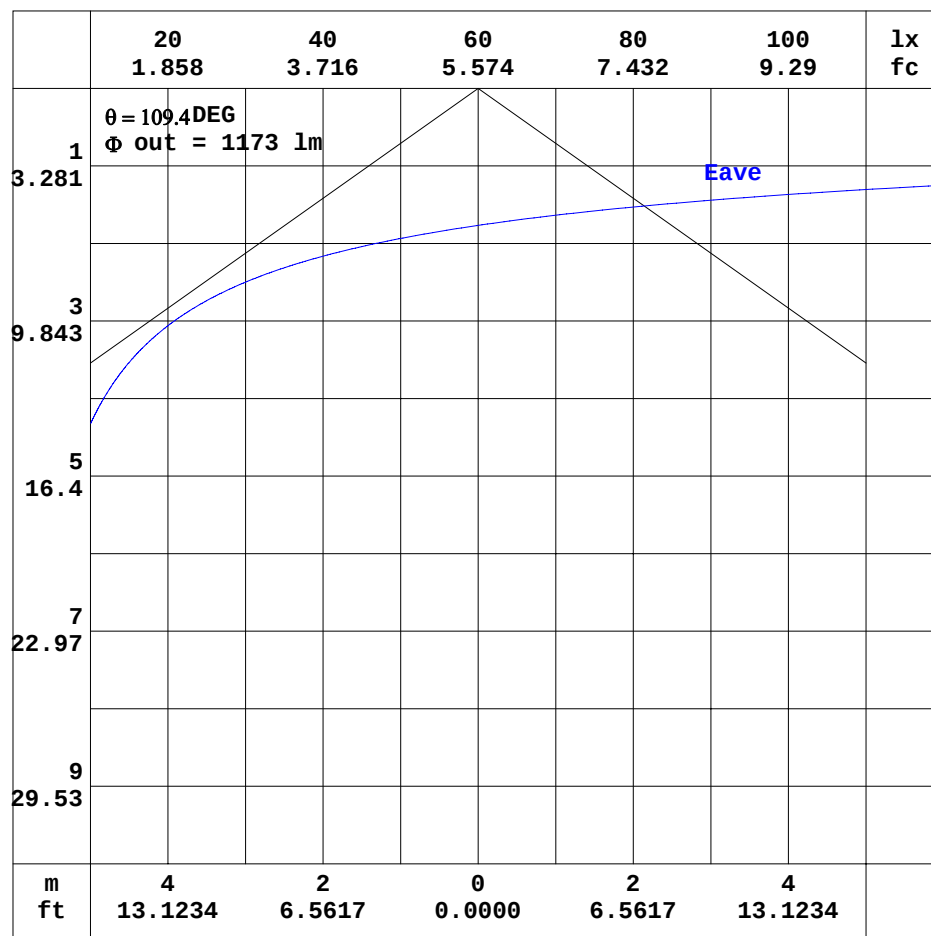


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-04-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 8.600m [K=1.0000]
Remarks: led panel light

AAI CURVES

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm		
NAME: led panel light	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:



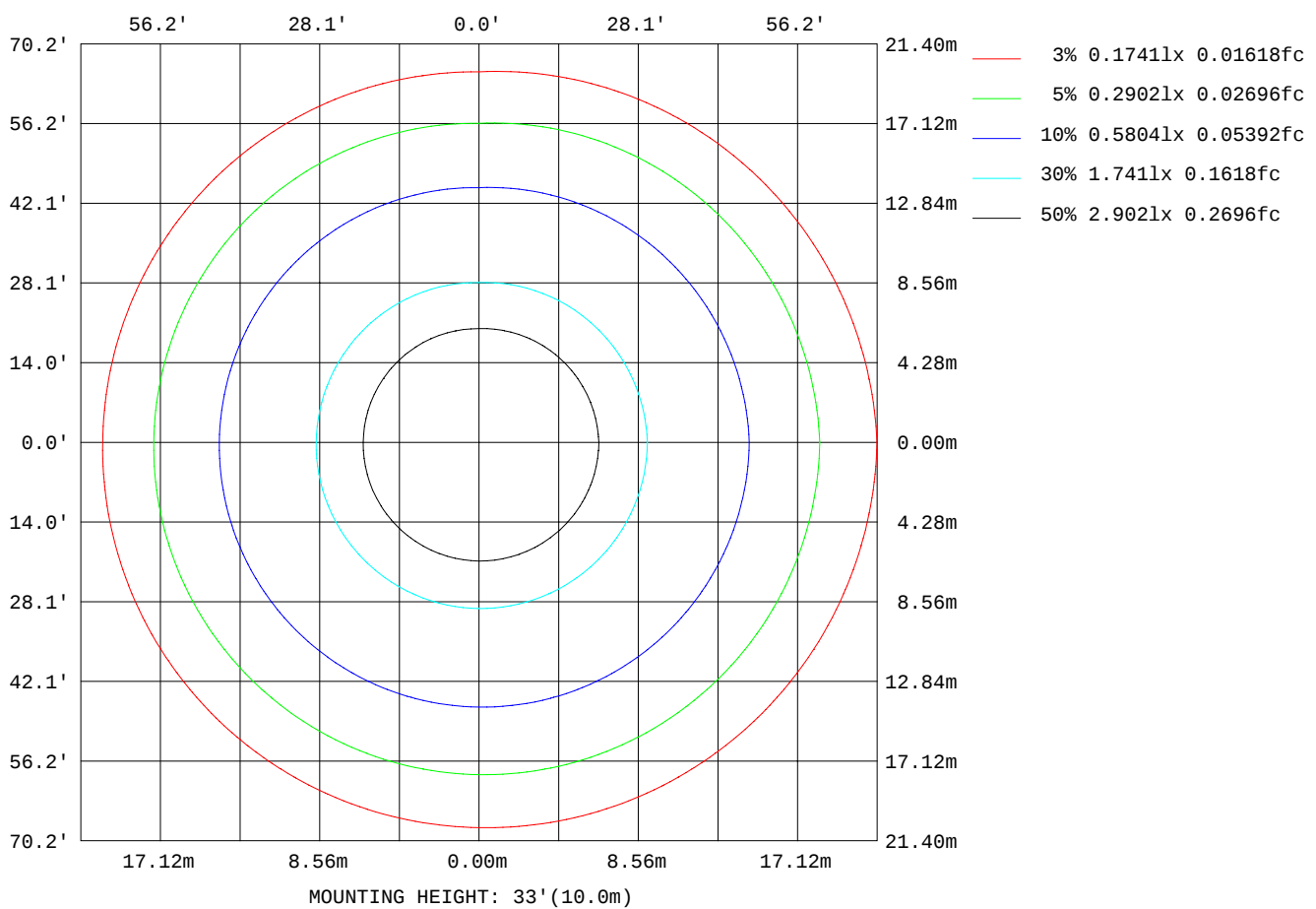
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 8.600m [K=1.0000]
 Remarks: led panel light

ISOLUX DIAGRAM

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm		
NAME: led panel light	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-04-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:8.600m [K=1.0000]
Remarks: led panel light

LED Avg.L Report

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm		
NAME: led panel light	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:

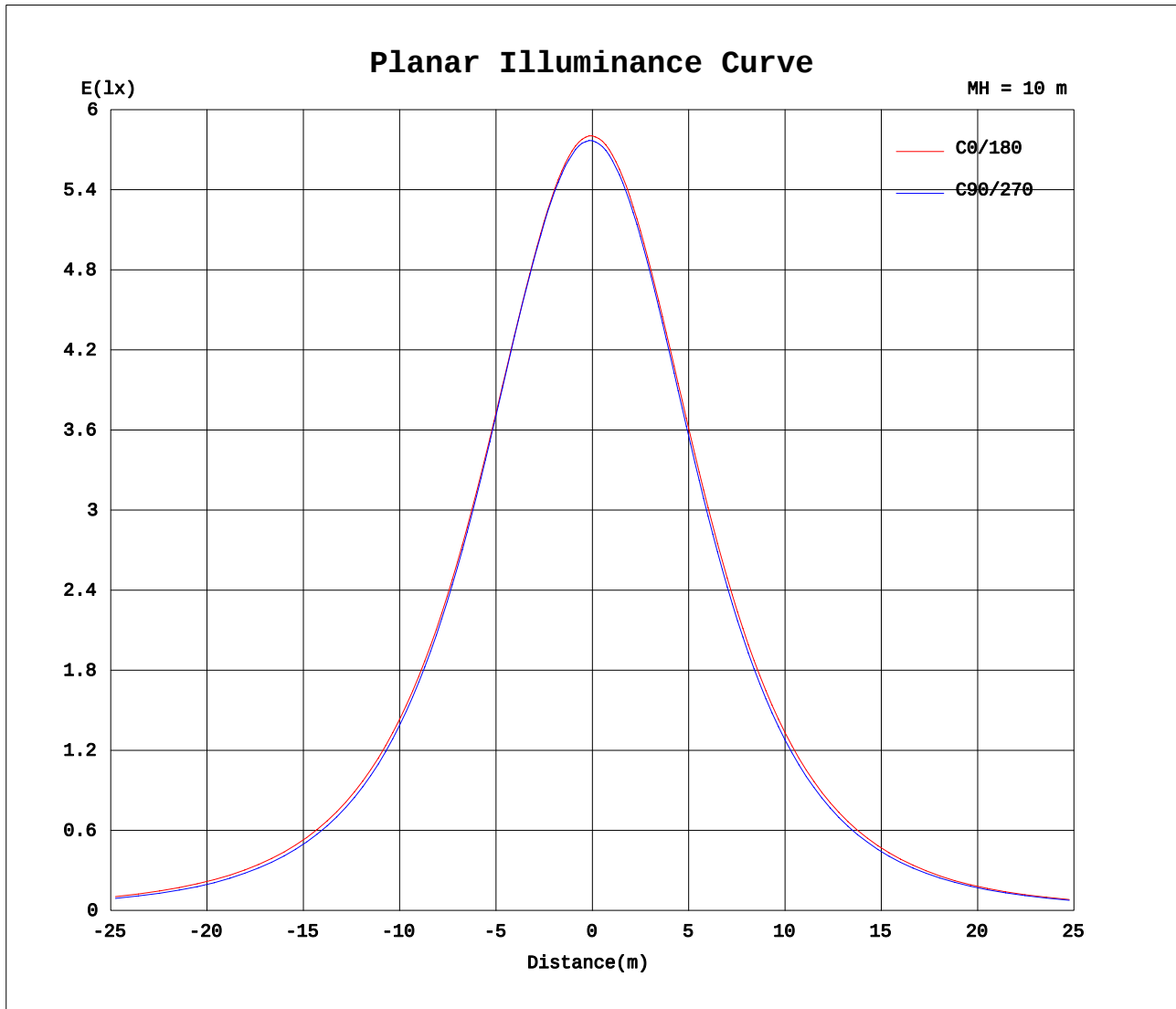
AvgL	cd/m2
L_0~180(65)av	4911
L_0~180(75)av	4319
L_0~180(85)av	3202
L_90~270(65)av	4487
L_90~270(75)av	3631
L_90~270(85)av	2641
L_45(65)av	4615
L_45(75)av	3841
L_45(85)av	2736

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:8.600m [K=1.0000]
 Remarks: led panel light

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 8.600m [K=1.0000]
Remarks: led panel light

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:122.3V I:0.1590A P:18.20W PF:0.9340 Lamp Flux:1635.47x1 lm		
NAME: led panel light	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD Lighting Corp	SUR.:	Shielding Angle:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	90	180	270														
0	580	577	580	577														
5	579	577	577	572														
10	574	571	568	563														
15	563	561	555	550														
20	548	547	536	531														
25	528	526	513	506														
30	504	499	485	476														
35	475	468	453	441														
40	442	432	417	403														
45	405	393	377	362														
50	365	349	333	317														
55	322	303	287	271														
60	276	255	239	224														
65	228	203	187	176														
70	180	155	138	129														
75	132	107	91.9	80.7														
80	84.8	63.7	49.5	45.4														
85	44.0	31.3	11.8	14.7														
90	8.27	1.05	0.01	0.12														
95	0.00	0.00	0.04	0.00														
100	0.00	0.00	0.06	0.00														
105	0.00	0.00	0.09	0.00														
110	0.00	0.00	0.11	0.00														
115	0.00	0.00	0.15	0.00														
120	0.00	0.00	0.17	0.00														
125	0.00	0.00	0.18	0.00														
130	0.00	0.00	0.18	0.00														
135	0.02	0.00	0.20	0.05														
140	0.06	0.00	0.22	0.13														
145	0.10	0.00	0.26	0.21														
150	0.13	0.07	0.32	0.27														
155	0.19	0.14	0.37	0.30														
160	0.27	0.20	0.41	0.33														
165	0.35	0.27	0.44	0.36														
170	0.42	0.33	0.46	0.38														
175	0.44	0.36	0.48	0.39														
180	0.48	0.39	0.49	0.39														

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-04-26

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:8.600m [K=1.0000]
 Remarks: led panel light