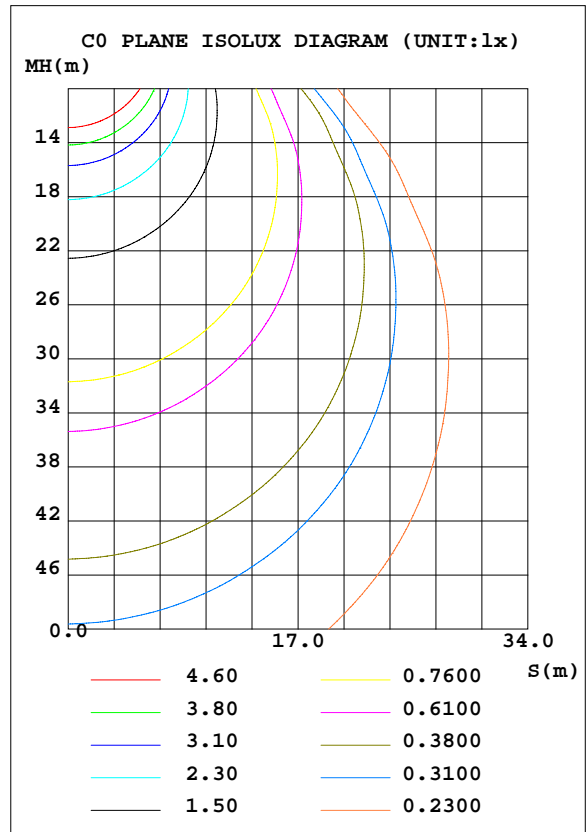
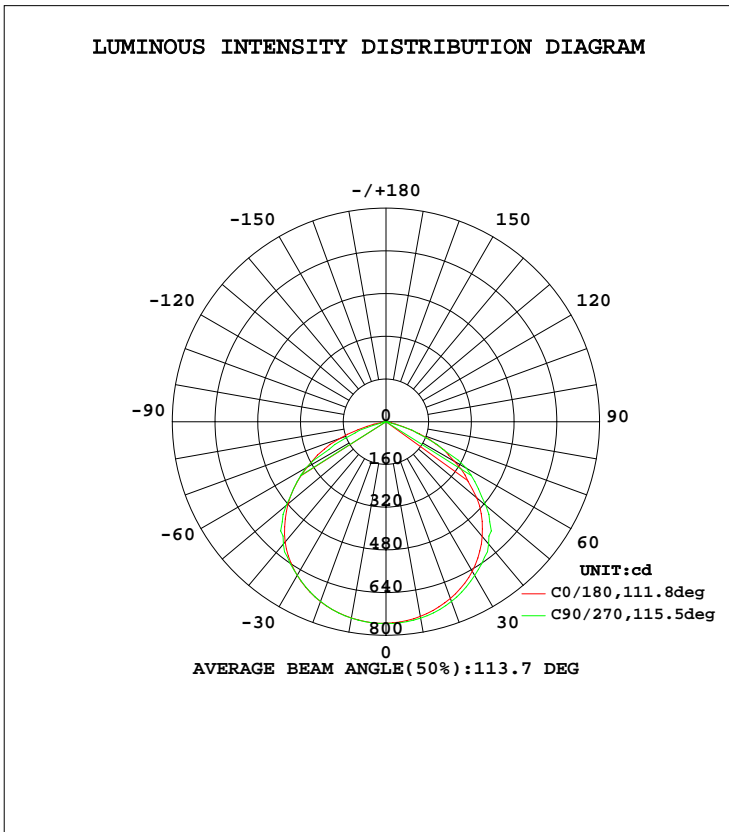


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm		
NAME: ASD-FLSL-20N50A-XX	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:027
MFR.: ASD Lighting corp	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 107.17 lm/W			
MODEL	ASD-FLSL-20N50A-XX	I _{max} (cd)	755.8	S/MH(C0/180)	1.27
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	1.31
RATED VOLTAGE(V)	110	TOTAL FLUX(lm)	2070.1	η UP, DN(C0-180)	0.1, 49.1
NOMINAL FLUX(lm)	2070.1	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.1, 50.8
LAMPS INSIDE	1	η up(%)	0.1	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	110.6	η down(%)	99.9	CIBSE SHR MAX	1.50



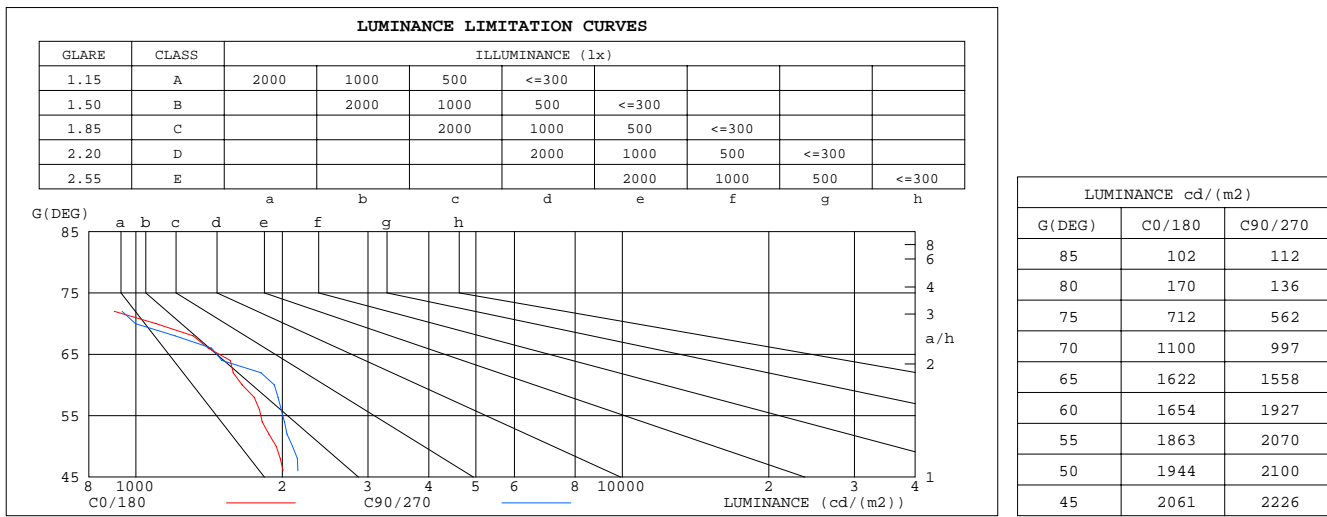
C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity:65.0%
 Test Distance:18.400m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM
AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270				γ	Φ zone	Φ total	$\%lum, lamp$
10	740.5	746.9	746.2	746.9				0- 10	71.62	71.62	3.46,3.46
20	704.6	716.5	717.1	716.5				10- 20	206.8	278.4	13.4,13.4
30	646.6	664.7	664.4	664.7				20- 30	317.9	596.4	28.8,28.8
40	560.6	597.9	587.7	597.9				30- 40	392.2	988.5	47.8,47.8
50	444.8	487.4	478.9	487.4				40- 50	412.9	1401	67.7,67.7
60	294.4	347.8	341.5	347.8				50- 60	360.6	1762	85.1,85.1
70	133.9	123.2	184.7	123.2				60- 70	234.2	1996	96.4,96.4
80	10.48	8.540	21.28	8.540				70- 80	67.10	2063	99.7,99.7
90	0	0	0.0644	0				80- 90	4.011	2067	99.9,99.9
100	0	0	0	0				90-100	0.0018	2067	99.9,99.9
110	0.1267	0.1499	0.1074	0.1499				100-110	0.0384	2067	99.9,99.9
120	0.4216	0.4070	0.3217	0.4070				110-120	0.2326	2068	99.9,99.9
130	0.5700	0.6642	0.5153	0.6642				120-130	0.4464	2068	99.9,99.9
140	0.7812	0.8353	0.7514	0.8353				130-140	0.5415	2069	99.9,99.9
150	0.9500	0.9850	0.9016	0.9850				140-150	0.5451	2069	100,100
160	1.098	1.071	1.030	1.071				150-160	0.4593	2070	100,100
170	1.203	1.156	1.138	1.156				160-170	0.3187	2070	100,100
180	1.203	1.199	1.202	1.199				170-180	0.1123	2070	100,100
DEG	LUMINOUS INTENSITY:cd								UNIT:lm		



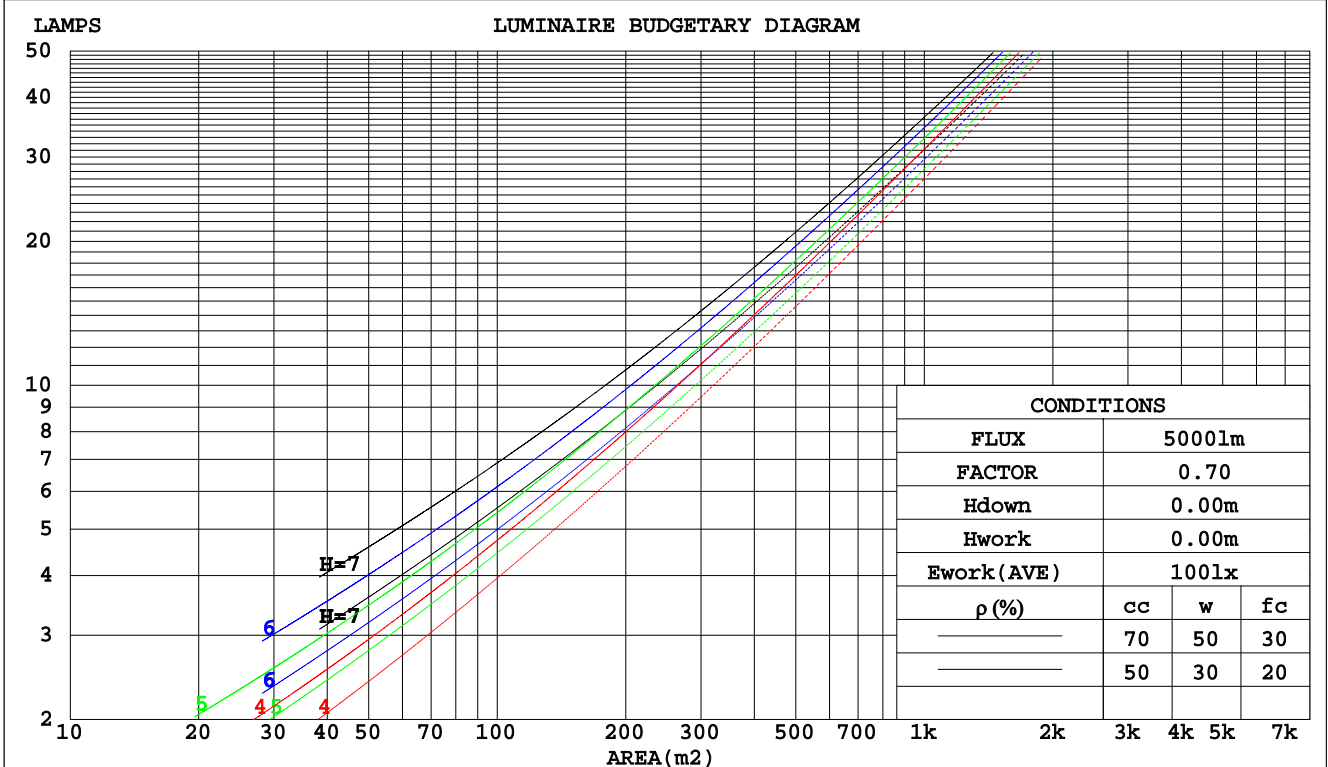
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.281
Humidity:65.0%
Test Distance:18.400m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm		
NAME: ASD-FLSL-20N50A-XX	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:027
MFR.: ASD Lighting corp	SUR.:	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																0
pfc	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	1.06	1.02	.99	1.04	1.00	.97	.99	.97	.94	.95	.93	.91	.92	.90	.88	.86
2.0	.93	.87	.82	.91	.85	.81	.88	.83	.79	.84	.80	.77	.81	.78	.75	.73
3.0	.82	.74	.68	.81	.73	.68	.78	.71	.66	.75	.70	.65	.72	.68	.64	.62
4.0	.73	.64	.58	.72	.64	.58	.69	.62	.57	.67	.61	.56	.65	.60	.55	.53
5.0	.65	.56	.50	.64	.56	.50	.62	.55	.49	.60	.54	.49	.58	.53	.48	.46
6.0	.59	.50	.44	.58	.49	.43	.56	.49	.43	.54	.48	.43	.53	.47	.42	.40
7.0	.53	.45	.39	.52	.44	.38	.51	.43	.38	.49	.43	.38	.48	.42	.38	.36
8.0	.48	.40	.34	.48	.40	.34	.46	.39	.34	.45	.39	.34	.44	.38	.34	.32
9.0	.44	.36	.31	.44	.36	.31	.43	.36	.31	.42	.35	.30	.41	.35	.30	.28
10.0	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.28	.38	.32	.27	.26



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity: 65.0%
 Test Distance: 18.400m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm		
NAME: ASD-FLSL-20N50A-XX	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:027
MFR.: ASD Lighting corp	SUR.:	PROTECTION 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						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.272	.155	.049	.265	.151	.048	.252	.145	.046	.240	.138	.044	.229	.133	.043	
2.0	.266	.146	.045	.260	.143	.044	.249	.138	.043	.238	.134	.042	.228	.129	.041	
3.0	.252	.134	.040	.247	.132	.040	.237	.128	.039	.227	.125	.038	.218	.121	.037	
4.0	.236	.123	.036	.232	.121	.036	.223	.118	.035	.214	.115	.035	.206	.112	.034	
5.0	.221	.113	.033	.217	.111	.032	.209	.109	.032	.201	.106	.032	.194	.104	.031	
6.0	.207	.104	.030	.203	.102	.029	.196	.100	.029	.189	.098	.029	.183	.096	.029	
7.0	.193	.096	.027	.190	.095	.027	.184	.093	.027	.178	.091	.026	.172	.089	.026	
8.0	.181	.089	.025	.178	.088	.025	.173	.086	.025	.167	.085	.024	.162	.083	.024	
9.0	.171	.083	.023	.168	.082	.023	.163	.080	.023	.158	.079	.023	.153	.078	.022	
10.0	.161	.077	.021	.158	.077	.021	.154	.075	.021	.149	.074	.021	.145	.073	.021	

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						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.191	.191	.191	.164	.164	.164	.112	.112	.112	.064	.064	.064	.021	.021	.021	
1.0	.179	.157	.138	.153	.135	.119	.105	.093	.082	.060	.054	.048	.019	.017	.015	
2.0	.170	.133	.102	.145	.115	.088	.100	.079	.062	.057	.046	.036	.018	.015	.012	
3.0	.162	.115	.078	.139	.099	.067	.095	.069	.047	.055	.040	.028	.018	.013	.009	
4.0	.155	.102	.061	.133	.088	.053	.091	.061	.037	.053	.036	.022	.017	.012	.007	
5.0	.148	.091	.050	.127	.079	.043	.087	.055	.030	.051	.032	.018	.016	.011	.006	
6.0	.141	.083	.041	.121	.072	.036	.084	.050	.025	.048	.030	.015	.016	.010	.005	
7.0	.134	.076	.035	.116	.066	.030	.080	.046	.022	.046	.027	.013	.015	.009	.004	
8.0	.128	.070	.030	.110	.061	.026	.076	.043	.019	.044	.025	.011	.014	.008	.004	
9.0	.122	.065	.027	.105	.057	.023	.073	.040	.016	.043	.024	.010	.014	.008	.003	
10.0	.117	.061	.024	.101	.053	.021	.070	.037	.015	.041	.022	.009	.013	.007	.003	

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity:65.0%
 Test Distance:18.400m [K=1.0000]
 Remarks:

Uncorrected UGR Table

Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm										
NAME: ASD-FLSL-20N50A-XX					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:027		
MFR.: ASD Lighting corp					SUR.:			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	15.0	16.5	15.3	16.7	16.9	15.4	16.9	15.7	17.1	17.3
3H	15.9	17.2	16.2	17.5	17.7	16.2	17.5	16.5	17.7	18.0
4H	16.0	17.2	16.3	17.5	17.7	16.2	17.4	16.5	17.7	17.9
6H	15.9	17.1	16.2	17.3	17.6	16.1	17.3	16.4	17.5	17.8
8H	15.8	17.0	16.2	17.3	17.5	16.0	17.2	16.3	17.4	17.7
12H	15.8	16.9	16.1	17.2	17.5	16.0	17.1	16.3	17.4	17.7
4H 2H	15.5	16.8	15.8	17.0	17.3	15.8	17.1	16.1	17.3	17.6
3H	16.4	17.5	16.8	17.8	18.1	16.6	17.7	17.0	18.0	18.3
4H	16.5	17.5	16.9	17.8	18.2	16.6	17.6	17.0	18.0	18.3
6H	16.4	17.3	16.8	17.7	18.0	16.6	17.4	17.0	17.8	18.2
8H	16.4	17.2	16.8	17.6	18.0	16.5	17.3	16.9	17.7	18.1
12H	16.4	17.1	16.8	17.5	17.9	16.5	17.2	16.9	17.6	18.0
8H 4H	16.5	17.3	16.9	17.6	18.0	16.6	17.4	17.0	17.8	18.2
6H	16.4	17.1	16.9	17.5	17.9	16.5	17.2	17.0	17.6	18.0
8H	16.4	17.0	16.8	17.4	17.8	16.5	17.1	16.9	17.5	17.9
12H	16.3	16.8	16.8	17.3	17.8	16.5	17.0	16.9	17.4	17.9
12H 4H	16.4	17.2	16.8	17.5	18.0	16.5	17.3	17.0	17.7	18.1
6H	16.4	17.0	16.8	17.4	17.8	16.5	17.1	16.9	17.5	17.9
8H	16.3	16.8	16.8	17.3	17.8	16.4	17.0	16.9	17.4	17.9
Variations with the observer position at spacings:										
S = 1.0H	+ 0.4 / - 0.5					+ 0.6 / - 0.7				
1.5H	+ 0.3 / - 0.5					+ 0.6 / - 0.8				
2.0H	+ 0.4 / - 0.8					+ 0.5 / - 0.9				

CIE Pub.117 Corrected 2070 lm Total Lamp Luminous Flux.(8log(F/F0) = 2.5)

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity:65.0%
 Test Distance:18.400m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm		
NAME: ASD-FLSL-20N50A-XX	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:027
MFR.: ASD Lighting corp	SUR.:	PROTECTION ANGLE:

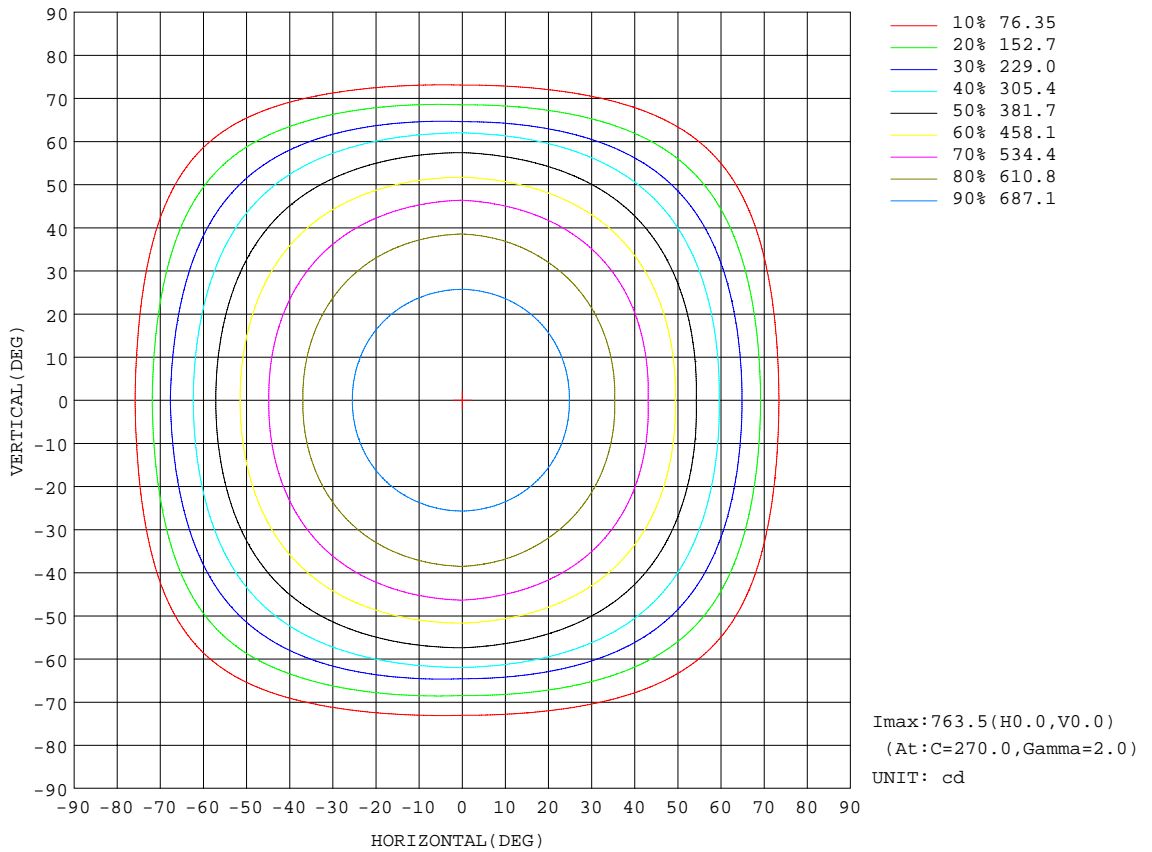
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	59	47	41	58	47	40	57	47	40	34
0.80	69	58	51	68	58	51	67	57	50	44
1.00	78	68	61	77	67	60	75	68	60	53
1.25	86	76	69	84	75	69	82	74	68	61
1.50	91	81	75	89	80	74	86	79	73	66
2.00	97	90	84	96	88	83	92	86	81	74
2.50	101	94	88	99	93	88	95	90	86	78
3.00	104	98	93	102	96	92	98	94	90	82
4.00	108	103	99	106	101	97	101	98	95	86
5.00	110	106	102	108	104	101	103	100	97	89
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:2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity:65.0%
 Test Distance:18.400m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm		
NAME: ASD-FLSL-20N50A-XX	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:027
MFR.: ASD Lighting corp	SUR.:	PROTECTION ANGLE:

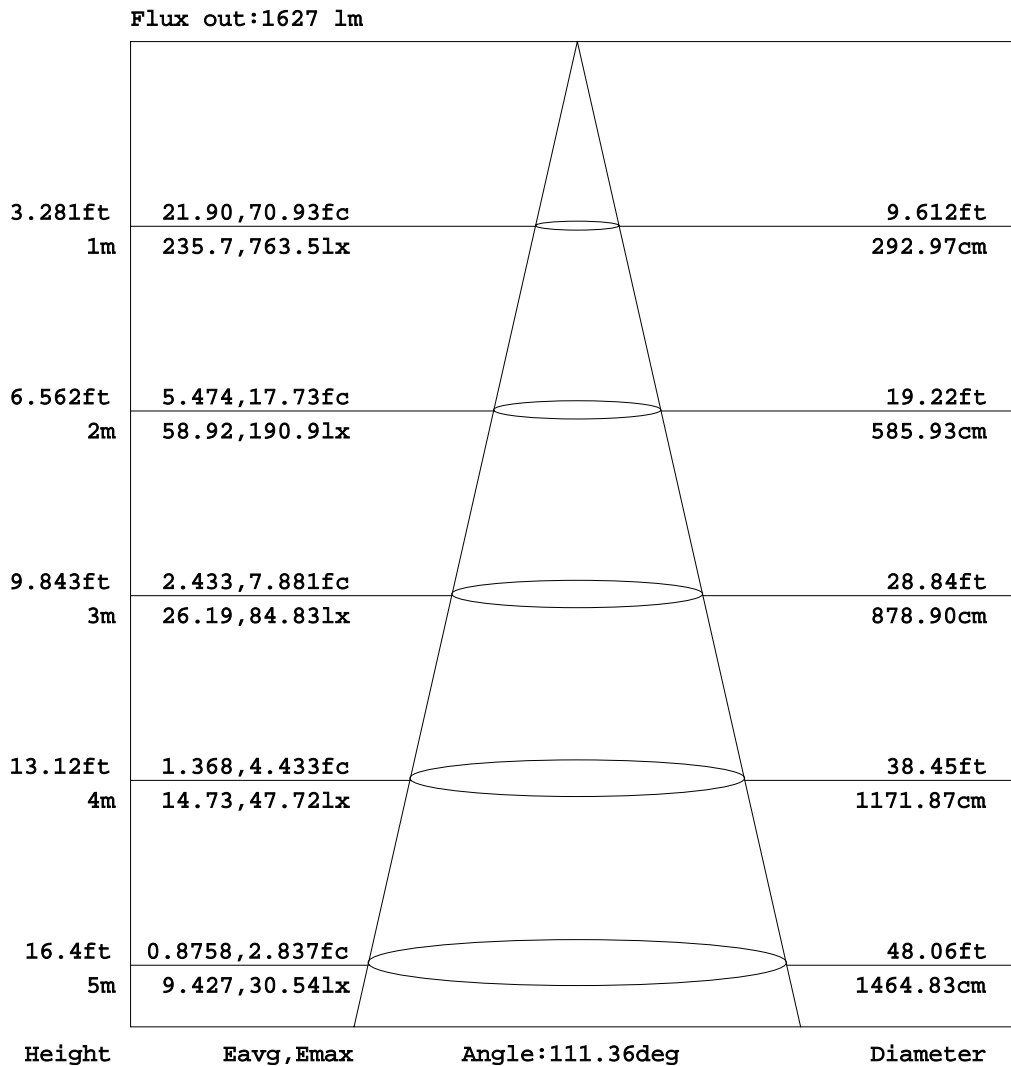


C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity: 65.0%
 Test Distance: 18.400m [K=1.0000]
 Remarks:

AAI Figure

Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm		
NAME: ASD-FLSL-20N50A-XX	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:027
MFR.: ASD Lighting corp	SUR.:	PROTECTION ANGLE:



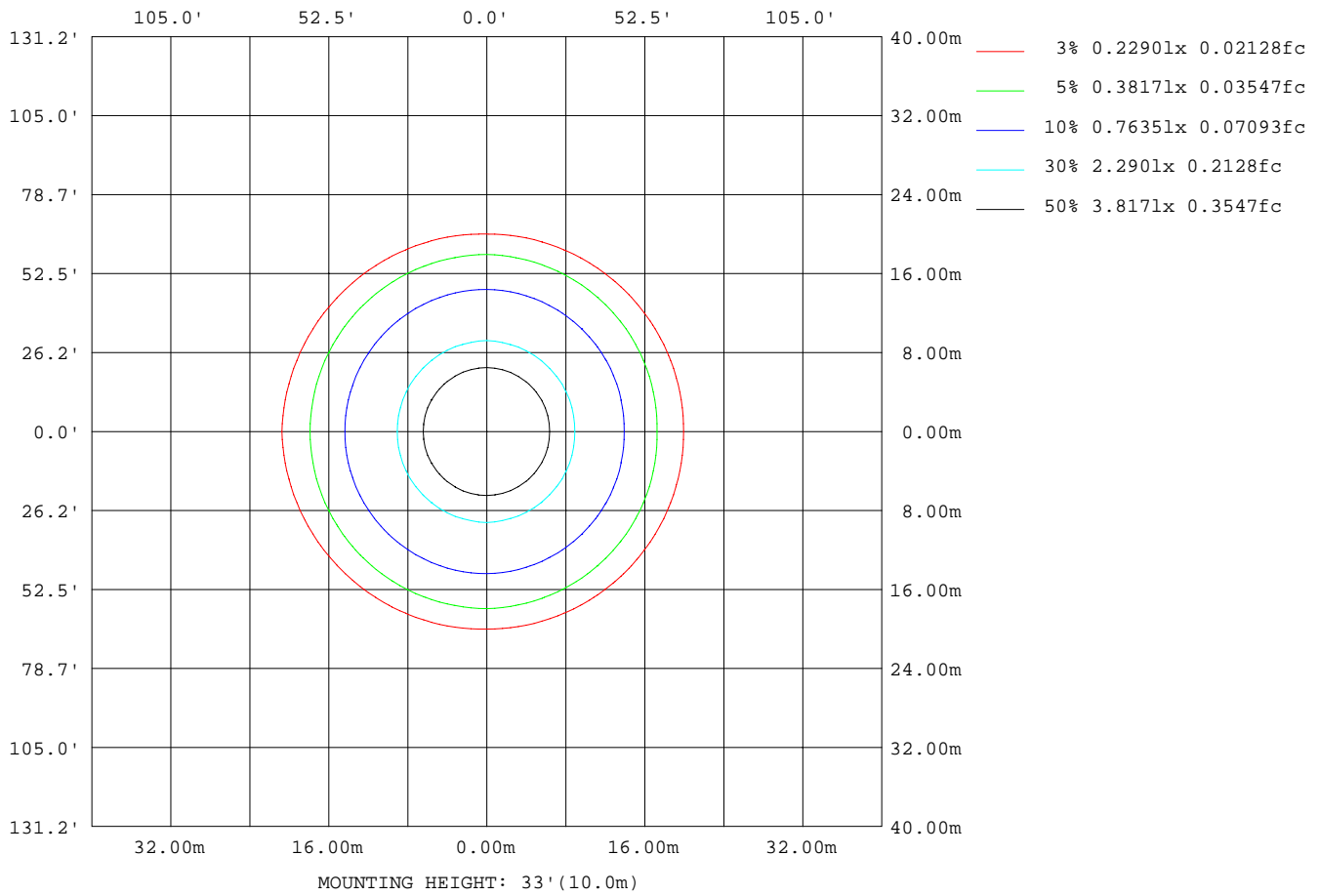
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity:65.0%
 Test Distance:18.400m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

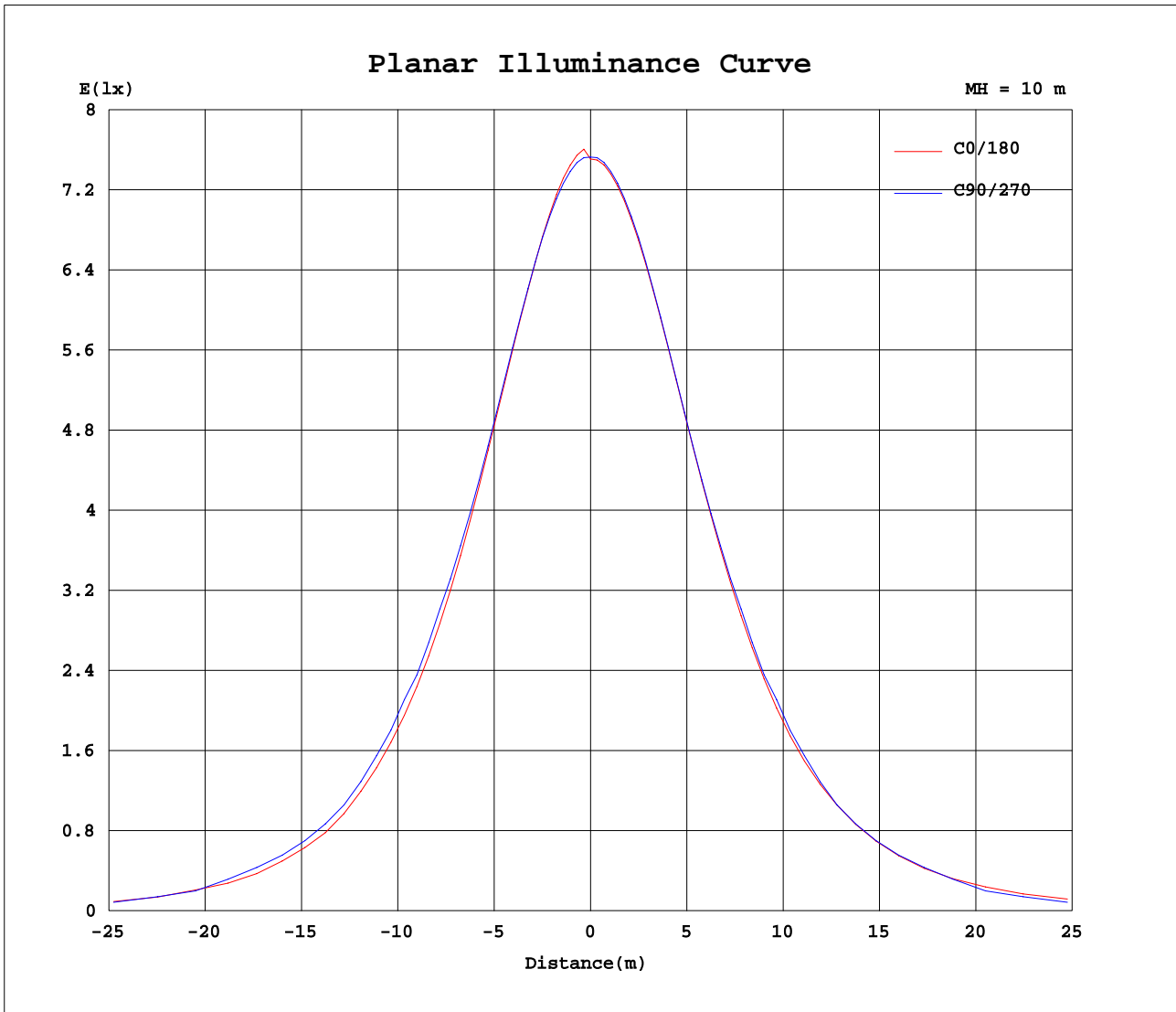
Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm		
NAME: ASD-FLSL-20N50A-XX	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:027
MFR.: ASD Lighting corp	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity: 65.0%
 Test Distance: 18.400m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity: 65.0%
 Test Distance: 18.400m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:110.6V I:0.1771A P:19.32W PF:0.9862 Lamp Flux:2070.1x1 lm		
NAME: ASD-FLSL-20N50A-XX	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:027
MFR.: ASD Lighting corp	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	90	180	270															
0	755	755	755	755															
5	752	755	755	755															
10	741	747	746	747															
15	729	738	737	738															
20	705	716	717	716															
25	684	698	699	698															
30	647	665	664	665															
35	616	642	638	642															
40	561	598	588	598															
45	519	568	547	568															
50	445	487	479	487															
55	380	429	428	429															
60	294	348	342	348															
65	244	238	285	238															
70	134	123	185	123															
75	65.6	52.5	110	52.5															
80	10.5	8.54	21.3	8.54															
85	3.18	3.52	4.33	3.52															
90	0.00	0.00	0.06	0.00															
95	0.00	0.00	0.00	0.00															
100	0.00	0.00	0.00	0.00															
105	0.00	0.00	0.00	0.00															
110	0.13	0.15	0.11	0.15															
115	0.21	0.21	0.19	0.21															
120	0.42	0.41	0.32	0.41															
125	0.49	0.49	0.45	0.49															
130	0.57	0.66	0.52	0.66															
135	0.68	0.73	0.60	0.73															
140	0.78	0.84	0.75	0.84															
145	0.84	0.88	0.84	0.88															
150	0.95	0.99	0.90	0.99															
155	0.97	1.01	0.97	1.01															
160	1.10	1.07	1.03	1.07															
165	1.12	1.14	1.09	1.14															
170	1.20	1.16	1.14	1.16															
175	1.18	1.20	1.18	1.20															
180	1.20	1.20	1.20	1.20															

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-07-09

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity:65.0%
 Test Distance:18.400m [K=1.0000]
 Remarks: