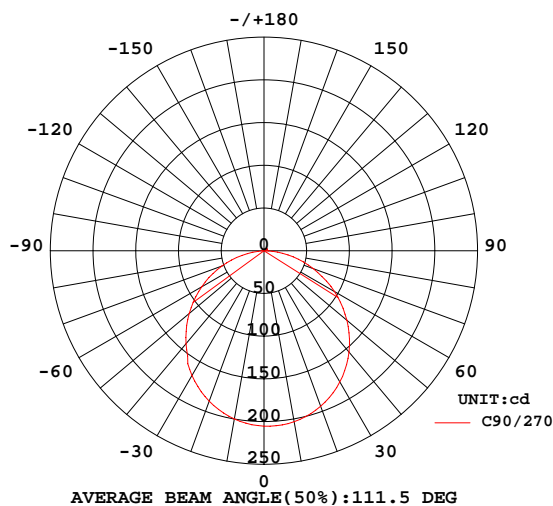


LUMINAIRE PHOTOMETRIC TEST REPORT

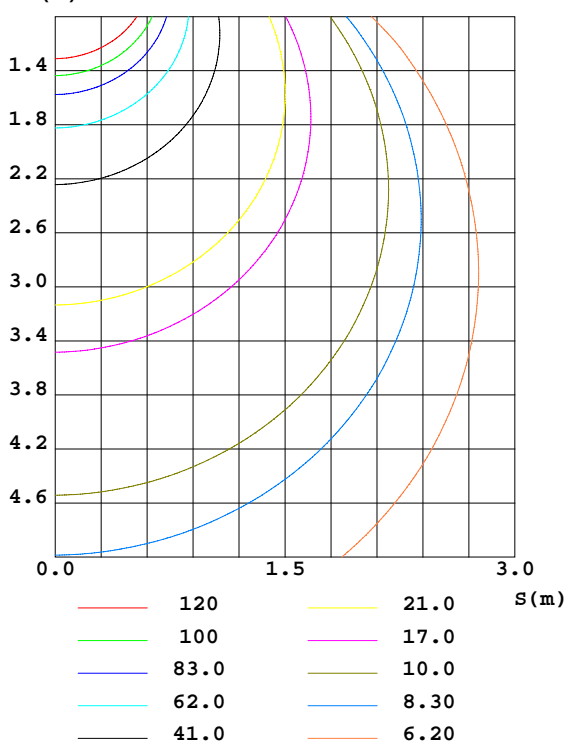
NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W-83.3	WEIGHT:0.132kg/m	
DIM.: 10*10mm	SPEC.:	SERIAL No.:
MFR.: CLEAR	SUR.:10*1000mm	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 68.79 lm/W			
MODEL	3015	Imax(cd)	205.6	S/MH(C0/180)	1.24
NOMINAL POWER(W)	9	LOR(%)	136.0	S/MH(C90/270)	1.23
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	598.51	η UP,DN(C0-180)	0.6,64.7
NOMINAL FLUX(lm)	440	CIE CLASS	DIRECT	η UP,DN(C180-360)	1.2,69.5
LAMPS INSIDE	1	η up(%)	1.9	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	24	η down(%)	134.2	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:21.5DEG  
Operators:Eileen Yang  
Test Date:2020-04-20

γ Range: 0 - 180DEG  
γ Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity:49%  
Test Distance:6.950m [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	200.5	199.5	199.9	201.3	202.5	203.6	203.2	201.8	0- 10	19.42	19.42	3.24,4.41
20	188.4	186.7	187.5	190.1	192.4	194.5	193.8	190.9	10- 20	55.57	74.99	12.5,17
30	170.0	167.7	168.6	172.3	175.5	178.4	177.5	173.5	20- 30	84.11	159.1	26.6,36.2
40	146.2	142.3	142.1	147.8	150.7	155.9	154.8	149.3	30- 40	101.1	260.2	43.5,59.1
50	118.7	114.5	114.2	120.4	124.2	128.5	126.7	121.7	40- 50	104.4	364.6	60.9,82.9
60	88.68	84.33	84.09	90.57	94.87	98.34	95.10	91.03	50- 60	95.05	459.6	76.8,104
70	56.16	52.30	52.69	58.65	63.80	65.54	61.24	58.12	60- 70	73.96	533.6	89.2,121
80	24.10	19.72	19.84	26.10	31.55	32.31	28.60	24.92	70- 80	44.63	578.2	96.6,131
90	0.0032	0.0492	0.1504	0.1094	1.063	2.552	3.892	1.729	80- 90	12.07	590.3	98.6,134
100	0.0051	0.3764	0.5866	0.2623	0.0000	1.336	2.408	1.368	90-100	0.9215	591.2	98.8,134
110	0.1283	0.9221	1.730	0.7808	0.1004	1.579	4.024	2.021	100-110	1.085	592.3	99,135
120	0.3441	1.400	2.203	1.138	0.2984	1.946	4.231	2.457	110-120	1.636	593.9	99.2,135
130	0.5190	1.308	1.555	0.9741	0.4705	1.652	3.549	2.346	120-130	1.489	595.4	99.5,135
140	0.6655	1.330	1.475	0.9118	0.6171	1.343	2.803	2.028	130-140	1.137	596.6	99.7,136
150	0.8865	1.373	1.493	0.9752	0.8253	1.206	2.160	1.795	140-150	0.8560	597.4	99.8,136
160	1.092	1.315	1.213	1.041	1.033	1.250	1.245	1.679	150-160	0.6080	598.0	99.9,136
170	1.205	1.218	1.001	1.095	1.182	1.330	1.156	1.457	160-170	0.3538	598.4	100,136
180	1.270	1.260	1.034	1.233	1.280	1.269	1.032	1.223	170-180	0.1161	598.5	100,136
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

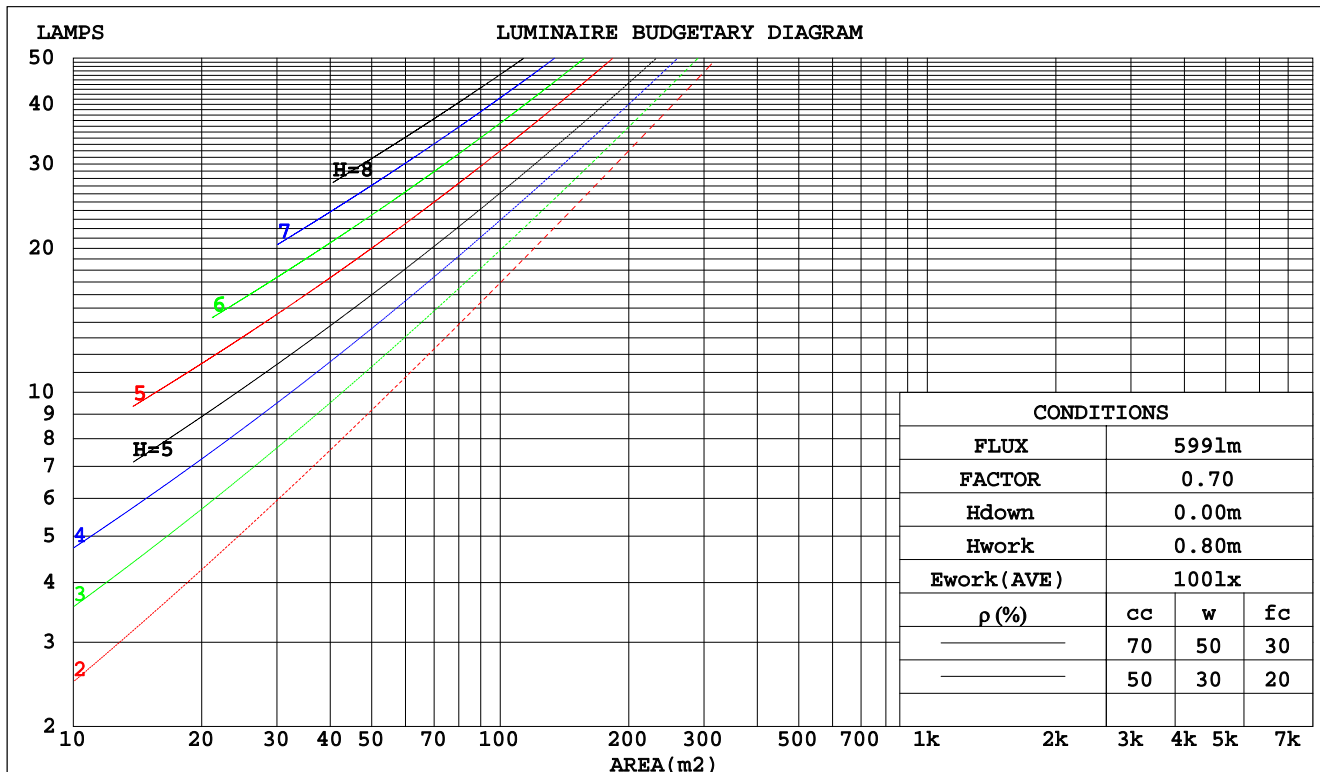
C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:21.5DEG  
Operators:Eileen Yang  
Test Date:2020-04-20

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity:49%  
Test Distance:6.950m [K=1.0000]  
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W-120°	TYPE:	WEIGHT: 0.132kg/m
DIM.: 10*10mm	SPEC.:	SERIAL No.:
MFR.: CLEAR	SUR.: 10*1000mm	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															Coefficients of Utilization(CU)														
0.0	1.61	1.61	1.61	1.58	1.58	1.58	1.50	1.50	1.50	1.43	1.43	1.43	1.37	1.37	1.37	1.34														
1.0	1.41	1.35	1.29	1.37	1.32	1.27	1.31	1.27	1.23	1.25	1.22	1.19	1.20	1.17	1.15	1.12														
2.0	1.22	1.13	1.05	1.19	1.11	1.03	1.14	1.07	1.01	1.10	1.03	.98	1.05	1.00	.96	.93														
3.0	1.07	.96	.87	1.05	.94	.86	1.00	.92	.84	.96	.89	.82	.93	.86	.81	.78														
4.0	.95	.83	.73	.93	.82	.73	.89	.79	.72	.86	.77	.70	.83	.75	.69	.66														
5.0	.85	.72	.63	.83	.71	.63	.80	.70	.62	.77	.68	.61	.74	.66	.60	.57														
6.0	.76	.64	.55	.75	.63	.55	.72	.62	.54	.70	.60	.53	.67	.59	.53	.50														
7.0	.69	.57	.49	.68	.56	.48	.65	.55	.48	.63	.54	.47	.61	.53	.47	.44														
8.0	.63	.51	.43	.62	.51	.43	.60	.50	.43	.58	.49	.42	.56	.48	.42	.39														
9.0	.58	.46	.39	.57	.46	.39	.55	.45	.38	.53	.45	.38	.52	.44	.38	.35														
10.0	.53	.42	.35	.52	.42	.35	.51	.41	.35	.50	.41	.35	.48	.40	.34	.32														



C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 21.5DEG  
Operators: Eileen Yang  
Test Date: 2020-04-20

γ Range: 0 - 180DEG  
γ Interval: 2.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity: 49%  
Test Distance: 6.950m [K=1.0000]  
Remarks:



Uncorrected UGR Table

NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W-TYPE:						WEIGHT:0.132kg/m					
DIM.: 10*10mm						SPEC.:		SERIAL No.:			
MFR.: CLEAR						SUR.:10*1000mm		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		22.6	24.1	22.9	24.4	24.6	22.5	24.0	22.7	24.2	24.4
3H		24.2	25.6	24.5	25.9	26.1	24.0	25.3	24.3	25.6	25.9
4H		24.9	26.2	25.2	26.5	26.7	24.5	25.9	24.9	26.1	26.4
6H		25.3	26.6	25.7	26.9	27.2	24.9	26.1	25.2	26.4	26.8
8H		25.4	26.7	25.8	27.0	27.3	25.0	26.2	25.3	26.5	26.8
12H		25.5	26.6	25.9	27.0	27.3	24.9	26.1	25.3	26.4	26.8
4H 2H		23.2	24.5	23.5	24.8	25.1	23.1	24.4	23.4	24.7	24.9
3H		24.9	26.1	25.3	26.4	26.8	24.7	25.9	25.1	26.2	26.5
4H		25.7	26.8	26.1	27.1	27.5	25.4	26.5	25.8	26.8	27.2
6H		26.3	27.2	26.7	27.6	28.0	25.9	26.8	26.3	27.2	27.6
8H		26.5	27.3	26.9	27.7	28.2	26.0	26.8	26.4	27.2	27.7
12H		26.5	27.3	27.0	27.8	28.2	26.0	26.8	26.4	27.2	27.6
8H 4H		25.9	26.8	26.4	27.2	27.6	25.7	26.5	26.1	26.9	27.4
6H		26.6	27.4	27.1	27.8	28.3	26.2	27.0	26.7	27.4	27.8
8H		26.9	27.5	27.3	28.0	28.4	26.4	27.0	26.8	27.5	27.9
12H		27.0	27.5	27.5	28.0	28.5	26.4	27.0	26.9	27.4	27.9
12H 4H		25.9	26.7	26.4	27.1	27.6	25.7	26.5	26.1	26.9	27.3
6H		26.7	27.3	27.1	27.8	28.2	26.3	26.9	26.7	27.4	27.8
8H		26.9	27.5	27.4	27.9	28.4	26.4	27.0	26.9	27.4	28.0
Variations with the observer position at spacings:											
S = 1.0H		+ 0.1 / - 0.2					+ 0.2 / - 0.2				
1.5H		+ 0.1 / - 0.3					+ 0.2 / - 0.3				
2.0H		+ 0.2 / - 0.2					+ 0.2 / - 0.3				

CIE Pub.117 Corrected 440.0 lm Total Lamp Luminous Flux.(8log(F/F0) = -2.9)

C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:21.5DEG  
Operators:Eileen Yang  
Test Date:2020-04-20

γ Range: 0 - 180DEG  
γ Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity:49%  
Test Distance:6.950m [K=1.0000]  
Remarks:

UTILIZATION FACTORS TABLE

NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W-83.3	TYPE:	WEIGHT:0.132kg/m
DIM.: 10*10mm	SPEC.:	SERIAL No.:
MFR.: CLEAR	SUR.:10*1000mm	PROTECTION ANGLE:

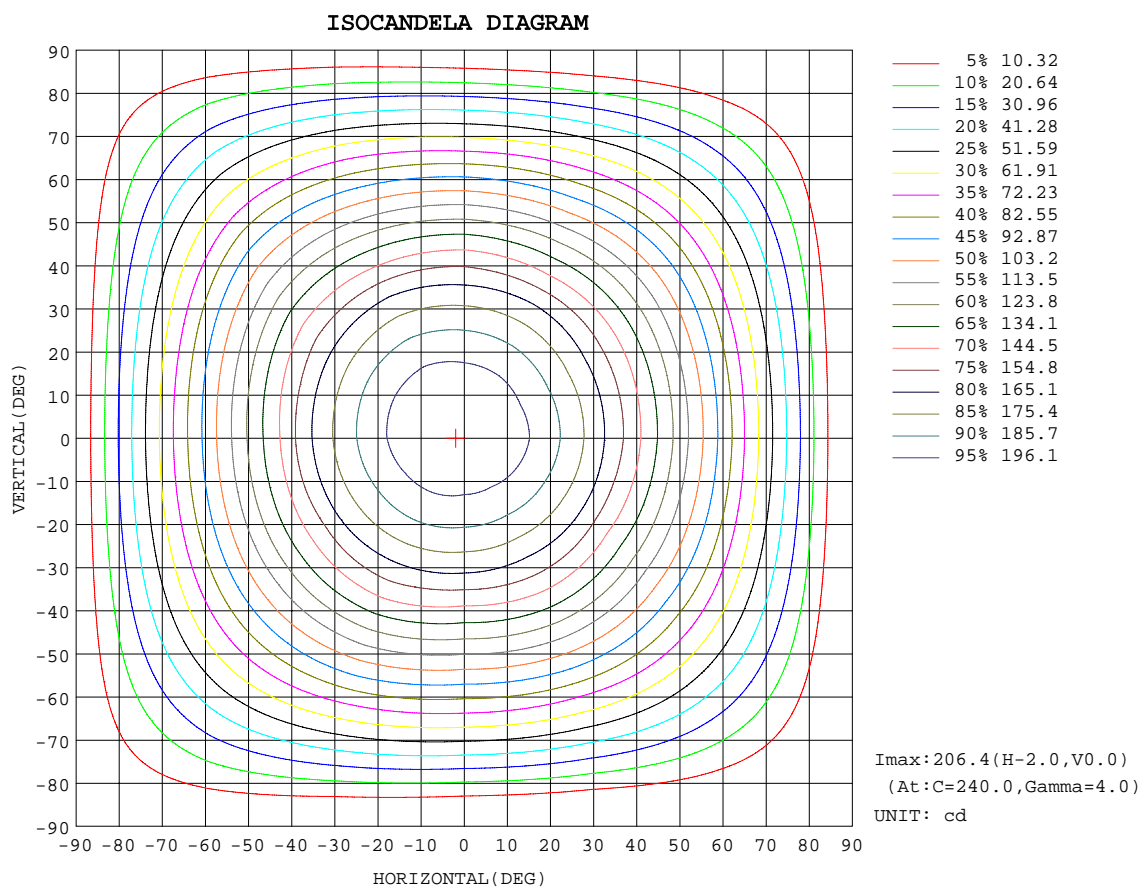
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT)    k(RI) x RCR = 5									
k = 0.60	77	62	52	76	61	52	75	60	52	43
0.80	91	75	65	89	74	65	87	73	64	54
1.00	102	87	77	101	86	77	97	88	76	66
1.25	112	97	88	110	96	87	106	94	86	75
1.50	119	105	95	116	104	95	112	101	93	82
2.00	128	116	107	125	115	106	120	111	104	93
2.50	134	123	114	131	121	113	125	117	110	98
3.00	138	129	121	135	126	119	129	122	116	104
4.00	144	136	129	140	133	127	134	128	123	111
5.00	147	140	135	144	138	132	137	132	128	115
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:21.5DEG  
Operators:Eileen Yang  
Test Date:2020-04-20

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity:49%  
Test Distance:6.950m [K=1.0000]  
Remarks:

# ISOCANDELA DIAGRAM

NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W-15000	TYPE:	WEIGHT:0.132kg/m
DIM.: 10*10mm	SPEC.:	SERIAL No.:
MFR.: CLEAR	SUR.:10*1000mm	PROTECTION ANGLE:

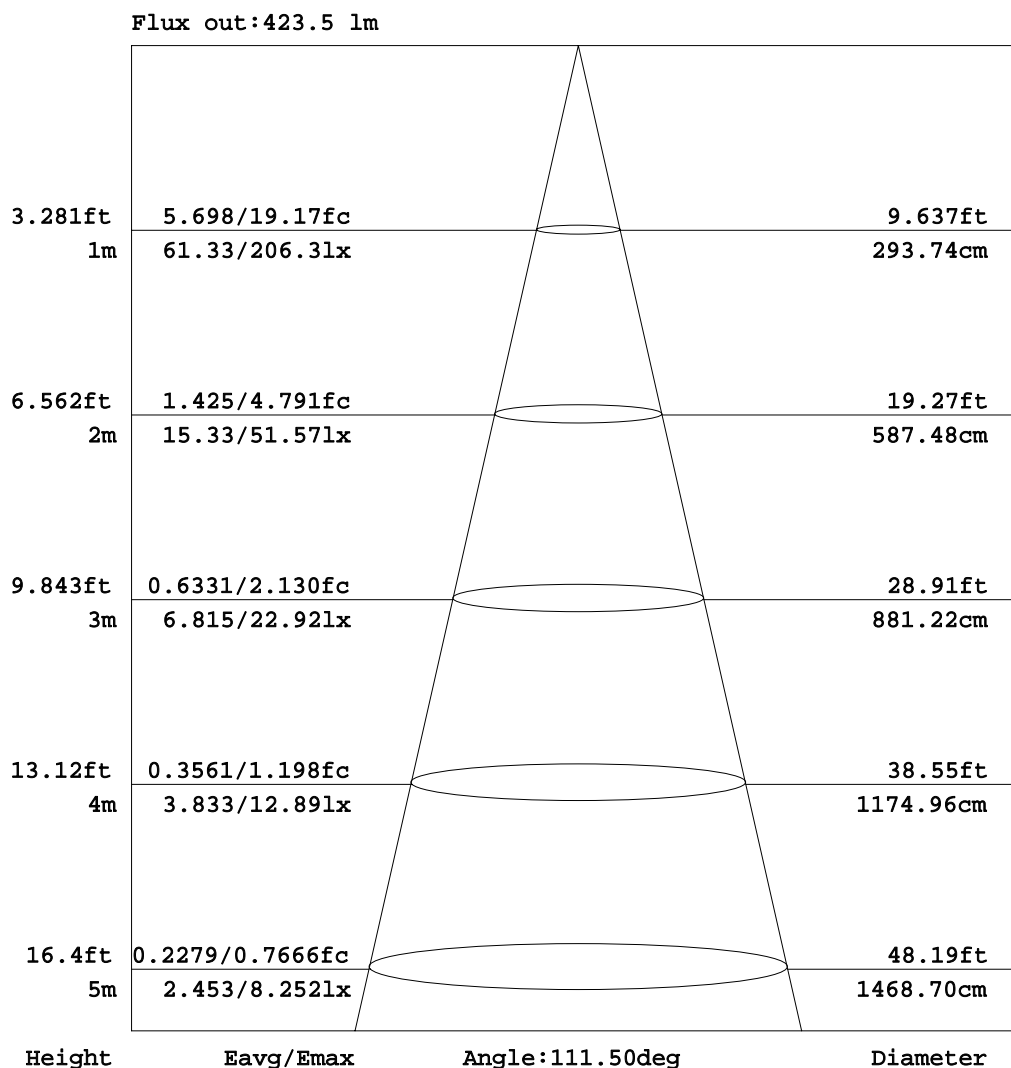


C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 21.5DEG  
Operators: Eileen Yang  
Test Date: 2020-04-20

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity: 49%  
Test Distance: 6.950m [K=1.0000]  
Remarks:

### AAI Figure

NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W-1000mm	TYPE:	WEIGHT:0.132kg/m
DIM.: 10*10mm	SPEC.:	SERIAL No.:
MFR.: CLEAR	SUR.:10*1000mm	PROTECTION ANGLE:



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

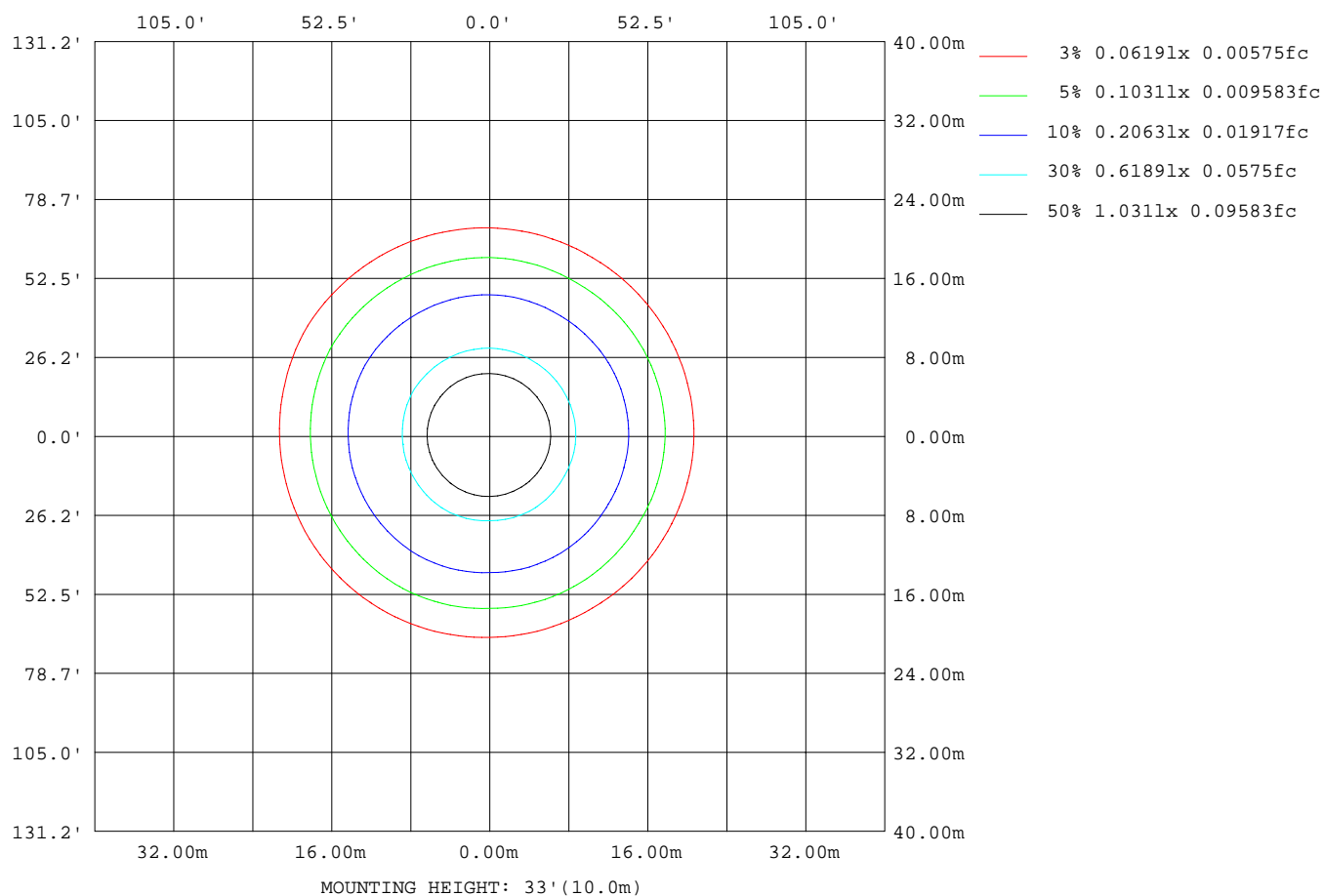
C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:21.5DEG  
Operators:Eileen Yang  
Test Date:2020-04-20

γ Range: 0 - 180DEG  
γ Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity:49%  
Test Distance:6.950m [K=1.0000]  
Remarks:



ISOLUX DIAGRAM

NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W-1000mm	TYPE:	WEIGHT: 0.132kg/m
DIM.: 10*10mm	SPEC.:	SERIAL No.:
MFR.: CLEAR	SUR.: 10*1000mm	PROTECTION ANGLE:



C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 21.5DEG  
Operators: Eileen Yang  
Test Date: 2020-04-20

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity: 49%  
Test Distance: 6.950m [K=1.0000]  
Remarks:

**Average Luminance Table(CIBSE)**

NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W- <del>TYPE:</del>		WEIGHT:0.132kg/m
DIM.: 10*10mm	SPEC.:	SERIAL No.:
MFR.: CLEAR	SUR.:10*1000mm	PROTECTION ANGLE:

Parameter description for average Luminance	Symbol	Value	Unit
Luminance in Azimuth Plane	Bc	refer Table 2	cd/sq.m.
Intensity at angle Gamma in given azimuth plane	I	from data	cd/klm
Number of lamps	N	1	
Output of each lamp(initial lumens as specified)	F	440	lm
Multiplying factor	K	1	
Luminous area in horizontal plane used in calculations	A	0.01	sq.m.
Angle to the downward vertical from light centre	Gamma	from data	deg

Table 1. Calculation parameters for determination of CIBSE LG3:1996 Average Luminance

G	C plane(deg)																		
deg	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
55	18115177611750017333173081734117396173341729817330175991792218243184051853318649187891894919139																		
60	17735173491705916865168141682516865167991677016818171211748417850180541822318379185571875118974																		
65	16976167091647916287161171599615934159611605716220164661676117087174321777818105183451857118803																		
70	16421160911580015548153101513115032150651519215406157171608916502169421738117795181141839718655																		
75	15578151451475314404140531377613607136321379014071144881499315560161791679717376178041816918487																		
80	13881132311262412063114581096410646107021097111423120071272113547145481556416515171841772718169																		
85	9384 8106 6992 6045 5184 4548 4197 4337 4773 5456 6238 7237 8474 101981203613841153151656017541																		

Table 2. Average Luminance(cd/sq.m.) for defined C plane,Gamma angle

CIBSE Category	Gamma (deg)	Average Luminance		Patch Luminance	
		maximum	specified	maximum	specified
		calculated	maximum	measured	maximum
Category 1	55 to 90	19139	200	---	500
Category 2	65 to 90	18803	200	---	500
Category 3	75 to 90	18487	200	---	500

Table 3. Tabulation of Average and Patch Luminance(cd/sq.m.) for defined CIBSE categories

No match

C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:21.5DEG  
Operators:Eileen Yang  
Test Date:2020-04-20

γ Range: 0 - 180DEG  
γ Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity:49%  
Test Distance:6.950m [K=1.0000]  
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: C-SFR-F23B-VB-24CV-35K-WM-144-80-9W-132ES:	WEIGHT:0.132kg/m
DIM.: 10*10mm	SPEC.: SERIAL No.:
MFR.: CLEAR	SUR.:10*1000mm PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEC) γ (DEC)	0	30	60	90	120	150	180	210	240	270	300	330							
0	205	205	205	205	205	205	205	205	205	205	205	205							
5	204	204	204	204	204	205	205	206	206	205	205	205							
10	201	200	199	200	201	202	203	203	204	203	202	201							
15	196	195	195	196	197	198	199	201	201	200	199	198							
20	188	187	186	187	189	191	192	194	195	194	192	190							
25	182	180	179	181	183	185	186	188	189	188	186	183							
30	170	168	167	169	171	174	175	178	179	178	175	172							
35	161	159	158	159	162	165	167	170	171	169	167	163							
40	146	142	143	142	147	148	151	156	156	155	150	149							
45	136	131	132	131	137	138	140	146	144	144	139	138							
50	119	114	115	114	119	121	124	129	128	127	122	121							
55	107	102	103	102	108	110	113	118	116	114	110	110							
60	88.7	84.3	84.3	84.1	89.2	91.9	94.9	99.6	97.1	95.1	91.1	91.0							
65	74.9	71.9	70.4	71.7	75.3	79.6	82.6	87.0	84.3	81.5	78.2	76.9							
70	56.2	53.2	51.4	52.7	56.4	60.9	63.8	66.4	64.7	61.2	58.6	57.6							
75	43.5	40.5	38.5	39.7	43.6	48.2	51.0	53.3	51.3	48.2	45.3	44.5							
80	24.1	20.9	18.5	19.8	23.5	28.7	31.6	33.2	31.4	28.6	25.6	24.3							
85	11.2	8.17	6.11	7.33	10.3	15.3	18.5	19.5	18.2	15.8	12.7	11.0							
90	0.00	0.00	0.10	0.15	0.10	0.12	1.06	1.74	3.37	3.89	2.73	0.73							
95	0.00	0.05	0.17	0.22	0.12	0.00	0.00	0.70	2.54	2.81	2.36	0.85							
100	0.01	0.23	0.52	0.59	0.41	0.12	0.00	0.71	1.96	2.41	1.96	0.77							
105	0.04	0.35	0.82	1.00	0.70	0.26	0.04	0.69	1.73	2.73	2.00	0.81							
110	0.13	0.53	1.31	1.73	1.17	0.39	0.10	0.76	2.40	4.02	2.95	1.09							
115	0.22	0.69	1.65	2.11	1.45	0.50	0.18	0.90	3.00	4.41	3.43	1.40							
120	0.34	0.98	1.82	2.20	1.58	0.70	0.30	1.04	2.85	4.23	3.29	1.63							
125	0.42	1.12	1.68	1.91	1.42	0.78	0.37	1.06	2.57	3.95	3.19	1.72							
130	0.52	1.15	1.47	1.56	1.16	0.79	0.47	1.05	2.26	3.55	2.98	1.71							
135	0.58	1.16	1.41	1.51	1.05	0.78	0.54	1.02	2.02	3.23	2.78	1.66							
140	0.67	1.20	1.46	1.47	1.02	0.81	0.62	1.02	1.66	2.80	2.45	1.60							
145	0.77	1.22	1.51	1.48	1.04	0.84	0.70	1.03	1.46	2.52	2.24	1.59							
150	0.89	1.23	1.51	1.49	1.02	0.93	0.83	1.13	1.28	2.16	2.01	1.58							
155	0.96	1.22	1.48	1.43	1.01	0.98	0.92	1.21	1.25	1.97	1.91	1.57							
160	1.09	1.20	1.43	1.21	1.04	1.04	1.03	1.30	1.20	1.24	1.83	1.53							
165	1.14	1.19	1.38	1.05	1.07	1.06	1.11	1.33	1.26	1.20	1.75	1.46							
170	1.21	1.19	1.25	1.00	1.09	1.10	1.18	1.31	1.35	1.16	1.55	1.36							
175	1.24	1.21	1.20	0.98	1.12	1.14	1.22	1.28	1.33	1.10	1.39	1.30							
180	1.27	1.27	1.25	1.03	1.22	1.24	1.28	1.27	1.27	1.03	1.22	1.23							

C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:21.5DEG  
Operators:Eileen Yang  
Test Date:2020-04-20

γ Range: 0 - 180DEG  
γ Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V1.0.257  
Humidity:49%  
Test Distance:6.950m [K=1.0000]  
Remarks: