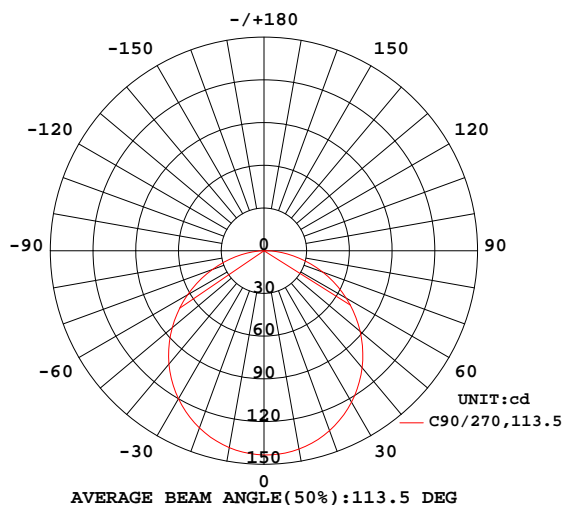


LUMINAIRE PHOTOMETRIC TEST REPORT

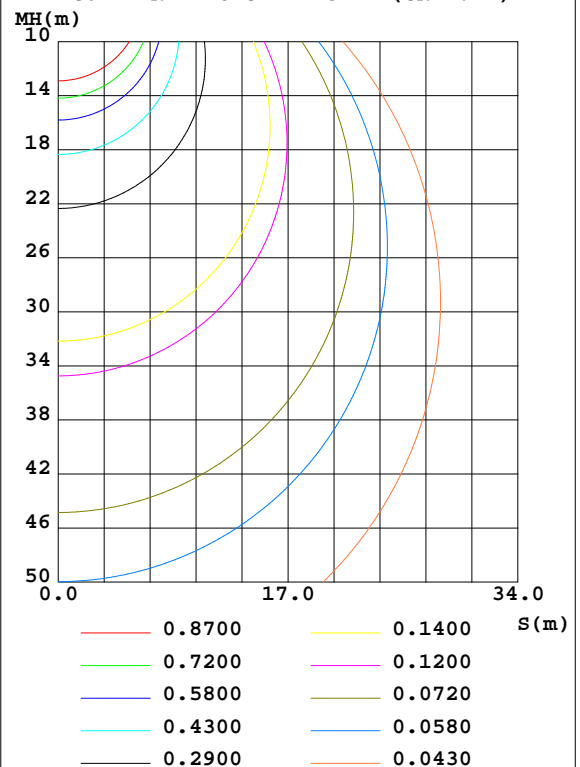
NAME: C-SFR-F2219S12-VB-24CC-RGB-WM-84-16.5W-83.3-G	WEIGHT: 0.570kg/m
SPEC.:	SERIAL No.:
MFR.: CLEAR	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 66.43 lm/W			
MODEL	5050	Imax(cd)	144.8	S/MH(C0/180)	1.27
NOMINAL POWER(W)	16.5	LOR(%)	104.9	S/MH(C90/270)	1.25
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	425.00	$\eta$ UP,DN(C0-180)	0.3,53.0
NOMINAL FLUX(lm)	405.13	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.3,51.3
LAMPS INSIDE	1	$\eta$ up(%)	0.6	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	24	$\eta$ down(%)	104.3	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:25.3DEG  
Operators:Dillon  
Test Date:29 July 2021

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
Humidity:65.0%  
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	%lum, lamp
10	142.1	142.0	141.4	142.5	142.5	141.7	140.4	141.7	0- 10	13.66	13.66	3.21,3.37
20	134.6	135.0	134.5	135.5	135.3	134.2	132.5	133.9	10- 20	39.17	52.83	12.4,13
30	122.5	123.4	122.9	123.7	123.3	122.0	120.1	121.6	20- 30	59.48	112.3	26.4,27.7
40	106.5	107.8	107.2	107.9	107.3	105.8	103.9	105.5	30- 40	71.95	184.3	43.4,45.5
50	87.08	88.75	88.15	88.71	88.05	86.37	84.17	86.05	40- 50	75.04	259.3	61,64
60	65.25	67.07	66.78	67.06	66.19	64.16	61.92	63.83	50- 60	68.43	327.7	77.1,80.9
70	41.43	43.67	43.88	43.73	42.63	40.60	38.60	40.18	60- 70	53.18	380.9	89.6,94
80	17.86	20.34	20.98	20.46	19.08	17.56	16.08	17.09	70- 80	31.82	412.7	97.1,102
90	0.2627	2.338	3.221	2.494	0.9647	1.448	1.289	1.206	80- 90	9.784	422.5	99.4,104
100	0.1271	0.5128	0.5021	0.7154	0.9045	0.6431	0.2481	0.4027	90-100	0.8946	423.4	99.6,105
110	0.2116	0.1604	0	0.3298	0.8530	0.3780	0.0032	0.1738	100-110	0.4069	423.8	99.7,105
120	0.3177	0.2163	0	0.3342	0.7834	0.3313	0	0.2148	110-120	0.2686	424.1	99.8,105
130	0.3690	0.2798	0.0091	0.3448	0.6895	0.3343	0.0241	0.2541	120-130	0.2550	424.3	99.8,105
140	0.3993	0.3115	0.0486	0.3311	0.5717	0.3162	0.0816	0.2632	130-140	0.2271	424.6	99.9,105
150	0.3782	0.3086	0.1181	0.3116	0.4838	0.3146	0.1210	0.2571	140-150	0.1852	424.8	99.9,105
160	0.3841	0.3191	0.2027	0.3160	0.3990	0.2980	0.2177	0.2707	150-160	0.1350	424.9	100,105
170	0.3540	0.3373	0.2784	0.3161	0.3479	0.3221	0.3053	0.3010	160-170	0.0861	425.0	100,105
180	0.3297	0.3343	0.3267	0.3146	0.3388	0.3312	0.3297	0.3161	170-180	0.0311	425.0	100,105
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 229.54 lm

%lum = 54.0%

%lamp = 56.7%

Conical surface Flux(120deg): 327.74 lm

%lum = 77.1%

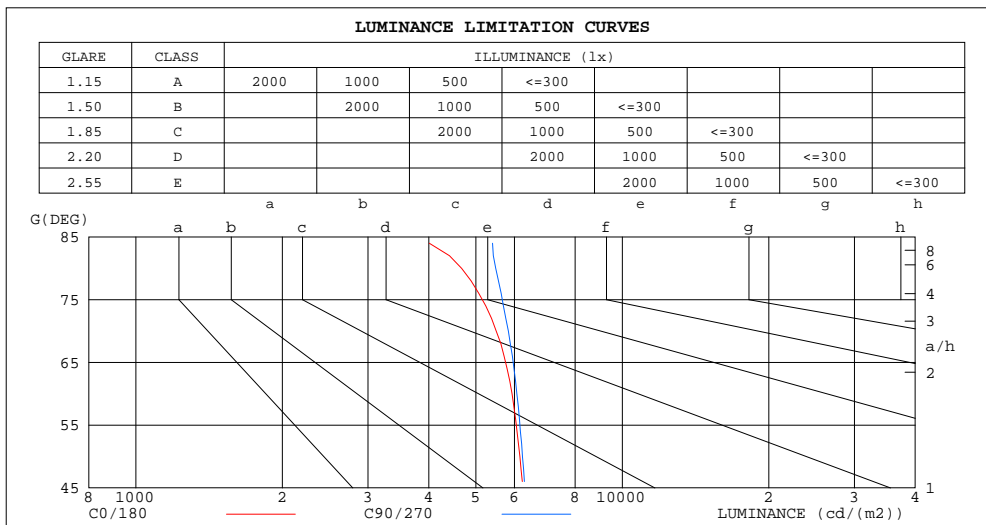
%lamp = 80.9%

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Dillon  
 Test Date:29 July 2021

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
 $\gamma$  Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
 Humidity:65.0%  
 Test Distance:6.950m [K=1.0000]  
 Remarks:

LUMINANCE LIMITATION CURVES

NAME: C-SFR-F2219S12-VB-24CC-RGB-WM-84-16.5W-83.3-TYPE:	WEIGHT: 0.570kg/m
SPEC.:	SERIAL No.:
MFR.: CLEAR	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	4810	6486
80	4675	5491
75	5582	6067
70	5506	5832
65	6013	6212
60	5932	6071
55	6226	6326
50	6158	6234
45	6368	6424

C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Dillon  
Test Date: 29 July 2021

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
Humidity: 65.0%  
Test Distance: 6.950m [K=1.0000]  
Remarks:

## WEC AND CCEC

NAME: C-SFR-F2219S12-VB-24CC-RGB-WM-84-16.5W-83.3-TYPE:	WEIGHT: 0.570kg/m
SPEC.:	DIM.: 22*19mm
MFR.: CLEAR	SUR.: 22*1000mm
	Shielding Angle:

pcc	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	.333	.189	.060	.325	.186	.059	.311	.179	.057	.298	.172	.055	.286	.166	.053		
2.0	.311	.171	.052	.305	.168	.052	.292	.162	.050	.280	.157	.049	.270	.152	.048		
3.0	.287	.153	.046	.281	.151	.045	.270	.146	.044	.260	.142	.044	.250	.138	.043		
4.0	.264	.137	.040	.259	.136	.040	.249	.132	.039	.240	.129	.039	.231	.126	.038		
5.0	.244	.124	.036	.239	.123	.036	.230	.120	.035	.222	.117	.035	.214	.115	.034		
6.0	.226	.113	.032	.222	.112	.032	.214	.110	.032	.206	.107	.032	.200	.105	.031		
7.0	.210	.104	.029	.206	.103	.029	.199	.101	.029	.193	.099	.029	.186	.097	.028		
8.0	.196	.096	.027	.193	.095	.027	.186	.093	.027	.180	.091	.026	.175	.090	.026		
9.0	.183	.089	.025	.181	.088	.025	.175	.086	.025	.169	.085	.024	.164	.084	.024		
10.0	.172	.083	.023	.170	.082	.023	.165	.081	.023	.160	.079	.023	.155	.078	.022		

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	.205	.205	.205	.175	.175	.175	.119	.119	.119	.069	.069	.069	.022	.022	.022	
1.0	.194	.168	.145	.166	.145	.125	.114	.099	.086	.065	.058	.050	.021	.019	.016	
2.0	.186	.143	.107	.159	.123	.092	.109	.085	.064	.063	.050	.038	.020	.016	.012	
3.0	.178	.125	.082	.153	.108	.071	.105	.075	.050	.061	.044	.029	.019	.014	.010	
4.0	.170	.111	.066	.146	.096	.057	.100	.067	.040	.058	.039	.024	.019	.013	.008	
5.0	.162	.100	.054	.139	.086	.047	.096	.060	.033	.056	.035	.020	.018	.012	.006	
6.0	.155	.091	.046	.133	.079	.040	.092	.055	.028	.053	.033	.017	.017	.011	.006	
7.0	.147	.084	.039	.127	.073	.034	.088	.051	.024	.051	.030	.015	.016	.010	.005	
8.0	.141	.078	.035	.121	.068	.030	.084	.047	.022	.049	.028	.013	.016	.009	.004	
9.0	.134	.073	.031	.116	.063	.027	.080	.044	.019	.047	.026	.012	.015	.009	.004	
10.0	.128	.068	.028	.110	.059	.025	.077	.042	.018	.045	.025	.010	.014	.008	.003	

C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Dillon  
Test Date:29 July 2021

γ Range: 0 - 180DEG  
γ Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
Humidity:65.0%  
Test Distance:6.950m [K=1.0000]  
Remarks:

## UGR(Unified Glare Rating) Table

NAME: C-SFR-F2219S12-VB-24CC-RGB-WM-84-16.5W-83.3-TYPE:	WEIGHT: 0.570kg/m
SPEC.:	SERIAL No.:
MFR.: CLEAR	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	22.3	23.9	22.6	24.1	24.3	22.4	23.9	22.7	24.2	24.4
3H	23.9	25.3	24.2	25.6	25.8	24.1	25.5	24.4	25.7	26.0
4H	24.5	25.9	24.9	26.2	26.4	24.8	26.1	25.1	26.4	26.7
6H	25.0	26.3	25.3	26.6	26.9	25.3	26.6	25.7	26.9	27.2
8H	25.2	26.4	25.5	26.7	27.0	25.5	26.8	25.9	27.1	27.4
12H	25.2	26.4	25.6	26.7	27.0	25.7	26.9	26.0	27.2	27.5
4H 2H	23.0	24.3	23.3	24.6	24.9	23.1	24.4	23.4	24.7	24.9
3H	24.8	25.9	25.1	26.3	26.6	24.9	26.1	25.3	26.4	26.7
4H	25.5	26.6	25.9	27.0	27.3	25.7	26.8	26.1	27.2	27.5
6H	26.1	27.1	26.5	27.5	27.8	26.4	27.4	26.9	27.8	28.1
8H	26.3	27.2	26.8	27.6	28.0	26.7	27.6	27.1	28.0	28.4
12H	26.5	27.3	26.9	27.7	28.1	26.9	27.7	27.4	28.1	28.6
8H 4H	25.9	26.8	26.3	27.1	27.5	26.1	26.9	26.5	27.3	27.7
6H	26.6	27.4	27.1	27.8	28.2	26.9	27.7	27.4	28.1	28.5
8H	26.9	27.6	27.4	28.0	28.5	27.3	28.0	27.8	28.4	28.9
12H	27.1	27.7	27.6	28.2	28.7	27.6	28.2	28.1	28.6	29.1
12H 4H	25.9	26.7	26.3	27.1	27.5	26.1	26.9	26.5	27.3	27.7
6H	26.7	27.4	27.2	27.8	28.3	27.0	27.7	27.5	28.1	28.6
8H	27.1	27.6	27.6	28.1	28.6	27.4	28.0	27.9	28.4	28.9
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.3					+ 0.1 / - 0.3				

CIE Pub.117, 405.1 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -3.1)  
Area: 0.022 m2

C Range: 0 - 360DEG  
C Interval: 30.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Dillon  
Test Date:29 July 2021

γ Range: 0 - 180DEG  
γ Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
Humidity:65.0%  
Test Distance:6.950m [K=1.0000]  
Remarks:

### UTILIZATION FACTORS TABLE

NAME: C-SFR-F2219S12-VB-24CC-RGB-WM-84-16.5W-83.3-TYPE:	WEIGHT: 0.570kg/m
SPEC.:	DIM.: 22*19mm
MFR.: CLEAR	SUR.: 22*1000mm
	Shielding Angle:

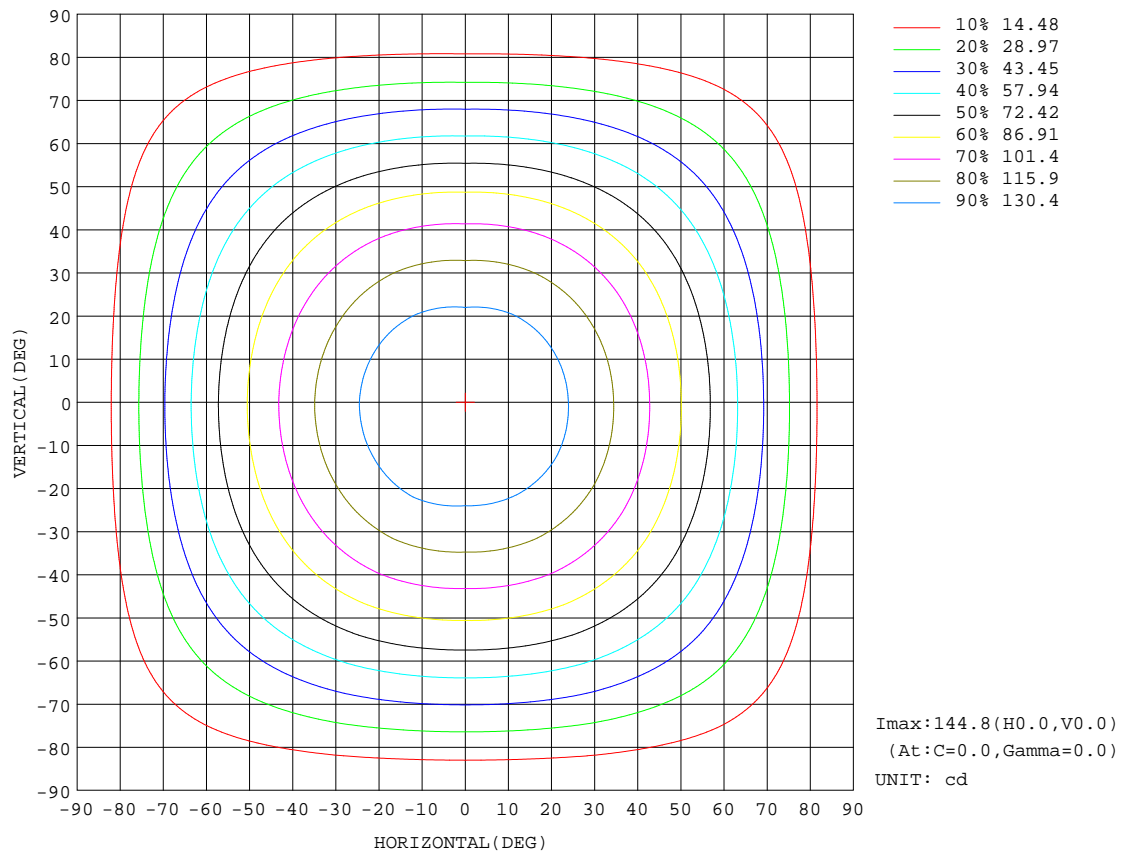
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT)    k(RI) x RCR = 5									
k = 0.60	60	47	40	59	47	40	58	47	40	33
0.80	70	58	50	69	57	50	67	56	49	42
1.00	79	67	59	78	66	59	75	68	58	51
1.25	86	75	67	85	74	67	82	73	66	58
1.50	92	81	73	90	80	73	87	78	72	64
2.00	99	90	83	97	88	82	93	86	80	72
2.50	103	95	88	101	93	87	97	90	85	76
3.00	107	99	93	104	98	92	100	94	90	81
4.00	111	105	100	108	103	98	104	99	95	86
5.00	113	108	104	111	106	102	106	102	99	89
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:25.3DEG  
Operators:Dillon  
Test Date:29 July 2021

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
Humidity:65.0%  
Test Distance:6.950m [K=1.0000]  
Remarks:

**ISOCANDELA DIAGRAM**

NAME: C-SFR-F2219S12-VB-24CC-RGB-WM-84-16.5W-83.3-TYPE:	WEIGHT: 0.570kg/m
SPEC.:	SERIAL No.:
MFR.: CLEAR	Shielding Angle:



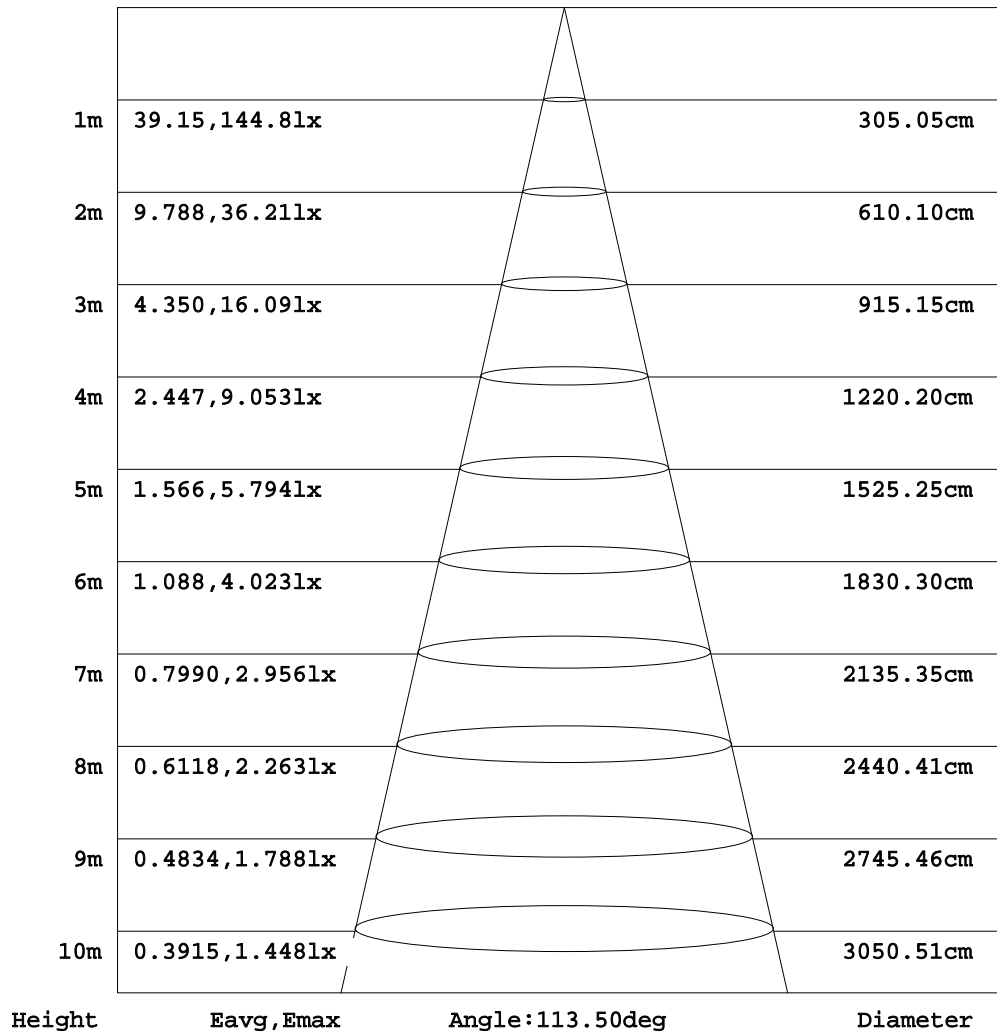
C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Dillon  
 Test Date: 29 July 2021

γ Range: 0 - 180DEG  
 γ Interval: 2.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
 Humidity: 65.0%  
 Test Distance: 6.950m [K=1.0000]  
 Remarks:

### AAI Figure

NAME: C-SFR-F2219S12-VB-24CC-RGB-WM-84-16.5W-83.3-TYPE:	WEIGHT: 0.570kg/m
SPEC.:	SERIAL No.:
MFR.: CLEAR	Shielding Angle:

Flux out:315.0 lm



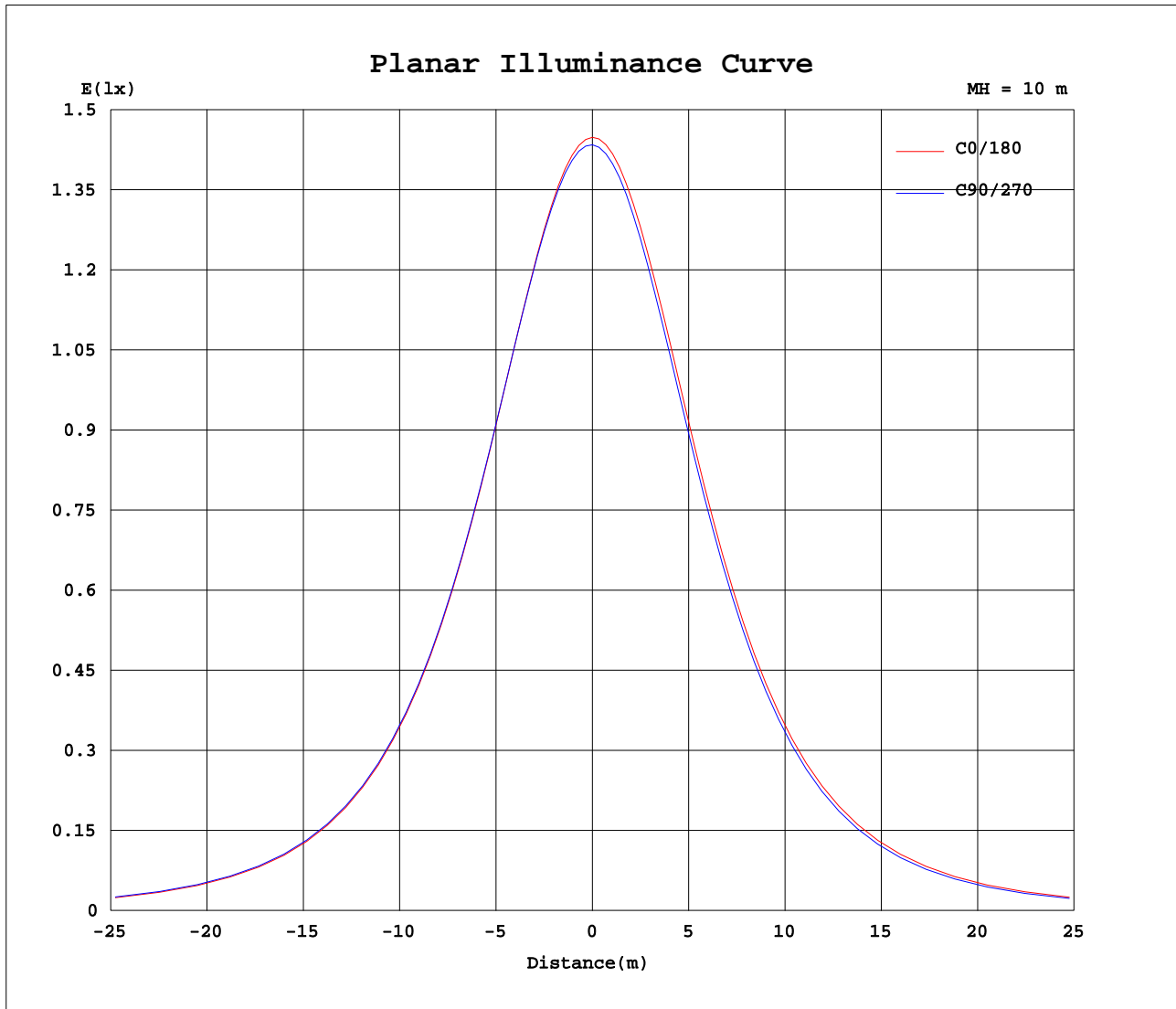
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Dillon  
 Test Date: 29 July 2021

γ Range: 0 - 180DEG  
 γ Interval: 2.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
 Humidity: 65.0%  
 Test Distance: 6.950m [K=1.0000]  
 Remarks:



## Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Dillon  
 Test Date: 29 July 2021

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 2.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.00.446  
 Humidity: 65.0%  
 Test Distance: 6.950m [K=1.0000]  
 Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: C-SFR-F2219S12-VB-24CC-RGB-WM-84-16.5W-83.3-TYPE:	WEIGHT: 0.570kg/m
SPEC.:	DIM.: 22*19mm
MFR.: CLEAR	SUR.: 22*1000mm
	Shielding Angle:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330							
0	145	145	144	143	145	145	145	145	144	143	145	145							
5	144	144	144	143	144	144	145	144	143	143	144	144							
10	142	142	142	141	143	142	143	142	141	140	142	142							
15	140	140	140	139	140	140	140	140	139	138	139	139							
20	135	135	135	134	136	135	135	135	134	132	134	134							
25	130	131	131	130	131	131	131	130	129	128	129	130							
30	122	123	124	123	124	124	123	122	122	120	121	122							
35	117	117	118	117	118	118	117	116	116	114	115	116							
40	106	108	108	107	108	108	107	106	105	104	105	106							
45	99.1	100	101	99.9	101	100	100.0	98.8	98.0	96.4	97.7	98.5							
50	87.1	88.5	89.0	88.2	89.0	88.4	88.1	86.9	85.8	84.2	85.5	86.6							
55	78.6	80.0	80.6	79.8	80.6	80.0	79.6	78.4	77.2	75.5	76.9	78.0							
60	65.2	66.7	67.4	66.8	67.3	66.8	66.2	64.8	63.5	61.9	63.2	64.4							
65	55.9	57.5	58.3	57.8	58.2	57.6	56.9	55.5	54.2	52.6	53.9	55.1							
70	41.4	43.2	44.1	43.9	44.1	43.4	42.6	41.2	40.0	38.6	39.6	40.7							
75	31.8	33.6	34.7	34.5	34.7	33.8	32.9	31.6	30.5	29.3	30.1	31.0							
80	17.9	19.8	20.9	21.0	20.9	20.0	19.1	18.0	17.2	16.1	16.8	17.4							
85	9.22	11.2	12.3	12.4	12.3	11.4	10.4	9.46	8.78	8.07	8.57	8.93							
90	0.26	1.65	3.03	3.22	3.02	1.97	0.96	1.35	1.54	1.29	1.43	0.98							
95	0.18	0.70	0.96	0.77	0.98	1.03	0.92	0.95	0.72	0.37	0.65	0.57							
100	0.13	0.27	0.76	0.50	0.81	0.62	0.90	0.71	0.57	0.25	0.51	0.29							
105	0.14	0.23	0.43	0.31	0.45	0.57	0.88	0.59	0.53	0.19	0.47	0.22							
110	0.21	0.22	0.10	0.00	0.09	0.57	0.85	0.61	0.15	0.00	0.11	0.24							
115	0.27	0.28	0.11	0.00	0.12	0.57	0.82	0.60	0.12	0.00	0.11	0.25							
120	0.32	0.29	0.14	0.00	0.12	0.55	0.78	0.55	0.11	0.00	0.16	0.27							
125	0.34	0.31	0.17	0.02	0.12	0.54	0.75	0.54	0.12	0.00	0.15	0.31							
130	0.37	0.35	0.21	0.01	0.18	0.51	0.69	0.52	0.15	0.02	0.18	0.33							
135	0.38	0.35	0.23	0.00	0.18	0.48	0.65	0.48	0.17	0.04	0.20	0.32							
140	0.40	0.36	0.27	0.05	0.20	0.46	0.57	0.44	0.19	0.08	0.18	0.34							
145	0.40	0.37	0.28	0.09	0.22	0.42	0.55	0.44	0.21	0.09	0.15	0.35							
150	0.38	0.35	0.27	0.12	0.24	0.39	0.48	0.39	0.24	0.12	0.16	0.35							
155	0.38	0.36	0.28	0.16	0.24	0.35	0.45	0.36	0.24	0.16	0.15	0.35							
160	0.38	0.35	0.29	0.20	0.28	0.35	0.40	0.33	0.26	0.22	0.19	0.35							
165	0.38	0.35	0.30	0.22	0.30	0.32	0.36	0.32	0.31	0.22	0.21	0.35							
170	0.35	0.34	0.33	0.28	0.32	0.31	0.35	0.33	0.31	0.31	0.25	0.35							
175	0.36	0.36	0.34	0.31	0.29	0.34	0.34	0.33	0.31	0.32	0.25	0.36							
180	0.33	0.33	0.34	0.33	0.31	0.32	0.34	0.33	0.33	0.33	0.30	0.33							

C Range: 0 - 360DEG

C Interval: 30.0DEG

Test Speed: HIGH

Temperature:25.3DEG

Operators:Dillon

Test Date:29 July 2021

γ Range: 0 - 180DEG

γ Interval: 2.0DEG

Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.00.446

Humidity:65.0%

Test Distance:6.950m [K=1.0000]

Remarks: