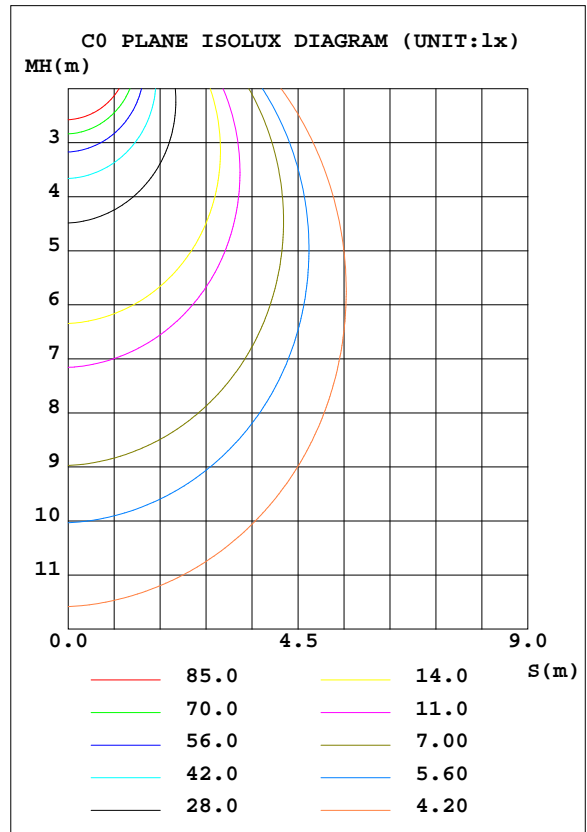
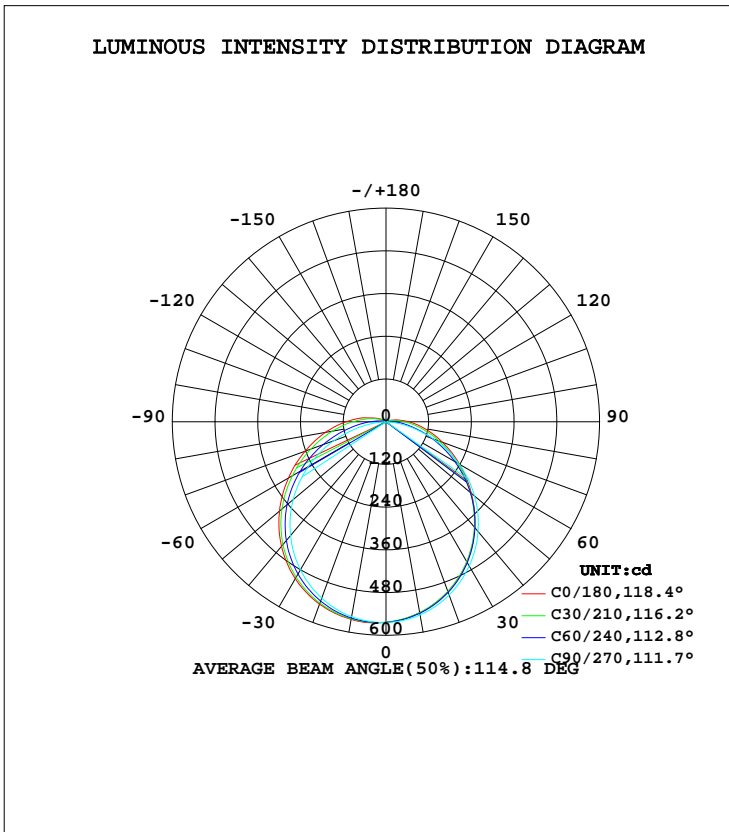


LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: F2121-4000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.46*0.07	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 91.59 lm/W
MODEL	F2121-4000K	I _{max} (cd)	566.8	S/MH(C0/180)	1.21	
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	1.24	
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1806.6	η UP, DN(C0-180)	2.1, 46.0	
NOMINAL FLUX(lm)	1806.6	CIE CLASS	DIRECT	η UP, DN(C180-360)	2.6, 49.4	
LAMPS INSIDE	1	η up(%)	4.6	CIBSE SHR NOM	1.25	
TEST VOLTAGE(V)	230	η down(%)	95.4	CIBSE SHR MAX	1.35	



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7312]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	Φ lum,lamp
10	544.7	545.3	550.9	557.2	563.8	560.9	556.0	550.0	0- 10	53.31	53.31	2.95,2.95
20	507.8	508.8	518.0	531.9	545.4	539.3	527.3	516.8	10- 20	152.8	206.1	11.4,11.4
30	454.4	455.3	467.6	489.0	509.3	499.4	480.4	466.0	20- 30	231.8	437.9	24.2,24.2
40	387.5	387.6	402.7	430.5	456.8	442.9	417.2	399.8	30- 40	280.4	718.3	39.8,39.8
50	313.6	309.7	325.0	358.7	390.6	372.2	340.3	322.2	40- 50	292.8	1011	56,56
60	238.6	227.3	237.0	277.7	316.5	291.2	252.0	239.3	50- 60	269.1	1280	70.9,70.9
70	169.2	148.7	142.3	194.2	242.0	206.5	155.5	158.5	60- 70	215.9	1496	82.8,82.8
80	110.4	82.87	50.22	119.0	172.8	128.3	58.99	89.78	70- 80	146.4	1643	90.9,90.9
90	63.36	38.40	3.342	62.68	112.0	69.04	3.470	41.90	80- 90	80.58	1723	95.4,95.4
100	31.29	15.24	3.746	29.19	65.65	32.04	3.817	16.49	90-100	39.35	1763	97.6,97.6
110	12.21	6.463	4.211	11.70	29.93	13.69	4.236	7.095	100-110	17.34	1780	98.5,98.5
120	6.096	5.082	4.706	6.313	13.26	6.541	4.714	5.114	110-120	7.965	1788	99,99
130	5.490	5.475	5.202	5.264	6.509	5.290	5.204	5.428	120-130	5.100	1793	99.2,99.2
140	5.955	5.976	5.714	5.686	5.661	5.666	5.740	5.924	130-140	4.320	1797	99.5,99.5
150	6.426	6.351	6.262	6.121	6.189	6.147	6.272	6.346	140-150	3.781	1801	99.7,99.7
160	6.771	6.683	6.707	6.526	6.673	6.603	6.744	6.703	150-160	2.987	1804	99.9,99.9
170	7.002	6.989	7.065	6.898	7.006	6.959	7.098	6.983	160-170	1.934	1806	100,100
180	6.969	6.989	7.125	6.997	6.979	6.975	7.123	6.980	170-180	0.6673	1807	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

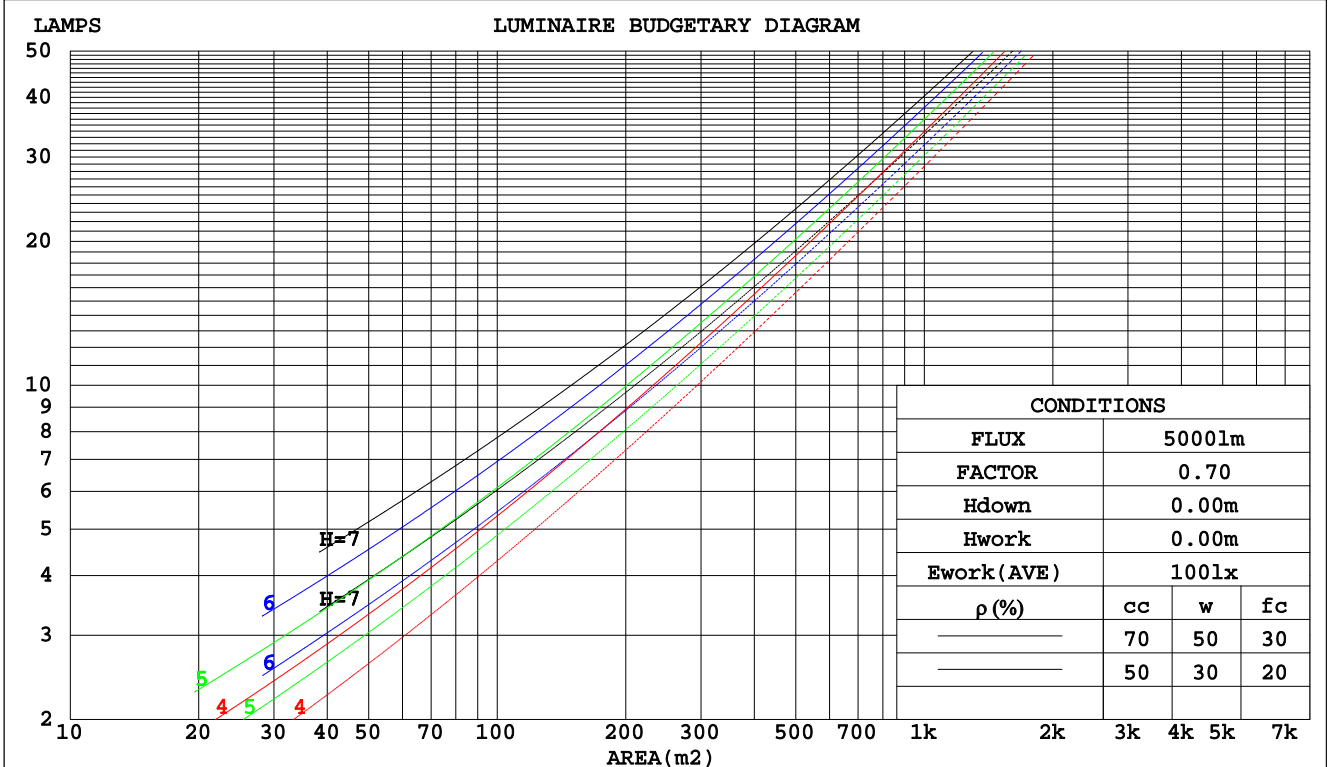
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7312]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: F2121-4000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.46*0.07	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	1.18	1.18	1.18	1.15	1.15	1.15	1.09	1.09	1.09	1.03	1.03	1.03	.98	.98	.98	.95
1.0	1.01	.96	.92	.98	.94	.90	.93	.90	.86	.88	.86	.83	.84	.82	.80	.77
2.0	.87	.80	.74	.85	.78	.73	.81	.75	.70	.77	.72	.68	.73	.69	.66	.63
3.0	.76	.68	.61	.74	.67	.60	.71	.64	.59	.67	.62	.57	.64	.59	.55	.53
4.0	.68	.58	.51	.66	.57	.51	.63	.55	.50	.60	.54	.48	.57	.52	.47	.45
5.0	.60	.51	.44	.59	.50	.44	.56	.49	.43	.54	.47	.42	.51	.46	.41	.39
6.0	.54	.45	.38	.53	.44	.38	.51	.43	.37	.48	.42	.37	.46	.41	.36	.34
7.0	.49	.40	.34	.48	.40	.34	.46	.38	.33	.44	.37	.32	.42	.36	.32	.30
8.0	.45	.36	.30	.44	.36	.30	.42	.35	.29	.40	.34	.29	.39	.33	.28	.26
9.0	.41	.33	.27	.40	.32	.27	.39	.31	.26	.37	.31	.26	.36	.30	.26	.24
10.0	.38	.30	.24	.37	.29	.24	.36	.29	.24	.35	.28	.24	.33	.28	.23	.21



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7312]
 Remarks:

WEC AND CCEC

NAME: F2121-4000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.46*0.07	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	.343	.195	.062	.334	.191	.061	.318	.183	.058	.303	.175	.056	.290	.168	.054	
2.0	.310	.170	.052	.302	.166	.051	.288	.160	.050	.275	.154	.048	.263	.149	.047	
3.0	.281	.150	.045	.275	.147	.044	.262	.142	.043	.250	.137	.042	.239	.132	.041	
4.0	.257	.133	.039	.251	.131	.039	.239	.127	.038	.229	.123	.037	.219	.119	.036	
5.0	.236	.120	.035	.230	.118	.034	.220	.115	.034	.211	.111	.033	.202	.108	.032	
6.0	.218	.109	.031	.213	.107	.031	.203	.104	.030	.195	.101	.030	.187	.098	.029	
7.0	.202	.100	.028	.197	.098	.028	.189	.096	.028	.181	.093	.027	.174	.090	.027	
8.0	.188	.092	.026	.184	.091	.026	.176	.088	.025	.169	.086	.025	.163	.084	.024	
9.0	.176	.085	.024	.172	.084	.024	.165	.082	.023	.159	.080	.023	.153	.078	.022	
10.0	.165	.079	.022	.162	.078	.022	.155	.076	.021	.150	.074	.021	.144	.072	.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	.226	.226	.226	.193	.193	.193	.132	.132	.132	.076	.076	.076	.024	.024	.024	
1.0	.218	.191	.167	.187	.164	.144	.128	.113	.100	.073	.065	.058	.024	.021	.019	
2.0	.210	.168	.132	.180	.144	.114	.123	.100	.079	.071	.058	.046	.023	.019	.015	
3.0	.203	.150	.109	.174	.130	.094	.119	.090	.066	.069	.053	.039	.022	.017	.013	
4.0	.195	.137	.093	.167	.119	.081	.115	.083	.057	.067	.048	.034	.021	.016	.011	
5.0	.187	.127	.083	.161	.110	.072	.111	.077	.051	.064	.045	.030	.021	.015	.010	
6.0	.180	.119	.075	.155	.103	.065	.107	.072	.046	.062	.042	.027	.020	.014	.009	
7.0	.173	.112	.069	.149	.097	.060	.103	.068	.043	.060	.040	.025	.019	.013	.008	
8.0	.166	.106	.065	.143	.092	.057	.099	.065	.040	.058	.038	.024	.019	.013	.008	
9.0	.160	.101	.062	.138	.088	.054	.096	.062	.038	.056	.036	.023	.018	.012	.008	
10.0	.154	.097	.059	.133	.084	.051	.092	.059	.036	.054	.035	.022	.017	.012	.007	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7312]
 Remarks:

Uncorrected UGR Table

NAME: F2121-4000K					TYPE:					WEIGHT:				
DIM.:					SPEC.:					SERIAL No.:				
MFR.:					SUR.:0.46*0.07					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	21.6	23.1	21.9	23.4	23.7	21.5	23.0	21.9	23.3	23.6				
3H	23.4	24.8	23.8	25.1	25.4	23.0	24.4	23.3	24.7	25.0				
4H	24.3	25.6	24.7	26.0	26.3	23.5	24.8	23.9	25.2	25.5				
6H	25.2	26.5	25.6	26.8	27.2	23.9	25.1	24.3	25.5	25.8				
8H	25.7	26.9	26.1	27.3	27.7	23.9	25.1	24.3	25.5	25.9				
12H	26.3	27.4	26.7	27.8	28.2	24.0	25.1	24.4	25.5	25.9				
4H 2H	22.2	23.5	22.5	23.8	24.2	22.1	23.4	22.5	23.7	24.1				
3H	24.2	25.3	24.6	25.7	26.1	23.7	24.9	24.1	25.3	25.7				
4H	25.2	26.3	25.7	26.7	27.1	24.4	25.4	24.8	25.9	26.3				
6H	26.4	27.3	26.8	27.7	28.2	24.9	25.8	25.3	26.3	26.7				
8H	26.9	27.8	27.4	28.3	28.8	25.0	25.9	25.5	26.4	26.8				
12H	27.6	28.4	28.1	28.9	29.4	25.1	25.9	25.6	26.4	26.9				
8H 4H	25.5	26.4	26.0	26.8	27.3	24.8	25.6	25.2	26.1	26.6				
6H	26.9	27.6	27.4	28.1	28.6	25.4	26.2	26.0	26.7	27.2				
8H	27.6	28.3	28.2	28.8	29.4	25.7	26.4	26.2	26.9	27.4				
12H	28.5	29.1	29.1	29.6	30.2	25.9	26.4	26.4	27.0	27.6				
12H 4H	25.5	26.3	26.0	26.8	27.3	24.8	25.7	25.3	26.1	26.6				
6H	26.9	27.6	27.5	28.1	28.7	25.6	26.3	26.2	26.8	27.3				
8H	27.8	28.4	28.4	28.9	29.5	26.0	26.5	26.5	27.1	27.6				
Variations with the observer position at spacings:														
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2								
1.5H	+ 0.2 / - 0.3					+ 0.1 / - 0.3								
2.0H	+ 0.1 / - 0.3					+ 0.2 / - 0.2								

CIE Pub.117 Corrected 1807 lm Total Lamp Luminous Flux.(8log(F/F0) = 2.1)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7312]
 Remarks:

UTILIZATION FACTORS TABLE

NAME: F2121-4000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.46*0.07	PROTECTION ANGLE:

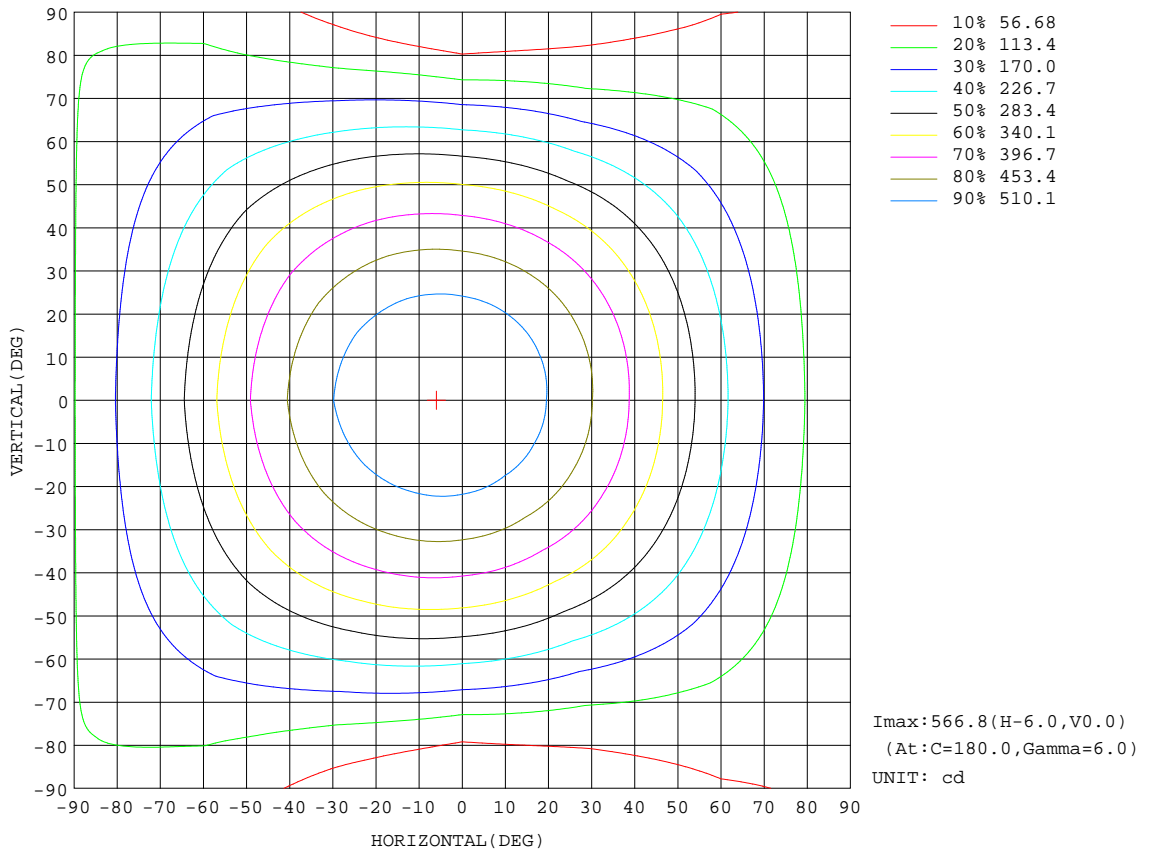
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	55	43	36	54	42	35	52	42	35	29
0.80	64	52	45	63	52	44	61	51	44	37
1.00	72	61	53	71	60	53	69	61	52	44
1.25	79	68	61	78	67	60	75	66	59	51
1.50	84	74	66	83	73	66	79	71	64	56
2.00	91	82	75	89	80	74	85	78	72	63
2.50	95	87	80	93	85	79	89	82	77	67
3.00	99	91	85	96	89	84	92	86	81	71
4.00	103	97	91	100	95	90	95	91	86	76
5.00	106	100	95	103	98	94	98	94	90	79
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:DAMIN
 Test Date:2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7312]
 Remarks:

ISOCANDELA DIAGRAM

NAME: F2121-4000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.46*0.07	PROTECTION ANGLE:

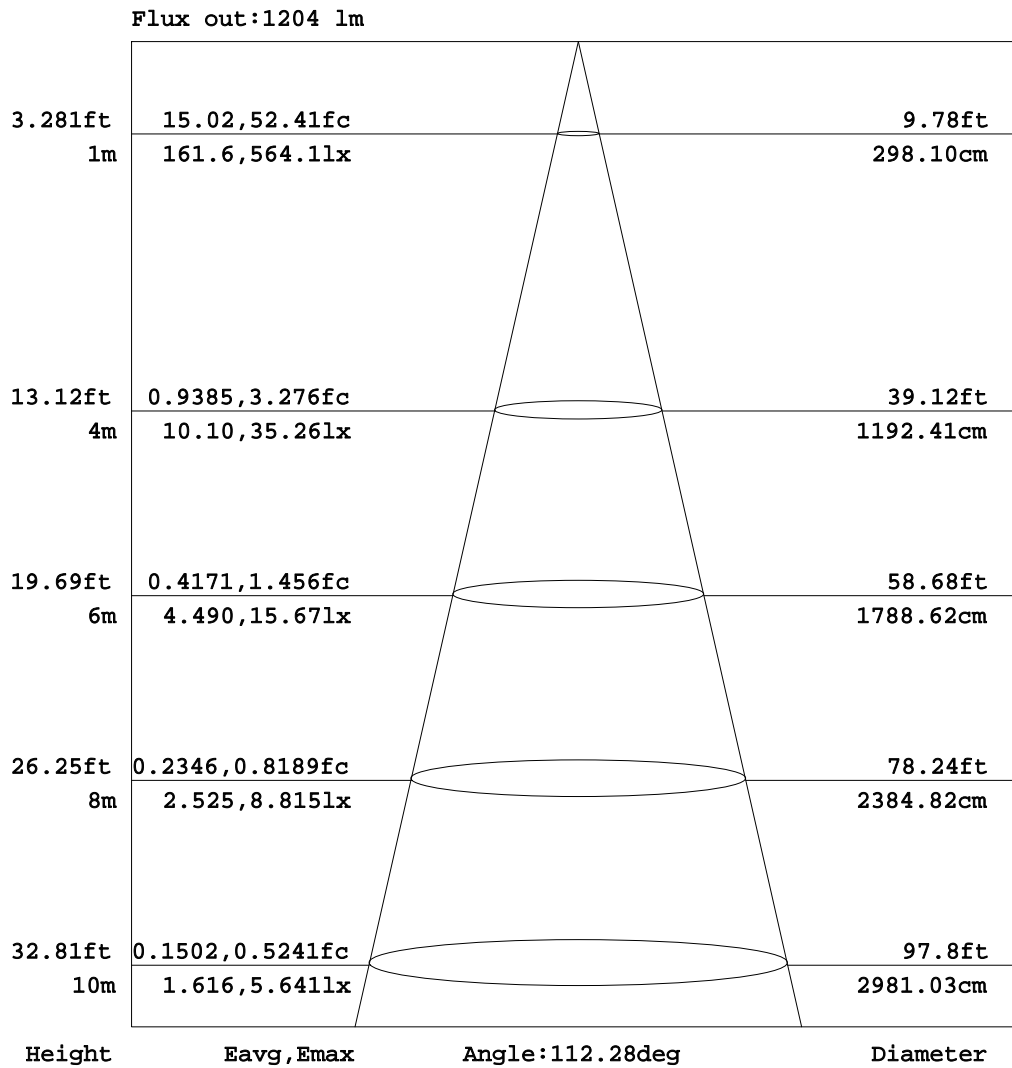


C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.7312]
 Remarks:

AAI Figure

NAME: F2121-4000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.46*0.07	PROTECTION ANGLE:



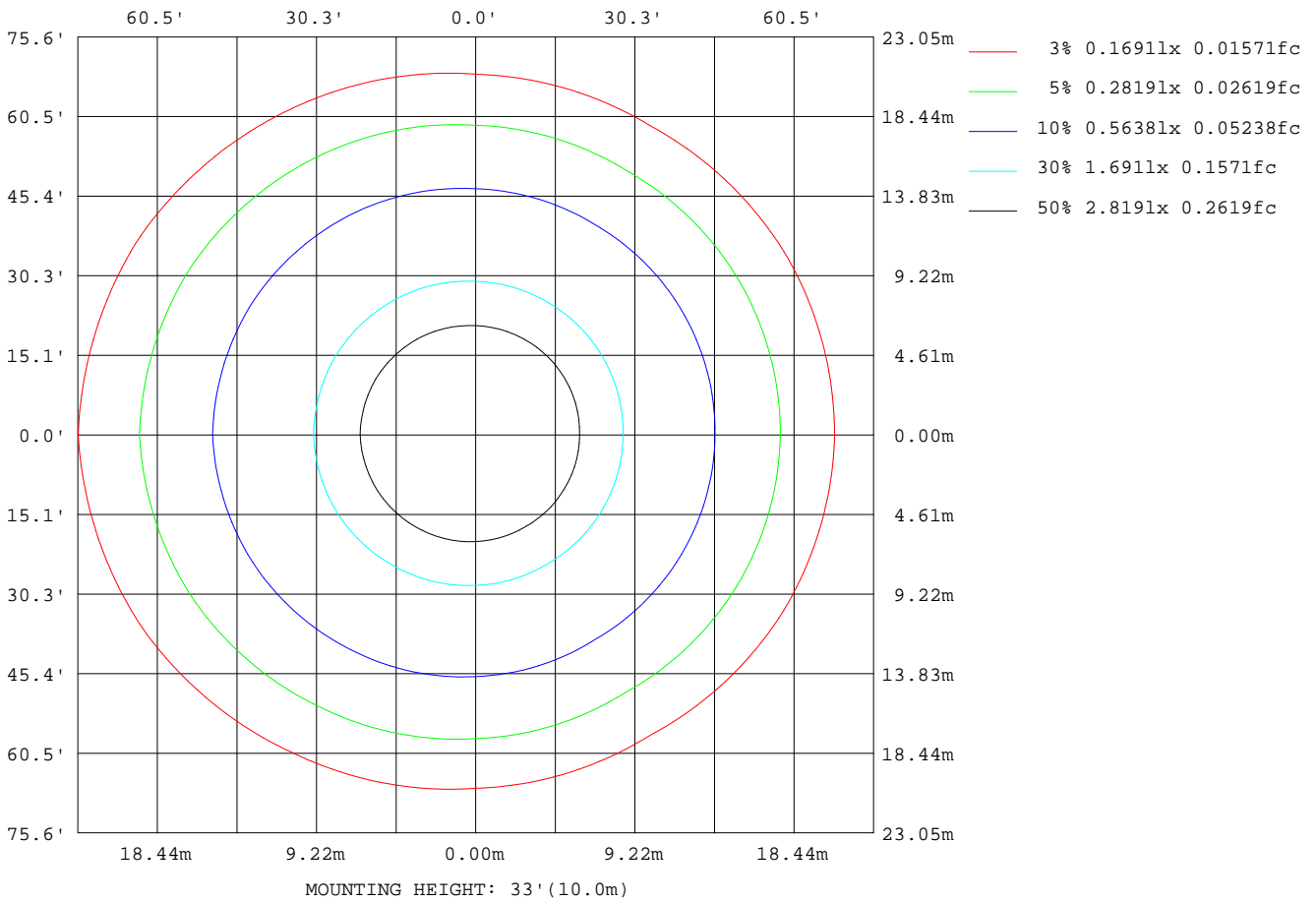
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.7312]
 Remarks:

ISOLUX DIAGRAM

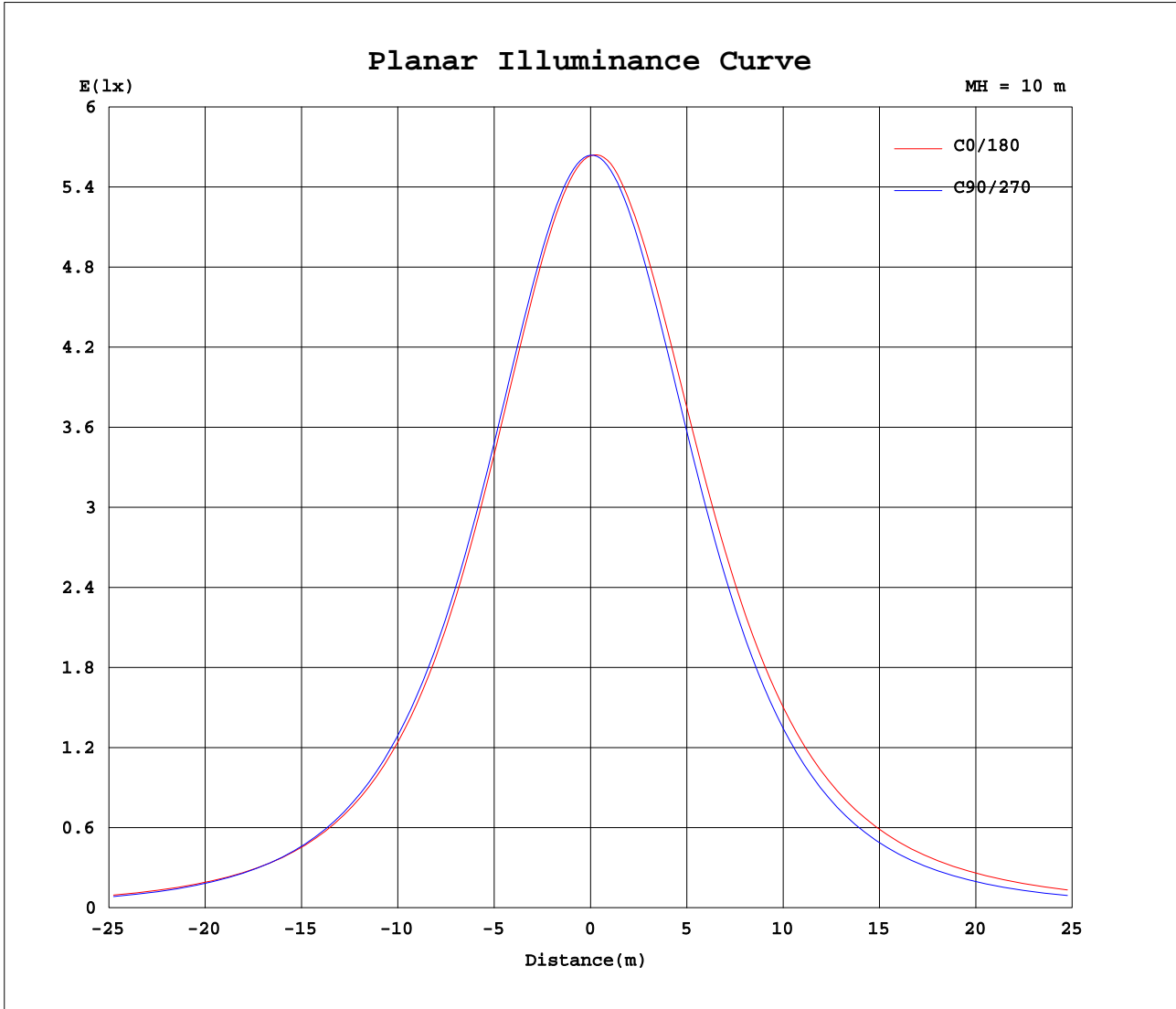
NAME: F2121-4000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.46*0.07	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
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 Test Date:2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7312]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.7312]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: F2121-4000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.46*0.07	PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330							
0	563	563	563	564	564	563	563	563	563	564	564	563							
5	556	556	557	560	562	564	567	565	564	563	561	558							
10	545	544	546	551	555	559	564	562	560	556	552	548							
15	528	528	530	537	543	550	557	554	550	544	539	533							
20	508	507	510	518	527	537	545	542	536	527	520	513							
25	483	482	486	495	506	519	530	526	517	506	497	490							
30	454	454	457	468	481	497	509	505	494	480	470	462							
35	422	422	425	437	452	471	485	479	467	451	439	430							
40	388	386	389	403	420	441	457	450	436	417	404	395							
45	351	349	350	365	384	408	425	417	401	380	366	358							
50	314	310	310	325	346	371	391	382	363	340	325	319							
55	276	271	266	282	305	333	354	343	322	297	283	280							
60	239	232	223	237	262	294	317	304	279	252	238	240							
65	203	194	179	190	217	254	279	264	234	204	194	202							
70	169	159	138	142	173	216	242	225	188	155	151	166							
75	138	127	100	93.8	131	179	206	187	144	106	110	133							
80	110	97.8	68.0	50.2	93.0	145	173	153	104	59.0	75.8	104							
85	85.3	73.2	42.4	16.0	61.6	114	142	121	70.5	18.8	48.4	77.9							
90	63.4	52.5	24.3	3.34	38.3	87.1	112	93.4	44.7	3.47	28.1	55.7							
95	45.5	35.9	12.9	3.54	22.2	64.6	87.2	69.5	26.3	3.64	14.9	38.3							
100	31.3	23.4	7.07	3.75	12.4	46.0	65.7	49.4	14.7	3.82	7.99	25.0							
105	18.7	14.5	4.83	3.97	7.24	31.1	42.7	33.9	8.41	4.02	5.17	15.7							
110	12.2	8.48	4.45	4.21	5.10	18.3	29.9	21.8	5.54	4.24	4.51	9.68							
115	8.16	6.09	4.61	4.46	4.55	11.7	20.2	13.1	4.66	4.48	4.66	6.43							
120	6.10	5.28	4.88	4.71	4.68	7.94	13.3	8.42	4.66	4.71	4.87	5.35							
125	5.45	5.30	5.15	4.95	4.94	6.02	8.86	6.20	4.90	4.95	5.12	5.26							
130	5.49	5.54	5.41	5.20	5.20	5.33	6.51	5.43	5.15	5.20	5.37	5.49							
135	5.72	5.79	5.67	5.45	5.46	5.39	5.62	5.40	5.44	5.46	5.63	5.72							
140	5.95	6.03	5.92	5.71	5.73	5.64	5.66	5.61	5.72	5.74	5.88	5.97							
145	6.18	6.24	6.08	5.98	5.94	5.84	5.92	5.86	5.94	6.01	6.08	6.20							
150	6.43	6.44	6.26	6.26	6.17	6.07	6.19	6.10	6.19	6.27	6.28	6.41							
155	6.62	6.61	6.45	6.48	6.40	6.29	6.45	6.32	6.45	6.52	6.45	6.60							
160	6.77	6.73	6.63	6.71	6.62	6.43	6.67	6.53	6.68	6.74	6.69	6.72							
165	6.88	6.88	6.86	6.92	6.81	6.67	6.86	6.75	6.88	6.95	6.86	6.85							
170	7.00	6.99	6.99	7.06	6.95	6.84	7.01	6.92	7.00	7.10	7.03	6.94							
175	7.04	7.05	7.05	7.15	7.05	6.98	6.85	6.85	6.91	7.04	6.92	6.86							
180	6.97	6.94	7.04	7.13	7.05	6.94	6.98	6.94	7.01	7.12	7.05	6.91							

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-09-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7312]
 Remarks: