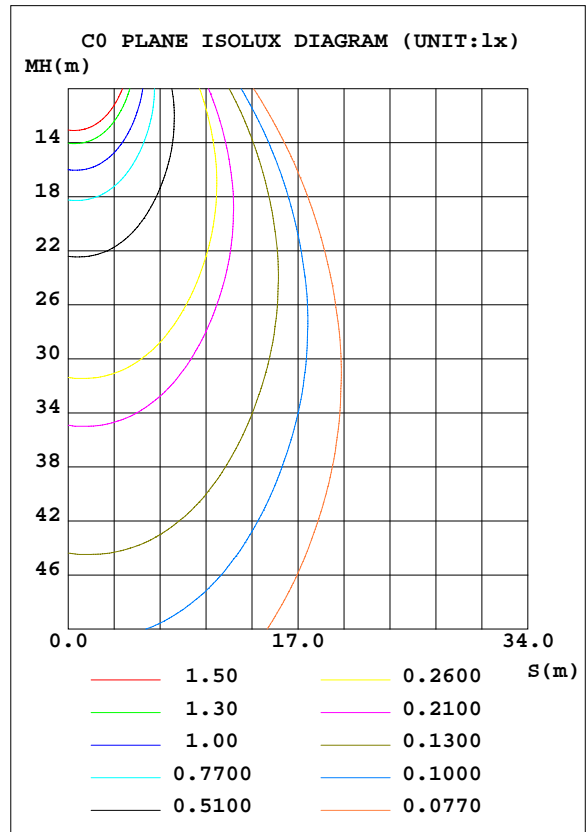
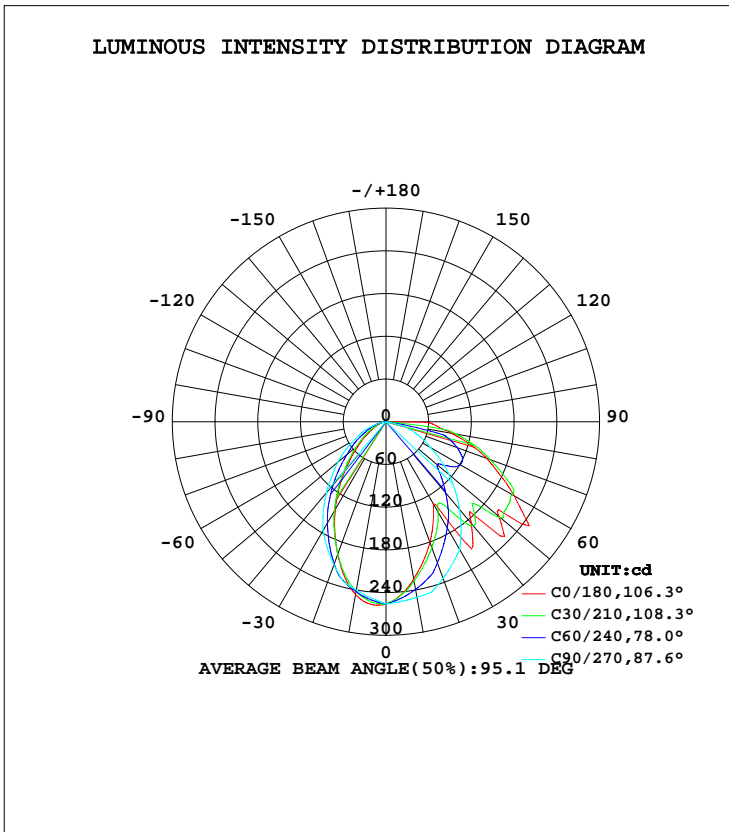


LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 48.34 lm/W			
MODEL	Frater Hi12W-3000K	I _{max} (cd)	257.9	S/MH(C0/180)	0.93
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	1.05
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	589.78	η UP, DN(C0-180)	0.0, 46.0
NOMINAL FLUX(lm)	589.785	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 54.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	230.0	η down(%)	100.0	CIBSE SHR MAX	1.00



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	lum, lamp
5	257.0	252.0	248.1	243.1	243.7	246.4	253.2	255.9	0- 5	6.031	6.031	1.02,1.02
10	246.4	242.2	240.3	226.5	224.3	232.6	250.4	250.0	5- 10	17.46	23.49	3.98,3.98
15	225.1	226.7	232.4	207.9	202.5	216.3	247.6	238.6	10- 15	27.43	50.92	8.63,8.63
20	198.3	207.0	213.8	189.3	180.4	200.0	234.1	222.8	15- 20	35.32	86.24	14.6,14.6
25	170.2	179.6	195.3	166.2	156.8	178.7	220.5	198.6	20- 25	40.53	126.8	21.5,21.5
30	142.7	152.3	176.7	143.5	133.1	157.0	207.0	172.8	25- 30	43.30	170.1	28.8,28.8
35	115.6	127.2	153.4	121.9	113.1	136.1	183.8	148.6	30- 35	45.31	215.4	36.5,36.5
40	89.41	104.0	130.1	107.5	106.4	120.7	160.7	125.8	35- 40	47.66	263.0	44.6,44.6
45	67.09	81.68	106.8	162.9	227.1	172.2	137.6	100.7	40- 45	47.01	310.0	52.6,52.6
50	48.76	62.12	88.24	141.4	207.2	161.2	115.5	78.51	45- 50	47.49	357.5	60.6,60.6
55	34.82	45.89	69.64	162.5	241.3	167.0	93.54	59.59	50- 55	46.71	404.2	68.5,68.5
60	24.66	34.03	51.04	150.0	207.6	182.1	71.53	44.85	55- 60	45.82	450.1	76.3,76.3
65	17.36	23.93	38.71	131.8	176.5	164.5	56.51	32.58	60- 65	41.65	491.7	83.4,83.4
70	12.03	16.14	26.37	112.3	150.6	141.1	41.49	23.06	65- 70	36.13	527.8	89.5,89.5
75	8.019	10.20	14.04	81.85	122.2	114.6	26.48	15.63	70- 75	29.42	557.3	94.5,94.5
80	4.806	4.445	0	44.82	93.75	73.06	0	7.897	75- 80	20.86	578.1	98.98
85	2.172	0	0	0	72.22	0	0	0	80- 85	9.548	587.7	99.6,99.6
90	0.5133	0	0	0	0.0950	0	0	0	85- 90	2.119	589.8	100,100
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:cd								UNIT:lm			

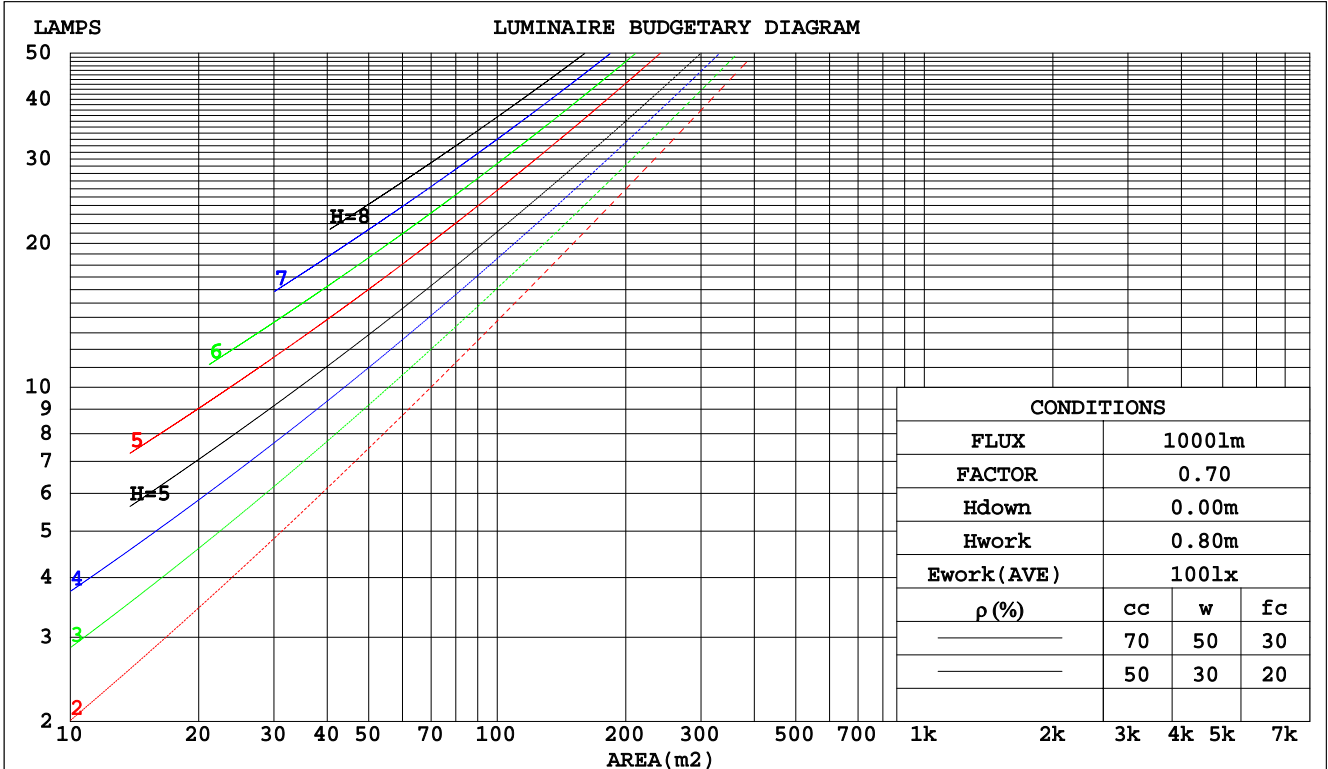
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	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	1.19	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	1.00
1.0	1.03	.99	.95	1.01	.97	.94	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.77	.88	.82	.76	.84	.79	.74	.81	.77	.73	.78	.74	.71	.69
3.0	.79	.70	.64	.77	.70	.63	.74	.68	.62	.71	.66	.61	.69	.64	.60	.58
4.0	.70	.61	.54	.69	.60	.54	.66	.59	.53	.64	.57	.52	.61	.56	.52	.49
5.0	.63	.53	.47	.61	.53	.46	.59	.52	.46	.57	.51	.45	.55	.50	.45	.43
6.0	.56	.47	.41	.55	.47	.41	.54	.46	.40	.52	.45	.40	.50	.44	.40	.38
7.0	.51	.43	.36	.50	.42	.36	.49	.41	.36	.47	.41	.36	.46	.40	.35	.33
8.0	.47	.38	.33	.46	.38	.32	.45	.38	.32	.44	.37	.32	.43	.36	.32	.30
9.0	.43	.35	.29	.43	.35	.29	.41	.34	.29	.40	.34	.29	.39	.33	.29	.27
10.0	.40	.32	.27	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.26	.25



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DOBAC
 Test Date: 2017-11-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity: 65.0%
 Test Distance: 6.960m [K=1.0000]
 Remarks:

WEC AND CCEC

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION 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	.317	.181	.057	.310	.177	.056	.297	.170	.054	.285	.164	.053	.274	.159	.051	
2.0	.297	.163	.050	.291	.160	.049	.279	.155	.048	.268	.151	.047	.258	.146	.046	
3.0	.273	.146	.044	.268	.143	.043	.257	.140	.042	.248	.136	.042	.239	.132	.041	
4.0	.251	.130	.038	.246	.129	.038	.237	.126	.038	.228	.123	.037	.221	.120	.036	
5.0	.231	.118	.034	.227	.116	.034	.219	.114	.034	.211	.111	.033	.204	.109	.033	
6.0	.214	.107	.031	.210	.106	.031	.203	.104	.030	.196	.102	.030	.190	.100	.030	
7.0	.198	.098	.028	.195	.097	.028	.189	.095	.027	.183	.094	.027	.177	.092	.027	
8.0	.185	.090	.025	.182	.090	.025	.176	.088	.025	.171	.087	.025	.166	.085	.025	
9.0	.173	.084	.023	.170	.083	.023	.165	.082	.023	.160	.080	.023	.156	.079	.023	
10.0	.163	.078	.022	.160	.077	.022	.156	.076	.021	.151	.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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.181	.156	.134	.155	.134	.115	.106	.092	.080	.061	.053	.046	.020	.017	.015	
2.0	.173	.132	.097	.148	.114	.084	.102	.079	.059	.059	.046	.034	.019	.015	.011	
3.0	.165	.114	.074	.142	.099	.064	.097	.069	.045	.056	.040	.026	.018	.013	.009	
4.0	.157	.101	.058	.135	.087	.050	.093	.061	.035	.054	.036	.021	.017	.012	.007	
5.0	.150	.091	.047	.129	.078	.041	.089	.055	.029	.051	.032	.017	.017	.010	.006	
6.0	.142	.082	.039	.122	.071	.034	.084	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.135	.075	.033	.116	.065	.029	.080	.046	.021	.047	.027	.012	.015	.009	.004	
8.0	.129	.069	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.004	
9.0	.122	.064	.025	.106	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.023	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DOBAC
 Test Date:2017-11-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity:65.0%
 Test Distance:6.960m [K=1.0000]
 Remarks:

Uncorrected UGR Table

NAME: Frater Hi12W-3000K					TYPE:					WEIGHT:				
DIM.:					SPEC.:					SERIAL No.:				
MFR.: DOBAC					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	21.8	23.3	22.0	23.5	23.7	24.9	26.4	25.1	26.6	26.8				
3H	22.2	23.6	22.5	23.9	24.1	25.8	27.2	26.1	27.5	27.7				
4H	22.4	23.8	22.7	24.0	24.3	26.1	27.4	26.4	27.7	27.9				
6H	22.5	23.8	22.9	24.1	24.3	26.0	27.3	26.4	27.6	27.8				
8H	22.6	23.8	22.9	24.1	24.4	26.0	27.2	26.3	27.5	27.8				
12H	22.6	23.8	22.9	24.1	24.4	25.9	27.1	26.3	27.4	27.7				
4H 2H	22.3	23.6	22.6	23.9	24.1	24.9	26.2	25.2	26.5	26.8				
3H	22.9	24.1	23.2	24.3	24.7	26.0	27.2	26.3	27.5	27.8				
4H	23.1	24.2	23.5	24.5	24.9	26.3	27.4	26.7	27.7	28.1				
6H	23.3	24.3	23.7	24.6	25.0	26.3	27.3	26.7	27.7	28.0				
8H	23.4	24.3	23.8	24.7	25.0	26.3	27.2	26.7	27.6	27.9				
12H	23.4	24.3	23.9	24.7	25.1	26.2	27.1	26.7	27.5	27.9				
8H 4H	23.3	24.2	23.7	24.6	25.0	26.3	27.2	26.7	27.6	28.0				
6H	23.6	24.3	24.0	24.8	25.2	26.3	27.1	26.8	27.5	27.9				
8H	23.7	24.4	24.2	24.8	25.3	26.3	27.0	26.8	27.4	27.8				
12H	23.8	24.4	24.3	24.8	25.3	26.3	26.8	26.7	27.3	27.8				
12H 4H	23.3	24.1	23.7	24.5	24.9	26.3	27.1	26.7	27.5	27.9				
6H	23.6	24.2	24.0	24.7	25.1	26.3	27.0	26.8	27.4	27.9				
8H	23.7	24.3	24.2	24.7	25.2	26.3	26.8	26.8	27.3	27.8				
Variations with the observer position at spacings:														
S = 1.0H	+ 0.6 / - 0.8					+ 0.4 / - 0.5								
1.5H	+ 0.4 / - 0.5					+ 0.3 / - 0.6								
2.0H	+ 1.0 / - 1.0					+ 1.2 / - 1.4								

CIE Pub.117 Corrected 589.8 lm Total Lamp Luminous Flux. (8log(F/F0) = -1.8)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DOBAC
Test Date: 2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity: 65.0%
Test Distance: 6.960m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

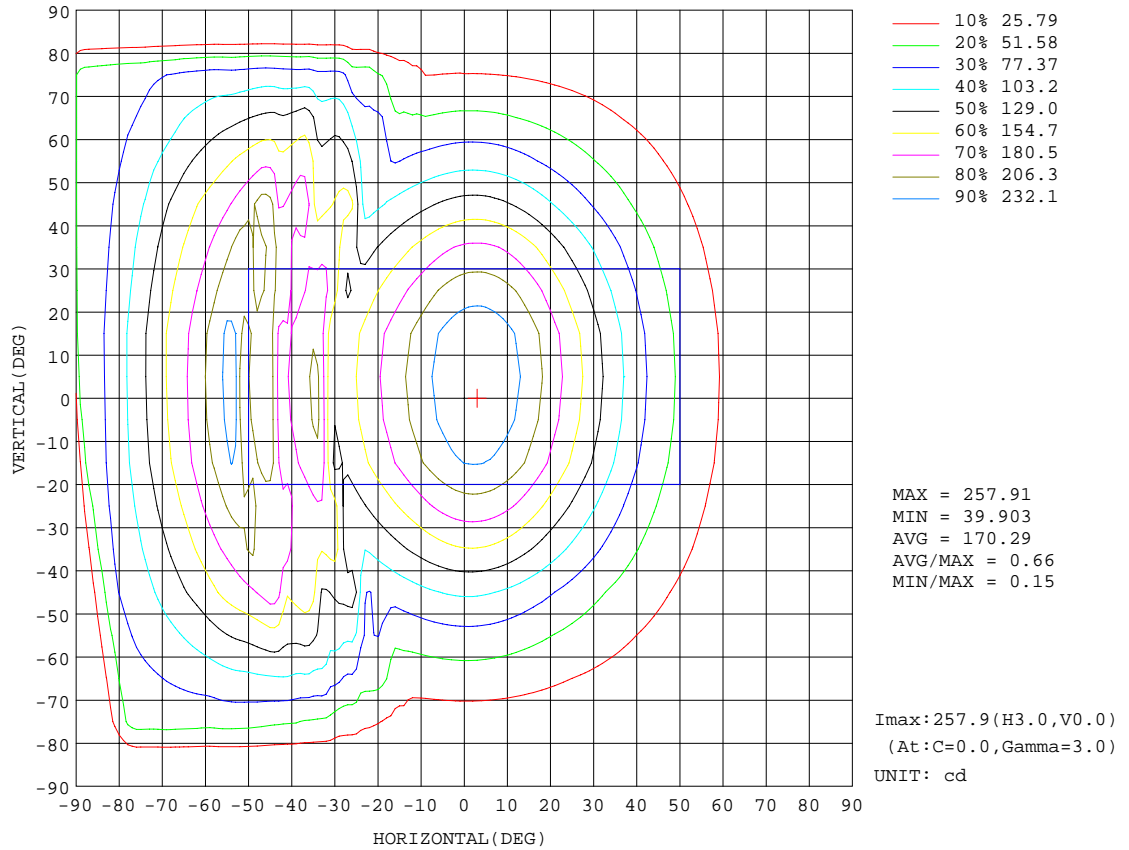
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	58	46	39	57	46	39	56	46	39	33
0.80	68	56	48	66	55	48	65	55	48	41
1.00	76	64	57	74	64	57	72	65	56	49
1.25	83	72	65	81	71	64	78	70	63	56
1.50	87	77	70	86	77	70	83	75	69	61
2.00	94	86	79	92	84	78	89	82	77	69
2.50	98	90	84	96	89	83	92	86	81	73
3.00	102	95	89	100	93	88	96	90	86	77
4.00	106	100	95	104	98	94	99	95	91	82
5.00	108	104	99	106	102	98	101	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: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

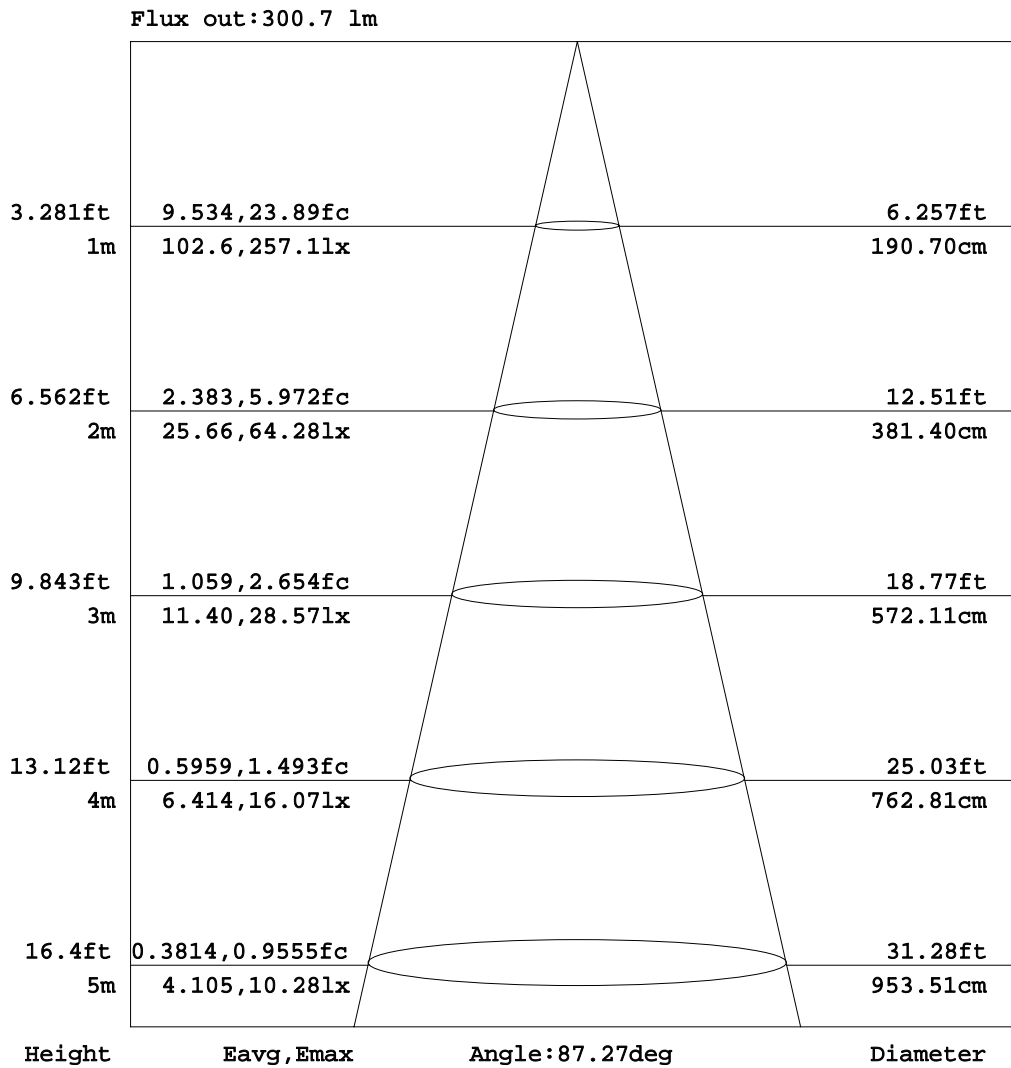


C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DOBAC
Test Date: 2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity: 65.0%
Test Distance: 6.960m [K=1.0000]
Remarks:

AAI Figure

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:



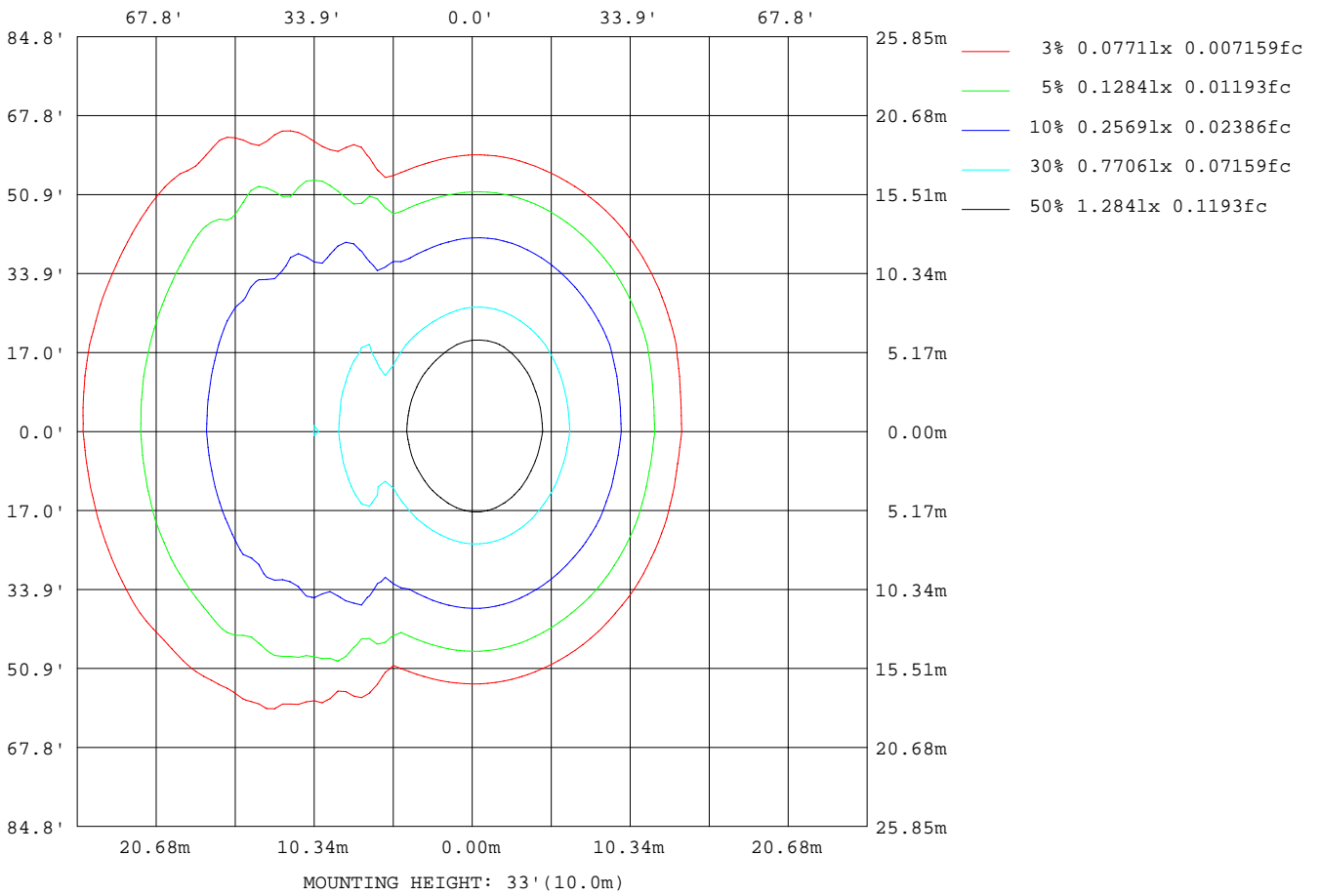
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DOBAC
Test Date: 2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity: 65.0%
Test Distance: 6.960m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DOBAC
Test Date: 2017-11-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity: 65.0%
Test Distance: 6.960m [K=1.0000]
Remarks:

Average Luminance Table(CIBSE)

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	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	589.785	lm
Multiplying factor	K	1	
Luminous area in horizontal plane used in calculations	A	0.0021	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 deg	C plane(deg)																			
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	
55	28907	28520	29789	32617	36201	40675	46311	51681	56256	57816	55595	53177	78037	10402	43496	95723	51783	18936	120028	
60	23487	23128	24458	26718	30165	34629	39302	43628	47221	48612	47035	55552	97191	11231	59475	86804	12886	76934	319772	
65	19555	19133	20236	22185	25290	28641	32827	37790	42000	43615	41855	63182	96727	14200	67010	28422	19125	95078	98889	
70	16753	16361	17102	18768	20771	24323	28345	32311	35579	36720	35499	60856	94383	14070	16608	85081	94932	20158	209675	
75	14754	14333	14728	15825	17691	19936	22235	24255	25634	25831	25751	52804	88015	13256	16501	68880	20393	21502	224858	
80	13180	12724	12790	13279	13414	10656	7361	3920	1110	0	1120	9113	33307	86719	16821	20165	22880	24606	257090	
85	11865	12135	9657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30131	94814	94571

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	394571	200	---	500
Category 2	65 to 90	394571	200	---	500
Category 3	75 to 90	394571	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: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

Average Luminance Table(CIBSE)

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	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	589.785	lm
Multiplying factor	K	1	
Luminous area in horizontal plane used in calculations	A	0.0021	sq.m.
Angle to the downward vertical from light centre	Gamma	from data	deg

Table 1. Calculation parameters for determination of CIBSE LG3:2001 Average Luminance

G deg	C plane(deg)																			
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	
55	28907	28520	29789	32617	36201	40675	46311	51681	56256	57816	55595	53177	78037	10402	43496	95723	51783	18936	120028	
60	23487	23128	24458	26718	30165	34629	39302	43628	47221	48612	47035	55552	97191	11231	59475	86804	12886	76934	319772	
65	19555	19133	20236	22185	25290	28641	32827	37790	42000	43615	41855	63182	96727	14200	67010	28422	19125	95078	98889	
70	16753	16361	17102	18768	20771	24323	28345	32311	35579	36720	35499	60856	94383	14070	16608	85081	94932	0158	209675	
75	14754	14333	14728	15825	17691	19936	22235	24255	25634	25831	25751	52804	88015	13256	16501	68880	20393	21502	224858	
80	13180	12724	12790	13279	13414	10656	7361	3920	1110	0	1120	9113	33307	86719	16821	20165	22880	24606	257090	
85	11865	12135	9657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30131	94814	094571

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

range (deg)	Maximum measured	Average Luminance(cd/sq.m)			
		Maximum limit for screen type & software category used			
		Type I,II screen Some neg.s'ware	Type I,II screen Only pos.s'ware	Type III screen Some neg.s'ware	Type III screen Only pos.s'ware
55 to 90	394571	1000	1500	200	500
65 to 90	394571	1000	1500	200	500

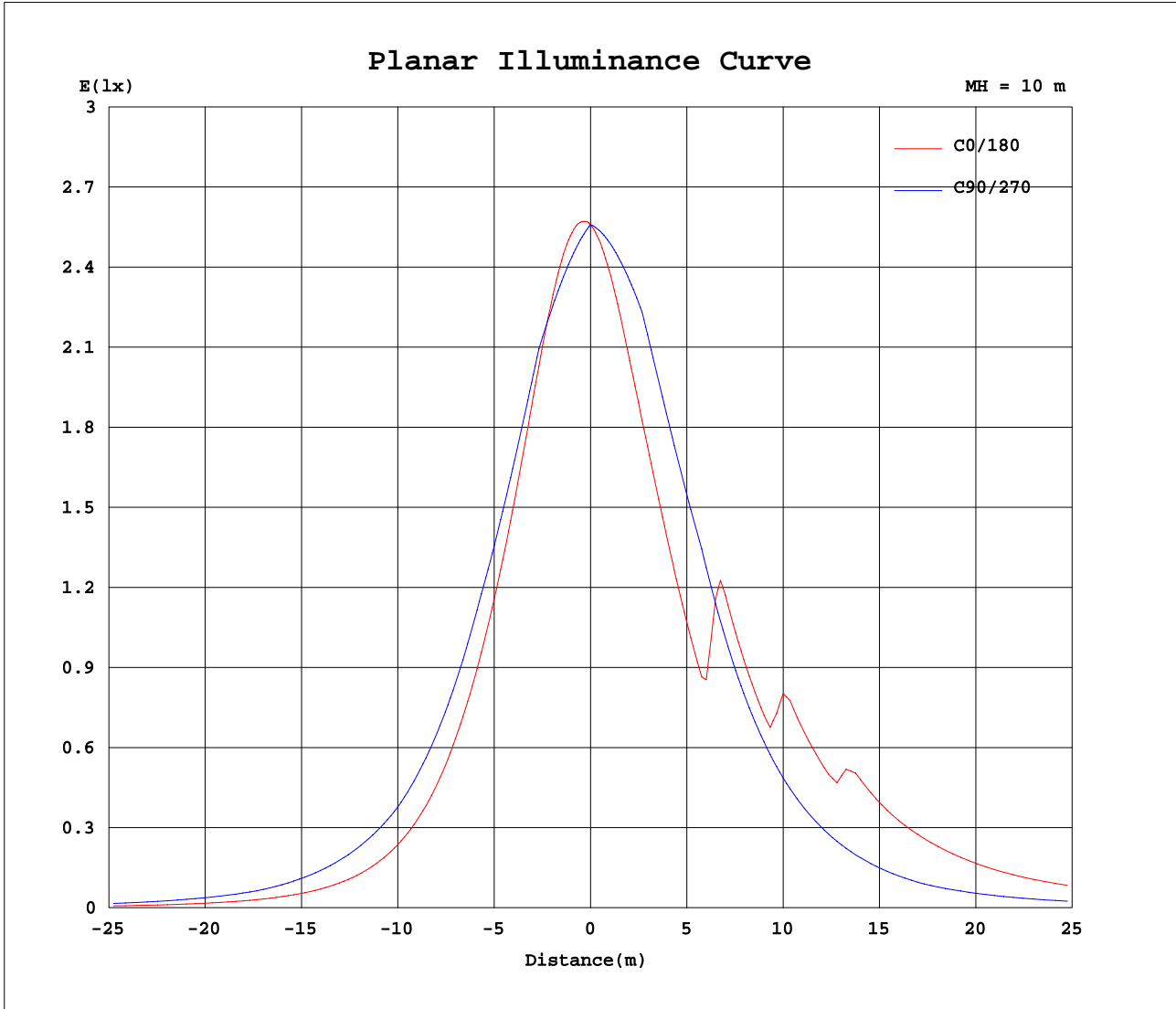
Table 3. Tabulation of average luminance(cd/sq.m.) and luminance limits

No match

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DOBAC
 Test Date: 2017-11-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity: 65.0%
 Test Distance: 6.960m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256
5	257	256	256	255	254	254	253	253	252	252	252	251	251	250	250	250	249	249	248
10	246	245	244	243	242	242	242	242	242	242	242	242	242	243	242	242	242	241	240
15	225	223	222	222	221	222	223	224	225	227	228	230	231	233	233	234	234	233	232
20	198	196	195	194	195	196	198	200	203	207	210	211	213	214	215	215	215	215	214
25	170	168	167	166	167	169	172	175	177	180	182	186	189	192	194	196	196	196	195
30	143	140	139	139	141	143	145	147	149	152	156	160	165	169	172	175	177	178	177
35	116	113	112	113	115	117	118	121	124	127	131	136	140	144	148	151	153	154	153
40	89.4	87.3	86.9	88.0	89.8	91.3	93.6	96.6	100	104	108	111	115	119	123	127	129	130	130
45	67.1	65.4	65.2	66.6	67.5	69.3	71.9	75.4	78.4	81.7	85.0	88.6	92.2	95.8	99.4	103	105	107	107
50	48.8	47.5	47.7	48.5	49.6	51.5	54.0	56.5	59.4	62.1	65.1	68.0	71.7	75.6	79.5	83.2	86.2	87.9	88.2
55	34.8	33.9	34.4	34.8	35.9	37.6	39.3	41.4	43.6	45.9	49.0	52.4	55.8	59.1	62.3	65.3	67.8	69.3	69.6
60	24.7	24.0	24.3	24.6	25.7	26.7	28.1	29.5	31.7	34.0	36.4	38.9	41.3	43.6	45.8	47.9	49.6	50.7	51.0
65	17.4	16.9	17.0	17.5	18.0	18.7	19.7	21.0	22.4	23.9	25.4	27.0	29.1	31.3	33.5	35.5	37.3	38.4	38.7
70	12.0	11.8	11.8	12.0	12.3	12.8	13.5	14.2	14.9	16.1	17.5	18.9	20.4	21.8	23.2	24.5	25.6	26.2	26.4
75	8.02	7.78	7.79	7.82	8.00	8.26	8.60	9.10	9.62	10.2	10.8	11.5	12.1	12.7	13.2	13.6	13.9	14.1	14.0
80	4.81	4.69	4.64	4.60	4.66	4.74	4.84	4.90	4.89	4.45	3.89	3.29	2.68	2.05	1.43	0.86	0.40	0.10	0.00
85	2.17	2.10	2.22	2.12	1.77	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Table--2

UNIT: cd

C(DEG) γ (DEG)	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	
0	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	
5	247	247	246	246	245	245	244	244	243	243	242	242	242	242	242	243	243	244	244	
10	239	238	236	235	233	231	230	228	227	225	224	223	223	222	222	223	223	224	224	
15	231	229	226	223	220	217	214	211	208	206	204	202	201	200	200	200	201	202	202	
20	212	209	207	203	200	197	194	192	189	186	183	181	179	178	178	178	179	180	180	
25	193	190	186	182	178	175	171	169	166	165	163	160	157	156	155	154	155	157	156	
30	174	171	167	162	158	153	150	146	143	141	139	138	136	133	132	131	132	133	133	
35	151	148	144	140	136	133	129	125	122	119	128	139	150	183	201	208	210	213	211	
40	128	125	122	118	114	111	108	112	108	164	172	183	184	185	183	182	183	186	186	
45	106	103	100	97.2	94.1	91.3	104	122	163	164	162	160	179	176	183	203	217	227	218	
50	87.1	84.8	81.9	79.0	80.6	77.2	139	139	141	163	159	202	195	200	205	203	204	207	207	
55	68.7	67.0	64.7	64.1	78.3	94.0	124	125	162	163	182	189	197	215	218	233	237	241	240	
60	50.5	49.4	48.0	58.3	76.6	102	114	129	150	155	193	189	196	198	200	203	204	208	208	
65	38.2	37.1	37.3	56.1	67.2	85.8	108	126	132	151	157	164	168	170	172	173	175	177	178	
70	26.0	25.5	29.0	43.7	51.6	67.8	91.1	101	112	119	125	133	137	140	142	145	148	151	153	
75	13.9	14.0	20.6	28.7	37.0	47.8	63.5	72.1	81.9	89.7	96.9	103	107	111	115	117	120	122	125	
80	0.10	0.41	1.37	3.32	6.97	12.1	21.1	31.6	44.8	61.3	68.9	73.5	79.5	83.4	87.0	89.7	91.4	93.8	95.6	
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.1	55.1	66.4	63.7	56.5	72.2	73.8
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DOBAC
Test Date: 2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity: 65.0%
Test Distance: 6.960m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Table--3

UNIT: cd

C(DEG) γ (DEG)	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256
5	243	244	244	244	245	245	246	246	247	248	249	249	250	251	252	253	253	254	254
10	224	224	225	226	228	229	231	233	235	237	239	241	244	246	247	249	250	251	252
15	202	203	204	206	208	210	213	216	220	224	228	232	236	239	243	246	248	249	250
20	180	181	183	185	188	192	196	200	204	207	211	215	220	224	228	231	234	236	237
25	157	159	161	164	168	173	176	179	182	186	191	196	202	208	213	217	221	222	223
30	134	136	139	143	146	149	153	157	162	167	172	178	185	191	198	203	207	209	209
35	208	198	179	155	144	134	131	136	142	148	153	158	163	169	175	180	184	185	186
40	187	191	194	195	191	183	164	121	127	125	131	136	141	147	152	157	161	162	161
45	201	178	183	178	174	179	182	172	141	118	110	115	120	125	130	134	138	139	137
50	210	213	212	209	209	171	178	161	160	156	94.5	100	99.9	104	109	113	116	116	115
55	235	222	222	193	208	193	187	167	147	153	109	97.1	81.7	84.5	88.1	91.4	93.5	93.8	92.4
60	211	211	214	215	205	213	175	182	140	143	121	93.9	70.3	65.3	67.8	70.0	71.5	71.5	70.3
65	179	180	181	183	185	187	174	165	159	133	119	87.0	70.7	54.8	53.4	55.3	56.5	56.4	55.0
70	154	154	156	156	156	156	153	141	143	112	106	77.1	65.5	47.1	40.6	40.8	41.5	41.4	40.4
75	126	129	129	129	129	125	122	115	110	94.2	90.9	66.0	53.9	39.3	28.6	26.4	26.5	26.5	25.9
80	97.8	98.9	99.2	101	100	94.3	91.6	73.1	52.3	36.5	25.4	12.6	6.55	2.66	0.87	0.20	0.00	0.20	0.76
85	74.4	75.2	67.0	28.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DOBAC
 Test Date:2017-11-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity:65.0%
 Test Distance:6.960m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Frater Hi12W-3000K	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Table--4

UNIT: cd

C(DEG) γ (DEG)	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355				
0	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256				
5	255	255	255	255	256	256	256	256	256	256	256	256	256	257	257				
10	253	253	253	252	252	251	250	249	248	248	247	246	246	246	246				
15	250	249	248	246	244	241	239	236	233	231	229	227	226	225	225				
20	237	236	234	232	229	227	223	218	213	209	205	202	200	198	198				
25	222	220	217	213	208	203	199	194	190	184	179	175	172	171	170				
30	207	204	199	192	186	179	173	167	162	159	154	150	146	143	142				
35	184	180	176	170	164	156	149	142	137	132	128	124	119	117	115				
40	159	154	149	143	137	131	126	119	113	107	102	98.5	94.3	91.0	89.3				
45	134	129	124	117	112	106	101	95.5	90.7	84.2	79.0	75.1	72.0	68.7	67.0				
50	111	106	101	94.5	88.9	83.7	78.5	73.6	68.9	64.8	59.9	55.8	53.0	50.4	48.9				
55	89.2	84.9	80.0	74.9	69.8	64.7	59.6	55.2	51.3	47.5	44.5	40.9	38.3	36.6	35.0				
60	67.9	64.6	60.9	57.1	53.1	49.0	44.8	41.1	37.5	34.4	31.8	29.6	27.3	26.0	24.8				
65	52.5	49.1	45.6	42.0	38.4	35.5	32.6	29.8	27.1	24.6	22.5	20.8	19.5	18.2	17.5				
70	38.5	36.1	33.5	30.9	28.2	25.5	23.1	20.8	19.0	17.3	15.7	14.5	13.5	12.7	12.2				
75	24.8	23.5	22.0	20.5	18.9	17.2	15.6	14.2	12.8	11.7	10.6	9.71	9.06	8.56	8.13				
80	1.62	2.66	3.80	4.96	6.04	7.02	7.90	8.38	7.73	7.11	6.52	5.99	5.55	5.19	4.92				
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	2.61	2.69	2.51	2.27			
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks: