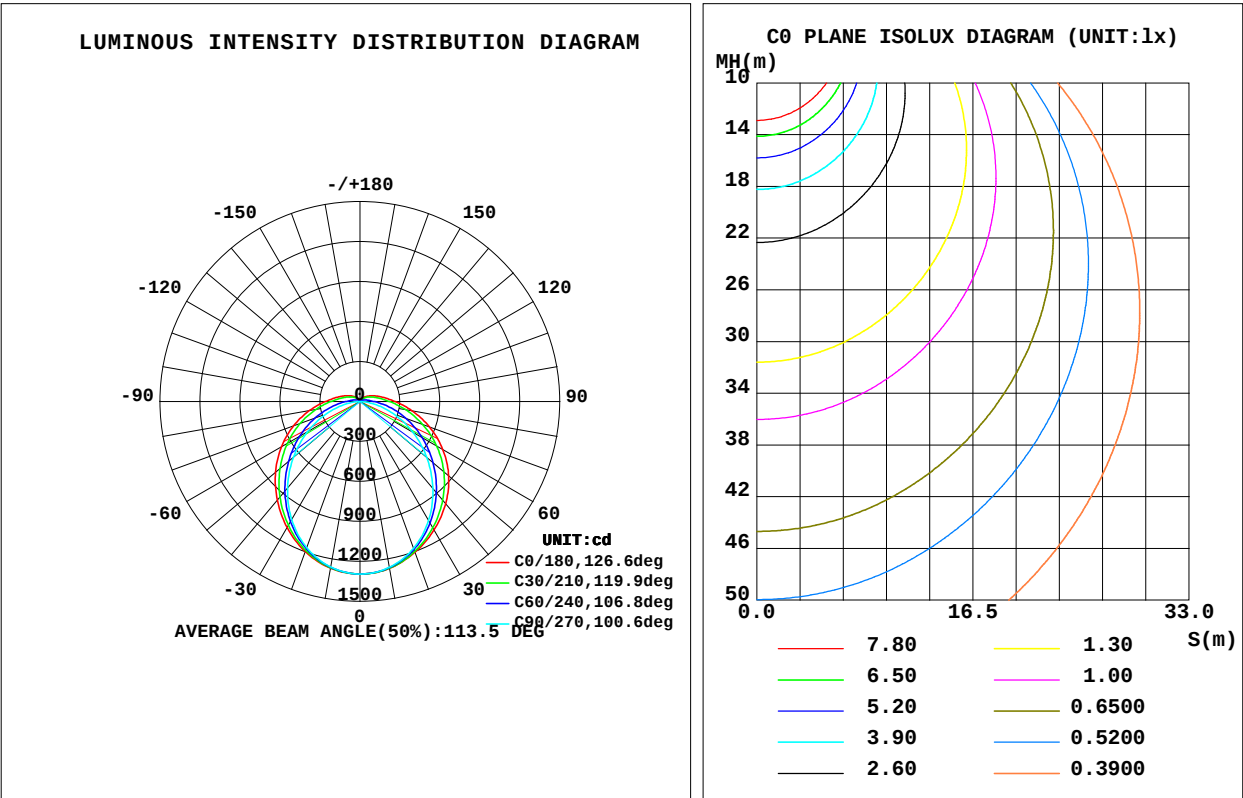


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:229.5V I:0.1550A P:34.60W PF:0.9700 Lamp Flux:4285.8x1 lm		
NAME: FF20 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.: 1.205*0.056*0.063	SERIAL No.:
MFR.:	SUR.:1.205*0.056	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 123.87 lm/W			
MODEL	FF20 4000K	I _{max} (cd)	1295	S/MH(C0/180)	1.26
NOMINAL POWER(W)	36	LOR(%)	100.0	S/MH(C90/270)	1.18
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	4285.8	h UP, DN(C0-180)	4.1, 46.0
NOMINAL FLUX(lm)	4285.8	CIE CLASS	DIRECT	h UP, DN(C180-360)	4.1, 45.8
LAMPS INSIDE	1	h up(%)	8.2	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	229.9	h down(%)	91.8	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:24.6DEG
Operators:
Test Date:2026-05-15

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.286
Humidity:46.0%
Test Distance:9.960m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

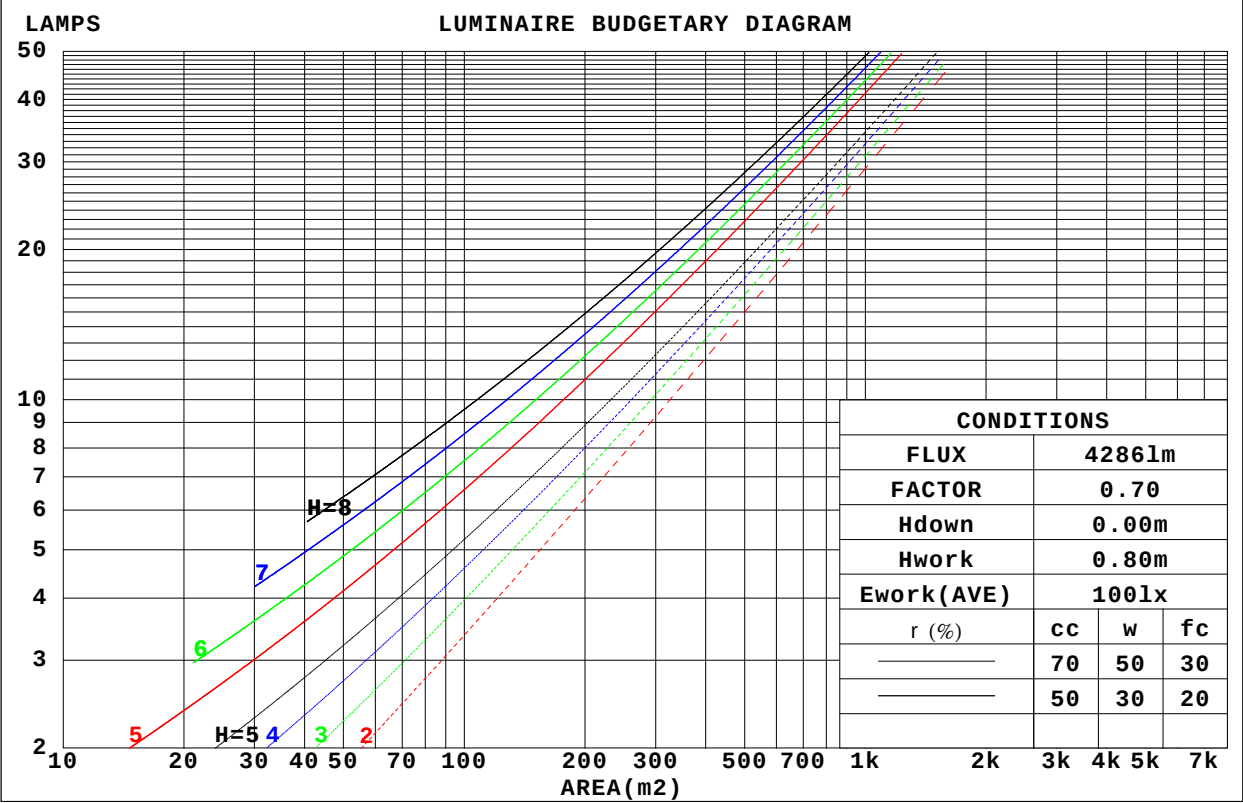
g	C0	C45	C90	C135	C180	C225	C270	C315	g	F zone	F total	%lum, lamp
10	1271	1269	1265	1267	1271	1266	1261	1268	0- 10	122.3	122.3	2.85, 2.85
20	1205	1191	1173	1186	1200	1183	1168	1189	10- 20	347.8	470.0	11, 11
30	1113	1073	1030	1061	1093	1058	1025	1072	20- 30	521.0	991.0	23.1, 23.1
40	1001	929.5	851.4	908.8	966.1	906.2	846.6	929.0	30- 40	622.2	1613	37.6, 37.6
50	869.5	769.4	655.1	743.5	828.0	742.3	652.2	770.9	40- 50	646.4	2260	52.7, 52.7
60	717.5	600.8	457.0	576.4	681.4	576.4	455.5	604.3	50- 60	599.9	2859	66.7, 66.7
70	553.0	432.7	264.4	414.8	529.7	416.1	265.5	437.5	60- 70	496.5	3356	78.3, 78.3
80	393.8	279.1	94.56	268.3	382.9	269.6	95.12	283.3	70- 80	358.0	3714	86.7, 86.7
90	265.6	164.7	0.3953	160.3	260.7	162.3	0.4503	169.1	80- 90	221.2	3935	91.8, 91.8
100	181.5	106.0	0.5386	105.1	180.8	105.9	0.5218	107.0	90-100	136.2	4071	95, 95
110	125.8	70.57	0.7418	71.18	127.3	71.65	0.7637	70.48	100-110	88.66	4160	97.1, 97.1
120	87.57	46.02	1.000	48.75	89.00	49.01	1.044	45.61	110-120	56.42	4216	98.4, 98.4
130	60.05	27.34	1.280	33.44	59.61	33.57	1.352	27.54	120-130	34.38	4251	99.2, 99.2
140	39.41	15.88	1.560	21.82	38.84	22.45	1.637	15.98	130-140	19.24	4270	99.6, 99.6
150	23.67	8.916	1.835	13.93	23.80	14.26	1.890	9.044	140-150	9.860	4280	99.9, 99.9
160	11.92	4.845	2.028	7.841	12.45	7.818	2.088	4.989	150-160	4.306	4284	100, 100
170	4.136	2.712	2.176	3.638	5.159	3.654	2.203	2.787	160-170	1.410	4286	100, 100
180	2.275	2.226	2.220	2.246	2.286	2.229	2.214	2.249	170-180	0.2542	4286	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 24.6DEG
 Operators:
 Test Date: 2026-05-15

g Range: 0 - 180DEG
 g Interval: 1.0DEG
 Test System: EVERFINE G0-2000H_V1 SYSTEM V2.0.286
 Humidity: 46.0%
 Test Distance: 9.960m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

r cc	80%			70%			50%			30%			10%			0
r w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r fc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Coefficients of Utilization(CU)												
0.0	1.17	1.17	1.17	1.13	1.13	1.13	1.07	1.07	1.07	1.00	1.00	1.00	.95	.95	.95	.92
1.0	.00	.95	.90	.97	.92	.88	.91	.87	.84	.85	.83	.80	.81	.78	.76	.73
2.0	.86	.79	.73	.84	.77	.71	.79	.73	.68	.74	.69	.65	.70	.66	.63	.60
3.0	.75	.67	.60	.73	.65	.59	.69	.62	.57	.65	.59	.55	.61	.57	.53	.50
4.0	.67	.57	.50	.65	.56	.50	.61	.54	.48	.58	.51	.46	.55	.49	.45	.42
5.0	.59	.50	.43	.58	.49	.43	.55	.47	.41	.52	.45	.40	.49	.43	.39	.37
6.0	.53	.44	.38	.52	.43	.37	.49	.42	.36	.47	.40	.35	.44	.39	.34	.32
7.0	.48	.39	.33	.47	.39	.33	.45	.37	.32	.43	.36	.31	.41	.35	.30	.28
8.0	.44	.35	.29	.43	.35	.29	.41	.34	.28	.39	.33	.28	.37	.31	.27	.25
9.0	.40	.32	.26	.39	.32	.26	.38	.31	.26	.36	.30	.25	.34	.29	.24	.23
10.0	.37	.29	.24	.36	.29	.24	.35	.28	.23	.33	.27	.23	.32	.26	.22	.20



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:24.6DEG
Operators:
Test Date:2026-05-15

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.286
Humidity:46.0%
Test Distance:9.960m [K=1.0000]
Remarks:

WEC AND CCEC

r CC	80%			70%			50%			30%			10%			0
r W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r fc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.351	.200	.063	.341	.195	.062	.323	.185	.059	.307	.177	.057	.291	.169	.054	
2.0	.314	.172	.053	.305	.168	.052	.289	.161	.050	.274	.154	.048	.260	.147	.046	
3.0	.283	.151	.045	.276	.148	.044	.261	.141	.043	.248	.136	.042	.235	.130	.040	
4.0	.258	.134	.039	.251	.131	.039	.238	.126	.038	.226	.121	.037	.214	.116	.035	
5.0	.236	.120	.035	.230	.118	.034	.218	.114	.033	.207	.109	.033	.197	.105	.032	
6.0	.217	.109	.031	.212	.107	.031	.201	.103	.030	.191	.099	.029	.182	.096	.028	
7.0	.201	.100	.028	.196	.098	.028	.187	.094	.027	.178	.091	.027	.169	.088	.026	
8.0	.187	.092	.026	.183	.090	.025	.174	.087	.025	.166	.084	.024	.158	.081	.024	
9.0	.175	.085	.024	.171	.083	.023	.163	.081	.023	.155	.078	.022	.148	.075	.022	
10.0	.164	.079	.022	.160	.077	.022	.153	.075	.021	.146	.073	.021	.140	.070	.020	

r c c	80%			70%			50%			30%			10%			0
r w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r f c	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Ceiling Cavity Exitance Coefficients(CCEC)												
0.0	.253	.253	.253	.216	.216	.216	.147	.147	.147	.085	.085	.085	.027	.027	.027	
1.0	.246	.219	.194	.211	.188	.167	.144	.129	.115	.083	.075	.067	.027	.024	.022	
2.0	.238	.195	.159	.204	.168	.137	.140	.116	.096	.081	.068	.056	.026	.022	.018	
3.0	.231	.178	.136	.198	.154	.118	.136	.107	.083	.078	.062	.049	.025	.020	.016	
4.0	.223	.165	.121	.191	.143	.105	.132	.099	.074	.076	.058	.044	.024	.019	.014	
5.0	.215	.155	.110	.185	.134	.096	.127	.094	.068	.074	.055	.040	.024	.018	.013	
6.0	.208	.147	.103	.179	.127	.090	.123	.089	.063	.072	.052	.038	.023	.017	.012	
7.0	.201	.140	.097	.173	.121	.085	.119	.085	.060	.069	.050	.036	.022	.016	.012	
8.0	.194	.134	.093	.167	.116	.081	.116	.082	.058	.067	.048	.034	.022	.016	.011	
9.0	.188	.129	.090	.162	.112	.078	.112	.079	.056	.065	.047	.033	.021	.015	.011	
10.0	.182	.125	.087	.157	.109	.076	.109	.076	.054	.064	.045	.032	.021	.015	.011	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:24.6DEG
 Operators:
 Test Date:2026-05-15

g Range: 0 - 180DEG
 g Interval: 1.0DEG
 Test System:EVERFINE GO-2000H_V1 SYSTEM V2.0.286
 Humidity:46.0%
 Test Distance:9.960m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

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	23.1	24.6	23.5	24.9	25.3	21.4	22.8	21.8	23.2	23.6
3H	25.3	26.7	25.7	27.0	27.4	22.7	24.1	23.2	24.5	24.9
4H	26.5	27.7	26.9	28.1	28.6	23.2	24.5	23.7	24.9	25.3
6H	27.6	28.8	28.1	29.3	29.7	23.6	24.8	24.0	25.2	25.6
8H	28.3	29.4	28.7	29.9	30.3	23.6	24.8	24.1	25.2	25.7
12H	29.0	30.1	29.5	30.6	31.0	23.7	24.8	24.1	25.2	25.7
4H 2H	23.6	24.9	24.1	25.3	25.7	22.3	23.6	22.8	24.0	24.4
3H	26.1	27.2	26.5	27.6	28.1	23.9	25.0	24.4	25.5	26.0
4H	27.4	28.4	27.9	28.9	29.4	24.6	25.6	25.1	26.1	26.6
6H	28.8	29.7	29.3	30.2	30.7	25.1	26.0	25.6	26.5	27.0
8H	29.5	30.4	30.1	30.9	31.5	25.2	26.1	25.8	26.6	27.2
12H	30.4	31.2	30.9	31.7	32.3	25.3	26.1	25.9	26.6	27.2
8H 4H	27.7	28.5	28.2	29.0	29.6	25.3	26.2	25.9	26.7	27.3
6H	29.3	30.1	29.9	30.6	31.2	26.1	26.8	26.7	27.4	28.0
8H	30.3	30.9	30.9	31.5	32.1	26.4	27.1	27.0	27.6	28.3
12H	31.4	31.9	32.0	32.5	33.2	26.7	27.2	27.3	27.8	28.5
12H 4H	27.7	28.5	28.2	29.0	29.6	25.5	26.3	26.1	26.9	27.4
6H	29.4	30.1	30.0	30.6	31.3	26.5	27.1	27.1	27.7	28.3
8H	30.5	31.0	31.1	31.6	32.3	26.9	27.5	27.5	28.1	28.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.2					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.1 / - 0.4				

CIE Pub.117 Corrected 4286 lm Total Lamp Luminous Flux.(8log(F/F0) = 5.1)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:24.6DEG
 Operators:
 Test Date:2026-05-15

g Range: 0 - 180DEG
 g Interval: 1.0DEG
 Test System:EVERFINE GO-2000H_V1 SYSTEM V2.0.286
 Humidity:46.0%
 Test Distance:9.960m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

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) $k(RI) \times RCR = 5$									
$k = 0.60$	53	41	34	52	41	34	51	40	34	27
0.80	63	51	43	62	50	43	59	49	42	35
1.00	71	59	51	69	58	51	66	59	50	42
1.25	78	66	58	76	65	58	72	63	57	48
1.50	83	72	64	81	70	63	77	68	62	53
2.00	90	80	72	87	78	71	83	75	69	60
2.50	94	85	78	91	83	76	86	79	74	64
3.00	97	89	83	95	87	81	89	83	78	68
4.00	102	95	89	99	92	87	93	88	84	72
5.00	104	98	93	101	96	91	95	91	87	75
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: 24.6DEG
 Operators:
 Test Date: 2026-05-15

g Range: 0 - 180DEG
 g Interval: 1.0DEG
 Test System: EVERFINE G0-2000H_V1 SYSTEM V2.0.286
 Humidity: 46.0%
 Test Distance: 9.960m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Conical surface Flux(90deg):

1938 lm

%lum = 45.2%

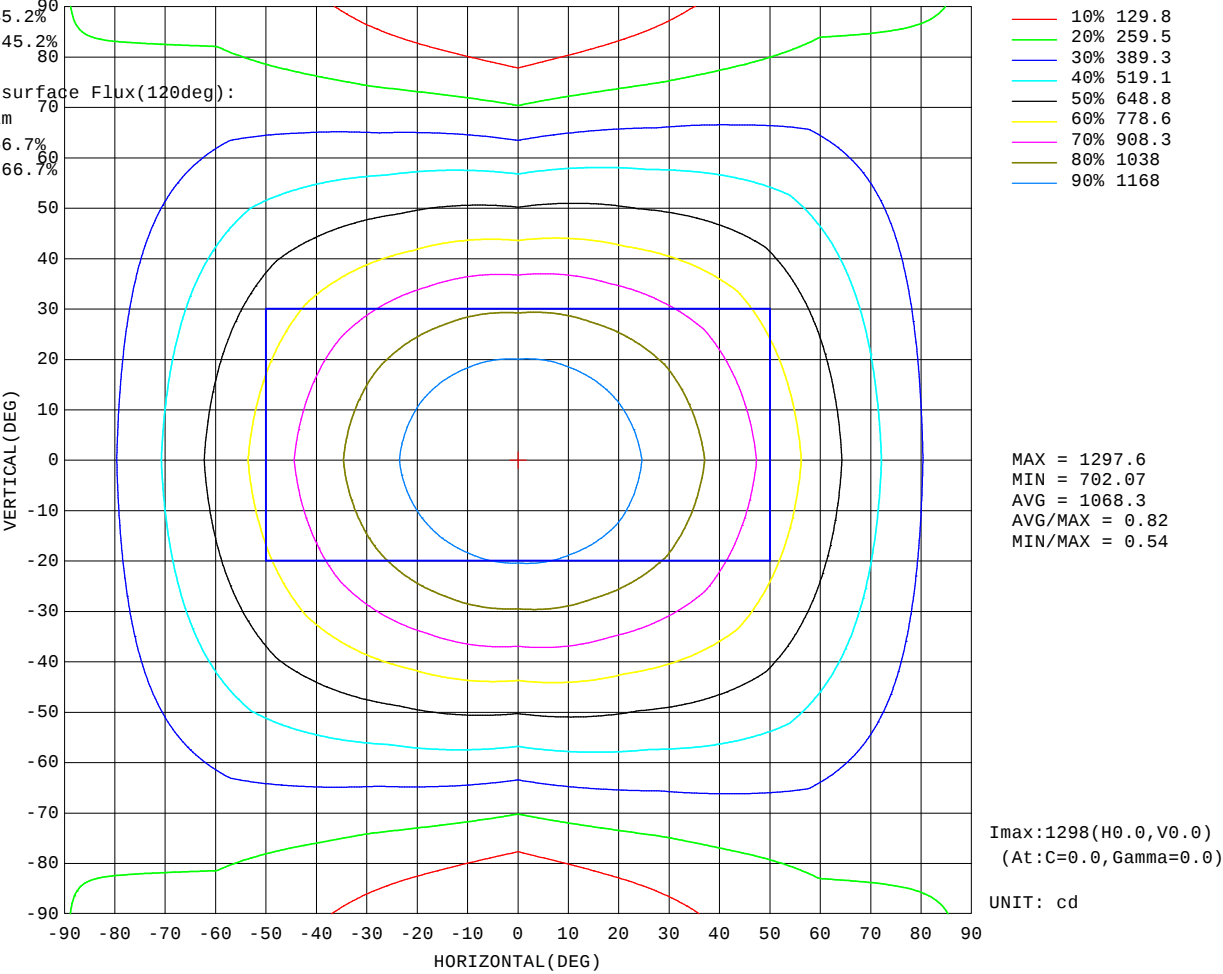
%lamp = 45.2%

Conical surface Flux(120deg):

2859.5 lm

%lum = 66.7%

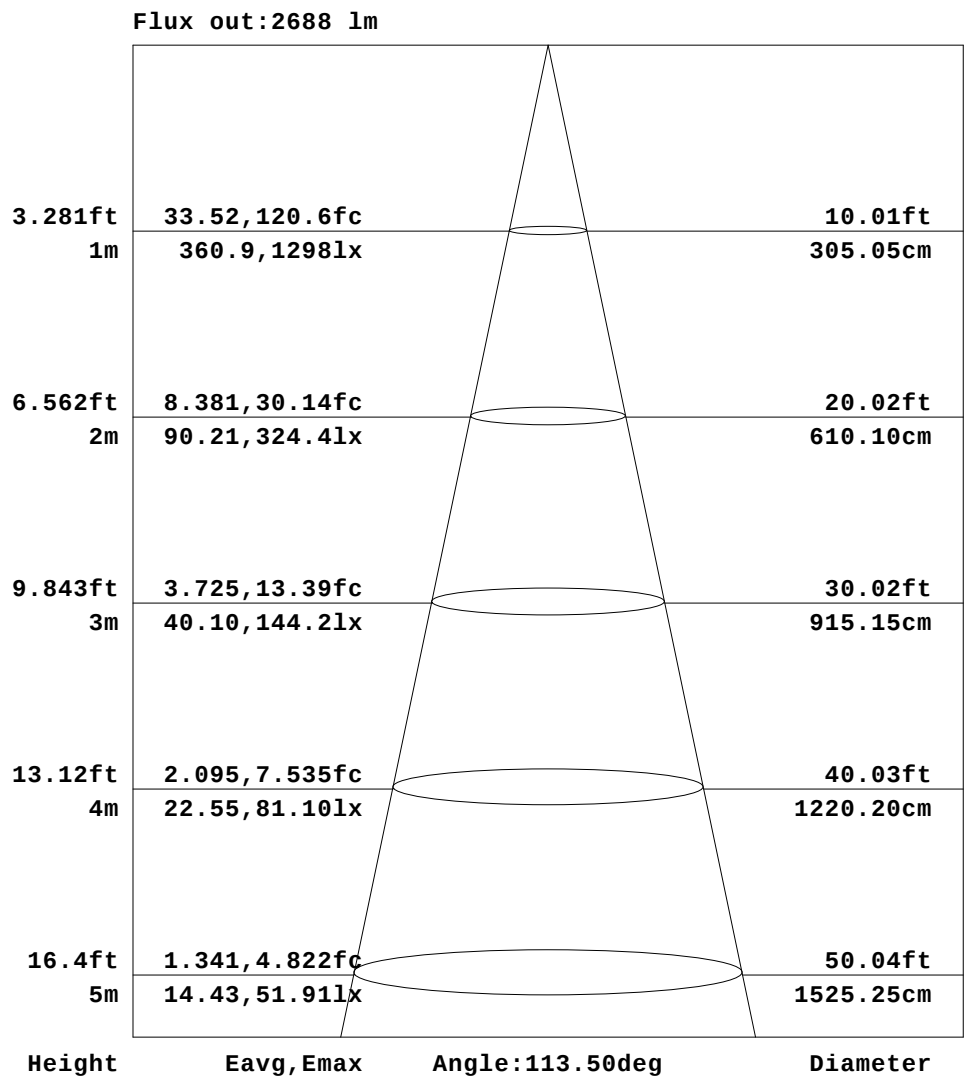
%lamp = 66.7%



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:24.6DEG
Operators:
Test Date:2026-05-15

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.286
Humidity:46.0%
Test Distance:9.960m [K=1.0000]
Remarks:

AAI Figure

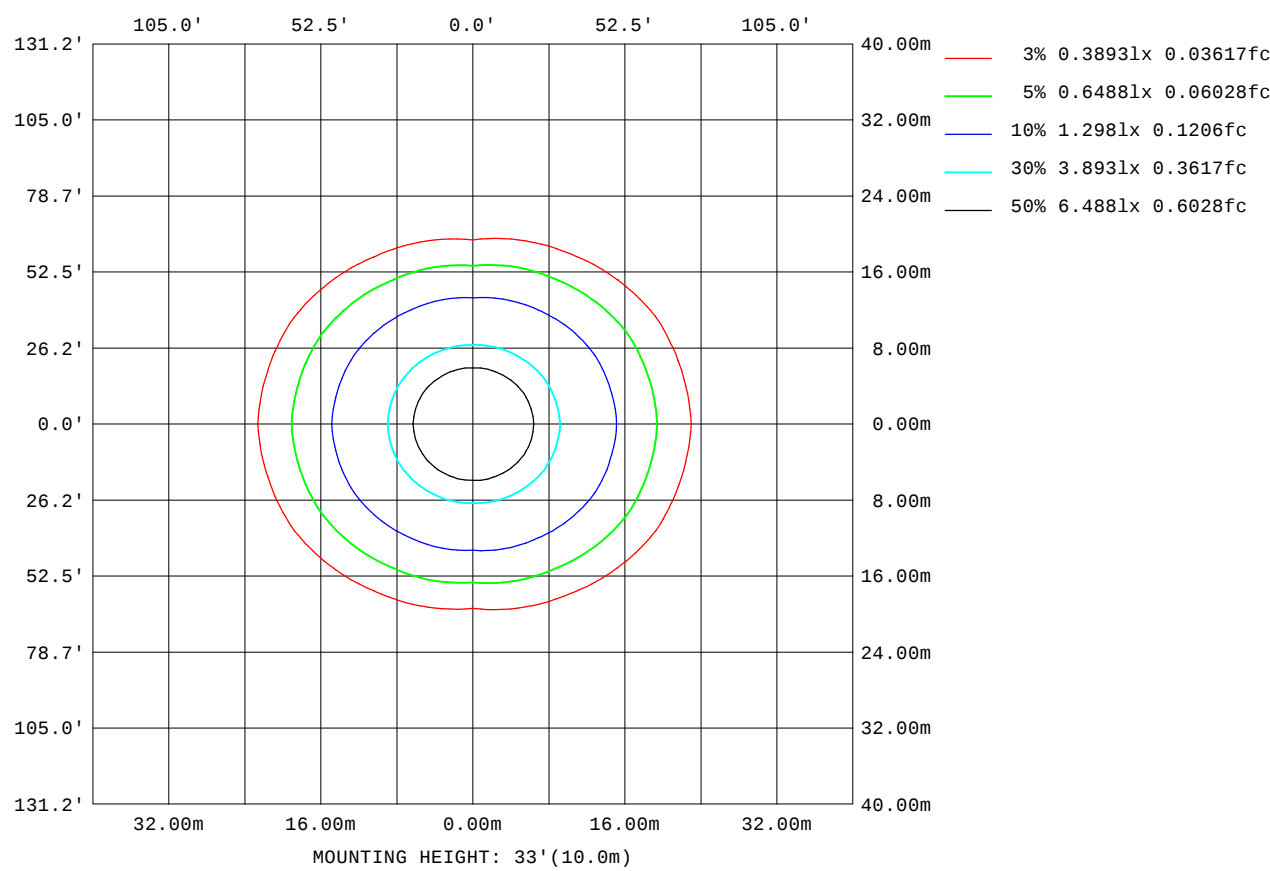


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:24.6DEG
Operators:
Test Date:2026-05-15

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.286
Humidity:46.0%
Test Distance:9.960m [K=1.0000]
Remarks:

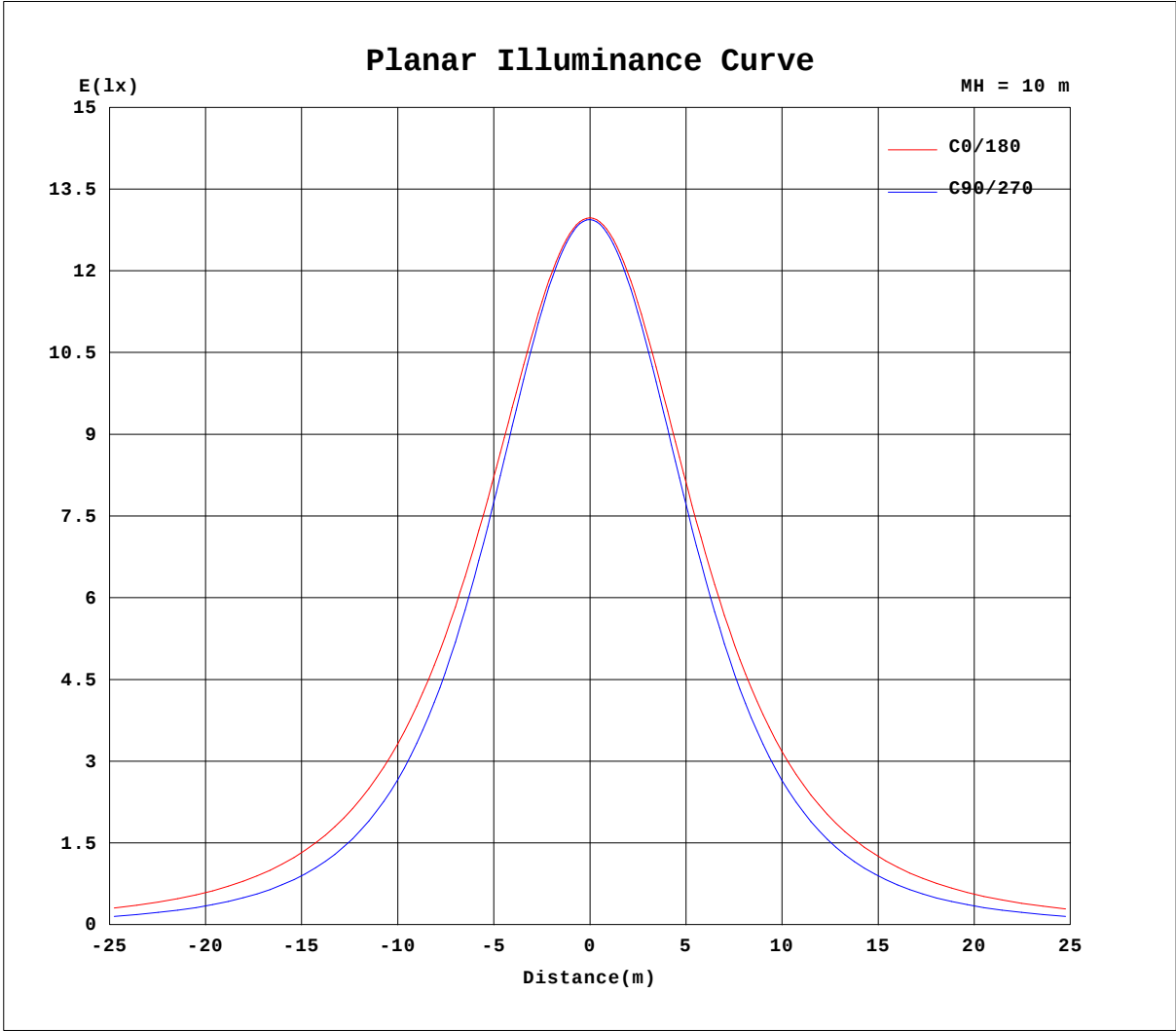
ISOLUX DIAGRAM



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:24.6DEG
Operators:
Test Date:2026-05-15

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.286
Humidity:46.0%
Test Distance:9.960m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:24.6DEG
Operators:
Test Date:2026-05-15

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.286
Humidity:46.0%
Test Distance:9.960m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1

UNIT: cd

C (DEG) g (DEG)	0	30	60	90	120	150	180	210	240	270	300	330						
0	1295	1295	1295	1295	1295	1295	1295	1295	1295	1295	1295	1295						
5	1289	1289	1288	1287	1288	1288	1289	1288	1286	1286	1287	1289						
10	1271	1271	1267	1265	1266	1269	1271	1268	1264	1261	1265	1270						
15	1242	1240	1231	1226	1229	1236	1240	1235	1227	1222	1229	1239						
20	1205	1199	1183	1173	1180	1192	1200	1190	1176	1168	1180	1198						
25	1161	1150	1123	1108	1118	1139	1150	1136	1114	1102	1120	1148						
30	1113	1094	1053	1030	1046	1077	1093	1074	1042	1025	1051	1093						
35	1059	1033	975	944	966	1009	1031	1007	963	939	974	1032						
40	1001	967	892	851	880	937	966	935	878	847	892	967						
45	938	897	805	754	792	862	898	860	790	750	806	897						
50	869	822	716	655	701	786	828	784	700	652	718	824						
55	796	744	627	555	611	708	755	707	611	553	629	747						
60	717	664	538	457	522	630	681	630	523	456	541	667						
65	636	582	450	360	436	553	606	553	438	359	455	586						
70	553	500	366	264	354	476	530	477	356	266	371	504						
75	471	420	286	175	276	402	455	402	277	177	290	425						
80	394	345	213	94.6	206	331	383	333	207	95.1	217	350						
85	324	277	150	30.3	145	268	316	270	147	30.6	155	283						
90	266	223	107	0.40	104	217	261	219	105	0.45	110	228						
95	219	181	80.5	0.43	79.2	178	216	180	80.4	0.42	83.3	185						
100	181	149	62.7	0.54	62.3	148	181	149	63.3	0.52	62.2	152						
105	151	124	49.0	0.60	49.6	123	152	124	50.3	0.63	49.7	125						
110	126	102	38.9	0.74	40.0	102	127	103	40.5	0.76	40.3	101						
115	105	84.5	29.4	0.86	32.7	85.0	107	85.2	33.1	0.91	30.7	79.1						
120	87.6	69.9	22.1	1.00	27.0	70.5	89.0	70.7	27.3	1.04	23.1	68.2						
125	72.8	55.8	17.1	1.14	22.5	58.4	73.2	58.4	22.7	1.20	17.7	55.4						
130	60.1	41.4	13.2	1.28	18.7	48.1	59.6	48.2	18.9	1.35	13.3	41.8						
135	49.0	31.6	10.3	1.43	15.2	39.4	48.0	39.5	15.8	1.49	10.5	32.1						
140	39.4	23.7	8.09	1.56	11.7	31.9	38.8	32.0	12.9	1.64	8.28	23.7						
145	31.0	17.5	6.34	1.70	10.4	25.4	30.8	25.5	10.6	1.79	6.49	17.6						
150	23.7	12.7	5.15	1.84	8.50	19.4	23.8	19.9	8.61	1.89	5.27	12.8						
155	17.3	8.98	4.31	1.94	6.57	14.6	18.2	14.6	6.80	1.99	4.42	9.14						
160	11.9	6.16	3.53	2.03	4.94	10.7	12.5	10.6	5.04	2.09	3.65	6.33						
165	7.47	4.27	2.83	2.11	3.75	7.18	8.46	7.29	3.76	2.14	2.92	4.41						
170	4.14	3.07	2.35	2.18	2.87	4.40	5.16	4.39	2.92	2.20	2.41	3.16						
175	2.31	2.28	2.20	2.21	2.41	2.75	2.68	2.74	2.41	2.23	2.24	2.33						
180	2.27	2.23	2.22	2.22	2.23	2.26	2.29	2.23	2.23	2.21	2.24	2.25						

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 24.6DEG
 Operators:
 Test Date: 2026-05-15

g Range: 0 - 180DEG
 g Interval: 1.0DEG
 Test System: EVERFINE G0-2000H_V1 SYSTEM V2.0.286
 Humidity: 46.0%
 Test Distance: 9.960m [K=1.0000]
 Remarks: