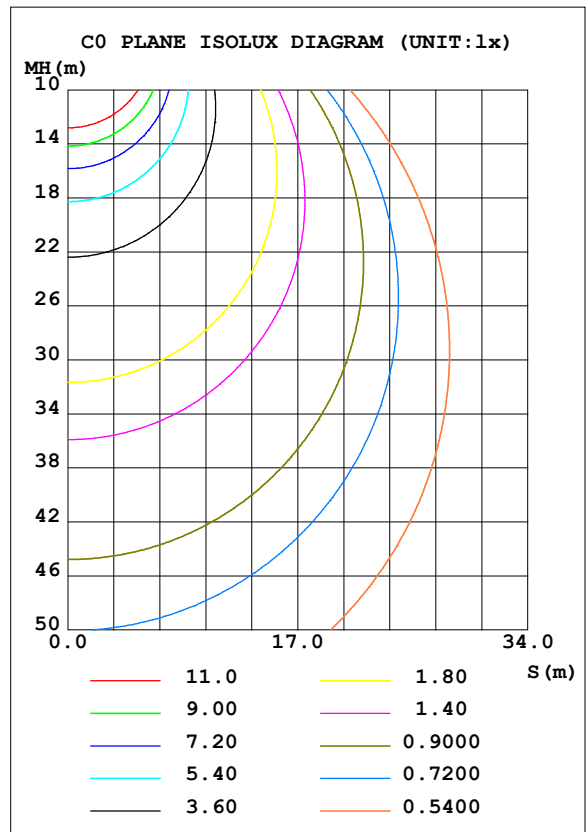
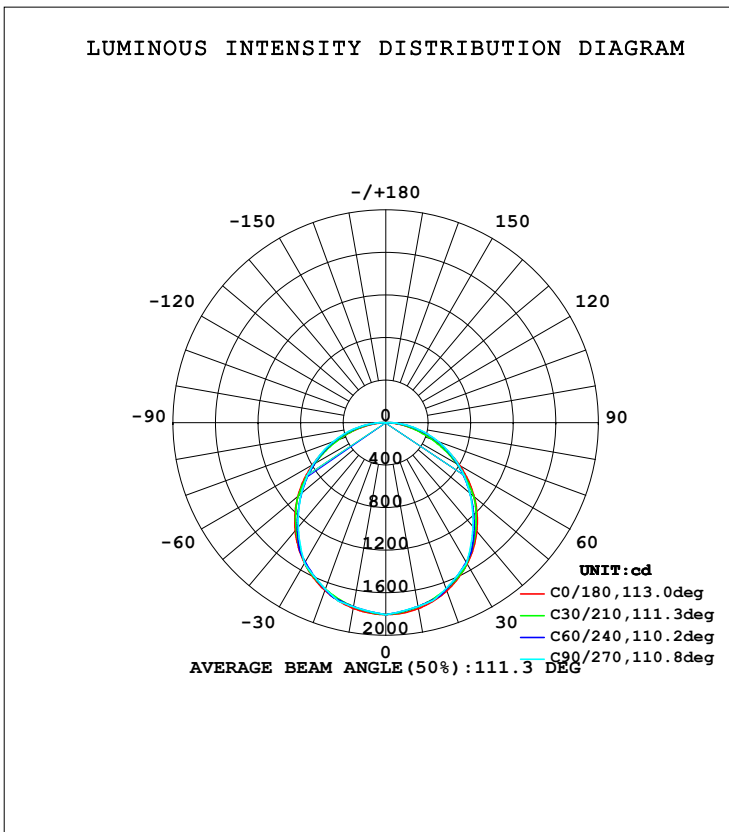


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.7V I:0.2239A P:50.86W PF:0.9847 Lamp Flux:5143.2x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 101.12 lm/W			
MODEL		I <sub>max</sub> (cd)	1805	S/MH (C0/180)	1.26
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	1.25
RATED VOLTAGE (V)		TOTAL FLUX (lm)	5143.2	η UP, DN (C0-180)	0.0, 49.8
NOMINAL FLUX (lm)	5143.2	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 50.2
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)		η down (%)	100.0	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity: 65.0%  
 Test Distance: 9.646m [K=1.0518]  
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
5	1797	1783	1779	1782	1796	1784	1781	1785	0- 5	42.85	42.85	0.83,0.83
10	1774	1754	1754	1753	1772	1755	1758	1757	5- 10	126.7	169.5	3.3,3.3
15	1736	1718	1729	1716	1733	1719	1734	1722	10- 15	206.5	376.0	7.31,7.31
20	1682	1676	1660	1672	1678	1676	1665	1680	15- 20	279.6	655.6	12.7,12.7
25	1614	1599	1590	1595	1610	1599	1596	1604	20- 25	342.4	998.0	19.4,19.4
30	1533	1512	1520	1507	1527	1512	1526	1517	25- 30	394.2	1392	27.1,27.1
35	1439	1421	1398	1416	1432	1421	1404	1426	30- 35	432.7	1825	35.5,35.5
40	1332	1321	1276	1315	1326	1320	1281	1325	35- 40	454.4	2279	44.3,44.3
45	1214	1183	1154	1177	1208	1181	1159	1187	40- 45	460.2	2739	53.3,53.3
50	1086	1044	1032	1037	1079	1042	1036	1048	45- 50	451.1	3191	62,62
55	948.0	905.7	910.2	895.7	942.0	902.8	913.4	909.3	50- 55	428.0	3619	70.4,70.4
60	802.0	768.5	788.2	755.2	796.1	765.5	790.8	772.3	55- 60	392.2	4011	78,78
65	649.1	633.2	657.8	615.9	643.8	630.2	659.3	638.0	60- 65	344.6	4355	84.7,84.7
70	491.9	499.3	527.3	480.8	487.8	498.0	527.8	505.2	65- 70	286.8	4642	90.3,90.3
75	337.2	369.2	396.8	354.3	334.9	369.1	396.3	374.5	70- 75	222.4	4865	94.6,94.6
80	195.0	244.1	266.4	233.5	193.6	244.1	264.8	247.7	75- 80	156.0	5021	97.6,97.6
85	74.14	122.6	135.9	117.3	71.97	122.2	133.3	124.0	80- 85	91.78	5112	99.4,99.4
90	2.084	3.309	5.448	3.546	2.044	1.883	1.820	1.852	85- 90	30.76	5143	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			

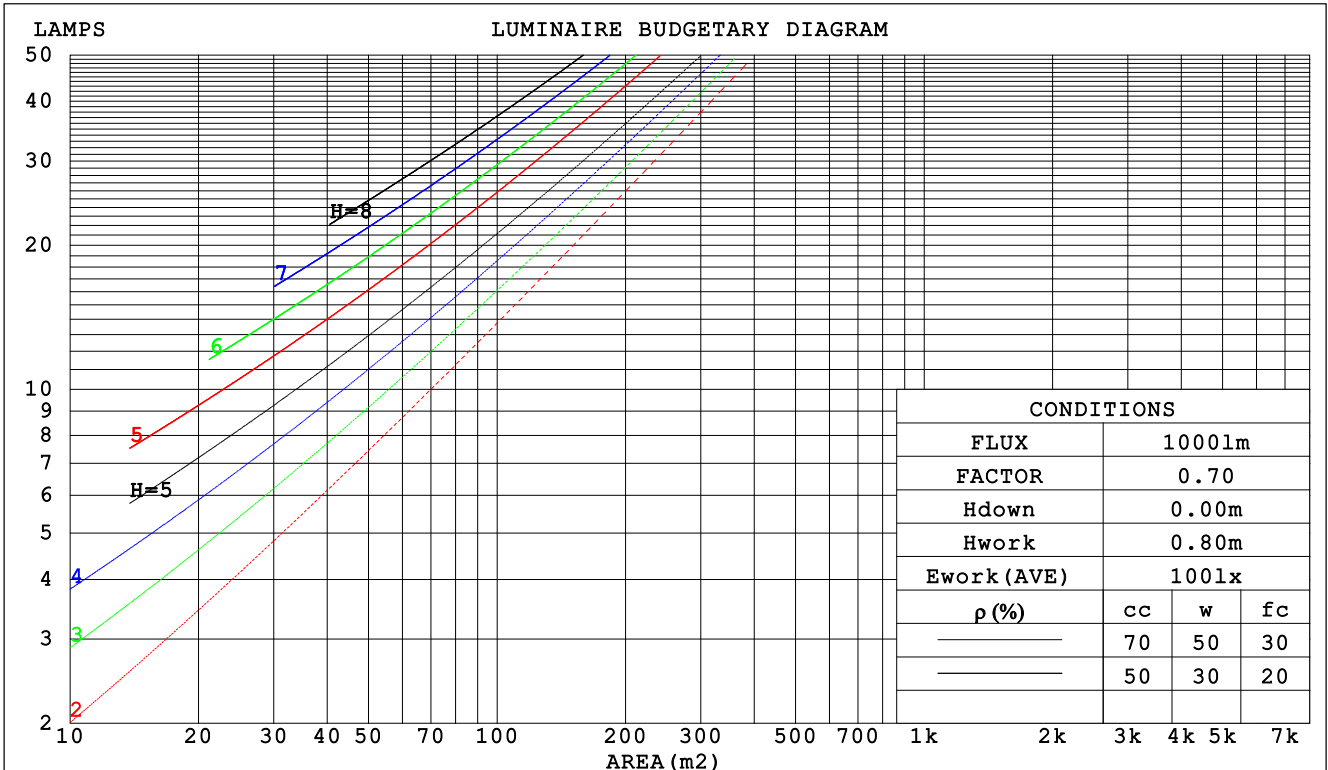
C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity:65.0%  
 Test Distance:9.646m [K=1.0518]  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.7V I:0.2239A P:50.86W PF:0.9847 Lamp Flux:5143.2x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	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															
	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	1.04	.99	.95	1.01	.97	.94	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.77	.88	.82	.76	.85	.79	.75	.81	.77	.73	.78	.75	.71	.69
3.0	.79	.71	.64	.77	.70	.63	.74	.68	.62	.72	.66	.61	.69	.64	.60	.58
4.0	.70	.61	.54	.69	.60	.54	.66	.59	.53	.64	.57	.52	.62	.56	.52	.49
5.0	.62	.53	.47	.61	.53	.46	.59	.52	.46	.57	.51	.45	.55	.49	.45	.43
6.0	.56	.47	.41	.55	.47	.40	.53	.46	.40	.52	.45	.40	.50	.44	.39	.37
7.0	.51	.42	.36	.50	.42	.36	.49	.41	.35	.47	.40	.35	.46	.40	.35	.33
8.0	.46	.38	.32	.46	.38	.32	.44	.37	.32	.43	.36	.31	.42	.36	.31	.29
9.0	.43	.34	.29	.42	.34	.29	.41	.34	.29	.40	.33	.28	.39	.33	.28	.26
10.0	.39	.31	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.36	.30	.26	.24



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity:65.0%  
 Test Distance:9.646m [K=1.0518]  
 Remarks:

WEC AND CCEC

Test:U:230.7V I:0.2239A P:50.86W PF:0.9847 Lamp Flux:5143.2x1 lm									
NAME:					TYPE:			WEIGHT:	
SPEC.:					DIM.:			SERIAL No.:	
MFR.:					SUR.:			PROTECTION ANGLE:	

ρ <sub>cc</sub>	80%			70%			50%			30%			10%			0
ρ <sub>w</sub>	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ <sub>fc</sub>	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients (WEC)									
0.0																
1.0	.316	.180	.057	.309	.176	.056	.296	.170	.054	.284	.164	.053	.273	.158	.051	
2.0	.295	.162	.050	.289	.159	.049	.277	.154	.048	.267	.150	.047	.257	.145	.046	
3.0	.272	.145	.043	.267	.143	.043	.256	.139	.042	.247	.135	.041	.238	.132	.041	
4.0	.251	.130	.038	.246	.129	.038	.237	.126	.037	.228	.123	.037	.220	.120	.036	
5.0	.232	.118	.034	.227	.117	.034	.219	.114	.034	.211	.112	.033	.204	.109	.033	
6.0	.215	.108	.031	.211	.106	.031	.203	.104	.030	.197	.102	.030	.190	.100	.030	
7.0	.199	.099	.028	.196	.098	.028	.190	.096	.028	.184	.094	.027	.178	.092	.027	
8.0	.186	.091	.026	.183	.090	.025	.177	.089	.025	.172	.087	.025	.167	.086	.025	
9.0	.174	.084	.024	.172	.084	.023	.167	.082	.023	.162	.081	.023	.157	.080	.023	
10.0	.164	.079	.022	.162	.078	.022	.157	.077	.022	.152	.076	.022	.148	.075	.021	

ρ <sub>cc</sub>	80%			70%			50%			30%			10%			0
ρ <sub>w</sub>	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ <sub>fc</sub>	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	.098	.148	.114	.084	.101	.079	.059	.058	.046	.034	.019	.015	.011	
3.0	.165	.114	.074	.141	.099	.064	.097	.069	.045	.056	.040	.027	.018	.013	.009	
4.0	.157	.101	.058	.135	.087	.050	.093	.061	.036	.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	.143	.082	.039	.123	.071	.034	.085	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.136	.075	.033	.117	.065	.029	.081	.046	.020	.047	.027	.012	.015	.009	.004	
8.0	.129	.070	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.003	
9.0	.123	.065	.025	.106	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.022	.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:DAMIN  
 Test Date:2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity:65.0%  
 Test Distance:9.646m [K=1.0518]  
 Remarks:

**UGR(Unified Glare Rating) Table**

Test:U:230.7V I:0.2239A P:50.86W PF:0.9847 Lamp Flux:5143.2x1 lm										
NAME:					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.:					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	16.2	17.7	16.4	17.9	18.1	16.1	17.6	16.3	17.8	18.0
3H	17.6	19.0	17.9	19.2	19.5	17.8	19.2	18.1	19.4	19.7
4H	18.1	19.5	18.4	19.7	20.0	18.5	19.9	18.8	20.1	20.4
6H	18.4	19.7	18.7	20.0	20.2	19.2	20.4	19.5	20.7	21.0
8H	18.5	19.7	18.8	20.0	20.3	19.4	20.6	19.7	20.9	21.2
12H	18.5	19.7	18.9	20.0	20.3	19.6	20.8	19.9	21.1	21.4
4H 2H	16.7	18.1	17.0	18.3	18.6	16.7	18.0	17.0	18.3	18.5
3H	18.3	19.5	18.7	19.8	20.1	18.6	19.8	18.9	20.1	20.4
4H	19.0	20.0	19.3	20.4	20.7	19.5	20.6	19.9	20.9	21.2
6H	19.4	20.3	19.8	20.7	21.0	20.3	21.2	20.7	21.6	22.0
8H	19.5	20.4	19.9	20.7	21.1	20.6	21.5	21.0	21.9	22.2
12H	19.5	20.4	20.0	20.8	21.2	20.9	21.7	21.3	22.1	22.5
8H 4H	19.3	20.2	19.7	20.6	20.9	19.8	20.7	20.2	21.0	21.4
6H	19.9	20.6	20.3	21.0	21.5	20.8	21.5	21.2	21.9	22.3
8H	20.1	20.7	20.5	21.2	21.6	21.2	21.9	21.6	22.3	22.7
12H	20.2	20.8	20.7	21.2	21.7	21.6	22.1	22.0	22.6	23.1
12H 4H	19.3	20.2	19.8	20.6	21.0	19.8	20.6	20.2	21.0	21.4
6H	20.0	20.7	20.5	21.1	21.5	20.8	21.5	21.3	21.9	22.4
8H	20.3	20.8	20.7	21.3	21.8	21.3	21.9	21.8	22.3	22.8
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.2					+ 0.2 / - 0.3				
2.0H	+ 0.3 / - 0.4					+ 0.1 / - 0.3				

CIE Pub.117 Corrected 5143 lm Total Lamp Luminous Flux. (8log(F/F0) = 5.7)

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity:65.0%  
 Test Distance:9.646m [K=1.0518]  
 Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:230.7V I:0.2239A P:50.86W PF:0.9847 Lamp Flux:5143.2x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	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) $k(RI) \times RCR = 5$									
k = 0.60	57	46	39	57	46	39	55	45	38	32
0.80	67	56	48	66	55	48	65	54	48	41
1.00	76	65	57	75	64	57	72	65	56	49
1.25	83	72	65	81	71	65	79	70	64	56
1.50	88	78	71	86	77	70	83	75	69	62
2.00	95	86	79	93	85	79	89	83	77	69
2.50	99	91	85	96	89	84	93	87	82	73
3.00	102	95	89	100	93	88	96	90	86	78
4.00	106	100	95	104	98	94	99	95	91	82
5.00	108	103	99	106	102	98	101	98	95	85
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:DAMIN  
 Test Date:2019-10-30

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity:65.0%  
 Test Distance:9.646m [K=1.0518]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:230.7V I:0.2239A P:50.86W PF:0.9847 Lamp Flux:5143.2x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):

2739.4 lm

%lum = 53.3%

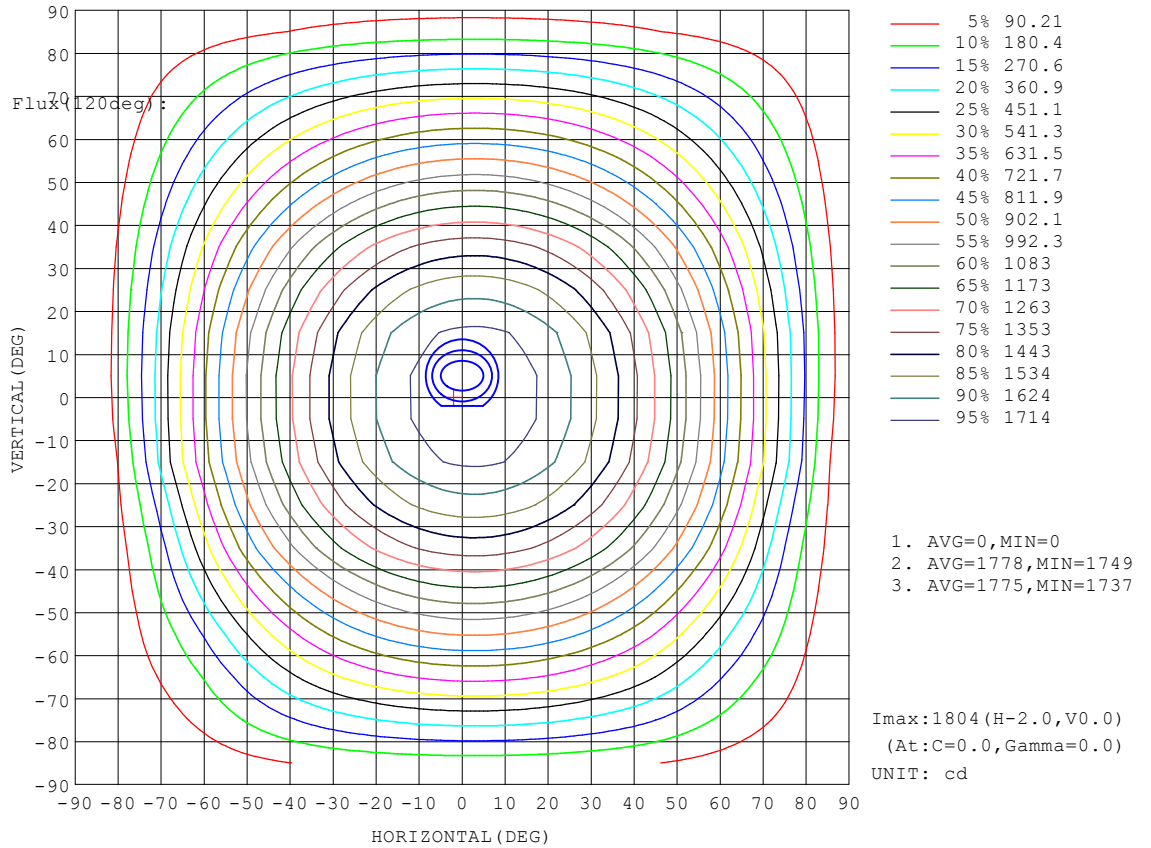
%lamp = 53.3%

Conical surface Flux(20deg):

4010.8 lm

%lum = 78.0%

%lamp = 78.0%

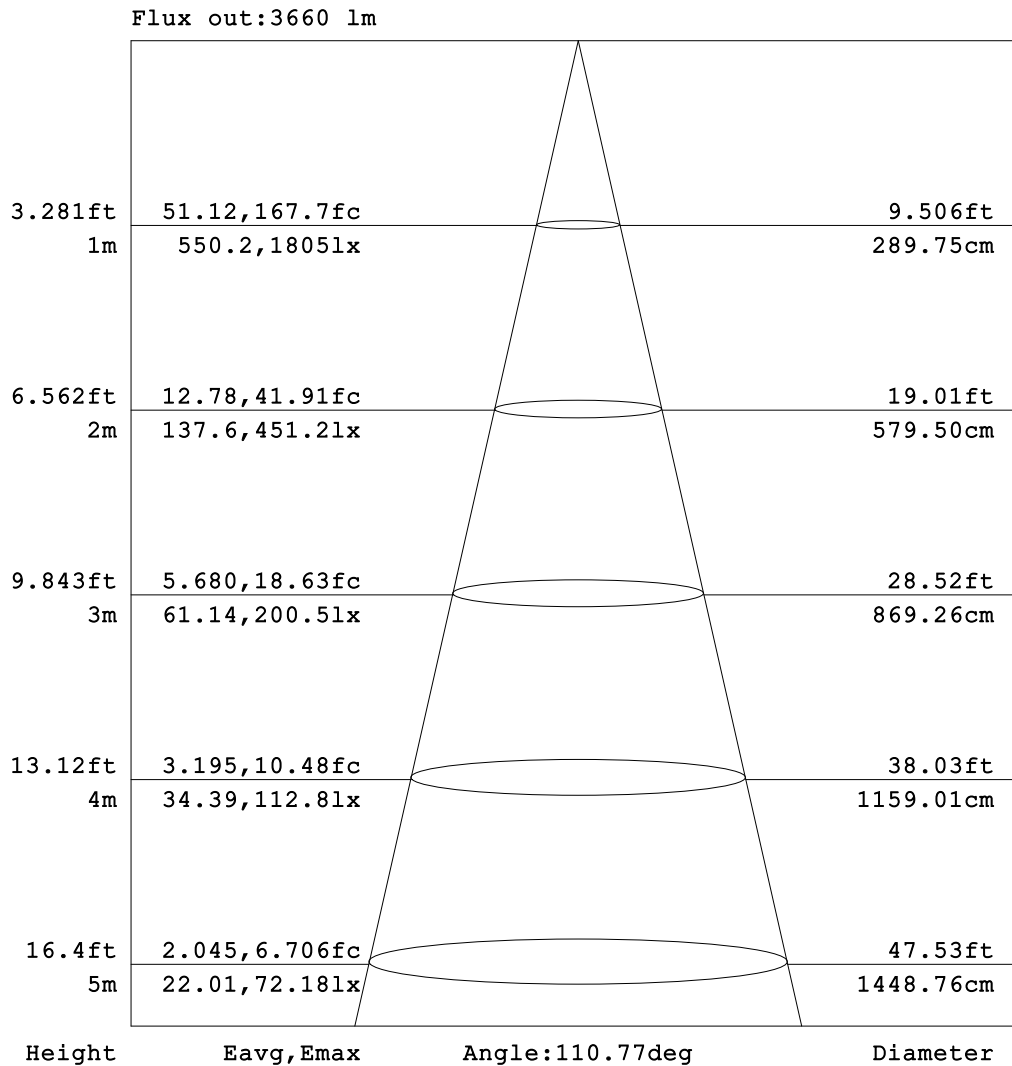


C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity:65.0%  
 Test Distance:9.646m [K=1.0518]  
 Remarks:

AAI Figure

Test:U:230.7V I:0.2239A P:50.86W PF:0.9847 Lamp Flux:5143.2x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	PROTECTION ANGLE:



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

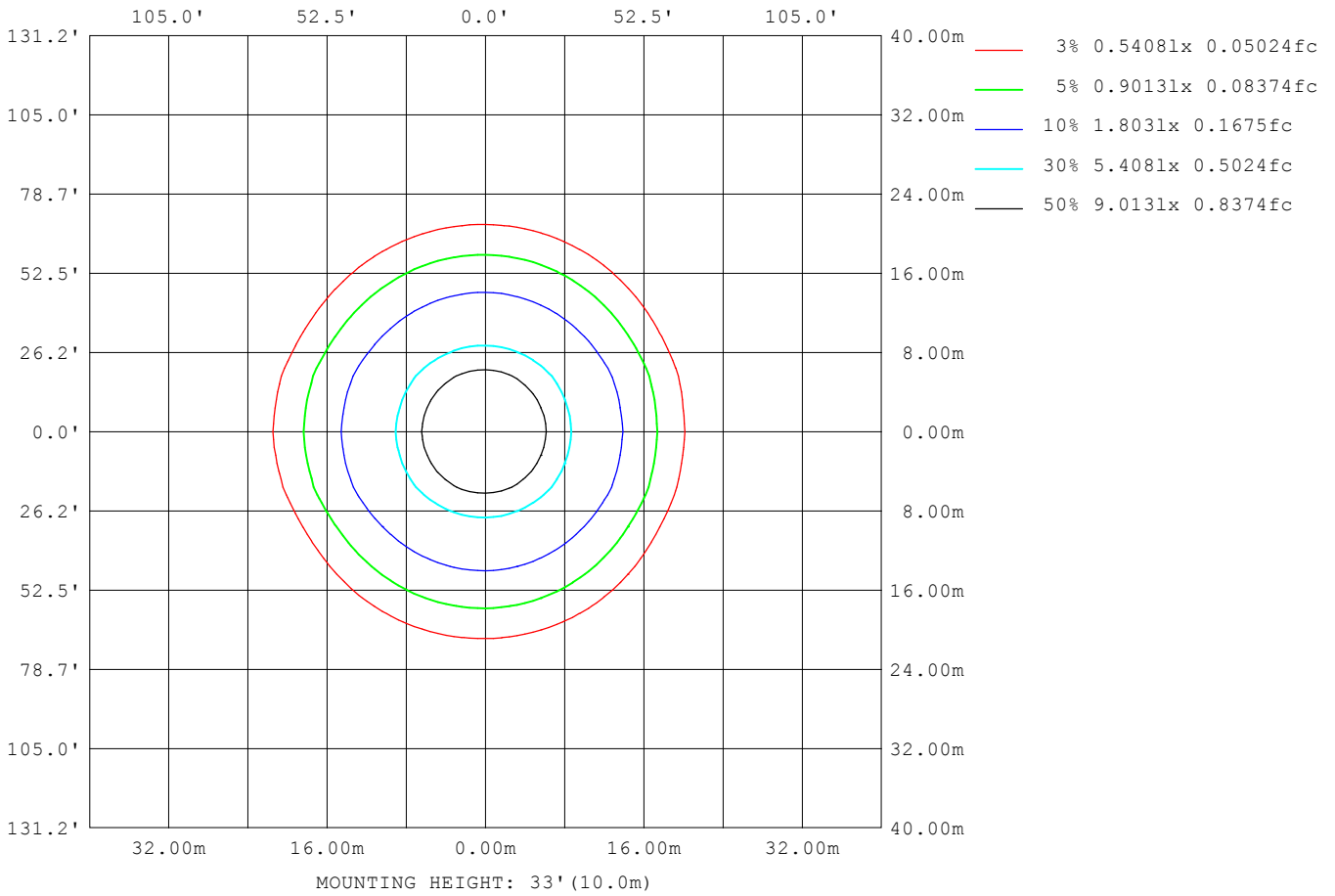
C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity: 65.0%  
 Test Distance: 9.646m [K=1.0518]  
 Remarks:



**ISOLUX DIAGRAM**

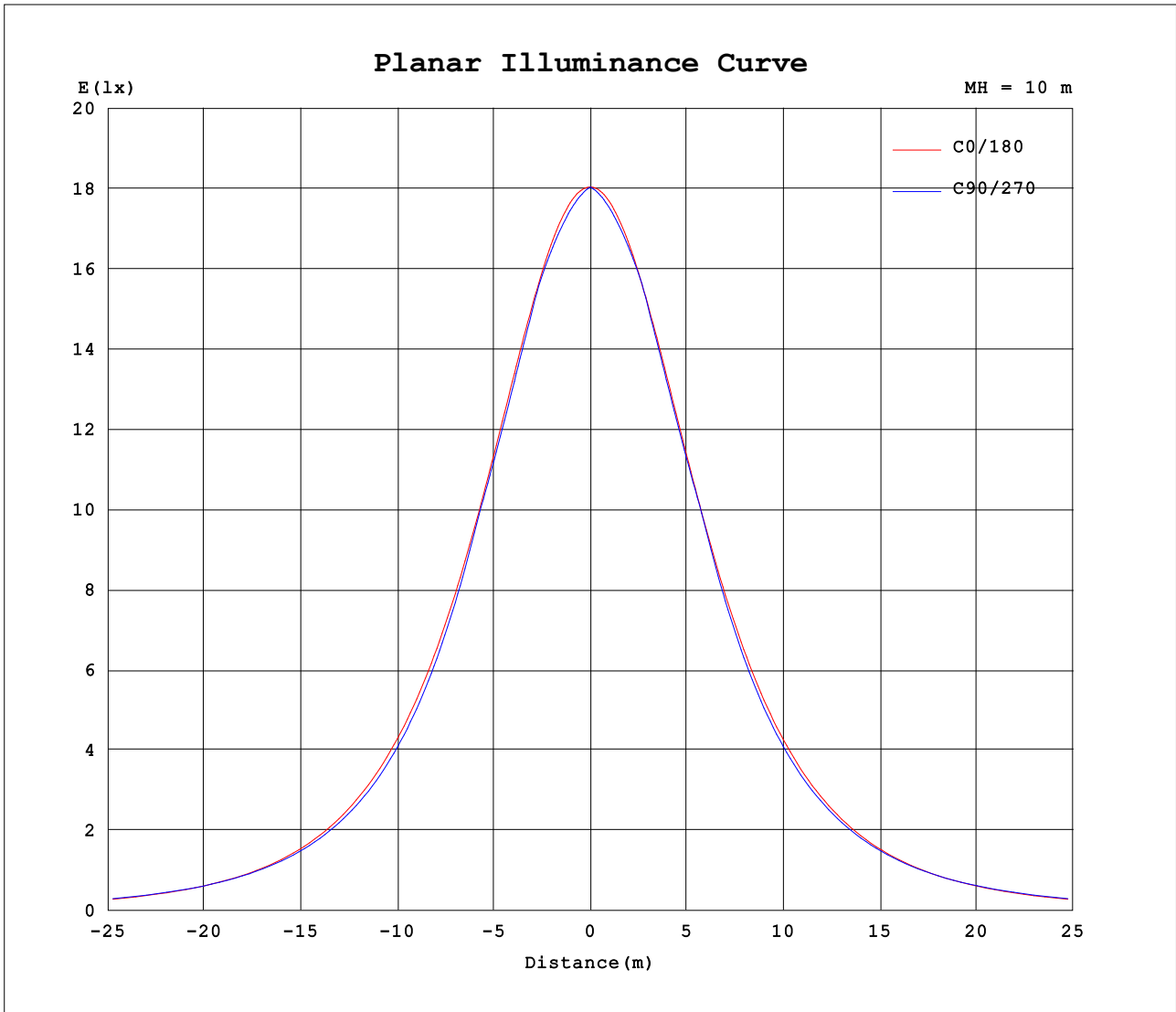
Test:U:230.7V I:0.2239A P:50.86W PF:0.9847 Lamp Flux:5143.2x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity:65.0%  
 Test Distance:9.646m [K=1.0518]  
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2019-10-30

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.286  
 Humidity: 65.0%  
 Test Distance: 9.646m [K=1.0518]  
 Remarks:







