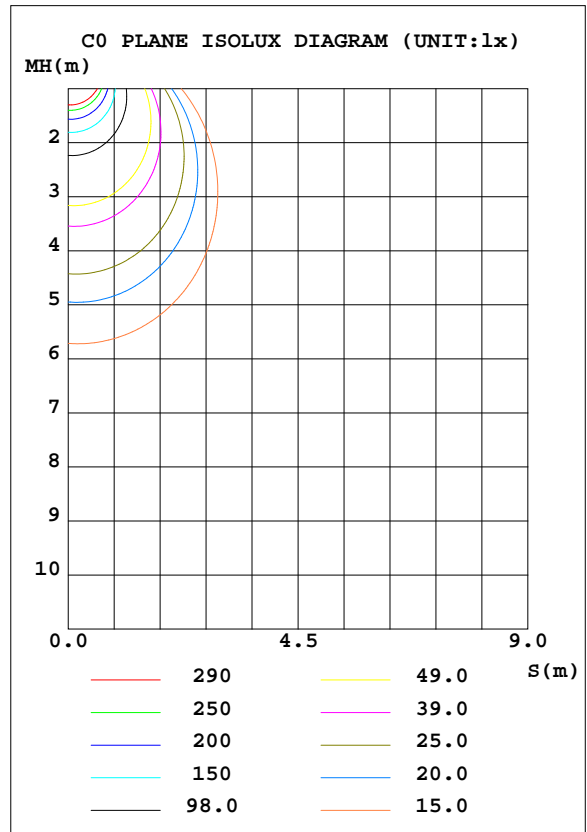
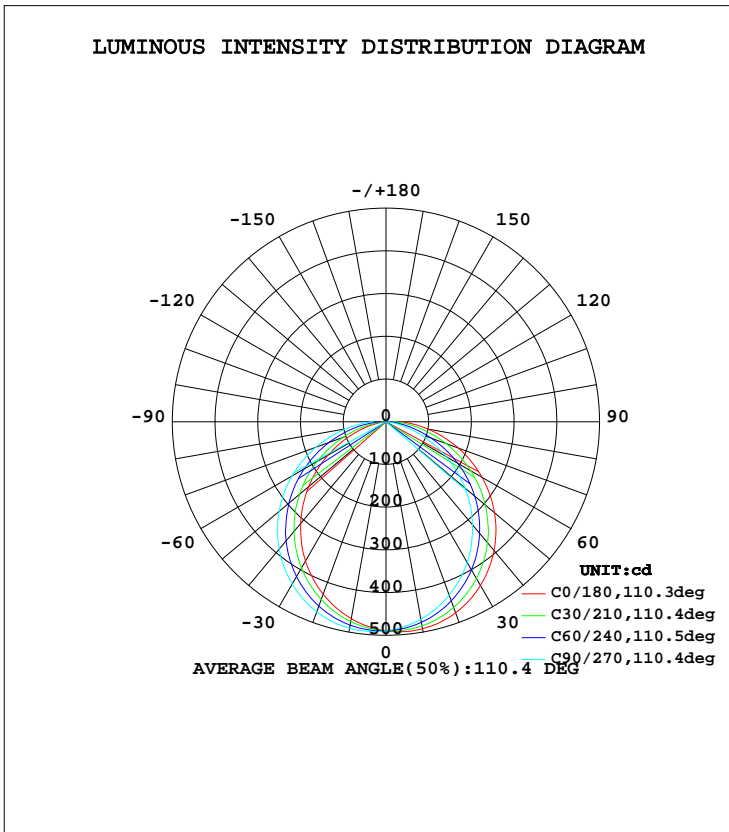


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:240.1V I:0.0610A P:13.70W PF:0.9400 Lamp Flux:1388.02x1 lm		
NAME: 136-045_4000K	TYPE:15W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.125	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 101.32 lm/W			
MODEL	136-045_4000K	Imax(cd)	496.1	S/MH(C0/180)	1.34
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	1.16
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	1388.0	η UP, DN(C0-180)	0.0, 46.5
NOMINAL FLUX(lm)	1388.02	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 53.5
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	240.1	η down(%)	100.0	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 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	492.0	481.0	469.4	464.4	468.1	479.2	490.8	495.6	0- 10	46.27	46.27	3.33,3.33
20	476.1	454.5	432.1	422.8	429.7	451.2	473.6	483.1	10- 20	132.2	178.5	12.9,12.9
30	442.4	411.8	380.2	366.8	376.8	407.0	438.8	452.5	20- 30	199.6	378.0	27.2,27.2
40	393.3	355.4	314.9	298.9	310.6	349.5	389.0	406.1	30- 40	239.2	617.2	44.5,44.5
50	331.7	287.3	241.6	223.0	236.5	280.3	326.5	345.7	40- 50	246.3	863.5	62.2,62.2
60	259.5	211.4	162.0	142.1	157.0	203.9	254.0	274.9	50- 60	220.5	1084	78.1,78.1
70	180.4	131.1	83.39	66.06	79.70	124.1	174.9	196.6	60- 70	166.9	1251	90.1,90.1
80	100.3	57.91	21.99	12.75	19.76	51.79	95.21	115.8	70- 80	98.02	1349	97.2,97.2
90	34.43	11.79	4.812	4.197	4.839	9.865	29.48	43.84	80- 90	39.16	1388	100,100
100									90-100			
110									100-110			
120									110-120			
130									120-130			
140									130-140			
150									140-150			
160									150-160			
170									160-170			
180									170-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

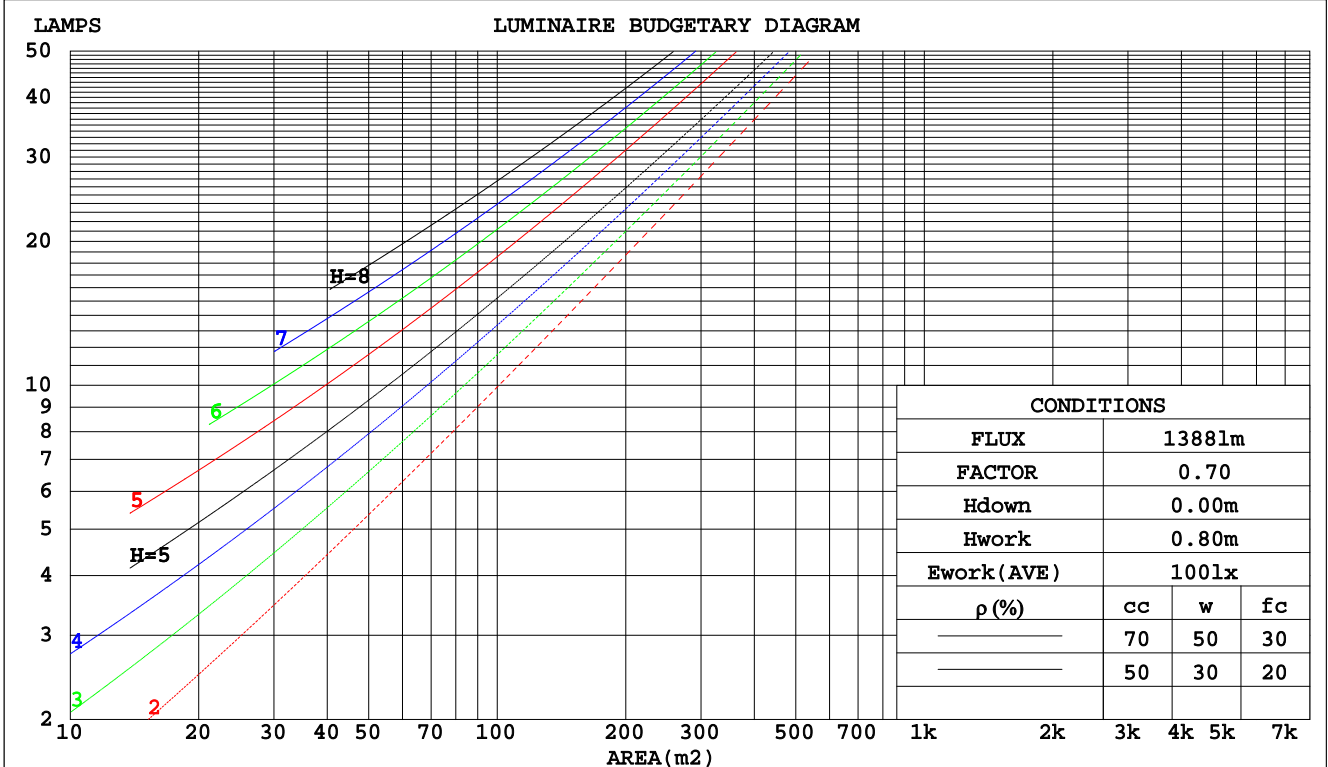
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:240.1V I:0.0610A P:13.70W PF:0.9400 Lamp Flux:1388.02x1 lm		
NAME: 136-045_4000K	TYPE:15W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.125	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																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	.93	.97	.94	.90	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.77	.88	.82	.76	.85	.79	.74	.81	.77	.73	.78	.74	.71	.69
3.0	.79	.71	.64	.77	.70	.64	.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	.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	.39	.37
7.0	.51	.42	.36	.50	.42	.36	.49	.41	.36	.47	.40	.35	.46	.40	.35	.33
8.0	.47	.38	.32	.46	.38	.32	.45	.37	.32	.43	.37	.32	.42	.36	.31	.29
9.0	.43	.34	.29	.42	.34	.29	.41	.34	.29	.40	.33	.29	.39	.33	.28	.27
10.0	.39	.31	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.36	.30	.26	.24



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:240.1V I:0.0610A P:13.70W PF:0.9400 Lamp Flux:1388.02x1 lm		
NAME: 136-045_4000K	TYPE:15W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.125	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	.319	.181	.057	.312	.178	.056	.298	.171	.055	.286	.165	.053	.275	.159	.051	
2.0	.296	.162	.050	.290	.160	.049	.278	.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	.236	.125	.037	.228	.122	.037	.220	.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	.199	.099	.028	.196	.098	.028	.189	.096	.028	.183	.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	.166	.082	.023	.161	.081	.023	.157	.080	.023	
10.0	.164	.079	.022	.161	.078	.022	.157	.077	.022	.152	.076	.021	.148	.074	.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	.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	.142	.082	.039	.122	.071	.034	.084	.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: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

Uncorrected UGR Table

Test:U:240.1V I:0.0610A P:13.70W PF:0.9400 Lamp Flux:1388.02x1 lm										
NAME: 136-045_4000K					TYPE:15W			WEIGHT:		
DIM.:					SPEC.:4000K			SERIAL No.:1		
MFR.:					SUR.:0.125			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	21.2	22.8	21.5	23.0	23.2	19.6	21.1	19.8	21.3	21.5
3H	23.1	24.5	23.4	24.7	25.0	20.7	22.1	20.9	22.3	22.5
4H	23.9	25.3	24.3	25.5	25.8	21.0	22.3	21.3	22.6	22.8
6H	24.7	26.0	25.1	26.3	26.5	21.1	22.4	21.4	22.6	22.9
8H	25.1	26.3	25.4	26.6	26.9	21.1	22.3	21.4	22.6	22.9
12H	25.4	26.6	25.8	26.9	27.2	21.1	22.2	21.4	22.5	22.8
4H 2H	21.7	23.0	22.0	23.3	23.5	20.4	21.7	20.7	22.0	22.2
3H	23.7	24.9	24.1	25.2	25.5	21.7	22.9	22.0	23.1	23.5
4H	24.7	25.8	25.1	26.1	26.5	22.1	23.2	22.5	23.5	23.8
6H	25.7	26.6	26.1	27.0	27.3	22.3	23.3	22.7	23.6	24.0
8H	26.1	27.0	26.5	27.4	27.7	22.4	23.3	22.8	23.6	24.0
12H	26.5	27.4	27.0	27.8	28.2	22.4	23.2	22.8	23.6	24.0
8H 4H	24.9	25.8	25.3	26.1	26.5	22.6	23.5	23.0	23.8	24.2
6H	26.0	26.7	26.4	27.1	27.6	22.9	23.7	23.4	24.1	24.5
8H	26.5	27.2	27.0	27.6	28.1	23.0	23.7	23.5	24.1	24.6
12H	27.1	27.7	27.6	28.2	28.6	23.1	23.7	23.6	24.1	24.6
12H 4H	24.9	25.7	25.3	26.1	26.5	22.6	23.5	23.1	23.9	24.3
6H	26.0	26.7	26.5	27.1	27.5	23.1	23.8	23.6	24.2	24.6
8H	26.6	27.2	27.1	27.6	28.1	23.3	23.8	23.7	24.3	24.8
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.2 / - 0.3				
1.5H	+ 0.1 / - 0.2					+ 0.3 / - 0.5				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.6				

CIE Pub.117 Corrected 1388 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.1)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:240.1V I:0.0610A P:13.70W PF:0.9400 Lamp Flux:1388.02x1 lm		
NAME: 136-045_4000K	TYPE:15W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.125	PROTECTION ANGLE:

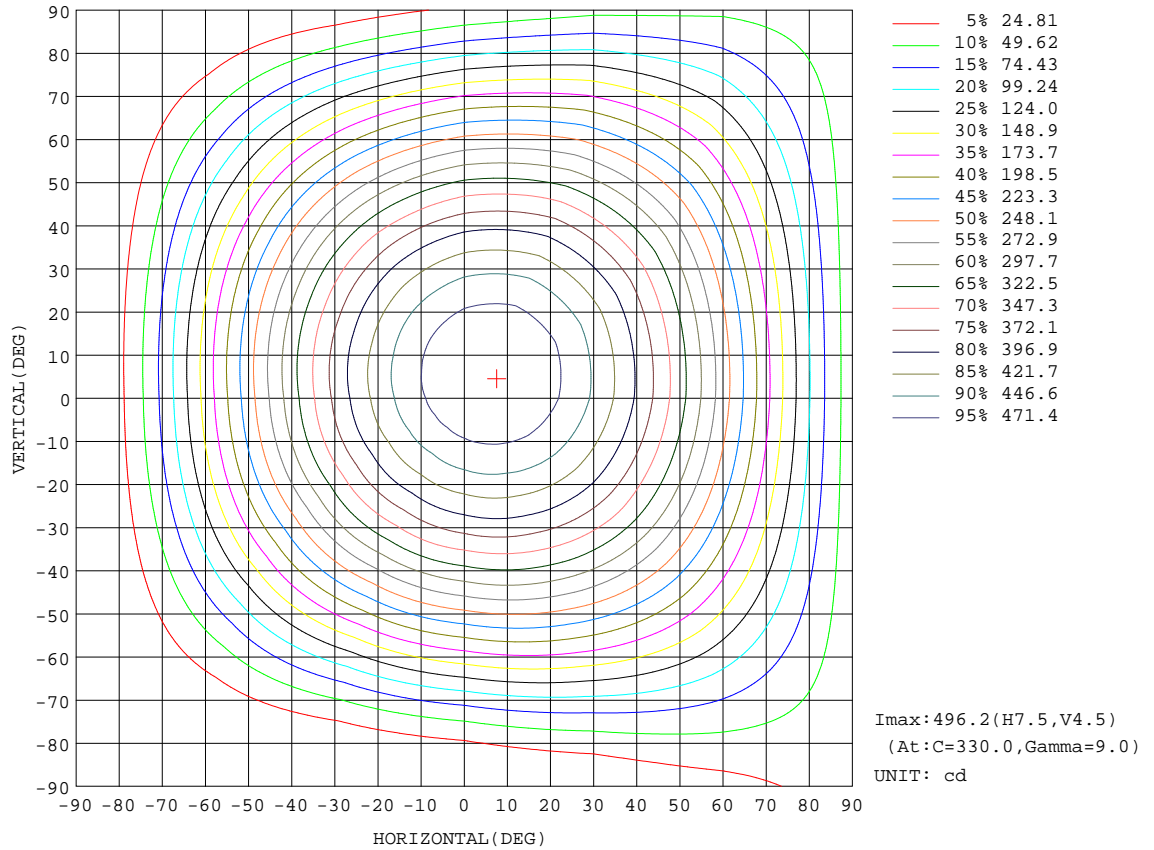
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	57	46	39	57	46	39	56	45	39	32
0.80	67	56	48	66	55	48	65	55	48	41
1.00	76	65	57	75	64	57	72	65	56	49
1.25	83	72	65	81	72	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	84	96	89	84	93	87	82	73
3.00	102	95	89	100	93	88	96	90	86	77
4.00	106	100	95	103	98	94	99	95	91	82
5.00	108	103	99	106	101	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: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:240.1V I:0.0610A P:13.70W PF:0.9400 Lamp Flux:1388.02x1 lm		
NAME: 136-045_4000K	TYPE:15W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.125	PROTECTION ANGLE:

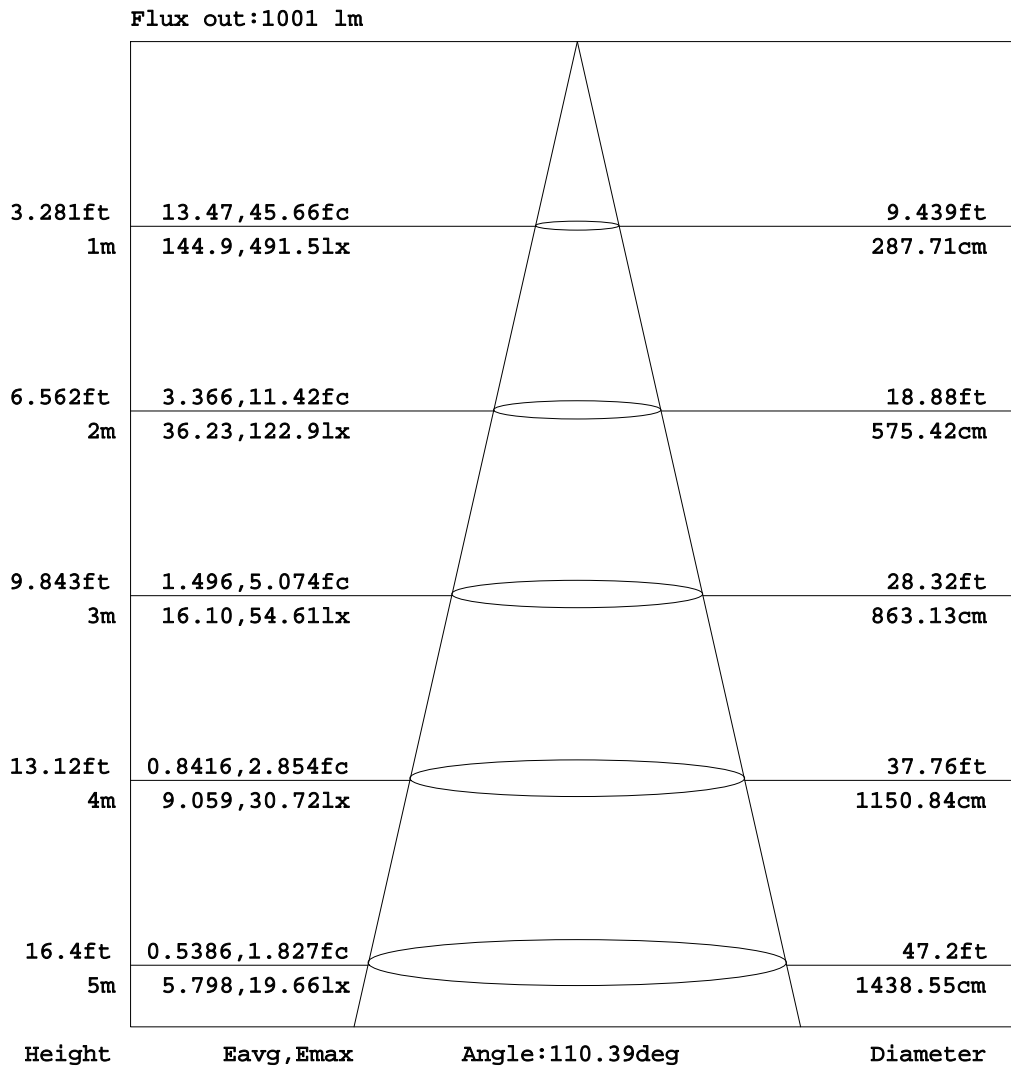


C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2019-07-20

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity: 65.0%
 Test Distance: 9.443m [K=1.0000]
 Remarks:

AAI Figure

Test:U:240.1V I:0.0610A P:13.70W PF:0.9400 Lamp Flux:1388.02x1 lm		
NAME: 136-045_4000K	TYPE:15W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.125	PROTECTION ANGLE:



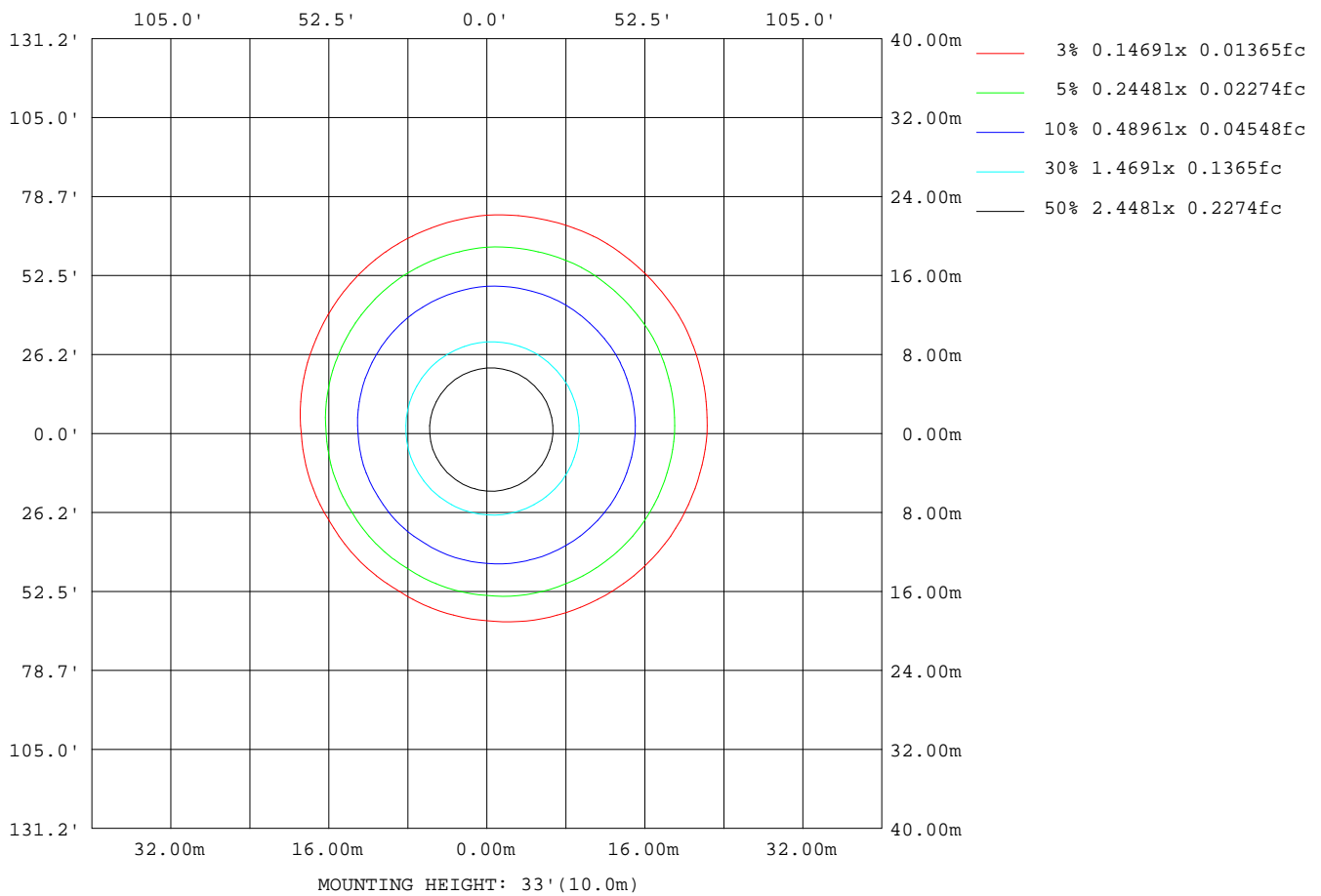
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

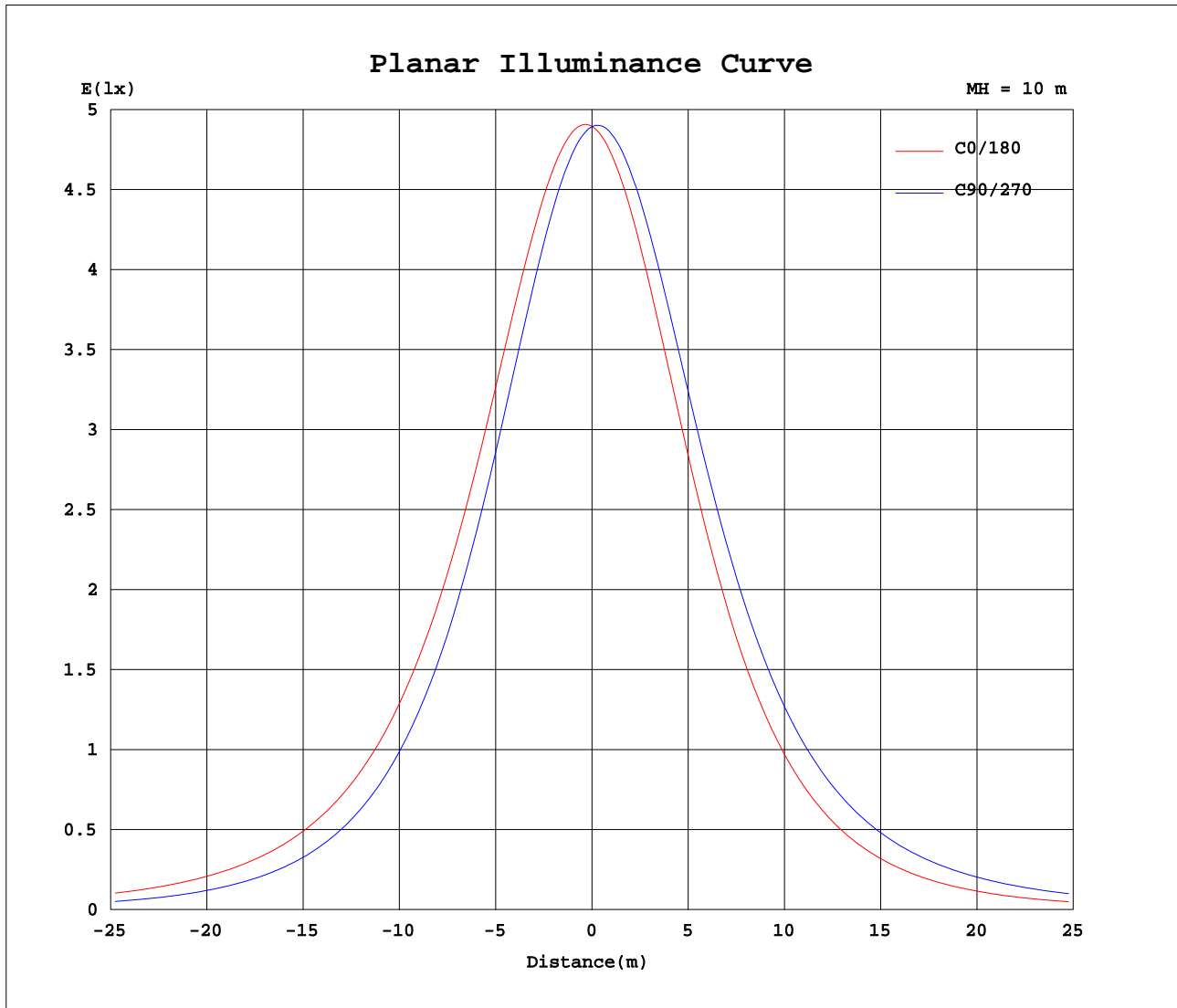
Test:U:240.1V I:0.0610A P:13.70W PF:0.9400 Lamp Flux:1388.02x1 lm		
NAME: 136-045_4000K	TYPE:15W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.125	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 30.0DEG
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γ Range: 0 - 90DEG
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 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2019-07-20

γ Range: 0 - 90DEG
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 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity: 65.0%
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 Remarks:

