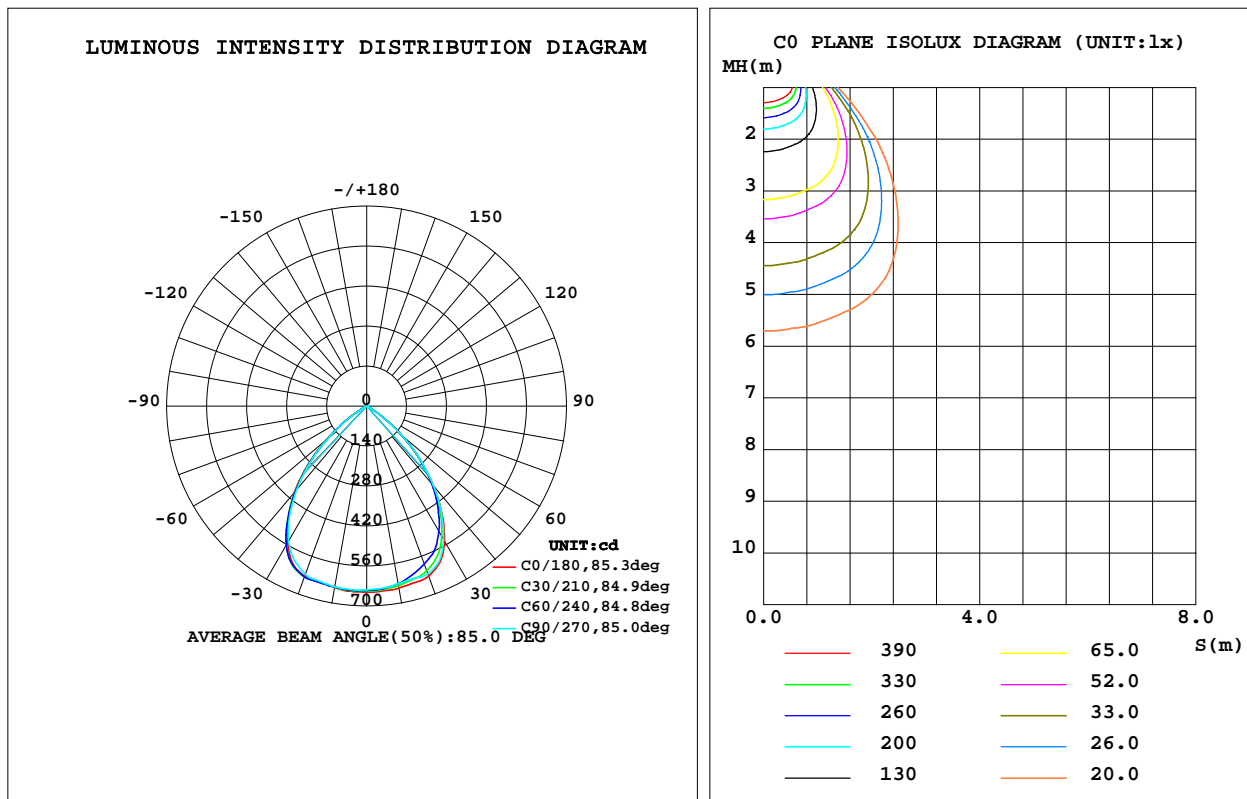


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.4V I:0.0600A P:13.00W PF:0.9350 Lamp Flux:1098.98x1 lm		
NAME: 136-097_3000K	TYPE:13W	WEIGHT:
DIM.:	SPEC.:3000K	SERIAL No.:1
MFR.: Tronix Lighting	SUR.:0.0080077	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL:	136-097_3000K	Imax(cd)	652.2	S/MH(C0/180)	1.19
NOMINAL POWER(W)	13W	LOR(%)	100.0	S/MH(C90/270)	1.20
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1099.0	$\eta$ UP, DN(C0-180)	0.0, 48.9
NOMINAL FLUX(lm)	1098.98	CIE CLASS	DIRECT	$\eta$ UP, DN(C180-360)	0.0, 51.1
LAMPS INSIDE	1	$\eta$ up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230.3	$\eta$ down(%)	100.0	CIBSE SHR MAX	1.25



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [K=1.0000]  
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	\$lum,lamp
10	647.4	635.4	631.5	630.9	644.9	643.7	643.3	640.5	0- 10	61.31	61.31	5.58,5.58
20	633.2	601.6	625.4	626.4	633.4	637.3	627.5	631.4	10- 20	179.1	240.4	21.9,21.9
30	545.4	516.1	539.6	542.3	554.0	563.1	546.7	547.2	20- 30	273.8	514.3	46.8,46.8
40	363.8	355.8	363.6	375.4	394.5	388.1	381.0	375.0	30- 40	288.7	802.9	73.1,73.1
50	162.2	163.1	164.2	169.4	186.9	182.5	176.7	171.9	40- 50	210.4	1013	92.2,92.2
60	19.90	16.69	15.27	17.67	24.32	23.66	22.91	24.08	50- 60	78.56	1092	99.4,99.4
70	2.357	2.166	1.941	2.107	2.481	2.346	2.101	2.083	60- 70	5.767	1098	99.9,99.9
80	0.4988	0.4201	0.2842	0.1668	0.1530	0.1463	0.2203	0.3533	70- 80	1.260	1099	100,100
90	0.1034	0.1247	0.1156	0.1004	0	0	0	0	80- 90	0.0703	1099	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		

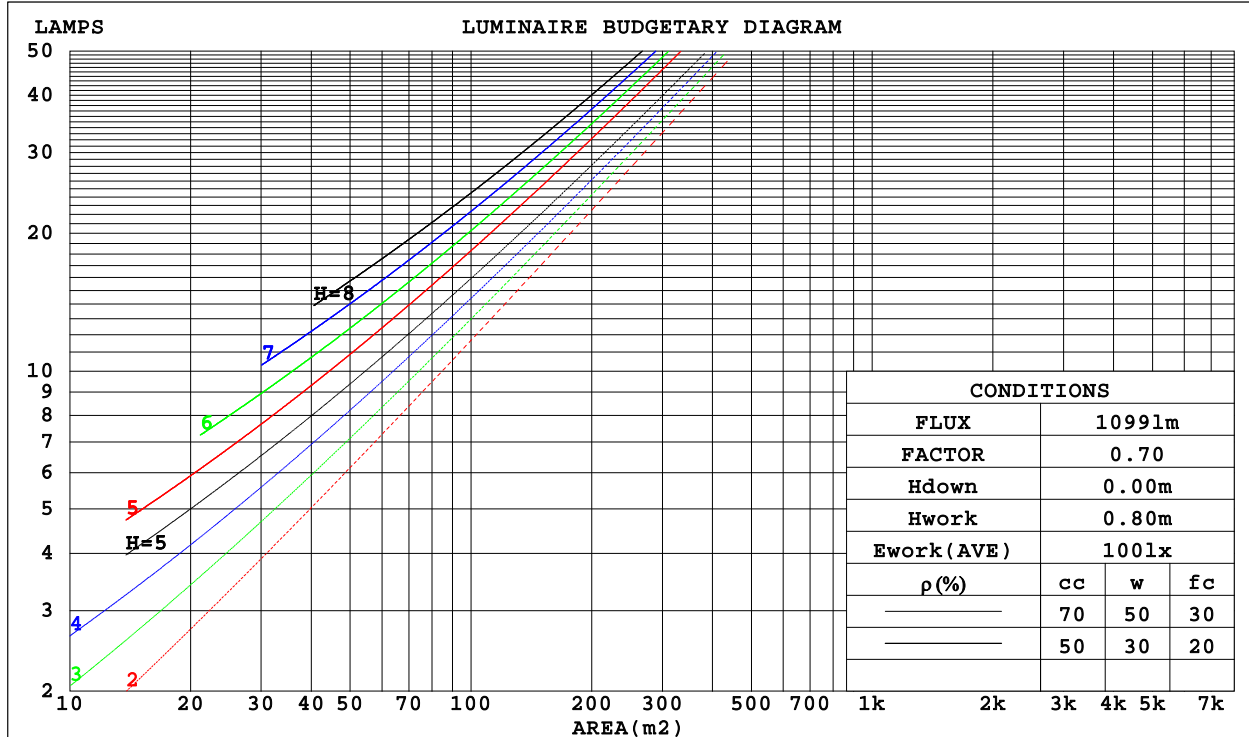
C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [K=1.0000]  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.4V I:0.0600A P:13.00W PF:0.9350 Lamp Flux:1098.98x1 lm		
NAME: 136-097_3000K	TYPE:13W	WEIGHT:
DIM.:	SPEC.:3000K	SERIAL No.:1
MFR.: Tronix Lighting	SUR.:0.0080077	PROTECTION ANGLE:

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	.00
1.0	1.09	1.06	1.04	1.07	1.04	1.02	1.03	1.01	.99	.99	.97	.96	.96	.94	.93	.91
2.0	.00	.95	.91	.98	.93	.90	.95	.91	.88	.91	.88	.86	.89	.86	.84	.82
3.0	.91	.85	.80	.89	.84	.79	.87	.82	.78	.84	.80	.77	.82	.79	.76	.74
4.0	.83	.76	.71	.82	.76	.71	.80	.74	.70	.77	.73	.69	.75	.72	.68	.67
5.0	.76	.69	.64	.75	.68	.64	.73	.67	.63	.71	.66	.62	.70	.65	.62	.60
6.0	.70	.63	.58	.69	.62	.57	.67	.61	.57	.66	.61	.56	.64	.60	.56	.54
7.0	.64	.57	.52	.64	.57	.52	.62	.56	.52	.61	.55	.51	.60	.55	.51	.49
8.0	.59	.52	.47	.59	.52	.47	.58	.51	.47	.57	.51	.47	.55	.50	.47	.45
9.0	.55	.48	.43	.55	.48	.43	.54	.47	.43	.53	.47	.43	.52	.47	.43	.41
10.0	.51	.44	.40	.51	.44	.40	.50	.44	.40	.49	.43	.40	.48	.43	.39	.38



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:230.4V I:0.0600A P:13.00W PF:0.9350 Lamp Flux:1098.98x1 lm		
NAME: 136-097_3000K	TYPE:13W	WEIGHT:
DIM.:	SPEC.:3000K	SERIAL No.:1
MFR.: Tronix Lighting	SUR.:0.0080077	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						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.208	.118	.037	.201	.115	.036	.188	.108	.034	.176	.102	.033	.166	.096	.031	
2.0	.204	.112	.034	.198	.109	.034	.187	.104	.032	.177	.099	.031	.167	.095	.030	
3.0	.196	.104	.031	.191	.102	.031	.182	.098	.030	.173	.095	.029	.165	.091	.028	
4.0	.188	.097	.029	.183	.096	.028	.175	.093	.028	.167	.090	.027	.160	.087	.026	
5.0	.179	.091	.026	.175	.090	.026	.168	.087	.026	.161	.085	.025	.155	.083	.025	
6.0	.170	.085	.024	.167	.084	.024	.161	.082	.024	.154	.080	.024	.149	.078	.023	
7.0	.162	.080	.023	.159	.079	.023	.154	.078	.022	.148	.076	.022	.143	.074	.022	
8.0	.155	.076	.021	.152	.075	.021	.147	.073	.021	.142	.072	.021	.137	.070	.021	
9.0	.148	.071	.020	.145	.071	.020	.140	.069	.020	.136	.068	.019	.132	.067	.019	
10.0	.141	.067	.019	.139	.067	.019	.134	.066	.019	.130	.065	.018	.126	.064	.018	

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						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.173	.157	.142	.148	.135	.123	.101	.093	.085	.058	.054	.049	.019	.017	.016	
2.0	.160	.132	.109	.137	.114	.094	.094	.079	.066	.054	.046	.038	.017	.015	.013	
3.0	.150	.114	.085	.129	.098	.073	.088	.068	.052	.051	.040	.030	.016	.013	.010	
4.0	.142	.100	.067	.122	.086	.059	.084	.060	.041	.048	.035	.024	.016	.011	.008	
5.0	.134	.089	.055	.115	.077	.048	.079	.054	.034	.046	.031	.020	.015	.010	.007	
6.0	.128	.080	.045	.110	.069	.039	.076	.048	.028	.044	.028	.017	.014	.009	.005	
7.0	.122	.073	.038	.105	.063	.033	.072	.044	.024	.042	.026	.014	.014	.009	.005	
8.0	.116	.067	.033	.100	.058	.028	.069	.041	.020	.040	.024	.012	.013	.008	.004	
9.0	.111	.062	.028	.096	.054	.025	.066	.038	.018	.039	.022	.010	.013	.007	.003	
10.0	.106	.057	.025	.092	.050	.022	.064	.035	.015	.037	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [K=1.0000]  
 Remarks:

Uncorrected UGR Table

Test:U:230.4V I:0.0600A P:13.00W PF:0.9350 Lamp Flux:1098.98x1 lm										
NAME: 136-097_3000K					TYPE:13W			WEIGHT:		
DIM.:					SPEC.:3000K			SERIAL No.:1		
MFR.: Tronix Lighting					SUR.:0.0080077			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	22.5	23.6	22.7	23.8	24.0	22.4	23.6	22.6	23.8	23.9
3H	22.3	23.4	22.6	23.6	23.8	22.2	23.3	22.5	23.5	23.7
4H	22.2	23.2	22.5	23.4	23.7	22.1	23.1	22.4	23.4	23.6
6H	22.1	23.0	22.4	23.3	23.5	22.0	23.0	22.3	23.2	23.5
8H	22.0	22.9	22.4	23.2	23.5	22.0	22.9	22.3	23.1	23.4
12H	22.0	22.9	22.3	23.1	23.4	21.9	22.8	22.3	23.1	23.4
4H 2H	22.2	23.3	22.5	23.5	23.7	22.2	23.2	22.5	23.4	23.6
3H	22.1	22.9	22.4	23.2	23.5	22.0	22.9	22.3	23.1	23.4
4H	22.0	22.7	22.3	23.0	23.4	21.9	22.7	22.3	23.0	23.3
6H	21.9	22.6	22.3	22.9	23.2	21.8	22.5	22.2	22.8	23.2
8H	21.8	22.5	22.2	22.8	23.2	21.8	22.4	22.2	22.7	23.1
12H	21.8	22.4	22.2	22.7	23.1	21.7	22.3	22.1	22.7	23.1
8H 4H	21.8	22.5	22.2	22.8	23.2	21.8	22.4	22.2	22.7	23.1
6H	21.7	22.2	22.2	22.6	23.1	21.7	22.2	22.1	22.6	23.0
8H	21.7	22.1	22.1	22.6	23.0	21.6	22.1	22.1	22.5	22.9
12H	21.6	22.0	22.1	22.5	22.9	21.6	22.0	22.0	22.4	22.9
12H 4H	21.8	22.4	22.2	22.7	23.1	21.7	22.3	22.1	22.7	23.1
6H	21.7	22.1	22.1	22.6	23.0	21.6	22.1	22.1	22.5	22.9
8H	21.6	22.0	22.1	22.5	22.9	21.6	22.0	22.0	22.4	22.9
Variations with the observer position at spacings:										
S = 1.0H	+ 2.2 / - 6.1					+ 2.2 / - 6.6				
1.5H	+ 1.7 / - 3.9					+ 1.7 / - 4.2				
2.0H	+ 4.8 / -17.2					+ 4.9 / -17.9				

CIE Pub.117 Corrected 1099 lm Total Lamp Luminous Flux.(8log(F/F0) = 0.3)

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [K=1.0000]  
 Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:230.4V I:0.0600A P:13.00W PF:0.9350 Lamp Flux:1098.98x1 lm		
NAME: 136-097_3000K	TYPE:13W	WEIGHT:
DIM.:	SPEC.:3000K	SERIAL No.:1
MFR.: Tronix Lighting	SUR.:0.0080077	PROTECTION ANGLE:

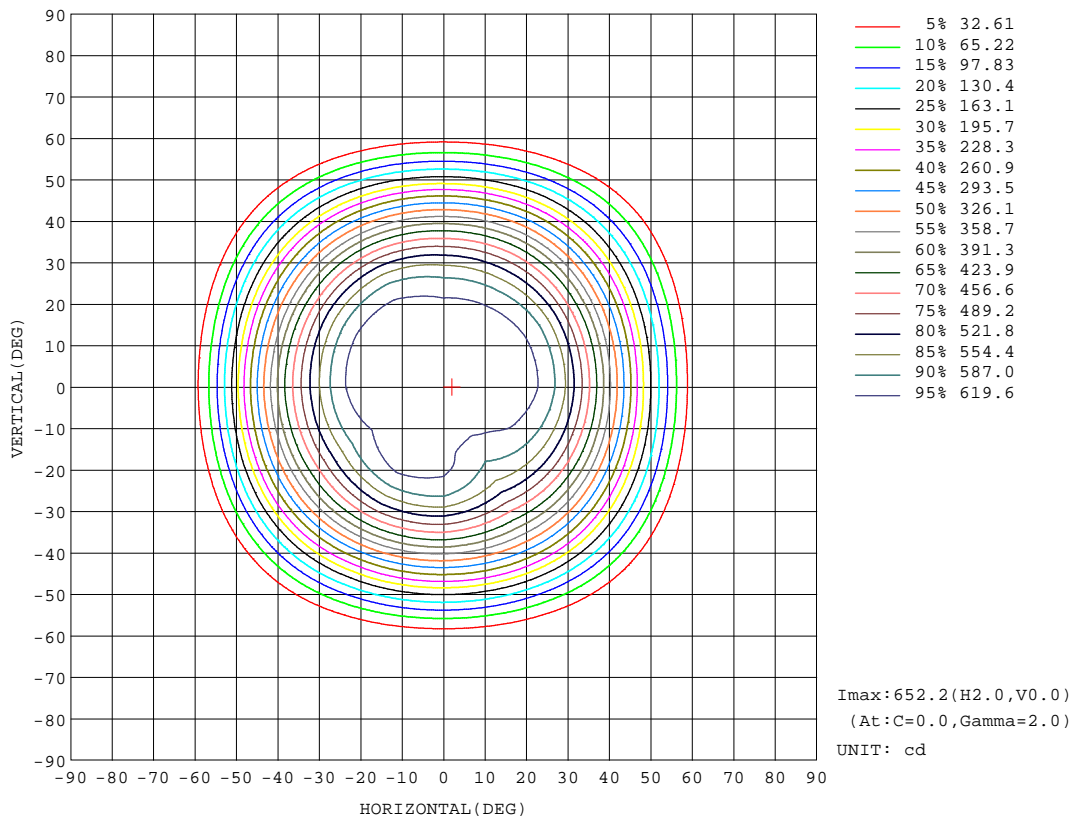
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	74	65	60	73	65	60	72	65	60	55
0.80	84	76	70	83	75	70	81	74	70	65
1.00	91	84	79	90	83	78	88	83	78	73
1.25	97	90	85	96	89	85	93	88	84	79
1.50	101	94	90	99	94	89	97	92	88	83
2.00	105	100	96	103	99	95	101	97	93	87
2.50	107	102	98	105	101	98	102	99	96	89
3.00	109	105	101	107	103	100	104	101	98	91
4.00	112	108	105	109	106	104	106	103	101	93
5.00	113	110	107	111	108	106	107	105	103	95
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:2017-02-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:230.4V I:0.0600A P:13.00W PF:0.9350 Lamp Flux:1098.98x1 lm		
NAME: 136-097_3000K	TYPE:13W	WEIGHT:
DIM.:	SPEC.:3000K	SERIAL No.:1
MFR.: Tronix Lighting	SUR.:0.0080077	PROTECTION ANGLE:



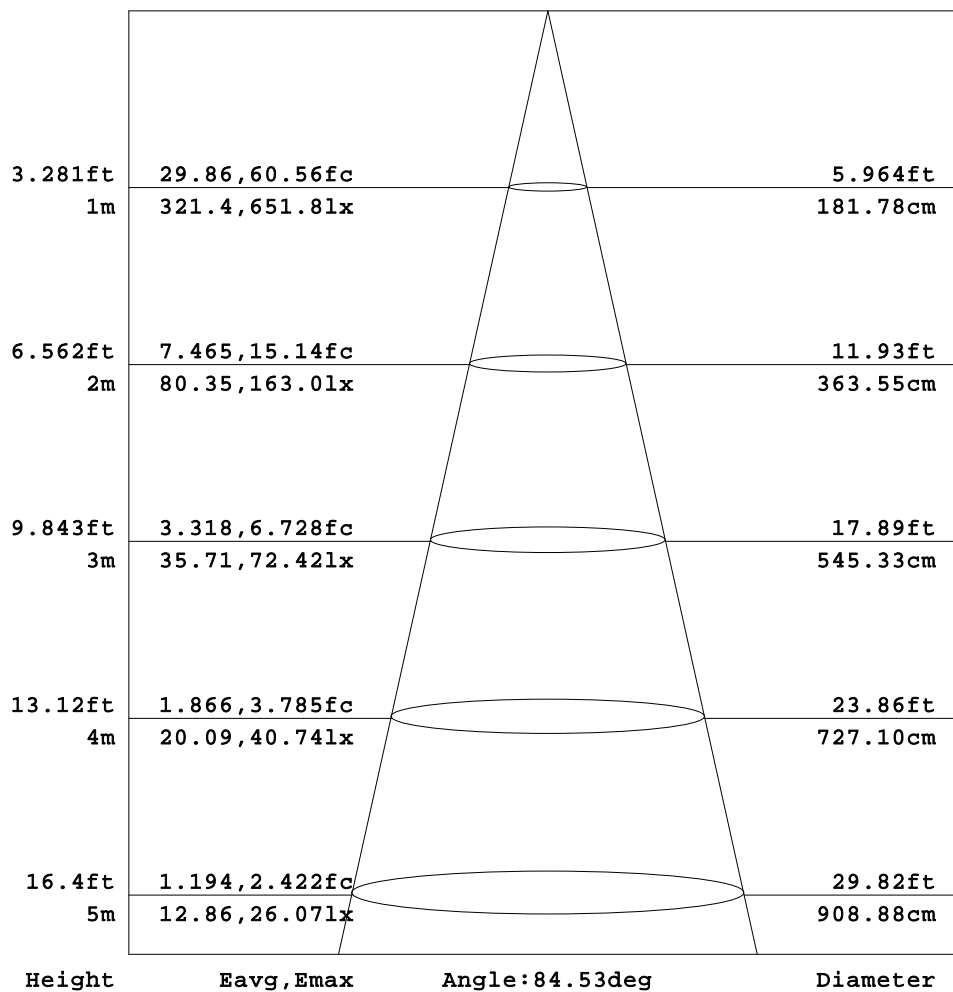
C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [K=1.0000]  
 Remarks:

AAI Figure

Test:U:230.4V I:0.0600A P:13.00W PF:0.9350 Lamp Flux:1098.98x1 lm		
NAME: 136-097_3000K	TYPE:13W	WEIGHT:
DIM.:	SPEC.:3000K	SERIAL No.:1
MFR.: Tronix Lighting	SUR.:0.0080077	PROTECTION ANGLE:

Flux out:878.0 lm



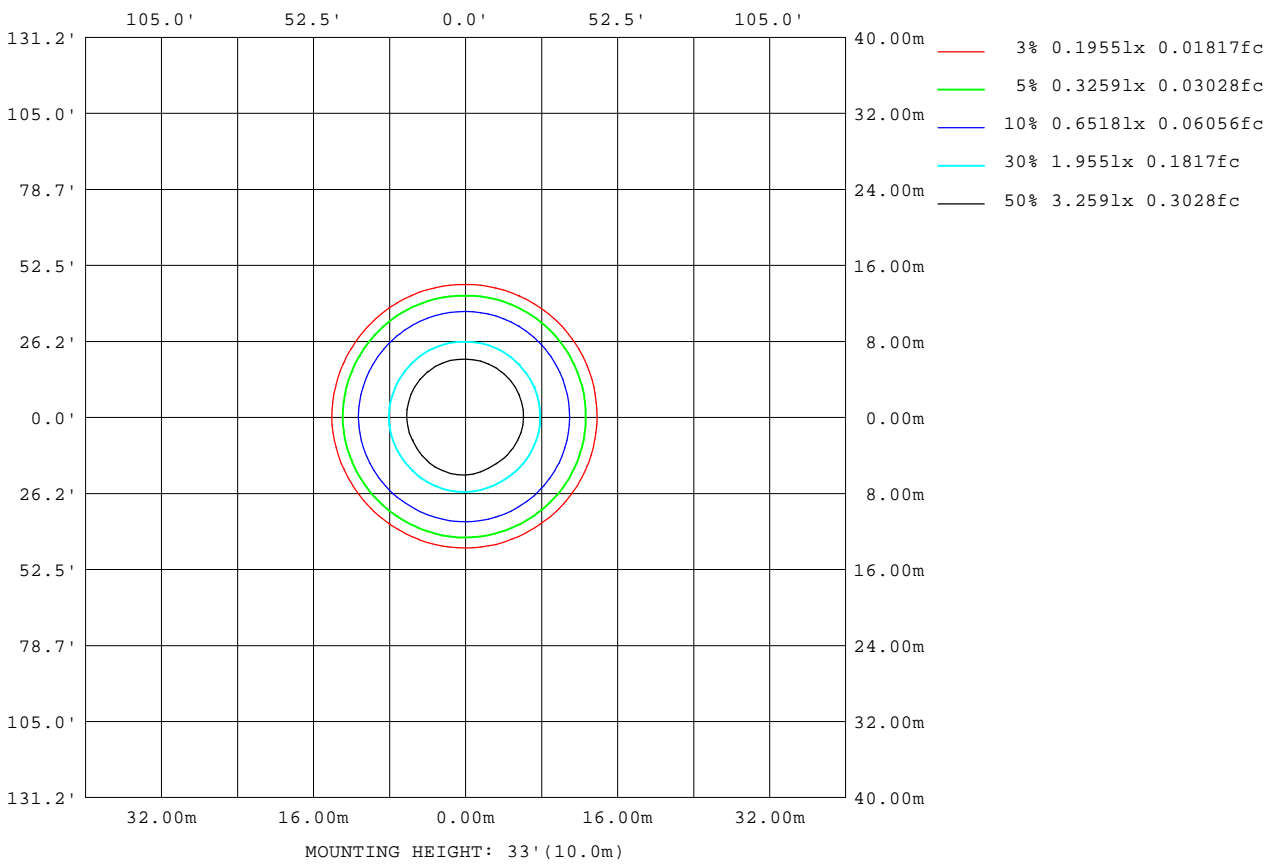
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [K=1.0000]  
 Remarks:

ISOLUX DIAGRAM

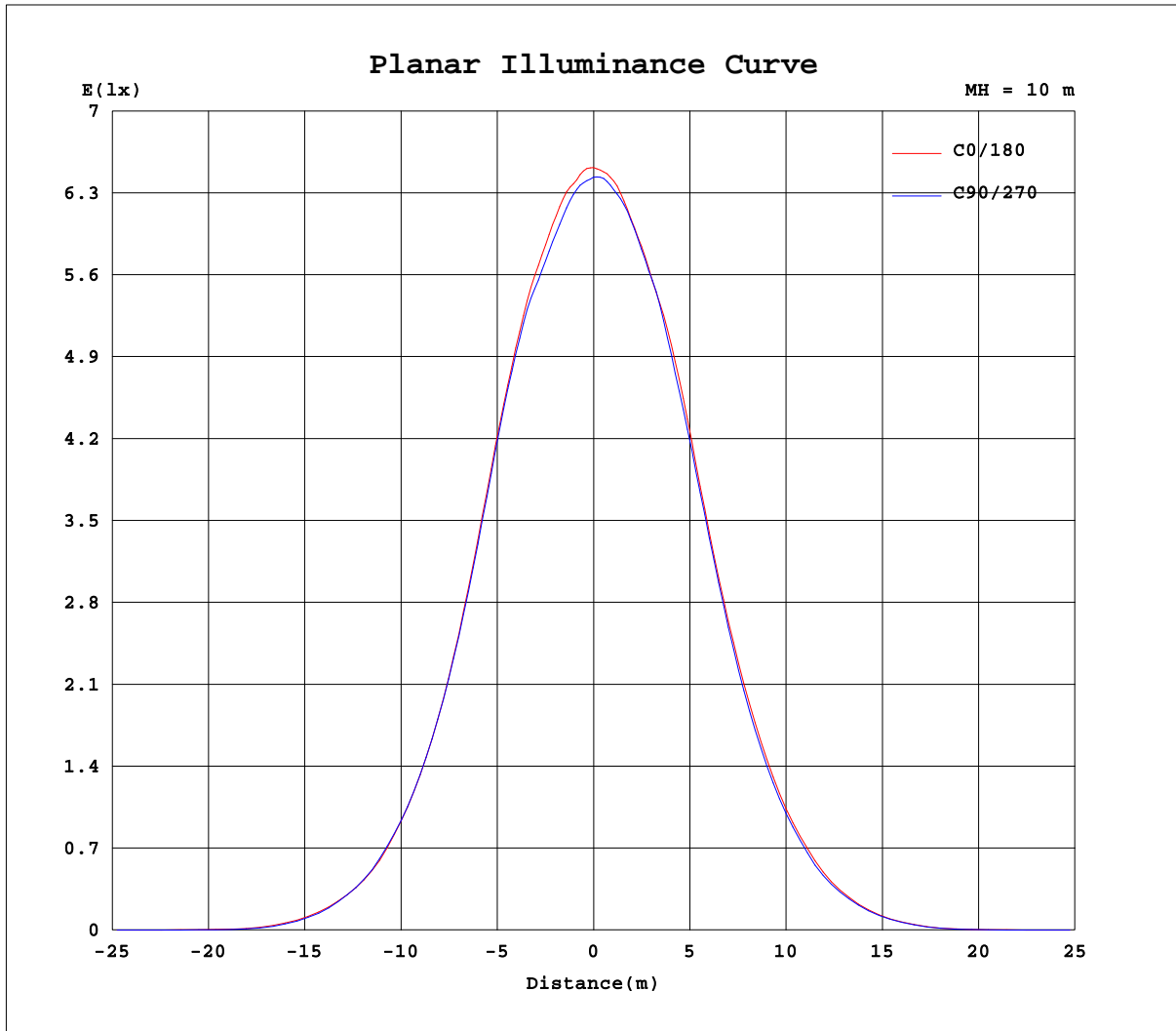
Test:U:230.4V I:0.0600A P:13.00W PF:0.9350 Lamp Flux:1098.98x1 lm		
NAME: 136-097_3000K	TYPE:13W	WEIGHT:
DIM.:	SPEC.:3000K	SERIAL No.:1
MFR.: Tronix Lighting	SUR.:0.0080077	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2017-02-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity:65.0%  
 Test Distance:9.580m [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: 2017-02-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.276  
 Humidity: 65.0%  
 Test Distance: 9.580m [K=1.0000]  
 Remarks:

