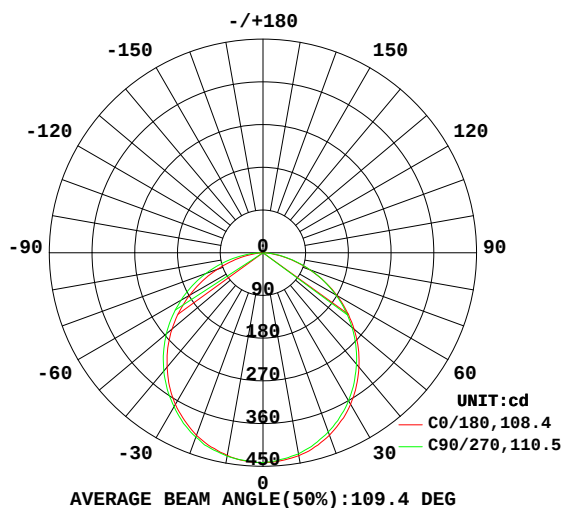


LUMINAIRE PHOTOMETRIC TEST REPORT

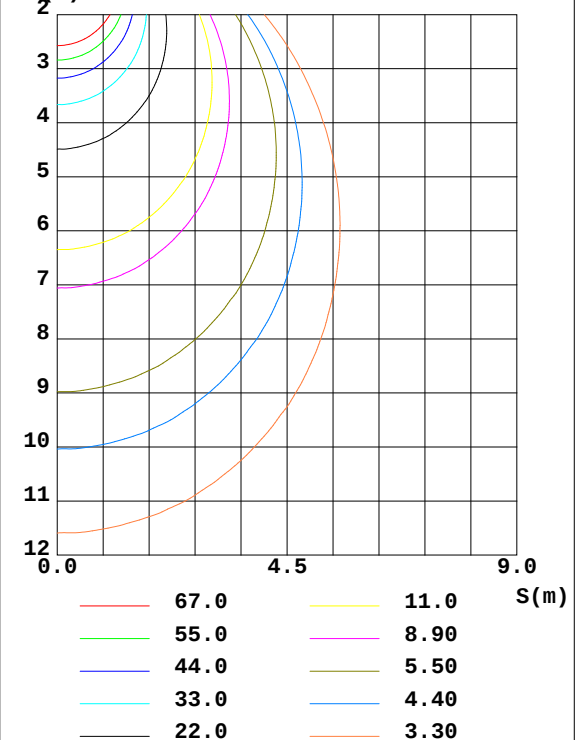
Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm		
NAME: 136-184_4000K	TYPE:15W	WEIGHT:
SPEC.:4000K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 81.71 lm/W			
MODEL	136-184_4000K	I _{max} (cd)	442.3	S/MH(C0/180)	1.24
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	1.26
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1218.2	η UP, DN(C0-180)	0.0, 48.8
NOMINAL FLUX(lm)	1218.21	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 51.2
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)		η down(%)	100.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2020-01-12

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
 Humidity: 65.0%
 Test Distance: 9.900m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

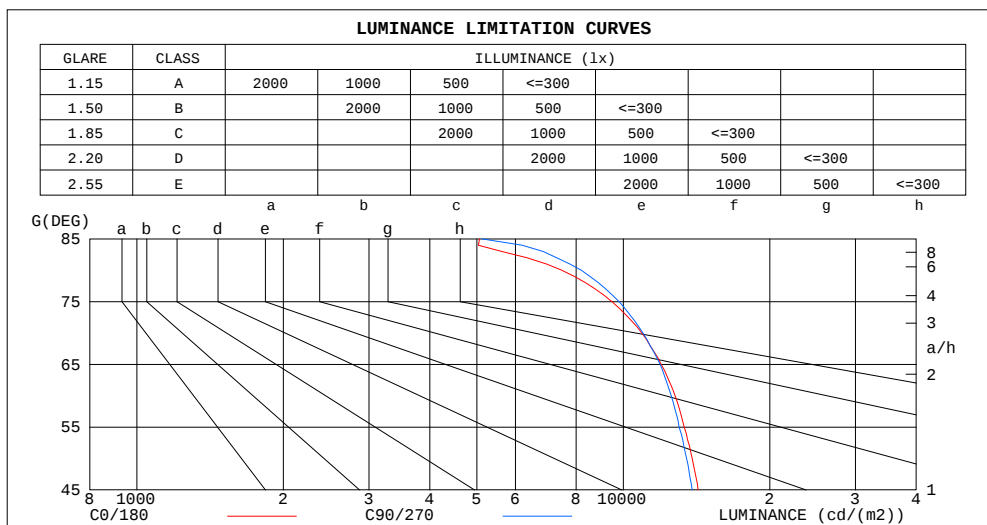
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	434.3	432.2	430.3	431.4	433.5	435.4	435.1	435.0	0- 10	41.75	41.75	3.43, 3.43
20	409.1	406.4	401.9	404.8	409.4	410.8	413.3	410.9	10- 20	119.3	161.0	13.2, 13.2
30	368.8	365.1	360.1	363.9	368.8	371.8	374.7	372.9	20- 30	179.7	340.7	28, 28
40	314.3	311.6	306.7	310.0	314.5	320.4	325.3	321.3	30- 40	214.7	555.4	45.6, 45.6
50	250.8	248.6	245.1	246.8	250.2	259.2	265.9	259.8	40- 50	220.1	775.6	63.7, 63.7
60	179.9	178.2	177.2	176.7	177.9	191.1	199.2	191.9	50- 60	195.9	971.5	79.7, 79.7
70	105.1	104.8	106.1	102.9	102.9	117.5	128.0	118.9	60- 70	146.0	1117	91.7, 91.7
80	36.54	37.57	40.19	37.88	34.05	47.07	58.29	47.48	70- 80	79.70	1197	98.3, 98.3
90	3.997	5.281	4.360	5.743	3.549	6.558	5.451	7.110	80- 90	21.08	1218	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: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2020-01-12

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
 Humidity: 65.0%
 Test Distance: 9.900m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm		
NAME: 136-184_4000K	TYPE:15W	WEIGHT:
SPEC.:4000K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	5065	5115
80	7472	8191
75	9471	9795
70	10911	10973
65	11962	11901
60	12775	12545
55	13339	13017
50	13853	13492
45	14249	13850

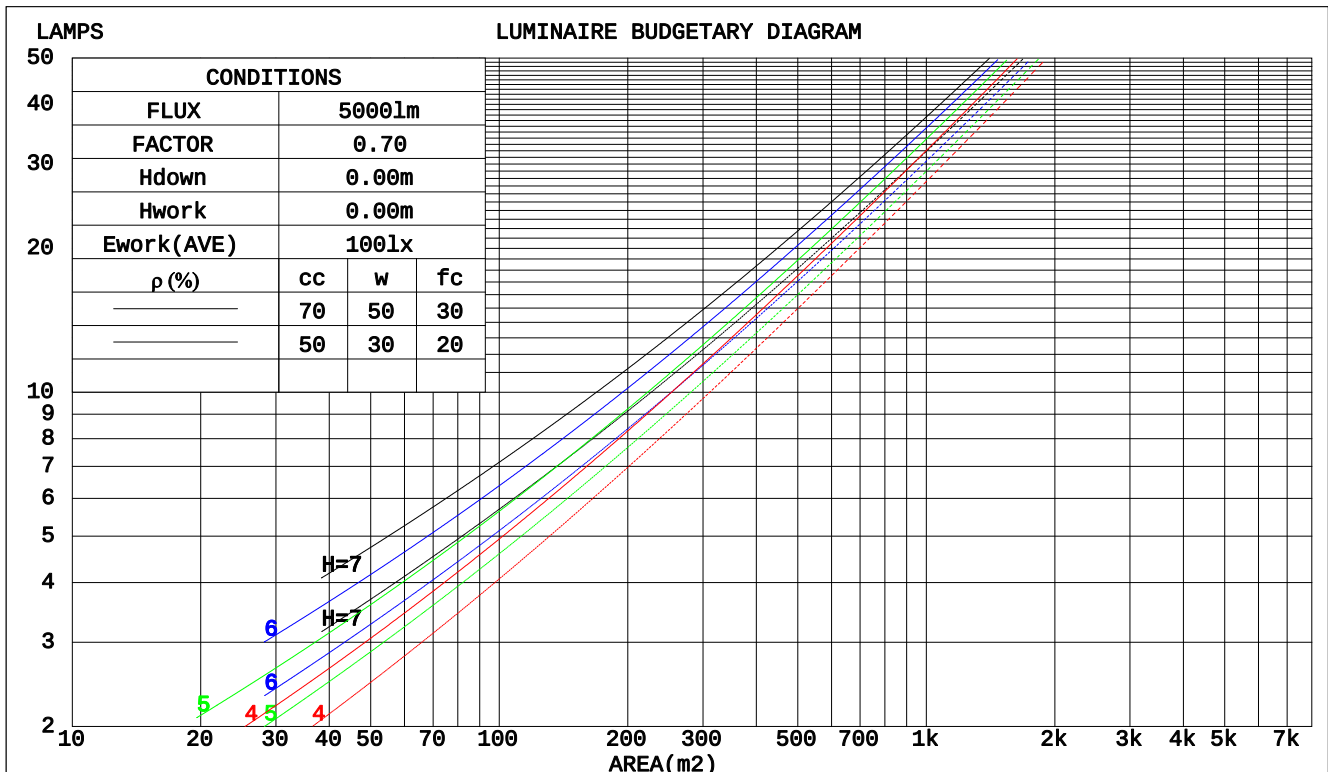
C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-01-12

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
Humidity:65.0%
Test Distance:9.900m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm		
NAME: 136-184_4000K	TYPE:15W	WEIGHT:
SPEC.:4000K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding 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						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	1.04	.00	.96	1.02	.98	.95	.98	.94	.92	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.84	.78	.89	.83	.77	.85	.80	.76	.82	.78	.74	.79	.75	.72	.70
3.0	.80	.72	.65	.78	.71	.65	.75	.69	.64	.73	.67	.62	.70	.65	.61	.59
4.0	.71	.62	.55	.69	.61	.55	.67	.60	.54	.65	.58	.53	.62	.57	.53	.51
5.0	.63	.54	.48	.62	.54	.47	.60	.53	.47	.58	.51	.46	.56	.50	.46	.44
6.0	.57	.48	.42	.56	.48	.41	.54	.47	.41	.53	.46	.41	.51	.45	.40	.38
7.0	.52	.43	.37	.51	.43	.37	.49	.42	.36	.48	.41	.36	.47	.40	.36	.34
8.0	.47	.39	.33	.46	.38	.33	.45	.38	.33	.44	.37	.32	.43	.37	.32	.30
9.0	.43	.35	.30	.43	.35	.29	.42	.34	.29	.40	.34	.29	.39	.33	.29	.27
10.0	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.26	.37	.31	.26	.25



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2020-01-12

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
 Humidity: 65.0%
 Test Distance: 9.900m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm					
NAME: 136-184_4000K			TYPE:15W		WEIGHT:
SPEC.:4000K			DIM.:		SERIAL No.:
MFR.: Tronix Lighting			SUR.:0.096		Shielding 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	.305	.173	.055	.297	.170	.054	.284	.163	.052	.272	.157	.050	.261	.151	.049	
2.0	.288	.158	.048	.281	.155	.048	.270	.150	.047	.259	.145	.045	.249	.141	.044	
3.0	.267	.142	.043	.261	.140	.042	.251	.136	.041	.241	.132	.041	.233	.129	.040	
4.0	.247	.128	.038	.242	.127	.037	.233	.123	.037	.224	.120	.036	.216	.118	.036	
5.0	.228	.116	.034	.224	.115	.034	.216	.112	.033	.208	.110	.033	.201	.108	.032	
6.0	.212	.106	.030	.208	.105	.030	.201	.103	.030	.194	.101	.030	.188	.099	.029	
7.0	.197	.098	.028	.194	.097	.028	.188	.095	.027	.182	.093	.027	.176	.091	.027	
8.0	.185	.090	.025	.182	.089	.025	.176	.088	.025	.170	.086	.025	.165	.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	.180	.156	.135	.154	.134	.116	.105	.092	.080	.061	.053	.047	.019	.017	.015	
2.0	.172	.132	.099	.147	.114	.085	.101	.079	.059	.058	.046	.035	.019	.015	.011	
3.0	.164	.114	.075	.140	.099	.065	.096	.068	.045	.056	.040	.027	.018	.013	.009	
4.0	.156	.101	.059	.134	.087	.051	.092	.061	.036	.053	.036	.021	.017	.012	.007	
5.0	.149	.091	.047	.128	.078	.041	.088	.055	.029	.051	.032	.017	.016	.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	.128	.069	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.004	
9.0	.122	.064	.025	.105	.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: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-01-12

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
Humidity:65.0%
Test Distance:9.900m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm											
NAME: 136-184_4000K					TYPE:15W			WEIGHT:			
SPEC.:4000K					DIM.:			SERIAL No.:			
MFR.: Tronix Lighting					SUR.:0.096			Shielding 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	21.7	23.2	21.9	23.4	23.6	
	3H	23.1	24.5	23.4	24.8	25.0	23.1	24.5	23.4	24.7	24.9
	4H	23.6	24.9	23.9	25.2	25.4	23.6	24.9	23.9	25.2	25.4
	6H	23.9	25.1	24.2	25.4	25.7	23.9	25.2	24.2	25.4	25.7
	8H	23.9	25.1	24.3	25.4	25.7	24.0	25.2	24.3	25.5	25.8
	12H	23.9	25.1	24.3	25.4	25.7	24.0	25.2	24.4	25.5	25.8
4H	2H	22.3	23.6	22.6	23.9	24.2	22.3	23.6	22.6	23.8	24.1
	3H	23.9	25.0	24.2	25.3	25.6	23.8	25.0	24.2	25.3	25.6
	4H	24.4	25.5	24.8	25.8	26.2	24.4	25.5	24.8	25.8	26.2
	6H	24.8	25.8	25.2	26.1	26.5	24.9	25.8	25.3	26.2	26.5
	8H	24.9	25.8	25.3	26.2	26.5	25.0	25.9	25.4	26.2	26.6
	12H	25.0	25.8	25.4	26.1	26.5	25.1	25.9	25.5	26.2	26.7
8H	4H	24.6	25.5	25.1	25.9	26.3	24.6	25.5	25.1	25.9	26.3
	6H	25.1	25.9	25.6	26.3	26.7	25.2	25.9	25.6	26.3	26.8
	8H	25.3	25.9	25.8	26.4	26.8	25.4	26.0	25.9	26.5	26.9
	12H	25.4	25.9	25.9	26.4	26.9	25.5	26.1	26.0	26.5	27.0
12H	4H	24.6	25.4	25.1	25.8	26.2	24.6	25.4	25.1	25.8	26.2
	6H	25.2	25.8	25.6	26.3	26.7	25.2	25.9	25.7	26.3	26.7
	8H	25.4	25.9	25.8	26.4	26.8	25.5	26.0	25.9	26.5	26.9
Variations with the observer position at spacings:											
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2					
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3					
2.0H	+ 0.3 / - 0.3					+ 0.2 / - 0.3					

CIE Pub.117, 1218 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 0.7$)

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-01-12

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
Humidity:65.0%
Test Distance:9.900m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm		
NAME: 136-184_4000K	TYPE:15W	WEIGHT:
SPEC.:4000K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:

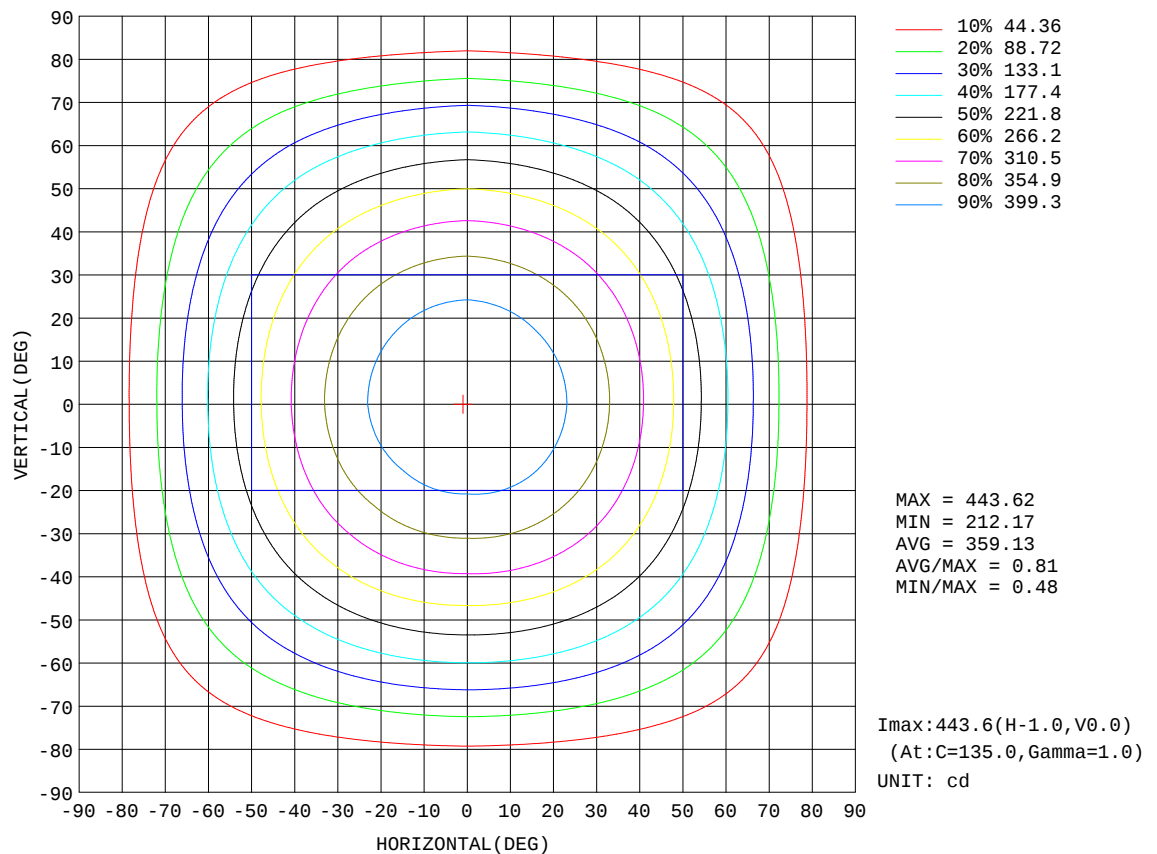
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	58	47	40	57	46	39	56	46	39	33
0.80	68	57	49	67	56	49	65	55	49	42
1.00	77	66	58	75	65	58	73	66	57	50
1.25	84	73	66	82	73	66	79	71	65	58
1.50	89	79	72	87	78	71	84	76	70	63
2.00	95	87	81	94	86	80	90	84	78	71
2.50	99	92	86	97	90	85	93	88	83	75
3.00	103	96	90	100	94	89	96	91	87	79
4.00	106	101	96	104	99	95	100	96	92	83
5.00	109	104	100	106	102	99	102	99	95	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-01-12

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
Humidity:65.0%
Test Distance:9.900m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

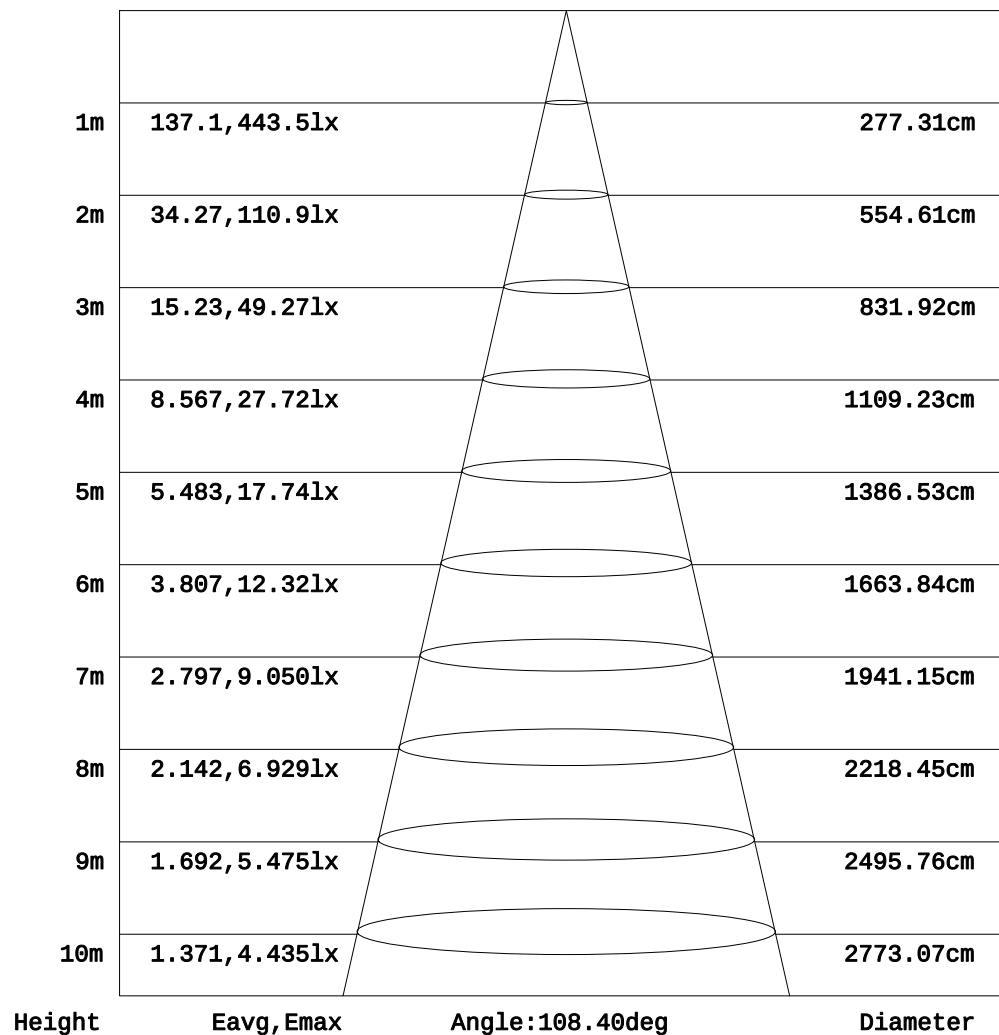
Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm		
NAME: 136-184_4000K	TYPE:15W	WEIGHT:
SPEC.:4000K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:



AAI Figure

Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm		
NAME: 136-184_4000K	TYPE:15W	WEIGHT:
SPEC.:4000K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:

Flux out:878.3 lm



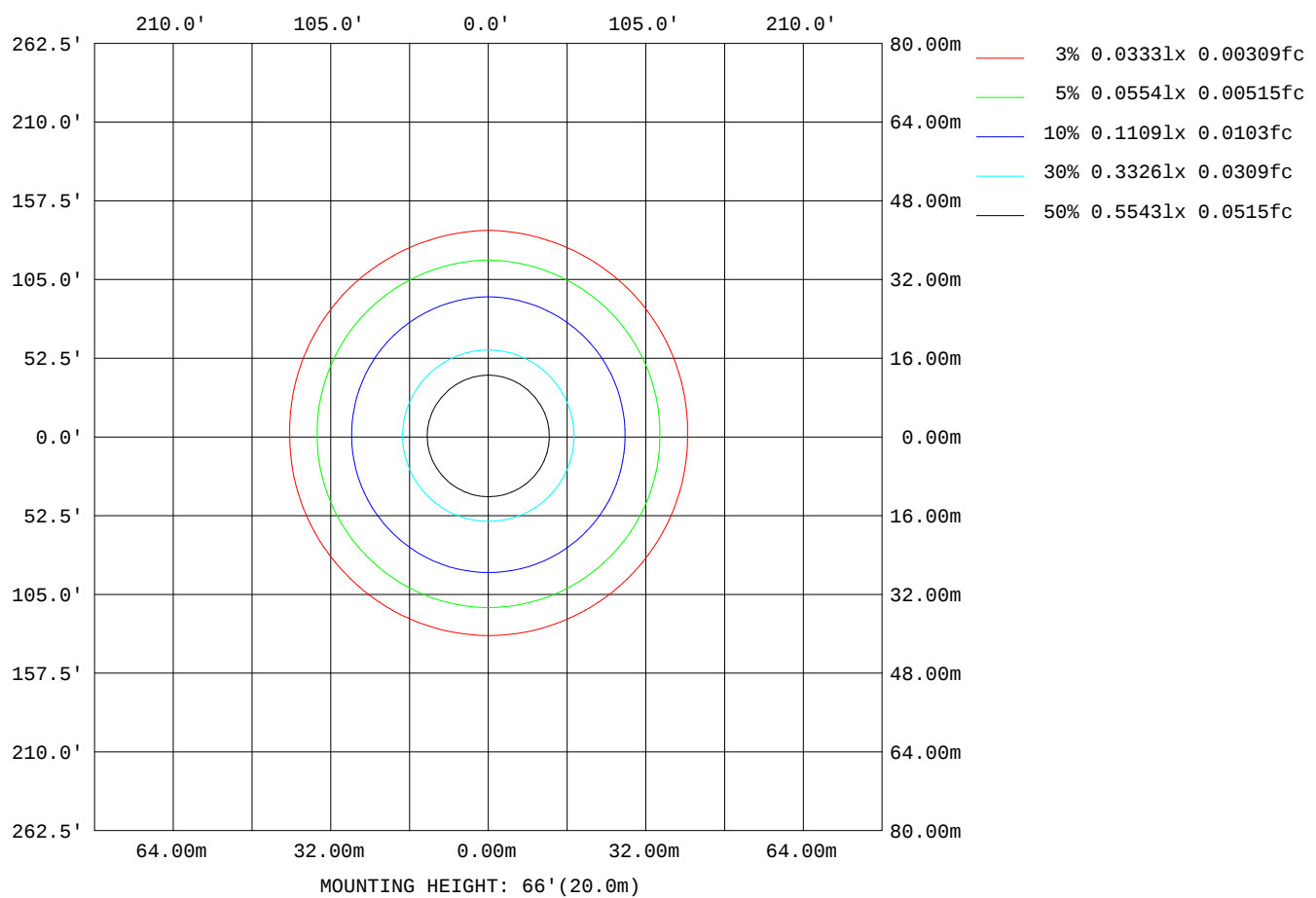
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2020-01-12

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
 Humidity: 65.0%
 Test Distance: 9.900m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm		
NAME: 136-184_4000K	TYPE:15W	WEIGHT:
SPEC.:4000K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2020-01-12

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
 Humidity:65.0%
 Test Distance:9.900m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:230.76V I:0.0658A P:14.909W PF:0.9818 Freq:50.00Hz Lamp Flux:1218.21x1 lm		
NAME: 136-184_4000K	TYPE:15W	WEIGHT:
SPEC.:4000K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:

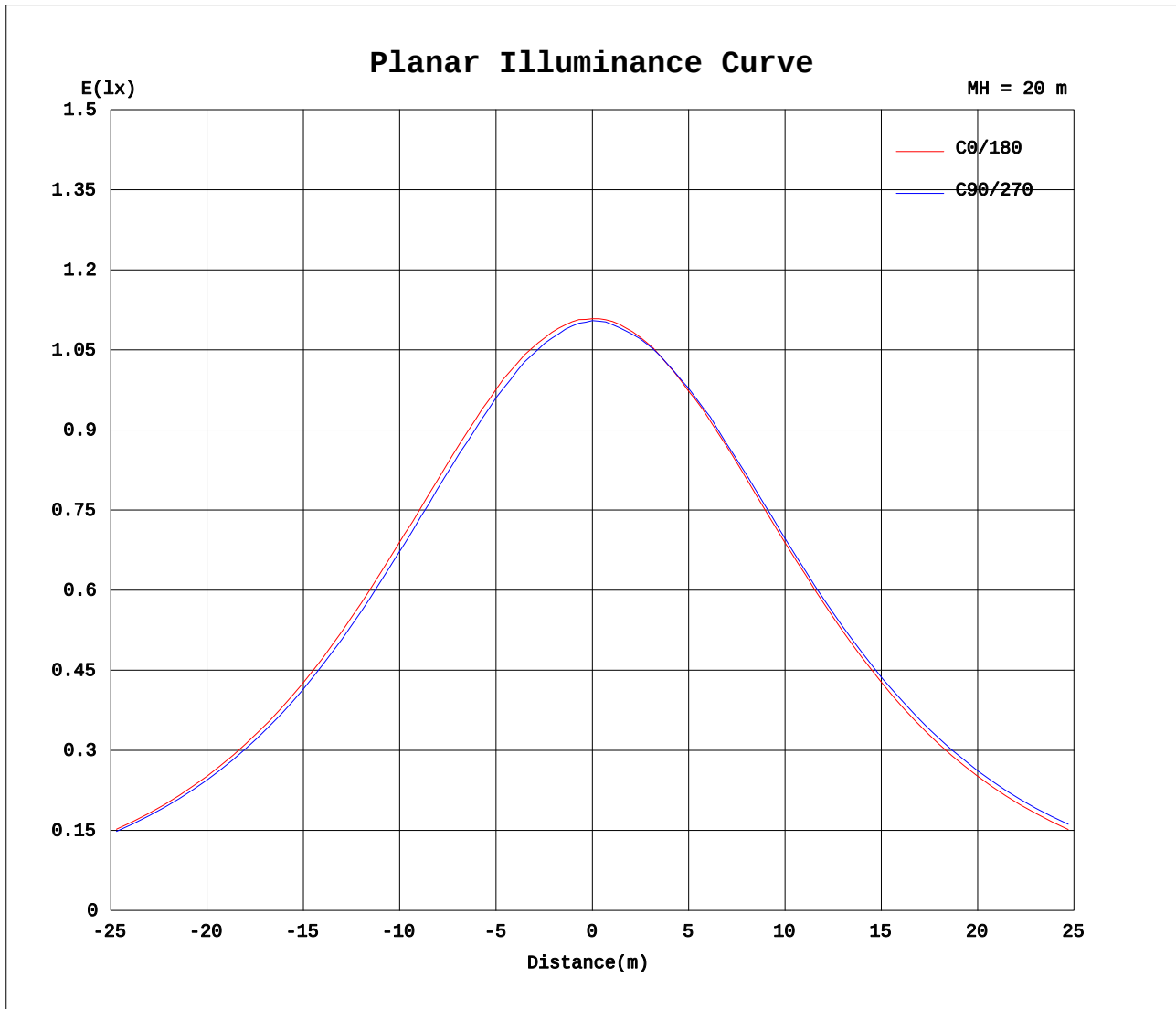
AvgL	cd/m2
L_0~180(65)av	11851
L_0~180(75)av	9275
L_0~180(85)av	4881
L_90~270(65)av	12823
L_90~270(75)av	11222
L_90~270(85)av	7993
L_45(65)av	12391
L_45(75)av	10283
L_45(85)av	7705

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2020-01-12

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
 Humidity:65.0%
 Test Distance:9.900m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2020-01-12

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000H_V1 SYSTEM V2.0.404.7
Humidity: 65.0%
Test Distance: 9.900m [K=1.0000]
Remarks:

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