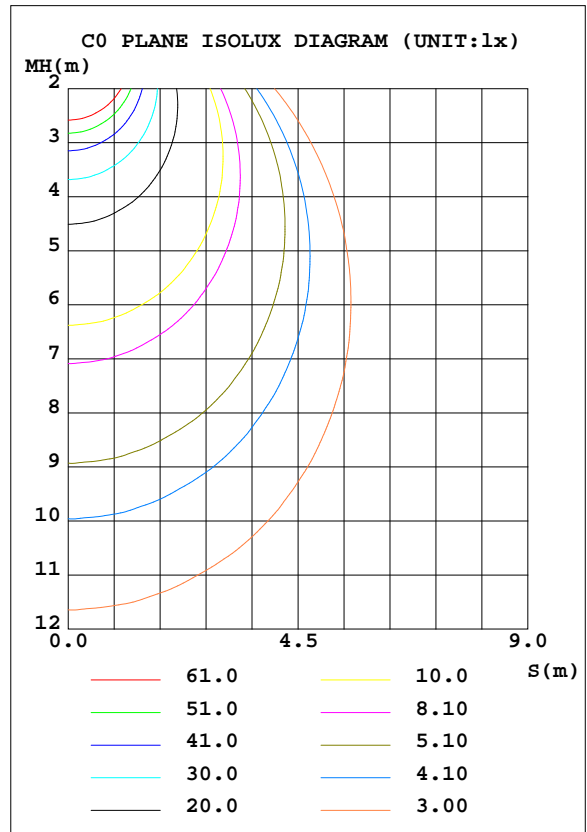
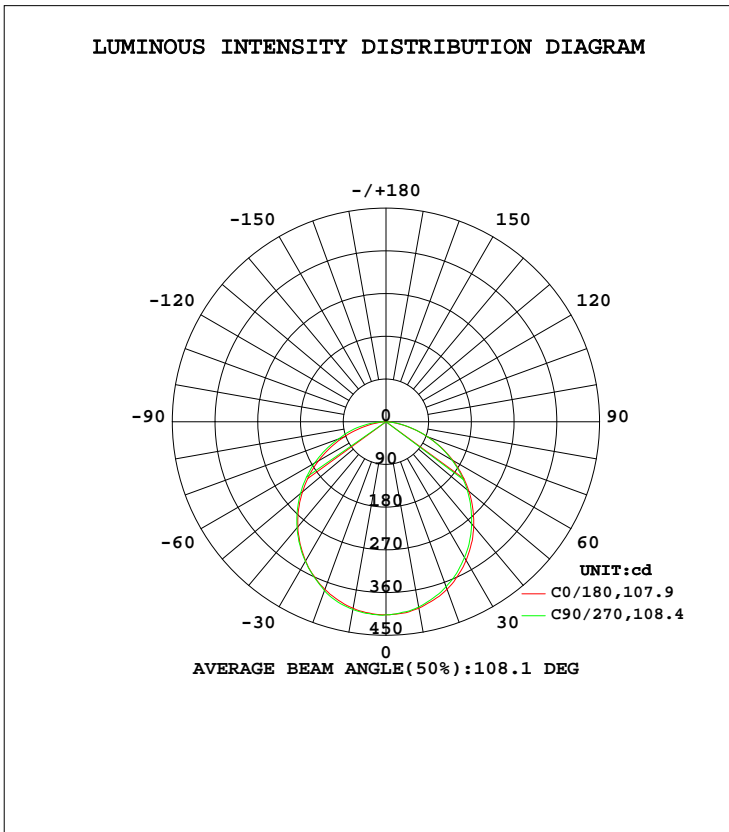


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 71.53 lm/W			
MODEL	136-189_5700K	I <sub>max</sub> (cd)	407.7	S/MH(C0/180)	1.24
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1102.9	η UP, DN(C0-180)	0.0,48.9
NOMINAL FLUX(lm)	1102.94	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,51.1
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: 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 GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity:65.0%  
 Test Distance:9.900m [K=1.0000]  
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

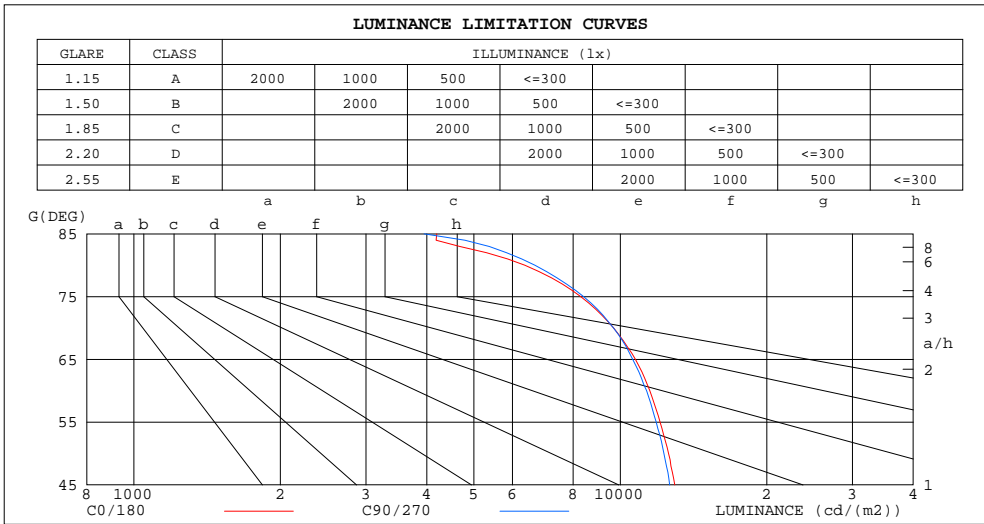
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\Phi$ lum,lamp
10	398.9	396.5	396.2	397.8	399.0	400.0	401.8	397.5	0- 10	38.42	38.42	3.48,3.48
20	375.7	370.7	370.2	372.5	375.9	378.2	378.8	373.8	10- 20	109.5	147.9	13.4,13.4
30	337.5	331.6	330.7	334.3	338.7	342.9	339.5	338.2	20- 30	164.5	312.5	28.3,28.3
40	287.7	282.0	280.6	284.6	288.9	294.6	291.5	290.3	30- 40	196.0	508.4	46.1,46.1
50	228.3	223.6	223.3	226.0	229.7	234.4	235.2	234.0	40- 50	200.0	708.4	64.2,64.2
60	162.5	159.1	160.1	161.4	164.0	168.4	173.7	171.8	50- 60	176.7	885.1	80.3,80.3
70	93.71	91.65	93.61	92.93	94.76	101.9	107.5	105.5	60- 70	130.0	1015	92,92
80	31.22	31.16	32.76	31.35	30.88	41.75	51.56	42.85	70- 80	69.80	1085	98.4,98.4
90	3.212	4.048	3.598	4.418	3.012	5.566	4.989	5.403	80- 90	18.01	1103	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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity:65.0%  
 Test Distance:9.900m [K=1.0000]  
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	4193	3951
80	6360	6671
75	8285	8403
70	9691	9679
65	10737	10605
60	11493	11322
55	12073	11851
50	12561	12285
45	12944	12634

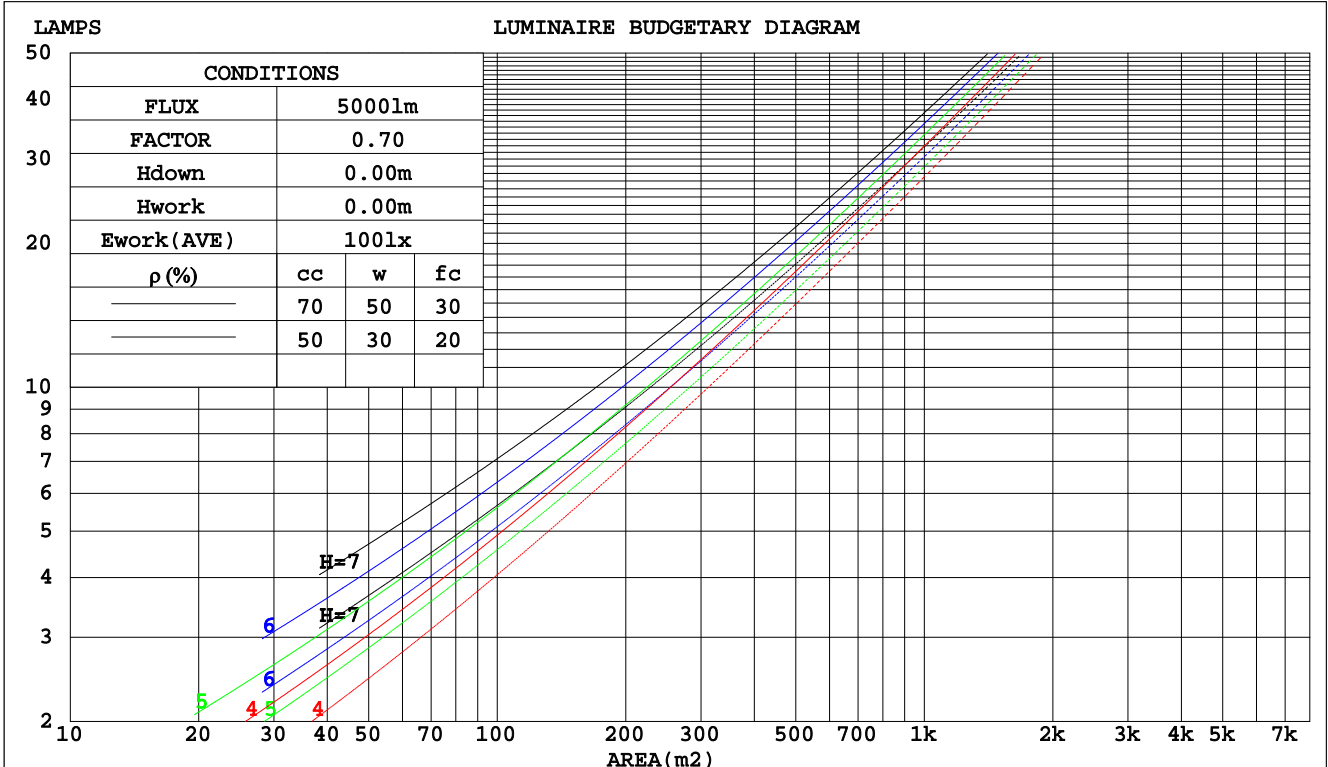
C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2020-01-12

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-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:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding 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																
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	.00
1.0	1.04	1.00	.96	1.02	.98	.95	.98	.95	.92	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.84	.79	.89	.83	.78	.86	.80	.76	.82	.78	.74	.79	.76	.73	.70
3.0	.80	.72	.66	.79	.71	.65	.76	.69	.64	.73	.67	.63	.70	.66	.62	.59
4.0	.71	.62	.56	.70	.62	.55	.67	.60	.55	.65	.59	.54	.63	.57	.53	.51
5.0	.64	.55	.48	.62	.54	.48	.60	.53	.47	.58	.52	.47	.56	.51	.46	.44
6.0	.57	.48	.42	.56	.48	.42	.54	.47	.41	.53	.46	.41	.51	.45	.41	.39
7.0	.52	.43	.37	.51	.43	.37	.50	.42	.37	.48	.41	.36	.47	.41	.36	.34
8.0	.47	.39	.33	.47	.39	.33	.45	.38	.33	.44	.37	.33	.43	.37	.32	.31
9.0	.44	.35	.30	.43	.35	.30	.42	.35	.30	.41	.34	.29	.40	.34	.29	.27
10.0	.40	.32	.27	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.27	.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 GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity:65.0%  
 Test Distance:9.900m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding 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	.302	.172	.054	.295	.168	.053	.281	.161	.052	.269	.155	.050	.258	.150	.048	
2.0	.285	.156	.048	.279	.154	.047	.268	.149	.046	.257	.144	.045	.247	.140	.044	
3.0	.265	.141	.042	.260	.139	.042	.249	.135	.041	.240	.131	.040	.231	.128	.040	
4.0	.245	.127	.037	.241	.126	.037	.231	.123	.037	.223	.120	.036	.215	.117	.036	
5.0	.227	.116	.034	.223	.114	.033	.215	.112	.033	.207	.109	.033	.200	.107	.032	
6.0	.211	.106	.030	.207	.105	.030	.200	.103	.030	.193	.100	.030	.187	.098	.029	
7.0	.197	.097	.028	.193	.096	.027	.187	.094	.027	.181	.093	.027	.175	.091	.027	
8.0	.184	.090	.025	.181	.089	.025	.175	.088	.025	.170	.086	.025	.165	.085	.025	
9.0	.173	.083	.023	.170	.083	.023	.165	.081	.023	.160	.080	.023	.155	.079	.023	
10.0	.162	.078	.022	.160	.077	.022	.155	.076	.021	.151	.075	.021	.147	.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	.180	.156	.135	.154	.134	.116	.105	.092	.080	.061	.053	.047	.019	.017	.015	
2.0	.171	.132	.099	.147	.114	.085	.101	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.164	.114	.075	.140	.099	.065	.096	.068	.046	.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	.090	.048	.128	.078	.041	.088	.055	.029	.051	.032	.017	.016	.010	.006	
6.0	.141	.082	.040	.122	.071	.034	.084	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.135	.075	.033	.116	.065	.029	.080	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.128	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.122	.064	.025	.105	.056	.022	.073	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.117	.060	.023	.100	.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 GO-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:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm										
NAME: 136-189_5700K					TYPE:15W			WEIGHT:		
SPEC.:5700K					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	21.4	22.9	21.6	23.1	23.3	21.3	22.8	21.6	23.0	23.2
3H	22.7	24.1	23.0	24.3	24.6	22.7	24.0	23.0	24.3	24.5
4H	23.2	24.5	23.5	24.7	25.0	23.1	24.5	23.4	24.7	25.0
6H	23.4	24.7	23.8	24.9	25.2	23.4	24.7	23.7	24.9	25.2
8H	23.5	24.7	23.8	24.9	25.2	23.5	24.7	23.8	24.9	25.2
12H	23.5	24.6	23.8	24.9	25.2	23.5	24.6	23.8	24.9	25.2
4H 2H	21.9	23.2	22.2	23.5	23.7	21.9	23.2	22.2	23.4	23.7
3H	23.4	24.6	23.8	24.9	25.2	23.4	24.5	23.7	24.8	25.1
4H	24.0	25.0	24.4	25.4	25.7	24.0	25.0	24.3	25.3	25.7
6H	24.3	25.3	24.7	25.6	26.0	24.3	25.3	24.7	25.6	26.0
8H	24.4	25.3	24.8	25.6	26.0	24.4	25.3	24.8	25.7	26.0
12H	24.4	25.2	24.9	25.6	26.0	24.5	25.3	24.9	25.6	26.0
8H 4H	24.2	25.0	24.6	25.4	25.8	24.1	25.0	24.6	25.4	25.8
6H	24.6	25.3	25.1	25.7	26.2	24.6	25.3	25.1	25.8	26.2
8H	24.7	25.4	25.2	25.8	26.3	24.8	25.4	25.2	25.8	26.3
12H	24.8	25.4	25.3	25.8	26.3	24.9	25.4	25.3	25.9	26.3
12H 4H	24.2	25.0	24.6	25.3	25.7	24.1	24.9	24.6	25.3	25.7
6H	24.6	25.3	25.1	25.7	26.2	24.6	25.3	25.1	25.7	26.2
8H	24.8	25.3	25.3	25.8	26.3	24.8	25.4	25.3	25.8	26.3
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					+ 0.3 / - 0.3				

CIE Pub.117, 1103 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 0.3)

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 GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity:65.0%  
 Test Distance:9.900m [K=1.0000]  
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:

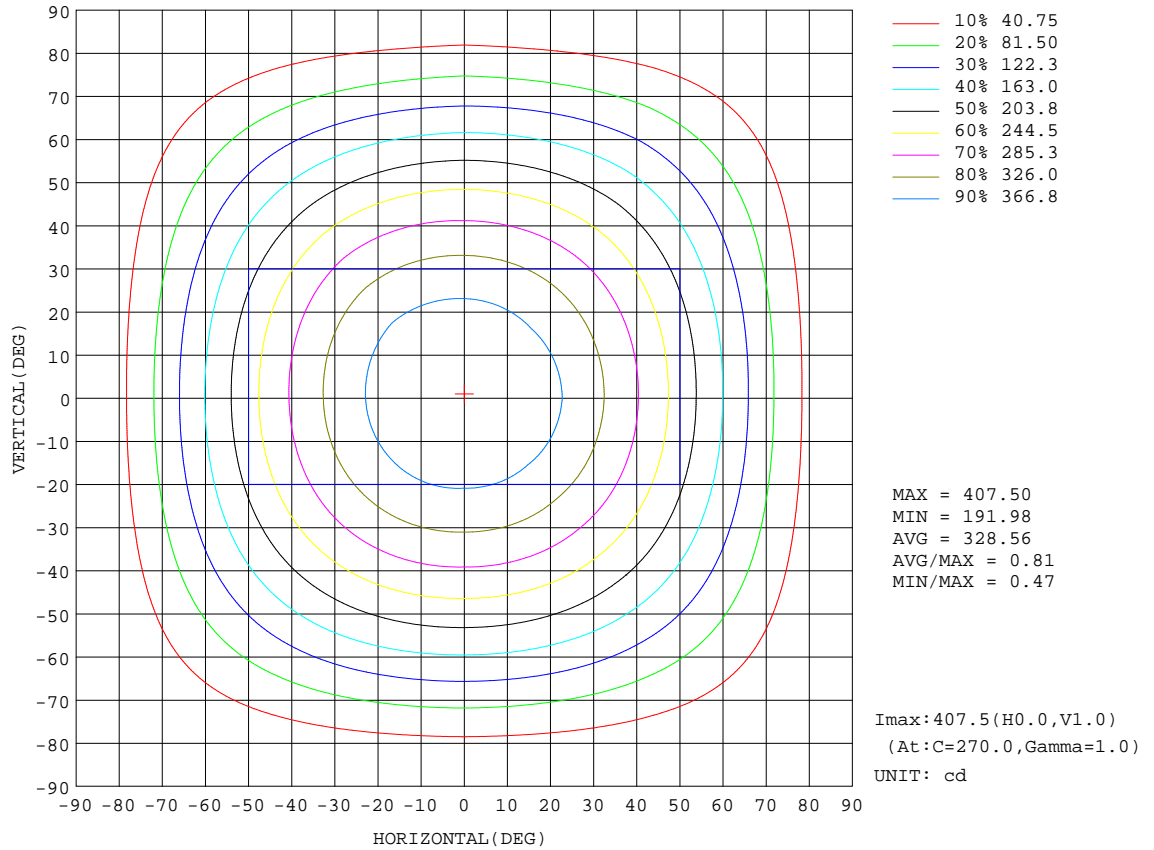
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	58	47	40	58	47	40	56	46	40	33
0.80	68	57	50	67	57	50	66	56	49	42
1.00	77	66	59	76	65	58	73	67	58	51
1.25	84	74	67	82	73	66	80	71	65	58
1.50	89	79	72	87	78	72	84	77	71	63
2.00	96	87	81	94	86	80	90	84	79	71
2.50	99	92	86	97	90	85	94	88	83	75
3.00	103	96	91	101	94	90	97	92	87	79
4.00	107	101	97	104	99	95	100	96	92	84
5.00	109	104	100	107	102	99	102	99	96	87
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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity:65.0%  
 Test Distance:9.900m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:

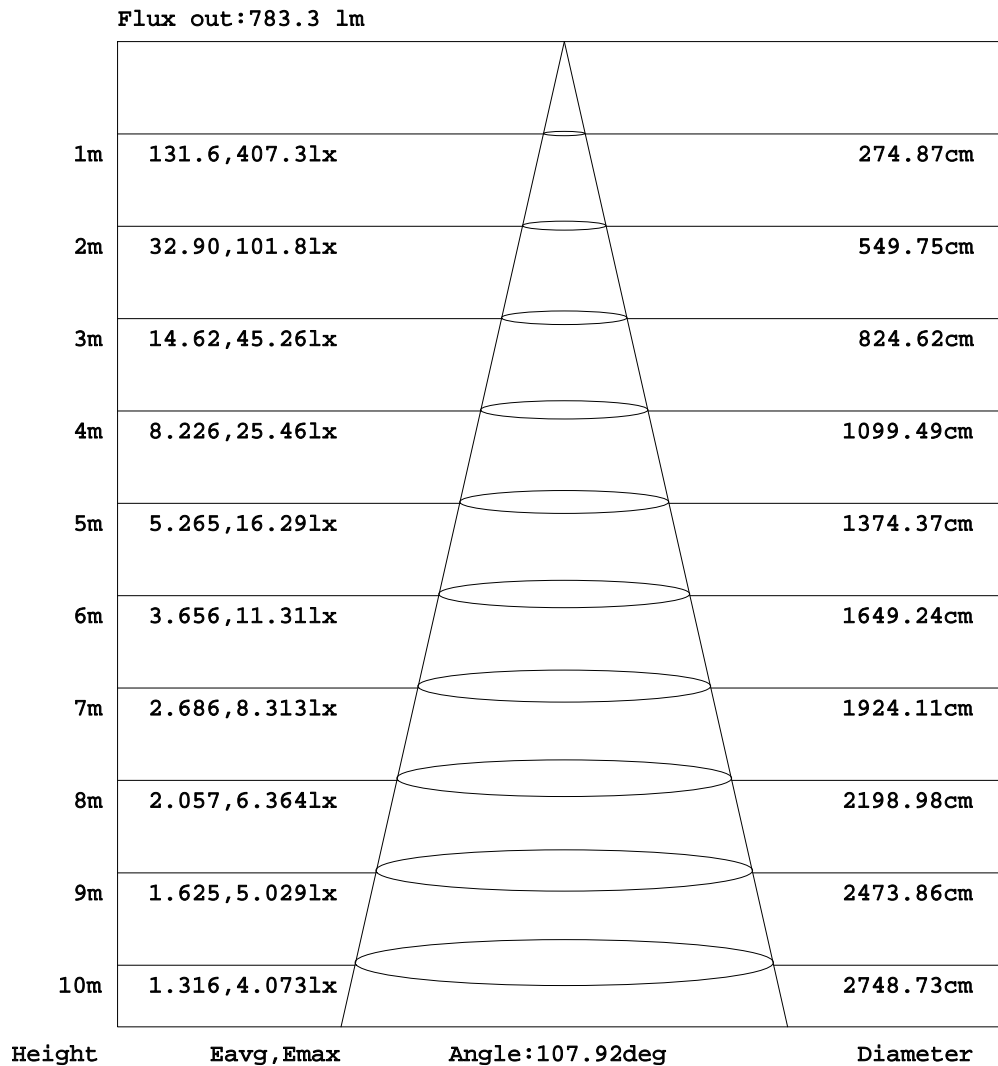


C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2020-01-12

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity: 65.0%  
 Test Distance: 9.900m [K=1.0000]  
 Remarks:

AAI Figure

Test:U:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:



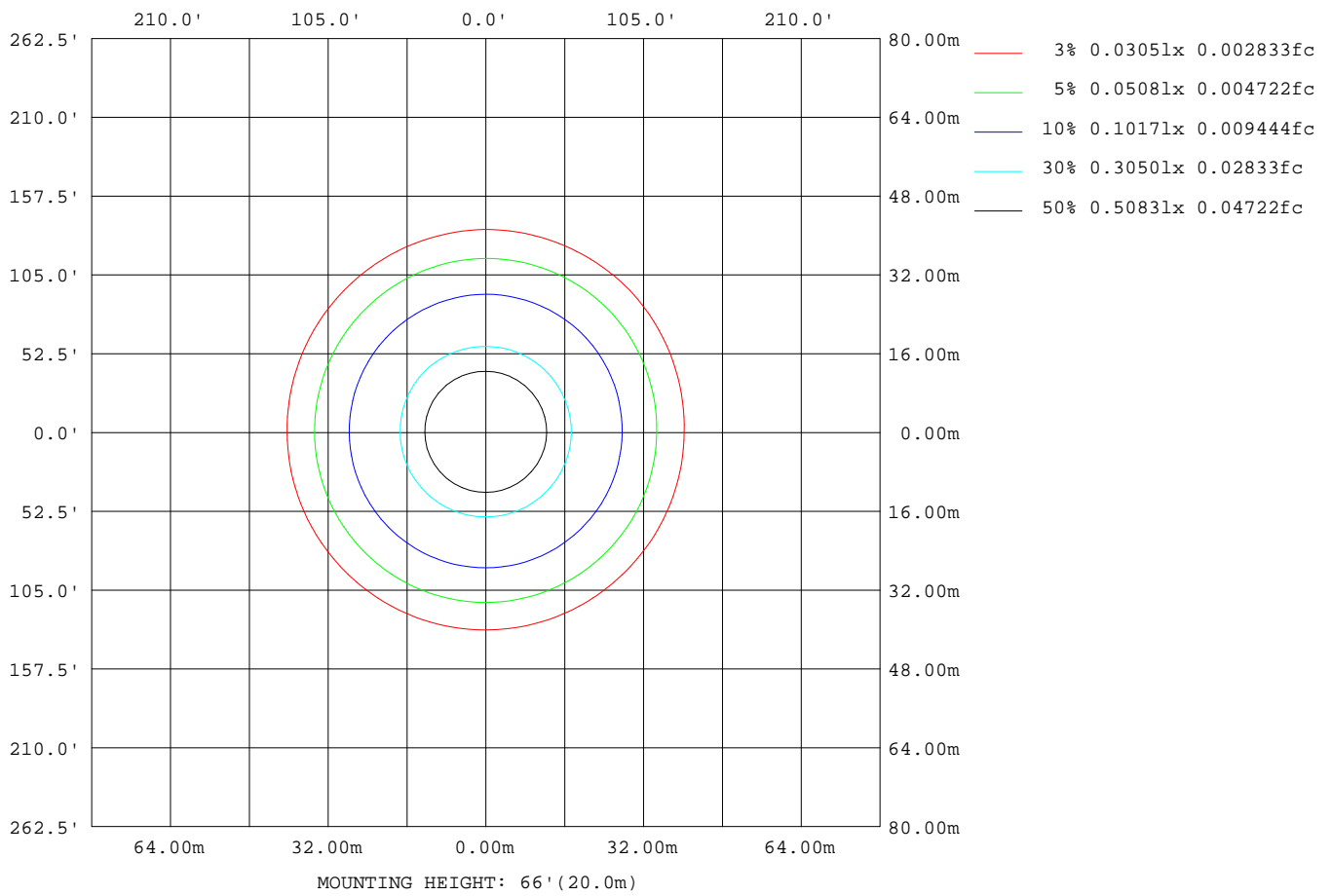
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 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 GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity: 65.0%  
 Test Distance: 9.900m [K=1.0000]  
 Remarks:

**ISOLUX DIAGRAM**

Test:U:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	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 GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity:65.0%  
 Test Distance:9.900m [K=1.0000]  
 Remarks:

**LED Avg.L Report**

Test:U:231.10V I:0.0678A P:15.419W PF:0.9846 Freq:50.00Hz Lamp Flux:1102.94x1 lm		
NAME: 136-189_5700K	TYPE:15W	WEIGHT:
SPEC.:5700K	DIM.:	SERIAL No.:
MFR.: Tronix Lighting	SUR.:0.096	Shielding Angle:

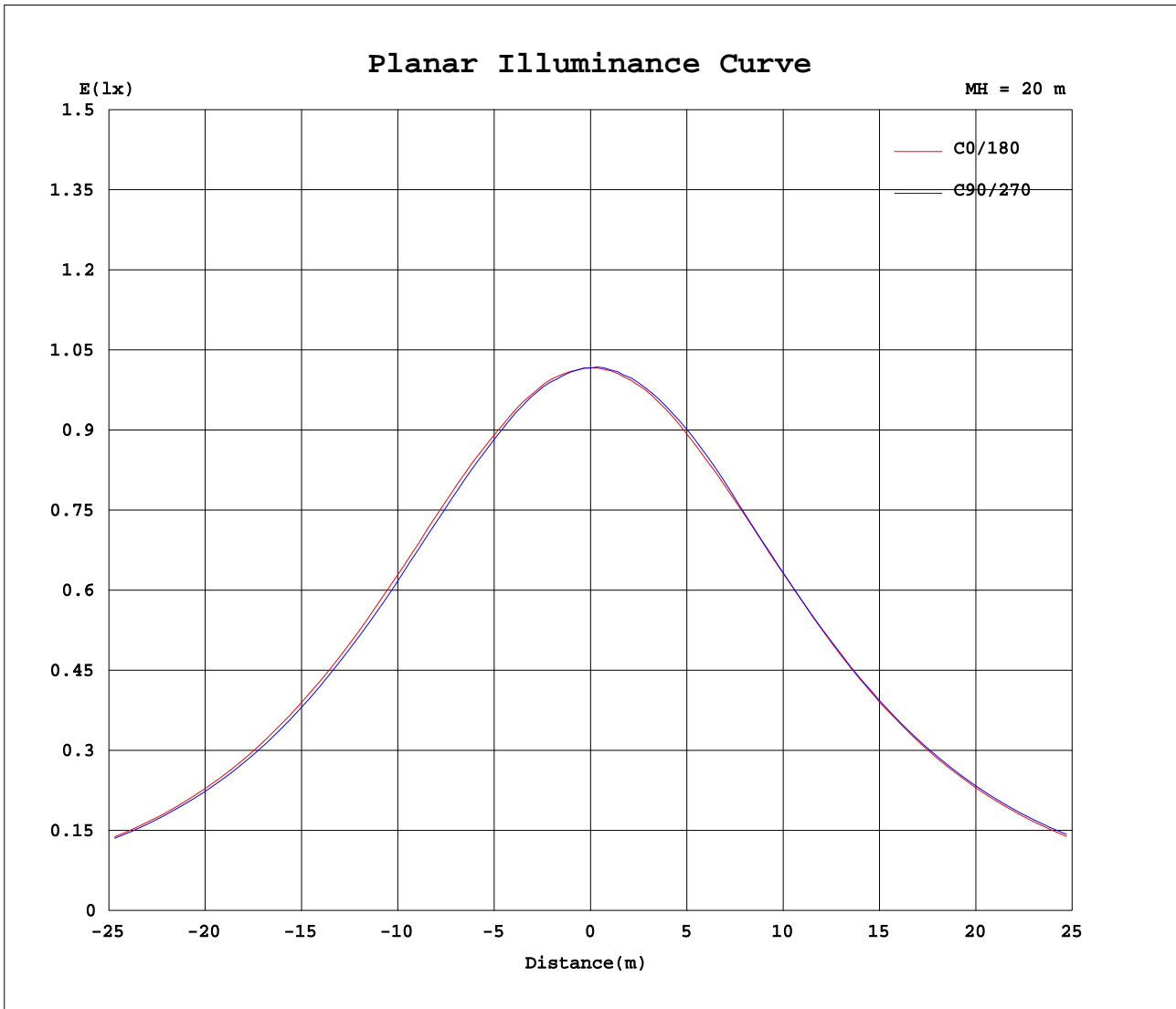
AvgL	cd/m2
L_0~180(65)av	10791
L_0~180(75)av	8334
L_0~180(85)av	4158
L_90~270(65)av	11196
L_90~270(75)av	9680
L_90~270(85)av	6957
L_45(65)av	11015
L_45(75)av	8976
L_45(85)av	6364

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 GO-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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000H\_V1 SYSTEM V2.0.404.7  
 Humidity: 65.0%  
 Test Distance: 9.900m [K=1.0000]  
 Remarks:

