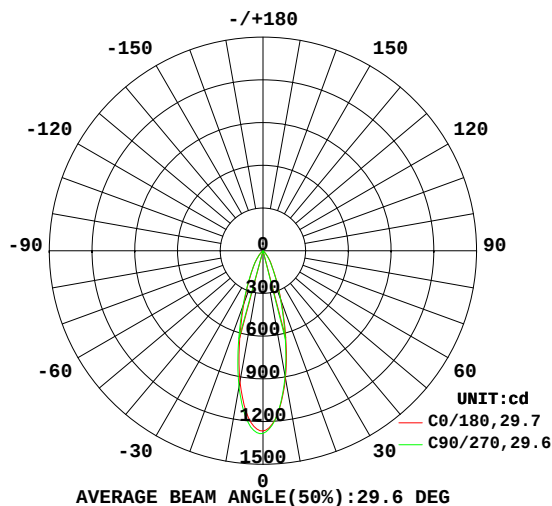


LUMINAIRE PHOTOMETRIC TEST REPORT

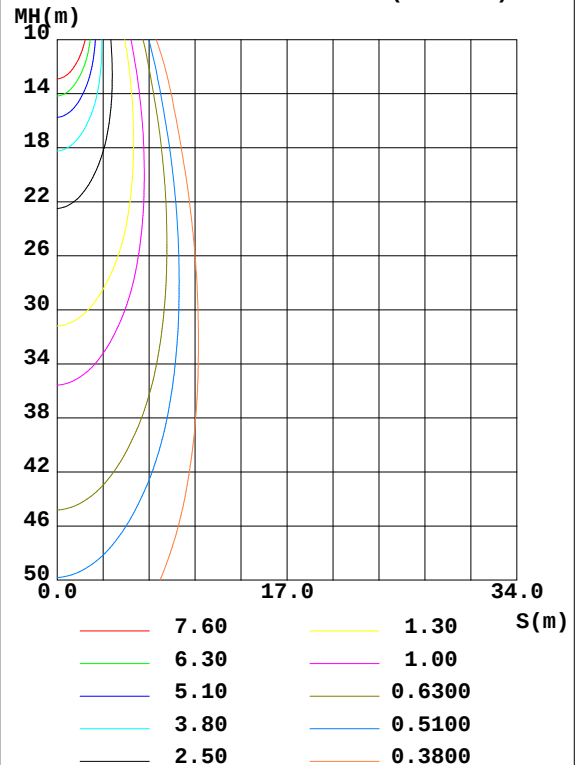
Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm		
NAME: THG16WW-BK12W24V	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+6000K	DIM.:	SERIAL No.:
MFR.:	SUR.: 217*20mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 35.26 lm/W			
MODEL	4000K	I _{max} (cd)	1285	S/MH(C0/180)	0.50
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	0.51
RATED VOLTAGE(V)	220-240	TOTAL FLUX(lm)	459.57	η UP, DN(C0-180)	0.0, 48.3
NOMINAL FLUX(lm)	459.568	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 51.7
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	0.50

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

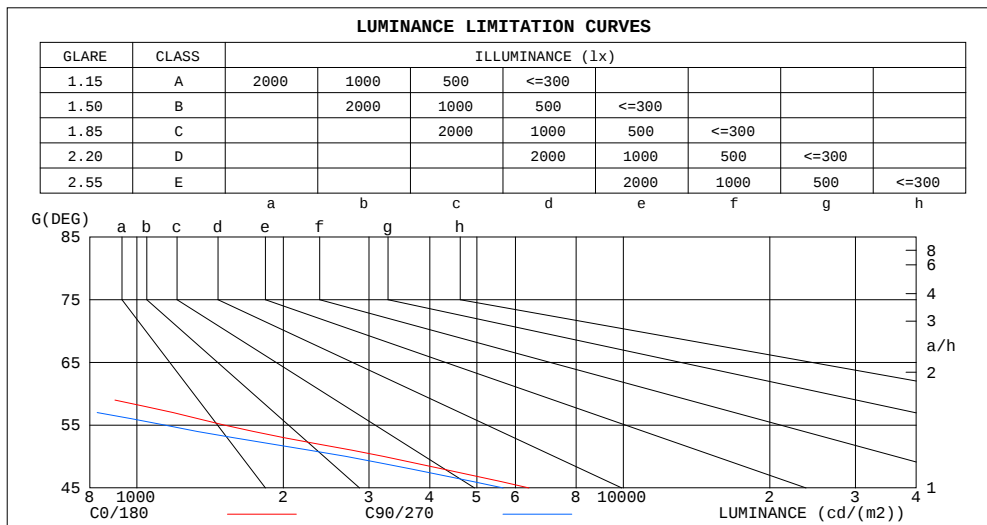
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	909.0	857.3	894.1	957.7	931.9	1004	971.5	897.8	0- 10	104.2	104.2	22.7, 22.7
20	371.0	335.5	358.9	401.9	391.0	439.6	411.6	358.8	10- 20	172.6	276.7	60.2, 60.2
30	130.0	117.3	123.9	143.7	145.8	160.1	148.0	128.5	20- 30	106.5	383.3	83.4, 83.4
40	45.20	38.34	41.16	50.22	49.39	55.59	49.42	42.83	30- 40	53.76	437.0	95.1, 95.1
50	9.866	7.813	8.262	10.63	10.27	11.61	9.896	8.714	40- 50	18.20	455.2	99.1, 99.1
60	1.826	1.146	1.092	1.757	1.929	1.922	1.344	1.324	50- 60	3.902	459.1	99.9, 99.9
70	0.0194	0.0117	0.0155	0.0116	0	0	0	0	60- 70	0.4284	459.6	100, 100
80	0	0	0	0	0	0	0	0	70- 80	0.0007	459.6	100, 100
90	0	0	0	0	0	0	0	0	80- 90	0	459.6	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: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2024-08-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
 Humidity: 65.0%
 Test Distance: 7.450m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm		
NAME: THG16WW-BK12W24V	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+6000K	DIM.:	SERIAL No.:
MFR.:	SUR.: 217*20mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	0	0
80	0	0
75	0	0
70	12	9
65	145	91
60	765	457
55	1511	1140
50	3215	2692
45	6397	5662

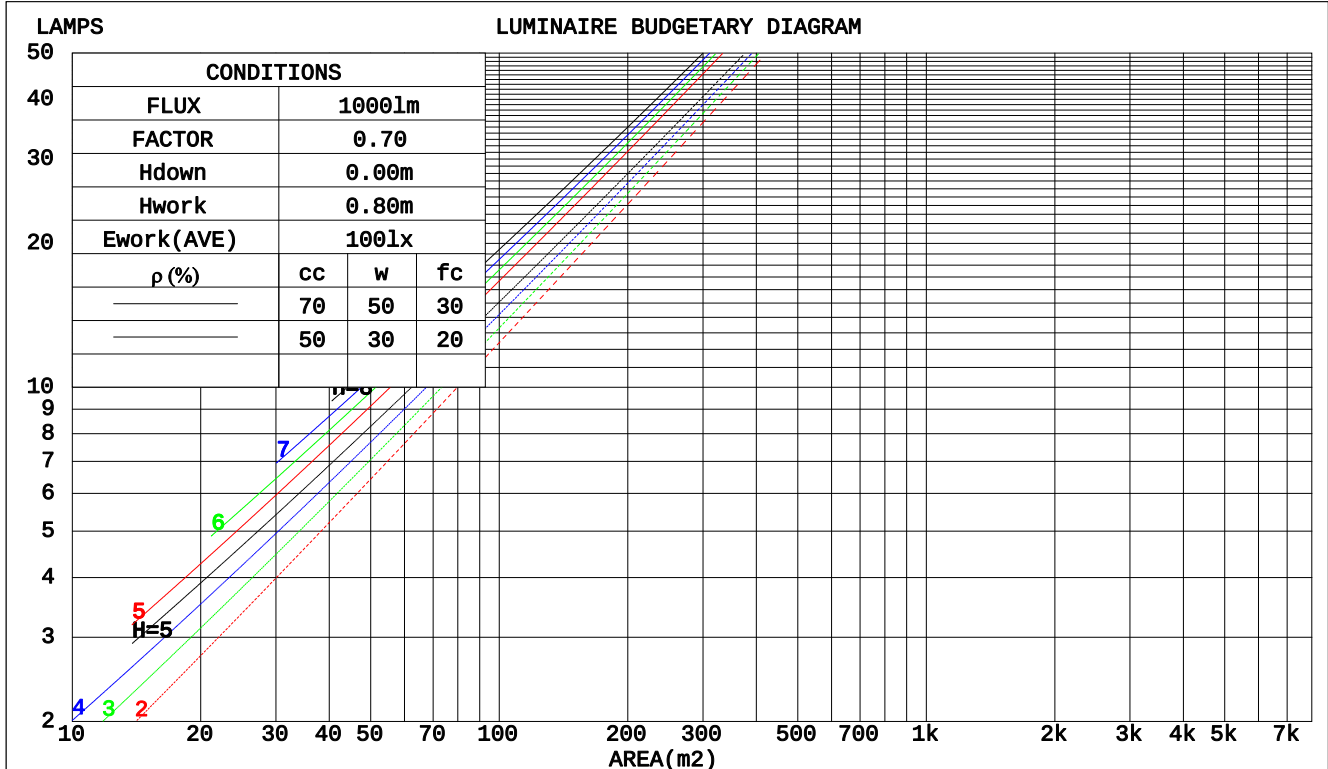
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.450m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm		
NAME: THG16WW-BK12W24V	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+6000K	DIM.:	SERIAL No.:
MFR.:	SUR.: 217*20mm	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	1.00
1.0	1.12	1.10	1.08	1.10	1.08	1.06	1.06	1.04	1.03	1.02	1.01	.00	.99	.98	.97	.95
2.0	1.05	1.02	.99	1.04	1.01	.98	1.01	.98	.96	.98	.96	.94	.95	.93	.92	.90
3.0	.00	.95	.92	.98	.94	.91	.96	.93	.90	.93	.91	.88	.91	.89	.87	.86
4.0	.94	.90	.86	.93	.89	.86	.91	.88	.85	.89	.86	.84	.88	.85	.83	.81
5.0	.90	.85	.81	.89	.84	.81	.87	.83	.80	.86	.82	.80	.84	.81	.79	.78
6.0	.86	.81	.77	.85	.80	.77	.83	.79	.76	.82	.78	.76	.81	.78	.75	.74
7.0	.82	.77	.73	.81	.76	.73	.80	.76	.73	.79	.75	.72	.78	.74	.72	.71
8.0	.78	.73	.70	.78	.73	.70	.77	.72	.69	.76	.72	.69	.75	.71	.69	.68
9.0	.75	.70	.67	.75	.70	.67	.74	.69	.66	.73	.69	.66	.72	.69	.66	.65
10.0	.72	.67	.64	.72	.67	.64	.71	.67	.64	.70	.66	.64	.70	.66	.63	.62



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25DEG
Operators:
Test Date: 2024-08-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity: 65.0%
Test Distance: 7.450m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm					
NAME: THG16WW-BK12W24V			TYPE:		WEIGHT:
SPEC.: black RA90 3000K+6000K			DIM.:		SERIAL No.:
MFR.:			SUR.: 217*20mm		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	.156	.089	.028	.150	.085	.027	.137	.079	.025	.126	.073	.023	.115	.067	.022		
2.0	.148	.081	.025	.142	.078	.024	.132	.073	.023	.122	.069	.021	.114	.064	.020		
3.0	.140	.074	.022	.135	.072	.022	.126	.069	.021	.118	.065	.020	.111	.061	.019		
4.0	.133	.069	.020	.129	.067	.020	.121	.064	.019	.114	.061	.018	.108	.058	.018		
5.0	.126	.064	.019	.122	.063	.018	.116	.060	.018	.110	.058	.017	.104	.056	.017		
6.0	.120	.060	.017	.117	.059	.017	.111	.057	.017	.106	.055	.016	.101	.053	.016		
7.0	.114	.056	.016	.112	.056	.016	.107	.054	.016	.102	.052	.015	.098	.051	.015		
8.0	.109	.053	.015	.107	.053	.015	.103	.051	.015	.098	.050	.014	.095	.049	.014		
9.0	.105	.051	.014	.103	.050	.014	.099	.049	.014	.095	.048	.014	.091	.046	.013		
10.0	.100	.048	.013	.098	.048	.013	.095	.047	.013	.092	.046	.013	.089	.045	.013		

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	.170	.157	.147	.145	.135	.126	.099	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.153	.133	.115	.131	.114	.100	.090	.079	.070	.052	.046	.041	.017	.015	.013	
3.0	.139	.113	.093	.120	.098	.080	.082	.068	.056	.047	.040	.033	.015	.013	.011	
4.0	.128	.098	.076	.110	.085	.066	.076	.059	.046	.044	.035	.027	.014	.011	.009	
5.0	.119	.086	.063	.102	.075	.055	.070	.052	.039	.041	.031	.023	.013	.010	.008	
6.0	.110	.077	.053	.095	.067	.046	.065	.047	.032	.038	.027	.019	.012	.009	.006	
7.0	.103	.069	.045	.089	.060	.039	.062	.042	.028	.036	.025	.016	.012	.008	.005	
8.0	.097	.062	.038	.084	.054	.034	.058	.038	.024	.034	.022	.014	.011	.007	.005	
9.0	.092	.057	.033	.079	.050	.029	.055	.035	.021	.032	.021	.012	.010	.007	.004	
10.0	.087	.052	.029	.075	.046	.026	.052	.032	.018	.030	.019	.011	.010	.006	.004	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-08-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm										
NAME: THG16WW-BK12W24V					TYPE:			WEIGHT:		
SPEC.: black RA90 3000K+6000K					DIM.:			SERIAL No.:		
MFR.:					SUR.: 217*20mm			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	14.8	15.5	15.0	15.7	15.9	14.4	15.2	14.6	15.4	15.5
3H	14.6	15.3	14.8	15.5	15.7	14.2	15.0	14.5	15.2	15.4
4H	14.5	15.2	14.8	15.4	15.6	14.2	14.9	14.4	15.1	15.3
6H	14.4	15.1	14.7	15.3	15.6	14.1	14.7	14.4	15.0	15.2
8H	14.4	15.0	14.7	15.3	15.5	14.0	14.7	14.3	14.9	15.2
12H	14.3	14.9	14.6	15.2	15.5	14.0	14.6	14.3	14.9	15.1
4H 2H	14.5	15.2	14.8	15.4	15.6	14.2	14.9	14.4	15.1	15.3
3H	14.3	14.9	14.7	15.2	15.5	14.0	14.6	14.3	14.9	15.1
4H	14.2	14.8	14.6	15.1	15.4	13.9	14.5	14.2	14.7	15.1
6H	14.1	14.6	14.5	15.0	15.3	13.8	14.3	14.2	14.6	15.0
8H	14.1	14.5	14.5	14.9	15.3	13.8	14.2	14.1	14.6	14.9
12H	14.0	14.5	14.4	14.8	15.2	13.7	14.1	14.1	14.5	14.9
8H 4H	14.1	14.5	14.5	14.9	15.3	13.8	14.2	14.1	14.6	14.9
6H	14.0	14.4	14.4	14.7	15.2	13.6	14.0	14.1	14.4	14.8
8H	13.9	14.3	14.4	14.7	15.1	13.6	13.9	14.0	14.3	14.8
12H	13.9	14.2	14.3	14.6	15.1	13.5	13.8	14.0	14.3	14.7
12H 4H	14.0	14.5	14.4	14.8	15.2	13.7	14.1	14.1	14.5	14.9
6H	13.9	14.3	14.4	14.7	15.1	13.6	13.9	14.0	14.3	14.8
8H	13.9	14.2	14.3	14.6	15.1	13.5	13.8	14.0	14.3	14.7
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 3.5 / -11.2					+ 3.3 / -12.9				
1.5H	+ 5.4 / - 9.0					+ 5.3 / - 9.4				
2.0H	+ 6.7 / -16.0					+ 6.7 / -16.8				

CIE Pub.117, 459.6 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -2.7)
Area: 0.004774 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm		
NAME: THG16WW-BK12W24V	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+6000K	DIM.:	SERIAL No.:
MFR.:	SUR.: 217*20mm	Shielding Angle:

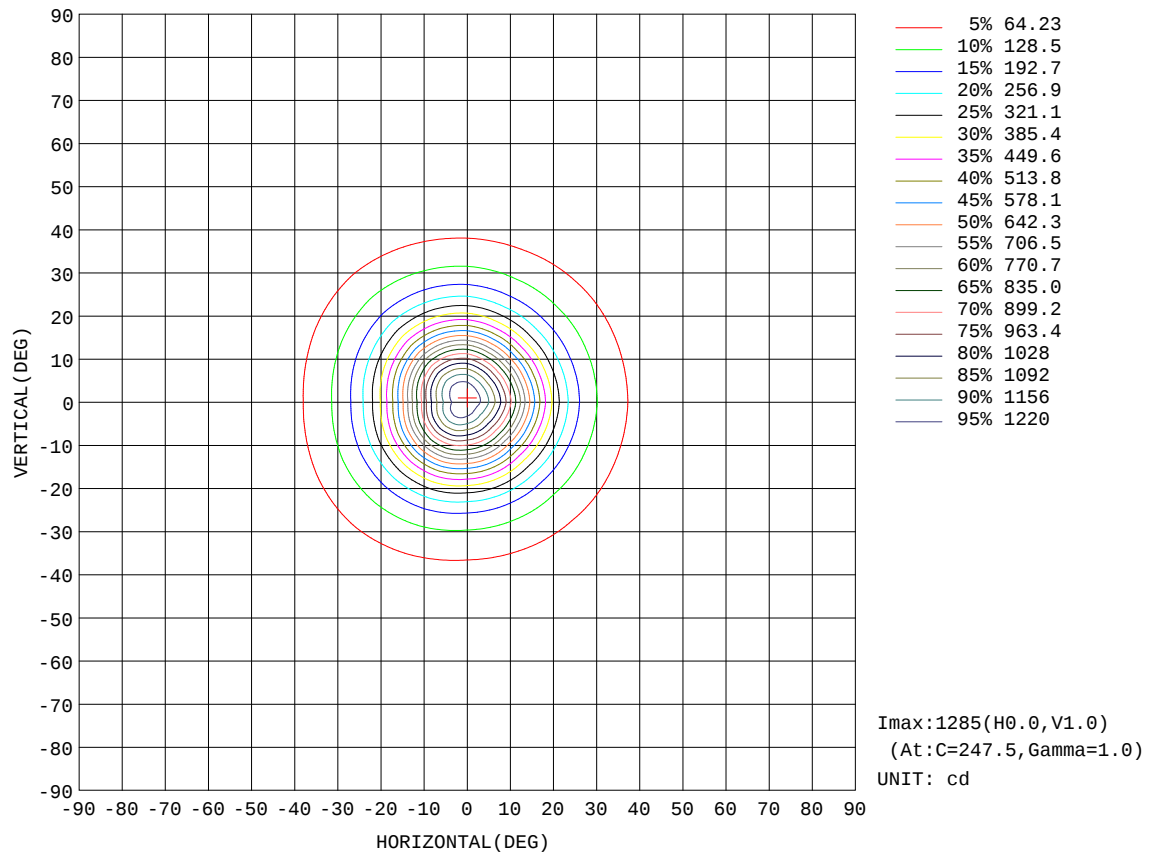
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	82	79	88	82	79	87	82	78	75
0.80	96	90	87	95	90	86	94	89	86	83
1.00	100	95	91	99	94	91	98	94	90	87
1.25	104	99	96	103	98	95	101	97	95	91
1.50	107	102	99	105	101	98	103	100	97	93
2.00	109	105	102	108	104	101	105	102	100	95
2.50	111	107	104	109	106	103	106	103	101	96
3.00	112	109	106	110	107	105	107	105	103	97
4.00	114	111	109	112	110	108	108	107	105	98
5.00	115	113	111	113	111	110	109	108	107	99
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-08-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm		
NAME: THG16WW-BK12W24V	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+6000K	DIM.:	SERIAL No.:
MFR.:	SUR.: 217*20mm	Shielding Angle:

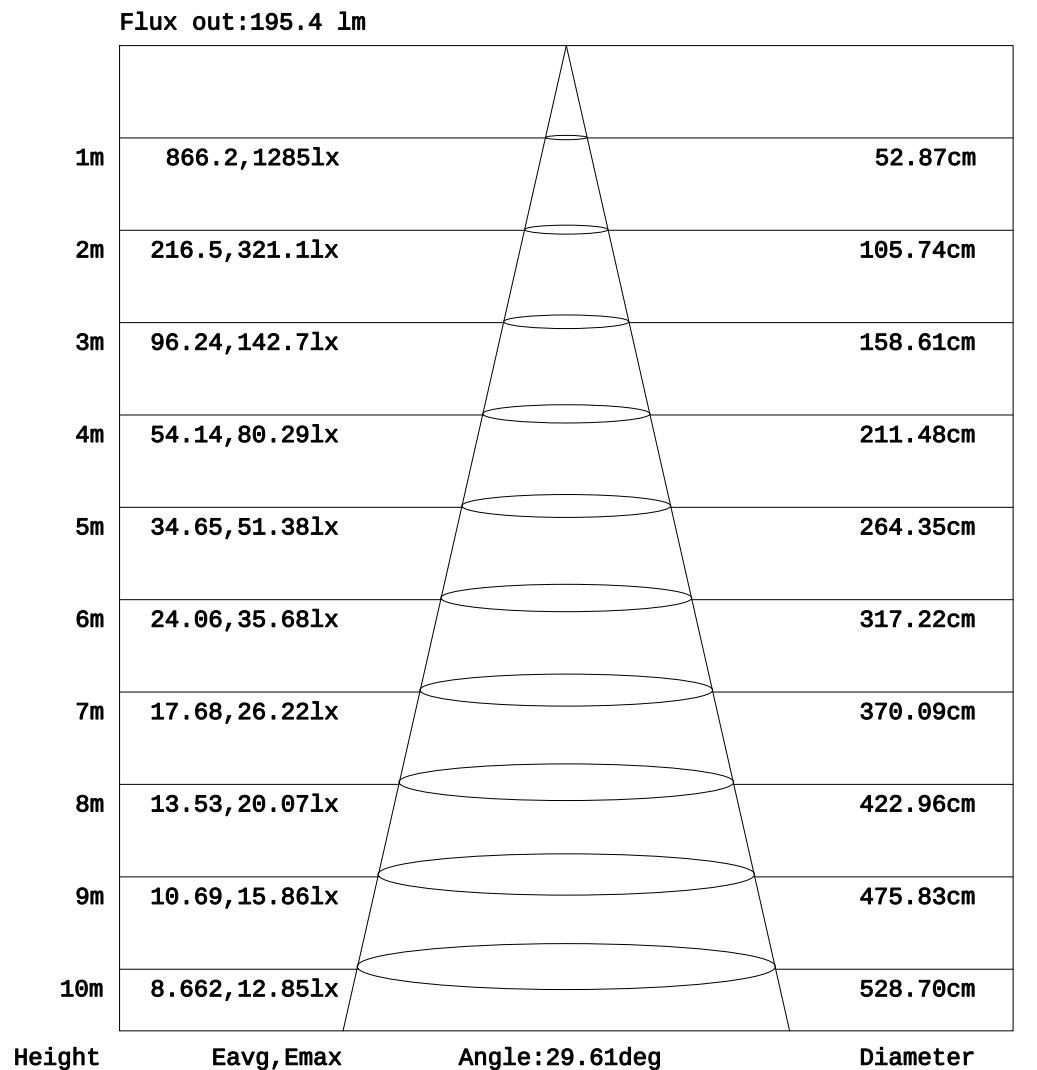


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

AAI Figure

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm		
NAME: THG16WW-BK12W24V	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+6000K	DIM.:	SERIAL No.:
MFR.:	SUR.: 217*20mm	Shielding Angle:



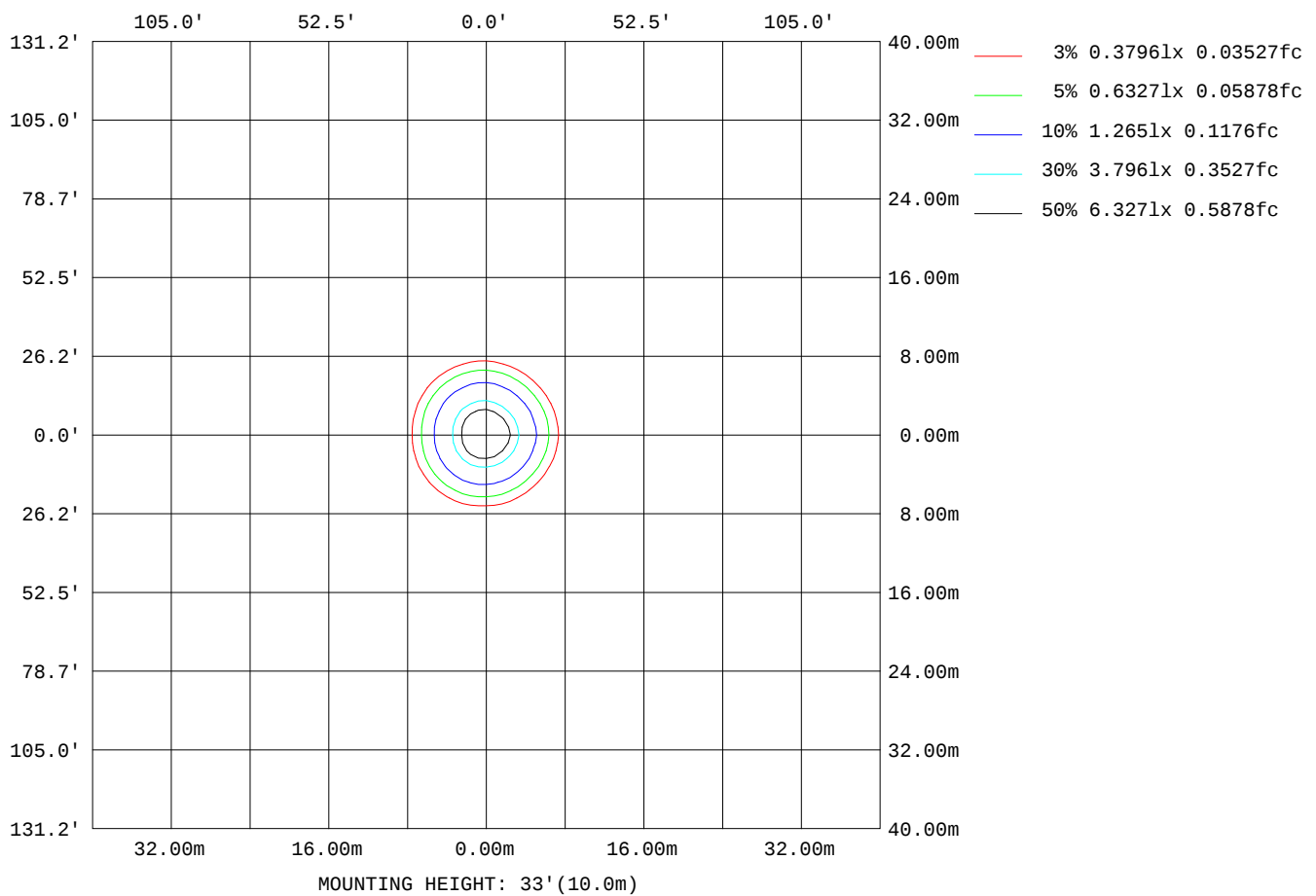
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm		
NAME: THG16WW-BK12W24V	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+6000K	DIM.:	SERIAL No.:
MFR.:	SUR.: 217*20mm	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2024-08-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
 Humidity: 65.0%
 Test Distance: 7.450m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:230.84V I:0.1291A P:13.034W PF:0.4373 Freq:49.99Hz Lamp Flux:459.568x1 lm		
NAME: THG16WW-BK12W24V	TYPE:	WEIGHT:
SPEC.: black RA90 3000K+6000K	DIM.:	SERIAL No.:
MFR.:	SUR.: 217*20mm	Shielding Angle:

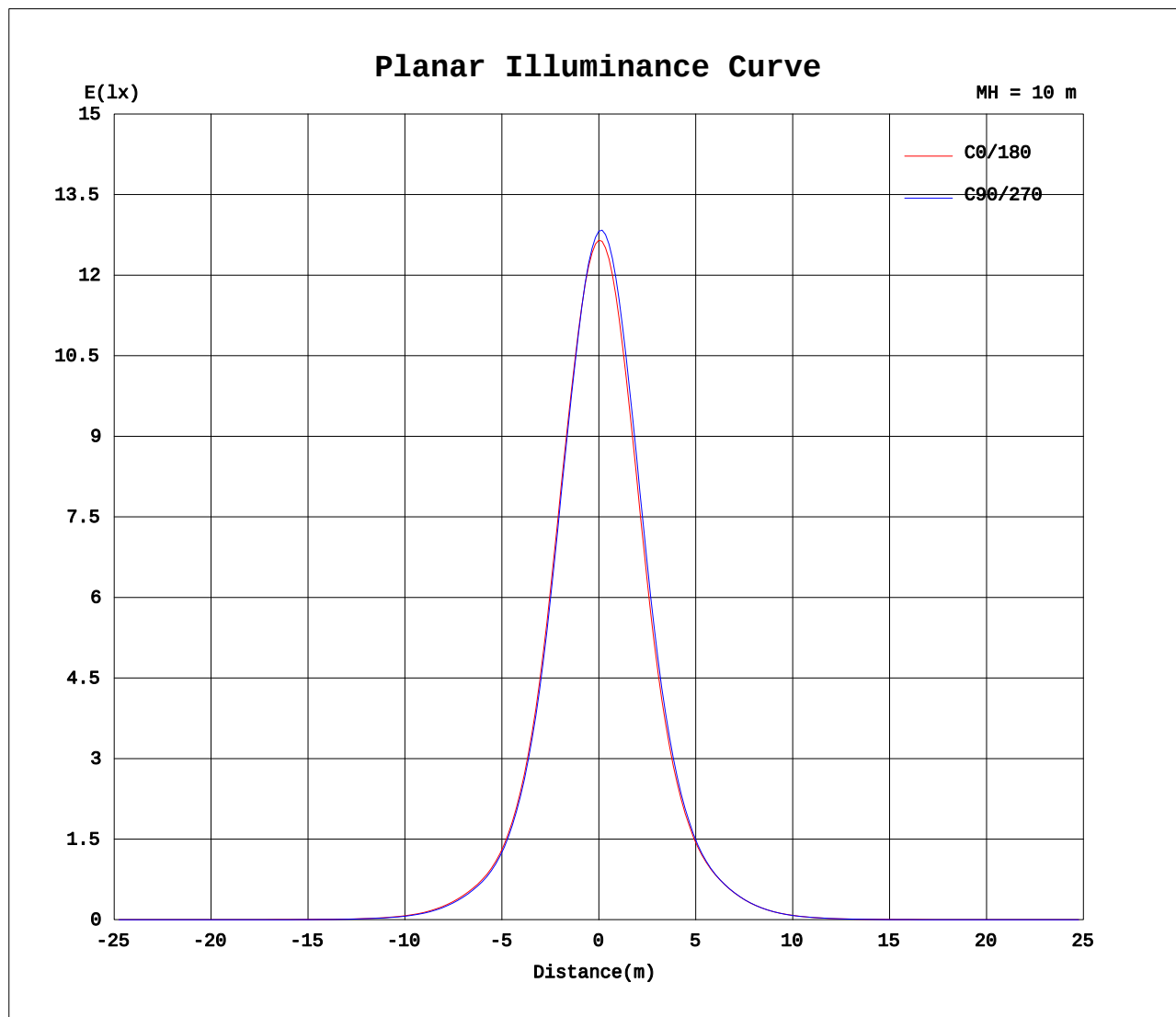
AvgL	cd/m2
L_0~180(65)av	148
L_0~180(75)av	0
L_0~180(85)av	0
L_90~270(65)av	104
L_90~270(75)av	0
L_90~270(85)av	0
L_45(65)av	127
L_45(75)av	0
L_45(85)av	0

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25DEG
Operators:
Test Date:2024-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25DEG
 Operators:
 Test Date: 2024-08-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000A_V1 SYSTEM V2.00.428
 Humidity: 65.0%
 Test Distance: 7.450m [K=1.0000]
 Remarks:

```

Range: 0 - 90DEG
Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.428
Humidity:65.0%
Test Distance:7.450m [K=1.0000]
Remarks:

```