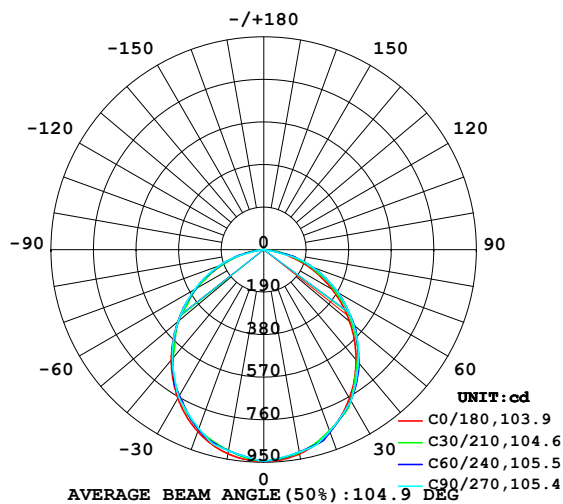


LUMINAIRE PHOTOMETRIC TEST REPORT

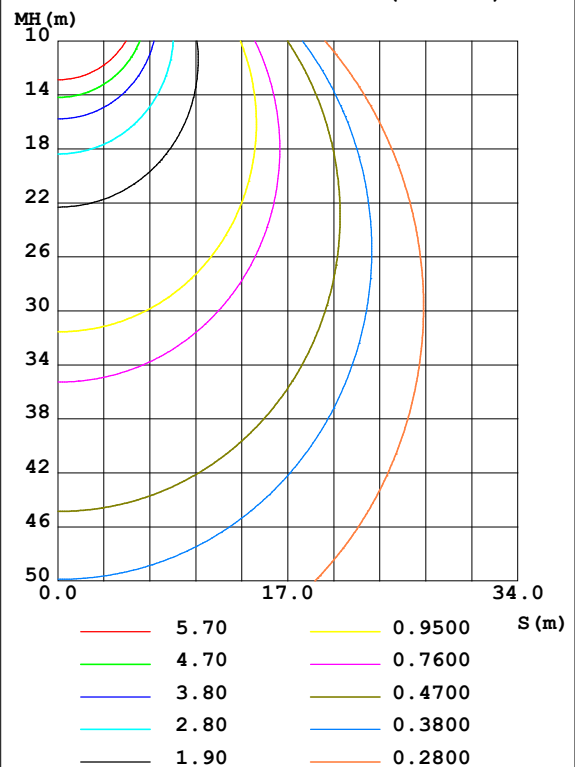
Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 124.09 lm/W			
MODEL		I _{max} (cd)	945.5	S/MH(C0/180)	1.21
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	1.20
RATED VOLTAGE(V)	220.0	TOTAL FLUX(lm)	2428.2	η UP,DN(C0-180)	0.0,50.8
NOMINAL FLUX(lm)	2428.18	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.2
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
V(B) Interval: 5.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.500m [K=1.0667]
Remarks: TÜV RHEINLAND

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	926.0	918.3	918.2	914.8	925.4	910.3	911.7	913.7	0- 10	88.54	88.54	3.65,3.65
20	864.1	873.1	862.8	864.1	864.1	855.4	850.0	864.0	10- 20	251.9	340.4	14,14
30	765.8	771.7	779.2	766.4	766.9	753.4	760.3	758.5	20- 30	375.1	715.5	29.5,29.5
40	642.0	658.3	656.9	656.6	642.8	639.5	634.0	641.1	30- 40	442.0	1158	47.7,47.7
50	501.2	517.2	524.4	517.6	501.1	498.1	499.2	497.3	40- 50	445.2	1603	66,66
60	351.4	373.3	381.7	370.6	350.4	350.7	355.9	352.3	50- 60	388.4	1991	82,82
70	199.7	228.8	234.8	220.2	197.6	202.1	211.5	208.6	60- 70	283.5	2275	93.7,93.7
80	61.96	78.10	0	70.85	58.00	59.12	0	63.83	70- 80	143.5	2418	99.6,99.6
90	0	0	0	0	0	0	0	0	80- 90	10.09	2428	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		

Conical surface Flux(90deg): 1383.5 lm

%lum = 57.0%

%lamp = 57.0%

Conical surface Flux(120deg): 1991 lm

%lum = 82.0%

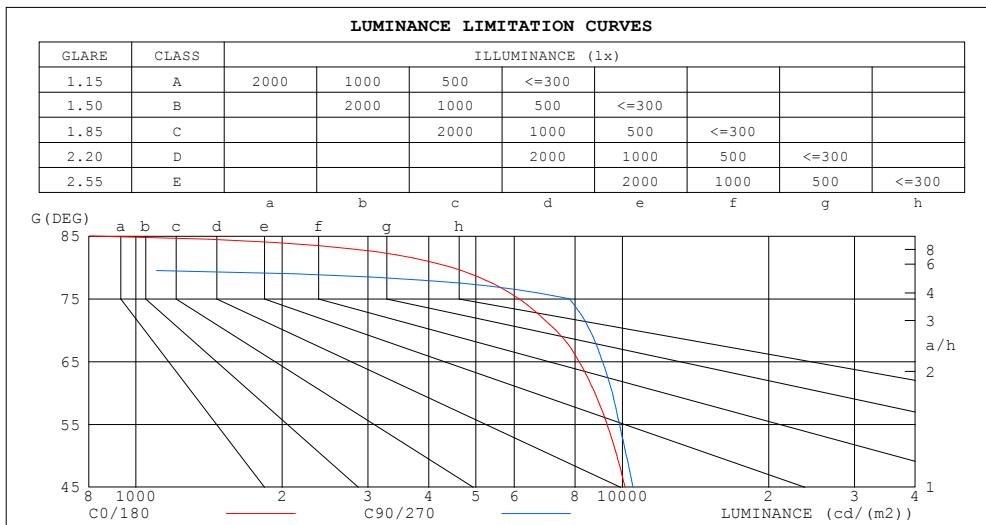
%lamp = 82.0%

H(β) Range:-90 - 90DEG
 H(β) Interval: 1.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
 V(B) Interval: 5.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:7.500m [K=1.0667]
 Remarks: TÜV RHEINLAND

LUMINANCE LIMITATION CURVES

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	806	0
80	4460	0
75	6132	7778
70	7299	8580
65	8147	9107
60	8786	9541
55	9305	9867
50	9746	10198
45	10134	10528

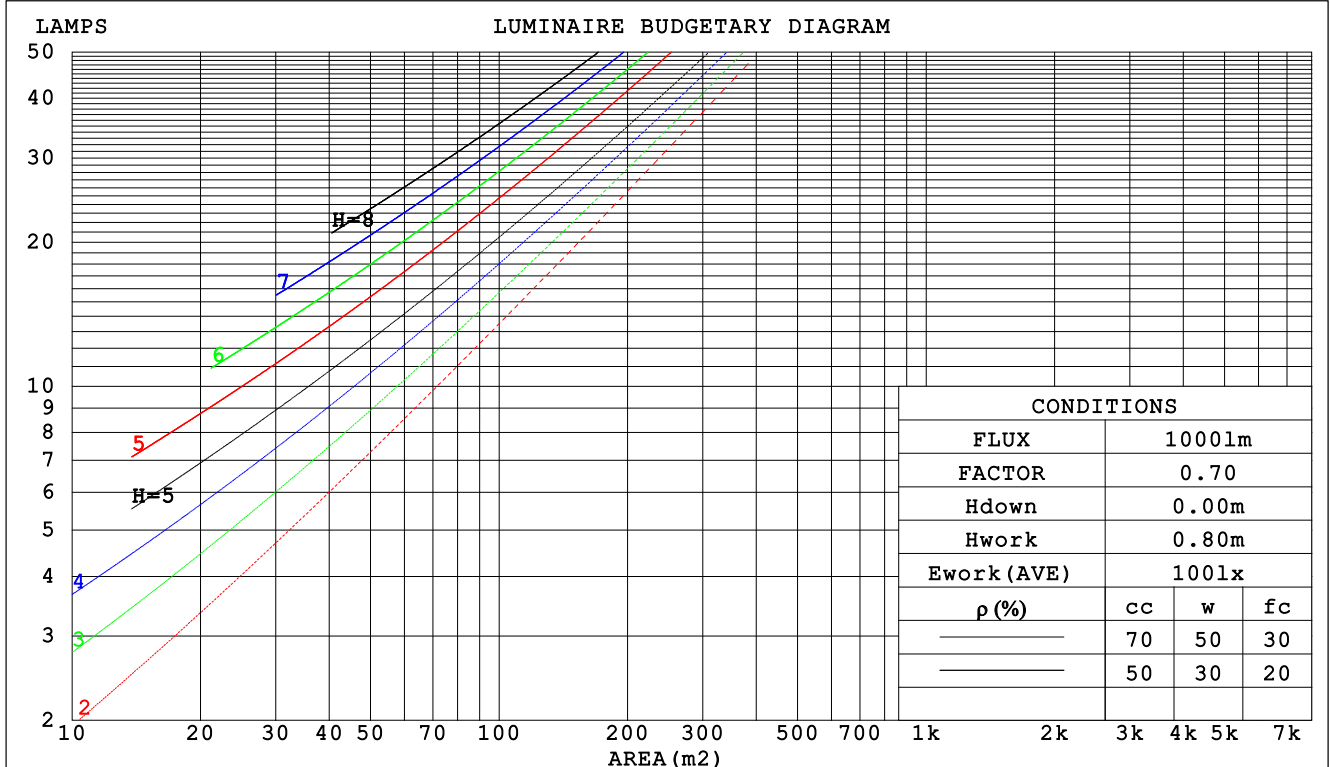
H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
V(B) Interval: 5.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.500m [K=1.0667]
Remarks: TÜV RHEINLAND

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	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	1.05	1.01	.98	1.03	.99	.96	.99	.96	.93	.95	.92	.90	.91	.89	.87	.85
2.0	.92	.86	.80	.90	.84	.79	.87	.82	.77	.83	.79	.76	.80	.77	.74	.72
3.0	.81	.73	.67	.80	.72	.66	.77	.70	.65	.74	.69	.64	.71	.67	.63	.61
4.0	.72	.63	.57	.71	.63	.57	.68	.61	.56	.66	.60	.55	.64	.59	.54	.52
5.0	.64	.56	.49	.63	.55	.49	.61	.54	.48	.59	.53	.48	.57	.52	.47	.45
6.0	.58	.49	.43	.57	.49	.43	.55	.48	.42	.54	.47	.42	.52	.46	.42	.40
7.0	.53	.44	.38	.52	.44	.38	.50	.43	.38	.49	.42	.37	.48	.42	.37	.35
8.0	.48	.40	.34	.48	.40	.34	.46	.39	.34	.45	.38	.34	.44	.38	.33	.31
9.0	.44	.36	.31	.44	.36	.31	.43	.35	.30	.41	.35	.30	.40	.35	.30	.28
10.0	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.28	.38	.32	.27	.26



$H(\beta)$ Range:-90 - 90DEG
 $H(\beta)$ Interval: 1.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:24 Aug 2023

$V(B)$ Range:-75 - 75DEG
 $V(B)$ Interval: 5.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:7.500m [K=1.0667]
 Remarks: TÜV RHEINLAND

WEC AND CCEC

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding 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	.286	.163	.052	.279	.159	.051	.266	.153	.049	.254	.146	.047	.243	.141	.045		
2.0	.276	.151	.046	.270	.149	.046	.259	.144	.045	.248	.139	.044	.238	.135	.042		
3.0	.259	.138	.041	.253	.136	.041	.243	.132	.040	.234	.128	.039	.225	.125	.039		
4.0	.241	.125	.037	.236	.123	.036	.227	.120	.036	.218	.117	.035	.211	.114	.035		
5.0	.224	.114	.033	.219	.113	.033	.211	.110	.032	.204	.108	.032	.197	.105	.032		
6.0	.208	.104	.030	.204	.103	.030	.197	.101	.029	.191	.099	.029	.184	.097	.029		
7.0	.194	.096	.027	.191	.095	.027	.185	.093	.027	.179	.092	.027	.173	.090	.026		
8.0	.182	.089	.025	.179	.088	.025	.173	.087	.025	.168	.085	.025	.163	.084	.024		
9.0	.171	.083	.023	.168	.082	.023	.163	.081	.023	.158	.079	.023	.154	.078	.023		
10.0	.161	.077	.021	.159	.077	.021	.154	.075	.021	.149	.074	.021	.145	.073	.021		

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	.179	.156	.136	.153	.134	.117	.105	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.170	.132	.100	.146	.114	.086	.100	.079	.060	.058	.046	.035	.018	.015	.012	
3.0	.162	.114	.076	.139	.099	.066	.096	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.155	.101	.060	.133	.087	.052	.091	.061	.036	.053	.036	.022	.017	.012	.007	
5.0	.147	.090	.048	.127	.078	.042	.087	.055	.030	.051	.032	.018	.016	.010	.006	
6.0	.140	.082	.040	.121	.071	.035	.083	.050	.025	.048	.029	.015	.016	.010	.005	
7.0	.134	.075	.034	.115	.065	.029	.079	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.127	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.121	.064	.026	.105	.056	.022	.073	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.069	.037	.014	.040	.022	.008	.013	.007	.003	

H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
V(B) Interval: 5.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.500m [K=1.0667]
Remarks: TÜV RHEINLAND

UGR(Unified Glare Rating) Table

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm										
NAME: GLM-DOS320D-20W(3000K)					TYPE:LED			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:1		
MFR.: EVERFINE					SUR.:			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	20.7	22.2	20.9	22.4	22.6	21.0	22.5	21.2	22.7	22.9
3H	22.0	23.4	22.3	23.6	23.8	22.5	23.8	22.8	24.1	24.3
4H	22.5	23.7	22.8	24.0	24.3	23.0	24.3	23.3	24.6	24.8
6H	22.7	23.9	23.0	24.2	24.5	23.1	24.3	23.4	24.6	24.8
8H	22.7	23.9	23.1	24.2	24.5	23.0	24.2	23.4	24.5	24.8
12H	22.7	23.8	23.0	24.1	24.4	23.0	24.1	23.3	24.4	24.7
4H 2H	21.3	22.6	21.6	22.9	23.1	21.5	22.8	21.9	23.1	23.3
3H	22.8	23.9	23.2	24.2	24.5	23.2	24.3	23.6	24.6	24.9
4H	23.4	24.4	23.8	24.7	25.1	23.9	24.9	24.3	25.3	25.6
6H	23.7	24.7	24.1	25.0	25.4	24.0	24.9	24.4	25.3	25.6
8H	23.8	24.6	24.2	25.0	25.4	24.0	24.8	24.4	25.2	25.5
12H	23.8	24.5	24.2	24.9	25.3	23.9	24.7	24.3	25.1	25.5
8H 4H	23.7	24.5	24.1	24.9	25.3	24.1	25.0	24.5	25.3	25.7
6H	24.1	24.8	24.6	25.2	25.7	24.3	25.0	24.7	25.4	25.8
8H	24.3	24.9	24.7	25.3	25.7	24.2	24.8	24.7	25.3	25.7
12H	24.3	24.8	24.7	25.2	25.7	24.2	24.7	24.7	25.2	25.6
12H 4H	23.6	24.4	24.1	24.8	25.2	24.1	24.9	24.5	25.3	25.7
6H	24.1	24.8	24.6	25.2	25.6	24.3	24.9	24.7	25.3	25.8
8H	24.3	24.8	24.7	25.2	25.7	24.2	24.8	24.7	25.2	25.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
1.5H	+ 0.3 / - 0.4					+ 0.1 / - 0.3				
2.0H	+ 0.2 / - 0.4					+ 0.2 / - 0.4				

CIE Pub.117, 2428 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 3.1$)

$H(\beta)$ Range:-90 - 90DEG
 $H(\beta)$ Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
V(B) Interval: 5.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.500m [K=1.0667]
Remarks: TÜV RHEINLAND

UTILIZATION FACTORS TABLE

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:

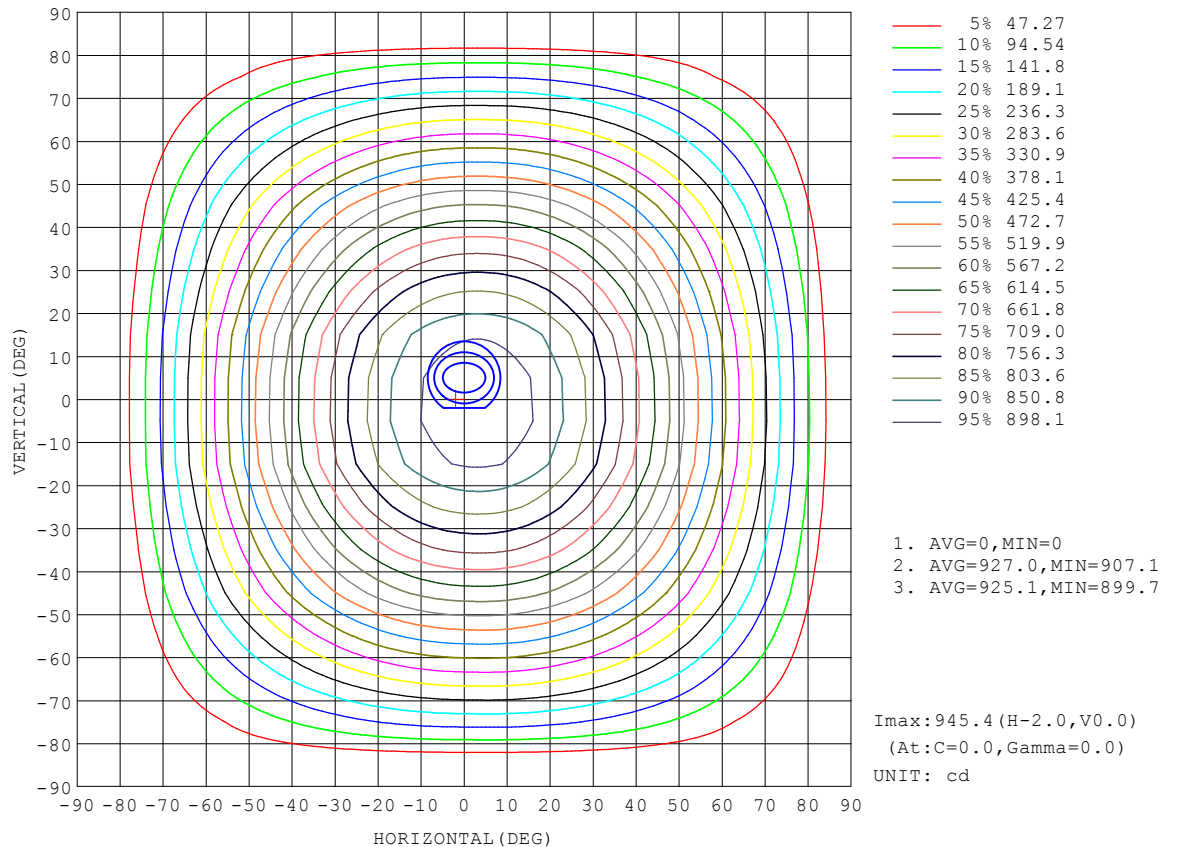
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	59	48	41	58	48	41	57	47	41	35
0.80	69	58	51	68	58	51	67	57	50	44
1.00	78	67	60	77	67	60	74	68	59	52
1.25	85	75	68	83	74	68	81	73	67	60
1.50	90	80	74	88	79	73	85	78	72	65
2.00	96	88	82	95	87	82	91	85	80	72
2.50	100	93	87	98	92	86	94	89	84	76
3.00	103	97	92	101	96	91	97	93	89	80
4.00	107	102	98	105	100	96	101	97	94	85
5.00	110	105	101	107	103	100	103	100	97	88
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

$H(\beta)$ Range:-90 - 90DEG
 $H(\beta)$ Interval: 1.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:24 Aug 2023

$V(B)$ Range:-75 - 75DEG
 $V(B)$ Interval: 5.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:7.500m [K=1.0667]
 Remarks: TÜV RHEINLAND

ISOCANDELA DIAGRAM

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:

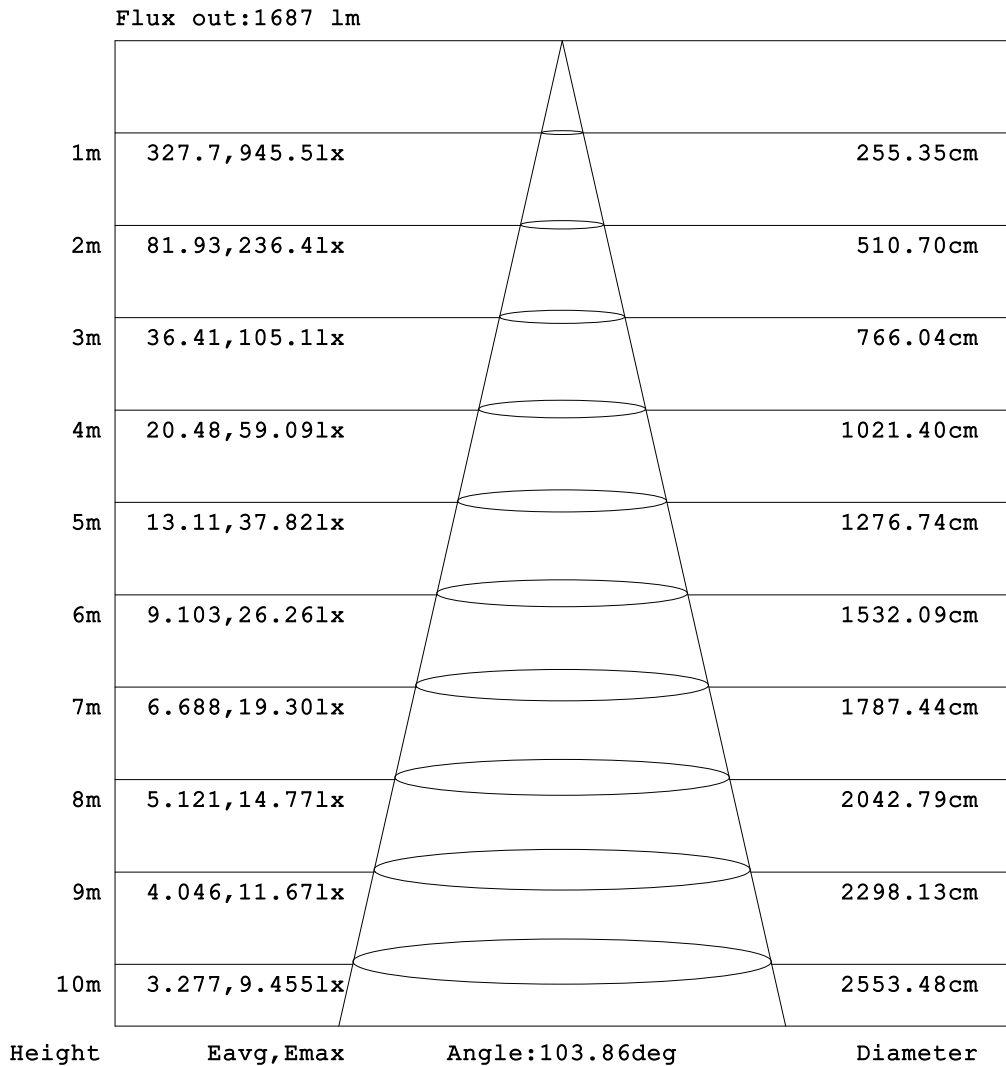


H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
V(B) Interval: 5.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.500m [K=1.0667]
Remarks: TÜV RHEINLAND

AAI Figure

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:



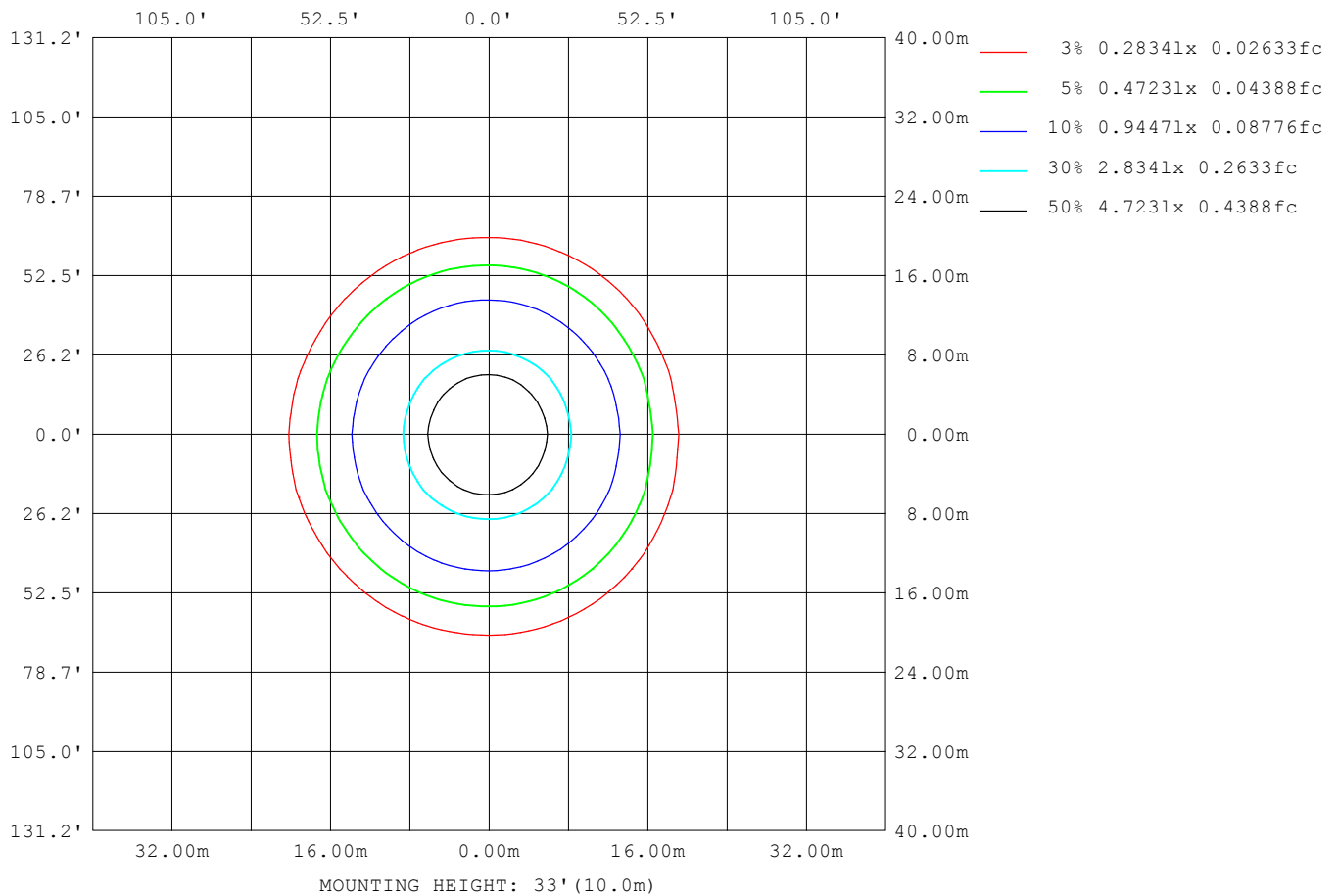
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

H(β) Range:-90 - 90DEG
 H(β) Interval: 1.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
 V(B) Interval: 5.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:7.500m [K=1.0667]
 Remarks: TÜV RHEINLAND

ISOLUX DIAGRAM

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:



H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
V(B) Interval: 5.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.500m [K=1.0667]
Remarks: TÜV RHEINLAND

LED Avg.L Report

Test:U:219.50V I:0.0893A P:19.568W PF:0.9709 Freq:49.99Hz Lamp Flux:2428.18x1 lm		
NAME: GLM-DOS320D-20W(3000K)	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:1
MFR.: EVERFINE	SUR.:	Shielding Angle:

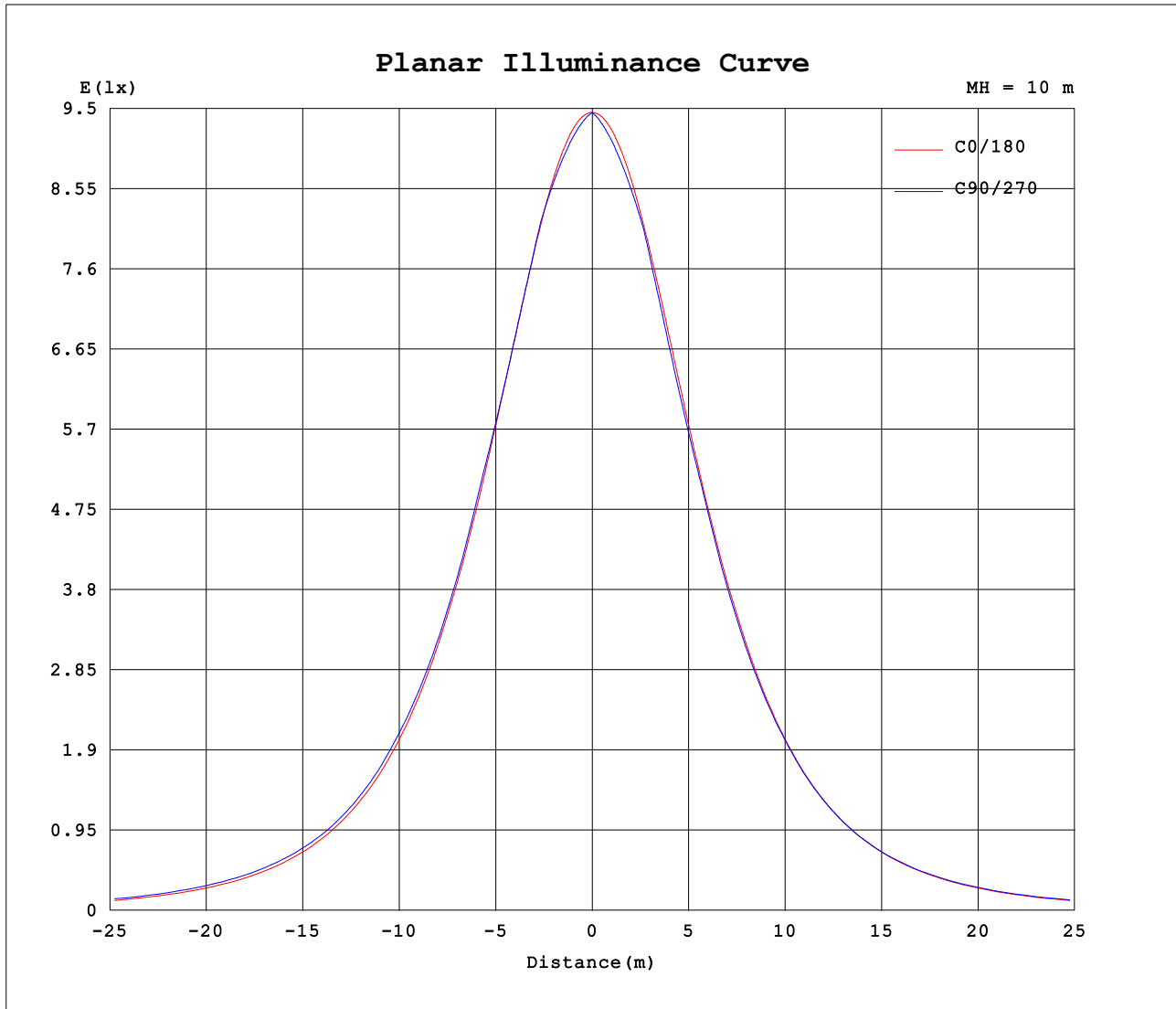
AvgL	cd/m2
L_0~180 (65) av	8121
L_0~180 (75) av	6088
L_0~180 (85) av	632
L_90~270 (65) av	8750
L_90~270 (75) av	7254
L_90~270 (85) av	0
L_45 (65) av	8501
L_45 (75) av	6959
L_45 (85) av	0

Standard: GB/T 29293-2012

H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
V(B) Interval: 5.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.500m [K=1.0667]
Remarks: TÜV RHEINLAND

Planar Illuminance Curve



H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:24 Aug 2023

V(B) Range:-75 - 75DEG
V(B) Interval: 5.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.500m [K=1.0667]
Remarks: TÜV RHEINLAND

