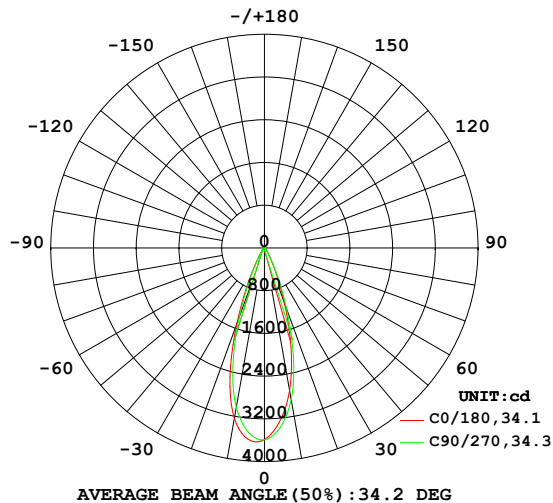


LUMINAIRE PHOTOMETRIC TEST REPORT

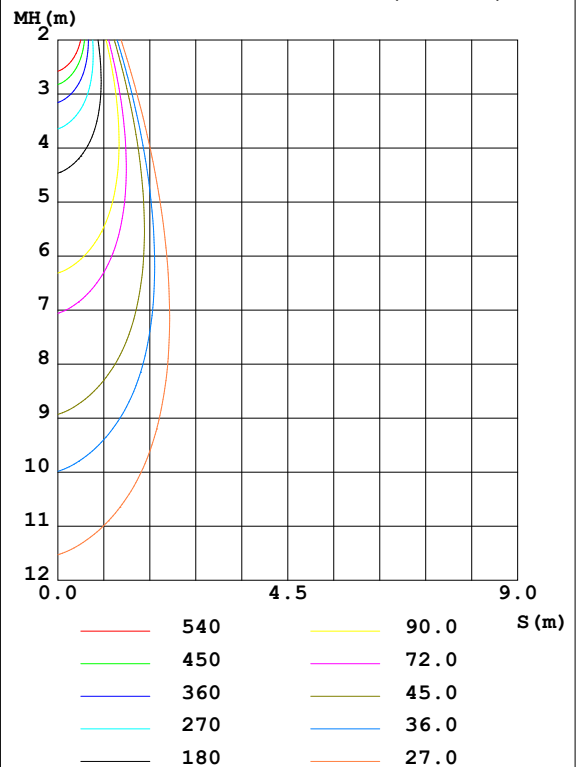
Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm					
NAME: 3709LED		TYPE:		WEIGHT:	
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700		DIM.:		SERIAL No.:	
MFR.: CETTIGA		SUR.:0.0007		Shielding Angle:	

DATA OF LAMP		PHOTOMETRIC DATA Eff: 65.80 lm/W			
MODEL	CLU711 1204	I _{max} (cd)	3634	S/MH (C0/180)	0.58
NOMINAL POWER (W)	20W	LOR (%)	100.0	S/MH (C90/270)	0.56
RATED VOLTAGE (V)	220.0	TOTAL FLUX (lm)	1325.8	η UP, DN (C0-180)	0.2, 46.0
NOMINAL FLUX (lm)	1325.79	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.1, 53.7
LAMPS INSIDE	1	η up (%)	0.3	CIBSE SHR NOM	0.50
TEST VOLTAGE (V)	220.2	η down (%)	99.7	CIBSE SHR MAX	0.55

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Xie Bi
Test Date: 2020-05-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity: 65.0%
Test Distance: 6.900m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

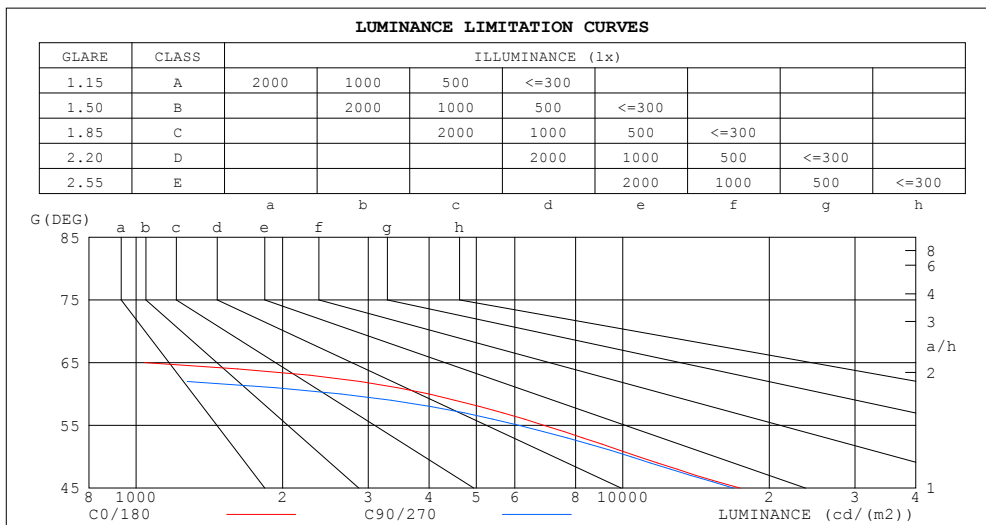
γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	2712	2884	3240	3030					0- 10	312.3	312.3	23.6,23.6
20	1095	1222	1512	1376					10- 20	590.9	903.2	68.1,68.1
30	226.6	241.4	292.1	272.6					20- 30	295.1	1198	90.4,90.4
40	62.00	62.94	70.25	67.43					30- 40	82.68	1281	96.6,96.6
50	19.40	18.71	20.82	19.52					40- 50	28.86	1310	98.8,98.8
60	5.601	3.690	6.311	4.114					50- 60	10.01	1320	99.6,99.6
70	0.1799	0.0987	0.1851	0.1857					60- 70	1.554	1321	99.7,99.7
80	0.0465	0.0116	0.0174	0.0523					70- 80	0.0819	1322	99.7,99.7
90	0.0059	0	0.0174	0.0174					80- 90	0.0208	1322	99.7,99.7
100	0.0058	0.0058	0.0174	0.0232					90-100	0.0133	1322	99.7,99.7
110	0.0058	0.0174	0.0348	0.0232					100-110	0.0182	1322	99.7,99.7
120	0.0116	0.0581	0.0639	0.0232					110-120	0.0296	1322	99.7,99.7
130	0.1679	0.2032	0.1335	0.0928					120-130	0.0710	1322	99.7,99.7
140	0.8815	0.8597	0.3776	0.3539					130-140	0.2449	1322	99.7,99.7
150	2.761	2.617	1.271	1.311					140-150	0.7496	1323	99.8,99.8
160	4.764	4.725	2.875	2.983					150-160	1.330	1324	99.9,99.9
170	5.652	5.838	4.376	4.445					160-170	1.262	1325	100,100
180	5.786	5.902	5.774	5.890					170-180	0.5127	1326	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Xie Bi
Test Date:2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:6.900m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm		
NAME: 3709LED	TYPE:	WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700	DIM.:	SERIAL No.:
MFR.: CETTIGA	SUR.:0.0007	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	95	0
80	96	24
75	120	24
70	188	103
65	1042	265
60	4001	2636
55	6885	6120
50	10781	10397
45	17421	16873

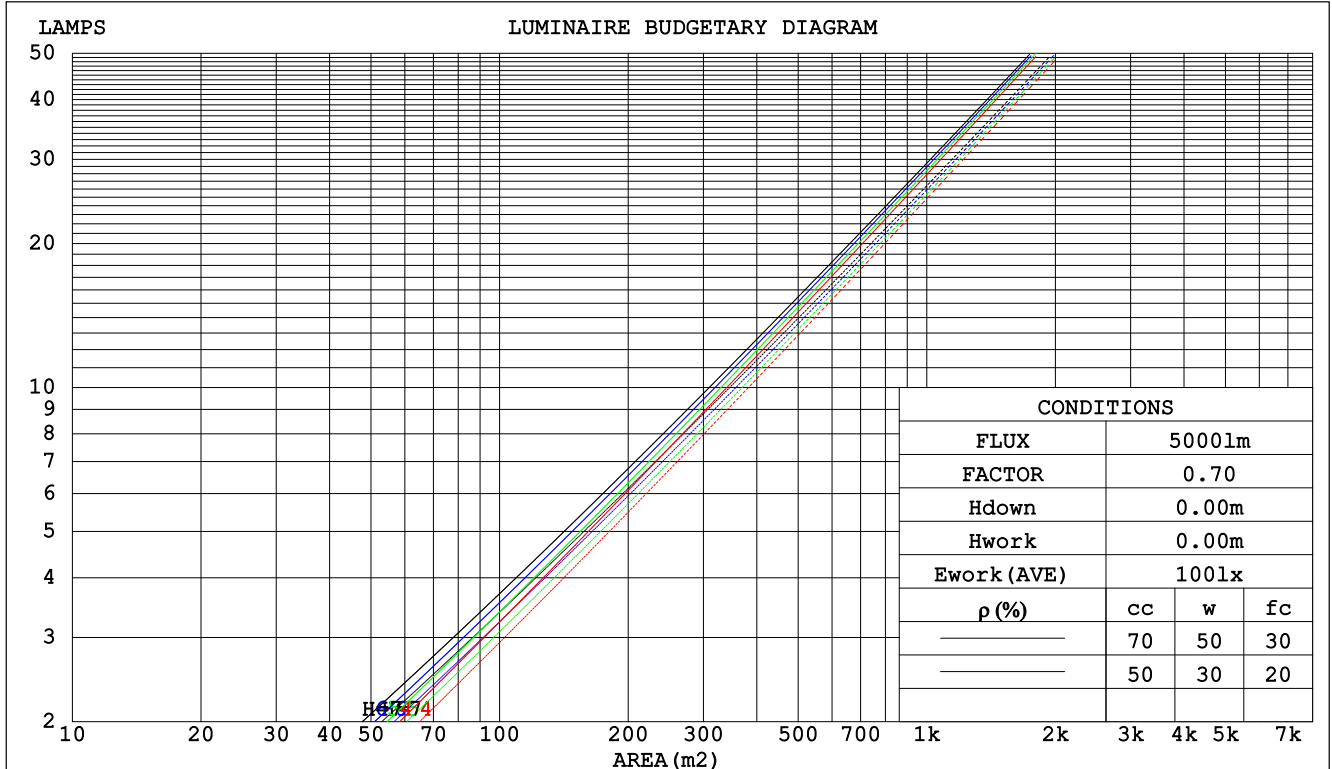
C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Xie Bi
 Test Date:2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
 Humidity:65.0%
 Test Distance:6.900m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm		
NAME: 3709LED	TYPE:	WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700	DIM.:	SERIAL No.:
MFR.: CETTIGA	SUR.:0.0007	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	1.12	1.10	1.08	1.10	1.08	1.06	1.06	1.04	1.03	1.02	1.01	1.00	.99	.98	.97	.95
2.0	1.06	1.03	1.00	1.04	1.01	.99	1.01	.99	.97	.98	.96	.95	.96	.94	.93	.91
3.0	1.01	.97	.94	.99	.96	.93	.97	.94	.91	.94	.92	.90	.92	.90	.88	.87
4.0	.96	.92	.88	.95	.91	.88	.93	.89	.87	.91	.88	.86	.89	.87	.85	.83
5.0	.92	.87	.84	.91	.86	.83	.89	.85	.82	.88	.84	.82	.86	.83	.81	.80
6.0	.88	.83	.80	.87	.83	.79	.86	.82	.79	.84	.81	.78	.83	.80	.78	.77
7.0	.84	.79	.76	.84	.79	.76	.82	.78	.76	.81	.78	.75	.80	.77	.75	.74
8.0	.81	.76	.73	.80	.76	.73	.79	.75	.73	.78	.75	.72	.78	.74	.72	.71
9.0	.78	.73	.70	.77	.73	.70	.77	.73	.70	.76	.72	.70	.75	.72	.69	.68
10.0	.75	.71	.67	.75	.70	.67	.74	.70	.67	.73	.70	.67	.73	.69	.67	.66



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Xie Bi
 Test Date:2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
 Humidity:65.0%
 Test Distance:6.900m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm					
NAME: 3709LED			TYPE:		WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700			DIM.:		SERIAL No.:
MFR.: CETTIGA			SUR.:0.0007		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	.150	.085	.027	.143	.082	.026	.130	.075	.024	.119	.069	.022	.108	.063	.020		
2.0	.141	.077	.024	.135	.074	.023	.125	.069	.022	.115	.064	.020	.106	.060	.019		
3.0	.132	.070	.021	.128	.068	.021	.119	.064	.020	.111	.061	.019	.103	.057	.018		
4.0	.125	.065	.019	.121	.063	.019	.113	.060	.018	.106	.057	.017	.100	.054	.017		
5.0	.118	.060	.017	.115	.059	.017	.108	.056	.017	.102	.054	.016	.097	.052	.016		
6.0	.113	.056	.016	.110	.055	.016	.104	.053	.015	.099	.051	.015	.094	.049	.015		
7.0	.107	.053	.015	.105	.052	.015	.100	.050	.015	.095	.049	.014	.091	.047	.014		
8.0	.103	.050	.014	.100	.049	.014	.096	.048	.014	.092	.046	.013	.088	.045	.013		
9.0	.098	.048	.013	.096	.047	.013	.092	.046	.013	.089	.044	.013	.085	.043	.013		
10.0	.094	.045	.013	.092	.045	.012	.089	.044	.012	.086	.043	.012	.083	.042	.012		

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	.193	.193	.193	.165	.165	.165	.113	.113	.113	.065	.065	.065	.021	.021	.021	
1.0	.172	.160	.149	.147	.137	.129	.100	.094	.089	.058	.055	.052	.019	.018	.017	
2.0	.155	.135	.119	.132	.116	.103	.091	.080	.072	.052	.047	.042	.017	.015	.014	
3.0	.140	.116	.096	.120	.100	.083	.083	.069	.059	.048	.041	.035	.015	.013	.011	
4.0	.129	.101	.079	.110	.087	.069	.076	.061	.049	.044	.036	.029	.014	.012	.009	
5.0	.119	.089	.066	.102	.077	.058	.070	.054	.041	.041	.031	.024	.013	.010	.008	
6.0	.111	.079	.056	.095	.068	.049	.066	.048	.035	.038	.028	.021	.012	.009	.007	
7.0	.103	.071	.048	.089	.061	.042	.061	.043	.030	.036	.025	.018	.012	.008	.006	
8.0	.097	.064	.042	.084	.056	.036	.058	.039	.026	.034	.023	.015	.011	.008	.005	
9.0	.092	.059	.037	.079	.051	.032	.055	.036	.023	.032	.021	.014	.010	.007	.004	
10.0	.087	.054	.032	.075	.047	.028	.052	.033	.020	.030	.020	.012	.010	.006	.004	

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Xie Bi
Test Date:2020-05-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:6.900m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm											
NAME: 3709LED					TYPE:			WEIGHT:			
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700					DIM.:			SERIAL No.:			
MFR.: CETTIGA					SUR.:0.0007			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		12.8	13.5	13.0	13.7	13.8	12.8	13.5	13.0	13.7	13.8
3H		12.6	13.3	12.8	13.5	13.7	12.6	13.3	12.9	13.5	13.7
4H		12.5	13.2	12.8	13.4	13.6	12.5	13.2	12.8	13.4	13.6
6H		12.4	13.0	12.7	13.3	13.5	12.4	13.1	12.7	13.3	13.5
8H		12.4	13.0	12.7	13.2	13.5	12.4	13.0	12.7	13.2	13.5
12H		12.3	12.9	12.7	13.2	13.4	12.3	12.9	12.7	13.2	13.5
4H 2H		12.6	13.2	12.8	13.4	13.6	12.6	13.2	12.8	13.4	13.7
3H		12.4	13.0	12.7	13.2	13.5	12.4	13.0	12.7	13.2	13.5
4H		12.3	12.8	12.6	13.1	13.4	12.3	12.8	12.6	13.1	13.4
6H		12.2	12.6	12.6	13.0	13.3	12.2	12.7	12.6	13.0	13.3
8H		12.1	12.6	12.5	12.9	13.3	12.1	12.6	12.5	12.9	13.3
12H		12.1	12.5	12.5	12.8	13.2	12.1	12.5	12.5	12.9	13.2
8H 4H		12.1	12.6	12.5	12.9	13.3	12.1	12.6	12.5	12.9	13.3
6H		12.0	12.4	12.4	12.8	13.2	12.0	12.4	12.5	12.8	13.2
8H		12.0	12.3	12.4	12.7	13.1	12.0	12.3	12.4	12.7	13.1
12H		11.9	12.2	12.4	12.6	13.1	11.9	12.2	12.4	12.6	13.1
12H 4H		12.1	12.5	12.5	12.8	13.2	12.1	12.5	12.5	12.9	13.2
6H		12.0	12.3	12.4	12.7	13.1	12.0	12.3	12.4	12.7	13.1
8H		11.9	12.2	12.4	12.6	13.1	11.9	12.2	12.4	12.6	13.1
Variations with the observer position at spacings:											
S = 1.0H		+ 2.7 / - 6.7					+ 2.8 / - 7.7				
1.5H		+ 4.0 / - 4.5					+ 4.2 / - 4.7				
2.0H		+ 4.7 / -10.2					+ 4.9 / -12.5				

CIE Pub.117, 1326 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.0)
Area: 0.0028 m2

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Xie Bi
Test Date:2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:6.900m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm		
NAME: 3709LED	TYPE:	WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700	DIM.:	SERIAL No.:
MFR.: CETTIGA	SUR.:0.0007	Shielding Angle:

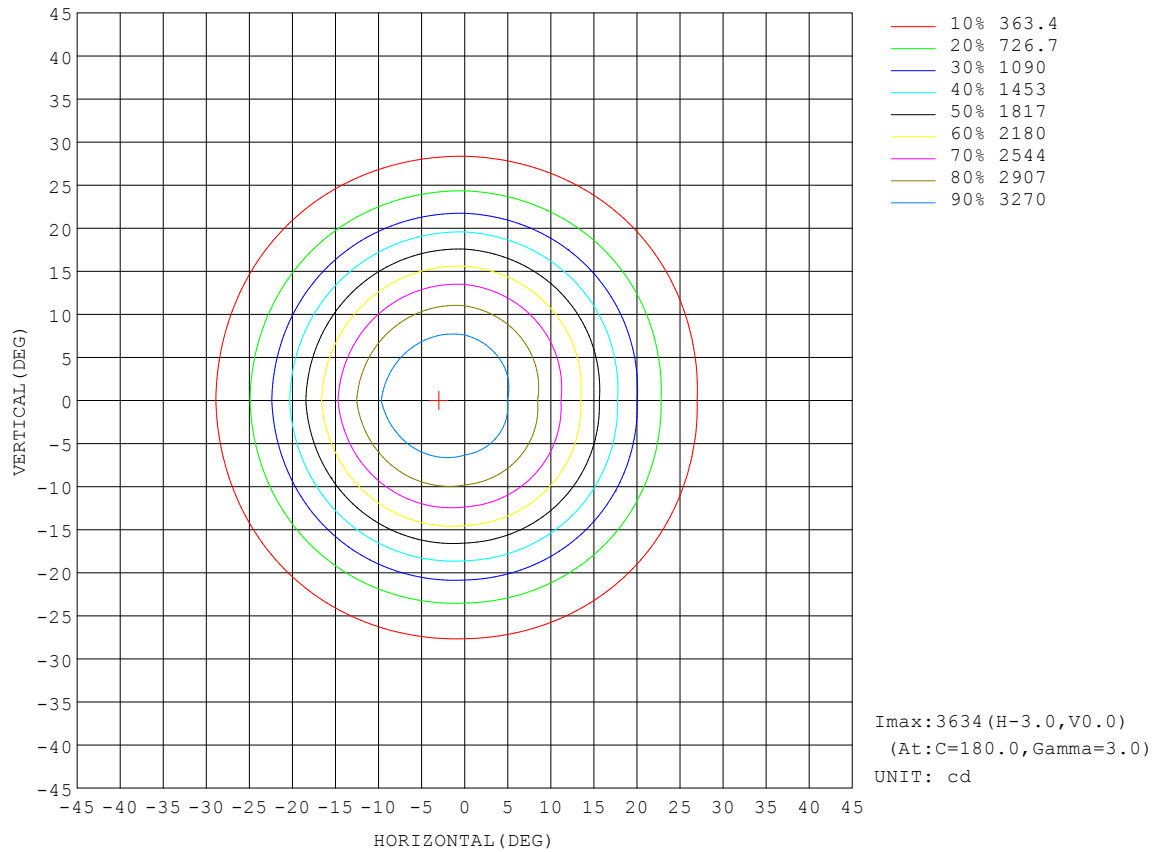
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	89	83	80	89	83	80	88	83	80	76
0.80	97	91	88	96	91	88	95	90	87	84
1.00	101	95	92	100	95	92	98	95	91	87
1.25	104	100	96	103	99	96	101	98	95	91
1.50	107	103	99	106	102	99	103	100	98	93
2.00	109	105	102	108	104	102	105	102	100	95
2.50	111	107	104	109	106	104	106	104	102	96
3.00	112	109	107	110	108	105	107	105	103	97
4.00	114	112	110	112	110	108	109	107	105	98
5.00	115	113	112	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: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Xie Bi
Test Date:2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:6.900m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm		
NAME: 3709LED	TYPE:	WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700	DIM.:	SERIAL No.:
MFR.: CETTIGA	SUR.:0.0007	Shielding Angle:

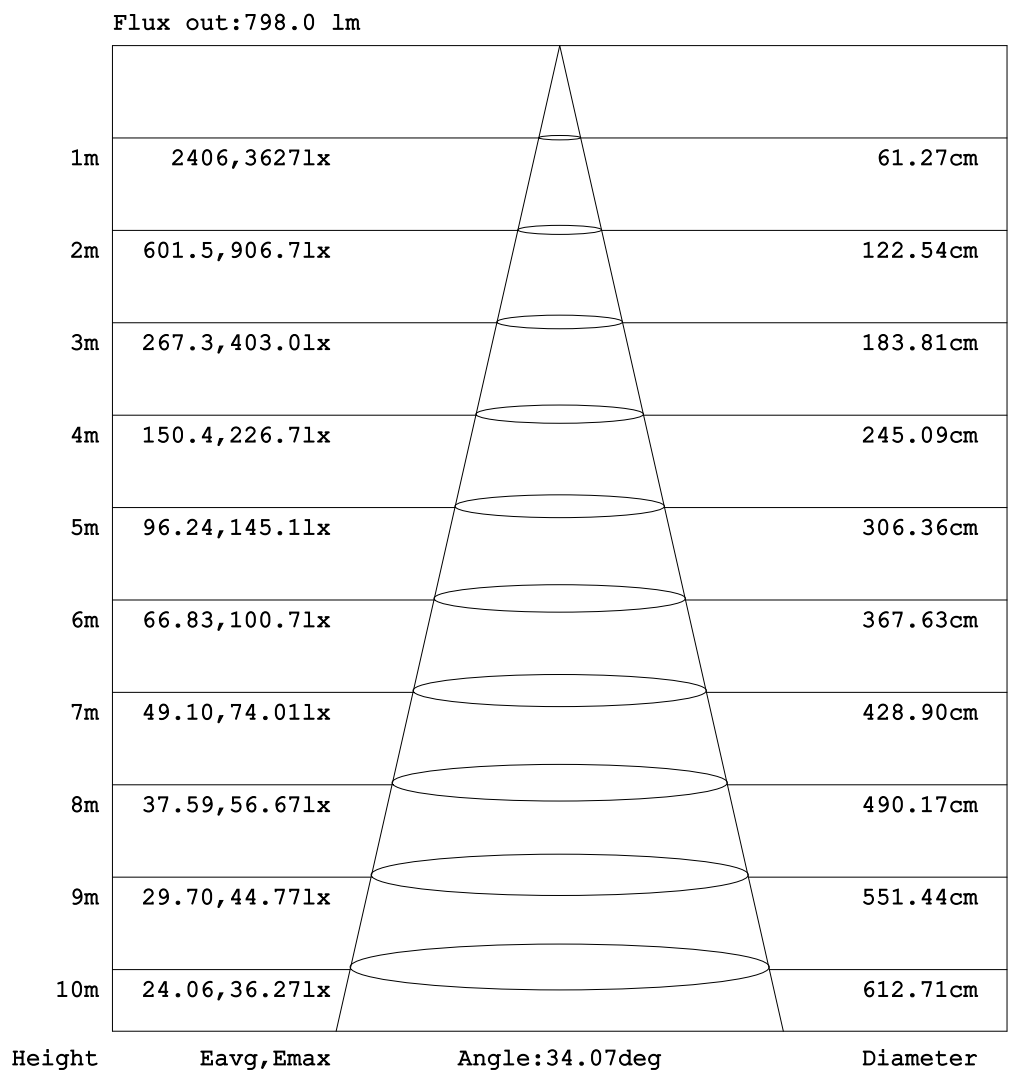


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Xie Bi
Test Date:2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:6.900m [K=1.0000]
Remarks:

AAI Figure

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm		
NAME: 3709LED	TYPE:	WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700	DIM.:	SERIAL No.:
MFR.: CETTIGA	SUR.:0.0007	Shielding Angle:



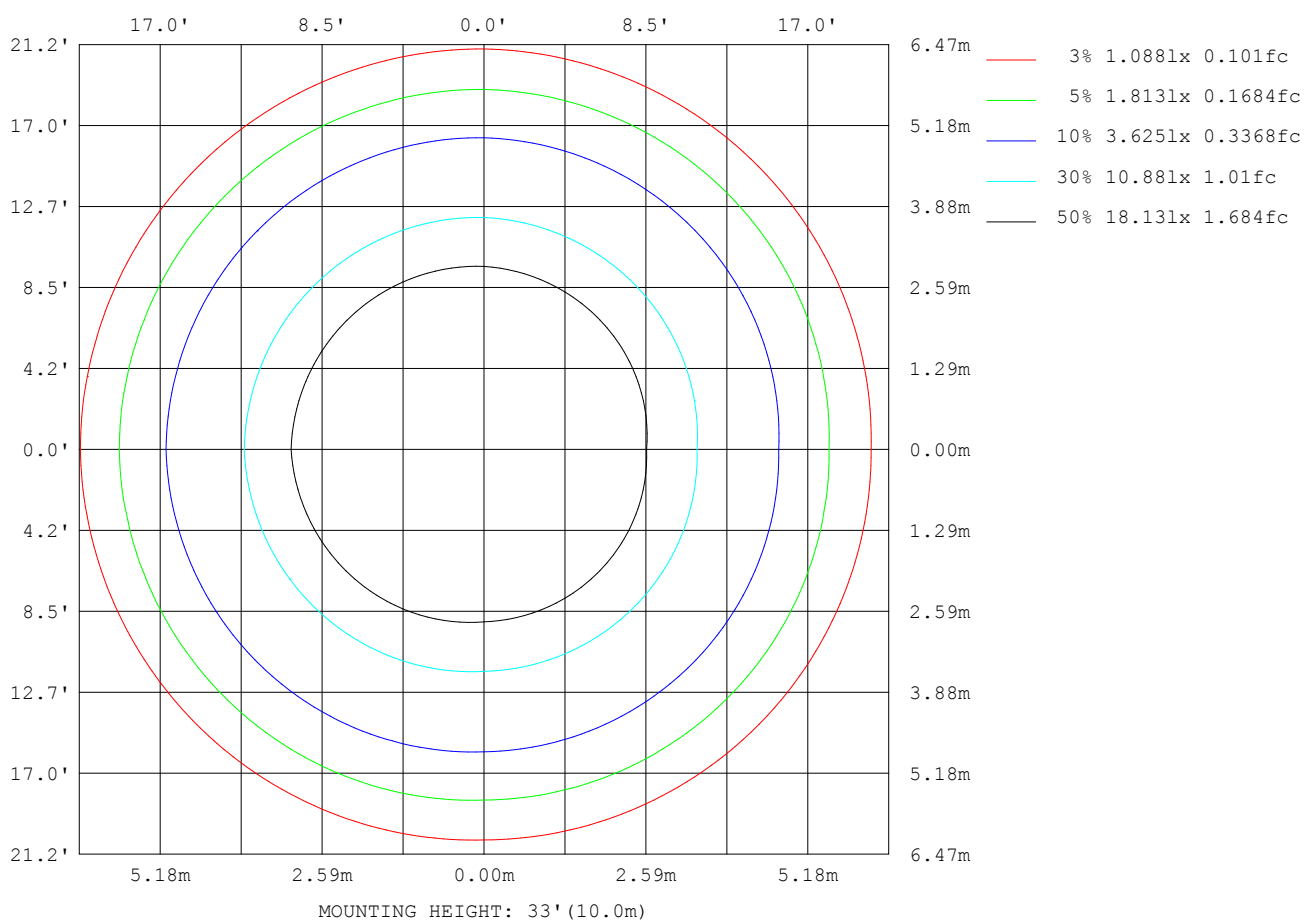
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Xie Bi
 Test Date: 2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.362
 Humidity: 65.0%
 Test Distance: 6.900m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm		
NAME: 3709LED	TYPE:	WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700	DIM.:	SERIAL No.:
MFR.: CETTIGA	SUR.:0.0007	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Xie Bi
Test Date:2020-05-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:6.900m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm		
NAME: 3709LED	TYPE:	WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700	DIM.:	SERIAL No.:
MFR.: CETTIGA	SUR.:0.0007	Shielding Angle:

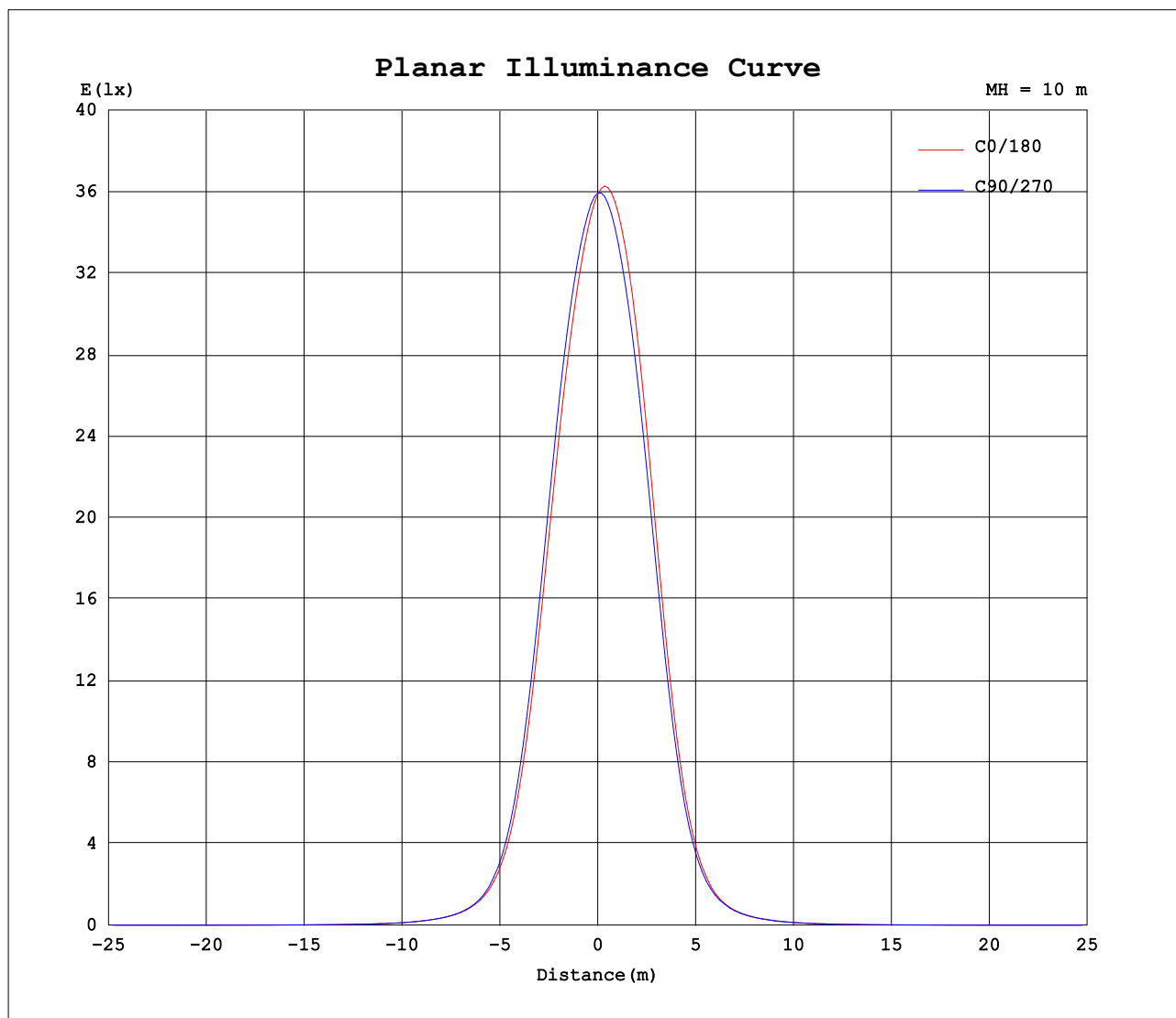
AvgL	cd/m2
L_0~180 (65) av	1433
L_0~180 (75) av	104
L_0~180 (85) av	83
L_90~270 (65) av	357
L_90~270 (75) av	84
L_90~270 (85) av	60
L_45 (65) av	784
L_45 (75) av	91
L_45 (85) av	68

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Xie Bi
 Test Date:2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
 Humidity:65.0%
 Test Distance:6.900m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Xie Bi
Test Date: 2020-05-04

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity: 65.0%
Test Distance: 6.900m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.68V I:0.0957A P:20.149W PF:0.9542 Freq:59.98Hz Lamp Flux:1325.79x1 lm		
NAME: 3709LED	TYPE:	WEIGHT:
SPEC.:P-3709LED-20W2738-CI50037R90-LDK700	DIM.:	SERIAL No.:
MFR.: CETTIGA	SUR.:0.0007	Shielding Angle:

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	90	180	270															
0	3588	3592	3588	3592															
5	3265	3377	3591	3462															
10	2712	2884	3240	3030															
15	1927	2097	2491	2286															
20	1095	1222	1512	1376															
25	506	567	716	647															
30	227	241	292	273															
35	113	116	133	127															
40	62.0	62.9	70.3	67.4															
45	34.5	33.4	38.2	35.3															
50	19.4	18.7	20.8	19.5															
55	11.1	9.83	11.9	10.4															
60	5.60	3.69	6.31	4.11															
65	1.23	0.31	2.16	0.53															
70	0.18	0.10	0.19	0.19															
75	0.09	0.02	0.06	0.10															
80	0.05	0.01	0.02	0.05															
85	0.02	0.00	0.02	0.03															
90	0.01	0.00	0.02	0.02															
95	0.01	0.01	0.02	0.02															
100	0.01	0.01	0.02	0.02															
105	0.01	0.01	0.03	0.02															
110	0.01	0.02	0.03	0.02															
115	0.01	0.04	0.05	0.02															
120	0.01	0.06	0.06	0.02															
125	0.07	0.10	0.10	0.04															
130	0.17	0.20	0.13	0.09															
135	0.39	0.41	0.21	0.17															
140	0.88	0.86	0.38	0.35															
145	1.71	1.62	0.70	0.70															
150	2.76	2.62	1.27	1.31															
155	3.88	3.74	2.01	2.12															
160	4.76	4.73	2.87	2.98															
165	5.33	5.44	3.68	3.77															
170	5.65	5.84	4.38	4.44															
175	5.80	6.01	5.10	5.18															
180	5.79	5.90	5.77	5.89															

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Xie Bi
Test Date:2020-05-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:6.900m [K=1.0000]
Remarks: