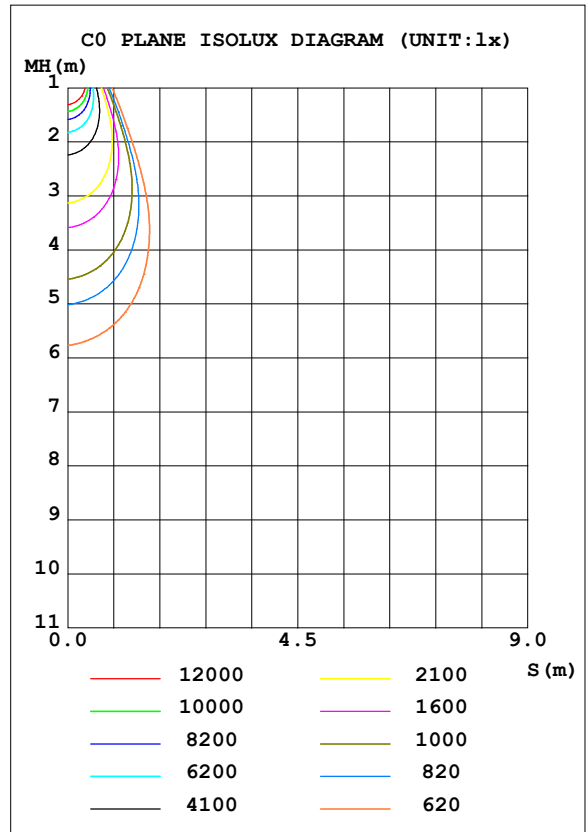
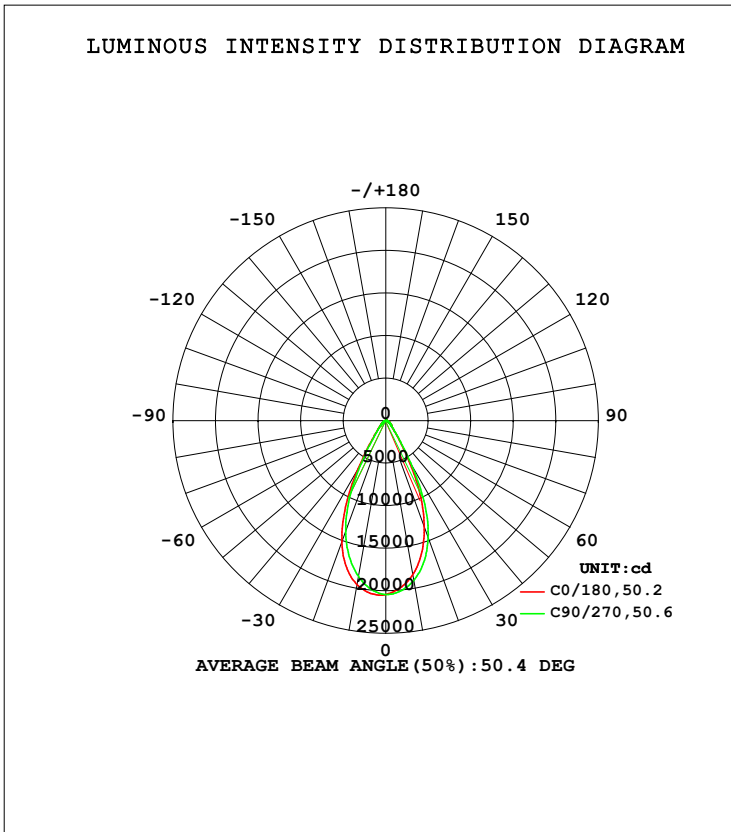


EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.1V I:0.4377A P:99.4W PF:0.9866 Freq:49.99Hz Lamp Flux:14904.3x1 lm		
NAME: FL23-100-5070-F12802	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 149.96 lm/W			
MODEL	/	I <sub>max</sub> (cd)	20532	S/MH (C0/180)	0.78
NOMINAL POWER (W)	/	LOR (%)	100.0	S/MH (C90/270)	0.76
RATED VOLTAGE (V)	/	TOTAL FLUX (lm)	14904	η UP, DN (C0-180)	0.0, 50.7
NOMINAL FLUX (lm)	14904.3	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 49.3
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE (V)	230	η down (%)	100.0	CIBSE SHR MAX	0.80



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: WJH  
 Test Date: 2021-04-27

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity: 65.0%  
 Test Distance: 9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

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**ZONAL FLUX DIAGRAM**

ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	1837	1860	1906	1950	1956	1906	1859	1818	0- 10	1874	1874	12.6,12.6
20	1326	1370	1460	1510	1512	1429	1383	1302	10- 20	4681	6555	44,44
30	548.2	580.7	622.6	671.4	650.4	612.0	577.6	537.5	20- 30	4628	11183	75,75
40	156.0	156.5	163.5	168.4	167.6	160.9	155.8	151.0	30- 40	1970	13153	88.2,88.2
50	73.35	72.15	73.63	74.90	78.10	73.62	72.98	70.46	40- 50	819.9	13973	93.7,93.7
60	44.39	41.55	43.62	43.00	46.97	41.79	41.68	40.45	50- 60	490.2	14463	97,97
70	21.98	19.79	20.95	20.66	22.23	19.84	19.26	18.86	60- 70	292.9	14756	99,99
80	6.594	5.566	5.876	5.873	6.496	5.314	4.935	4.921	70- 80	127.8	14883	99.9,99.9
90	0.2208	0.2193	0.2402	0.2521	0.2135	0.2114	0.2073	0.2094	80- 90	20.85	14904	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:×10cd									UNIT:lm		

Conical surface Flux(90deg): 13623 lm

%lum = 91.4%

%lamp = 91.4%

Conical surface Flux(120deg): 14463 lm

%lum = 97.0%

%lamp = 97.0%

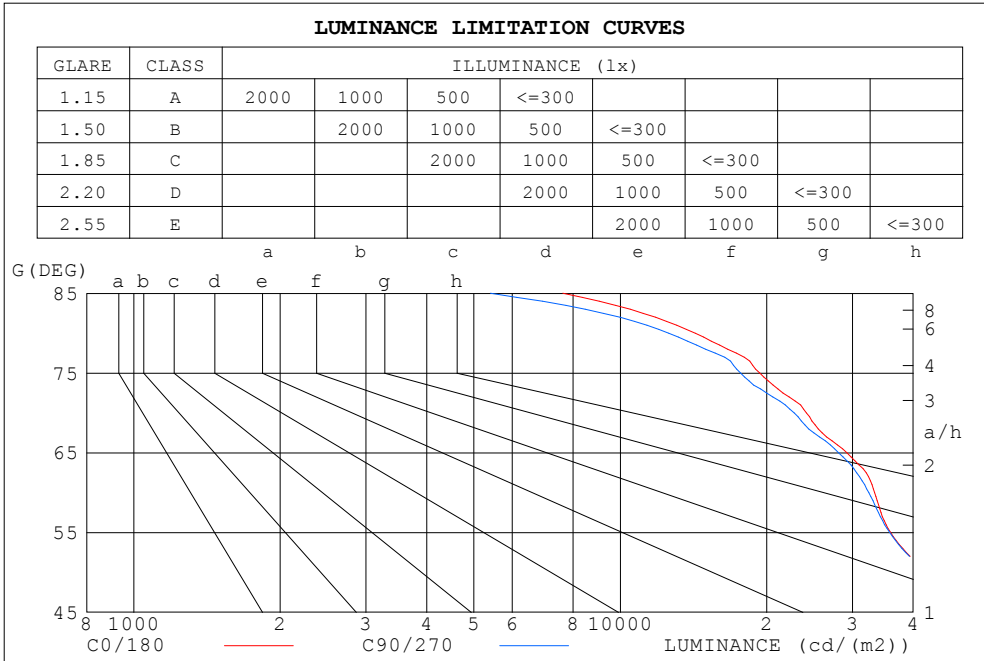
C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:WJH  
 Test Date:2021-04-27

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity:65.0%  
 Test Distance:9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

LUMINANCE LIMITATION CURVES



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	7616	5406
80	14256	12579
75	19336	17654
70	24124	22768
65	29216	28098
60	33333	32435
55	35932	35792
50	42845	42585
45	54668	54732

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: WJH  
 Test Date: 2021-04-27

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity: 65.0%  
 Test Distance: 9.350m [K=1.0000]  
 Remarks:

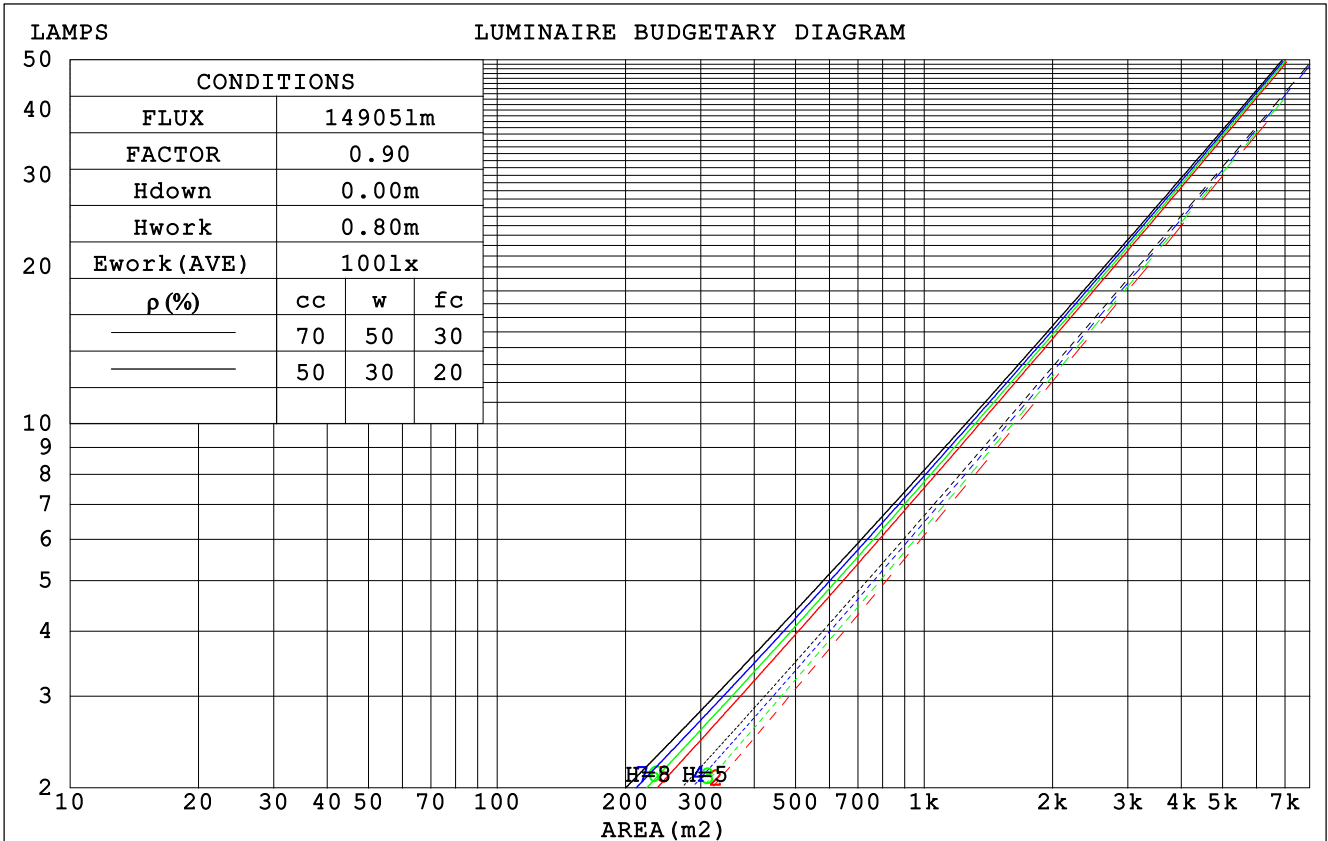
Checker: LI

Assessor:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	1.10	1.08	1.06	1.08	1.06	1.04	1.04	1.02	1.01	1.00	.99	.98	.97	.96	.95	.93
2.0	1.03	.98	.95	1.01	.97	.94	.98	.94	.92	.95	.92	.90	.92	.90	.88	.86
3.0	.96	.91	.87	.94	.90	.86	.92	.88	.84	.89	.86	.83	.87	.84	.82	.80
4.0	.89	.84	.80	.88	.83	.79	.86	.82	.78	.84	.80	.77	.82	.79	.76	.75
5.0	.84	.78	.74	.83	.78	.73	.81	.76	.73	.80	.75	.72	.78	.74	.72	.70
6.0	.79	.73	.69	.78	.73	.69	.77	.72	.68	.75	.71	.68	.74	.70	.67	.66
7.0	.75	.69	.64	.74	.68	.64	.73	.68	.64	.71	.67	.64	.70	.66	.63	.62
8.0	.71	.65	.61	.70	.64	.61	.69	.64	.60	.68	.63	.60	.67	.63	.60	.58
9.0	.67	.61	.57	.66	.61	.57	.66	.60	.57	.65	.60	.57	.64	.60	.57	.55
10.0	.64	.58	.54	.63	.58	.54	.62	.57	.54	.62	.57	.54	.61	.57	.54	.52



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: WJH  
 Test Date: 2021-04-27

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity: 65.0%  
 Test Distance: 9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

WEC AND CCEC

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.184	.105	.033	.177	.101	.032	.165	.095	.030	.153	.088	.028	.142	.083	.027	
2.0	.175	.096	.029	.170	.093	.029	.159	.088	.027	.149	.084	.026	.140	.079	.025	
3.0	.166	.088	.026	.161	.086	.026	.152	.082	.025	.144	.079	.024	.136	.075	.023	
4.0	.157	.082	.024	.153	.080	.024	.145	.077	.023	.138	.074	.022	.131	.071	.022	
5.0	.149	.076	.022	.145	.074	.022	.138	.072	.021	.132	.070	.021	.126	.067	.020	
6.0	.141	.071	.020	.138	.070	.020	.132	.068	.020	.126	.066	.019	.121	.064	.019	
7.0	.134	.066	.019	.131	.065	.019	.126	.064	.018	.121	.062	.018	.116	.060	.018	
8.0	.128	.062	.018	.125	.062	.017	.121	.060	.017	.116	.059	.017	.112	.057	.017	
9.0	.122	.059	.016	.120	.058	.016	.116	.057	.016	.112	.056	.016	.108	.055	.016	
10.0	.117	.056	.016	.115	.055	.015	.111	.054	.015	.107	.053	.015	.104	.052	.015	

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	.172	.157	.144	.147	.135	.124	.100	.093	.086	.058	.054	.050	.019	.017	.016	
2.0	.157	.132	.112	.134	.114	.097	.092	.079	.068	.053	.046	.040	.017	.015	.013	
3.0	.144	.114	.089	.124	.098	.077	.085	.068	.054	.049	.040	.032	.016	.013	.010	
4.0	.134	.099	.072	.115	.085	.063	.079	.060	.044	.046	.035	.026	.015	.011	.009	
5.0	.125	.087	.059	.108	.076	.052	.074	.053	.036	.043	.031	.022	.014	.010	.007	
6.0	.118	.078	.050	.101	.068	.043	.070	.047	.031	.040	.028	.018	.013	.009	.006	
7.0	.111	.070	.042	.095	.061	.037	.066	.043	.026	.038	.025	.015	.012	.008	.005	
8.0	.105	.064	.036	.090	.056	.031	.063	.039	.022	.036	.023	.013	.012	.008	.004	
9.0	.100	.059	.031	.086	.051	.027	.060	.036	.019	.035	.021	.012	.011	.007	.004	
10.0	.095	.055	.027	.082	.047	.024	.057	.033	.017	.033	.020	.010	.011	.006	.003	

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:WJH  
 Test Date:2021-04-27

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity:65.0%  
 Test Distance:9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

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**UGR(Unified Glare Rating) Table**

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	12.2	13.1	12.4	13.3	13.5	12.3	13.3	12.5	13.4	13.6
3H	12.7	13.6	12.9	13.8	14.0	12.8	13.6	13.0	13.8	14.0
4H	12.9	13.7	13.1	13.9	14.1	12.9	13.7	13.2	14.0	14.2
6H	13.0	13.7	13.3	14.0	14.2	13.0	13.7	13.3	14.0	14.2
8H	13.0	13.7	13.3	14.0	14.2	12.9	13.7	13.3	14.0	14.2
12H	12.9	13.7	13.3	13.9	14.2	12.9	13.6	13.2	13.9	14.2
4H 2H	12.3	13.2	12.6	13.4	13.6	12.5	13.3	12.8	13.5	13.8
3H	13.0	13.7	13.3	14.0	14.3	13.1	13.8	13.4	14.0	14.3
4H	13.2	13.9	13.6	14.2	14.5	13.3	13.9	13.6	14.2	14.5
6H	13.4	14.0	13.8	14.3	14.7	13.4	13.9	13.7	14.3	14.6
8H	13.4	13.9	13.8	14.3	14.7	13.3	13.9	13.7	14.2	14.6
12H	13.4	13.9	13.8	14.2	14.6	13.3	13.8	13.7	14.2	14.6
8H 4H	13.3	13.8	13.7	14.2	14.5	13.3	13.8	13.7	14.2	14.5
6H	13.5	13.9	13.9	14.3	14.7	13.4	13.8	13.8	14.2	14.7
8H	13.5	13.9	13.9	14.3	14.7	13.4	13.8	13.9	14.2	14.7
12H	13.5	13.8	13.9	14.3	14.7	13.4	13.7	13.9	14.2	14.6
12H 4H	13.2	13.7	13.6	14.1	14.5	13.2	13.7	13.6	14.1	14.5
6H	13.4	13.8	13.9	14.2	14.7	13.4	13.8	13.8	14.2	14.6
8H	13.5	13.8	13.9	14.2	14.7	13.4	13.7	13.9	14.2	14.6
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 1.0 / - 1.0					+ 1.1 / - 1.1				
1.5H	+ 1.7 / - 0.8					+ 2.0 / - 0.8				
2.0H	+ 1.3 / - 0.9					+ 1.3 / - 0.9				

CIE Pub.117, 14904 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 9.4)  
 Area: 0.02688 m2

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:WJH  
 Test Date:2021-04-27

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity:65.0%  
 Test Distance:9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

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**UTILIZATION FACTORS TABLE**

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) $k(RI) \times RCR = 5$									
$k = 0.60$	84	77	73	84	77	73	83	77	73	69
0.80	92	85	81	91	85	81	90	85	81	77
1.00	97	91	87	96	90	86	94	90	86	82
1.25	101	95	92	100	95	91	98	94	90	86
1.50	104	99	95	103	98	95	101	97	94	89
2.00	107	103	99	106	102	98	103	100	97	91
2.50	109	105	102	107	104	101	104	101	99	93
3.00	111	107	104	109	106	103	106	103	101	94
4.00	113	110	108	111	108	106	107	105	104	96
5.00	114	112	110	112	110	108	108	107	105	98
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
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 Temperature: 25.3DEG  
 Operators: WJH  
 Test Date: 2021-04-27

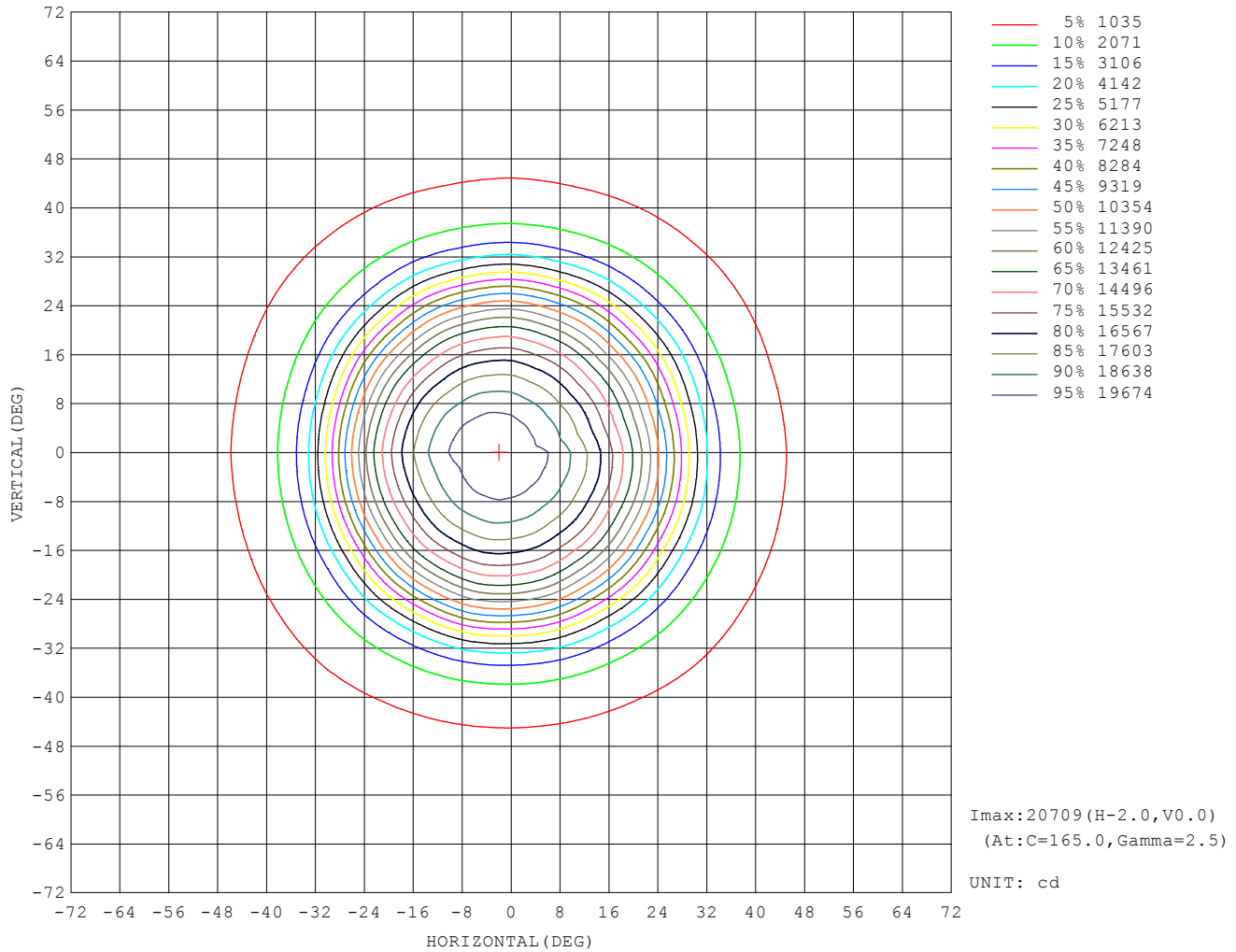
$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 $\gamma$  Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity: 65.0%  
 Test Distance: 9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOCANDELA DIAGRAM



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:WJH  
 Test Date:2021-04-27

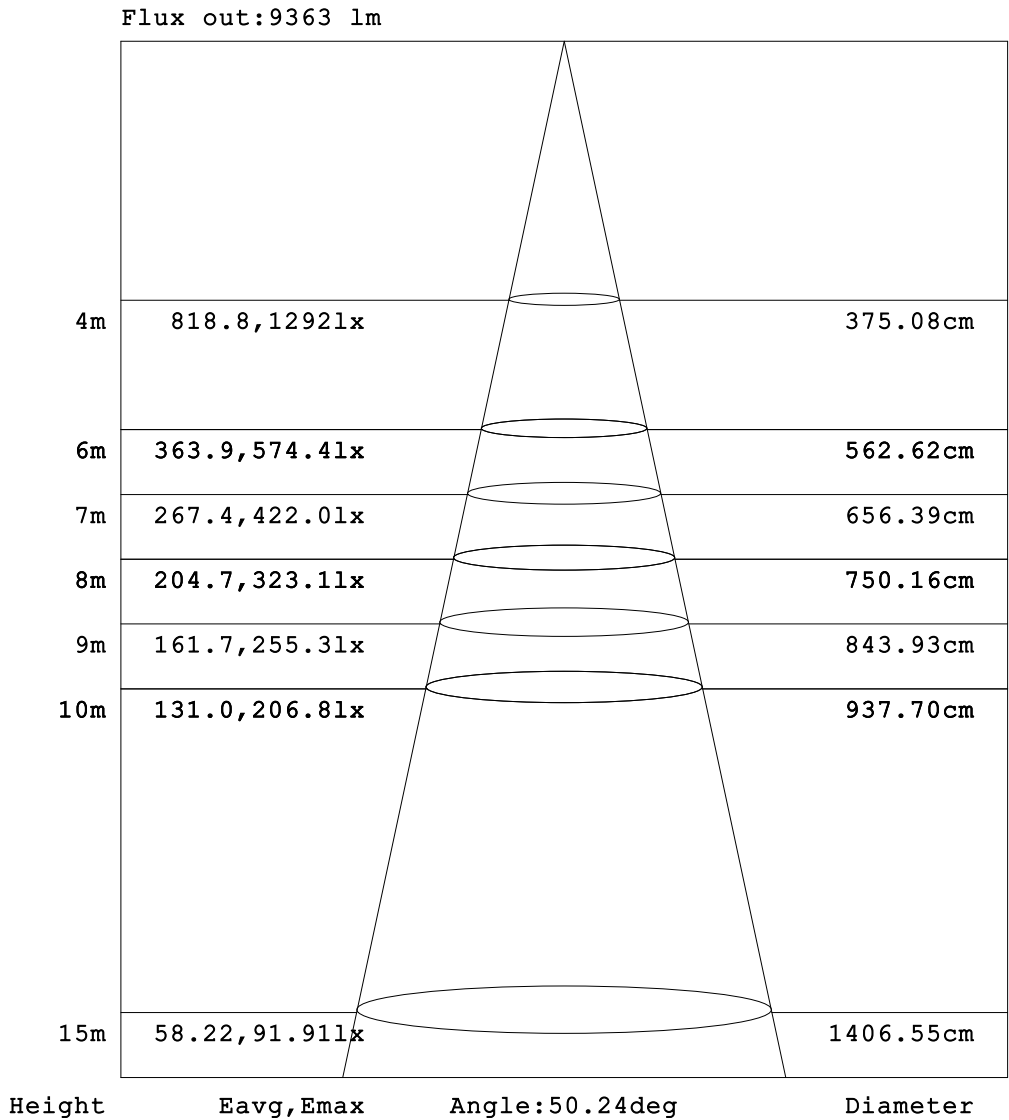
$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity:65.0%  
 Test Distance:9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:



AAI Figure



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

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: WJH  
 Test Date: 2021-04-27

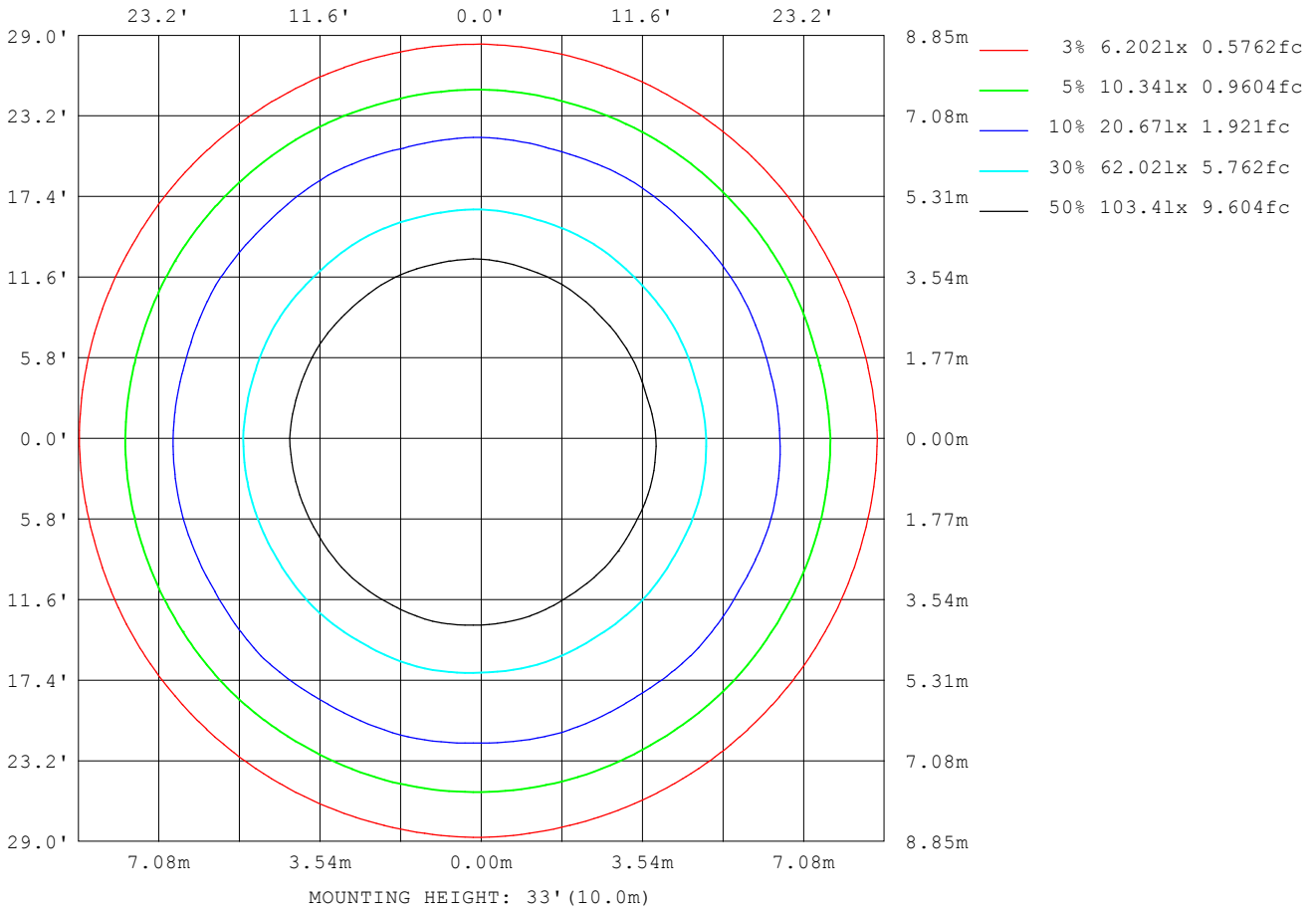
γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity: 65.0%  
 Test Distance: 9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM



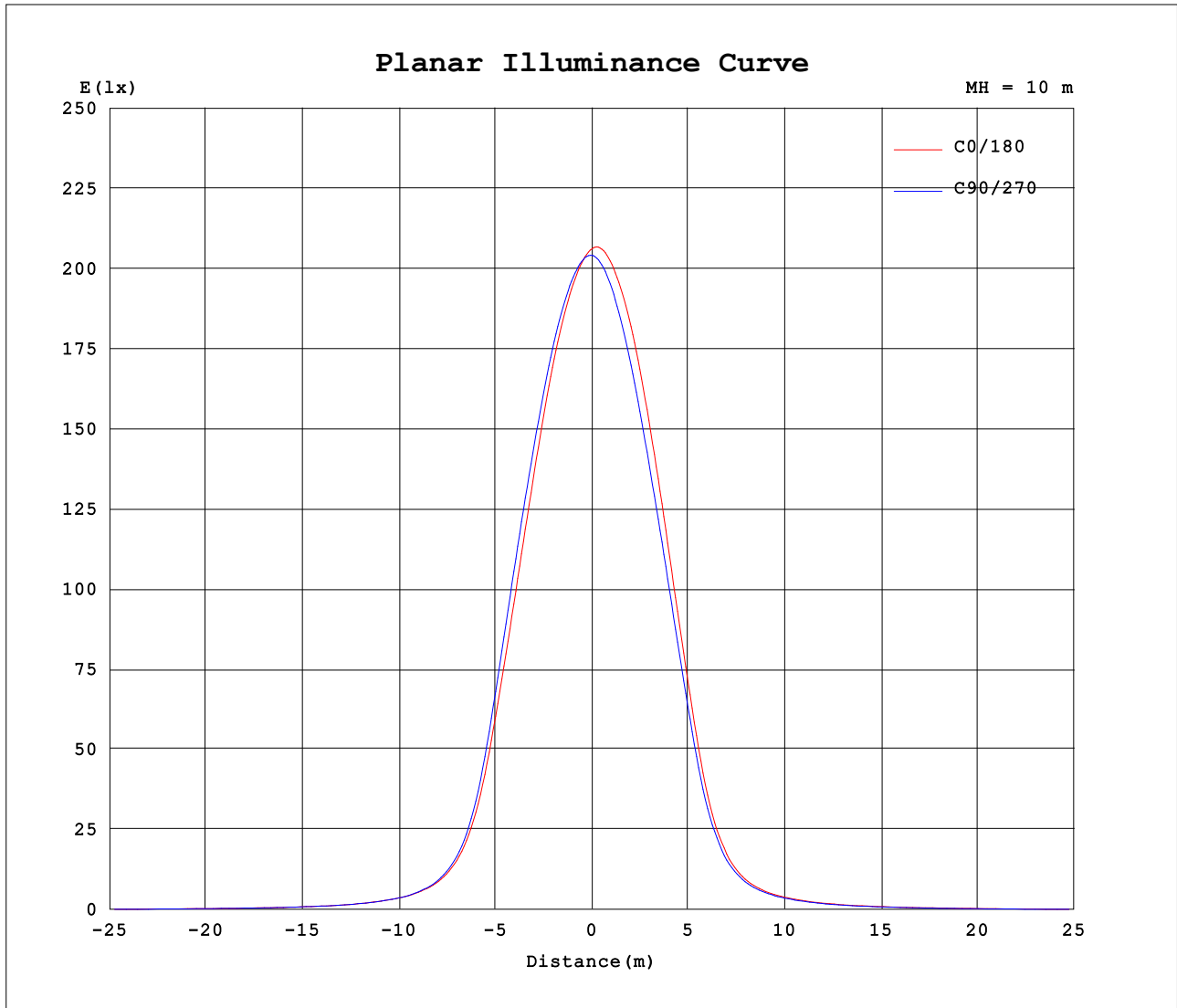
C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: WJH  
 Test Date: 2021-04-27

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
 Humidity: 65.0%  
 Test Distance: 9.350m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: WJH  
Test Date: 2021-04-27

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.00.426  
Humidity: 65.0%  
Test Distance: 9.350m [K=1.0000]  
Remarks:

Checker: LI

Assessor: