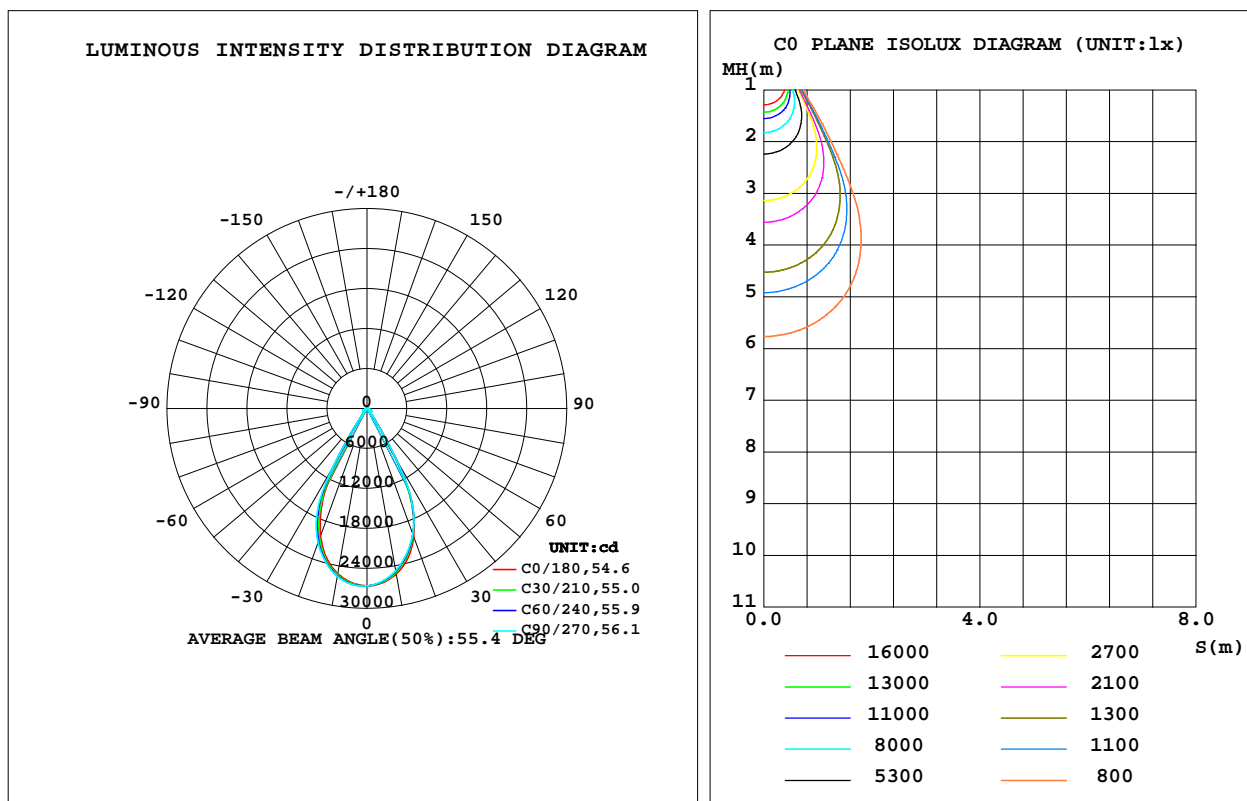


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:229.9V I:0.6502A P:147.7W PF:0.9884 Lamp Flux:19358.3x1 lm		
NAME: FL23-150-5070-F19202	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.148*0.232	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 131.04 lm/W			
MODEL	RF303	I _{max} (cd)	26655	S/MH(C0/180)	0.80
NOMINAL POWER(W)	150	LOR(%)	100.0	S/MH(C90/270)	0.82
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	19358	h UP,DN(C0-180)	0.0,48.9
NOMINAL FLUX(lm)	19358.3	CIE CLASS	DIRECT	h UP,DN(C180-360)	0.0,51.1
LAMPS INSIDE	1	h up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	230	h down(%)	100.0	CIBSE SHR MAX	0.80



C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2019-11-05

Checker: LI

g Range: 0 - 90DEG
g Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Assessor:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

g	C0	C45	C90	C135	C180	C225	C270	C315	g	F zone	F total	%lum,lamp
5	2627	2614	2603	2608	2624	2638	2648	2642	0- 5	632.1	632.1	3.27,3.27
10	2523	2494	2474	2483	2519	2542	2560	2548	5- 10	1840	2472	12.8,12.8
15	2342	2301	2274	2282	2334	2362	2390	2373	10- 15	2878	5350	27.6,27.6
20	2051	2025	2011	1994	2040	2094	2146	2108	15- 20	3622	8972	46.3,46.3
25	1607	1625	1631	1587	1607	1696	1792	1710	20- 25	3912	12885	66.6,66.6
30	856.2	882.4	889.7	896.2	936.5	976.9	1064	968.2	25- 30	3366	16251	83.9,83.9
35	201.1	211.8	206.2	214.1	225.0	209.6	217.6	207.5	30- 35	1484	17734	91.6,91.6
40	73.10	77.37	80.55	77.10	74.47	74.54	78.63	76.81	35- 40	386.1	18120	93.6,93.6
45	51.12	52.85	52.16	53.33	52.19	52.13	52.16	52.73	40- 45	231.3	18352	94.8,94.8
50	44.92	40.79	44.29	40.85	43.66	40.84	45.20	40.90	45- 50	185.2	18537	95.8,95.8
55	42.90	37.06	41.72	36.88	42.70	37.13	42.83	37.47	50- 55	172.5	18709	96.6,96.6
60	70.02	32.36	72.27	32.19	63.81	32.35	77.88	32.49	55- 60	172.7	18882	97.5,97.5
65	48.42	31.15	48.44	30.06	49.83	31.67	50.76	31.12	60- 65	172.9	19055	98.4,98.4
70	28.78	21.20	26.70	20.96	29.35	21.33	27.66	21.57	65- 70	135.1	19190	99.1,99.1
75	16.21	13.39	14.73	13.31	16.32	13.65	15.11	13.67	70- 75	92.80	19283	99.6,99.6
80	7.588	6.115	7.068	6.086	8.132	6.287	7.190	6.316	75- 80	52.64	19336	99.9,99.9
85	1.590	1.339	1.199	1.324	1.671	1.477	1.390	1.508	80- 85	19.76	19355	100,100
90	0.1540	0.1460	0.1496	0.1449	0.1629	0.1535	0.1593	0.1530	85- 90	2.844	19358	100,100
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:×10cd									UNIT:lm		

Conical surface Flux(90deg): 18352 lm

%lum = 94.8%
%lamp = 94.8%

Conical surface Flux(120deg): 18882 lm

%lum = 97.5%
%lamp = 97.5%

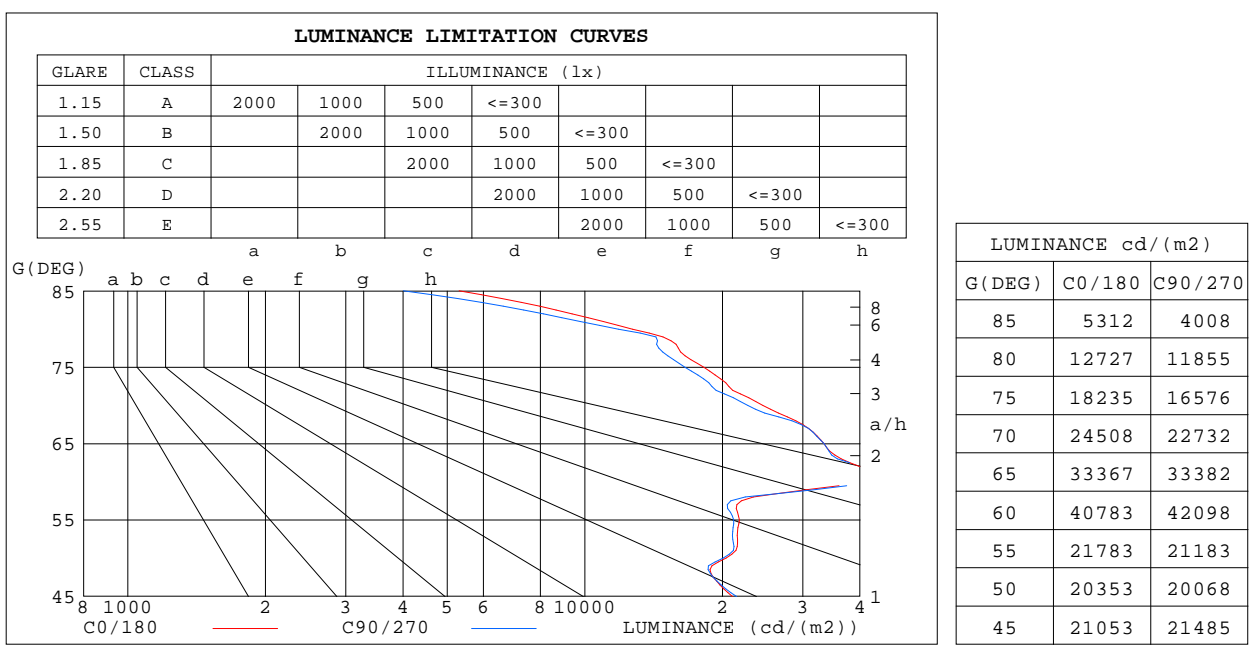
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2019-11-05

Checker: LI

g Range: 0 - 90DEG
g Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Assessor:

LUMINANCE LIMITATION CURVES



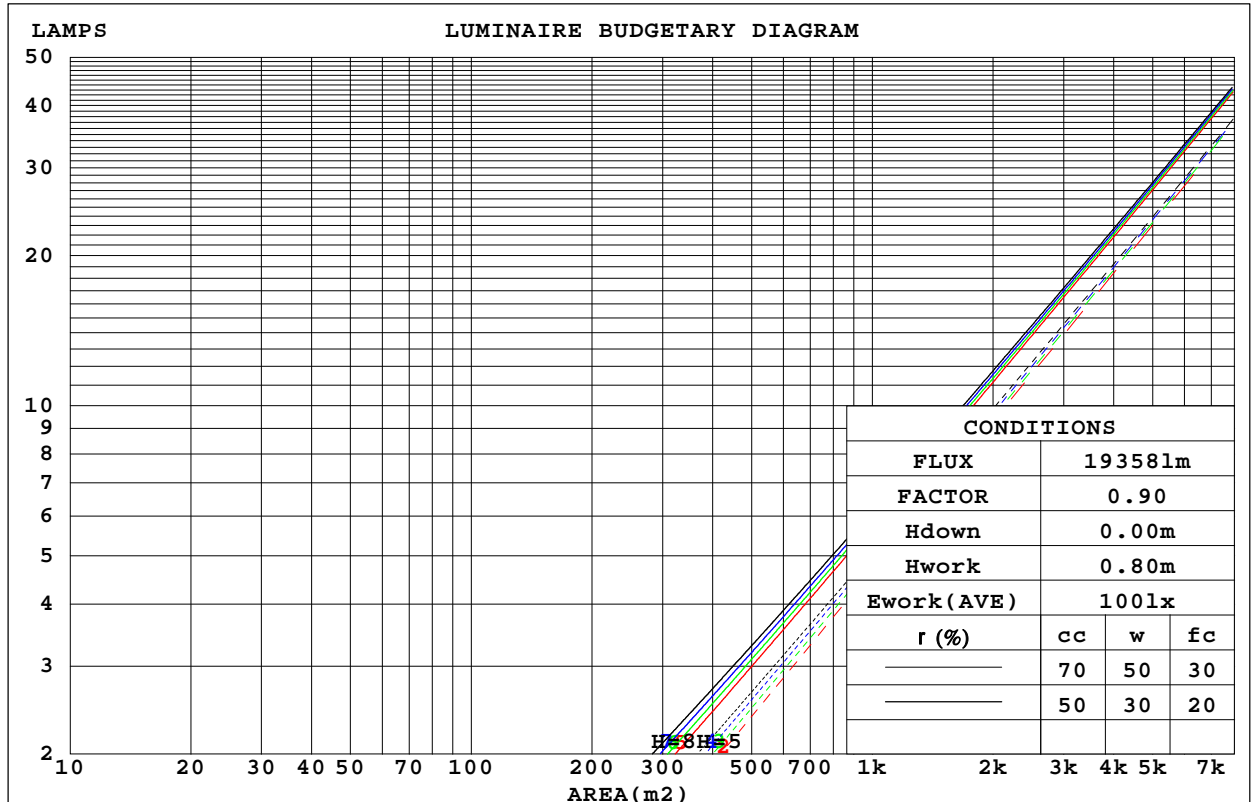
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2019-11-05

g Range: 0 - 90DEG
g Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:
Assessor:

Checker: LI

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r 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	1.11	1.08	1.06	1.09	1.07	1.05	1.05	1.03	1.01	1.01	.00	.98	.98	.96	.95	.94
2.0	1.04	.00	.96	1.02	.98	.95	.99	.96	.93	.96	.93	.91	.93	.91	.89	.88
3.0	.97	.92	.88	.96	.91	.88	.93	.89	.86	.91	.88	.85	.88	.86	.84	.82
4.0	.91	.86	.82	.90	.85	.82	.88	.84	.81	.86	.83	.80	.84	.81	.79	.77
5.0	.86	.81	.77	.85	.80	.76	.83	.79	.75	.82	.78	.75	.80	.77	.74	.73
6.0	.81	.76	.72	.81	.75	.71	.79	.74	.71	.78	.74	.71	.76	.73	.70	.69
7.0	.77	.71	.68	.76	.71	.67	.75	.70	.67	.74	.70	.67	.73	.69	.66	.65
8.0	.73	.68	.64	.73	.67	.64	.72	.67	.63	.71	.66	.63	.70	.66	.63	.62
9.0	.70	.64	.60	.69	.64	.60	.68	.63	.60	.67	.63	.60	.67	.63	.60	.58
10.0	.66	.61	.57	.66	.61	.57	.65	.60	.57	.64	.60	.57	.64	.60	.57	.56



C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2019-11-05

g Range: 0 - 90DEG
g Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker: LI

Assessor:

WEC AND CCEC

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r fc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.175	.100	.032	.169	.096	.031	.156	.089	.029	.144	.083	.027	.134	.078	.025	
2.0	.166	.091	.028	.160	.088	.027	.150	.083	.026	.140	.079	.025	.131	.074	.023	
3.0	.157	.083	.025	.152	.081	.024	.143	.077	.024	.135	.074	.023	.127	.070	.022	
4.0	.148	.077	.023	.144	.075	.022	.136	.072	.022	.129	.069	.021	.122	.066	.020	
5.0	.140	.071	.021	.137	.070	.020	.130	.068	.020	.124	.065	.019	.118	.063	.019	
6.0	.133	.067	.019	.130	.066	.019	.124	.064	.019	.119	.062	.018	.114	.060	.018	
7.0	.127	.063	.018	.124	.062	.018	.119	.060	.017	.114	.059	.017	.110	.057	.017	
8.0	.121	.059	.017	.119	.059	.017	.114	.057	.016	.110	.056	.016	.106	.054	.016	
9.0	.116	.056	.016	.114	.056	.016	.110	.054	.015	.106	.053	.015	.102	.052	.015	
10.0	.112	.053	.015	.110	.053	.015	.106	.052	.015	.102	.051	.014	.099	.050	.014	

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r 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	.171	.157	.145	.146	.135	.125	.100	.093	.086	.058	.054	.050	.018	.017	.016	
2.0	.155	.133	.113	.133	.114	.098	.091	.079	.068	.053	.046	.040	.017	.015	.013	
3.0	.143	.114	.090	.122	.098	.078	.084	.068	.055	.048	.040	.032	.016	.013	.011	
4.0	.132	.099	.073	.113	.085	.064	.078	.059	.045	.045	.035	.027	.014	.011	.009	
5.0	.123	.087	.061	.105	.075	.053	.073	.053	.037	.042	.031	.022	.014	.010	.007	
6.0	.115	.078	.051	.099	.067	.044	.068	.047	.031	.040	.028	.019	.013	.009	.006	
7.0	.108	.070	.043	.093	.061	.037	.064	.042	.027	.037	.025	.016	.012	.008	.005	
8.0	.102	.064	.037	.088	.055	.032	.061	.039	.023	.036	.023	.014	.011	.007	.005	
9.0	.097	.058	.032	.084	.051	.028	.058	.036	.020	.034	.021	.012	.011	.007	.004	
10.0	.093	.054	.028	.080	.047	.024	.055	.033	.017	.032	.019	.010	.010	.006	.003	

C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2019-11-05

Checker: LI

g Range: 0 - 90DEG
g Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Assessor:

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	18.6	19.5	18.9	19.7	19.9	18.7	19.6	18.9	19.8	19.9
3H	19.7	20.5	19.9	20.7	20.9	19.7	20.6	20.0	20.8	21.0
4H	20.0	20.8	20.3	21.0	21.2	20.0	20.8	20.3	21.0	21.2
6H	20.2	20.9	20.5	21.1	21.4	20.2	20.9	20.4	21.1	21.4
8H	20.2	20.9	20.5	21.1	21.4	20.1	20.9	20.5	21.1	21.4
12H	20.2	20.8	20.5	21.1	21.4	20.1	20.8	20.4	21.1	21.3
4H 2H	18.9	19.6	19.1	19.9	20.1	18.9	19.7	19.2	19.9	20.1
3H	20.0	20.7	20.4	21.0	21.3	20.1	20.7	20.4	21.0	21.3
4H	20.4	21.1	20.8	21.4	21.7	20.4	21.0	20.8	21.3	21.6
6H	20.7	21.2	21.1	21.6	21.9	20.6	21.2	21.0	21.5	21.8
8H	20.7	21.2	21.1	21.6	21.9	20.6	21.1	21.0	21.5	21.9
12H	20.7	21.1	21.1	21.5	21.9	20.6	21.1	21.0	21.4	21.8
8H 4H	20.5	21.0	20.9	21.4	21.7	20.5	21.0	20.9	21.3	21.7
6H	20.8	21.2	21.2	21.6	22.0	20.7	21.2	21.2	21.5	22.0
8H	20.8	21.2	21.3	21.6	22.1	20.8	21.1	21.2	21.5	22.0
12H	20.8	21.2	21.3	21.6	22.1	20.7	21.1	21.2	21.5	22.0
12H 4H	20.5	20.9	20.9	21.3	21.7	20.5	20.9	20.9	21.3	21.7
6H	20.8	21.1	21.2	21.6	22.0	20.7	21.1	21.2	21.5	21.9
8H	20.8	21.1	21.3	21.6	22.1	20.7	21.1	21.2	21.5	22.0
Variations with the observer position at spacings:										
S = 1.0H	+ 1.2 / - 0.5					+ 1.2 / - 0.6				
1.5H	+ 1.6 / - 0.5					+ 1.6 / - 0.6				
2.0H	+ 3.0 / - 0.7					+ 3.2 / - 0.8				

CIE Pub.117 Corrected 19358 lm Total Lamp Luminous Flux.(8log(F/F0) = 10.3)

C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2019-11-05

Checker: LI

g Range: 0 - 90DEG
g Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Assessor:

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) $k(RI) \times RCR = 5$									
$k = 0.60$	88	81	78	87	81	78	86	81	77	74
0.80	95	89	85	94	89	85	93	88	85	81
1.00	99	93	90	98	93	90	97	93	89	85
1.25	103	98	94	102	97	94	100	96	93	89
1.50	106	101	97	104	100	97	102	99	96	91
2.00	108	104	101	107	103	100	104	101	99	93
2.50	110	106	103	108	105	102	105	103	100	94
3.00	112	108	105	110	107	104	106	104	102	96
4.00	114	111	109	112	109	107	108	106	105	98
5.00	115	113	111	113	111	109	109	108	106	99
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

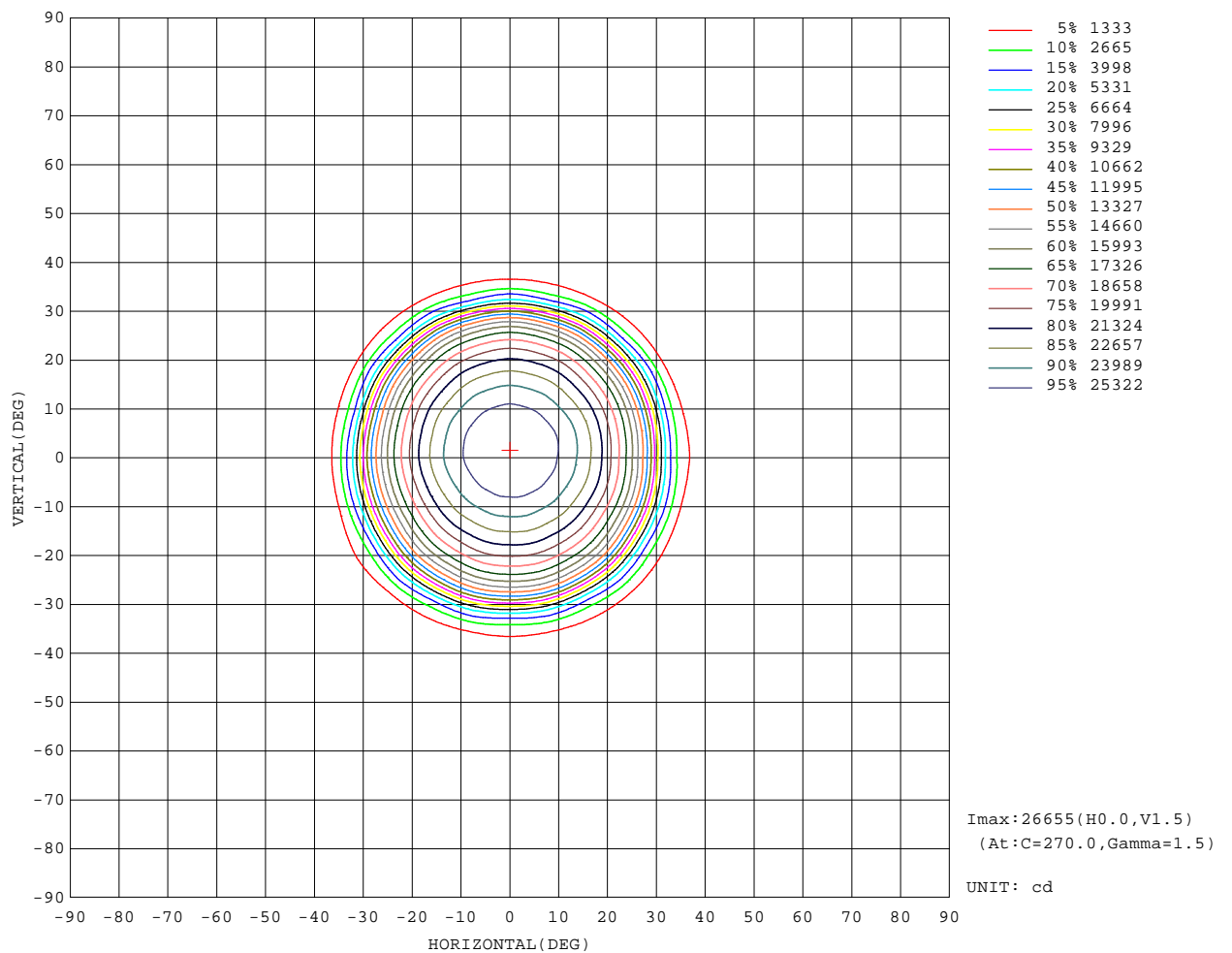
C Range: 0 - 360DEG
 C Interval: 2.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-11-05

Checker: LI

g Range: 0 - 90DEG
 g Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:9.470m [K=1.0000]
 Remarks:

Assessor:

ISOCANDELA DIAGRAM



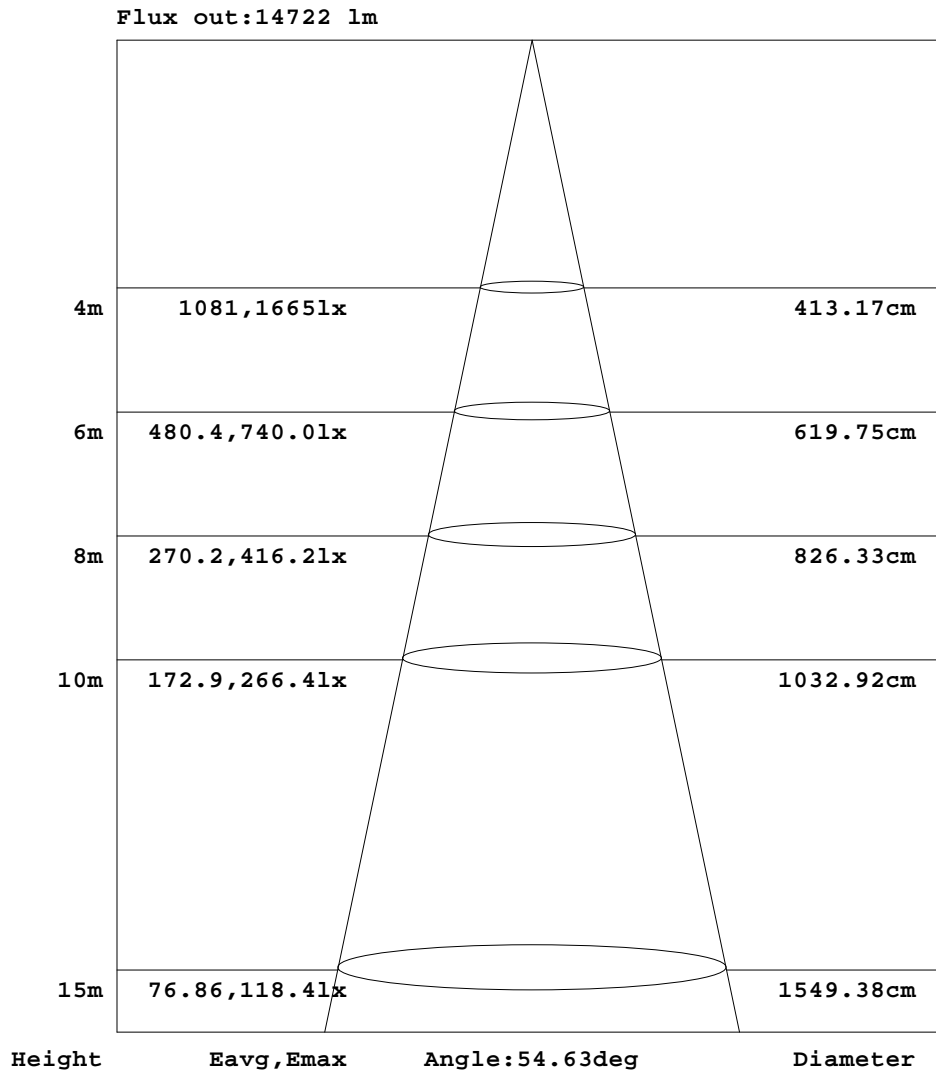
C Range: 0 - 360DEG
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Operators:
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Checker: LI

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Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Assessor:

AAI Figure



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

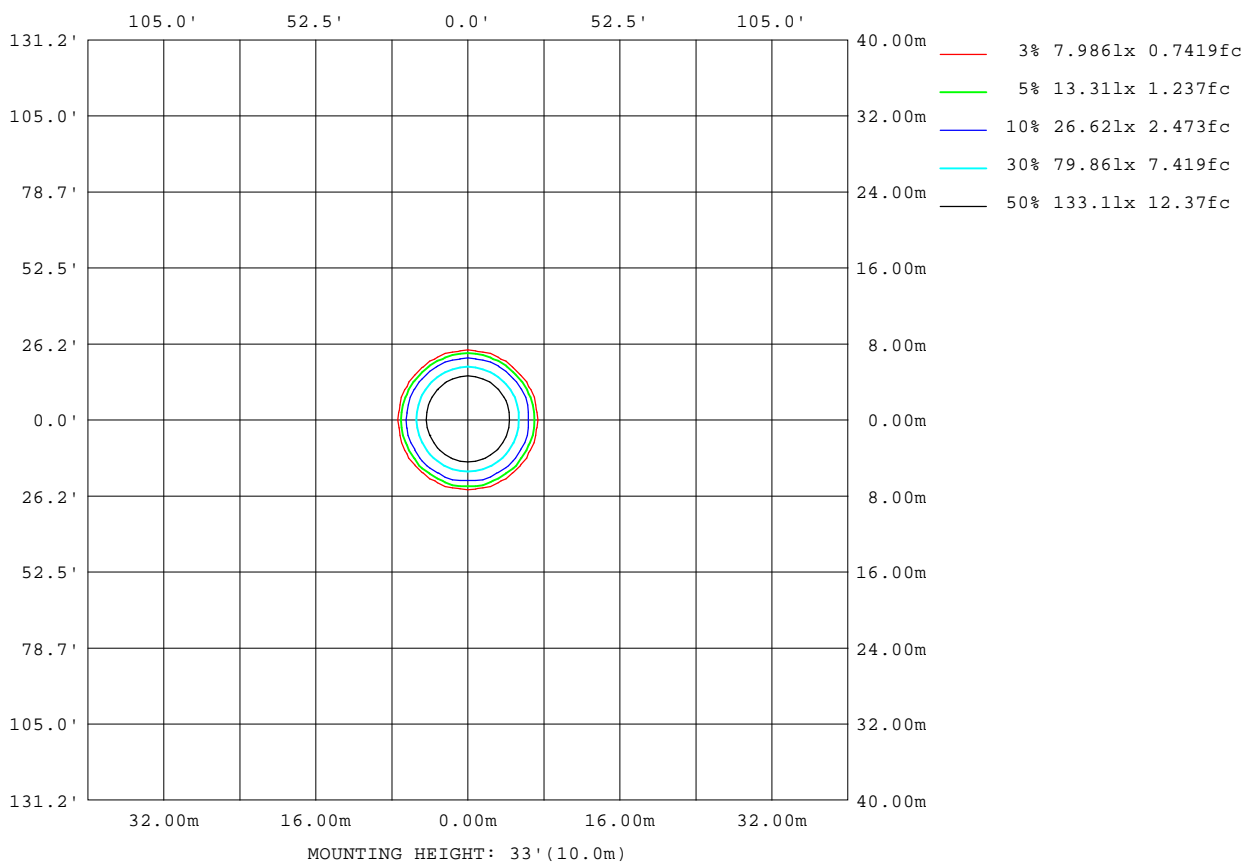
C Range: 0 - 360DEG
 C Interval: 2.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-11-05

Checker: LI

g Range: 0 - 90DEG
 g Interval: 0.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.470m [K=1.0000]
 Remarks:

Assessor:

ISOLUX DIAGRAM



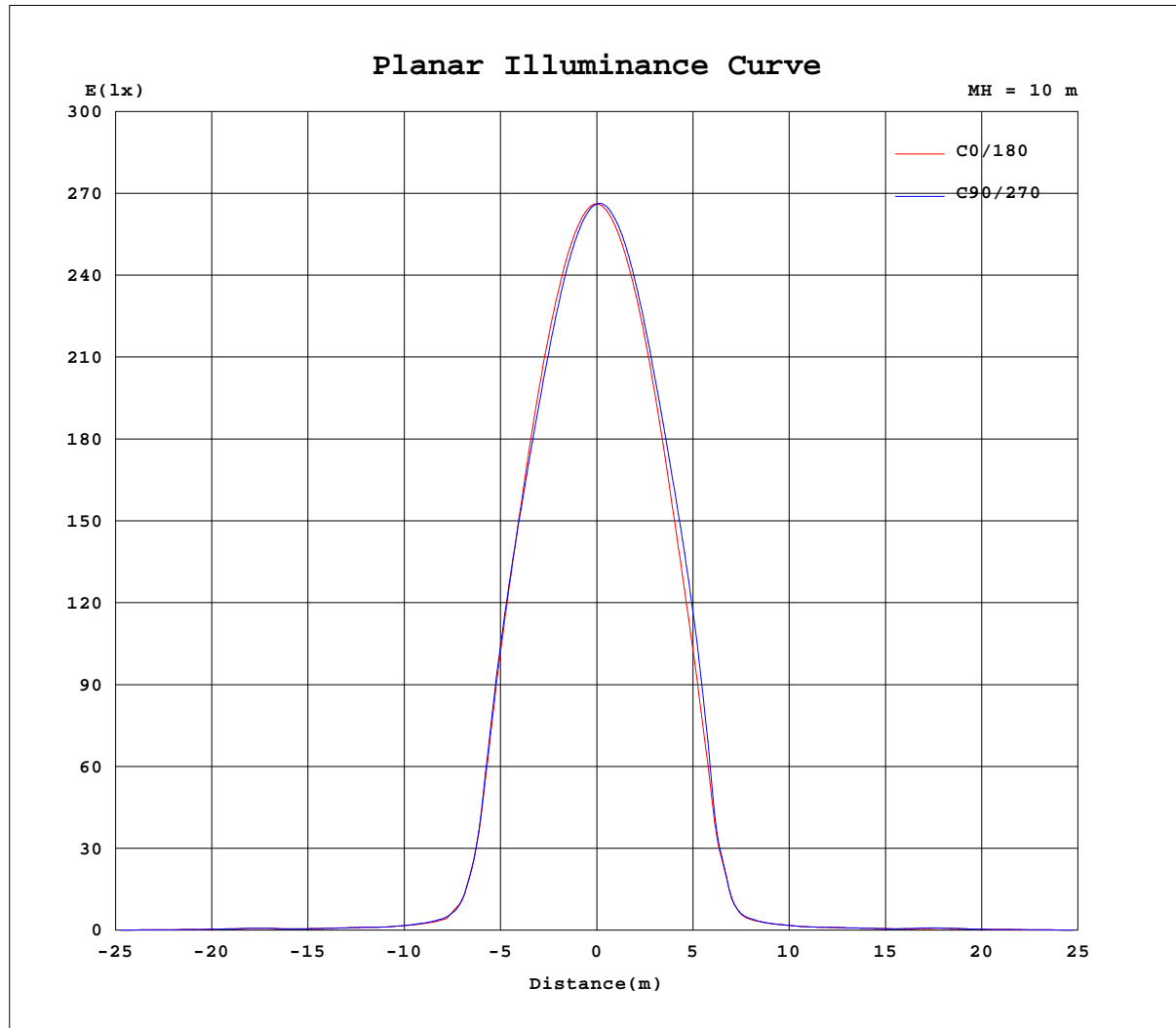
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2019-11-05

Checker: LI

g Range: 0 - 90DEG
g Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2019-11-05

Checker: LI

g Range: 0 - 90DEG
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Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Assessor: