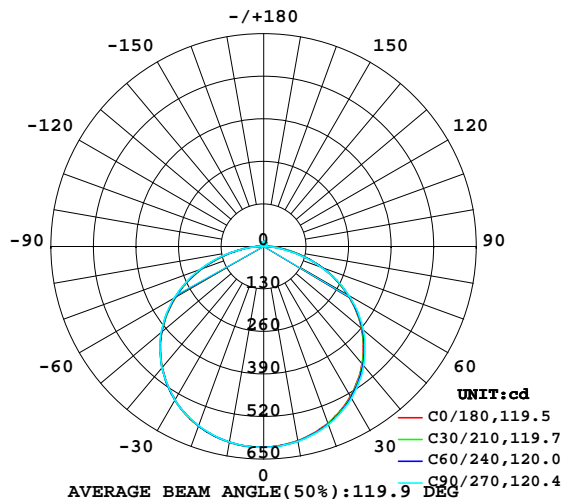


LUMINAIRE PHOTOMETRIC TEST REPORT

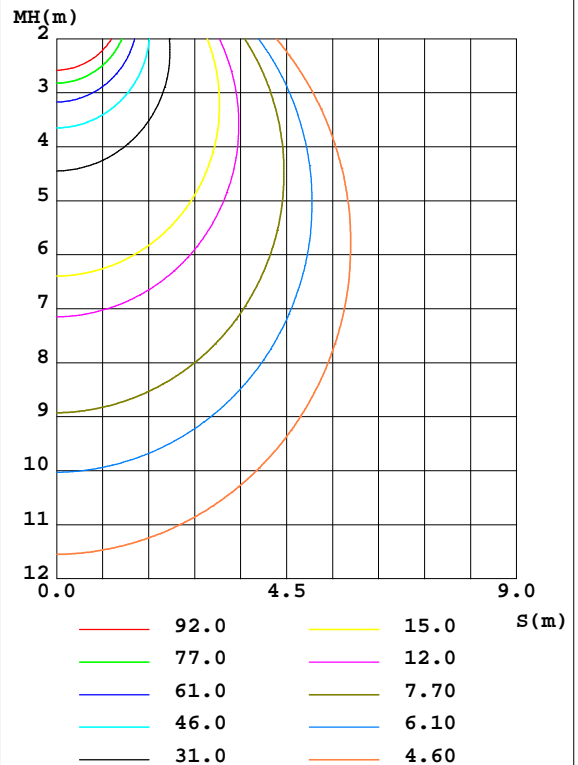
Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 129.55 lm/W			
MODEL		Imax(cd)	614.0	S/MH(C0/180)	1.31
NOMINAL POWER(W)	15.2	LOR(%)	100.0	S/MH(C90/270)	1.31
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	1969.1	η UP,DN(C0-180)	1.5,47.7
NOMINAL FLUX(lm)	1969.15	CIE CLASS	DIRECT	η UP,DN(C180-360)	1.5,49.3
LAMPS INSIDE	1	η up(%)	3.0	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	24	η down(%)	97.0	CIBSE SHR MAX	1.50

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-10-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

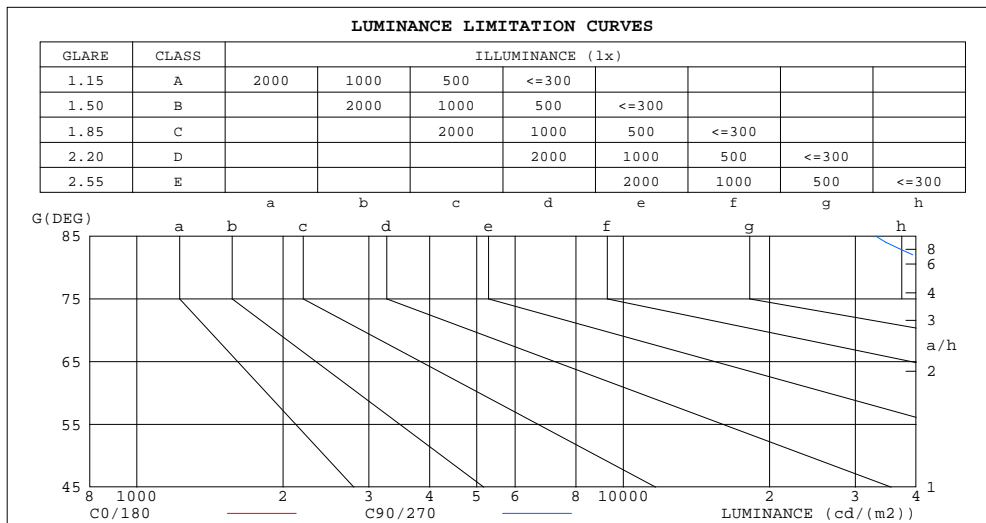
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	602.4	603.6	604.5	606.1	607.5	606.9	606.5	604.9	0- 10	58.19	58.19	2.95,2.95
20	574.6	576.6	578.8	581.2	584.0	583.5	582.8	579.9	10- 20	168.0	226.2	11.5,11.5
30	529.3	531.7	535.7	539.2	543.0	542.7	542.5	537.6	20- 30	258.8	485.1	24.6,24.6
40	468.1	471.1	475.6	477.6	482.2	483.6	483.7	478.9	30- 40	318.8	803.9	40.8,40.8
50	390.2	393.1	396.8	399.6	406.8	407.6	409.7	403.6	40- 50	340.4	1144	58.1,58.1
60	297.4	298.9	301.5	303.6	311.1	313.2	316.2	312.0	50- 60	317.7	1462	74.2,74.2
70	190.9	191.0	188.9	192.6	201.9	203.9	208.3	205.8	60- 70	250.8	1713	87,87
80	85.16	81.27	73.73	79.04	91.28	90.85	93.53	94.84	70- 80	149.0	1862	94.5,94.5
90	18.07	14.17	5.571	11.89	20.48	16.53	7.625	16.50	80- 90	48.38	1910	97,97
100	5.736	5.503	5.327	5.616	6.554	6.146	5.853	5.992	90-100	8.530	1919	97.4,97.4
110	6.851	6.831	6.893	6.931	7.145	7.278	7.256	7.195	100-110	6.717	1925	97.8,97.8
120	8.465	8.385	8.422	8.527	8.637	8.811	8.708	8.655	110-120	7.747	1933	98.2,98.2
130	10.04	9.892	9.947	10.11	10.09	10.32	10.17	10.11	120-130	8.365	1942	98.6,98.6
140	11.41	11.31	11.36	11.57	11.42	11.70	11.56	11.50	130-140	8.348	1950	99,99
150	12.64	12.62	12.73	12.91	12.56	12.92	12.84	12.76	140-150	7.609	1957	99.4,99.4
160	13.84	13.87	14.00	14.10	13.64	13.97	13.96	13.91	150-160	6.164	1964	99.7,99.7
170	14.82	14.91	14.99	15.06	14.64	14.87	14.91	14.96	160-170	4.080	1968	99.9,99.9
180	15.27	15.42	15.46	15.54	15.26	15.41	15.45	15.57	170-180	1.446	1969	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-10-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	50126	33066
80	49041	42462
75	52764	50256
70	55815	55216
65	58146	58496
60	59484	60301
55	60256	61197
50	60707	61737
45	60865	61905

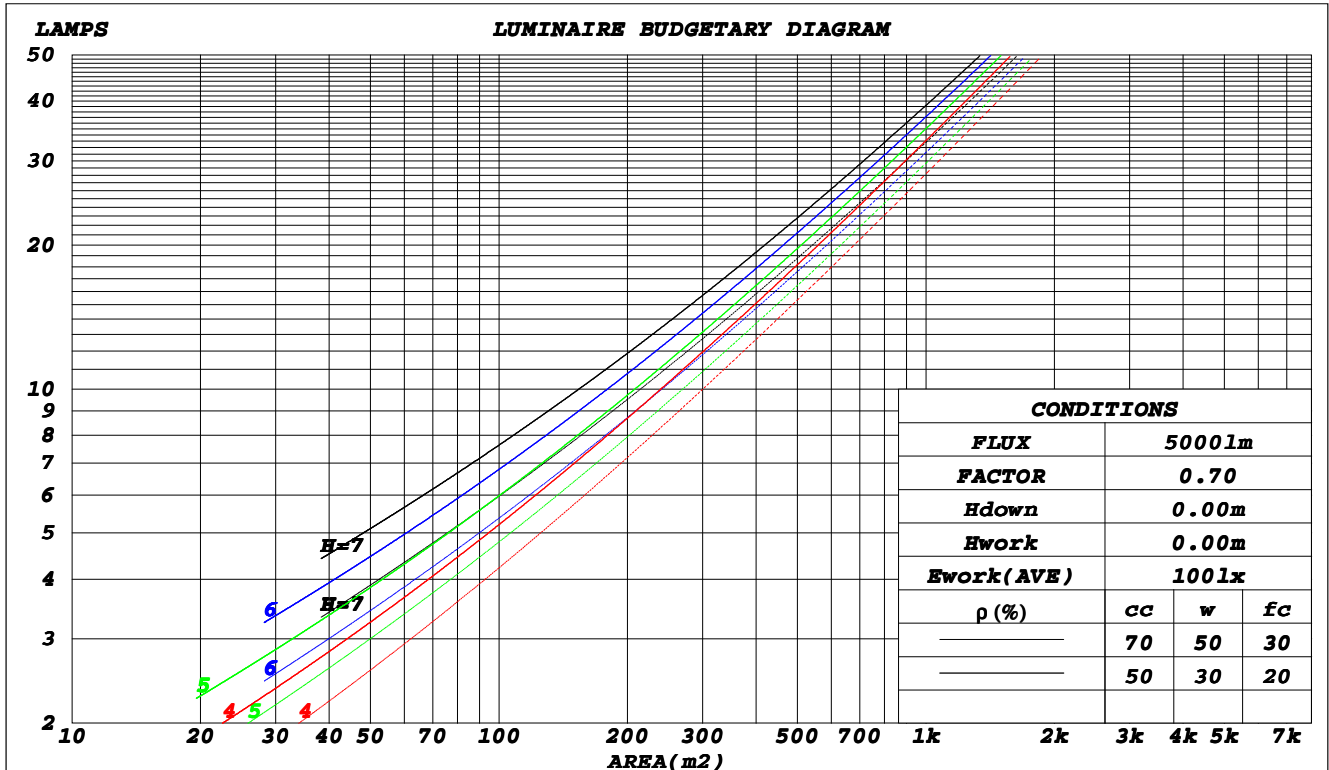
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-10-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		

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															



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-10-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

WEC AND CCEC

Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		

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	.322	.183	.058	.314	.179	.057	.299	.172	.055	.285	.164	.053	.272	.158	.051		
2.0	.300	.164	.050	.293	.161	.050	.280	.155	.048	.267	.150	.047	.256	.145	.046		
3.0	.276	.147	.044	.270	.145	.044	.258	.140	.042	.247	.135	.042	.237	.131	.041		
4.0	.254	.132	.039	.248	.130	.038	.238	.126	.038	.228	.122	.037	.219	.119	.036		
5.0	.234	.119	.035	.229	.118	.034	.220	.114	.034	.211	.111	.033	.203	.108	.033		
6.0	.217	.109	.031	.212	.107	.031	.204	.104	.030	.196	.102	.030	.188	.099	.029		
7.0	.201	.100	.028	.197	.098	.028	.190	.096	.028	.182	.094	.027	.176	.091	.027		
8.0	.188	.092	.026	.184	.091	.026	.177	.089	.025	.171	.086	.025	.165	.084	.025		
9.0	.176	.085	.024	.172	.084	.024	.166	.082	.023	.160	.080	.023	.155	.079	.023		
10.0	.165	.079	.022	.162	.078	.022	.156	.077	.022	.151	.075	.021	.146	.073	.021		

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						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.213	.213	.213	.182	.182	.182	.124	.124	.124	.071	.071	.071	.023	.023	.023	
1.0	.204	.179	.156	.175	.154	.135	.119	.106	.093	.069	.061	.054	.022	.020	.018	
2.0	.197	.155	.120	.168	.133	.104	.115	.092	.072	.067	.054	.042	.021	.017	.014	
3.0	.189	.138	.097	.162	.119	.084	.111	.082	.059	.064	.048	.035	.021	.016	.011	
4.0	.181	.124	.081	.156	.108	.070	.107	.075	.050	.062	.044	.029	.020	.014	.010	
5.0	.174	.114	.070	.149	.099	.061	.103	.069	.043	.060	.041	.026	.019	.013	.008	
6.0	.167	.106	.062	.143	.092	.054	.099	.064	.038	.057	.038	.023	.019	.012	.008	
7.0	.160	.099	.056	.138	.086	.049	.095	.060	.035	.055	.035	.021	.018	.012	.007	
8.0	.153	.093	.052	.132	.081	.045	.091	.057	.032	.053	.034	.019	.017	.011	.006	
9.0	.147	.088	.049	.127	.077	.042	.088	.054	.030	.051	.032	.018	.017	.010	.006	
10.0	.142	.084	.046	.122	.073	.040	.085	.051	.029	.049	.030	.017	.016	.010	.006	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-10-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		

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	27.0	28.5	27.3	28.7	29.0	27.0	28.5	27.3	28.8	29.1
3H	28.6	30.0	28.9	30.3	30.6	28.6	30.0	28.9	30.3	30.6
4H	29.2	30.6	29.6	30.9	31.2	29.2	30.5	29.6	30.8	31.2
6H	29.7	31.0	30.1	31.3	31.6	29.6	30.8	30.0	31.2	31.5
8H	29.9	31.1	30.3	31.4	31.8	29.7	30.9	30.1	31.3	31.6
12H	30.0	31.2	30.4	31.5	31.9	29.8	30.9	30.1	31.3	31.6
4H 2H	27.6	28.9	28.0	29.2	29.6	27.6	29.0	28.0	29.3	29.6
3H	29.4	30.6	29.8	30.9	31.3	29.4	30.6	29.8	30.9	31.3
4H	30.2	31.2	30.6	31.6	32.0	30.1	31.2	30.5	31.6	32.0
6H	30.8	31.7	31.2	32.1	32.6	30.6	31.6	31.1	32.0	32.4
8H	31.0	31.9	31.5	32.3	32.8	30.8	31.7	31.3	32.1	32.6
12H	31.2	32.0	31.7	32.4	32.9	30.9	31.7	31.4	32.1	32.6
8H 4H	30.4	31.3	30.9	31.7	32.2	30.4	31.3	30.9	31.7	32.2
6H	31.2	31.9	31.7	32.4	32.9	31.1	31.8	31.6	32.3	32.7
8H	31.5	32.2	32.0	32.7	33.2	31.3	31.9	31.8	32.4	32.9
12H	31.8	32.4	32.3	32.9	33.4	31.5	32.0	32.0	32.5	33.1
12H 4H	30.4	31.2	30.9	31.7	32.2	30.4	31.2	30.9	31.7	32.1
6H	31.3	31.9	31.8	32.4	32.9	31.1	31.8	31.6	32.3	32.8
8H	31.6	32.2	32.1	32.7	33.2	31.4	32.0	31.9	32.5	33.0
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117, 1969 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 2.4$)
Area: 0.01 m2

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-10-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		

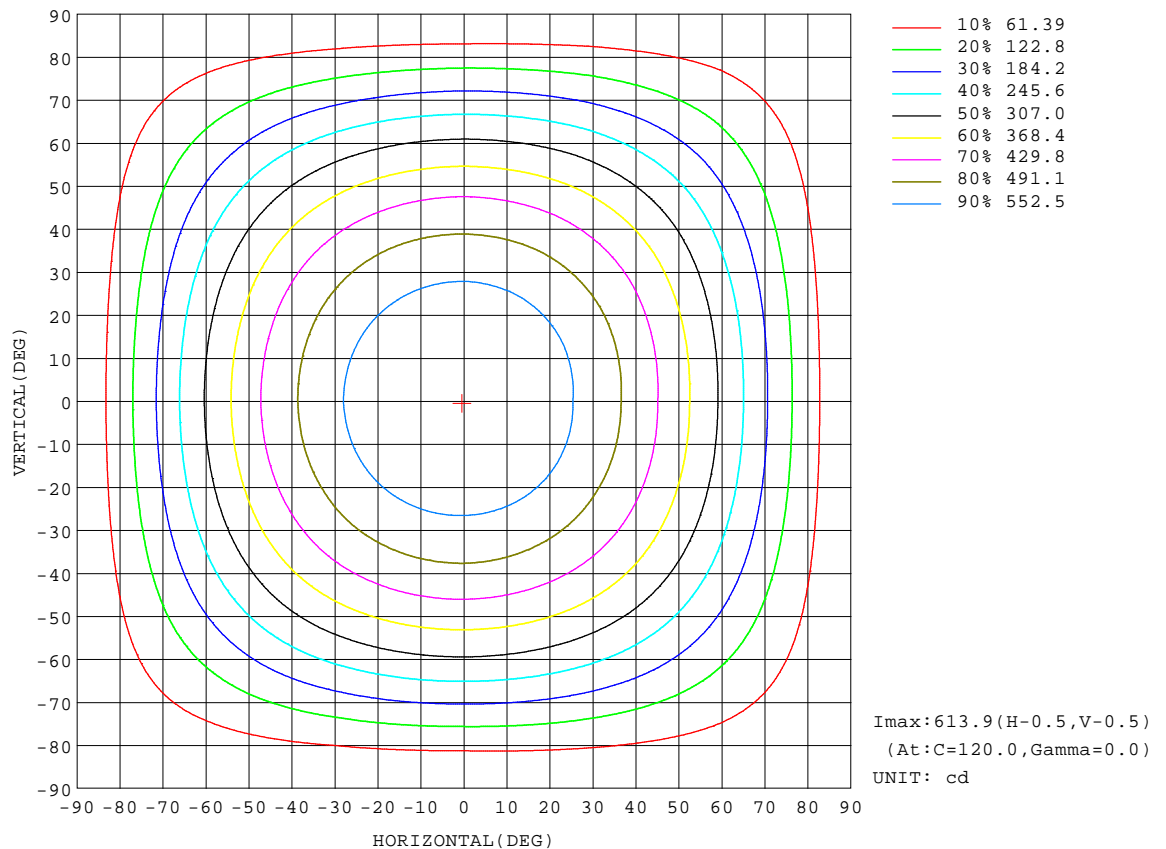
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	55	43	36	54	43	36	53	43	36	29
0.80	65	53	46	64	53	46	62	52	45	38
1.00	74	62	55	72	61	54	70	63	54	46
1.25	81	70	62	79	69	62	76	67	61	53
1.50	86	76	68	84	75	68	81	72	66	58
2.00	93	84	77	91	83	76	87	80	75	66
2.50	97	89	83	95	87	81	90	84	79	70
3.00	101	93	87	98	92	86	94	88	84	74
4.00	105	99	94	102	97	92	97	93	89	79
5.00	107	102	98	105	100	96	99	96	93	82
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-10-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

ISOCANDELA DIAGRAM

Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		



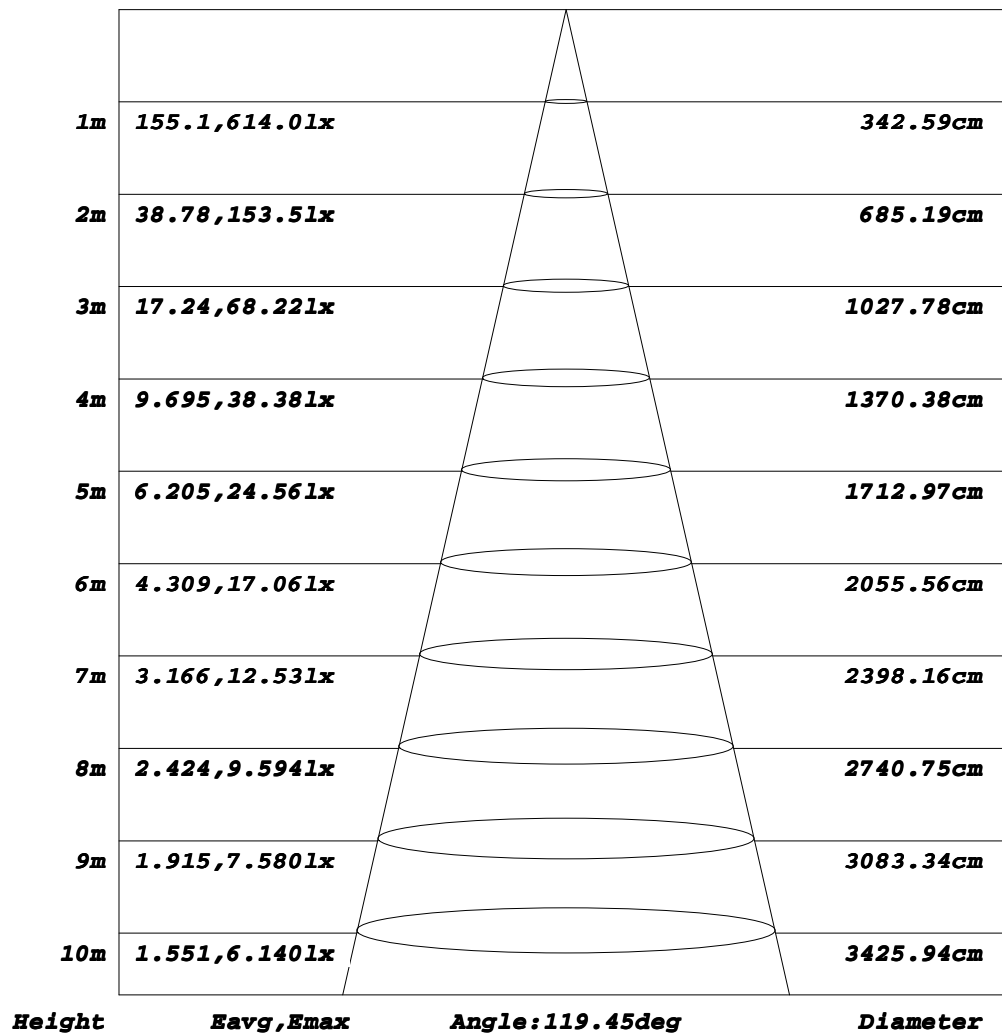
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-10-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

AAI Figure

Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		

Flux out:1462 lm



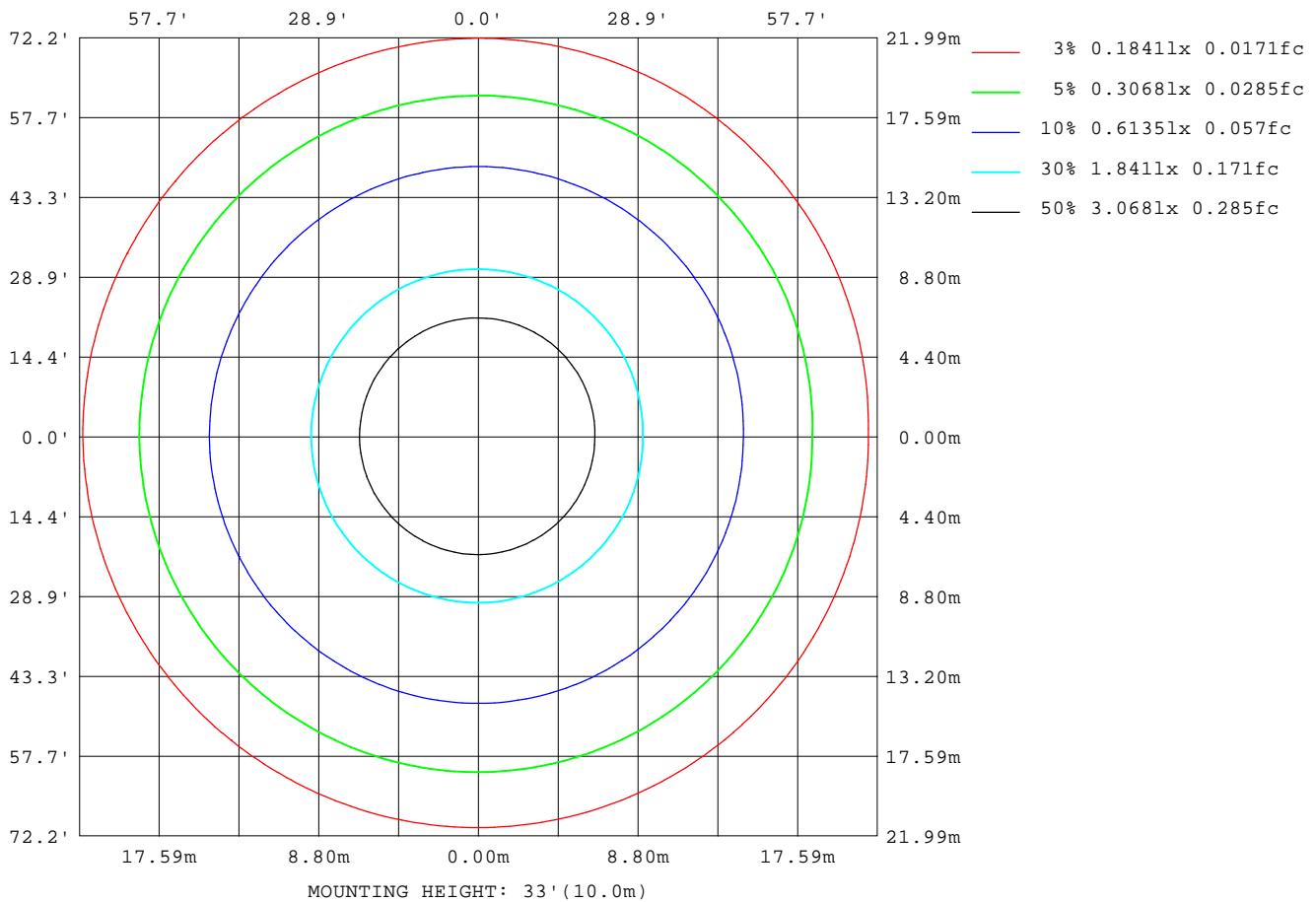
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-10-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

ISOLUX DIAGRAM

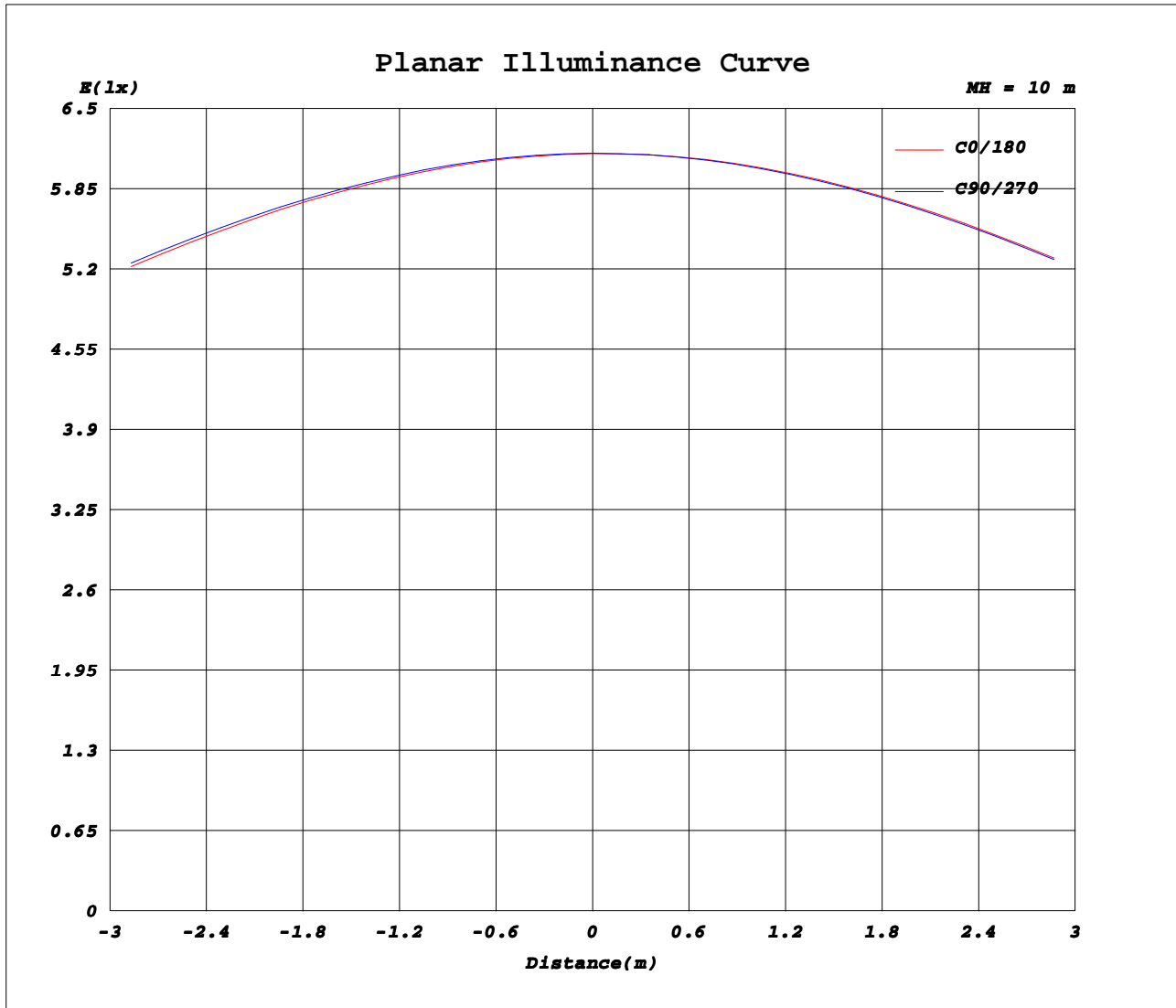
Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-10-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-10-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:24.000V I:0.6330A P:15.200W PF:1.0000 Freq:0Hz		
Lamp Flux:1969.15x1 lm		
Name: 24V-CCT-90CRI-3000K	Type: LED	
MFR.:		

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330						
0	614	614	614	614	614	614	614	614	614	614	614	614						
5	610	611	611	611	612	612	613	613	612	612	612	611						
10	602	603	604	605	606	607	607	607	607	606	606	604						
15	591	592	593	594	595	597	598	598	597	597	596	594						
20	575	576	577	579	580	582	584	584	583	583	581	579						
25	554	556	558	560	561	563	566	565	565	565	563	559						
30	529	531	533	536	538	541	543	543	543	542	540	535						
35	501	502	505	508	509	511	514	515	515	514	512	508						
40	468	470	472	476	477	479	482	483	484	484	481	476						
45	430	433	435	438	439	442	447	447	448	448	446	440						
50	390	392	394	397	398	401	407	407	408	410	407	400						
55	346	347	349	351	352	355	361	361	363	365	363	356						
60	297	298	300	302	302	305	311	312	314	316	315	309						
65	246	246	247	247	248	252	258	259	261	264	263	258						
70	191	192	190	189	190	195	202	203	205	208	209	203						
75	137	136	133	130	131	137	145	146	147	151	152	148						
80	85.2	83.6	78.9	73.7	75.4	82.6	91.3	90.8	90.9	93.5	95.9	93.7						
85	43.7	41.5	35.4	28.8	30.9	39.1	48.2	46.7	43.7	42.9	47.1	48.2						
90	18.1	16.8	11.5	5.57	8.73	15.1	20.5	19.5	13.6	7.63	14.0	19.0						
95	8.18	7.37	5.95	4.58	5.13	7.22	9.51	8.48	6.58	5.24	6.24	7.44						
100	5.74	5.58	5.43	5.33	5.37	5.87	6.55	6.31	5.98	5.85	5.99	6.00						
105	6.14	6.06	6.06	6.11	6.10	6.23	6.48	6.56	6.57	6.54	6.54	6.42						
110	6.85	6.82	6.84	6.89	6.89	6.97	7.15	7.26	7.29	7.26	7.25	7.14						
115	7.65	7.61	7.62	7.66	7.69	7.76	7.88	8.02	8.05	7.97	7.97	7.88						
120	8.47	8.39	8.38	8.42	8.49	8.56	8.64	8.80	8.82	8.71	8.69	8.62						
125	9.24	9.15	9.13	9.18	9.27	9.33	9.38	9.56	9.59	9.45	9.42	9.37						
130	10.0	9.90	9.88	9.95	10.1	10.1	10.1	10.3	10.3	10.2	10.1	10.1						
135	10.7	10.6	10.6	10.7	10.8	10.9	10.8	11.0	11.0	10.9	10.8	10.8						
140	11.4	11.3	11.3	11.4	11.6	11.6	11.4	11.7	11.7	11.6	11.5	11.5						
145	12.0	12.0	12.0	12.0	12.3	12.2	12.0	12.3	12.4	12.2	12.2	12.1						
150	12.6	12.6	12.6	12.7	13.0	12.9	12.6	12.9	13.0	12.8	12.8	12.7						
155	13.2	13.2	13.3	13.4	13.6	13.5	13.1	13.4	13.5	13.4	13.4	13.3						
160	13.8	13.8	13.9	14.0	14.2	14.0	13.6	13.9	14.0	14.0	13.9	13.9						
165	14.4	14.4	14.5	14.5	14.7	14.5	14.2	14.4	14.5	14.5	14.5	14.5						
170	14.8	14.9	14.9	15.0	15.1	15.0	14.6	14.8	14.9	14.9	15.0	15.0						
175	15.2	15.3	15.3	15.3	15.5	15.3	15.0	15.1	15.3	15.2	15.3	15.3						
180	15.3	15.4	15.4	15.5	15.6	15.5	15.3	15.4	15.5	15.5	15.6	15.6						

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-10-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.443
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks: