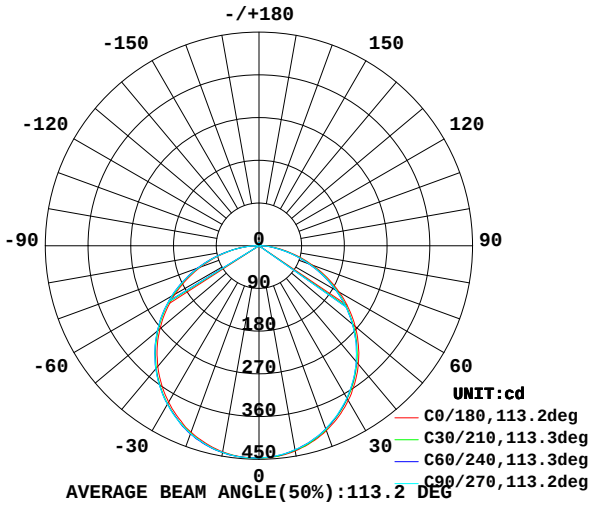
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:240.6V I:0.0510A P:11.80W PF:0.9510 Lamp Flux:1323.36x1 lm		
NAME: VO122	TYPE:12W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.1085	PROTECTION ANGLE:

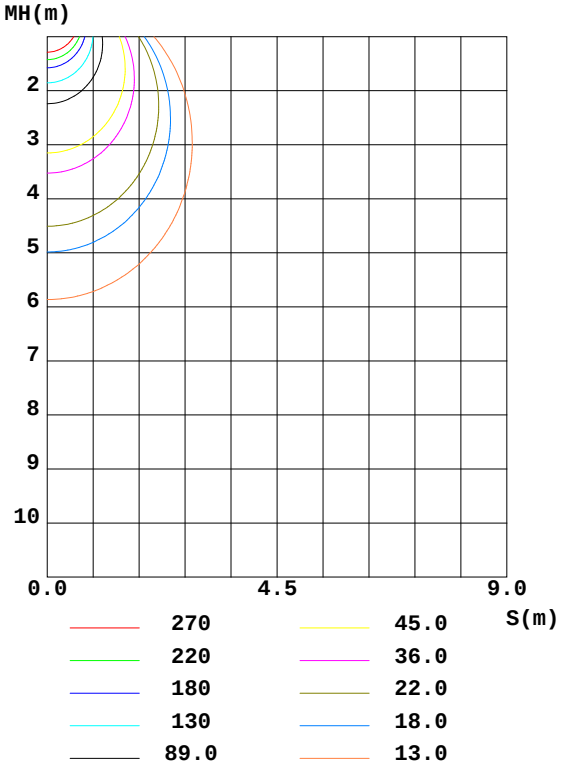
DATA OF LAMP		PHOTOMETRIC DATA Eff: 112.15 lm/W			
MODEL	VO122	Imax(cd)	447.6	S/MH(C0/180)	1.25
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	1323.4	η UP,DN(C0-180)	1.1,47.5
NOMINAL FLUX(lm)	1323.36	CIE CLASS	DIRECT	η UP,DN(C180-360)	1.0,50.5
LAMPS INSIDE	1	η up(%)	2.1	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	240.6	η down(%)	97.9	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):113.2 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-09-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:10.237m [K=1.0000]
Remarks:

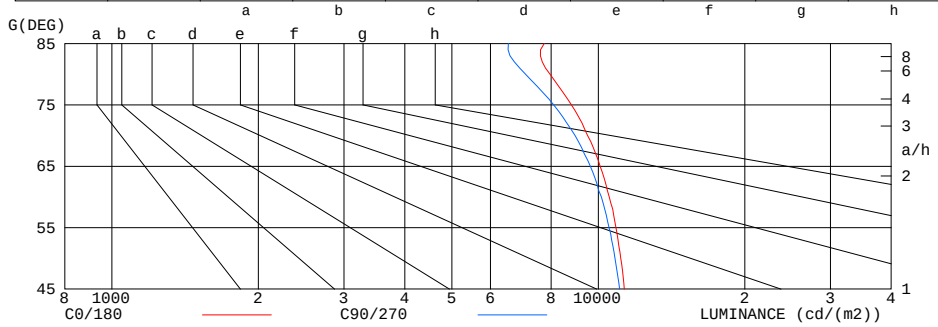
ZONAL FLUX DIAGRAM
AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	438.9	437.1	436.7	438.2	440.7	442.2	441.9	440.7	0- 10	42.34	42.34	3.2,3.2
20	414.4	411.7	411.3	414.0	418.1	421.3	421.1	418.8	10- 20	121.3	163.7	12.4,12.4
30	376.1	371.4	370.1	374.8	380.7	385.0	386.1	381.9	20- 30	183.8	347.5	26.3,26.3
40	325.3	319.9	318.8	324.3	331.8	337.4	337.8	333.2	30- 40	222.0	569.4	43,43
50	264.5	258.1	257.2	263.5	272.5	278.9	279.4	273.6	40- 50	231.1	800.6	60.5,60.5
60	194.8	187.9	187.5	194.0	204.4	211.1	212.3	205.5	50- 60	210.0	1011	76.4,76.4
70	120.4	113.6	113.3	120.1	130.7	136.7	136.3	131.0	60- 70	161.0	1172	88.5,88.5
80	51.13	45.96	45.50	50.96	59.76	62.64	60.62	58.04	70- 80	93.77	1265	95.6,95.6
90	8.786	6.715	5.854	6.922	12.48	7.721	7.068	8.087	80- 90	30.58	1296	97.9,97.9
100	3.123	3.233	3.063	3.170	2.898	2.902	2.853	2.871	90-100	3.906	1300	98.2,98.2
110	3.770	3.789	3.732	3.795	3.426	3.356	3.273	3.311	100-110	3.457	1303	98.5,98.5
120	4.430	4.457	4.476	4.362	4.045	3.894	3.998	3.866	110-120	3.842	1307	98.8,98.8
130	5.037	4.950	4.897	4.871	4.594	4.453	4.426	4.411	120-130	3.980	1311	99.1,99.1
140	5.346	5.466	5.319	5.356	5.142	4.925	4.932	4.917	130-140	3.814	1315	99.4,99.4
150	6.021	5.959	6.106	5.876	5.621	5.431	5.543	5.388	140-150	3.408	1318	99.6,99.6
160	6.134	6.360	6.204	6.256	5.916	5.811	5.831	5.767	150-160	2.721	1321	99.8,99.8
170	6.507	6.571	6.408	6.530	6.345	6.212	6.218	6.069	160-170	1.756	1323	100,100
180	6.640	6.715	6.520	6.713	6.760	6.768	6.478	6.551	170-180	0.6151	1323	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

LUMINANCE LIMITATION CURVES

GLARE	CLASS	ILLUMINANCE (lx)							
1.15	A	2000	1000	500	<=300				
1.50	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.20	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	7743	6532
80	7955	7087
75	8804	8096
70	9509	8962
65	10088	9630
60	10527	10145
55	10870	10522
50	11118	10824
45	11311	11064

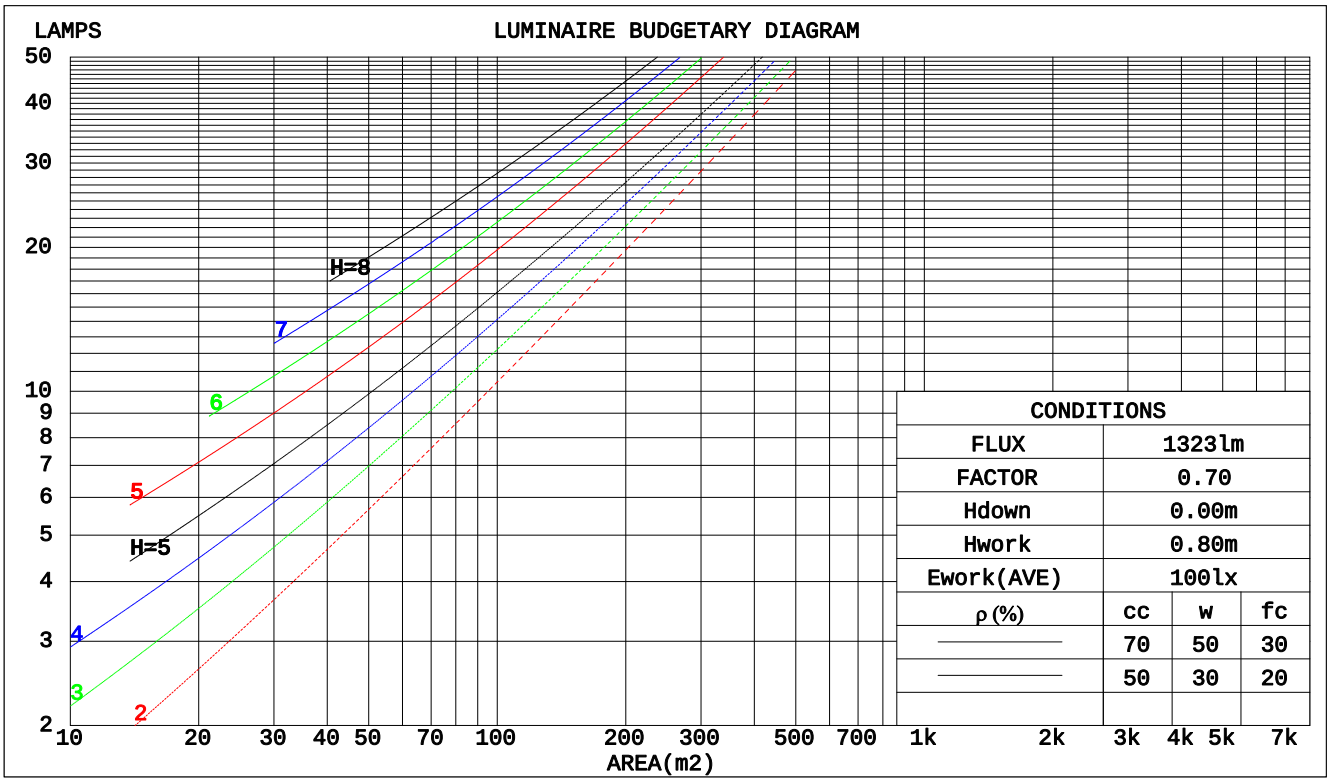
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-09-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:10.237m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:240.6V I:0.0510A P:11.80W PF:0.9510 Lamp Flux:1323.36x1 lm		
NAME: VO122	TYPE:12W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.1085	PROTECTION ANGLE:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	1.10	1.10	1.10	1.05	1.05	1.05	1.00	1.00	1.00	.98
1.0	1.03	.99	.95	1.01	.97	.93	.96	.93	.90	.92	.89	.87	.88	.86	.84	.81
2.0	.90	.83	.77	.88	.81	.76	.84	.78	.74	.80	.76	.72	.77	.73	.70	.68
3.0	.79	.70	.64	.77	.69	.63	.74	.67	.62	.71	.65	.60	.68	.63	.59	.57
4.0	.70	.61	.54	.68	.60	.53	.65	.58	.52	.63	.56	.51	.60	.55	.51	.48
5.0	.62	.53	.46	.61	.52	.46	.58	.51	.45	.56	.50	.45	.54	.48	.44	.42
6.0	.56	.47	.40	.55	.46	.40	.53	.45	.40	.51	.44	.39	.49	.43	.39	.36
7.0	.51	.42	.36	.50	.41	.35	.48	.40	.35	.46	.40	.35	.45	.39	.34	.32
8.0	.46	.38	.32	.45	.37	.32	.44	.36	.31	.42	.36	.31	.41	.35	.31	.29
9.0	.42	.34	.28	.42	.34	.28	.40	.33	.28	.39	.33	.28	.38	.32	.28	.26
10.0	.39	.31	.26	.38	.31	.26	.37	.30	.25	.36	.30	.25	.35	.29	.25	.23



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-09-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:10.237m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:240.6V I:0.0510A P:11.80W PF:0.9510 Lamp Flux:1323.36x1 lm		
NAME: VO122	TYPE:12W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.1085	PROTECTION ANGLE:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coeffcients(WEC)									
0.0																
1.0	.315	.179	.057	.307	.175	.056	.293	.168	.054	.280	.161	.052	.267	.155	.050	
2.0	.294	.161	.050	.288	.158	.049	.275	.153	.047	.263	.148	.046	.252	.143	.045	
3.0	.272	.145	.043	.266	.142	.043	.254	.138	.042	.244	.134	.041	.234	.129	.040	
4.0	.250	.130	.038	.245	.128	.038	.235	.124	.037	.225	.121	.036	.217	.118	.036	
5.0	.231	.118	.034	.226	.116	.034	.217	.113	.033	.209	.110	.033	.201	.107	.032	
6.0	.214	.107	.031	.210	.106	.031	.202	.103	.030	.194	.101	.030	.187	.098	.029	
7.0	.199	.098	.028	.195	.097	.028	.188	.095	.027	.181	.093	.027	.175	.091	.027	
8.0	.186	.091	.026	.182	.090	.025	.176	.088	.025	.170	.086	.025	.164	.084	.025	
9.0	.174	.084	.024	.171	.083	.023	.165	.082	.023	.160	.080	.023	.154	.078	.023	
10.0	.164	.078	.022	.161	.078	.022	.155	.076	.021	.150	.075	.021	.146	.073	.021	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.206	.206	.206	.176	.176	.176	.120	.120	.120	.069	.069	.069	.022	.022	.022	
1.0	.197	.172	.150	.168	.148	.129	.115	.102	.089	.066	.059	.052	.021	.019	.017	
2.0	.189	.148	.114	.162	.127	.098	.111	.088	.069	.064	.051	.040	.020	.017	.013	
3.0	.181	.130	.090	.155	.113	.078	.107	.078	.055	.062	.046	.032	.020	.015	.011	
4.0	.173	.117	.074	.149	.101	.065	.102	.071	.046	.059	.041	.027	.019	.013	.009	
5.0	.166	.107	.063	.142	.092	.055	.098	.065	.039	.057	.038	.023	.018	.012	.008	
6.0	.159	.099	.055	.136	.085	.048	.094	.060	.034	.055	.035	.020	.018	.011	.007	
7.0	.152	.092	.050	.131	.079	.043	.090	.056	.031	.052	.033	.018	.017	.011	.006	
8.0	.145	.086	.045	.125	.075	.039	.087	.052	.028	.050	.031	.017	.016	.010	.006	
9.0	.139	.081	.042	.120	.070	.036	.083	.049	.026	.048	.029	.015	.016	.010	.005	
10.0	.134	.077	.039	.115	.067	.034	.080	.047	.024	.047	.028	.014	.015	.009	.005	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-09-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:10.237m [K=1.0000]
Remarks:

Uncorrected UGR Table

Test:U:240.6V I:0.0510A P:11.80W PF:0.9510 Lamp Flux:1323.36x1 lm		
NAME: VO122	TYPE:12W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.1085	PROTECTION 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	20.9	22.4	21.2	22.6	22.9	20.7	22.2	21.0	22.5	22.7
3H	22.4	23.8	22.7	24.0	24.3	22.2	23.5	22.5	23.8	24.1
4H	23.0	24.3	23.3	24.6	24.9	22.7	24.0	23.0	24.3	24.6
6H	23.4	24.6	23.7	24.9	25.3	23.1	24.3	23.4	24.6	24.9
8H	23.5	24.7	23.9	25.0	25.4	23.2	24.4	23.6	24.7	25.0
12H	23.6	24.8	24.0	25.1	25.5	23.2	24.4	23.6	24.7	25.1
4H 2H	21.4	22.7	21.8	23.0	23.3	21.3	22.6	21.7	22.9	23.2
3H	23.1	24.2	23.5	24.6	24.9	22.9	24.1	23.3	24.4	24.7
4H	23.8	24.9	24.2	25.2	25.6	23.6	24.6	24.0	25.0	25.4
6H	24.3	25.3	24.8	25.7	26.1	24.0	25.0	24.5	25.4	25.8
8H	24.5	25.4	25.0	25.8	26.2	24.2	25.1	24.7	25.5	25.9
12H	24.7	25.5	25.1	25.9	26.4	24.3	25.1	24.8	25.6	26.0
8H 4H	24.0	24.9	24.5	25.3	25.7	23.8	24.7	24.2	25.1	25.5
6H	24.7	25.4	25.2	25.9	26.3	24.4	25.1	24.9	25.6	26.1
8H	25.0	25.6	25.5	26.1	26.6	24.7	25.3	25.1	25.8	26.3
12H	25.2	25.8	25.7	26.3	26.8	24.9	25.4	25.4	25.9	26.4
12H 4H	24.0	24.8	24.5	25.2	25.7	23.8	24.6	24.3	25.0	25.5
6H	24.7	25.4	25.2	25.8	26.3	24.5	25.1	25.0	25.6	26.1
8H	25.1	25.6	25.6	26.1	26.6	24.7	25.3	25.3	25.8	26.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 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 Corrected 1323 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.0)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-09-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:10.237m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:240.6V I:0.0510A P:11.80W PF:0.9510 Lamp Flux:1323.36x1 lm		
NAME: VO122	TYPE:12W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.1085	PROTECTION 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) x RCR = 5									
k = 0.60	57	45	38	56	45	38	54	44	38	31
0.80	67	55	47	65	54	47	63	53	47	40
1.00	75	64	56	74	63	56	71	64	55	48
1.25	82	71	64	80	71	64	78	69	63	55
1.50	87	77	70	85	76	69	82	74	68	60
2.00	94	85	79	92	84	78	88	81	76	68
2.50	98	90	84	96	88	83	92	85	81	72
3.00	101	94	89	99	93	87	95	89	85	76
4.00	105	99	95	103	98	93	98	94	90	81
5.00	108	103	99	105	101	97	100	97	94	84
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
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γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:10.237m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:240.6V I:0.0510A P:11.80W PF:0.9510 Lamp Flux:1323.36x1 lm		
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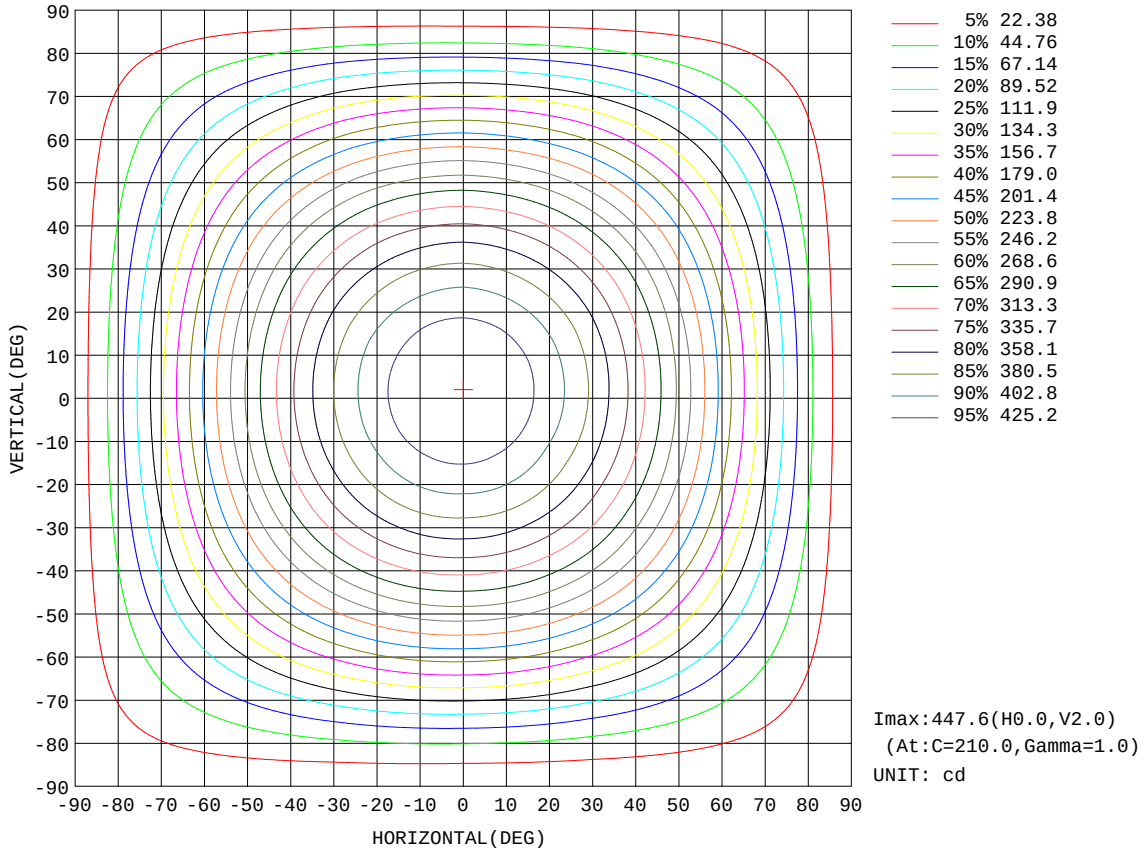
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.1085	PROTECTION ANGLE:



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AAI Figure

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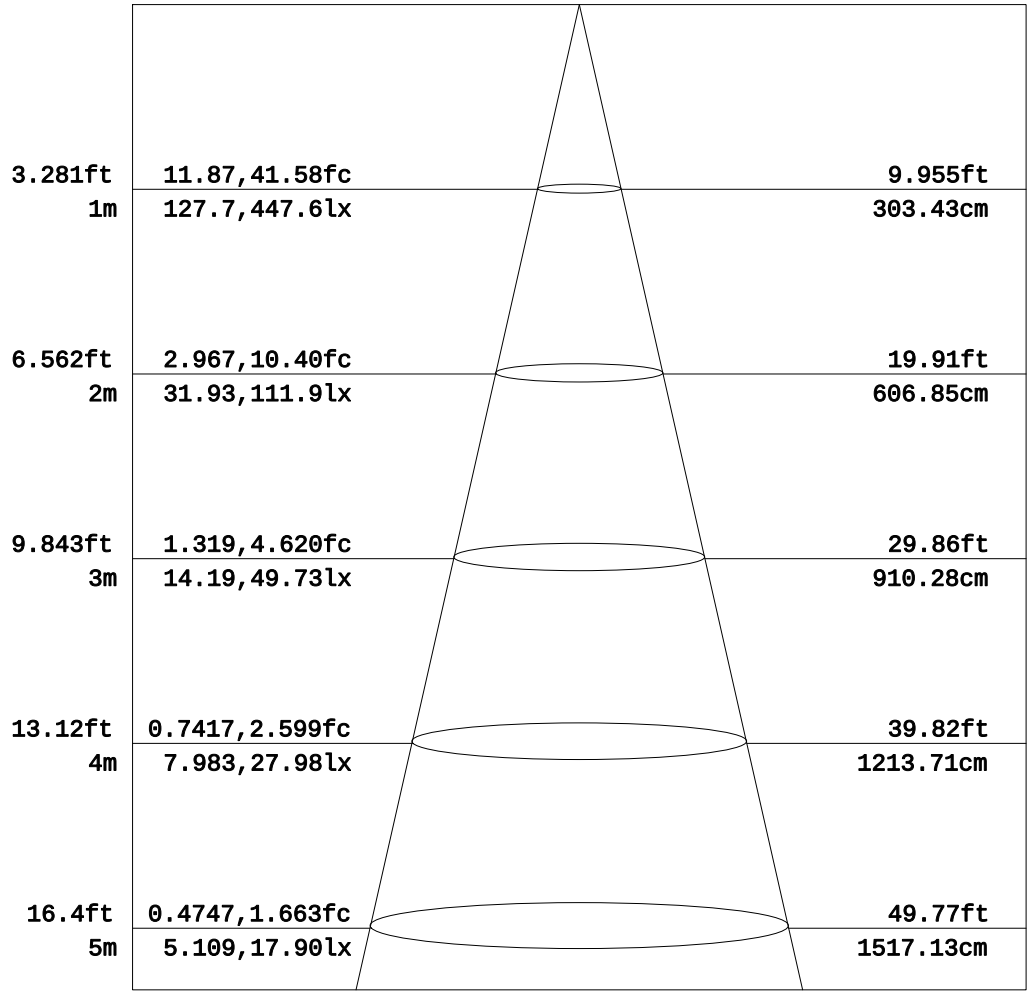
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.1085	PROTECTION ANGLE:

Flux out:951.5 lm



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

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ISOLUX DIAGRAM

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NAME: VO122	TYPE:12W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
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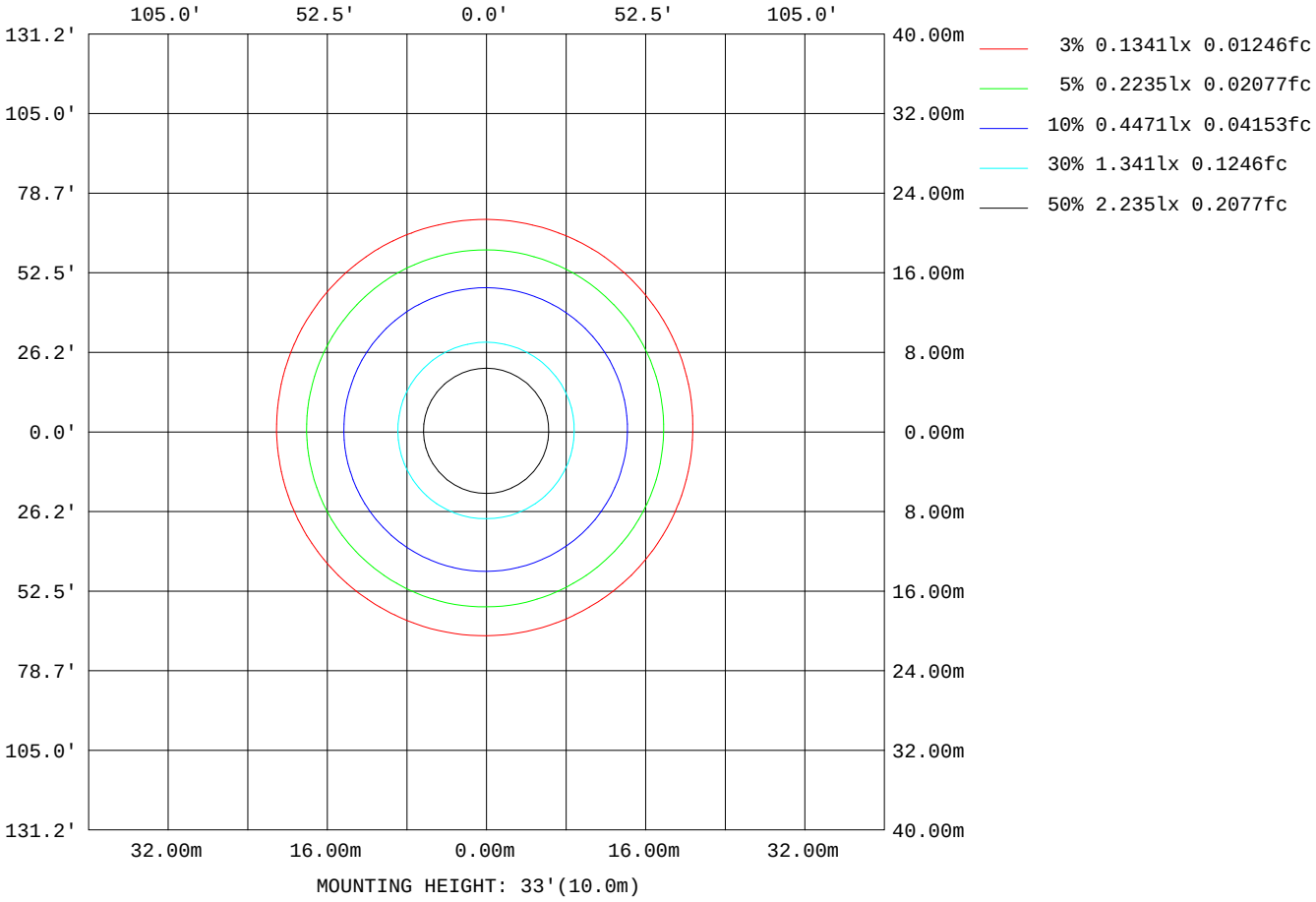

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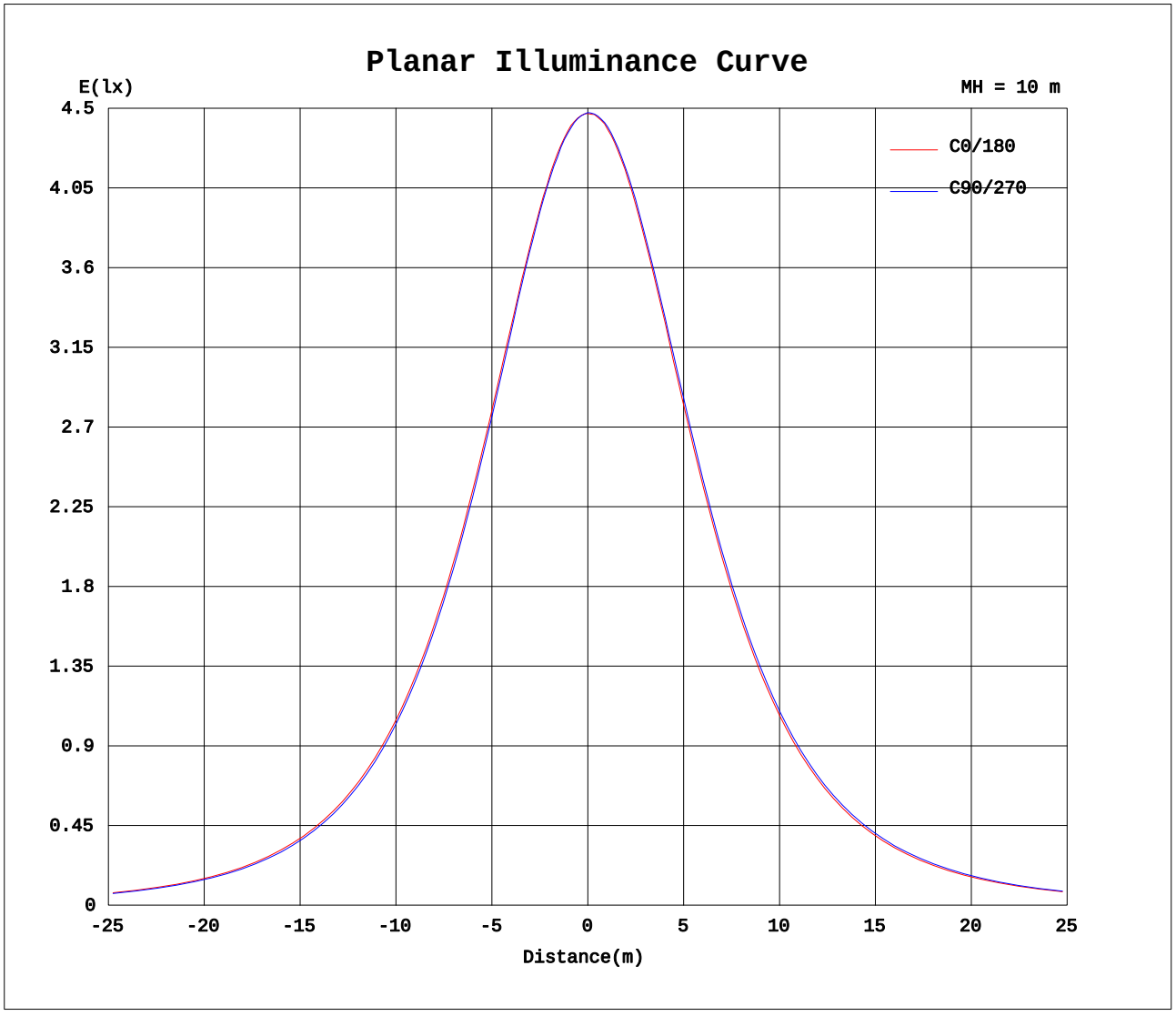
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-09-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:10.237m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2020-09-04

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:10.237m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:240.6V I:0.0510A P:11.80W PF:0.9510 Lamp Flux:1323.36x1 lm		
NAME: VO122	TYPE:12W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.1085	PROTECTION ANGLE:

Table--1 UNIT: cd

γ (DEG) \ C(DEG)	0	30	60	90	120	150	180	210	240	270	300	330
0	447	447	447	447	447	447	447	447	447	447	447	447
5	445	445	444	444	444	445	446	446	447	447	446	446
10	439	437	437	437	437	439	441	443	442	442	441	440
15	428	427	426	426	427	429	431	433	434	434	433	431
20	414	413	411	411	412	416	418	420	422	421	420	418
25	397	393	392	392	394	397	401	404	405	405	403	401
30	376	372	371	370	373	376	381	385	385	386	383	381
35	353	348	346	346	349	353	357	362	363	363	360	357
40	325	321	319	319	322	327	332	337	338	338	335	331
45	296	291	289	289	293	297	303	309	310	310	307	302
50	265	259	257	257	261	266	272	278	280	279	276	271
55	231	225	223	223	227	233	239	245	247	247	243	238
60	195	190	186	188	191	197	204	210	212	212	208	203
65	158	153	149	150	154	161	168	173	176	175	172	165
70	120	115	112	113	117	123	131	136	138	136	134	128
75	84.3	79.5	76.5	77.5	80.7	87.0	94.1	98.1	99.5	97.5	95.7	91.2
80	51.1	47.3	44.6	45.5	48.2	53.7	59.8	62.6	62.6	60.6	59.6	56.5
85	25.0	22.7	20.8	21.0	22.9	26.9	31.4	31.5	30.6	28.9	28.9	27.5
90	8.79	7.41	6.02	5.85	5.79	8.06	12.5	8.80	6.64	7.07	7.67	8.50
95	2.96	3.10	2.94	2.94	3.08	2.83	2.62	2.74	3.88	4.09	3.43	2.79
100	3.12	3.36	3.11	3.06	3.28	3.06	2.90	2.97	2.83	2.85	2.83	2.91
105	3.41	3.61	3.42	3.41	3.66	3.35	3.13	3.17	2.98	3.02	2.95	3.07
110	3.77	3.87	3.71	3.73	3.94	3.65	3.43	3.41	3.30	3.27	3.27	3.35
115	4.11	4.24	4.10	4.12	4.24	3.95	3.74	3.69	3.55	3.67	3.61	3.63
120	4.43	4.55	4.36	4.48	4.47	4.25	4.05	3.99	3.80	4.00	3.84	3.89
125	4.77	4.79	4.65	4.76	4.72	4.61	4.33	4.20	4.13	4.23	4.05	4.13
130	5.04	5.02	4.88	4.90	4.91	4.84	4.59	4.52	4.38	4.43	4.38	4.44
135	5.30	5.33	5.16	5.03	5.14	5.11	4.81	4.76	4.58	4.65	4.58	4.68
140	5.35	5.58	5.35	5.32	5.37	5.34	5.14	5.02	4.83	4.93	4.90	4.93
145	5.66	5.84	5.59	5.76	5.64	5.58	5.35	5.26	5.13	5.23	5.08	5.09
150	6.02	6.05	5.87	6.11	5.86	5.89	5.62	5.45	5.42	5.54	5.32	5.45
155	6.26	6.28	6.08	6.15	6.05	6.07	5.79	5.73	5.58	5.68	5.52	5.60
160	6.13	6.43	6.29	6.20	6.30	6.21	5.92	5.92	5.71	5.83	5.74	5.80
165	6.50	6.54	6.44	6.30	6.47	6.36	6.19	6.16	5.99	6.01	5.88	5.91
170	6.51	6.59	6.56	6.41	6.55	6.51	6.35	6.26	6.16	6.22	6.08	6.06
175	6.66	6.72	6.58	6.46	6.59	6.57	6.49	6.41	6.31	6.30	6.29	6.27
180	6.64	6.80	6.63	6.52	6.72	6.71	6.76	6.80	6.74	6.48	6.52	6.59

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