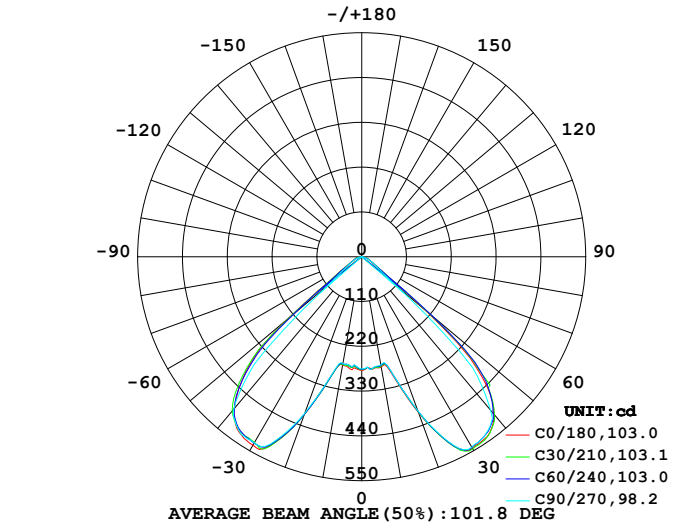
LUMINAIRE PHOTOMETRIC TEST REPORT

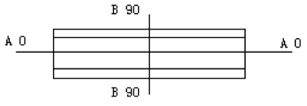
Test:U:220.07V I:0.0886A P:10.444W PF:0.5358 Freq:50.00Hz Lamp Flux:1075.83x1 lm		
NAME: HYO-240R-10W 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	

DATA OF LAMP		PHOTOMETRIC DATA			Eff: 103.01 lm/W
MODEL		Imax(cd)	546.2	S/MH(C0/180)	1.67
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	1.55
RATED VOLTAGE(V)	--	TOTAL FLUX(lm)	1075.8	η UP,DN(C0-180)	0.0,50.3
NOMINAL FLUX(lm)	1075.83	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.7
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	--	η down(%)	100.0	CIBSE SHR MAX	1.00

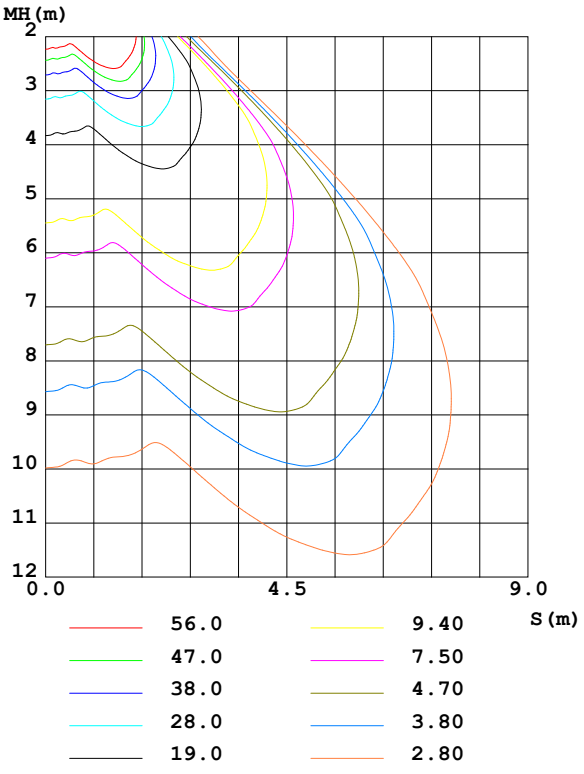
LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):101.8 DEG



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: 10.0deg/s
Temperature:25.3℃
Operators:DAMIN
Test Date:2023-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-3000H_V1 SYSTEM V2.00.463
Humidity:65.0%
Test Distance:9.000m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	275.0	272.3	269.5	267.5	270.6	267.6	266.8	268.1	0- 10	25.88	25.88	2.41,2.41
20	406.0	399.7	401.6	402.8	410.7	416.4	407.7	402.1	10- 20	91.88	117.8	10.9,10.9
30	542.4	546.2	539.8	533.4	534.0	530.3	528.0	529.0	20- 30	228.3	346.1	32.2,32.2
40	505.3	508.4	492.2	494.0	487.4	485.1	489.3	493.4	30- 40	327.8	673.9	62.6,62.6
50	200.4	232.7	101.3	238.0	236.9	217.1	97.03	192.6	40- 50	297.5	971.4	90.3,90.3
60	33.91	32.85	32.99	35.44	37.35	36.13	32.77	35.48	50- 60	66.72	1038	96.5,96.5
70	17.27	16.37	13.70	17.69	18.95	18.16	14.38	17.50	60- 70	23.84	1062	98.7,98.7
80	8.951	5.248	0.9198	5.698	10.37	6.678	0.9908	5.950	70- 80	12.15	1074	99.8,99.8
90	0.1503	0.1349	0.1127	0.1281	0.1754	0.1493	0.1233	0.1484	80- 90	1.683	1076	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:cd									UNIT:lm		

Conical surface Flux(90deg): 842.97 lm

%lum = 78.4%
%lamp = 78.4%

Conical surface Flux(120deg): 1038.2 lm

%lum = 96.5%
%lamp = 96.5%

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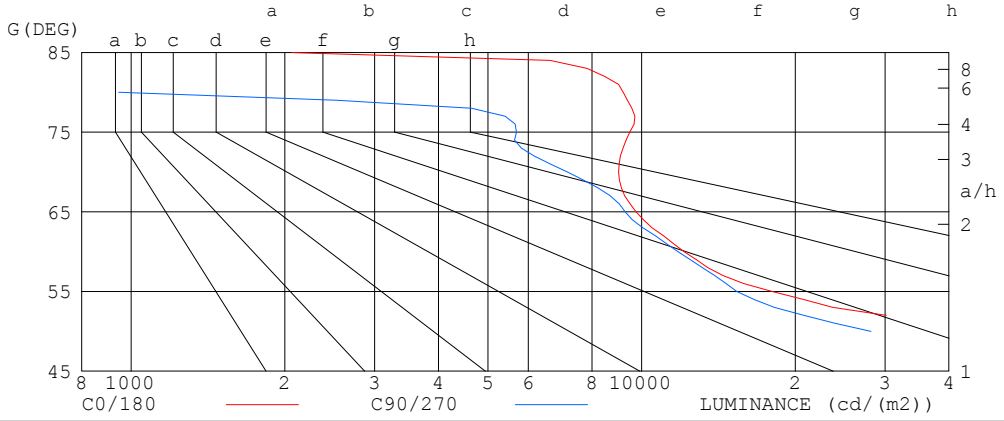
γ Interval: 1.0DEG
Test System:EVERFINE GO-3000H_V1 SYSTEM V2.00.463
Humidity:65.0%
Test Distance:9.000m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

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	2065	502
80	9205	946
75	9483	5690
70	9017	7155
65	9754	9287
60	12112	11782
55	18026	15373
50	55662	28152
45	105594	97293

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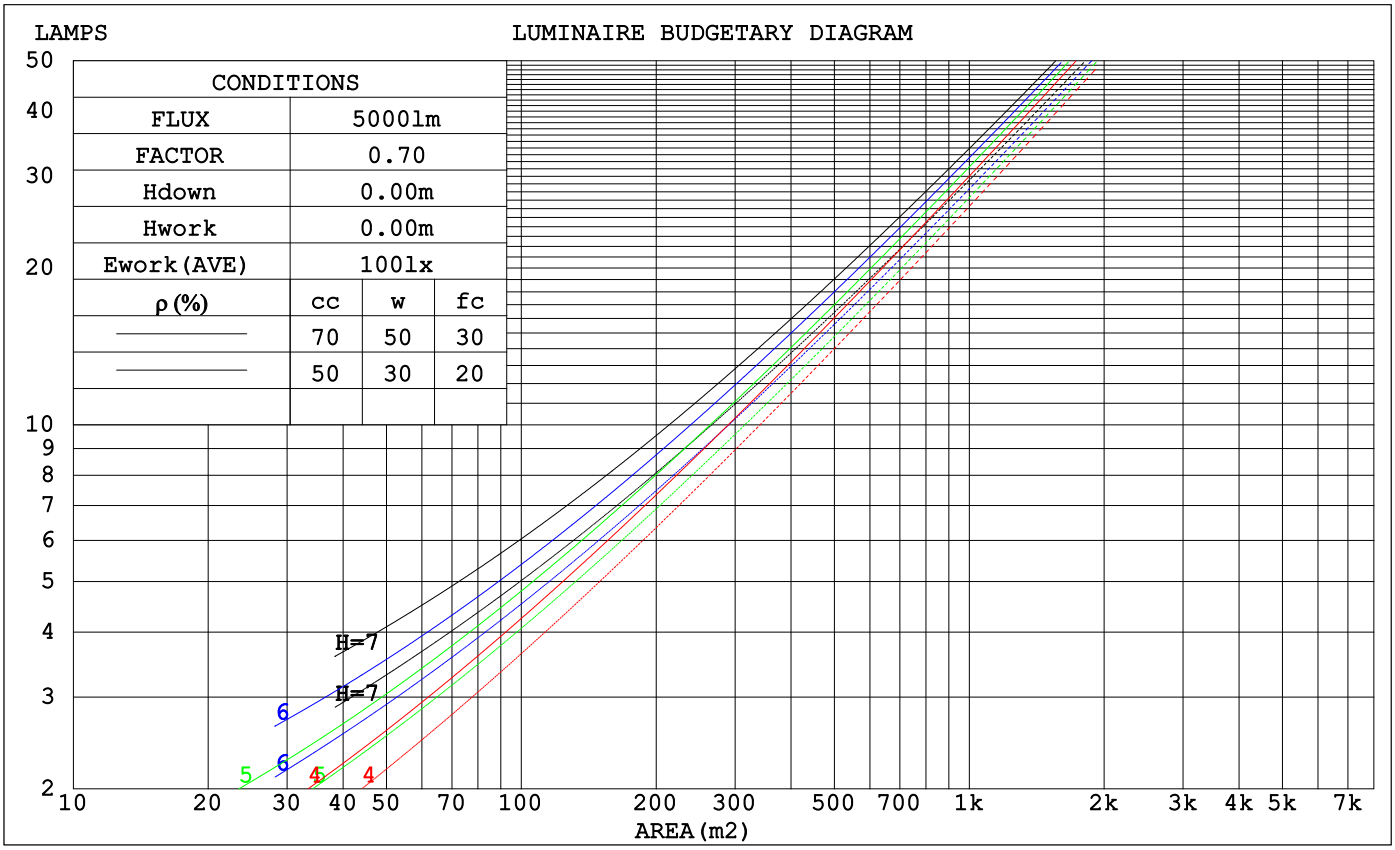
γ Interval: 1.0DEG
Test System:EVERFINE GO-3000H_V1 SYSTEM V2.00.463
Humidity:65.0%
Test Distance:9.000m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1.0	1.08	1.05	1.02	1.06	1.03	1.00	1.02	.99	.97	.98	.96	.94	.94	.93	.91	.89
2.0	.97	.92	.87	.95	.90	.86	.92	.88	.84	.89	.85	.82	.86	.83	.81	.79
3.0	.87	.81	.75	.86	.80	.75	.83	.78	.74	.81	.76	.72	.78	.74	.71	.69
4.0	.79	.71	.66	.78	.71	.65	.75	.69	.64	.73	.68	.64	.71	.67	.63	.61
5.0	.71	.63	.58	.70	.63	.57	.68	.62	.57	.66	.61	.56	.64	.60	.56	.54
6.0	.64	.56	.51	.63	.56	.51	.62	.55	.50	.60	.54	.50	.59	.53	.49	.48
7.0	.58	.51	.45	.58	.50	.45	.56	.49	.45	.55	.49	.44	.54	.48	.44	.42
8.0	.53	.45	.40	.53	.45	.40	.51	.45	.40	.50	.44	.40	.49	.43	.39	.38
9.0	.49	.41	.36	.48	.41	.36	.47	.40	.36	.46	.40	.35	.45	.39	.35	.34
10.0	.45	.37	.32	.44	.37	.32	.43	.37	.32	.42	.36	.32	.41	.36	.32	.30



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γ Interval: 1.0DEG
Test System:EVERFINE GO-3000H_V1 SYSTEM V2.00.463
Humidity:65.0%
Test Distance:9.000m [K=1.0000]
Remarks:

WEC AND CCEC

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	.232	.132	.042	.225	.128	.041	.212	.122	.039	.200	.116	.037	.189	.110	.035	
2.0	.227	.125	.038	.221	.122	.038	.210	.117	.036	.200	.112	.035	.191	.108	.034	
3.0	.218	.116	.035	.213	.114	.034	.203	.110	.034	.194	.107	.033	.186	.103	.032	
4.0	.208	.108	.032	.204	.107	.032	.195	.103	.031	.187	.100	.030	.180	.098	.030	
5.0	.198	.101	.029	.194	.100	.029	.186	.097	.029	.179	.095	.028	.173	.092	.028	
6.0	.188	.094	.027	.185	.093	.027	.178	.091	.026	.171	.089	.026	.165	.087	.026	
7.0	.179	.088	.025	.175	.087	.025	.169	.086	.025	.164	.084	.024	.158	.082	.024	
8.0	.170	.083	.023	.167	.082	.023	.161	.081	.023	.156	.079	.023	.151	.078	.023	
9.0	.161	.078	.022	.159	.077	.022	.154	.076	.022	.149	.075	.021	.145	.074	.021	
10.0	.154	.074	.020	.151	.073	.020	.147	.072	.020	.143	.071	.020	.139	.070	.020	

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.175	.157	.141	.150	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.164	.132	.106	.140	.114	.091	.096	.079	.064	.055	.046	.037	.018	.015	.012	
3.0	.155	.114	.082	.132	.098	.071	.091	.068	.050	.053	.040	.029	.017	.013	.010	
4.0	.147	.100	.064	.126	.086	.056	.087	.060	.039	.050	.035	.023	.016	.011	.008	
5.0	.140	.089	.052	.120	.077	.045	.083	.054	.032	.048	.032	.019	.015	.010	.006	
6.0	.134	.081	.043	.115	.070	.037	.079	.049	.026	.046	.029	.016	.015	.009	.005	
7.0	.128	.074	.036	.110	.064	.031	.076	.045	.022	.044	.026	.013	.014	.009	.004	
8.0	.122	.068	.031	.105	.059	.027	.073	.041	.019	.042	.024	.011	.014	.008	.004	
9.0	.117	.063	.027	.101	.055	.023	.070	.039	.017	.041	.023	.010	.013	.007	.003	
10.0	.113	.059	.023	.097	.051	.021	.067	.036	.015	.039	.021	.009	.013	.007	.003	

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γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-3000H_V1 SYSTEM V2.00.463
Humidity:65.0%
Test Distance:9.000m [K=1.0000]
Remarks:

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	25.9	27.2	26.2	27.4	27.6	25.6	26.9	25.8	27.1	27.3
3H	25.8	27.0	26.1	27.2	27.5	25.4	26.6	25.7	26.9	27.1
4H	25.8	26.9	26.1	27.1	27.4	25.4	26.5	25.7	26.7	27.0
6H	25.7	26.8	26.1	27.1	27.3	25.3	26.3	25.6	26.6	26.9
8H	25.7	26.7	26.1	27.0	27.3	25.2	26.2	25.6	26.5	26.8
12H	25.7	26.7	26.0	26.9	27.2	25.2	26.1	25.5	26.4	26.7
4H 2H	25.7	26.8	26.0	27.1	27.3	25.3	26.4	25.6	26.7	26.9
3H	25.6	26.6	26.0	26.9	27.2	25.2	26.2	25.6	26.5	26.8
4H	25.6	26.5	26.0	26.8	27.1	25.2	26.1	25.6	26.4	26.7
6H	25.6	26.4	26.0	26.7	27.1	25.1	25.9	25.5	26.2	26.6
8H	25.6	26.3	26.0	26.7	27.1	25.1	25.8	25.5	26.1	26.5
12H	25.6	26.3	26.0	26.6	27.0	25.0	25.7	25.5	26.0	26.4
8H 4H	25.5	26.2	25.9	26.6	27.0	25.1	25.8	25.5	26.2	26.5
6H	25.6	26.1	26.0	26.5	27.0	25.0	25.6	25.5	26.0	26.4
8H	25.6	26.1	26.1	26.5	27.0	25.0	25.5	25.4	25.9	26.4
12H	25.6	26.0	26.1	26.5	26.9	25.0	25.4	25.4	25.8	26.3
12H 4H	25.5	26.1	25.9	26.5	26.9	25.1	25.7	25.5	26.1	26.5
6H	25.5	26.0	26.0	26.5	26.9	25.0	25.5	25.5	25.9	26.4
8H	25.6	26.0	26.0	26.4	26.9	25.0	25.4	25.4	25.8	26.3
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 2.5 / - 5.4					+ 2.7 / - 6.7				
1.5H	+ 2.1 / - 6.2					+ 2.1 / - 7.0				
2.0H	+ 5.8 / - 5.6					+ 6.2 / - 6.8				

CIE Pub.117, 1076 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 0.3)
Area: 0.0056 m2

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γ Interval: 1.0DEG
Test System:EVERFINE GO-3000H_V1 SYSTEM V2.00.463
Humidity:65.0%
Test Distance:9.000m [K=1.0000]
Remarks:

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) x RCR = 5									
k = 0.60	68	58	52	67	58	52	66	57	52	46
0.80	78	69	63	77	69	63	76	68	62	57
1.00	87	78	72	86	78	72	84	78	72	66
1.25	93	85	80	92	85	80	90	83	79	73
1.50	97	90	85	96	89	84	93	88	83	77
2.00	103	96	92	101	95	91	98	93	90	83
2.50	105	100	95	103	98	94	100	96	92	85
3.00	108	103	99	106	101	98	102	98	95	88
4.00	110	106	103	108	104	101	104	101	99	91
5.00	112	108	105	109	106	104	105	103	101	92
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004	Suspended								SHRNOM = 1.25	

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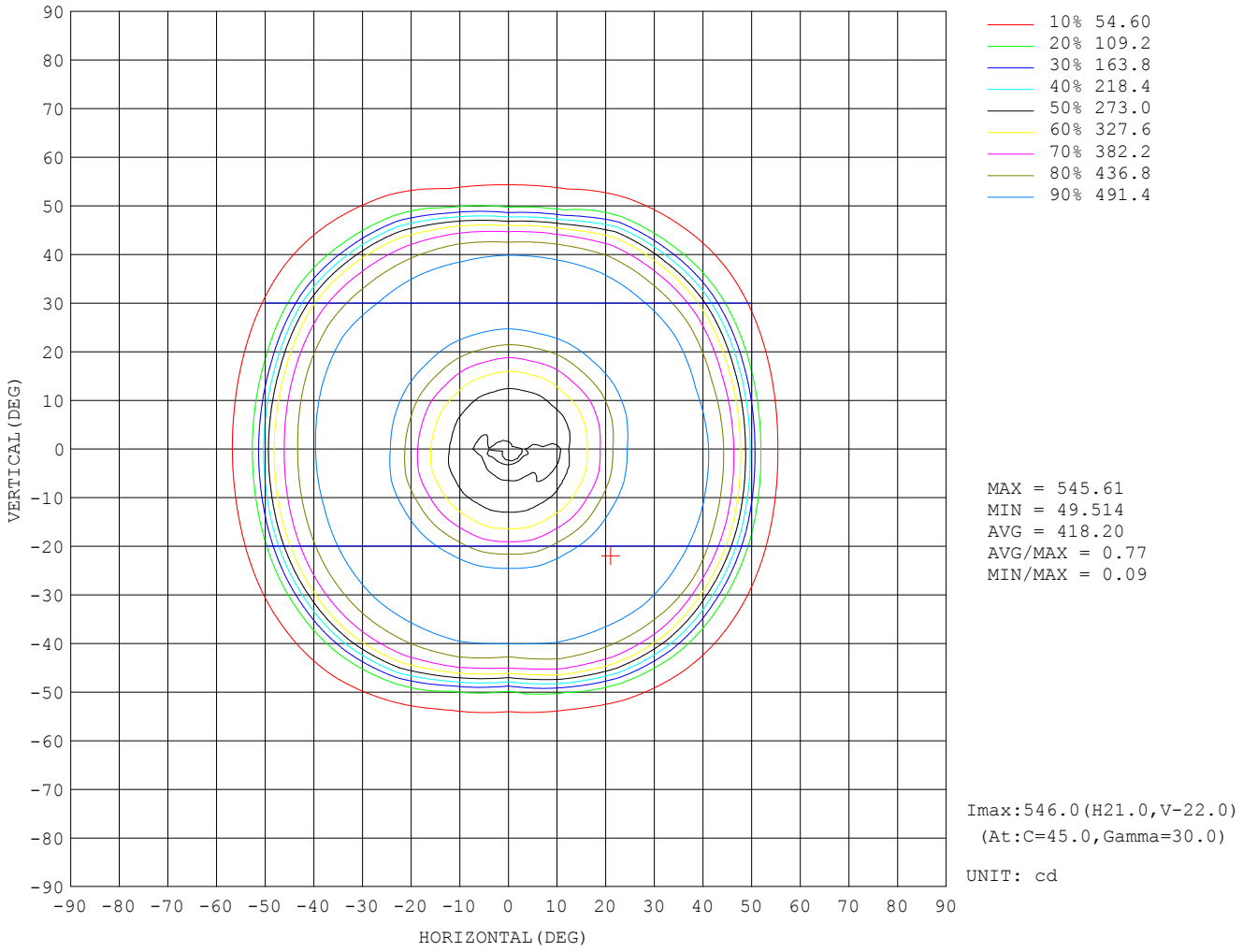
ISOCANDELA DIAGRAM



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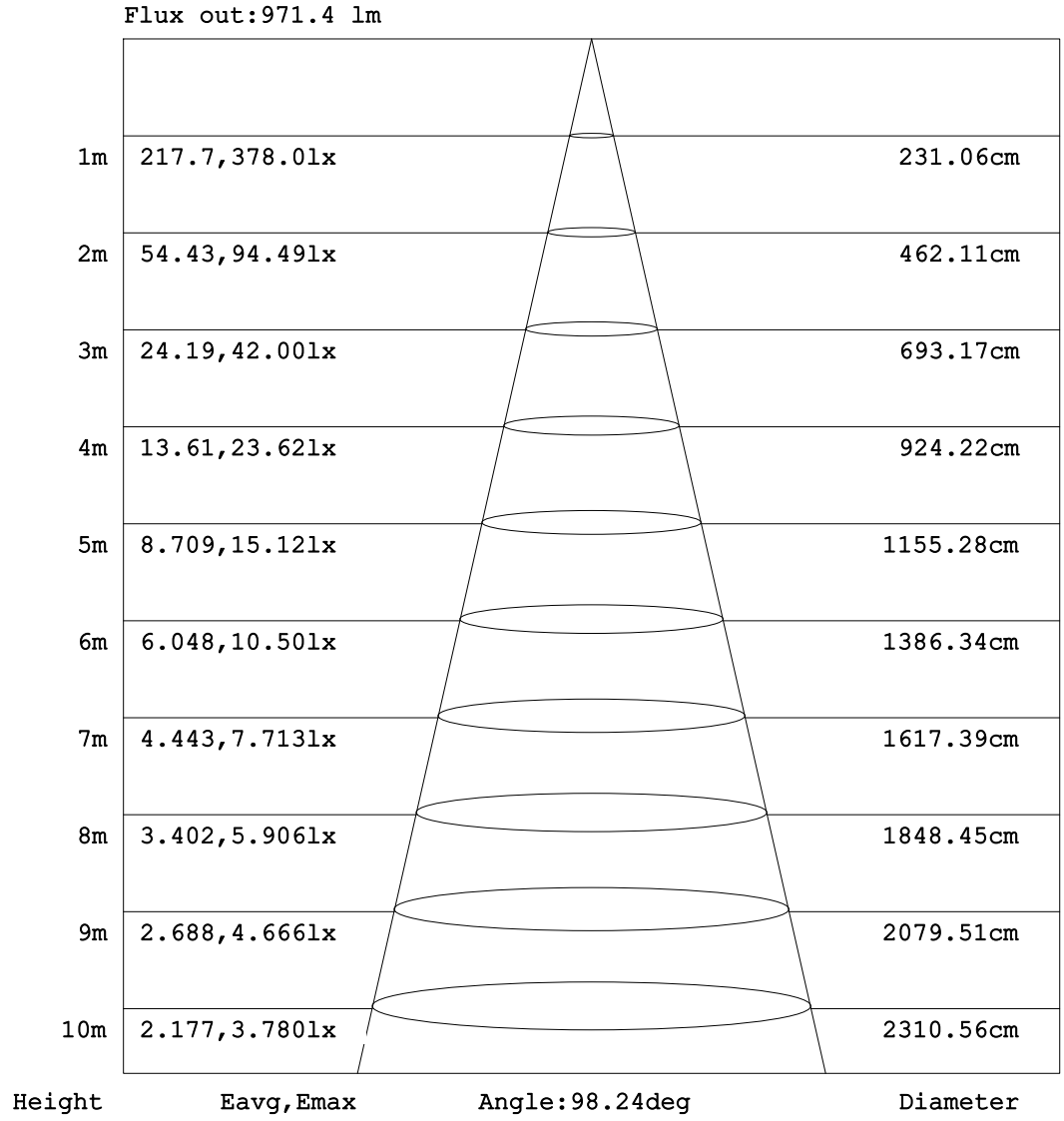
AAI Figure



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

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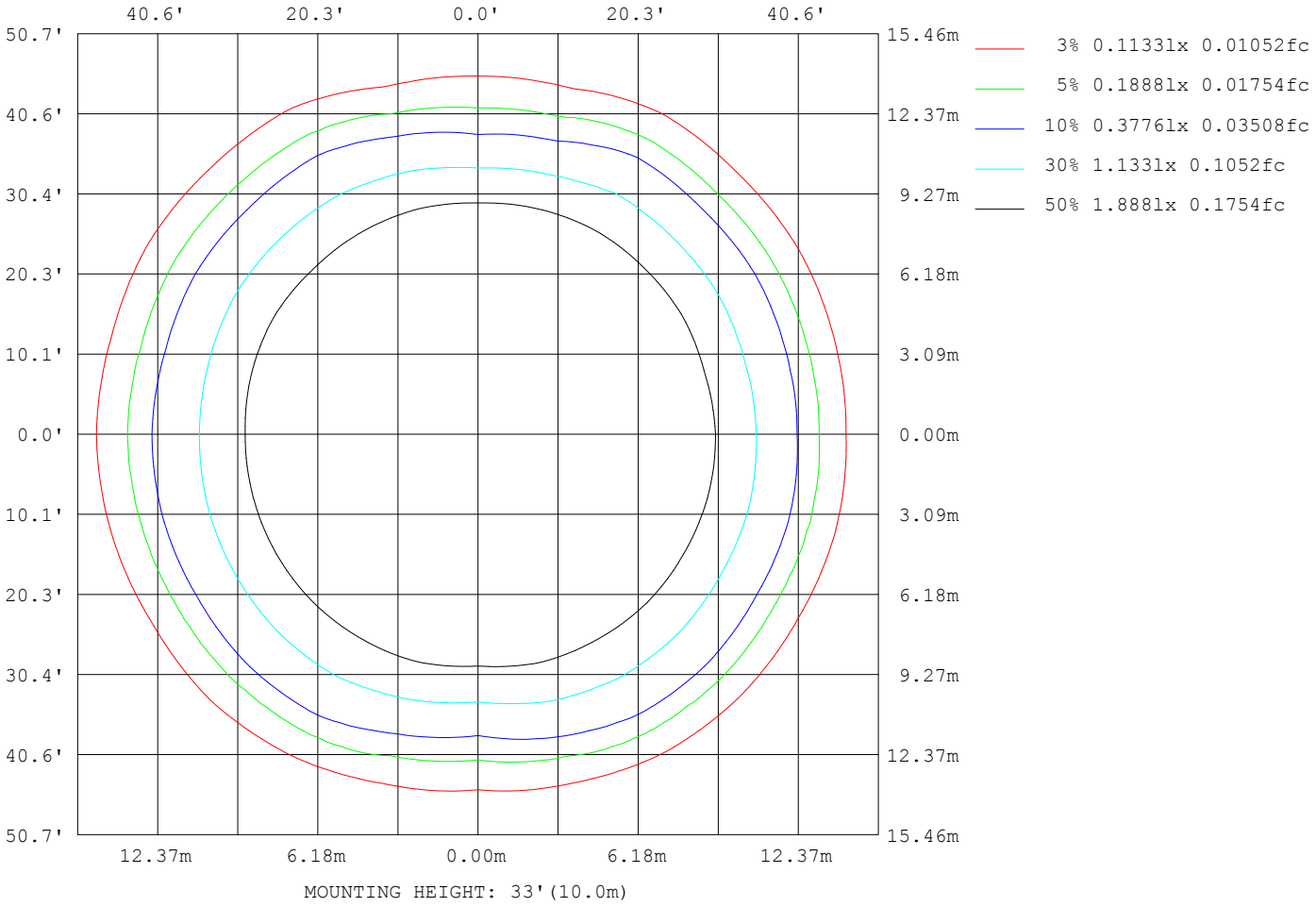
Remarks:

ISOLUX DIAGRAM



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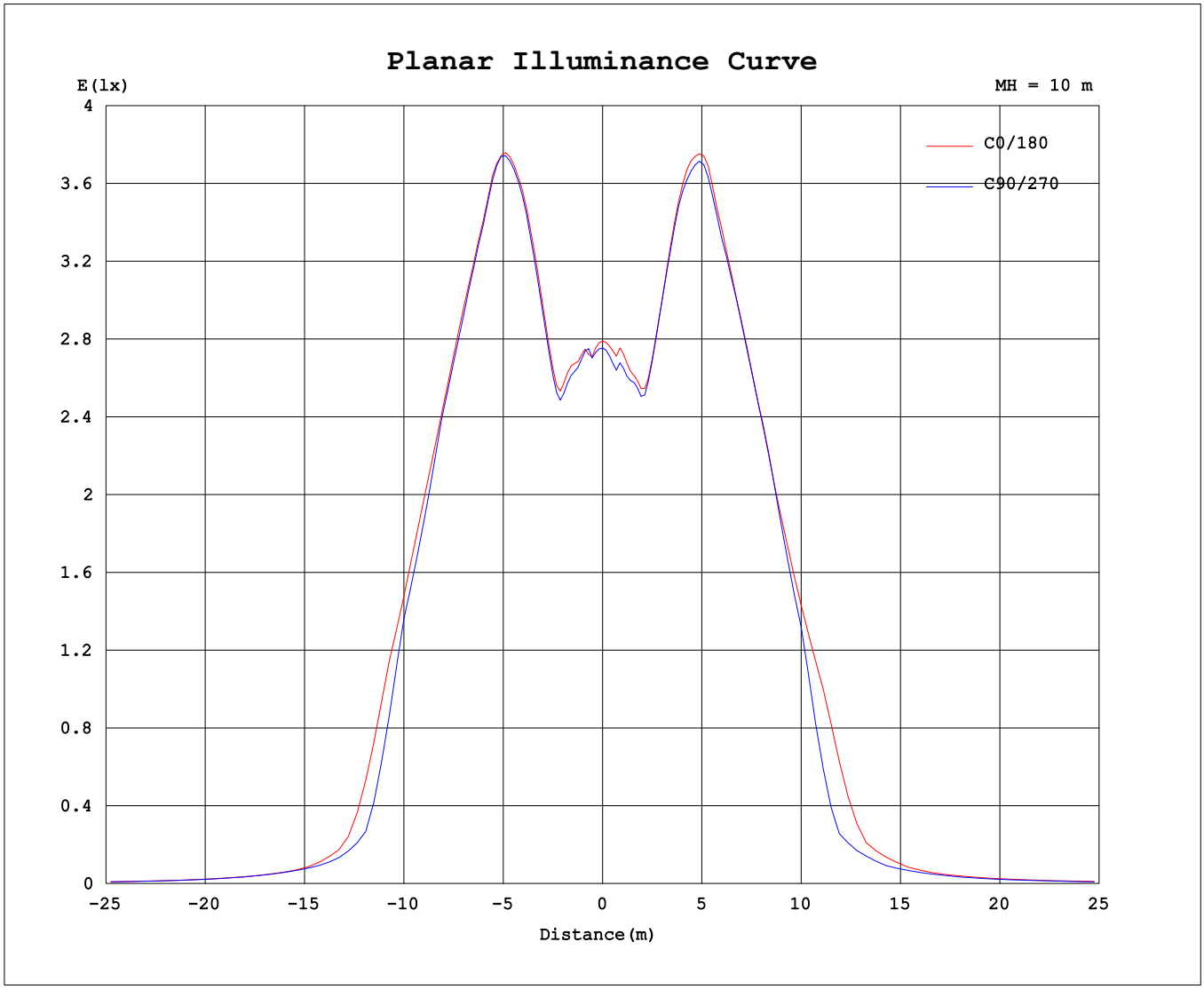
Remarks:

Planar Illuminance Curve



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Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1 UNIT: cd

γ (DEG) \ C(DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	279	278	277	277	276	276	275	275	275	274	274	274	279	278	277	277	276	276	275
5	278	278	277	277	276	277	277	277	277	276	275	275	279	276	274	272	272	271	271
10	275	275	273	272	271	271	269	269	268	268	267	266	271	270	269	268	267	267	267
15	306	300	302	298	302	298	302	300	305	303	307	304	311	315	314	317	313	315	310
20	406	401	405	400	403	397	402	399	406	403	406	401	411	416	412	416	412	414	408
25	502	498	503	500	502	495	499	496	499	496	497	493	502	502	504	506	500	500	496
30	542	543	545	546	541	539	540	540	534	533	530	526	534	526	526	530	529	525	528
35	538	538	539	539	532	530	531	529	525	527	523	520	526	519	523	523	521	519	524
40	505	508	507	508	502	501	492	499	495	494	490	486	487	493	495	485	487	486	489
45	418	428	446	434	430	419	385	407	420	419	416	410	405	411	414	402	401	391	374
50	200	219	216	233	225	167	101	148	227	238	230	239	237	225	234	217	214	138	97.0
55	57.9	60.5	59.1	60.8	58.5	50.2	49.4	51.1	61.5	67.7	67.0	70.5	72.1	69.6	71.4	67.3	65.9	50.6	49.2
60	33.9	33.6	33.5	32.9	32.9	32.5	33.0	33.5	35.2	35.4	35.6	35.5	37.4	37.4	36.8	36.1	34.2	32.3	32.8
65	23.1	23.0	22.6	22.2	21.9	21.8	22.0	22.4	23.1	23.8	23.9	24.2	25.3	25.1	24.6	23.9	23.2	22.3	22.4
70	17.3	17.1	16.6	16.4	16.0	14.3	13.7	14.6	16.7	17.7	18.1	18.4	19.0	19.0	18.4	18.2	17.5	15.2	14.4
75	13.7	13.5	12.8	11.5	8.49	8.06	8.25	8.35	8.95	11.9	14.0	14.7	15.1	15.1	14.5	13.2	9.97	9.37	9.44
80	8.95	8.70	7.23	5.25	3.73	1.03	0.92	1.01	3.51	5.70	7.80	9.06	10.4	10.4	8.86	6.68	4.17	1.12	0.99
85	1.01	1.01	0.47	0.26	0.20	0.22	0.24	0.23	0.21	0.26	0.43	1.07	2.19	2.13	0.57	0.33	0.25	0.27	0.29
90	0.15	0.16	0.17	0.13	0.12	0.12	0.11	0.11	0.12	0.13	0.16	0.17	0.18	0.19	0.20	0.15	0.13	0.13	0.12

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: 10.0deg/s
Temperature:25.3℃
Operators:DAMIN
Test Date:2023-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-3000H_V1 SYSTEM V2.00.463
Humidity:65.0%
Test Distance:9.000m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--2 UNIT: cd

γ (DEG) \ C(DEG)	285	300	315	330	345														
0	275	275	274	274	274														
5	270	271	270	270	271														
10	267	268	268	269	268														
15	312	306	307	301	301														
20	410	403	402	395	396														
25	500	495	495	488	489														
30	530	532	529	528	529														
35	525	525	525	528	527														
40	491	495	493	498	493														
45	384	411	408	414	408														
50	111	202	193	205	197														
55	51.2	59.7	58.1	60.1	58.5														
60	34.0	35.0	35.5	35.0	35.1														
65	22.8	23.4	23.6	23.6	23.6														
70	15.0	16.8	17.5	17.5	17.5														
75	9.47	9.45	11.7	13.6	13.8														
80	1.07	3.17	5.95	7.51	8.36														
85	0.28	0.26	0.31	0.48	0.76														
90	0.13	0.13	0.15	0.20	0.20														

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: 10.0deg/s
Temperature:25.3℃
Operators:DAMIN
Test Date:2023-08-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-3000H_V1 SYSTEM V2.00.463
Humidity:65.0%
Test Distance:9.000m [K=1.0000]
Remarks: