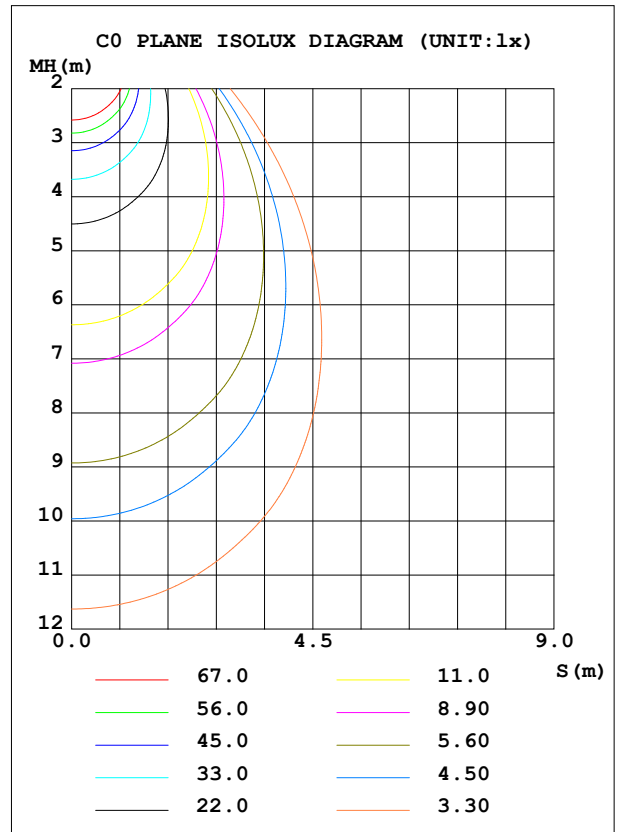
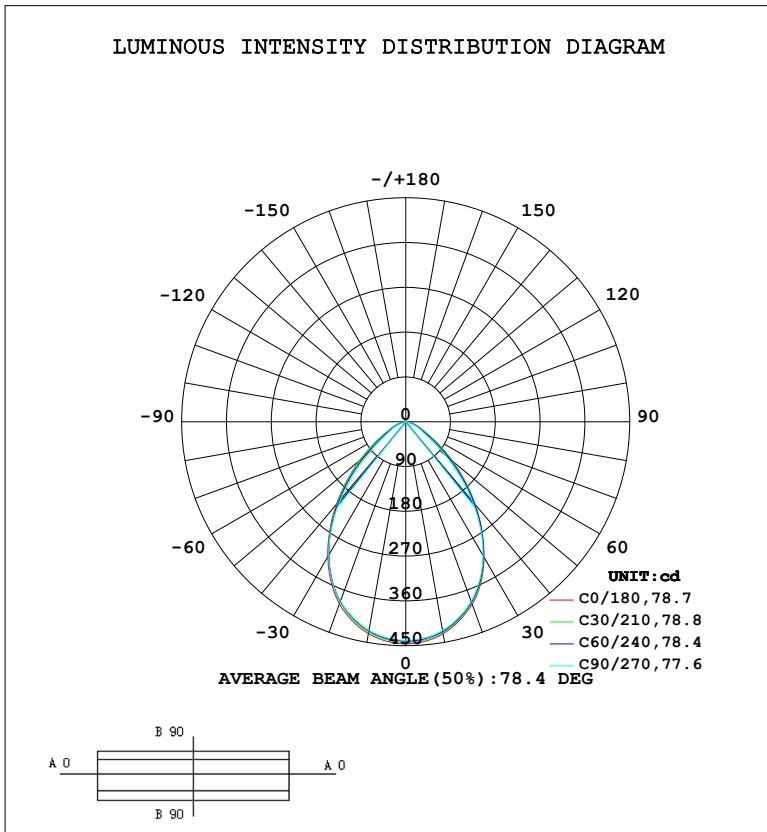


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.11V I:0.0641A P:7.8479W PF:0.5566 Freq:50.00Hz		
Lamp Flux:715.467x1 lm		
NAME: HYD-219C-7W-4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL		Imax (cd)	446.2	S/MH (C0/180)	1.08
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	1.09
RATED VOLTAGE (V)	--	TOTAL FLUX (lm)	715.47	$\eta$ UP, DN (C0-180)	0.0, 50.5
NOMINAL FLUX (lm)	715.467	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 49.5
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE (V)	--	$\eta$ down (%)	100.0	CIBSE SHR MAX	1.15



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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	432.4	429.3	425.9	424.5	432.1	427.0	425.4	422.9	0- 10	41.37	41.37	5.78, 5.78
20	390.2	388.2	384.3	384.2	389.6	383.4	384.3	381.1	10- 20	114.9	156.3	21.8, 21.8
30	314.6	315.0	311.0	311.4	313.2	307.1	309.8	307.7	20- 30	161.1	317.4	44.4, 44.4
40	216.9	219.2	207.8	214.8	216.7	210.7	204.4	209.2	30- 40	163.5	481.0	67.2, 67.2
50	121.3	122.3	101.8	116.3	121.0	114.3	94.52	111.0	40- 50	123.6	604.5	84.5, 84.5
60	51.99	50.76	38.92	48.35	50.68	45.51	36.62	45.63	50- 60	66.39	670.9	93.8, 93.8
70	23.69	22.03	15.99	21.14	22.35	19.92	15.13	20.80	60- 70	31.07	702.0	98.1, 98.1
80	7.380	4.559	0.9815	4.231	6.515	3.292	0.8452	4.809	70- 80	12.24	714.2	99.8, 99.8
90	0.0574	0.0276	0.0075	0.0186	0.1155	0.0753	0.0492	0.0715	80- 90	1.225	715.5	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): 549.73 lm

%lum = 76.8%

%lamp = 76.8%

Conical surface Flux(120deg): 670.93 lm

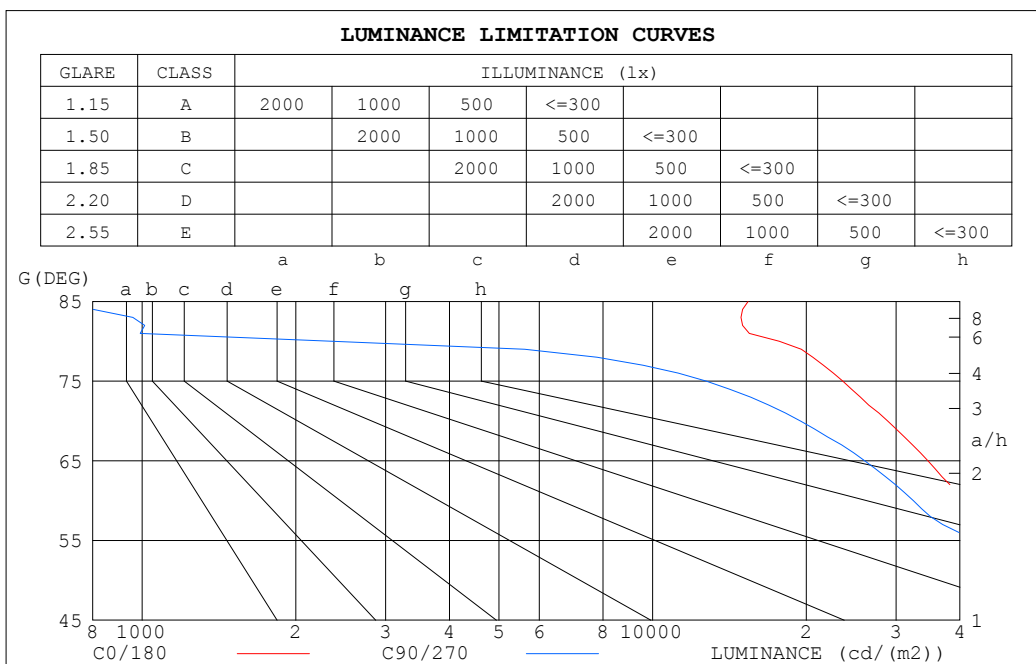
%lum = 93.8%

%lamp = 93.8%

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-08-16

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:

LUMINANCE LIMITATION CURVES



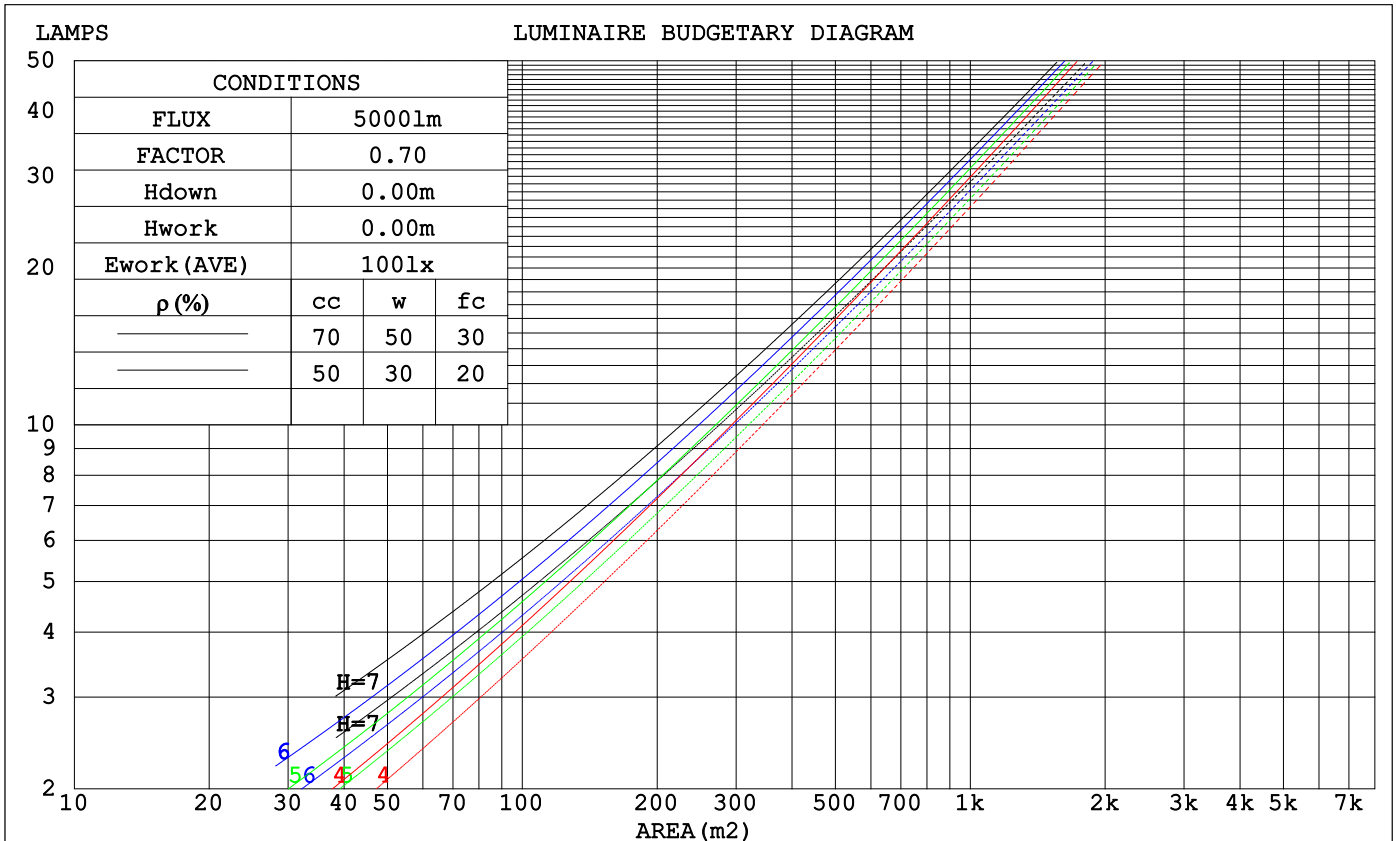
LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	15378	732
80	17708	2355
75	23582	12737
70	28865	19481
65	34639	26034
60	43328	32430
55	59296	43381
50	78600	66008
45	98733	89870

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-16

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:

**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	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	.92	.90
2.0	.98	.92	.88	.96	.91	.87	.93	.89	.85	.89	.86	.83	.87	.84	.81	.80
3.0	.88	.82	.77	.87	.81	.76	.84	.79	.75	.82	.77	.74	.79	.76	.73	.71
4.0	.80	.73	.68	.79	.73	.67	.77	.71	.67	.75	.70	.66	.73	.68	.65	.63
5.0	.73	.66	.61	.72	.65	.60	.70	.64	.60	.69	.63	.59	.67	.62	.58	.57
6.0	.67	.60	.54	.66	.59	.54	.65	.58	.54	.63	.58	.53	.62	.57	.53	.51
7.0	.62	.54	.49	.61	.54	.49	.60	.53	.49	.58	.53	.48	.57	.52	.48	.46
8.0	.57	.50	.45	.57	.50	.45	.55	.49	.44	.54	.48	.44	.53	.48	.44	.42
9.0	.53	.46	.41	.53	.46	.41	.52	.45	.41	.51	.45	.41	.50	.44	.40	.39
10.0	.49	.42	.38	.49	.42	.38	.48	.42	.38	.47	.41	.37	.46	.41	.37	.36



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-08-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfC	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.228	.130	.041	.222	.126	.040	.209	.120	.038	.197	.114	.036	.186	.108	.035	
2.0	.222	.122	.037	.216	.119	.037	.205	.114	.035	.195	.109	.034	.186	.105	.033	
3.0	.212	.113	.034	.206	.111	.033	.197	.107	.032	.188	.103	.032	.180	.099	.031	
4.0	.200	.104	.031	.196	.102	.030	.187	.099	.030	.179	.096	.029	.172	.094	.028	
5.0	.189	.096	.028	.185	.095	.028	.178	.093	.027	.171	.090	.027	.164	.088	.026	
6.0	.179	.090	.026	.175	.089	.025	.169	.086	.025	.162	.084	.025	.157	.082	.024	
7.0	.169	.084	.024	.166	.083	.024	.160	.081	.023	.154	.079	.023	.149	.078	.023	
8.0	.160	.078	.022	.157	.077	.022	.152	.076	.022	.147	.074	.021	.142	.073	.021	
9.0	.152	.073	.021	.149	.073	.020	.145	.071	.020	.140	.070	.020	.136	.069	.020	
10.0	.144	.069	.019	.142	.069	.019	.138	.067	.019	.134	.066	.019	.130	.065	.019	

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfC	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	.149	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.163	.132	.106	.140	.114	.092	.096	.079	.064	.055	.046	.038	.018	.015	.012	
3.0	.153	.114	.083	.131	.098	.072	.090	.068	.050	.052	.040	.030	.017	.013	.010	
4.0	.145	.100	.066	.124	.086	.057	.085	.060	.040	.049	.035	.024	.016	.011	.008	
5.0	.137	.089	.053	.118	.077	.046	.081	.054	.033	.047	.032	.019	.015	.010	.006	
6.0	.130	.080	.044	.112	.069	.038	.077	.049	.027	.045	.029	.016	.014	.009	.005	
7.0	.124	.073	.037	.107	.063	.032	.074	.044	.023	.043	.026	.014	.014	.009	.005	
8.0	.118	.067	.032	.102	.058	.028	.071	.041	.020	.041	.024	.012	.013	.008	.004	
9.0	.113	.062	.028	.097	.054	.024	.067	.038	.017	.039	.022	.010	.013	.007	.003	
10.0	.108	.058	.025	.093	.050	.021	.065	.035	.015	.038	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-08-16

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	26.3	27.6	26.6	27.8	28.0	25.6	26.8	25.9	27.0	27.2
3H	26.7	27.8	27.0	28.0	28.3	25.8	26.9	26.1	27.1	27.4
4H	26.8	27.9	27.1	28.1	28.3	25.8	26.9	26.1	27.1	27.3
6H	26.8	27.8	27.1	28.1	28.4	25.7	26.7	26.0	27.0	27.2
8H	26.8	27.8	27.1	28.1	28.3	25.7	26.6	26.0	26.9	27.2
12H	26.8	27.7	27.1	28.0	28.3	25.6	26.5	26.0	26.8	27.1
4H 2H	26.4	27.5	26.7	27.7	27.9	25.7	26.8	26.0	27.1	27.3
3H	26.9	27.8	27.2	28.1	28.4	26.0	27.0	26.4	27.2	27.5
4H	27.1	27.9	27.4	28.2	28.5	26.1	26.9	26.4	27.2	27.6
6H	27.2	27.9	27.5	28.2	28.6	26.0	26.8	26.4	27.1	27.5
8H	27.2	27.8	27.6	28.2	28.6	26.0	26.7	26.4	27.0	27.4
12H	27.2	27.8	27.6	28.2	28.6	25.9	26.6	26.4	26.9	27.3
8H 4H	27.0	27.7	27.4	28.1	28.4	26.1	26.8	26.5	27.1	27.5
6H	27.2	27.7	27.6	28.1	28.5	26.1	26.6	26.5	27.0	27.4
8H	27.2	27.7	27.6	28.1	28.5	26.0	26.5	26.5	26.9	27.4
12H	27.2	27.6	27.6	28.0	28.5	26.0	26.4	26.4	26.8	27.3
12H 4H	27.0	27.6	27.4	28.0	28.4	26.1	26.7	26.5	27.1	27.5
6H	27.1	27.6	27.6	28.0	28.5	26.0	26.5	26.5	26.9	27.4
8H	27.1	27.6	27.6	28.0	28.5	26.0	26.4	26.5	26.8	27.3
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.9 / - 1.2					+ 1.3 / - 2.1				
1.5H	+ 0.6 / - 0.8					+ 1.0 / - 1.3				
2.0H	+ 2.1 / - 1.9					+ 2.6 / - 2.4				

CIE Pub.117, 715.5 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = -1.2)  
Area: 0.0024 m<sup>2</sup>

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: 10.0deg/s  
Temperature:25.3°C  
Operators:DAMIN  
Test Date:2023-08-16

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:

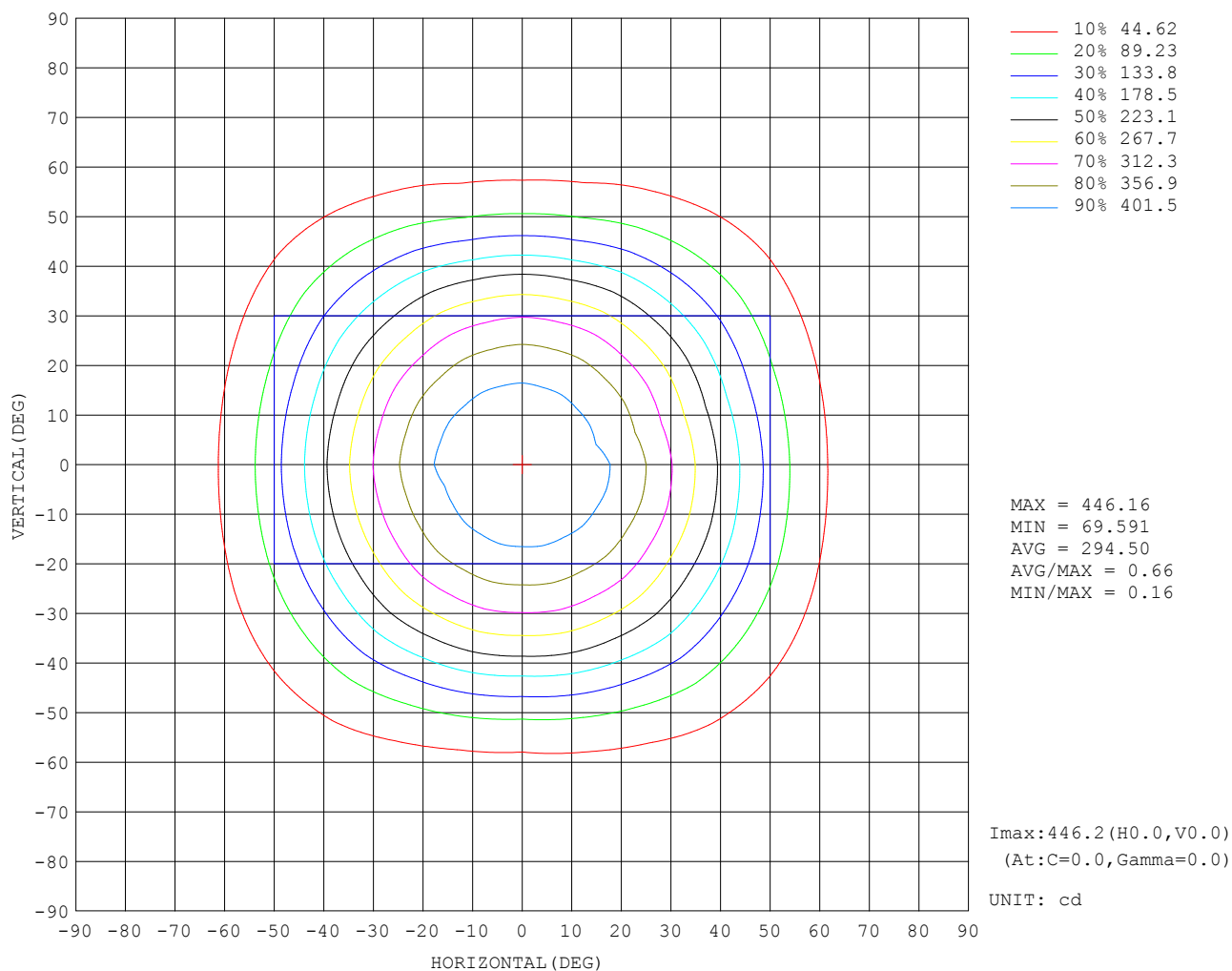
## UTILIZATION FACTORS TABLE

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) $k(RI) \times RCR = 5$									
$k = 0.60$	71	61	56	70	61	56	69	61	56	51
0.80	80	71	66	80	71	66	78	70	65	60
1.00	88	79	74	87	79	74	85	80	73	68
1.25	94	86	81	93	85	80	90	84	80	74
1.50	98	91	86	96	90	85	94	88	84	78
2.00	103	97	92	101	96	91	98	93	90	83
2.50	105	100	96	104	99	95	100	96	93	86
3.00	108	103	99	106	101	98	102	99	96	88
4.00	111	106	103	108	105	102	104	102	99	91
5.00	112	109	106	110	107	104	106	103	101	93
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-16

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity: 65.0%  
 Test Distance: 9.000m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

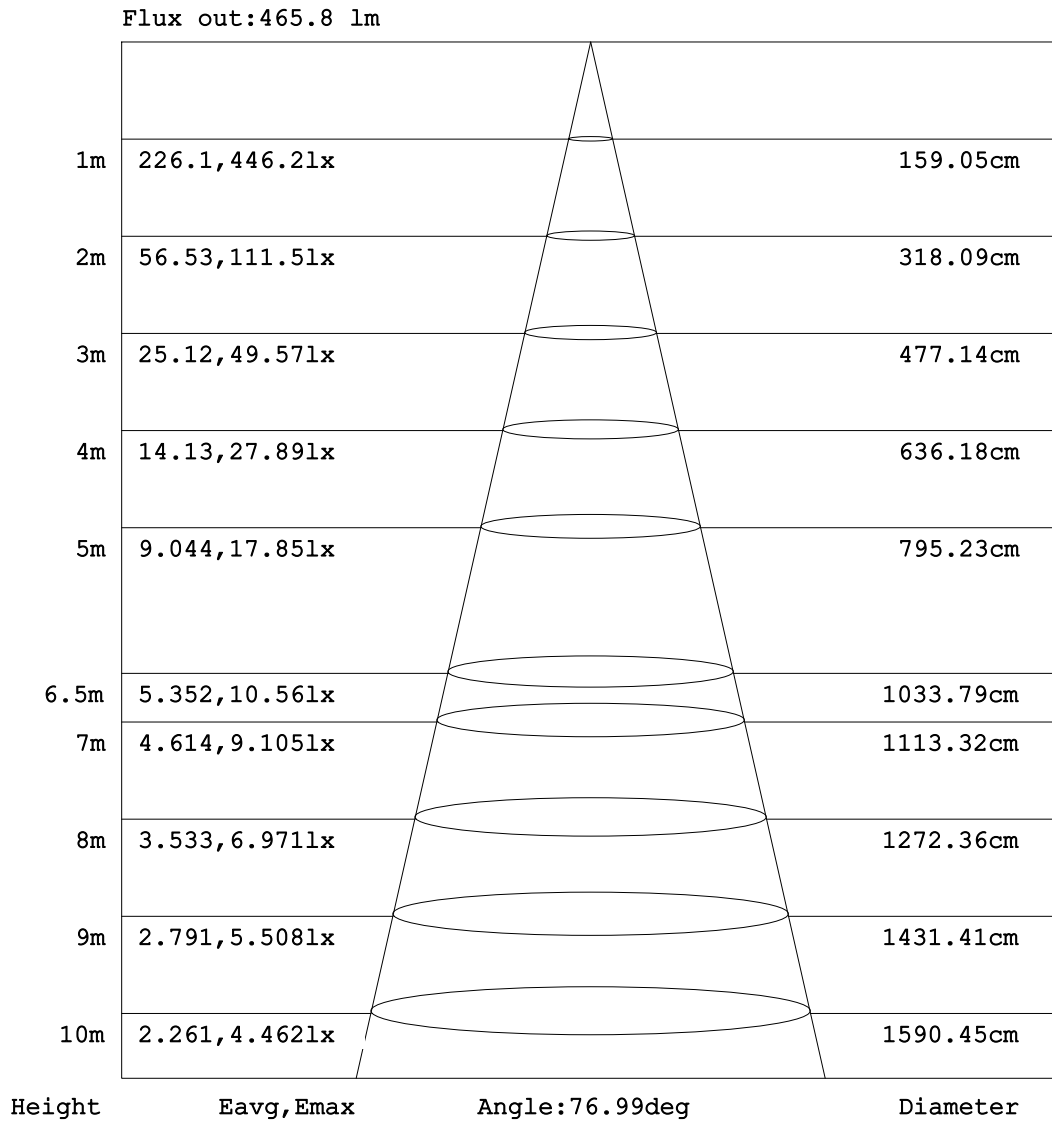


C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-16

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:



**AAI Figure**

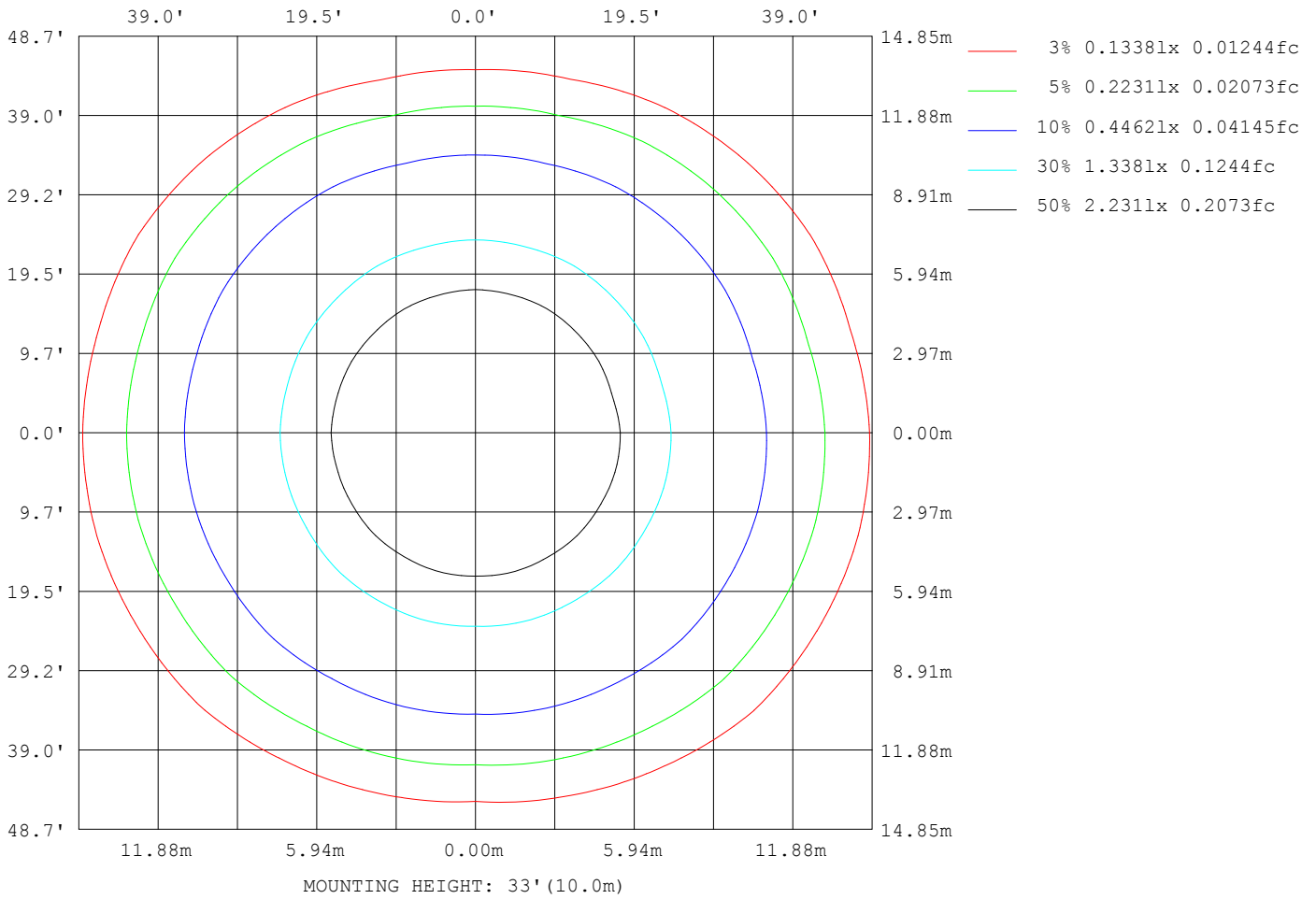


**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-08-16

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:

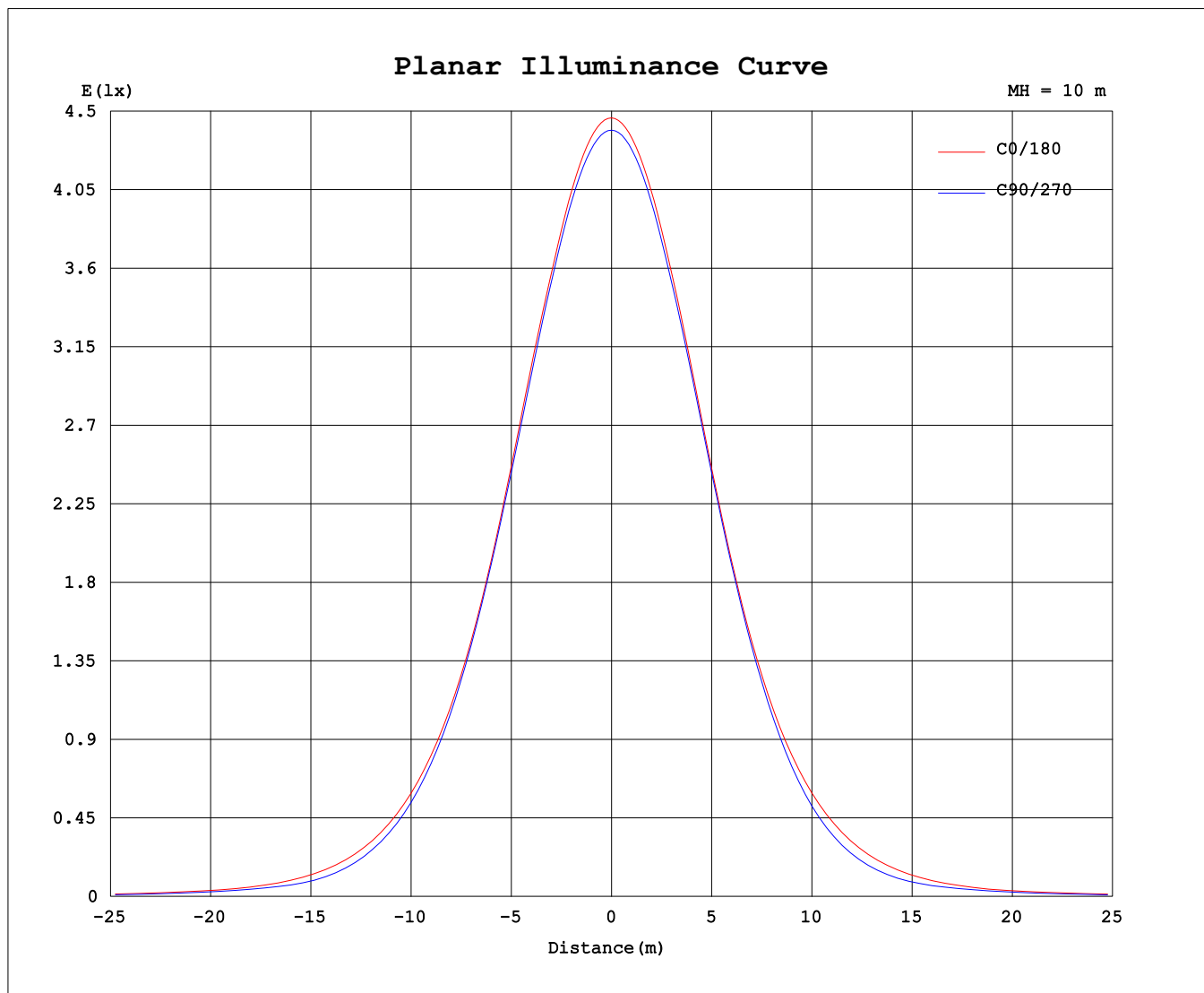
ISOLUX DIAGRAM



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-16

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:

### Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: 10.0deg/s  
Temperature:25.3°C  
Operators:DAMIN  
Test Date:2023-08-16

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--1

UNIT: cd

C (DEG) \ γ (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	446	444	443	442	441	440	439	438	438	437	437	436	446	444	443	442	441	440	439
5	443	442	440	439	438	437	436	435	434	434	433	433	443	441	439	438	437	436	436
10	432	432	430	429	428	427	426	426	424	424	423	424	432	430	429	427	427	426	425
15	414	414	412	412	410	410	408	409	407	407	406	407	414	411	411	408	409	407	408
20	390	390	388	388	386	386	384	385	384	384	383	383	390	386	386	383	384	383	384
25	357	357	355	356	353	354	352	353	351	352	350	350	355	351	351	349	351	349	351
30	315	316	313	315	313	314	311	312	310	311	309	310	313	309	309	307	309	308	310
35	267	268	266	268	265	266	262	264	263	264	262	264	266	262	262	260	261	259	260
40	217	219	217	219	214	213	208	211	211	215	213	215	217	213	214	211	210	204	204
45	168	170	169	170	162	158	153	156	158	164	163	166	168	165	166	162	157	147	147
50	121	124	123	122	113	107	102	105	109	116	117	120	121	119	120	114	107	95.9	94.5
55	81.6	83.6	82.5	81.3	72.6	65.3	59.7	63.9	69.1	76.5	77.9	80.2	80.7	78.9	79.2	74.1	66.8	57.4	55.7
60	52.0	53.3	52.1	50.8	43.9	39.5	38.9	39.1	42.5	48.4	49.6	51.1	50.7	49.4	49.8	45.5	39.9	37.7	36.6
65	35.1	34.9	35.6	32.9	30.0	27.3	26.4	26.7	29.1	31.9	35.0	34.6	33.5	33.7	33.1	31.0	27.5	25.6	24.8
70	23.7	23.5	23.8	22.0	19.1	16.9	16.0	16.4	18.2	21.1	24.2	23.7	22.3	22.3	21.6	19.9	17.3	15.5	15.1
75	14.6	14.4	13.6	12.5	10.3	8.62	7.91	8.16	9.50	12.0	14.4	14.5	13.7	13.2	11.9	10.7	8.96	7.74	7.48
80	7.38	6.78	5.30	4.56	3.17	1.65	0.98	1.15	2.43	4.23	6.23	6.96	6.52	5.47	3.91	3.29	1.97	0.93	0.85
85	3.22	1.71	0.28	0.17	0.17	0.17	0.15	0.14	0.14	0.14	0.17	1.65	3.03	1.08	0.24	0.21	0.30	0.32	0.33
90	0.06	0.12	0.05	0.03	0.02	0.01	0.01	0.01	0.01	0.02	0.04	0.10	0.12	0.23	0.11	0.08	0.06	0.05	0.05

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-08-16

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

C (DEG) γ (DEG)	285	300	315	330	345															
0	438	438	437	437	436															
5	435	435	434	433	433															
10	424	424	423	423	422															
15	406	406	405	405	403															
20	383	383	381	382	380															
25	350	351	349	349	347															
30	308	310	308	308	305															
35	259	262	260	261	258															
40	204	210	209	211	208															
45	147	156	158	161	160															
50	96.2	106	111	116	115															
55	58.0	66.5	72.5	77.2	77.0															
60	38.0	40.4	45.6	49.6	49.3															
65	26.0	28.1	31.4	33.8	34.7															
70	16.0	17.9	20.8	23.5	23.8															
75	8.11	9.67	12.2	14.3	14.5															
80	1.29	2.83	4.81	6.63	6.91															
85	0.34	0.34	0.32	0.37	2.10															
90	0.05	0.06	0.07	0.09	0.18															

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-08-16

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: