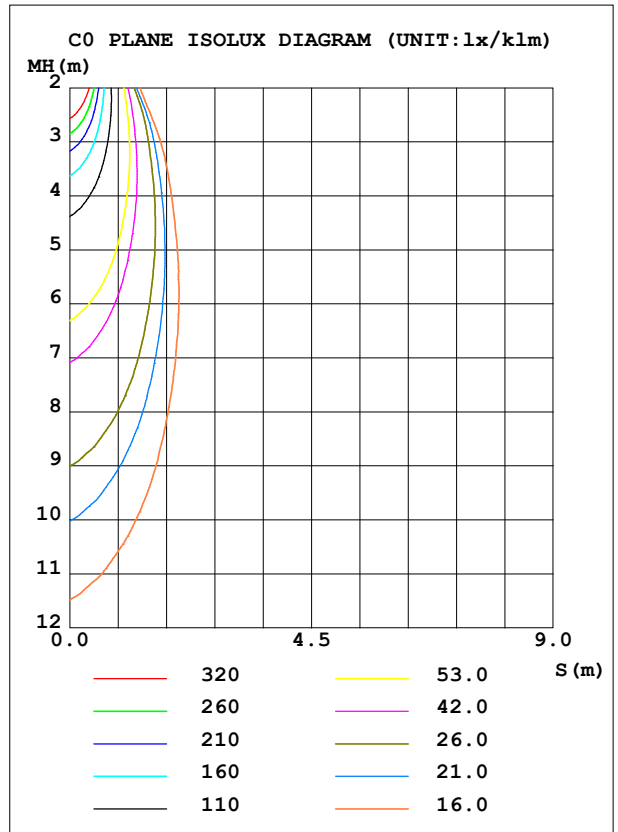
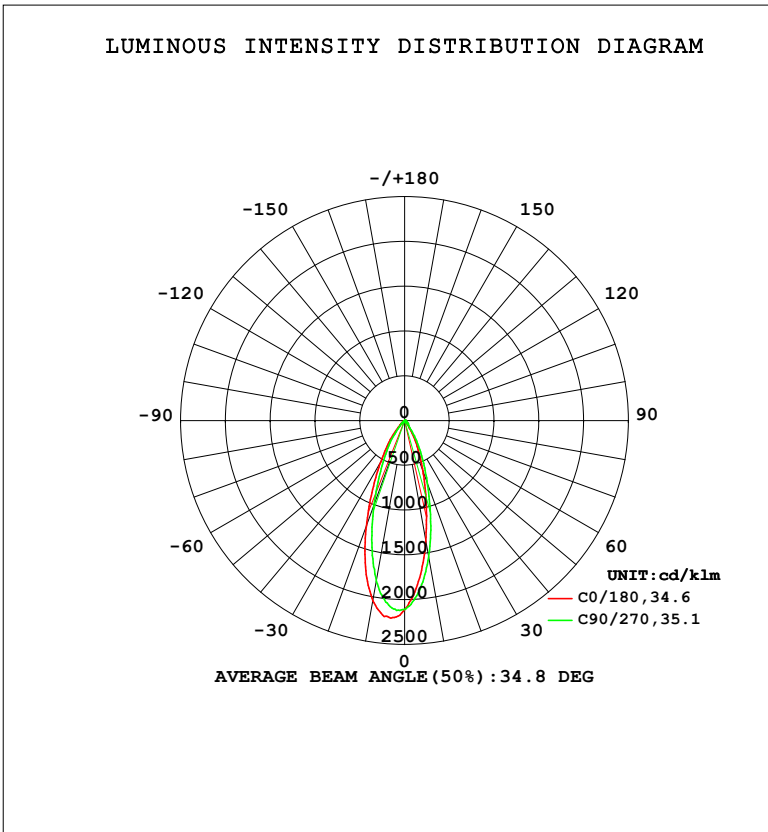


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 74.74 lm/W
MODEL	TUM0001-WH	I _{max} (cd/klm)	2219	S/MH (C0/180)	0.71	
NOMINAL POWER (W)	15	LOR (%)	100.0	S/MH (C90/270)	0.63	
RATED VOLTAGE (V)	120.0	TOTAL FLUX (lm/klm)	1000.00	η UP, DN (C0-180)	0.0, 44.5	
NOMINAL FLUX (lm)	1097.78	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 55.5	
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.50	
TEST VOLTAGE (V)	120	η down (%)	100.0	CIBSE SHR MAX	0.60	



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3 °C
 Operators:
 Test Date: 2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity: 65.0%
 Test Distance: 10.000m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

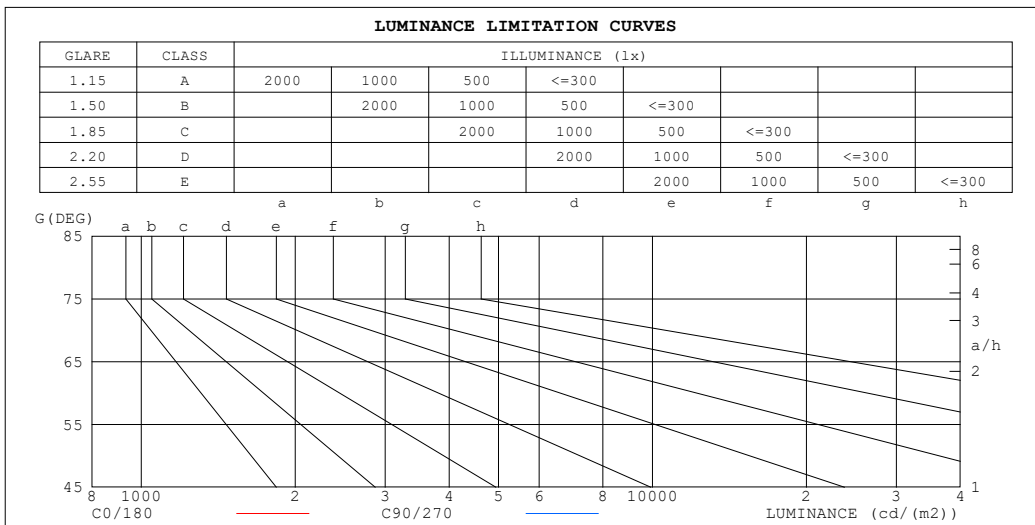
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1370	1372	1545	1845	2042	2051	1827	1514	0- 10	180.8	180.8	18.1,18.1
20	596.9	588.0	751.5	1041	1250	1230	1003	724.0	10- 20	354.6	535.4	53.5,53.5
30	197.0	219.3	284.2	440.0	540.2	547.1	410.8	241.8	20- 30	269.9	805.3	80.5,80.5
40	47.85	50.18	66.15	125.7	169.5	153.5	108.6	56.24	30- 40	126.8	932.1	93.2,93.2
50	15.12	16.44	24.02	37.89	45.25	40.25	28.52	18.10	40- 50	41.02	973.1	97.3,97.3
60	6.581	6.772	8.380	11.99	14.18	12.24	9.130	7.097	50- 60	14.97	988.1	98.8,98.8
70	3.880	3.911	4.556	5.626	6.086	5.619	4.822	4.095	60- 70	6.670	994.8	99.5,99.5
80	1.717	1.881	2.449	3.089	3.318	3.154	2.699	2.066	70- 80	3.818	998.6	99.9,99.9
90	0.0569	0.0569	0.0569	0.1455	1.113	0.5819	0	0	80- 90	1.416	1000.0	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/klm									UNIT:lm/klm		

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3℃
 Operators:
 Test Date:2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity:65.0%
 Test Distance:10.000m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	6	133
80	98	139
75	108	129
70	112	132
65	119	141
60	130	166
55	156	233
50	232	369
45	386	576

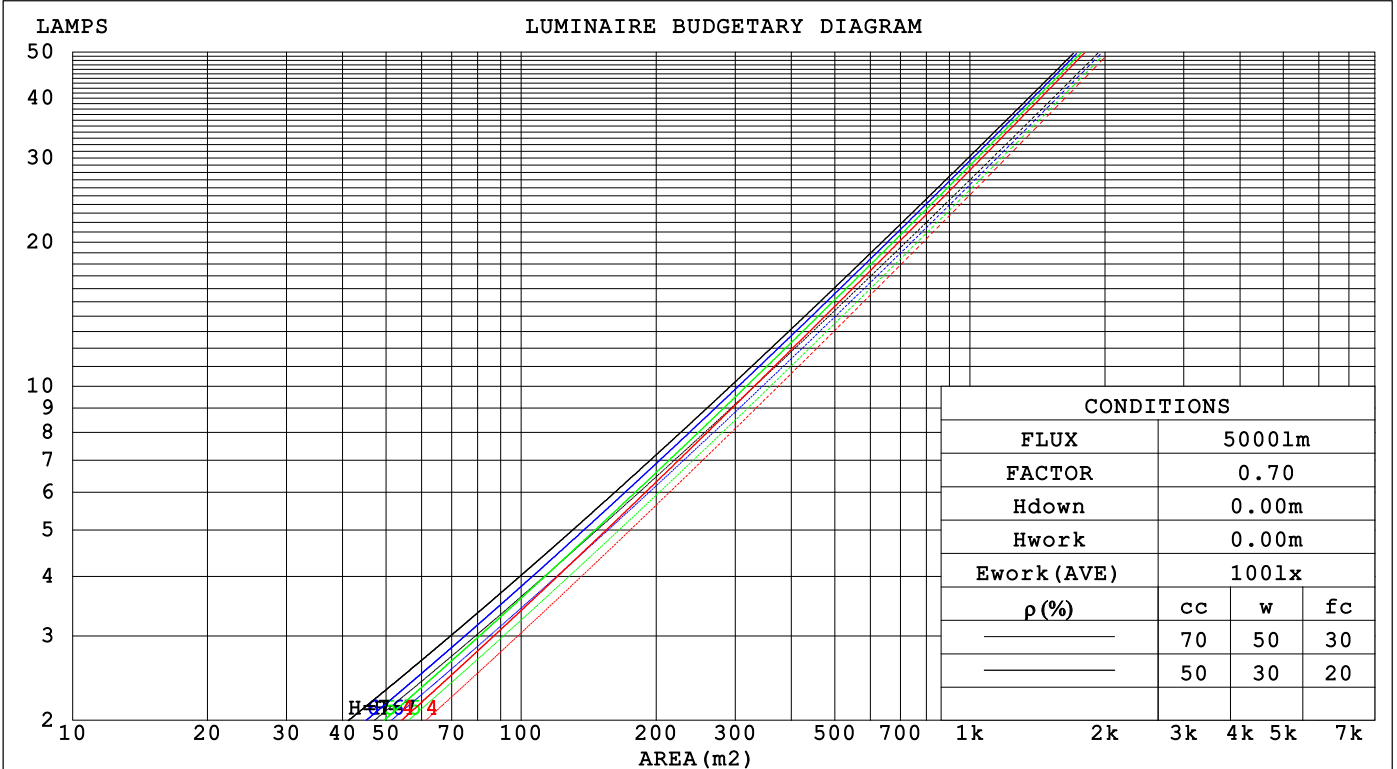
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3 °C
 Operators:
 Test Date: 2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity: 65.0%
 Test Distance: 10.000m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

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 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	.00
1.0	1.11	1.09	1.07	1.09	1.07	1.05	1.05	1.03	1.02	1.01	1.00	.99	.98	.97	.96	.94
2.0	1.04	1.01	.97	1.03	.99	.96	.99	.97	.94	.96	.94	.92	.94	.92	.90	.89
3.0	.98	.94	.90	.97	.93	.89	.94	.91	.88	.92	.89	.86	.90	.87	.85	.84
4.0	.93	.88	.84	.91	.87	.83	.89	.85	.82	.87	.84	.81	.86	.83	.80	.79
5.0	.88	.82	.78	.87	.82	.78	.85	.81	.77	.83	.80	.77	.82	.79	.76	.75
6.0	.83	.78	.74	.82	.77	.74	.81	.76	.73	.80	.76	.73	.78	.75	.72	.71
7.0	.79	.74	.70	.78	.73	.70	.77	.73	.69	.76	.72	.69	.75	.71	.69	.67
8.0	.75	.70	.66	.75	.70	.66	.74	.69	.66	.73	.69	.66	.72	.68	.65	.64
9.0	.72	.67	.63	.71	.66	.63	.70	.66	.63	.70	.65	.62	.69	.65	.62	.61
10.0	.69	.64	.60	.68	.63	.60	.68	.63	.60	.67	.63	.60	.66	.62	.60	.58



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3 °C
 Operators:
 Test Date:2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity:65.0%
 Test Distance:10.000m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz		
Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

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	.168	.095	.030	.161	.092	.029	.149	.085	.027	.137	.079	.025	.126	.073	.024	
2.0	.159	.087	.027	.153	.084	.026	.143	.079	.025	.133	.075	.023	.124	.070	.022	
3.0	.150	.080	.024	.145	.078	.023	.136	.074	.022	.128	.070	.022	.120	.067	.021	
4.0	.142	.074	.022	.138	.072	.021	.130	.069	.021	.123	.066	.020	.117	.063	.019	
5.0	.135	.069	.020	.131	.067	.020	.124	.065	.019	.118	.062	.019	.113	.060	.018	
6.0	.128	.064	.018	.125	.063	.018	.119	.061	.018	.114	.059	.017	.109	.057	.017	
7.0	.122	.060	.017	.119	.059	.017	.114	.058	.017	.109	.056	.016	.105	.055	.016	
8.0	.117	.057	.016	.114	.056	.016	.110	.055	.016	.105	.053	.015	.101	.052	.015	
9.0	.111	.054	.015	.109	.053	.015	.105	.052	.015	.102	.051	.015	.098	.050	.014	
10.0	.107	.051	.014	.105	.051	.014	.101	.050	.014	.098	.049	.014	.095	.048	.014	

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.170	.157	.146	.146	.135	.125	.100	.093	.087	.057	.054	.050	.018	.017	.016	
2.0	.154	.133	.114	.132	.114	.099	.091	.079	.069	.052	.046	.040	.017	.015	.013	
3.0	.141	.113	.091	.121	.098	.079	.083	.068	.056	.048	.040	.033	.015	.013	.011	
4.0	.130	.099	.074	.112	.085	.065	.077	.059	.045	.045	.035	.027	.014	.011	.009	
5.0	.121	.087	.061	.104	.075	.053	.072	.052	.038	.042	.031	.022	.013	.010	.007	
6.0	.113	.077	.051	.097	.067	.045	.067	.047	.032	.039	.028	.019	.013	.009	.006	
7.0	.106	.070	.044	.092	.060	.038	.063	.042	.027	.037	.025	.016	.012	.008	.005	
8.0	.100	.063	.038	.086	.055	.033	.060	.038	.023	.035	.023	.014	.011	.007	.005	
9.0	.095	.058	.033	.082	.050	.028	.057	.035	.020	.033	.021	.012	.011	.007	.004	
10.0	.090	.053	.029	.078	.046	.025	.054	.033	.018	.032	.019	.011	.010	.006	.004	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3℃
 Operators:
 Test Date:2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity:65.0%
 Test Distance:10.000m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding 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	0.5	1.3	0.7	1.5	1.6	2.4	3.2	2.6	3.4	3.5
3H	0.7	1.4	0.9	1.6	1.8	2.5	3.3	2.7	3.4	3.6
4H	0.8	1.5	1.0	1.7	2.0	2.5	3.3	2.8	3.5	3.7
6H	0.9	1.6	1.2	1.8	2.1	2.6	3.3	2.9	3.6	3.8
8H	0.9	1.5	1.2	1.8	2.0	2.7	3.4	3.0	3.6	3.9
12H	0.8	1.5	1.1	1.7	2.0	2.7	3.4	3.0	3.6	3.9
4H 2H	0.4	1.2	0.7	1.4	1.6	2.2	3.0	2.5	3.2	3.4
3H	0.7	1.4	1.1	1.7	1.9	2.4	3.1	2.7	3.3	3.6
4H	0.9	1.5	1.3	1.8	2.1	2.6	3.2	2.9	3.5	3.8
6H	1.1	1.7	1.5	2.0	2.3	2.7	3.3	3.1	3.6	3.9
8H	1.1	1.6	1.5	2.0	2.3	2.8	3.3	3.2	3.7	4.0
12H	1.1	1.5	1.5	1.9	2.3	2.9	3.3	3.3	3.7	4.1
8H 4H	1.0	1.5	1.4	1.8	2.2	2.5	3.0	2.9	3.4	3.7
6H	1.2	1.6	1.7	2.0	2.4	2.8	3.2	3.2	3.6	4.0
8H	1.2	1.6	1.7	2.0	2.4	2.9	3.3	3.4	3.7	4.1
12H	1.2	1.5	1.6	1.9	2.4	3.0	3.3	3.5	3.7	4.2
12H 4H	1.0	1.4	1.4	1.8	2.2	2.5	2.9	2.9	3.3	3.7
6H	1.2	1.6	1.7	2.0	2.4	2.8	3.1	3.2	3.5	4.0
8H	1.2	1.5	1.7	2.0	2.4	2.9	3.2	3.4	3.6	4.1

Variations with the observer position at spacings(CIE Pub.117):		
S = 1.0H	+ 1.5 / - 2.2	+ 2.1 / - 2.0
1.5H	+ 2.6 / - 2.0	+ 3.4 / - 2.4
2.0H	+ 2.7 / - 1.2	+ 3.6 / - 1.6

CIE Pub.117, 1098 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.3)
Area: 0.111111 m2

C Range: 0 - 360DEG	γ Range: 0 - 90DEG
C Interval: 22.5DEG	γ Interval: 0.5DEG
Test Speed: HIGH	Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
Temperature:25.3℃	Humidity:65.0%
Operators:	Test Distance:10.000m [K=1.0000]
Test Date:2024-10-21	Remarks:

UTILIZATION FACTORS TABLE

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

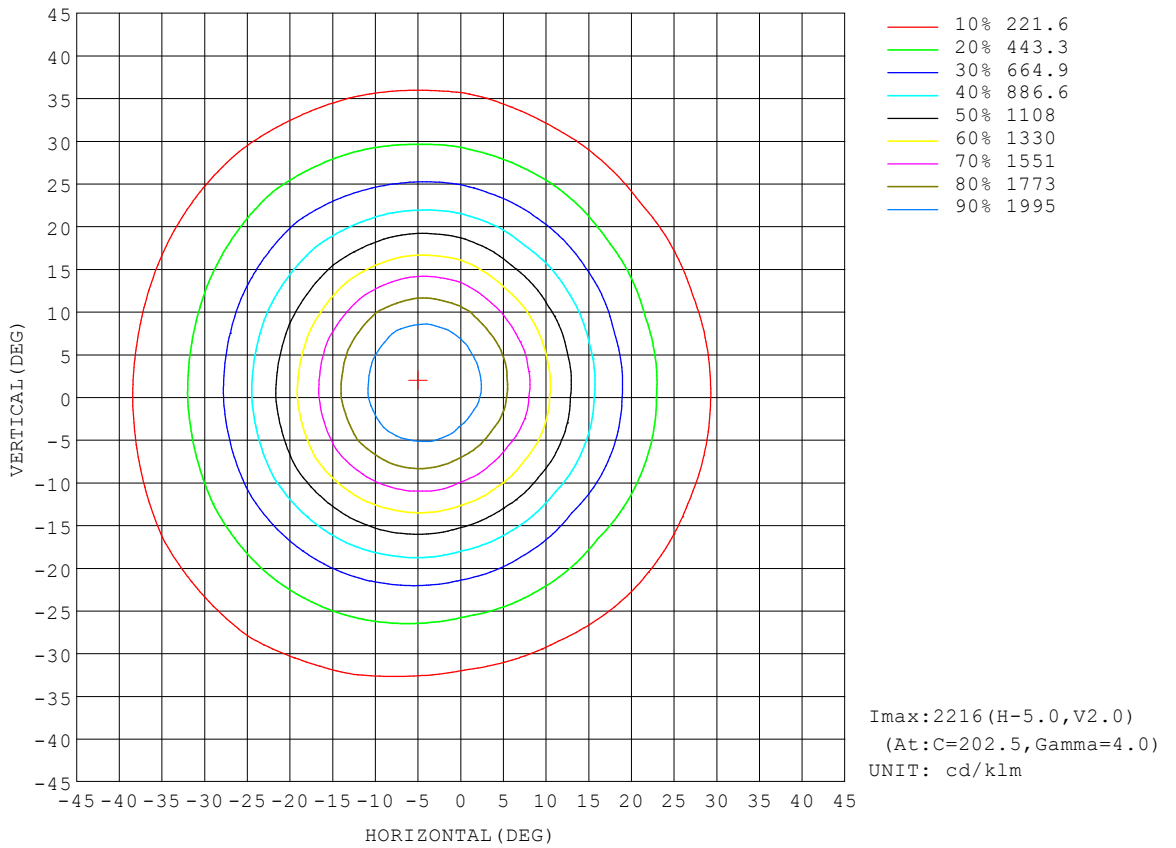
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	87	81	77	87	81	77	86	80	77	73
0.80	95	89	85	94	89	85	93	88	85	81
1.00	99	94	90	98	93	90	97	93	89	85
1.25	103	98	94	102	97	94	100	96	93	89
1.50	106	101	98	105	100	97	102	99	96	92
2.00	108	104	101	107	103	100	104	101	99	94
2.50	110	106	103	109	105	102	105	103	101	95
3.00	112	108	106	110	107	104	107	104	102	96
4.00	114	111	109	112	109	107	108	106	105	98
5.00	115	113	111	113	111	109	109	107	106	99
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:
 Test Date:2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity:65.0%
 Test Distance:10.000m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

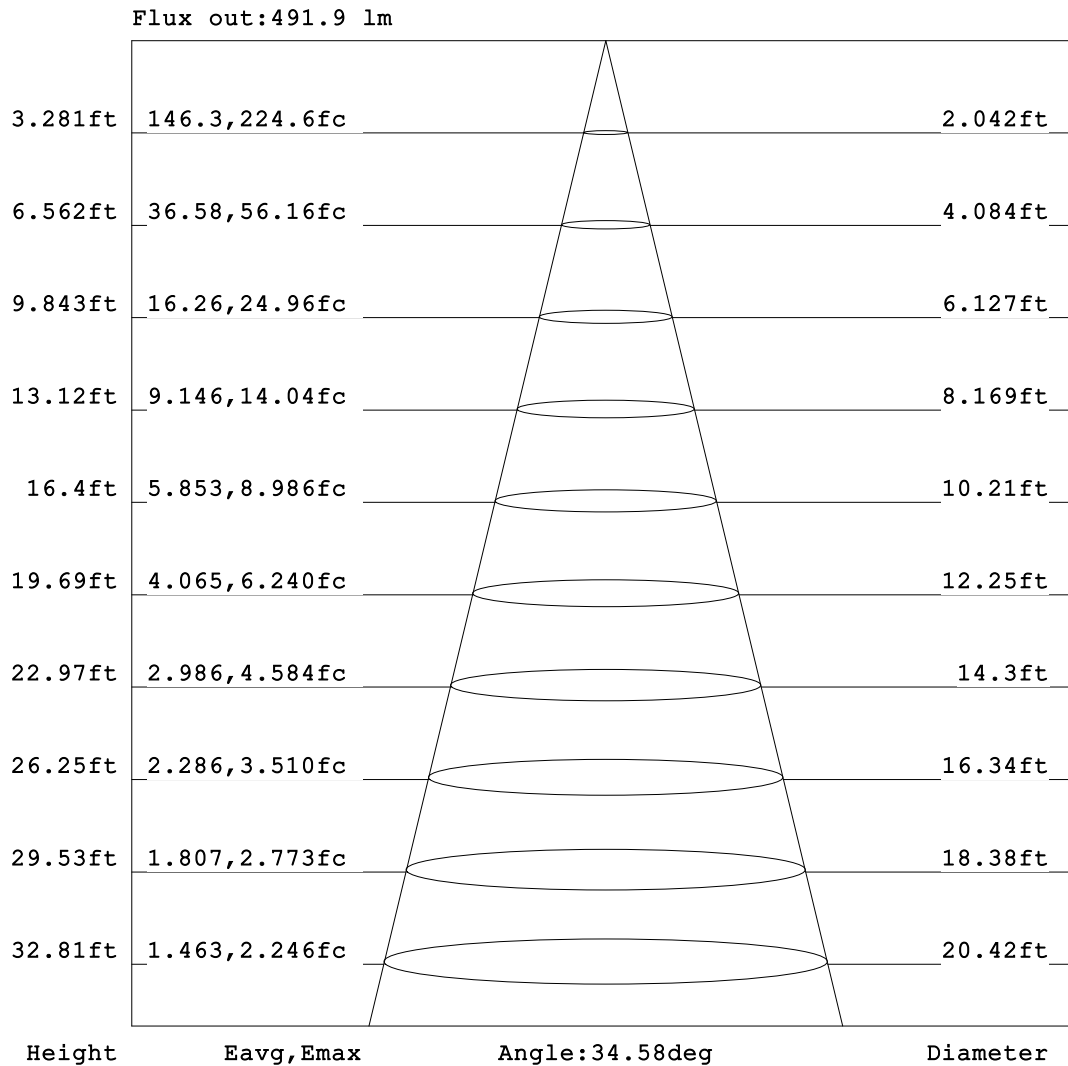


C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3℃
 Operators:
 Test Date:2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity:65.0%
 Test Distance:10.000m [K=1.0000]
 Remarks:

AAI Figure

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



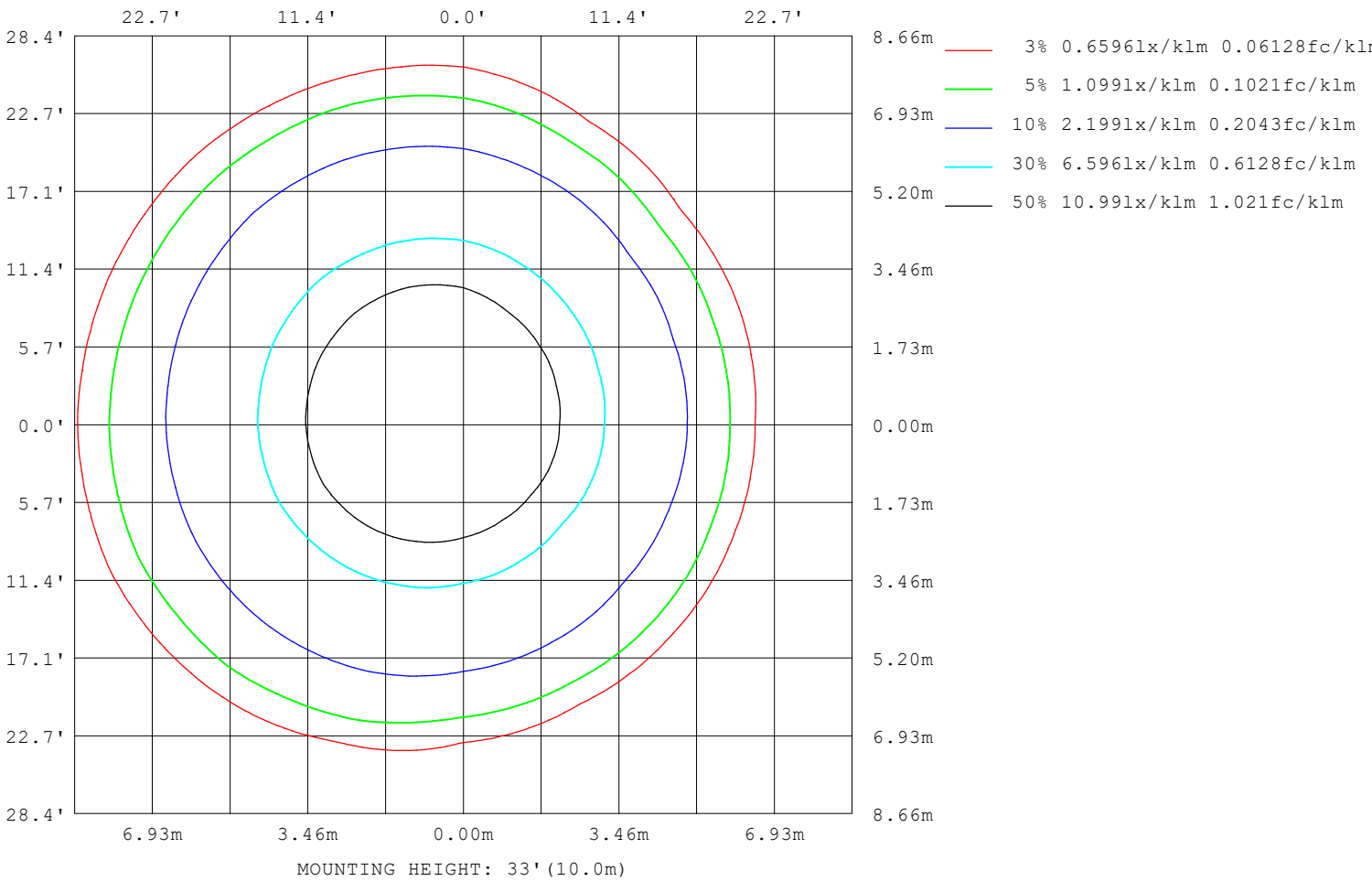
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3°C
 Operators:
 Test Date: 2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity: 65.0%
 Test Distance: 10.000m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:
 Test Date:2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity:65.0%
 Test Distance:10.000m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

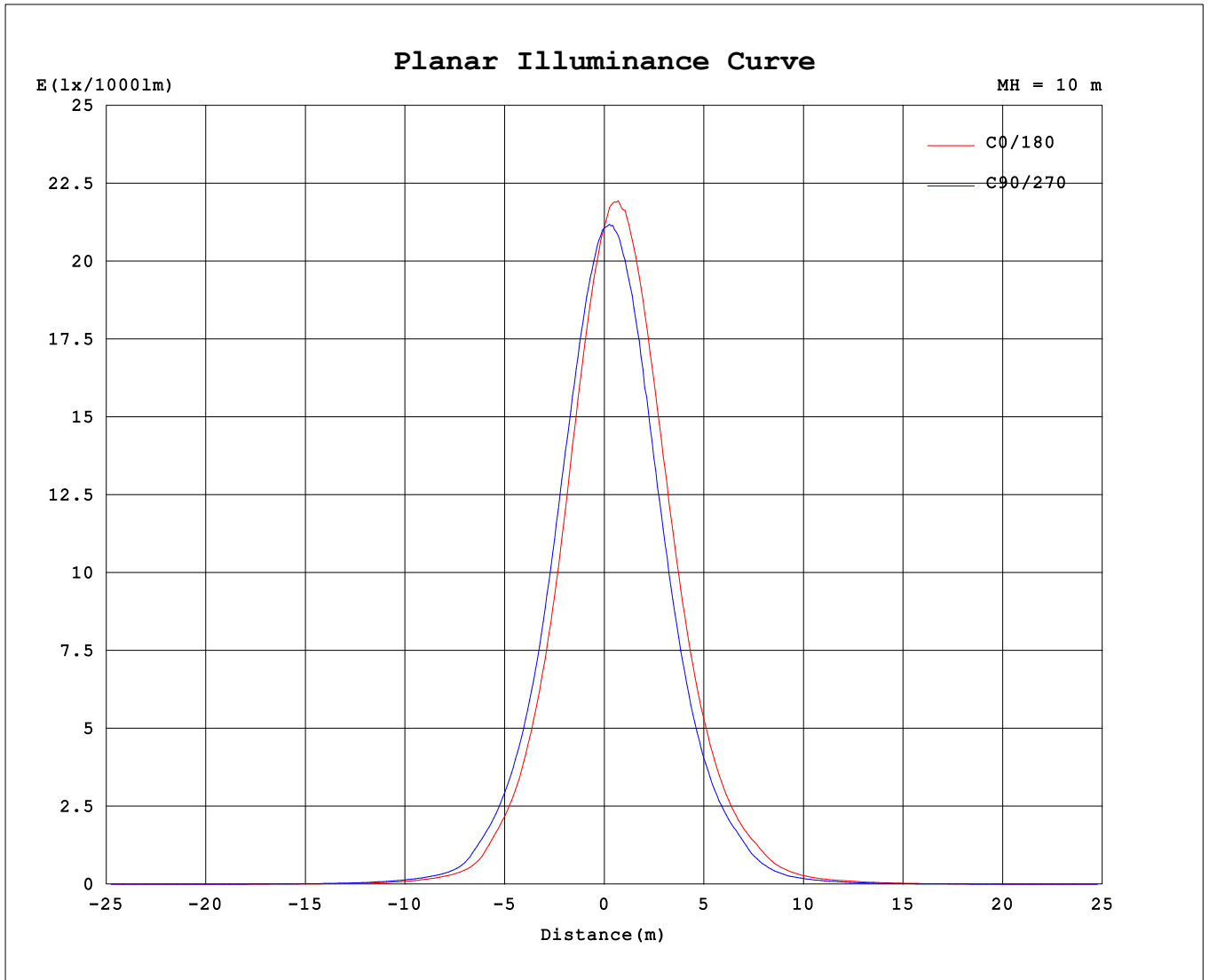
AvgL	cd/m2
L_0~180 (65) av	161
L_0~180 (75) av	140
L_0~180 (85) av	142
L_90~270 (65) av	146
L_90~270 (75) av	134
L_90~270 (85) av	165
L_45 (65) av	153
L_45 (75) av	137
L_45 (85) av	130

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3℃
 Operators:
 Test Date:2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity:65.0%
 Test Distance:10.000m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3 °C
 Operators:
 Test Date: 2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity: 65.0%
 Test Distance: 10.000m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.48V I:0.1242A P:14.688W PF:0.9814 Freq:59.98Hz Lamp Flux:1097.78x1 lm		
NAME: TUM0001-WH	TYPE:	WEIGHT:
SPEC.: 5000K	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

Table--1

UNIT: cd/klm

C (DEG) \ γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	2111	2116	2111	2113	2107	2114	2116	2111	2111	2116	2111	2113	2107	2114	2116	2111			
5	1802	1793	1795	1846	1909	1997	2086	2161	2195	2214	2192	2141	2066	1975	1905	1839			
10	1370	1365	1372	1442	1545	1699	1845	1974	2042	2062	2051	1950	1827	1656	1514	1423			
15	933	931	938	1014	1130	1294	1463	1619	1690	1717	1682	1568	1415	1225	1086	991			
20	597	591	588	656	751	888	1041	1183	1250	1260	1230	1135	1003	842	724	634			
25	359	352	359	414	479	581	688	796	850	860	838	750	658	550	440	376			
30	197	198	219	238	284	367	440	509	540	550	547	483	411	327	242	207			
35	83.7	85.0	87.9	97.6	127	207	270	307	326	330	324	298	248	152	104	94.0			
40	47.9	48.3	50.2	56.3	66.2	87.3	126	159	169	165	153	129	109	71.1	56.2	50.6			
45	27.6	27.8	29.5	34.3	41.2	51.4	65.1	76.1	79.4	77.7	71.2	62.9	52.5	40.3	32.8	28.7			
50	15.1	15.4	16.4	19.4	24.0	30.9	37.9	43.4	45.2	43.5	40.3	35.3	28.5	21.8	18.1	16.0			
55	9.05	9.15	9.60	11.0	13.5	17.4	21.1	24.5	25.5	24.5	22.2	18.8	15.2	12.1	10.3	9.35			
60	6.58	6.55	6.77	7.35	8.38	10.1	12.0	13.7	14.2	13.6	12.2	10.5	9.13	7.90	7.10	6.66			
65	5.08	4.99	5.14	5.44	6.04	6.87	7.81	8.60	8.67	8.40	7.86	7.18	6.43	5.88	5.37	5.16			
70	3.88	3.78	3.91	4.13	4.56	5.04	5.63	6.08	6.09	5.94	5.62	5.27	4.82	4.45	4.10	3.93			
75	2.82	2.74	2.85	3.05	3.39	3.76	4.19	4.44	4.51	4.46	4.23	3.97	3.61	3.34	3.04	2.88			
80	1.72	1.69	1.88	2.11	2.45	2.73	3.09	3.26	3.32	3.35	3.15	3.03	2.70	2.43	2.07	1.82			
85	0.06	0.06	0.06	0.06	1.17	1.82	2.22	2.36	2.44	2.47	2.31	2.20	1.73	0.56	0.00	0.01			
90	0.06	0.06	0.06	0.06	0.06	0.05	0.15	0.79	1.11	1.08	0.58	0.01	0.00	0.00	0.00	0.00			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3℃
 Operators:
 Test Date:2024-10-21

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.479
 Humidity:65.0%
 Test Distance:10.000m [K=1.0000]
 Remarks: