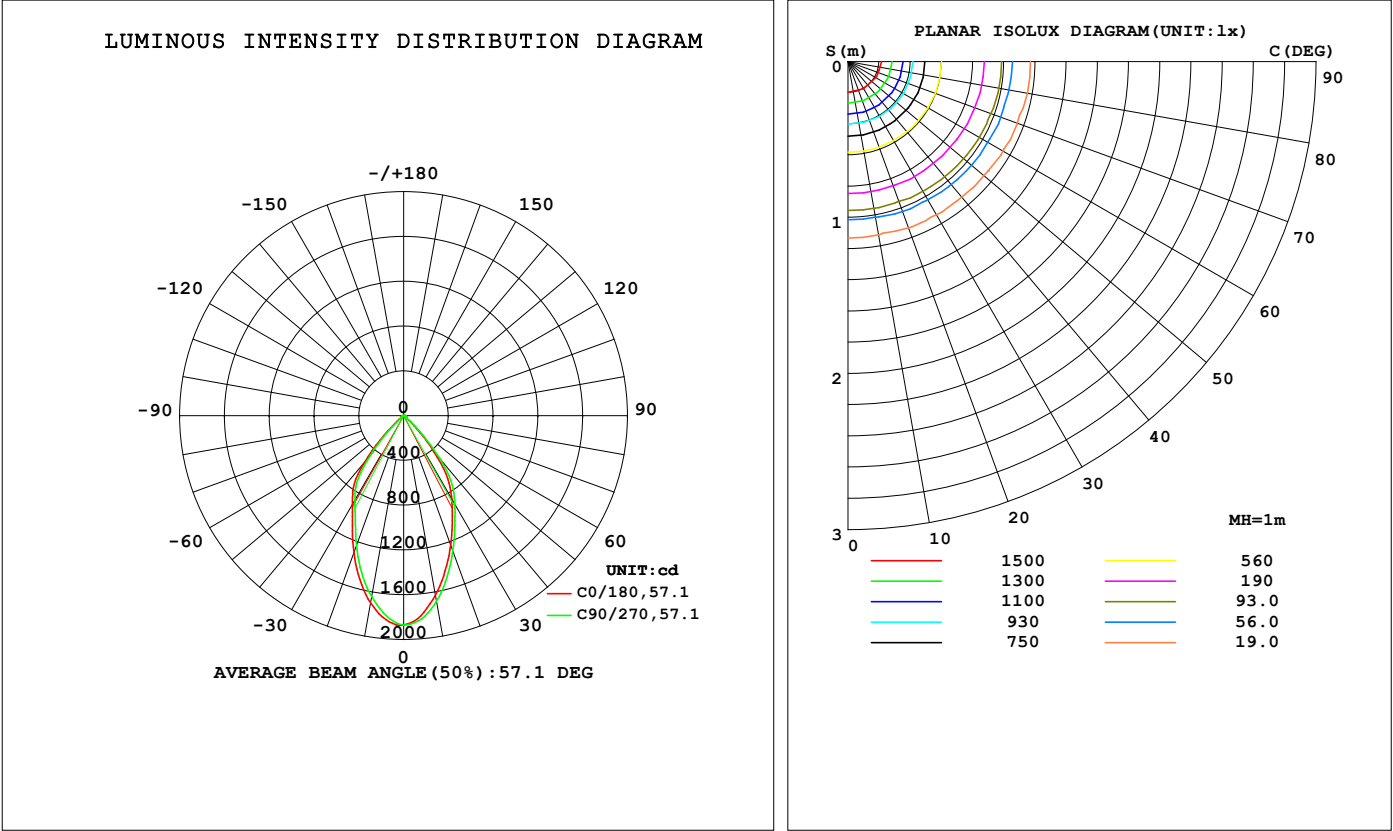


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830 Lamp Flux:1747.24x1 lm		
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 104.28 lm/W
MODEL		Imax (cd)	1875	S/MH(C0/180)	0.83	
NOMINAL POWER(W)	18	LOR(%)	100.0	S/MH(C90/270)	0.80	
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	1747.2	η UP,DN(C0-180)	0.0,50.3	
NOMINAL FLUX(lm)	1747.24	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)	240.34	η down (%)	100.0	CIBSE SHR MAX	1.00	



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [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	1630	1659	1685	1707	1699	1672	1643	1626	0- 10	168.0	168.0	9.62,9.62
20	1230	1260	1286	1304	1303	1276	1235	1214	10- 20	411.0	579.0	33.1,33.1
30	864.0	892.1	916.8	934.9	918.6	893.5	873.1	858.6	20- 30	487.9	1067	61.1,61.1
40	425.8	463.6	507.0	547.3	545.2	510.6	461.3	427.1	30- 40	448.5	1515	86.7,86.7
50	33.73	40.02	51.52	59.03	53.26	43.79	36.21	32.59	40- 50	171.4	1687	96.5,96.5
60	22.49	22.49	23.76	26.16	25.81	24.35	23.07	22.76	50- 60	26.45	1713	98.1,98.1
70	15.42	16.45	16.72	16.77	16.28	14.74	13.63	13.61	60- 70	19.71	1733	99.2,99.2
80	5.818	6.688	7.122	7.510	7.114	6.057	5.239	4.967	70- 80	11.18	1744	99.8,99.8
90	0.0699	0.0568	0.0627	0.0512	0.0638	0.0642	0.0749	0.0696	80- 90	3.082	1747	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): 1641.6 lm

%lum = 94.0%

%lamp = 94.0%

Conical surface Flux(120deg): 1713.3 lm

%lum = 98.1%

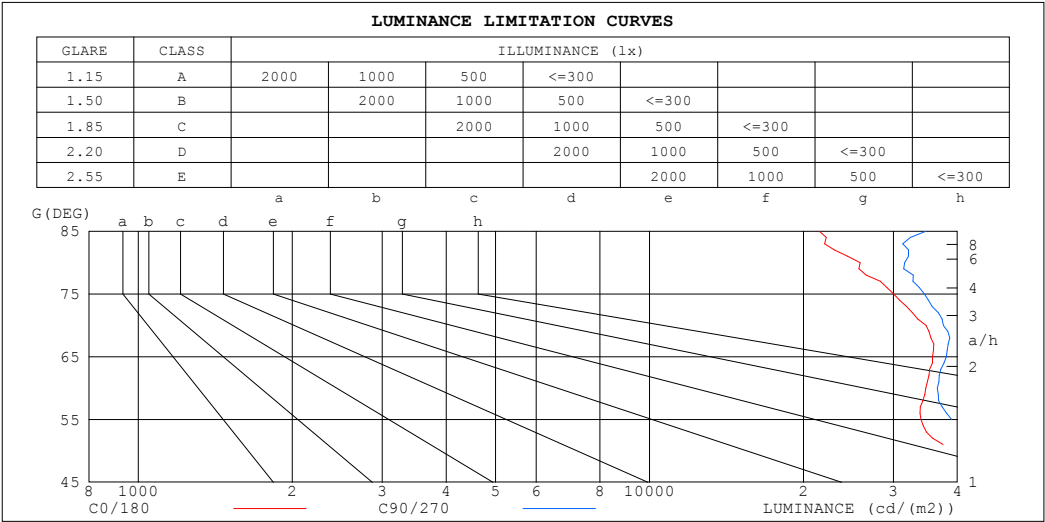
%lamp = 98.1%

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830 Lamp Flux:1747.24x1 lm		
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	21489	34684
80	25832	31540
75	30052	34522
70	34760	37590
65	35771	38078
60	34682	36548
55	33969	38991
50	40462	61628
45	188526	251823

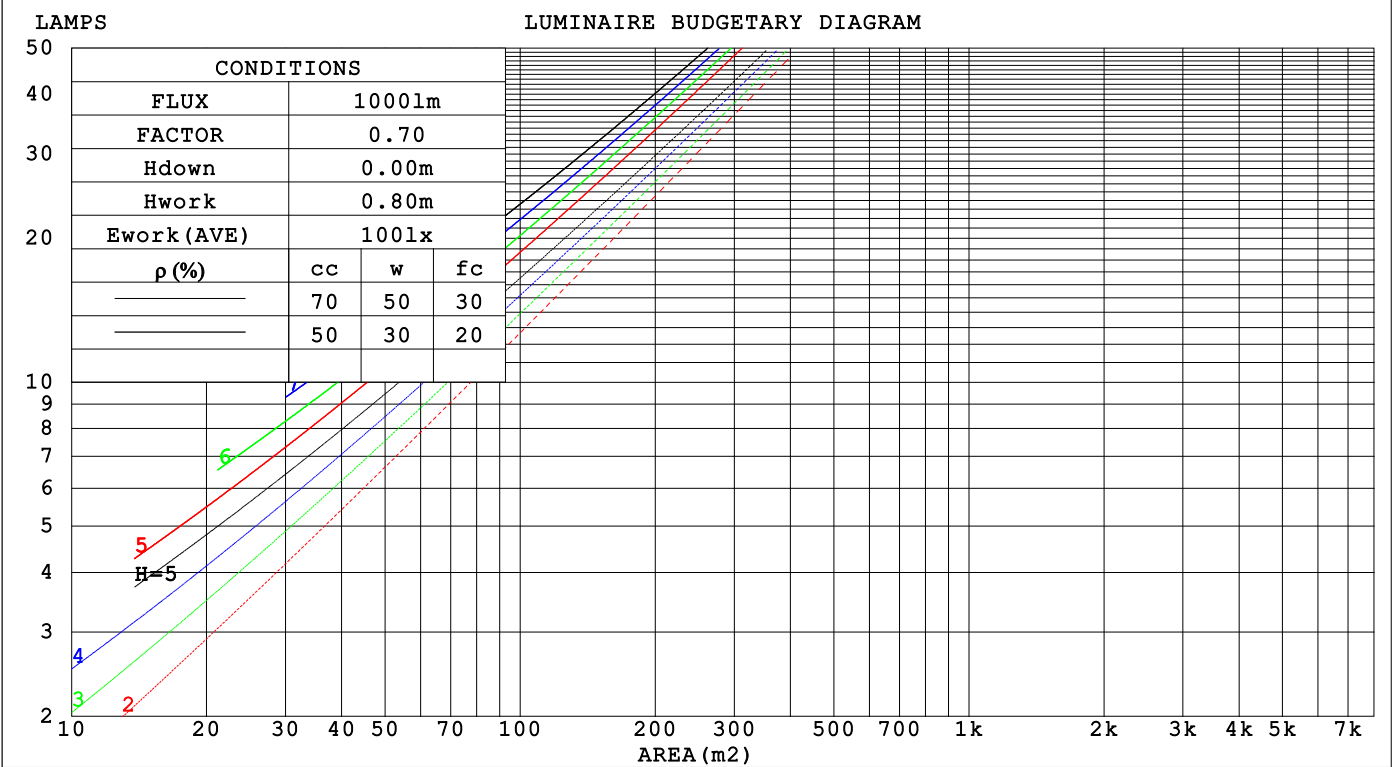
C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDI:0.18% ITHDI:18.35% KDisp:0.9830		
Lamp Flux:1747.24x1 lm		
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:

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															



C Range: 0 - 360DEGC Interval: 45.0DEGTest Speed: HIGHTemperature:25.3DEGOperators:DAMINTest Date:2024-09-06

γ Range: 0 - 90DEGγ Interval: 1.0DEGTest System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453Humidity:65.0%Test Distance:3.090m [K=1.0000]Remarks:

WEC AND CCEC

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830		Lamp Flux:1747.24x1 lm
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:

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	.192	.109	.035	.185	.106	.034	.173	.099	.032	.161	.093	.030	.150	.087	.028	
2.0	.184	.101	.031	.179	.098	.030	.168	.093	.029	.158	.089	.028	.149	.084	.027	
3.0	.176	.094	.028	.171	.092	.028	.162	.088	.027	.153	.084	.026	.145	.080	.025	
4.0	.167	.087	.026	.163	.085	.025	.155	.082	.025	.148	.079	.024	.141	.076	.023	
5.0	.159	.081	.023	.155	.080	.023	.148	.077	.023	.142	.075	.022	.136	.073	.022	
6.0	.152	.076	.022	.148	.075	.022	.142	.073	.021	.136	.071	.021	.131	.069	.020	
7.0	.145	.072	.020	.142	.071	.020	.136	.069	.020	.131	.067	.020	.126	.066	.019	
8.0	.138	.068	.019	.136	.067	.019	.131	.065	.019	.126	.064	.018	.122	.062	.018	
9.0	.132	.064	.018	.130	.063	.018	.125	.062	.018	.121	.061	.017	.117	.060	.017	
10.0	.126	.061	.017	.124	.060	.017	.120	.059	.017	.117	.058	.016	.113	.057	.016	

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	.172	.157	.144	.147	.135	.124	.101	.093	.086	.058	.054	.050	.019	.017	.016	
2.0	.158	.132	.111	.135	.114	.096	.093	.079	.067	.053	.046	.039	.017	.015	.013	
3.0	.146	.114	.088	.125	.098	.076	.086	.068	.053	.050	.040	.031	.016	.013	.010	
4.0	.137	.099	.071	.117	.086	.061	.081	.060	.043	.047	.035	.026	.015	.011	.008	
5.0	.128	.088	.058	.110	.076	.050	.076	.053	.035	.044	.031	.021	.014	.010	.007	
6.0	.121	.079	.048	.104	.068	.042	.072	.048	.030	.042	.028	.018	.013	.009	.006	
7.0	.115	.071	.041	.099	.062	.035	.068	.043	.025	.040	.026	.015	.013	.008	.005	
8.0	.109	.065	.035	.094	.056	.030	.065	.040	.021	.038	.023	.013	.012	.008	.004	
9.0	.104	.060	.030	.090	.052	.026	.062	.037	.019	.036	.022	.011	.012	.007	.004	
10.0	.100	.056	.026	.086	.048	.023	.060	.034	.016	.035	.020	.010	.011	.007	.003	

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz											
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830					Lamp Flux:1747.24x1 lm						
NAME: MD18-18-XX-02 4000K RA90 60D					TYPE:			WEIGHT:			
SPEC.:					DIM.:			SERIAL No.:			
MFR.: Norming lighting					SUR.: 41mm			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	2H	27.2	28.2	27.4	28.4	28.6	27.7	28.8	28.0	28.9	29.1
	3H	27.2	28.1	27.4	28.3	28.5	27.7	28.6	27.9	28.8	29.0
	4H	27.1	28.0	27.4	28.3	28.5	27.7	28.6	27.9	28.8	29.0
	6H	27.1	27.9	27.4	28.2	28.4	27.6	28.5	27.9	28.7	29.0
	8H	27.1	27.9	27.4	28.1	28.4	27.6	28.4	27.9	28.7	28.9
	12H	27.0	27.8	27.4	28.1	28.4	27.6	28.4	27.9	28.6	28.9
4H	2H	27.0	27.9	27.3	28.1	28.3	27.5	28.4	27.8	28.6	28.9
	3H	27.0	27.8	27.3	28.1	28.3	27.5	28.3	27.8	28.6	28.8
	4H	27.0	27.7	27.4	28.0	28.3	27.5	28.2	27.9	28.5	28.8
	6H	27.0	27.6	27.4	28.0	28.3	27.5	28.2	27.9	28.5	28.8
	8H	27.0	27.6	27.4	27.9	28.3	27.5	28.1	27.9	28.5	28.8
	12H	27.0	27.5	27.4	27.9	28.3	27.5	28.1	28.0	28.4	28.8
8H	4H	27.0	27.5	27.3	27.9	28.2	27.5	28.0	27.8	28.4	28.7
	6H	27.0	27.5	27.4	27.8	28.3	27.5	28.0	27.9	28.4	28.8
	8H	27.0	27.4	27.4	27.8	28.3	27.5	27.9	28.0	28.3	28.8
	12H	27.0	27.3	27.5	27.8	28.2	27.5	27.9	28.0	28.3	28.8
12H	4H	26.9	27.4	27.3	27.8	28.2	27.4	27.9	27.8	28.3	28.7
	6H	27.0	27.4	27.4	27.8	28.2	27.5	27.9	27.9	28.3	28.7
	8H	27.0	27.3	27.4	27.8	28.2	27.5	27.8	28.0	28.3	28.8
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 2.4 / - 6.0					+ 2.6 / - 6.1				
1.5H		+ 4.6 / - 6.2					+ 4.7 / - 6.2				
2.0H		+ 5.3 / - 1.7					+ 6.1 / - 2.3				

CIE Pub.117, 1747 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 1.9$)
Area: 0.0013 m²

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830 Lamp Flux:1747.24x1 lm		
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:

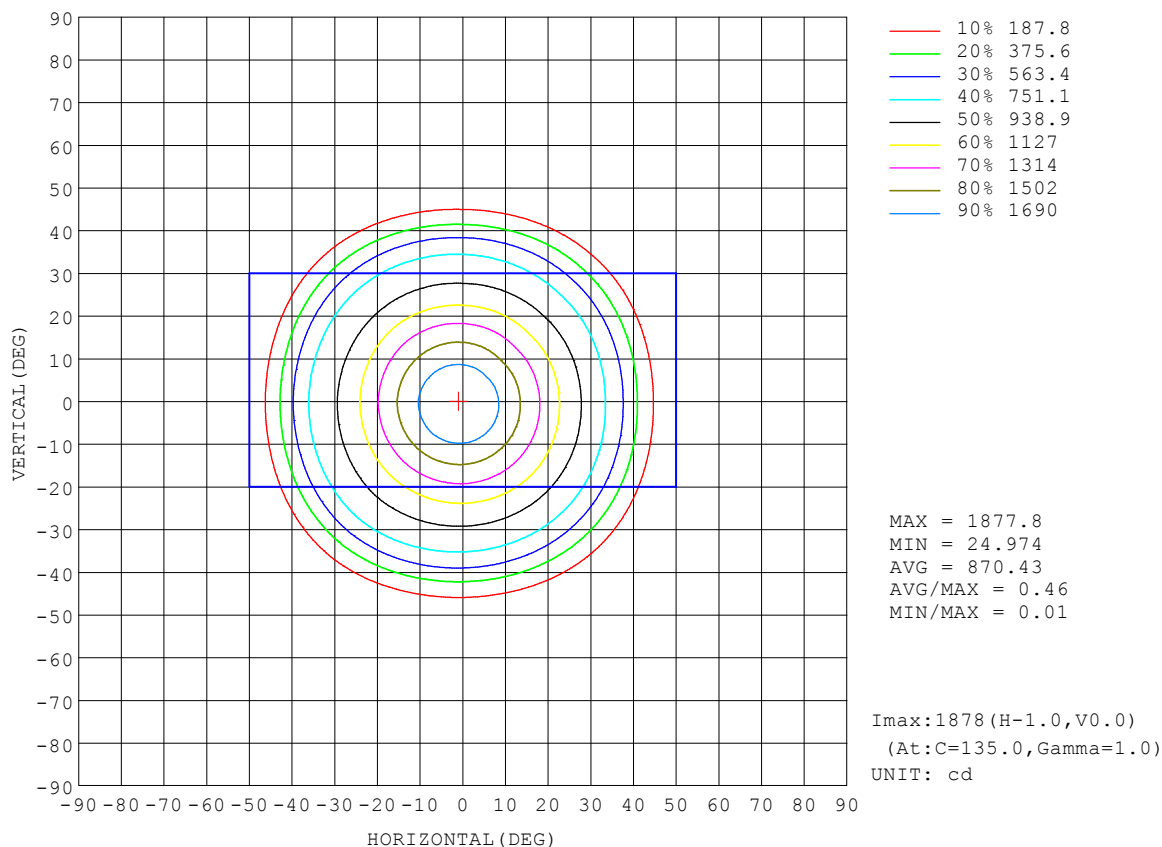
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	83	76	72	83	76	72	82	76	72	68
0.80	91	85	81	91	84	80	89	84	80	76
1.00	97	90	86	96	90	86	94	90	85	81
1.25	101	95	91	100	95	91	98	93	90	86
1.50	104	99	95	103	98	95	100	96	93	89
2.00	107	103	99	106	102	98	103	100	97	91
2.50	109	105	102	107	104	101	104	101	99	93
3.00	111	107	104	109	106	103	106	103	101	94
4.00	113	110	107	111	108	106	107	105	103	96
5.00	114	112	110	112	110	108	108	106	105	97
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2024-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
 Humidity: 65.0%
 Test Distance: 3.090m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830 Lamp Flux:1747.24x1 lm		
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:

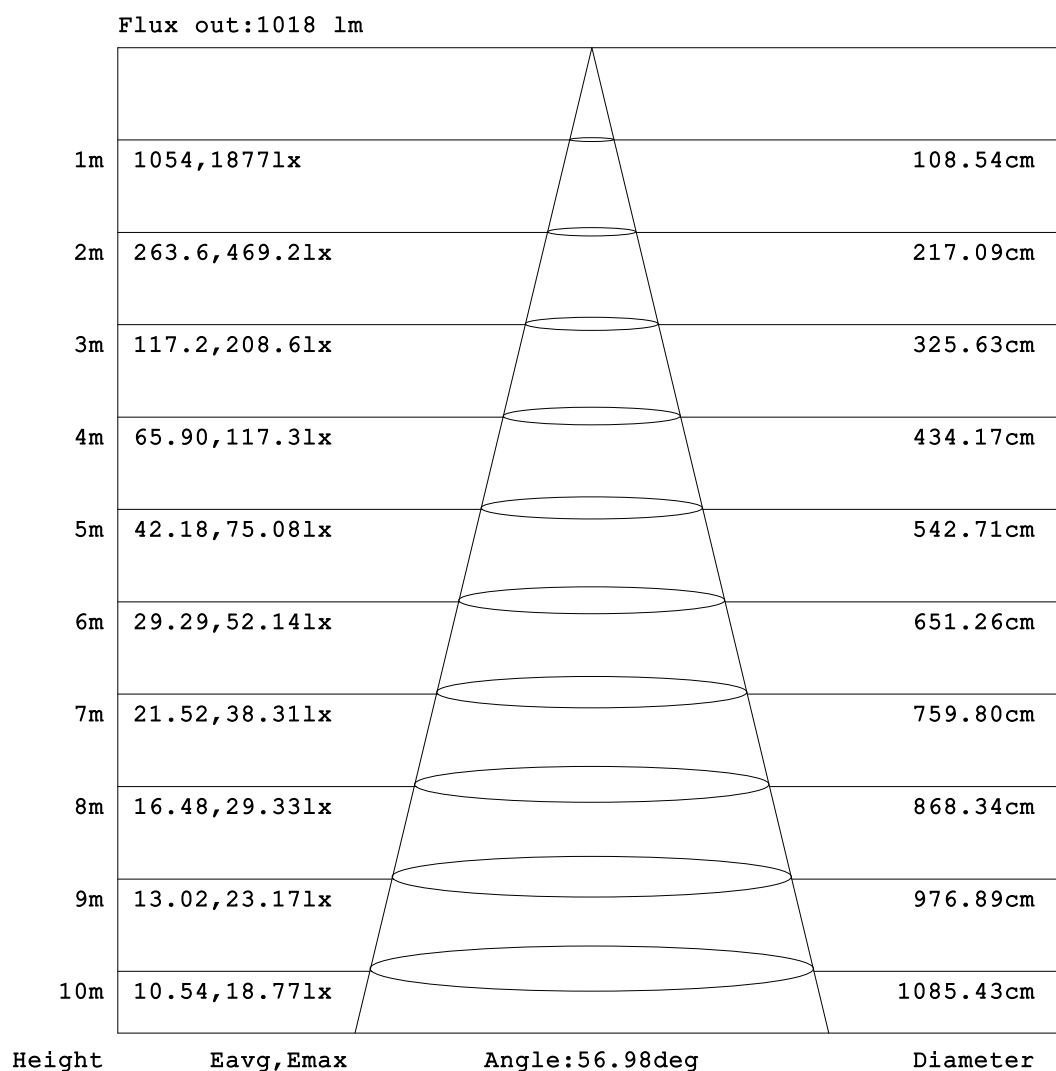


C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks:

AAI Figure

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830 Lamp Flux:1747.24x1 lm		
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:



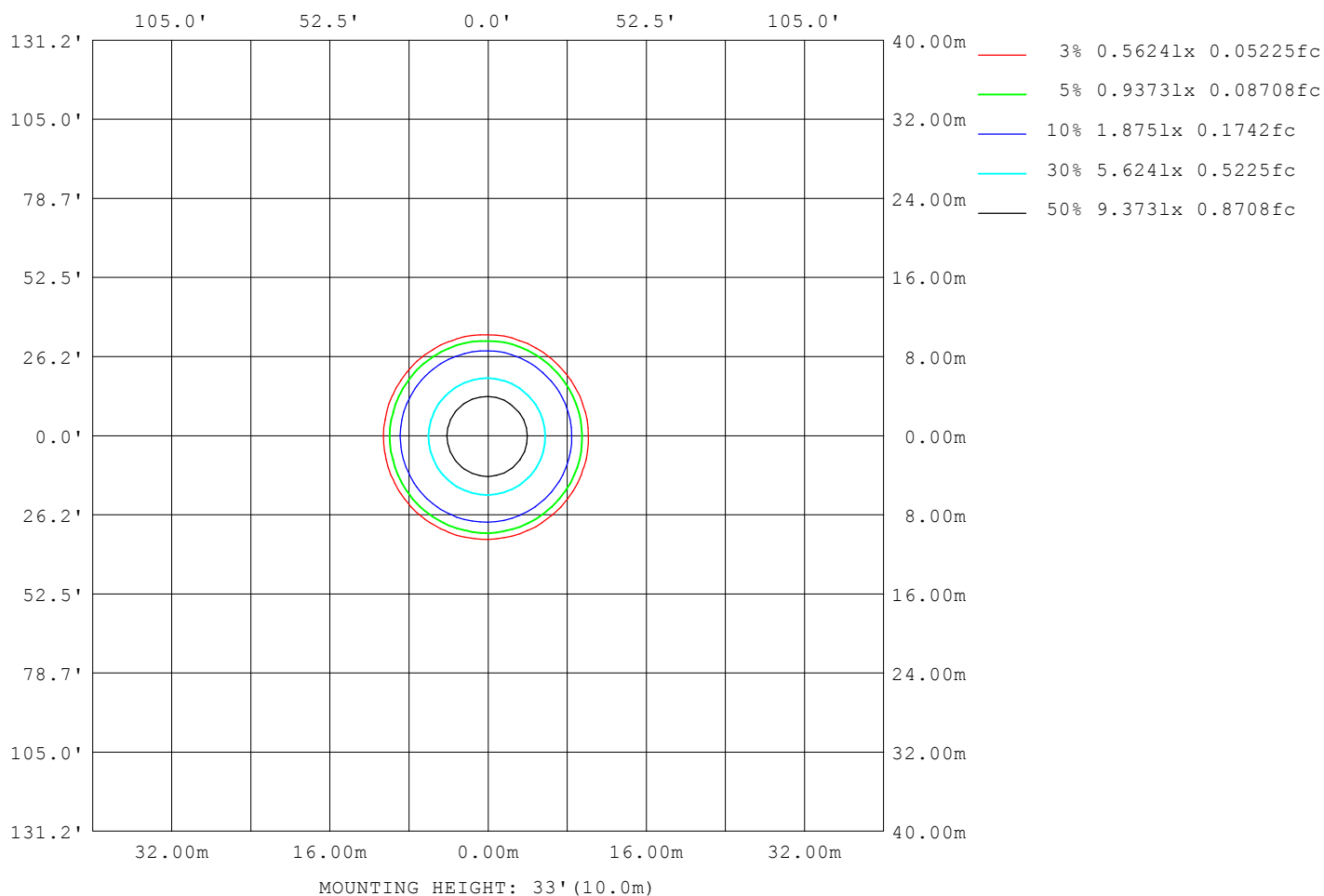
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360 DEG
C Interval: 45.0 DEG
Test Speed: HIGH
Temperature: 25.3 DEG
Operators: DAMIN
Test Date: 2024-09-06

γ Range: 0 - 90 DEG
 γ Interval: 1.0 DEG
Test System: EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity: 65.0%
Test Distance: 3.090m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830 Lamp Flux:1747.24x1 lm		
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:240.4V I:0.0721A P:16.8W PF:0.9667 Freq:49.99Hz		
UTHDi:0.18% ITHDi:18.35% KDisp:0.9830 Lamp Flux:1747.24x1 lm		
NAME: MD18-18-XX-02 4000K RA90 60D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming lighting	SUR.: 41mm	Shielding Angle:

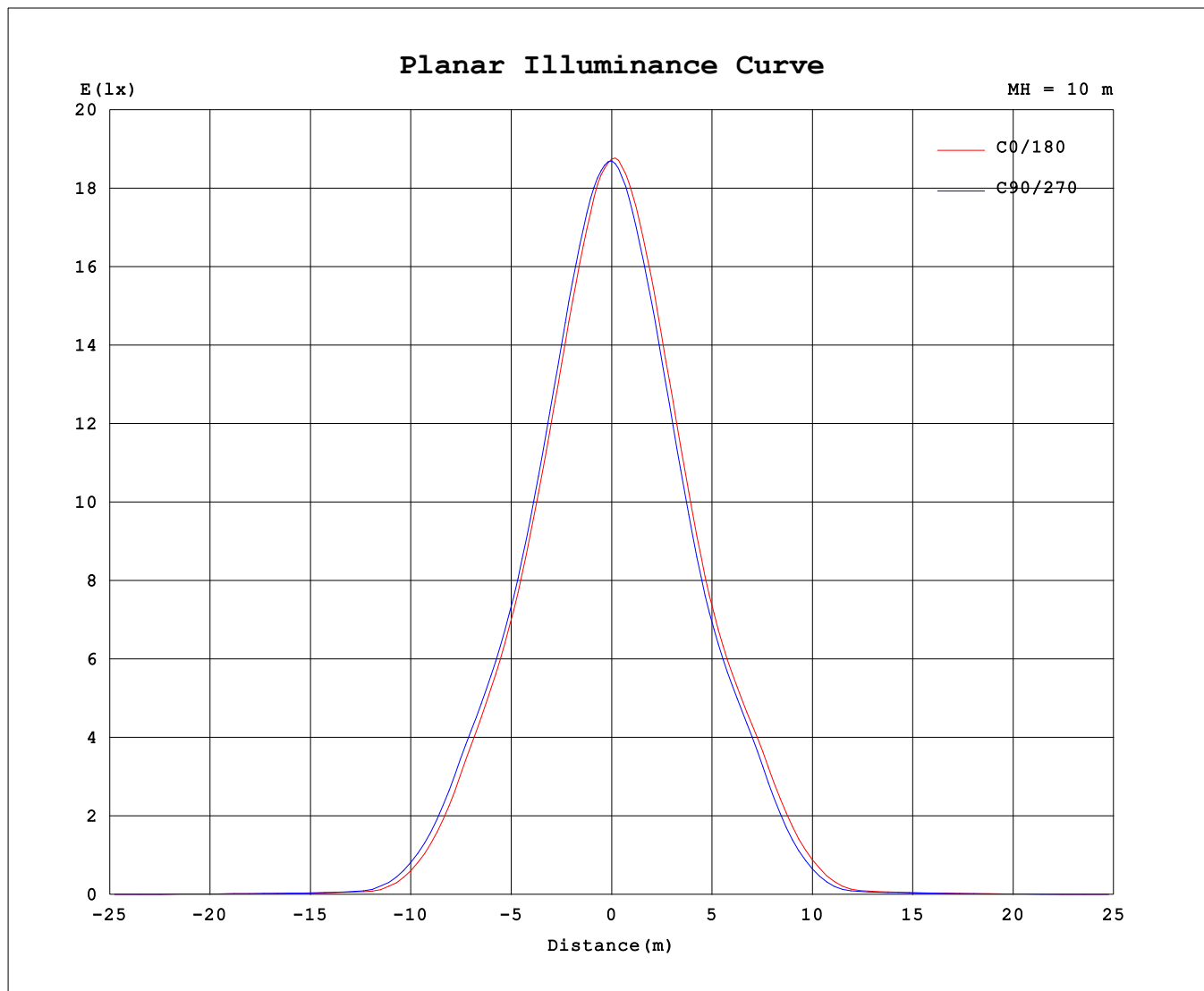
AvgL	cd/m2
L_0~180 (65) av	37169
L_0~180 (75) av	32184
L_0~180 (85) av	27732
L_90~270 (65) av	35755
L_90~270 (75) av	30515
L_90~270 (85) av	26439
L_45 (65) av	36650
L_45 (75) av	30985
L_45 (85) av	27400

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2024-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity: 65.0%
Test Distance: 3.090m [K=1.0000]
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks:

```

Photometric Data Table [cd]

G/C	0.0	45.0	90.0	135.0	180.0	225.0	270.0	315.0
0.0	1870	1870	1870	1870	1870	1870	1870	1870
3.0	1838	1844	1853	1863	1857	1847	1836	1834
6.0	1762	1783	1804	1816	1809	1789	1769	1756
9.0	1665	1691	1718	1737	1729	1703	1676	1662
12.0	1556	1585	1616	1640	1634	1605	1574	1551
15.0	1435	1464	1494	1519	1514	1486	1454	1426
18.0	1313	1342	1372	1392	1391	1363	1324	1300
21.0	1190	1219	1245	1260	1258	1232	1190	1171
24.0	1070	1101	1123	1133	1128	1103	1063	1052
27.0	962.3	990.9	1013	1025	1012	987.7	957.1	950.3
30.0	864.0	892.1	916.8	934.9	918.6	893.5	873.1	858.6
33.0	763.8	796.2	824.6	851.3	839.2	815.0	793.4	765.2
36.0	647.1	682.2	722.2	757.8	753.3	723.1	690.2	649.5
39.0	480.9	520.7	565.0	608.5	604.8	568.7	524.0	485.1
42.0	317.4	350.5	389.5	423.8	423.2	389.7	340.8	312.7
45.0	172.9	201.3	231.6	252.0	249.4	220.2	184.5	163.1
48.0	70.61	84.11	104.1	116.4	110.5	92.50	69.07	62.37
51.0	30.62	34.51	40.11	44.09	41.43	37.03	32.78	30.22
54.0	26.14	27.18	30.79	34.17	33.22	29.82	28.59	27.08
57.0	23.93	24.27	26.45	29.53	28.50	26.98	26.02	24.96
60.0	22.49	22.49	23.76	26.16	25.81	24.35	23.07	22.76
63.0	20.80	21.03	21.94	23.63	22.97	21.56	20.40	20.47
66.0	18.95	19.49	20.23	21.05	20.17	18.74	17.51	17.82
69.0	16.36	17.23	17.87	18.04	17.23	15.68	14.49	14.57
72.0	13.09	14.24	14.75	14.86	14.32	12.66	11.61	11.54
75.0	10.09	11.09	11.62	11.89	11.57	10.11	8.915	8.615
78.0	7.154	8.415	8.873	9.277	8.801	7.573	6.458	6.216
81.0	4.955	6.040	6.529	6.875	6.528	5.364	4.429	4.164
84.0	3.003	3.793	4.399	4.751	4.320	3.263	2.596	2.516
87.0	0.5383	1.097	2.067	2.569	1.774	0.9659	0.4775	0.1778
90.0	0.0699	0.0568	0.0627	0.0512	0.0638	0.0642	0.0749	0.0696

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2024-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.453
Humidity:65.0%
Test Distance:3.090m [K=1.0000]
Remarks: