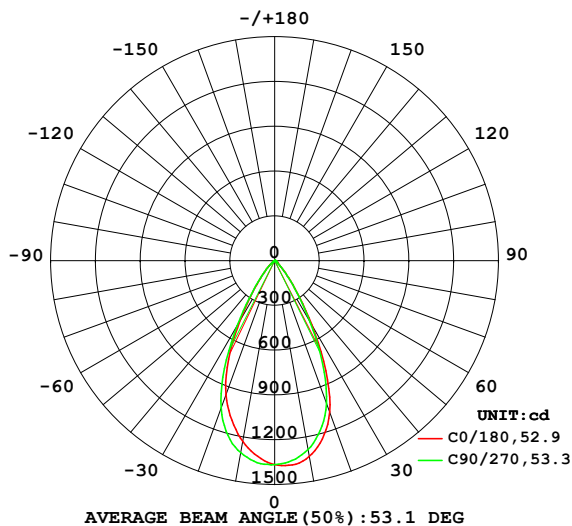


LUMINAIRE PHOTOMETRIC TEST REPORT

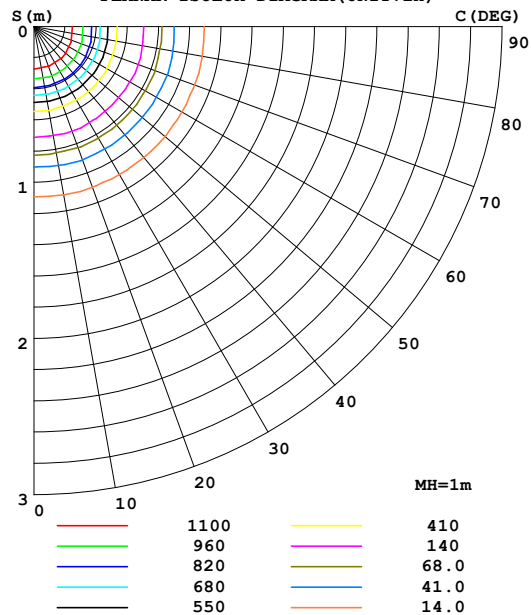
Test:U:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz		
UTHDi:0.16% ITHDi:19.23% KDisp:0.9682 Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming Lighting	SUR.: 41mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 82.58 lm/W
MODEL		I _{max} (cd)	1376	S/MH (C0/180)		0.79
NOMINAL POWER(W)	13	LOR (%)	100.0	S/MH (C90/270)		0.81
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	1064.1	η UP,DN (C0-180)		0.0,50.1
NOMINAL FLUX(lm)	1064.07	CIE CLASS	DIRECT	η UP,DN (C180-360)		0.0,49.9
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM		0.75
TEST VOLTAGE(V)	240.02	η down (%)	100.0	CIBSE SHR MAX		0.85

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



PLANAR ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-12-26

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	1332	1315	1285	1251	1231	1266	1306	1334	0- 10	126.8	126.8	11.9,11.9
20	1078	1072	1018	982.0	955.0	998.0	1051	1090	10- 20	330.3	457.1	43,43
30	501.6	511.2	478.2	476.9	464.6	489.9	502.6	521.0	20- 30	351.9	809.0	76,76
40	133.2	136.1	132.1	136.4	134.0	135.9	138.4	136.8	30- 40	173.2	982.3	92.3,92.3
50	30.38	31.23	30.97	32.63	32.96	32.47	31.60	30.49	40- 50	54.66	1037	97.4,97.4
60	10.73	10.97	11.14	11.69	11.62	11.58	11.28	10.94	50- 60	17.03	1054	99,99
70	4.084	4.218	4.367	4.509	4.545	4.594	4.416	4.183	60- 70	7.195	1061	99.7,99.7
80	0.8733	0.9038	0.8433	1.048	1.187	1.087	0.8183	0.8187	70- 80	2.665	1064	100,100
90	0.0458	0.0388	0.0479	0.0371	0.0403	0.0385	0.0431	0.0371	80- 90	0.2567	1064	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): 1018 lm

%lum = 95.7%

%lamp = 95.7%

Conical surface Flux(120deg): 1054 lm

%lum = 99.0%

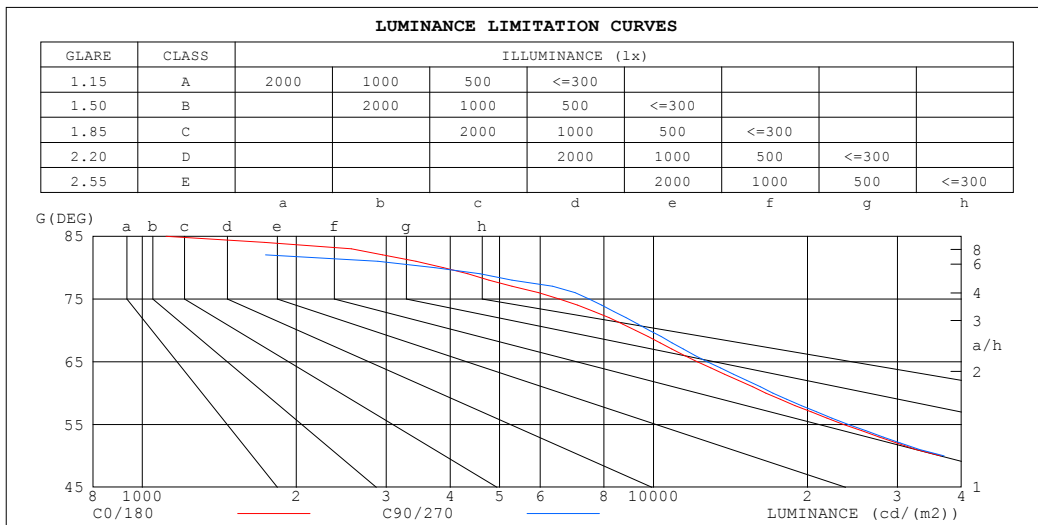
%lamp = 99.0%

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2023-12-26

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:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz		
UTHDi:0.16% ITHDi:19.23% KDisp:0.9682 Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming Lighting	SUR.: 41mm	Shielding Angle:



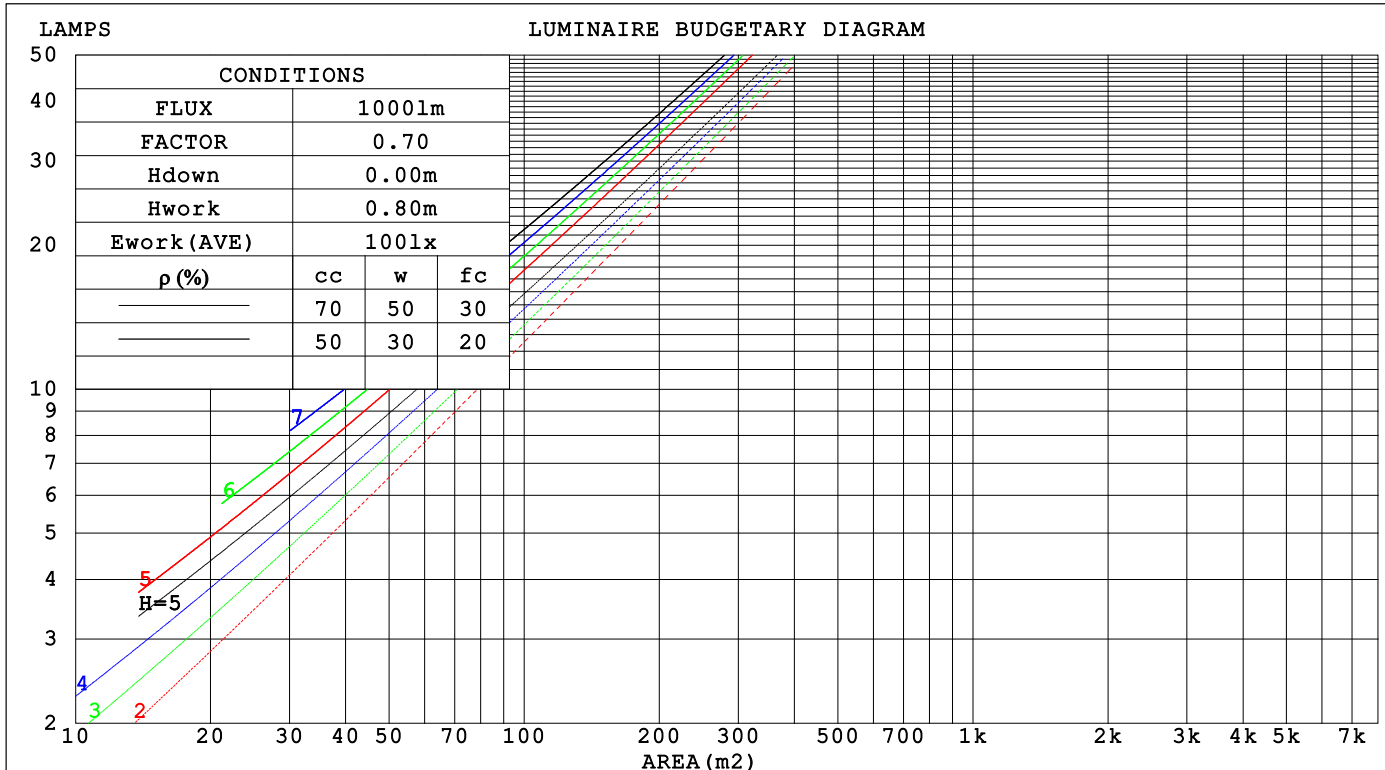
C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-12-26

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:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz		
UTHDi:0.16% ITHDi:19.23% KDisp:0.9682		
Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D	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 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-12-26

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:

WEC AND CCEC

Test:U:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz			UTHDi:0.16% ITHDi:19.23% KDisp:0.9682			Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D			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	.175	.100	.032	.169	.096	.031	.156	.090	.029	.144	.083	.027	.134	.078	.025		
2.0	.168	.092	.028	.162	.089	.027	.151	.084	.026	.142	.079	.025	.133	.075	.024		
3.0	.159	.085	.025	.155	.083	.025	.146	.079	.024	.137	.075	.023	.129	.072	.022		
4.0	.152	.079	.023	.147	.077	.023	.140	.074	.022	.132	.071	.021	.126	.068	.021		
5.0	.144	.074	.021	.141	.072	.021	.134	.070	.021	.128	.067	.020	.122	.065	.020		
6.0	.138	.069	.020	.134	.068	.020	.129	.066	.019	.123	.064	.019	.118	.062	.018		
7.0	.131	.065	.018	.129	.064	.018	.123	.062	.018	.118	.061	.018	.114	.059	.017		
8.0	.126	.061	.017	.123	.061	.017	.119	.059	.017	.114	.058	.017	.110	.056	.016		
9.0	.120	.058	.016	.118	.058	.016	.114	.056	.016	.110	.055	.016	.106	.054	.016		
10.0	.116	.055	.015	.114	.055	.015	.110	.054	.015	.106	.053	.015	.103	.052	.015		

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	.171	.157	.145	.146	.135	.125	.100	.093	.086	.058	.054	.050	.018	.017	.016		
2.0	.156	.133	.113	.133	.114	.098	.091	.079	.068	.053	.046	.040	.017	.015	.013		
3.0	.143	.114	.090	.123	.098	.078	.084	.068	.055	.049	.040	.032	.016	.013	.011		
4.0	.133	.099	.073	.114	.085	.063	.078	.060	.045	.045	.035	.026	.015	.011	.009		
5.0	.124	.087	.060	.107	.075	.052	.073	.053	.037	.043	.031	.022	.014	.010	.007		
6.0	.117	.078	.050	.100	.067	.044	.069	.047	.031	.040	.028	.018	.013	.009	.006		
7.0	.110	.070	.042	.095	.061	.037	.065	.043	.026	.038	.025	.016	.012	.008	.005		
8.0	.104	.064	.036	.090	.056	.032	.062	.039	.022	.036	.023	.013	.012	.008	.004		
9.0	.099	.059	.032	.085	.051	.027	.059	.036	.020	.034	.021	.012	.011	.007	.004		
10.0	.095	.054	.028	.082	.047	.024	.057	.033	.017	.033	.020	.010	.011	.006	.003		

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-12-26

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:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz UTHDi:0.16% ITHDi:19.23% KDisp:0.9682Lamp Flux:1064.07x1 lm										
NAME: MD10-13-XX-04 3000K RA90 50D					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	22.5	23.5	22.8	23.6	23.8	22.4	23.4	22.7	23.5	23.7
3H	22.4	23.3	22.7	23.5	23.7	22.3	23.2	22.6	23.4	23.6
4H	22.4	23.2	22.6	23.4	23.6	22.3	23.1	22.6	23.3	23.5
6H	22.3	23.0	22.6	23.3	23.5	22.2	23.0	22.5	23.2	23.4
8H	22.3	23.0	22.6	23.2	23.5	22.2	22.9	22.5	23.1	23.4
12H	22.2	22.9	22.5	23.2	23.4	22.1	22.8	22.4	23.1	23.4
4H 2H	22.3	23.1	22.6	23.4	23.6	22.2	23.0	22.5	23.3	23.5
3H	22.3	23.0	22.6	23.2	23.5	22.2	22.9	22.5	23.1	23.4
4H	22.2	22.8	22.5	23.1	23.4	22.1	22.7	22.5	23.0	23.4
6H	22.1	22.7	22.5	23.0	23.4	22.0	22.6	22.4	22.9	23.3
8H	22.1	22.6	22.5	22.9	23.3	22.0	22.5	22.4	22.9	23.2
12H	22.0	22.5	22.4	22.9	23.3	21.9	22.4	22.3	22.8	23.2
8H 4H	22.1	22.6	22.5	22.9	23.3	22.0	22.5	22.4	22.9	23.2
6H	22.0	22.4	22.4	22.8	23.2	21.9	22.3	22.3	22.7	23.1
8H	21.9	22.3	22.4	22.7	23.2	21.9	22.2	22.3	22.7	23.1
12H	21.9	22.2	22.4	22.7	23.1	21.8	22.1	22.3	22.6	23.0
12H 4H	22.0	22.5	22.4	22.9	23.3	21.9	22.4	22.3	22.8	23.2
6H	21.9	22.3	22.4	22.7	23.2	21.9	22.2	22.3	22.7	23.1
8H	21.9	22.2	22.4	22.7	23.1	21.8	22.1	22.3	22.6	23.0
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 2.9 / - 6.3					+ 2.8 / - 6.1				
1.5H	+ 4.7 / - 5.1					+ 4.6 / - 5.0				
2.0H	+ 4.7 / - 3.6					+ 4.7 / - 3.5				

CIE Pub.117, 1064 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 0.2$)
Area: 0.0013 m²

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-12-26

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:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz		
UTHDi:0.16% ITHDi:19.23% KDisp:0.9682 Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming Lighting	SUR.: 41mm	Shielding Angle:

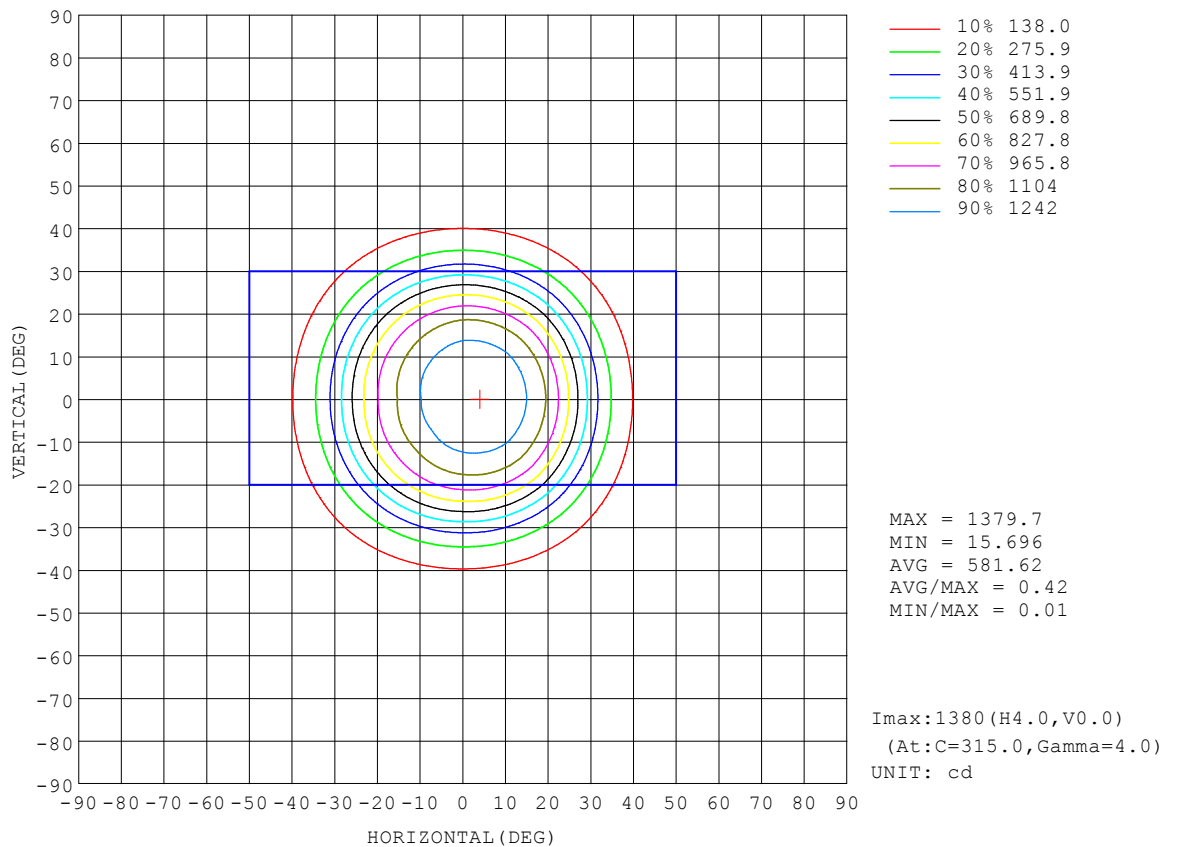
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	87	80	76	86	80	76	85	80	76	73
0.80	94	88	85	94	88	84	92	87	84	80
1.00	99	93	89	98	93	89	96	93	89	85
1.25	103	98	94	102	97	94	100	96	93	89
1.50	106	101	98	104	100	97	102	99	96	91
2.00	108	104	101	107	103	100	104	101	99	94
2.50	110	106	103	109	105	102	105	103	100	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: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2023-12-26

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:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz		
UTHDi:0.16% ITHDi:19.23% KDisp:0.9682 Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming Lighting	SUR.: 41mm	Shielding Angle:

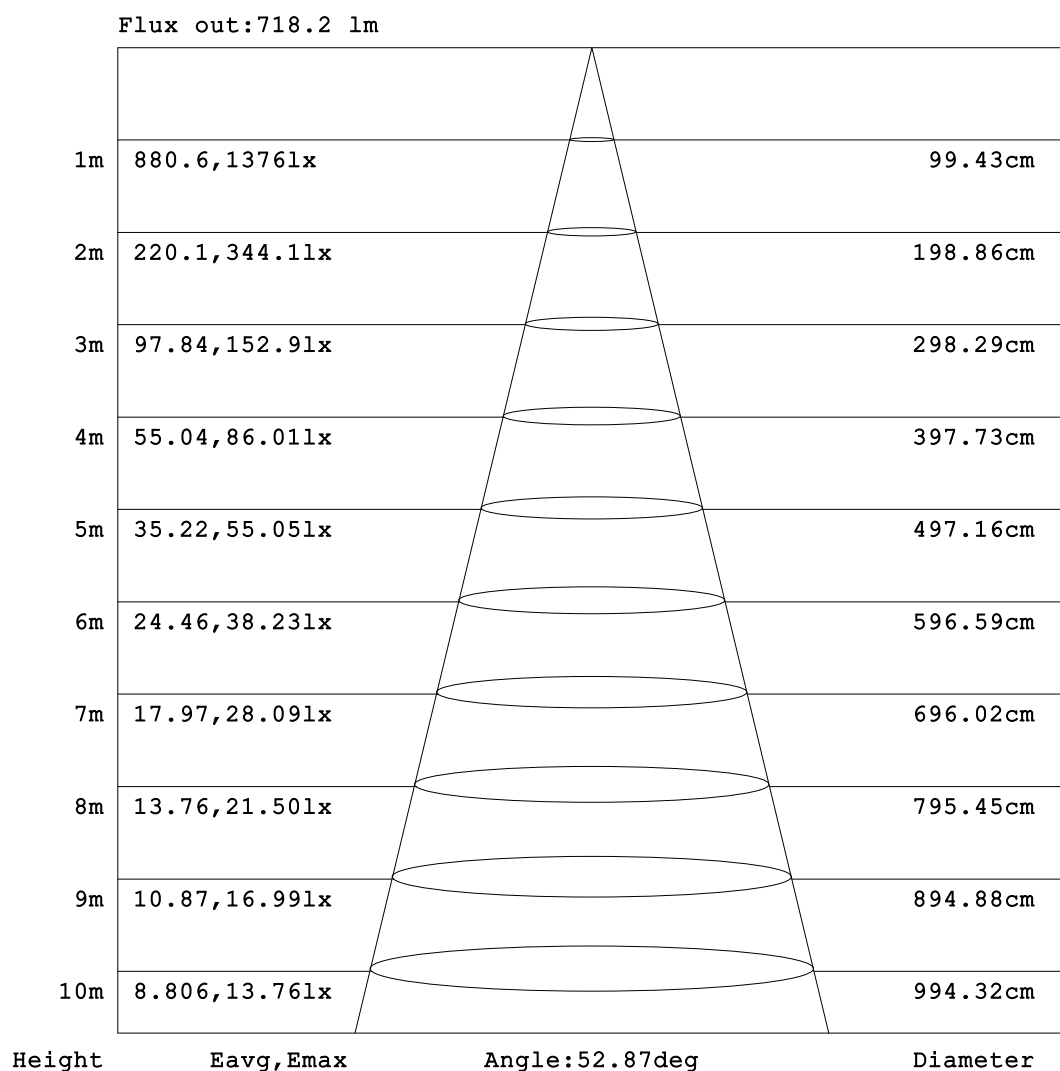


C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-12-26

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:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz		
UTHDi:0.16% ITHDi:19.23% KDisp:0.9682 Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming Lighting	SUR.: 41mm	Shielding Angle:



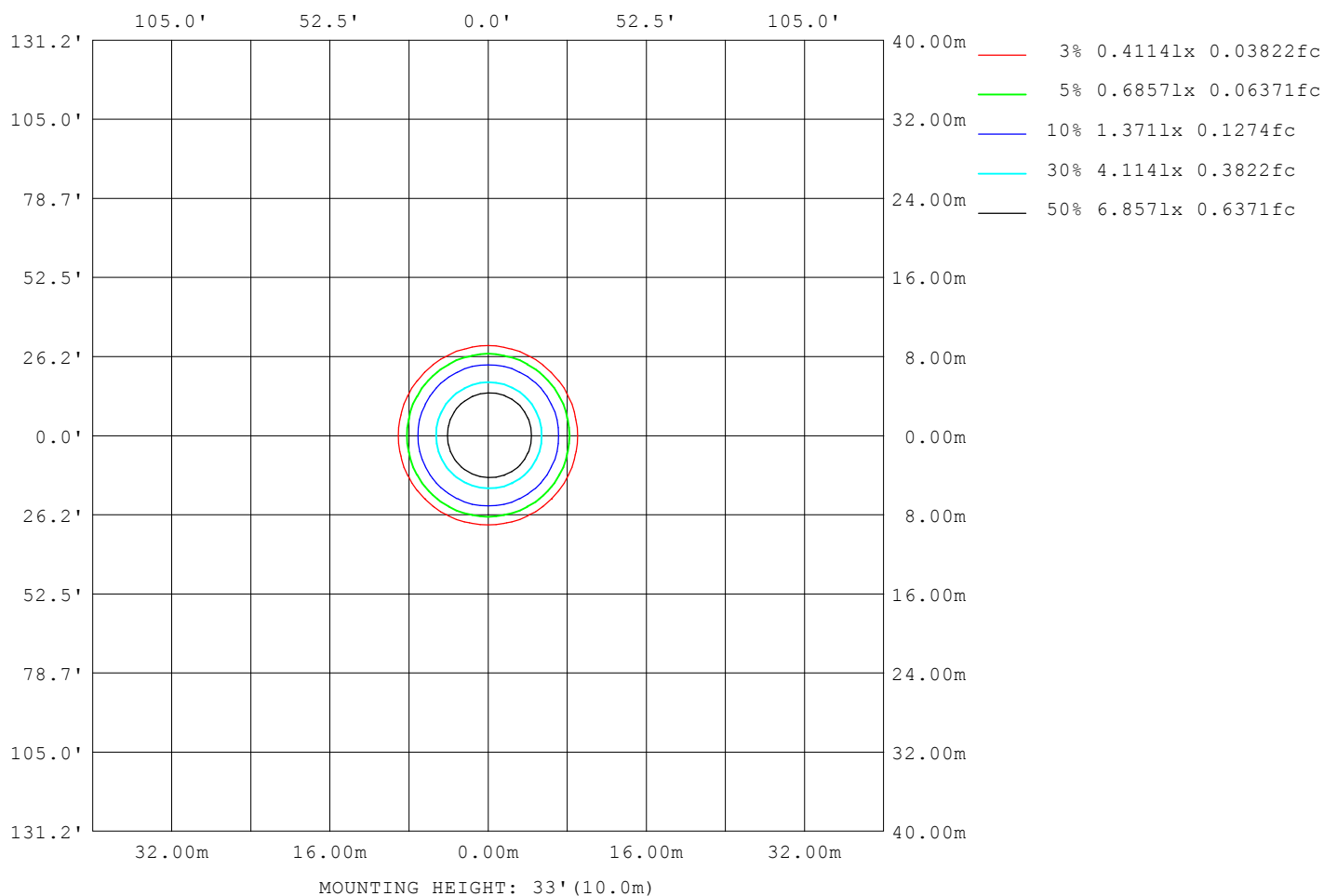
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2023-12-26

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:

ISOLUX DIAGRAM

Test:U:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz		
UTHDi:0.16% ITHDi:19.23% KDisp:0.9682 Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D	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:2023-12-26

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:240.1V I:0.0564A P:12.9W PF:0.9508 Freq:49.99Hz		
UTHDi:0.16% ITHDi:19.23% KDisp:0.9682 Lamp Flux:1064.07x1 lm		
NAME: MD10-13-XX-04 3000K RA90 50D	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Norming Lighting	SUR.: 41mm	Shielding Angle:

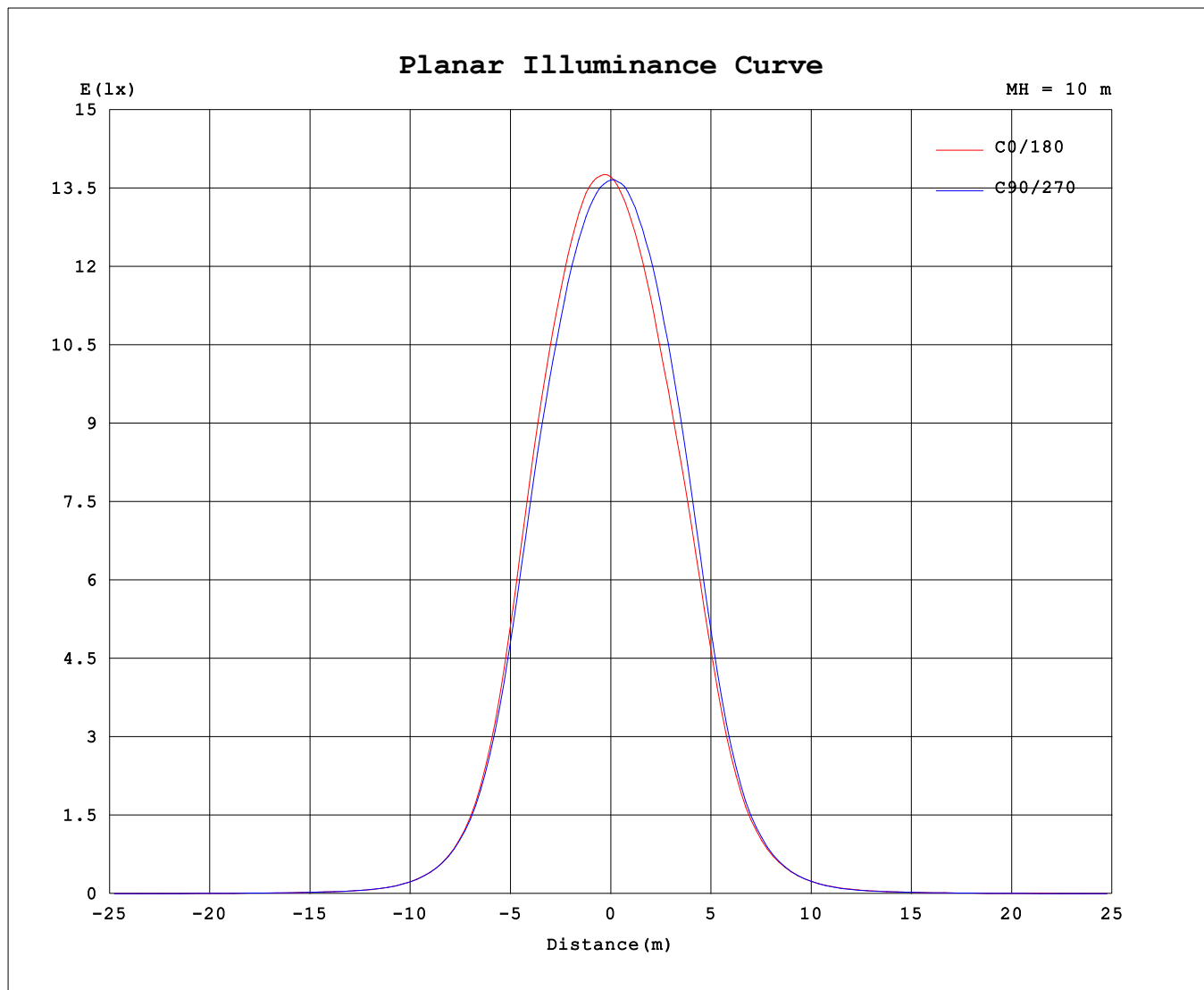
AvgL	cd/m2
L_0~180 (65) av	12661
L_0~180 (75) av	7238
L_0~180 (85) av	1584
L_90~270 (65) av	12813
L_90~270 (75) av	7516
L_90~270 (85) av	431
L_45 (65) av	12818
L_45 (75) av	7411
L_45 (85) av	354

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-12-26

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: 2023-12-26

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	1366	1366	1366	1366	1366	1366	1366	1366
3.0	1374	1369	1358	1345	1341	1352	1366	1375
6.0	1371	1357	1336	1312	1302	1321	1350	1370
9.0	1346	1328	1300	1266	1251	1281	1321	1346
12.0	1301	1288	1250	1212	1186	1228	1277	1306
15.0	1236	1227	1178	1139	1107	1157	1210	1247
18.0	1151	1144	1091	1048	1021	1067	1125	1162
21.0	1034	1031	974.1	944.4	917.6	958.3	1008	1047
24.0	874.2	880.6	820.6	805.6	783.2	821.7	854.7	893.2
27.0	687.0	697.2	647.4	643.3	625.1	659.4	678.8	708.9
30.0	501.6	511.2	478.2	476.9	464.6	489.9	502.6	521.0
33.0	347.1	353.6	335.0	336.0	327.3	342.9	351.6	360.7
36.0	232.6	236.7	228.2	233.0	227.3	233.7	239.1	241.2
39.0	153.5	156.6	151.9	156.2	153.1	156.2	159.4	158.0
42.0	99.77	102.4	99.10	103.3	102.1	103.2	103.8	101.7
45.0	64.67	66.69	64.64	67.05	67.32	67.95	66.90	64.95
48.0	41.24	42.44	41.66	43.48	43.87	43.76	42.72	41.23
51.0	26.60	27.19	27.13	28.59	28.75	28.32	27.55	26.64
54.0	19.42	19.90	19.88	20.98	20.87	20.53	20.22	19.66
57.0	14.34	14.61	14.76	15.55	15.46	15.29	14.94	14.58
60.0	10.73	10.97	11.14	11.69	11.62	11.58	11.28	10.94
63.0	8.101	8.278	8.464	8.771	8.776	8.846	8.538	8.252
66.0	6.048	6.197	6.368	6.557	6.583	6.663	6.429	6.159
69.0	4.527	4.664	4.822	4.968	4.997	5.057	4.867	4.628
72.0	3.274	3.408	3.548	3.672	3.711	3.754	3.593	3.374
75.0	2.194	2.359	2.518	2.625	2.677	2.685	2.540	2.305
78.0	1.282	1.415	1.429	1.692	1.749	1.712	1.397	1.320
81.0	0.6953	0.6794	0.5882	0.7640	0.9554	0.8239	0.5526	0.5959
84.0	0.2349	0.1138	0.0542	0.1129	0.4165	0.1296	0.0489	0.0617
87.0	0.0522	0.0360	0.0460	0.0358	0.0528	0.0366	0.0456	0.0352
90.0	0.0458	0.0388	0.0479	0.0371	0.0403	0.0385	0.0431	0.0371

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-12-26

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: