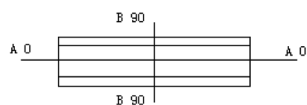
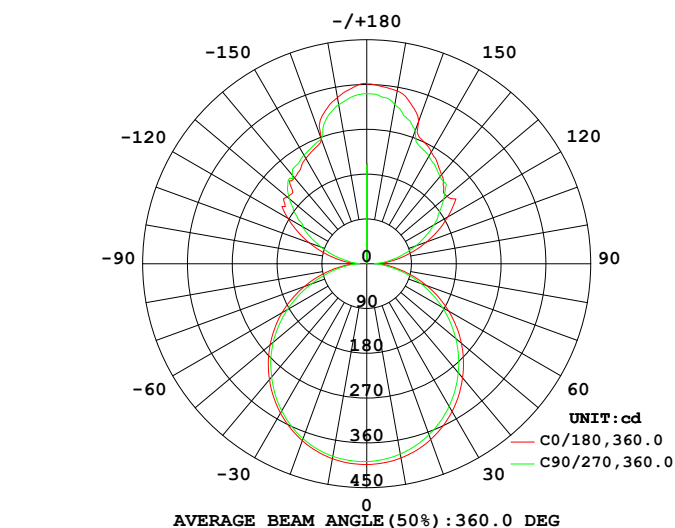


## LUMINAIRE PHOTOMETRIC TEST REPORT

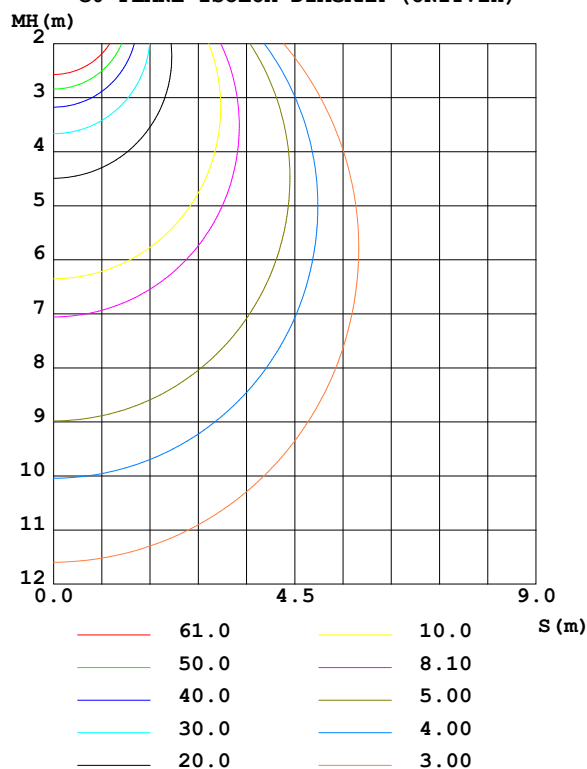
Test:U:220.13V I:0.1975A P:39.600W PF:0.9110 Freq:50.00Hz Lamp Flux:2160.76x1 lm		
NAME: SB-001A40WSZ 40W	TYPE:	WEIGHT:
SPEC.: 4000K	DIM.: 31.5"	SERIAL No.:
MFR.: SNOWBALL	SUR.: 800mm	

DATA OF LAMP		PHOTOMETRIC DATA Eff: 54.56 lm/W			
MODEL		I <sub>max</sub> (cd)	403.4	S/MH (C0/180)	1.28
NOMINAL POWER(W)		LOR (%)	100.0	S/MH (C90/270)	1.28
RATED VOLTAGE (V)	--	TOTAL FLUX (lm)	2160.8	η UP,DN (C0-180)	22.6,27.5
NOMINAL FLUX (lm)	2160.76	CIE CLASS	DIFFUSE	η UP,DN (C180-360)	21.7,28.2
LAMPS INSIDE	1	η up (%)	44.4	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	--	η down (%)	55.6	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: 10.0deg/s  
Temperature: 25.3°C  
Operators: DAMIN  
Test Date: 2023-09-20

γ Range: 0 - 180DEG  
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:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	396.2	392.0	388.2	386.1	397.7	395.9	392.8	389.1	0~ 10	37.70	37.70	1.74,1.74
20	375.8	370.0	365.6	364.7	378.3	377.2	374.1	370.3	10~ 20	108.1	145.8	6.75,6.75
30	342.8	335.8	330.9	331.1	346.5	345.1	341.6	338.7	20~ 30	164.2	310.0	14.3,14.3
40	299.5	291.5	286.0	287.2	304.0	301.7	297.4	295.9	30~ 40	198.8	508.9	23.5,23.5
50	248.3	239.9	233.5	236.5	253.5	250.0	245.2	245.1	40~ 50	208.4	717.3	33.2,33.2
60	190.1	181.5	175.7	179.3	196.5	191.7	184.0	186.9	50~ 60	192.2	909.5	42.1,42.1
70	127.8	119.6	115.3	118.1	133.1	125.2	118.5	123.0	60~ 70	152.5	1062	49.1,49.1
80	67.09	61.11	57.14	61.32	71.34	64.75	60.46	62.47	70~ 80	97.07	1159	53.6,53.6
90	28.45	18.81	15.30	19.96	27.02	21.09	15.92	21.44	80~ 90	43.15	1202	55.6,55.6
100	68.46	55.65	54.80	54.99	64.17	47.24	45.59	49.18	90~100	38.43	1241	57.4,57.4
110	127.7	108.7	104.2	107.2	122.7	99.57	97.18	97.34	100~110	83.21	1324	61.3,61.3
120	187.6	146.8	155.3	147.2	182.9	147.0	149.3	132.4	110~120	129.7	1454	67.3,67.3
130	211.0	200.7	202.1	188.2	208.9	181.6	202.9	187.6	120~130	157.2	1611	74.5,74.5
140	233.6	237.4	229.1	215.5	225.9	217.2	232.8	227.9	130~140	165.2	1776	82.2,82.2
150	259.4	253.9	249.8	225.8	244.7	218.0	252.0	246.7	140~150	147.6	1924	89,89
160	305.9	302.0	284.8	276.8	266.8	249.9	267.7	270.0	150~160	118.0	2041	94.5,94.5
170	352.7	329.1	325.0	326.9	339.0	326.5	324.6	327.5	160~170	87.12	2129	98.5,98.5
180	360.9	341.0	341.6	340.7	362.1	341.9	342.6	341.5	170~180	32.16	2161	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 613.48 lm

%lum = 28.4%

%lamp = 28.4%

Conical surface Flux(120deg): 909.5 lm

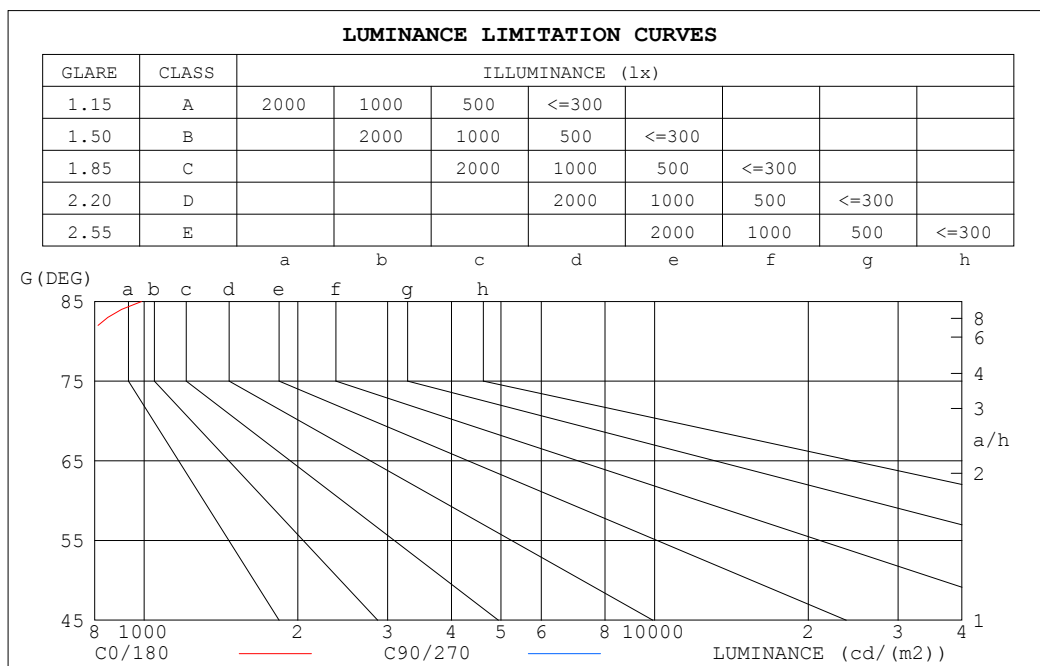
%lum = 42.1%

%lamp = 42.1%

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3°C  
 Operators:DAMIN  
 Test Date:2023-09-20

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
 Humidity:65.0%  
 Test Distance:9.000m [K=1.0000]  
 Remarks:

## LUMINANCE LIMITATION CURVES



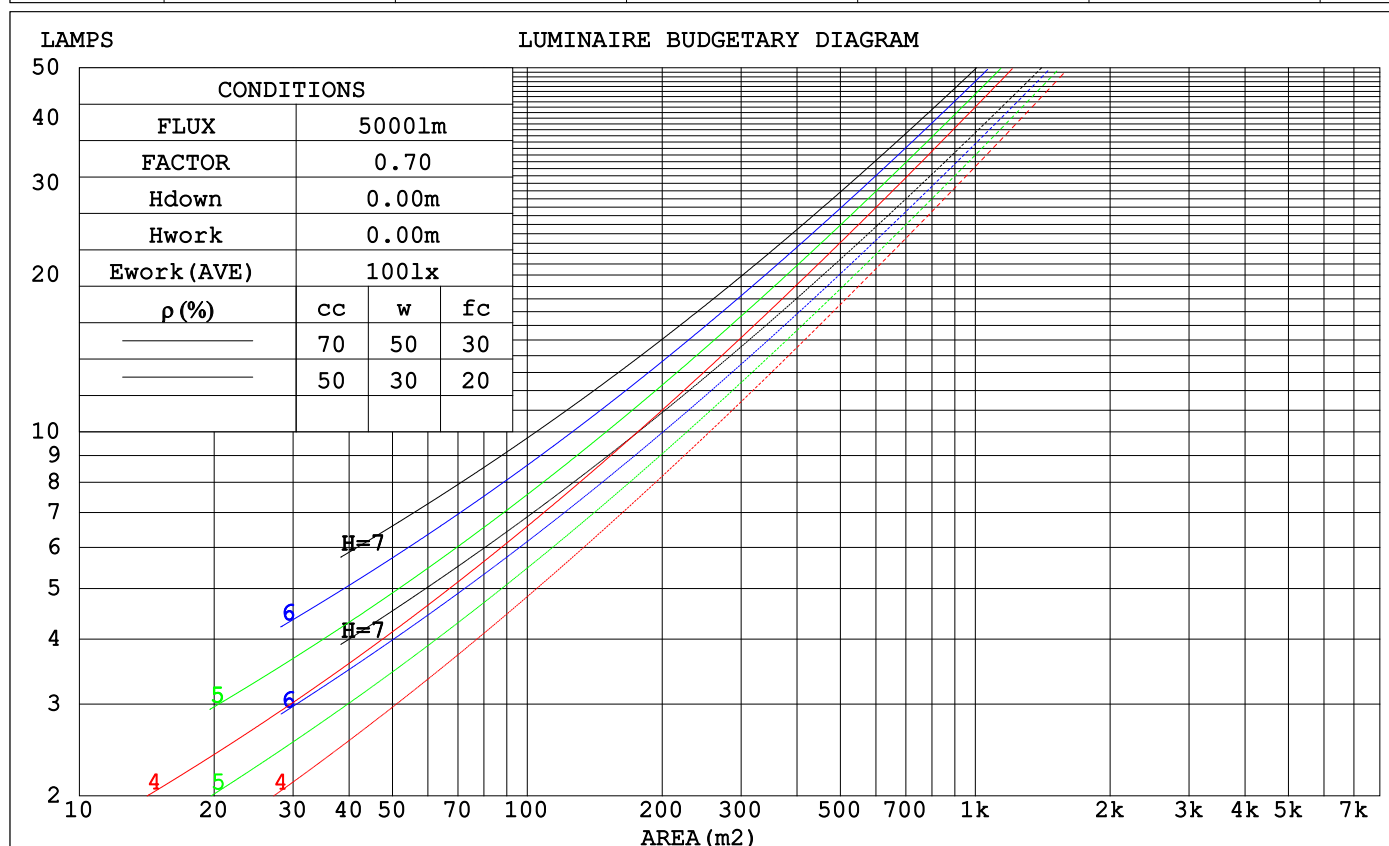
LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	988	779
80	773	658
75	746	664
70	747	674
65	754	688
60	761	703
55	766	715
50	772	727
45	778	737

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: 10.0deg/s  
Temperature: 25.3°C  
Operators: DAMIN  
Test Date: 2023-09-20

γ Range: 0 - 180DEG  
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

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						Coefficients of Utilization(CU)									
0.0	1.08	1.08	1.08	1.01	1.01	1.01	.86	.86	.86	.73	.73	.73	.61	.61	.61	.56
1.0	.94	.90	.86	.87	.84	.80	.75	.72	.70	.64	.62	.60	.53	.52	.50	.45
2.0	.81	.75	.69	.76	.70	.65	.65	.61	.57	.55	.52	.49	.46	.44	.42	.37
3.0	.71	.64	.57	.66	.60	.54	.57	.52	.48	.49	.45	.41	.41	.38	.35	.31
4.0	.63	.55	.48	.59	.51	.46	.51	.45	.40	.43	.39	.35	.36	.33	.30	.27
5.0	.56	.48	.41	.52	.45	.39	.45	.39	.35	.39	.34	.30	.33	.29	.26	.23
6.0	.50	.42	.36	.47	.39	.34	.41	.35	.30	.35	.30	.26	.29	.26	.23	.20
7.0	.45	.37	.31	.42	.35	.30	.37	.31	.26	.32	.27	.23	.27	.23	.20	.18
8.0	.41	.33	.28	.38	.31	.26	.34	.28	.23	.29	.24	.21	.25	.21	.18	.16
9.0	.37	.30	.24	.35	.28	.23	.31	.25	.21	.27	.22	.19	.23	.19	.16	.14
10.0	.34	.27	.22	.32	.25	.21	.28	.23	.19	.25	.20	.17	.21	.17	.15	.13



## 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	.300	.171	.054	.280	.159	.051	.241	.138	.044	.206	.119	.038	.174	.101	.032	
2.0	.275	.151	.046	.257	.141	.044	.222	.123	.038	.190	.107	.033	.160	.091	.029	
3.0	.253	.135	.040	.236	.126	.038	.204	.111	.034	.174	.096	.029	.147	.081	.025	
4.0	.232	.121	.036	.217	.114	.034	.188	.100	.030	.161	.086	.026	.135	.074	.022	
5.0	.215	.109	.032	.200	.103	.030	.174	.090	.027	.149	.078	.023	.125	.067	.020	
6.0	.199	.100	.029	.186	.094	.027	.161	.083	.024	.138	.072	.021	.116	.061	.018	
7.0	.185	.092	.026	.173	.086	.025	.150	.076	.022	.129	.066	.019	.109	.056	.017	
8.0	.173	.085	.024	.162	.080	.023	.141	.070	.020	.121	.061	.018	.102	.052	.015	
9.0	.162	.078	.022	.152	.074	.021	.132	.065	.018	.113	.057	.016	.096	.049	.014	
10.0	.152	.073	.020	.143	.069	.019	.124	.061	.017	.107	.053	.015	.090	.045	.013	

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	.528	.528	.528	.452	.452	.452	.308	.308	.308	.177	.177	.177	.057	.057	.057		
1.0	.520	.497	.476	.445	.427	.410	.305	.293	.283	.175	.170	.165	.056	.055	.053		
2.0	.513	.475	.443	.439	.409	.383	.301	.283	.267	.174	.165	.157	.056	.053	.051		
3.0	.506	.459	.422	.434	.396	.366	.298	.275	.256	.172	.161	.151	.055	.052	.050		
4.0	.499	.447	.407	.428	.386	.354	.295	.269	.249	.170	.158	.147	.055	.051	.048		
5.0	.492	.438	.397	.423	.379	.346	.291	.265	.244	.169	.155	.145	.054	.051	.048		
6.0	.486	.430	.390	.418	.372	.340	.288	.261	.240	.167	.153	.143	.054	.050	.047		
7.0	.480	.424	.385	.413	.367	.335	.285	.258	.237	.166	.152	.141	.054	.050	.047		
8.0	.474	.419	.381	.408	.363	.332	.282	.255	.235	.164	.150	.140	.053	.049	.046		
9.0	.468	.414	.377	.404	.359	.329	.280	.253	.234	.163	.149	.139	.053	.049	.046		
10.0	.463	.410	.375	.399	.356	.327	.277	.251	.232	.162	.148	.139	.052	.049	.046		

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: 10.0deg/s  
 Temperature:25.3℃  
 Operators:DAMIN  
 Test Date:2023-09-20

γ Range: 0 - 180DEG  
 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	9.1	10.2	9.9	11.0	12.0	8.8	9.8	9.6	10.6	11.6
3H	10.8	11.7	11.6	12.5	13.6	10.4	11.3	11.2	12.1	13.1
4H	11.5	12.4	12.3	13.2	14.3	11.0	11.9	11.9	12.7	13.8
6H	12.1	12.9	13.0	13.8	14.9	11.5	12.3	12.4	13.2	14.3
8H	12.4	13.1	13.2	14.0	15.1	11.7	12.5	12.6	13.4	14.5
12H	12.6	13.3	13.5	14.2	15.3	11.9	12.7	12.8	13.5	14.6
4H 2H	9.6	10.4	10.4	11.3	12.4	9.3	10.2	10.2	11.0	12.1
3H	11.4	12.1	12.3	13.0	14.1	11.1	11.8	11.9	12.7	13.8
4H	12.3	12.9	13.2	13.8	15.0	11.8	12.5	12.7	13.4	14.5
6H	13.0	13.6	13.9	14.5	15.7	12.5	13.1	13.4	14.0	15.2
8H	13.3	13.9	14.3	14.8	16.0	12.8	13.3	13.7	14.2	15.4
12H	13.7	14.2	14.6	15.1	16.3	13.0	13.5	14.0	14.4	15.6
8H 4H	12.5	13.0	13.4	13.9	15.1	12.1	12.6	13.0	13.5	14.7
6H	13.4	13.8	14.3	14.8	16.0	12.9	13.4	13.9	14.3	15.5
8H	13.8	14.2	14.8	15.2	16.4	13.3	13.7	14.3	14.6	15.9
12H	14.3	14.6	15.3	15.6	16.9	13.7	14.0	14.6	15.0	16.2
12H 4H	12.4	12.9	13.4	13.9	15.1	12.1	12.6	13.0	13.5	14.7
6H	13.4	13.8	14.4	14.8	16.0	13.0	13.4	14.0	14.3	15.6
8H	13.9	14.3	14.9	15.2	16.5	13.4	13.7	14.4	14.7	16.0
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.3					+ 0.1 / - 0.3				

CIE Pub.117, 2161 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 2.7$ )  
Area: 0.5 m<sup>2</sup>

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: 10.0deg/s  
Temperature:25.3°C  
Operators:DAMIN  
Test Date:2023-09-20

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
Humidity:65.0%  
Test Distance:9.000m [K=1.0000]  
Remarks:

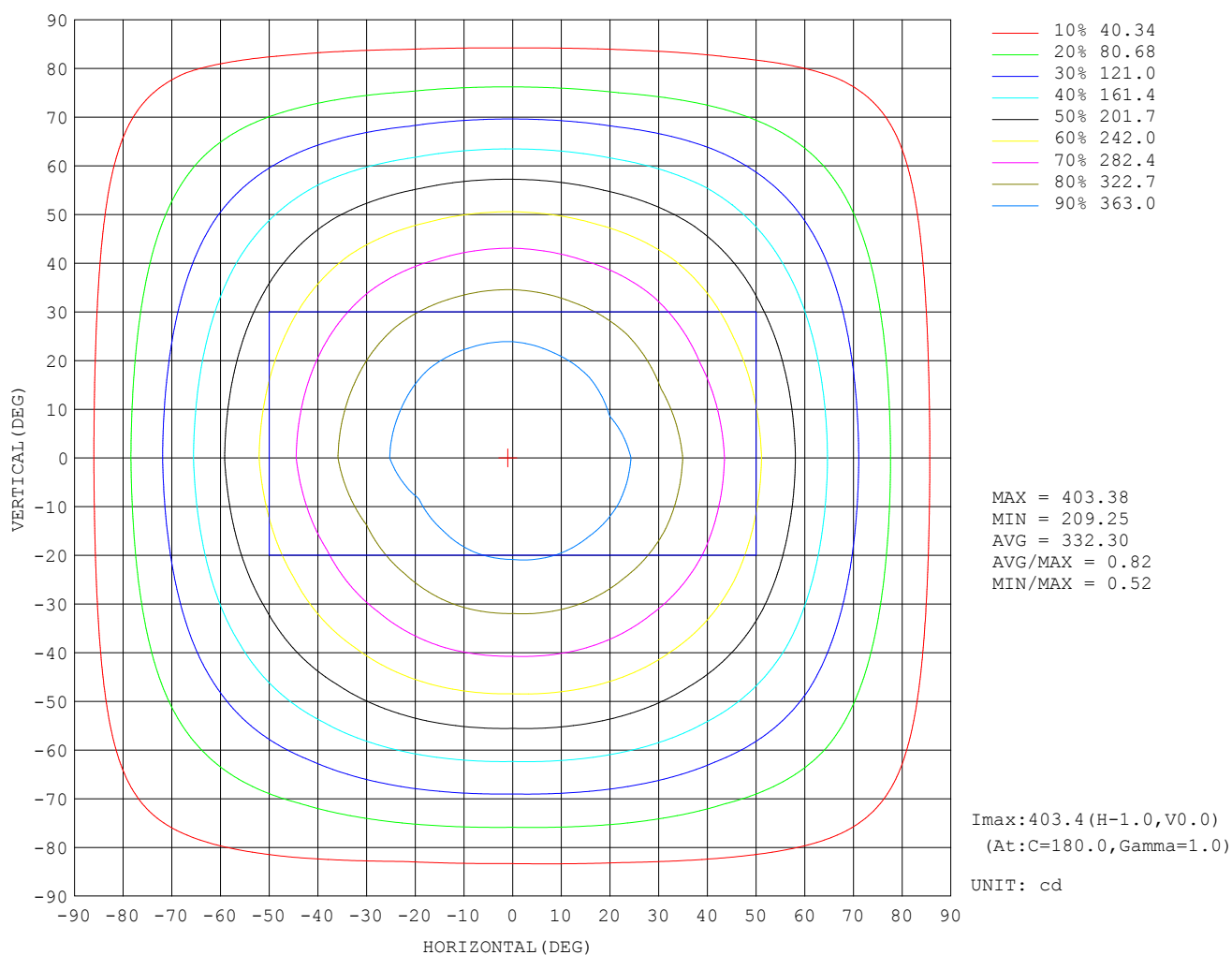
## UTILIZATION FACTORS TABLE

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) $k(RI) \times RCR = 5$									
$k = 0.60$	45	33	27	42	32	26	38	30	24	17
0.80	54	42	35	51	40	34	46	37	31	22
1.00	62	50	42	58	48	41	52	45	38	26
1.25	69	57	50	65	55	48	57	49	43	30
1.50	74	63	55	69	60	53	61	53	48	33
2.00	81	71	64	76	67	61	66	60	55	37
2.50	85	77	70	80	72	66	69	64	59	40
3.00	89	81	75	83	76	71	72	67	63	42
4.00	93	87	81	87	81	77	75	71	67	45
5.00	96	91	86	90	85	81	77	74	71	47
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: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-09-20

γ Range: 0 - 180DEG  
 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:

## ISOCANDELA DIAGRAM

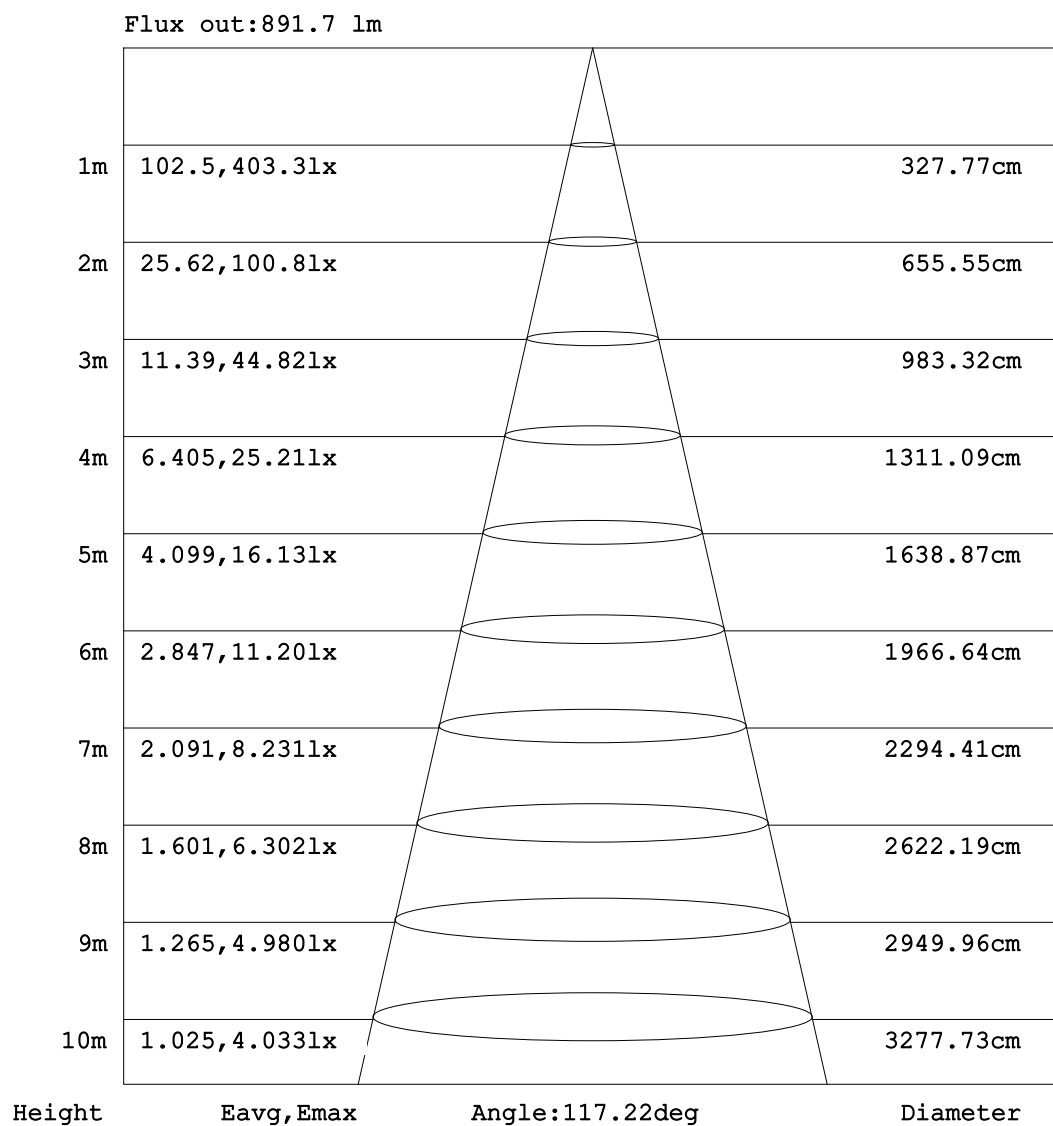


C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: 10.0deg/s  
Temperature:25.3°C  
Operators:DAMIN  
Test Date:2023-09-20

γ Range: 0 - 180DEG  
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

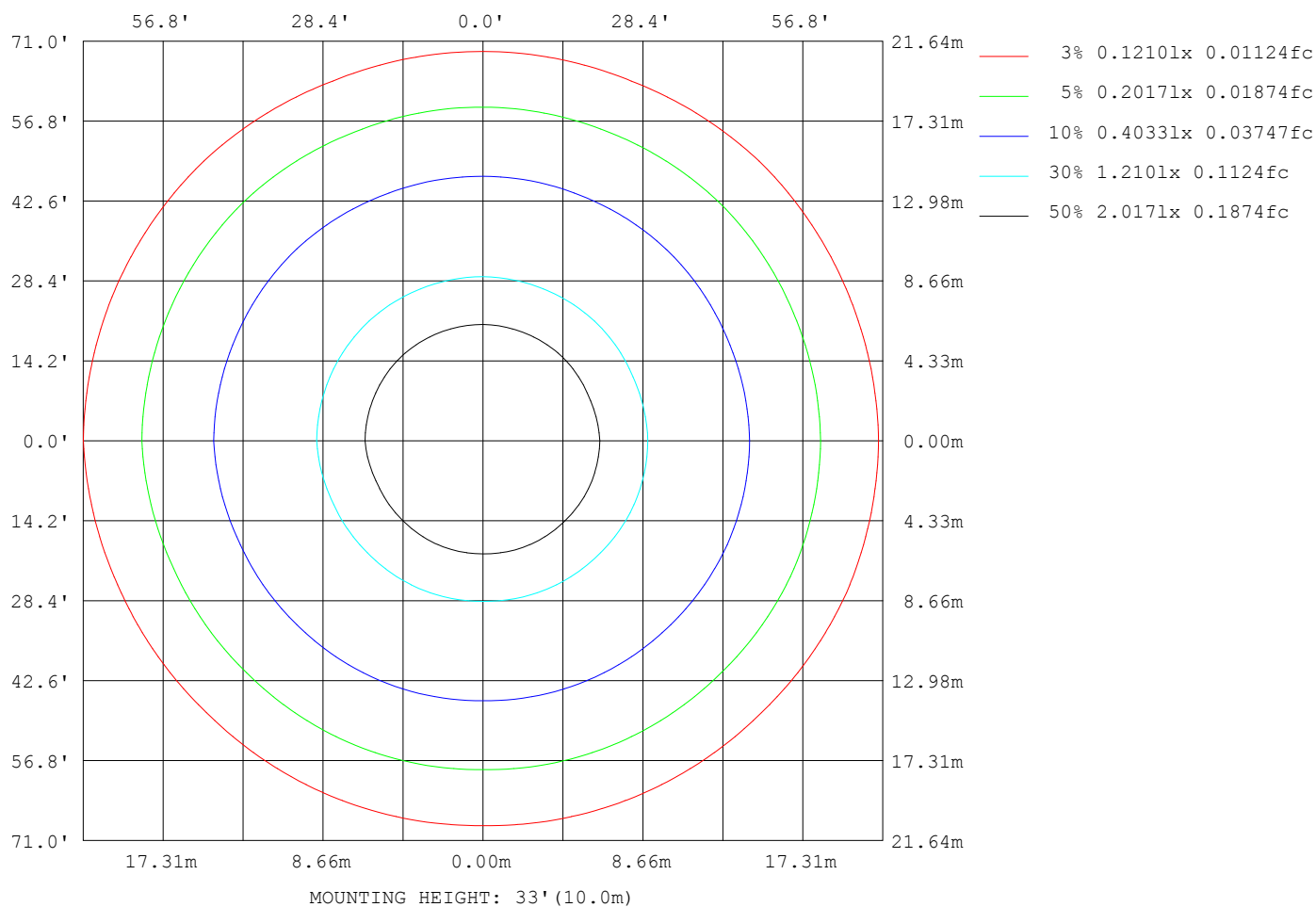


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: 10.0deg/s  
 Temperature: 25.3°C  
 Operators: DAMIN  
 Test Date: 2023-09-20

γ Range: 0 - 180DEG  
 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:

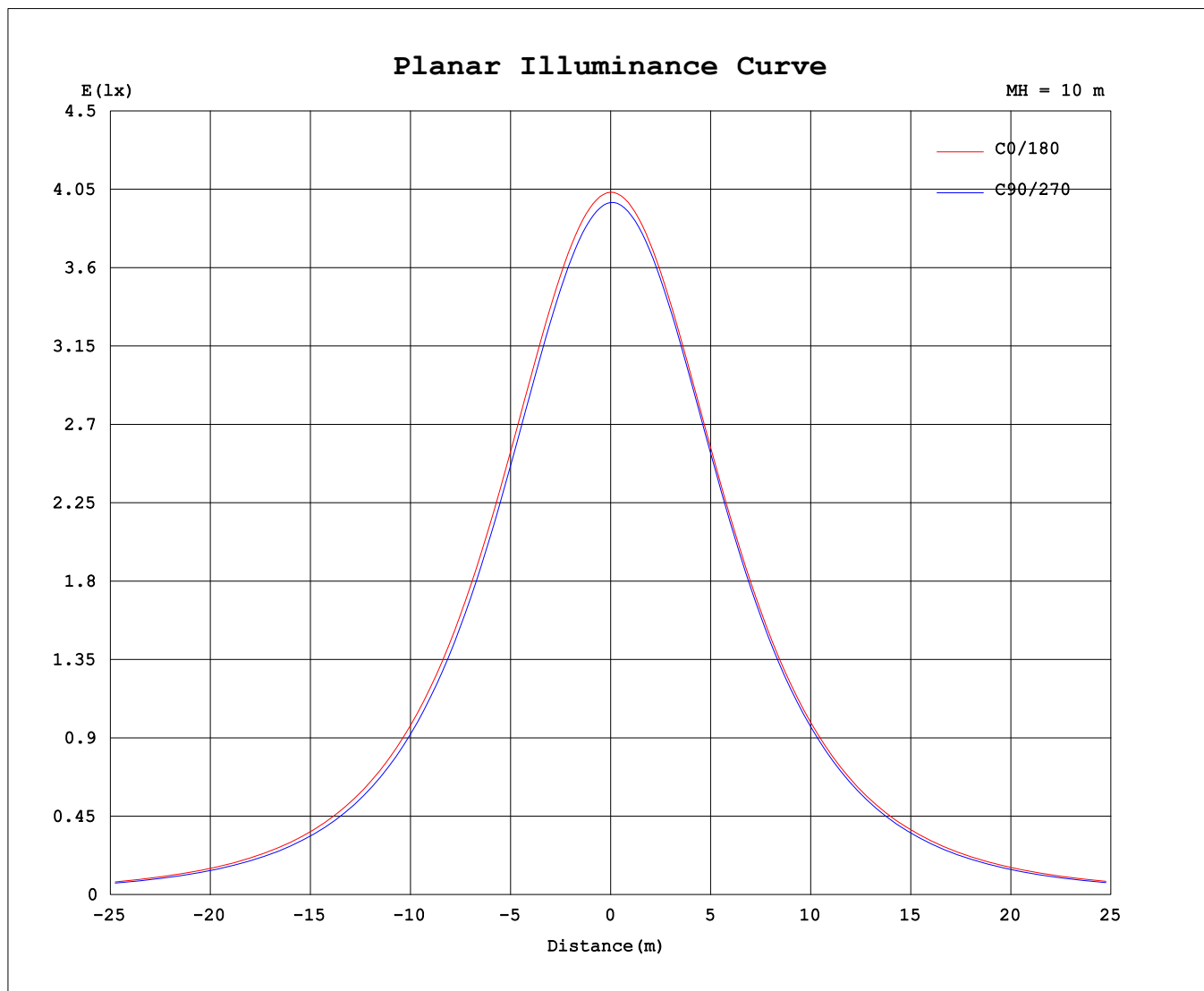
## ISOLUX DIAGRAM



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: 10.0deg/s  
Temperature: 25.3°C  
Operators: DAMIN  
Test Date: 2023-09-20

γ Range: 0 - 180DEG  
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: 22.5DEG  
Test Speed: 10.0deg/s  
Temperature: 25.3°C  
Operators: DAMIN  
Test Date: 2023-09-20

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.00.463  
Humidity: 65.0%  
Test Distance: 9.000m [K=1.0000]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1

UNIT: cd

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	403	403	401	399	397	396	394	393	403	403	401	399	397	396	394	393			
5	401	400	398	396	394	393	392	391	402	401	400	398	397	395	393	391			
10	396	395	392	390	388	387	386	386	398	397	396	394	393	391	389	387			
15	388	386	383	381	379	378	377	377	390	389	388	386	385	383	382	379			
20	376	374	370	368	366	365	365	366	378	377	377	375	374	372	370	367			
25	361	358	354	352	350	350	349	351	364	363	363	360	359	357	356	353			
30	343	340	336	334	331	332	331	333	347	345	345	343	342	339	339	336			
35	322	320	315	313	310	311	310	313	327	325	325	322	321	318	318	316			
40	299	297	292	289	286	287	287	291	304	303	302	298	297	295	296	294			
45	275	273	267	264	261	263	263	267	280	278	277	273	273	271	272	271			
50	248	246	240	237	233	235	236	242	254	251	250	246	245	244	245	244			
55	220	217	211	208	205	207	209	214	226	223	222	217	215	214	217	216			
60	190	188	182	179	176	178	179	185	196	193	192	186	184	183	187	187			
65	159	157	151	148	145	147	149	155	165	162	159	152	151	151	156	157			
70	128	126	120	118	115	117	118	125	133	131	125	119	118	118	123	126			
75	96.5	94.9	88.9	88.1	85.9	87.4	88.4	94.3	101	99.0	92.9	88.1	87.5	87.0	91.1	94.6			
80	67.1	65.8	61.1	59.3	57.1	58.8	61.3	65.8	71.3	67.9	64.8	60.0	60.5	59.6	62.5	64.8			
85	43.1	40.7	37.8	34.9	33.9	34.2	37.6	40.8	44.6	43.4	39.9	37.8	37.1	37.6	38.4	41.3			
90	28.4	27.0	18.8	15.7	15.3	16.7	20.0	25.9	27.0	25.9	21.1	17.6	15.9	18.2	21.4	26.9			
95	42.9	40.8	34.7	33.3	32.6	32.6	34.1	38.4	40.9	37.5	32.0	28.7	27.0	28.1	32.3	38.1			
100	68.5	62.9	55.7	54.4	54.8	52.9	55.0	59.5	64.2	59.0	47.2	44.3	45.6	45.4	49.2	59.7			
105	97.3	89.6	82.1	73.7	78.5	71.9	80.6	86.3	92.5	82.2	68.7	66.3	71.3	69.4	69.7	84.6			
110	128	118	109	79.0	104	78.2	107	115	123	109	99.6	71.5	97.2	74.6	97.3	114			
115	158	149	136	120	130	116	135	145	153	137	132	110	123	115	126	142			
120	188	179	147	147	155	145	147	175	183	164	147	141	149	136	132	158			
125	216	200	171	175	177	166	144	195	200	184	149	169	175	172	154	181			
130	211	194	201	199	202	191	188	191	209	169	182	194	203	193	188	175			
135	219	220	229	227	226	216	215	215	213	197	214	217	224	221	210	200			
140	234	242	237	233	229	219	216	223	226	207	217	228	233	236	228	223			
145	248	255	246	242	240	229	221	221	232	215	214	234	244	243	235	238			
150	259	266	254	251	250	237	226	240	245	224	218	244	252	253	247	251			
155	271	276	264	261	258	244	241	249	253	233	237	248	259	261	257	262			
160	306	311	302	288	285	278	277	266	267	248	250	256	268	271	270	277			
165	335	336	317	308	305	304	310	307	319	302	305	305	306	307	311	319			
170	353	347	329	324	325	327	327	324	339	323	326	325	325	326	327	338			
175	357	343	338	338	337	340	339	337	354	336	338	338	337	335	336	337			
180	361	343	341	344	342	342	341	340	362	341	342	343	343	341	341	340			

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: 10.0deg/s  
Temperature:25.3℃  
Operators:DAMIN  
Test Date:2023-09-20

γ Range: 0 - 180DEG  
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: