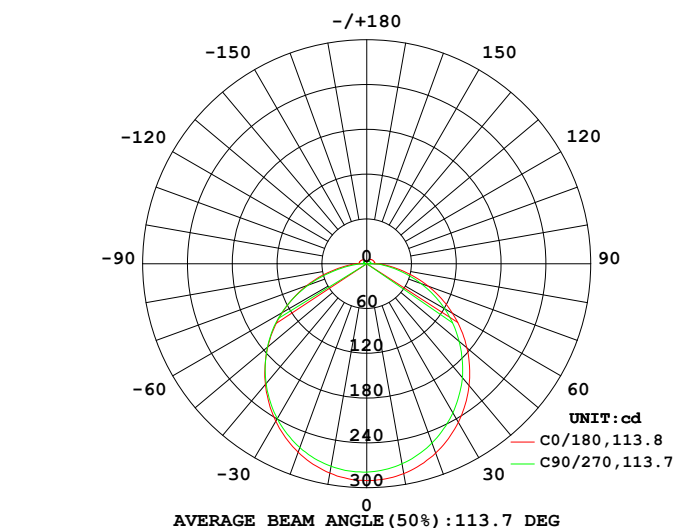


LUMINAIRE PHOTOMETRIC TEST REPORT

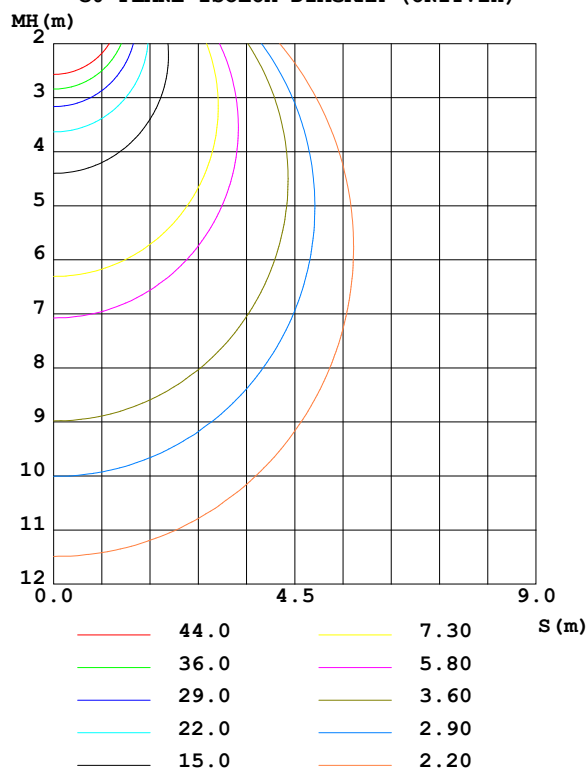
Test:U:219.95V I:0.1023A P:21.134W PF:0.9393 Freq:50.00Hz		
Lamp Flux:865.522x1 lm		
NAME: SB-D101 20WSZ 20W		WEIGHT:
TYPE: SPEC.: 4000K	DIM.: 15.75"	SERIAL No.:
MFR.: SNOWBALL	SUR.: 400mm	

DATA OF LAMP		PHOTOMETRIC DATA Eff: 40.95 lm/W			
MODEL		Imax (cd)	290.4	S/MH (C0/180)	1.25
NOMINAL POWER(W)		LOR (%)	100.0	S/MH (C90/270)	1.28
RATED VOLTAGE (V)	--	TOTAL FLUX(lm)	865.52	η UP,DN (C0-180)	2.3,47.1
NOMINAL FLUX(lm)	865.522	CIE CLASS	DIRECT	η UP,DN (C180-360)	2.2,48.4
LAMPS INSIDE	1	η up (%)	4.5	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	--	η down (%)	95.5	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:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	285.4	278.2	271.9	267.7	284.7	279.8	275.4	270.9	0~ 10	26.55	26.55	3.07,3.07
20	269.9	262.0	255.5	251.5	268.7	265.3	261.9	257.8	10~ 20	75.96	102.5	11.8,11.8
30	245.2	236.9	230.7	227.0	243.5	241.6	239.5	235.9	20~ 30	115.0	217.5	25.1,25.1
40	213.1	205.0	199.4	195.9	211.2	211.9	209.6	206.4	30~ 40	138.8	356.3	41.2,41.2
50	175.0	167.3	161.6	160.2	173.1	173.5	173.5	171.1	40~ 50	144.8	501.1	57.9,57.9
60	132.5	125.3	120.4	118.9	130.5	132.9	131.6	131.4	50~ 60	132.8	633.9	73.2,73.2
70	87.40	81.02	77.13	76.39	85.43	86.15	82.78	86.86	60~ 70	104.2	738.0	85.3,85.3
80	44.05	39.44	36.99	36.93	41.20	36.67	34.56	39.01	70~ 80	63.19	801.2	92.6,92.6
90	11.88	7.690	5.372	7.880	10.88	9.581	5.439	10.81	80~ 90	25.18	826.4	95.5,95.5
100	10.92	7.343	2.524	7.404	10.35	6.781	1.882	6.812	90~100	6.907	833.3	96.3,96.3
110	10.20	7.882	5.272	7.957	9.681	6.704	3.941	7.221	100~110	7.882	841.2	97.2,97.2
120	9.481	7.343	5.154	7.354	8.977	6.633	4.735	6.826	110~120	7.175	848.3	98,98
130	8.614	6.735	4.925	6.642	8.158	6.321	4.577	6.359	120~130	6.041	854.4	98.7,98.7
140	7.579	5.678	4.763	5.530	7.132	5.274	4.720	5.359	130~140	4.665	859.0	99.3,99.3
150	5.741	4.528	4.262	3.777	5.246	4.081	4.312	4.345	140~150	3.232	862.3	99.6,99.6
160	4.199	4.008	3.609	3.606	3.967	3.585	3.537	3.787	150~160	1.935	864.2	99.8,99.8
170	3.645	3.381	3.117	3.066	3.511	3.198	3.179	3.128	160~170	1.008	865.2	100,100
180	2.634	2.462	2.522	2.576	2.653	2.475	2.530	2.585	170~180	0.2997	865.5	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 429.08 lm

%lum = 49.6%

%lamp = 49.6%

Conical surface Flux(120deg): 633.85 lm

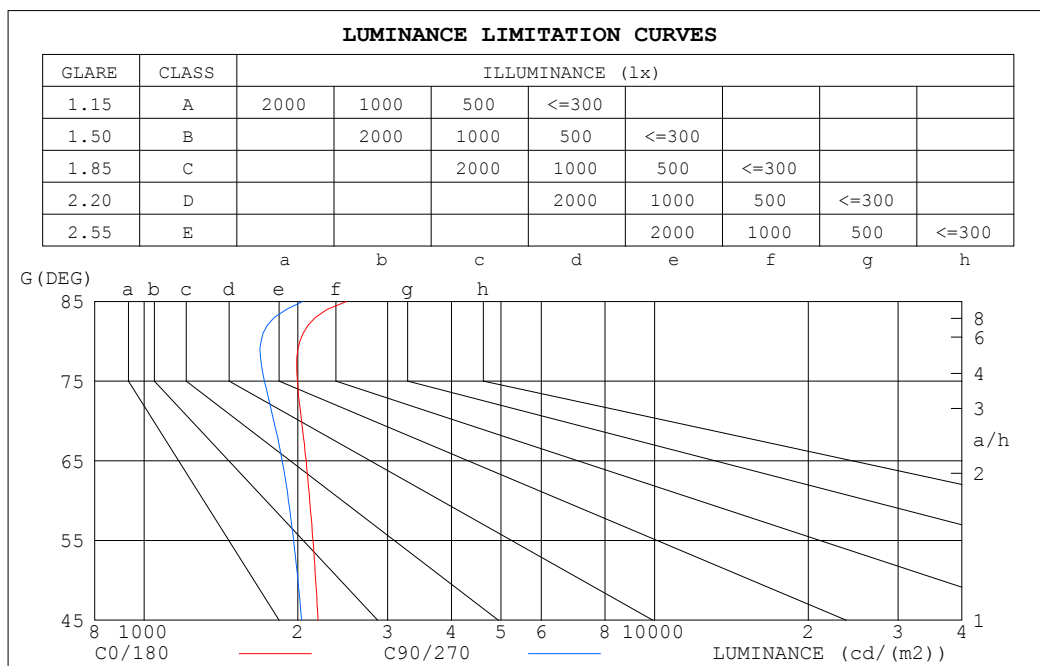
%lum = 73.2%

%lamp = 73.2%

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:

LUMINANCE LIMITATION CURVES



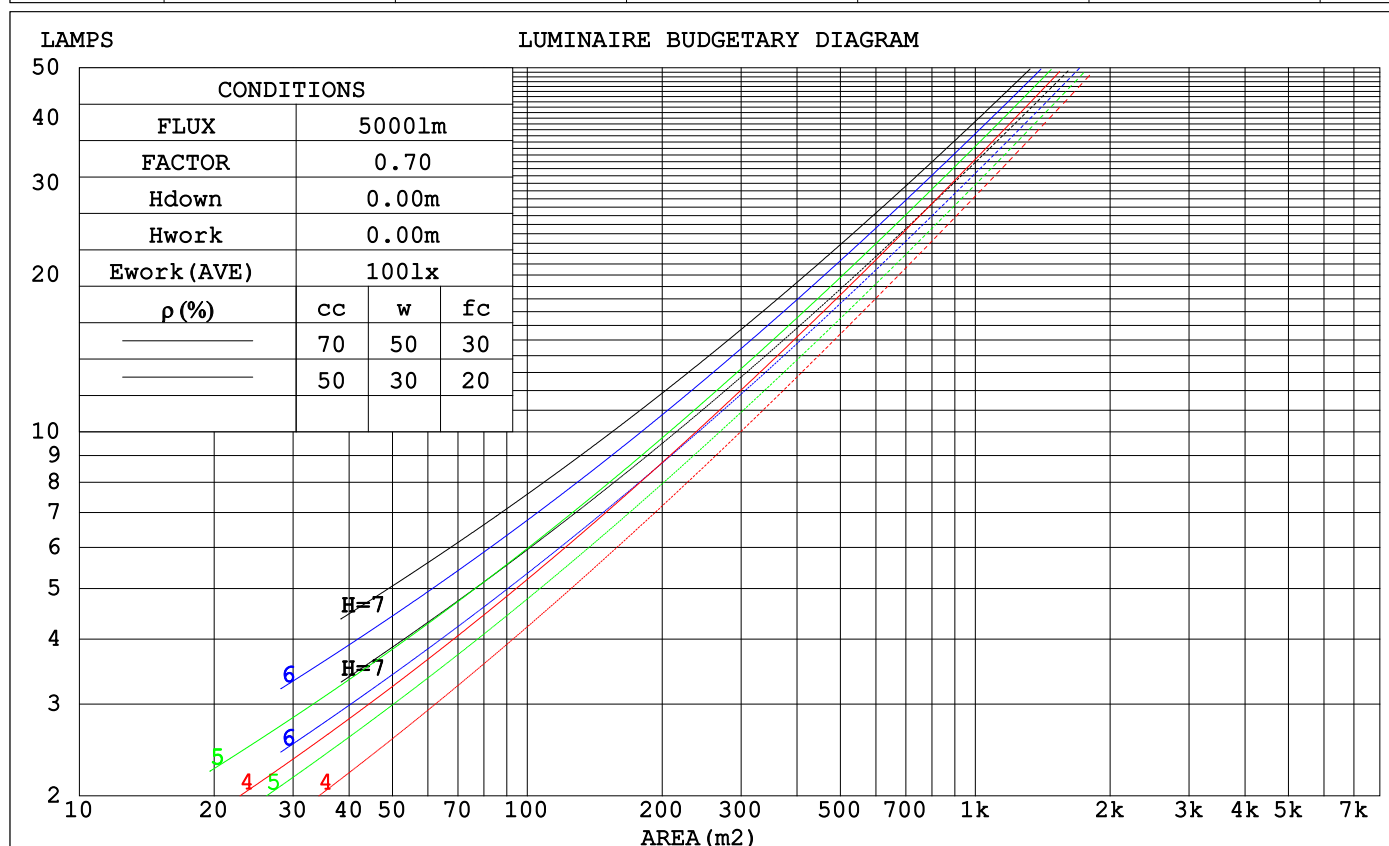
LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	2490	2042
80	2020	1696
75	1998	1720
70	2035	1796
65	2078	1864
60	2110	1917
55	2142	1964
50	2168	2002
45	2192	2036

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	1.18	1.18	1.18	1.15	1.15	1.15	1.09	1.09	1.09	1.03	1.03	1.03	.98	.98	.98	.95
1.0	1.02	.98	.94	.99	.95	.92	.94	.91	.88	.90	.87	.84	.85	.83	.81	.79
2.0	.89	.82	.76	.86	.80	.74	.82	.77	.72	.78	.74	.70	.74	.71	.67	.65
3.0	.78	.69	.63	.76	.68	.62	.72	.65	.60	.69	.63	.58	.66	.61	.57	.54
4.0	.69	.60	.53	.67	.59	.52	.64	.57	.51	.61	.55	.50	.58	.53	.49	.46
5.0	.61	.52	.45	.60	.51	.45	.57	.50	.44	.55	.48	.43	.52	.47	.42	.40
6.0	.55	.46	.39	.54	.45	.39	.52	.44	.38	.49	.43	.38	.47	.42	.37	.35
7.0	.50	.41	.35	.49	.40	.35	.47	.39	.34	.45	.38	.33	.43	.37	.33	.31
8.0	.45	.37	.31	.45	.36	.31	.43	.36	.30	.41	.35	.30	.40	.34	.29	.27
9.0	.42	.33	.28	.41	.33	.28	.39	.32	.27	.38	.32	.27	.37	.31	.26	.25
10.0	.38	.30	.25	.38	.30	.25	.36	.29	.25	.35	.29	.24	.34	.28	.24	.22



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:

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	.323	.184	.058	.314	.179	.057	.299	.171	.055	.284	.164	.053	.270	.157	.051		
2.0	.299	.164	.050	.291	.160	.049	.277	.154	.048	.264	.148	.046	.252	.142	.045		
3.0	.274	.146	.044	.267	.143	.043	.255	.138	.042	.243	.133	.041	.232	.129	.040		
4.0	.252	.131	.038	.246	.129	.038	.234	.124	.037	.224	.120	.036	.214	.116	.035		
5.0	.232	.118	.034	.227	.116	.034	.217	.113	.033	.207	.109	.033	.198	.106	.032		
6.0	.215	.108	.031	.210	.106	.031	.201	.103	.030	.192	.100	.029	.184	.097	.029		
7.0	.199	.099	.028	.195	.097	.028	.187	.095	.027	.179	.092	.027	.172	.089	.026		
8.0	.186	.091	.026	.182	.090	.025	.175	.087	.025	.168	.085	.025	.161	.083	.024		
9.0	.174	.084	.024	.171	.083	.023	.164	.081	.023	.158	.079	.023	.152	.077	.022		
10.0	.164	.078	.022	.160	.077	.022	.154	.076	.021	.149	.074	.021	.143	.072	.021		

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	.225	.225	.225	.192	.192	.192	.131	.131	.131	.075	.075	.075	.024	.024	.024	
1.0	.216	.191	.168	.185	.164	.145	.126	.113	.100	.073	.065	.058	.023	.021	.019	
2.0	.208	.167	.132	.178	.144	.114	.122	.099	.080	.070	.058	.047	.023	.019	.015	
3.0	.200	.149	.109	.172	.129	.094	.118	.090	.066	.068	.052	.039	.022	.017	.013	
4.0	.193	.136	.093	.165	.118	.081	.114	.082	.057	.066	.048	.034	.021	.016	.011	
5.0	.185	.126	.082	.159	.109	.072	.110	.076	.051	.064	.045	.030	.020	.015	.010	
6.0	.178	.118	.075	.153	.102	.065	.106	.071	.046	.061	.042	.027	.020	.014	.009	
7.0	.171	.111	.069	.147	.096	.060	.102	.067	.042	.059	.040	.025	.019	.013	.008	
8.0	.165	.105	.064	.142	.091	.056	.098	.064	.040	.057	.038	.024	.018	.012	.008	
9.0	.159	.100	.061	.137	.087	.053	.095	.061	.038	.055	.036	.023	.018	.012	.007	
10.0	.153	.096	.058	.132	.083	.051	.092	.059	.036	.053	.035	.022	.017	.011	.007	

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	15.3	16.8	15.6	17.0	17.3	14.9	16.4	15.3	16.7	17.0
3H	17.0	18.3	17.3	18.6	19.0	16.5	17.8	16.8	18.2	18.5
4H	17.7	19.0	18.1	19.3	19.7	17.1	18.4	17.5	18.8	19.1
6H	18.3	19.5	18.7	19.8	20.2	17.6	18.9	18.0	19.2	19.6
8H	18.5	19.7	18.9	20.1	20.5	17.9	19.0	18.3	19.4	19.8
12H	18.8	19.9	19.2	20.3	20.7	18.1	19.2	18.5	19.6	20.0
4H 2H	15.9	17.1	16.2	17.5	17.8	15.6	16.9	16.0	17.2	17.6
3H	17.7	18.8	18.1	19.2	19.6	17.3	18.5	17.7	18.8	19.2
4H	18.6	19.6	19.0	20.0	20.4	18.1	19.1	18.5	19.5	20.0
6H	19.3	20.2	19.8	20.7	21.1	18.8	19.7	19.2	20.1	20.6
8H	19.6	20.5	20.1	20.9	21.4	19.0	19.9	19.5	20.3	20.8
12H	20.0	20.8	20.5	21.2	21.7	19.3	20.1	19.8	20.6	21.1
8H 4H	18.8	19.7	19.3	20.1	20.6	18.4	19.3	18.9	19.7	20.2
6H	19.8	20.5	20.3	21.0	21.5	19.3	20.0	19.8	20.5	21.0
8H	20.2	20.8	20.7	21.3	21.9	19.6	20.3	20.2	20.8	21.3
12H	20.7	21.2	21.2	21.7	22.3	20.0	20.6	20.6	21.1	21.7
12H 4H	18.8	19.6	19.3	20.1	20.6	18.5	19.2	18.9	19.7	20.2
6H	19.8	20.5	20.4	21.0	21.5	19.4	20.0	19.9	20.5	21.0
8H	20.3	20.9	20.9	21.4	22.0	19.8	20.4	20.4	20.9	21.5
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, 865.5 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = -0.5)
Area: 0.1256 m2

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:

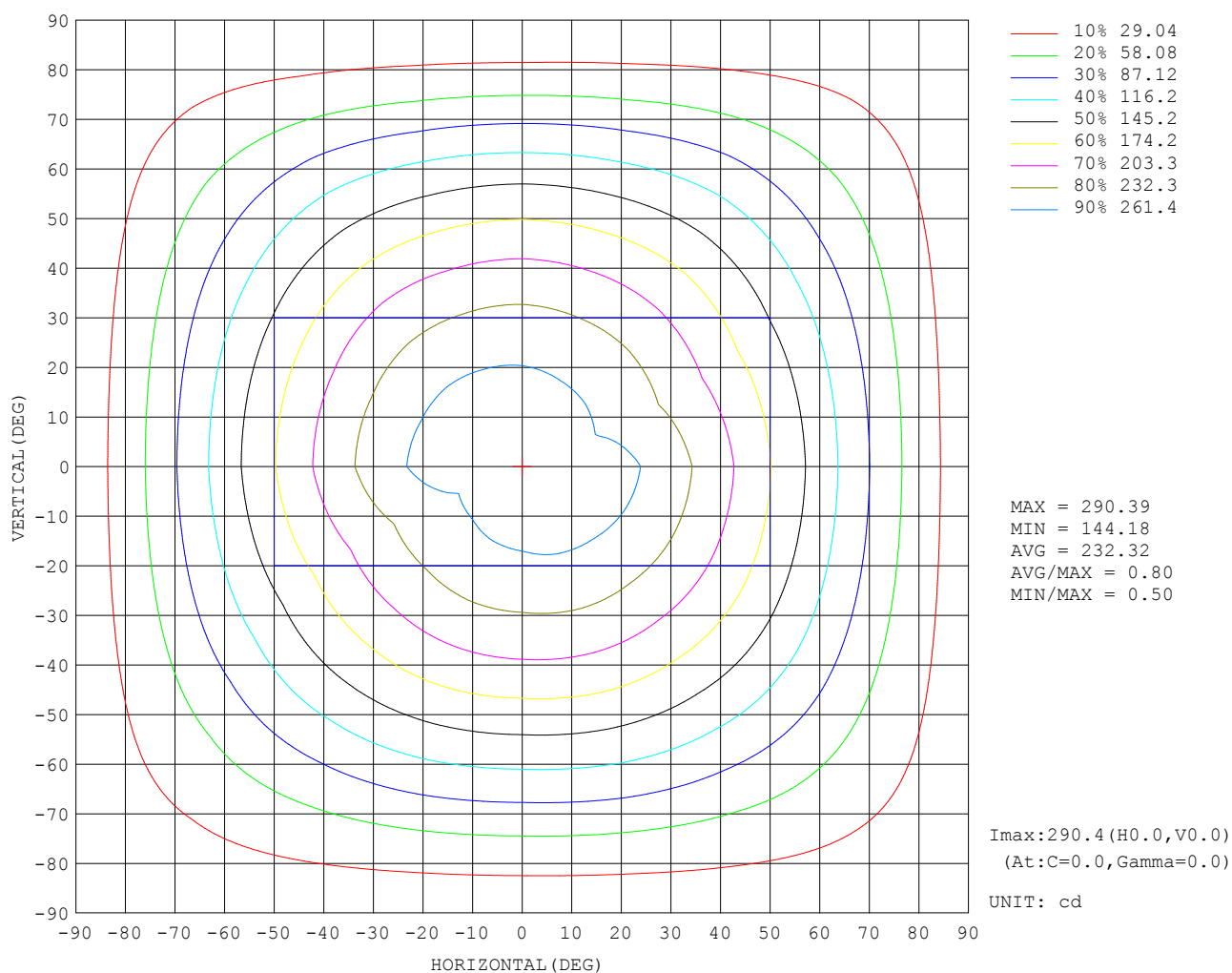
UTILIZATION FACTORS TABLE

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) $k(RI) \times RCR = 5$									
$k = 0.60$	55	44	37	55	43	36	53	43	36	30
0.80	65	53	46	64	53	46	62	52	45	38
1.00	74	62	55	72	61	54	70	62	53	46
1.25	81	70	62	79	69	62	76	67	61	53
1.50	86	75	68	84	74	67	80	72	66	58
2.00	93	84	77	90	82	76	86	79	74	65
2.50	97	88	82	94	87	81	90	84	79	69
3.00	100	93	87	98	91	86	93	87	83	73
4.00	104	98	93	101	96	91	96	92	88	78
5.00	107	102	97	104	99	95	99	95	92	81
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:

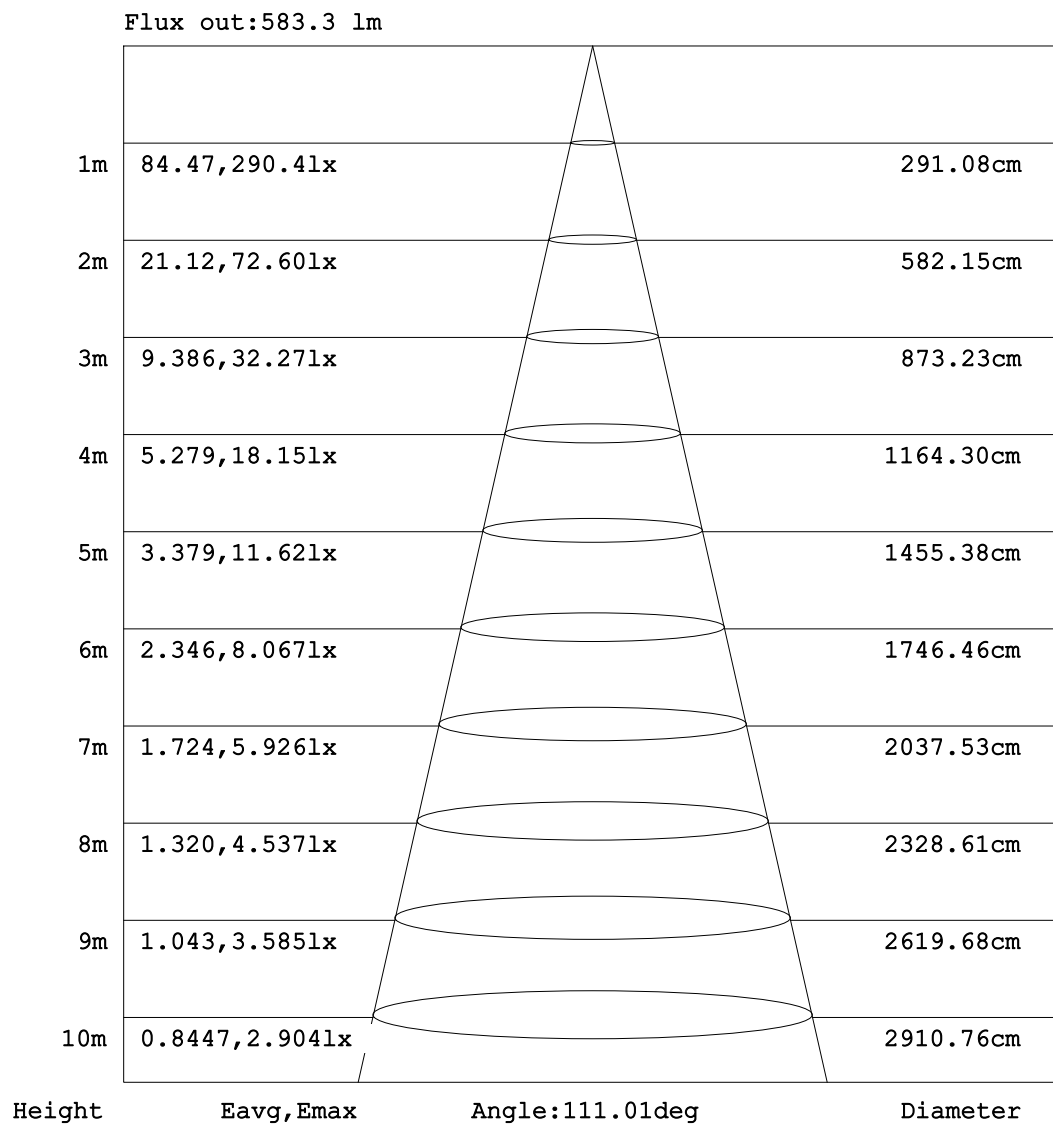
ISOCANDELA DIAGRAM



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

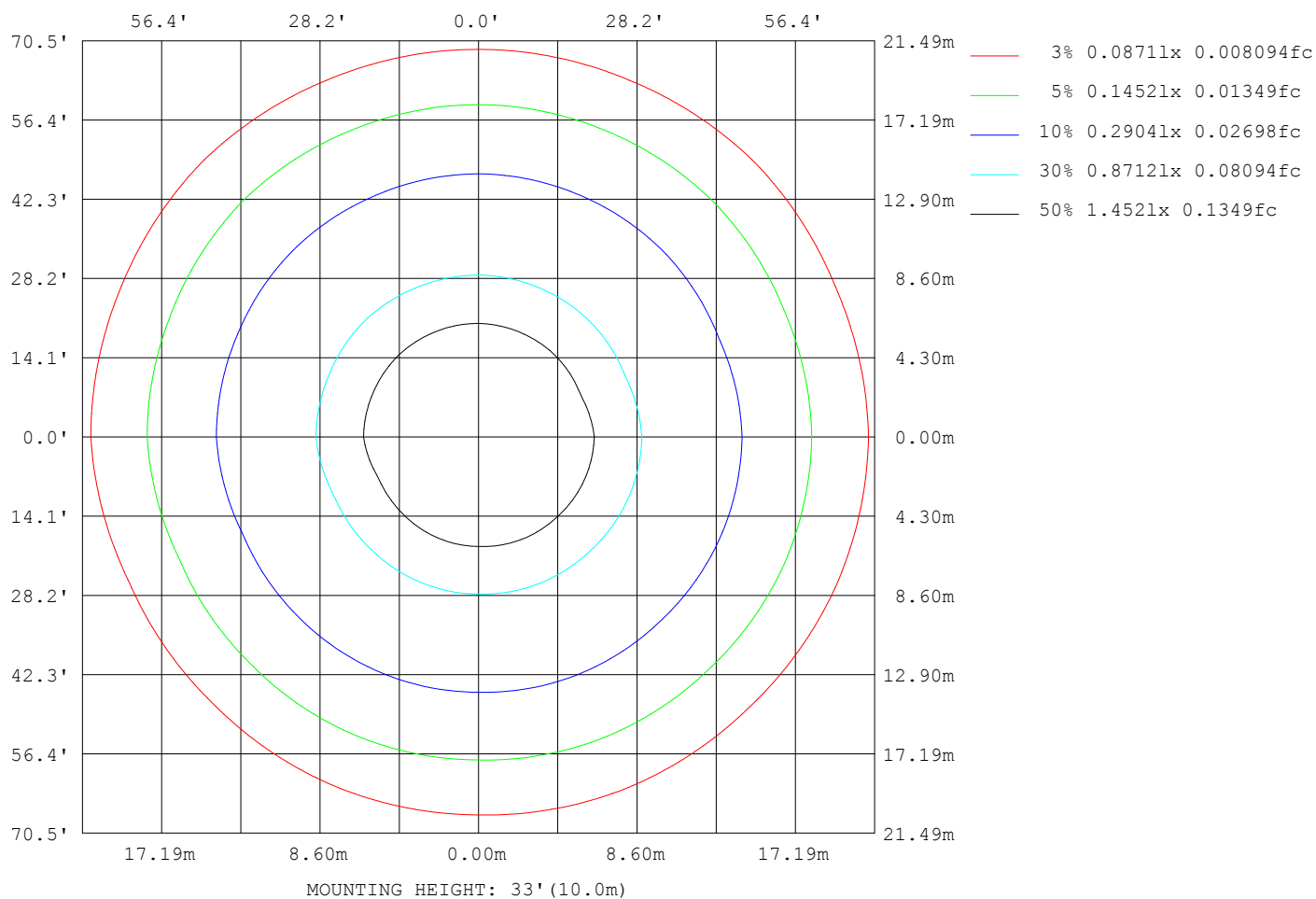


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: 10.0deg/s
Temperature:25.3℃
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:

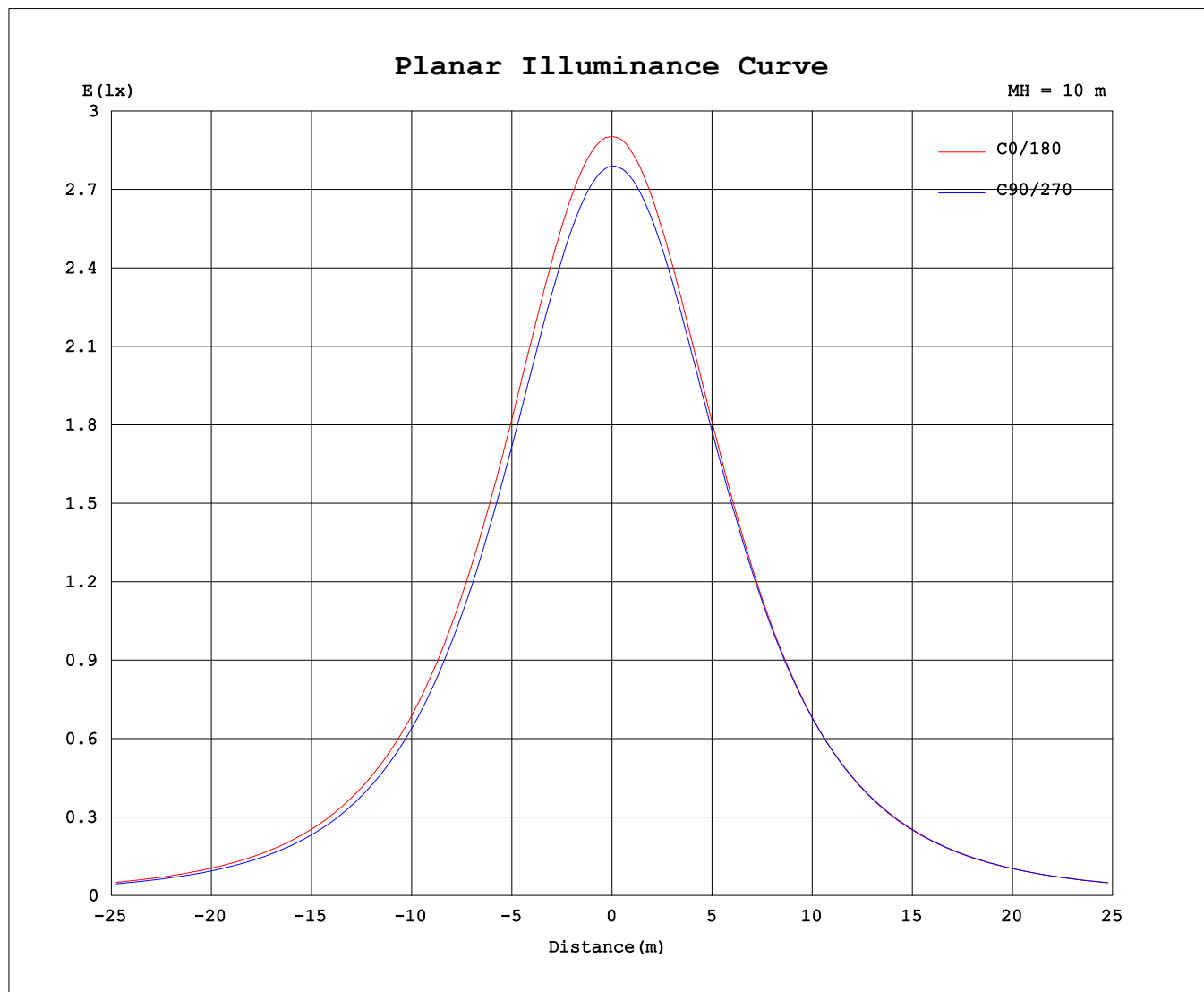
ISOLUX DIAGRAM



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

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:

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	290	287	285	282	279	277	274	272	290	287	285	282	279	277	274	272			
5	289	286	282	280	277	275	272	271	289	286	284	281	278	276	274	272			
10	285	282	278	275	272	270	268	266	285	282	280	277	275	273	271	268			
15	279	275	271	268	265	263	261	260	278	275	274	272	270	268	265	263			
20	270	266	262	259	256	254	251	251	269	266	265	263	262	260	258	255			
25	259	255	250	248	244	242	240	240	257	255	254	253	252	250	248	245			
30	245	242	237	234	231	229	227	227	244	242	242	240	239	237	236	232			
35	230	227	222	219	215	214	212	213	228	227	227	226	225	223	222	218			
40	213	210	205	203	199	198	196	197	211	210	212	209	210	208	206	203			
45	195	191	187	184	181	180	178	179	193	192	193	192	192	190	190	186			
50	175	172	167	165	162	161	160	161	173	172	174	173	174	172	171	168			
55	154	152	147	145	141	141	140	141	152	152	154	153	154	152	152	149			
60	133	130	125	124	120	120	119	121	130	130	133	131	132	131	131	130			
65	110	108	103	102	99.0	98.8	97.8	99.5	108	108	110	108	108	108	110	108			
70	87.4	85.2	81.0	79.9	77.1	77.3	76.4	78.2	85.4	85.4	86.2	82.5	82.8	83.2	86.9	85.5			
75	65.0	63.1	59.3	57.5	55.9	55.6	55.6	56.5	63.2	62.9	60.8	57.1	57.1	58.4	62.5	63.9			
80	44.1	41.4	39.4	37.8	37.0	36.6	36.9	37.3	41.2	41.2	36.7	34.8	34.6	36.2	39.0	43.0			
85	27.3	25.2	24.0	22.8	22.4	22.3	22.4	22.7	25.0	23.3	19.8	17.3	16.3	18.5	21.9	25.0			
90	11.9	9.45	7.69	6.06	5.37	6.43	7.88	8.68	10.9	12.6	9.58	6.06	5.44	7.23	10.8	14.3			
95	10.9	9.83	6.81	4.08	1.75	3.86	7.44	9.26	9.87	8.60	5.87	2.68	1.35	3.07	6.19	9.37			
100	10.9	9.73	7.34	5.56	2.52	4.25	7.40	9.20	10.4	8.90	6.78	4.02	1.88	3.66	6.81	9.39			
105	10.6	9.60	7.97	6.44	5.71	6.59	8.06	8.96	10.0	8.60	7.34	5.30	4.78	5.63	7.46	9.03			
110	10.2	9.45	7.88	6.59	5.27	6.62	7.96	8.85	9.68	8.58	6.70	5.12	3.94	4.91	7.22	8.84			
115	9.85	9.18	7.62	6.44	5.27	6.43	7.67	8.61	9.24	8.31	6.69	5.11	4.60	5.08	7.06	8.59			
120	9.48	8.85	7.34	6.14	5.15	6.20	7.35	8.29	8.98	8.09	6.63	5.51	4.74	5.34	6.83	8.25			
125	9.06	8.47	7.05	5.35	5.03	5.58	7.00	7.92	8.59	7.81	6.53	4.84	4.66	5.04	6.57	7.88			
130	8.61	8.05	6.73	4.95	4.92	4.99	6.64	7.49	8.16	7.48	6.32	4.50	4.58	4.57	6.36	7.55			
135	8.13	7.55	6.42	4.96	4.83	4.70	6.27	6.94	7.69	7.12	6.04	4.53	4.24	4.25	5.75	6.61			
140	7.58	7.17	5.68	4.95	4.76	4.66	5.53	6.52	7.13	6.64	5.27	4.42	4.72	4.56	5.36	6.56			
145	6.97	6.68	4.98	4.86	4.49	4.18	4.29	5.50	5.68	5.49	4.37	4.33	4.47	4.58	4.73	6.18			
150	5.74	5.25	4.53	4.54	4.26	4.13	3.78	4.47	5.25	4.47	4.08	4.33	4.31	4.32	4.35	4.91			
155	4.73	4.54	4.45	4.09	4.03	3.99	4.05	4.05	4.45	4.15	4.01	3.85	3.83	3.85	4.12	4.13			
160	4.20	4.26	4.01	3.80	3.61	3.54	3.61	3.72	3.97	3.74	3.59	3.56	3.54	3.63	3.79	3.81			
165	3.95	3.99	3.74	3.58	3.38	3.32	3.30	3.42	3.76	3.46	3.37	3.44	3.42	3.36	3.52	3.65			
170	3.65	3.60	3.38	3.26	3.12	3.10	3.07	3.20	3.51	3.26	3.20	3.23	3.18	3.10	3.13	3.33			
175	3.49	3.41	3.18	3.07	2.97	2.94	2.98	3.20	3.37	3.16	3.11	3.14	3.09	3.05	2.89	3.17			
180	2.63	2.53	2.46	2.49	2.52	2.57	2.58	2.53	2.65	2.51	2.48	2.48	2.53	2.56	2.59	2.53			

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: