

LED Downlight TAKEO Series T200-38W-840-18

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Light Output Ratio:	100.0%	
Luminaire Power:	38.01 W	
SHR Nominal:	0.00	Calculated using the TM5
SHR Maximum:	1.00	fine grid method.

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C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Meng Yongjian  
Test Date: 2018-01-24

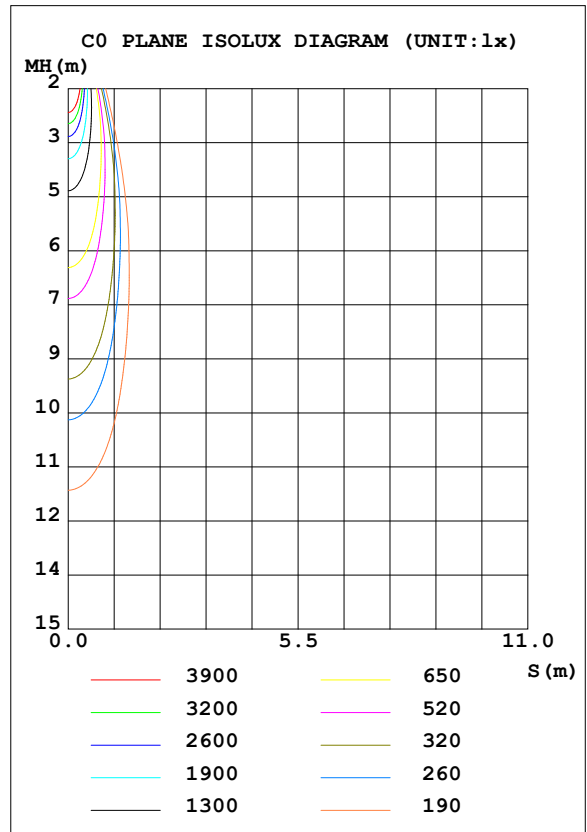
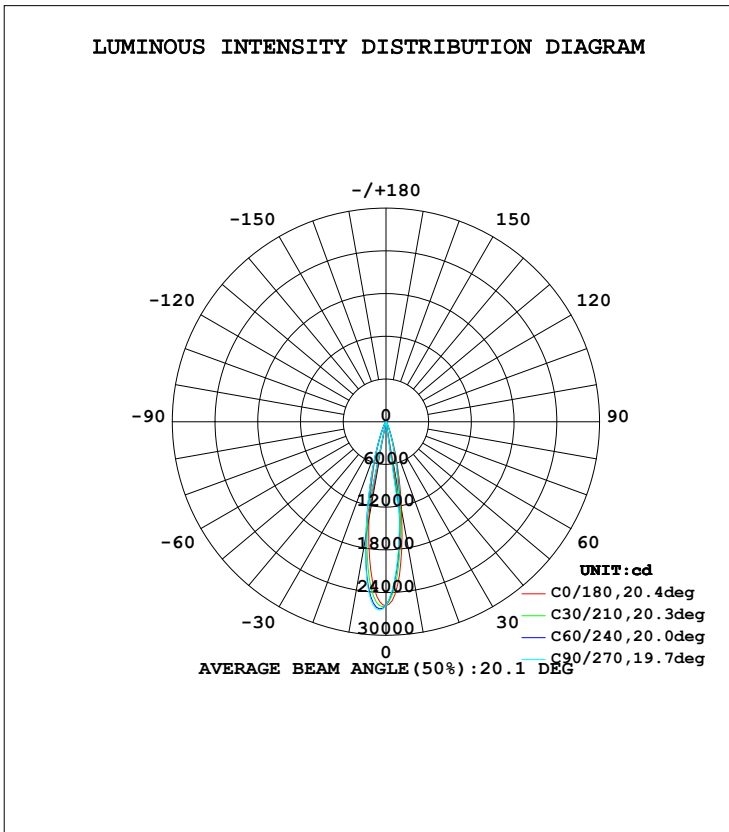
$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity: 52%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:36.20V I:1.050A P:38.01W PF:1.000 Lamp Flux:4433.9x1 lm		
NAME: T200-38W-840-18	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ218mm*H126mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 116.65 lm/W			
MODEL	CITIZEN-4000K	I <sub>max</sub> (cd)	26487	S/MH (C0/180)	0.36
NOMINAL POWER (W)	38	LOR (%)	100.0	S/MH (C90/270)	0.40
RATED VOLTAGE (V)	36.0	TOTAL FLUX (lm)	4433.9	η UP, DN (C0-180)	0.0, 44.1
NOMINAL FLUX (lm)	4433.9	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 55.9
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE (V)	36.2	η down (%)	100.0	CIBSE SHR MAX	1.00



C Range: 0 - 360DEG  
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 Temperature: 25.3DEG  
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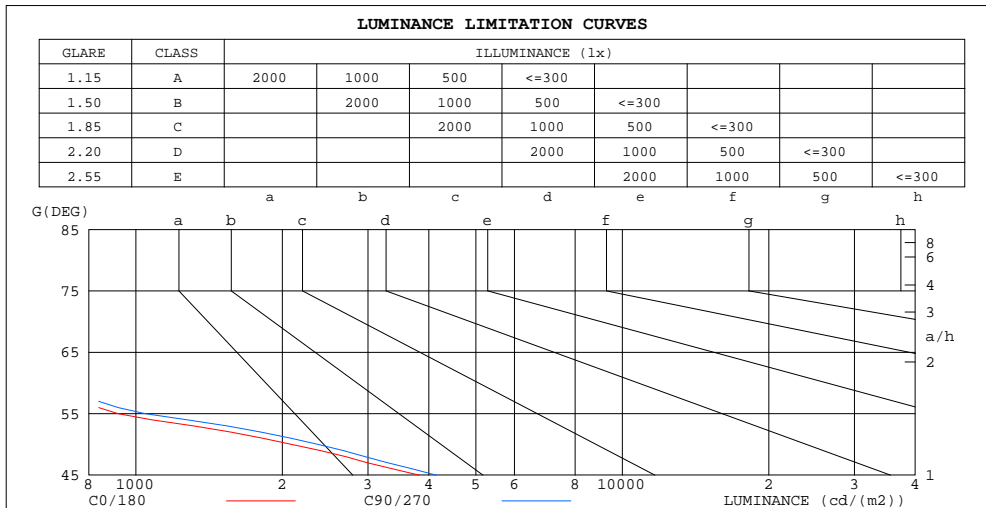
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**ZONAL FLUX DIAGRAM  
AND LUMINANCE LIMITATION CURVES**

**ZONAL FLUX DIAGRAM:**

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\%lum, lamp$
10	1261	1114	1031	1143	1388	1565	1629	1480	0- 10	1808	1808	40.8,40.8
20	227.4	203.5	199.9	230.3	300.8	310.6	320.8	281.6	10- 20	1799	3607	81.3,81.3
30	44.86	43.66	44.66	49.11	55.63	53.37	50.66	47.38	20- 30	514.6	4121	93,93
40	17.91	18.57	18.90	20.57	21.07	20.15	19.12	18.40	30- 40	194.1	4315	97.3,97.3
50	5.013	5.561	5.681	6.330	6.125	5.972	5.593	5.424	40- 50	87.81	4403	99.3,99.3
60	1.055	1.205	1.160	1.193	1.175	1.181	1.085	1.039	50- 60	24.42	4428	99.9,99.9
70	0.1346	0.1672	0.1261	0.1815	0.1853	0.1688	0.1198	0.1305	60- 70	5.556	4433	100,100
80	0.0223	0.0201	0.0210	0.0184	0.0202	0.0201	0.0181	0.0201	70- 80	0.4323	4434	100,100
90	0.0164	0.0162	0.0160	0.0157	0.0127	0.0118	0.0120	0.0127	80- 90	0.1901	4434	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: $\times 10cd$									UNIT: lm		



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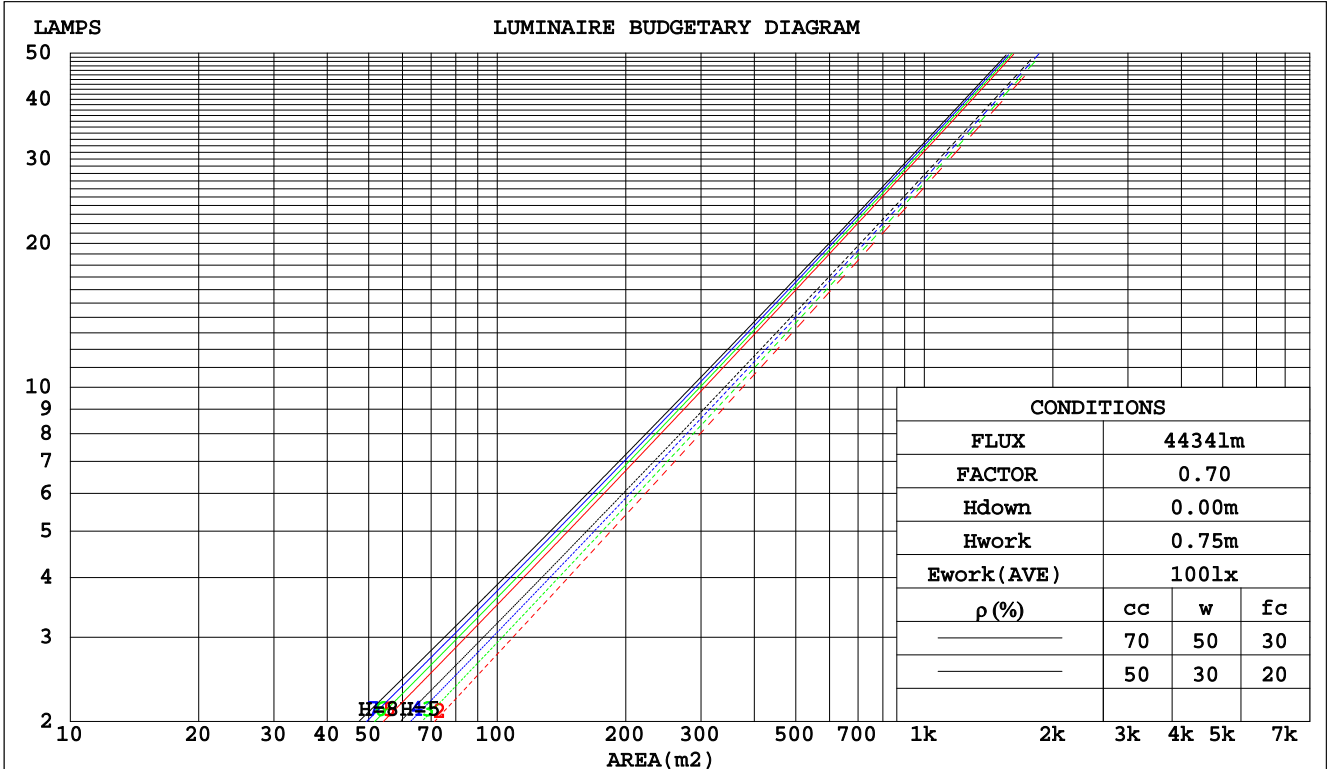
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CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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NAME: T200-38W-840-18	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ218mm*H126mm	
MFR.: NEKO LIGHTING AG		

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	1.00
1.0	1.13	1.11	1.09	1.11	1.09	1.08	1.07	1.06	1.04	1.03	1.02	1.01	.00	.99	.98	.97
2.0	1.08	1.05	1.02	1.06	1.04	1.01	1.03	1.01	.99	1.00	.99	.97	.98	.96	.95	.94
3.0	1.03	.00	.97	1.02	.99	.96	.00	.97	.95	.97	.95	.93	.95	.93	.92	.91
4.0	.99	.96	.93	.98	.95	.92	.96	.93	.91	.95	.92	.90	.93	.91	.89	.88
5.0	.96	.92	.89	.95	.91	.89	.94	.90	.88	.92	.89	.87	.91	.88	.86	.85
6.0	.93	.89	.86	.92	.88	.86	.91	.88	.85	.90	.87	.85	.88	.86	.84	.83
7.0	.90	.86	.83	.89	.86	.83	.88	.85	.82	.87	.84	.82	.86	.84	.82	.81
8.0	.87	.83	.81	.87	.83	.80	.86	.83	.80	.85	.82	.80	.84	.82	.80	.79
9.0	.85	.81	.78	.85	.81	.78	.84	.80	.78	.83	.80	.78	.82	.80	.78	.77
10.0	.83	.79	.76	.83	.79	.76	.82	.78	.76	.81	.78	.76	.81	.78	.76	.75



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WEC AND CCEC

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ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.135	.077	.024	.128	.073	.023	.116	.066	.021	.104	.060	.019	.094	.054	.018	
2.0	.125	.068	.021	.119	.066	.020	.109	.061	.019	.100	.056	.018	.091	.051	.016	
3.0	.116	.062	.019	.112	.060	.018	.103	.056	.017	.095	.052	.016	.088	.049	.015	
4.0	.109	.056	.017	.105	.055	.016	.098	.052	.015	.091	.049	.015	.085	.046	.014	
5.0	.102	.052	.015	.099	.051	.015	.093	.048	.014	.087	.046	.014	.082	.044	.013	
6.0	.097	.048	.014	.094	.047	.014	.089	.045	.013	.084	.043	.013	.079	.042	.012	
7.0	.092	.045	.013	.089	.044	.013	.085	.043	.012	.080	.041	.012	.076	.040	.012	
8.0	.087	.043	.012	.085	.042	.012	.081	.040	.012	.077	.039	.011	.074	.038	.011	
9.0	.083	.040	.011	.081	.040	.011	.078	.038	.011	.074	.037	.011	.071	.036	.010	
10.0	.079	.038	.011	.078	.038	.010	.075	.037	.010	.072	.036	.010	.069	.035	.010	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	.168	.158	.148	.144	.135	.128	.098	.093	.088	.057	.054	.051	.018	.017	.017	
2.0	.150	.133	.118	.128	.114	.102	.088	.079	.071	.051	.046	.042	.016	.015	.014	
3.0	.135	.113	.096	.116	.098	.083	.079	.068	.058	.046	.040	.034	.015	.013	.011	
4.0	.122	.098	.079	.105	.085	.069	.072	.059	.048	.042	.035	.029	.013	.011	.009	
5.0	.112	.085	.066	.096	.074	.058	.066	.052	.041	.038	.030	.024	.012	.010	.008	
6.0	.103	.075	.056	.088	.065	.049	.061	.046	.034	.035	.027	.021	.011	.009	.007	
7.0	.095	.067	.048	.082	.058	.042	.056	.041	.030	.033	.024	.018	.011	.008	.006	
8.0	.088	.060	.041	.076	.052	.036	.053	.037	.026	.031	.022	.015	.010	.007	.005	
9.0	.083	.055	.036	.071	.047	.031	.049	.033	.022	.029	.020	.013	.009	.006	.004	
10.0	.078	.050	.032	.067	.043	.028	.046	.031	.020	.027	.018	.012	.009	.006	.004	

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 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
 Humidity:52%  
 Test Distance:5.850m [K=1.0000]  
 Remarks:

GONIOPHOTOMETERS SYSTEM TEST REPORT

UGR(Unified Glare Rating) Table

Test:U:36.20V I:1.050A P:38.01W PF:1.000 Lamp Flux:4433.9x1 lm		
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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	7.1	7.7	7.3	7.8	8.0	7.2	7.9	7.4	8.0	8.2
3H	6.9	7.5	7.2	7.7	7.9	7.1	7.7	7.3	7.9	8.1
4H	6.8	7.4	7.1	7.6	7.8	7.0	7.6	7.3	7.8	8.0
6H	6.8	7.3	7.0	7.5	7.8	6.9	7.5	7.2	7.7	7.9
8H	6.7	7.2	7.0	7.5	7.7	6.9	7.4	7.2	7.7	7.9
12H	6.7	7.2	7.0	7.4	7.7	6.8	7.3	7.1	7.6	7.9
4H 2H	6.9	7.5	7.1	7.7	7.9	7.0	7.6	7.3	7.8	8.0
3H	6.7	7.2	7.0	7.5	7.8	6.9	7.4	7.2	7.7	7.9
4H	6.6	7.1	7.0	7.4	7.7	6.8	7.3	7.1	7.5	7.8
6H	6.5	6.9	6.9	7.3	7.6	6.7	7.1	7.1	7.4	7.8
8H	6.5	6.9	6.9	7.2	7.6	6.6	7.0	7.0	7.4	7.7
12H	6.4	6.8	6.8	7.1	7.5	6.6	6.9	7.0	7.3	7.7
8H 4H	6.5	6.9	6.9	7.2	7.6	6.6	7.0	7.0	7.4	7.7
6H	6.4	6.7	6.8	7.1	7.5	6.5	6.8	7.0	7.2	7.6
8H	6.3	6.6	6.7	7.0	7.4	6.5	6.7	6.9	7.2	7.6
12H	6.2	6.5	6.7	6.9	7.4	6.4	6.6	6.9	7.1	7.6
12H 4H	6.4	6.8	6.8	7.1	7.5	6.6	6.9	7.0	7.3	7.7
6H	6.3	6.6	6.7	7.0	7.4	6.5	6.7	6.9	7.2	7.6
8H	6.2	6.5	6.7	6.9	7.4	6.4	6.6	6.9	7.1	7.6
Variations with the observer position at spacings:										
S = 1.0H	+ 2.5 / - 8.8					+ 2.4 / - 8.4				
1.5H	+ 3.8 / - 6.8					+ 3.6 / - 6.8				
2.0H	+ 5.5 / - 7.4					+ 5.6 / - 7.6				

CIE Pub.117 Corrected 4434 lm Total Lamp Luminous Flux.(8log(F/F0) = 5.2)

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γ Range: 0 - 90DEG  
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 Humidity:52%  
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GONIOPHOTOMETERS SYSTEM TEST REPORT

UTILIZATION FACTORS TABLE

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SPEC.:4000K	DIM.: φ218mm*H126mm	
MFR.: NEKO LIGHTING AG		

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	90	84	80	89	84	80	89	83	80	77
0.80	97	92	88	96	91	88	95	91	88	84
1.00	101	96	93	100	95	92	99	95	92	88
1.25	105	100	97	104	99	96	102	98	96	92
1.50	107	103	100	106	102	99	104	101	98	94
2.00	109	106	103	108	105	102	105	103	100	95
2.50	111	108	105	109	106	104	106	104	102	96
3.00	112	109	107	111	108	106	107	105	103	97
4.00	114	112	110	112	110	108	109	107	106	99
5.00	116	113	112	113	112	110	109	108	107	100
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

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ISOCANDELA DIAGRAM

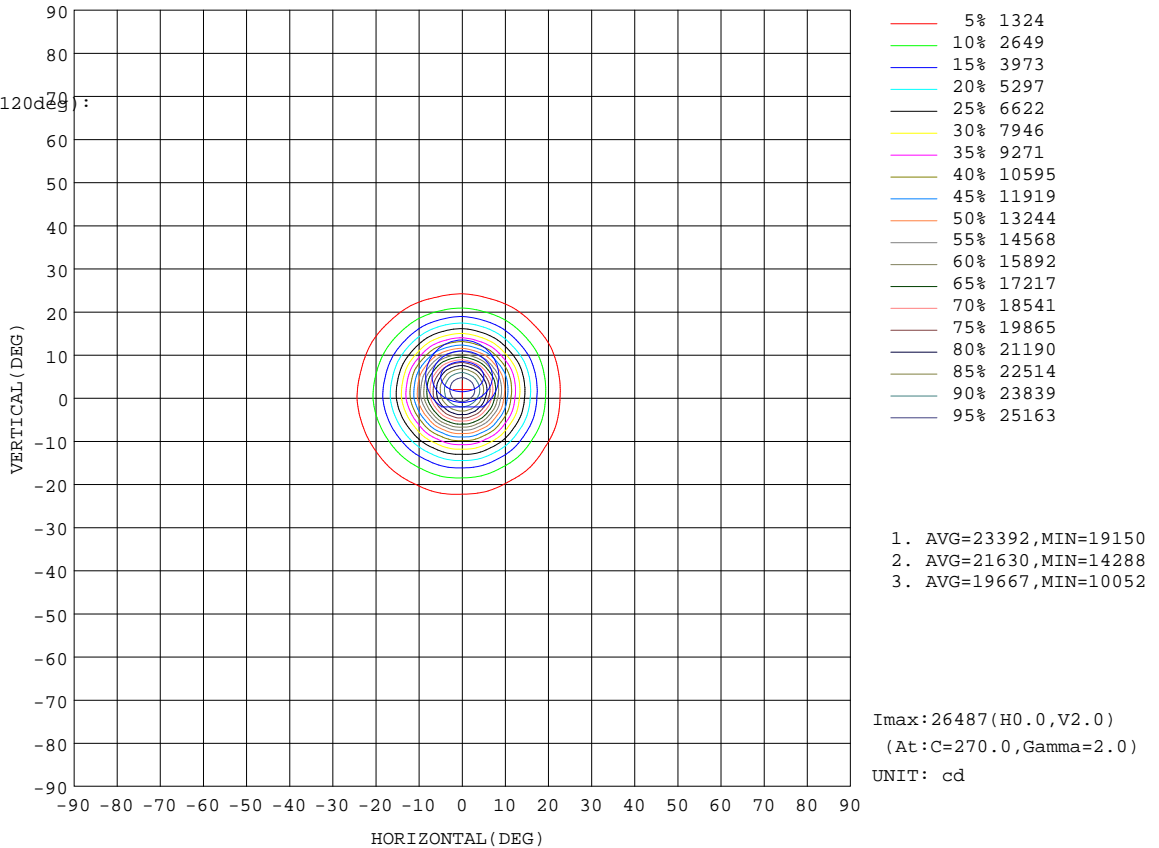
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Conical surface Flux(90deg):

4370.7 lm  
%lum = 98.6%  
%lamp = 98.6%

Conical surface Flux(120deg):

4427.7 lm  
%lum = 99.9%  
%lamp = 99.9%



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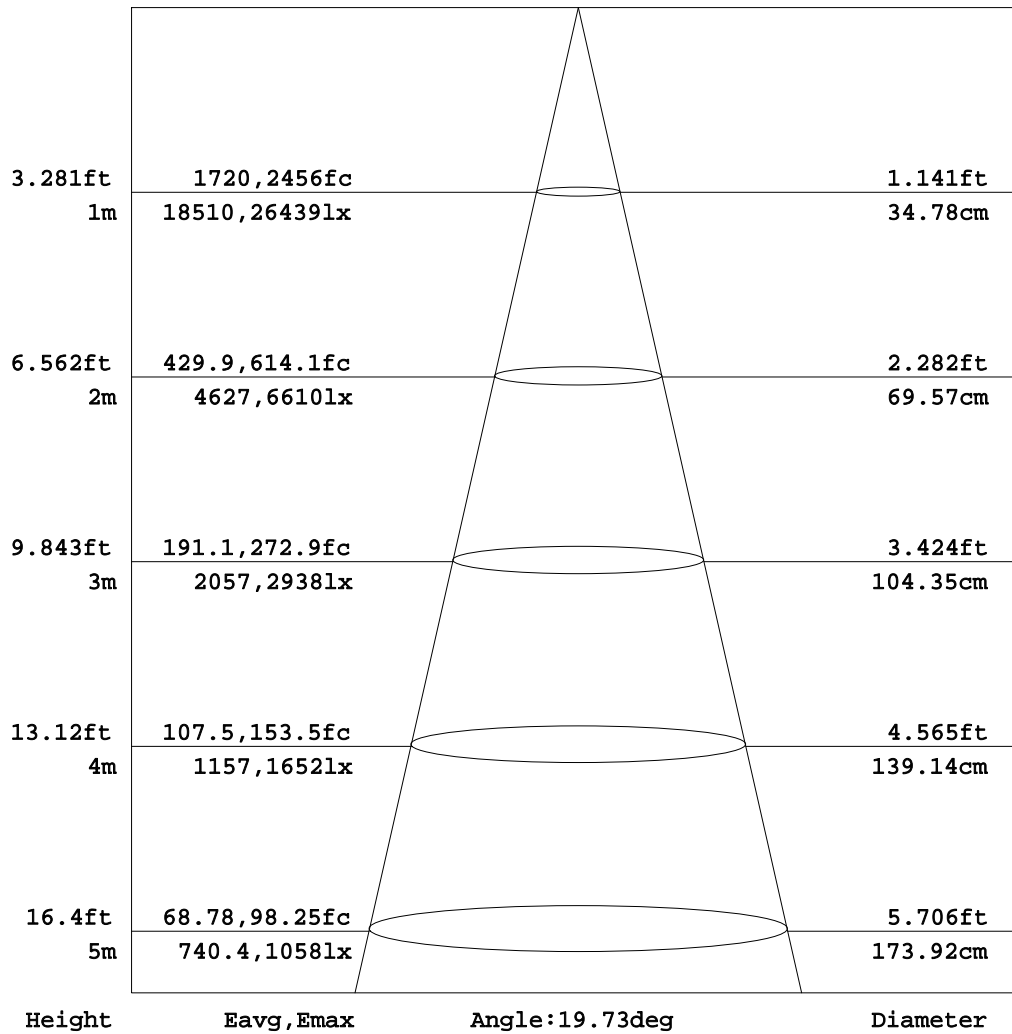


GONIOPHOTOMETERS SYSTEM TEST REPORT

AAI Figure

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Flux out:1808 lm



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

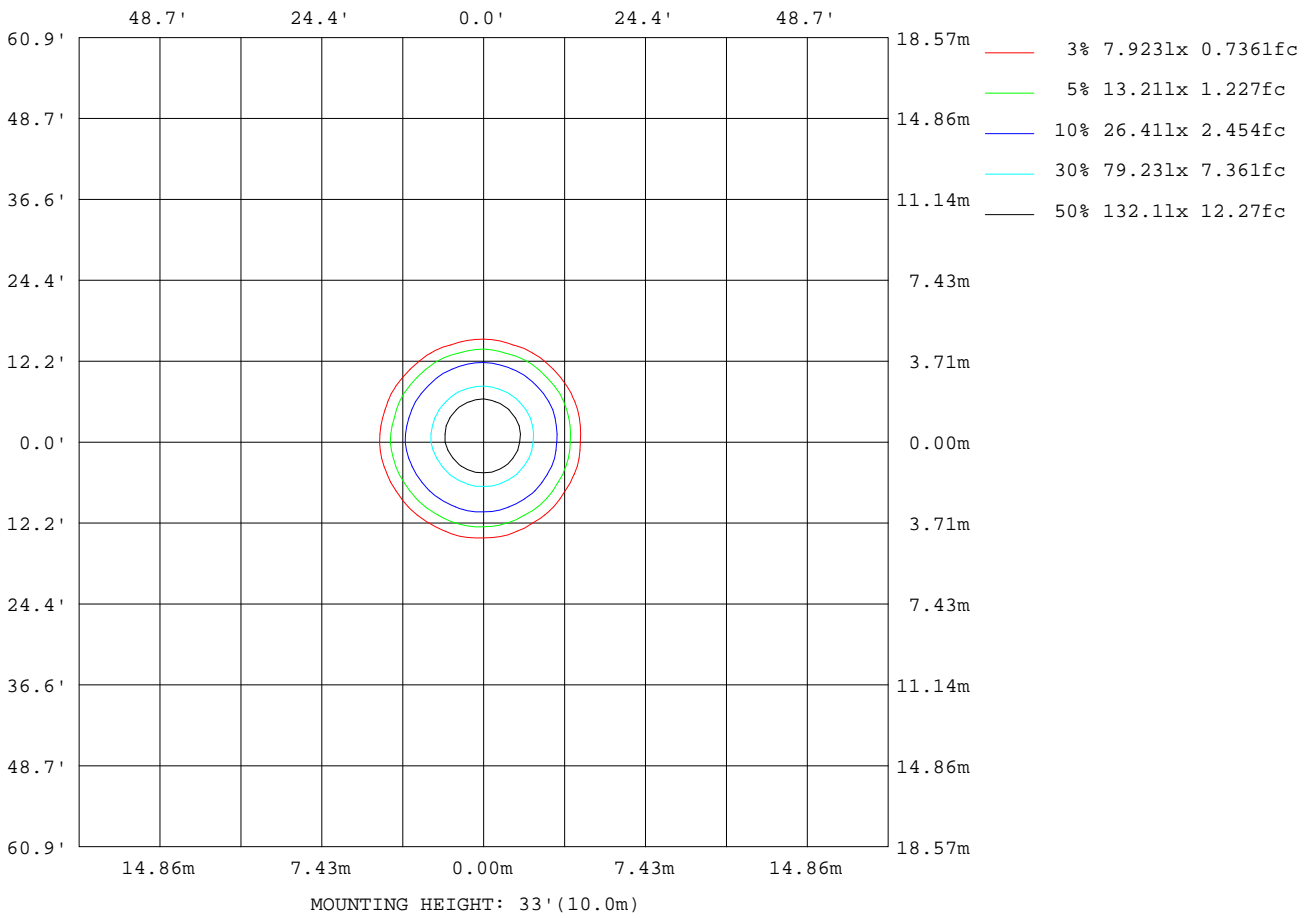
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ISOLUX DIAGRAM

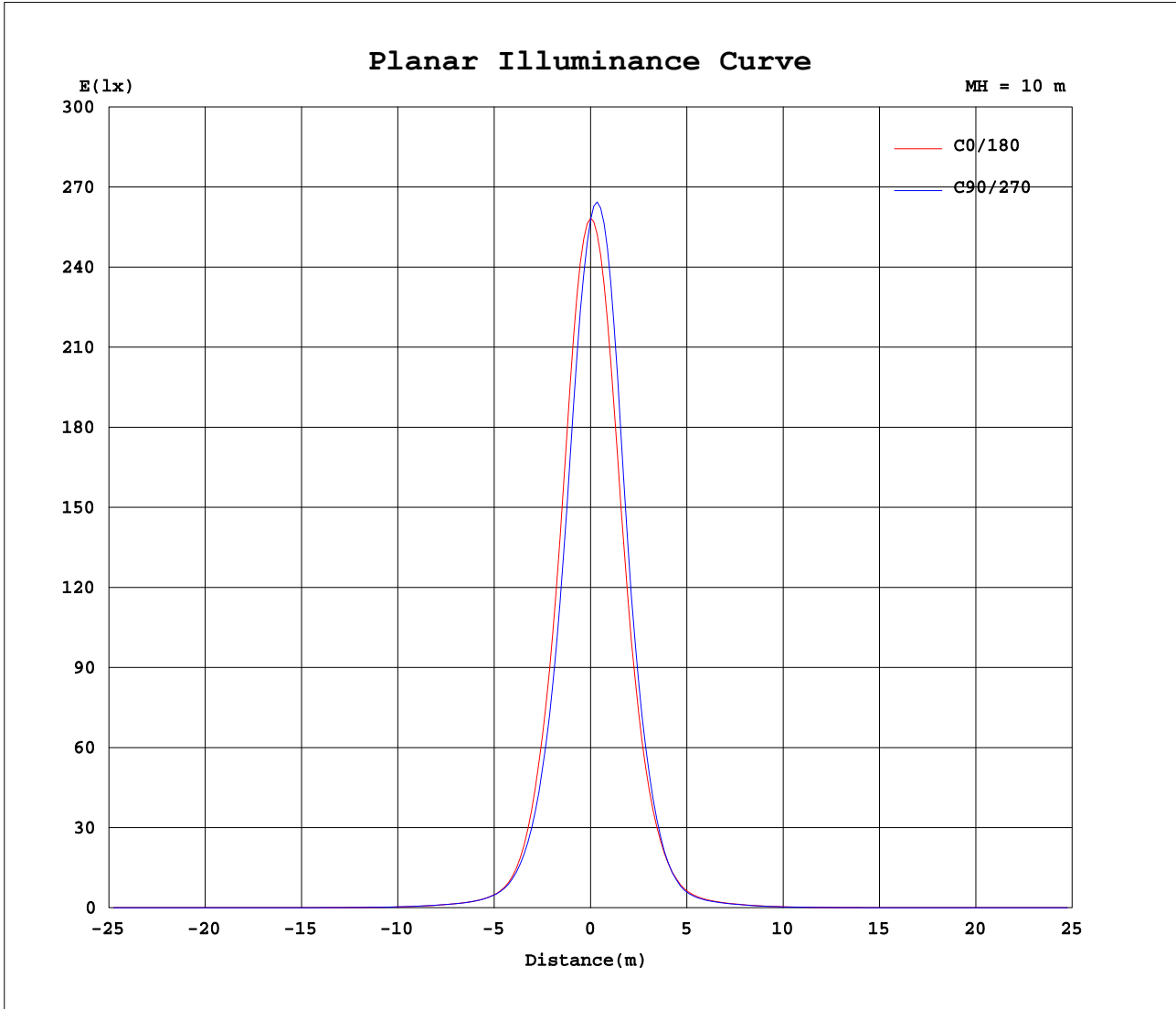
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Planar Illuminance Curve



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Photometric Data Table [cd]

G/C	0.0	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0
0.0	25835	25814	25776	25801	25761	25821	25777	25854	25815	25879
3.0	24283	23856	23312	23034	22646	22599	22449	22647	22750	23167
6.0	19969	19325	18502	18080	17520	17405	17205	17504	17719	18412
9.0	14345	13885	13060	12786	12168	12116	11855	12173	12322	13090
12.0	9546	9200	8619	8379	7958	7902	7721	7932	8047	8611
15.0	6055	5781	5370	5224	4924	4918	4805	4971	5047	5430
18.0	3447	3329	3087	3027	2865	2898	2869	3003	3057	3294
21.0	1843	1789	1671	1674	1609	1659	1663	1750	1781	1921
24.0	1022	996.8	944.4	950.3	934.1	964.8	976.4	1022	1038	1118
27.0	653.1	635.1	619.7	613.9	616.2	622.3	639.4	654.5	663.3	704.6
30.0	448.6	446.9	435.5	436.6	433.0	441.4	446.6	462.9	469.0	491.1
33.0	335.0	332.1	324.5	325.6	324.1	329.9	332.8	343.7	351.7	366.2
36.0	262.1	262.4	258.3	259.2	258.1	261.3	262.5	270.3	275.4	287.7
39.0	197.6	200.5	199.0	203.6	203.6	206.8	206.7	212.7	215.8	225.9
42.0	144.4	146.9	146.2	150.8	151.0	154.7	155.0	160.3	161.5	169.5
45.0	100.8	102.9	103.1	106.5	107.3	109.3	109.2	112.5	113.1	119.5
48.0	67.31	69.24	69.78	72.41	73.05	73.87	73.74	75.40	76.22	80.31
51.0	42.71	44.51	45.28	48.04	48.47	49.32	48.84	50.44	51.31	55.22
54.0	23.59	25.05	25.85	28.00	28.40	28.37	27.91	28.32	29.73	34.92
57.0	15.54	16.28	16.73	17.48	17.42	17.51	17.04	17.20	16.99	17.48
60.0	10.55	11.11	11.48	12.05	12.00	11.99	11.60	11.69	11.55	11.93
63.0	6.813	7.238	7.510	7.923	7.821	7.785	7.436	7.541	7.484	7.803
66.0	3.978	4.279	4.462	4.729	4.570	4.482	4.238	4.342	4.403	4.734
69.0	1.878	2.059	2.154	2.308	2.094	2.017	1.853	1.960	2.071	2.420
72.0	0.5270	0.6161	0.6285	0.7076	0.5060	0.4181	0.4046	0.4116	0.5322	0.8647
75.0	0.2472	0.2295	0.2538	0.2273	0.2494	0.2208	0.2406	0.2099	0.2275	0.2077
78.0	0.2318	0.2077	0.2318	0.2033	0.2274	0.2033	0.2165	0.1945	0.2121	0.1924
81.0	0.2165	0.1989	0.2143	0.1880	0.2078	0.1836	0.2056	0.1814	0.1990	0.1814
84.0	0.2056	0.1814	0.2012	0.1749	0.1903	0.1705	0.1925	0.1683	0.1902	0.1705
87.0	0.1838	0.1683	0.1816	0.1596	0.1728	0.1574	0.1750	0.1574	0.1706	0.1552
90.0	0.1640	0.1640	0.1618	0.1618	0.1596	0.1596	0.1596	0.1596	0.1574	0.1574
G/C	150.0	165.0	180.0	195.0	210.0	225.0	240.0	255.0	270.0	285.0
0.0	25865	25899	25835	25814	25776	25801	25761	25821	25777	25854
3.0	23470	23997	24551	24945	25413	25754	26088	26241	26319	26235
6.0	18934	19816	20810	21436	22303	22842	23488	23659	23815	23513
9.0	13537	14469	15562	16214	17141	17620	18267	18298	18386	17908
12.0	9014	9789	10673	11094	11780	12010	12494	12378	12475	12037
15.0	5787	6277	6903	7136	7562	7681	8004	7900	7961	7633
18.0	3505	3869	4253	4332	4539	4568	4764	4708	4753	4523
21.0	2045	2269	2501	2502	2580	2551	2627	2571	2588	2445
24.0	1177	1287	1436	1390	1464	1398	1448	1352	1389	1291
27.0	733.6	783.0	832.2	818.0	838.0	810.8	806.3	767.0	764.5	742.3
30.0	506.0	530.0	556.3	548.4	553.5	533.7	530.2	508.4	506.6	492.8
33.0	374.6	386.9	402.5	399.9	400.1	388.0	384.1	372.8	372.6	363.9
36.0	293.0	299.0	309.0	306.8	308.6	299.0	295.1	288.0	287.1	280.7
39.0	227.9	229.0	233.4	230.3	231.5	223.2	220.2	212.8	212.0	206.8
42.0	170.4	168.7	170.7	167.3	167.8	161.8	159.6	153.9	154.0	150.5
45.0	120.3	117.8	119.3	117.5	118.2	114.0	112.3	107.8	107.7	105.5
48.0	81.50	78.20	78.55	77.70	79.08	77.38	77.13	73.88	73.49	71.78
51.0	55.99	53.07	52.75	51.72	53.18	51.40	52.43	48.26	47.62	45.90
54.0	35.02	32.23	31.65	30.93	32.73	31.67	32.13	29.12	28.48	26.94
57.0	17.20	17.04	17.13	16.92	17.26	17.06	17.05	16.30	15.93	15.31
60.0	11.75	11.65	11.75	11.62	11.93	11.81	11.78	11.17	10.85	10.35
63.0	7.715	7.653	7.720	7.618	7.851	7.752	7.715	7.244	6.976	6.635
66.0	4.711	4.686	4.733	4.621	4.764	4.637	4.521	4.134	3.981	3.753
69.0	2.440	2.431	2.459	2.369	2.431	2.284	2.123	1.833	1.747	1.662
72.0	0.8804	0.9018	0.9118	0.8374	0.8594	0.7477	0.5846	0.4038	0.4262	0.3531
75.0	0.2345	0.2208	0.2099	0.2321	0.2099	0.2319	0.2099	0.2296	0.2077	0.2253
78.0	0.2187	0.2050	0.2049	0.2122	0.2010	0.2121	0.1901	0.2099	0.1966	0.2056
81.0	0.2078	0.1946	0.2009	0.2055	0.1771	0.1990	0.1727	0.1947	0.1771	0.1946
84.0	0.1947	0.1815	0.1968	0.2003	0.1661	0.1881	0.1595	0.1837	0.1683	0.1881
87.0	0.1728	0.1684	0.1770	0.1903	0.1398	0.1597	0.1419	0.1532	0.1398	0.1554
90.0	0.1596	0.1596	0.1268	0.1290	0.1159	0.1181	0.1181	0.1203	0.1203	0.1224
G/C	300.0	315.0	330.0	345.0						
0.0	25815	25879	25865	25899						
3.0	26086	25772	25458	24978						
6.0	23241	22542	21958	21065						
9.0	17625	16805	16271	15358						
12.0	11875	11264	10964	10271						
15.0	7528	7106	6953	6476						
18.0	4444	4190	4117	3767						
21.0	2425	2285	2247	2027						

C Range: 0 - 360DEG

C Interval: 15.0DEG

Test Speed: HIGH

Temperature: 25.3DEG

Operators: Meng Yongjian

Test Date: 2018-01-24

γ Range: 0 - 90DEG

γ Interval: 1.0DEG

Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.288

Humidity: 52%

Test Distance: 5.850m [K=1.0000]

Remarks:

GONIOPHOTOMETERS SYSTEM TEST REPORT

Photometric Data Table [cd]

24.0	1295	1216	1200	1107
27.0	744.5	708.4	700.2	672.2
30.0	490.6	473.8	471.7	460.1
33.0	361.5	351.5	348.2	342.1
36.0	280.9	273.8	271.8	267.7
39.0	207.7	203.6	204.0	201.0
42.0	151.2	148.4	149.3	146.9
45.0	106.0	105.1	105.8	103.5
48.0	71.56	71.14	72.09	69.45
51.0	46.15	47.22	48.20	44.94
54.0	26.88	29.31	30.25	26.01
57.0	15.29	15.37	15.93	15.85
60.0	10.36	10.39	10.79	10.74
63.0	6.662	6.690	6.977	6.942
66.0	3.848	3.873	4.098	4.055
69.0	1.743	1.824	1.942	1.927
72.0	0.4478	0.5106	0.5586	0.5372
75.0	0.2033	0.2231	0.2055	0.2297
78.0	0.1836	0.2056	0.1902	0.2187
81.0	0.1727	0.1990	0.1836	0.2099
84.0	0.1682	0.1946	0.1793	0.2047
87.0	0.1354	0.1663	0.1638	0.1925
90.0	0.1224	0.1268	0.1268	0.1377

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Meng Yongjian  
 Test Date: 2018-01-24

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
 Humidity: 52%  
 Test Distance: 5.850m [K=1.0000]  
 Remarks: