

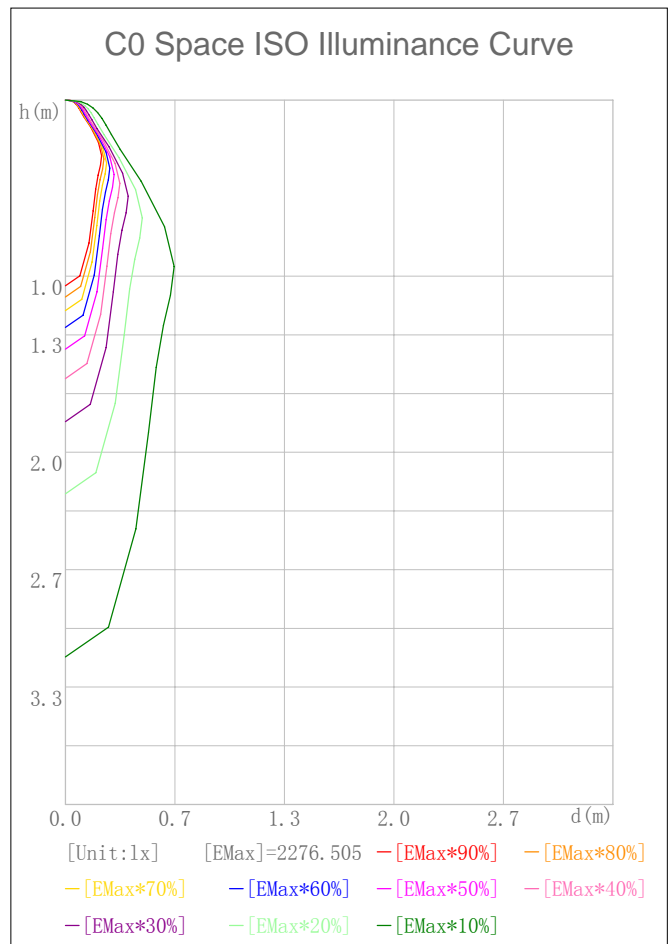
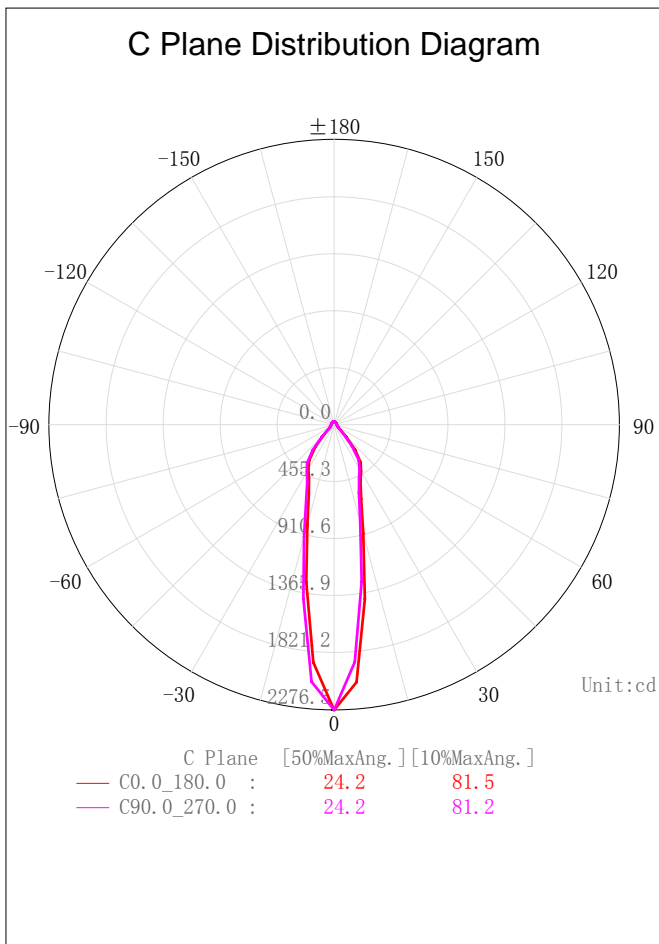
Indoor Luminaire Photometric Data

Description Information

Luminary Name: DC13W-2700K, Ra90, Reflector 24°		Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR		Lamp Catalog: lamps and lanterns	Test Date: 2017/06/16
LED Chip: Citizen CLU028-1203C4-27XH5M3		Shld. Ang(°):	Test Machine:GON-2000
Test Lab:	Frequency (Hz):	Lamp CCT (K): 2700K	Ra:90
Lum. Size (W*L*H): 0.000m*0.000m*0.000m		Lum. Area (m2): 0.000	Lum. W (kg): 0.000
Test System: C, γ	Test Step: C=90.0 γ=5.0	Temp. (°C): 25	Humidity(%): 50.0

Character Parameter

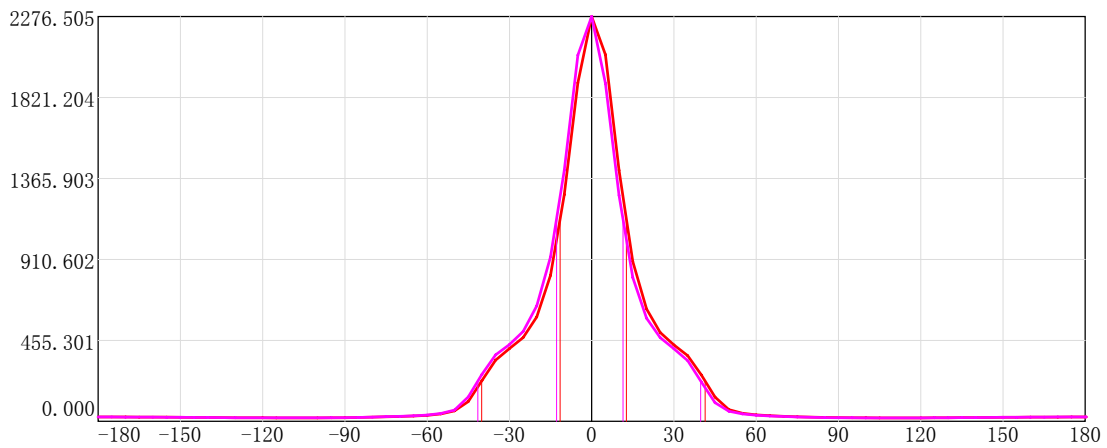
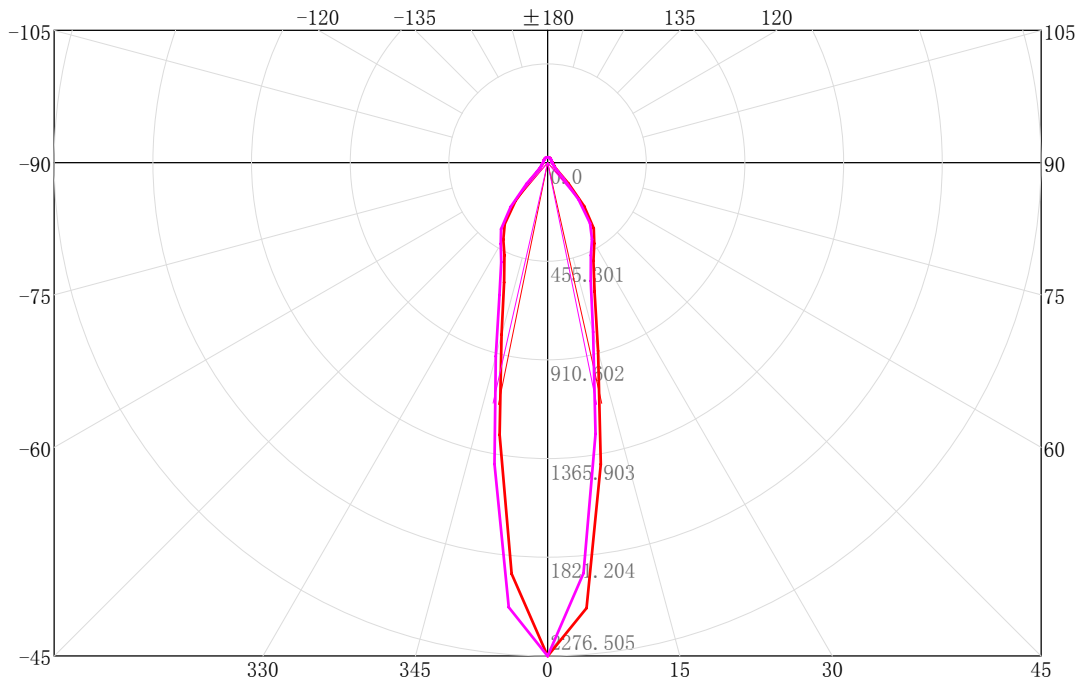
Lamp Speciality Parameter	Luminaire Speciality Parameter	
Rated Flux(lm): 1200.000	Luminary Flux(lm): 1231.459	Field Angle(10%Imax): 81.5(°)
Rated Power(W): 13W	Luminary Efficiency: 102.62%	Down Lumens&Percent: 1098.091lm 89.17%
Rated Voltage(V): 36V 350mA	Luminary EER(lm/W): 34.767	Up Lumens&Percent: 133.368lm 10.83%
Tested Power(W): 35.420	Max. Candela(cd): 2276.505	S/MH: C0_a180=0.403 C90_270=0.404
Lamps' Inside: 1	Max Cand@Ang. (°): C=0.0 γ=0.0	CIE Type: General Diffuse
Tested Electrics (V, A, pf): 219.8, 0.213, 0.753	Beam Angle (50%Imax): 24.2(°)	ErP φ use(90°): 921.412lm
Lamp Size (W*L*H): 0.000m*0.000m*0.000m	Left=-11.5°, Right=12.7°	IRF(%): 464.491



2D Plane Light Intensity Distribution Curve

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name:CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

C Plane Distribution Diagram

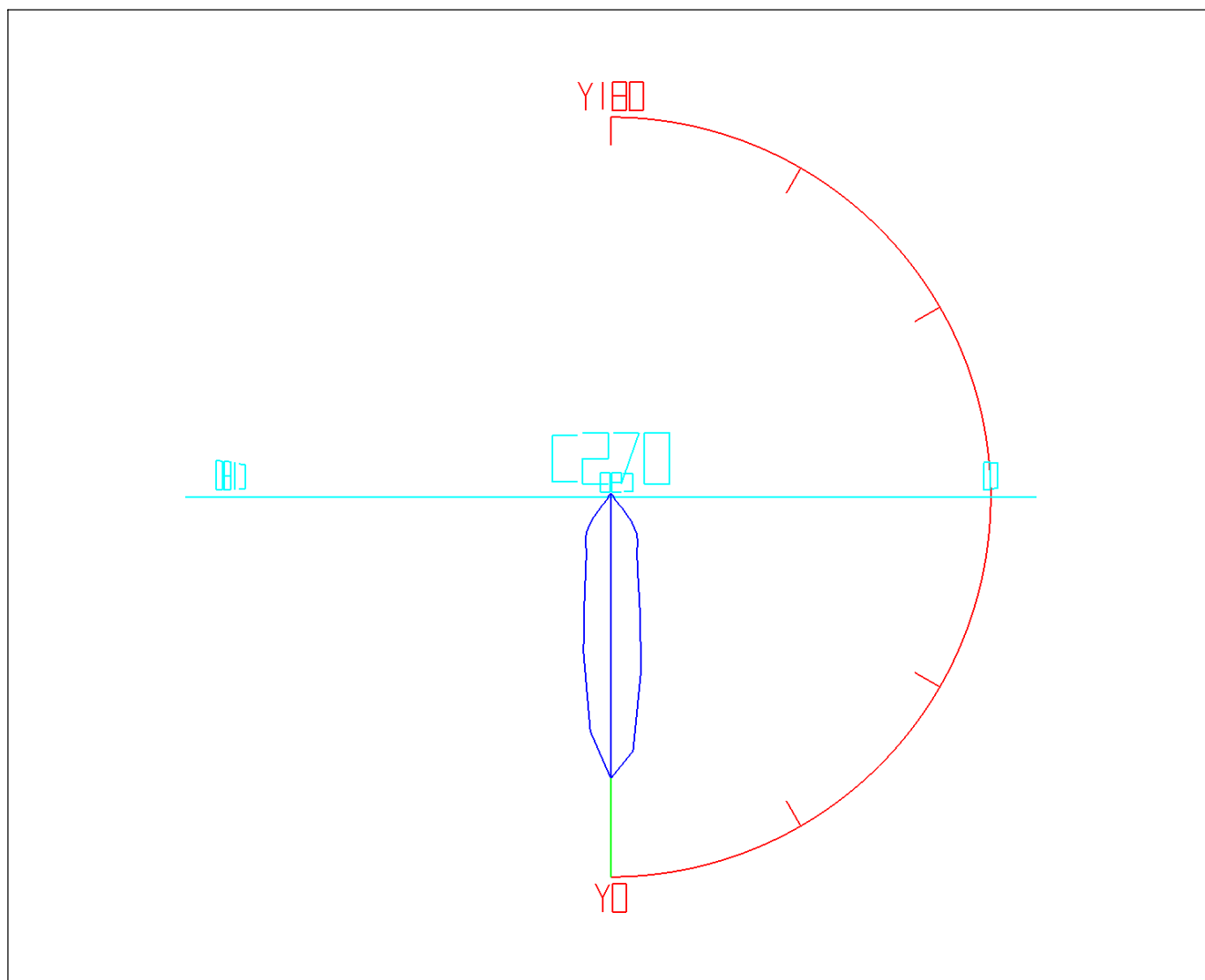


C Plane	[50%MaxAng.]	[10%MaxAng.]	Unit:cd
— C0.0_180.0 :	24.2	81.5	
— C90.0_270.0 :	24.2	81.2	

3D Light Intensity Distribution Modal

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

3D Light Intensity Distribution Modal



Curves: 3D Model ——— Fixture ——— Vert. HUD ——— Hori. HUD ———
 View Angles: Orient:0 Tilt:0 Roll:0 Spin:0

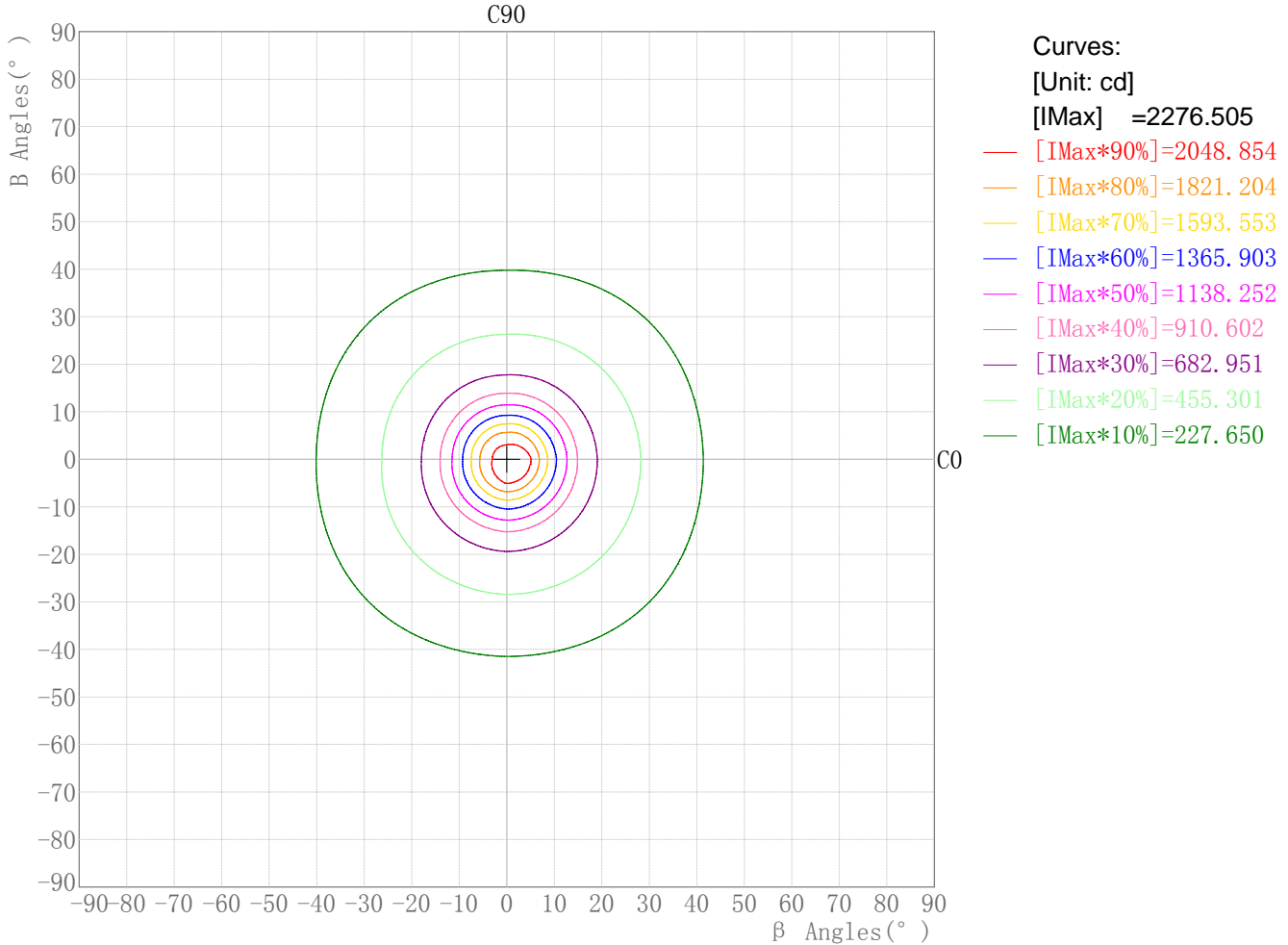
Zonal Flux Tabulation

Zone(γ)	Zone Flux (lm)	Sums Flux (lm)	Zone%Lamp	Sums%Lamp
0.0-5.0	50.91	50.91	4.24	4.24
5.0-10.0	118.92	169.83	9.91	14.15
10.0-15.0	130.87	300.70	10.91	25.06
15.0-20.0	121.65	422.35	10.14	35.20
20.0-25.0	115.36	537.71	9.61	44.81
25.0-30.0	114.85	652.56	9.57	54.38
30.0-35.0	114.55	767.11	9.55	63.93
35.0-40.0	100.58	867.69	8.38	72.31
40.0-45.0	68.11	935.80	5.68	77.98
45.0-50.0	37.35	973.16	3.11	81.10
50.0-55.0	23.04	996.19	1.92	83.02
55.0-60.0	18.41	1014.61	1.53	84.55
60.0-65.0	16.27	1030.88	1.36	85.91
65.0-70.0	15.07	1045.95	1.26	87.16
70.0-75.0	14.20	1060.15	1.18	88.35
75.0-80.0	13.43	1073.58	1.12	89.46
80.0-85.0	12.63	1086.21	1.05	90.52
85.0-90.0	11.88	1098.09	0.99	91.51
90.0-95.0	11.41	1109.50	0.95	92.46
95.0-100.0	11.12	1120.63	0.93	93.39
100.0-105.0	10.82	1131.45	0.90	94.29
105.0-110.0	10.51	1141.96	0.88	95.16
110.0-115.0	10.19	1152.15	0.85	96.01
115.0-120.0	9.83	1161.99	0.82	96.83
120.0-125.0	9.44	1171.42	0.79	97.62
125.0-130.0	9.00	1180.43	0.75	98.37
130.0-135.0	8.53	1188.95	0.71	99.08
135.0-140.0	8.02	1196.98	0.67	99.75
140.0-145.0	7.46	1204.43	0.62	100.37
145.0-150.0	6.77	1211.20	0.56	100.93
150.0-155.0	5.95	1217.15	0.50	101.43
155.0-160.0	5.02	1222.17	0.42	101.85
160.0-165.0	4.01	1226.17	0.33	102.18
165.0-170.0	2.92	1229.09	0.24	102.42
170.0-175.0	1.77	1230.86	0.15	102.57
175.0-180.0	0.59	1231.46	0.05	102.62

Rectangle ISO Lighting Intensity Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

ISO Lighting Intensity Curve

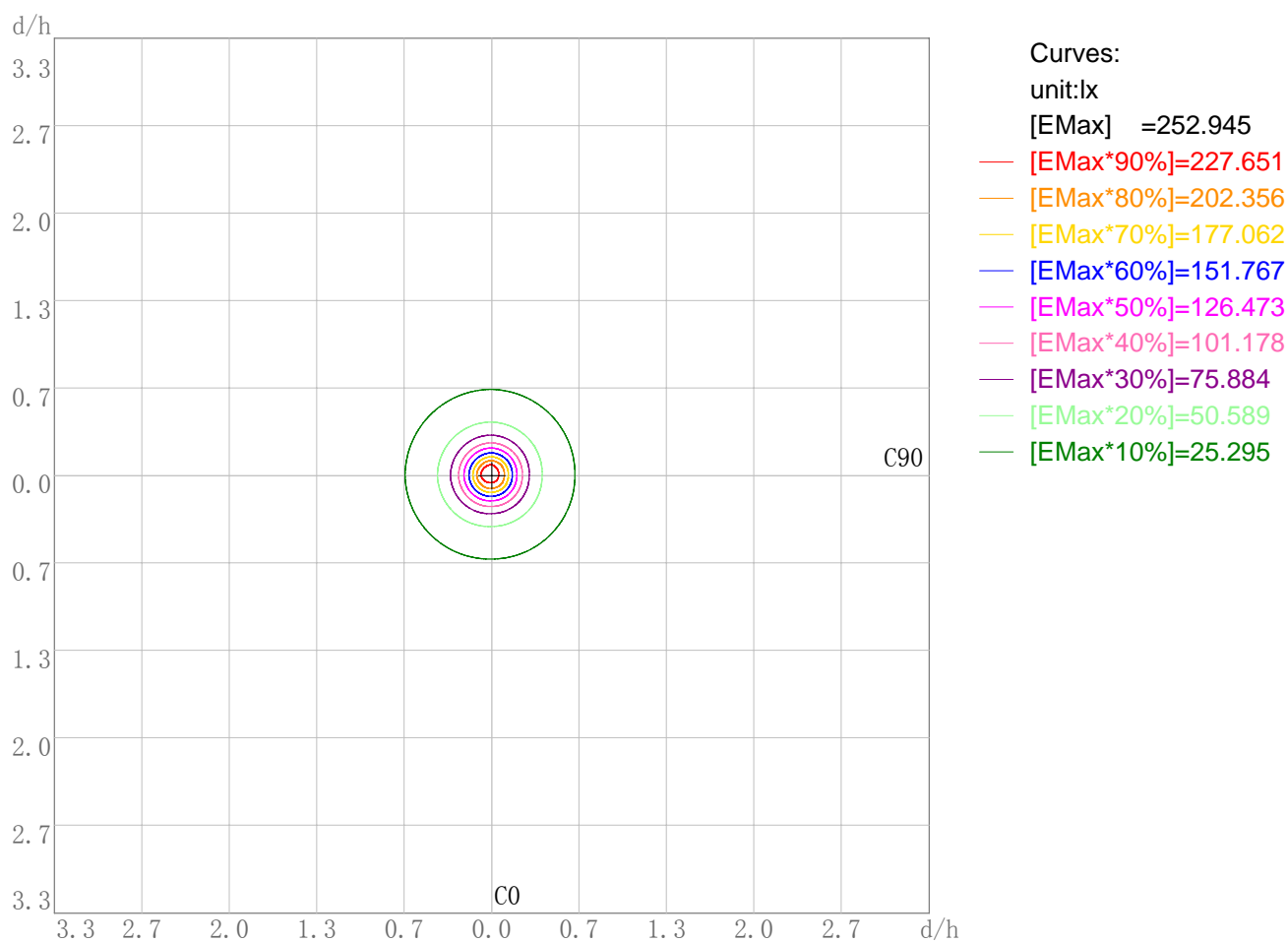


Maximum Light Intensity(cd): 2276.50
 Maximum Cand.@Angle: H=0.0°,V=0.0°

Plane ISO-Illuminance Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

Plane ISO-Illuminance Curve

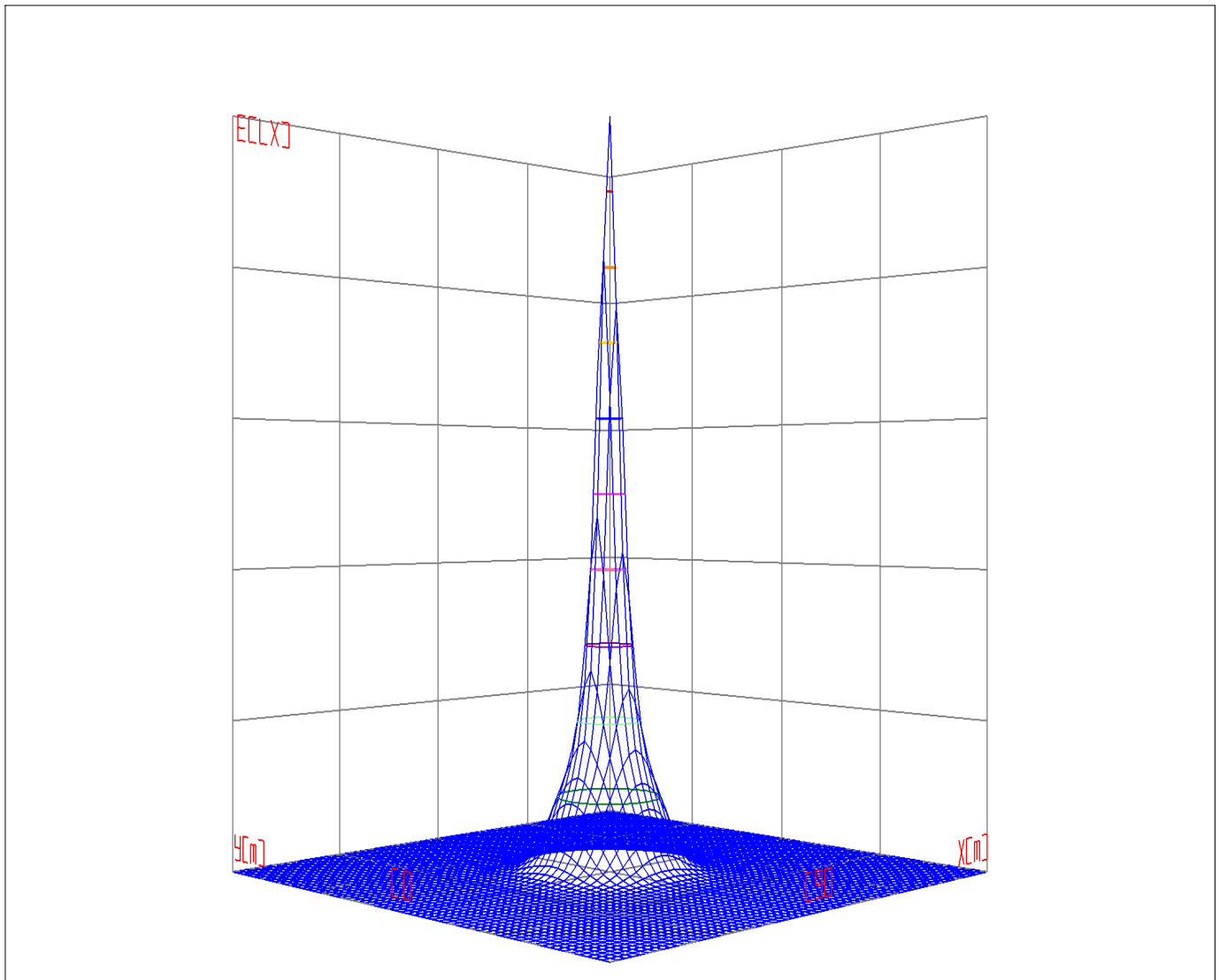


Working Plane Luminaire Mounting Height(m): 3.00
 Working Plane Maximum Illuminance(lx): 252.95
 Working Plane Maximum Illuminance Position(d/h):H0.0 V0.0

3D Plane ISO Illuminance Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

3D Plane Illuminance Modal

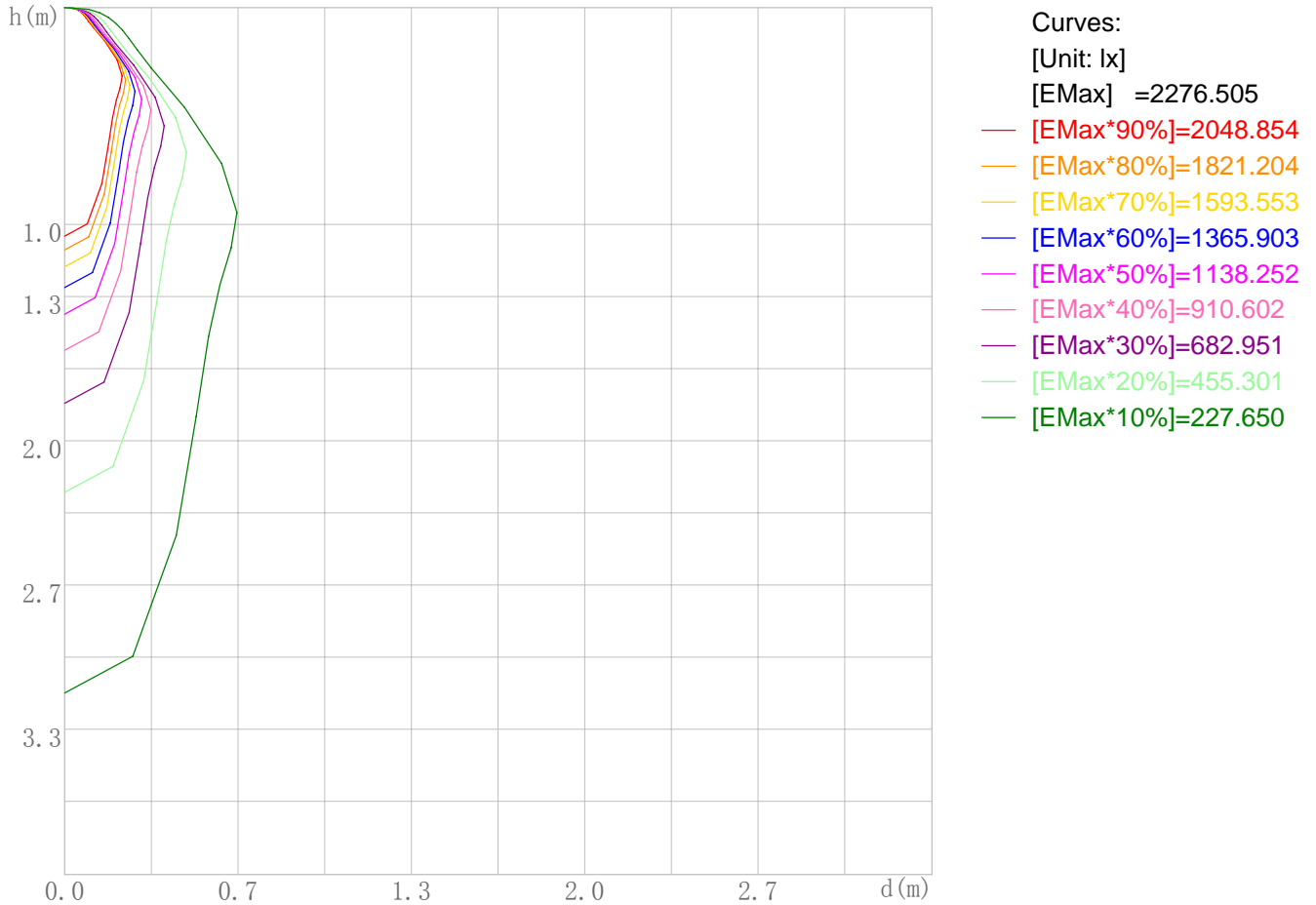


Curves: 3D Model — 90% — 80% — 70% — 60% — 50% — 40% — 30% — 20% — 10% —
 View Angles(deg): 0 Height(m): 3.0 Distance(m): 10.0

Space ISO Illuminance Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

Space ISO Illuminance Curve

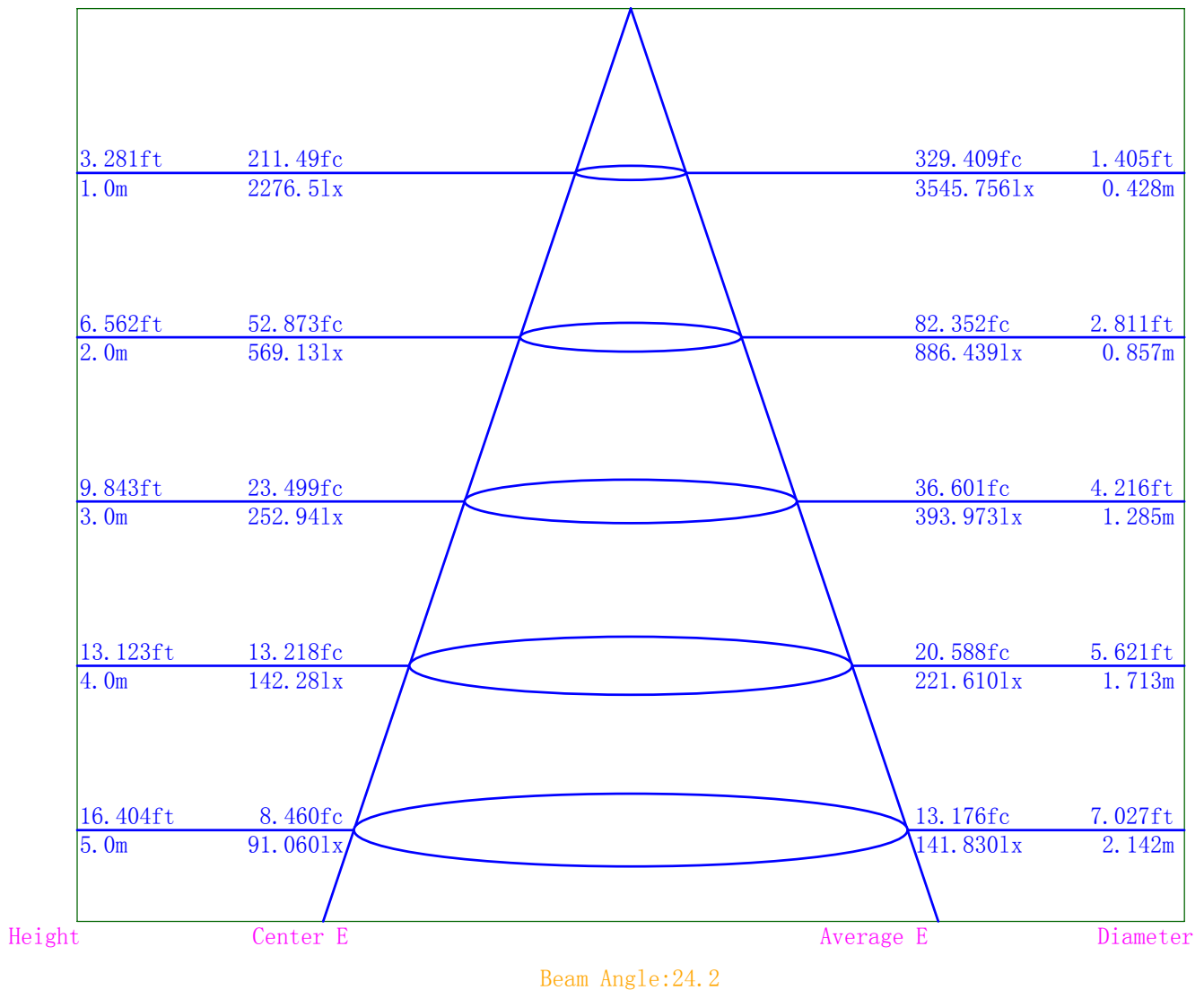


Space Plane Maximum Illuminance and @Angle:2276.50lx,0.0deg
 Plane Maximum Lighting Intensity and @Angle:2276.505cd,0deg

Illuminance-Distance Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

Illuminance-Distance Curve



Indoor Luminance Limiting Curves

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

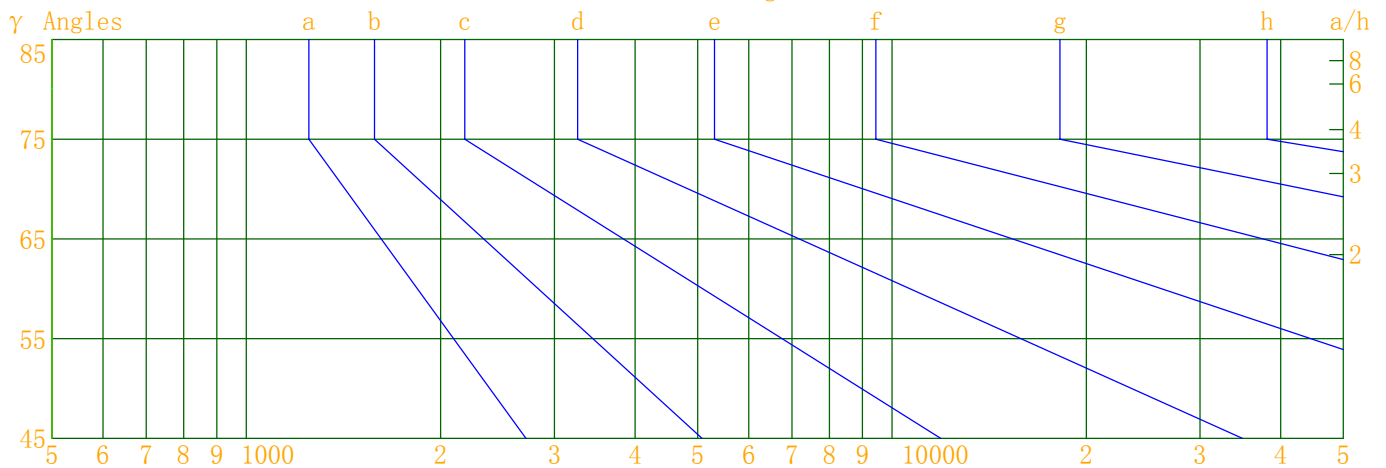
Glare Grade Table

GI	Quality	Using Illuminance							
		a	b	c	d	e	f	g	h
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E	a				2000	1000	500	<=300
			b	c	d	e	f	g	h

Luminance Table

Gama (deg)	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

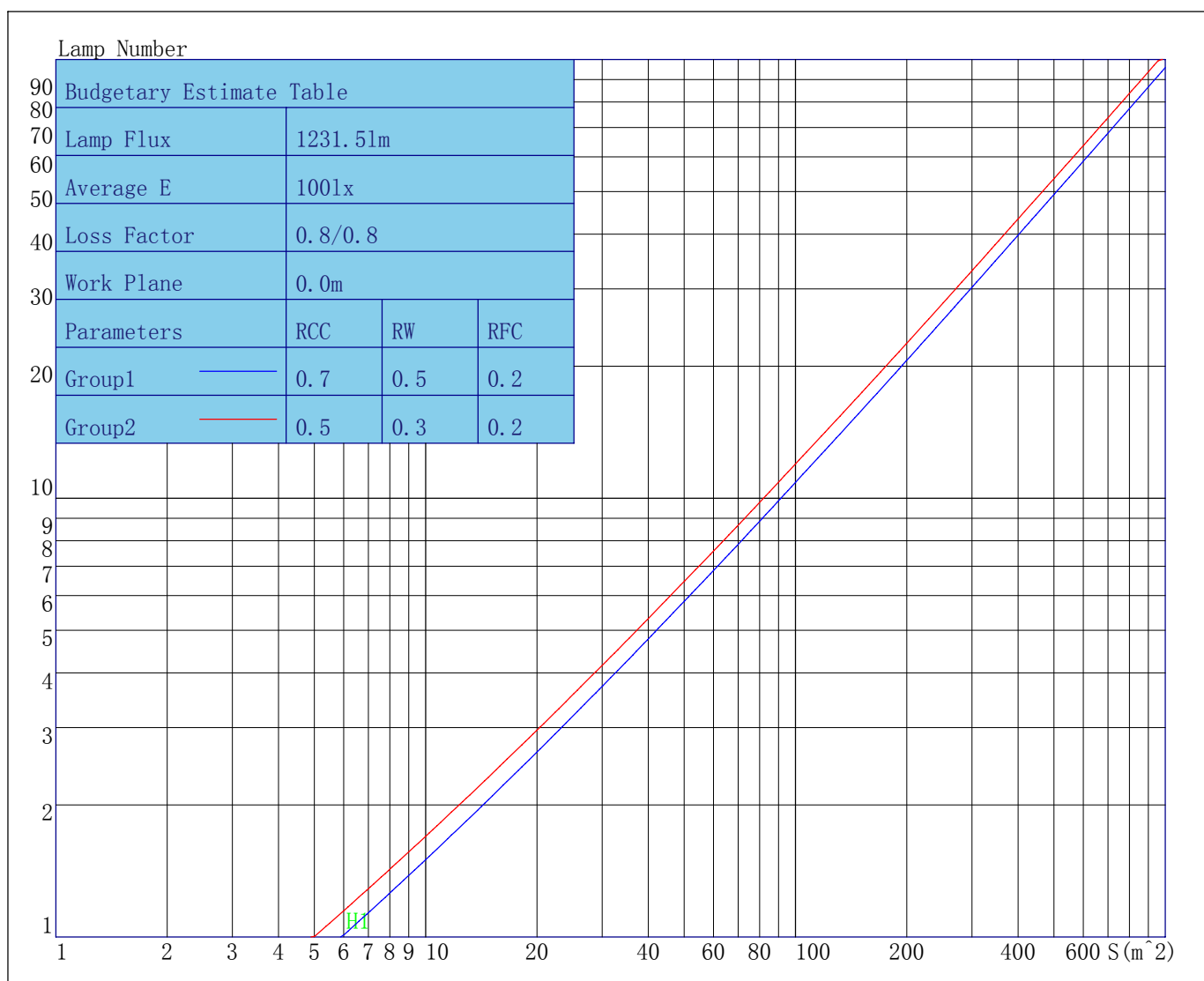
Luminance Limiting Curve



Luminous Size: Length(m)=0.000 Width(m)=0.000 Height(m)=0.000 Area(m^2)=0.000000
 Luminous Type: Without Luminous Side
 Luminous Curves: C0-C180 Color: — C90-C270 Color: —

Indoor Budgetary Estimate Table

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine: GON-2000	Test Date: 2017/06/16



Parameters1: Rhocc = 0.7 Rhow = 0.5 Rhofc = 0.2 LLF = 0.8
 Parameters2: Rhocc = 0.5 Rhow = 0.3 Rhofc = 0.2 LLF = 0.8
 Average Illuminance(lx): 100 Cavity Height: H1(m) = 2

Indoor Coefficient of Utilization Table

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog: 1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

Coefficients of Utilization - Zonal Cavity Method																					
Coef.	Effective Floor Cavity Reflectance RFC=0.20																				
RhoCC (%)	80				70				50				30				10				0
RhoW (%)	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	Coefficient of Utilization (%)																				
0	120	120	120	120	115	115	115	115	108	108	108	101	101	101	95	95	95	92			
1	112	108	105	102	108	105	102	99	99	96	94	93	91	90	88	86	85	82			
2	105	99	94	90	102	96	92	88	91	87	84	86	83	81	82	80	77	75			
3	99	91	85	80	96	89	83	79	84	80	76	80	77	74	77	74	71	69			
4	93	84	78	73	90	82	76	72	79	74	70	75	71	68	72	69	66	64			
5	88	78	72	67	85	77	70	66	73	68	64	71	66	63	68	64	61	59			
6	83	73	66	61	81	72	65	61	69	63	59	66	62	58	64	60	57	55			
7	79	68	62	57	77	67	61	56	65	59	55	63	58	54	61	56	53	52			
8	75	64	58	53	73	63	57	53	61	56	52	59	54	51	57	53	50	48			
9	71	61	54	50	70	60	54	50	58	53	49	56	51	48	55	50	47	46			
10	68	57	51	47	66	57	51	47	55	50	46	53	49	45	52	48	45	43			

Unified Glare Rating Table

Lum. Name: DC13W-2700K, Ra90, Reflector 24°	Lum. Catalog:1200LM	Test ID: 01
Lamp Name: CL2-13MR	Lamp Catalog: lamps and lanterns	Test Lab:
LED Chip: Citizen CLU028-1203C4-27XH5M3	Test Machine:GON-2000	Test Date: 2017/06/16

Unified Glare Rating Table

Ceiling RCC	0.70	0.70	0.50	0.50	0.30	0.70	0.70	0.50	0.50	0.30
Wall RW	0.50	0.30	0.50	0.30	0.30	0.50	0.30	0.50	0.30	0.30
Floor RFC	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Room Size	Vewed crosswise					Vewed endwise				
X=2H Y=2H	-1.0	0.1	-0.5	0.6	1.2	-1.0	0.1	-0.5	0.6	1.2
Y=3H	-1.2	-0.2	-0.6	0.3	0.9	-1.2	-0.2	-0.6	0.3	0.9
Y=4H	-1.3	-0.4	-0.7	0.2	0.8	-1.3	-0.4	-0.7	0.2	0.8
Y=6H	-1.4	-0.6	-0.8	0.0	0.7	-1.4	-0.6	-0.8	0.0	0.7
Y=8H	-1.5	-0.7	-0.9	-0.1	0.6	-1.5	-0.7	-0.9	-0.1	0.6
Y=12H	-1.5	-0.7	-0.9	-0.2	0.5	-1.5	-0.7	-0.9	-0.2	0.5
X=4H Y=2H	-1.3	-0.4	-0.7	0.2	0.8	-1.3	-0.4	-0.7	0.2	0.8
Y=3H	-1.5	-0.7	-0.9	-0.1	0.5	-1.5	-0.7	-0.9	-0.1	0.5
Y=4H	-1.6	-0.9	-1.0	-0.3	0.4	-1.6	-0.9	-1.0	-0.3	0.4
Y=6H	-1.7	-1.1	-1.1	-0.5	0.2	-1.7	-1.1	-1.1	-0.5	0.2
Y=8H	-1.8	-1.2	-1.1	-0.6	0.1	-1.8	-1.2	-1.1	-0.6	0.1
Y=12H	-1.8	-1.3	-1.2	-0.7	0.1	-1.8	-1.3	-1.2	-0.7	0.1
X=8H Y=4H	-1.8	-1.2	-1.1	-0.6	0.1	-1.8	-1.2	-1.1	-0.6	0.1
Y=6H	-1.9	-1.4	-1.2	-0.7	0.1	-1.9	-1.4	-1.2	-0.7	0.1
Y=8H	-2.0	-1.5	-1.3	-0.8	-0.1	-2.0	-1.5	-1.3	-0.8	-0.1
Y=12H	-2.0	-1.6	-1.3	-1.0	-0.2	-2.0	-1.6	-1.3	-1.0	-0.2
X=12H Y=4H	-1.8	-1.3	-1.2	-0.7	0.1	-1.8	-1.3	-1.2	-0.7	0.1
Y=6H	-2.0	-1.5	-1.3	-0.9	-0.1	-2.0	-1.5	-1.3	-0.9	-0.1
Y=8H	-2.0	-1.6	-1.3	-1.0	-0.2	-2.0	-1.6	-1.3	-1.0	-0.2
Variations with the objerver position at spacings										
S=1.0H	0.0/0.0					0.0/0.0				
S=1.5H	0.0/0.0					0.0/0.0				
S=2.0H	0.0/0.0					0.0/0.0				
Reduced UGR Table:										
Nordic Standard Table:	BKO					BKO				
Correction Value	0.0					0.0				

the CIE Pub.117, data has been corrected, refers to the lamp's lumens 8.2flm.

Candela Tabulation

V/H	C0.0	C90.0	C180.0	C270.0
γ 0.0	2276.50	2276.50	2276.50	2276.50
γ 5.0	2062.67	1901.29	1903.90	2059.38
γ 10.0	1412.59	1271.03	1274.99	1411.50
γ 15.0	898.81	808.97	821.59	925.13
γ 20.0	632.30	580.33	587.65	649.74
γ 25.0	500.57	471.77	471.35	506.09
γ 30.0	430.26	408.38	409.43	432.20
γ 35.0	370.19	341.70	344.96	374.45
γ 40.0	261.89	221.82	230.52	265.80
γ 45.0	136.85	104.99	111.87	137.74
γ 50.0	66.97	57.40	59.32	64.27
γ 55.0	46.20	42.65	42.21	44.81
γ 60.0	37.10	34.97	34.56	36.15
γ 65.0	32.27	30.64	30.31	31.72
γ 70.0	28.89	27.65	27.83	28.67
γ 75.0	26.41	25.40	25.82	26.65
γ 80.0	24.34	23.57	23.90	24.72
γ 85.0	22.64	21.71	22.06	22.93
γ 90.0	21.21	20.72	20.82	21.53
γ 95.0	20.78	20.34	20.37	20.96
γ 100.0	20.47	20.13	20.12	20.55
γ 105.0	20.24	19.97	19.98	20.36
γ 110.0	20.20	19.95	19.94	20.26
γ 115.0	20.16	19.96	20.12	20.38
γ 120.0	20.21	20.15	20.30	20.54
γ 125.0	20.42	20.42	20.54	20.73
γ 130.0	20.74	20.73	20.93	21.07
γ 135.0	21.18	21.25	21.43	21.49
γ 140.0	21.82	21.92	22.16	22.09
γ 145.0	22.54	22.58	22.85	22.81
γ 150.0	23.08	23.25	23.40	23.36
γ 155.0	23.56	23.70	23.85	23.73
γ 160.0	24.02	24.16	24.26	24.14
γ 165.0	24.37	24.49	24.59	24.45
γ 170.0	24.64	24.75	24.81	24.67
γ 175.0	24.77	24.84	24.89	24.82
γ 180.0	24.91	24.91	24.91	24.91
