

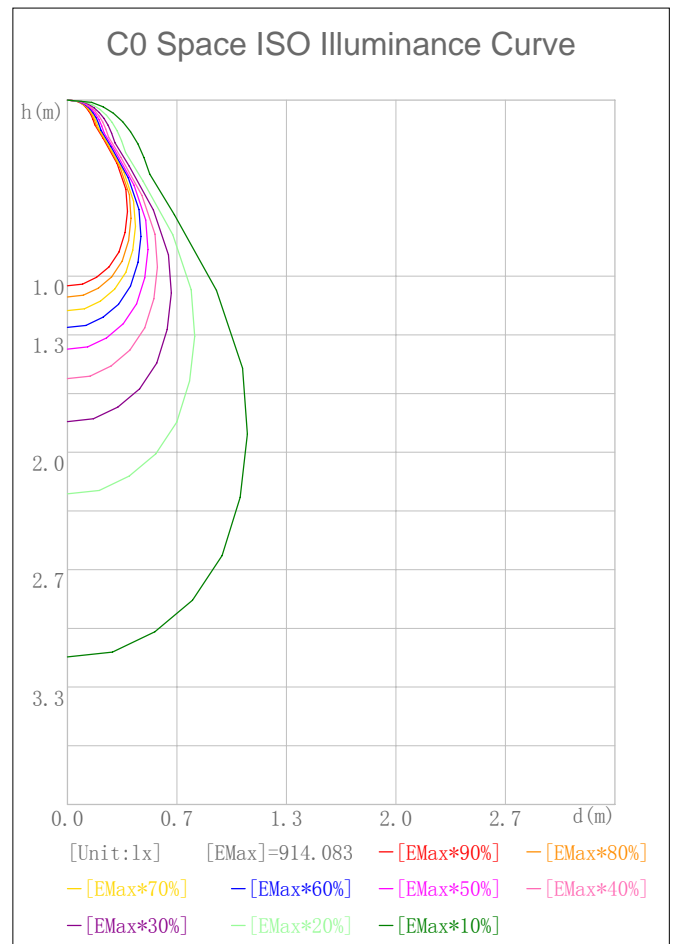
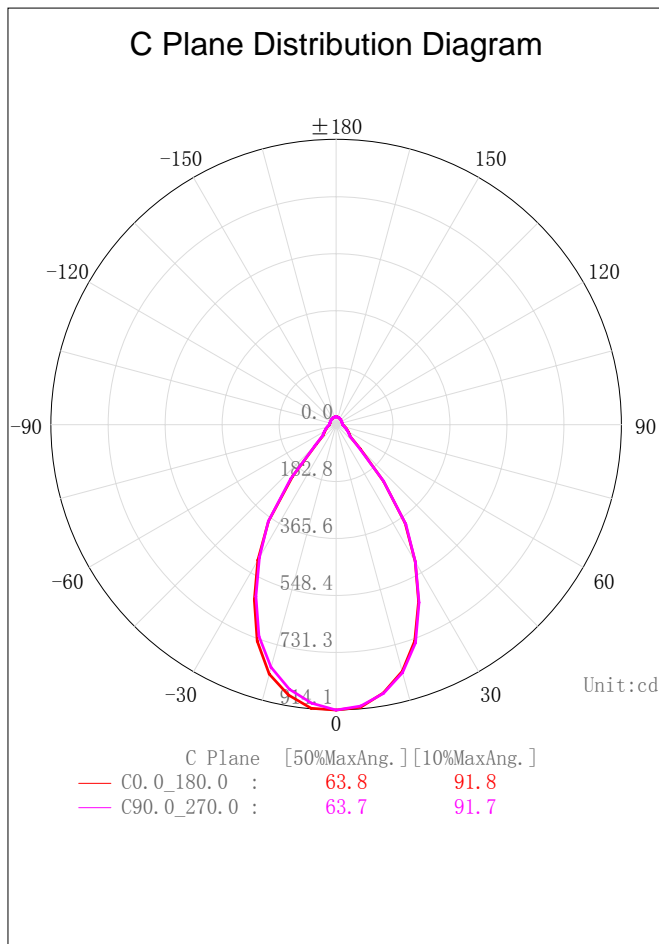
Indoor Luminaire Photometric Data

Description Information

Luminary Name: DC13W-2700K, Ra90, Reflector 60°		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

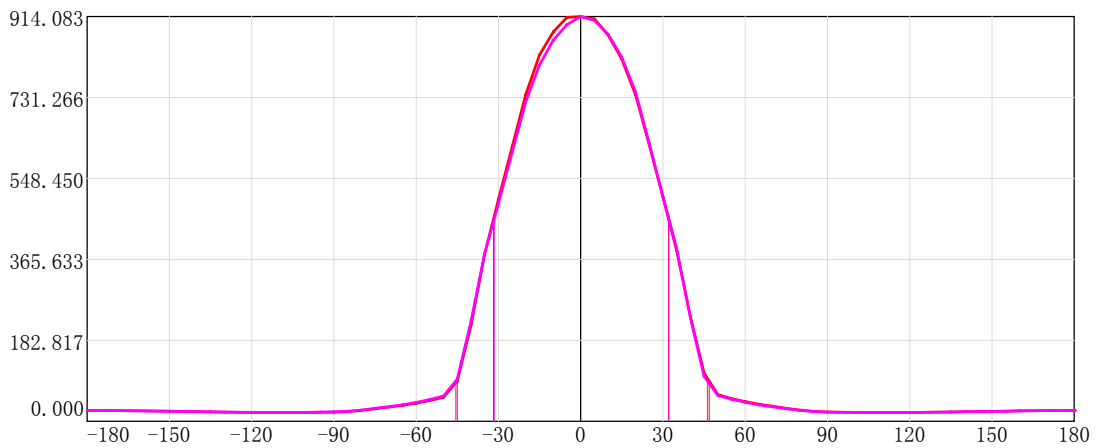
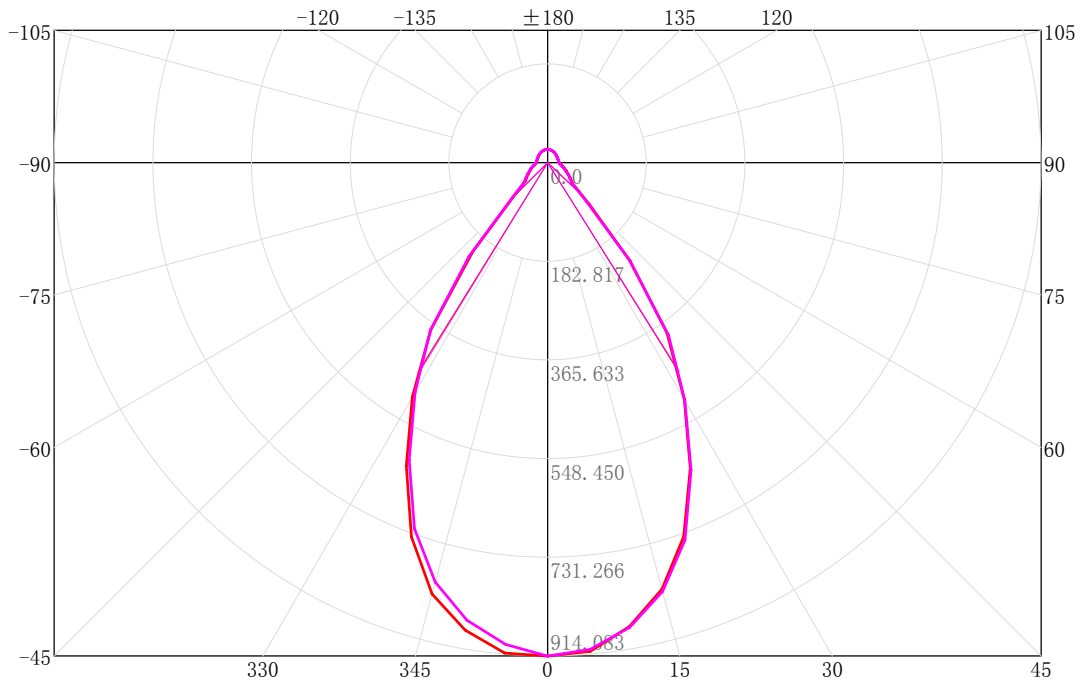
Lamp Speciality Parameter	Luminaire Speciality Parameter	
Rated Flux(lm): 1200.000	Luminary Flux(lm): 1194.697	Field Angle(10%Imax): 91.8(°)
Rated Power(W): 13W	Luminary Efficiency: 99.56%	Down Lumens&Percent: 1060.764lm 88.79%
Rated Voltage(V): 36V 350mA	Luminary EER(lm/W): 33.672	Up Lumens&Percent: 133.933lm 11.21%
Tested Power(W): 35.480	Max. Candela(cd): 914.083	S/MH: C0_a180=0.942 C90_270=0.937
Lamps' Inside: 1	Max Cand@Ang. (°): C=0.0 γ=0.0	CIE Type: General Diffuse
Tested Electrics (V, A, pf): 220.0, 0.214, 0.753	Beam Angle(50%Imax): 63.8(°)	ErP φ use(90°): 891.802lm
Lamp Size (W*L*H): 0.000m*0.000m*0.000m	Left=-31.8°, Right=32.0°	IRF(%): 203.754



2D Plane Light Intensity Distribution Curve

Lum. Name: DC13W-2700K, Ra90, Reflector 60°	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

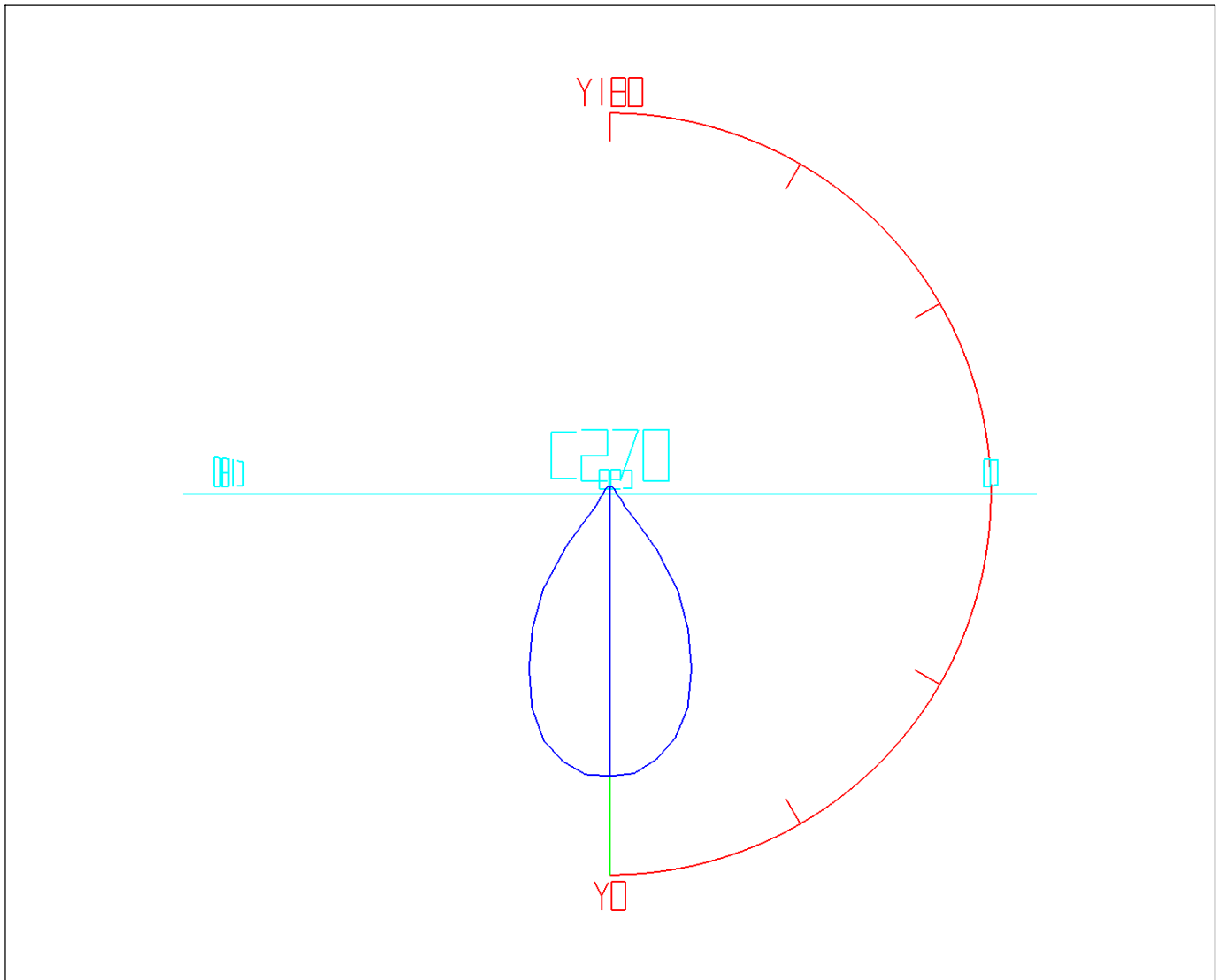


C Plane	[50%MaxAng.]	[10%MaxAng.]	Unit:cd
— C0.0_180.0 :	63.8	91.8	
— C90.0_270.0 :	63.7	91.7	

3D Light Intensity Distribution Modal

Lum. Name: DC13W-2700K, Ra90, Reflector 60°	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

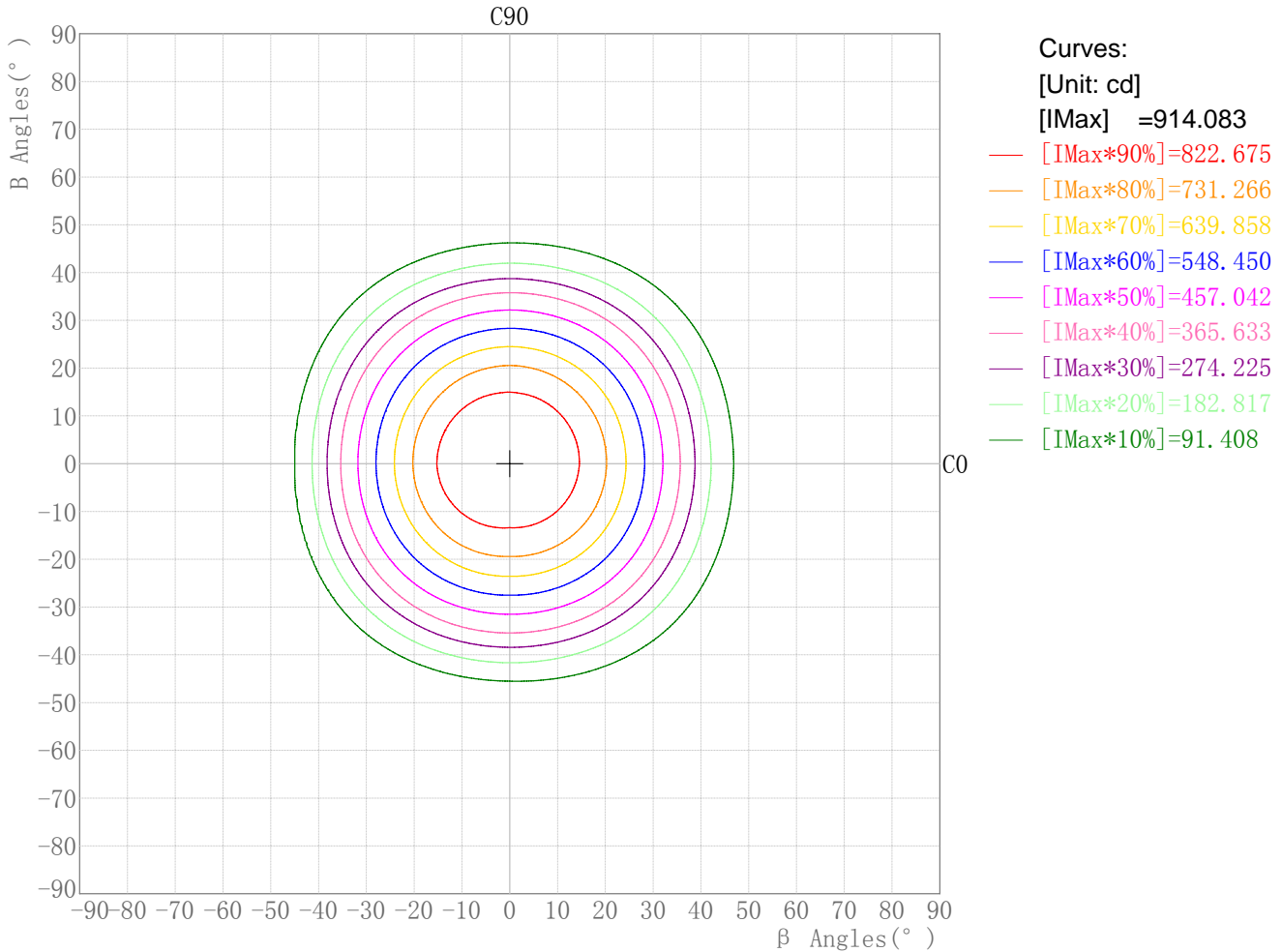
Zonal Flux Tabulation

Zone(γ)	Zone Flux (lm)	Sums Flux (lm)	Zone%Lamp	Sums%Lamp
0.0-5.0	21.75	21.75	1.81	1.81
5.0-10.0	63.57	85.33	5.30	7.11
10.0-15.0	100.24	185.56	8.35	15.46
15.0-20.0	128.00	313.56	10.67	26.13
20.0-25.0	142.12	455.69	11.84	37.97
25.0-30.0	141.94	597.63	11.83	49.80
30.0-35.0	130.25	727.88	10.85	60.66
35.0-40.0	102.09	829.96	8.51	69.16
40.0-45.0	60.82	890.78	5.07	74.23
45.0-50.0	31.79	922.58	2.65	76.88
50.0-55.0	23.39	945.96	1.95	78.83
55.0-60.0	21.45	967.41	1.79	80.62
60.0-65.0	19.60	987.01	1.63	82.25
65.0-70.0	17.92	1004.94	1.49	83.74
70.0-75.0	16.29	1021.23	1.36	85.10
75.0-80.0	14.53	1035.76	1.21	86.31
80.0-85.0	13.00	1048.76	1.08	87.40
85.0-90.0	12.00	1060.76	1.00	88.40
90.0-95.0	11.53	1072.30	0.96	89.36
95.0-100.0	11.23	1083.53	0.94	90.29
100.0-105.0	10.91	1094.44	0.91	91.20
105.0-110.0	10.59	1105.03	0.88	92.09
110.0-115.0	10.27	1115.30	0.86	92.94
115.0-120.0	9.92	1125.22	0.83	93.77
120.0-125.0	9.53	1134.74	0.79	94.56
125.0-130.0	9.10	1143.84	0.76	95.32
130.0-135.0	8.63	1152.47	0.72	96.04
135.0-140.0	8.08	1160.56	0.67	96.71
140.0-145.0	7.44	1167.99	0.62	97.33
145.0-150.0	6.69	1174.69	0.56	97.89
150.0-155.0	5.86	1180.55	0.49	98.38
155.0-160.0	4.95	1185.50	0.41	98.79
160.0-165.0	3.95	1189.45	0.33	99.12
165.0-170.0	2.89	1192.34	0.24	99.36
170.0-175.0	1.77	1194.10	0.15	99.51
175.0-180.0	0.59	1194.70	0.05	99.56

Rectangle ISO Lighting Intensity Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 60°	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

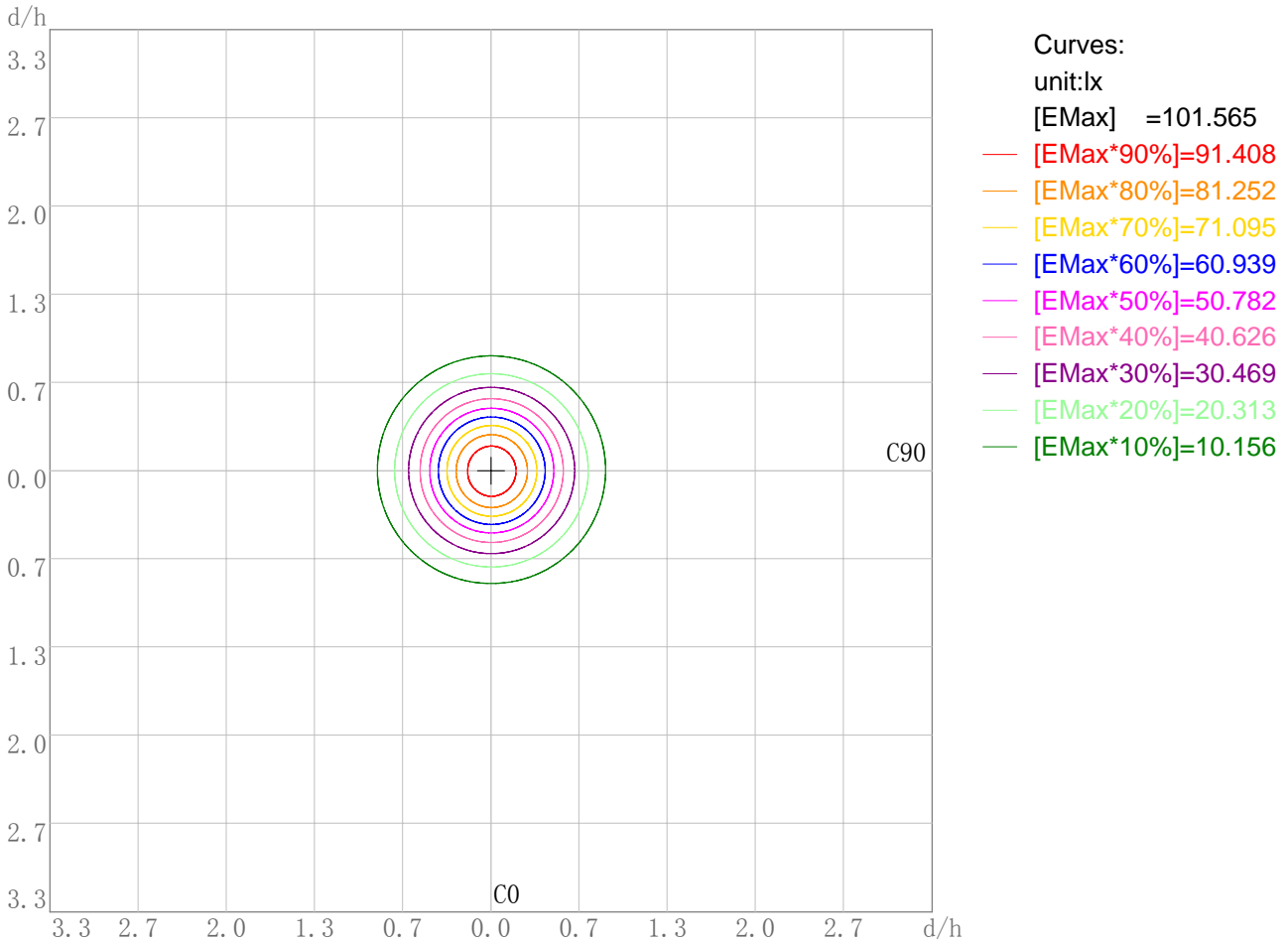


Maximum Light Intensity(cd): 914.08
 Maximum Cand.@Angle: H=0.0°,V=0.0°

Plane ISO-Illuminance Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 60°	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

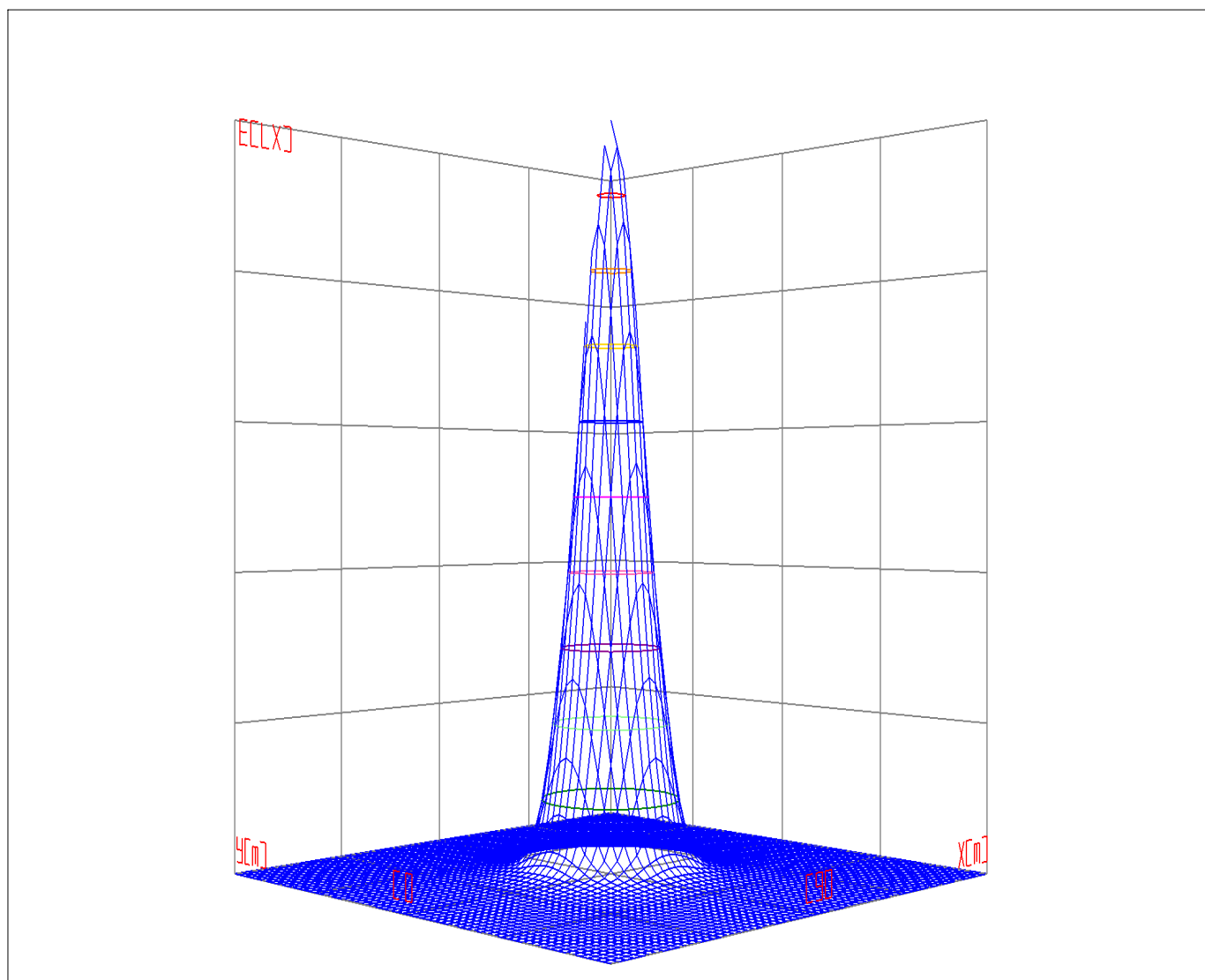


Working Plane Luminaire Mounting Height(m): 3.00
 Working Plane Maximum Illuminance(lx): 101.56
 Working Plane Maximum Illuminance Position(d/h):H0.0 V0.0

3D Plane ISO Illuminance Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 60°	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

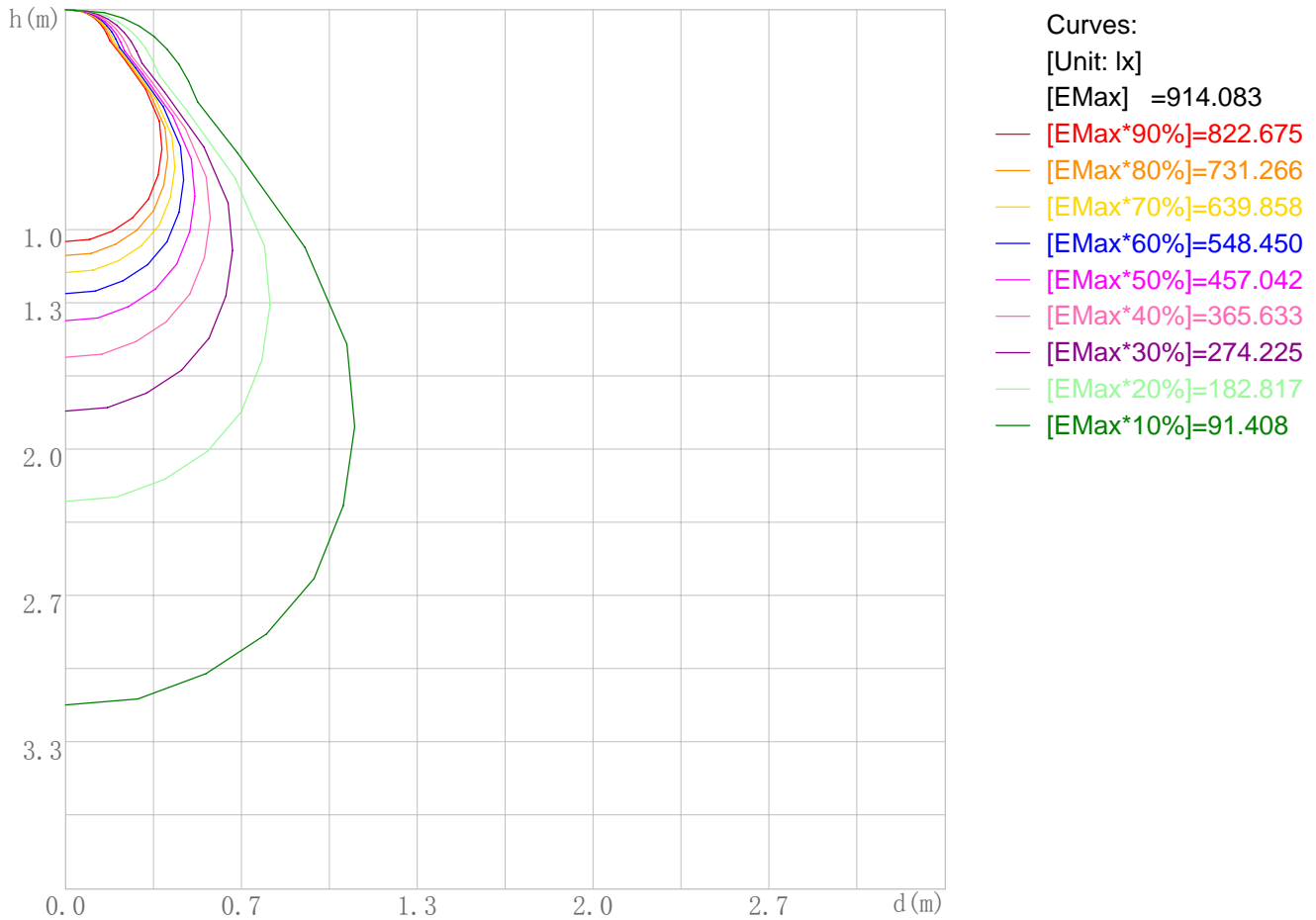


Curves: 3D Model — 90% — 80% — 70% — 60% — 50% — 40% — 30% — 20% — 10% —
 View Angles(deg): 0 Height(m): 3.0 Distance(m): 10.0

Space ISO Illuminance Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 60°	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

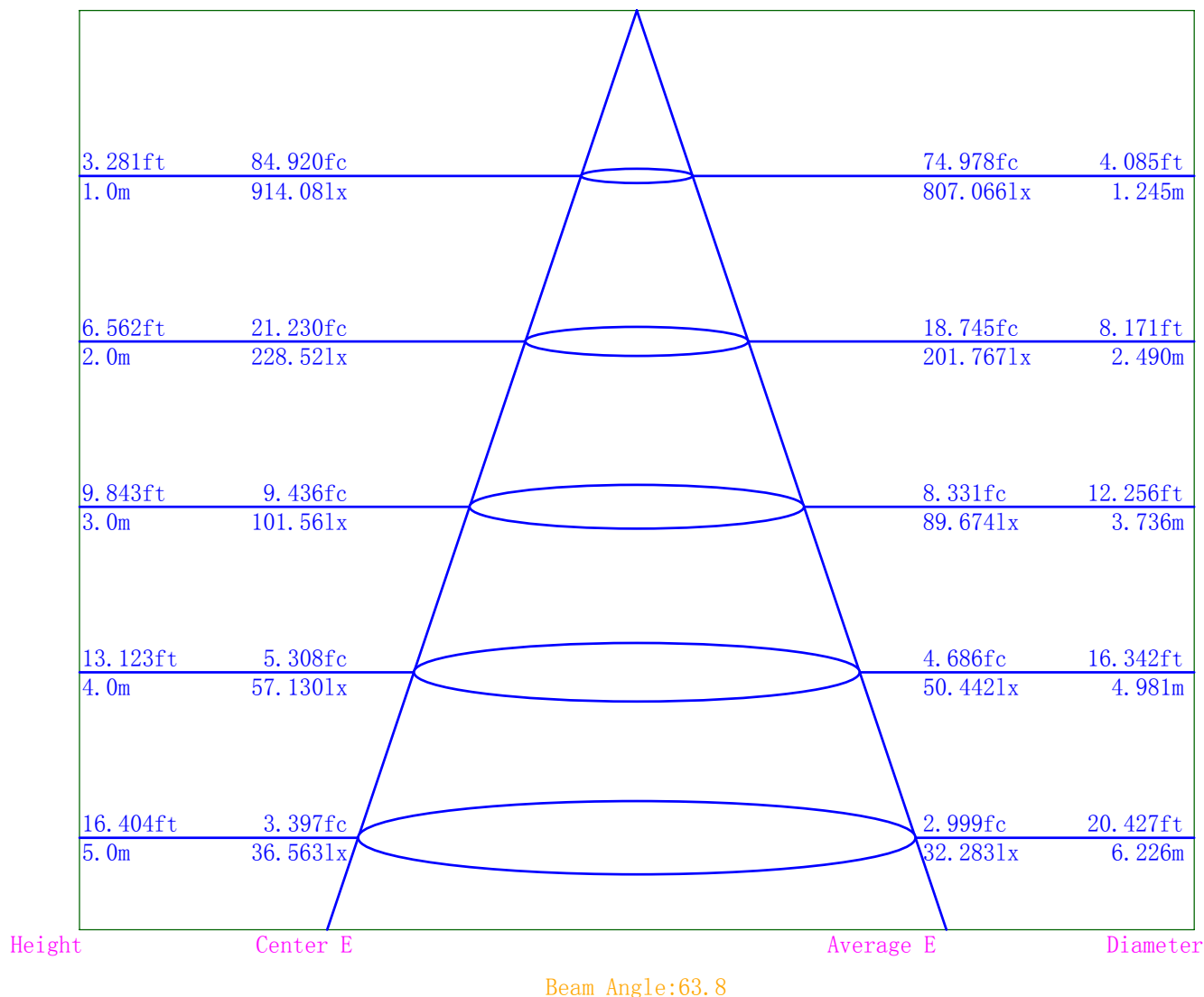


Space Plane Maximum Illuminance and @Angle:914.08lx,0.0deg
 Plane Maximum Lighting Intensity and @Angle:914.083cd,0deg

Illuminance-Distance Diagram

Lum. Name: DC13W-2700K, Ra90, Reflector 60°	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 60°	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

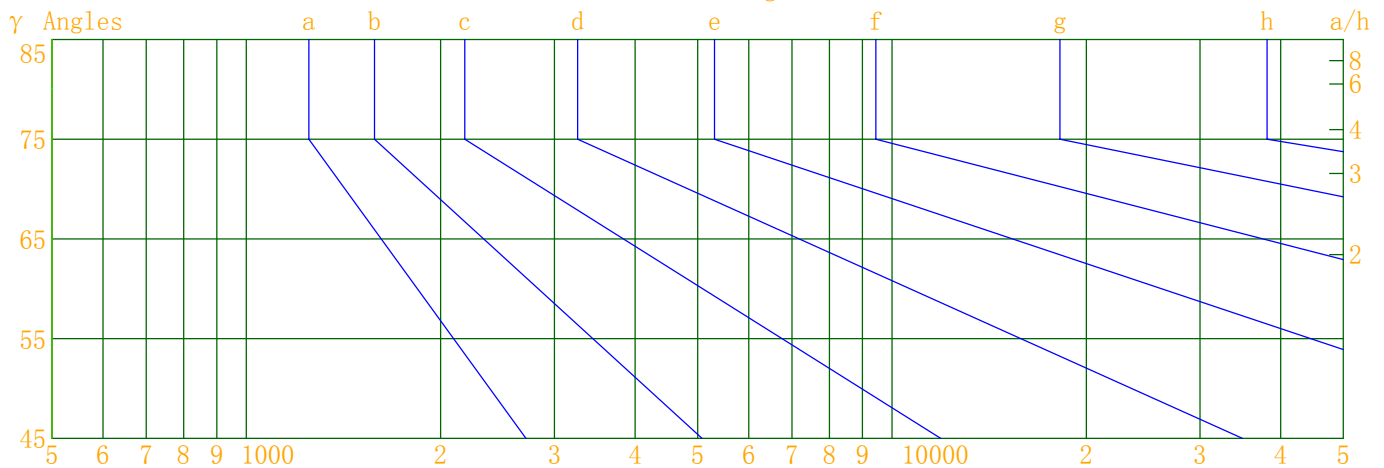
Glare Grade Table

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

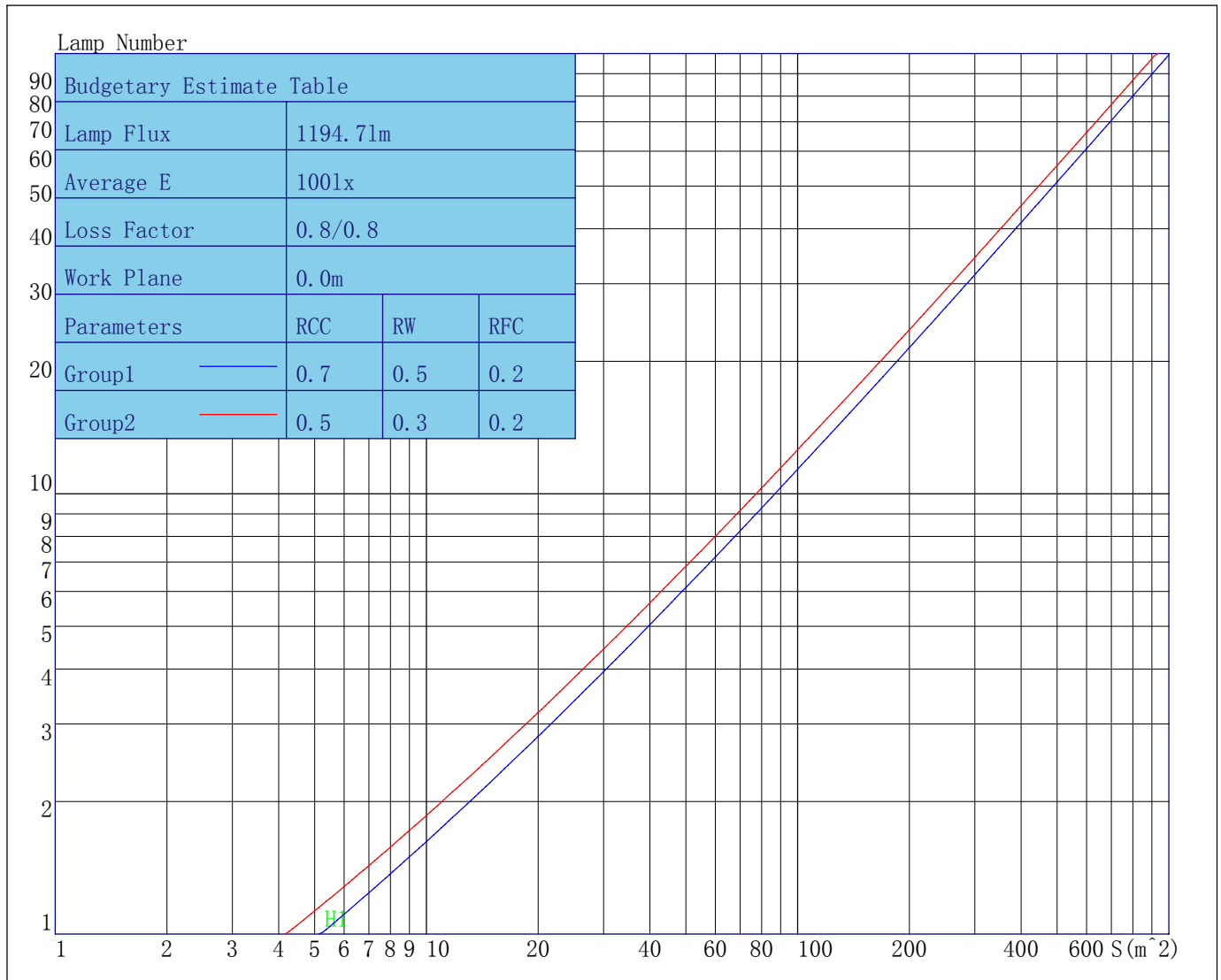
Luminance Limiting Curve



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 60°	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 60°	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	0
RCR	Coefficient of Utilization (%)																	
0	116	116	116	116	112	112	112	112	104	104	104	98	98	98	91	91	91	88
1	108	104	101	98	104	101	98	95	95	93	90	89	87	86	84	83	81	79
2	101	95	90	85	98	92	87	83	87	83	80	82	79	77	78	75	73	71
3	95	87	80	76	91	84	79	74	80	75	72	76	72	69	72	69	67	64
4	89	80	73	68	86	78	71	67	74	69	65	71	66	63	67	64	61	59
5	83	73	66	61	81	72	65	61	69	63	59	66	61	57	63	59	56	54
6	78	68	61	56	76	67	60	55	64	58	54	61	56	53	59	55	52	50
7	74	63	56	51	72	62	55	51	60	54	50	57	52	49	55	51	48	46
8	70	59	52	47	68	58	51	47	56	50	46	54	49	45	52	48	44	43
9	66	55	48	44	64	54	48	44	52	47	43	51	46	42	49	45	41	40
10	63	52	45	41	61	51	45	41	49	44	40	48	43	39	46	42	39	37

Unified Glare Rating Table

Lum. Name: DC13W-2700K, Ra90, Reflector 60°	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	Viewed crosswise					Viewed endwise				
X=2H Y=2H	-1.0	0.0	-0.4	0.6	1.2	-1.0	0.0	-0.4	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	-1.4	-0.7	-0.8	-0.1	0.6	-1.4	-0.7	-0.8	-0.1	0.6
Y=12H	-1.5	-0.8	-0.9	-0.2	0.5	-1.5	-0.8	-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	-1.0	-0.5	0.2	-1.7	-1.1	-1.0	-0.5	0.2
Y=8H	-1.7	-1.2	-1.1	-0.6	0.1	-1.7	-1.2	-1.1	-0.6	0.1
Y=12H	-1.8	-1.3	-1.1	-0.7	0.1	-1.8	-1.3	-1.1	-0.7	0.1
X=8H Y=4H	-1.7	-1.2	-1.1	-0.6	0.1	-1.7	-1.2	-1.1	-0.6	0.1
Y=6H	-1.8	-1.4	-1.2	-0.7	0.0	-1.8	-1.4	-1.2	-0.7	0.0
Y=8H	-1.9	-1.5	-1.2	-0.8	-0.1	-1.9	-1.5	-1.2	-0.8	-0.1
Y=12H	-2.0	-1.6	-1.3	-0.9	-0.1	-2.0	-1.6	-1.3	-0.9	-0.1
X=12H Y=4H	-1.8	-1.3	-1.1	-0.7	0.1	-1.8	-1.3	-1.1	-0.7	0.1
Y=6H	-1.9	-1.5	-1.2	-0.9	-0.1	-1.9	-1.5	-1.2	-0.9	-0.1
Y=8H	-2.0	-1.6	-1.3	-0.9	-0.1	-2.0	-1.6	-1.3	-0.9	-0.1
Variations with the observer 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				

to 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	914.08	914.08	914.08	914.08
γ 5.0	908.61	905.17	912.05	895.77
γ 10.0	872.59	874.20	879.47	860.77
γ 15.0	818.13	822.29	827.27	804.51
γ 20.0	737.09	743.99	737.80	721.46
γ 25.0	624.89	628.47	619.46	607.15
γ 30.0	506.58	508.25	500.83	490.86
γ 35.0	385.49	390.24	377.07	378.64
γ 40.0	237.61	235.31	216.79	226.31
γ 45.0	109.53	101.91	91.18	95.28
γ 50.0	60.73	58.50	54.64	57.61
γ 55.0	51.60	50.24	47.51	49.39
γ 60.0	44.86	43.31	41.32	43.03
γ 65.0	38.91	37.32	36.08	37.67
γ 70.0	34.18	32.95	32.45	33.61
γ 75.0	29.59	28.62	28.40	29.52
γ 80.0	25.61	24.86	24.81	25.79
γ 85.0	22.75	22.34	22.19	23.01
γ 90.0	21.37	21.05	21.04	21.62
γ 95.0	20.89	20.70	20.61	21.18
γ 100.0	20.53	20.38	20.26	20.76
γ 105.0	20.33	20.16	20.18	20.52
γ 110.0	20.25	20.08	20.11	20.49
γ 115.0	20.26	20.23	20.24	20.53
γ 120.0	20.41	20.34	20.41	20.75
γ 125.0	20.70	20.61	20.71	20.96
γ 130.0	20.93	21.03	21.13	21.36
γ 135.0	21.46	21.45	21.65	21.80
γ 140.0	21.90	21.91	22.12	22.33
γ 145.0	22.38	22.42	22.55	22.72
γ 150.0	22.82	22.84	23.00	23.12
γ 155.0	23.27	23.23	23.46	23.58
γ 160.0	23.67	23.73	23.80	23.90
γ 165.0	24.08	24.06	24.22	24.28
γ 170.0	24.48	24.42	24.56	24.61
γ 175.0	24.82	24.75	24.81	24.90
γ 180.0	24.93	24.93	24.93	24.93
