



## GRM20-48-35-ND-R-A-C4-SN-AW

**Luminaire Description:** White rectangular metal housing with diffuse plastic lens  
**Lamp:** 112 White LEDs  
**Mounting:** Pendant  
**Ballast/Driver:** Signify North America / XI020C056V054BST2

Luminaire



### Luminaire Characteristics

Luminous Length: 48.00 in.  
Luminous Width: 2.000 in.

### Summary of Results

#### Integrating Sphere

Luminous Flux: 1975 Lumens  
Efficacy: 96.36 lm/w  
CCT: 3444 K  
CRI (Ra): 93.6

#### Distribution

Total Luminaire Output: 1898 Lumens  
Luminaire Efficacy: 92.5 lm/w  
Maximum Candela: 727 Candela

#### Electrical Data at 120 VAC

Test Temperature: 25.5 °C  
Voltage: 120.0 VAC  
Current: 0.1715 A  
Power: 20.50 W  
Power Factor: 0.996  
Frequency: 60 Hz  
Current THD: 7.53 %



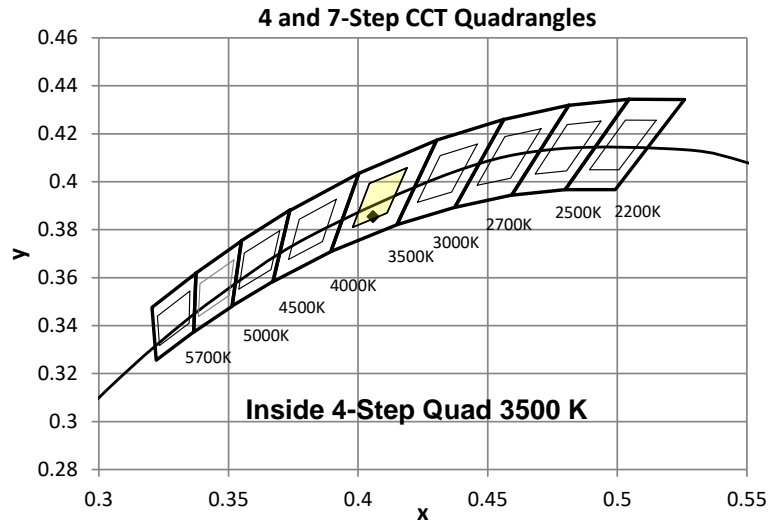
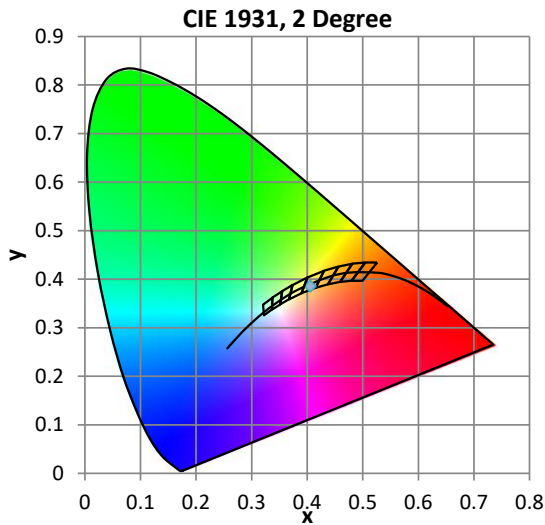
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	120.0 VAC	0.1715 A	20.50 W	0.996	60 Hz	7.53 %

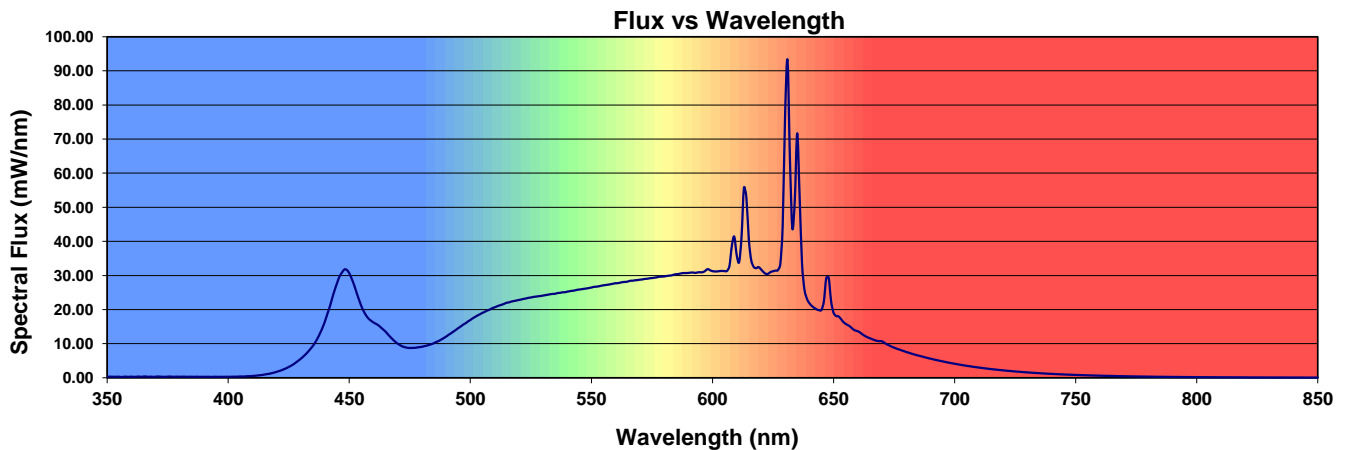
### Summary of Results

<b>Total Output:</b>	1975 Lumens	<b>Chromaticity (x):</b>	0.4058
<b>Efficacy:</b>	96.4 lm/w	<b>Chromaticity (y):</b>	0.3855
<b>CCT:</b>	3444 K	<b>Chromaticity (u'):</b>	0.2382
<b>CRI (Ra):</b>	93.6	<b>Chromaticity (v'):</b>	0.5091
<b>CRI (R9):</b>	66.2	<b>TM-30 Rf:</b>	91
<b>Peak Wavelength:</b>	631 nm	<b>TM-30 Rg:</b>	102
<b>Dominant Wavelength:</b>	582 nm	<b>TM-30 Rcs,h1:</b>	-5%
<b>S/P Ratio:</b>	1.59	<b>Duv:</b>	-0.0024



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
93.6	95.7	95.8	94.2	94.3	95.0	94.5	93.1	86.6	66.2	88.5	94.4	81.5	95.6	95.8	92.6





## Distribution - Goniophotometer

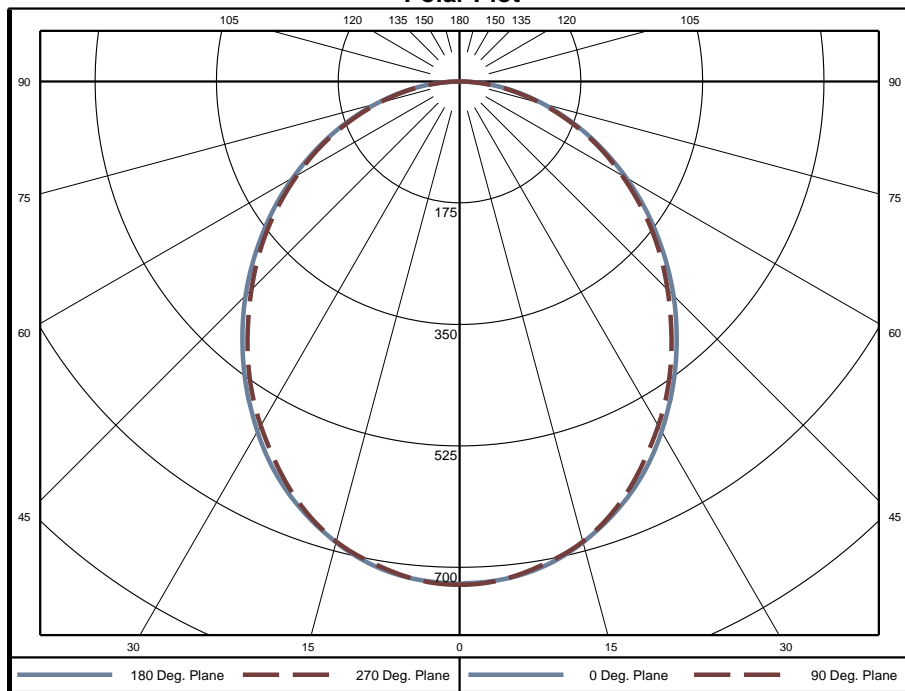
### Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	120.1 VAC	0.1715 A	20.51 W	0.996	60 Hz	7.51 %

### Summary of Results

<b>Spacing Criteria</b>	<b>Total Lumen Output:</b>	1898 Lumens
0-180: 1.20	<b>Luminaire Efficacy:</b>	92.5 lm/w
90-270: 1.18	<b>Maximum Candela:</b>	727 Candela
<b>Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)</b>		
<b>Crosswise: 24.2</b>	<b>Endwise: 24.2</b>	

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	17.3	0.9%	60-65	121.0	6.4%	120-125	0	0.0%
5-10	51.1	2.7%	65-70	100.0	5.3%	125-130	0	0.0%
10-15	82.7	4.4%	70-75	76.9	4.1%	130-135	0	0.0%
15-20	110.9	5.8%	75-80	53.7	2.8%	135-140	0	0.0%
20-25	134.1	7.1%	80-85	31.0	1.6%	140-145	0	0.0%
25-30	151.7	8.0%	85-90	9.7	0.5%	145-150	0	0.0%
30-35	163.4	8.6%	90-95	0	0.0%	150-155	0	0.0%
35-40	169.0	8.9%	95-100	0	0.0%	155-160	0	0.0%
40-45	168.9	8.9%	100-105	0	0.0%	160-165	0	0.0%
45-50	163.7	8.6%	105-110	0	0.0%	165-170	0	0.0%
50-55	153.6	8.1%	110-115	0	0.0%	170-175	0	0.0%
55-60	139.1	7.3%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	880	46.4%
0-60	1506	79.3%
0-90	1898	100.0%
90-180	0	0.0%



**Candela Tabulation**  
Horizontal Angle (Degrees)

	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	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6	724.6
5	719.6	718.8	720.4	721.1	719.8	721.1	720.4	718.8	719.6	718.8	720.4	721.1	719.8	721.1	720.4	718.8
10	708.2	706.7	707.8	707.8	705.6	707.8	707.8	706.7	708.2	706.7	707.8	707.8	705.6	707.8	707.8	706.7
15	687.1	686.3	687.4	687.5	686.0	687.5	687.4	686.3	687.1	686.3	687.4	687.5	686.0	687.5	687.4	686.3
20	658.8	658.3	659.2	657.8	655.3	657.8	659.2	658.3	658.8	658.3	659.2	657.8	655.3	657.8	659.2	658.3
25	624.4	623.6	621.6	618.2	615.8	618.2	621.6	623.6	624.4	623.6	621.6	618.2	615.8	618.2	621.6	623.6
30	582.1	581.8	578.7	574.8	572.4	574.8	578.7	581.8	582.1	581.8	578.7	574.8	572.4	574.8	578.7	581.8
35	535.7	535.4	532.2	528.3	526.0	528.3	532.2	535.4	535.7	535.4	532.2	528.3	526.0	528.3	532.2	535.4
40	486.4	486.7	482.9	477.5	474.8	477.5	482.9	486.7	486.4	486.7	482.9	477.5	474.8	477.5	482.9	486.7
45	435.7	436.0	432.3	426.5	423.7	426.5	432.3	436.0	435.7	436.0	432.3	426.5	423.7	426.5	432.3	436.0
50	383.0	383.8	380.7	376.0	373.5	376.0	380.7	383.8	383.0	383.8	380.7	376.0	373.5	376.0	380.7	383.8
55	330.3	331.2	328.1	324.0	321.7	324.0	328.1	331.2	330.3	331.2	328.1	324.0	321.7	324.0	328.1	331.2
60	277.0	278.1	276.0	272.0	269.9	272.0	276.0	278.1	277.0	278.1	276.0	272.0	269.9	272.0	276.0	278.1
65	224.5	225.5	223.9	221.5	219.9	221.5	223.9	225.5	224.5	225.5	223.9	221.5	219.9	221.5	223.9	225.5
70	173.3	174.2	172.2	170.4	168.9	170.4	172.2	174.2	173.3	174.2	172.2	170.4	168.9	170.4	172.2	174.2
75	124.8	125.0	123.3	122.0	120.9	122.0	123.3	125.0	124.8	125.0	123.3	122.0	120.9	122.0	123.3	125.0
80	79.6	79.6	77.8	77.3	76.4	77.3	77.8	79.6	79.6	79.6	77.8	77.3	76.4	77.3	77.8	79.6
85	37.9	37.3	36.2	35.6	35.0	35.6	36.2	37.3	37.9	37.3	36.2	35.6	35.0	35.6	36.2	37.3
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
125	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Average Luminance (cd/m<sup>2</sup>)**  
Horizontal Angle (Degrees)

	0	45	90
0	11700	11700	11700
45	9948	9871	9674
55	9297	9235	9056
65	8575	8555	8400
75	7787	7690	7544
85	7027	6707	6490

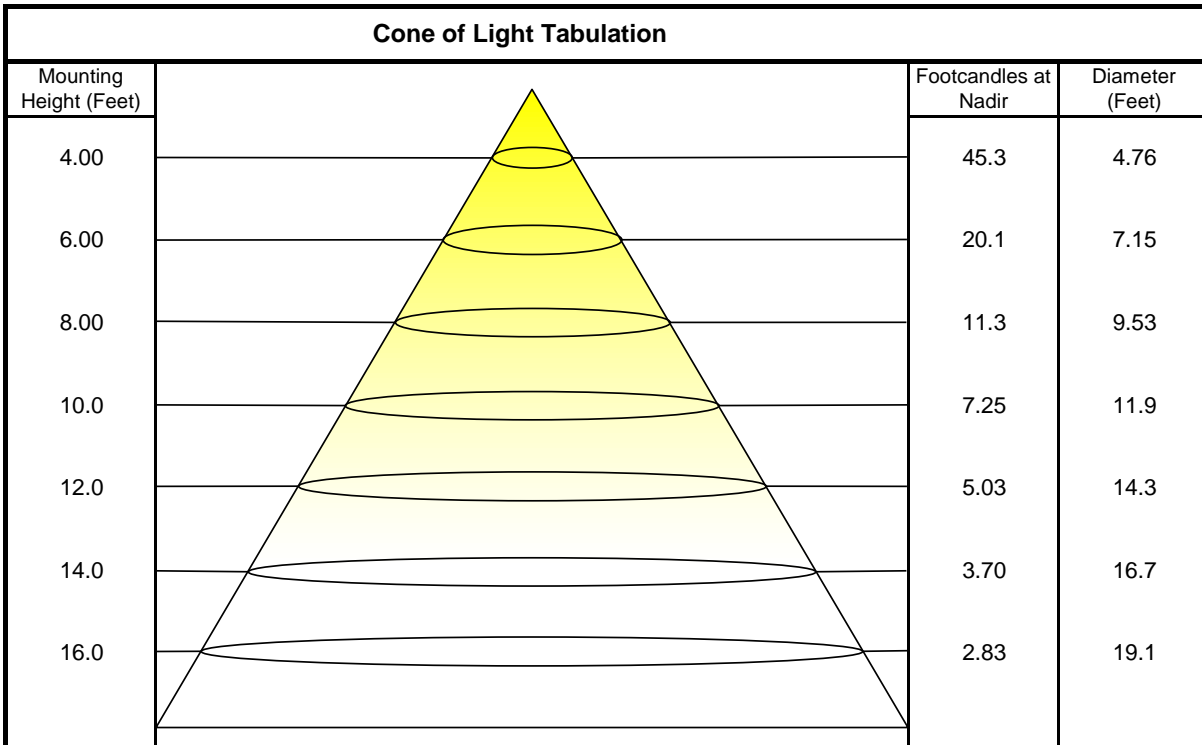


### Coefficients of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%

Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as percent of total lumen output delivered to the task surface **																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	94	97	94	91	94	91	88	90	88	86	84
2	99	91	84	78	96	89	83	77	85	80	75	82	78	74	79	75	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	51
5	76	63	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44
6	71	57	48	42	69	56	48	42	54	47	41	53	46	41	51	45	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	34
8	61	48	39	33	59	47	39	33	45	38	33	44	38	33	43	37	33	31
9	57	44	36	30	56	43	35	30	42	35	30	41	34	30	40	34	29	28
10	54	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

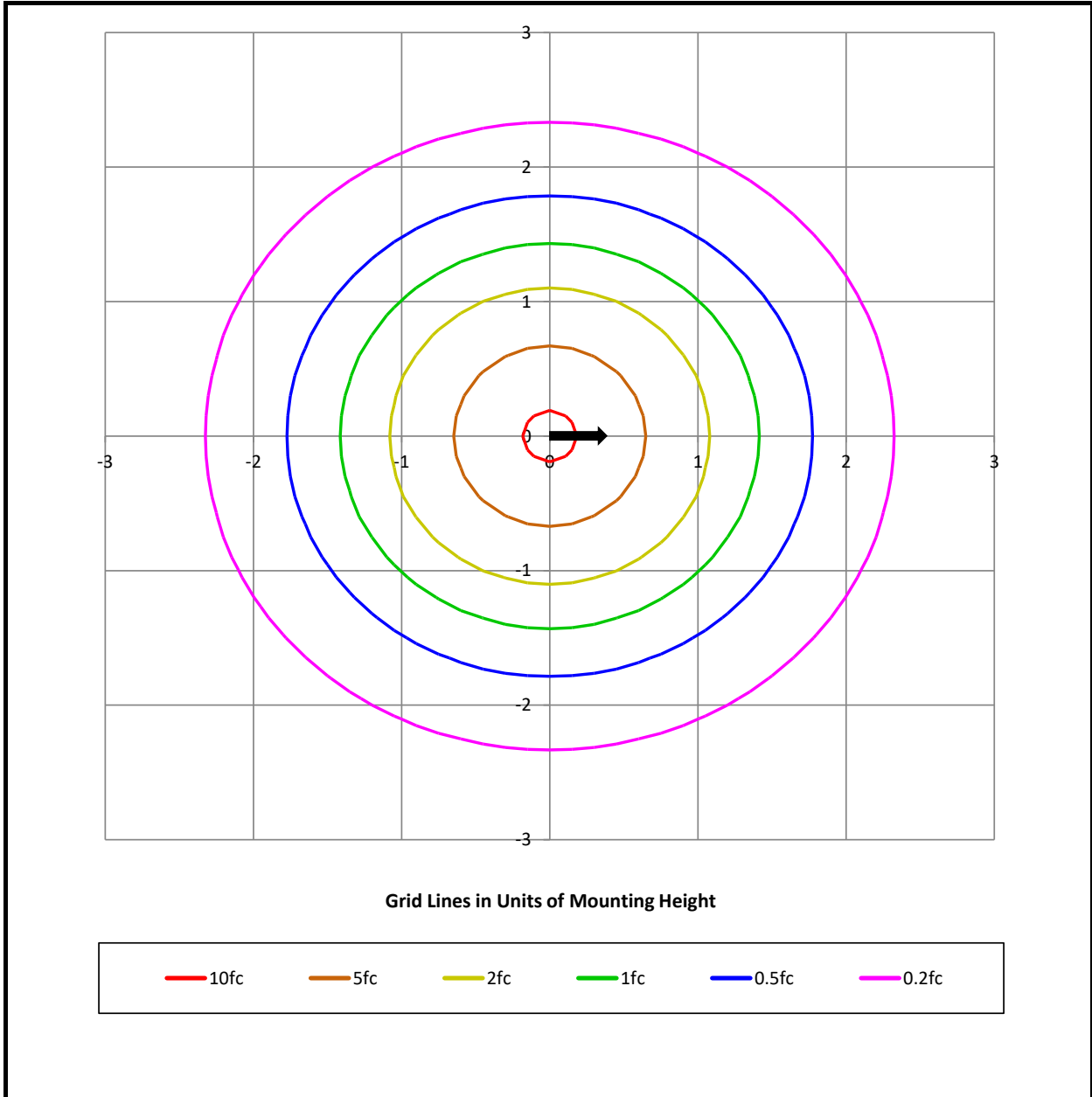
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	724.6 Candela
Central Cone Intensity:	723 Candela
Beam Flux:	1265.2 Lumens
Beam Angle (0-180):	103.9 Degrees
Beam Angle (90-270):	102.2 Degrees
Field Angle (0-180):	161.6 Degrees
Field Angle (90-270):	160.9 Degrees





# ISOFootcandle Plot

Mounting Height - 8 Feet



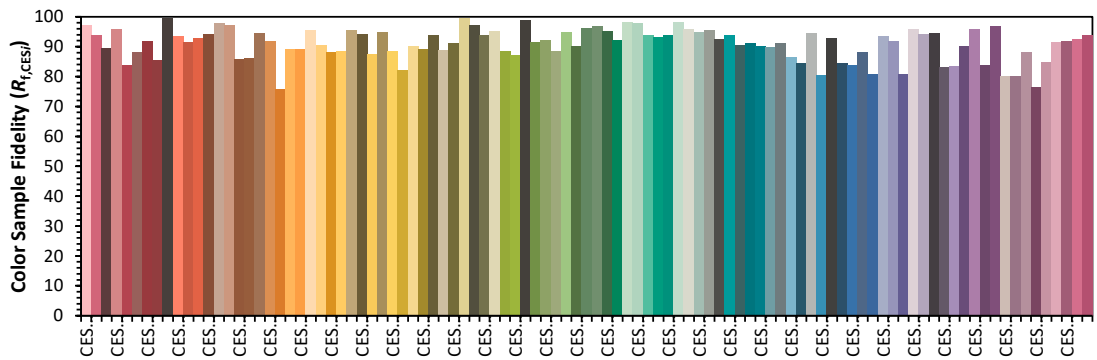
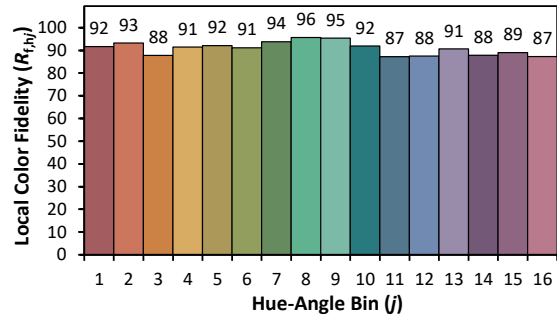
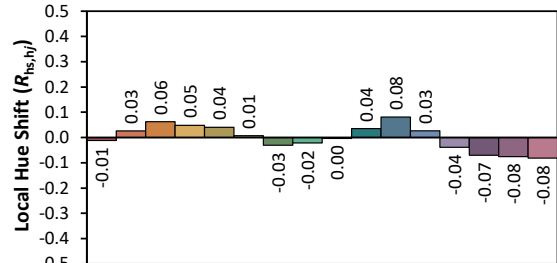
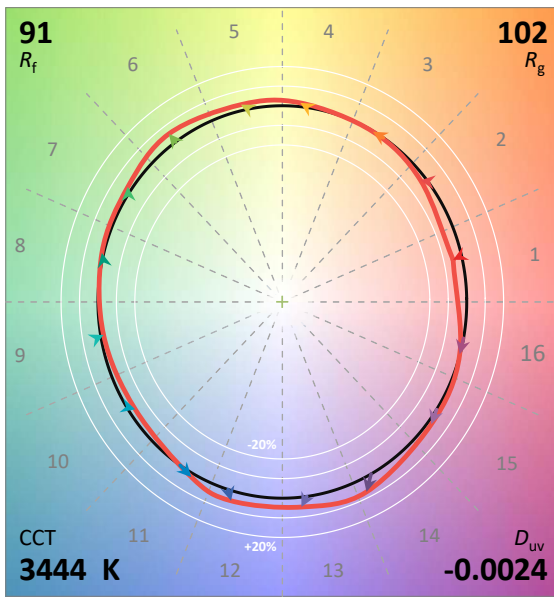
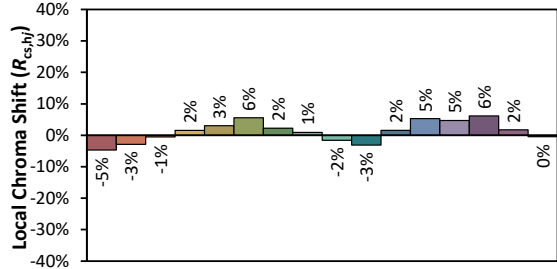
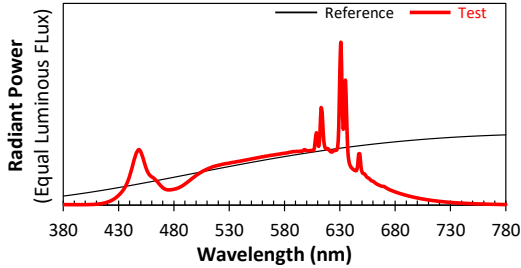
# ANSI/IES TM-30-18 Color Rendition Report

Source: Test Number: 13542729.04

Manufacturer: BARTCO LIGHTING INC

Date: 2020-10-15

Model: GRM30-45-35-ND-1-NA-R-NA-A-C4-S



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4058  
y 0.3855  
u' 0.2382  
v' 0.5091

CIE 13.3-1995 (CRI)	
$R_a$	94
$R_g$	66

Colors are for visual orientation purposes only. Created with the IES TM-30-18 Calculator Version 2.00.