Spectrum Lighting

CR2

2" CYLINDER

Spectrum's 2" cylinder series features machined aluminum housing and variety of bezels for accent and general illumination.

LUMENS AND WATTAGE CHART				
PART NUMBER	LUMENS	DELIVERED LUMENS	SYSTEM WATTS	LPW
CR2	05	759	7	108
CR2	10	1211	12.5	97
CR2	15	1842	19.5	94
CR2	20	2338	27	87

All Values Based on 3500K, 80CRI, FL Optic, BS Standard Bezel

PROJECT:

QUANTITY: TYPE:

PRODUCT SELECTOR GUIDE

SERIES	CRI / CCT	LUMENS[2]	VOLTAGE	DIMMING	MOUNTING	FINISH	EM OPTIONS	MTG OPTIONS	+	SERIES	OPTICS	+	SERIES	BEZEL TYPE	BEZEL FINISH	+	SERIES	OPTICAL EFFECT
CR2									+	RD2		+	RB2			+	RA2	
EXAMPLE																		
CR2	835	10	X	D5	CD36	TB			+	RD2	FL	+	RB2	BK	TB	+	RA2	LS

SERIES	CRI / CCT	LUMENS[2]	VOLTAGE / DIMMING	MOUNTING	BODY FINISH	EM OPTIONS	MOUNTING OPTIONS
CR2	80 CRI **822 -** 2200K **827 -** 2700K **830 -** 3000K **835 -** 3500K **840 -** 4000K 90 CRI **927 -** 2700K **930 -** 3000K **935 -** 3500K **940 -** 4000K DIM TO WARM[1] **9DW** - 30-16K Dim to Warm **1** 1000 Lm Only For 9DW	**05 -** 750 Lm **10 -** 1200 Lm **15 -** 1830 Lm **20[3] -** 2320 Lm **2** Nominal Delivered Lumens **3** 20 Requires RRM, SRM, Or CK Mounting Option	**X -** Universal **3[4] -** 347V **4** 347V Requires RRM, SRM, Or CK Mounting Option. 347V Not Available With D5. 347V Requires D5 Dimming **D5 -** 1%, 0-10V, ELV, & TRIAC **L2[5] -** .1% Lutron Hi-lume EcoSystem **A2[5] -** .1%, eldoLED [Remote Mount] **5** Lutron and Eldoled Require RRM, SRM or CK Mounting Option	**CD_ -** Cord & Cable Mount **CM_ -** Cord Only **36"** **72"** **144"** **HM_ -** Hang Straight Stem **PM_ -** Rigid Stem **24"** **36"** **72"** **SM -** Surface Mount **WM[6] -** Wall Mount **6** WM Not Available With EM. ADA Requires 15 Max., With D5 Dimming, Universal Voltage. All Other Options Will Be Supplied In Remote Wall Surface Canopy	**TW -** Textured White **TB -** Textured Black **MT -** Textured Silver **BZ -** Textured Bronze **CC -** Custom Color	**EM[7] -** Emergency Battery Pack **7** EM Requires RRM or SRM Mounting Option. EM Not Available With Wall Mount. EM Not Available With 347V. EM Not Available With Conduit Feed Canopy	**RRM[8/9] -** Recessed Remote Driver Box **SRM[9] -** Surface Remote Driver Box **CK1[10] -** 1x Conduit Feed **CK2[10] -** 2x Conduit Feed, Straight **CK3[10] -** 2x Conduit Feed, 90° Corner **CK4[10] -** 3x Conduit Feed, T Pattern **CK5[10] -** 4x Conduit Feed, X Pattern **8** RRM not available with WM **9** RRM & SRM for Use With 20, 3D5, XL2, XA2, and EM Options Only **10** Conduit Feeds Not Available With Wall Mount Or EM

BS
Standard Bezel

BK
Bezel with Knurl

BB
Bias

BD
Snoot / Deep Cutout

BSA1
Acrylic .5"

BW
Bias Wall Wash

SERIES	OPTICS
RD2	STANDARD WHITE **XS -** Extra Narrow Spot (12°) **SP -** Spot (21°) **FL -** Flood (34°) **XF -** Extra Wide Flood (60°) **WW[11] -** Wall Wash DIM TO WARM **XS -** Extra Narrow Spot (18°) **SP -** Spot (29°) **FL -** Flood (36°) **XF -** Extra Wide Flood (61°) **WW[11] -** Wall Wash **11** WW Requires BW Bezel

SERIES	BEZEL STYLE	BEZEL FINISH
RB2	**BS -** Standard Bezel **BK -** Bezel w/ Knurl **BB -** Bias **BD -** Snoot / Deep Cutoff **BW[12/13] -** Bias Wall Wash **BSA1[13] -** Acrylic .5" **BSA2[13] -** Acrylic 2" **BSA3[13] -** Acrylic 6" **BSA4[13] -** Acrylic 12" **BKA1[13] -** Acrylic .5" w/ Knurl **BKA2[13] -** Acrylic 2" w/ Knurl **BKA3[13] -** Acrylic 6" w/ Knurl **BKA4[13] -** Acrylic 12" w/ Knurl **12** BW Requires WW Optic Option **13** BW, BSA and BKA Series Do Not Take Optical Effects	**ASG -** Soft Glow, Anodized **ARG -** Rose Gold, Anodized **ABK -** Black, Anodized **AGD -** Gold, Anodized **TW -** Textured White **TB -** Textured Black **MT -** Textured Silver **BZ -** Textured Bronze **CC -** Custom Color

SERIES	OPTICAL EFFECT[14]
RA2	**HL -** Hex Cell **LS -** Diffusing Lens **LL -** Linear Spread Lens **LC -** Clear Lens **14** Max 2

Configuration Tool

CR2 2" CYLINDER

Spectrum Lighting

BODY FINISH

TW Textured White

TB Textured Black

MT Textured Silver

BZ Textured Bronze

CC Custom Color

STANDARD CORD / STEM / CANOPY FINISHES

SM & WM canopies match fixture color.

FIXTURE COLOR	CORD COLOR	CANOPY / STEM COLOR
Textured White	White	Matte White
Textured Black	Black	Matte Black
Textured Silver	Silver	Platinum
Textured Bronze	Black	Matte Black
Custom Color	Black* *Unless Otherwise Specified	Contact Factory

BEZEL FINISH

TW Textured White

TB Textured Black

MT Textured Silver

BZ Textured Bronze

ASG Soft Glow, Anodized

ARG Rose Gold, Anodized

ABK Black, Anodized

AGD Gold, Anodized

CC Custom Color

PRODUCT FEATURES

- Extremely small diameter, allowing for usage over a wide variety of applications.
- High quality extruded aluminum housing with **Integral** driver in the housing (thru 1500 Lm). Remote driver and/or canopy mounted driver systems are also available as standard for 2000 Lm fixtures.
- 4 standard finish options: Textured White, Textured Black, Textured Silver and Textured Bronze. Custom colors are also available.
- Superior Smooth striation free Beam Patterns, Fixture cutoff at 40° (to 10% of output) or better dependent upon Bezel choice.
- Superior Efficacy up to 116 LPW.
- 4 Field interchangeable Optical Systems from Extra Narrow Spot [12°] to Extra Wide Flood [60°] + Wall Wash Optic.
- 5 CCT's, from 2200K thru 4000K, at 2 step MacAdam Ellipse, with CRI's up to 90, Delivered Lumen packages from 500 Lm to 2000 Lm.
- Multiple mounting options: Surface, Pendant [rigid or 40° Hang straight], Cord or Cord & Cable, and Wall Mounted version.
- Pendants and cords are ultra-slim, proportionately in concert with the smaller 2.5" housing diameter, giving a more pleasing aesthetic.
- Ultra-clean look at the ceiling line due to Hardware-free canopies used on All pendant and cord mounted luminaires [no visible screws, clips, etc.].
- Wall Mounted version, with integral driver meets ADA requirements.
- All Bezels, except acrylics, have low dazzle anti-glare matte black finish and can accept (up to 2) accessories such as Hex cell louver, linear spread lens, etc.
- All fixtures carry cETLus damp location listing, additionally all 90 CRI fixtures have been designed to meet CA Title 24 regulations.
- 90% recyclable materials.
- 5-year warranty is standard. L90 > 67,000 hours.

DIMMING COMPATIBILITY

120-277V 0-10V Dimming

MANUFACTURER	PART NUMBERS
Lutron	Nova Series (part number NFTV)
	Diva Series (part number DVTV)
Leviton	IllumaTech Series (part number IP710-DL)

120V ELV & Triac Dimming

MANUFACTURER	PART NUMBERS
Lutron	DVCL-153P
	DVELV-303P
	MAELV-600
	SELV-300P
Leviton	IPE04
	VPE06
Cooper	DAL06P

L2 (.1% Lutron Hi-lume EcoSystem)

LUTRON CONTROLS	PART NUMBERS
PowPak Dimming Modules	RMJ-ECO32-DV-B
	FCJ/FCJS-ECO
Energi Savr Node	QSN-1ECO-S
	QSN-2ECO-S
GRAFIK Eye QS / HomeWorks QS control unit	QSGRJ-_E (wireless) QSGR-_E
Quantum Hub	QP2-_ _2C
	QP2-_ _4C
	QP2-_ _6C
	QP2-_ _8C
HomeWorks QS / myRoom Plus power module	LQSE-2ECO-D

A2 (.1% eldoLED 0-10V Dimming)

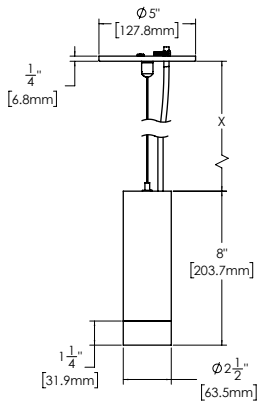
MANUFACTURER	PART NUMBERS
Busch-Jaeger	2112U-101
Jung	240-10
Leviton	IP710-DLZ
Lightolier Controls	ZP600FAM120
Lutron Electronics	Nova T - NTFTV
	Nova - NFTV
	Diva - DVTV
	GraphicEye - GRX-TVI w GRX3503
	Energy Savr Node - QSN-4T16-S
	TVM2 Module
Merten	5729
Pass & Seymour	CD4FB-W
The Watt Stopper	DCLV1

CR2 2" CYLINDER

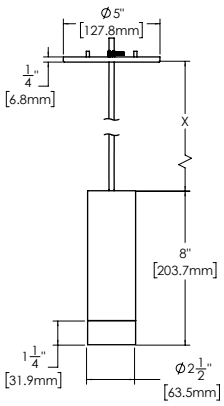
Spectrum Lighting

CEILING MOUNT

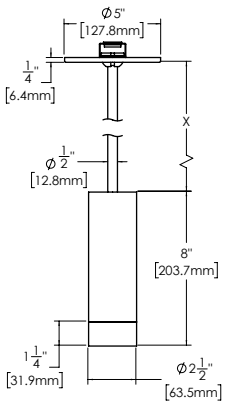
CD - Cord & Cable Mount



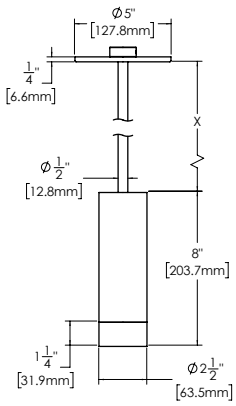
CM - Cord Only



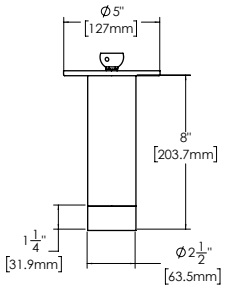
HM - Hang Straight Stem



PM - Rigid Stem



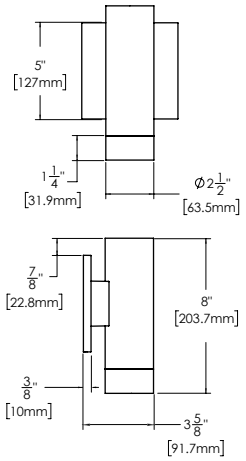
SM - Surface Mount



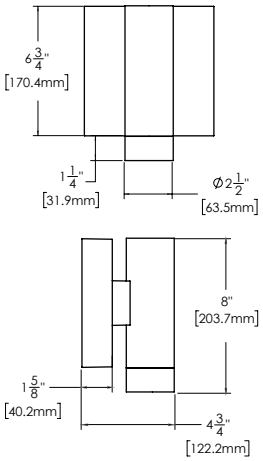
For ease of re-drilling locator pin hole on field cut stems, **1/4 Stem Drill Jig** is available

WALL MOUNT

WM - Wall Mount (Integral)
ADA COMPLIANT

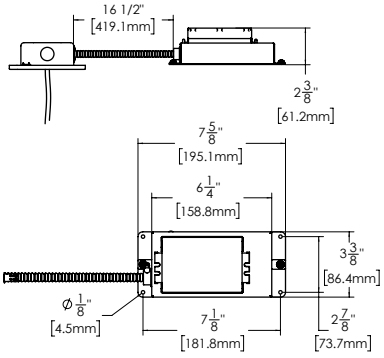


WM - Wall Mount (Remote)

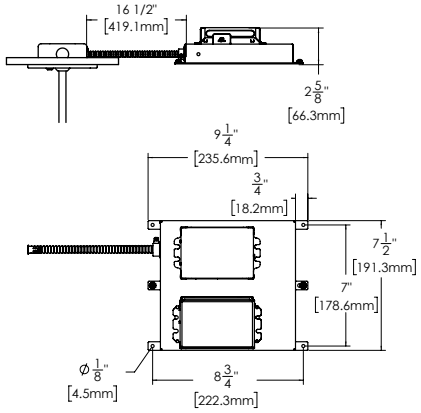


RECESSED REMOTE

RRM - Recessed Remote Drive Box
(NON-IC CEILING ONLY)

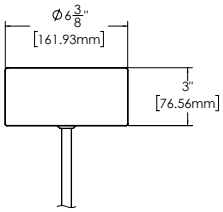


RRM - Recessed Remote Drive Box
(For EMERGENCY BATTERY)

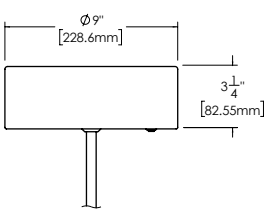


SURFACE REMOTE

SRM - Surface Remote Drive Box

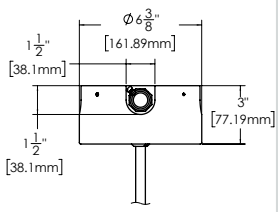


SRM - Surface Remote Drive Box
(For EMERGENCY BATTERY)

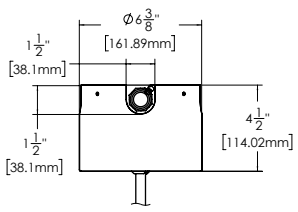


CONDUIT MOUNT

CK - Conduit Canopy Integral



CK - Conduit Canopy Remote



CR2 2" CYLINDER

Spectrum Lighting

OPTICS

XS - Extra Narrow Spot (12°)

SP - Spot (21°)

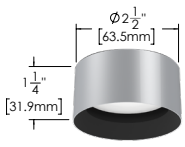
FL - Flood (34°)

XF - Extra Wide Flood (60°)

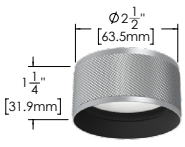
WW - Wall Wash

BEZEL STYLE

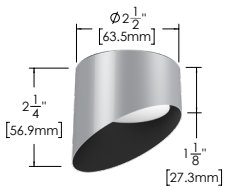
BS - Standard Bezel



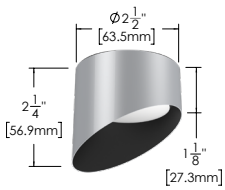
BK - Bezel with Knurl



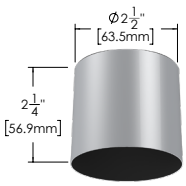
BB - Bias



BW - Bias Wall Wash

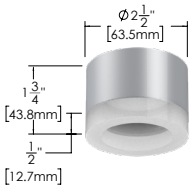


BD - Snoot / Deep Cutoff

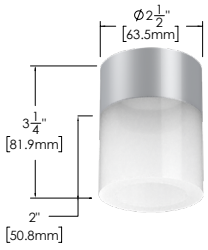


ACRYLIC SIZES

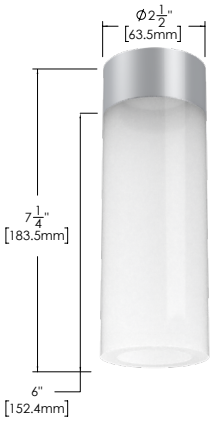
BSA1 - Acrylic .5"



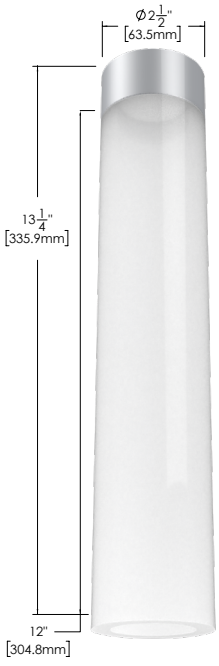
BSA2 - Acrylic 2"



BSA3 - Acrylic 6"



BSA4 - Acrylic 12"

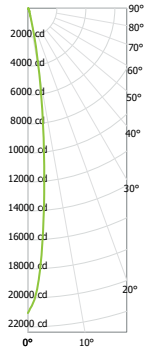


CR2 2" CYLINDER

Spectrum Lighting

CR2 835 15 xx xx RD2XS RB2BS xx xx

CANDLEPOWER CURVE
TEST SP-01276



INTENSITY
CANDELA
0° AZIMUTH

	0°
0°	21034
5°	12918
15°	1017
25°	263
35°	139
45°	69
55°	28
90°	1

ZONAL LUMENS

0° - 10°	968	59%
0° - 20°	1342	81%
0° - 30°	1467	89%
0° - 40°	1552	94%
0° - 60°	1634	99%
0° - 80°	1641	99%
0° - 90°	1643	100%
Total	1650	100%

SINGLE UNIT: PERFORMANCE
DIRECT FOOTCANDLES
BASED ON DOWNLIGHT ONLY

Mounting Height AFF	FC at Center on Floor	Beam Diameter	FC at Beam Edge
10 '	210 fc	2.1 '	103 fc
12 '	146 fc	2.6 '	72 fc
14 '	107 fc	3.0 '	53 fc
16 '	82 fc	3.4 '	40 fc
20 '	53 fc	4.3 '	26 fc
24 '	37 fc	5.1 '	18 fc
28 '	27 fc	6.0 '	13 fc
32 '	21 fc	6.8 '	10 fc

MULTIPLE UNITS: PERFORMANCE
80/50/20% REFLECTANCES
INITIAL FOOTCANDLES AND WATTS PER SQUARE FOOT

Ceiling Height	Fixture Spacing	RCR 6		RCR 8	
		FC +	W/Sq. Ft.	FC +	W/Sq. Ft.
18'	3'*	151	1.90	187	2.47
22'	4'**	90	1.13	111	1.47
26'	5'***	59	0.75	51	0.67
Delivered Illuminance Rating: (DIR)		79 FC per W/Sq. Ft.		76 FC per W/Sq. Ft.	

2' Suspension Length to luminous aperture
Square rooms used for multiple units:
RCR 6: Length & Width = Ceiling Ht. - 4.5' x 1.66
RCR 8: Length & Width = Ceiling Ht. - 4.5' x 1.25
+ Average Footcandles at 2.5' Above Floor
* Exceeds Spacing Ratio by 6%
** Exceeds Spacing Ratio by 9%
*** Exceeds Spacing Ratio by 11%

Delivered Lumens: 1650
Luminaire Watts: 19.5
LER: 84.62

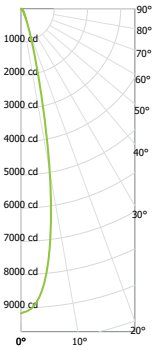
CP at 0° (Nadir): 21034
CRI: 80+

Beam Angle: 12°
Spacing Ratio: 0.21

Lumen Multiplier: 05 x 0.41, 10L x 0.66, 20L x 1.27
CCT Multiplier: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87

CR2 835 15 xx xx RD2SP RB2BS xx xx

CANDLEPOWER CURVE
TEST SP-01274



INTENSITY
CANDELA
0° AZIMUTH

	0°
0°	9167
5°	8224
15°	1859
25°	380
35°	149
45°	79
55°	33
90°	2

ZONAL LUMENS

0° - 10°	684	41%
0° - 20°	1251	75%
0° - 30°	1439	87%
0° - 40°	1543	93%
0° - 60°	1641	99%
0° - 80°	1651	99%
0° - 90°	1652	99%
Total	1663	100%

SINGLE UNIT: PERFORMANCE
DIRECT FOOTCANDLES
BASED ON DOWNLIGHT ONLY

Mounting Height AFF	FC at Center on Floor	Beam Diameter	FC at Beam Edge
8 '	143 fc	3.0 '	68 fc
10 '	92 fc	3.7 '	44 fc
12 '	64 fc	4.4 '	30 fc
14 '	47 fc	5.2 '	22 fc
16 '	36 fc	5.9 '	17 fc
20 '	23 fc	7.4 '	11 fc
24 '	16 fc	8.9 '	8 fc
28 '	12 fc	10.3 '	6 fc

MULTIPLE UNITS: PERFORMANCE
80/50/20% REFLECTANCES
INITIAL FOOTCANDLES AND WATTS PER SQUARE FOOT

Ceiling Height	Fixture Spacing	RCR 4		RCR 6	
		FC +	W/Sq. Ft.	FC +	W/Sq. Ft.
15'	4'*	114	1.39	78	1.03
18'	5'**	69	0.84	74	0.97
22'	6'	41	0.50	44	0.58
Delivered Illuminance Rating: (DIR)		82 FC per W/Sq. Ft.		76 FC per W/Sq. Ft.	

2' Suspension Length to luminous aperture
Square rooms used for multiple units:
RCR 4: Length & Width = Ceiling Ht. - 4.5' x 2.50
RCR 6: Length & Width = Ceiling Ht. - 4.5' x 1.66
+ Average Footcandles at 2.5' Above Floor
* Exceeds Spacing Ratio by 9%
** Exceeds Spacing Ratio by 6%

Delivered Lumens: 1663
Luminaire Watts: 19.5
LER: 85.28

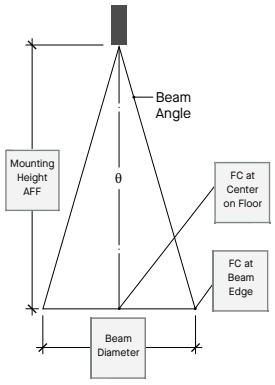
CRI: 80+

Beam Angle: 21°
Spacing Ratio: 0.35

Lumen Multiplier: 05 x 0.41, 10 x 0.66, 20 x 1.27
CCT Multiplier: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87

HOW TO USE PERFORMANCE DATA

SINGLE UNIT



Cone of Light of a single, symmetrical beam luminaire. Direct initial illumination (FC) and Beam Angle diameter directly beneath fixture; shown at different distances from aperture to horizontal plane. Calculated using Inverse Square Law.

$FC_H = CP \times (\cos \theta) \div D^2$

Beam Diam. = ½ Beam Angle (Tan) x 2D

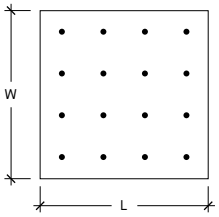
- CP — Candela at 0° (Nadir)
- Cos θ — Cosine of θ Angle
- D — Distance (Mounting Height AFF)
- FC_H — Footcandles, Horizontal
- Beam Angle — Cone of light to 50% max. CP
- Beam Diam. — Pattern of light at Beam Angle

MULTIPLE UNITS

Square grid layout of multiple luminaires in unfurnished, square rooms of different proportions (Room Cavity Ratios) with 80/50/20% room surface reflectances. 2' Suspension Length to aperture. Initial average illumination (FC) calculated at 2.5' above floor, using Zonal Cavity Method. W/Sq. Ft. of layout shown for each ceiling height and RCR.

Delivered Illuminance Rating (DIR[e]):
System performance indicator expressed as ratio of approximate initial FC per W/Sq. Ft. delivered to horizontal plane below, for the range of ceiling heights indicated.

- To estimate FC for Fixture Spacing that is different than shown (do not exceed Spacing Ratio):
  FC = Chart Spacing^2 ÷ Different Spacing^2 x Chart FC
- To estimate Sq. Ft. per fixture for a specific target FC:
  Sq. Ft. / Fixture = Chart FC x Chart Spacing^2 ÷ Target FC



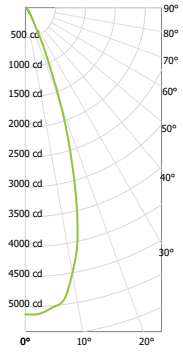
- To estimate Fixture Quantity in a room:
  Fixture Qty. = Sq. Ft. of Rm. ÷ Sq. Ft. per fixture
- To estimate Watts/Sq. Ft.:
  W/ Sq. Ft. = Luminaire Watts x Qty. ÷ Sq. Ft. of Rm.

CR2 2" CYLINDER

Spectrum Lighting

CR2 835 15 xx xx RD2FL RB2BS xx xx

CANDLEPOWER CURVE
TEST SP-01273



INTENSITY
CANDELA
0° AZIMUTH

	0°
0°	5123
5°	5035
15°	3253
25°	677
35°	143
45°	54
55°	23
90°	1

ZONAL LUMENS

0° - 10°	473	26%
0° - 20°	1331	72%
0° - 30°	1664	90%
0° - 40°	1757	95%
0° - 60°	1821	99%
0° - 80°	1830	99%
0° - 90°	1831	99%
Total	1842	100%

SINGLE UNIT: PERFORMANCE
DIRECT FOOTCANDLES
BASED ON DOWNLIGHT ONLY

Mounting Height AFF	FC at Center on Floor	Beam Diameter	FC at Beam Edge
8 '	80 fc	4.9 '	35 fc
10 '	51 fc	6.2 '	22 fc
12 '	36 fc	7.4 '	16 fc
14 '	26 fc	8.6 '	11 fc
16 '	20 fc	9.9 '	9 fc
20 '	13 fc	12.3 '	6 fc
24 '	9 fc	14.8 '	4 fc
28 '	7 fc	17.3 '	3 fc

MULTIPLE UNITS: PERFORMANCE
80/50/20% REFLECTANCES
INITIAL FOOTCANDLES AND WATTS PER SQUARE FOOT

Ceiling Height	Fixture Spacing	RCR 3		RCR 5	
		FC +	W/Sq. Ft.	FC +	W/Sq. Ft.
15'	5'	73	0.78	61	0.71
18'	6'	44	0.47	37	0.43
22'	8'	26	0.28	22	0.25
Delivered Illuminance Rating: (DIR)		94 FC per W/Sq. Ft.		86 FC per W/Sq. Ft.	

2' Suspension Length to luminous aperture
Square rooms used for multiple units:
RCR 3: Length & Width = Ceiling Ht. - 4.5' x 3.33
RCR 5: Length & Width = Ceiling Ht. - 4.5' x 2.00
+ Average Footcandles at 2.5' Above Floor

Delivered Lumens: 1842
Luminaire Watts: 19.5
LER: 94.46

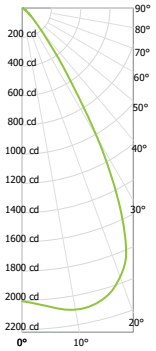
CP at 0° (Nadir): 5123
CRI: 80+

Beam Angle: 34°
Spacing Ratio: 0.57

Lumen Multiplier: 05 x 0.41, 10 x 0.66, 20 x 1.27
CCT Multiplier: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87

CR2 835 15 xx xx RD2XF RB2BS xx xx

CANDLEPOWER CURVE
TEST SP-01275



INTENSITY
CANDELA
0° AZIMUTH

	0°
0°	2006
5°	2049
15°	2074
25°	1641
35°	482
45°	108
55°	28
90°	2

ZONAL LUMENS

0° - 10°	200	10%
0° - 20°	784	40%
0° - 30°	1503	77%
0° - 40°	1823	93%
0° - 60°	1933	99%
0° - 80°	1941	99%
0° - 90°	1943	99%
Total	1954	100%

SINGLE UNIT: PERFORMANCE
DIRECT FOOTCANDLES
BASED ON DOWNLIGHT ONLY

Mounting Height AFF	FC at Center on Floor	Beam Diameter	FC at Beam Edge
6 '	56 fc	6.9 '	18 fc
8 '	31 fc	9.1 '	10 fc
10 '	20 fc	11.4 '	7 fc
12 '	14 fc	13.7 '	5 fc
14 '	10 fc	16.0 '	3 fc
16 '	8 fc	18.3 '	3 fc
20 '	5 fc	22.9 '	2 fc
24 '	3 fc	27.4 '	1 fc

MULTIPLE UNITS: PERFORMANCE
80/50/20% REFLECTANCES
INITIAL FOOTCANDLES AND WATTS PER SQUARE FOOT

Ceiling Height	Fixture Spacing	RCR 2		RCR 4	
		FC +	W/Sq. Ft.	FC +	W/Sq. Ft.
12'	6'	50	0.50	44	0.50
15'	8'	26	0.25	23	0.25
18'	10'	21	0.21	14	0.15
Delivered Illuminance Rating: (DIR)		101 FC per W/Sq. Ft.		89 FC per W/Sq. Ft.	

2' Suspension Length to luminous aperture
Square rooms used for multiple units:
RCR 2: Length & Width = Ceiling Ht. - 4.5' x 5.00
RCR 4: Length & Width = Ceiling Ht. - 4.5' x 2.50
+ Average Footcandles at 2.5' Above Floor

Delivered Lumens: 1954
Luminaire Watts: 19.5
LER: 100.21

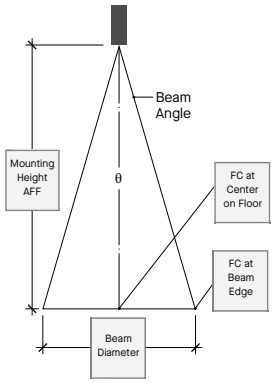
CP at 0° (Nadir): 2006
CRI: 80+

Beam Angle: 60°
Spacing Ratio: 1.01

Lumen Multiplier: 05 x 0.41, 10 x 0.66, 20 x 1.27
CCT Multiplier: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87

HOW TO USE PERFORMANCE DATA

SINGLE UNIT



Cone of Light of a single, symmetrical beam luminaire. Direct initial illumination (FC) and Beam Angle diameter directly beneath fixture; shown at different distances from aperture to horizontal plane. Calculated using Inverse Square Law.

$FC_H = CP \times (\cos \theta) \div D^2$

Beam Diam. = ½ Beam Angle (Tan) x 2D

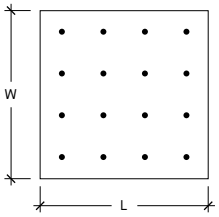
- CP — Candela at 0° (Nadir)
- Cos θ — Cosine of θ Angle
- D — Distance (Mounting Height AFF)
- FC_H — Footcandles, Horizontal
- Beam Angle — Cone of light to 50% max. CP
- Beam Diam. — Pattern of light at Beam Angle

MULTIPLE UNITS

Square grid layout of multiple luminaires in unfurnished, square rooms of different proportions (Room Cavity Ratios) with 80/50/20% room surface reflectances. 2' Suspension Length to aperture. Initial average illumination (FC) calculated at 2.5' above floor, using Zonal Cavity Method. W/Sq. Ft. of layout shown for each ceiling height and RCR.

Delivered Illuminance Rating (DIR+):
System performance indicator expressed as ratio of approximate initial FC per W/Sq. Ft. delivered to horizontal plane below, for the range of ceiling heights indicated.

- To estimate FC for Fixture Spacing that is different than shown (do not exceed Spacing Ratio):
  FC = Chart Spacing^2 ÷ Different Spacing^2 x Chart FC
- To estimate Sq. Ft. per fixture for a specific target FC:
  Sq. Ft. / Fixture = Chart FC x Chart Spacing^2 ÷ Target FC



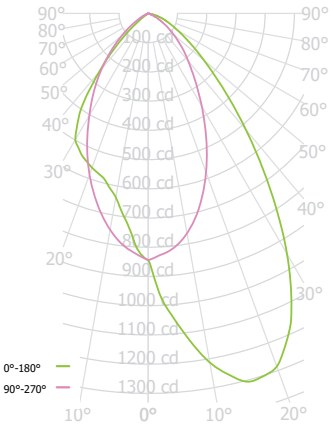
- To estimate Fixture Quantity in a room:
  Fixture Qty. = Sq. Ft. of Rm. ÷ Sq. Ft. per fixture
- To estimate Watts/Sq. Ft.:
  W/ Sq. Ft. = Luminaire Watts x Qty. ÷ Sq. Ft. of Rm.

CR2 2" CYLINDER

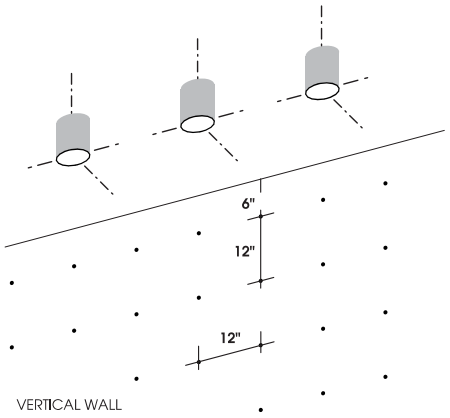
Spectrum Lighting

CR2 835 15 xx xx RD2WW RB2BW xx xx

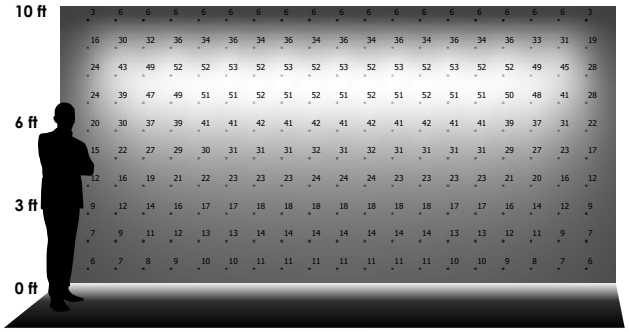
CANDLEPOWER CURVE TEST SP-01273_7	PERFORMANCE SUMMARY	REFERENCE DIAGRAM



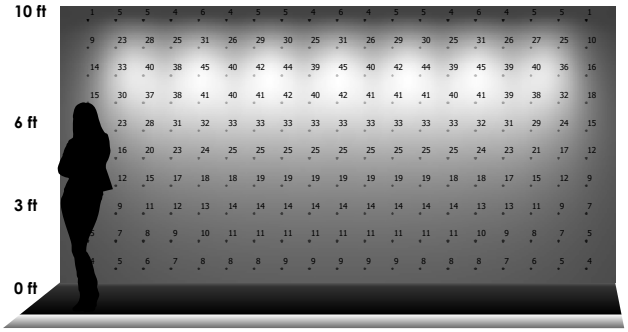
Delivered Lumens:	1167
Luminaire Watts:	19.5
LER:	59.85
CP at 0deg (Nadir):	844
CRI:	80+
Lumen Multiplier:	05 x 0.41, 10 x 0.66, 20 x 1.27
CCT Multiplier:	822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0 927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87



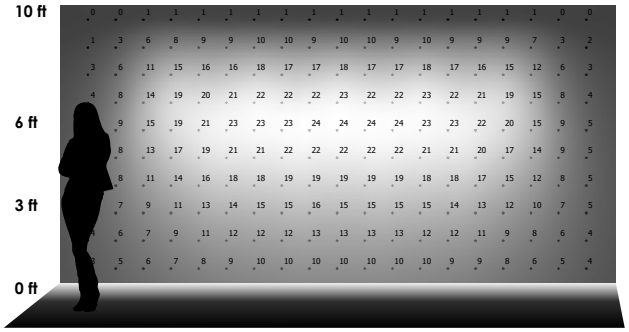
PERFORMANACE DATA - INITIAL ILLUMINATION (FOOTCANDLES) ON WALL - DIRECT LIGHT ONLY



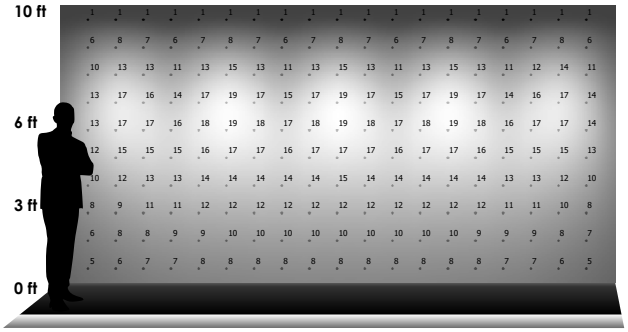
9 LUMINAIRES
2' - 0" away from wall
2' - 0" between luminaires



7 LUMINAIRES
2' - 6" away from wall
2' - 6" between luminaires



5 LUMINAIRES
3' - 0" away from wall
3' - 0" between luminaires



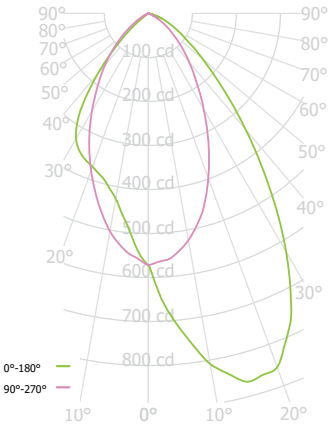
5 LUMINAIRES
3' - 0" away from wall
4' - 0" between luminaires

CR2 2" CYLINDER

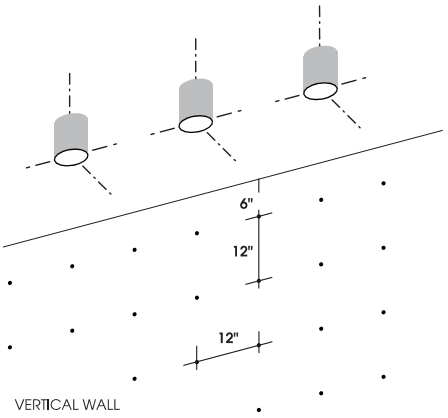
Spectrum Lighting

CR2 835 10 xx xx WW BW TB xx

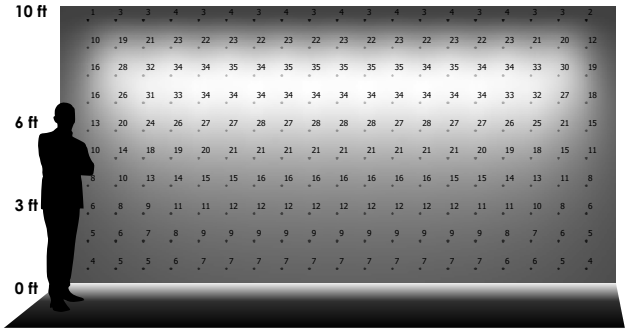
CANDLEPOWER CURVE TEST SP-01270_1	PERFORMANCE SUMMARY	REFERENCE DIAGRAM



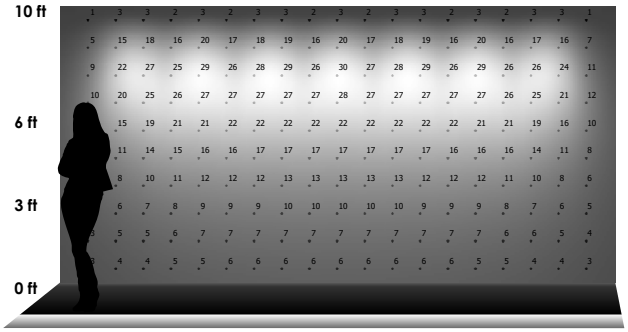
Delivered Lumens:	769
Luminaire Watts:	12.5
LER:	61.52
CP at 0deg (Nadir):	572
CRI:	80+
Lumen Multiplier:	05 x 0.62, 15 x 1.52, 20 x 1.92
CCT Multiplier:	822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0 927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87



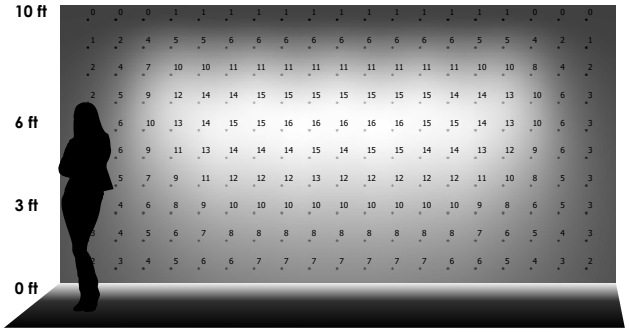
PERFORMANACE DATA - INITIAL ILLUMINATION (FOOTCANDLES) ON WALL - DIRECT LIGHT ONLY



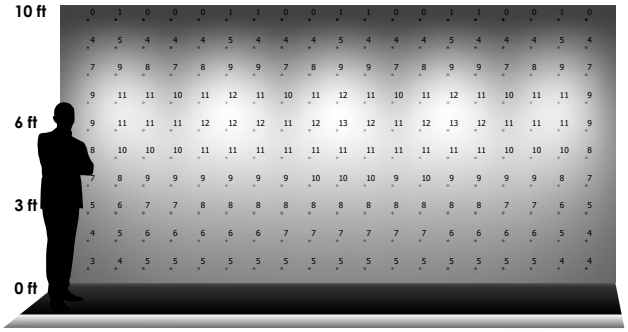
9 LUMINAIRES
2' - 0" away from wall
2' - 0" between luminaires



7 LUMINAIRES
2' - 6" away from wall
2' - 6" between luminaires



5 LUMINAIRES
3' - 0" away from wall
3' - 0" between luminaires



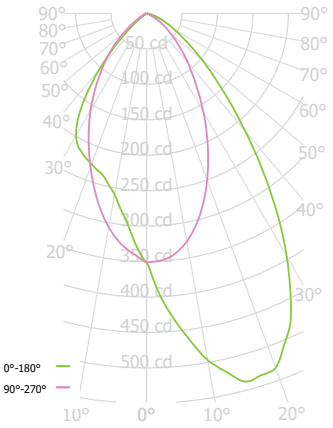
5 LUMINAIRES
3' - 0" away from wall
4' - 0" between luminaires

CR2 2" CYLINDER

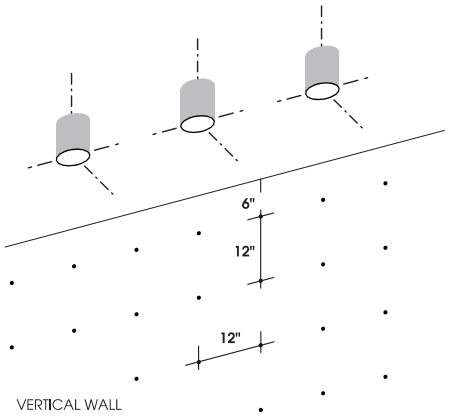
Spectrum Lighting

CR2 835 05 xx xx RD2WW RB2BW xx xx

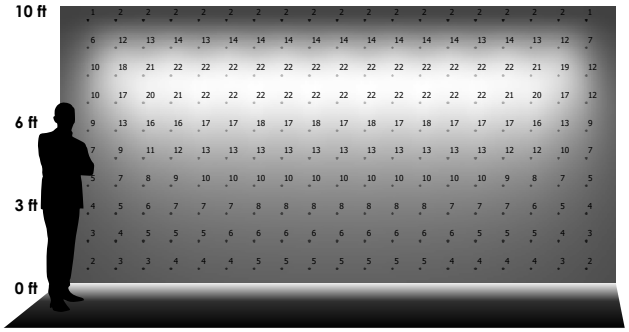
CANDLEPOWER CURVE TEST SP-01270	PERFORMANCE SUMMARY	REFERENCE DIAGRAM



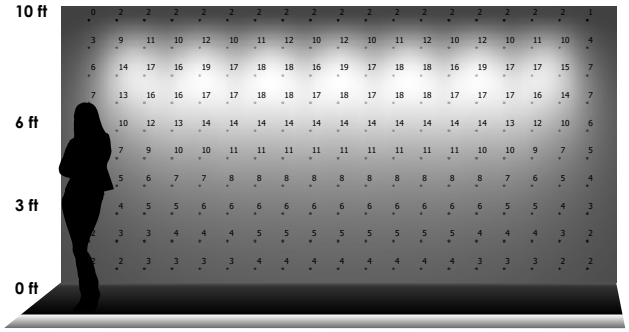
Delivered Lumens:	473
Luminaire Watts:	7
LER:	67.57
CP at 0deg (Nadir):	351
CRI:	80+
Lumen Multiplier:	10 x 1.61, 15 x 2.44, 20 x 3.10
CCT Multiplier:	822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0 927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87



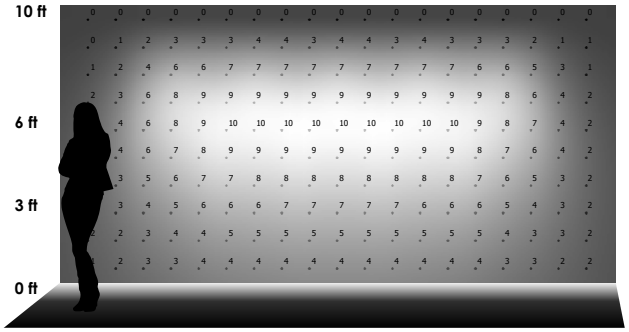
PERFORMANACE DATA - INITIAL ILLUMINATION (FOOTCANDLES) ON WALL - DIRECT LIGHT ONLY



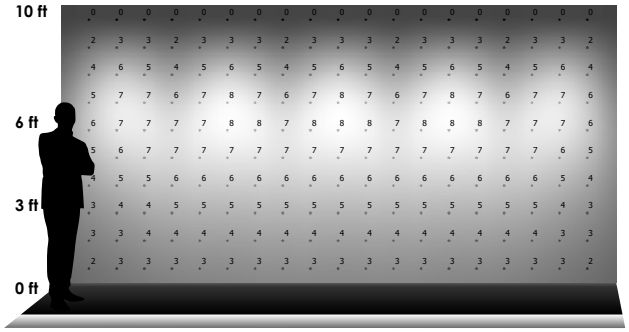
9 LUMINAIRES
2' - 0" away from wall
2' - 0" between luminaires



7 LUMINAIRES
2' - 6" away from wall
2' - 6" between luminaires



5 LUMINAIRES
3' - 0" away from wall
3' - 0" between luminaires



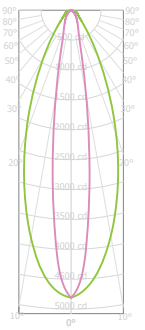
5 LUMINAIRES
3' - 0" away from wall
4' - 0" between luminaires

CR2 2" CYLINDER

Spectrum Lighting

CR2 835 15 xx xx RD2XS RB2BS xx RA2LL

CANDLEPOWER CURVE
TEST SP-01276_2



INTENSITY
CANDELA
0° AZIMUTH

	0°	90°	180°	270°
0°	4808	4808	4808	4808
5°	4493	3378	4542	3354
15°	3024	582	3023	589
25°	1467	263	1478	257
35°	557	155	566	149
45°	235	87	233	81
55°	146	34	134	29
90°	2	2	2	1

ZONAL LUMENS

0° - 10°	328	24%
0° - 20°	740	55%
0° - 30°	1008	75%
0° - 40°	1162	86%
0° - 60°	1297	96%
0° - 80°	1333	99%
0° - 90°	1335	99%
Total	1345	100%

SINGLE UNIT: PERFORMANCE
DIRECT FOOTCANDLES
BASED ON DOWNLIGHT ONLY

Mtg Height AFF	FC at Center	Beam Length	Beam Width	FC at Beam Edge
10 '	48 fc	6.8 '	2.6 '	20 fc
12 '	33 fc	8.1 '	3.1 '	14 fc
14 '	25 fc	9.5 '	3.6 '	10 fc
16 '	19 fc	10.9 '	4.1 '	8 fc
20 '	12 fc	13.6 '	5.1 '	5 fc
24 '	8 fc	16.3 '	6.1 '	4 fc
28 '	6 fc	19.0 '	7.2 '	3 fc
32 '	5 fc	21.7 '	8.2 '	2 fc

Delivered Lumens: 1345
Luminaire Watts: 19.5
LER: 68.97

CP at 0° (Nadir): 4808
CRI: 80+

Beam Angle: 38° x 15°
Spacing Ratio: 0.59 x 0.25

Lumen Multiplier: 05 x 0.41, 10 x 0.66, 20 x 1.27
CCT Multiplier: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87

Beam Angle: The included angle between those points on opposite sides of the beam axis at which the luminous intensity (candela) emitted by the luminaire is 50% of the maximum candela.

Spacing Ratio: The on-center fixture spacing, divided by the vertical distance from the fixture aperture to the illuminated surface.

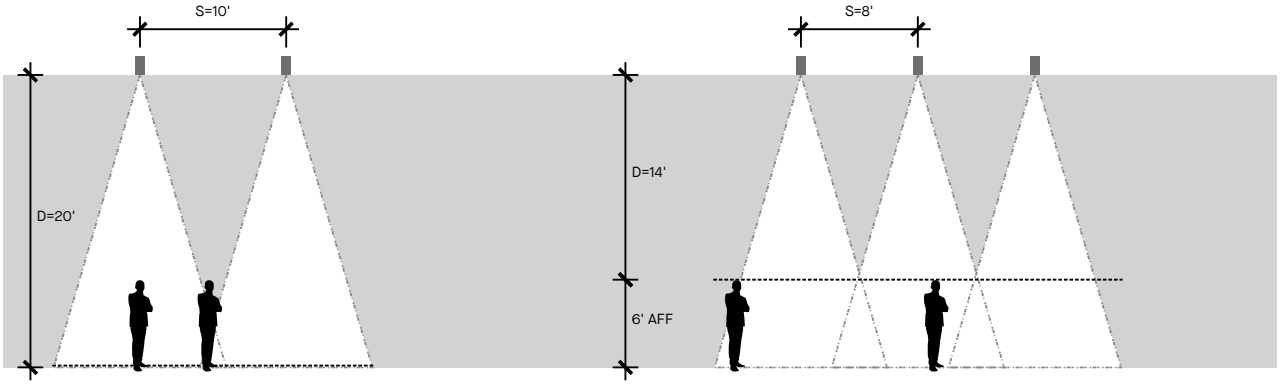
To estimate uniform illumination at a horizontal plane, use Spacing Ratio data to determine maximum fixture spacing.

The examples below illustrate concepts for an aisle/hallway, for uniform illumination (FC) at floor, or at 6' above finished floor (AFF). To estimate maximum fixture spacing for uniform illumination, multiply mounting Distance x Spacing Ratio.

Example A: Uniform FC at Floor

Example B: Uniform FC at 6' AFF

38° x 15° Beam Angles oriented for linear, overlapping light pattern



Example A: Uniform FC at Floor

Example B: Uniform FC at 6' AFF

S = Spacing between fixtures
D = Distance from aperture to horizontal plane

Spacing Ratio for this optic: 0.59 x 0.25
With optic oriented as shown, Spacing Ratio should be ≤ 0.59

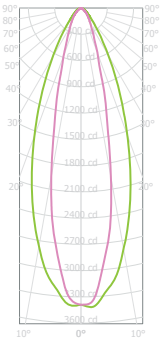
$$\frac{S}{D} = \frac{10'}{20'} = 0.50$$

Note: Illumination will also be uniform at < 6' AFF

$$\frac{S}{D} = \frac{8'}{14'} = 0.57$$

CR2 835 15 xx xx RD2SP RB2BS xx RA2LL

CANDLEPOWER CURVE
TEST SP-01274_2



INTENSITY
CANDELA
0° AZIMUTH

	0°	90°	180°	270°
0°	3391	3391	3391	3391
5°	3253	2935	3223	2903
15°	2179	1056	2166	1068
25°	1028	336	1045	361
35°	379	158	397	182
45°	149	84	158	93
55°	75	34	81	33
90°	2	1	2	2

ZONAL LUMENS

0° - 10°	274	20%
0° - 20°	709	51%
0° - 30°	1009	73%
0° - 40°	1181	85%
0° - 60°	1328	96%
0° - 80°	1368	99%
0° - 90°	1370	99%
Total	1381	100%

SINGLE UNIT: PERFORMANCE
DIRECT FOOTCANDLES
BASED ON DOWNLIGHT ONLY

Mtg Height AFF	FC at Center	Beam Length	Beam Width	FC at Beam Edge
8 '	53 fc	5.4 '	3.2 '	22 fc
10 '	34 fc	6.8 '	3.9 '	14 fc
12 '	24 fc	8.1 '	4.7 '	10 fc
14 '	17 fc	9.5 '	5.5 '	7 fc
16 '	13 fc	10.9 '	6.3 '	6 fc
20 '	8 fc	13.6 '	7.9 '	4 fc
24 '	6 fc	16.3 '	9.5 '	2 fc
28 '	4 fc	19.0 '	11.1 '	2 fc

Delivered Lumens: 1381
Luminaire Watts: 19.5
LER: 70.82

CP at 0° (Nadir): 3391
CRI: 80+

Beam Angle: 38° x 22°
Spacing Ratio: 0.60 x 0.38

Lumen Multiplier: 05 x 0.41, 10 x 0.66, 20 x 1.27
CCT Multiplier: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87

Beam Angle: The included angle between those points on opposite sides of the beam axis at which the luminous intensity (candela) emitted by the luminaire is 50% of the maximum candela.

Spacing Ratio: The on-center fixture spacing, divided by the vertical distance from the fixture aperture to the illuminated surface.

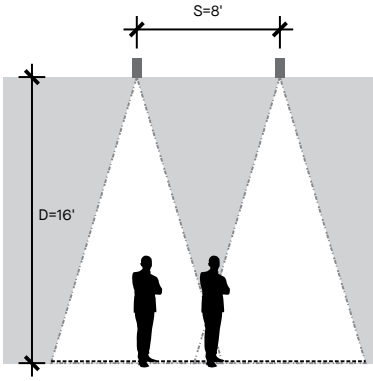
To estimate uniform illumination at a horizontal plane, use Spacing Ratio data to determine maximum fixture spacing.

The examples below illustrate concepts for an aisle/hallway, for uniform illumination (FC) at floor, or at 6' above finished floor (AFF). To estimate maximum fixture spacing for uniform illumination, multiply mounting Distance x Spacing Ratio.

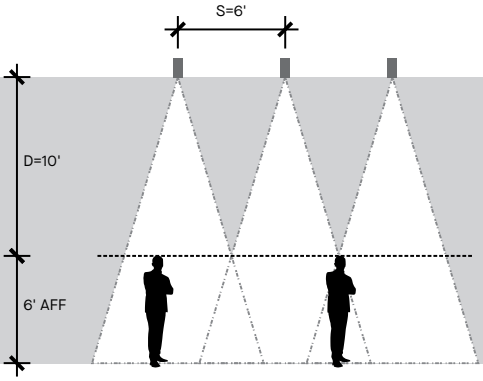
Example A: Uniform FC at Floor

Example B: Uniform FC at 6' AFF

38° x 22° Beam Angles oriented for linear, overlapping light pattern



Example A: Uniform FC at Floor



Example B: Uniform FC at 6' AFF

S = Spacing between fixtures
D = Distance from aperture to horizontal plane

Spacing Ratio for this optic: 0.60 x 0.38
With optic oriented as shown, Spacing Ratio should be ≤ 0.60

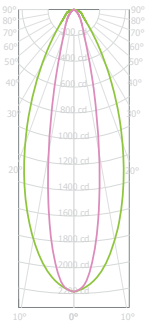
$$\frac{S}{D} = \frac{8'}{16'} = 0.50$$

Note: Illumination will also be uniform at < 6' AFF

$$\frac{S}{D} = \frac{6'}{10'} = 0.60$$

CR2 9DW 10 xx xx RD2XS RB2BS xx RA2LL

CANDLEPOWER CURVE
TEST SP-01276_5



INTENSITY
CANDELA
0° AZIMUTH

	0°	90°	180°	270°
0°	2186	2186	2186	2186
5°	2081	1861	2068	1872
15°	1469	547	1464	531
25°	767	169	768	167
35°	314	88	315	88
45°	135	45	136	44
55°	85	16	82	15
90°	1	1	1	1

ZONAL LUMENS

0° - 10°	172	21%
0° - 20°	432	54%
0° - 30°	602	75%
0° - 40°	695	87%
0° - 60°	772	96%
0° - 80°	793	99%
0° - 90°	795	99%
Total	803	100%

SINGLE UNIT: PERFORMANCE
DIRECT FOOTCANDLES
BASED ON DOWNLIGHT ONLY

Mtg Height AFF	FC at Center	Beam Length	Beam Width	FC at Beam Edge
8 '	34 fc	5.9 '	2.9 '	14 fc
10 '	22 fc	7.3 '	3.6 '	9 fc
12 '	15 fc	8.8 '	4.3 '	6 fc
14 '	11 fc	10.3 '	5.1 '	5 fc
16 '	9 fc	11.7 '	5.8 '	4 fc
20 '	5 fc	14.6 '	7.2 '	2 fc
24 '	4 fc	17.6 '	8.7 '	2 fc
28 '	3 fc	20.5 '	10.1 '	1 fc

Delivered Lumens: 803
Luminaire Watts: 16.5
LER: 48.67

CP at 0° (Nadir): 2186
CRI: 90

Beam Angle: 40° x 20°
Spacing Ratio: 0.64 x 0.34

Lumen Multiplier: only 1000 lms available
CCT Multiplier: N/A, dim to warm

Beam Angle: The included angle between those points on opposite sides of the beam axis at which the luminous intensity (candela) emitted by the luminaire is 50% of the maximum candela.

Spacing Ratio: The on-center fixture spacing, divided by the vertical distance from the fixture aperture to the illuminated surface.

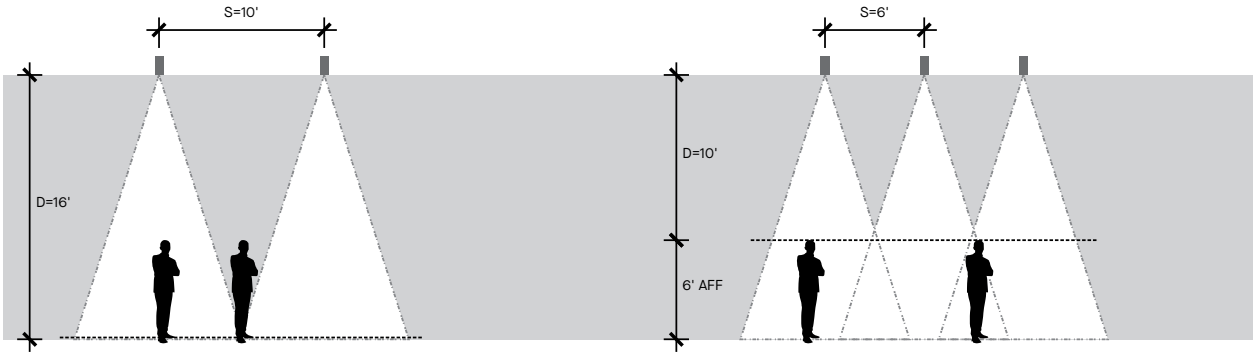
To estimate uniform illumination at a horizontal plane, use Spacing Ratio data to determine maximum fixture spacing.

The examples below illustrate concepts for an aisle/hallway, for uniform illumination (FC) at floor, or at 6' above finished floor (AFF). To estimate maximum fixture spacing for uniform illumination, multiply mounting Distance x Spacing Ratio.

Example A: Uniform FC at Floor

Example B: Uniform FC at 6' AFF

40° x 20° Beam Angles oriented for linear, overlapping light pattern



Example A: Uniform FC at Floor

Example B: Uniform FC at 6' AFF

S = Spacing between fixtures
D = Distance from aperture to horizontal plane

Spacing Ratio for this optic: 0.64 x 0.34
With optic oriented as shown, Spacing Ratio should be ≤ 0.64

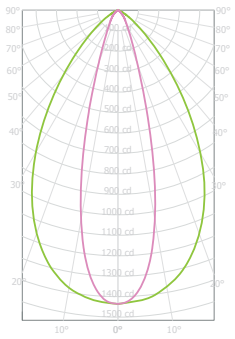
$$\frac{S}{D} = \frac{10'}{16'} = 0.63$$

Note: Illumination will also be uniform at < 6' AFF

$$\frac{S}{D} = \frac{6'}{10'} = 0.60$$

CR2 9DW 10 xx xx RD2SP RB2BS xx RA2LL

CANDLEPOWER CURVE
TEST SP-01274_5



INTENSITY
CANDELA
0° AZIMUTH

	0°	90°	180°	270°
0°	1435	1435	1435	1435
5°	1421	1346	1421	1348
15°	1288	593	1291	599
25°	1002	151	995	144
35°	599	64	601	63
45°	255	31	269	30
55°	89	11	96	9
90°	1	1	1	1

ZONAL LUMENS

0° - 10°	128	14%
0° - 20°	386	43%
0° - 30°	609	68%
0° - 40°	759	84%
0° - 60°	875	97%
0° - 80°	888	99%
0° - 90°	890	99%
Total	899	100%

SINGLE UNIT: PERFORMANCE
DIRECT FOOTCANDLES
BASED ON DOWNLIGHT ONLY

Mtg Height AFF	FC at Center	Beam Length	Beam Width	FC at Beam Edge
8 '	22 fc	10.0 '	3.9 '	7 fc
10 '	14 fc	12.5 '	4.9 '	4 fc
12 '	10 fc	15.1 '	5.8 '	3 fc
14 '	7 fc	17.6 '	6.8 '	2 fc
16 '	6 fc	20.1 '	7.8 '	2 fc
20 '	4 fc	25.1 '	9.7 '	1 fc
24 '	2 fc	30.1 '	11.6 '	1 fc
28 '	2 fc	35.1 '	13.6 '	1 fc

Delivered Lumens: 899
Luminaire Watts: 16.5
LER: 54.48

CP at 0° (Nadir): 1435
CRI: 90

Beam Angle: 64° x 27°
Spacing Ratio: 0.95 x 0.45

Lumen Multiplier: only 1000 lms available
CCT Multiplier: N/A, dim to warm

Beam Angle: The included angle between those points on opposite sides of the beam axis at which the luminous intensity (candela) emitted by the luminaire is 50% of the maximum candela.

Spacing Ratio: The on-center fixture spacing, divided by the vertical distance from the fixture aperture to the illuminated surface.

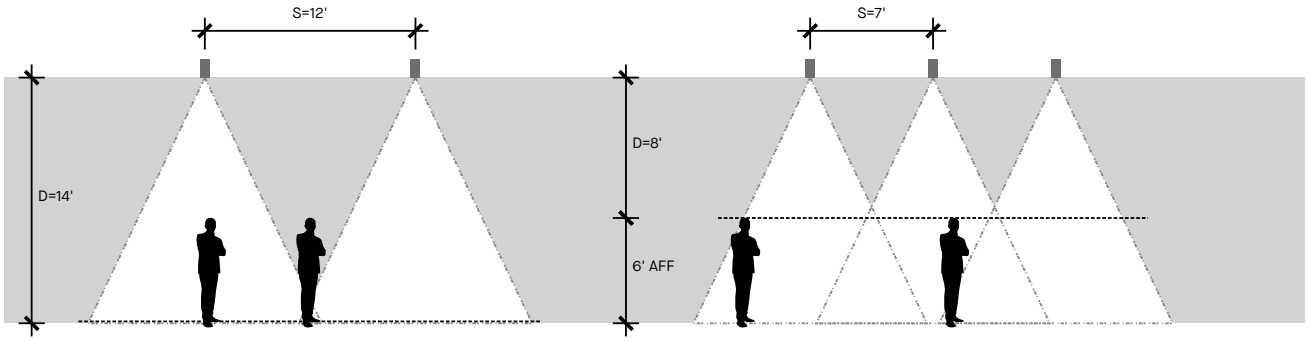
To estimate uniform illumination at a horizontal plane, use Spacing Ratio data to determine maximum fixture spacing.

The examples below illustrate concepts for an aisle/hallway, for uniform illumination (FC) at floor, or at 6' above finished floor (AFF). To estimate maximum fixture spacing for uniform illumination, multiply mounting Distance x Spacing Ratio.

Example A: Uniform FC at Floor

Example B: Uniform FC at 6' AFF

64° x 27° Beam Angles oriented for linear, overlapping light pattern



Example A: Uniform FC at Floor

Example B: Uniform FC at 6' AFF

S = Spacing between fixtures
D = Distance from aperture to horizontal plane

Spacing Ratio for this optic: 0.95 x 0.45
With optic oriented as shown, Spacing Ratio should be ≤ 0.95

$$\frac{S}{D} = \frac{12'}{14'} = 0.86$$

Note: Illumination will also be uniform at < 6' AFF

$$\frac{S}{D} = \frac{7'}{8'} = 0.88$$