LIGHTOLIER
by Signify

Downlighting
Calculite 2"
C2A Adjustable Accent

LED

The Calculite 2" family features downlight, accent adjustable, and lensed wall wash serving as a complete recessed offering to accommodate all recessed application needs. The 50° light cut off and multiple adjustable beam angles provide quality light in a miniature aperture.

Project:

Location:

Cat.No:

Type:

Lamps: Qty:

Notes:

Complete luminaire = Engine + Trim + Accessories (optional)
Optional frames available (see page 2)

Engine

example: C2RA06927SPUPZULS6010

Series[1]	Style **A**	Lumens	CRI **9**	CCT	Beam	Dimming / Voltage	Flange	Options
C2R Calculite 2" round **C2S** Calculite 2" square	**A** Adj. Accent	**06** 600 lm **09** 900 lm **15** 1500 lm	**9** 90 CRI	**27** 2700 K **30** 3000 K **35** 3500 K **40** 4000 K	**NS** Narrow Spot (15°) **SP** Spot (19°) **NF** Narrow Flood (30°) **FL** Flood (55°)	**UPZU** 0–10 V 1% ELV 3% Triac 3% Unv (120V/277V) **LU** Lutron PEQ 100% – 0.1% Unv (120V/277V)	**—** Flanged (leave blank) **F** Flangeless[2]	**MesoOptics** **—** Symmetrical soft focus **LS6010** Linear spread 60x10 **ASY21** Asymmetrical 21° bend angle **ASY8** Asymmetrical 8° bend angle **Hex Cell Louver** **HCL** 2" hex cell louver Holder standard on light engine, order with MesoOptics film option or blank for symmetrical (ex. HCLLS6010)

Trim

example: C2RAWT

Series	Style **A**	Finish	Flange
C2R Calculite 2" round **C2S** Calculite 2" square	**A** Adjustable Accent	**WT** Textured white	**—** White **F** Flangeless[2]
		WH White (matte) **BK** Black (painted matte) **BT** Textured black **BZ** Bronze **D** Aluminum diffuse **CD** Clear diffuse (applied finish) Special painted finishes available with RAL number.	**—** White (matte) **P** Matching reflector **F** Flangeless[2]

1. Standard light engine may be used as a remodeler. Optional traditional frame-in kits are available.
2. Flangeless option code must be ordered for both light engine and trim. Mud-in ring is integral with the light engine.
3. Requires IRT9015 IR remote & Interact Pro App for commissioning.

Accessories (order & install separately)

Field installed changeable TIR Optics
CA2NSSFR 15° TIR reflector
CA2SPSFR 19° TIR reflector
CA2NFSFR 30° TIR reflector
CA2FLSFR 55° TIR reflector

Accent accessories
CL2HCL 2" hex cell louver

MesoOptics accessories
CA2RSYM Symmetrical
CA2RLS6010 60x10 linear spread
CA2RASY21 21° bend angle
CA2RASY8 8° bend angle

Accessories
SBA Interact Ready System Bridge Accessory (refer to Philips System Bridge Accessory specification sheet for options and details)[3]
SWZDT SpaceWise wireless controller with dwell time functionality (order with UPZ dimming option only)

mesoOptics

IC INSULATION CONTACT

c UL us LISTED

RoHS COMPLIANT

interact ready.

C2A   Calculite 2"
Round and Square Adjustable Accent

Applications

- Ideal for use in retail, restaurants, residential, and office spaces to accentuate the space and provide tactical or ambience lighting from a minimalistic aperture
- The light engine is designed to be installed as a retrofit without need for a frame. Frames are optional to accommodate ceiling construction.
- Driver pod is tethered electrically to light engine and includes a quick disconnect. All rough-in wiring is done on the driver pod.
- All components are designed to accommodate below ceiling accessibility through the aperture without need for tools.

Dimensions

- **Max Ceiling Thickness:** 1.50"
- **Ceiling Cutout:** 3"
- **Max vertical angle:** 22° @ 1.50", 40° @ 1.00"

Frame-in-kits (optional)

- Light engines are designed to be installed as a retrofit without need for a separate frame
- Die formed steel construction with 1/2" collar for ease of cutting the hole in ceiling.
- Rough-in wiring is done on the light engine driver pod.
- Four models offered:
  - **2RN:** 2" Round New Construction, Non-IC
  - **2SN:** 2" Square New Construction, Non-IC
  - **2RA:** 2" Round New Const., IC, AirSeal, CCEA
  - **2SA:** 2" Square New Const., IC, AirSeal, CCEA

Optical systems

- **TIR** optics precisely control the beam pattern. Optics are field changeable.
- **PET** film provides a clean beam with mitigated spill and precise color mixing. Film is held in place via a holder integral to the engine that fits precisely TIR optic and LED socket.
- **COB** (chip on board) provides long useful life with precise color control over time.
- Finishing section trims are durable die cast aluminum with precision painted finish. May be easily repainted in the field to match desired aesthetic appeal.
- 50° cutoff angle.

Dimming

- UPZ option is universal 0-10v (1%), electronic low voltage (3%), and triac (3%) in a single driver
- Lutron PEQ (L) dimming to 0.1%

MesoOptics optical diffusion film

- **PET** film containing surface relieved, microscopic light diffusing structures/elements.
- Provides a clean beam with mitigated spill at articulated angles.
- Optimizes luminaire efficacy via high optical transmission.
- Homogenizes light engine luminance providing smooth gradients of white light.
- Other distribution options available including linear spread and asymmetric.
- May be field installed with available accessories.
- Holder is standard on light engines.

Interact Pro Enterprise

System Bridge Accessory with –SB option:

- A wireless IoT connected lighting solution for large enterprises that span across multiple floors, buildings and require multiple gateways.
- View all your projects under one dashboard and easily compare insights from multiple projects in one view.
- Compatible with UID8451/10 wireless dimmer switch, SWS200 wireless scene switch, wireless Occ sensor (OCC SENSOR IA CM IP42 WH 10/1) and wireless Day/Occ sensor (OCC MULTI SENSOR IA CM WH 10/1) and wireless Occupancy or Daylight & Occupancy sensors available.
- Use Interact software and insights to increase building efficiency, achieve building wide integration and optimize space through occupancy analytics.
- SB option in addition to occupancy and daylight sensing supports advanced IoT capabilities such as people estimation analysis, desk level temperature & humidity sensing, noise classification, and BLE beacon.
- Requires compatible Gateway and internet connectivity for commissioning.
- For more information, visit:
  www.interact-lighting.com/office or
  www.usa.lighting.philips.com/systems/system-areas/offices

SpaceWiseDT (SWZDT)

- Remote mounted and centralized SWZDT module accessory controls multiple luminaires.
- Compatible with any 0-10v driver
- 120-347V mains input voltage
- Up to 730VA load at 120V

Hex Cell Louver

- Available as factory installed option or field installed accessory.
- Light engine includes holder attached to primary TIR optic.
- Holder supports one MesoOptics film and one louver.

Light engine

- Die cast heat sinks provide optimized passive thermal management to maximize LED lumen maintenance.
- Precision spun lower collar mechanically attaches to heat sink assembly tool-free via springs. Integral leaf springs for flanged configurations allow easy installation into the ceiling or on optional frame-in kits.
- May be adjusted up to 40° vertically, and 362° horizontally. Vertical axis includes indicator marks, and both axes include locking via 1/16" allen wrench (included).
- For flangeless applications, mesh mud-in ring is integral to the lower collar eliminating the need to handle/order an accessory. Must specify flangeless light engine and trim.
- Predicted 70% lumen maintenance to >70,000 hours.
- 32°-86°F ambient operating range (0°-30°C).

Labels and listings

- cULus listed for damp locations
- CEC Title 24 JA8 certified
- CCEA listing on 2RA/2SA frames

Warranty

5 year limited warranty
Visit Signify.com/warranties for more information on Signify's standard 5-year limited warranty on complete luminaire systems.

0-10v/ELV/Triac Electrical Tables

Light Engine	Input volts	Input current	Drive current	Input power
C2_06_UPZU	120V	0.08A	250mA	9.8W
	277V	0.04A	—	—
C2_09_UPZU	120V	0.11A	350mA	13.4W
	277V	0.05A	—	—
C2_15_UPZU	120V	0.19A	600mA	23.3W
	277V	0.08A	—	—

Lutron Electrical Tables

Light Engine	Input volts	Input current	Drive current	Input power
C2_06_LU	120V	0.08A	250mA	9.7W
	277V	0.04A	—	—
C2_09_LU	120V	0.11A	350mA	13.6W
	277V	0.05A	—	—
C2_15_LU	120V	0.19A	600mA	23.3W
	277V	0.08A	—	—

C2A Calculite 2"
Round and Square Adjustable Accent

interact

	Interact Pro scalable system		
	Foundation	**Advanced**	**Enterprise**
Dimming, grouping, and zoning	✓	✓	✓
Bluetooth and ZigBee enabled	✓	✓	✓
Motion sensing and daylight harvesting	✓	✓	✓
Integration with 0-10V and phase dimming fixtures	✓	✓	✓
Code compliance	✓	✓	✓
Granular dimming and dwell time	✓	✓	✓
Energy reporting and monitoring		✓	✓
Scheduling		✓	✓
Demand response		✓	✓
BMS integration (BACnet)			✓
Floor plan visualization			✓
IoT sensors for wellness			✓
IoT Apps for productivity			✓

Currently supported maximum system size

To be able to design the lighting system correctly for the customer, it is important to know the prime characteristics of the system, its possibilities and limitations.

System level	
Total number of gateways	Unlimited
Total number of devices	200 per network
• luminaires with integrated sensors	150
• smart TLEDS	150
Total number of ZGP devices (sensors and switches)	50
• sensors	30
• switches	50
• zones and groups	64
Group level	
Recommended number of lights	40 (recommended 25)
Number of ZGP devices	5
Number of scenes	16

Interact IOT platform

Building connectivity bridge (BCB)

BACNet

BMS system

IT infrastructure

Interact Pro Enterprise

Wireless gateway

Wireless gateway

Interact Pro Advanced

Interact Pro App

Commissioning remote

Smart LED lamp

External battery powered sensor

Wireless luminaires with integrated sensor

Wireless wall switch

Plug load control module

0-10V control module

Phase dimming module

Interact Pro Foundation

C2A Calculite 2"

Round and Square Adjustable Accent

Round Engine (flanged)
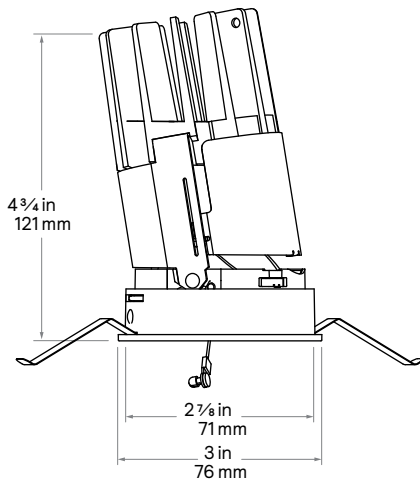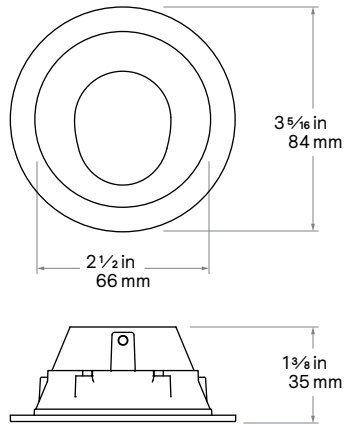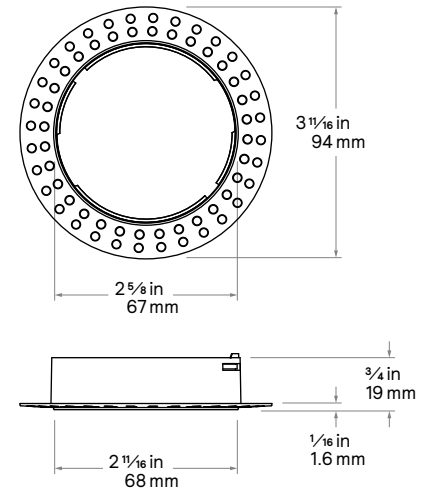
4 ¾ in
121 mm

2 ⅞ in
71 mm

3 in
76 mm

Round Trim

3 ⁵⁄₁₆ in
84 mm

2 ½ in
66 mm

1 ⅜ in
35 mm

Round Mud-in ring*

3 ¹¹⁄₁₆ in
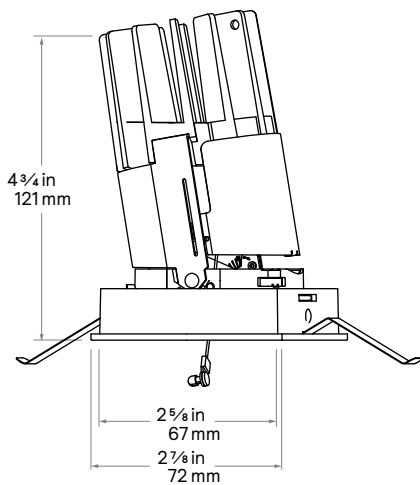94 mm

2 ⅝ in
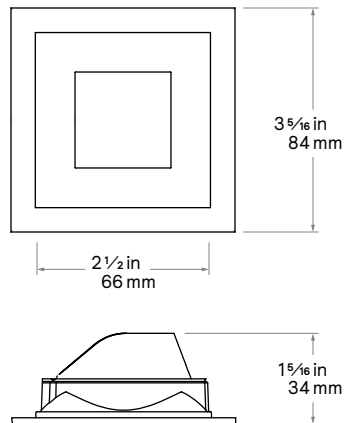67 mm

¾ in
19 mm

1⁄₁₆ in
1.6 mm

2 ¹¹⁄₁₆ in
68 mm

* Mud-in rings are integral to the light engine.
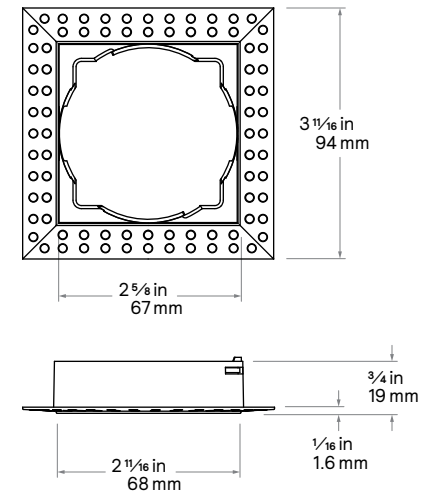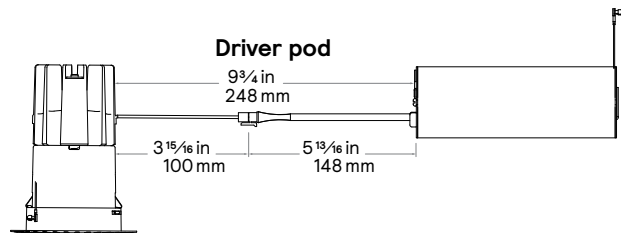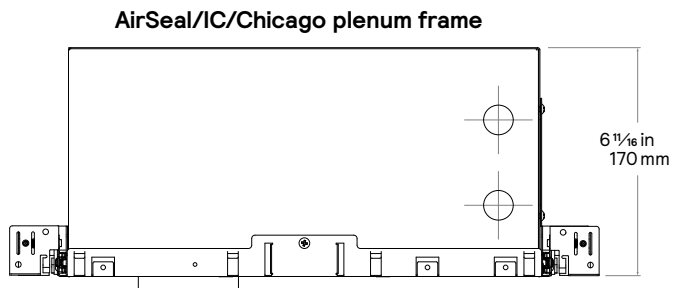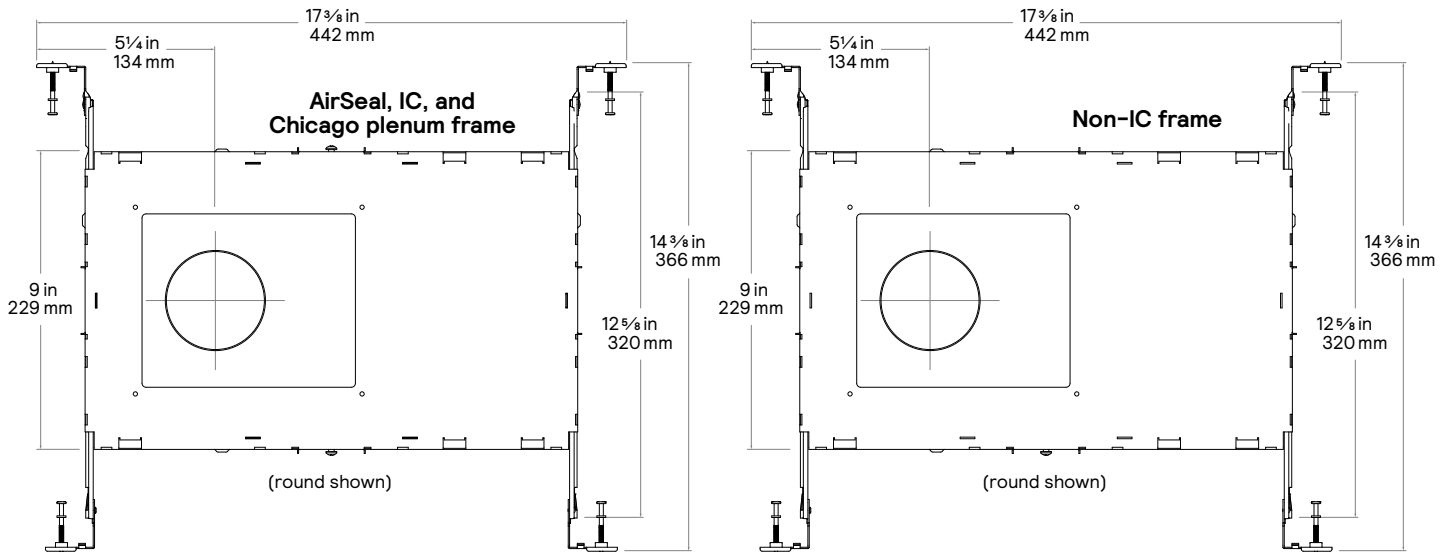Must order flangeless light engine and trim
with (F) option code.

Square Engine (flanged)

4 ¾ in
121 mm

2 ⅝ in
67 mm

2 ⅞ in
72 mm

Square Trim

3 ⁵⁄₁₆ in
84 mm

2 ½ in
66 mm

1 ⁵⁄₁₆ in
34 mm

Square Mud-in ring*

3 ¹¹⁄₁₆ in
94 mm

2 ⅝ in
67 mm

¾ in
19 mm

1⁄₁₆ in
1.6 mm

2 ¹¹⁄₁₆ in
68 mm

* Mud-in rings are integral to the light engine.
Must order flangeless light engine and trim
with (F) option code.

C2A Calculite 2"
Round and Square Adjustable Accent

Frames

The standard C2R/C2S light engines may be installed non-IC as a remodeler with no additional frame-in kit required. Optional frames below are available to facilitate ceiling construction


AirSeal, IC, and Chicago plenum frame

17 ⅜ in
442 mm

5¼ in
134 mm

9 in
229 mm

14 ⅜ in
366 mm

12 ⅝ in
320 mm

(round shown)

Non-IC frame

17 ⅜ in
442 mm

5¼ in
134 mm

9 in
229 mm

14 ⅜ in
366 mm

12 ⅝ in
320 mm

(round shown)

AirSeal/IC/Chicago plenum frame

6 ¹¹⁄₁₆ in
170 mm

Maximum Ceiling thickness	Round Ceiling cutout	Square Ceiling cutout
1.5 in	3 in (3.2 in max)	3 x 3 in (3.2 x 3.2 in max)
38 mm	76 mm (81 mm max)	76 x 76 mm (81 x 81 mm max)

Driver pod

9 ¾ in
248 mm

3 ¹⁵⁄₁₆ in
100 mm

5 ¹³⁄₁₆ in
148 mm

C2A Calculite 2"

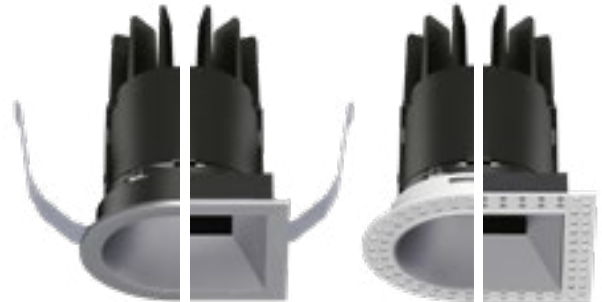## Round and Square Adjustable Accent

---

Finishes   Shown as round reflectors but represent the finish of Calculite square reflectors.
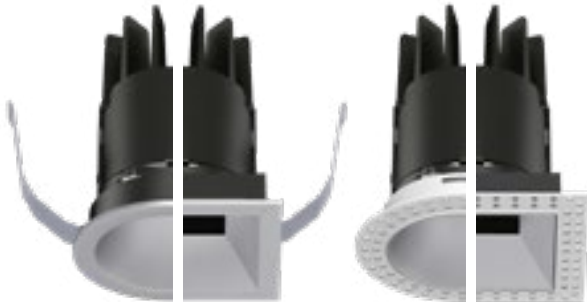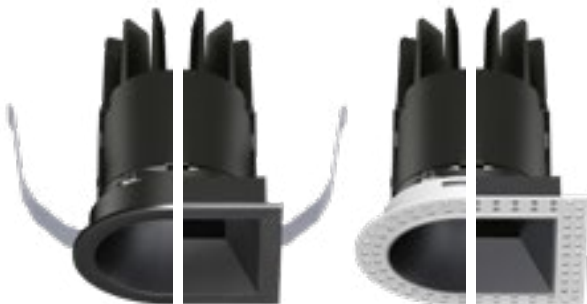

Matched Reflector   **Flangeless**

Clear diffuse (CD): Diffused painted finish with a hint of sparkle where a refined finish is desired.
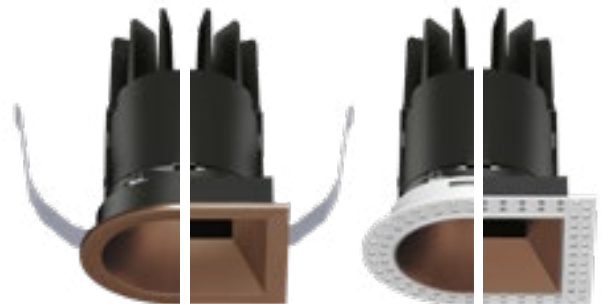

Matched Reflector   **Flangeless**

Aluminum diffuse (D): Semi-specular finish that softens the light at the source of the reflector and creates a subtle, even luminance from the reflector cone.

Matched Reflector   **Flangeless**

Black Textured (BT): Textured Matte finish that provides the lowest aperture brightness possible and significantly reduces source identification in a ceiling.

Matched Reflector   **Flangeless**

Bronze (BZ): Matte finish that provides the lowest aperture brightness possible and significantly reduces source identification in a ceiling.

Matched Reflector   **Flangeless**

White Textured (WT): Textured finish that provides the brightest illuminated aperture and provides the smoothest transition to most ceilings when off (white is only available with a white flange).

Mud-in ring (WH): Low profile, machined aluminum mud-in ring provides a raised rib to plaster up to and a 3⁄16" flange thickness. The ring is attached to the ceiling material directly via flat head screws (contractor supplied).

C2A Calculite 2"

Round and Square Adjustable Accent

Aiming angles

L and **W** are the outer points where the candle power drops to 50% of the maximum. **FC** are the initial footcandles at the center of the beam. Data shown is for 3000K, use the table on the right for CRI/CCT adjustment factors.
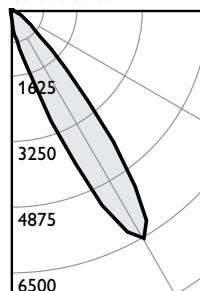
FC Footcandles
L Beam length
W Beam Width
D Distance
A Aiming Angle
C Distance to center beam
CBCP Center Beam Candlepower
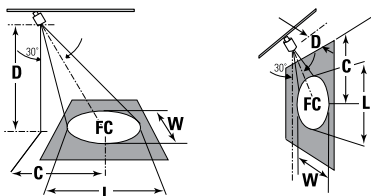
Adjustment Factors

Finish	CCT (90CRI)	Lumens
WT = 100%	4000K = 107%	1500lm = 167%
BT = 97%	3500K = 100%	900lm = 100%
BZ = 97%	3000K = 93%	600lm = 66%
D = 101%	2700K = 93%	
CD = 102%		

Candela Curve

Engine: **C2RA09935SPUPZU**
Trim: **C2RAWT**

Output lumens:	1087lms
Input watts:	13.8W
CRI:	90min
CCT[1]:	3500K
CBCP:	6504cd
Beam Angle:	19°

Efficacy: 78.8lm/w
Report[2]: STMR-184

Round, Spot, 900lm engine, 79lm/W at 14W

30° Horizontal Aiming

Distance			Beam	
D	C	F.C.	L	W
6	3.5	117	2.7	2.3
8	4.6	66	3.6	3.1
10	5.8	42	4.5	3.9
12	6.9	29	5.4	4.6

30° Vertical Aiming

Distance			Beam	
D	C	F.C.	L	W
2	3.5	203	2.9	1.3
3	5.2	90	4.4	2.0
4	6.9	51	5.8	2.7
5	8.7	33	7.3	3.3

Candela Curve
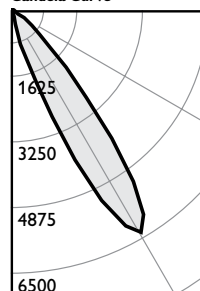
Engine: **C2SA09935SPUPZU**
Trim: **C2SAWT**

Output lumens:	966lms
Input watts:	13.7W
CRI:	90min
CCT[1]:	3500K
CBCP:	6309cd
Beam Angle:	19°

Efficacy: 70.5lm/w
Report[2]: STMR-165

Square, Spot, 900lm engine, 71lm/W at 14W

30° Horizontal Aiming

Distance			Beam	
D	C	F.C.	L	W
6	3.5	114	2.7	2.3
8	4.6	64	3.6	3.1
10	5.8	41	4.5	3.9
12	6.9	28	5.4	4.6

30° Vertical Aiming

Distance			Beam	
D	C	F.C.	L	W
2	3.5	197	2.9	1.3
3	5.2	88	4.4	2.0
4	6.9	49	5.8	2.7
5	8.7	32	7.3	3.3

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.