

PHILIPS LIGHTOLIER

Downlighting

Calculite LED gen 3 4" round tunable white

1000 & 1200lm



Project: _____
 Location: _____
 Cat.No: _____
 Type: _____
 Lamps: _____ Qty: _____
 Notes: _____

Calculite LED 4" generation 3 features industry leading visual comfort, excellent uniform illumination over time, and patented installation flexibility.

Complete luminaire = Frame + Engine + Trim + Accessories (optional)

Frame

example: C4RN

Series	Aperture	Installation	Voltage/Options
C4	R		
C4 Calculite LED 4" aperture	R Round	N New Construction R Remodeler	— Universal 120 V/277V 3 347V EM Emergency ^{2,3} LC Chicago Plenum ²
		A Airseal IC ¹	— Universal 120 V/277V

Engine

example: C4L10865MDUTW

Series	Lumens	CRI	CCT	Beam	Dimming	Voltage	Options
C4L							TW
C4L Calculite LED 4" aperture	10 1000lm 12 1200lm ¹	8 80 CRI	65 6500- 2700K	M Medium (56°) W Wide (76°) ⁴	D Dali	U Universal 120 V/277V/347V	TW Tunable White

Trim

example: C4RDLCCP

Series	Aperture	Style	Finish	Flange
C4	R			
C4 Calculite LED 4" aperture	R Round	DL Downlight WW Open Wall Wash ⁴ LW Lensed Wall Wash ⁴ CW Corner Wall Wash ^{4,5} DW Double Wall Wash ^{4,5}	CL Specular clear CC Comfort clear CD Comfort clear diffuse CZ Champagne bronze BK Black (matte)	— White (matte) P Polished F Flangeless ⁵
			WH White (matte)	— White (matte) F Flangeless ⁵

Accessories (ordered with a flangeless trim)

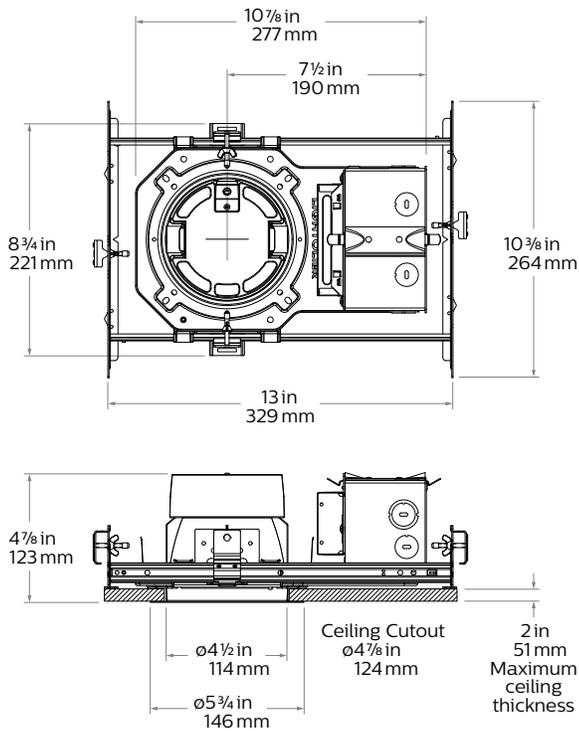
CA4RFT	Mud-in ring for use with flangeless installations.
CAEM	Field installable EM pack.
C4RVPWH	IP65 rated vandal proof matte white accessory that mounts onto a flangeless trim (not available for use with Lensed Wall Wash)

- The 1200lm (12) package is only compatible with the Airseal (C4RA or C4SA) frame.
- Emergency (EM) and Chicago Plenum (LC) options are only available with New construction (N) installations.
- Emergency (EM) frame comes with emergency battery pack and ceiling mountable test switch. Reflector mounted test switch requires above ceiling access. For reflector mounted test switch, order emergency frame and add "EM" suffix to reflector (example: C4RDLCCEM).
- Wide (W) beam is ideal for all Wall Wash (LW, WW, CW, DW) applications.
- Corner (CW) and Double (DW) wall wash are not available with flangeless (F) option.

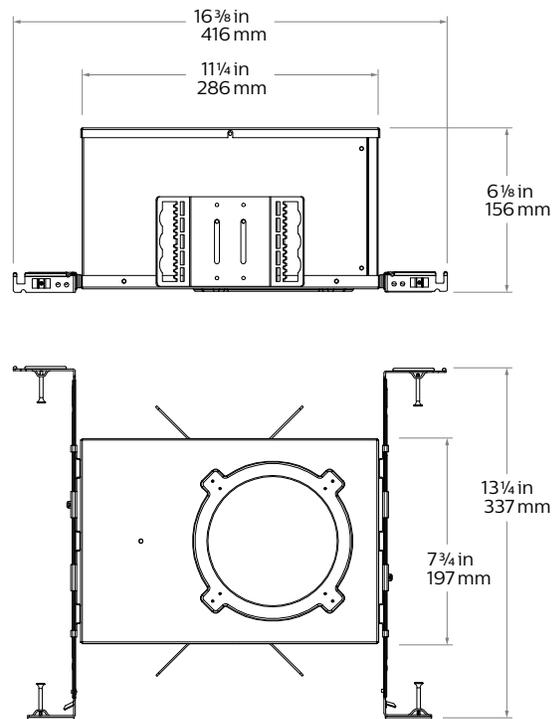
C4RTW Calculite LED generation 3

4" round tunable white

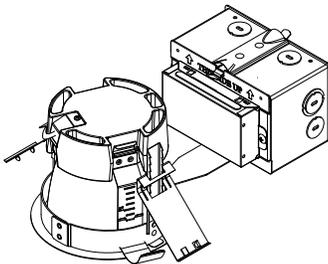
New Construction (N)



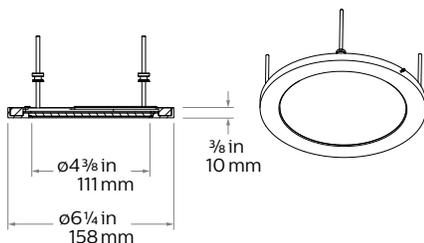
Chicago Plenum (LC)



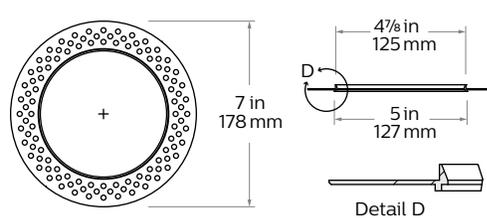
Remodeler (R)



Vandal Proof (VP) accessory



Flangeless mud-in ring (CA4RFT) accessory



Consult factory for wood installation instructions.

C4RTW Calculite LED generation 3

4" round tunable white

Frame-in-kits

New Construction

Galvanized stamped steel for dry or plaster ceilings. Preinstalled telescoping mounting bars from 13" to 24". For 4" distances, use 1/2" EMT, 1-1/2" x 1/2" U or C channel.

Max ceiling thickness is 2".

AirSeal

Black painted steel housing for dry or plaster ceilings. Pre-installed telescoping mounting bars from 13" to 24".

Patented install Mounting frame

With no driver attached, this versatile frame is independent of driver accommodating a wide range of lumen packages, driver types and CCTs, including 120V and 277V inputs.

Close-cut aperture design eliminates the possibility of undesired gap between ceiling opening and reflector flange.

Separate wiring compartment for wiring frame to building allows inspection prior to light engine installation.

Simple plug-and-play connection between the frame and light engine from below the ceiling eliminates the need for wiring between frame and LED driver, and also saves time during installation and future replacements/upgrades. Plug-and-play receptacle accommodates technology upgrade of light engines and replacements for the life of the building.

Optical systems

Comfort throughout the space:

Patented optical system combines primary and secondary optics to provide a true 50° physical cutoff and 45° reflected cutoff virtually eliminating the view of the light source and bright spots in the reflector. A new reflector curve reduces reflector brightness by up to 50% compared to existing products, allowing for the use of higher lumen packages in smaller apertures without creating bright spots in the ceiling.

Quality of light: 2 SDCM ensures color consistency from fixture to fixture and over the luminaire's long lifetime. Proprietary optical grade silicone lens with patterned surface provides soft, even beam diffusion without hotspots or dark rings.

Light Engine

Quick connect power pack comprised of light source and driver allow for easy installation and replacement from below ceiling with no need for additional wiring. This allows for

- Frame and ceiling installation to be performed while still finalizing details such as lumen packages, CCT and control type.
- Easy replacement of electronics at end of life with minimal wasted material and labor required.
- Ease and upgradability of technology.

Drivers

- EldoLED ECOdrive Dali 1% dimming

Options and Accessories

Flangeless mud-in ring: Use **CA4RFT** for use with flangeless plaster installations.

Sloped ceilings: Compatible with sloped ceiling adapters (see **SCA** spec sheet).

Labels and Listings

- cULus listed for wet locations
- IBEW Union made (light engines & reflectors)
- RoHS compliant

Warranty

5 year warranty on complete system.

Complete warranty available at: http://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/United%20States/ODL120150930_003-UPD-en_US-Philips-warranty-indoor-PLS-us.pdf

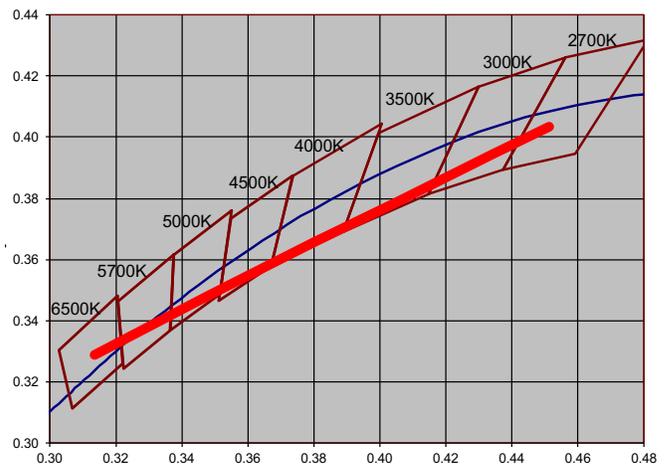
Color information

4" 1000lm	2700K	3000K	3500K	4000K	5000K	6500K
Flux (lms)	909	920	942	951	927	927
Power (W)	10.24	10.24	10.22	10.19	9.94	9.98
Efficacy (lm/W)	88.8	89.8	92.2	93.4	93.3	92.8
CCT	2766	2974	3423	3933	4866	6458
CRI	86	87	88	89	87	83
R9	21	26	33	36	32	13
x	0.4513	0.4335	0.404	0.3797	0.3483	0.3136
y	0.4034	0.394	0.3783	0.3653	0.3483	0.3288
Duv	-0.0019	-0.0036	-0.0053	-0.0052	-0.0029	0.0026

Lifetime (TM-21) data

Lumens	Narrow beam	Medium/Wide beam*
500lm	L90 @ 60,000hrs.	L90 @ 60,000hrs.
1000lm		
1500lm		
2000lm	L90 @ 60,000hrs.	L85 @ 60,000hrs.
2500lm		
3000lm*		

* Lutron 3000lm with Medium/Wide beam is L80 @ 60,000hrs.

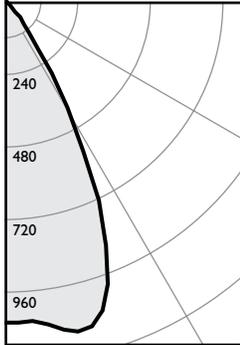


C4RTW Calculite LED generation 3

4" round tunable white

Medium beam, 1000lm Engine, 88.8 lm/W

Candela Curve



Frame: **C4RN**
 Engine: **C4L10865MDUTW**
 Trim: **C4RDLC**

Output lumens: 909.5 lms
 Input watts: 10.2 W
 CRI: 80 min
 CCT¹: 2700K
 Spacing Crit.: 0.8
 Beam Angle: 52°

Zonal summary

Zone	Lumens	%Luminaire
0-30	732	80.5%
0-40	863	94.9%
0-60	905	99.6%
0-90	909	100.0%

Angle	Mean CP	Lumens
0	1060	
5	1063	103
10	1103	
15	1112	307
20	992	
25	726	323
30	405	
35	190	131
40	99	
45	48	38
50	10	
55	5	5
60	3	
65	2	2
70	2	
75	1	1
80	1	
85	1	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	42	4.0'
6'	29	4.8'
7'	22	5.6'
8'	17	6.4'
9'	13	7.2'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	41.8	0.45
6'	27.5	0.30
7'	19.6	0.21
8'	16.3	0.18
9'	13.1	0.14

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 88.8 lm/w
 Report#: 1215GFR

Adjustment factors

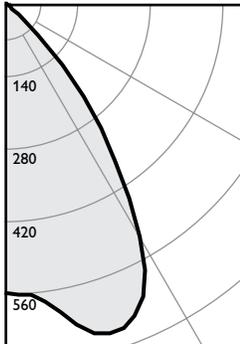
Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 103%	1500lm = ???%
CC = 95%	80CRI 3500K = 100%	1000lm = 100%
CD = 87%	80CRI 3000K = 95%	
CZ = 63%	80CRI 2700K = 93%	
WH = 87%	90CRI 3000K = 83%	
BK = 57%	90CRI 2700K = 78%	

Coefficients of utilization

Ceiling	80%					70%					50%					30%					0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0				
Wall	Zonal cavity method - Effective floor reflectance = 20%																				
RCR	Zonal cavity method - Effective floor reflectance = 20%																				
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	100	100	100	100	100				
1	114	111	109	107	109	105	105	102	102	99	94	96	92	88	88	88	88				
2	109	104	100	97	102	96	99	94	96	94	96	92	88	88	88	88	88				
3	104	97	93	89	96	88	94	87	91	86	83	83	83	83	83	83	83				
4	99	92	86	82	90	82	88	81	86	80	78	78	78	78	78	78	78				
5	94	86	81	77	85	76	84	76	82	75	73	73	73	73	73	73	73				
6	90	81	76	72	81	71	79	71	78	71	69	69	69	69	69	69	69				
7	86	77	71	67	76	67	75	67	74	66	65	65	65	65	65	65	65				
8	82	73	67	63	72	63	71	63	70	63	61	61	61	61	61	61	61				
9	78	69	64	60	69	60	68	59	67	59	58	58	58	58	58	58	58				
10	75	66	60	57	65	56	64	56	64	56	55	55	55	55	55	55	55				

Wide beam, 1200lm Engine, 81.7 lm/W

Candela Curve



Frame: **C4RN**
 Engine: **C4L12865WDUTW**
 Trim: **C4RDLC**

Output lumens: 837 lms
 Input watts: 10.2 W
 CRI: 80 min
 CCT¹: 2700K
 Spacing Crit.: 1.1
 Beam Angle: 72°

Zonal summary

Zone	Lumens	%Luminaire
0-30	519	62.0%
0-40	750	89.6%
0-60	833	99.5%
0-90	837	100.0%

Angle	Mean CP	Lumens
0	557	
5	563	55
10	603	
15	654	184
20	663	
25	622	280
30	516	
35	370	231
40	233	
45	87	76
50	15	
55	8	7
60	4	
65	3	3
70	2	
75	1	1
80	1	
85	0	0
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	22	5.5'
6'	15	6.6'
7'	11	7.7'
8'	9	8.8'
9'	7	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	37.7	0.45
6'	24.8	0.30
7'	17.7	0.21
8'	14.7	0.18
9'	11.8	0.14

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 81.7 lm/w
 Report#: 1216GFR

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 102%	1500lm = ???%
CC = 95%	80CRI 3500K = 100%	1000lm = 100%
CD = 87%	80CRI 3000K = 97%	
CZ = 63%	80CRI 2700K = 87%	
WH = 87%	90CRI 3000K = 77%	
BK = 57%	90CRI 2700K = 73%	

Coefficients of utilization

Ceiling	80%					70%					50%					30%					0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0				
Wall	Zonal cavity method - Effective floor reflectance = 20%																				
RCR	Zonal cavity method - Effective floor reflectance = 20%																				
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	100	100	100	100	100				
1	113	110	108	105	108	104	104	100	100	97	91	94	89	85	85	85	85				
2	107	102	98	94	100	93	97	91	94	89	85	85	85	85	85	85	85				
3	101	94	89	85	93	84	90	83	88	81	79	79	79	79	79	79	79				
4	95	87	81	77	86	77	84	76	82	75	72	72	72	72	72	72	72				
5	90	81	75	70	80	70	78	69	77	69	67	67	67	67	67	67	67				
6	85	75	69	64	75	64	73	64	72	63	61	61	61	61	61	61	61				
7	80	70	64	59	70	59	68	59	67	59	57	57	57	57	57	57	57				
8	76	66	59	55	65	55	64	54	63	54	53	53	53	53	53	53	53				
9	72	61	55	51	61	51	60	51	59	50	49	49	49	49	49	49	49				
10	68	58	51	47	57	47	56	47	56	47	45	45	45	45	45	45	45				

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.

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