

PHILIPS LIGHTOLIER

Downlighting

Calculite LED gen 3 4" round AirSeal

500 – 2000lm



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

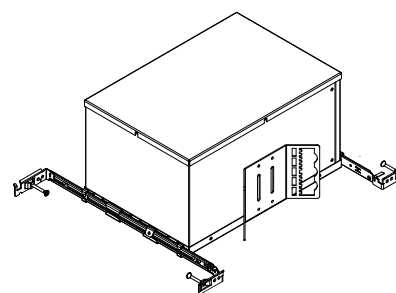
Complete product = Frame + Engine + Trim

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

Frame

example: C4RA

Series	Aperture	Installation
C4	R	A
C4 Calculite LED 4" aperture	R Round	A AirSeal IC (120/277V)



Engine

example: C4L15835NZ10U

Series	Lumens	CRI	CCT	Beam	Dimming	Voltage
C4L						
C4L Calculite LED 4" aperture	05 500lm ¹ 10 1000lm 15 1500lm	8 80CRI 9 90CRI ²	27 2700K ² 30 3000K ² 35 3500K 40 4000K	N Narrow (43°) M Medium (56°) W Wide (76°) ⁴	Z10 0-10V 1% SOL EldoLED Solo 0.1% D Dali L Lutron LDE1 EcoSystem fade-to-black	U Universal (120/277/347V)
					E ELV (120V dimming only)	1 Universal (120/277/347V)
					Z10 0-10V 1% SOL EldoLED Solo 0.1%	U Universal (120/277/347V)
					E ELV (120V dimming only)	1 Universal (120/277/347V)
	20 2000lm	8 80CRI 9 90CRI ²	27 2700K ² 30 3000K ² 35 3500K 40 4000K	M Medium (56°) W Wide (76°) ⁴	Z10 0-10V 1% SOL EldoLED Solo 0.1%	U Universal (120/277/347V)
					E ELV (120V dimming only)	1 Universal (120/277/347V)

Trim

example: C4RDLCCP

Series	Aperture	Style	Finish	Flange
C4	R			
C4 Calculite LED 4" aperture	R Round	DL Downlight WW Open Wall Wash LW Lensed Wall Wash CW Corner Wall Wash ³ DW Double Wall Wash ³	CL Specular clear CC Comfort clear CD Comfort clear diffuse CZ Champagne bronze BK Black (matte)	- White (matte) P Polished F Flangeless ³
			WH White (matte)	- White (matte) F Flangeless ³

Accessories (ordered with a flangeless trim)

CA4RFT Mud-in ring for use with flangeless installations.

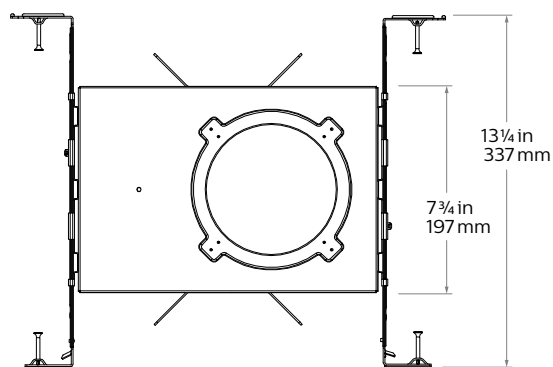
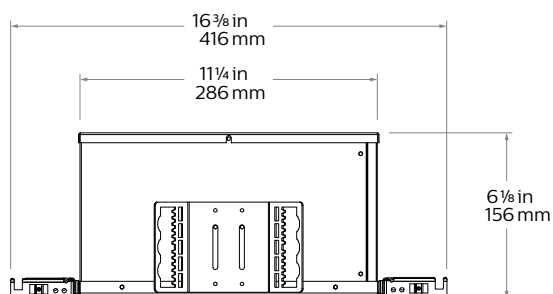
- The 500lm (05) option is only compatible with 0-10V (Z10) dimming.
- The 90 (9) CRI option is only available with 2700K (27) and 3000K (30) CCT.
- Corner (CW) and Double (DW) Wall Wash are not available with flangeless (F) option.
- Wide (W) beam is ideal for wall washing applications.



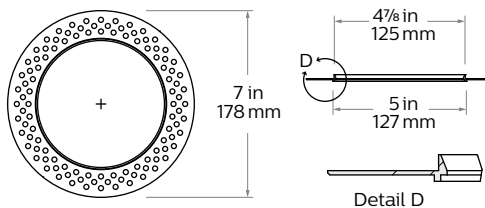
C4RA Calculite LED generation 3

4" round AirSeal IC for downlight and wall wash

AirSeal (A)



Flangeless mud-in ring (CA4RFT)



Consult factory for wood installation instructions.

Lifetime (TM-21) data

Lumens	Narrow beam	Medium/Wide beam
500lm		
1000lm	L85 @ 55,000hrs.	L90 @ 60,000hrs.
1500lm		
2000lm	L85 @ 55,000hrs.	L80 @ 60,000hrs.

Narrow

Light engine	Input volts	Input freq	Input current	Drive current	Input power	THD power	Power factor
C4L05_NZ10U	120V	50/60Hz	0.05	110 mA	6W	<20%	>0.95
	277V		0.03			<20%	>0.90
C4L10_NZ10U	120V	50/60Hz	0.08	230 mA	11W	<15%	>0.95
	277V		0.04			<20%	>0.95
C4L15_NZ10U	120V	50/60Hz	0.12	360 mA	16W	<10%	>0.95
	277V		0.06			<15%	>0.95
C4L20_NZ10U	120V	50/60Hz	0.17	490 mA	21W	<10%	>0.95
	277V		0.08			<15%	>0.95

Medium/Wide

Light engine	Input volts	Input freq	Input current	Drive current	Input power	THD power	Power factor
C4L05_MZ10U	120V	50/60Hz	0.05	110 mA	6W	<20%	>0.95
	277V		0.03			<20%	>0.90
C4L10_MZ10U	120V	50/60Hz	0.08	230 mA	11W	<15%	>0.95
	277V		0.04			<20%	>0.95
C4L15_MZ10U	120V	50/60Hz	0.12	350 mA	16W	<10%	>0.95
	277V		0.06			<15%	>0.95
C4L20_MZ10U	120V	50/60Hz	0.16	470 mA	21W	<10%	>0.95
	277V		0.08			<15%	>0.95

C4RA Calculite LED generation 3

4" round AirSeal IC for downlight and wall wash

Frame-in-kits

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.

Drivers

- Advance 0-10V 1% Dimming
- Lutron Hi-lume EcoSystem H Series 1% Dimming
- EldoLED ECOdrive Dali 1% Dimming
- EldoLED SOLOdrive 0-10V 0.1% dimming
- ELV dimming

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.

Options and Accessories

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

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

ENERGY STAR® exceptions

1. Dali configurations
2. 500lm configurations
3. 90 CRI configurations
4. Champagne Bronze and Black finishes
5. 347V and Emergency configurations
6. Wall wash configurations
7. ELV & EldoLED Solo dimming

Labels and Listings

cULus listed for wet locations

ENERGY STAR®

IBEW Union made (light engines & reflectors)

RoHS compliant

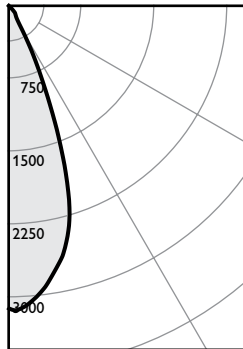
Warranty

5 year warranty on complete system.

Complete warranty available at: http://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/United%20States/ODLI20150930_003-UPD-en_US-Philips-warranty-indoor-PLS-us.pdf

Narrow beam, 1500lm Engine, 103.8 lm/W

Candela Curve



Frame: **C4RN**
Engine: **C4L15835NZ10U**
Trim: **C4RDLCL**

Output lumens: 1526 lms
Input watts: 14.7 W
CRI: 80 min
CCT¹: 3500K
Spacing Crit.: 0.6
Beam Angle: 43°

Zonal summary

Zone	Lumens	%Luminaire
0-30	1354	88.7%
0-40	1469	96.3%
0-60	1526	100.0%
0-90	1526	100.0%

Angle	Mean CP	Lumens
0	3112	282
5	3044	
10	2785	
15	2410	652
20	1672	
25	837	
30	324	420
35	163	
40	128	
45	77	57
50	0	
55	0	
60	0	0
65	0	
70	0	
75	0	0
80	0	
85	0	
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	124	3.0'
6'	86	3.6'
7'	64	4.2'
8'	49	4.8'
9'	38	5.4'

* 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'	71.3	0.65
6'	46.8	0.43
7'	33.4	0.31
8'	27.8	0.25
9'	22.3	0.20

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

Efficacy: 103.8 lm/w
Report#: T20161390

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 107%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 99%	2000lm = 133%
CZ = 63%	80CRI 2700K = 93%	1500lm = 100%
WH = 87%	90CRI 3000K = 87%	1000lm = 67%
BK = 57%	90CRI 2700K = 81%	500lm = 33%

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
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	112	110	108	110	106	106	103	102	100	95	95	95	95	95	95
	2	110	106	102	99	104	98	101	96	98	94	91	91	91	91	91	91
	3	105	100	96	92	99	92	96	90	94	89	86	86	86	86	86	86
	4	101	95	90	87	94	86	92	85	90	84	82	82	82	82	82	82
	5	97	90	85	82	89	81	88	81	86	80	78	78	78	78	78	78
	6	93	86	81	77	85	77	84	77	83	76	74	74	74	74	74	74
	7	90	82	77	74	81	73	80	73	79	73	71	71	71	71	71	71
	8	86	79	74	70	78	70	77	70	76	69	68	68	68	68	68	68
	9	83	75	70	67	75	67	74	67	73	66	65	65	65	65	65	65
10	80	72	67	64	72	64	71	64	70	64	62	62	62	62	62	62	62

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.

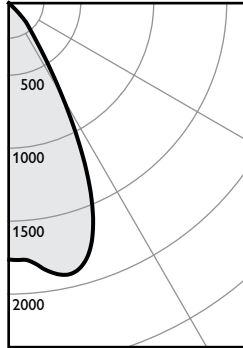
2. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

C4RA Calculite LED generation 3

4" round AirSeal IC for downlight and wall wash

Medium beam, 1500lm Engine, 114.6 lm/W

Candela Curve



Frame: **C4RN**
Engine: **C4L15835MZ10U**
Trim: **C4RDLCL**

Output lumens: 1627 lms
Input watts: 14.2 W
CRI: 80 min
CCT¹: 3500K
Spacing Crit.: 0.9
Beam Angle: 56°

Zonal summary

Zone	Lumens	%Luminaire
0-30	1269	78.0%
0-40	1537	94.5%
0-60	1627	100.0%
0-90	1627	100.0%

Angle	Mean CP	Lumens
0	1760	174
5	1783	
10	1886	
15	1887	
20	1702	
25	1283	572
30	762	
35	406	
40	236	268
45	116	
50	14	89
55	0	
60	0	1
65	0	
70	0	0
75	0	
80	0	0
85	0	
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	70	4.5'
6'	49	5.4'
7'	36	6.3'
8'	28	7.2'
9'	22	8.1'

* 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'	74.8	0.63
6'	49.1	0.41
7'	35.0	0.30
8'	29.2	0.25
9'	23.4	0.20

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

Efficacy: 114.6 lm/w
Report#: T20161397

Adjustment factors

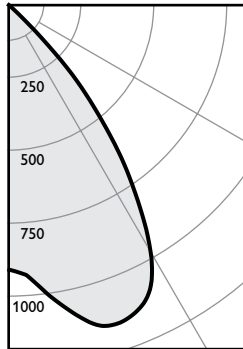
Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 102%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 97%	2000lm = 133%
CZ = 63%	80CRI 2700K = 87%	1500lm = 100%
WH = 87%	90CRI 3000K = 77%	1000lm = 67%
BK = 57%	90CRI 2700K = 73%	500lm = 33%

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100	100	100
	1	114	111	109	107	109	105	105	102	101	99	94	101	99	94	96	94
	2	108	104	100	97	102	96	99	94	96	92	88	96	92	88	96	92
	3	103	97	93	89	96	88	93	87	91	85	82	91	85	82	91	85
	4	98	91	86	82	90	81	88	81	86	80	77	86	80	77	86	80
	5	94	86	80	76	85	76	83	75	81	74	72	81	74	72	81	74
	6	89	81	75	71	80	71	79	70	77	70	68	77	70	68	77	70
	7	85	76	70	66	76	66	74	66	73	66	64	73	66	64	73	66
	8	81	72	66	62	71	62	70	62	69	62	60	69	62	60	69	62
	9	77	68	63	59	68	59	67	58	66	58	57	66	58	57	66	58
	10	74	65	59	55	64	55	63	55	63	55	54	63	55	54	63	55

Wide beam, 1500lm Engine, 106.6 lm/W

Candela Curve



Frame: **C4RN**
Engine: **C4L15835WZ10U**
Trim: **C4RDLCL**

Output lumens: 1517 lms
Input watts: 14.2 W
CRI: 80 min
CCT¹: 3500K
Spacing Crit.: 1.2
Beam Angle: 76°

Zonal summary

Zone	Lumens	%Luminaire
0-30	918	60.5%
0-40	1368	90.2%
0-60	1517	100.0%
0-90	1517	100.0%

Angle	Mean CP	Lumens
0	906	93
5	945	
10	1040	
15	1128	
20	1153	
25	1114	506
30	978	
35	732	
40	460	450
45	175	
50	18	148
55	0	
60	0	2
65	0	
70	0	0
75	0	
80	0	0
85	0	
90	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	36	6.0'
6'	25	7.2'
7'	18	8.4'
8'	14	9.6'
9'	11	10.8'

* 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'	68.5	0.63
6'	45.0	0.41
7'	32.1	0.30
8'	26.8	0.25
9'	21.4	0.20

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

Efficacy: 106.6 lm/w
Report#: T20161406

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 102%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 97%	2000lm = 133%
CZ = 63%	80CRI 2700K = 87%	1500lm = 100%
WH = 87%	90CRI 3000K = 77%	1000lm = 67%
BK = 57%	90CRI 2700K = 73%	500lm = 33%

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100	100	100
	1	113	110	108	105	108	104	104	100	100	97	93	100	97	93	94	89
	2	107	102	98	94	100	93	97	91	94	89	86	94	89	86	94	89
	3	101	94	89	85	93	84	90	83	88	81	79	88	81	79	88	81
	4	96	87	82	77	86	77	84	76	82	75	72	82	75	72	82	75
	5	90	81	75	70	80	70	78	69	77	69	66	77	69	66	77	69
	6	85	75	69	64	75	64	73	64	72	63	61	72	63	61	72	63
	7	80	70	64	59	69	59	68	59	67	58	56	67	58	56	67	58
	8	76	65	59	55	65	54	64	54	63	54	52	63	54	52	63	54
	9	72	61	55	50	61	50	60	50	59	50	48	59	50	48	59	50
	10	68	57	51	47	57	47	56	47	55	46	45	55	46	45	55	46

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSI 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.

C4RA Calculite LED generation 3

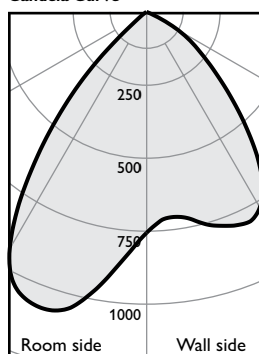
4" round AirSeal IC for downlight and wall wash

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 102%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 97%	2000lm = 133%
CZ = 63%	80CRI 2700K = 87%	1500lm = 100%
WH = 87%	90CRI 3000K = 77%	1000lm = 67%
BK = 57%	90CRI 2700K = 73%	500lm = 33%

Wall Wash, 1500lm Engine, 102.8 lm/W

Candela Curve



Frame: **C4RN**
Engine: **C4L15835WZ10U**
Trim: **C4RWCL**

Output lumens: 1465 lms
Input watts: 14.3 W
CRI: 80 min
CCT¹: 3500K

Efficacy: 102.8 lm/w
Report²: T20161408

Multiple unit data

Footcandles on wall

	2' from wall		
	3' on ctr.		
Distance from ceiling in feet	1	2	3
1	3	2	3
2	38	21	38
3	37	36	37
4	30	32	30
5	23	25	23
6	19	19	19
7	15	15	15
8	13	13	13
9	11	11	11
10	10	10	10
12	8	8	8
14	7	7	7

Multiple unit data

Footcandles on wall

	3' from wall		
	3' on ctr.		
Distance from ceiling in feet	1	2	2
1	2	2	2
2	2	2	2
3	21	19	21
4	24	25	24
5	24	25	24
6	21	22	21
7	18	19	18
8	16	16	16
9	14	14	14
10	12	12	12
12	10	10	10
14	9	8	9

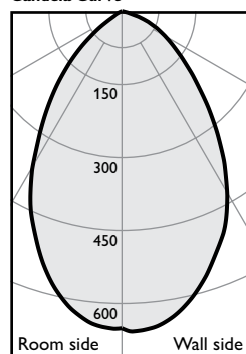
Multiple unit data

Footcandles on wall

	3' from wall		
	4' on ctr.		
Distance from ceiling in feet	1	2	2
1	2	2	2
2	2	2	2
3	18	16	18
4	20	19	20
5	18	19	18
6	16	17	16
7	14	15	14
8	12	12	12
9	11	11	11
10	9	10	9
12	8	8	8
14	7	7	7

Lensed Wall Wash, 1500lm Engine, 71.1 lm/W

Candela Curve



Frame: **C4RN**
Engine: **C4L15835WZ10U**
Trim: **C4RLWCL**

Output lumens: 1012 lms
Input watts: 14.2 W
CRI: 80 min
CCT¹: 3500K

Efficacy: 71.1 lm/w
Report²: T20161407

Multiple unit data

Footcandles on wall

	2' from wall		
	3' on ctr.		
Distance from ceiling in feet	1	5	5
1	5	2	5
2	29	26	29
3	26	27	26
4	22	22	22
5	17	17	17
6	13	13	13
7	11	11	11
8	9	9	9
9	7	8	7
10	7	6	7
12	5	5	5
14	5	5	5

Multiple unit data

Footcandles on wall

	3' from wall		
	3' on ctr.		
Distance from ceiling in feet	1	2	2
1	2	15	10
2	10	20	18
3	18	19	19
4	19	18	17
5	17	15	15
6	15	13	13
7	13	11	11
8	11	9	9
9	9	9	9
10	8	8	8
12	7	7	7
14	6	6	6

Multiple unit data

Footcandles on wall

	3' from wall		
	4' on ctr.		
Distance from ceiling in feet	1	2	1
1	2	12	9
2	9	15	15
3	15	14	14
4	14	13	13
5	13	12	11
6	11	10	10
7	10	9	9
8	9	7	7
9	7	6	6
10	6	5	5
12	5	5	5
14	5	5	5

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSI 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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