

Project		Catalog #		Type	
Prepared by		Notes		Date	



# Metalux

## 24RLN

2' x 4' Recessed LED  
Specification Grade  
Rectilinear Shielding

### Typical Applications

- Commercial Office Spaces • Schools • Hospitals
- Retail Merchandising Areas

### Interactive Menu

- Order Information [page 2](#)
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- Product Warranty

### Product Certification



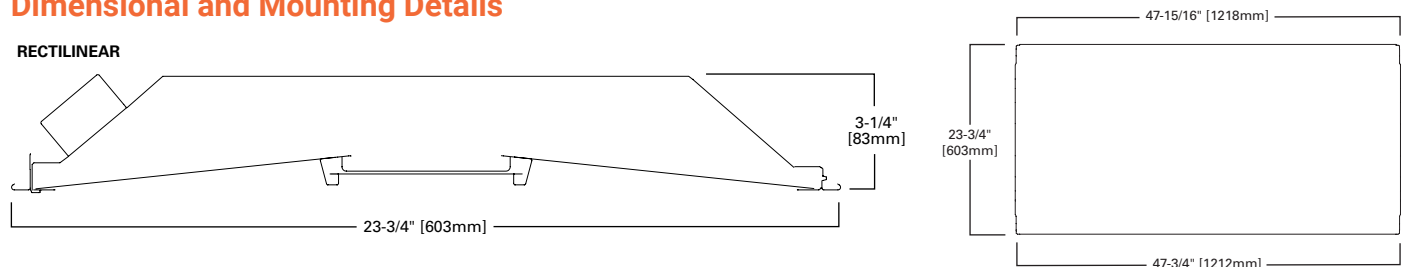
### Product Features



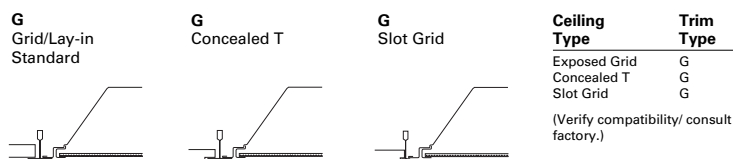
### Top Product Features

- Luminous center panel with gently elevated luminous side panels for a visually pleasing appearance
- Efficacy up to 139 lm/W, uniform illumination for a pleasant ambient environment
- 3000K, 3500K, and 4000K at 80 or 90 CRI
- White tuning solutions available, either 3000K - 5000K or 2700K - 6500K
- LED driver access from below the ceiling
- Options to meet Buy American and other domestic preference requirements

### Dimensional and Mounting Details



### Ceiling Compatibility



## Order Information

SAMPLE ORDER NUMBER: **24RLN-LD5-45-UNV-L835-CD1-U**

Domestic Preferences	Rating	Series	Door Frame	Lamp Type	Lumen Output	Shielding	Voltage	Emergency	CCT
<b>[Blank]</b> =Standard <b>BAA</b> =Buy American Act <b>TAA</b> =Trade Agreements Act	<b>[Blank]</b> =Standard <b>ATW-SW4</b> =Chicago Rated	24RLN=2x4 RLN Series	<b>Standard</b> =Flat White Steel Door (Leave Blank)	<b>LD5</b> =LED 5.0	<b>Stock</b> 45=4500 Lumen 55=5500 Lumen <b>MTO</b> 31=3100 Lumen 36=3600 Lumen 42=4200 Lumen 50=5000 Lumen 60=6000 Lumen 67=6700 Lumen 74=7400 Lumen 80=8000 Lumen	<b>[Blank]</b> =Standard Lens <b>RDP</b> =Rectilinear with Round Pattern Insert	<b>347V</b> =347 Volt <sup>(6)</sup> <b>UNV</b> =Universal Voltage 120-277 <b>48V</b> =48 Volt Low-voltage (Class 2) <sup>(5)</sup> <b>120V</b> =120 Volt <sup>(6)</sup> <b>277V</b> =277 Volt <sup>(6)</sup>	<b>EL7W</b> =7-watt, 120V-277V emergency battery pack installed <sup>(7)</sup> <b>EL14W</b> =14-watt 120V-277V emergency battery pack installed <sup>(7)</sup> <b>ELV7W</b> =Low-voltage system, 7-watt emergency battery pack <sup>(2)</sup> <b>ELV14W</b> =Low-voltage system, 14-watt emergency battery pack <sup>(2)</sup> <b>GTR2</b> =Bodine Generator Transfer Relay <sup>(8),(9)</sup> <b>ETRD</b> =Iota Emergency Transfer Relay with dimming control <sup>(8)</sup>	<b>L830</b> =3000K <b>L835</b> =3500K <b>L840</b> =4000K <b>L930</b> =3000K <b>L935</b> =3500K <b>L940</b> =4000K <b>L83050</b> =80CRI 3000K-5000K White Tuning <sup>(10)</sup> <b>L93050</b> =90CRI 3000K-5000K White Tuning <sup>(10)</sup> <b>L82765</b> =80CRI 2700K-6500K White Tuning <sup>(10)</sup> <b>L92765</b> =90CRI 2700K-6500K White Tuning <sup>(10)</sup>
<b>Notes</b> (1) Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to <a href="#">DOMESTIC PREFERENCES</a> website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.	<b>Notes</b> (2) DesignLights Consortium <sup>®</sup> Qualified and classified for both DLC Standard and DLC Premium, refer to <a href="#">www.designlights.org</a> for details.	<b>Notes</b> (4) Products also available in non-US voltages and frequencies for international markets. (5) 347V versions are not available with emergency options. (6) Must specify voltage as 120V or 277V when ordering GTR2 option. (C) Consult WaveLinX Low-Voltage or DLVP system pages for additional details and compatibility.	<b>Notes</b> (7) With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. (8) Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others). GTR2 option includes 2 relays on fixtures with dimming drivers. ETRD option only requires one relay when used on a dimming fixture. (9) Must specify voltage as 120V or 277V when ordering GTR2 option. (C) Consult DLVP system pages for additional details and compatibility.	<b>Notes</b> (10) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity.					

Factory Wiring	Driver Type	Number of Drivers	Integrated Sensing Systems	Packaging	Accessories
<b>Factory Wiring</b> <b>A3/8-4/18GDIM</b> =3/8" Flex with 0-10V Dimming Leads. Multiple other configurations available. See below for details. <b>A3/8-5/18GDIM</b> =Flex with 0-10V Dimming leads and Blue for alternate wiring. See below for details.	<b>CD</b> =0-10V Driver (1%-100% Dimming) <b>5LTD</b> =DALI Driver (5%-100% Dimming) <sup>(11)</sup> <b>5LTHD</b> =DALI Driver (1%-100% Dimming) <b>LV</b> =Low-voltage System Driver (0%-100% Dimming) <sup>(2)</sup> <b>SD</b> =Step Dimming Driver (50% or 100% Dimming) <sup>(11)</sup> <b>LH</b> =Lutron HiLume (LDE1 series) 1%-100% EcoSystem Driver with Soft-on Fade to Black dimming <sup>(F)</sup> <b>W2A</b> =White Tuning, 2 ch, Intensity and CCT Control <sup>(12)</sup> <b>SR</b> =Sensor-ready Driver (1%-100% Dimming)	1=1 Driver 2=2 Drivers	<b>[Blank]</b> =No Sensor <b>WAA</b> =WaveLinX PRO Wireless Integrated Sensor <sup>(13),(A)</sup> <b>WPN</b> =WaveLinX PRO Wireless Node without Sensor <sup>(13),(A)</sup> <b>WAB=WAB</b> =WaveLinX LITE Wireless Integrated Sensor <sup>(14),(B)</sup> <b>WLA</b> =Low-voltage Integrated Sensor <sup>(15),(C)</sup>	<b>U</b> =Unit Pack <b>PALC</b> =Job Pack, in carton	<b>EQ-CLIP-U</b> =T-BAR Safety Earthquake Clips <sup>(17)</sup> <b>DF-24W-U</b> =2' x 4' Drywall Frame Kit <b>SK-24-WS</b> =Field Install Surface Mount Kit, Shallow <b>SK-24-WT</b> =Field Install Surface Mount Kit, Tall
<b>Flexible Metal Conduit Options</b> Flex options available for 0-10V dimming control, DALI dimming control, emergency and night light functions. 72-inch factory-installed and pre-wired to driver, fitted to luminaire housing access plate with 90° enclosed FMC connector. Not all options may be combined and installation ratings vary by type. <b>A3/8-4/18GDIM series notes:</b> Factory installed dimming option 3/8" flexible metal conduit with 2-#18 power and ground wires and 2-#18 UL-listed jacketed 0-10V +/- control wires. Meets UL 66, 83, 1479, 1569, 1581, 2556. NEC® 250.118, 300.22(C), 392, 396, 399, 501, 502, 503, 504, 505, 518, 520, 530, 645, 72; Federal Specification A-A-59544 (formerly J-C-30B); all applicable OSHA and HUD Requirements. UL Classified 1-, 2-, and 3-hour through penetration with applicable fire stop product (not included). May be surface mounted, fished and/or embedded in plaster. Cable tray and approved raceway rated, install per NEC®; Environmental Air-Handling Space Installation per NEC® 300.22(C).	<b>Notes</b> (11) 3100 and 3600 Lumen packages not available with Step-Dim (SD) and DALI (5LTD) driver option. (12) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (C) Consult WaveLinX Low-Voltage or DLVP system pages for additional details and compatibility. (F) Consult Marketplace Options - Lutron system pages for additional details and compatibility. Compatible only with driver series shown, and may require two or more drivers. Requires field commissioning to operate or dim. Contact Lutron at <a href="#">www.lutron.com</a> .	<b>Notes</b> (13) WAA sensor and WPN node to be used with CD or W2A driver. Consult factory for WPN with tunable white W2A driver. (14) WAB sensor to be used with CD driver. (15) WLA sensor to be used with LV driver. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (A) Consult WaveLinX PRO system pages for additional details and compatibility. (B) WaveLinX LITE devices are not currently compatible with the WaveLinX Wireless Area Controller. Consult WaveLinX LITE system pages for additional details and compatibility. (C) Consult WaveLinX Low-Voltage or DLVP system pages for additional details and compatibility.	<b>Notes</b> (17) An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture. (18) Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories.		

## Product Specifications

### Construction

- 5-5/8" housing constructed of die-formed, code gauge cold rolled steel
- Full length die-formed stiffeners and unibody endplate for added strength
- Four auxiliary fixture end suspension points provided
- Wireway cover removable without tools
- Endplates provided with Grid-Lock feature for safety
- These fixtures may have MWS (Modular Wiring System) added. Consult factory for details.

### Integrated Controls

- 0-10V dimming to 1% standard
- WaveLinx wireless sensor compatible for standalone, controlled, connected, and IoT capability
- Low-voltage sensor and driver compatible for WaveLinx Low-Voltage and DLVP applications
- DALI 2.0, Lutron, and step-dimming available

### LED and Light Engine

- LED's available in 3000K, 3500K, or 4000K at 80 CRI minimum and 90 CRI minimum
- Color accuracy  $\leq 3$ -Step MacAdam ellipse (SDCM)
- TM21 life at 60,000 hours up to L92 and calculated L70 exceeds 290,000 hrs.
- Drivers available in 120-277V and 347V
- Tunable white options available with Cooper Lighting Solutions' VividTune

### Emergency Battery Options

- Optional 120-277V emergency battery available in 7W or 14W
- 90-minute backup period for code compliance
- Test switch with laser pointer and testing from floor feature for ease of use
- EZ Key feature prevents accidental discharge during construction
- Generator transfer options available

### Finish

- Multistage, iron phosphate pretreatment
- 90% reflective, matte white enamel finish
- Full fixture housing painted after fabrication

### Hinging/Latching

- Positive cam action steel latches with baked white enamel finish
- Safety-lock T-hinges allow hinging and latching either side
- Door assembly hinges down for easy access to driver and LEDs from below

### Frame/Sheilding

- Die formed, heavy gauge flat steel door
- Mitered corners and painted after fabrication
- Baked matte white enamel finish
- Positive light seals
- Acrylic frosted lens

### Compliance

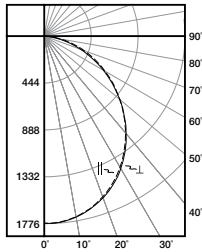
- IC rated for insulation contact
- cULus listed for damp locations
- RoHS compliant
- Tested to IESNA LM-79 and LM-80
- Stated life tested to TM21 standards
- Can be used for State of California Title 24 high efficacy luminaire

### Limited Warranty

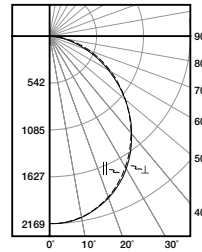
- Five year limited warranty standard. Optional ten year limited warranty available.

## Photometric Data

 View IES files



**24RLN-LD5-45-UNV-L835-CD1-U**  
 Electronic Driver  
 Linear LED 3500K  
 Spacing criterion: (||) 1.2 x mounting height,  
 (⊥) 1.21 x mounting height  
 Lumens: 4547.1  
 Input Watts: 34W  
 Efficacy: 133.7 lm/W  
 Test Report: 24RLN-LD5-45-UNV-L835-CD1-U.  
 IES



**24RLN-LD5-55-UNV-L835-CD1-U**  
 Electronic Driver  
 Linear LED 3500K  
 Spacing criterion: (||) 1.2 x mounting height,  
 (⊥) 1.21 x mounting height  
 Lumens: 5554.0  
 Input Watts: 42.7W  
 Efficacy: 130.1 lm/W  
 Test Report: 24RLN-LD5-55-UNV-L835-CD1-U.  
 IES

## Energy and Performance Data

Stock or MTO	Catalog Logic (Rectilinear Shielding)	Delivered Lumens	Watts	Efficacy (lm/W)
MTO	24RLN-LD5-31-UNV-L830-CD1-U	3052	22.9	133
MTO	24RLN-LD5-31-UNV-L835-CD1-U	3179	22.9	139
MTO	24RLN-LD5-31-UNV-L840-CD1-U	3179	22.9	139
MTO	24RLN-LD5-36-UNV-L830-CD1-U	3505	26.5	132
MTO	24RLN-LD5-36-UNV-L835-CD1-U	3651	26.5	138
MTO	24RLN-LD5-36-UNV-L840-CD1-U	3651	26.5	138
MTO	24RLN-LD5-42-UNV-L830-CD1-U	4040	31.2	129
MTO	24RLN-LD5-42-UNV-L835-CD1-U	4208	31.2	135
MTO	24RLN-LD5-42-UNV-L840-CD1-U	4208	31.2	135
MTO	24RLN-LD5-45-UNV-L830-CD1-U	4365	34.0	128
STOCK	24RLN-LD5-45-UNV-L835-CD1-U	4547	34.0	134
STOCK	24RLN-LD5-45-UNV-L840-CD1-U	4547	34.0	134
MTO	24RLN-LD5-50-UNV-L830-CD1-U	4800	37.8	127
MTO	24RLN-LD5-50-UNV-L835-CD1-U	5000	37.8	132
MTO	24RLN-LD5-50-UNV-L840-CD1-U	5000	37.8	132
MTO	24RLN-LD5-55-UNV-L830-CD1-U	5332	42.7	125
STOCK	24RLN-LD5-55-UNV-L835-CD1-U	5554	42.7	130
STOCK	24RLN-LD5-55-UNV-L840-CD1-U	5554	42.7	130
MTO	24RLN-LD5-60-UNV-L830-CD1-U	5759	47.7	121
MTO	24RLN-LD5-60-UNV-L835-CD1-U	5999	47.7	126
MTO	24RLN-LD5-60-UNV-L840-CD1-U	5999	47.7	126
MTO	24RLN-LD5-67-UNV-L830-CD1-U	6485	53.9	120
MTO	24RLN-LD5-67-UNV-L835-CD1-U	6755	53.9	125
MTO	24RLN-LD5-67-UNV-L840-CD1-U	6755	53.9	125
MTO	24RLN-LD5-74-UNV-L830-CD1-U	7136	61.6	116
MTO	24RLN-LD5-74-UNV-L835-CD1-U	7433	61.6	121
MTO	24RLN-LD5-74-UNV-L840-CD1-U	7433	61.6	121
MTO	24RLN-LD5-80-UNV-L830-CD1-U	7735	67.5	115
MTO	24RLN-LD5-80-UNV-L835-CD1-U	8057	67.5	119
MTO	24RLN-LD5-80-UNV-L840-CD1-U	8057	67.5	119

## Lumen Maintenance

Ambient Temperature	TM-21 Lumen Maintenance (60,000 hours) <sup>(1)</sup>	Theoretical L70 (hours) <sup>(2)</sup>
25°C	> 93%	> 351,000

**Notes:** (1) Supported by IES TM-21 standards. (2) Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, that explains proper use of IES TM-21 and LM-80.

## 90 CRI

Lumen Adjustment Factors 80->90 CRI	
3000K	0.865
3500K	0.861
4000K	0.883
5000K	n.a.

### Example of Lumen Adjustment Calculation

24RLN-LD5-45-UNV-L935-CD1-U  
 at 90CRI at 3500K

Lumen Adjustment Factor = 0.861

Total Light Output =

$$4,547 \text{ lm} \times 0.861 = 3,914 \text{ lm}$$

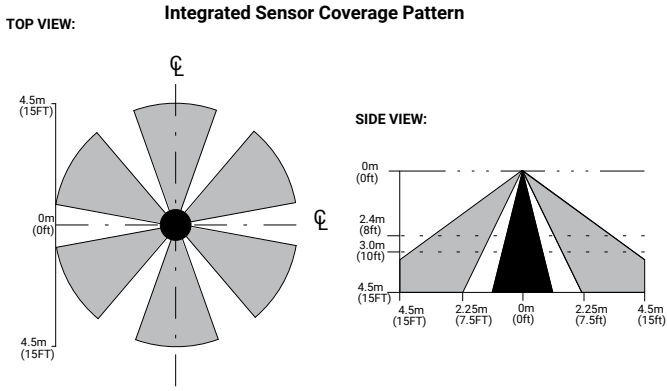
$$\text{Efficacy} = \frac{3,914 \text{ lm}}{34 \text{ W}} = 115.1 \text{ lm/W}$$

## Shipping Data

Catalog No.	Wt.
24RLN-LD5-45	22.5 lbs.
24RLN-LD5-55	22.5 lbs.

**Control Systems**

- WaveLinX PRO Wireless
- WaveLinX LITE Wireless
- WaveLinX Wired



**Note:** Installation of integrated sensors within 3-ft (1m) of HVAC air vents is not recommended. The pattern shown is intended solely as a general guide and is not to scale.

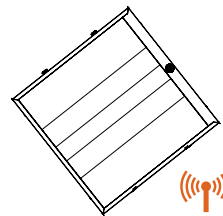
The RLN with WaveLinX offers no-hassle lighting control with multiple luminaire level control solutions.

**WaveLinX PRO** is used for applications where spaces need to be connected to a lighting or building management system and to help building owners improve their operations, building environment, and tenants' experience by leveraging the data generated by the sensors. The WaveLinX PRO devices communicate with each other via the WaveLinX Area Controller which coordinates the data traffic between the devices, lighting apps and CORE platform. The WaveLinX Area Controller also hosts the time clock required if spaces need to be turned on/off at a specific time.

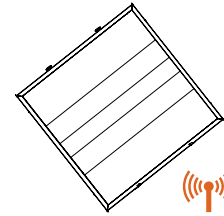
The WaveLinX PRO Sensor offers built-in occupancy and daylighting controls as well as luminaire level control including white tuning while the WaveLinX PRO Node offers luminaire level control and white tuning. If opting for the WaveLinX PRO Node option, a PRO Ceiling Sensor will most likely be needed within the space to control the lights based on occupancy and daylight levels.

**WaveLinX LITE** is used for single spaces where there is no need to manage the spaces remotely or exchange the sensor data with other sub-systems within the building or smart applications.

The WaveLinX LITE Sensor offers built-in occupancy and daylighting controls as well as luminaire level control.



With Integrated WaveLinX Sensor



With Integrated WaveLinX Node

**Systems comparison chart**

Cooper Lighting Solutions provides many lighting system solutions designed to satisfy code requirements and meet the unique needs of any project.



Luminaire with standalone sensor



Standalone Spaces WaveLinX LITE



Networked Spaces WaveLinX PRO



Enterprise WaveLinX CORE

	Luminaire with standalone sensor	Standalone Spaces WaveLinX LITE	Networked Spaces WaveLinX PRO	Enterprise WaveLinX CORE
<b>Occupancy</b>	Yes	Yes	Yes	Yes
<b>Daylighting</b>	Yes	Yes	Yes	Yes
<b>Wallstations</b>	-	Yes	Yes	Yes
<b>Gateways</b>	-	-	1 WAC	300 WACs
<b>Devices (MAX)</b>	-	50 per Area (1400 per site)	200 per WAC2	32,500 per CORE Enterprise
<b>Software</b>	-	WaveLinX LITE Mobile App	WaveLinX Mobile App	CORE
<b>Areas</b>	-	28 per Site	50 per WAC2	up to 3,000
<b>Zones</b>	-	16 per Area	16 per Area	up to 9,000
<b>Scheduling</b>	-	-	Local	Global
<b>VividTune™</b>	-	-	Yes	Yes
<b>Plug-Load Control</b>	-	-	Yes	Yes
<b>Low-Voltage Power</b>	-	-	Yes	Yes
<b>Integration</b>	-	-	-	BACnet, API
<b>Dashboards</b>	-	-	-	Energy, Occupancy
<b>Configuration</b>	-	Installer	Technician	Technician / IT

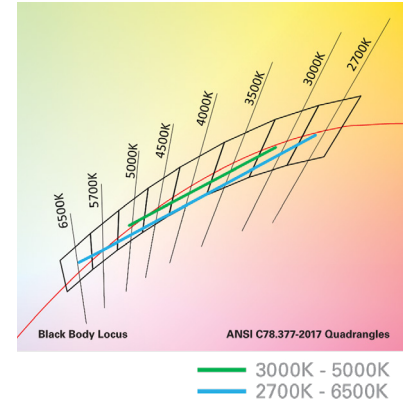
**SCALABILITY**





### 24RLN LED with VividTune Tunable White

VividTune tunable white luminaires from Cooper Lighting Solutions deliver high-quality light in a broad range of continuously variable color temperatures and intensities. Create a dynamic environment by adjusting the ambient light warmer or cooler to influence mood, support the task at hand, or create a dramatic ambience. The ability to control correlated color temperature and intensity separately using simple controls is the next evolution of LED lighting for the commercial, educational, healthcare and hospitality space. The unparalleled flexibility and number of available lighting environments enable users to find the right light with tunable white.



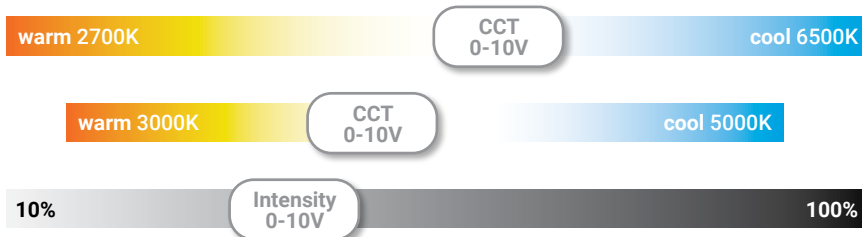
### Performance Data\*

Tunable White - Lumen Adjustment Factors (example only)				
CCT	3000K-5000K		2700K-6500K	
	80 CRI	90 CRI	80 CRI	90 CRI
2700K	-	-	0.923	0.789
3000K	0.950	0.783	0.949	0.820
3500K	1.006	0.855	0.983	0.861
4000K	1.056	0.923	1.004	0.888
4500K	1.066	0.939	1.022	0.911
5000K	1.066	0.939	1.036	0.929
6500K	-	-	1.051	0.955

2' x 4' RLNLED - Example of Approximate Lumen Calculation			
	Standard Catalog #	VividTune 80 CRI Catalog #	VividTune 90 CRI Catalog #
CCT Setting	24RLN-LD5-45-UNV-L835-CD1-U	24RLN-LD5-45-UNV-L83050-W2A1-U	24RLN-LD5-45-UNV-L93050-W2A1-U
3000K	-	4320	3560
3500K	4547	4574	3888
4000K	-	4802	4197
4500K	-	4847	4270
5000K	-	4847	4270

### Controlling VividTune Tunable White

VividTune luminaires make tunable white more accessible by using simple and familiar controls. From wall dimmers to wireless controls, VividTune tunable white luminaires are compatible with industry standard 0-10V dimming controls. A single 0-10V dimming input is used to control intensity (brightness) while a second 0-10V dimming input is used to adjust CCT. For suggested control configurations, go to [www.cooperlighting.com](http://www.cooperlighting.com) for tunable white application guides.



### Example of Lumen Adjustment Calculation

24RLN-LD5-45-UNV-L83050-W2A1-U at 80 CRI tuned to 3500K

$$\text{Adjusted Lumen} = \text{published lm} \times \text{adjusted lm factor}$$

$$\text{Adjusted Lumen} = 4547 \times 1.006$$

$$\text{Adjusted Lumen} = 4574 \text{ lm}$$

\* Lumen adjustment factors are for reference and may be different for each product selected. Refer to IES files for actual performance data on each.