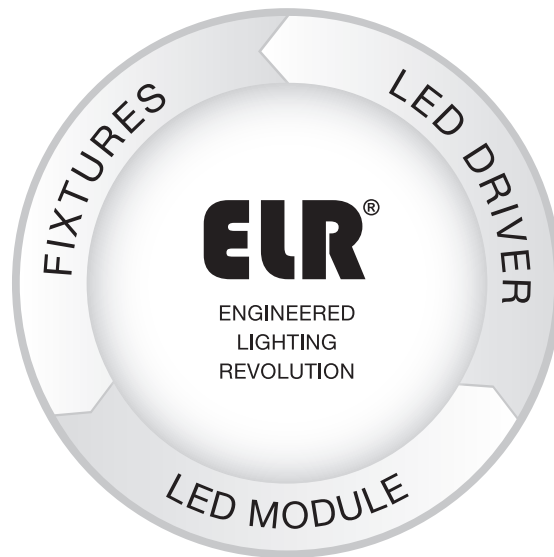




LIGHTING FOR OFFICE

MODULAR DESIGN CONCEPT



ELR's primary focus is to develop premium LED lighting solutions for commercial, retail, residential and industrial sectors. Established in year 2008, ELR has advanced and expanded tremendously, spanning across the world namely Australasia, Europe, Middle East, China including Hong Kong, India and South East Asian countries.

Over the years with technology and experience, ELR has successfully designed a vast range of LED products complete with unique key differentiators via innovative thinking and quality materials. As workmanship is a priority, the company covers all aspects of product creation from extensive R&D to manufacturing and assembling to ensure that each product serves a purpose as well as achieves a level of convenience. Nonetheless, ELR warrants that all products go through comprehensive compliance and tests that meet international standards.



SNOOP OUTDOOR SERIES



DOWNLIGHT SERIES



SNOOP INDOOR SERIES



UNITED KINGDOM
Sony Technology Centre,
Pencoed Technology Park,
Wales, UK, CF35 5HZ.

LIGHTING FOR OFFICE

ELR's array of office lighting is guaranteed to meet Grade A Level Office Energy Standards, such that, when designing with ELR solutions, projects will meet global industry codes, and

regulations. The designs boost advanced energy savings with higher lumen yet utilize lower power consumption. Competently the office lighting collection is also cost efficient as the LEDs have longer lifespan complete with interchangeable modules and drivers.

Depending on usage preference, the lighting range is great for space planning as it can effectively help to create productive working environments. Its flexibility allows easy maintenance for uniformed layouts and fixtures with options of 2", 3" and 4" across designated areas. ELR ranges are also available with BIM associated files for building, or space modelling.

With the use of DALI or CASAMBI communication, installations can be quite flexible. Further improving practicality, ELR office lighting are produced with MacAdam 3-step LED binning to ensure the consistency of color and quality of light. Overall good visual performance for total eye comfort with lower flicker index, higher glare control with favorable CRI (color rendering index) of 85 to 95. Advantages include having the versatility of individual room dimming, whereby one can enjoy absolute management over space ambience conveniently.



Energy Savings



Cost Savings



Efficient Lighting



MacAdam
3 Step Binning



Effective
Space Planning

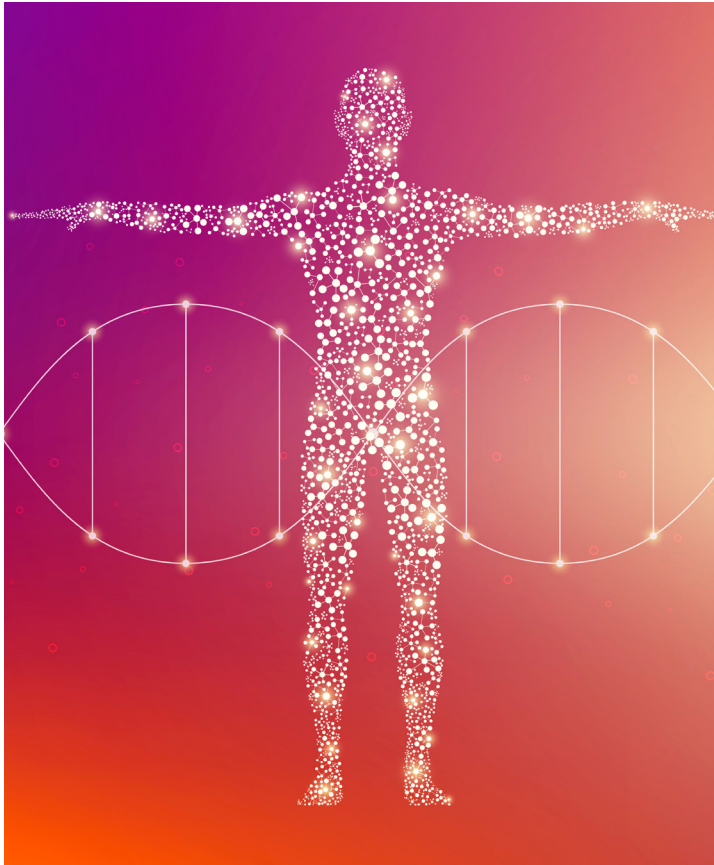


Daylighting Control



Presence Sensors

TECHNOLOGY



First used as status and indicator lamps, LEDs have emerged over the years as a feasible need in today's lighting world. State-of-the-art and advanced, ELR's lighting technology are considerably superior in range and variety, with excellent control system for intelligent program scenarios. ELR's spectrum of technology includes easy interchangeability of lighting mode such as tuneWHITE™ for human-centric lighting, Warm Dim, powerful X-Beam, and Dimming Light Modules with world class drivers.

Added security means that lightings are ceiling safe and designed with maximum safety in mind as all ELR's lightings are equipped with the highest most flame retardant UL94 rating. In terms of assurance, ATePS™ (Automated Thermal Protection System) proactively monitors the temperature of the LED module during operation automatically without user intervention.



ATEPS™



ComfyEYE



X-BEAM



(ND)



(PH)



(AN)



(DA)



ProART



tuneWHITE™



WARM DIM

LED EFFICIENCY

ELR LEDs are highly energy efficient, and are capable of achieving high lumen with low power. ELR's LED modules are all tested and certified with TM21 & LM80. All ELR LEDs are lifetime tested beyond 50,000 hours.

View our best selling modules **TM-21 reports:**

35N



Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)		CITIZEN ELECTRONICS CO., LTD. LABORATORY CLC035-093c1 COB Array			
Test Condition 1 - 55°C Case Temp		Test Condition 2 - 105°C Case Temp			
Sample size	20	Sample size	20	Sample size	-
Number of failures	0	Number of failures	0	Number of failures	-
DUT drive current used in the test (mA)	800	DUT drive current used in the test (mA)	800	DUT drive current used in the test (mA)	-
Test duration (hours)	11,000	Test duration (hours)	11,000	Test duration (hours)	-
Test duration used for projection (hour to hour)	5,000 - 11,000	Test duration used for projection (hour to hour)	5,000 - 11,000	Test duration used for projection (hour to hour)	-
Tested case temperature (°C)	55	Tested case temperature (°C)	105	Tested case temperature (°C)	-
α	1.393E-06	α	2.924E-06	α	-
B	0.985	B	0.961	B	-
Reported L80(11k) (hours)	>66000	Reported L80(11k) (hours)	63,000	Reported L80(11k) (hours)	-

Table 2: Interpolation Report (projection based on in-situ temperature entered)	
$T_{s,1}$ (°C)	55.00
$T_{s,1}$ (K)	328.15
α_1	1.393E-06
B_1	0.985
$T_{s,2}$ (°C)	105.00
$T_{s,2}$ (K)	378.15
α_2	2.924E-06
B_2	0.961
E/k_b	1.84E+03
A	3.795E-04
B_0	0.973
$T_{s,i}$ (°C)	85.00
$T_{s,i}$ (K)	358.15
α_i	2.229E-06
Reported L80(11k) at 85°C (hours)	>66000

50N



Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)		CITIZEN ELECTRONICS CO., LTD. LABORATORY CLC035-093c1 COB Array			
Test Condition 1 - 55°C Case Temp		Test Condition 2 - 105°C Case Temp			
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Test duration used for projection (hour to hour)	5,000 - 11,000	Test duration used for projection (hour to hour)	5,000 - 11,000	Test duration used for projection (hour to hour)	-
Tested case temperature (°C)	55	Tested case temperature (°C)	105	Tested case temperature (°C)	-
α	1.393E-06	α	2.924E-06	α	-
B	0.985	B	0.961	B	-
Reported L80(11k) (hours)	>66000	Reported L80(11k) (hours)	63,000	Reported L80(11k) (hours)	-

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$T_{s,2}$ (K)	378.15
α_2	2.924E-06
B_2	0.961
E/k_b	1.84E+03
A	3.795E-04
B_0	0.973
$T_{s,i}$ (°C)	85.00
$T_{s,i}$ (K)	358.15
α_i	2.229E-06
Reported L80(11k) at 85°C (hours)	>66000

50P



Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)		CITIZEN ELECTRONICS CO., LTD. LABORATORY CLC035-093c1 COB Array			
Test Condition 1 - 55°C Case Temp		Test Condition 2 - 105°C Case Temp			
Sample size	20	Sample size	20	Sample size	-
Number of failures	0	Number of failures	0	Number of failures	-
DUT drive current used in the test (mA)	800	DUT drive current used in the test (mA)	800	DUT drive current used in the test (mA)	-
Test duration (hours)	11,000	Test duration (hours)	11,000	Test duration (hours)	-
Test duration used for projection (hour to hour)	5,000 - 11,000	Test duration used for projection (hour to hour)	5,000 - 11,000	Test duration used for projection (hour to hour)	-
Tested case temperature (°C)	55	Tested case temperature (°C)	105	Tested case temperature (°C)	-
α	1.393E-06	α	2.924E-06	α	-
B	0.985	B	0.961	B	-
Reported L80(11k) (hours)	>66000	Reported L80(11k) (hours)	63,000	Reported L80(11k) (hours)	-

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$T_{s,i}$ (K)	358.15
α_i	2.229E-06
Reported L80(11k) at 85°C (hours)	>66000

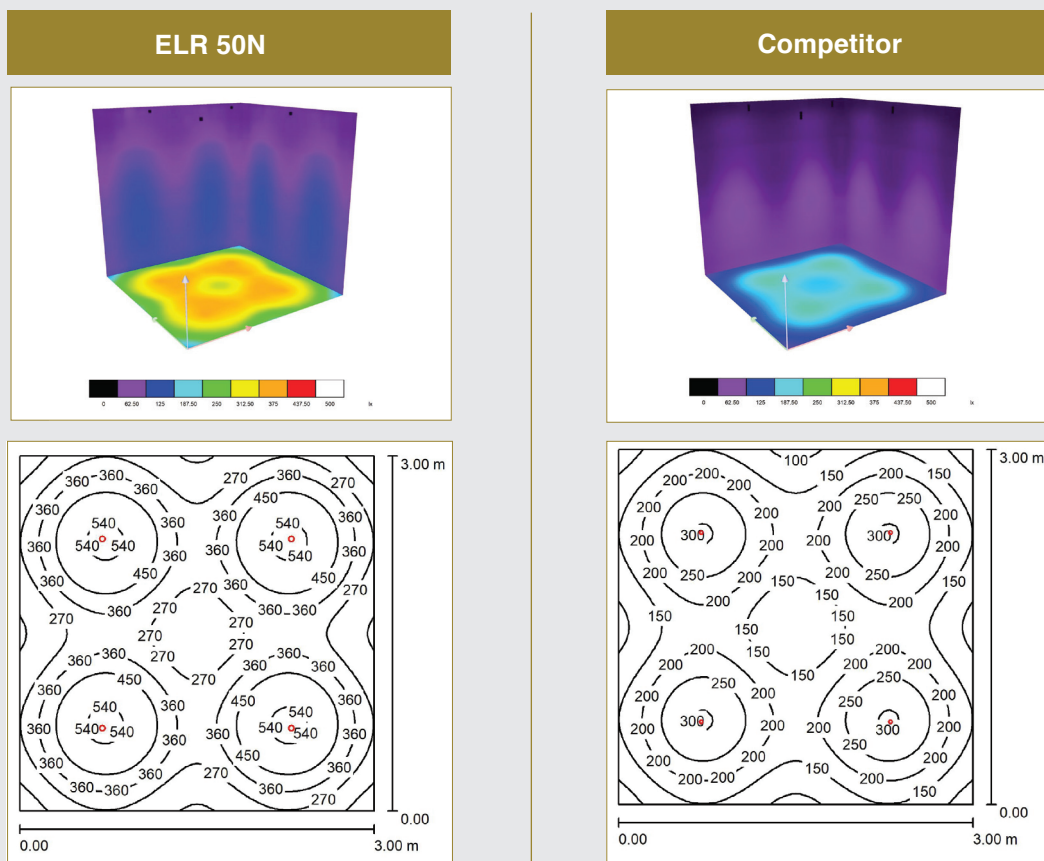
Simulation Comparison Between ELR 50N VS Competitor's:

Lighting simulation test to compare lux levels to demonstrate that the systems meet the requirements in terms of performance.

LED MODULE SPECIFICATIONS IN THE SIMULATION		
LED MODULE	ELR 50N	COMPETITOR
LED POWER	7.5 W	7.6 W
LUMEN	950 lm	500 lm
LED DRIVER	Integrated	Remote
TOTAL LUMINOUS FLUX	3772 lm	2001 lm
TOTAL LOAD	40 W	30.4 W

Example of A Room Condition Simulated with ELR 50N VS Competitor's:

Room simulation size: 3m(H) x 3m(W) x 3m(L). Each room is simulated with 4 LED modules.



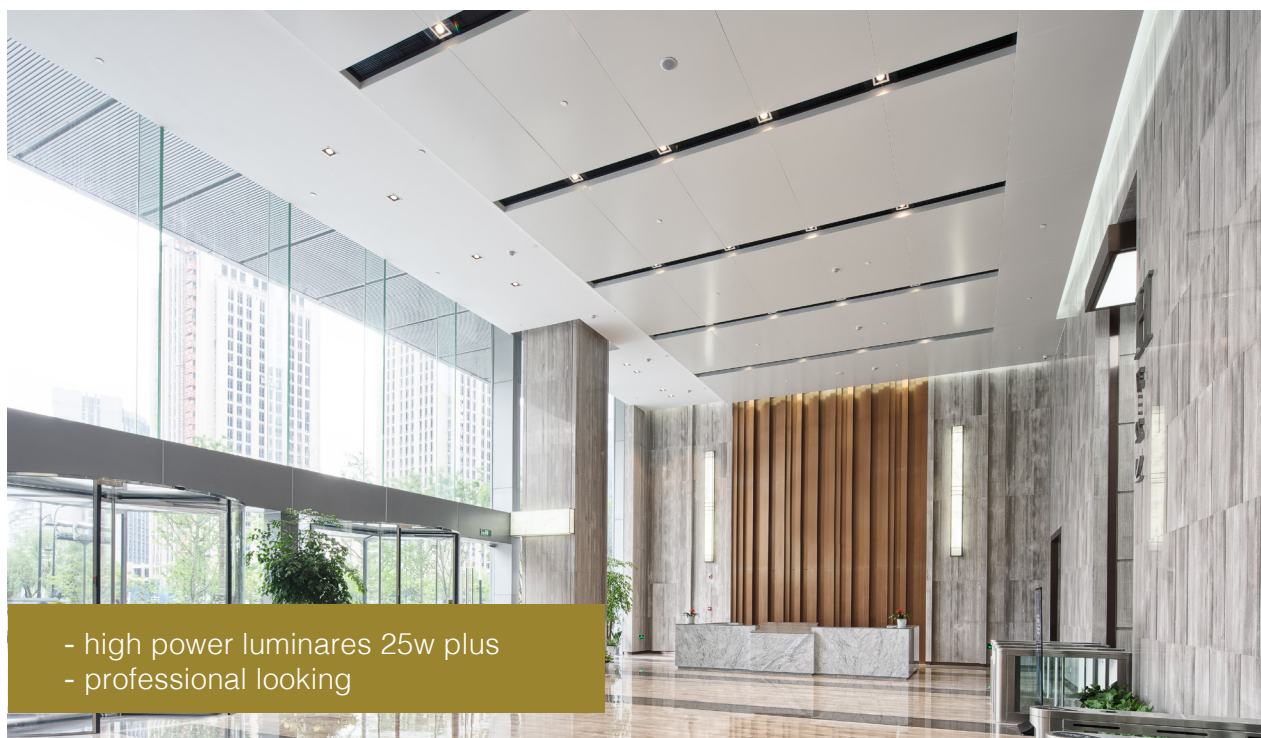
According to the simulation, the result shows the efficiency of using **ELR LED modules**.

COMPARISON OF 4 LED MODULES:				
LED Module	ELR 50N	P Brand	O Brand	S Brand
WATTS	7.5 W	5 W	8 W	7.6 W
LUMENS	950 lm	405 lm	575 lm	500 lm
LUMENS PER WATT	126 lm/W	81 lm/W	71 lm/W	65 lm/W
BEAM ANGLE	35d	36d	36d	36d
COLOUR TEMPERATURE	3000K	3000K	3000K	3000K
CRI	85	>90	>80	85
LIFE SPAN	L80: 50,000 hours	25,000 hours	25,000 hours	L70: 35,000 hours
MACADAM ELLIPSE	3	<6	<5	
DIMMABLE	yes	yes	yes	yes
BUILD-IN DRIVER	yes	no	no	no

PREMIUM FIXTURE SERIES

(HIGH CEILINGS)

COMMERCIAL BUILDING LOBBY SPACES



INSTALLATION

General Lighting | Wall Washing | Accenting

PRODUCTS RECOMMENDED



Vasari 6
(round or square)



Lynx 12



Artis 4



Eclipse 4



Snoop 4 surface

- reflectors; white, dark light - fixed, tilt

PREMIUM FIXTURE SERIES

(LOW CEILINGS)

COMMERCIAL BUILDING LOBBY SPACES



INSTALLATION

General Lighting

Wall Washing

Accenting

PRODUCTS RECOMMENDED



Vasari 3, 4
(round or square)



Antares 3



Artis 3



Eclipse 3



Snoop 4
surface



Lynx 12

- reflectors; white, dark light

- fixed, tilt

PREMIUM FIXTURE SERIES

COMMERCIAL BUILDING LIFT LOBBIES



INSTALLATION

General Lighting

Wall Washing

Accenting

PRODUCTS RECOMMENDED



Vasari 3, 4
(round or square)



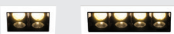
Alti 3



Eclipse 2, 3



Castor 2, 3



Lynx 2, 4



Snoop 3 Wall Mount



Snoop 3 Track

PREMIUM FIXTURE SERIES

CORPORATE OFFICE RECEPTION / ENTRANCE



INSTALLATION

General Lighting | Accent Lighting

PRODUCTS RECOMMENDED



Vasari 3, 4
(round or square)



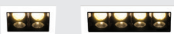
Alti 3



Eclipse 2, 3



Castor 2, 3



Lynx 2, 4



Snoop 3 Track



Snoop 3 Pendant

PREMIUM FIXTURE SERIES

CONFERENCE / BOARDROOM / MEETING ROOMS /
PHONE BOOTHS / EXECUTIVE ROOMS



INSTALLATION

General Lighting | Accent Lighting

PRODUCTS RECOMMENDED



Vasari 3, 4
(round or square)



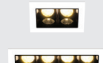
Alti 3



Eclipse 2, 3



Castor 2, 3



Lynx 2, 4

PREMIUM FIXTURE SERIES

PANTRIES, BREAKOUT AREAS



INSTALLATION

General Lighting | Accent Lighting

PRODUCTS RECOMMENDED



Vasari 3, 4
(round or square)



Alti 3



Eclipse 2, 3



Castor 2, 3



Lynx 2, 4



Snoop 3 Wall Mount



Snoop 3 Track



Snoop 3 Pendant



Snoop 3 Surface



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