

Q-SUN Xe-8

**The NEW standard for
large capacity, rotating rack
xenon weathering testers**

[View Recorded Presentation](#)



Q-Lab's New Product Series

Today is the second of a two-part webinar series on new product releases from Q-Lab

All upcoming and archived webinars can be accessed at:
q-lab.com/webinars

Date	Topic
24 Apr	TUV-421 Lamps
01 May	Q-SUN Xe-8 Xenon Arc Tester

Administrative Notes

You'll receive a follow-up email from info@email.q-lab.com with links to a survey, registration for future webinars, and to download the slides

Use the **Q&A feature in Zoom** to ask us questions today!



We make testing simple.



Thank you for attending our webinar!

We hope you found our webinar on the NEW **Q-SUN Xe-8 xenon arc tester** to be helpful and insightful. You can [download today's presentation](#) at any time - a link to the recording is included on the title slide. Subtitles can be accessed through YouTube for the video recording.

Q-Lab

- World Leader in Weathering & Corrosion testing
 - Xenon arc
 - UV fluorescent
 - Cyclic corrosion
- Testing services
 - ISO 17025-accredited labs
 - Florida and Arizona outdoor
 - Q-TRAC and AIM box accelerated outdoor
- Founded as Q-PANEL standard substrates in 1956
 - Aluminum
 - Steel
- Worldwide locations: USA, UK, Germany, China
 - All manufacturing in USA



Q-SUN Xe-8 Overview

- Large capacity, rotating rack, xenon arc weathering tester
- All maintenance, calibration, and simple repairs can be performed from front
- 100% air-cooled for ease of operation and maintenance
- Dual touchscreen interface available in 17 different languages
- Meets nearly all major international, national, and industry test standards



Technical Benefits

- Many applications require a large number of sample variations:
 - Additives * Suppliers * Colors * Replicates * ...
- Test specifications in many markets have #000-hour durations
- While flat-array is great for ease-of-use, rotating rack testers have some advantages and are specified in some test standards
- Air-cooled lamps eliminate the need for expensive water-cooling systems, are more environmentally friendly, and “flood-proof”



Q-SUN Xe-8 Features

- Four (4) air-cooled LIGHT/YEAR® xenon arc lamps last for a full year
- Tri-band (340 nm, 420 nm, TUV) irradiance sensor
- Optical filters last indefinitely
- Full control of chamber air temperature and RH
- Two black panel and two insulated black panel sensors confirm temperature uniformity
- Easy calibration with UC80 Smart Sensor Array
- Front and back water spray systems standard
- On-screen and networked test performance display



Other User Conveniences

- Simple spring-clip holds samples in place
- Multi-color LED status indicator light
- Drain height accommodates most raised floor drains
- Lamp replacement takes 15 minutes (annually)
- Air filters automatically detect when they need cleaning
- USB port for data transfer, troubleshooting and free software updates
- *More features on the way!*

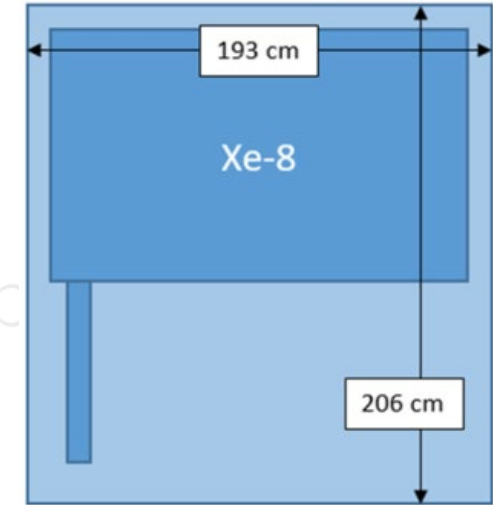


Xe-8 Configuration and Utilities

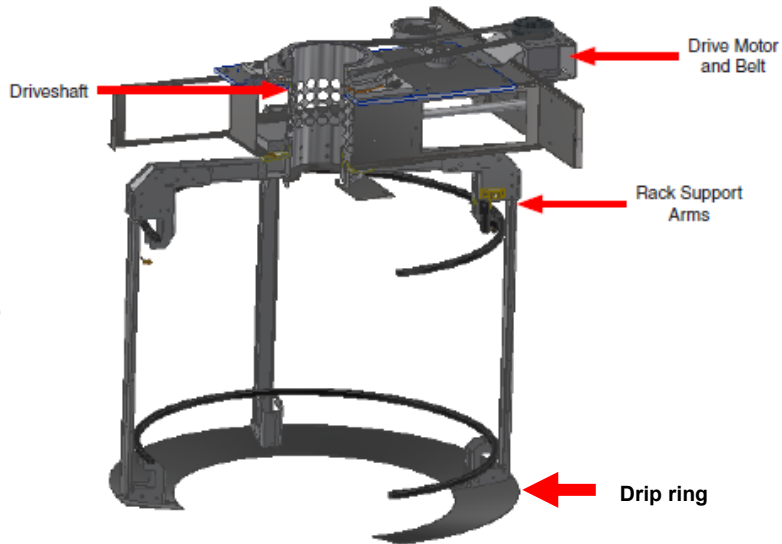
- Models
 - Q-SUN Xe-8-HBSX
 - No other configurations; fully equipped
- Compressed Air
 - Required for humidification
- Electrical
 - 3 Φ
 - 208/230/400 V (80/80/50 A)
- Water purity
 - $> 5 \text{ M}\Omega\cdot\text{cm}$; $< 0.2 \text{ }\mu\text{S /cm}$
 - $< 0.1 \text{ ppm TDS}$; $< 0.1 \text{ ppm silica}$
- Capacity and Dimensions
 - Area $78 \times 48 \text{ cm} = 11,560 \text{ cm}^2$
 - Dimensions $104 \times 173 \text{ cm}$;
30 cm needed on all sides

Footprint (including access area)

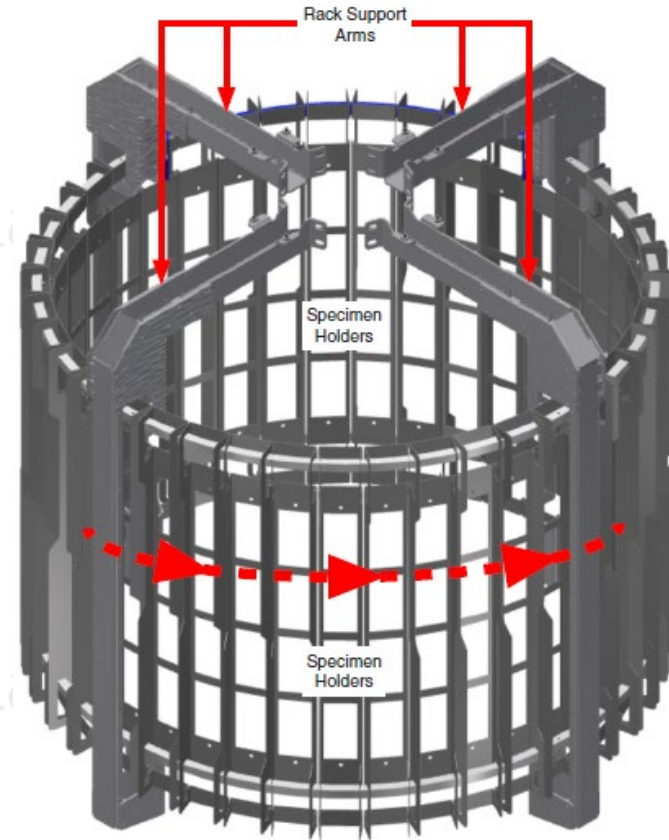
- Width × Depth = 193 × 206 cm (76" × 81")
- Total area = 3.98 m² (42.8 ft²)
- Capacity/footprint = 24.1 samples/ m²
- Only 30 cm space needed on each side



Specimen Rack



- Fixed at 3 rpm (initially)
- Can be rotated manually or via touchscreen control



Specimen Mounting

- Up to 164 Q-Lab-size 51 × 102 mm (2 × 4") panels
- Up to 96 larger-size (2.62 × 5.71") panels
- Specimen holders reversible top to bottom
- Drop-down bar allows specimen holder storage



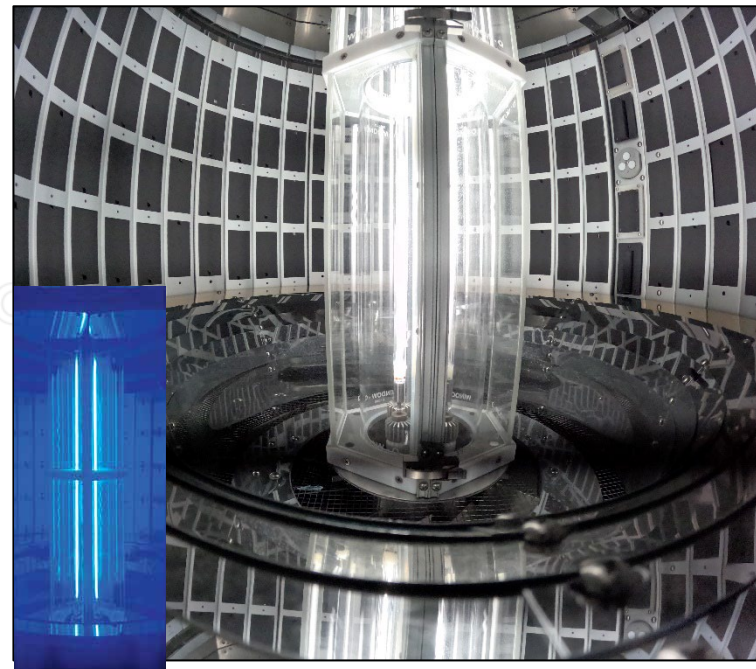
Onboard Sensor Array

- Two IBP
 - Upper/lower
- Two BP
 - Upper/lower
- Three irradiance sensors
 - 340/420/TUV
- RH/CAT sensor
- UC80 calibration array is virtually identical



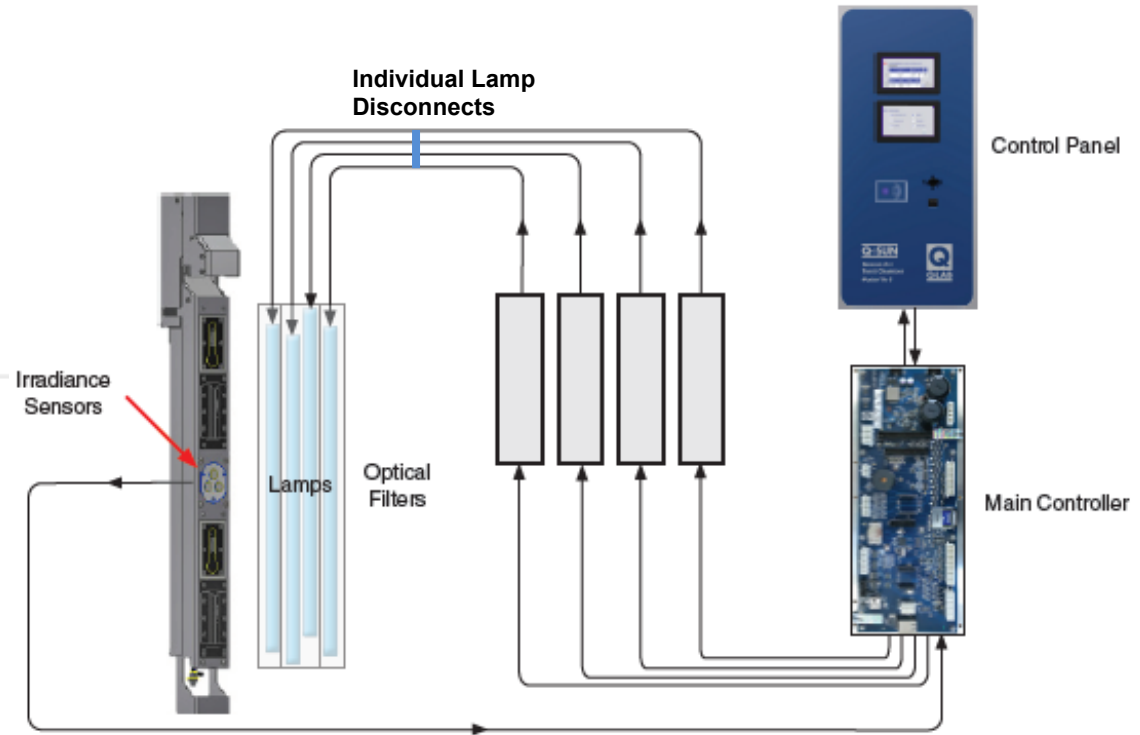
Irradiance

- Four air-cooled lamps (no tap water required)
- 8000-hour warrantied life under typical irradiance conditions
- Higher irradiance levels above “typical” may reduce lamp life
- Filters are non-aging and with proper care/maintenance, never need replacing
- Tri-band SOLAR EYE® irradiance array; All three common wavelength control points (340 nm, 420 nm, 300-400 nm) monitored at the same time
- Irradiance range capable of running all common test methods, except 180 W/m² (Japanese OEM spec)



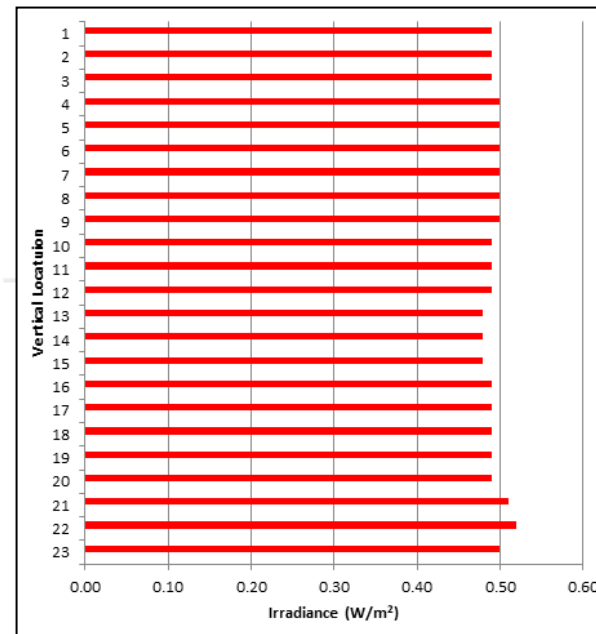
LIGHT/YEAR Irradiance System

- Four lamp control modules
- Each controls one of the lamps
- 340, 420, and TUV sensors all standard; only one controls the test
- Safety features included



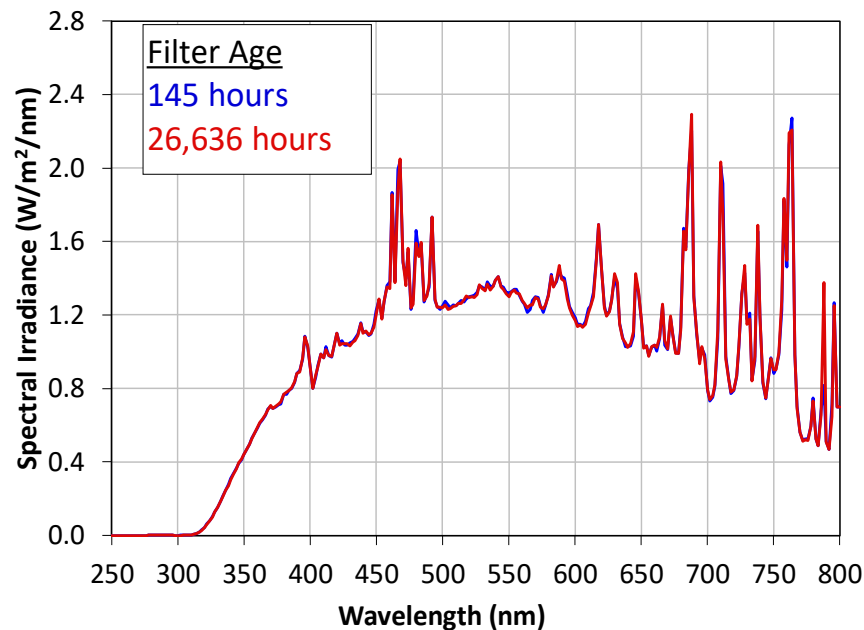
Irradiance Uniformity

- Lamp length exceeds sample exposure height
 - Distance from sample exposure plane to lamp equal at all locations → excellent uniformity
- Sample holders are reversible (in vertical position) for easy sample repositioning to improve overall exposure uniformity
- Operational fluctuation meets all common test method requirements ($\pm 0.01 \text{ W/m}^2$ narrow band; 1.0 W/m^2 for TUV)
- **92% Top-to-Bottom uniformity measured**



Non-Aging Optical Filters

- Materials used to provide specific spectral transmittance can “solarize” under extremely high irradiance
 - Air-cooled filters are further away from the light source vs. filters in water-cooled assemblies, eliminating this effect
- DI water will ultimately leave deposits
 - Optical filters in air-cooled testers will not collect these deposits and will not shift their transmittance



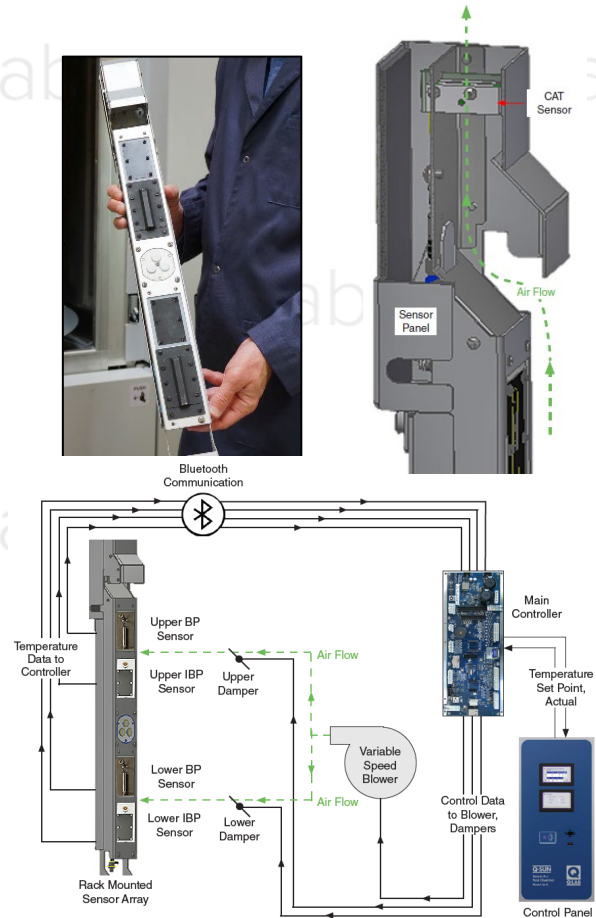
Optical filters in air-cooled testers maintain their transmittance indefinitely

Black Panel Temperature Sensors

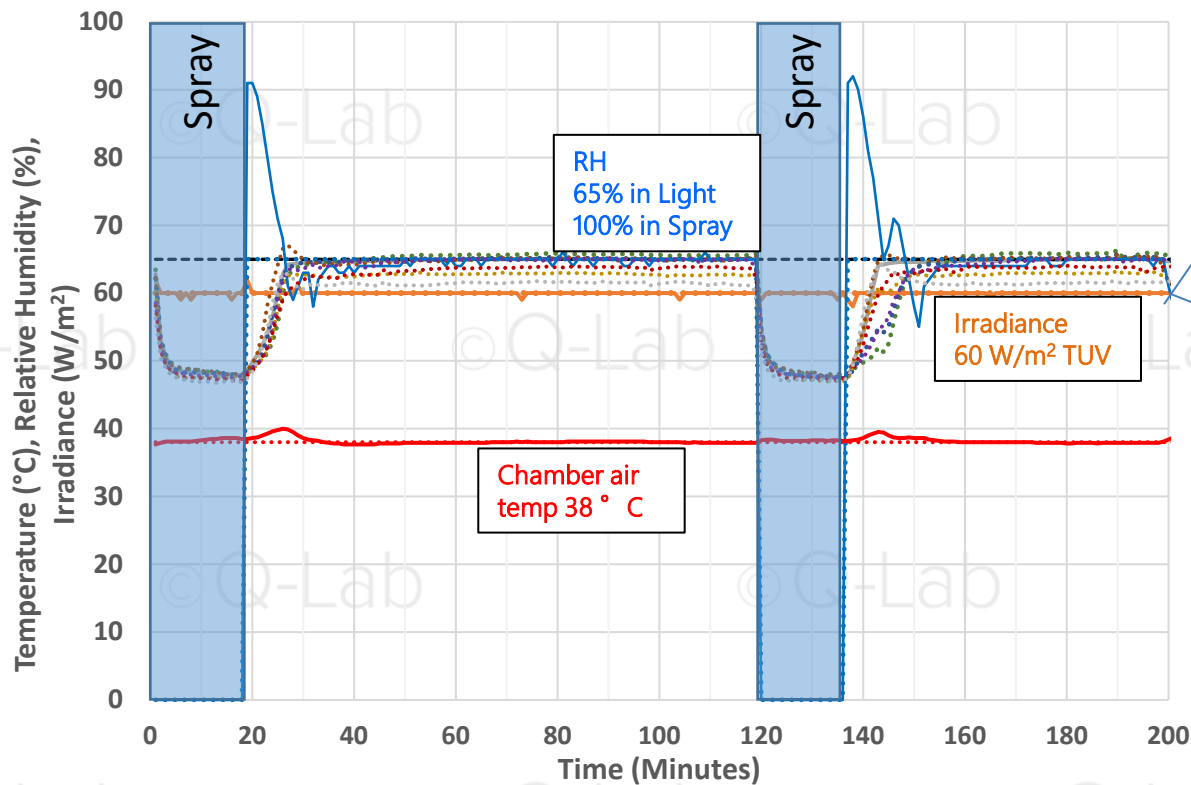
Panel	Construction	ASTM Designation	ISO Designation
 A photograph of a black panel temperature sensor. It consists of a small black rectangular panel with a silver-colored mounting bracket and a blue cable. A blue pen is placed next to it for scale.	Black painted stainless steel	Uninsulated Black Panel	Black Panel
 A photograph of a black panel temperature sensor mounted on a white base. The black panel is secured with four screws. A silver-colored mounting bracket and a blue cable are also visible. A blue pen is placed next to it for scale.	Black painted stainless steel mounted on 0.6 cm white PVDF	Insulated Black Panel	Black Standard

Temperature Control

- BP and Insulated BP both standard
- Upper/lower BP temps controlled individually
- BP temps averaged for overall better control to setpoint within the exposure zone
- Bluetooth communication to controller (no battery required); no mechanical slip ring
- Chamber air temp sensor located at the sample plane
- Two-point BP calibration for greater accuracy



Temperature Uniformity



IBP temps
65 C setpoint

- ☒ BST (Average)
- ☒ BST Set Point
- ☒ BST 1 Upper
- ☒ BST 2
- ☒ BST 3
- ☒ BST 4 Center
- ☒ BST 5
- ☒ BST 6
- ☒ BST 7 Lower

Excellent BST
uniformity

Humidity/Water Spray

- Uses atomizing nozzle combining compressed air and DI water
- RH Sensor located near both CAT and sample exposure area
- Front/back spray standard; pressure regulators on both lines to ensure consistent spray pressure; sensor for front spray to confirm operation



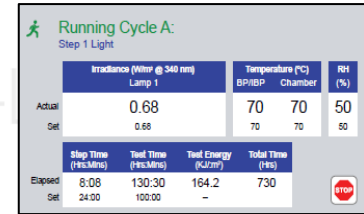
Q-SUN Water Quality

- Purified (RO/DI) water is **required**
- Q-Lab follows ASTM G151 recommendations

Resistivity (Ω -cm)	Conductivity (μ S/cm)	Silica (ppm)	Total Dissolved Solids (ppm)	pH
> 5 M	< 0.2	< 0.1	< 0.1	6-8

Operation and Calibration

- Dual Full-Color Touchscreen displays
- 17 different languages available
- All Q-Lab testers use the same design and general touchscreen navigation/layout
- Universal Calibrator System (UC80) allows fast, easy, reliable temperature and irradiance AUTOCAL[®] calibrations
- Complete calibration can be done by the operator



Dual Touchscreens



UC80 Calibration Sensor Array

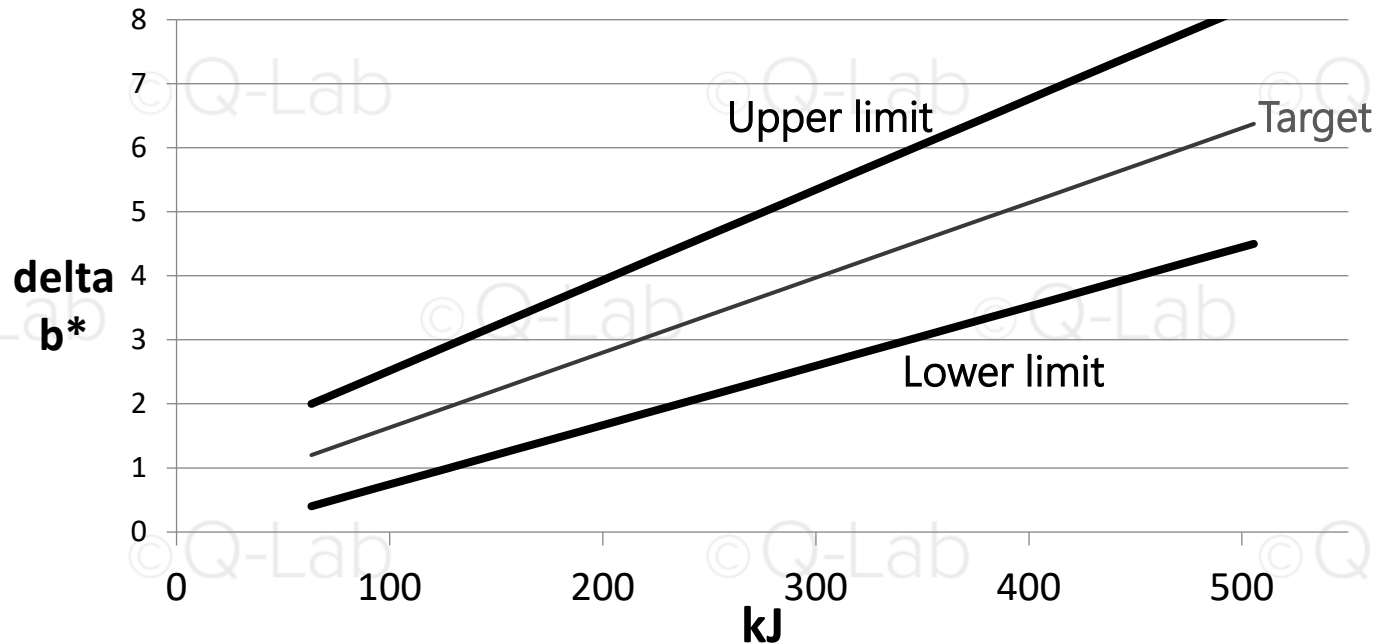
Performance Capabilities

	Xe-8 Irradiance Values by Control Point - Typical (& Maximum)		
	W/m²/nm @340 nm	W/m²/nm @420 nm	W/m² @TUV (300-400 nm)
Daylight-F	0.80 (1.30)	1.50 (2.40)	75 (125)
Daylight Q	0.68 (1.10)		
Extended UV (-Q/B, -Quartz)			
Daylight-B/B			
Window (-Q, -B/SL)	0.55 (0.85)		70 (108)
Window (-SF5, -IR)	-		42 (68)

Black Panel Temp² (°C)	BP	IBP
Light	39-100	39-110
Dark	25-45	25-45
Chamber Air Temp² (°C)	CAT	
Light (any filter)	35-65	
Dark	25-45	
Relative Humidity²	20-95%	

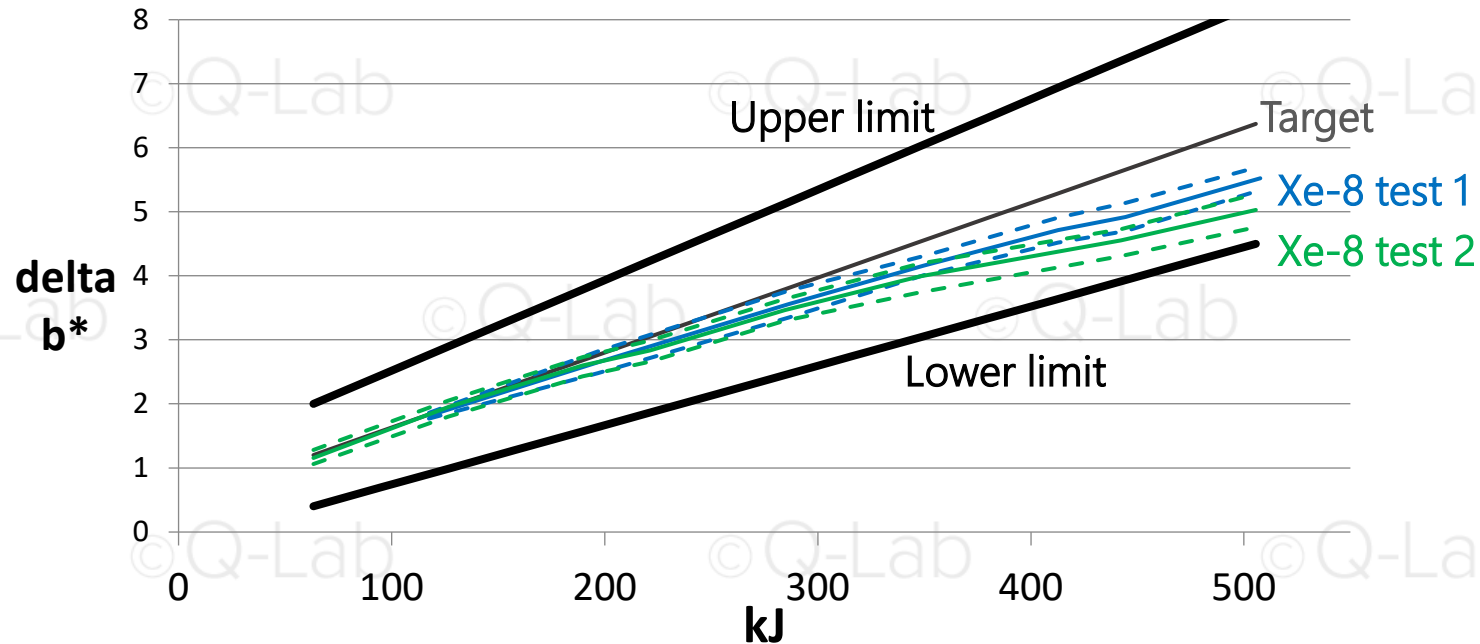
Meets performance requirements of virtually all major international standards

Performance Validation



Interlaboratory comparison established tolerances for polystyrene yellowing in SAE J2527

Performance Validation



Q-SUN Xe-8 is well within tolerance for multiple specimens at multiple vertical positions

Q-SUN Xe-8

- The **NEW** standard for large-format rotating rack xenon
- Up to 164 specimens $2 \times 4"$ (51×102 mm) or 96 specimens $2.62 \times 5.71"$ (66×145 mm)
- Outstanding performance capability
- Front accessibility minimizes lab footprint
- Simple to operate, calibrate, and maintain



Thank you for your time.

Questions?
info@q-lab.com

We make testing simple. |

