

QUV Operator Training

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Q-Lab

[View Recorded Presentation](#)



Q-Lab's Live Operator Training Series

Today is the first of a three-part webinar series on basic operation of our weathering and corrosion testers

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

Date	Topic
06 Jun	QUV
13 Jun	Q-SUN
20 Jun	Q-FOG

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!

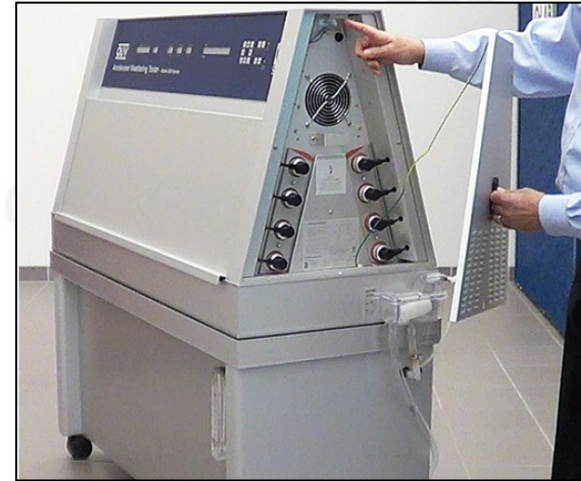
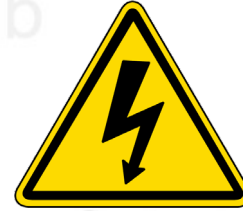
We hope you found our live video demonstration webinar on **QUV Tester Operation** to be helpful and insightful. The link below will give you access to the slides and recorded webinar.

Topics

- **Safety**
- Functions of the Tester
- Running a Test
- Calibration
- Maintenance

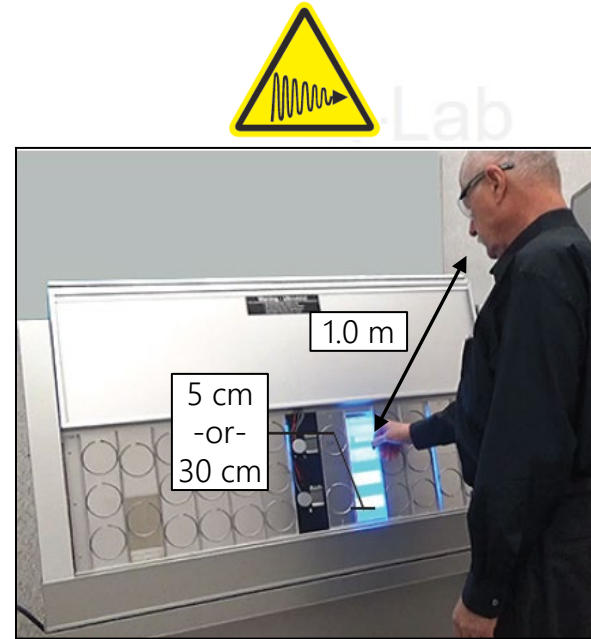
Electrical Shock

- The QUV uses 400V to operate the lamps
- Due to this high voltage, the QUV uses interlock switches to remove power to the lamps when the end covers are removed.
- Always use caution around high voltage, and do not bypass the safety interlock switches!



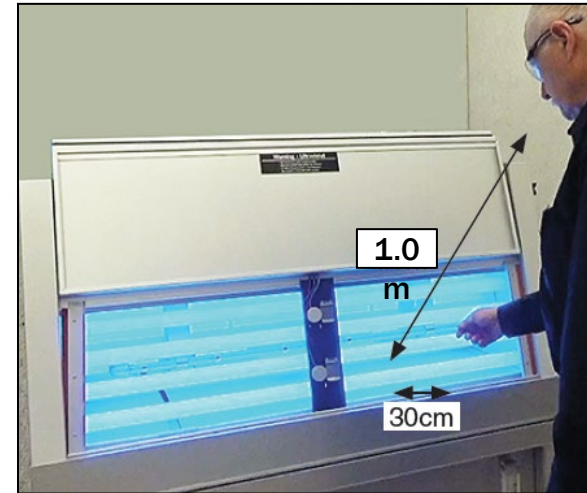
UV Exposure

- One sample holder removed
- Hand 5 cm (2 in) from lamps (same distance as specimens)
 - Allowable Daily Exposure: 1 minute
- Hand 30 cm from lamps
 - Allowable Daily Exposure: 6 minutes
- Face 1.0 m from lamps
 - Allowable Daily Exposure: 18 minutes



UV Exposure

- All sample holders removed
- Hand 30 cm from lamps
 - Allowable Daily Exposure: 2 minutes
- Face 1.0 m from lamps
 - Allowable Daily Exposure: 6 minutes



QUV Door Interlocks

- The UV dosage someone will see from periodic irradiance calibration and specimen handling is equivalent to being outside on a clear day
- Nevertheless, QUV testers have interlocks on the front and rear swing doors that will shut off the lamps after 30 seconds.



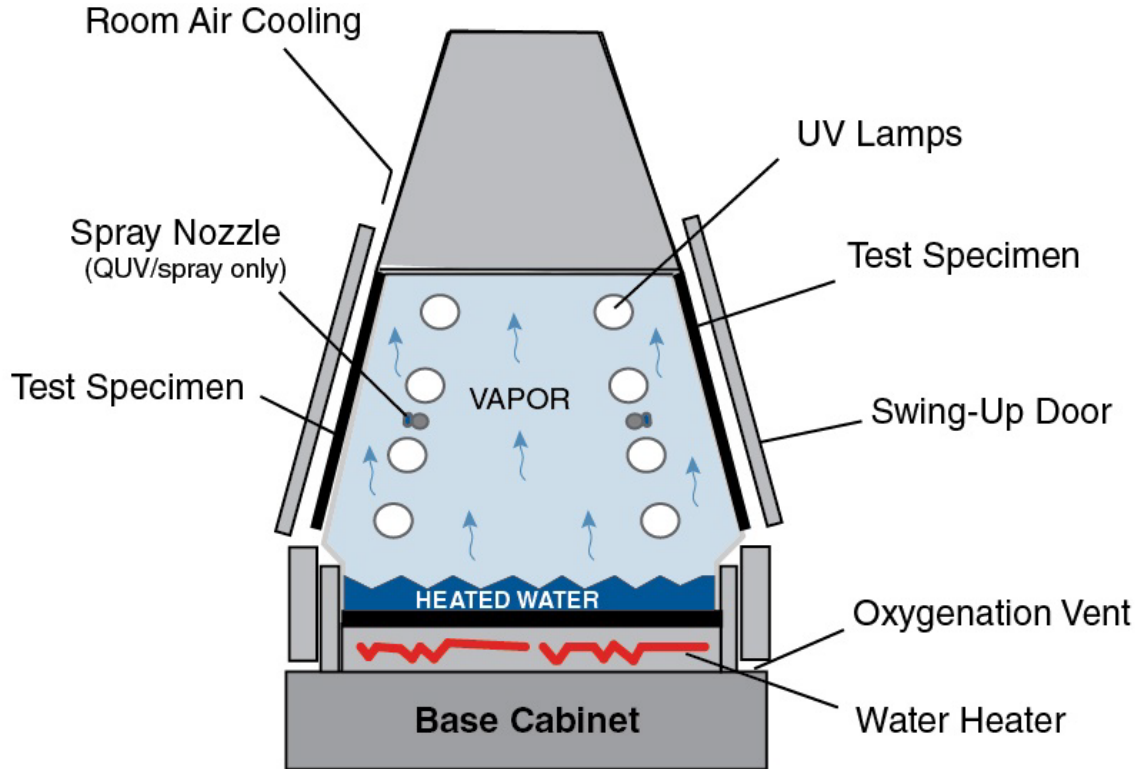
Topics

- Safety
- Functions of the Tester
- Running a Test
- Calibration
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QUV Functions

- UV Light System
- Controlled Temperature
- Condensation
- Water Spray (optional)

QUV Overview

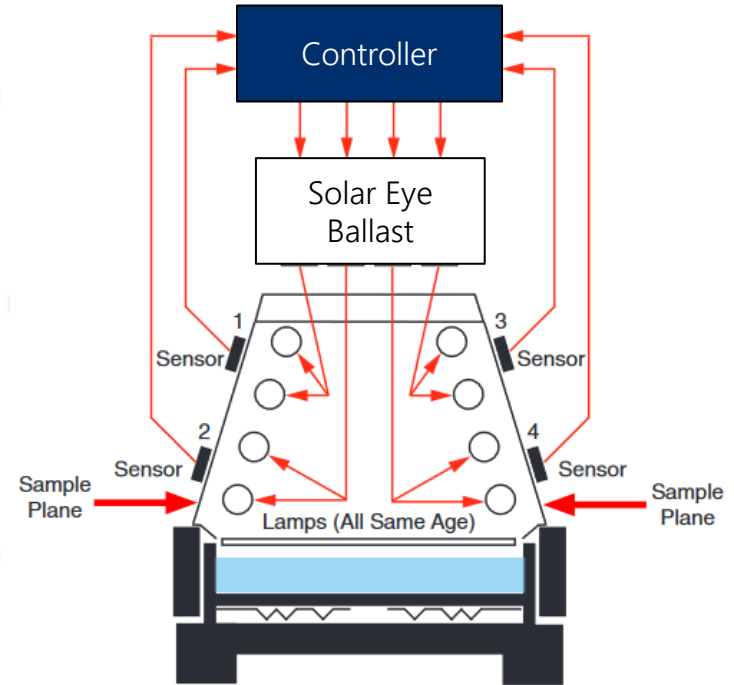


UV Light System

- QUV/basic
 - No control of irradiance
 - 4 separate ballasts
- QUV/se, QUV/spray, QUV/cw, QUV/uvc
 - Solar Eye Irradiance Control maintains the same irradiance at all times
 - Single ballast controls 4 banks of lamps

SOLAR EYE Irradiance Control

- One specialized ballast powers four channels of eight total lamps
- Power to lamps controlled to maintain constant UV irradiance
- Benefits are numerous:
 - Calibrated light source for better repeatability
 - Controlled intensity
 - Replace lamps only when needed

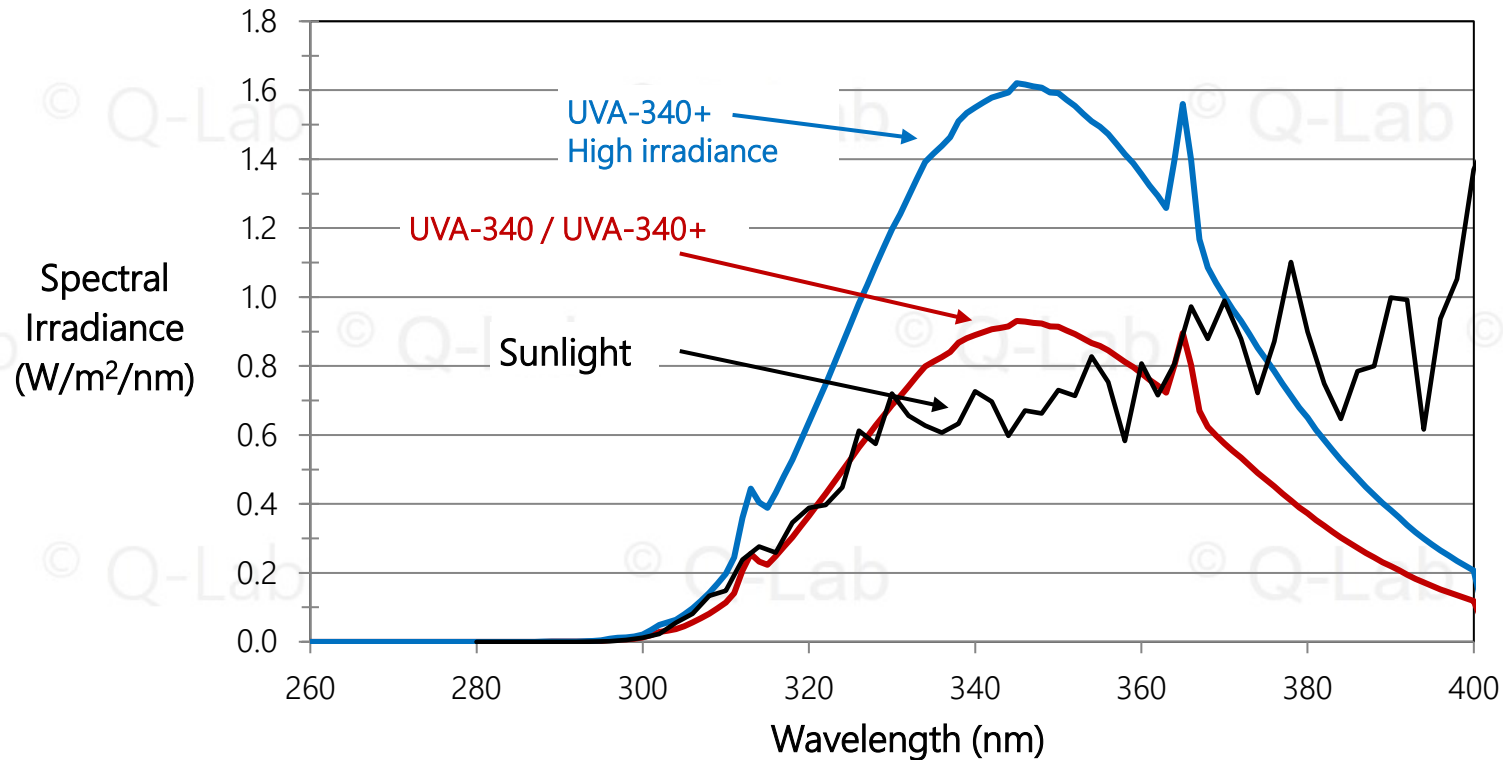


Irradiance Levels

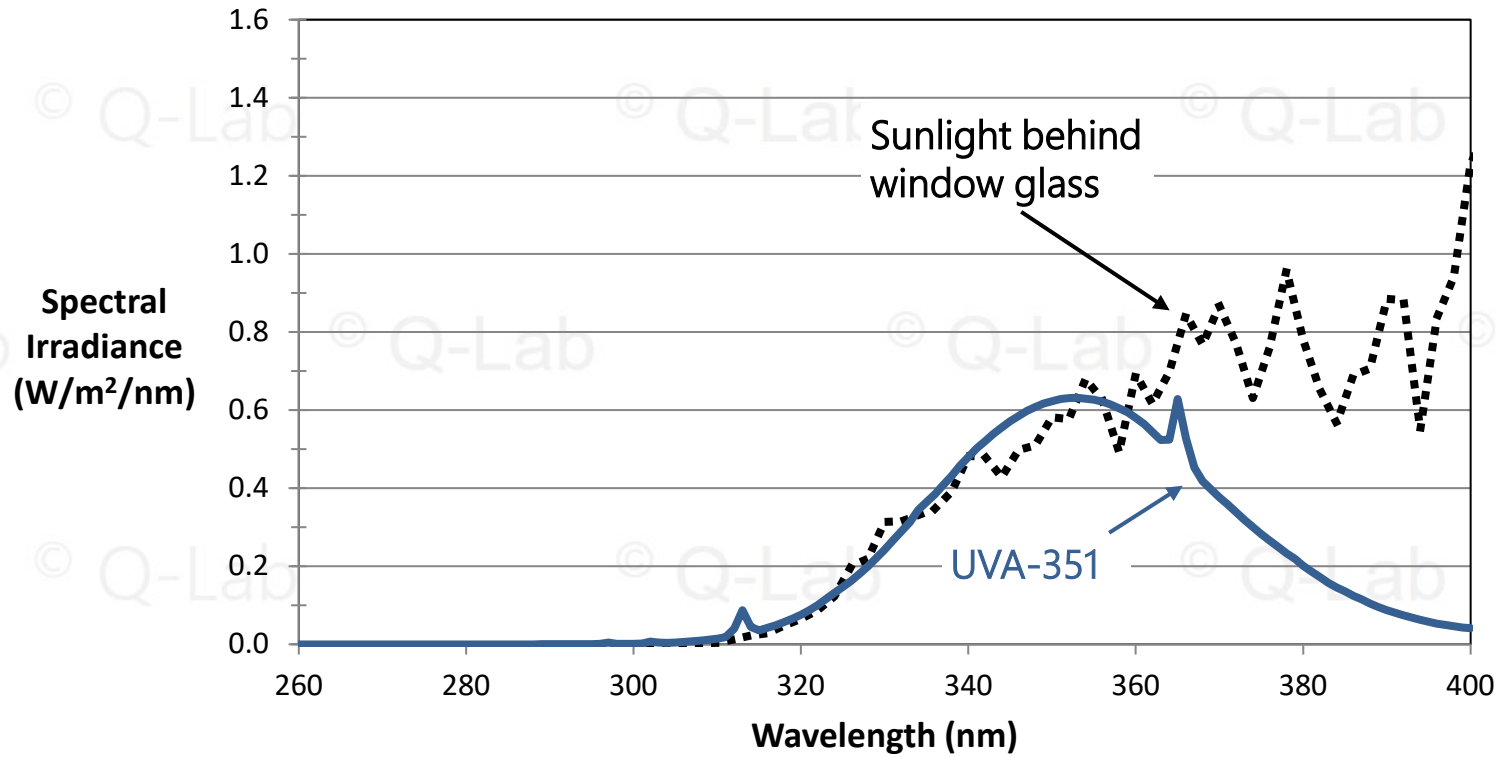
Irradiance	Warranty ¹	UVA-340	UVA-340+ ²	UVA-351	UVB-313EL	UVB-313EL+ ³	UVC-254 ⁴
Minimum	<i>Reference</i>	0.20	0.35	0.20	0.20	0.35	1.0
Low	1,000 hours	0.40-0.59	0.60-0.74	0.35-0.59	0.40-0.47	0.40-0.47	1.1-1.9
Typical	8,000 hours	0.60-0.90	0.75-0.95	0.60-0.80	0.48-0.62	0.48-0.95	2.0-6.0
High	1,000 hours	0.91-1.25	0.96-1.85	0.81-1.25	0.63-0.95	0.96-1.85	6.1-10.0
Maximum	<i>Reference</i>	1.54	2.04	1.54	1.23	2.04	13.0

Note: Irradiance value ($W/m^2/nm$) at 340 nm for UVA lamps, 310 nm for UVB lamps
 Irradiance in mW/cm^2 @254 nm for UVC lamps ($10 \times W/m^2$)

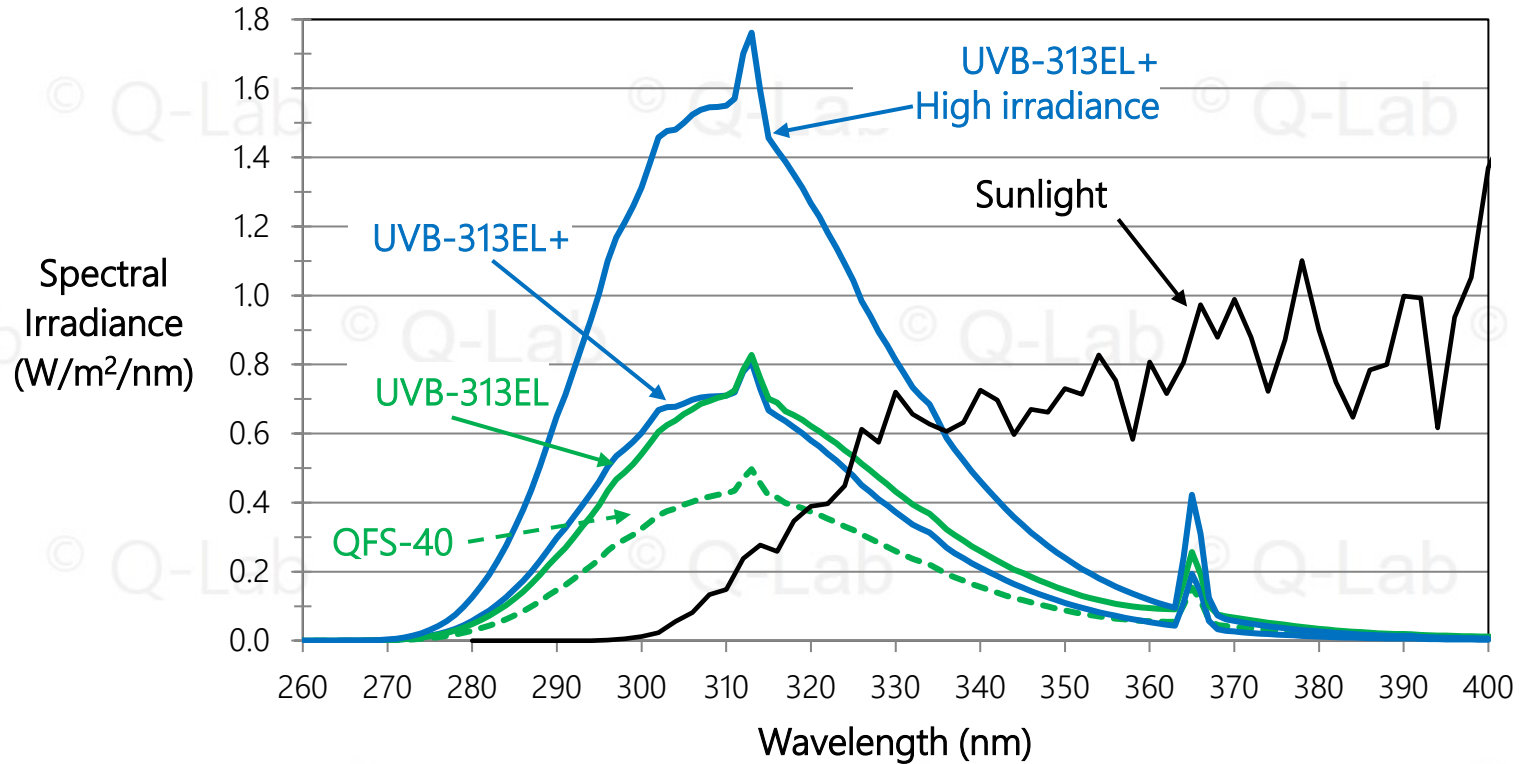
UVA-340 / UVA-340+ Lamps SPD



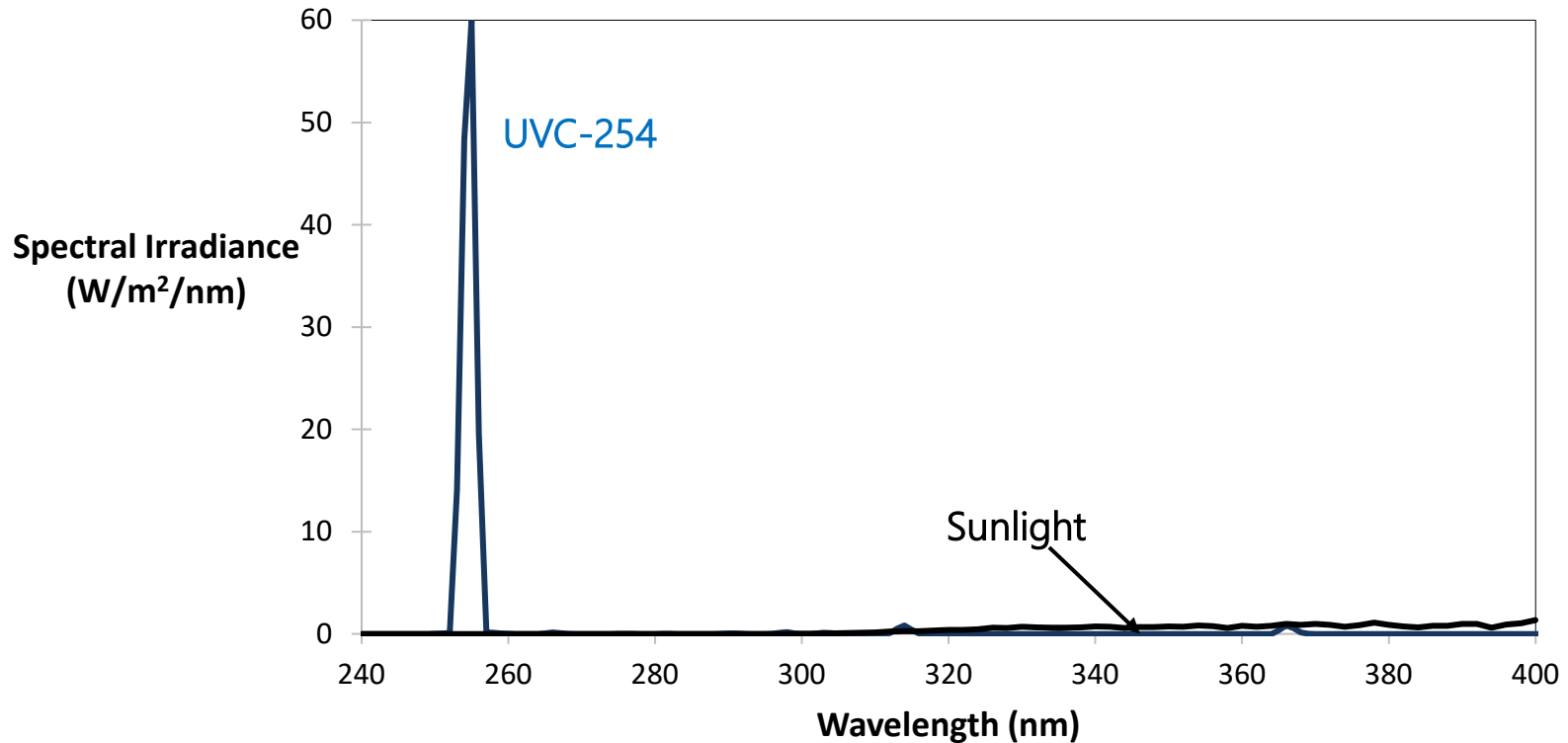
UVA-351 Lamps SPD



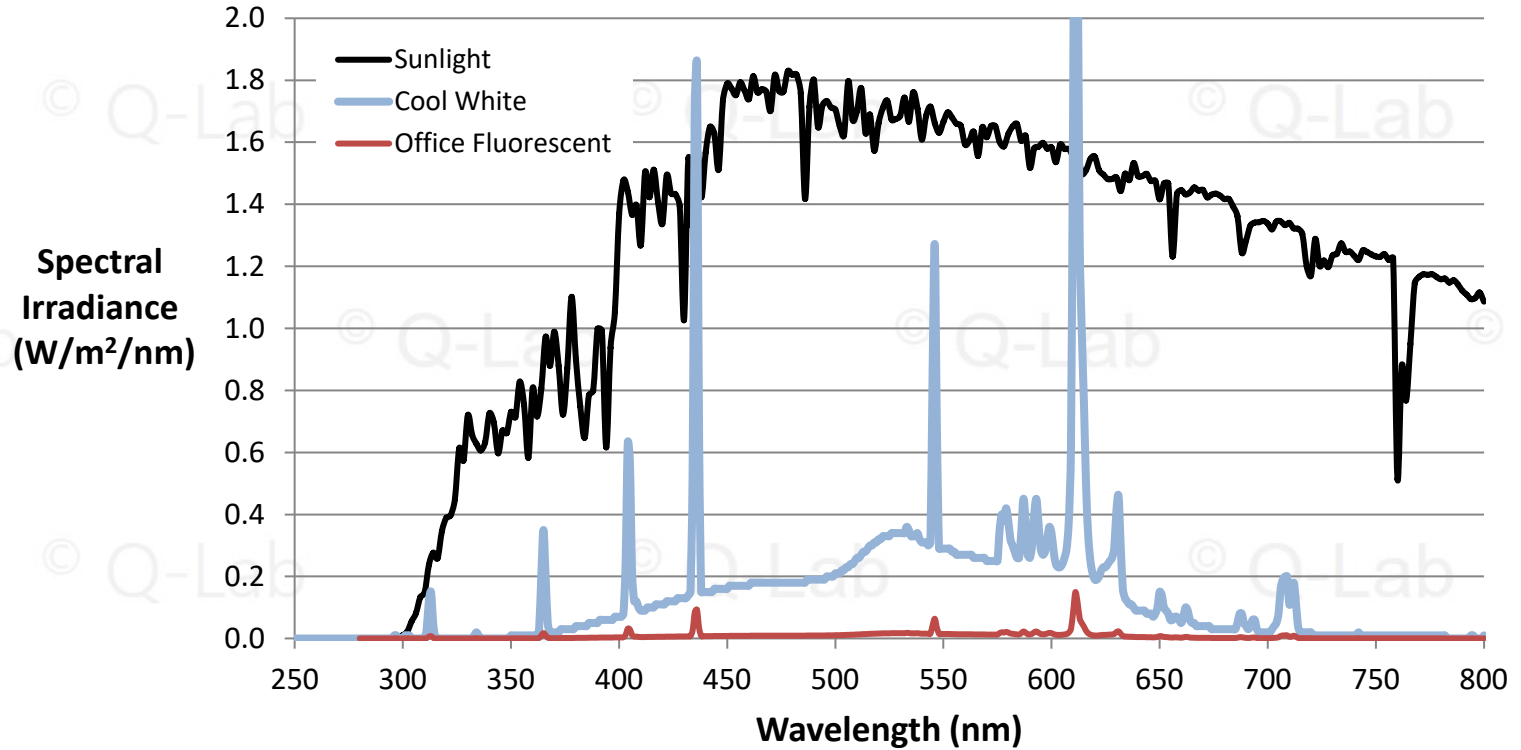
UVB Lamps SPD



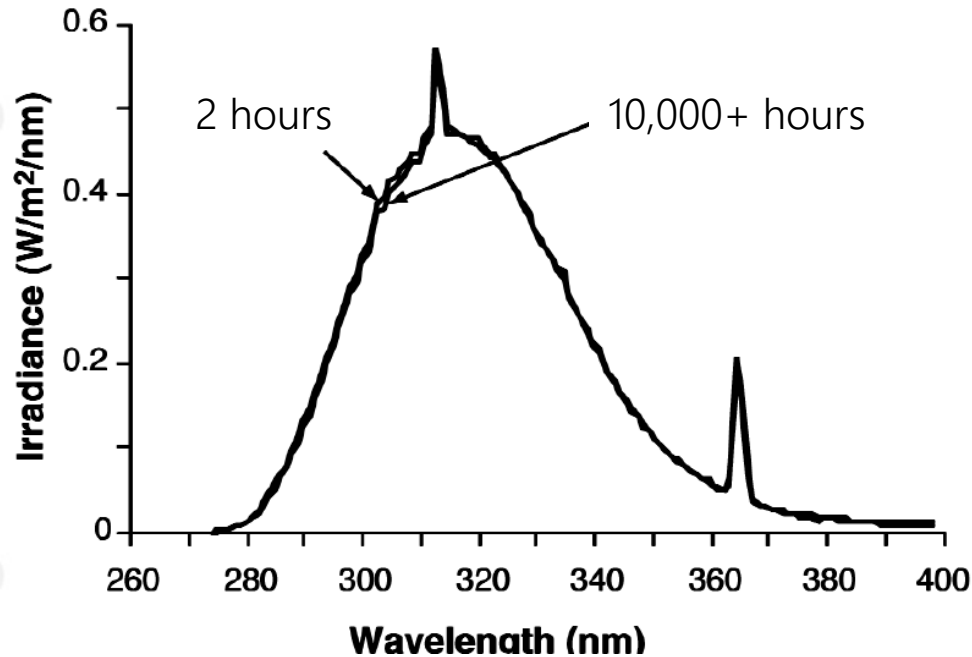
UVC Lamps



Cool White SPD



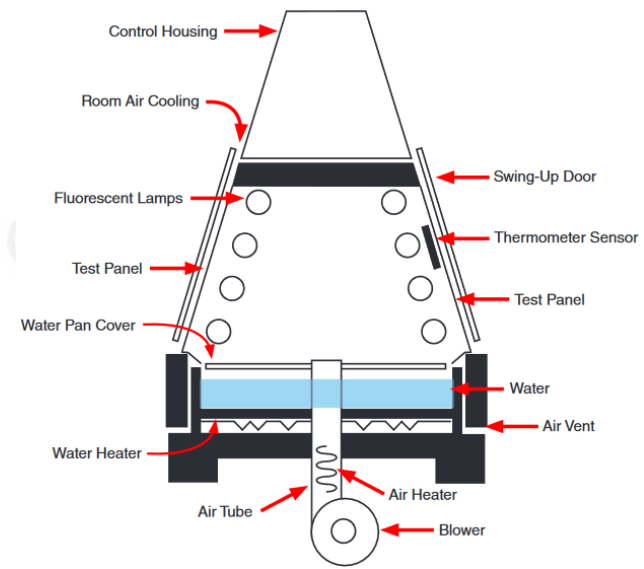
SOLAR EYE Lamps - No Aging



Minimal to no spectral change after 10,000 hours in SOLAR EYE models.

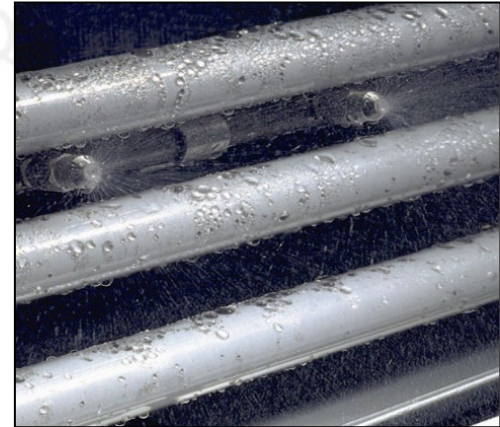
Temperature Control in UV Function

- Controlled by panel temperature sensor
 - Uninsulated
 - Insulated
- Blower
- Air Heater
- Both Blower and Air Heater are on during UV Cycle



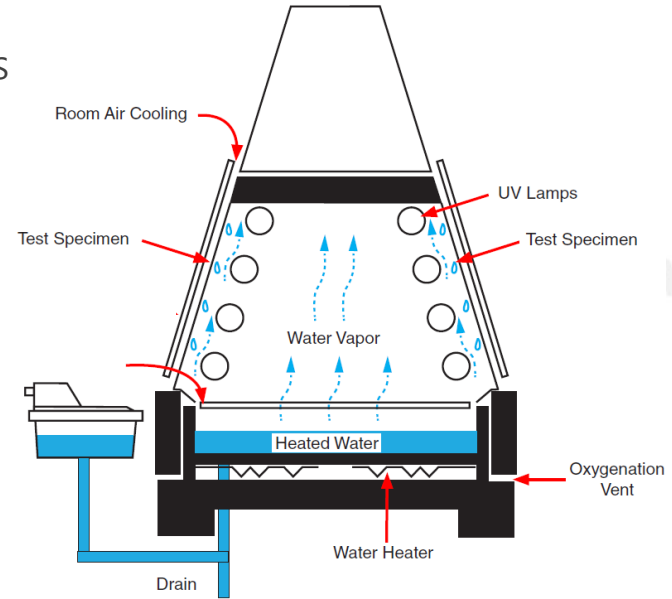
QUV Moisture

- Condensing Humidity
 - Hot condensation
 - Maximum water uptake
- Water Spray
 - Thermal Shock
 - Erosion



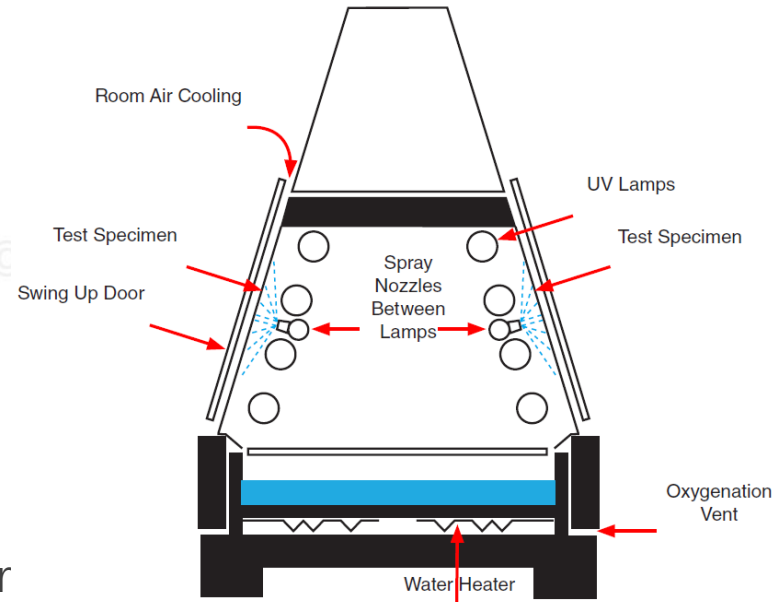
QUV Condensation

- Standard in most QUV's
- Requires tap water connection, but distilled water reduces maintenance, do not soften water.
- Uses approximately 8 liters/day
- Water Heater is on, warming the water and filling the chamber with warm water vapor
- Water Temperature Sensor ensures safety and that the water pan is full
- Blower is on until the panel temperature is met
- Lamps and Air Heater are off



QUV/spray and QUV/spray-RP

- Purified water required ($> 200 \text{ k}\Omega$ resistivity)
- 12× nozzles total, 6× on each side
- 7 liters/minute
- Panel temperature is displayed but not controlled
- Lamps, Water Heater, Air Heater, and Blower are off
- QUV/spray-RP is an optional system that recirculates and re-purifies water (purified water connection still required)



Field Calibration Audits, Tester Commissioning, and Customer Education

- Q-Lab Repair team offers tester audits and field calibrations, in addition to their on-site repair visits and troubleshooting services.
- Q-Lab offers customized training plans that can be catered to each customer's demand and may include *Tester Commissioning* as well as *Weathering 101* and *Atmospheric Corrosion* education
- Contact info@q-lab.com or Repair@q-lab.com for more info
- *And now ... over to the showroom!*

Thank you for your attention!

Questions?

Send your inquiry to:
info@q-lab.com

