

University of Tehran

University College of Engineering

Lighting Laboratory

Test Report

No: 99L1179

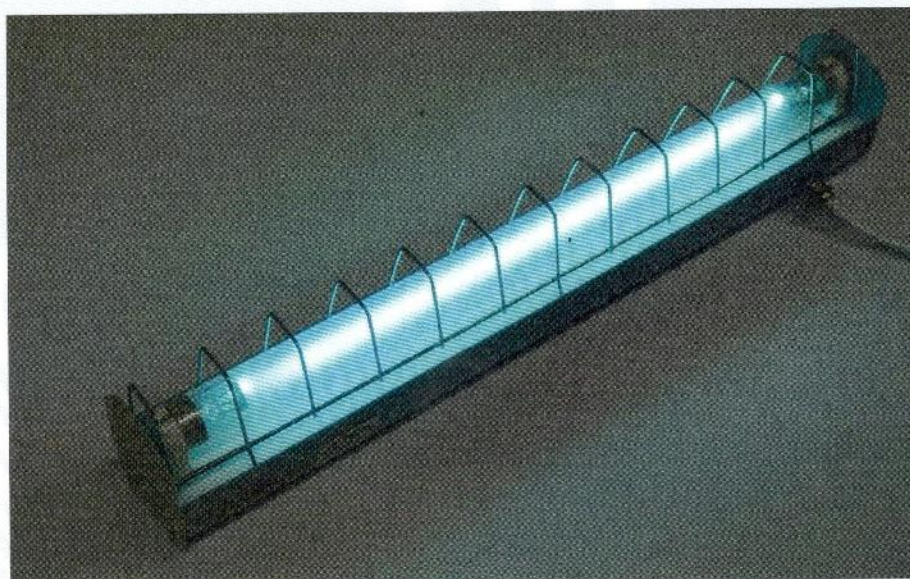
**UV-C Test on
UV Sterilization Light
Sayan Electric Co.**





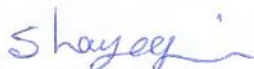
Test Report No. 99L1179

Test Object: UV Sterilization Light
Lamp: Osram G15T8/OF 15W UV-C
No. of Lamp(s): 1
Manufacturer: Sayan Electric Co.
Test performed in order of: Sayan Electric Co.
Test Scope: UV-C radiation measurement



Lighting Laboratory Participants:

Head of Laboratory:


A.A. Shayegani Akmal

Test leader:


S. Mohseni


Tehran, May 17, 2020

• Description of UV:

Ultraviolet (UV) light is electromagnetic radiation with a wavelength shorter than that of visible light but longer than X-rays (from 400 nm to 100 nm in wavelength). UV radiation is present in sunlight, and is produced by electric arcs and specialized lights such as florescent lamps and mercury-vapor lamps. Although lacking the energy to ionize atoms, ultraviolet radiation can cause chemical reactions, and causes many substances to glow or fluoresce. And Also can kill bacteria and germs over time. The electromagnetic spectrum of ultraviolet radiation, defined most broadly as 100–400 nm, can be subdivided into a number of ranges recommended by the ISO standard ISO-21348:

Name	Abbreviation	Wavelength range
Ultraviolet A	UVA	400 – 315 nm
Ultraviolet B	UVB	315 – 280 nm
Ultraviolet C	UVC	280 – 100 nm

• Description of Test Object:

The test object was a UV Sterilization Light with numbers of one T8 lamp. In this test the manufacturer supplied this system with one Osram G15T8/OF lamp with power consumption of 15 watts. The measurements were the spectrum and amount of radiation in different angels.



• **UV-C radiation test results:**

The UV radiation of test object was measured by one UV detector head (UV-C), made by Gigahertz-Optik GmbH and a light spectrometer. All data were measured at 1 meter. The results are shown in table 1. Unit of measurements are watt per sq. meter.

	Left side			Center	Right side		
[Deg]	-90	-60	-30	0	30	60	90
0	1.28	1.34	1.43	1.51	1.43	1.34	1.28
15	1.24	1.33	1.32	1.31	1.29	1.33	1.24
30	1.22	1.17	1.13	1.16	1.15	1.13	1.22

Table1. UV radiation of test object at 1m [W.A⁻²]

NOTE: The radiation of the test object is very harmful for human body especially skin and eyes, it is strongly recommended that under no circumstances no one be near or look at it when it is on.

توجه: امواج ساطع شده از این چراغ به شدت برای پوست و چشم انسان مضر است، اکیداً توصیه می‌گردد که تحت هیچ شرایطی مادامی که چراغ روشن است نزدیک آن نشده و با آن نگاه نکنید.

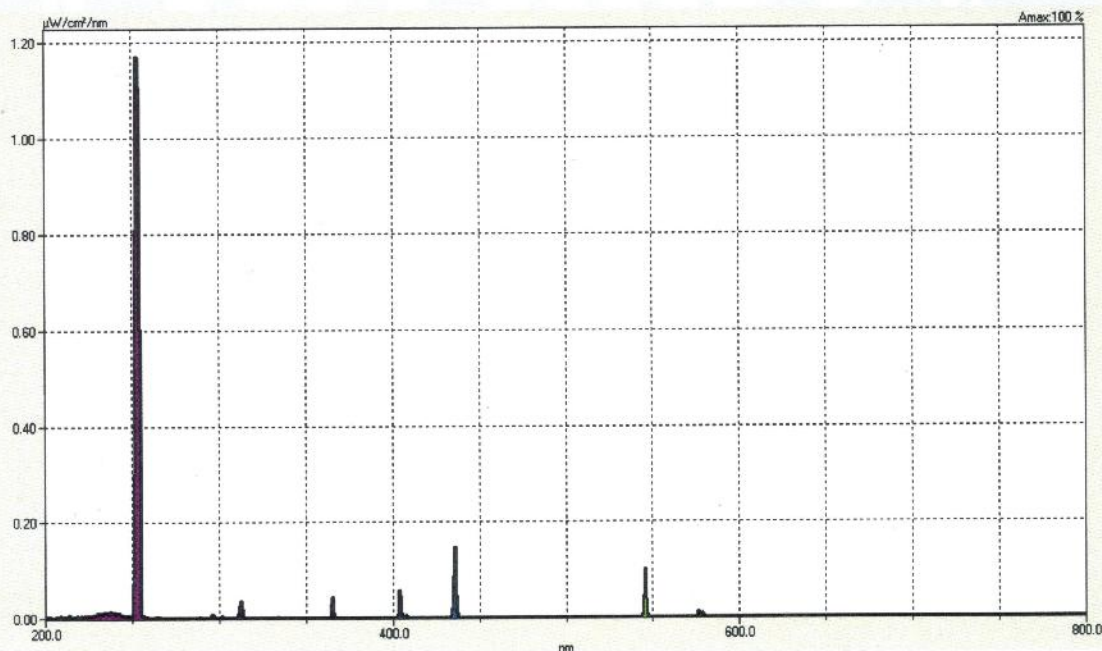


Fig1. Spectrum of test object at (0.0) °

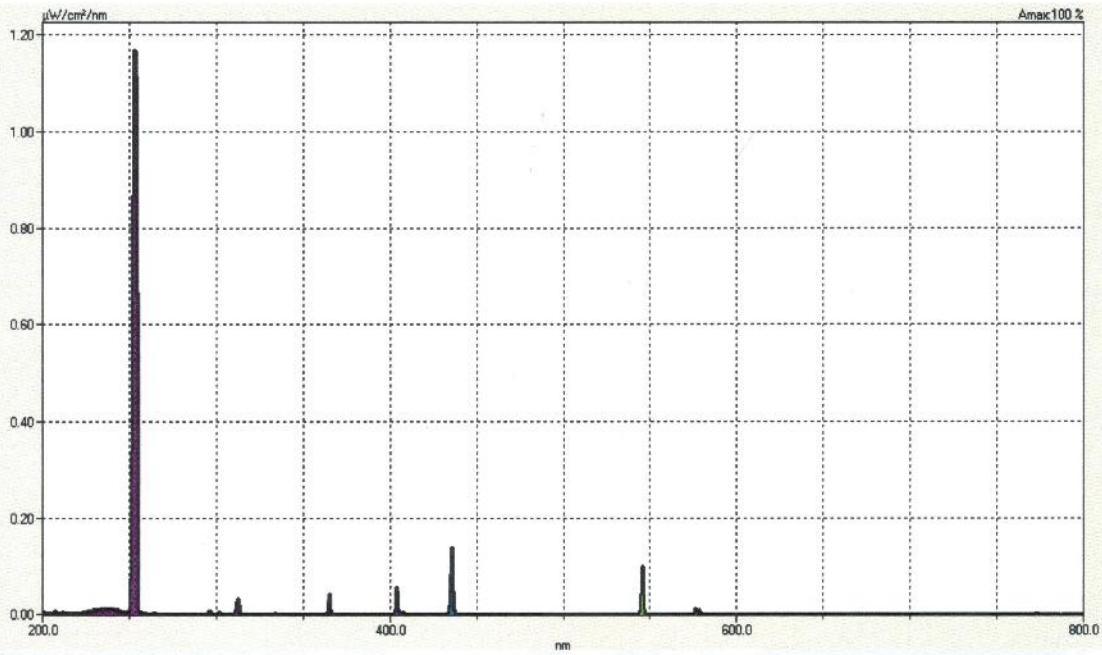


Fig2. Spectrum of test object at (0.30) °

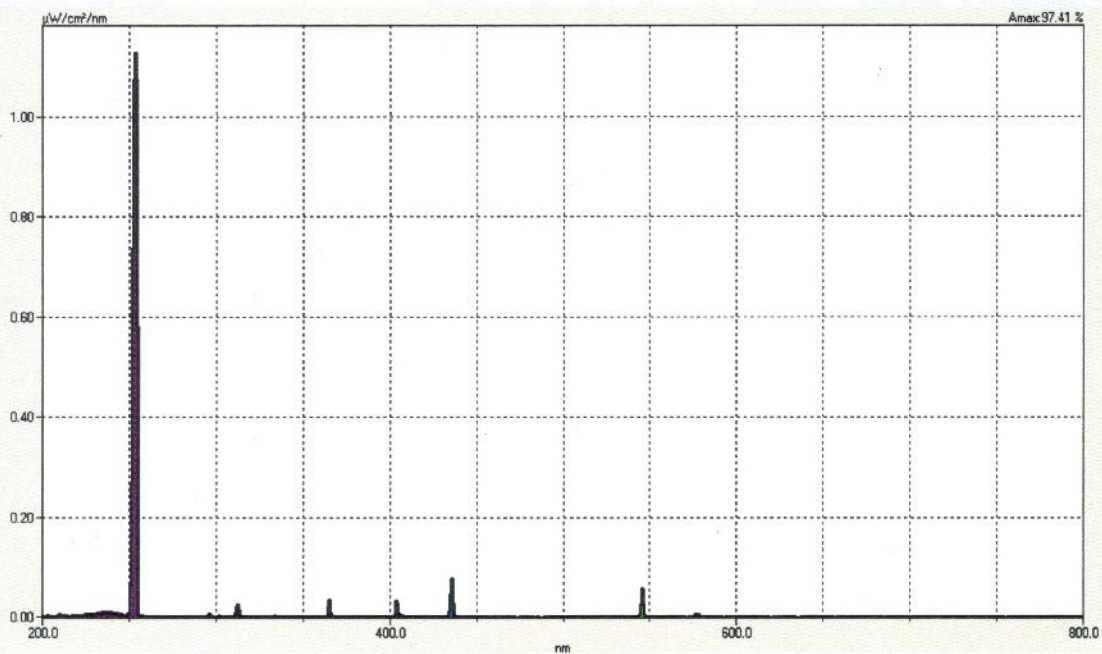


Fig3. Spectrum of test object at (0.60) °

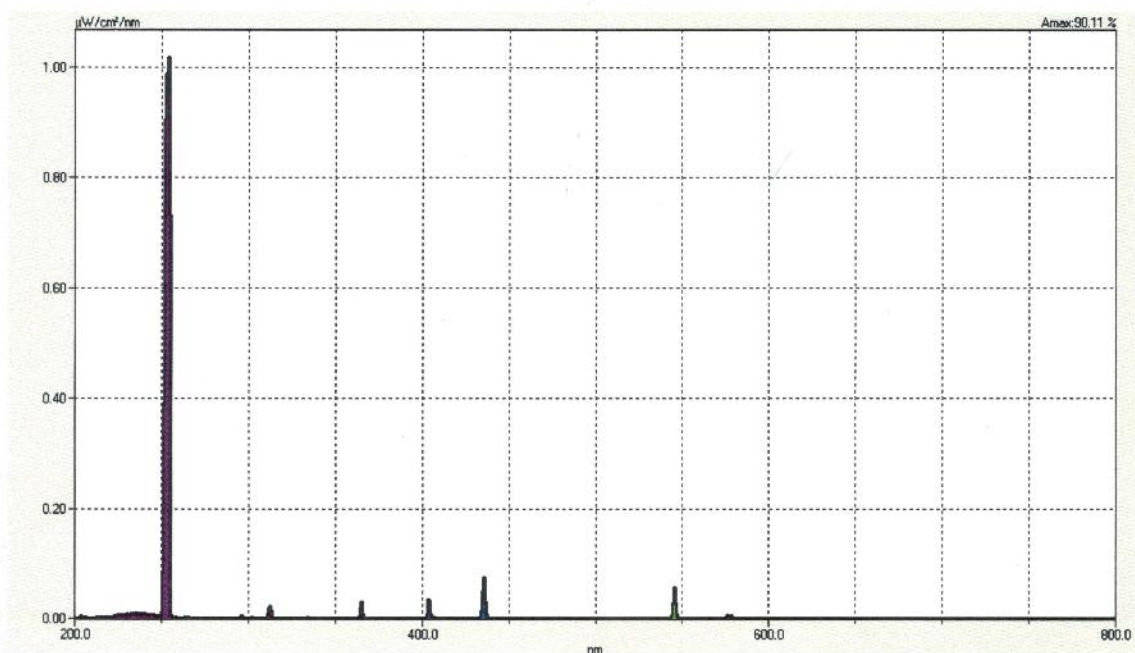


Fig4. Spectrum of test object at $(0.90)^\circ$

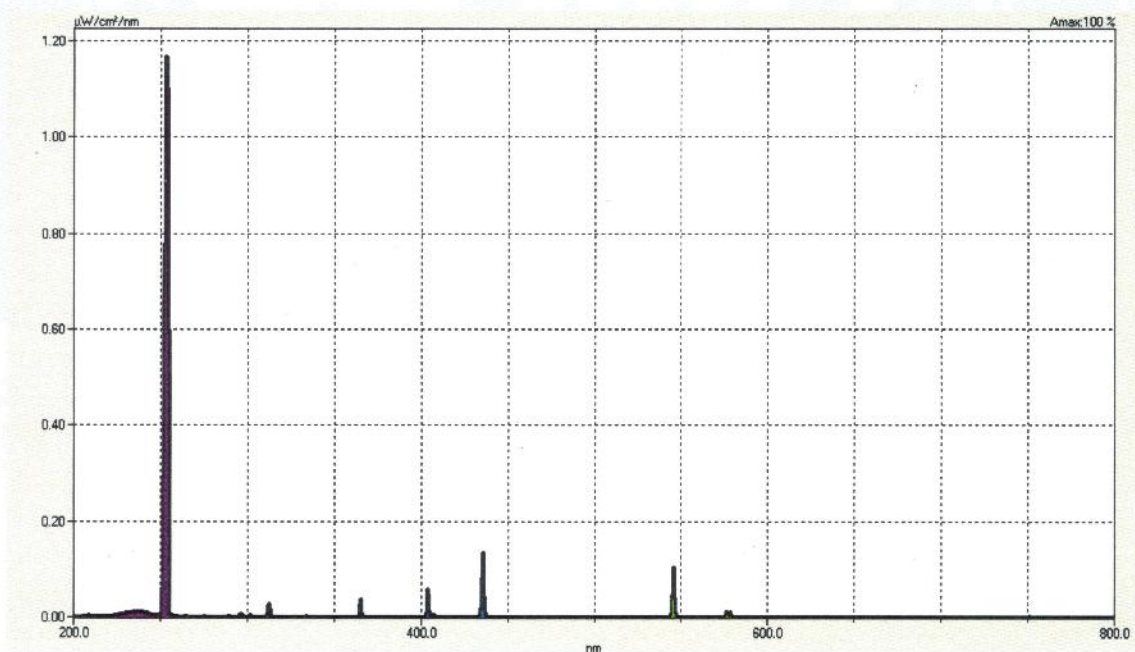


Fig5. Spectrum of test object at $(15.0)^\circ$

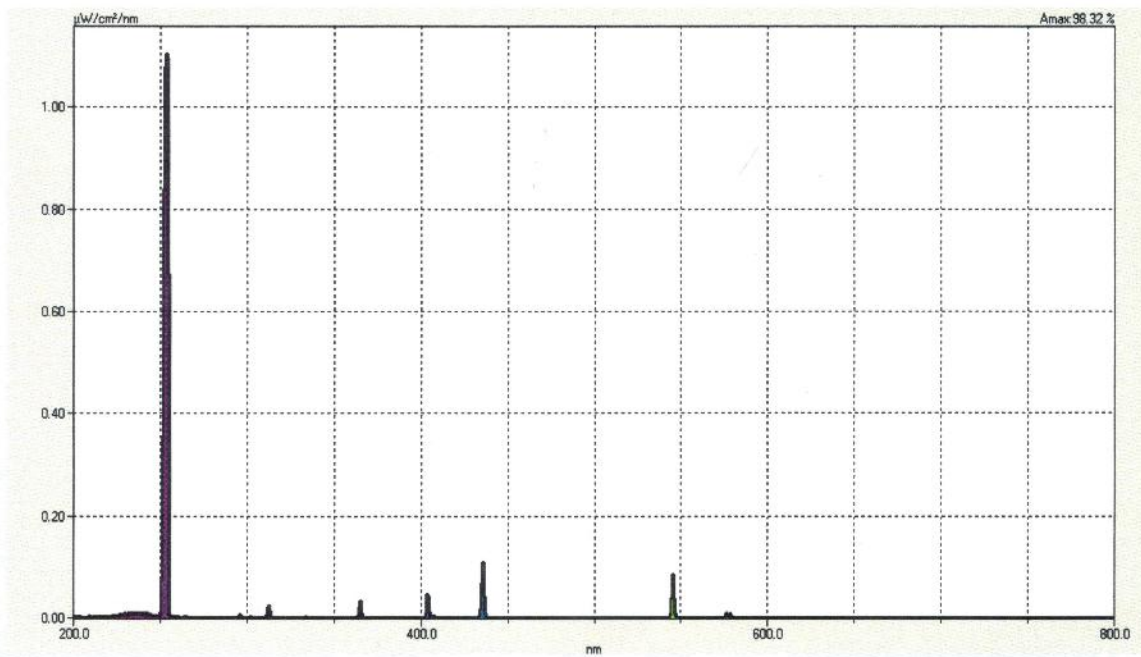


Fig6. Spectrum of test object at (15.30) °

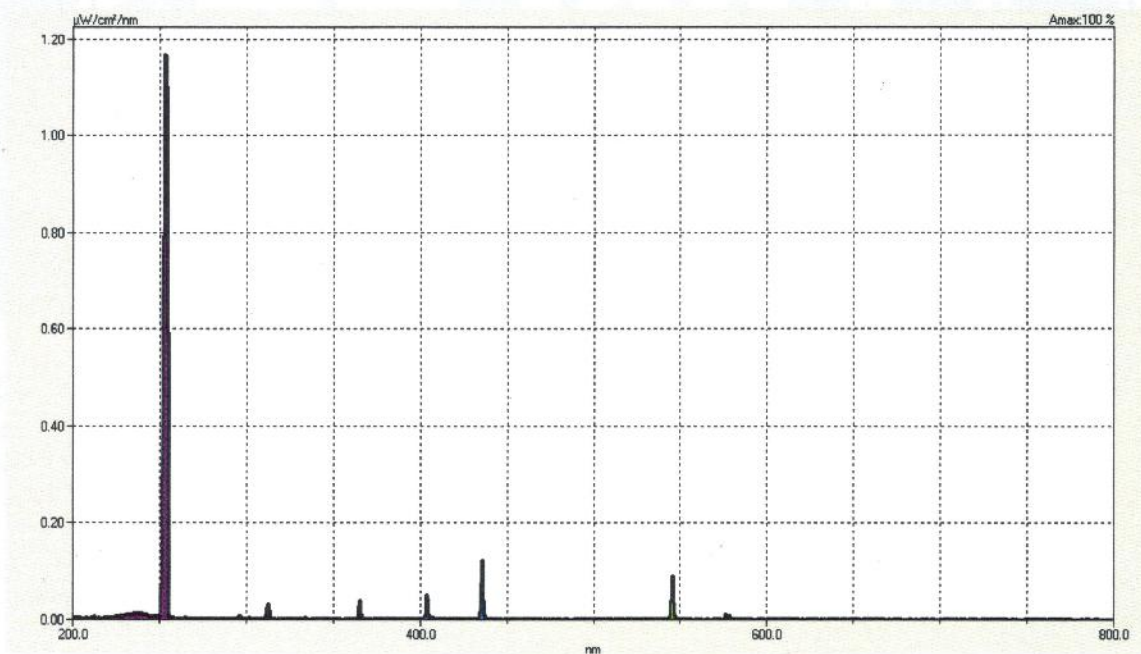


Fig7. Spectrum of test object at (15.60) °

