

Introduction to Glit Technologies (Shenzhen) Pte. Ltd.

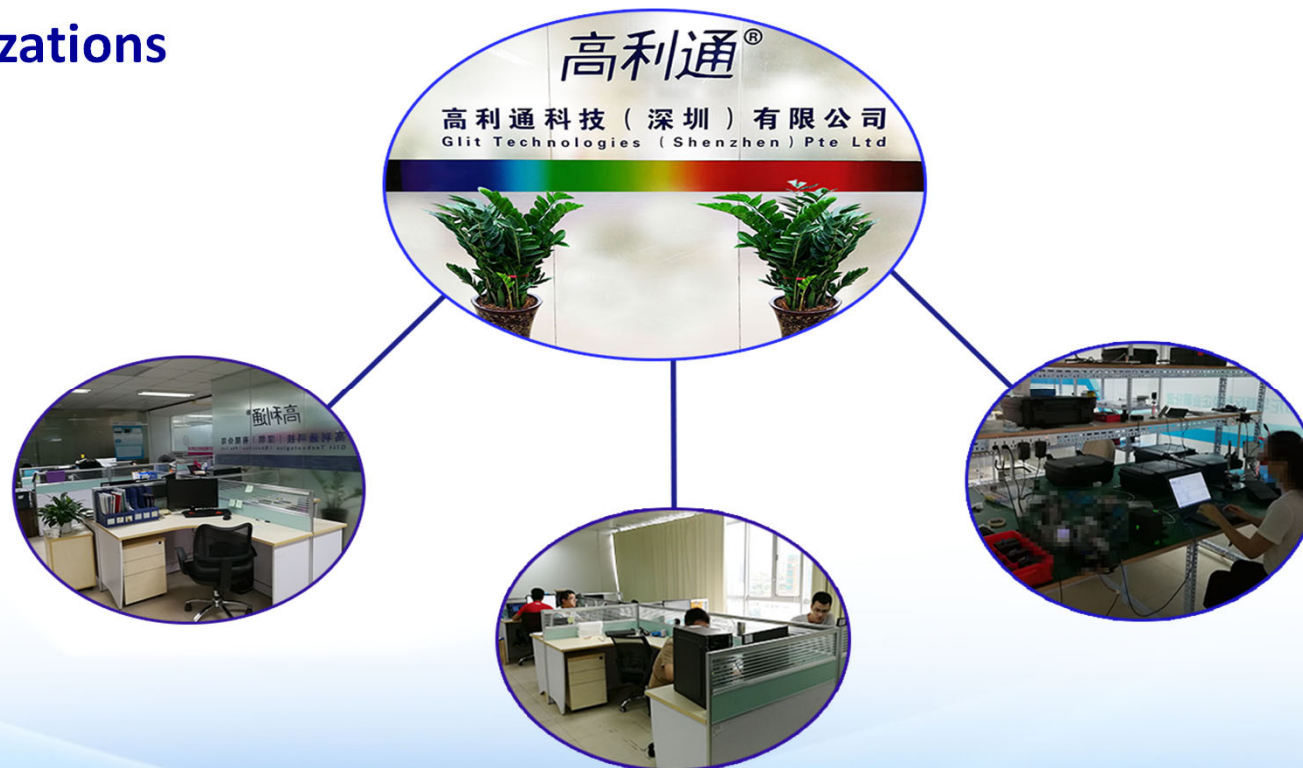
高利通科技（深圳）有限公司

Yuan Gaoqiang

April, 2025

Introduction

- Founded in September, 2014
- R&D, production of miniature optical spectrometers etc.
- Professional team work , including optics, electronics, mechanics and software
- Deep -tech with IPs
- Customizations



Technologies Sources

高利通®

Technologies from:



- **Current market:**
 - **Environment inspection**
 - **Bio-medical inspection**
 - **Industrial in-line inspection**
- **Market area:**
 - **China**
 - **Expolre international market**

Main Market

高利通®

| Industries | Applications | Products |
|-------------------------------|--------------------------------|--|
| Environment monitoring | Gas and water monitoring | GLA639 spectrometer |
| | | N3SP spectrometer |
| | | NSP01H spectrometer |
| | | UV 4U gas meter |
| Bio-medical instrument | Protein measurement and IVD | N3SP spectrometer and GLA639 spectrometer |
| | | Other optical systems |
| Industrial in-line inspection | Chemical materials measurement | GLA639 spectrometer, NIR spectrometer and laser height gauge |
| R&D | Spectrum research | Spectrometers and Raman spectrometers |

- Provide spectral modules for environment monitoring, bio-medical instrument and industrial control customers
- Provide systems for optical customers

Our Competitiveness

高利通®

- Professional technical team: including optics, mechanics, electronics, software and assembly
- World class level : original technologies from components to systems
- Targeting R&D and finest products: mass production to meet industrial requirement
- Foudher experince
 - international experience
 - profesional design and production of optical instrumation
- Derivations based on fiber spectrometers: be able to fufil customization

Best after sales service:

- **Professional capability:** design and fabrication of optical instrument
- **Rapid response:** systematic after sales service
- **Service concept:** help customers to fulfil systems based on spectral technology, grow up with customers' achievement

Products

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■ Fiber spectrometers

UV, VIS and NIR spectrometers, spectra covering fom 190-1100nm, customization is available



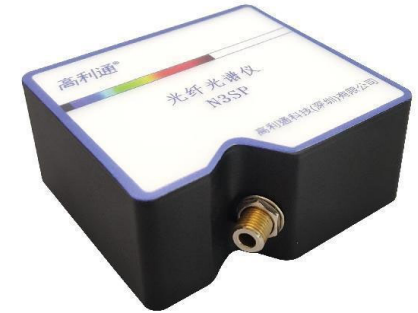
Basic spectrometer



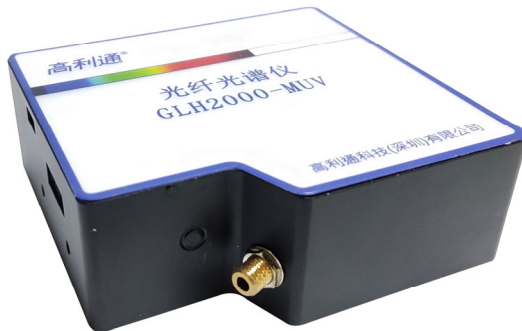
Sensitive spectrometer



Mini spectrometer



M shape spectrometer



High resolution spectrometer



LIBS spectrometers



Wide band spectrometer

Products

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- Light sources: pulse xenon light source, deuterium light source, lasers, LED light sources



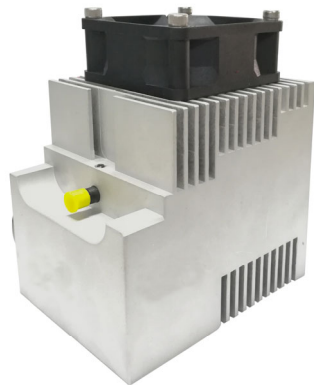
10W xenon light source



Quasi 2W xenon light source



785/635nm laser



Deuterium light source



NIR enhanced wide band light source

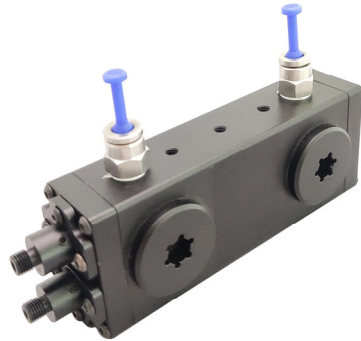


LED light source

- Optical gas cells



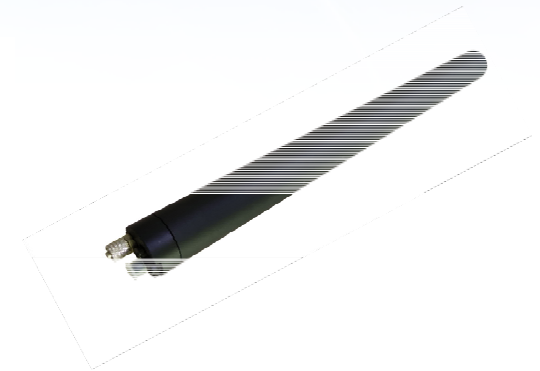
UV ultra small optical gas cell
0.01-0.1m optical length



UV mini optical gas cell 0.7-1.1m optical length



UV in-line optical gas cell 0.6m optical length



UV portable optical gas cell 0.6m optical length



UV small optical gas cell
2.4-3.6m optical length



UV high temperature optical gas cell 0.36m optical length

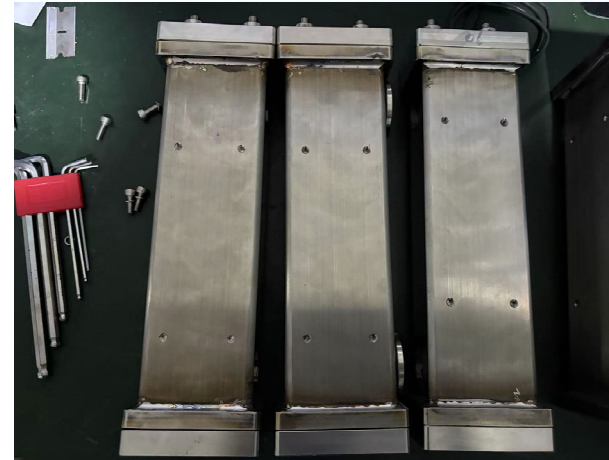
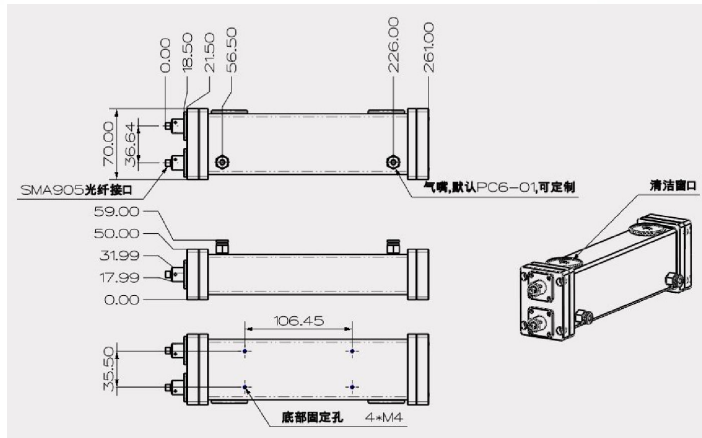


UV/NIR optical gas cell
4.2-8m optical length



UV/NIR long optical gas cell
10-18m optical length

- New optical gas cell



200 °C high temperature gas cell: 2.4 M optical length

Products

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- For water inspection



M shape spectrometer



Mini spectrometer



Seahorse spectrometer



Quasi 2W xenon light source

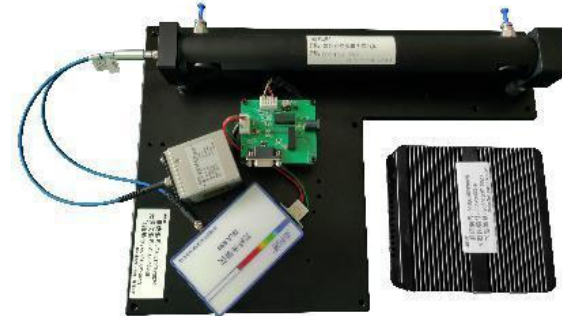


Seahorse xenon light source

- Gas inspection modules



Portable UV gas inspection module (DOAS)



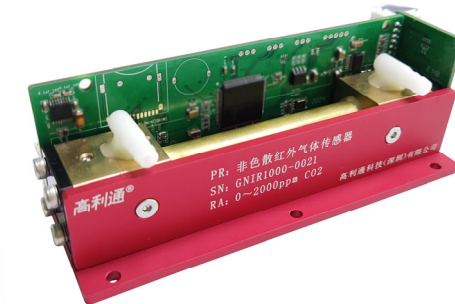
In-line UV gas inspection module (DOAS)



Ultra low density gas inspection module (DOAS)

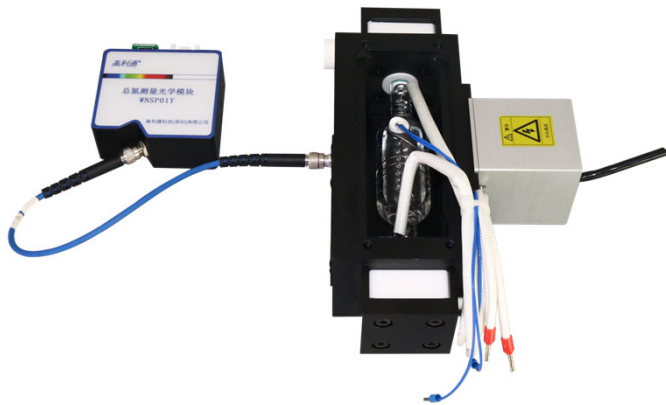


Low density gas inspection module (DOAS)

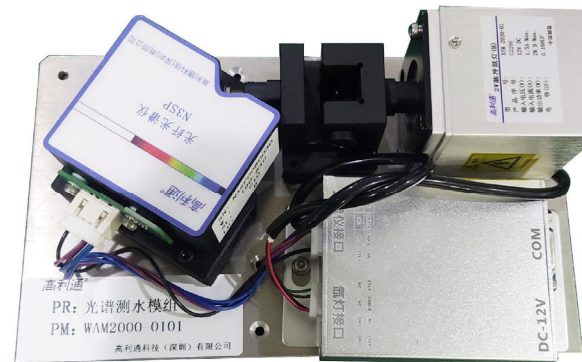


NDIR module (CO2)

- Water inspectin modules



In-line module with a digester



Portable module

Products

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- **Raman spectrometers:** 405nm, 532nm, 785nm Raman spectrometers, customization is available



405nm



532nm



785nm



532/785nm combiner



Embedded screen one

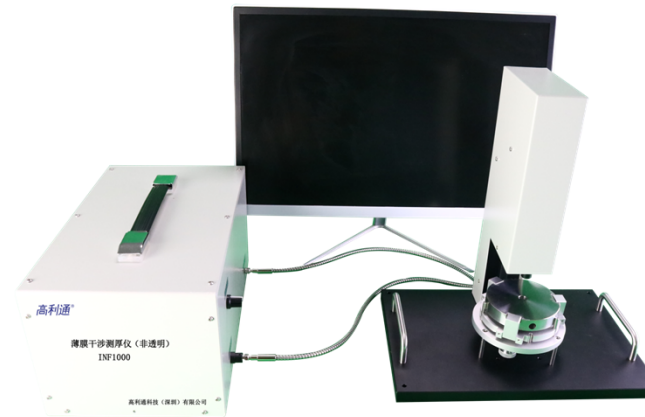


DIY Raman module

- Film gauges



In-line film gauge



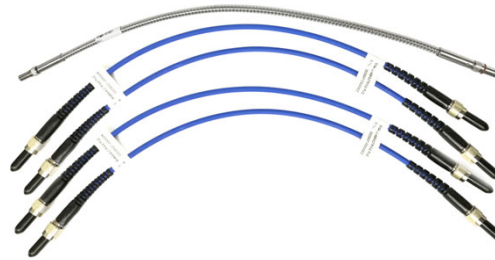
Non-transparent film gauge

- **Accessories**

To be used with spectrometers



Collimator



UV fiber

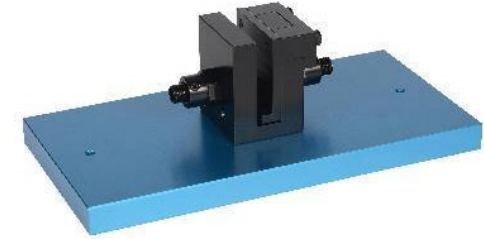


Plate sample holder



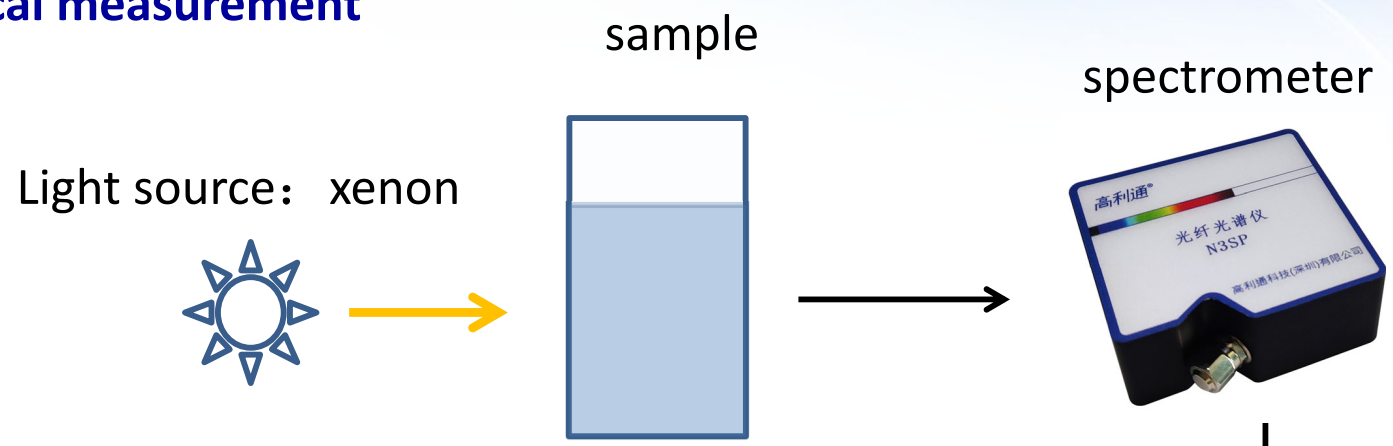
Cuvette holder



Light attenuator

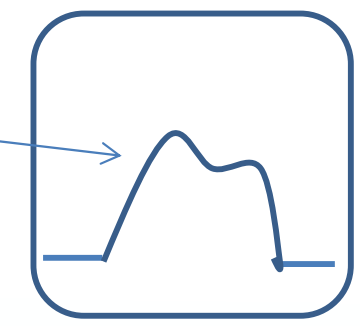
Bio-medical applicatios:protein and blood measurement

- ✓ Bio-medical measurement
- Protein
- Blood



Nano-drop spectrophotometer

display component and density

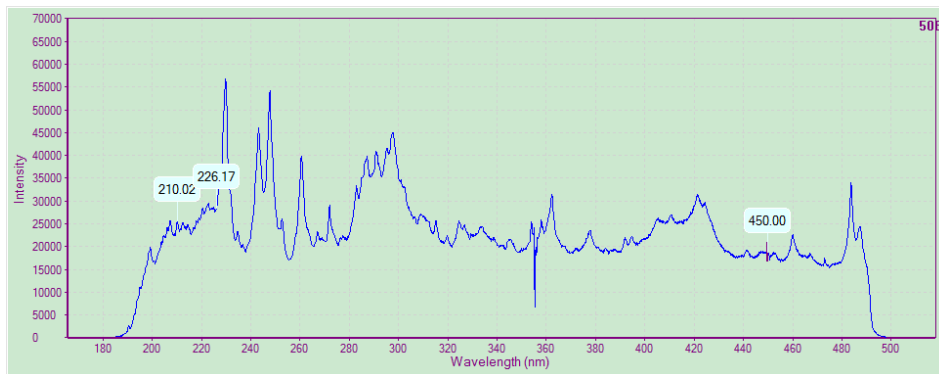
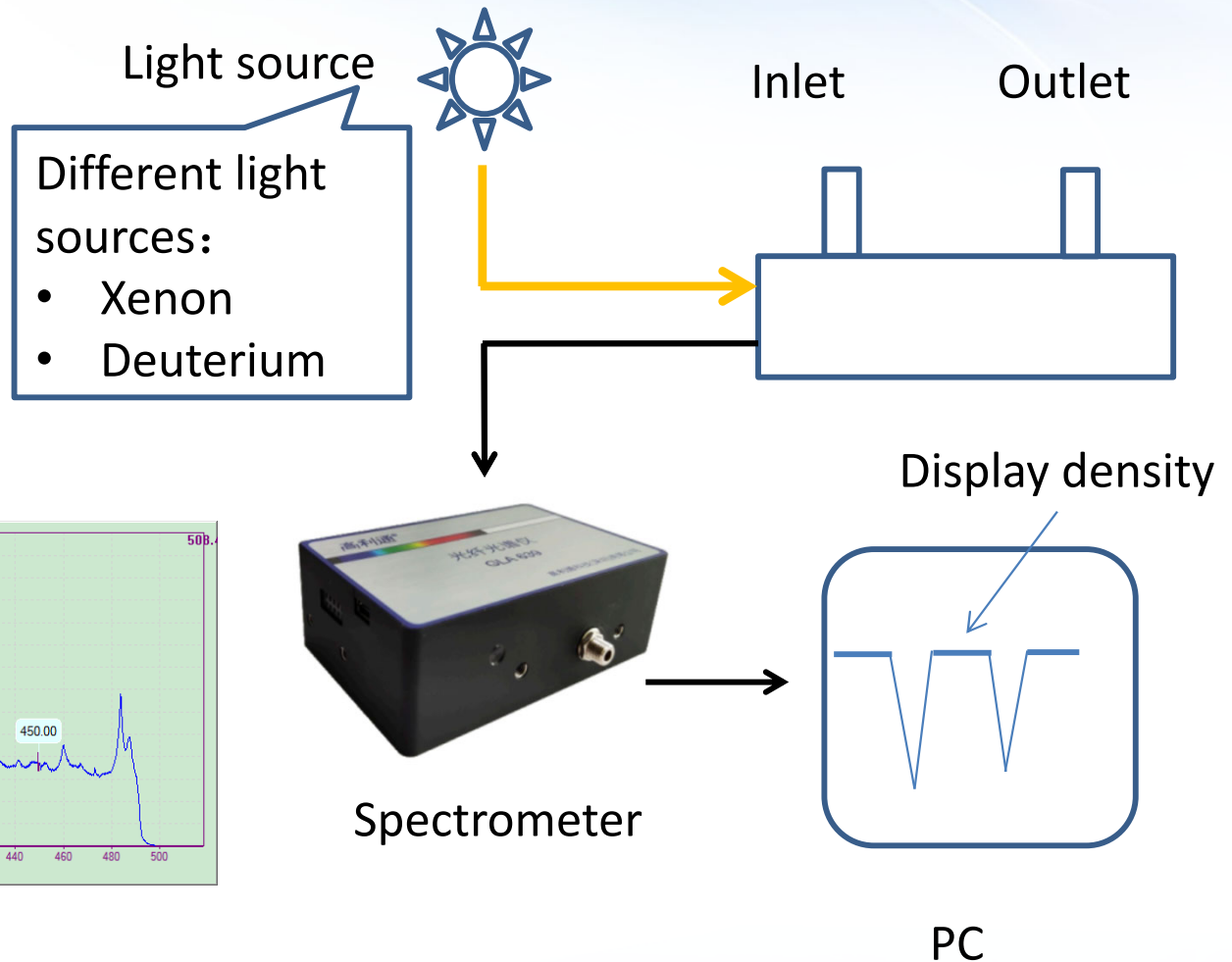


PC

Environment Applications: gas detection

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- ✓ Applications
 - Environment monitoring
 - Process control
 - Safety monitoring
- ✓ Equipment style
 - Portable
 - In-line



Environment Applications: water detection

- ✓ In-line water detection
- Total nitrogen etc.

Light source:
xenon



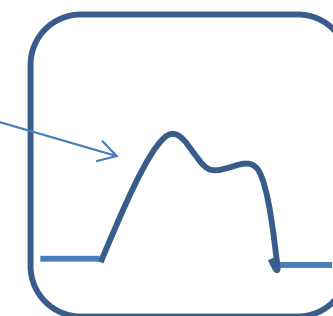
sample



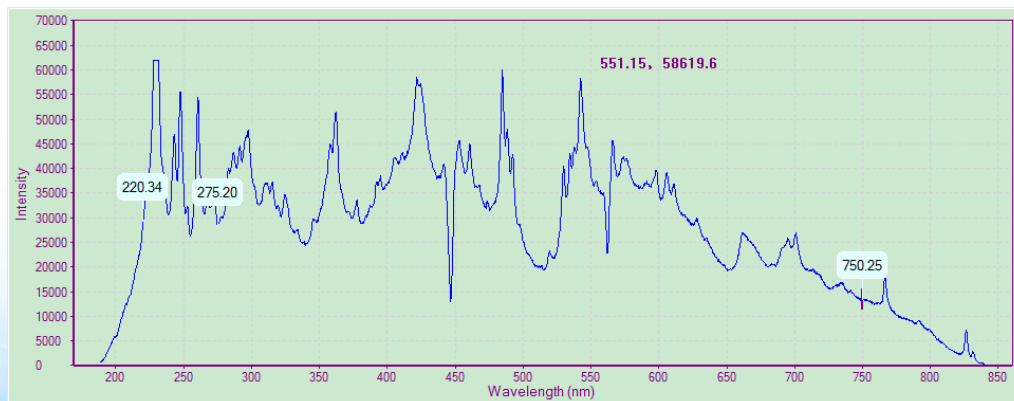
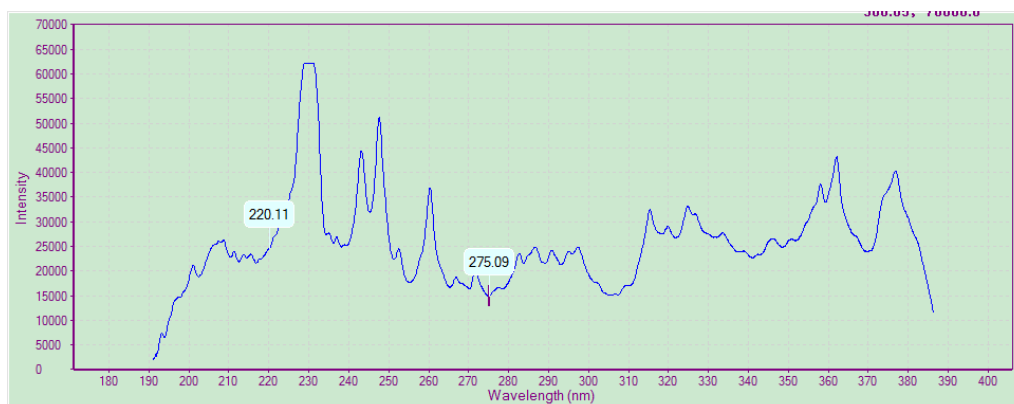
spectrometer



Display density



PC



Environment Applications: water monitoring

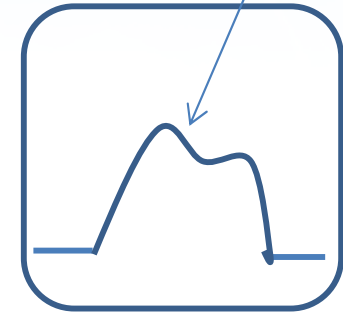
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✓ In situ water monitoring

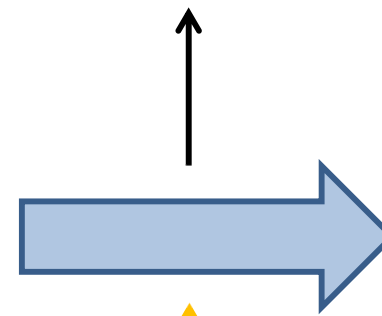
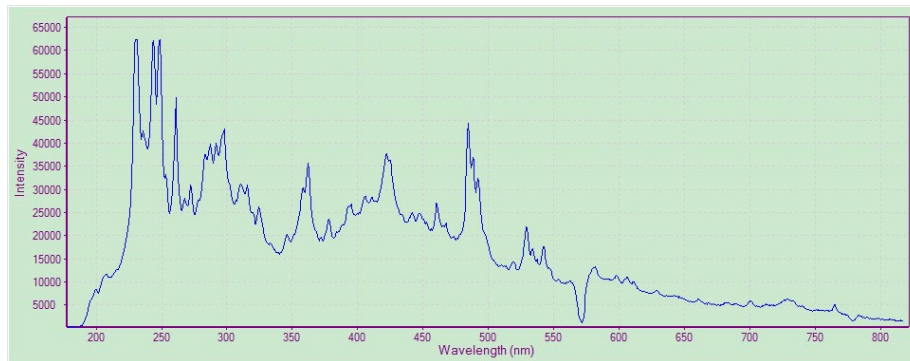
mini spectrometer



display density



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Water flow



Light source

Industrial Applications: light radiation measurement

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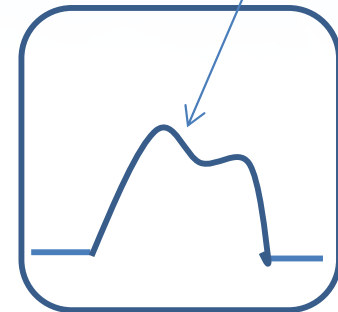
✓ Measure different light sources

- Xenon
- Tungsten
- LED
- Lasers

spectrometer



display spectrum



PC

- Fiber conducted
- Free space
- Use intergration sphere or filters, if light intensity is too strong

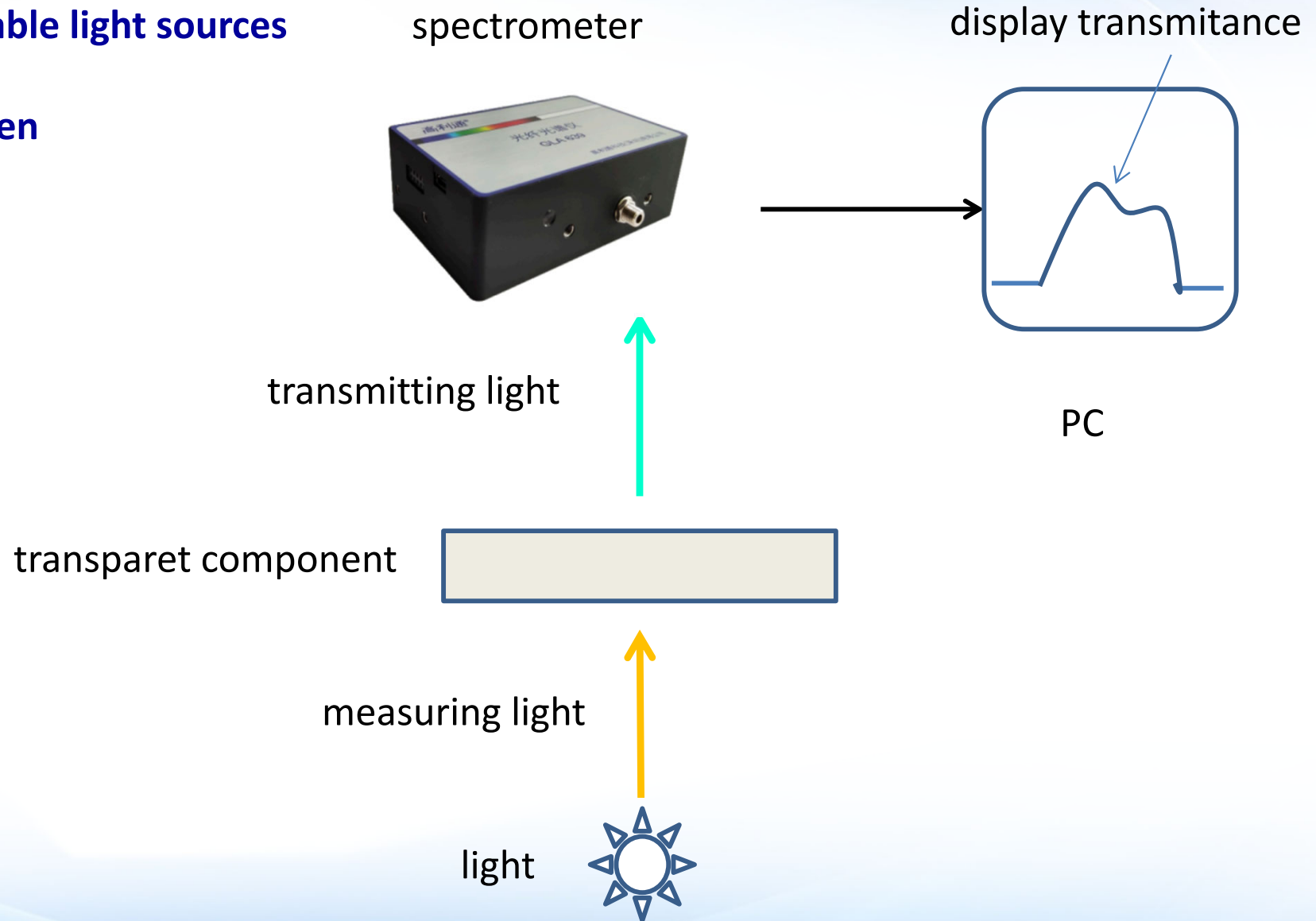


light

Industrial Applications: transmission measurement

✓ **Selectable light sources**

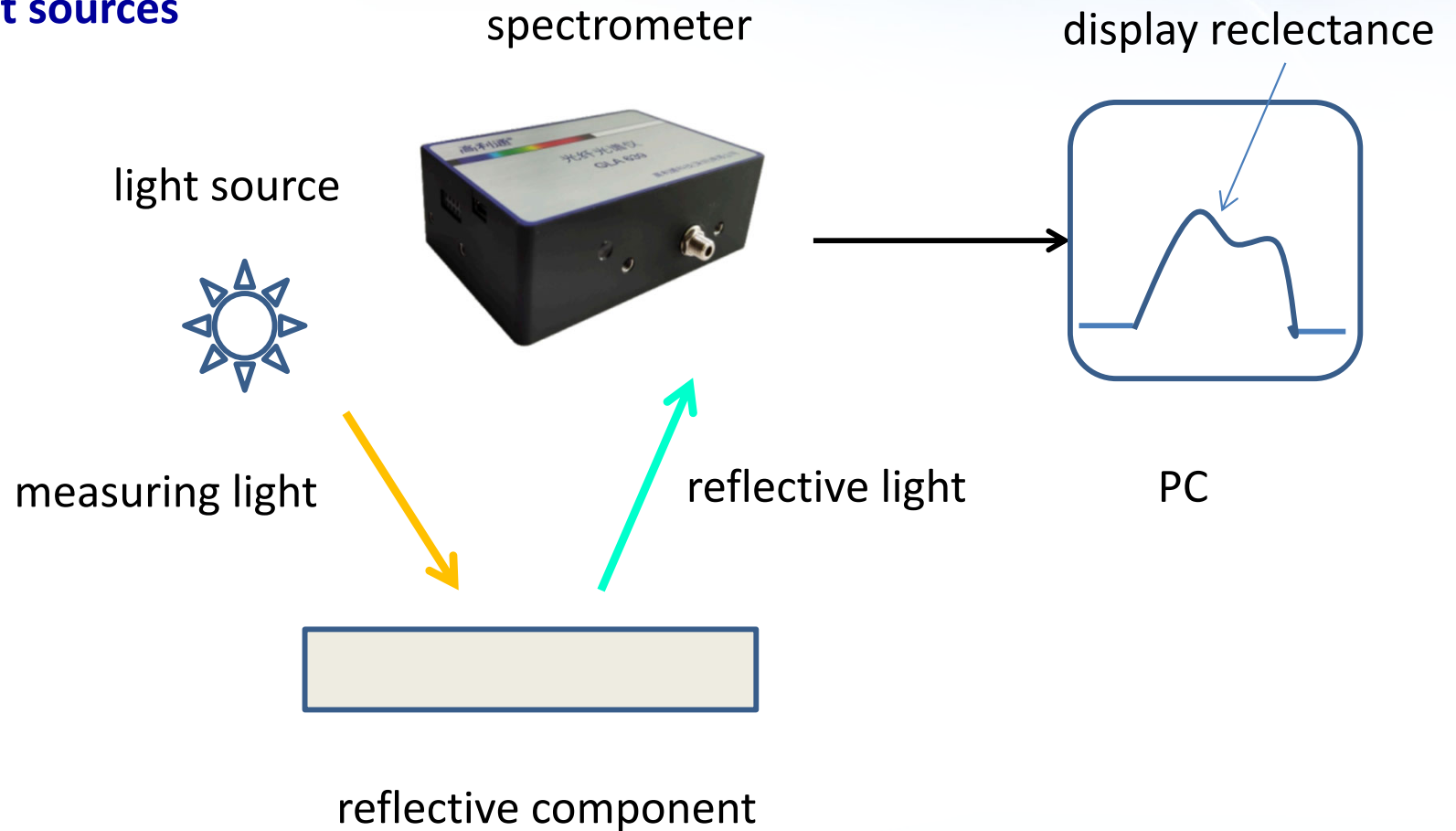
- Xenon
- Tungsten
- LED
- Lasers



Industrial Applications: reflection measurement

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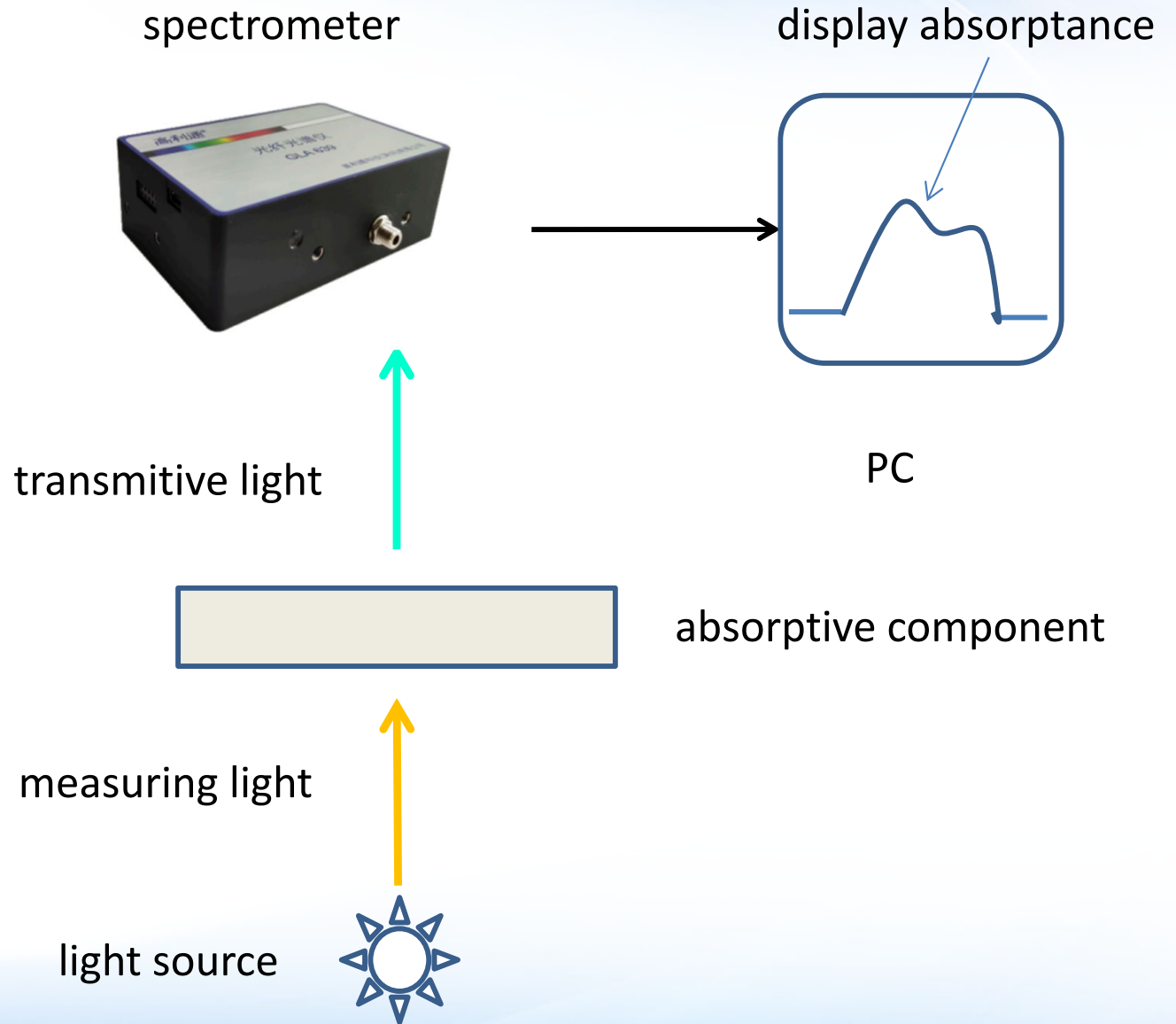
- ✓ **Selectable light sources**
 - Xenon
 - Tungsten
 - LED



Industrial Applications: absorption measurement

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- ✓ **Selectable light sources**
 - Xenon
 - Tungsten
 - LED
- ✓ **Features**
 - Fast measurement

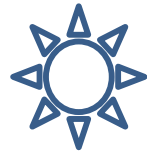


Industrial Applications: thickness/height measurement

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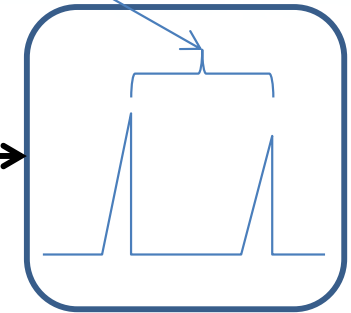
light source



reflective light



calculating thickness based on wavelengths difference



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spectrometer

optical lens



different focuses formed by different wavelengths light

component thickness T

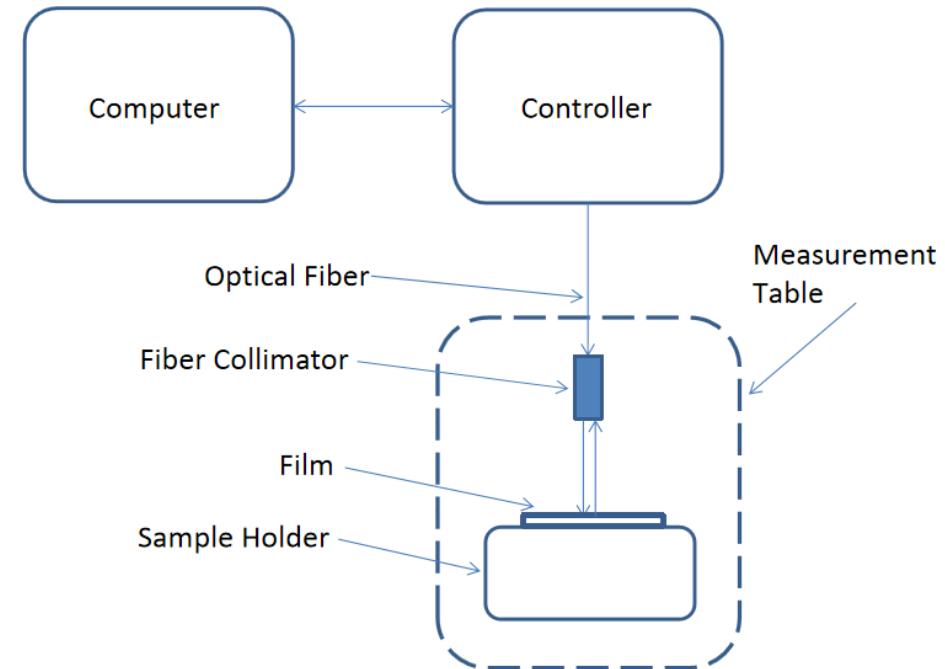


← put by hand or convey

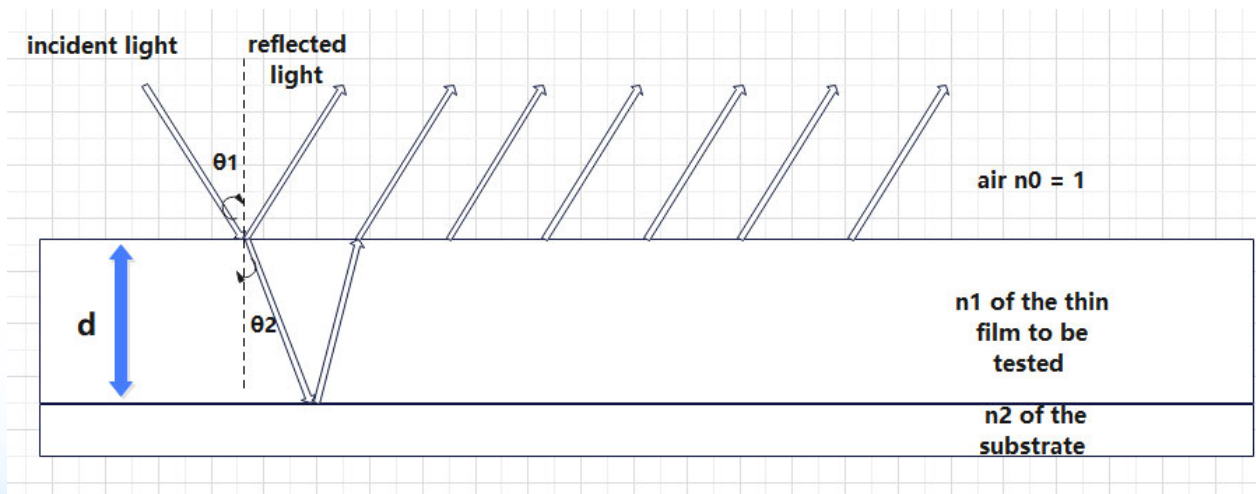
✓ Features:

- Untouched
- Fast
- Accurate
- Thickness for transparent component
- Height for reflective component

- ✓ Film components measurement
 - Thin glass and wafer
 - Optical film
 - Semiconductor film
 - Chemical coating
 - Solar panel film



interference principle



Comparison with Others

| Item | Glit | A US Company | A China Company |
|--|---------------------------------|------------------|-----------------------|
| Spectrometers | Series, customizatin | Varieties | Poor technlogy |
| Optical instrument experience | yes | yes | no |
| Mass production | yes | yes | no |
| Relibility | yes | yes | no |
| Consistency | yes | yes | no |
| Cost effective | yes | no | yes |
| Service effective | yes | no | no |

Sepectrometers Comparison

| | | | | |
|-----------------------|-------------------|-------------------------|------------------------|------------------|
| Company | US company | HL-Av | A local company | Glit |
| Model | USB2000+ | AvaSpecULSi2048L | X000 | GLA639 |
| Spectrum range | 180~532nm | 178~455nm | 195~523nm | 190~500nm |

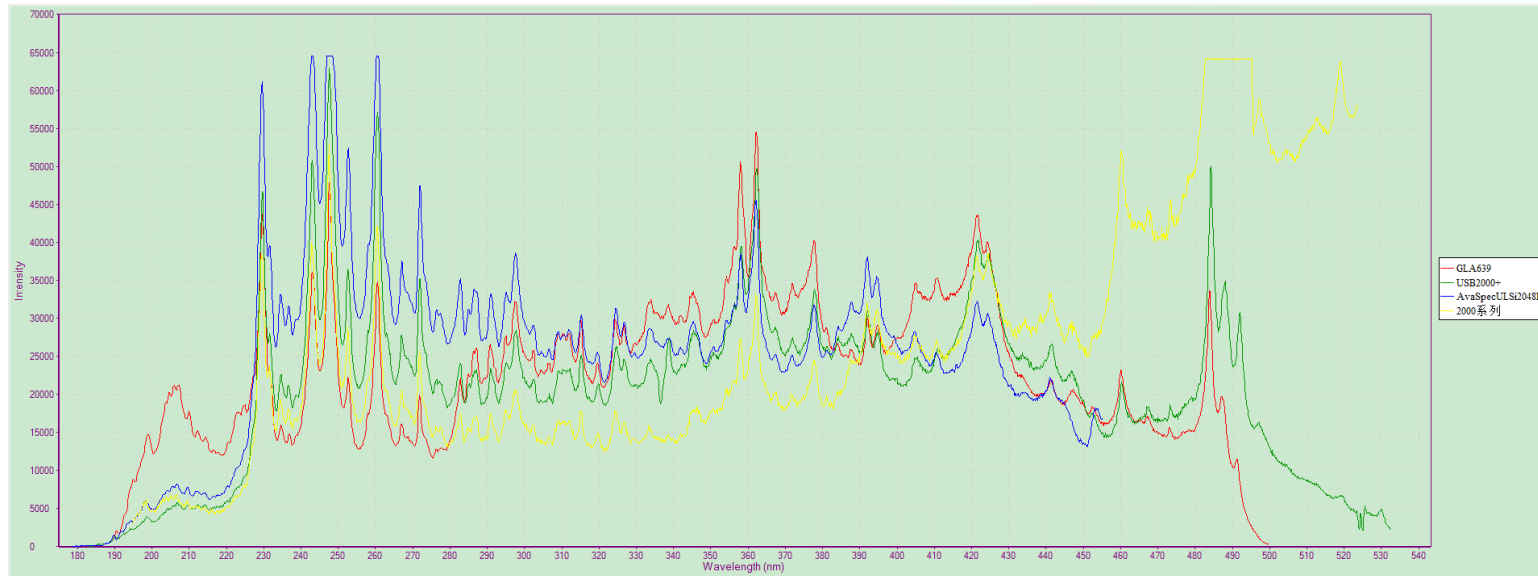
| | |
|-------------------------------------|------------------------|
| Spectrometer | 220nm intensity |
| USB2000+,US company | 5932 |
| AvaSpecULSi2048L, HL company | 7869 |
| X000 by a local company | 5232 |
| Glit, GLA639 | 13379 |

Testing conditions

| | |
|------------------------------|---------------------------|
| Light Source | 5W xenon |
| Fiber | Glit S400*2 |
| Gas Cell | Glit GC4010 (0.6m) |
| Pulse Repetition | 1 |
| Environment Condition | 24°C, 57%RH |

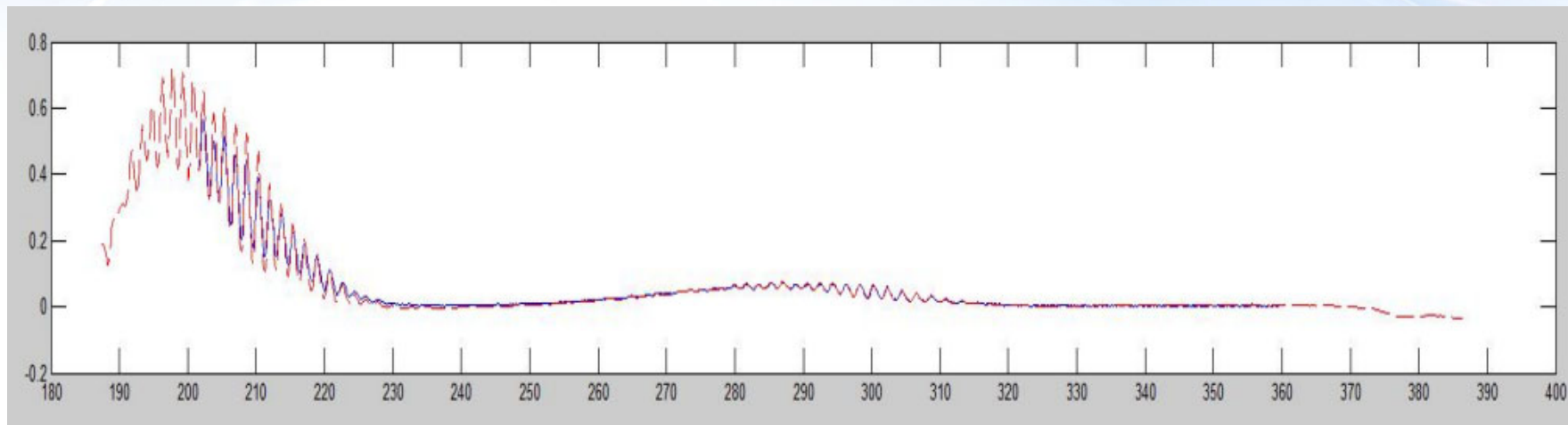
Sepectrometers Comparison

Spectra comparison among Glit's spectrometer (red) and other spectrometers



Spectral intensity of Glit's spectrometer is higher than the other spectrometers, and moreover the spectral balance between 200-230nm and 400-450nm of Glit's spectrometer is much better the ones of the other spectrometers. Therefore, Glit's spectrometer can directly measure SO₂, NO and NO₂ simultaneously.

Sepectrometers Comparison



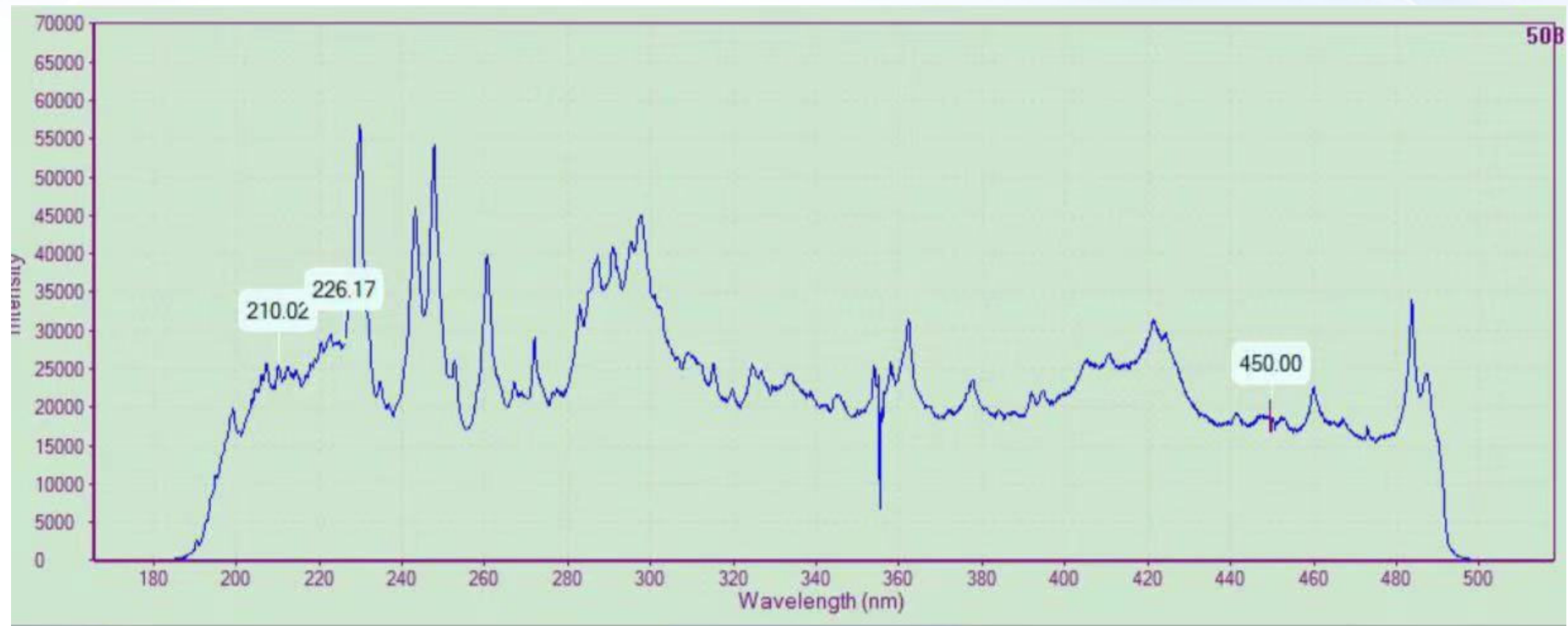
As can be seen from the figure:

(1) The high-resolution UV fiber spectrometer from Glit can measure spectral information in the deep ultraviolet range from 190nm to 200nm, providing more capabilities for environmental monitoring using UV spectroscopy; however, an imported UV fiber spectrometer cannot measure spectral information from 190nm to 200nm.

(2) The spectral signal of the UV fiber spectrometer from Glit is more strong, providing customers with more stable and clear data when developing analysis algorithms; whereas the imported UV fiber spectrometer is relatively weak. This demonstrates that under the same testing conditions, the performance of the UV fiber spectrometer from Glit is significantly superior to that of the imported UV fiber spectrometer.

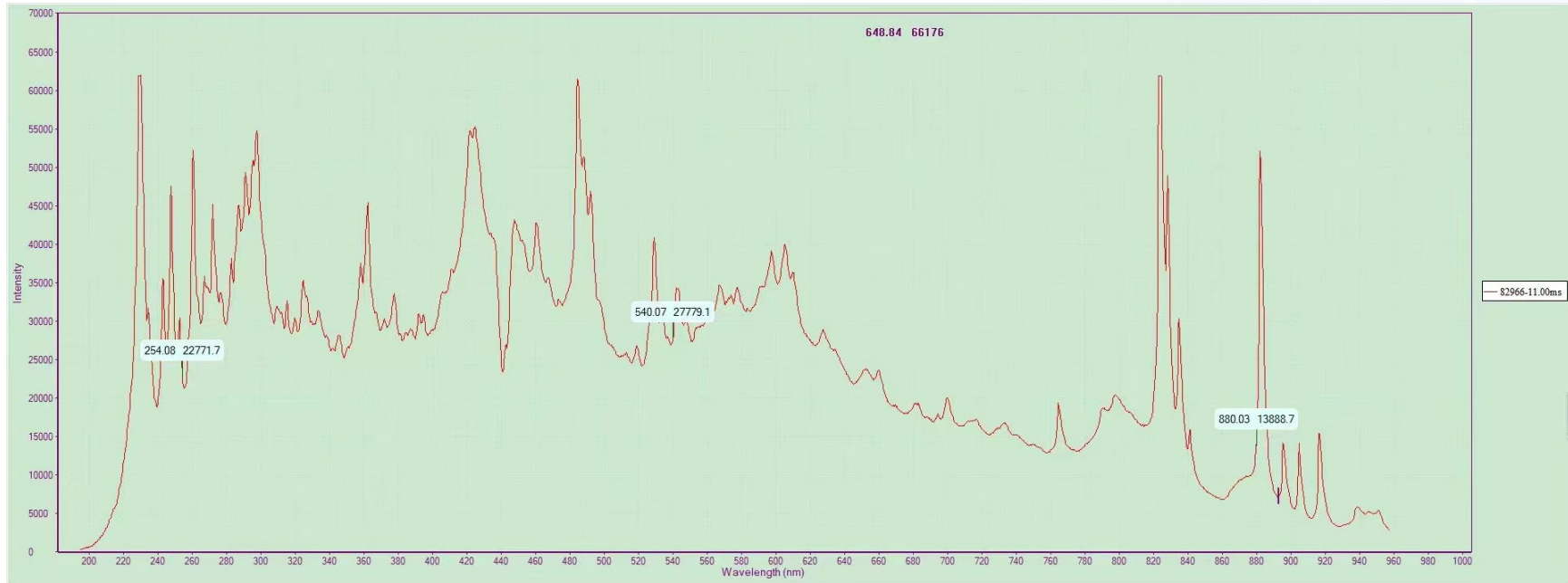
Sepectrometers Comparison

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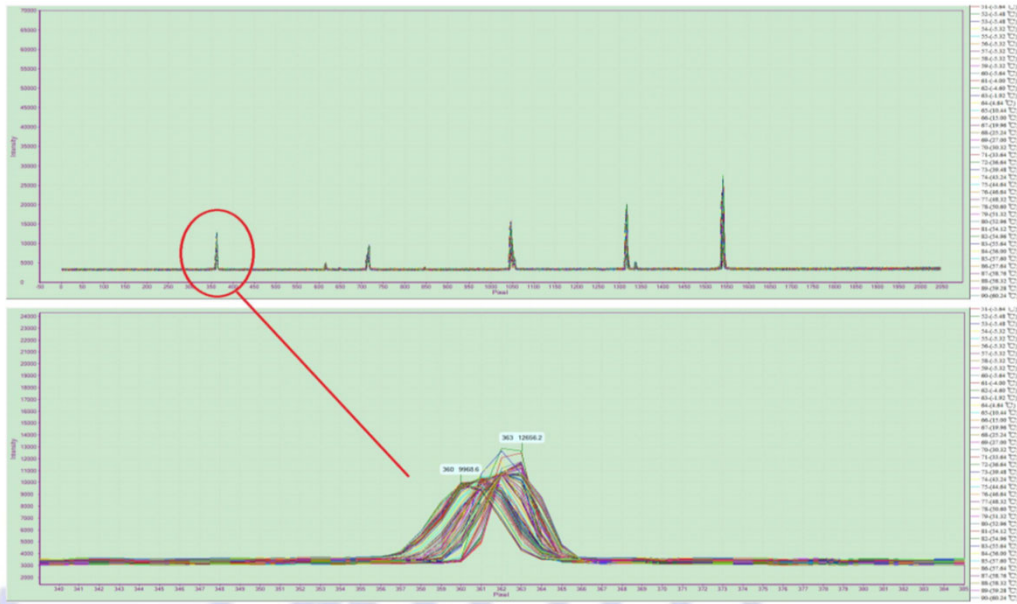
Gas measurement spectrum

Sepectrometers Comparison

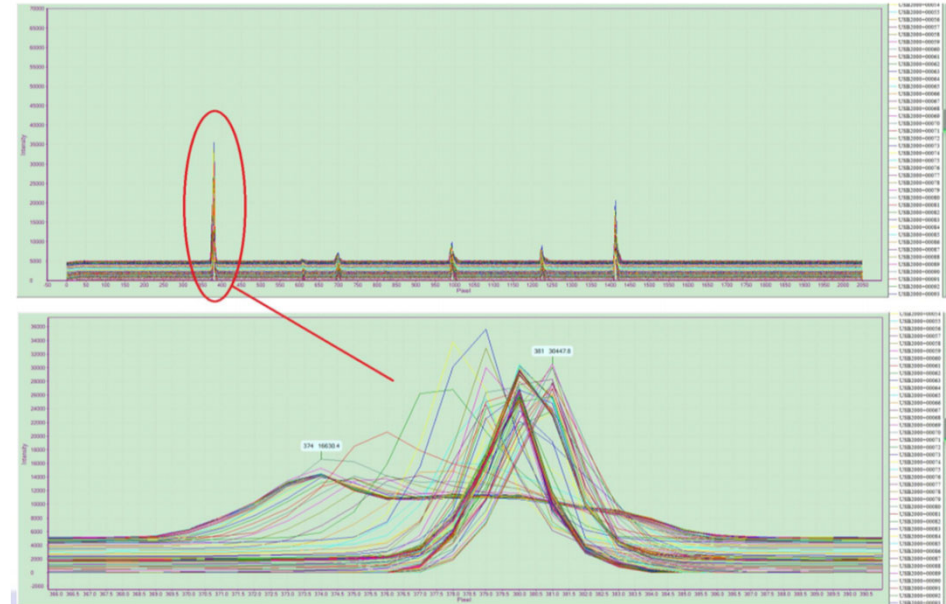


Water measurement spectrum

Sepectrometers Comparison



GLA639



US product

Temperature Testing(-10 to 60°C)

Thank you very much!