

**We bring quality  
to light.**

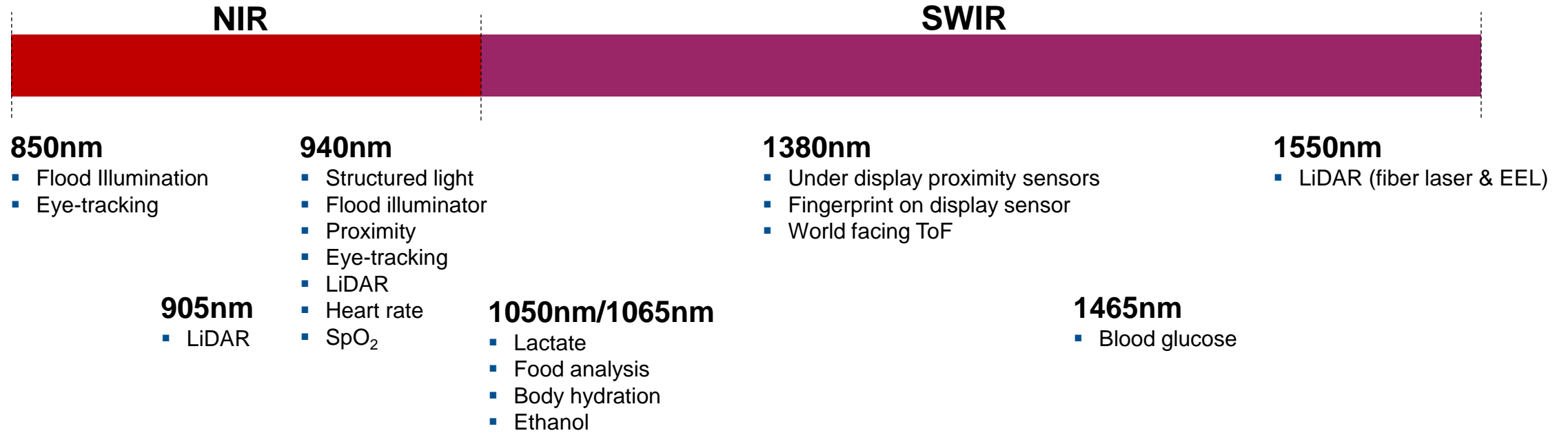
**Instrument  
Systems**

KONICA MINOLTA Group



**CAS 140D IR: New High Resolution  
Infrared Array Spectrometer**

# Infrared Sensing Application - Overview



F/W Facing



LiDAR



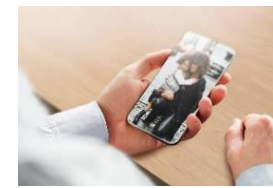
Gesture-tracking



DMS



Eye-tracking

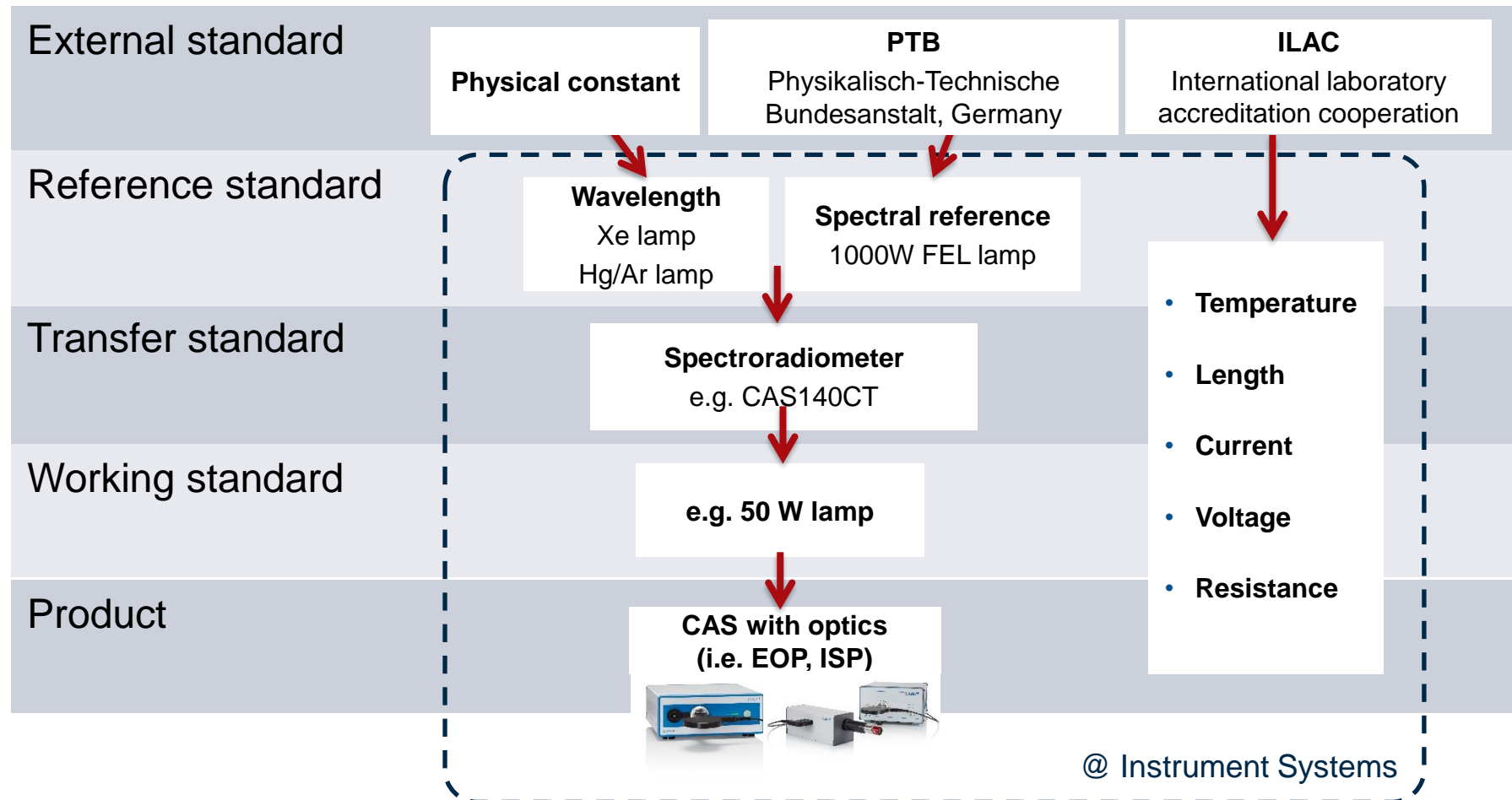


Under-display



Bio-sensing

# Calibration Chain



# Metrological Excellence of Instrument Systems

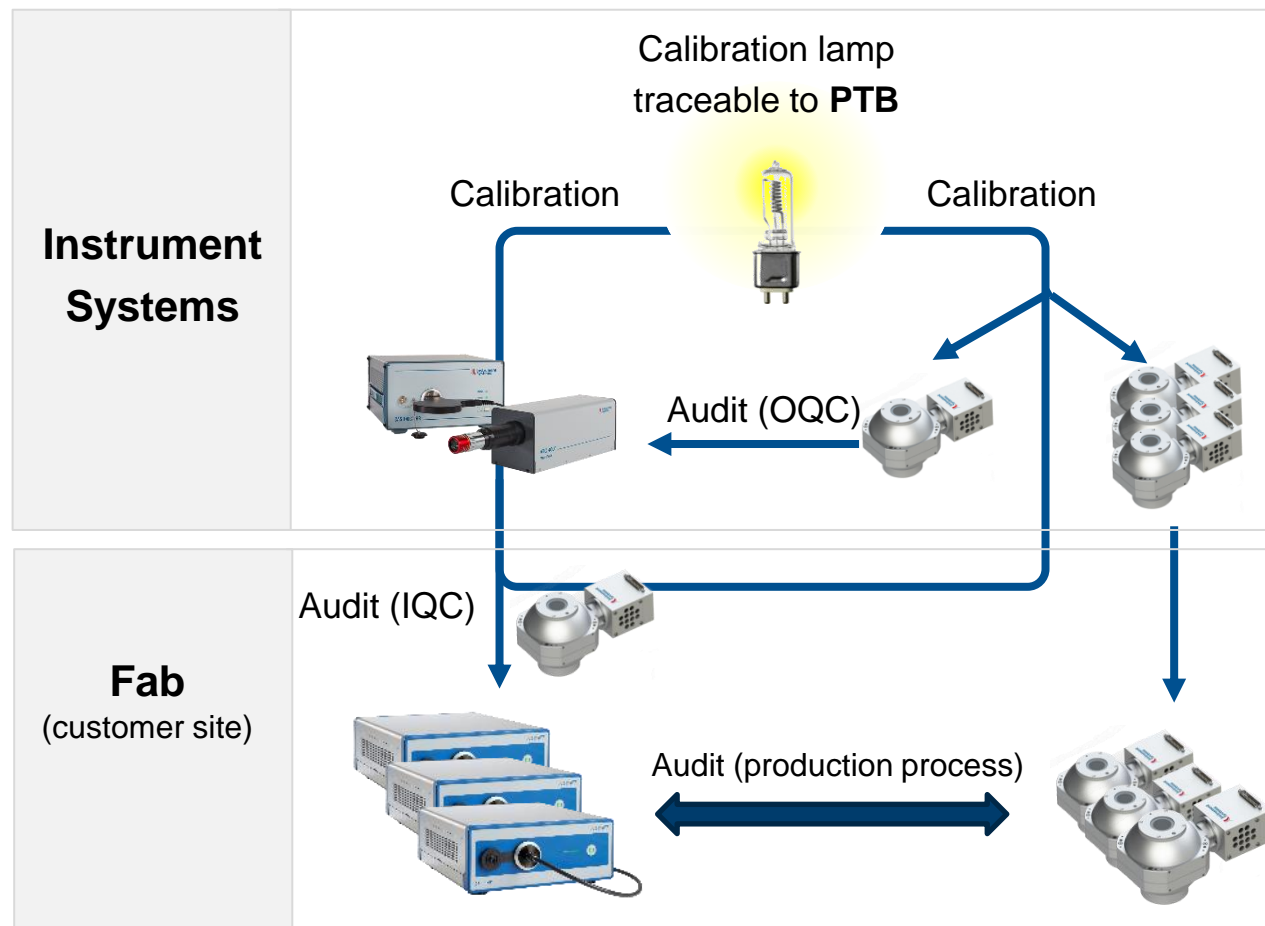
## Calibration competence

- Traceable calibration & verification of instruments and reference sources
- Device optimized audit concepts
- ISO 17025 accredited device testing
- Metrology lab in Shanghai (mirror site)
- Service network in Asia (China, Korea, Taiwan, Vietnam) – part of IS quality management and traceability network

## Audit

- ACS sources in factory or lab (identical to IS in-house OQC sources)
- Self-absorption correction for different DUTs
- Customer support for implementation of audit processes

## Ensured traceability and error budget

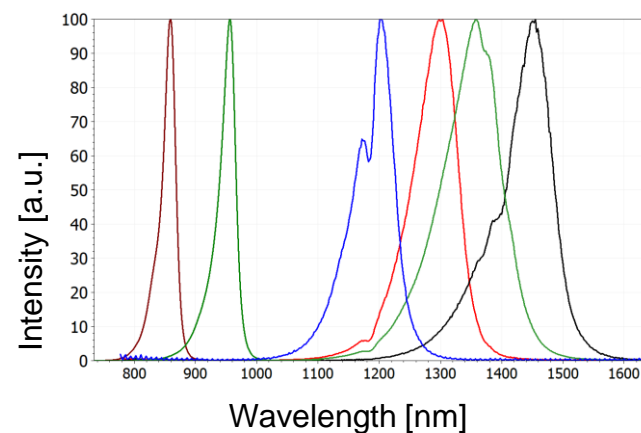


# ACS IR Calibration and Audit Standards



## **ACS 570: Advanced calibration standards**

- **Principle:** Highly stable infrared source based on LED technology
- **Wavelength range:**  $\lambda_{\text{peak}}$  860nm, 950nm, 1200nm, 1300nm, 1380nm, 1450nm
- Compact design for inline applications
- Recalibration interval: 100 h
- **Scope:** Reference value for radiant flux in infrared
- **Highlight:** Automatic detection of driving conditions with ACU-100 control unit
- **Highlight:** Specific audit sources for spectrometer, photodiode and 2D cameras





# Technical Key-Features CAS140D IR

- ▲ **High-End InGaAS Sensor**  
512 Pixel, ultra high sensitivity, low noise and dark current
- ▲ **Thermal Stabilization with TEC @ -10°C**  
Low dark current, perfect long term stability
- ▲ **Faster electronics, faster processing of measuring data**  
Reduced measuring times, increased productivity and throughput
- ▲ **Improved Spectrograph Design**  
Minimum straylight and enhanced throughput  
reduction of optical artifacts like reflections, increased repeatability



■ External Trigger | ■ ACQ | ■ CAS busy

Comparison	CAS 140CT	CAS 140D
Min. integration time	10ms	1ms
Min. scan time	16ms	9ms



# Technical Key-Features CAS140D IR

## ▲ Automatic accessory recognition

Failsafe probe recognition by optical PLG connector (plug & play)

## ▲ Error and fail safety

Onboard memory. Calibration files (\*.isc / \*.ini) are stored in the CAS 140D with automated software check

## ▲ Enhanced dynamic range

8-position filter wheel with option for up to 8 OD filters

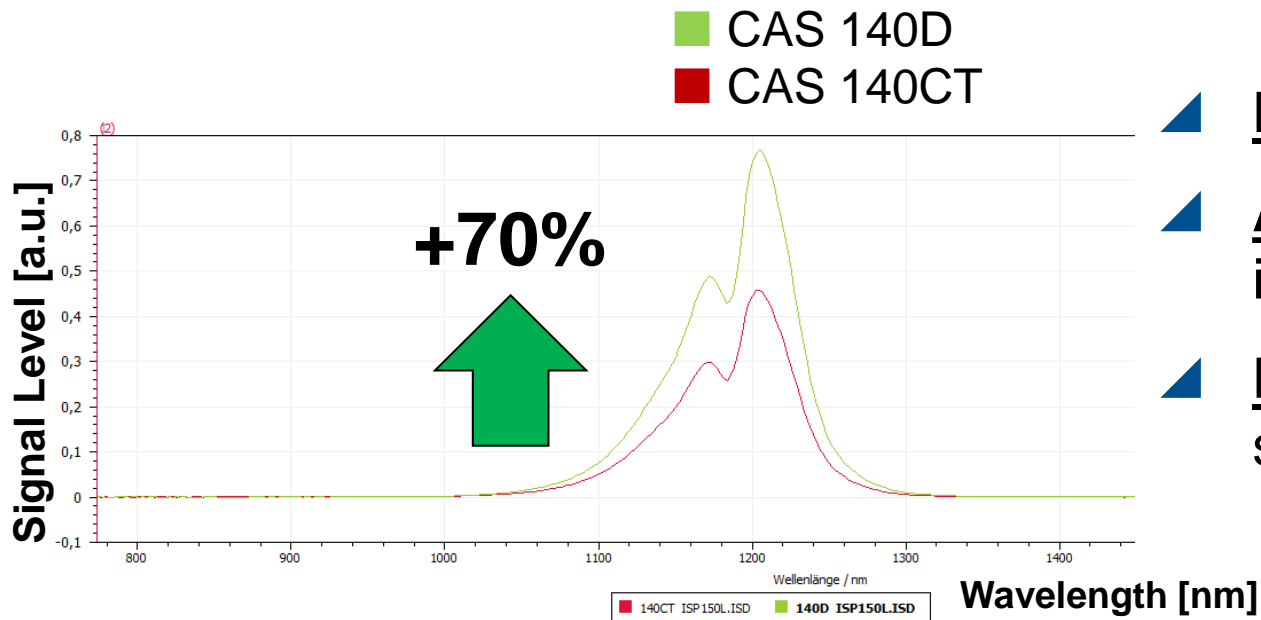
## ▲ Mechanical robustness

- Magnetic lockable dust cap for PLG connector
- Robust sheet metal housing
- Exchangeable dust filters
- Vibrational isolation / damping of the internal optics

## ▲ Three color status bar



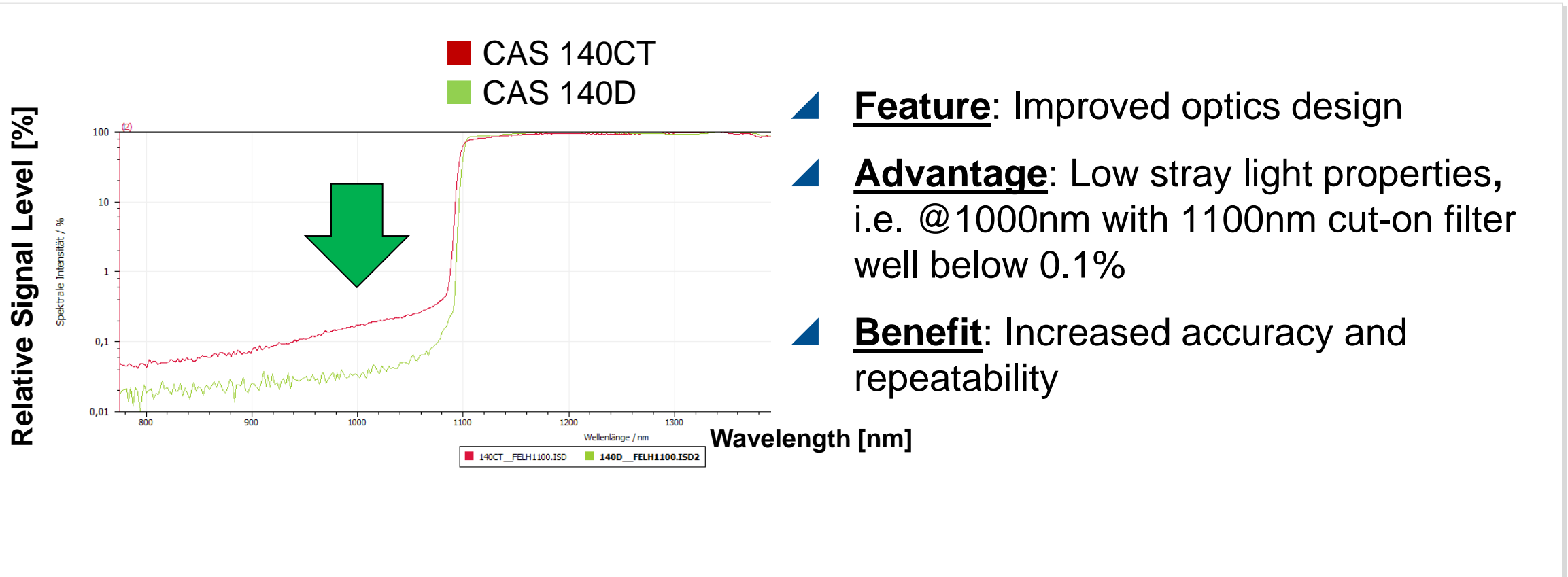
# CAS 140D IR: *Higher Sensitivity*



- ▲ **Feature:** Improved optical bench design
- ▲ **Advantage:** Up to 70% throughput increase compared to CAS 140CT
- ▲ **Benefit:** Increased productivity through shorter measurement times



# CAS 140D IR: *Lower Stray Light*



## Summary

- ▲ Instrument Systems provides high precision spectrometers, systems and software solutions for spectral light measurement, with their latest addition being the CAS 140D IR.
- ▲ All spectrometers and other products are calibrated with traceability back to national standards. Instrument Systems' lab is ISO 17025 accredited.
- ▲ Customers get close support with their audit concept in order to monitor repeatability and device drift. IS sells audit sources which closely match the customer DuTs.

**THANK YOU**  
for your attention!