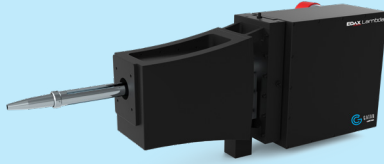


# EDAX Lambda WDS Spectrometers

## Product Bulletin – WDS



- Fitted with combined capillary and reflective optics to produce an intense parallel x-ray beam
- Optimized to cover low energy and transition element energies from 100 eV – 16 keV
- Compact spectrometer design for easy installation on standard EDS ports
- Standard with five diffractors optimized for any application
- Resolves most peak overlaps of the transition elements

The EDAX Lambda™ wavelength dispersive spectroscopy (WDS) spectrometers are state-of-the-art for improved accuracy and precision, guaranteeing the best results for your materials analysis. The Lambda spectrometers are included with the EDAX Neptune and Trident analysis systems, significantly enhancing the accuracy of results by resolving energy dispersive x-ray spectroscopy (EDS) peak overlaps, improving the minimum detection limit by 10x, and providing precise quantification.

Designed for parallel beam operation, the Lambda spectrometers are available in models:

- |                          |  |
|--------------------------|--|
| <b>EDAX Lambda Plus</b>  | Delivers the maximum efficiency for transition element energies from 150 eV – 10 keV (B K $\alpha$ to Ge K $\alpha$ ) using polycapillary optics   |
| <b>EDAX Lambda Super</b> | Combines polycapillary optics and patented dual optics design to provide the ultimate efficacy for light elements, especially B, C, N, and O, using high-collection, reflective x-ray optics |

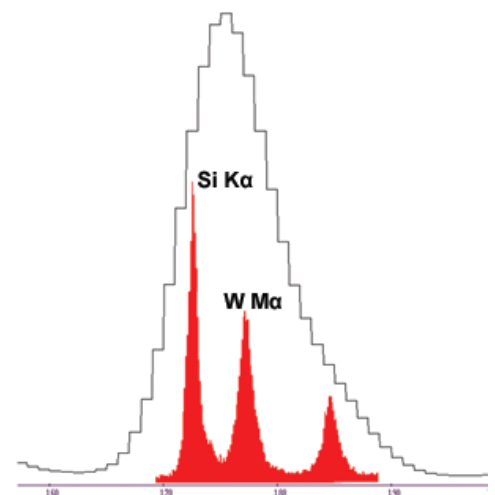
### Scanning modes

The Lambda spectrometers can scan over the entire energy range to cover at least one x-ray line for each element in the periodic table. Scanning mode options include:

- Automatic acquisition of one or many elements
- Ability to customize the scan range to your application
- User-selectable step size and speed
- Peak and background modes for a selection of elements
  - Define elements through an intuitive periodic table interface
  - The software suggests diffractor, peak, and background positions

### Qualitative and quantitative analysis

The EDAX APEX™ software with Smart Quant provides users with qualitative and quantitative measurements. Simultaneously collect and overlay EDS and WDS data for easy qualitative confirmation. The analyst can select a technique (EDS or WDS) for the quantification of a desired element to improve precision and detection limits.



**Figure 1.** Overlap of Si K and W M lines are easily resolved using WDS instead of EDS.

## Specifications

- Optimized for low energy and transition element energies from 100 eV – 16 keV (Be K to Zr K)
- Automatically positions the optic to within 1  $\mu\text{m}$  for accurate quantification measurements
- Lambda Plus default diffractors:
  - 4.027  $\text{\AA}$  LiF200 optimized for Ti – Zn
  - 8.74  $\text{\AA}$  PET optimized for Al – S
  - 30  $\text{\AA}$  OVO 30 optimized for O – S
  - 60  $\text{\AA}$  optimized for O & F
  - 80  $\text{\AA}$  (Cr/Sc) optimized for N
  - 197  $\text{\AA}$  MoB<sub>4</sub>C optimized for Be – C (optional)
- Lambda Super default diffractors:
  - 4.027  $\text{\AA}$  LiF200 optimized for Ti – Zn
  - 8.74  $\text{\AA}$  PET optimized for Al – S
  - 30  $\text{\AA}$  OVO 30 optimized for O – S
  - 60  $\text{\AA}$  optimized for O & F
  - 197  $\text{\AA}$  MoB<sub>4</sub>C optimized for Be – C
  - 2.847  $\text{\AA}$  LiF220 optimized for V – Y (optional)
  - 100  $\text{\AA}$  optimized for B, C (optional)
  - 80  $\text{\AA}$  (Cr/Sc) optimized for N (optional)
- Lightweight: 45 lb (20.5 kg)

## Features and benefits

### Compact design

- Fits all scanning electron microscope (SEM) chambers with an available high-angle port
- Installs on standard EDS port – No special chamber or port required

### Sensitivity

- Combines x-ray optics and compact design to deliver superior count rates

### High count rates and peak-to-background ratios

- Rapid x-ray analysis at the best resolution available
- Excellent resolution of the K lines of transition elements
- Able to resolve most elemental overlaps

### Ease of alignment

- Automated routines improve the operation, performance, and accuracy of data

### Seamless integration with EDS and easy-to-use APEX software

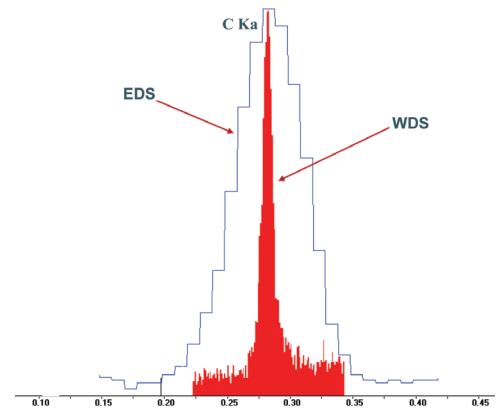
- Intuitive operation for EDS and WDS users
- Improved x-ray microanalysis
- Covers the entire periodic table

### Smart Focus

The Smart Focus routine is a feature of the APEX software. The automated routine adjusts the sample height to focus the WDS signal, enabling the spectrometer's optimum performance.

## Conclusion

The Lambda WDS spectrometers facilitate capturing the highest spectral resolutions and count rates available, improving quantification and detection limits, and resolving most peak overlaps of elements. The APEX software interface ensures reliable results for all users and provides insight into high-precision microanalysis.



**Figure 2.** C in SiC showing superior resolution of WDS compared to EDS.