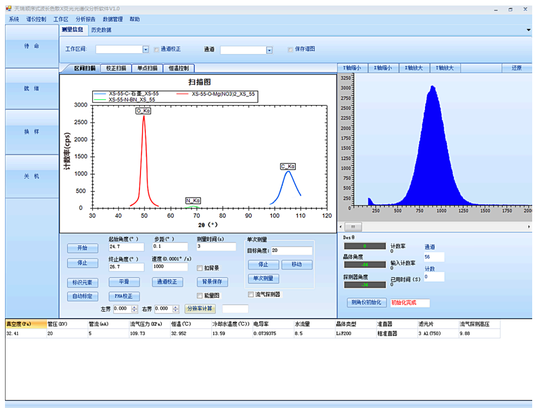
General specifications for WDX-4000 series (Attached table)

Signal processing		Rating	
Multi-channel Analyzer	12bit, 80Msps AD. 4096 channels analyze ability with FPGA hardware and robust DSP algorithm to discriminate signal and noise	Power	4kW
Maximum count rate	FPC:2Mcps, SC: 1.5Mcps	KV/mA	20-60KV, 75kV is optional. 10-140mA, 160mA is optional.
Pulse shift and Gain correction	Automatic		
Dead time correction	Automatic		

Fig.2 Layout of Software



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WDX-4000

Sequential Wavelength-Dispersive X-ray Fluorescence Spectrometer

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WDX-4000

Sequential Wavelength-Dispersive X-ray Fluorescence Spectrometer

Based on years of R&D and production experience on simultaneous wavelength-dispersive X-ray fluorescence spectrometer, Skyray Instrument proudly launched WDX-4000, the first sequential wavelength-dispersive X-ray fluorescence spectrometer integrating unique innovation. The performances of WDX-4000 meet the requirements of *JJG 810-1993 Verification regulation for Wavelength-dispersive X-ray Fluorescence Spectrometers*. It can be used in fields of mineral, cement, steel and environmental protection. By a large number of general designs, WDX-4000 provides reliable and economical maintenance to customers in time.

Highlights:

Unique Goniometer design

- Innovative and igneous steel-belt-drive system. This patented design provides no friction, no backlash, stable motion which guarantee the most accuracy angular positioning.
- θ/2θ spindle has independent drive system with servo motor and optical encoder feedback.
- Permanent magnet synchronous motor (PMSM) provides the fast and smooth motion.
- Optical encoder's ±0.0001° reproducibility and ±0.0006° accuracy ensures that the integrated system has excellent performance.

Multi-channel Analyzer

- 12bits, 80Msps, the most powerful AD sampling system, records signal completely and accurately.
- 4096 (12bit) channels analyzer based on high speed FPGA architecture and robust DSP algorithm is able to discriminate proper X-ray from stray X-ray.
- Energy-dispersive function is additional.

X-ray Tube and HV generator

- Standard 4kW power system provides ultra-sensitivity for trace element analysis and a faster speed of analysis.
- The thin beryllium window (50um or 75um) provides ultra-high transmission of X-ray, especial to low energy X-ray region.
- Max. 60kV and 140mA, (75kV and 160mA is optional) and flexible setting helps analysis method to be much finer.
- Dual water cooling circulation system, conductivity of deionized water lower than 1uS by resin increases of tube's service life as long as possible.

Miscellanea

- Multilayer analyzer crystal optimized on wavelength or intensity by customer's request. Higher resolution and reflectivity improves light element analysis ability.
- The thickness of Flow proportional counter's window is only 0.3um, provides higher transmission of light element.
- Temperature fluctuation of spectrometer cabinet is within ± 0.05˚C.
- Automatic crystal, collimator, filter changer.

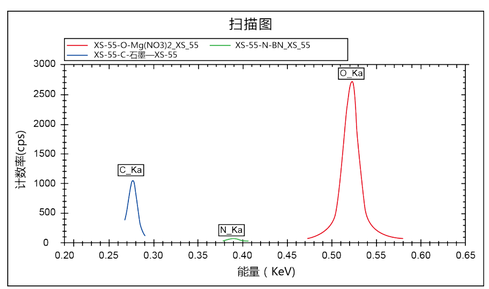

Fig.1 Light element measurement

Software

- Complete and abundant functionality.
- State-of-the art 32-bit software with friendly graphic use interface and flexible operation, ease of use.
- Matured empirical method provides accurate and reliable data by standard specimens.
- Fundamental parameter method offers versatility analyses, semi- quantitative and quantitative analyze is available without standard specimens.
- Integrated SQLite database stores your setting and analysis data.

General specifications for WDX-4000 series

Sample handing	
Types	Vacuum for solids.
Dimensions	51.5 mm Ø × 40 mm height, maximum
Weight	Max. 500 g including sample holder
Sample loading	Dual position with anti-dust filterand pre-vacuum pumping as standard feature.Analyzing one sample while pumping the next one
Sample changer	Automation robotic changer system, high capacity up to 168 samples.
Spinner	3 spinning speed modes. (low, medium, high)

X-ray tube	
Windows	The thin beryllium window, 50um or 75um, ultra-high transmission
Anode target material	Rhodium (Rh) as standard, option includes Copper (Cu), Molybdenum (Mo), Tungsten (W),Chromium (Cr), Platinum (Pt)
Operation	Tube remains powered on during sample holding
Cooling water	Dual tube cooling water circulation, conductivity of deionized water is lower than 1uS

HV Generator	
Output	Selectable in steps of 1KV, 1mA as standard. Fine step is optional by 12bit DA.
Long Term Stability	0.01% / 8 hours
Temperature Coefficient	50 ppm/˚C (20 ppm/˚C optional).

Goniometer	
Type	Innovative steel-belt-drive system, no friction, no backlash, feedback by optical encoder, θ/2θ independent
Maximum slewing speed	6000 ˚ 2θ/min
Angular accuracy	±0.0006° θ and 2θ
Angular reproducibility	±0.0002° θ and 2θ
Step scan range	Min. 0.0001° ; Max.1°
Scanning angle range	FPC:12° to 150°2θ SC: 0° to 120°2θ

Optical path	
Channels masks	Single mask (fixed 27, 32 or 50mm)
Primary collimators	3 max: 100, 150, 300, 550, 700 or 4000 um, selectable
Primary beam filters	4 max: Pb, Al, Cu with different thickness
Crystals	10 max: LiF420, LiF220, LiF200, Ge111, PE002, InSb, TIAP, multilayers for light element.
Detector	Flow proportional counter (FPC), 0.3um ultra-thin thickness windowScintillation counter (SC)
Beam path	Vacuum < 10Pa