

	TRACE-PM 7.4 EDAX EDS System	
	<i>Document #: 7373</i>	<i>Page 1 of 2</i>
	<i>Revision #: 3</i>	<i>Issued Date: 09/02/2020</i>
	<i>Document Manager: Cheryl Lozen</i>	<i>Approved By: Ryan Larrison</i>

7.4 EDAX EDS System

7.4.1 Calibration of the EDAX EDS System

Calibration of the EDAX EDS Unit must be done on each day of use, prior to use on casework.

7.4.1.1

Open the EDS software.

7.4.1.2

Place the calibration sample in the microscope chamber and adjust the sample so that the field of view is roughly two-thirds copper (or so that the CuK and the AlK peaks are close to the same height). Open the Calibration Set-up menu. The calibration sample was provided with the instrument by the manufacturer. It does not need periodic checking or replacement.

The Calibration Set-Up displays the reference energy value for Peak 1 (Al) and Peak 2 (Cu), the number of iterations to run, and the number of counts per iteration.

7.4.1.3

Click Start to begin auto calibration. Once Start is clicked, the auto calibration begins and the name of the button changes to Stop. The displayed spectrum is cleared, and collection of a new spectrum begins.

All items on the main menu bar are disabled during auto calibration, however you can manipulate the spectrum with the expand and contract toolbar buttons or the mouse. The counts, live seconds and the spectrum are updated during each iteration. The instrument is automatically calibrated at each preset amp time.

Once the preset counts for an iteration have been reached and enough iterations have been run so that the spectrum is statistically accurate, a window will open indicating the calibration is complete. The peak 1 and 2 energies, and the gain, zero and resolution at each amp time are automatically updated and saved in the calibration file. The AlK and CuK actual energies are displayed alongside the reference energies. Auto calibration can be stopped at any time by clicking on Stop. The gain and zero values will return to those from the last time a calibration completed successfully.

If the zero or gain is too far out of range, the calibration will halt, and you will be informed that the calibration failed. Auto calibration can then be attempted again. Manual calibration can also be

	TRACE-PM 7.4 EDAX EDS System	
	<i>Document #: 7373</i>	<i>Page 2 of 2</i>
	<i>Revision #: 3</i>	<i>Issued Date: 09/02/2020</i>
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performed, in which case the zero and gain are adjusted manually in the hardware. The resolution can also be manually entered from a previously calibrated value.

7.4.1.4

Calibration is complete when you see the "Pop up Button" displaying "Calibration Complete". Press "OK" to close this window.

7.4.1.5

When the auto calibration is complete, save the data in the "Calibration Folder" and in the case file. Reference and actual energy values for Al and Cu can be saved as well, if desired.

7.4.1.6

Issues and Detecting Trends

If the instrument will not auto calibrate, consult a Forensic Science Division equipment technician to make any necessary repairs and calibrate the instrument. The instrument will remain out of service until the calibration is completed.

A user logbook is kept with the instrument to record user experiences each day of use. This will contain noted instrument issues such as calibration problems, along with servicing instances and/or repairs. This will allow to detect possible trends of instrument performance.