Development Of A Large-Format Mapping XRF System: An Update

Andy Drews*
Ford Motor Company Research and Advanced Engineering, Dearborn, Michigan,
adrews@ford.com

I previously reported on my construction and early testing of a large-format mapping XRF system based on an off-the-shelf CNC router kit. This approach offers benefits of low-cost access to very large area mapping, while still enabling high resolution mapping. In this presentation, I will review progress and demonstrate the capability to do both large areas (low resolution) and high resolution (small area) mapping. This system can accommodate samples up to 1.2 x 1.2 meter in the x-y plane and 0.3 meters in the z-direction and is built using an off-the-shelf CNC router Cartesian robot with an attached low-power X-ray tube and SDD detector. Operation of the robot is through conventional CNC control software (G-code) and data are analyzed and compiled using the Open Source PyMCA software.

*Corresponding author.