

The author(s) shown below used Federal funds provided by the U.S. Department of Justice and prepared the following final report:

Document Title: Performance Evaluation and Utility Assessment of Magneto-Optical Sensor Technology for Detecting and Visualizing Obliterated Serial Numbers in Firearms

Author(s): RTI International

Document No.: 245487

Date Received: March 2014

Award Number: 2011-DN-BX-K564

This report has not been published by the U.S. Department of Justice. To provide better customer service, NCJRS has made this Federally-funded grant report available electronically.

Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

List of Tables

1.	Type A MO sensor properties.	4
2.	Experimental setup for MO sensor technology performance testing.	7
3.	MO sensor technology performance testing results.	9
4.	MO sensor accuracy.	9
5.	MO sensor reproducibility.	10
6.	MO sensor recovery.	10
7.	MO sensor selectivity.	10
8.	MO sensor sample preparation.	11
9.	MO sensor system operation.	11
10.	MO sensor technology sample processing measurement times.	12
11.	MO sensor cost.	12
12.	MO sensor worker safety.	12
13.	Contingency for comparing MO sensor technology performance results.	13
14.	Comparison of non-technical performance characteristics for MO sensor technology and MPI technology.	14
15.	Comparison of non-technical performance characteristics for MO sensor technology and chemical etching.	16

List of Figures

1.	45 automatic Colt with obliterated serial number on the frame.	2
2.	MO sensor configuration showing the four functional layers.	3
3.	Rotation angle differences caused by the magnetic field's poles of the magnetic material.	4
4.	CMOS Magview with O-ring placed on the MO sensor (source: Matesy GmbH).	4
5.	Type A MO sensor hysteresis curve.	5
6.	Visualized obliterated serial number on steel substrate.	5
7.	Open back, inclinable press used for stamping serial numbers.	8

