



Testimony of
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***Public Hearing on the
“Firearms Control Amendment Act of 2008”***

Committee on Public Safety and the Judiciary
Council of the District of Columbia

October 1, 2008

John A. Wilson Building
1350 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

Good morning, Chairman Mendelson and members of the Committee on Public Safety and the Judiciary. I appreciate this opportunity to speak to you today on the critical issue of firearm laws in the District of Columbia.

My name is Joshua Horwitz and I am the Executive Director of the Educational Fund to Stop Gun Violence (Ed Fund). The Ed Fund is a national non-profit organization in Washington, D.C., that seeks to secure freedom from gun violence through research, strategic engagement and effective policy advocacy.

I would like to focus my remarks today on the topic of comprehensive ballistics identification—specifically on a technology called “microstamping.” We recommend that the District of Columbia require all new semiautomatic pistols sold in the city to be microstamped starting in 2011. This would assist law enforcement in identifying gun traffickers, discourage straw purchasers, and help solve gun crimes. Equally important, microstamping is an inexpensive technology that requires no new databases and produces no burden for law-abiding gun owners. The technology is utilized only when a gun is used in a crime.

Currently deployed ballistics technology focuses on the tool marks on the interior surface of a firearm that are transferred from the firearm to an expended cartridge during the firing process. These unintentional tool marks are a by-product of the manufacturing process. For over 100 years, highly trained firearm examiners examined these marks by hand to make matches between a cartridge(s) found at a crime scene and a recovered firearm. Starting about ten years ago, the federal government created the National Integrated Ballistic Information Network (NIBIN) program to allow for computer-assisted searches of digital images of cartridges found at crime scenes.

NIBIN, however, relies on the same unintentional markings used by firearm examiners and cannot lead investigators directly to a specific firearm and its serial number, unless that weapon is eventually recovered. A firearm serial number is a key investigative tool because law enforcement uses it to trace a weapon back to its original seller and purchaser.

Microstamping represents an evolution in ballistic identification because it can identify the serial number of a firearm directly from an expended cartridge case found at a crime scene. Originally created in the 1990s by Todd Lizotte and Orest Ohar, microstamping uses precise laser technology to engrave intentional microscopic markings on the internal mechanisms of a semiautomatic pistol (e.g., the breech face and the tip of the firing pin). When the handgun is fired, these engravings are stamped onto the cartridge—identifying essential information including the make, model and serial number of the weapon in the form of alphanumeric and geometric codes. Information extracted from these codes can be used to trace a firearm used in a violent crime, even if the crime gun itself is never recovered.

The elegance of the technology is that it uses the same natural forces that create the unintentional markings traditionally analyzed by firearm examiners. By *intentionally* stamping a code on cartridges, however, microstamp-equipped firearms provide investigators with more deliberate information than unintentional marks ever could. The goal of microstamping is to identify a firearm the *first* time it is used to commit a crime.

That's an important goal in a country where approximately 40% of homicide cases go unsolved.¹ At many shooting scenes, a crime gun is never recovered, and far too often NIBIN fails to exploit ballistic evidence that *is* recovered (i.e., expended cartridge casings). For example, the city of Boston reported a total of 1,301 crimes involving shootings in 2006. Investigators at 636 of these crime scenes recovered only shell casings, and not the crime gun itself.² In cases such as these, microstamping can provide essential leads to investigators.

With any new, innovative technology, there are going to be questions concerning the effectiveness and durability of the process and microstamping has not been immune to naysayers. One line of criticism has focused on whether the technology can withstand wear and tear under the violent conditions that exist within the chamber of a firearm. In order to

¹ *New York Times* Editorial, "A Crime-Fighting Opportunity," February 15, 2008, <http://www.nytimes.com/2008/02/15/opinion/15fri3.html>

² Boston Police Department

answer such claims, the technology has undergone numerous, rigorous tests with firearms including the Colt .45 (1911), S&W 4006, Ruger Mark III, SIG P229, AR-15, and AK-47.³

A series of studies conducted by microstamping's inventors have shown that firearms utilizing the latest generation of the technology consistently produce identifiable codes even after thousands of rounds of firing. For example, in 2007 Lizotte and Ohar fired over 2,500 rounds from a microstamped Smith and Wesson .40 caliber semiautomatic handgun using five different brands of ammunition. The results were impressive, with all eight digits of the alphanumeric code legible 97% of the time using both optical microscopy and scanning electron microscopy and with breech face markings successfully transferred to cartridge casings 96% of the time.⁴ Taking firing pin and breech face markings together, all eight digits were identifiable in every single case.

Lizotte and Ohar were subsequently able to fire the same Smith & Wesson handgun in excess of 5,000 rounds and still produce identifiable marks. They also recently tested a used .45 Colt semi-automatic pistol with over 1,500 rounds and achieved identifiable marks over 95% of the time using optical microscopy.⁵

Independent forensic scientist Lucien Haag has also tested the durability of microstamping and found that even with the firearms involved operating under extremely high pressure, the microstamped impressions made on cartridges were still visible even after thousands of rounds were fired.⁶

³ Todd E. Lizotte and Orest Ohar, "Forensic Firearm Identification of Semiautomatic Handguns Using Laser Formed Microstamping Elements," Peer-reviewed paper presented at the 2008 SPIE (The International Society for Optical Engineering) Annual Optics and Technology Conference, San Diego, California, September 3, 2008, <http://www.csgv.org/atf/cf/%7B79FD0842-518D-42AC-8228-AE59B7990689%7D/Forensic%20Firearm%20Identification%20of%20Semiautomatic%20Handguns%20-%20Lizotte.pdf>

⁴ Press Release from NanoMark Technologies, "New Test Affirms Validity of Microstamping Technology," May 24, 2007, <http://www.csgv.org/atf/cf/%7B79FD0842-518D-42AC-8228-AE59B7990689%7D/LIZOTTE%20TEST%20RELEASE%205-25-07.PDF>

⁵ Lizotte and Ohar, "Forensic Firearm Identification of Semiautomatic Handguns Using Laser Formed Microstamping Elements"

⁶ Lucien Haag, "Ballistic ID Tagging and Microstamping—Performance in Practice," Presentation before [Third Meeting of the Committee on Assessing the Feasibility, Accuracy, and Technical Capability of a National Ballistics Database](#)," December 9, 2004

These endurance challenges achieved impressive results even though they test-fired far more rounds than would be expended by the typical crime gun. In reality, semiautomatic handguns have the shortest median “time-to-crime” of any firearm type⁷ and crime guns are frequently recovered with fewer than 20 total rounds fired.⁸

Additionally, microstamped engravings on the firing pin and breech face of a handgun contain several “counter-measures” in order to prevent against tampering. These include redundant gear and/or radial marks on the firing pin, as well as marks on the breech face. Simply eradicating any one set of these marks (which is no easy feat for the common criminal) is insufficient to defeat the technology.

Microstamped semiautomatic pistols would also serve as a deterrent to illegal gun trafficking. First, the technology would help to curb “straw purchases.” In a straw purchase, a prohibited purchaser recruits an individual(s) with a clean criminal record to pass a background check and purchase firearms for him/her. Microstamping would allow police to automatically link a shell casing found at a crime scene to this original purchaser. Straw purchasers would be far less likely to purchase firearms for convicted felons and other prohibited buyers if they believed those guns could be easily traced back to them after being used in crimes. Second, microstamping would help identify traffickers by providing more crime gun trace data for law enforcement to analyze.

I would also stress the ease with which microstamping technology can be integrated into the District’s current ballistics systems. Microstamping does not require the creation of *any* new database of gun owners or ballistics information. It simply improves the usefulness of an existing tracing system by adding more information to that system. Microstamping does not collect any new personal information from gun owners or limit gun ownership in any way, and therefore has no Second Amendment implications whatsoever.

⁷ Department of Justice, Bureau of Alcohol, Tobacco and Firearms, “Crime Gun Trace Reports (2000): National Report,” July 2002, p. 32, <http://www.atf.gov/firearms/ycgii/2000/>

⁸ Fox Butterfield, “Sniper Case Fuels a Debate Over Firearm Fingerprinting,” *New York Times*, October 18, 2002, <http://query.nytimes.com/gst/fullpage.html?res=9C02E0DE133DF93BA25753C1A9649C8B63&n=Top/Reference/Times%20Topics/Subjects/I/Identification%20Devices>

The cost of implementing the technology is minimal as well. Laser Light Technologies, Inc., a laser micromachining and engraving company based in Missouri, has priced the microstamp engraving process at a maximum of \$6.00 per handgun. As an additional benefit to manufacturers, the patent holders of the technology have announced they will provide a royalty-free license for the microstamping of semiautomatic handguns sold for civilian use in the United States and its territories.

Enthusiasm for the technology is spreading rapidly across the country. On October 13, 2007, California Governor Arnold Schwarzenegger signed first-of-its-kind microstamping legislation into law, mandating the microstamping of all new models of semiautomatic handgun models sold in the state beginning in 2010. The legislation was publicly supported by 65 police chiefs and sheriffs across California, including L.A. County Sheriff Lee Baca who stated, "The Los Angeles County Sheriff's Department Homicide Bureau has hundreds of unsolved cases where the only evidence left at the scene of the crime were expended bullet casings. If these casings had imprinted information on them from the firearm, our investigators would have an exceptional chance of solving these heinous crimes."⁹ The California Police Chiefs Association (CPCA) and the Peace Officers Research Association of California (PORAC) also supported the bill.

Following the example set by California, several other states are now considering microstamping legislation, including Wisconsin, New Jersey, Illinois, and Connecticut and New York (where a bill passed the state assembly earlier this year). Microstamping bills have also been introduced in the U.S. Senate and House of Representatives by Senator Edward M. Kennedy and Respective Xavier Becerra, respectively.

As this committee works to change the District's firearms laws in the wake of the Supreme Court's decision in *District of Columbia v. Heller*, I would strongly advise you to consider the multiple benefits of microstamping. It is a forward-thinking technology that holds

⁹ Press Release from Assemblyman Mike Feuer, "Gun Microstamping Demonstration Conducted Today," August 14, 2007, <http://democrats.assembly.ca.gov/members/a42/newsroom/20070814AD42PR01.htm>

tremendous promise to augment the city's crime-solving capabilities and bring peace and justice to victims and survivors of gun violence.

I thank you for conducting this hearing for the benefit of your constituents and look forward to you questions.