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March 16, 2009

Joint Committee on Judiciary  
Legislative Office Building  
Room 2500  
Hartford, CT 06106

**Position: Oppose**

**Re: SB 353 An Act Concerning the Identification of Certain Firearms (Microstamping)**

Dear Chairmen and Members of the Committee:

The Sporting Arms and Ammunition Manufacturers' Institute (SAAMI) is the non-profit trade association for the nation's leading manufacturers of sporting firearms, ammunition and propellants.<sup>1</sup> We welcome this opportunity to explain why SAAMI strongly opposes SB 353.

SB 353, effective January 1, 2011, would mandate microstamping of semiautomatic pistols with the firearm's make, model and serial number micro-laser engraved on the interior surface or internal working parts of the pistol so that the information is imprinted on a cartridge case discharged in the firearm.

There are numerous reasons why SAAMI opposes the mandatory firearm micro-laser engraving of newly manufactured firearms sold in Connecticut.

Independent peer review research has established that this patented, sole-sourced technology does not function reliably and the microscopic markings can be easily obliterated in seconds using common household tools thus defeating the technology. In addition, micro-laser engraved parts can be replaced quickly and easily with readily available spare parts.

In the past, there have been significant concerns in various states about the veracity of claims made by the patent holder, Todd Lizotte of ID Dynamics (a/k/a NanoVia). He testified that the Rhode Island crime laboratory had tested the technology. However, in a subsequent letter the Director of the Rhode Island lab responding to an inquiry from Sen. Bill Murrow seeking the Rhode Island's test results the Director wrote that tests were not completed (because Lizotte had abandoned the project) and that Lizotte had "overstated" the laboratory's involvement.

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<sup>1</sup> Since its formation in 1926 at the request of the federal government, SAAMI has been actively engaged in the development and promulgation of voluntary product standards for firearms and ammunition. SAAMI publishes more than 700 voluntary standards related to firearm and ammunition quality and safety. The U.S. military, the Federal Bureau of Investigation, and other state and local law enforcement agencies commonly require that their firearms are manufacture to SAAMI specifications. SAAMI is an American National Standards Institute (ANSI)-accredited standards developer.

At that same hearing, Josh Horwitz, the Executive Director of the Coalition to Stop Gun Violence (CSGV) Educational Fund testify in support of AB 352 suggested that after conducting some test firing of a few micro-laser engraved firing pins a past president of the Association of Firearms and Toolmarks Examiners (AFTE), Luke Haag, had in essence endorsed the technology. Upon learning of these assertions Mr. Haag wrote to Assembly member to make clear that his limited review was not, as Horwitz and others suggested, “the definitive test of this new technology” and only “provides some insight into one aspect of the technology” and that “numerous questions should be addressed before instituting [mandatory firearms micro-stamping].”

**An Unreliable and Easily Defeated Technology** - An independent peer reviewed study of this patented sole sourced technology published in the Journal of the Association of Firearms and Toolmark Examiners (AFTE) – the relevant professional society of firearm examiners – demonstrated the technology does not function reliably (Krivosta, *NanoTag Markings from Another Perspective*, Winter 2006). The study investigated three questions:

- ❑ Would the NanoTag markings be reproducible and readily decipherable?
- ❑ How resistant to wear would the NanoTag engraved firing pin be under normal use?
- ❑ How susceptible would the NanoTag engraved firing pin be to intentional defacement?

In reviewing cartridge cases previously expended in firearms with NanoTag micro laser engraved firing pins the author the found that the NanoTag markings were illegible and non-reproducible due to the fact that the firing pin usually strikes the cartridge multiple times and that the additional impacts overlap. Further testing by the author confirmed this finding. He used two (2) NagoTag marked micro laser engraved firing pins in two Colt 45's (still one of the most popular model firearms ever made). With one of the firing pins the vast majority of the micro laser engraved serial number never showed up on any of the cartridge cases fired by that pin and those that did were very difficult to decipher. In the case of the other marked firing pin, ten separate cartridge casings fired from the firearm were needed to piece together the serial number micro laser engraved on that one firing pin. Results of another series of tests found that the technology failed almost 50% of the time.

The author determined that normal operation of the firearm and the resulting marks left on a cartridge case from coming in contact with parts of the firearm removed part of the serial number information on the cartridge case placed there by the firing pin to be lost (removed/destroyed). The author examined the pins after test firing only 1,000 rounds and found the micro laser engraved markings were softening in their sharpness as a result of the metal peening

**Micro Laser Engraved Markings Are Easily & Quickly Removed and Defaced.** The microscopic laser engraved marks are only to a depth of 25 microns – a fraction of the diameter of the average human hair. The study's author showed that the markings could be removed in seconds using common household tools. Subsequent test firing established that removing the markings did not render the firearm in operable. The test result directly contradicts Lizotte's hearing testimony that removing the markings would render a firearm inoperable (not fire).

**Firing Pins Are Interchange Parts Easily and Quickly Replaced --** The study further established that NanoTag marked firing pins could be easily removed from the firearms in seconds and replaced with interchangeable firing pins that had been micro-laser engraved.

The study concludes "implementing this technology will be much more complicated than burning a serial number on a few parts and dropping them into firearms being manufactured."

**U.C. Davis Study** - The researchers at U.C. Davis found this patented technology "flawed" and concluded that *"At the current time it is not recommended that a mandate for implementation of this technology in all semiautomatic handguns in the state of California be made. Further testing, analysis and evaluation is required."*

**National Academy of Sciences** -The recent findings and publication (March 2008) of the National Research Council of the National Academies also calls for more research and evaluation of microstamping (nano-engraving) of firearms components before it is mandated or legislated.

**Micro-stamping Firearms Will Not Reduce Crime.** Mandating the use of this technology is based on the faulty assumption that most criminals obtain the firearms they use in crime from federally licensed firearm retailers. A 1997 survey of prison inmates shows criminals rarely – only about 8% of the time - obtain firearms from retail dealers. They obtain firearms primarily – about 80% - from the illegal black market and from friends and family. See *Firearm Use by Offenders*, U.S. Dept. of Justice, Bureau of Justice Statistics, Nov. 2001. <<http://www.ojp.usdoj.gov/bjs/pub/pdf/fuo.pdf>>. This same faulty assumption appears to be the basis for the states of Maryland and New York to have wasted millions of taxpayer dollars establishing and operating systems that capture ballistics images of firearms sold at retail in those states. These "retail purchase" systems appear to have been shown to be ineffective in solving crime. Neither system, after several years of operation at a cost of millions to taxpayers, has resulted in a single criminal conviction, nor have they yielded meaningful, investigatory leads. In fact, in a recent report, the Maryland State Police reviewed the failures of their system, as well as the equally dismal results of the New York system, and recommended to the Maryland legislature that their system be de-funded and repealed. See *Maryland State Police Forensic Sciences Division, MD-IBIS Progress Report #2, September 2004.*

We are unaware of a single peer-reviewed study by a criminalist or forensic science expert that has examined the question of whether micro-laser engraving firearms would be an effective means of reducing the criminal misuse of firearms.

The bill fails to recognize the unfortunate reality that mandating the technology for the few firearms sold each year in the state of Connecticut will create an illegal black market for "non-laser engraved" firearms and further increase illegal, interstate firearm trafficking. This bill also fails to consider that there are tens of millions of firearms in circulation that have not been, and cannot now be, micro-laser engraved. There are also far more firearms stolen each year in the United States, approximately 500,000, than there are violent crimes committed each year with firearms. It is an unfortunate reality, but criminals modify their behaviors and will always find ways to obtain firearms.

Even if this technology were mandated, it would have limited value. As with ballistics imaging, there is a serious "chain of custody" problem that renders any information derived from the technology essentially worthless from an evidentiary point of view.

**Criminals Will Easily Defeat the Technology** - As with "ballistics imaging," criminals can and will easily defeat the "micro-stamping" technology by simply filing away or scratching with a steel/wire brush the surface of the firearm where the laser engraving has been placed. (See Krivosta study, *supra*). Criminals will

do this for the same reason they deface the serial number on firearms (which reportedly has significantly increased in recent years), to avoid detection by law enforcement. Criminals will also be able to simply remove parts that have been laser engraved and replace them with spare parts, which are widely available, or swap (micro-laser engraved) parts between firearms.

Criminals will be able confuse the police and send them on "wild goose" chases by simply throwing around at crime scenes expended cartridge casings (having a make model and serial number imprinted on them) from other firearms. Expended shell casings are widely available at shooting ranges all across Connecticut. Criminals will also use reloaded ammunition made from previously expended cartridge cases already having a make, model and serial number imprinted on them. In both cases, there appears to be a real risk that innocent civilians will be arrested by law enforcement on suspicion of having been involved in criminal shootings. Criminals can avoid the technology by simply using firearms that do not eject shell casings, i.e. revolvers, thus leaving no casing at the crime scene.

**Normal Wear and Tear Will Defeat the Technology.** Firearm parts wear and change shape with use, to the point of requiring replacement. So too, engravings on the surface of a firearm will wear – especially those on the chamber and on moving parts subjected to the most heat, friction and pressure when the cartridge is discharged. Parts of the firearm, for example the firing pin, can become damaged, i.e. chipped. It is not uncommon for consumers to have custom work done on their firearm to improve performance and enhance appearance performance. Minor operational "tuning" routinely performed by gunsmiths and many consumers, such as polishing the chamber and surfaces like the breech face or extractor, would almost certainly alter or remove any micro-laser engraving on the surface.

The bill also fails to consider the need for manufacturers to be able to do warranty repair work, as do firearm dealers and gunsmiths.

Improper or poor cleaning and maintenance of the firearm after shooting will accelerate wear and alteration or removal of engravings, as parts foul, abrade and foul, and fill the micro-engraving with debris rendering it incapable of imprinting on the cartridge. Those criminals who do not purposely alter their firearms will do so by failing to clean and maintain them.

**Sole Source Technology - Government Endorsed Monopoly** - The technology to micro-laser engraving a firearm as called for by the bill is patented and thus is a "sole source" technology. The patent is held by ID Dynamics (a/k/a NanoVia LLP), which acquired the patented ballistic tagging technology (NanoTag™ Ballistic ID Tag™) in October of 2003 when it acquired New Hampshire-based NanoVia LLP. This bill would create a government-endorsed monopoly for the patent holder.

**Dramatic Price Increases and Reduction in Supply** - Compelling the use of this unreliable sole sourced technology will dramatically reduce the product selection available to law abiding consumers in Connecticut, because some manufacturers will choose to abandon the Connecticut market rather than incur substantial costs associated with complying, which would include purchasing (at monopolistic prices) very expensive equipment and patented technology and completely redesigning their manufacturing processes, plant and equipment.

The price of firearms for all consumers, including municipalities and the State purchasing firearms for law enforcement agencies, dramatically increase. SAAMI estimates a price increase of \$200 per firearm. Firearms for the commercial, law enforcement and military markets are all manufactured at the same time on

the same plant and equipment manufacturing processes. Companies do not have "law enforcement only" production lines and certainly do not have "Connecticut only" production lines. The cost would have to be spread across all products in all markets necessarily resulting in significantly higher prices for all products.

Firing pins are typically purchased in bulk from suppliers and not manufactured by firearm makers. Under this bill, the cost of firing pins would go from pennies to several dollars adding significantly to the price of firearms. Under federal law, the frame or receiver of the firearm is the part that must be serialized. Under this bill, it would be necessary to serialize multiple parts (each manufactured at different times and locations) and coordinate the assembly to ensure that the parts all had the same serial number. How would an assembler know whether a component part had the correct serial number for the firearm they were then assembling since the number would be microscopic in size? The assembly of firearms is still a human process, and as such, it is subject to the occasional error. Despite the best efforts of humans and machines, it would be impossible for a manufacturer to guarantee that only correctly corresponding, serialized parts were assembled into a firearm. Once this inevitable consequence of manufacturing reality is admitted as fact in the courts, the whole serialization mandate becomes suspect. See discussion regarding "chain of custody" *supra*.

Furthermore, all serialized parts would become worthless if any single part were rejected for quality control reasons. Clearly, any attempt to comply with the requirements of this bill would force a radical and complete redesign of time-tested, finely tuned and efficient manufacturing processes. It would cost millions of dollars to do this.

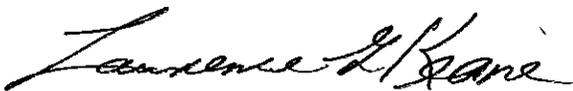
This bill fails to consider how or whether the technology can realistically be integrated into modern manufacturing processes.

**Impact on State and Municipal Budgets – Law Enforcement Firearms** - A study of the impact the bill would have on the State and municipal budgets that would result from the necessarily dramatic increase in the cost of firearms for law enforcement agencies is an appropriate subject for the legislature. We are unaware of any study that attempts to compare the costs to taxpayers, consumers and industry, of requiring this technology relative to other proven and effective crime reduction strategies.

There is, of course, no *bona fide* reason to exempt law enforcement firearms from this requirement, as the theory behind this proposal would be equally of assistance in law enforcement-involved shootings. Exempting law enforcement firearms would not, for the reasons discussed above, stop a dramatic increase in the price of law enforcement firearms.

We welcome the opportunity to participate in this important, public policy discussion and to make known our views. If you have any questions, please feel free to contact me.

Sincerely,



Lawrence G. Keane