

EXHIBIT “H”

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United States District Court
District of Columbia

United States of America Plaintiff, v. Daniel Rodriguez Defendants.	No. 21-CR-246-1
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EXPERT REPORT OF MARK KROLL, PhD, FACC, FHRS, FIEEE, FAIMBE

This report summarizes my analysis and findings and includes a statement of my opinions. The report also includes data and other information considered by me in forming my opinions and sets out my qualifications (including my CV which is an integral part of this report).



Mark Kroll, PhD, FACC, FHRS, FAIMBE

5 Dec 2022

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Brief Summary of Qualifications

I am a Biomedical scientist with a primary specialty in bioelectricity or the interaction of electricity and the body. I hold a B.S. degree in Mathematics and a M.S. degree and a Ph.D. degree in Electrical Engineering from the University of Minnesota and a M.B.A. degree from the University of St. Thomas. I have invested most of my career researching and developing electrical devices to diagnose and treat disease. The primary focus is the effect of electrical shocks on the human body.*

This involves researching, lecturing, and publishing on electric shocks and their effects on the human body. It includes lectures throughout Europe, South America, and Asia (in 35 countries) as well as at many of the major universities and medical centers of the United States (U.S.). Usually, the typical audience member is a cardiologist, electrophysiologist, medical examiner, or forensic pathologist. With over 380 issued U. S. patents and numerous pending and international patents, I currently hold the most patents on electrical medical devices of anyone in the world. Over 1 million people have had devices with some of these patented features in their chest, monitoring every heartbeat. <http://bme.umn.edu/people/adjunct/kroll.html>.

In 2010 I was awarded the Career Achievement Award by the Engineering in Medicine and Biology Society (EMBS) of the Institute of Electrical and Electronics Engineers (IEEE) which is the most prestigious award given internationally in Biomedical Engineering. <http://tc-therapeutic-systems.embs.org/whatsnew/index.html>

I am believed to be the only individual to receive the high "Fellow" honor from both Cardiology and Biomedical societies. To wit:

1997 Fellow, American College of Cardiology
2009 Fellow, Heart Rhythm Society
2011 Fellow, IEEE Engineering in Medicine and Biology Society
2013 Fellow, American Institute for Medical and Biological Engineering

I am the author of over 200 abstracts, papers, and book chapters and also the co-editor of 4 books including the only 2 scientific treatises on Conducted Electrical Weapons (CEW):

1. TASER® Conducted Electrical Weapons: Physiology, Pathology and Law. Springer-Kluwer 2009.
2. Atlas of Conducted Electrical Weapon Wounds and Forensic Analysis: Springer-Kluwer 2012.

*See current CV for further details and specifics. My curriculum vitae containing details of my relevant formal education, experience, and publications authored is attached and made an integral part of this report.

Directly relevant paper publications include over 100 papers, books, book chapters, indexed letters on CEWs and arrest-related death (ARD), and numerous scientific meeting abstracts.¹⁻¹¹⁰ For more details please see CV.

I have also made many presentations on CEWs to scientific, medical, pathology, as well as law enforcement, audiences. These include: 2007 American Academy of Forensic Science (AAFS) conference major presentation in San Antonio, Texas and the 2007 BEMS (Bio-electromagnetic Society) meeting Plenary Address in Kanazawa, Japan.

1. Major invited lecture at the 2006 NAME (National Association of Medical Examiners) conference in San Antonio, Texas.
2. Advanced Death Investigation Course of St. Louis University (2007) as faculty lecturer to full audience.
3. Faculty lecturer to full audience at Institute for the Prevention of In-Custody Death Conferences (2006 and 2007), Las Vegas, Nevada.
4. Chair of special session on TASER CEW at 2006 Cardioslim meeting in Nice, France.
5. Guest lecture to U.S. Military on CEW in 2006.
6. "Presenting Rhythm in Sudden Custodial Deaths After Use of TASER® Electronic Control Device," was presented at the 2008 scientific conference of the Heart Rhythm Society.
7. "Can Electrical-Conductive Weapons (TASER®) alter the functional integrity of pacemakers and defibrillators and cause rapid myocardial capture?" was presented at the 2008 scientific conference of the Heart Rhythm Society.
8. "Weight-Adjusted Meta-Analysis of Fibrillation Risk From TASER® Conducted Electrical Weapons" presented at the 2009 AAFS conference.
9. "Meta-Analysis of Fibrillation Risk From TASER® Conducted Electrical Weapons as a Function of Body Mass" presented at the 2009 scientific conference of the Heart Rhythm Society.
10. Oral presentation at the 2014 NAME (National Association of Medical Examiners) conference in Portland, Oregon.
11. Pathophysiological Aspects of Electroshock Weapons. University of Salzburg Electroshock Weapon Symposium. Salzburg, Austria. July 2015.
12. Real and Imagined Risk of Electrical Weapons. University of Salzburg Electroshock Weapon Symposium. Salzburg, Austria. Dec 2016.
13. The Science of Arrest-Related-Death. International Law Enforcement Educators and Trainers Association. Chicago, USA. April 2015.
14. Arrest-Related Death. United States Department of Justice, San Diego. Jun 2016.
15. Arrest-Related Deaths: Managing Your Medical Examiner. Lexipol WebCast 20 June 2019.
16. Defending Non-firearm Arrest-Related Death Cases. International Municipal Lawyers Association Conference. Washington, DC. 24 April 2020.
17. Science of Restraint-related Death. Office of Special Investigations Training Program. New York State Attorney General Division. March 25, 2021

In addition to the major addresses above, I have made lectures and presentations at the U.S. Department of Justice (2007), AAFS (2006), and BEMS (2006) regarding TASER CEWs.

I have deployed and discharged TASER CEWs numerous times and have personally experienced a TASER® X26 CEW probe deployment discharge to the center of my chest. I have also experienced an Obrovov muscle stimulator output to my thigh.

Most Relevant Committees and Boards:

1. International Electrotechnical Commission (IEC) (Geneva, Switzerland) TC64 MT4 Committee. This committee is the top international authority for setting the international electrical safety limits for electrocution and other electrical dangers.
2. Axon Enterprise, Inc. (Axon né TASER), corporate and also Scientific and Medical Advisory Board.
3. ANSI (American National Standards Institute) standards committee on electrical weapons.

I have provided courtroom testimony in U.S., Australia, and Canada, along with being a retained expert in the United Kingdom and France. I also have significant research, publications, and testimony in the areas of resuscitation, ARDs (arrest-related death), prone restraint, and biomechanics. I have been retained by the United States Department of Justice for several cases involving electrical weapons. These cases involved criminal prosecution, Border Patrol, and the US Marshals.

Brief Summary of Opinions:

1. The device allegedly used in this incident was *not* a stun gun.
2. The device allegedly used in this incident was *not* an electroshock weapon.
3. The device is best described as a “sparkler flashlight” since its effects are primarily auditory and visual and there is no stunning. To use a canine analogy, they are all bark and no bite.
4. It is my opinion to a reasonable degree of scientific certainty that the device could not be used in a manner likely to produce death.
5. It is also my opinion to a reasonable degree of scientific certainty that the device cannot be used in a manner likely to produce serious bodily injury because it cannot cause injury that involves a substantial risk of death, extreme physical pain, protracted and obvious disfigurement, or protracted loss or impairment of the function of a bodily member, organ, or mental faculty.
6. The device did not cause any of the markings on the neck of Ofc. F [REDACTED].
7. Ofc. F [REDACTED] was never weakened by the device.
8. Ofc. F [REDACTED] was never immobilized by the device.
9. The device did not cause Ofc. F [REDACTED] to ever lose consciousness.
10. The loud arcing sound from the device most likely caused Ofc. F [REDACTED] to imagine far greater pain than was actually present.^{103,104}

Did Mr. Rodriguez Apply a "TASER" to Ofc. F[REDACTED]'s neck?

The Government sentencing memorandum regarding defendant Kyle James Young stated (page 2):

That rioter, Daniel Rodriguez, later repeatedly applied a taser to the back of MPD Officer M[REDACTED] F[REDACTED]'s neck as Young joined in the assault.

And (page 30):

Rodriguez simultaneously moved toward Officer F[REDACTED] and positioned himself to apply the taser to the back of F[REDACTED]'s neck.

As shown in Figure 1, TASER® is a federally registered trademark for an expensive (~\$1000 each) high-performance conducted electrical weapon (CEW) used by law enforcement. The TASER CEW can temporarily paralyze someone by locking up their muscles from wire connections to 2 probes that are separated by at least 30 cm (12 in.) on the body.¹¹

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Typed Drawing

Word Mark TASER

Goods and Services IC 013. US 002 009. G & S: nonlethal weapons that deliver an electrical current through muscle to cause pain and/or to interfere with operation of the muscle, namely, guns, pistols, [rifles, grenades, mines, electric prods, and projectiles having circuitry that delivers the electrical current, all for independent operation or for mounting on accessory rails of firearms; remotely operated nonlethal weapons that issue an electrical current through muscle to cause pain and/or to interfere with operation of the muscle, namely, remotely operated guns, remotely operated launchers for any of probes and grenades, remotely activated mines;] nonlethal hand-held weapons having terminals for coupling an electrical current through muscle proximate to the terminals to cause pain and/or to interfere with operation of the muscle; nonlethal weapons that launch tethered probes to muscle to conduct an electrical current from the weapon through the probes to cause pain and/or to interfere with operation of the muscle; [nonlethal weapons that launch a projectile that carries an electrical circuit to conduct an electrical current from the circuit through muscle to cause pain and/or to interfere with operation of the muscle; cartridges and magazines for use with any of the aforementioned weapons; electronic modules for installation as a component part on or in any of the aforementioned weapons, namely, modules including battery or data storage for operation of the weapon or recording operation of the weapon; and holsters for carrying any of [die] * the * aforementioned weapons, cartridges, and modules]. FIRST USE: 19940100. FIRST USE IN COMMERCE: 19940808

Mark Drawing Code (1) TYPED DRAWING

Serial Number 78265392

Filing Date June 20, 2003

Current Basis 1A

Original Filing Basis 1A

Published for Opposition August 9, 2005

Change in Registration CHANGE IN REGISTRATION HAS OCCURRED

Registration Number 3010500

Registration Date November 1, 2005

Owner (REGISTRANT) Taser International, Inc. CORPORATION DELAWARE 17800 N. 85th Street Scottsdale ARIZONA 852559603
(LAST LISTED OWNER) AXON ENTERPRISE, INC. CORPORATION DELAWARE 17800 N. 85th Street Scottsdale ARIZONA 85255

Figure 1. TASER® Federal Trademark Registration

The TASER® CEWs are not confused with the \$20 sparkling flashlights that are capable of making a loud electrical noise as shown in Figure 2.

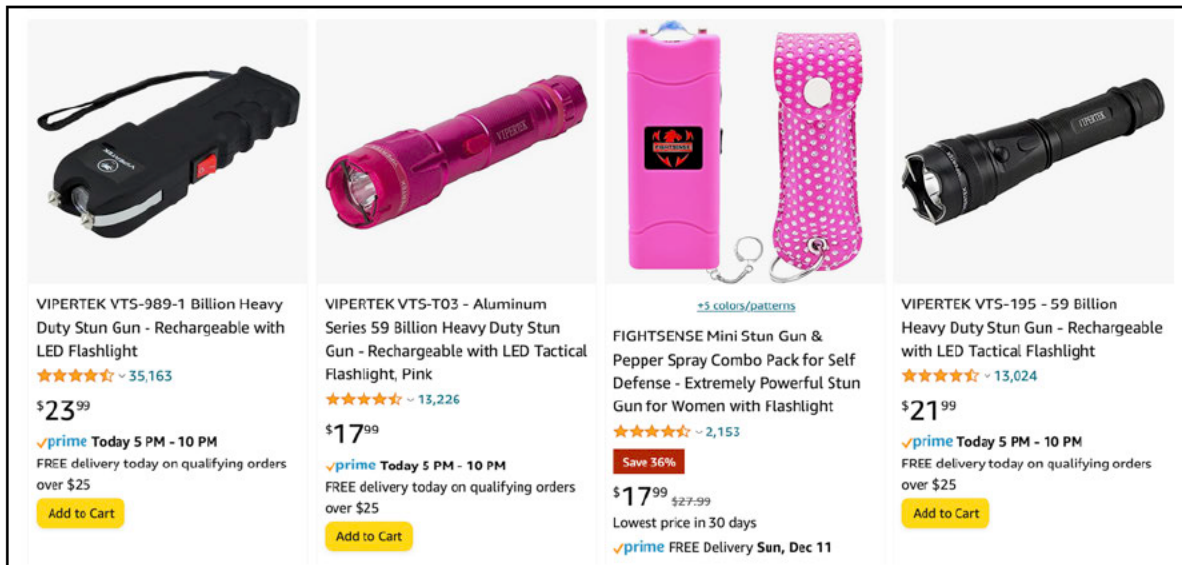


Figure 2. Arcing flashlights.

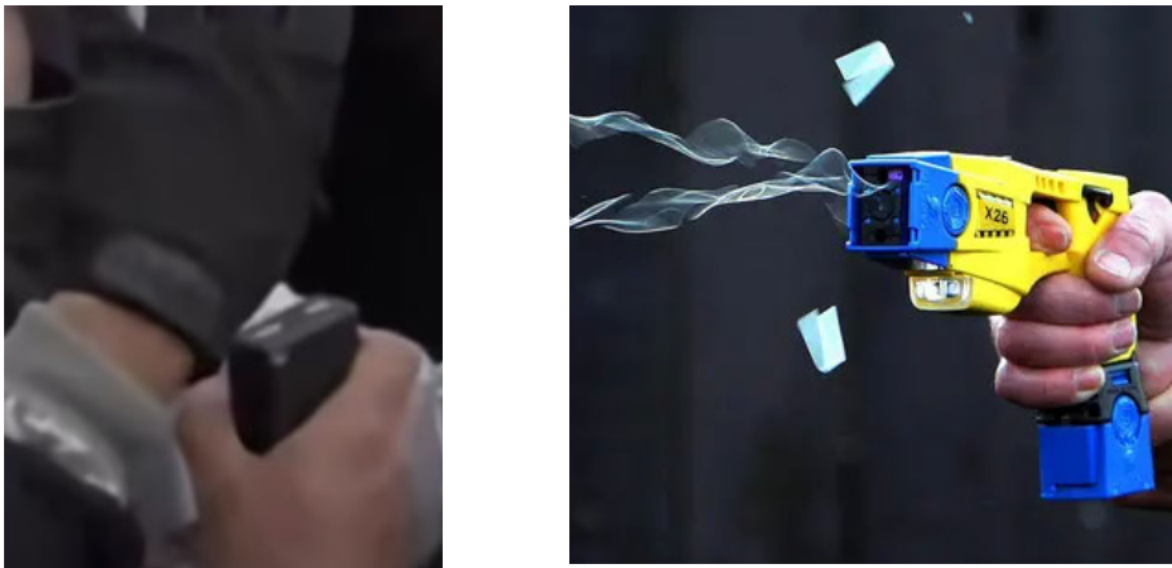


Figure 3. Device of incident vs TASER® CEW

Further on page 30 we read:

Seconds later, Rodriguez again held the taser to the back of Officer F█████'s neck, and Young lunged toward Officer F█████. The sound of the taser being activated is audible on the video. Officer F█████ again reacted in pain.

The implication of this statement is that the crackling sound of an electrical arc verifies that current was being delivered into Officer F█████'s neck. That implication is unsubstantiated.³⁰ If a contact is made by either a true electrical weapon or a sparkler flashlight, the sparking ceases as the current path is then thru the skin and not thru the air via an arc.

On page 39 we learn:

Officer F█████ sustained significant and painful injuries on January 6, 2021. The officer experienced excruciating pain each time Rodriguez repeatedly applied a taser to the back of his neck. Officer F█████ can be heard screaming on his body-worn camera on three separate occasions-at minute markers 15:19:15, 15:19:17, and 15:19:21-22. The tasing caused burn marks to the back of Officer M.F. 's neck that resulted in scarring.



Figure 4. Markings on Ofc. F█████'s neck.

As documented below, the actual output of the sparkler flashlights is minimal. While annoying, volunteers regularly apply such a device to their thigh while talking. None describe the sensation as “excruciating pain.”

The average charge from the tested sparkler flashlights was 0.78 ± 0.80 microcoulombs. This can be compared to therapeutic (“6-pack”) muscle stimulators which typically deliver $> 20 \mu\text{C}$.¹⁰² See Table 1. Note that the TASER CEWs deliver $\sim 60 \mu\text{C}$ or almost 100 times as much charge as the sparkler flashlights.



Figure 5. Electrical muscle stimulators are popular for therapy and training.

As seen in Table 1, some TASER® CEWs put out slightly more current *per channel* than do therapeutic muscle stimulators.¹⁰² Note that the Obovov R-C4D puts out slightly more normalized aggregate current (1.34 mA) than does the X26P CEW (1.3 mA).¹¹² For total current injected into the body the iStim EV-805 delivers 3.29 mA over 4 channels (8 electrodes). This exceeds the 3.13 mA total output of the newer T7 CEW. This also exceeds the total current output (1.3 mA) of the X26P which has only a single channel.

Table 1. Muscle stimulation capability of popular EMS units and CEWs

Model	d (μ s)	Raw Charge (μ C)	Normal-ization Factor	Normalized Charge (μ C)	Pulse Rate (PPS)	lagg Nor-malized (mA)	Chan-nels	Total lagg (mA)
EMS 7500	301	23.6	0.54	12.8	68.6	0.88	2	1.76
iStim EV-805	305	21.8	0.54	11.7	70.1	0.82	4	3.29
Obovov R-C4D	210	24.6	0.69	16.9	79.6	1.34	2	2.69
X2 CEW	71.2	65.3	1.14	74.2	19.6	1.45	2	2.91
X26P CEW	98.6	65.7	1.01	66.1	19.6	1.30	1	1.30
T7 CEW	60	59.2	1.20	71.0	22.0	1.56	2	3.13

All readings with 500 Ω load. I_{agg} = aggregate current per ANSI CPLSO-17.

The markings on the neck have nothing to do with the alleged application of the sparkler flashlight.¹¹³ This is clear for several reasons:

1. The markings are inconsistent and hence not done by the same device.
2. The marking in the lower right hand circle is solitary and thus it is lacking a paired electrical return. Ergo, this could not have been done by an electrical device as that would require 2 connections.
3. The spacings between the other 2 circled marking pairs are inconsistent and hence not done by the same device.

4. None of the markings match the rectangular shapes of the electrodes in the photographed sparkler flashlight.
5. The power output of a sparkler flashlight is typically less than 1 W and thus incapable of causing a burn. In contrast, consider a 1500 W hair dryer which can cause surface reddening with long applications.

(Page 48):

Second, Young prevented the officer from protecting himself from Rodriguez , who repeatedly tased him. Officer F [REDACTED] has stated, "I was struck with a taser device at the base of my skull numerous times, and they continued to do so until I yelled out that I have kids." Based on the officer's body-worn camera footage and the distinct screams of pain he emitted each time he was tased, Officer F [REDACTED] was tased multiple times literally seconds before Young grabbed his wrist and restrained his arm. Officer F [REDACTED] can also be heard screaming in pain while Young is restraining his wrist.

As discussed earlier, no Taser device was involved in this incident.

(Page 49):

Similar to the victim in *Rosario*, Officer F [REDACTED] could not fight back as his items were being taken from him as he had been weakened by the taser and essentially immobilized by Young.

This allegation is unsubstantiated for several reasons:

1. There was no "taser" involved.
2. Sparkler flashlights do not deliver sufficient charge to affect the muscles.
3. Even the stronger *true* muscle stimulators require inches of separation in order to affect the muscles locally as seen in Figure 5. Such a separation is not seen between the electrodes in the photograph of the sparkle flashlight used in this incident.
4. Immobilization requires a stronger true muscle stimulator such as a TASER® electrical weapon with electrodes spanning the entire back.¹¹¹ For example an electrode on the shoulder and a return electrode on the waist can cause immobilization.
5. There are no delayed effects after even after the application of a true electrical weapon. Subjects are able to immediately regain full bodily function even after the application of the powerful X26E TASER CEW.⁴¹

Item 54 of the Indictment states:

At approximately 3:18 p.m.; on-or about January 6, 2021, another rioter pulled Metropolitan Police Department Officer M.F. out of the police line and into the crowd. Shortly thereafter, RODRIGUEZ twice applied the small, black electro-shock weapon to the back of Officer M.F.'s neck. Officer M.F. subsequently lost consciousness and was later admitted to Washington Hospital Center for treatment for his injuries.

This allegation is unsubstantiated for several reasons:

1. The sparkler flashlight is not a weapon and hence there was no “electro-shock weapon” involved.
2. Over 2 million training applications of the powerful TASER® electrical weapons on law-enforcement officers has never found of a case of loss of consciousness.
3. Numerous peer-reviewed clinical studies of the effects of true electrical weapons have never reported a single loss of consciousness.¹¹⁴⁻¹²⁶

Item 79 of the Indictment states:

On or about January 6, 2021, within the District of Columbia, DANIEL RODRIGUEZ, using a deadly and dangerous weapon, that is, an electroshock weapon, did forcibly assault, resist, oppose, impede, intimidate, and interfere with, and inflict bodily injury on, an officer and employee of the United States, and of any branch of the United States Government (including any member of the uniformed services), and any person assisting such an officer and employee, that is, M.F., an officer from the Metropolitan Police Department, while such officer and employee was engaged in and on account of the performance of official duties, and where the acts in violation of this section involve physical contact with the victim and the intent to commit another felony.

This allegation is unsubstantiated for several reasons:

1. The sparkler flashlight is not a weapon and hence there was no “electro-shock weapon” involved.
2. The sparkler flashlight is not dangerous outside of giving Amazon shoppers a false sense of security.
3. The sparkler flashlight is not deadly.

Could a Sparkler Flashlight Cause Death or Serious Injury?

I searched for “stun gun” on Amazon and purchased 3 samples of each of the popular units. The 4 Vipertek and 4 MACE units had been purchased previously.



Figure 6. Sparkler flashlights tested. Top (L-R): FightSense Mini, Sabre S-1005, Runt, Sabre S-1010-TQ, FightSense, Police 512BK, MACE Compact, MACE standard, Police 916, and Vipertek VTS-979

The units were tested with a selectable load resistance of 400, 500, 600, 700, 800, 1k, 1.2k, 1.5k, and 2 k Ω .¹²⁷ The load resistances were made up from Ohmite model OY series 100 Ω and 1 k Ω noninductive ceramic resistors rated for 20 kV and 70 J of capacitive discharge. Series trimming was done with smaller-value carbon resistors.



Figure 7. Front view of sparkler flashlights tested.

The load resistance was varied from 400 Ω to 2 k Ω to cover good thru bad connections. None of the Runt units functioned and both Sabre units failed during testing, so data below only covers 7 models.

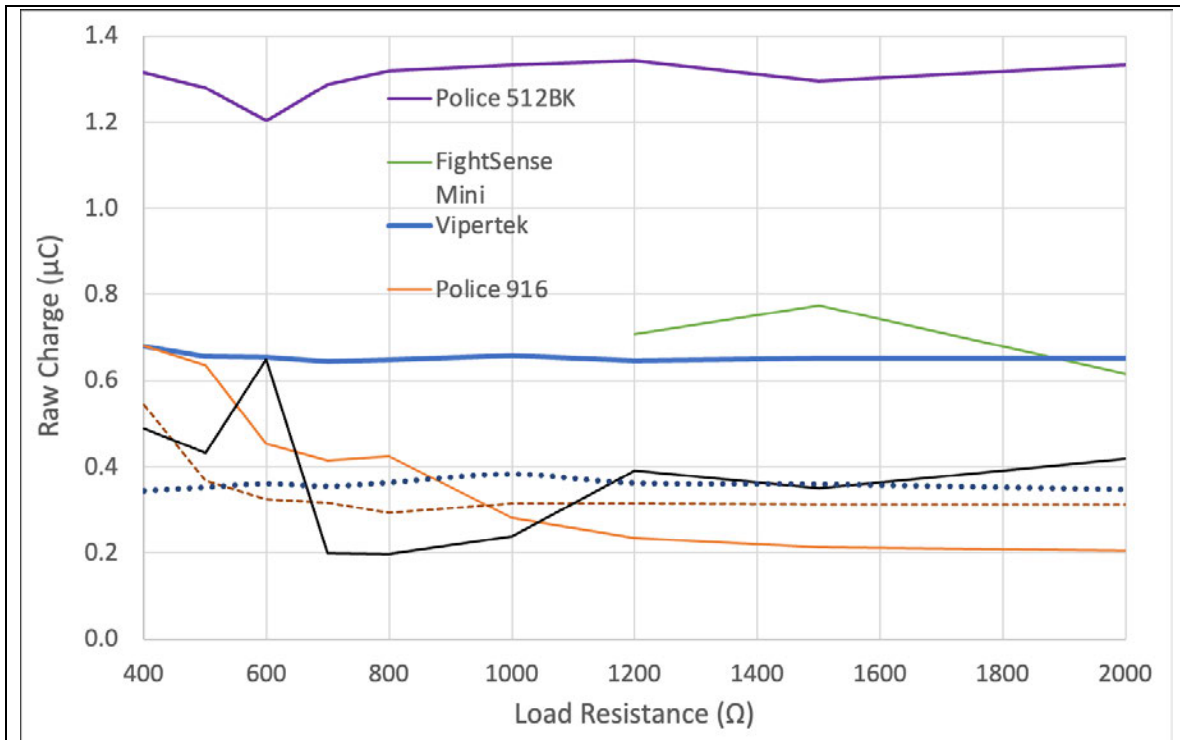


Figure 8. Delivered charges as a function of load resistance.

Nerve Stimulator Compliance

The outputs were evaluated according to the standard relied on by the US FDA (Food and Drug Administration) under 21CFR882.5890.

This particular standard is the AAMI (American Association for Medical Instrumentation) and ANSI (American National Standards Institute) standard NS4:2013 “Transcutaneous Electrical Nerve Stimulators.”¹²⁸ With global harmonization, the FDA is also accepting the international standard, the IEC (International Electrotechnical Commission) standard 60601-2 (Nerve and Muscle Stimulators).¹²⁹

AAMI/ANSI NS4:2013 §3.2.2.1 and IEC 60601-2 §201.12.4.104(a) both specify a load of 500 Ω so there was no conflict between the standards — for measuring the output — and thus this load was used for the output testing. AAMI/ANSI NS4:2013 §3.2.2.2 allows a maximum of 75 µC per pulse and thus these units satisfy the upper safety limits by over 50 to 1.

From this we can conclude that the units are incapable of causing any injury.

Charge Failure for a Nerve Stimulator

AAMI ANSI NS4:2013 §B.3.2.2.1 requires a minimum of 7 μC per pulse. The tested units failed the standard by at least 82%.

Stun Gun Compliance Testing

ANSI CPLSO-17 (Electrical Characteristics of ECDs and CEWs) is the relevant standard for evaluating the outputs of a stun gun.¹¹² ANSI CPLSO-17 §A.1 states that the load shall be 600 Ω .

ANSI CPLSO-17 §9.4 allows a maximum charge per pulse of 125 μC and thus the units tested satisfy the safety limit by a factor of at least 100 to 1.

Raw Charge Failure for a Stun Gun

ANSI CPLSO-17 §9.3 requires a minimum of 40 μC for the minimum charge. The tested units failed the standard by at least 97%%. In other words, the units delivered only 3% of the required minimum and are not stun guns.

Pulse Rate Failure for a Stun Gun

ANSI CPLSO-17 §9.2 requires the pulse rate to be less than 30 pulses per second (PPS). All of the units tested exceeded the pulse rate limit. One should not intuit that these higher rates make these units more effective. Human motor nerves are insensitive to sensing pulse rates far in excess of the normal physiological stimulation rate. In fact, pulse rates of 80 or 100 PPS are considered high frequency.^{130,131} The astronomically high pulse rates of these units would tend to preclude muscle stimulation.

The sparkler units are not stun guns. The device allegedly used in this incident was *not* an electroshock weapon.

Acoustic Output of the Sparkler Flashlights

I tested the output of the sparkler flashlights using the standard 1 m distance from the sound pressure level meter and the electrical arc of the unit. The results are shown below.

Table 2. Sound Level of Various Units at 1 meter distance

Model	Sound Level (dBA)
FightSense Mini	105.8
Sabre S-1005	106.3
Runt	No Units Functioned
Sabre S-1010-TQ	104.5
FightSense	109.6
Police 512BK	105.6
MACE Compact	106.3
MACE standard	102.2
Police 916	109.2
Vipertek VTS-979	106.8

The sound pressure levels are quite high and could cause hearing damage with an exposure of greater than 5 minutes according to the Center for Disease Control. The output waveforms of the devices are consistent with maximizing the electrical arcing sound and not with providing nerve stimulation.

General Comments

Previous Testimony

I have testified as an expert at trial or by deposition within the preceding 4 years in:

1. Aguilar v Los Angeles. US District Court, Los Angeles, CA. (May 2018 & April 2019) D
2. Ramos v East Hartford. US District Court, Hartford, CT. (June 2018) D
3. Todero v Blackwell. US District Court, Indianapolis, IN (Sept 2018) D
4. Silva v Chung. US District Court, Honolulu. (May 2019) D
5. Wood v Entergy. Arkansas District Court, AR. (May 2019) P
6. Cardionet v Infobionics. US District Court, Boston, Massachusetts. (Sept 2019) D
7. Payne v Omaha. US Dept of Labor (Oct 2019) P
8. Timpa v Dillard. US District Court, Dallas, TX (Dec 2019) D
9. USA vs. Burton Ritchie. US District Court, Las Vegas, NV (Jan 2020) P
10. Starke v Astar. Florida District Court, St. John's County, FL (Apr 2020) D
11. Nevro v Boston Scientific re US #9162071, Wash. DC. US Patent Appeals Board. (May 2020) P
12. Nevro v Boston Scientific re US #8682447, Wash. DC. US Patent Appeals Board. (May 2020) P
13. Nevro v Boston Scientific re US #6381496, Wash. DC. US Patent Appeals Board. (July 2020) P
14. Loftis v American Electric Power. US District Court, Charleston, WV (Oct 2020) D
15. Valear v Q3. Colorado Dst Ct., Denver Cty, CO. (June and Oct 2021) D
16. Georgia v Howell, Scott, and Copeland. Georgia District Court, GA. (Oct 2021) D
17. Harris v Rambosk. US District Court, FL (Oct 2021) D
18. Dold v. Snohomish County. US District Court, WA (Jan 2022) D
19. Adkins v. Appalachian Power. US District Court, WV (Jan 2022) D
20. Celestin v. Ocoee, US District Court, FL. (July 2022) D

Right To Amend:

The opinions in this report are living opinions. Should additional discovery material be received, or additional research be completed, and then reviewed, these opinions may be altered or reinforced depending upon what information is obtained, reviewed, or studied. If new issues are opined, identified, or developed subsequent to submission of this report, I reserve the right to supplement, or further supplement, this report. *I especially reserve the right to amend my report after receiving new forensic evidence.*

Further Development:

Further, the opinions, which are expressed in this report, are listed to comply with current report requests. Each opinion may be further developed through research, investigation, during deposition or trial testimony.

Specific References:

Some of the opinions in this report may list specific references to some of the case specific documents reviewed or considered. These listings are not intended to be all-inclusive. I specifically reserve the right to supplement the support for each of the opinions in this report.

Opinion Methodology:

The enclosed opinions were developed using the disciplines of bioelectricity, electrophysiology, biomedical science, cardiovascular physiology, scientific methods, mathematics, and physics and are to a reasonable degree of professional and scientific certainty.

Additionally, the opinions provided in this case were developed using one or more qualitative and quantitative research methodologies, in addition to my education, training, experience, and literature review.

References:

1. Kunz SN, Calkins HG, Adamec J, Kroll MW. Adrenergic and metabolic effects of electrical weapons: review and meta-analysis of human data. *Int J Legal Med*. Sep 2018;132(5):1469-1475. doi:10.1007/s00414-018-1771-2
2. Kunz SN, Calkins H, Adamec J, Kroll MW. Cardiac and skeletal muscle effects of electrical weapons : A review of human and animal studies. *Forensic Sci Med Pathol*. Sep 2018;14(3):358-366. doi:10.1007/s12024-018-9997-3
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