Draft Baseline Specifications for Law Enforcement Service Pistols with Security Technology

National Institute of Justice

July 2016

Introduction

On April 29, 2016, the U.S. Departments of Justice (DOJ), Homeland Security (DHS), and Defense (DoD) submitted a joint report to the President outlining a strategy to expedite deployment of gun safety technology, in response to Presidential Memorandum, *Promoting Smart Gun Technology*. The report described the potential benefits of advanced gun safety technology, but noted that additional work was required before this technology is ready for widespread adoption by law enforcement agencies. In particular, the report stressed the importance of integrating this technology into a firearm's design without compromising the reliability, durability, and accuracy that officers expect from their service weapons.

To address these issues, the report called on law enforcement agencies to develop "baseline specifications," which would outline the agencies' operational requirements for any firearms equipped with gun safety technology. By developing baseline specifications, federal, state, and municipal law enforcement agencies can make clear to private manufacturers what they expect from this technology.

DOJ and DHS recently assembled a working group of experts in firearms technology to identify operational needs and prepare a draft document that defines generic baseline specifications for law enforcement service pistols with additional technology to enhance the security of firearms. The additional security specifications found in section 4.18 that may be addressed by smart gun technology are distinguished from more familiar firearm safety mechanisms found in section 4.17. The distinction between safety and security can be nuanced, and the additional security specifications may also function as safety features under certain circumstances. However, this distinction forms the basis of the use of the different terminology.

The working group was led by the National Institute of Justice (NIJ) and was comprised of subject matter experts from federal law enforcement agencies, including:

Department of Justice
- Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)
- Drug Enforcement Administration (DEA)
- Federal Bureau of Investigation (FBI)
- Office of the Deputy Attorney General (ODAG)
- U.S. Marshals Service (USMS)

Department of Homeland Security
- Customs and Border Protection (CBP)
- Federal Emergency Management Administration (FEMA)
- Federal Law Enforcement Training Center (FLETC)
- Federal Protective Service (FPS)
- Immigration and Customs Enforcement (ICE)
- Office of the Secretary / Office of the Military Advisor
- Office of State and Local Law Enforcement (OSLLE)
- Office of the Chief Security Officer (OCSO)

Science and Technology Directorate (S&T)
U.S. Coast Guard (USCG)
U.S. Secret Service (USSS)

Department of Defense
Office of the Chief of Staff of the Air Force (CSAF)
Pentagon Force Protection Agency (PFPA)

The information detailed in this document is informed in part by specifications enumerated in recent handgun solicitations by the FBI and ICE, which are publicly available on FedBizOpps (http://www.fbo.gov) under solicitation numbers RFP-OSCU-DSU1503 and HSCEMS-16-R-00003, respectively.

This document uses the following in accordance with international standards:

— "shall" indicates a requirement;

— "should" indicates a recommendation;

— "may" indicates a permission;

— "can" indicates a possibility or a capability.

Please direct any feedback on this document by email to gunsafetytechnology@usdoj.gov.

1 Scope

1.1 This document defines generic baseline specifications for law enforcement service pistols with additional technology to enhance the security of firearms.

1.2 The pistols defined by this document shall be semi-automatic, recoil-operated, magazine-fed, striker-fired, and fire 9 mm Luger or .40 S&W ammunition.

1.3 Class I and Class II pistols shall have the same operating system and control mechanisms with the only difference being the slide, barrel, frame, and grip dimensions.

1.4 This document defines performance requirements in addition to the baseline specifications.

1.5 Unless a specific class of pistol defined in Section 3 is deliberately called out in the document, any given specification or requirement shall be understood to apply to all pistols within the scope of this document.

2 Normative references

ANSI/SAAMI Z299.3 – 2015, *American National Standard Voluntary Industry Performance Standards for Pressure and Velocity of Centerfire Pistol and Revolver Ammunition for the Use of Commercial Manufacturers*, Sporting Arms and Ammunition Manufacturers' Institute, 2015.

ANSI/SAAMI Z299.5 – 1996, *American National Standard Voluntary Industry Performance Standards Criteria for Evaluation of New Firearms Designs Under Conditions of Abusive Mishandling for the Use of Commercial Manufacturers*, Sporting Arms and Ammunition Manufacturers' Institute, 2015.

AR 70-38, *Research, Development, Test and Evaluation of Materiel for Extreme Climatic Conditions*, Department of the Army, 15 September 1979.

ISO/IEC Directives, Part 2, *Principles and rules for the structure and drafting of ISO and IEC documents*, Seventh edition, 2016.

"Maximum Cartridge / Minimum Chamber: 40 Smith & Wesson", *Cartridge and Chamber Drawings, Centerfire Pistol and Revolver*, Sporting Arms and Ammunition Manufacturers' Institute, January 25, 2009.

"Maximum Cartridge / Minimum Chamber: 9mm Luger / 9mm Luger P+", *Cartridge and Chamber Drawings, Centerfire Pistol and Revolver*, Sporting Arms and Ammunition Manufacturers' Institute, January 25, 2009.

MIL-STD-810G w/ Change 1, *Environmental Engineering Considerations and Laboratory Tests*, 15 April 2014.

U.S. Departments of Justice, Homeland Security, and Defense, *Report to the President Outlining a Strategy to Expedite Deployment of Gun Safety Technology*, April 2016.

The White House, "Promoting Smart Gun Technology," Memorandum for the Secretary of Defense, The Attorney General, and the Secretary of Homeland Security, January 4, 2016.

3 Terms and definitions

Class I Compact Pistol
A Class I Pistol is defined as a pistol with a barrel length of no less than 3.75" and no greater than 4.25" and a minimum magazine capacity of 14 rounds. The product kit shall include night sights, six magazines, any additional accessories required for normal operation, an agency-approved gun lock, an operator's manual written in English, and a stackable hard plastic container.

Class II Full Size Pistol
A Class II Pistol is defined as a pistol with a barrel length of no less than 4.26" and no greater than 5.20" and a minimum magazine capacity of 16 rounds. The product kit shall include night sights, six magazines, any additional accessories required for normal operation, an agency-approved gun lock, an operator's manual written in English, and a stackable hard plastic container.

Class I Inert Training Pistol
This pistol is defined as a Class I Pistol that is deactivated with full articulation and has a red frame and slide. The product kit shall include night sights, four magazines with red floor plates, any additional accessories required for normal operation, an agency-approved gun lock, an operator's manual written in English, and a stackable hard plastic container.

Class I Man Marker Training Pistol
This pistol is defined as a Class I Pistol that fires Man Marker rounds or Simunition™ and has a blue slide or slide with blue inserts. The product kit shall include night sights, four magazines with blue floor plates, any additional accessories required for normal operation, an agency-approved gun lock, an operator's manual written in English, and a stackable hard plastic container.

Class I and Class II Pistol Replacement Parts
These are defined as replacement parts which comprise Class I and Class II Pistols to include standard and non-standard parts manufactured or provided by the firearm manufacturer or vendor.

SAAMI
Sporting Arms and Ammunition Manufacturers' Institute

4 Baseline specifications

4.1 Action

4.1.1 Pistols shall be semi-automatic, recoil-operated, magazine-fed, and striker-fired.

4.1.2 Pistols shall not have a hammer, either external or internal.

4.2 Caliber

4.2.1 Pistols shall be chambered for 9 mm Luger or .40 S&W cartridges, which are compliant with SAAMI standards.

4.3 Barrel

4.3.1 The Class I Pistol barrel shall be a minimum of 3.75 inches and shall not exceed 4.25 inches.

4.3.2 The Class II Pistol barrel shall be a minimum of 4.26 inches and shall not exceed 5.20 inches

4.3.3 The barrel lengths between the two classes of pistol shall not be closer than 0.5 inches

4.3.4 The chamber headspace shall meet dimensional tolerances as specified by SAAMI standards for 9 mm Luger or .40 S&W ammunition.

4.3.5 The barrel shall be matte black or dark grey in color.

4.3.6 The barrel shall have a corrosion resistant bore and exterior finish.

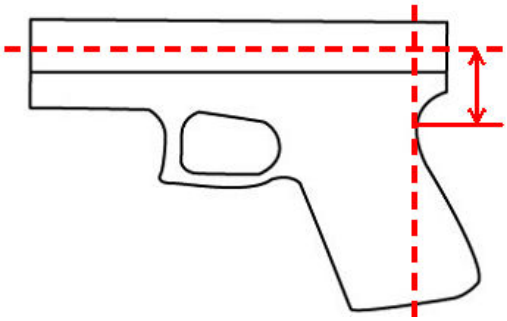
4.3.7 The barrel shall be rifled with a twist rate of 1 revolution to 12 inches or faster.

4.3.8 The barrel shall not be ported.

4.4 Bore axis

4.4.1 Pistols shall have a bore axis height of less than 1.75 inches.

4.4.2 The bore axis height shall be verified by measuring from the centerline of the bore to the lowest point in the grip back strap from the highpoint on the grip where the web of the firing hand rests in accordance with the figure below.



4.4.3 The bore axis height shall be measured with a medium back strap and/or grip panels and/or chassis grip installed.

4.5 Weight

4.5.1 Class I Pistols shall not exceed 35.0 ounces in weight with an unloaded standard capacity magazine.

4.5.2 Class II Pistols shall not exceed 42.0 ounces in weight with an unloaded standard capacity magazine.

4.6 Height

4.6.1 The Class I Pistol height shall be no less than 4.75 inches and no greater than 5.60 inches.

4.6.2 The Class II Pistol height shall be no greater than 6.00 inches.

4.6.3 The height shall be measured with a fully seated standard capacity magazine.

4.6.4 The height shall encompass the highest and lowest most protrusions of the pistol.

4.6.5 Height shall be measured with a medium back strap and/or grip panels and/or chassis grip installed.

4.7 Length

4.7.1 Class I Pistols shall not exceed 8.00 inches in length.

4.7.2 Class II Pistol shall not exceed 9.00 inches in length.

4.7.3 The length shall be measured with a fully seated standard capacity magazine.

4.7.4 The length shall encompass the forward and rearward most protrusions of the pistol.

4.7.5 Length shall be measured with a medium back strap and/or grip panels and/or chassis grip installed.

4.8 Width

4.8.1 The duty pistol shall not exceed 1.35 inches.

4.8.3 Width shall be measured with a medium back strap and/or grip panels and/or chassis grip installed.

4.8.3 The width shall encompass the furthest most left and right protrusions of the pistol.

4.9 Magazines

4.9.1 Class I magazines shall hold a minimum of 14 cartridges.

4.9.2 Class II magazines shall hold a minimum of 16 cartridges.

4.9.3 Magazines shall positively lock in the magazine well.

4.9.4 Class II magazines shall fit in Class I pistols and the pistol shall function as designed.

4.9.5 Extended magazines, or "+" floor plates, shall not be permitted.

4.9.6 The magazine shall release and fall free from the magazine well when the magazine catch is completely depressed, regardless of the number of cartridges contained within the magazine and regardless of the position of the slide (i.e., forward or locked to the rear), and when the pistol is held with the sights level and with the magazine floorplate oriented down.

4.9.7 All magazine components shall be constructed of a material which is rust and corrosion resistant. A finish may be applied to metal magazines.

4.9.8 The follower shall move freely in the magazine body without binding and shall position each round for positive feeding.

4.9.9 The follower should be a high visibility color, such as orange, red, or yellow.

4.9.10 Magazines shall have witness holes which will permit viewing the number of rounds in at least 5 round intervals. Witness holes should exist for each cartridge contained in the magazine starting with cartridge number 4 and showing every cartridge contained in the magazine thereafter.

4.9.11 The magazine floor plate shall:

— Be removable for magazine disassembly without the use of specially designed tools. Use of the supplied armorer's tool is acceptable.

— Remain securely affixed when dropped from a height of 48" onto a hard surface regardless of the number of cartridges contained in the magazine or the orientation of the magazine upon impact.

— Aid in the positive seating of the magazine during loading.

— Enable positive gripping and rapid manual extraction of the magazine if the magazine is locked in place as a result of a malfunction (e.g., double feed) or if the operator is wering gloves.

— Have a small ledge ("toe") on the front of the magazine to aid the operator in rapid extraction of the magazine. This ledge shall protrude forward of the grip (nominally 0.10" - 0.15") to enable the non-shooting hand to strip the magazine from the pistol.

— Have a floor plate colored red for the Class I Inert Training Pistol with a design that matches the floor plate described above.

— Have a floor plate colored blue for the Class I Inert Training Pistol with a design that matches the floor plate described above.

4.9.12 Magazines shall be matte black or grey in color and corrosion resistant.

4.9.13 Magazines shall have a minimum of one witness hole for every five rounds corresponding to the number of rounds in the magazine.

4.9.14 Magazines shall positively lock in the frame.

4.10 Magazine disconnector/safety

4.10.1 The pistol shall fire with the magazine removed and a live round in the chamber.

4.11 Magazine well

4.11.1 The Class II Pistol should have a flared magazine well entrance that extends no more than 0.100" beyond the outside of the grip on each side.

4.12 Magazine catch/release

4.12.1 The magazine catch shall be located on the frame near the junction of the trigger guard and the grip.

4.12.2 The magazine catch shall be of a lateral push button design.

4.12.3 The magazine catch shall be ambidextrous or reversible. The magazine catch button can be moved from the left side to the right side by a gunsmith.

4.12.4 The magazine catch shall be activated by depressing the catch with a lateral movement by the operator's thumb/finger.

4.12.5 The magazine catch may not be activated by a downward movement.

4.12.6 The magazine catch shall be designed to allow for positive release of the magazine when fully depressed by the operator.

4.12.7 The magazine catch shall be designed and positioned to reduce the likelihood of inadvertent release of the magazine during handling and/or firing.

4.12.8 The magazine catch shall release with a minimum of 4 lbs. of pressure and shall require no more than 7 lbs. of pressure to release.

4.12.9 The magazine catch shall be available in standard and extended sizes.

4.13 Trigger

4.13.1 The trigger pull shall be consistent in both length of travel and weight of pull for the first shot and all subsequent shots.

4.13.2 Pistols shall be fired with a firing pin/striker only.

4.13.3 There shall be no method of manually cocking the pistol other than by pressing the trigger.

4.13.4 Shall have a single smooth and consistent mode of operation.

4.13.5 If a trigger safety is present, it should match the contour of the trigger bow.

4.13.6 The trigger pull weight shall have the following characteristics:

— Trigger pull weight shall be no less than 4.5 pounds nor exceed 8.0 pounds.

— Pistol shall fire with 8.0 pounds of pressure and shall not fire with less than 4.5 pounds of pressure.

4.13.7 The trigger pull weight for each gun shall be consistent with a maximum deviation of plus or minus (+/-) 0.5 pounds measured from 10 trigger pulls from each gun.

4.13.8 The trigger pull weight should be measured electronically with the gun mounted in a fixture.

4.13.9 The trigger shall not be manually adjustable.

4.13.10 The trigger shall have a reset distance not to exceed 0.50 inches.

4.13.11 The trigger shall return to the forward-most position after firing or manually cycling the action.

4.13.12 When the striker/firing pin is in the ready-to-fire position, the trigger shall return to the forward-most position if partially pressed and released (i.e., not fired).

4.13.13 The trigger shall be contoured to prevent a finger or gloved finger from binding or obstructing the articulation of the trigger. The glove should be of a shooting type, style, or design.

4.14 Frame/receiver

4.14.1 The frame shall not contain finger grooves.

4.14.2 The frame may be constructed primarily of polymer type material.

4.14.3 The frame shall have a non-slip surface on the area of hand contact for both right- and left-handed operators.

4.14.4 Frames shall allow for at least three different hand sizes, commonly referred to as small, medium, and large.

4.14.5 Two acceptable methods of accommodating for different hand sizes are:

— Multiple frame sizes, such that two alternate sizes shall be available and supplied with each pistol.

— Grip/frame inserts, such that two alternate sizes shall be available and supplied with each pistol.

4.14.6 The size of a frame or insert shall be marked on an exterior surface (e.g., “M” for medium, “L” large) for rapid identification without disassembly.

4.14.7 The frame shall have a locking slot groove/rail, forward of the trigger guard, to securely affix a tactical light, such as the Streamlight TLR-1®.

4.14.8 The locking slot groove/rails shall be a Picatinny rail (0.206 inches wide).

4.14.9 The frame may incorporate a UID bar code permanently engraved or affixed to the exterior of the frame which is durable and resistant to abrasion, wear, and solvents.

4.14.10 Should a UID bar code be incorporated, the UID shall be readable utilizing a handheld scanner/reader, such as the Honeywell 1900G-HD 2D®.

4.14.11 The edges at the entrance of the magazine well shall be beveled on at least three sides in order to aid in the ease of reloading.

4.15 Slide

4.15.1 The rear grasping surface of the slide shall have grasping grooves, serrations, checkering, and/or stippling on both the left and right sides of the slide to the rear of the ejection port.

4.15.2 The rear grasping surface of the slide is the area located on the right and left side of the slide near the rearmost portion of the slide where readily accessible to the operator, however the slide may have a second set of grasping grooves to be located towards the muzzle of the pistol.

4.15.3 A maximum of 21 pounds of force shall be necessary to manually move the slide from the forward locked position to the rear most limit of the slide movement.

4.15.4 With the exception of the chamber portion of the barrel, the slide shall fully cover the barrel, allowing for no more than 0.25” of the muzzle to be exposed.

4.15.5 The slide shall not utilize a removable barrel bushing.

4.15.6 The slide may be permanently marked with the serial number of the corresponding frame.

4.15.7 The slide shall incorporate a dovetail slot for the mounting of a rear sight.

4.15.8 The slide shall incorporate a dovetail or staking or screw design to affix the front sight firmly to the slide.

4.15.9 The slide shall lock to the rear upon firing the last round with a fully seated magazine in the pistol.

4.15.10 The slide shall lock to the rear when manually pulled fully to the rear, with a fully seated empty magazine in the pistol.

4.15.11 The slide shall not be ported.

4.16 External slide stop lever or slide catch/release

4.16.1 The slide stop lever shall lock the slide to the rear position upon firing the last round in the magazine.

4.16.2 The slide stop lever should be easily engaged or disengaged by the operator while maintaining positive control of the pistol.

4.16.3 The slide stop lever shall disengage using only a single finger or thumb.

4.16.4 The slide stop lever shall be articulable during one-handed use by either a finger or thumb while maintaining a positive grip of the pistol.

4.16.5 The slide stop lever should be easily manipulated by both right- and left-handed operators.

4.16.6 The slide stop lever should not allow the operator to inadvertently engage or override the control during normal firing.

4.16.7 Slide stop levers may be ambidextrous.

4.16.8 Slide stop levers shall be available in two sizes, standard and extended.

4.16.9 The slide stop lever shall prevent inadvertent movement or function by the operator during one-handed or two-handed thumbs-forward grip purchase.

4.16.10 The slide stop lever shall allow the slide to return to battery from the locked-open position when:

— The operator pulls the slide fully to the rear and, without touching the slide catch/release, the operator then releases the slide, without a magazine inserted in the pistol or with a partially loaded or fully loaded magazine inserted into the pistol.

— The operator depresses the slide stop lever with a partially loaded or fully loaded magazine inserted into the pistol.

4.17 Safety devices

4.17.1 Pistols shall not have a manual external thumb, finger, or grip-actuated safety device.

4.17.2 Pistols shall not have a manual external thumb, finger, or grip-actuated decocking device or lever.

4.17.3 Pistols shall not have a magazine disconnect which prevents the firearm from firing when the magazine is removed from the pistol.

4.17.4 Pistols may have an integral trigger safety which is deactivated by the normal placement of the trigger finger on the trigger during firing.

4.17.5 Pistols shall have an internal safety device or mechanism to prevent the firing pin/striker from moving forward without manipulation of the trigger.

4.17.6 Pistols shall have an internal safety device or mechanism to prevent the pistol from firing when dropped.

4.17.7 Pistols shall have an internal safety device or mechanism to prevent firing out of battery.

4.17.8 Pistols shall have an internal safety device or mechanism to prevent the firing pin/striker from being released while the trigger is held to the rear after firing.

4.18 Security devices

4.18.1 Pistols shall have an integrated "lock-out" security device as a permanent part of the pistol that disables the firing control system except when in the control of authorized individuals.

4.18.2 The security device shall be understood to include any externally worn items, such as rings, wristbands, or tokens that perform functions associated with the security device.

4.18.3 The security device shall include a programmable authorization system that can be set to allow one or more operators to fire the pistol.

4.18.4 The security device shall not inhibit the operator from firing in either hand, one-handed or two-handed, with and without gloves, in any orientation.

4.18.5 The security device shall not alter the normal operation of grasping and firing the pistol as a pistol of the same design that is not equipped with the security device.

4.18.6 The security device shall not increase the time required by the operator to grasp, draw from a holster, and fire the pistol as a pistol of the same design that is not equipped with the security device.

4.18.7 The security device shall not emit audible sounds or visible signals.

4.18.8 If the security device may be susceptible to electromagnetic interference, either intentional or unintentional, the device shall be equipped with countermeasure detection technology that permits the operator to fire the gun when an attempt to block the authorization process is detected.

4.18.9 The security device shall covertly indicate when the pistol is ready to fire.

4.18.10 If the security device uses batteries, the batteries can be rechargeble but shall be replaceable.

4.18.11 Low power to the security device shall be indicated covertly with sufficient time to safely take action.

4.18.12 If the security device malfunctions, it shall default to a state to allow the pistol to fire.

4.18.13 The security device should be easy for an operator to quickly reset or disengage if there is a malfunction.

4.19 Grip

4.19.1 The grip shall be textured to provide a positive non-slip surface when wet or dry.

4.19.2 The grip shall be universal for a left or right handed operator.

4.19.3 The grip shall have a replaceable back strap and/or grip panels and/or chassis grip to accommodate at least three different hand sizes.

4.19.4 The grip shall not be secured by screws.

4.19.5 The removal of the back strap and/or grip panels shall not prevent the pistol from firing.

4.19.6 The replaceable back strap and/or grip panels shall not require specialized or proprietary tools to replace and/or exchange.

4.19.7 Chassis style systems may be used, however any and all tools required to replace the chassis style grip shall be provided with the pistol.

4.20 Sights

4.20.1 Sights shall be made of steel,

4.20.2 Sights shall be durable and capable of withstanding:

— A 20,000-round endurance firing cycle.

— One-handed immediate action drills where the operator will utilize the front edge of the rear sight by supporting it against the edge of a ballistic shield, holster, etc., and cycling the slide.

4.20.3 Sights shall have a low-profile design to reduce interference when holstering and drawing, specifically when utilizing a concealing garment.

4.20.4 Sights shall be matte black in color.

4.20.5 Sights shall be non-reflective.

4.20.6 Front and rear sight must allow the operator to acquire the proper sight alignment rapidly.

4.20.7 The proper alignment of the sights will be consistent with "equal height, equal light" sight alignment.

4.20.8 The front sight shall be a single blade type capable of alignment within the rear sight notch and be a rectangle or square appearance to the operator.

4.20.9 The rear sight shall have a square rear notch.

4.20.10 The front and rear sights shall remain securely in place during firing and other law enforcement related activities.

4.20.11 The rear sight shall be adjustable for windage within a dovetail. Windage adjustments of the firearm shall only be made with the rear sight by the use of a tool specifically designed for sight adjustment, such as a sight pusher.

4.20.12 Elevation shall be adjustable by the replacement of the front or rear sight.

4.20.13 A minimum of three different sight height options shall be provided, such as standard, low, and high.

4.20.14 The sights shall be marked with a number or symbol indicating its relative height that can be identified without the aid of magnification.

4.20.15 Elevation and windage adjustments shall allow for the range of sight adjustments to move the point of impact at least 3" radially from the point of aim using agency service ammunition fired at a distance of 25 yards.

4.20.16 Sights shall be corrosion resistant.

4.20.17 Sights shall not be damaged by commonly used and commercially available firearm solvents and lubricants.

4.21 Low-light sights or night sights

4.21.1 The front and rear sights shall be equipped with self-luminous capsules which allow the operator to align the sights in low light conditions.

4.21.2 The night sights shall allow for a horizontal sight alignment of the three self-luminous capsules in a row.

4.21.3 The front night sight shall contain one capsule and the rear night sight shall contain two capsules which will align on the left and right of the front sight.

4.21.4 The night sights shall contain tritium or an equivalent self-luminous material all of the same green color.

4.21.5 The front sight shall have photo luminescent paint in addition to the tritium night sight.

4.21.6 The night sights shall have a minimum service life of 10 years from date of delivery to the agency.

4.21.7 The night sights shall be corrosion resistant.

4.21.8 The night sights shall not be damaged by commonly used and commercially available pistol solvents and lubricants.

4.21.9 The luminous portion of the night sights shall not be visible from the muzzle end of the pistol.

4.21.10 The luminous portion of the night sights may have a white color outline visible to the operator.

4.21.11 The night sights shall be Trijicon, Bright and Tough Night™ Sights, or similar.

4.22 High visibility sights

4.22.1 Pistols shall be provided with high visibility sights.

4.22.2 The high visibility sights should be Trijicon HD night sights (GL101O) or similar high visibility sights.

4.22.3 The high visibility sights may have a “U” notch in the rear sight.

4.22.4 Front and rear sights shall be removable by agency gunsmiths.

4.23 Exterior finish

4.23.1 All exposed parts, including the frame, slide, and barrel, shall have a finish that is:

— Matte black or dark grey.

— Non-reflective.

— Durable and abrasion resistant.

— Rust resistant

— Salt water corrosion resistant.

4.23.2 All exterior parts shall be devoid of gouges, sharp edges or rough areas which could snag on holsters, clothing or cause injury or discomfort to the operator.

4.23.3 The frame and slide shall be available, as an option, in a tan color similar to Flat Dark Earth and a green color similar to Ranger Green.

4.23.4 The inert training pistol shall have a red frame and matching red slide.

4.23.5 The Man Marker training pistol shall have a black or blue frame and have a blue slide, or may have blue inserts instead.

4.24 Internal finish

4.24.1 All internal surfaces shall be void of rough surfaces at critical points of movement and polished as necessary to provide minimal friction and wear to promote functional reliability.

4.24.2 Internal parts finish shall be durable, rust resistant, and salt water corrosion resistant.

4.25 Holster compatibility

4.25.1 Pistols shall be compatible with various commercially available holsters.

4.26 Maintainability

4.26.1 Maintenance requirements should be held to a level that the average officer operator can perform.

4.26.2 Pistols shall not require the use of any tools for field stripping.

4.26.3 Pistols shall be capable of repeated maintenance without damage or decrease in performance.

4.26.4 An agency's gunsmith or armorer should be able to perform most diagnostic tests and repairs without seeking assistance from the manufacturer.

4.26.5 Pistols shall come with an operator's manual written in English.

5 Performance requirements

5.1 Reliability

5.1.1 Pistols shall have a mean overall malfunction or failure rate of no greater than 1 in 2,000, or shall exhibit a mean rounds between failure of no less than 2,000.

5.1.2 Pistols shall exhibit zero malfunctions or failures related to reliability that are attributable to the security device after 2,000 presentations from the holster and firing 10,000 rounds per pistol.

5.1.3 Pistols shall exhibit zero malfunctions or failures related to reliability that are attributable to the security device after environmental exposures subject to the MIL-STD-810G laboratory test methods listed below:

— High Temperature: 501.5

— Low Temperature: 502.5

— Contamination by Fluids: 504.1

— Rain: 506.5

— Salt Fog: 509.5

— Sand and Dust: 510.5

— Immersion: 512.5

5.2 Durability

5.2.1 Pistols shall function equally across a temperature range from -33°C (-28°F)—which corresponds to the lower bound of the induced air temperature for the Basic Cold (C1) profile defined in AR 70-38—up to 63°C (145°F)—which corresponds to the upper bound of the induced air temperature for Basic Hot (A2).

5.2.2 Pistols shall function equally across a relative humidity range tending toward saturation at -33°C (-28°F) and varying from 5% to 44% RH at 63°C (145°F)—which correspond to the induced relative humidities at the C1 and A2 profiles.

5.2.3 Pistols shall be able to function when exposed to constant high humidity of 95% to 100% RH at 27°C (80°F)—which corresponds to the induced relative humidity and induced air temperature for Constant High Humidity (B1).

5.2.4 Pistol performance shall not degrade when exposed to transient splashes of water, such as a rain shower or exposure to an indoor sprinkler system.

5.2.5 Pistol performance shall not degrade when exposed to temporary immersion in water, such as a swimming pool, lake, or river.

5.2.6 Pistol performance shall not degrade when exposed to mild corrosive substances, such as human sweat, pool water, or river water.

5.2.7 Pistol performance shall not degrade when exposed to a dusty environment.

5.2.8 Pistol performance shall not degrade when exposed to electromagnetic interference.

5.2.9 Pistols performance shall not degrade when exposed to mechanical shock, such as being dropped on pavement or concrete following the SAAMI drop test.

5.2.10 Any externally worn items, such as rings, wristbands, or tokens that may be associated with the security device, shall have to meet the same durability requirements as the pistol.