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MIL-PRF-32316 (AR)  
w/AMENDMENT 1  
5 October 2009

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SUPERCEEDING  
MIL-PRF-32316 (AR)  
7 October 2008

## PERFORMANCE SPECIFICATION

### RIFLE, 7.62MM : SEMI-AUTOMATIC SNIPER SYSTEM (SASS) - M110

This specification is approved for use by the U.S. Army Armaments Research, Development and Engineering Center (ARDEC) and is available for use by all Departments and Agencies of the Department of Defense.

## 1 SCOPE

1.1 Scope. This specification defines the technical and performance requirements, and the associated quality assurance provisions and verification procedures for the RIFLE, 7.62MM: semi-automatic sniper system (SASS), M110. This specification states requirements for components identified in Section 6.7, hereafter referred to simply as SASS.

1.2 Type-designator. The Army type-designator M110 referenced in this specification is of Army origin and does not reflect a particular design. (See 6.4).

1.3 Requirement levels. This specification lists two values for certain performance parameters. The threshold value (T) is the minimum acceptable value, and the objective value (O) is the desired value for which the performance of the M110 results in operationally significant increase in capabilities. All requirements not noted are threshold requirements.

Comments, suggestions, or questions on this document should be addressed to Commander ARDEC, ATTN: RDAR-QES-E, Picatinny, NJ 07806-5000) or emailed to [ardecstdzn@conus.army.mil](mailto:ardecstdzn@conus.army.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://assist.daps.dla.mil>.

AMSC N/A

FSC 1005

DISTRIBUTION STATEMENT A. Approved for public release, distribution is unlimited.

1.4 Component designation. This specification contains four component requirement designations: System requirements, Rifle requirements, Day optical sight requirements, and System case requirements. Unless otherwise specified the system requirements apply to the rifle, the optic sight, and the carrying case. Unless otherwise specified the rifle requirements apply to the rifle only, the optic sight requirements apply to the sight only, and the system case requirements apply to the case only.

## 2 APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 or 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

### 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

### FEDERAL SPECIFICATIONS

TT-C-490	Chemical Conversion Coatings and Pretreatments for Ferrous Surfaces (Base for Organic Coatings)
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### DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-3150	Lubricating Oil, Preservative, Medium
MIL-PRF-13830	Optical Components for Fire Control Instruments; General Specification Governing the Manufacture, Assembly, and Inspection of
MIL-PRF-14107	Lubricating Oil, Weapons, Low Temperature
MIL-DTL-16232	Phosphate Coating, Heavy, Manganese or Zinc Base
MIL-PRF-63460	Lubricant, Cleaner and Preservative for Weapons and Weapon Systems

### DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-461	Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment
MIL-STD-464	Electromagnetic Environmental Effects Requirements for Systems
MIL-STD-810E	Environmental Engineering Considerations and Laboratory Tests
MIL-STD-810F	Environmental Engineering Considerations and Laboratory Tests

## MIL-PRF-32316 w/AMENDMENT 1 (AR)

MIL-STD-1474	Noise Limits
MIL-STD-1913	Dimensioning of Accessory Mounting Rail for Small Arms Weapons
MIL-STD-1916	DOD Preferred Methods for Acceptance of Product

## DEPARTMENT OF DEFENSE HANDBOOKS

MIL-HDBK-759	Human Engineering Design Guidelines
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(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

## ARMY REGULATION

AR 70-38	Research, Development, Test and Evaluation of Materiel for Extreme Climatic Conditions
AR 70-75	Survivability of Army Personnel and Materiel

(Army Regulations may be viewed and printed <http://www.apd.army.mil/>.)

## ARMY FIELD MANUAL

FM 3-05.211	Special Forces Military Free-Fall Operations
FM 3-21.220	Static Line Parachuting Techniques and Tactics

(Copies of these Field Manuals are available from the General Davis J. Reimer Training and Doctrine Digital Library at <http://www.adtdl.army.mil/>)

## US ARMY DEVELOPMENTAL TEST COMMAND

TOP 1-2-511	Electromagnetic Compatibility Requirements, Systems Testing
TOP 3-2-045	Automatic Weapons, Machine Guns, and Hand and Shoulder Weapons
TOP 3-2-504	Safety Evaluation of Hand and Shoulder Weapons
TOP 3-2-609	Chemical Compatibility of Nonmetallic Materials Used In Small Arms Systems

(Copies of these documents may be ordered from the US Army Developmental Test Command, ATTN: Publications, 314 Longs Corner Road, Aberdeen Proving Ground, MD 21005-5005, or online at <http://www.dtc.army.mil/publications/topsindex.aspx>)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

I	ASTM B 117	Standard Practice for Operating Salt Spray (Fog) Apparatus
	ASTM E 1444	Standard Practice for Magnetic Particle Testing

(Copies of ASTM standards are available online from <http://www.astm.org/> or from the American Society for Testing and Materials, 100 Barr Harbor Drive, Conshohocken, PA 19428-2959)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3 REQUIREMENTS

3.1 Design verification. When specified (see 6.2), a sample of SASS shall be subjected to design verification in accordance with Table I and 4.2.

3.2 First article inspection. Unless otherwise specified (see 6.2), a sample of SASS shall be subjected to first article inspection in accordance with Table I and 4.3.

3.3 Conformance inspection. Unless otherwise specified (see 6.2), a sample of SASS shall be subjected to quality conformance inspection in accordance with Table I and 4.4.

#### 3.4 Operating requirements.

##### 3.4.1 System requirements.

3.4.1.1 Accuracy/dispersion. After the optic sight is zeroed, the accuracy and dispersion of the SASS shall meet the following:

3.4.1.1.1 Accuracy. The distance between the mean point of impact of each shot group, both unsuppressed and suppressed, shall be not greater than 1.1 inches at 300 feet. The distance between the mean point of impact of the combined unsuppressed shot groups and the combined suppressed shot groups shall not be greater than 3.14 inches at 300 feet.

3.4.1.1.2 Dispersion. The average mean radius (AMR) (see 6.11), of each shot group shall be not greater than to 0.68 inches at 300 feet. All targets shall be fired on using M118LR ammunition or equivalent, using five (5) round groups.

##### 3.4.2 Rifle requirements.

3.4.2.1 High pressure resistance. After the proof firing of one standard Cartridge, 7.62 MM, NATO, Test, High Pressure, M60, the barrel, bolt and receiver shall be free of cracks.

3.4.2.2 Rifle action. The rifle action shall be semi-automatic (see 6.11).

3.4.2.3 Safety.

- a. The rifle shall have a safety mechanism that has the following characteristics:
  1. It prevents the weapon from being fired when the trigger is depressed with the safety in the “SAFE” position.
  2. It is capable of being checked by both sight and touch.
  3. It is movable between the safe and fire positions by the operator without moving his hands from the shooting position (prone, standing, kneeling, and sitting).
  4. It remains in the position the operator sets it until it is manually changed.
  5. It requires a force of not less than 2 or greater than 10 pounds to operate.
  6. It is operable by the 5<sup>th</sup> to the 95<sup>th</sup> percentile soldier, as specified in MIL-HDBK-759, while dressed in environmental protective clothing.
- b. The design of the rifle shall preclude firing while the bolt is not in the closed and locked position, or when the bolt is being closed.

3.4.2.4 Suppressor. The rifle shall incorporate an integrated acoustic, flash and blast suppressor that can be attached and detached by the operator by hand or with the tools common to the snipers’ deployment kit. The suppressor, when attached to the rifle, shall not shift the mean point of impact of rounds fired, when compared to firing unsuppressed, by not greater than 3.14 inches at 300 feet.

3.4.2.5 Recoil. The rifle recoil energy shall be not greater than 18 foot-pounds.

3.4.3 Day optical sight requirements.

3.4.3.1 Elevation and windage adjustment. Elevation and windage adjustments shall be provided with the following characteristics:

- a. Clearly marked graduations that provide tactile feedback during movement.
- b. The zero position of the reticle shall move not more than 0.55 minutes of angle (MOA) from the optical axis when cycled from zero (0) to the extreme adjustments and returned.
- c. Provide for visible and tactile setting adjustment indication.
- d. The maximum tactile (click) increment for elevation and windage adjustment shall be 0.5 MOA.

3.4.3.2 Elevation and windage range. After the rifle is zeroed on the target with the day optic sight, there shall be not less than 15 MOA of windage adjustment (in both the left and right directions) and sufficient elevation adjustment to engage targets at 2,624.66 feet (800 meters) (T), 3,280.83 feet (1,000 meters) (O).

3.4.3.3 Reticle. The day optical sight shall be provided with the following characteristics:

- a. A scaled, cross hair reticle, with one-mil increment hashes, bisected by smaller half mil hashes.
- b. The outer edge of the reticle shall have a single mil divided by 0.2 mil hashes.
- c. An illuminated, improved Mil-Dot reticle powered by Army common/standard batteries.
- d. Glass etched milling reticle.

3.4.3.4 Parallax and focus adjustment. The day optical sight shall incorporate a focus/parallax adjustment located in the vicinity of the elevation and windage adjustments.

3.4.3.5 Parallax. Parallax shall be operator adjustable. For a target at 2,624.66 feet (800 meters) (T), 3,280.83 feet (1,000 meters) (O), parallax when viewed by moving the eye horizontally across the exit aperture of the sight, shall not exceed 15 seconds of arc at the center of the reticle when the parallax setting is properly adjusted.

3.4.3.6 Eyepiece focus. The eyepiece shall be operator adjustable from plus (+) 1 to minus (-) 2 diopters from the position of best focus on the reticle surface.

3.4.3.7 Objective opening. The objective end of the day optical sight shall have an internally threaded interface for accepting a laser filter unit (LFU) Tactical Rifle Scopes, 40mm (NSN 1240-01-537-6985) and other ancillary equipment.

3.4.3.8 Magnification. The day optical sight shall have a variable range of magnification. The lowest power parameter settings shall be no less than 3x and no greater than 4.5x and the highest power parameter setting shall be no less than 10x and no greater than 16x.

3.4.3.8.1 Power zero retention. The day optical sight shall have variable/adjustable power and shall retain zero throughout all power settings. The day optical sight shall be easy to operate by the 5<sup>th</sup> to 95<sup>th</sup> percentile target audience soldier, as specified in MIL-HDBK-759, while dressed in environmental protective clothing.

3.4.3.9 Resolution. At the highest magnification, resolution shall be not less than 6.5 arc seconds using a 4-6x diptometer. Vertical and horizontal lines shall be resolvable to within 0.5 diopters.

3.4.3.10 Ballistic compensation. The day optical sight shall incorporate a bullet drop compensator (BDC) ballistically matched to the M118LR anti-personnel round and shall not preclude the application of “come up” data (recorded ballistic data) for the firing of other ammunition.

3.4.3.11 Field of view. At the highest magnification, field of view (FOV) shall be not less than two degrees.

3.4.3.12 Exit pupil diameter. At the highest magnification, the exit pupil diameter shall be not less than 0.16 inches (4mm).

### 3.5 Interface and interoperability requirements.

#### 3.5.1 System requirements.

3.5.1.1 Weight. The rifle, complete with suppressor, bipod, MIL-STD-1913 rails, day optical sight, sling, and a 10 round magazine (unloaded) shall weigh no more than 16 pounds.

3.5.1.2 Special tools. The SASS shall be capable of being easily disassembled into components for non-firing tactical carry and transportation and storage without the use of special tools (T), without any tools (O).

3.5.1.3 Exterior surfaces. The SASS surfaces shall be dull/non-reflective. This includes all surfaces (i.e. pins, bolts, lanyards, sight posts, etc.). The external color shall be tan, gray-green, gray or taupe to accommodate various camouflage combinations.

#### 3.5.2 Rifle requirements.

3.5.2.1 Length. The maximum overall assembled length of the rifle shall be not greater than 48 inches.

3.5.2.2 Stock adjustment. The stock of the rifle shall be adjustable for length-of-pull not less than 13.5 inches and not greater than 16 inches (T), comb height (O), and cast-off/cast-on adjustment (O) (see 6.11).

3.5.2.3 Materials and finishes. The rifle shall incorporate self-lubricating coatings and materials that do not require grease or lubricants for the operating components (O).

3.5.2.4 Firing pin protrusion. The firing pin protrusion shall be not less than 0.036 inches and not greater than 0.047 inches.

3.5.2.5 Trigger pull. The trigger pull of the rifle shall have the following characteristics:

- a. If not adjustable, the trigger pull shall be not less than four (4) pounds and not greater than five (5) pounds.
- b. If adjustable, the trigger pull shall be adjusted without the use of special tools.
- c. If adjustable, the trigger shall be able to be set at not less than four (4) and not greater than five (5) pounds.
- d. After being set, the trigger mechanism shall retain the trigger pull setting within  $\pm 8$  ounces but in no case shall it go below four (4) pounds or above five pounds, eight ounces (5 ½ lbs).
- e. The trigger shall return to its normal forward position upon release after partial or complete trigger pull.



3.5.2.6 Noise. The rifle, when firing either suppressed or unsuppressed, using the M118LR or M993 Armor Piercing ammunition, shall have impulse noise levels that are not greater than the 140dB limit for single hearing protection sited in MIL-STD-1474, at the shooter or spotter location.

3.5.2.7 Ammunition compatibility/functioning. The rifle shall be capable of safely firing all current U. S. standard 7.62x51mm ammunition and the weapon shall be optimized to fire the M118LR cartridge.

3.5.2.8 Magazine. Four detachable magazines with a capacity of ten (10) cartridges and four detachable magazines with a capacity of twenty (20) cartridges shall be provided with the SASS. The magazines shall be capable of being removed from the SASS using only one hand. The magazine shall fall free of the rifle when the magazine release is actuated.

3.5.2.9 Mounting interface. The rifle shall have one or more integrated and/or detachable MIL-STD-1913, Picatinny Rails with numbered rail slots, parallel to the bore on top of the receiver, and used to mount the day optical sight. The rifle shall have sufficient rail surface, parallel to the bore, but not on the top of the receiver, to allow simultaneous mounting of other accessories (MILES, AN/PEQ-2, “clip-on” night vision capabilities, BUIS, etc.), which may be used in conjunction with day/night optics/electro-optics.

3.5.2.10 Bipod. The rifle shall have a detachable bipod. The bipod shall have legs that are independently adjustable in length, and shall provide rigid support when firing from the prone position. The legs shall fold, allowing the weapon to be stored in the system case without removing the bipod. The bipod shall attach to the rifle without the use of any tools.

3.5.2.11 Iron sights. The rifle shall be equipped with a detachable Back-Up Iron Sight (BUIS) for emergency use. The BUIS when attached and not in-use shall not interfere with the mounting and/or employment of the rifle’s primary optics/electro-optics.

3.5.2.11.1 Range. The BUIS shall be capable of range adjustments to 2,624.664 feet (800 meters) (T), 3,280.83 feet (1,000 meters) (O).

3.5.2.11.2 Detachability. The BUIS shall allow for replacement by trained personnel with tools common to the armorer’s tool kit (T). The BUIS shall allow for rapid attachment and detachment by the operator by hand or with the tools common to the snipers’ deployment kit (O). When reattached, the BUIS shall have a change in zero of no more than 0.5 MOA, and have same adjustments as the day optic.

3.5.2.11.3 Adjustability. The iron sights shall be adjustable for both elevation and azimuth in increments no greater than 0.5 MOA increments. The adjustments shall be, tactile clicks and capable of adjustment at all temperatures in the operating range (-50°F through 145°F), by a person dressed in cold weather environmental clothing (less the outer arctic mitten), and by a person dressed in NBC (MOPP IV) hand gear.



3.5.2.12 Sling swivels. The rifle shall have at least two attachment points to accept sling swivels. One sling swivel attachment point shall be located on the buttstock. There shall be at least one other attachment point located on the forward rail system, that is capable of accepting detachable sling swivels.

3.5.3 Day optical sight requirements.

3.5.3.1 Mounting interface. The day optical sight shall be equipped with a mounting system (e.g. rings and/or base interface) compatible with the MIL-STD-1913 Rail. The day optical sight mounting system shall be easily attached/detached to the rifle by the operator, by hand and or with the tools common to the snipers' deployment kit.

3.5.3.2 Reattachment. The day optical sight shall be capable of being removed from the rifle and reattached with a maximum change in the zero of the weapon of 0.5 MOA.

3.5.3.3 Optical glass. All optical glass shall be of high commercial quality in accordance with MIL-PRF-13830.

3.5.3.4 Anti-reflection coating. All lens surfaces shall be anti-reflection coated, allowing at least 85% light transmission for the assembled sight unit.

3.5.3.5 Eye relief. At the highest magnification, the eye relief shall be 3.3 inches (84 mm) or greater.

3.6 Environmental requirements.

3.6.1 System requirements.

3.6.1.1 Corrosion resistance. The SASS shall be protected with a durable corrosion resistant coating, or made from durable corrosion resistant materials, which are abrasion, impact and battlefield chemical resistant equal to or greater than phosphated steel or anodized aluminum. The materials and coatings used shall protect the SASS from corrosion in all environments and weather conditions, including marine, high humidity, rain and desert conditions.

3.6.1.1.1 Salt fog. The exposed rifle, complete with day optical sight (with lenses covered) and two fully loaded magazines shall be capable of firing two magazines without stoppages after standard salt fog test exposure of 48 hours (T) 96 hours (O). The system carrying case shall show no functional damage, and all metallic repair parts and tools contained in the deployment/cleaning kits shall show no evidence of red rust after standard salt fog test exposure of 48 hours (T) 96 hours (O).

3.6.1.2 Sand/dust. The rifle, with day optical sight attached and with lenses covered, shall be capable of firing one 20 round magazine without stoppages after exposure to sand and dust environment (O).

3.6.1.3 Rain. The rifle with day optical sight attached and with lenses covered, shall be capable of firing one 20 round magazine without stoppages after exposure to rain (O).

3.6.1.4 Icing. The rifle with day optical sight attached and with lenses covered, shall be capable of firing one 20 round magazine with no greater than one stoppage after being covered with ice (O).

3.6.1.5 Mud. The rifle with day optical sight attached and with lenses covered, shall be capable of firing one 20 round magazine without stoppages functioning after being covered with mud (both wet and dried) (O).

3.6.1.6 Operating temperature. The rifle with day optical sight attached and with lenses covered, shall be capable of firing 100 rounds per hour, with no more than three stoppages, at temperatures ranging from not less than -50°F through not greater than 145°F.

3.6.1.7 Chemical resistance. Components of the SASS shall not be adversely affected by exposure to petroleum, oil and lubricant products, insect repellents and other common battlefield compounds, listed in TOP 3-2-609.

3.6.1.8 NBC decontamination. The SASS shall be NBC decontamination survivable, as specified in AR 70-75, to the level of DECON survivability associated with current small arms systems.

3.6.1.9 Fungus resistance. There shall be no detrimental effects, as specified in MIL-STD-810E, Method 508.4 "FUNGUS", on components of the SASS due to fungal growth.

3.6.1.10 Electronic effects. The rifle with day optical sight attached shall be fully functional during and after the following E3 subtests:

- a. External Electromagnetic Environment (EME)/Inter-system Electromagnetic Compatibility (IEMC) as specified in MIL-STD-461 and TOP 1-2-511.
- b. Personnel Electrostatic Discharge (PESD) as specified in MIL-STD-464 and TOP 1-2-511.
- c. High-Altitude Electromagnetic Pulse (HEMP) as specified in MIL-STD-464.
- d. Near Strike Lightning (NSL) tests as specified in MIL-STD-464.

3.6.1.11 Airborne capability. The rifle with day optical sight mounted shall be compatible with the M1950 series and AIRPAC weapons containers, as specified in FM 3-21.220, and shall be Hi-Altitude jump compatible.

### 3.6.2 Rifle requirements.

3.6.2.1 Drop test. The rifle, with the safety in the safe position and an empty, primed 7.62mm cartridge in the chamber, shall withstand a five (5) foot drop onto concrete. The primed cartridge shall not discharge and there shall be no functional damage to the rifle.

3.6.3 Day optical sight requirements.

3.6.3.1 Drop test. The day optical sight shall show no functional damage when subjected to a two (2) foot drop onto concrete. The day optical sight, enclosed in its' carrying case, shall show no functional damage when subjected to a seven (7) foot drop onto concrete.

3.6.3.2 Watertightness. The day optical sight shall show no evidence of leakage when submerged in water to a minimum depth of 3.28 feet (one meter) for a one hour period. No moisture or fogging shall be observed.

3.6.3.3 High pressure. The day optical sight shall show no evidence of leakage when subjected to a minimum pressure of 4.3 pounds per square inch gage.

3.6.3.4 Sealing. The sight shall remain sealed when subjected to a maximum pressure of negative (-) 5.4 pounds per square inch gage.

3.6.3.5 Lens cover. The day optical sight shall have covers that protect the lenses from sunlight, debris and dust. These covers shall be securely fastened to the day optical sight, shall be capable of being opened while remaining attached to the sight and shall remain open during use.

3.6.4 System case requirements.

3.6.4.1 Drop test. The system carrying case fully loaded shall withstand a 30-inch drop (T), seven foot (O) onto concrete throughout all temperatures in the operating range (-50°F through 145°F). The system carrying case shall not open. There shall be no structural damage to the system carrying case that may result in damage to the contents during subsequent shipping, handling or storage. There shall be no functional or physical damage to its contents.

3.6.4.2 Transportation vibration. The system carrying case shall protect its full contents from transportation vibration. There shall be no functional or physical damage to the system carrying case or its contents.

3.6.4.3 Rain/moisture. The system carrying case shall keep its full contents dry when subjected to rain falling at a rate of at least 0.03 inches/minute with a crosswind of 60 feet/second.

3.6.4.4 Pressure test. The system carrying case shall be capable of maintaining an internal positive pressure of 0.5 psig (13.6 inches of water) for 6 minutes with no more than a 15% drop from the initial reading.

3.7 Support and ownership.

3.7.1 System requirements.

3.7.1.1 Reliability. The rifle with the day optic sight mounted shall be capable of a 90% probability of firing 300 rounds (3 basic loads) without incurring a critical failure (non-operator correctable Essential Function Failures (EFFs)) and a 90% probability of firing 100 rounds (1 basic load) without incurring an EFF (operator correctable and non-operator correctable) (see 6.11).

3.7.1.1.1 Mean Rounds Between Essential Function Failure (MRBEFF). The rifle mounted with the day optical sight shall demonstrate a MRBEFF of 2,847 or greater at the lower 80% confidence level (see 6.11).

3.7.1.1.2 Mean Rounds Between Stoppages (MRBS). The rifle mounted with the day optical sight shall demonstrate a MRBS of 949 or greater at the lower 80% confidence level (see 6.11).

3.7.1.2 Service life. The SASS shall have a minimum service life of 10,000 rounds prior to depot overhaul. This excludes barrel replacement.

3.7.1.3 Maintainability. The SASS shall allow the operator to perform all necessary maintenance using standard DoD lubricant/solvent, without the use of any tools other than the equipment in the cleaning and deployment kits. Parts and assemblies removed or disassembled for maintenance under field conditions shall be designed to prevent improper assembly. Captive hardware shall be used to prevent loss of retaining pins.

3.7.1.4 Workmanship. The parts shall be clean and free of burrs, sharp edges, unblended radii, surface defects, cracks, chips, dirt, grease, oil (except where specifically required), rust, foreign matter that could render the system unsuitable for its intended purpose. The fabrication shall be processed in such a manner as to be uniform in quality and shall be free from defects that affect serviceability and appearance.

### 3.7.2 Rifle requirements.

3.7.2.1 Barrel life. The rifle shall have a minimum barrel life of 5,000 rounds (T), 10,000 rounds (O) with re-barrel turn-in pending technical inspection/confirmation of unserviceable barrel. A barrel shall be considered unserviceable when the dispersion no longer meets requirement 3.4.1.1.2.

3.7.2.2 Parts interchangeability. All operator/intermediate support replaceable parts shall be interchangeable without hand or machine fitting.

3.7.2.3 Special clothing. The rifle with day optical sight mounted shall be operable by a person dressed in Nuclear, Biological, and Chemical (NBC) (MOPP IV) clothing and by a person dressed in cold weather clothing (except for the outer arctic mitten).

3.7.2.4 Marking. Each rifle shall have unique identification (UID) markings in accordance with MIL-STD-130. Individual serial numbers, along with the designation "U.S." shall be permanently applied to the lower receiver in accordance with commercial practice. Rifle

barrels shall be marked to show caliber, completion of proof testing and magnetic particle inspection.

### 3.7.3 Day optical sight requirements.

3.7.3.1 Cleanliness and optical quality. There shall be no evidence of glass fracture, cement separation, grease or fingerprints on any optical component when viewing through the objective or eyepiece end of the sight unit. There shall not be more than 3 particles of foreign matter visible on the reticle surface and no particle shall exceed the apparent width of a reticle line. There shall be no foreign matter obvious to the unaided eye that would impair optical performance when looking into the eyepiece against a background having a brightness of the sky in average daylight.

3.7.3.2 Sight carrying case. The day optical sight shall be provided with a carrying case that accommodates the day optical sight with the LASER filter installed as well as the filter assembly when removed from the day optical sight. Typically, the LASER filter is 0.15-0.20 inches larger in diameter than the objective opening of the sight and about 2.5 inches in overall length.

### 3.7.4 System case requirements.

3.7.4.1 System carrying case. The system carrying case shall have provisions to securely contain and protect the following: rifle with and without the day optical sight mounted; the un-mounted day optical sight enclosed in its carrying case; rifle with and without the bipod; cleaning/deployment kits; all additional ancillary equipment specified below including the drag bag. The system carrying case shall have a pressure relief valve.

### 3.7.5 Ancillary equipment.

3.7.5.1 Deployment kit. The deployment kit shall consist of all operator replacement parts, operators' manual, and any tools required for operator and organizational (unit) level maintenance. Parts shall have quality equivalent to those in the small arms repair man tool kit (NSN 5180-01-462-4254).

3.7.5.2 Drag bag. The SASS shall be compatible with Drag Bag (NSN 1005-01-511-7741) currently employed with the M24 SWS.

3.7.5.3 Magazine carriers. Each SASS shall have magazine carriers which shall allow for the carry of fully-loaded magazines, equal to the combat load of 100 rounds, and provide for secure attachment compatibility with Army standard load bearing equipment (LBE), tactical vests, assault packs, field packs and drag bag.

3.7.5.4 Cleaning equipment. The SASS shall be provided with a cleaning kit contained in carrying case. The cleaning kit shall contain all equipment/material necessary to perform operator level maintenance activities for both the SASS and day optical sight. Parts shall have quality equivalent to those in the small arms repairman tool kit (NSN 5180-01-462-4254).

3.7.5.5 Sling. The rifle shall have a detachable and adjustable, carry sling. The sling shall allow for quick transition from strong to weak hand firing without removal from the SASS, and allow for adjustment with one hand to facilitate weapon security during movement. The sling shall be detachable without the use of tools.

## 4 VERIFICATION

TABLE I. Requirement/verification cross-reference matrix

	Section 3 Requirements	Inspection sample size and criteria			Verification Methods	Section 4 Verification Procedures
		Design Verification	First Article	Conformance Inspection (One lot)		
Design verification	3.1	X				4.2
First article inspection	3.2		X			4.3
Conformance inspection	3.3			X		4.4
Accuracy/ dispersion	3.4.1.1	3-0-1 <sup>1</sup>	5-0-1	100%	Test	4.5.1.1
Accuracy	3.4.1.1.1	3-0-1	5-0-1	100%	Test	4.5.1.1.1
Dispersion	3.4.1.1.2	3-0-1	5-0-1	100%	Test	4.5.1.1.2
High pressure resistance	3.4.2.1	5-0-1	5-0-1	100%	Test & Examination	4.5.2.1
Rifle action	3.4.2.2	5-0-1			Test	4.5.2.2
Safety	3.4.2.3	5-0-1	5-0-1	100%	Demonstration & Examination	4.5.2.3
Suppressor	3.4.2.4	5-0-1	5-0-1		Demonstration	4.5.2.4
Recoil	3.4.2.5	1-0-1			Test	4.5.2.5
Elevation and windage adjustment	3.4.3.1	5-0-1	5-0-1	VL III	Demonstration	4.5.3.1
Elevation and windage range	3.4.3.2	5-0-1	5-0-1	See 4.5.3.2	Demonstration	4.5.3.2
Reticle	3.4.3.3	10-0-1	5-0-1		Examination	4.5.3.3
Parallax and focus adjustment	3.4.3.4	5-0-1	5-0-1		Examination	4.5.3.4
Parallax	3.4.3.5	5-0-1	5-0-1		Demonstration & Examination	4.5.3.5
Eyepiece focus	3.4.3.6	5-0-1	5-0-1	VL III	Examination	4.5.3.6
Objective opening	3.4.3.7	10-0-1	5-0-1		Examination	4.5.3.7
Magnification	3.4.3.8	10-0-1	5-0-1	VL II	Examination	4.5.3.8
Power zero retention	3.4.3.8.1	5-0-1	5-0-1		Examination	4.5.3.8.1
Resolution	3.4.3.9	5-0-1	5-0-1	VL III	Examination	4.5.3.9
Ballistic compensation	3.4.3.10	5-0-1			Test	4.5.3.10
Field of view	3.4.3.11	5-0-1	5-0-1	VL II	Examination	4.5.3.11
Exit pupil diameter	3.4.3.12	5-0-1	5-0-1	VL III	Examination	4.5.3.12
Weight	3.5.1.1	100%			Examination	4.6.1.1
Special tools	3.5.1.2	5-0-1	5-0-1		Examination	4.6.1.2
Exterior surfaces	3.5.1.3	100%	5-0-1	100%	Examination	4.6.1.3
Length	3.5.2.1	100%			Examination	4.6.2.1

NOTE 1. Test three (3)- Accept with zero (0) failures- Reject with one (1) failure



TABLE I. Requirement/verification cross-reference matrix - Continued

	Section 3 Requirements	Inspection sample size and criteria			Verification Methods	Section 4 Verification Procedures
		Design Verification	First Article	Conformance Inspection (One lot)		
Stock adjustment	3.5.2.2	100%			Examination	4.6.2.2
Materials and finishes	3.5.2.3	See 4.6.2.2	See 4.6.2.2	See 4.6.2.2	Examination	4.6.2.3
Firing pin protrusion	3.5.2.4	5-0-1	5-0-1	100%	Examination	4.6.2.4
Trigger pull	3.5.2.5	5-0-1	5-0-1	100%	Test	4.6.2.5
Noise	3.5.2.6	1-0-1			Test	4.6.2.6
Ammunition compatibility/functioning	3.5.2.7	1-0-1			Test	4.6.2.7
Magazine	3.5.2.8	5-0-1			Demonstration	4.6.2.8
Mounting interface (rifle)	3.5.2.9	5-0-1			Examination & Demonstration	4.6.2.9
Bipod	3.5.2.10	5-0-1			Demonstration	4.6.2.10
Iron sights	3.5.2.11	3-0-1	5-0-1	VL III	Demonstration	4.6.2.11
Range	3.5.2.11.1	3-0-1	5-0-1	VL III	Test	4.6.2.11.1
Detachability	3.5.2.11.2	3-0-1	5-0-1	VL III	Demonstration & Test	4.6.2.11.2
Adjustability	3.5.2.11.3	3-0-1	5-0-1	VL III	Demonstration	4.6.2.11.3
Sling swivels	3.5.2.12	10-0-1			Examination	4.6.2.12
Mounting interface (sight)	3.5.3.1	5-0-1			Demonstration	4.6.3.1
Reattachment	3.5.3.2	10-0-1			Demonstration	4.6.3.2
Optical glass	3.5.3.3	See 4.6.3.3	See 4.6.3.3	See 4.6.3.3	Examination	4.6.3.3
Anti-reflection coating	3.5.3.4	See 4.6.3.4	See 4.6.3.4	See 4.6.3.4	Examination	4.6.3.4
Eye relief	3.5.3.5	5-0-1	5-0-1	VL III	Examination	4.6.3.5
Corrosion resistance	3.6.1.1	See 4.7.1.1	See 4.7.1.1	See 4.7.1.1.2	Examination	4.7.1.1
Salt fog	3.6.1.1.1	1 <sup>2</sup>	1 <sup>2</sup>	See 4.7.1.1.2	Test	4.7.1.1.3
Sand/dust	3.6.1.2	3 <sup>2</sup>			Test	4.7.1.2
Rain	3.6.1.3	3 <sup>2</sup>			Test	4.7.1.3
Icing	3.6.1.4	3 <sup>2</sup>			Test	4.7.1.4
Mud	3.6.1.5	3 <sup>2</sup>			Test	4.7.1.5
Operating temperature	3.6.1.6	3 <sup>2</sup>			Test	4.7.1.6
Chemical resistance	3.6.1.7	1-0-1			Test	4.7.1.7
NBC decontamination	3.6.1.8	1-0-1			Analysis	4.7.1.8
Fungus resistance	3.6.1.9	1-0-1			Test	4.7.1.9
Electronic affects	3.6.1.10	1-0-1			Test	4.7.1.10
Airborne capability	3.6.1.11	10-0-1			Test	4.7.1.11
Drop test (rifle)	3.6.2.1	1-0-1			Test	4.7.2.1

NOTE 2. Number of units to be tested, accept/reject criteria can be found in verification procedure specified.

TABLE I. Requirement/verification cross-reference matrix – Continued

	Section 3 Requirements	Inspection sample size and criteria			Verification Methods	Section 4 Verification Procedures
		Design Verification	First Article	Conformance Inspection (One lot)		
Drop test (sight)	3.6.3.1	1-0-1			Test	4.7.3.1
Watertightness	3.6.3.2	3-0-1	5-0-1		Test	4.7.3.2
High pressure	3.6.3.3	5-0-1	5-0-1	VL III	Test	4.7.3.3
Sealing	3.6.3.4	5-0-1	5-0-1	VL III	Test	4.7.3.4
Lens cover	3.6.3.5	5-0-1	5-0-1	VL III	Examination	4.7.3.5
Drop test (case)	3.6.4.1	1-0-1			Test	4.7.4.1
Transportation vibration	3.6.4.2	1-0-1			Test	4.7.4.2
Rain/moisture	3.6.4.3	1-0-1	1-0-1		Test	4.7.4.3
Pressure test	3.6.4.4	5-0-1	5-0-1	VL II	Test	4.7.4.4
Reliability	3.7.1.1	See 4.8.1.1	See 4.8.1.1.9	See 4.8.1.1.10 <sup>3</sup>	Test	4.8.1.1
MRBEFF	3.7.1.1.1	See 4.8.1.1	See 4.8.1.1.9	See 4.8.1.1.10 <sup>3</sup>	Test	4.8.1.1
MRBS	3.7.1.1.2	See 4.8.1.1	See 4.8.1.1.9	See 4.8.1.1.10 <sup>3</sup>	Test	4.8.1.1
Service life	3.7.1.2	5-0-1			Test	4.8.1.2
Maintainability	3.7.1.3	1-0-1			Examination	4.8.1.3
Workmanship	3.7.1.4	5-0-1	5-0-1	VL III	Examination	4.8.1.4
Barrel life	3.7.2.1	5-0-1			Test	4.8.2.1
Parts interchangeability	3.7.2.2	6-0-1	5-0-1	5-0-1	Demonstration	4.8.2.2
Special clothing	3.7.2.3	1-0-1			Demonstration	4.8.2.3
Marking	3.7.2.4	100%	5-0-1	100%	Examination	4.8.2.4
Cleanliness and optical quality	3.7.3.1	5-0-1	5-0-1	VL II	Examination	4.8.3.1
Sight carrying case	3.7.3.2	3-0-1			Demonstration	4.8.3.2
System carrying cases	3.7.4.1	3-0-1			Demonstration	4.8.4.1
Deployment kit	3.7.5.1	3-0-1			Examination/ Analysis	4.8.5.1
Drag bag	3.7.5.2	100%			Demonstration	4.8.5.2
Magazine carriers	3.7.5.3	100%			Demonstration	4.8.5.3
Cleaning equipment	3.7.5.4	100%			Examination/ Analysis	4.8.5.4
Sling	3.7.5.5	5-0-1			Demonstration	4.8.5.5
NOTE 3. This test shall be performed on the first lot and every third lot thereafter. Failure to meet the requirement shall be cause for rejection of the lot. The test shall then be performed on all previous lots since the last successful test.						

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. Design verification (see 4.2).
- b. First article inspection (see 4.3).
- c. Conformance inspection (see 4.4).

4.2 Design verification. When specified (see 6.2), a sample of SASS shall be subjected to design verification in accordance with Table I.

4.2.1 Design verification test rejection. If any sample fails to comply with the design verification requirements, the design shall be rejected.

4.3 First article inspection. When specified (see 6.2), a sample of SASS shall be subjected to first article inspection in accordance with Table I.

4.3.1 First article rejection. If any SASS fails to comply with any of the applicable requirements, the first article sample shall be rejected.

4.4 Conformance inspection. When specified (see 6.2), a sample of SASS shall be subjected to conformance inspection in accordance with Table I. Verification Levels (VL) shall be in accordance with MIL-STD-1916.

4.4.1 Inspection lot formation. Unless otherwise specified, lot formation shall be in accordance with MIL-STD-1916.

4.4.2 Lot size. The maximum lot size shall be one (1) months production.

4.4.3 Lot identification. Each inspection lot shall be identified with a lot number.

4.4.4 Conformance inspection rejection. Failure to meet any of the requirements shall be cause for rejection of the lot. (See 6.3)

4.5 Operating requirements.

4.5.1 System requirements.

4.5.1.1 Accuracy/dispersion. Before firing for record, ten (10) shots shall be fired to foul the bore, settle the rifle action and zero the day optic sight. The trigger pull (if adjustable) shall be set to between four and five pounds. Four, five round shot groups shall then be fired using the same point of aim for all rounds. Two of the four targets shall be fired without the suppressor and the other two shall be fired with the suppressor attached. The radial distance from the calculated mean point of impact of the first target compared to the calculated mean point of impacts of subsequent targets shall be less than or equal to 1.0 minutes of angle (MOA).

4.5.1.1.1 Accuracy. The four targets shall be identified with a common reference coordinate system to quantify movement in the calculated mean point of impact from target to target. The suppressor shall be removed and reattached between firing the two suppressed shot groups.

4.5.1.1.2 Dispersion. Testing shall be performed using the rifle with day optical sight from a bench rested, shoulder fired position or a test firing fixture (hard stand). Testing shall be conducted at 300 feet using M118LR Ammunition or equivalent.

#### 4.5.2 Rifle requirements.

4.5.2.1 High pressure resistance. Each rifle shall fire one (1) M60 High Pressure Test cartridge. After proof firing, each rifle shall be visually examined for cracks, deformations, and other evidence of damage. Cartridge cases shall be visually examined for bulges, splits, rings and other defects caused by defective barrels. The barrel, bolt and receiver shall be examined by magnetic particle inspection, in accordance with ATSM E 444, for cracks, and other evidence of damage.

4.5.2.2 Rifle action. The rifle shall fire ten rounds to demonstrate rifle action.

4.5.2.3 Safety. Safety operation shall be determined by visual examination of the firing mechanism. With the safety in the safe position and the rifle unloaded and cocked, three attempts shall be made to fire the rifle. This examination shall be sufficient to ensure the safety shall prevent accidental discharge if a live cartridge were in the chamber. With the safety in the safe position, the force to move it to the fire position shall be measured. The required force to move it back to the safe position shall then be measured. Any evidence of the weapon firing while in the safe mode during any testing shall be cause for failure.

4.5.2.3.1 Design verification only. The above procedure shall be repeated under the following conditions:

- a. By a person dressed in NBC (MOPP IV) hand gear, after which the safety shall be moved to the fire position.
- b. After the rifle has been conditioned for a minimum of four hours in a hot temperature chamber at  $145^{\circ}\text{F} \pm 5^{\circ}\text{F}$ .
- c. After the rifle has been conditioned for a minimum of four hours in a cold temperature chamber at  $-50^{\circ}\text{F} \pm 5^{\circ}\text{F}$ , by a person dressed in cold weather environmental clothing with the outer arctic mitten removed.

4.5.2.4 Suppressor. It shall be demonstrated that the suppressor can be attached and detached from the rifle by hand or with tools common to the sniper's deployment kit. The suppressed weapon shall then be tested in accordance with accuracy/dispersion testing.

4.5.2.5 Recoil. The rifle shall be tested in accordance with TOP 3-2-504.

4.5.3 Day optical sight requirements.

4.5.3.1 Elevation and windage adjustment. The day optical sight shall be rigidly mounted to a test fixture and the reticle movement measured using an optical collimator. The elevation and windage knobs shall be cycled from zero (0) to the extreme adjustments and returned, for 10 cycles. The zero position of the day optical sight, as defined by the intersection of the vertical and horizontal reticle lines, shall not have moved more than specified in the requirement.

4.5.3.2 Elevation and windage range. During the accuracy/dispersion test the SASS shall be zeroed on the 300 feet target with the day optical sight. To determine conformance to the requirement, the number of tactile clicks of reticle adjustment between the zeroed position of the windage and elevation shall be counted.

4.5.3.3 Reticle. The day optical sight shall be visually/manually examined.

4.5.3.4 Parallax and focus. The day optical sight shall be visually examined.

4.5.3.5 Parallax. Sighting through the day optical sight and observing a point on the target at the  $2,624.66 \pm 32.8$  feet (800 meters  $\pm 10$  meters), with respect to a corresponding point of the day optical sight reticle in close proximity to the optical axis shall check parallax. Parallax shall be recognized as any apparent displacement of the target image in relation to the reticle image when the observer's head is moved.

4.5.3.6 Eyepiece focus. The range of adjustment for the eyepiece adjustment shall be determined using standard optical measuring equipment to determine conformance to the requirement.

4.5.3.7 Objective opening. The objective opening shall be visually/manually examined.

4.5.3.8 Magnification. The magnification of the day optical sight shall be measured using standard optical measuring equipment.

4.5.3.8.1 Power zero retention. The magnification of the day optical sight shall be adjusted. At each power setting the zero of the sight shall be checked.

4.5.3.9 Resolution. The resolution of the day optical sight shall be measured using standard optical measuring equipment.

4.5.3.10 Ballistic compensation. The sight shall be zeroed at 328.08 feet (100 meters). Ten (10) rounds shall be fired at targets at 1312.33, 1968.5, and 2624.66 feet (400, 600, and 800 meters, respectively).

4.5.3.11 Field of view. The FOV of the day optical sight shall be measured using standard optical measuring equipment.

4.5.3.12 Exit pupil diameter. The exit pupil diameter of the day optical sight shall be measured using standard optical measuring equipment.

4.6 Interface and interoperability requirements.

4.6.1 System requirements.

4.6.1.1 Weight. The rifle, complete with suppressor, bipod, MIL-STD-1913 rail, day optical sight, sling, and a 10 round magazine (unloaded) shall be weighed using SMTE.

4.6.1.2 Special tools. The SASS shall be disassembled without the use of special tools.

4.6.1.3 Exterior surfaces. Exterior surfaces of the SASS shall be visually examined.

4.6.2 Rifle requirements.

4.6.2.1 Length. The rifle shall be measured using SMTE to determine conformance to the requirement.

4.6.2.2 Stock adjustment. The buttstock shall be extended, and the length of pull shall be measured.

4.6.2.3 Materials and finishes. Objective evidence shall be examined.

4.6.2.4 Firing pin protrusion. The bolt shall be closed and the trigger pulled, and the firing pin protrusion shall be measured using SMTE.

4.6.2.5 Trigger pull. Prior to performing the targeting and accuracy test, the trigger pull shall be set to its minimum setting (if adjustable). The rifle shall be charged to cock the firing mechanism, and the safety placed in the fire position. A measured force shall be gradually applied to the center of the trigger, parallel to the axis of the barrel bore until the firing mechanism is released. This shall be repeated five times. To determine conformance to the requirement, all of the readings shall be not less than four (4) and not greater than five (5) pounds. The accuracy/dispersion test shall then be performed.

4.6.2.5.1 First article only. Prior to the start of the reliability test, the trigger pull shall be set between four (4) and five (5) pounds (if adjustable). Ten trigger pull readings shall be taken as described above to establish an average trigger pull setting. Five trigger pull readings shall be taken every 500 rounds during the reliability test. No trigger pull adjustments shall be performed during the endurance test. All readings shall be within  $\pm 8$  ounces of the average setting. At the completion of the reliability test the trigger pull shall be reset to its minimum force setting (if adjustable). The rifle shall be charged to cock the firing mechanism, and the safety placed in the fire position. Force shall be gradually applied to the center of the trigger, parallel to the axis of the barrel bore until the firing mechanism is released. This shall be repeated five times. To be acceptable all of the readings shall be not less than four (4) pounds and not greater than five and one half (5 1/2) pounds.

4.6.2.5.2 Conformance inspection only. The trigger pull shall be set between four (4) and five (5) pounds (if adjustable). The weapon shall then be subjected to a simulated 5,000 cycle accelerated trigger life test. Trigger pull force will be measured prior to the test, after 2,500 cycles, and at the end of the 5,000 cycles. To be acceptable all of the readings shall be not less than four (4) pounds and not greater than five and one half (5 ½) pounds. Upon successful completion of five (5) consecutive lots LAT, shall switch to verification level I. Upon the observation of non-conformity during verification level I, LAT shall switch back to verification level II for five (5) consecutive lots. Upon the observation of two (2) non-conformities within the same lot during LAT at either verification level I, II the sample shall be further tightened to verification level III.

4.6.2.6 Noise. A noise test shall be conducted outdoors using one rifle. Five rounds of M118LR Ammunition shall be fired. The peak sound pressure levels shall be measured at the locations given below, at a height of 4.921 feet (1.5 meters) to determine conformance to the requirement. The test shall then be repeated using a suppressed rifle and the peak sound pressure levels shall be measured at the locations given below, at a height of 4.921 feet (1.5 meters).

Shooter's left ear.

16.4 feet (5 meters) to the rear of the muzzle of the weapon.

16.4 feet (5 meters) to the left of the muzzle of the weapon.

16.4 feet (5 meters) to the left rear of the muzzle of the weapon, at 45°.

4.6.2.7 Ammunition compatibility/functioning. Ten (10) rounds of each type of ammunition listed in the requirement shall be fired in each of three rifles for a total of thirty (30) rounds of each type of ammunition. There shall be no stoppages or any indication of a potentially unsafe condition attributable to the weapon or weapon-ammunition interface.

4.6.2.8 Magazine. Ten (10) rounds shall be loaded into the ten round magazine and then inserted into the magazine well. All ten rounds shall then be fired. Twenty (20) rounds shall be loaded into the twenty round magazine and then inserted into the magazine well. All twenty rounds shall then be fired. After each test the person shall then, using one hand, remove the magazine.

4.6.2.9 Mounting interface (rifle). The rifle shall be visually examined, the angle of the rail in relation to the bore shall be measured, and accessories shall be mounted to the rifle.

4.6.2.10 Bipod. The bipod shall be detached and reattached to the rifle without using any special tools. Each leg of the bipod shall be adjusted individually and then folded back.

4.6.2.11 Iron sights. It shall be demonstrated that the BUIS does not interfere with the mounting and/or employment of the rifle's primary optic/electro-optic(s).

4.6.2.11.1 Range. It shall be demonstrated the BUIS is capable of range adjustments to 2,624.664 feet (800 meters).



4.6.2.11.2 Detachability. The iron sights shall be installed and zeroed to the weapon. Three, five round shot groups shall be fired at 328.083 feet (100 meters) to establish a baseline center of impact. The iron sights shall be removed and then reinstalled on the weapon. Three more five round shot groups shall be fired using the same aim point as before. The change in zero shall be not greater than 0.5 MOA, and no tools outside of the armorer's tool kit shall be used.

4.6.2.11.3 Adjustability. The azimuth and elevation adjustments shall be adjusted to each extreme position two times. The full range of adjustment shall be checked for tactile clicks.

4.6.2.11.3.1 Design verification only. The azimuth and elevation adjustments shall be adjusted to each extreme position two times. The full range of adjustment shall be checked for tactile clicks. This shall be repeated:

- a. By a person dressed in NBC (MOPP IV) hand gear.
- b. After the sights have been conditioned, in accordance with 4.7.1.1.6.1 for a minimum of four hours in a hot temperature chamber at  $145^{\circ}\text{F} \pm 5^{\circ}\text{F}$ .
- c. After the sights have been conditioned, in accordance with 4.7.1.1.6.2 for a minimum of four hours in a cold temperature chamber at  $-50^{\circ}\text{F} \pm 5^{\circ}\text{F}$ , by a person dressed in cold weather environmental clothing with the outer arctic mitten removed.

4.6.2.12 Sling swivels. The sling swivels shall be attached and detached to determine conformance to the requirement.

#### 4.6.3 Day optical sight requirements.

4.6.3.1 Mounting interface. The day optical sight shall be attached and detached from the MIL-STD 1913 rail on the SASS to determine conformance to the requirement.

4.6.3.2 Reattachment. The day optical sight shall be removed and reattached to the SASS for a total of 50 cycles. Throughout this test the sight rings shall be aligned with the same slot of the base mount/receiver from which it was removed. An auto-collimator which is accurate to 0.5 seconds of arc, a muzzled reference mirror rigidly attached to the muzzle of the SASS and a light source which shall project light through the day optical sight to the collimator shall be used to measure the change in zero. The distance between the auto-collimator reticle as reflected from the muzzle mirror and the projected day optical sight reticle is the change in zero. To conform to the requirement, the change in zero shall be not greater than 0.5 MOA (1 click).

4.6.3.3 Optical glass. Objective evidence that all glass is of high quality in accordance with MIL-PRF-13830 shall be examined to determine conformance to the requirement.

4.6.3.4 Anti-reflection coating. The light transmission shall be determined using standard optical measuring equipment, or objective evidence shall be examined, to determine conformance to the requirement.

4.6.3.5 Eye relief. The eye relief of the day optical sight shall be measured using standard optical measuring equipment to determine conformance to the requirement.

4.7 Environmental requirements.

4.7.1 System requirements.

4.7.1.1 Corrosion resistance. Objective evidence that all parts are made with corrosion resistant material or coated with corrosion resistant material, and that all parts that are phosphate coated or electro-plated have the required thermal treatment, as specified in MIL-DTL-16232 or TT-C-490, shall be examined. This evidence along with the results of the salt fog test shall determine conformance to the requirement.

4.7.1.1.1 Conformance inspection only. One weapon per every third lot shall be subject to a salt fog test.

4.7.1.1.2 Salt fog. A rifle, complete with day optical sight and two fully loaded magazines, system carrying case, and all metallic repair parts and tools contained in the deployment/cleaning kits, shall be Salt Fog conditioned in accordance with ASTM-B117. The complete rifle, day optical sight and both magazines shall be exposed to the salt fog environment during the entire test period. During salt fog test exposure, one (1) magazine shall be locked in the weapon. Components shall be removed from the test chamber at 48 hours for inspection. At the completion of 48 hours the rifle shall function fire both magazines without stoppages and there shall be no evidence of corrosion. The rifle and day optical sight shall then be fired and meet the accuracy/ dispersion requirement. At completion of the test, the hinges of the system carrying case shall function without binding and all metallic parts shall show no evidence of corrosion. The procedure shall then be repeated for 96 hours.

4.7.1.2 Sand and dust. The rifle with covered day optical sight attached shall be subjected to testing in accordance with TOP 3-2-045, "Sand and Dust Tests".

4.7.1.3 Rain. The rifle with covered day optical sight attached, and covered, shall be tested in accordance with TOP 3-2-045, "Water Spray (rain) Test", to determine conformance to the requirement.

4.7.1.4 Icing. A total of three rifles with covered day optical sight attached shall be used for this test. The 20 round magazine shall be loaded to its capacity with M118 ammunition. Each rifle, day optical sight and loaded magazines shall be conditioned in a temperature chamber at  $0^{\circ}\text{F} \pm 3^{\circ}\text{F}$  for 8 hours. The temperature of the chamber shall then be raised to  $20^{\circ}\text{F} \pm 3^{\circ}\text{F}$ . A light spray of water shall be applied to the rifle and day optical sight until 0.126 to 0.252 inches (3.2 to 6.4 millimeters) of ice has accumulated. The entire magazine shall then be fired. To determine conformance to the requirement, there shall be no more than one stoppage.

4.7.1.5 Mud. The rifle with covered day optical sight attached, and covered, shall be tested in accordance with TOP 3-2-045, "Mud Test", to determine conformance to the requirement.

4.7.1.6 Operating temperature. There shall be no more than three stoppages per weapon during each of the following two tests.

4.7.1.6.1 Hot. The rifle mounted with day optical sight shall be used for this test. The rifle shall be lubricated using lubricant for small arms weapons, in accordance with MIL-PRF-63460. The rifle and ammunition to be used shall be conditioned to reflect Middle East operational conditions as specified in AR 70-38, Hot-dry cycle. MIL-STD-810F, Method 505.4, Procedure 1, Cycle A1 shall be referenced for guidance on setup and procedures. Chamber ambient air temperatures shall be as specified in Table 2-2 of AR 70-38. A total of 100 rounds shall be fired from each rifle, in 20 rounds cycles, with a 1 hour reconditioning period between cycles. The maximum firing rate shall be 100 rounds per hour.

4.7.1.6.2 Cold. The rifle mounted with day optical sight shall be used for this test. The SASS shall be lubricated using cold weather lubricant for small arms weapons in accordance with MIL-PRF-14107, then conditioned in a cold temperature chamber at  $-50^{\circ} \pm 5^{\circ}\text{F}$  for a minimum of four hours. A total of 100 rounds shall be fired from each rifle, in 20 rounds cycles, with a 2-hour reconditioning period between cycles. The maximum firing rate shall be 100 rounds per hour.

4.7.1.7 Chemical resistance. All non-metallic components of the SASS shall be tested in accordance with TOP 3-2-609.

4.7.1.8 NBC decontamination. All non-metallic materials used in the SASS shall be identified, and an engineering study to determine the NBC decontamination survivability of the materials shall be conducted.

4.7.1.9 Fungus resistance. Components fabricated from natural materials shall be tested in accordance with MIL-STD-810E, Method 508.4 "FUNGUS". The test cycle shall be 28 days.

4.7.1.10 Electronic effects. The SASS shall be subjected to E<sup>3</sup> testing in accordance with TOP 1-2-511.

4.7.1.11 Airborne capability. Prior to conducting live airdrops, the SASS items shall be individually rigged inside the M1950 weapons case for a Static Airdrop Impact Test (SAIT). The SASS shall then be subjected to Military Free Fall (MFF) and Static Line (SL) airborne operations in accordance with FM 3-05.211. Examination of components at the completion of all of these tests shall determine conformance to the requirement.

#### 4.7.2 Rifle requirements.

4.7.2.1 Drop test. The safety shall be placed in the safe position, an empty, primed Caliber 7.62mm cartridge inserted in the chamber and the bolt closed. The rifle shall be configured as it would be in the field (i.e. optics, suppressor, magazine, etc.). One rifle shall be dropped in each of the following orientations onto a concrete surface: barrel down, butt end down, right side down, left side down, 45 degree angle with vertical plane - butt end down, and top side down. The rifle shall be allowed to free fall not less than five (5) feet onto a concrete

surface. None of the primed cartridges shall discharge. Upon completion of this test, each rifle shall be visually inspected for damage to determine conformance to the requirement. Each rifle shall then be reconditioned, re-zeroed and subjected to the dispersion test for information only.

#### 4.7.3 Day optical sight requirements.

4.7.3.1 Drop test. A day optical sight shall be attached to a test fixture, in each of the following three orientations: eyepiece end pointing down, objective opening end pointing down, and adjustment control knobs pointing down. The day optical sight shall be released once from each of these orientations and allowed to free-fall not less than two (2) feet onto a concrete surface. Upon completion of the test, each day optical sight shall be visually inspected for damage. The day optical sights shall then be examined for elevation/windage adjustment, parallax, resolution, watertightness and sealing to determine conformance to the requirement.

4.7.3.1.1 Day optical sight carrying case. Two optical sight carrying cases with the day optical sights inside shall be used for this test. One sight carrying case shall be conditioned in a cold temperature chamber ( $-50^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ) for a minimum of 24 hours. The second sight carrying case shall be conditioned in a hot temperature chamber ( $145^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ) for a minimum of 24 hours. The day optical sight carrying cases shall be subjected to the drop specified below, either while still inside the chamber or immediately after removal from the chamber. If the drop test is performed outside of the chamber, the test shall be completed within three minutes of removal from the chamber.

4.7.3.1.1.1 Orientations. The sight carrying case with the day optical sight inside shall be attached to a test fixture in each of the following six orientations: top, bottom, two adjacent sides, and two diagonally opposed corners. The sight carrying case shall be released from each of these orientations and allowed to fall a minimum distance of seven (7) feet onto a concrete surface. Upon completion of this test, the day optical sight shall be examined for structural and functional damage. Upon completion of the test, the day optical sight shall be examined for elevation/windage adjustment, parallax, resolution, watertightness and sealing.

4.7.3.2 Watertightness. The day optical sight shall be placed in a container of water at ambient temperature and subjected to a minimum depth of 3.28 feet (one meter) for one hour. There shall be no evidence of moisture or fogging.

4.7.3.3 High pressure. The day optical sight shall be exposed to a pressure of at least 4.3 pounds per square inch gage. The sight shall not show signs of leakage.

4.7.3.4 Sealing. The day optical sight shall be exposed to a pressure of at most, negative (-) 5.4 pounds per square inch gage. The sight shall remain sealed.

4.7.3.5 Lens cover. The lens covers shall be inspected by hand to determine that they can be opened and closed while still remaining attached to sight, and that they stay open during use.

#### 4.7.4 System case requirements.

4.7.4.1 Drop test. One component carrying case with its full contents shall be conditioned in a cold temperature chamber ( $-50^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ) for a minimum of 24 hours. Another system carrying case with its full contents shall be conditioned in a hot temperature chamber ( $145^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ) for a minimum of 24 hours. The system carrying cases with their full contents shall be subjected to the drop specified below, either while still inside the chamber or immediately after removal from the chamber. If the drop test is performed outside the chamber, the test shall be completed within ten minutes of removal from the chamber.

4.7.4.1.1 Orientations. Each system carrying case shall be attached to a test fixture in each of the following orientations: top, bottom, two adjacent sides and two diagonally opposed comers. The system carrying case shall be released from each of these orientations and allowed to fall a minimum distance of 30 inches onto a concrete surface. Upon completion of this test, the system carrying case shall be visually examined for any structural or functional damage. All of the contents shall be examined for any physical damage.

4.7.4.2 Transportation vibration. This test shall be performed at the completion of the system case drop test. One system carrying case shall be subjected to the cold temperature transportation vibration test in accordance with MIL-STD-810E, Method 514.4 "VIBRATION". Upon completion of the test, the system carrying case shall be examined for structural damage and the SASS and day optical sight shall be examined for physical damage. The system carrying case and its full contents shall be subjected to the rain/moisture test. The rifle mounted with the day optical sight shall be subjected to the accuracy/dispersion test.

4.7.4.3 Rain/moisture. The component carrying case with all of its contents inside shall be placed inside rain chamber. Rain and wind shall be applied at the rate specified for half an hour. Upon completion of the test, all components shall be removed from the case and examined for wetness. There shall be no wetness inside the case to demonstrate conformance to the requirement.

4.7.4.4 Pressure test. The pressure relief vale shall be removed from the carrying case and a suitable adaptor shall be installed which shall permit dry compressed air to pressurize the case. A pressure regulator shall be used to prevent over pressurization. The case shall be pressurized to a positive pressure of  $0.50 \pm 0.05$  psig (between 13.8 and 15.2 in. of water) and the air supply shut off. Correct for pressure changes to maintain the unit under test (UUT) within the pressure requirement range during stabilization. After stabilization period close off air supply and record the test start pressure. To demonstrate conformance to the requirement, the case shall maintain this pressure range for 6 minutes.

#### 4.8 Support and ownership.

##### 4.8.1 System requirements.

###### 4.8.1.1 Reliability.

4.8.1.1.1 Firing schedule. All firing shall be performed by firing three rifles with day optical sights mounted a total of 10,000 rounds each. All firing, except for accuracy/dispersion,

shall be done from a machine rest. The ammunition used for this test shall be standard M118LR. All rounds fired shall be counted towards the 10,000 round mark. Firing shall be accomplished in groups of not more than 30 rounds. Firing shall be at a maximum rate of 100 shots per hour.

4.8.1.1.2 Maintenance schedule. The barrel/firing mechanism shall be cleaned every 100 rounds and lubricated every 250 rounds. The entire weapon shall be disassembled, cleaned and lubricated at approximately 500 round intervals using DoD standard cleaners and lubricants and the equipment supplied in the deployment/cleaning kits.

4.8.1.1.3 Component inspection. The receiver and bolt shall be magnetic particle inspected at 10,000 rounds. Magnetic particle inspection shall be done in accordance with ASTM E1444.

4.8.1.1.4 Failure definition. A failure is defined as one or more of the following (Note: From the user's perspective MRBEFF includes only those failures that are non-operator correctable and cause functionality loss of the rifle and/or day optical sight):

- a. Any stoppage that cannot be corrected by the operator within 10 seconds.
- b. Any parts that are replaced due to normal use. Each part that is replaced shall be counted as one failure, except where the parts failures are interrelated. In this case, all the parts failures that are interrelated, shall be counted as one failure. This excludes barrel replacement after 5,000 rounds have been fired.
- c. Visually observed crack in the bolt, barrel extension, or barrel.
- d. Inadvertent firing of more than one round at a time.
- e. The maximum change, after zeroing, between the point of aim and the center of impact exceeds 0.5 MOA within 100 rounds.

4.8.1.1.5 Stoppage definition. A stoppage is defined as one or more of the following (Note: From the user's perspective MRBS includes all EFFs-those that are operator correctable and non-operator correctable):

- a. A stoppage is defined as any incident resulting in unplanned cessation in firing or inability to commence firing. This includes stoppages traceable or chargeable to an unserviceable part. Descriptions include, but are not limited to, failures to feed, extract, eject, close, fire, or failure to function of the magazine.
- b. When it is established that previously recorded stoppages are attributable to an unserviceable part, these shall not be counted against the SASS being tested, provided they occurred not more than 200 rounds prior to replacement of the unserviceable part. These 200 rounds shall have been fired with the unserviceable part.
- c. Also stoppages attributed to ammunition shall not be counted against the SASS/magazine being tested. However, these stoppages shall be recorded and properly identified with supporting analysis (see 6.11).

4.8.1.1.6 Acceptance criteria. To demonstrate the requirements with 80% confidence the following acceptance criteria shall be applied to each test weapon individually.



MRBEFF	Accept - 1 failure	Reject - 2 or more failures
MRBS	Accept - 7 stoppages or less	Reject - 8 or more stoppages

4.8.1.1.7 Replacement of parts. No parts shall be altered during the test. Broken parts that affect function and those parts that are worn to the extent they are unserviceable shall be replaced. Replacement parts sufficient to complete the test shall be provided as part of the Test Support Package. Weapons shall be re-zeroed once a barrel is replaced.

4.8.1.1.8 Aim point retention. At the start of the reliability test, the day optical sight shall be zeroed to the weapon according to the manufacturer's instructions. Five, five round shot groups shall then be fired to establish a baseline center of impact. Testing shall be performed the same as the accuracy/dispersion testing except targets shall be fired at a range of 984.24 feet (300 meters). After 100 rounds have been fired the above procedure shall be repeated. To be acceptable, the radial distance between the original center of impact and the center of impact for any individual group shall be 1.7 inches (4.4 centimeters) or less. Aim point retention shall be verified each time a barrel is replaced.

4.8.1.1.9 First article only. One rifle shall be fired for 6,600 rounds. To be acceptable there shall be zero (0) failures and no more than four (4) stoppages. Maintenance schedule, component inspection, failure definition, and stoppage definition shall be as specified above.

4.8.1.1.10 Conformance inspection only. One rifle from every third lot shall be fired for 6,600 rounds. To be acceptable there shall be zero (0) failures and no more than four (4) stoppages. Maintenance schedule, component inspection, failure definition, and failure definition shall be as specified above.

4.8.1.2 Service life. The service life shall be verified during the reliability test.

4.8.1.3 Maintainability. A demonstration of all necessary maintenance of the SASS, using trained operators, government manuals, and tools provided with the system, shall be conducted.

4.8.1.4 Workmanship. The SASS shall be visually examined to verify workmanship.

4.8.2 Rifle requirements.

4.8.2.1 Barrel life. The accuracy/dispersion procedure shall be performed after every 1,000 rounds fired during the reliability test, to assess barrel life.

4.8.2.2 Parts interchangeability. The rifle shall be tested for the interchange of repair parts by disassembling and then reassembling using the parts and pre-arranged system specified. Interchange of parts shall be accomplished by dividing the parts of each rifle into 5 groups of non-mating parts. The 5 groups of non-mating parts shall be based on the supplied parts list. The parts shall be distributed in groups into 5 different trays until each tray contains parts of a complete rifle. Groups of parts from the first rifle shall be taken in order and placed in trays 1 through 5; groups of parts from the second rifle shall be taken in order and placed in trays 2



through 5 to 1; groups of parts from the third rifle shall be taken in order and placed in trays 3 through 5 to 2, etc. Commercial parts such as screws, spring pins, etc., shall be placed in the same tray as their mating or associated part. Any commercial part rendered unserviceable by disassembly shall be replaced without penalty to the interchangeability test. The rifle shall be reassembled using only those parts which are in the same tray. The rifle with day optical sight mounted shall then be subjected to the firing pin indent test, and accuracy/dispersion test.

4.8.2.3 Special clothing. A person dressed in NBC (MOPP IV) hand gear, and cold weather gear, shall load the magazine, insert magazine in the rifle, and fire twenty (20) rounds. To demonstrate conformance to the requirement, all shots shall fire without any stoppages attributable to the clothing.

4.8.2.4 Marking. Each rifle shall be visually examined to verify marking.

4.8.3 Day optical sight requirements.

4.8.3.1 Cleanliness and optical quality. Following all testing the Day Optic Sight shall be examined to verify cleanliness and optical quality.

4.8.3.2 Sight carrying case. It shall be demonstrated that the sight carrying case accommodates the day optical sight with the LASER filter installed, as well as the filter assembly when removed from the day optical sight.

4.8.4 System case requirements.

4.8.4.1 System carrying case. It shall be demonstrated that the system carrying case securely contains and protects the items listed in the requirement, and the case shall be visually examined for a pressure valve.

4.8.5 Ancillary equipment.

4.8.5.1 Deployment kit. Both examination and analysis shall be performed on the deployment kit.

4.8.5.2 Drag bag. It shall be demonstrated that the SASS is compatible with the drag bag.

4.8.5.3 Magazine carriers. Magazine carriers shall be subject to demonstration.

4.8.5.4 Cleaning equipment. Both examination and analysis shall be performed on the cleaning equipment.

4.8.5.5 Sling. The sling shall be subject to a demonstration.

## 5 PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service of Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6 NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The US Army requires a standardized Semi-Auto Sniper System to execute missions, which cannot be accomplished with the Rifle, 7.62MM, Sniper, w/Day Optical Sight and Carrying Case, M24. Recent operations indicate that a majority of sniper employment missions are in support of the maneuver force in a multi-shot, multi-kill environment. The SASS will support combat operations by delivering rapid, accurate, long-range, direct-fire to kill enemy personnel targets (exposed and entrenched). Army sniper units are currently acquiring non-standard semi-auto weapons, weapon systems, suppressors and optics to address the shortcomings of the M24.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number and date of this specification and all referenced documents cited in section 2 and identified in section 6. Special note, both MIL-STD-810E and MIL-STD-810F are referenced in Sections 3 and 4 because there are material differences in the respective test methods between the two revision levels. The specific revisions referenced must be stipulated in the contract or solicitation.

- b. Requirements for Design verification (see 4.2).
- c. Requirements for First article (see 4.3).
- d. Requirements for Quality conformance inspection (see 4.4).
- e. Government Furnished Material or equipment.
- f. Packaging requirements.
- g. Applicable national stock number.
- h. Serialization requirements, if applicable.

6.3 Failure data. If the requirements cited herein are not met, acceptance of the SASS will be deferred and, as appropriate, the following actions should be accomplished in a timely manner:

- a. Conduct a failure analysis study of the components that are suspected to have caused the failure or malfunction.

b. Evaluate and correct the applicable production processes and procedures to prevent recurrence of the same defect(s) in future production.

c. Examine all completed and in-process product, including components and subassemblies, to ensure that material containing the same defect is purged from the inventory and not presented for acceptance.

d. Submit the results of the failure analysis and the corrective actions taken to the PCO for approval prior to submitting any reconditioned material for retest.

6.4 Army-type designator. The appearance of type designators in contracts, invitation to bid, specifications, drawings, etc. does not in itself constitute official type designation assignment. Only those type designators approved and issued in full accordance with 4.2.4.3 of MIL-STD-1464 are considered officially assigned. Government direction for appropriate nomenclature will be provided following Design Verification.

6.5 Peak sound pressure. The true peak value is the maximum value of the noise waveform. The impulse measurement is an integrated measurement. The true peak reading should only be used when determining peak sound pressure level. (Reference: <http://www.osha.gov/dts/osta/otm/noise/exposure/instrumentation.html>)

6.6 Protective finishes. The following finishes are recommended for metallic components:

Carbon Steel - Manganese or Zinc Phosphate (reference MIL-STD-171)

Aluminum - Hard Coat Anodic Coating (reference MIL-STD-171)

Corrosion Resistant Steel - Black Oxide (reference MIL-STD-171)

6.7 Configuration. The SASS includes the following components:

Rifle

MIL-STD 1913 Picatinny Rails

Back Up Iron Sights (BUIS)

Protective Weapon Carrying Case (hard)

Collapsible Bipod (adjustable and/or removable desired)

Four (4) Twenty- round magazines

Four (4) Ten- round magazines

Carrying Sling

Day optical sight

Combination Acoustic, Flash, and Blast Suppressor

Muzzle flash reducer/flash hider when suppressor is not used

Protective Rifle Sight Carrying Case (hard)

Soft Weapon Carrying Case

Soft Rifle Sight Carrying Case

Deployment Kit

Cleaning Kit

6.8 Batteries. The list of preferred batteries is available from:

Commander, CECOM  
AMC Battery Management Office  
ATTN: AMSEL-LC-P-AMC  
Fort Monmouth, NJ 07703-5011

6.9 Standards. To obtain Optical Surface Quality Standards if required contact the following office: US ARMY RDECOM-ARDEC, AMSRD-AAR-QEP-B, Picatinny Arsenal, NJ 07806-5000 (email address: [QESA-QEP@pica.army.mil](mailto:QESA-QEP@pica.army.mil)).

6.10 Specifications. The following specification may be helpful:

MIL-R-71126 Rifle, 7.62MM, Sniper, w/Day Optical Sight and Carrying Case, M24

6.11 Definitions.

a. Analysis. An element of verification that uses established technical or mathematical models or simulations, algorithms, charts, graphs, circuit diagrams, or other scientific principles and procedures to provide evidence that stated requirements were met.

b. Average Mean Radius (AMR). The average distance of each round in a shot group relative to the calculated center of impact.

c. Cast-off/cast-on adjustment. The horizontal deviation of the butt away from the center line of the gun.

d. Comb height. The vertical deviation of the cheek rest relative to the top surface of the stock.

e. Demonstration. An element of verification that involves the actual operation of an item to provide evidence that the required functions were accomplished under specific scenarios. The items may be instrumented and performance monitored.

f. Essential Function Failure (EFF). Essential functions of the SASS are identified in the Failure Definition and Scoring Criteria for the SASS, and can be found in 4.8.1.1.4 and 4.8.1.1.5.

g. Examination. An element of verification that is generally nondestructive and typically includes the use of sight, hearing, smell, touch, and taste; simple physical manipulation; and mechanical and electrical gauging and measurement.

h. Length of pull. Distance from the forward face of the trigger to the end of the butt plate.

i. Mean Rounds Between Essential Function Failure (MRBEFF). The average number of rounds that can be fired without incurring failures as listed in 4.8.1.1.4.

j. Semi-automatic. Rifle automatically reloads, but will only fire *one* round per trigger pull.

k. Special tools. Tools that are not common to the armorer's tool kit or the Deployment kit specified herein.

l. Test. An element of verification in which scientific principles and procedures are applied to determine the properties or functional capabilities of items.

6.12 Key word listing

Day optical sight  
Picatinny Rail  
Sniper Rifle

6.13 Amendment notations. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the previous issue.

Custodian:  
Army-AR

Preparing Activity:  
Army-AR  
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