

STATEMENT OF OBJECTIVES

AN/PRC-152 STAY ALIVE POWER SUPPLY (SAPS)

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1.0 SCOPE

This Statement of Objectives establishes threshold and objective performance attributes for a multiple AN/PRC-152 radio, STAY ALIVE POWER SUPPLY. This system may also be referred to in this document as “SAPS”.

With the exception of Critical Performance Parameters (CPP), which cannot be violated, all other requirements herein are Government desires that would provide known value and benefit.

2.0 APPLICABLE DOCUMENTS

This document is subject to all applicable laws and regulations in effect, unless specifically exempted by the Government.

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the documents referenced herein and the contents of this specification, the contents of this specification shall be considered a superseding requirement. In the event the listed documents have been superseded, the most current version or replacement document shall be used.

Number	Title	Revision
FED-STD-595	Color Chips	B
IEC 60320	International Electrotechnical Commission - Inlets, Outlets, Connectors, Filtered	
IEC 60529	International Electrotechnical Commission - Degrees Of Protection Provided By Enclosures	
IEEE STD-315-1975	IEEE Standard Graphic Symbols For Electrical And Electronics Diagrams	
MIL-HDBK-1857	Grounding, Bonding, Shielding Design Guidelines	
MIL-HDBK-419	Grounding, Bonding And Shielding For Electronic Equipment And Facilities, Volumes 1 & 2	A
MIL-HDBK-454	General Guidelines For Electronic Equipment	A
MIL-STD-130	Identification Marking of U.S. Military Property	K
MIL-STD-461	Requirements For The Control Of Electromagnetic Interference Characteristics Of Subsystems And Equipment	E
MIL-STD 810	DOD Test Method Standard for Environmental Engineering and Laboratory Tests	F
NFPA 70	National Electrical Code	2005
SAE J163	Low Tension Wiring And Cable Terminals And Splice Clips (DOD Adopted)	28-Dec-01

3.0 PERFORMANCE REQUIREMENTS

3.1 BACKGROUND

The AN/PRC-152 radio has a non-rechargeable stay alive coin cell internal to the radio housing. This coin cell provides constant power to maintain critical radio information when another power source is not available (i.e. primary radio battery). The replacement of the non-rechargeable coin cell is not a trivial procedure and premature failure of this coin cell can present mission readiness problems. Many AN/PRC-152 radios are stored without their primary battery creating a constant load on the radio's stay alive coin cell. This leads to an early death of the coin cell.

The purpose of this solicitation is to develop a device that will provide the necessary power to the AN/PRC-152 radio to prevent draining of the stay alive coin cell when the main radio battery is not connected.

3.2 CONFIGURATION

3.2.1 The SAPS shall provide stay alive power for a minimum of 20 radios. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.2 Each radio bay in the SAPS shall provide a minimum of 1mA of current at 10.8VDC +/- 0.2VDC. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.3 The SAPS shall weight less than 80 lbs with radios installed including the rugged carrying case and all cables need to power the SAPS. Lower weight is highly desired. Assume radios weight 2 lbs each. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.4 The SAPS shall operate with a nominal 120VAC, 40-60Hz input power capability. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.5 The SAPS shall be fully operational within its configuration needed to meeting the CPP transportation and environmental requirements of this solicitation. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.6 The SAPS shall be capable of two-man carry with transport handles on each side.

3.2.7 The SAPS shall be packaged and delivered in a rugged, waterproof (IP-67 or better) enclosure suitable for operation, shipping and storage. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.8 The SAPS dimensions shall be minimized.

3.2.9 The SAPS shall attach to unmodified radios with battery not installed in radios. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.10 The SAPS shall be a complete turnkey system composed of all components packaged together as a kit, including items required to setup and operate. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.11 The SAPS shall provide the user with an indicator showing the status of each charge bay. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.2.12 The SAPS shall securely connect radios to charge bays to prevent low vibrations or shocks from disconnected radios.

3.2.13 The SAPS shall have a resettable fuse to protect against over current conditions. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.3 TRANSPORTABILITY

3.3.1 The SAPS with radios installed shall withstand the impact forces encountered in shipment and transport without damage or permanent deformation. (Mil Std 810 514.5 Procedure I and II - Loose Cargo Bounce Test). **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.3.2 The SAPS shall include a Water tight plug to attach the AC power cord.

3.3.3 The SAPS shall be provided with an AC power cord with a connector on one end able to connect to the water tight SAPS AC plug, at least 6 feet length of 3-conductor cord, and a NEMA 5-15P plug on the other end. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.3.4 The AC input cord for the SAPS shall meet NEMA and NEC standards for commercial wiring.

3.3.5 The AC input cords shall be fully waterproof and sealed.

3.4 ENVIRONMENTAL COMPATIBILITY

3.4.1 The SAPS shall be designed for operational environments where the environmental conditions are routinely encountered in a semi-controlled climate (temperature fluctuations, moderate vibration, rough handling, moisture laden air).

3.4.2 The SAPS and external fittings shall be designed to make the unit splash proof, drip proof, and corrosion resistant. (Ref: Mil STD 810F 506.4 Procedure II and III)

3.4.3 The SAPS system and all delivered components shall meet corrosion resistance (salt fog) requirements (tested in accordance with MIL-STD-810F, Method 509.4).

3.4.4 The SAPS system and all delivered components shall meet sand and dust performance requirements (tested in accordance with MIL-STD-810F, Method 510.4, procedures I and II).

3.4.5 The SAPS and all components (less radios) shall be capable of operating in temperatures ranging from -25 degrees F to +125 degrees Fahrenheit (F). **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.4.6 The SAPS and all components (less radios) shall be capable of operating in temperatures ranging from -40 degrees F to +131 degrees F.

3.4.7 The SAPS and all components (less radios) shall remain operable after storage in temperatures ranging from -59 degrees F to 160 degrees F.

3.4.8 The SAPS and all components shall remain operable in 0 to 100% humidity.

3.4.9 The SAPS and all components shall be capable of operating at altitudes of 8,000 feet.

3.4.10 The SAPS and all components shall remain operable after storage at altitudes of 15,000 feet.

3.4.11 The SAPS and all components shall remain operable after a 4ft transit drop. (Ref: Mil STD 810F 516.5 Procedure IV)

3.4.12 The SAPS shall be immune to radio frequency (RF) / Electromagnetic Interference (EMI). To control the electromagnetic emissions and susceptibility characteristics of the SAPS, the installation of electrical/electronics subsystems and associated interface shall conform to the performance requirements for CE102, RE102 and RS103 of MIL STD461E for the Ground Navy installation.

3.5 SUPPORTABILITY

3.5.1 The Mean Time Between Failure for the SAPS shall be 10,000 hours or greater.

3.5.2 The SAPS shall be provided a minimum of two-year warranty on parts and labor for the product starting on date of receipt by the USMC.

3.5.3 Warranty for the SAPS shall cover transportation costs to and from any CONUS USMC using unit.

3.5.4 Any tool required for operation or user maintenance of the SAPS that is not available in the USMC Maintenance Electronics Tool Kit, MK-2569/P (NSN 5180-01-244-1290) shall be provided with each SAPS.

3.5.5 The SAPS shall be painted in accordance with FED STD 595 "Colors Used in Government Procurement". The color shall be TAN.

3.5.6 The SAPS shall not require a mean time to repair (MTTR) of more than 1 hour.

3.5.7 All parts shall have the same manufacturer's part number, and shall be interchangeable (i.e. component from one SAPS with another across the duration of the SAPS contract).

3.5.8 The SAPS shall not incorporate any components that are long lead items requiring greater than 60 days from order-to-delivery.

3.5.9 The SAPS shall be provided with an identification plate showing the manufacturer's model number, national stock number (NSN), serial number, date of manufacture, CAGE code, nomenclature, contract number and warranty expiration date.

3.5.10 The SAPS shall be UL, or equivalent body, listed.

3.5.11 The SAPS shall be provided with a CD-ROM in protective case that includes an electronic copy that is Adobe Acrobat compatible of the Operators/Maintenance Manual, Parts Breakdown List, Wiring Diagrams and schematics.

3.5.12 The SAPS shall have Unique Identification, in accordance with Appendix A, shall be applied by the manufacturer and entered into the DOD registry.

3.5.13 The SAPS shall be sufficiently simple to operate by reading the operator's manual, as not to warrant formal instruction.

3.5.14 Any Line Replaceable Units for the SAPS shall be commercially available for shipment from vendor to customer within 30 days of order.

3.5.15 Each SAPS shall be provided with an over-pack of a paper version of Operation & Maintenance instructions, wiring diagrams, schematics and parts breakdown listing. These materials shall be provided with a copyright release for Government use and Government reproduction. **THIS IS A CRITICAL PERFORMANCE PARAMETER (CPP).**

3.6 SAFETY & HUMAN FACTORS

3.6.1 The SAPS design should incorporate methods to protect personnel from inadvertent contact with voltages capable of producing shock hazards.

3.6.2 The SAPS shall require no more than one person a maximum of 15 minutes to set up (excluding lifting) and operate in any operating configuration.

3.6.3 The SAPS shall provide permanent warning labels and/or indicators to warn of hazards to human.

3.6.4 The SAPS shall provide quick reference instructions either printed on the unit itself, or on a waterproof, durable instruction card tethered to the unit.

3.6.5 The SAPS shall be easily useable by users dressed in full Mission Oriented Protective Posture (MOPP) or cold weather gear.

3.6.6 The SAPS shall have controls and displays that are easy to locate and understand.

3.6.7 The SAPS shall provide visual indicators that are easy to read in all lighting conditions. If illumination is used as a method of displaying information, the SAPS shall have the capability to allow a user to temporarily disable all light emitting sources during blackout scenarios.

Indicators should not depend on color perception to interpret.

3.6.8 The SAPS shall not present major safety or health hazards while being operated, maintained or supported.

3.6.9 The SAPS shall conform to all current Occupational Safety and Health Administration (OSHA) and Environmental Protective Agency (EPA) requirements.

3.6.10 Components of the SAPS to which Nationally Recognized Testing Lab safety standards apply shall meet all standards.

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APPENDIX A - UNIQUE IDENTIFICATION

These simplified UID marking requirements are designed and intended to be compliant with the Department of Defense (DoD) UID requirements as specified in the Department of Defense Guide to Uniquely Identifying Items: Assuring Valuation, Accountability and Control of Government Property, Version 1.4 April 16, 2004.

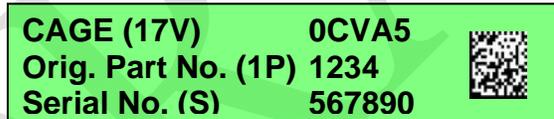
For the purposes of this project, the 24V-RPA must have UID markings.

What information is needed to create a UID (for UII Construct #2 in the reference)?

- An enterprise ID (in this case, a manufacturer’s CAGE code)
- An original part number or model number for the item
- A serial number for the particular item being marked

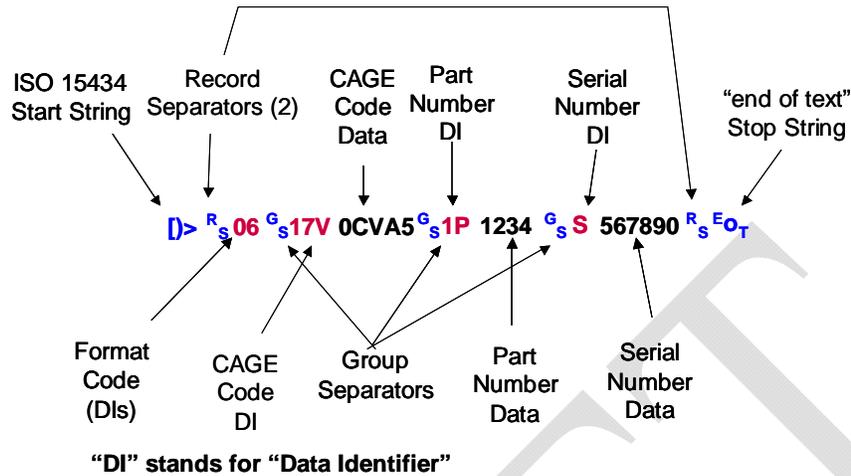
How is the UID marking constructed?

- The UID marking has two main elements:
 - The human-readable listing of the enterprise ID (CAGE code), original part or model number, and serial number of the item being marked.
 - A 2-dimensional machine-readable data matrix composed of the same information elements listed in item 3.a.1 above. The data matrix must be an ECC 200 symbol. The syntax for encoding the data matrix is ISO/IEC 15434, and ISO/IEC 15418 data identifiers are used to designate the three data elements.
- An example of UID marking appears below:



This example shows the human-readable CAGE code, Original Part Number, and Serial Number listed. The items in parenthesis after each text description are the data labels corresponding to each data element. For example, the ISO/IEC 15418 data identifier for “serial number” is “S.” The marking includes an ECC 200 2-dimensional data matrix containing the same data encoded in ISO/IEC 15434 syntax. Note that for this example the ECC 200 symbol used is representational only and is not accurately encoded with the example data.

The ISO/IEC 15434 syntax is constructed as follows:



The example above shows the data elements encoded to generate the proper ECC 200 data matrix.

How are the items labeled?

- Any permanent marking conforming to the example above is sufficient.
- We recommend that the UID markings for each item be printed on self-adhesive labels that are placed on the existing data plate for the item being marked (the data plate should have a "blank" area for the label). A clear film can be placed over the label to enhance its durability. Though UID marking information may duplicate information on the existing data plate, it is desired that the data plate information remain complete to allow item identification if the UID marking label becomes illegible.
- An example appears below:

Vendor Information may go here	
Model #: 1234	
S/N: 567890	CAGE Code: 00Y95
NSN #: (NSN goes here)	
MFR Date: (date goes here)	Rating:
CAGE (17V) 00Y95	
Orig. Part No. (1P) 1234	
Serial No. (S) 567890	

APPENDIX B – RADIO CONNECTOR INTERFACE

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