

PERFORMANCE SPECIFICATION

AN/PRC-117F RADIO POWER ADAPTER (AN/PRC-117F-RPA)



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1. INTRODUCTION

This Performance Specification establishes performance attributes for a Radio Power Adaptor (RPA) specifically to be mated to the AN/PRC-117F tactical radio that should be reflected back to the Government in the offeror’s proposal and product specification. This radio power adaptor may also be referred to in this document as “AN/PRC-117F-RPA”.

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. The offeror may also propose their value added features not listed here.

2. REFERENCE 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 In the event the listed documents have been superseded, the most current version or replacement document shall be used.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
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
TM-S9310-AQ-SAF-010	Technical Manual For Battery, Navy Lithium Safety Program Responsibilities and Procedures	2004
SAE J163	Low Tension Wiring And Cable Terminals And Splice Clips (DOD Adopted)	28-Dec-01

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3. PERFORMANCE REQUIREMENTS

3.1 CONFIGURATION

3.1.1 The AN/PRC-117F-RPA shall provide direct connection to, and be securely attached to one unmodified AN/PRC-117F radio in all modes of operation without hindrance to the operation or use of the radio. THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.1.2 The AN/PRC-117F-RPA shall be a complete turnkey system composed of all components packaged together, including items required to setup and operate. THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.1.3 It is desired that the AN/PRC-117F-RPA shall provide power for one AN/PRC-117F radio or Remote Control Unit (RCU).

3.1.4 It is desired that the AN/PRC-117F-RPA dimensions shall be less than 220 cubic inches.

3.1.5 It is desired that the AN/PRC-117F-RPA weight shall not exceed 6 lbs with battery.

3.1.6 It is desired that the AN/PRC-117F-RPA shall have a replaceable, battery backup capable of meeting the output power requirements of the AN/PRC-117F-RPA. The backup battery shall be able to be recharged by the AN/PRC-117F-RPA while in use.

3.1.7 The AN/PRC-117F-RPA shall be capable of operating with all of the following type military batteries: BB-2590/U, BA-5590, or BA-5390. THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.1.8 It is desired that the AN/PRC-117F-RPA be provided with either a: BB-2590/U, BA-5590, BA-5390 battery.

3.2 INTERFACE INPUT

3.2.1 The AN/PRC-117F-RPA shall be capable of continuously powering one AN/PRC-117F in all modes of operation. THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.2.2 The AN/PRC-117F-RPA shall operate with input power of 85 to 265 VAC, 47-400 Hz cycles. THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.2.3 It is desired that the AN/PRC-117F-RPA shall maintain an output voltage regulation of 26.5 volts +/- 1 volt under all input power ranges.

3.2.4 AN/PRC-117F-RPA shall operate with input power of 18-32 Volts DC. THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.2.5 It is desired that the AN/PRC-117F-RPA shall operate with both AC and DC input power energized, with power principally drawn from the AC source.

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3.2.6 It is desired that in the event of loss of AC input power, the AN/PRC-117F-RPA shall automatically switch over to DC input power.

3.2.7 It is desired that the AN/PRC-117F-RPA shall be provided with an AC power cord at least 6 feet in length of 3-conductor cord, and a NEMA 5-15P plug on the input power end. (NEMA is National Electrical Manufacturers Association.)

3.2.8 It is desired that the AC input cord for the AN/PRC-117F-RPA shall meet NEMA and NEC standards for commercial wiring. (NEC is National Electric Code.)

3.2.9 It is desired that if the AN/PRC-117F-RPA is able to operate on voltages greater than 120 VAC nominal, a second AC power cord at least 6 feet in length of 3-conductor cord, and pig-tails on the other end shall be provided.

3.2.10 It is desired that the AN/PRC-117F-RPA shall be provided with a DC input power cord at least 6 feet long of 2-conductor cord and pig-tails on the other end shall be provided.

3.2.11 It is desired that the AC and DC input cords shall be fully waterproof and sealed.

3.2.12 It is desired that the AC and DC input cords shall be fully waterproof and sealed.

3.3 INTERFACE OUPUT

3.3.1 It is desired that the AN/PRC-117F-RPA shall protect the AN/PRC-117F radio from input power transients.

3.3.2 The AN/PRC-117F-RPA shall provide an auxiliary output between 24 – 29.5 VDC at no less than 5Amp for external equipment. THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.4 ENVIROMENTAL

3.4.1 It is desired that the AN/PRC-117F-RPA and all components shall remain operable after storage in temperatures ranging from -58 degrees F to 160 degrees F (-50 to +71 degrees C).

3.4.2 It is desired that the AN/PRC-117F-RPA shall withstand the impact forces encountered in shipment and transport without damage or permanent deformation.

3.4.3 The AN/PRC-117F-RPA and external fittings shall be designed to make the unit drip proof (Ref: MIL-STD-810G 506.5 Procedure III - Drip). THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.4.4 It is desired that the AN/PRC-117F-RPA and external fittings shall be designed to make the unit rain proof and corrosion resistant. (Ref: MIL-STD-810G 506.5 Procedure I - Rain and Blowing Rain).

3.4.5 The AN/PRC-117F-RPA and all components shall be capable of operating in temperatures ranging from -25 degrees F to +125 degrees Fahrenheit (F) (-31.7 to +51.7

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degrees Celsius (C). (Ref: MIL-STD-810G 501.5, Procedure II (operation) and 502.5 Procedure II (operation)). THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.4.6 It is desired that the AN/PRC-117F-RPA and all components (less batteries) shall be capable of operating in temperatures ranging from -40 degrees F to +131 degrees F (-40 to +55 degrees C).

3.4.7 It is desired that the AN/PRC-117F-RPA and all components shall remain operable in 0 to 100% humidity (condensing moisture).

3.4.8 It is desired that the AN/PRC-117F-RPA and all components shall be capable of operating at altitudes of 15,000 feet. (Ref: MIL-STD-810G 500 Procedure I – Storage/Air Transport).

3.4.9 The AN/PRC-117F-RPA and all components shall remain operable after bench handling. (Ref: Mil STD 810G 516.6 Procedure VI – Bench Handling). THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.4.10 It is desired that the AN/PRC-117F-RPA and all components shall remain operable after transit drop. (Ref: Mil STD 810G 516.6 Procedure IV – Transit Drop). While in the transport configuration, the AN/PRC-117F-RPA shall meet the requirements of transit drop shock from a height of 48 inches onto a hard surface and not break. The Unit shall operate properly after drop test.

3.4.11 It is desired that the AN/PRC-117F-RPA shall control the electromagnetic emissions and susceptibility characteristics of the AN/PRC-117F-RPA's electrical/electronics subsystems and associated interface shall conform to the performance requirements of CE102, RE102 (2MHz-18GHz) and RS103 (2MHz-18GHz) of MIL-STD-461F for the Ground Navy installation.

3.5 SUPPORTABILITY

3.5.1 Each AN/PRC-117F-RPA shall be provided with an over-pack of a paper version of operation and maintenance instructions, wiring diagrams, schematics, and parts breakdown listing. The manual covers maintenance that is able to be done on the AN/PRC-117F-RPA including replace the battery. All material shall be provided with a copyright release for government use. THIS IS A CRITICAL PERFORMANCE PARAMETER.

3.5.2 It is desired that all identical components shall have the same manufacturer's part number, and shall be interchangeable (i.e. component from one AN/PRC-117F-RPA with another AN/PRC-117F-RPA) across the duration of the AN/PRC-117F-RPA contract.

3.5.3 It is desired that AN/PRC-117F-RPA shall be sufficiently simple to operate by reading the operator manual as not to warrant formal instruction.

3.5.4 It is desired that AN/PRC-117F-RPA shall be provided with a warranty of at least one year on parts and labor for the product starting on date of receipt by the USMC.

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3.5.5 It is desired that the AN/PRC-117F-RPA 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.

3.6 TRANSPORTABILITY

3.6.1 It is desired that the AN/PRC-117F-RPA shall withstand the impact forces encountered in shipment and transport without damage or permanent deformation. (MIL-STD-810G 514.6 Procedure I - Secured Cargo and Procedure II - Loose Cargo Test).

3.7 SAFETY & HUMAN FACTORS

3.7.1 It is desired that if the AN/PRC-117F-RPA is provided with a lithium battery, that enough information for a safety approval shall be provided in accordance with TM S9310-AQ-SAF-010.

3.7.2 It is desired that the AN/PRC-117F-RPA shall be UL listed.

3.7.3 It is desired that the AN/PRC-117F-RPA shall incorporate methods to protect personnel from inadvertent contact with voltages capable of producing shock hazards.

3.7.4 It is desired that the AN/PRC-117F-RPA shall provide permanent warning labels and/or indicators to warn of hazards to humans.

3.7.5 It is desired that the AN/PRC-117F-RPA shall require no more than one person a maximum of 5 minutes to set up and operate. (Less Battery charging)

3.7.6 It is desired that the AN/PRC-117F-RPA shall provide permanent warning labels and/or indicators to warn of hazards to humans.

3.7.7 It is desired that the AN/PRC-117F-RPA shall provide quick reference instructions either printed on the unit itself, or on a waterproof, durable instruction card tethered to the unit.

3.7.8 It is desired that the AN/PRC-117F-RPA shall be easily useable by users dressed in full Mission Oriented Protective Posture (MOPP) or cold weather gear.

3.7.9 It is desired that the AN/PRC-117F-RPA shall provide visual indicators that are capable of being read in all lighting conditions (i.e. sun, shade and at night in darkness).

3.7.10 It is desired that if illumination is used as a method of displaying information, the AN/PRC-117F-RPA 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 (i.e. red-green color blind).

3.7.11 It is desired that the AN/PRC-117F-RPA shall not present major safety or health hazards while being operated, maintained or supported.

3.7.12 It is desired that the AN/PRC-117F-RPA shall conform to all current Occupational Safety and Health Administration (OSHA) and Environmental Protective Agency (EPA) requirements.

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3.7.13 It is desired that components of the AN/PRC-117F-RPA to which Nationally Recognized Testing Lab safety standards apply shall meet all standards.

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