Receiver Processor Assembly (RPA)

Automatic spectrum search & geolocation

The SNC Receiver Processor Assembly (RPA) controls different interferometer antenna arrays to provide passive automatic search, identification and location of non-comms signals. The RPA provides the RF, digital and software processing to meet tough system requirements.

Receiver Processor Assembly (RPA)

RPA ATTRIBUTES

- Provides passive, precision targeting of radar signals
- Searches for, identifies, geolocates & tracks radars
- Controls direction finding systems from 0.5 to 40 GHz
- Two RPAs in system provide 240° instantaneous coverage
- Used on manned & unmanned platforms
- Mature, TRL 9 hardware & software for in-mission processing

IN-AIR SIGNAL PROCESSING

- Remote Control from ground through datalink
- Interfaces to Platform GPS/INS for NAV data
- Detection, identification & location of pulsed, CW, & FMCW emitters
- On-board emitter deinterleaving & identification
- On-board emitter geolocation, correlation & reporting
- Provides single-ship geolocation & supports multi-ship geolocation by triangulation or TDOA methods
- Pre-Mission Planning Tools allow users to create & optimize Scan Plans & Emitter Databases
- Post-Mission Analysis Tools allow users to play back, sort, isolate & examine recorded data

SPECIFICATIONS

• Dimensions:	6.25" W x 14.5" D x 9.4" H
• Weight:	27 pounds (12.3 kg)
• Power:	250 Watts at +28 VDC. MIL-STD-704

RELATED EQUIPMENT

• APA:	18 GHz Antenna Panel Assy
• REA:	RF Electronics Assy
• APA-X:	40 GHz Antenna Panel Assy
• REA-X:	RF Frequency Extension
• ILA:	In-Line Amplifier, Optional

PASSIVE, PRECISION DIRECTION FINDING

The Receiver Processor Assembly (RPA) of the AE-4500 Auto ESM System controls system hardware to passively detect, collect, identify and locate radar emitters over the 0.5 to 40 GHz frequency range. A typical AE-4500 System configuration consists of two RPAs and two interferometer antenna arrays. The RPAs control the interferometer antenna arrays to operate in a manual set-on mode or an auto search mode. The RPA also interfaces to the host platform computer, GPS/INS NAV system and LOS or BLOS datalink.

Automatic Search Mode is based on a customer provided Scan Plan that controls the tune frequency, dwell time, antenna and receiver hardware. The Search Mode may be paused at any time and tuned to any frequency for longer dwell collections and recording of complex signals. The Search and Set-On modes of operation each feature precision monopulse direction finding measurement on each detected pulse. Emitter type identification is based on match to a customer provided database.

The RPA is a 3U OpenVPX chassis in an ATR form factor. The RPA is a software-defined radio architecture that supports third party application development for affordable system growth through available software and firmware developer's kits (SDK & FDK). The RPA is configurable for operations over multiple frequency ranges using a variety of antenna arrays, and is small enough to support wingtip installations. The RPA includes RF and digital signal processing hardware and the software needed for on-board emitter detection, emitter deinterleaving, identification, geolocation, correlation and reporting. Available options support frequency extension, additional antennas and distributed installations for larger platforms. The open architecture design includes firmware and software applications for pulsed and low-powered emitters.

Processing Exploitation and Dissemination (PED) software controls airborne collection and provides situational awareness for users using graphical and textual means.

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