AN/UPX-42(C) Digital Interrogator

The AN/UPX-42(C) Digital Interrogator has been selected as the interrogator of choice for the U.S. Navy's next-generation destroyer.

Description

It is an upgrade to the AN/UPX-41(C), which incorporates SIF/M4, M5 with growth to Mode S. Its modular/digital architecture affords customized configurations and performance optimization for most applications such as; naval air defense, tracking and targeting, weapon systems, and air traffic control. Digital target reports are provided using the target data extractor which eliminates the need for external processing of targets. In addition, the interrogator includes amplitude mono-pulse processing for significant improvement of azimuth accuracy over conventional systems. The unit conforms to U.S. DoD, NATO, ICAO and U.S. FAA requirements.

Features and/or benefits

- Open-architecture, VME-based modular design
- Embedded M4/M5 crypto
- Extensive BIT, 98 percent fault detection
- Growth provided for Mode S
- More than 90 percent processing and memory reserves
- Predicted MTBF exceeds 4000 hours
- MTTR less than 20 minutes
- MIL-STD-461D compliant
- Compliant with DoD AIMS 03-1000/A and STANAG 4193
**Digital Interrogator Family**

<table>
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<tr>
<th>Interrogator</th>
<th>SIF</th>
<th>Mode 4 Evaluator</th>
<th>Mode S</th>
<th>Mode S</th>
<th>Target Data Extractor</th>
<th>Comments</th>
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<td>U.S. Navy replacement for AN/UPX-27</td>
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*Requires external crypto computer

**Specifications**

**Characteristics**
- Peak power output at antenna ports: Dual output 59 dBm, 65 dBm
- Duty cycle: 2.0 percent maximum
- Receiver center frequency: 1090 ±0.5 megahertz
- Receiver bandwidth: -3 dB, 8 megahertz nominal
- Sensitivity: -84 dBm minimum (Mark XII), -90 dBm minimum (Mark XIIA), 90 percent decode measured at antenna port
- Extractor instrumented range: >300 nautical miles
- Power input configuration: 115 or 230 Vac, <1100 VA, 47 to 440 hertz
- Dimensions: 14.75” width, 10.56” height, 18” depth
- Weight: 85 pounds maximum

**Environmental**
- Altitude
  - Operating: Up to 12,000 feet
  - Non-operating: Up to 50,000 feet
- Temperature
  - Operating: -28 degrees celcius to +65 degrees celcius
  - Non-operating: -40 degrees celcius to +75 degrees celcius
- Shock: MIL-S-901D lightweight equipment
- Salt fog: 48-hour exposure
- Humidity: 90 percent relative
- EMC: MIL-STD-461D

**Performance Parameters**
- Capacity: 1,000 targets per scan (minimum)
- Reliability (naval sheltered): Basic system >4,000 hours, Maintainability <20 minute MTTR
- Range accuracy: 0.04 nautical miles
- Range resolution: 0.06 nautical miles
- Azimuth resolution: Effective beamwidth plus seven PRPs (all modes responding)

**Interfaces**
- Ethernet, RS-232, RS-422
- Support services available

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