The AN/UPX-37, AN/UPX-41(C), and AN/UPX-45(C) digital interrogators are the U.S. Navy’s standard interrogators.

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

The AN/UPX-50(C) digital interrogator is a tech refresh upgrade to the AN/UPX-41(C) and AN/UPX-45(C) and adds a third receive channel for passive acquisition capability for the U.S. Navy.

The AN/UPX-37 replaces all AN/UPX-27 IFF interrogators in the fleet and has been selected by the U.S. Marine Corps. and U.S. Air Force for multiple applications. The AN/UPX-41(C) is an upgrade to the AN/UPX-37, adding Mode 5 Level 1 and Level 2 capability. The AN/UPX-45(C) adds Mode S capability to the AN/UPX-41(C). The AN/UPX-50(C) adds passive reception capability to the AN/UPX-45(C).

Upgrades are available to add target data extraction for digital target reports and Mode S Level 1 and Level 2.

The systems conform with U.S. DoD AIMS, NATO, ICAO, and FAA requirements. Modular and digital architecture affords customized configurations and performance optimization for most applications: air defense, weapon systems, air traffic control, and range instrumentation. Digital target reports can be provided in addition to wideband video for subsequent passive and active decoding. The digital interrogator also provides amplitude monopulse for significant improvement in azimuth accuracy over conventional systems. They operate autonomously or in conjunction with a host radar.

Features and benefits

- VME-based modular design facilitates technology insertion and additional capabilities
- Maintainability features provide the following benefits to users and maintainers:
  - Extensive BIT, 98 percent fault detection
  - Mean time between failures exceeds 5,000 hours for AN/UPX-37
  - Mean time between failures exceeds 4,000 hours for AN/UPX-41(C) and AN/UPX-42(C), AN/UPX-45(C), and AN/UPX-50(C)
  - Mean time to repair less than 20 minutes
- More than 90 percent processing and memory reserve enables future growth
- DoD AIMS certified and STANAG 4193 compliant configurations ensure ease of use for U.S. Navy
<table>
<thead>
<tr>
<th>Interrogator</th>
<th>Standard interchange format</th>
<th>Mode 4 evaluator</th>
<th>Mode 5</th>
<th>Mode 5 Target data extractor</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN/UPX-37</td>
<td>✅</td>
<td>Available*</td>
<td>Upgrade kit available</td>
<td>Upgrade kit available</td>
<td>U.S. Navy replacement for AN/UPX-27</td>
</tr>
<tr>
<td>AN/UPX-41(C)</td>
<td>✅</td>
<td>Available</td>
<td>✅</td>
<td>Available</td>
<td>Standard U.S. Mode 5 interrogator</td>
</tr>
<tr>
<td>AN/UPX-42(C)</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
<td>Growth</td>
<td>U.S. Navy DDG 1000 interrogator</td>
</tr>
<tr>
<td>AN/UPX-45(C)</td>
<td>✅</td>
<td>Available</td>
<td>✅</td>
<td>Available</td>
<td>Standard U.S. Navy Mode 5/S interrogator</td>
</tr>
<tr>
<td>AN/UPX-50(C)</td>
<td>✅</td>
<td>Available</td>
<td>✅</td>
<td>Available</td>
<td>Future US Navy Mode 5/S interrogator with 3rd receive channel for passive acquisition capability</td>
</tr>
</tbody>
</table>

### Specifications

**Characteristics**

- **Peak power output at antenna ports** - AN/UPX-37 and AN/UPX-41(C), AN/UPX-45(C), AN/UPX-50(C)
  - Dual outputs: 63 dBm
  - Single combined output: 66 dBm, excludes AN/UPX-50(C)
- **Peak power output at antenna ports** – AN/UPX-42(C)
  - Dual outputs: 65 dBm
  - Adjustable by -6 dB
- **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 inches width, 10.56 inches height, 18 inches depth
- **Weight**: 85 pounds maximum

**Environmental**

- **Altitude**
  - Operating: Up to 12,000 feet
  - Non-operating: Up to 50,000 feet
- **Temperature**
  - Operating: -28 degrees Celsius to +65 degrees Celsius
  - Non-operating: -40 degrees Celsius to +75 degrees Celsius
- **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
  - 100 in-beam targets
- **Reliability (naval sheltered)**
  - Basic system: >4,000 hours AN/UPX-41(C), 42(C), 45(C), and 50(C)
  - Maintainability: >5,000 hours AN/UPX-37
  - MTTR: <20 minute
- **Range accuracy**: 0.03 nautical mile
- **Range resolution**: 0.05 nautical mile
- **Azimuth resolution**: Effective beamwidth plus seven PRPs (all modes responding)

**Support services available**

- Full support to field units available for life of system
- Two-level performance-based logistics support available

**Interfaces**

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

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