



# TS-4530A

## Test Set, RADAR Datasheet

### Description

The TS-4530A, which has been upgraded and manufactured by Tel-Instrument, is the latest version of the respected AN/APM-424 and TS-4530 test set. The TS-4530A, developed under a U.S. Army contract now tests IFF including Mode 5, EHS, TCAS as well as ADS-B Transmit and Receive. Based on a new, highly integrated digital architecture; the TS-4530A performs the following tests:

- Transponder: Modes 1, 2, 3/A, C, 4 Mode S, EHS (Enhanced Surveillance) and Mode 5 (Levels 1 & 2)
- ADS-B In and Out (transmit and receive) testing
- Interrogator: Modes 1, 2, 3/A, C, 4, Mode S, Mode 5 (Levels 1 & 2), TCAS & ETCAS
- Built-in KIV-77 CCI housing enclosure
- Built in GPS with integrated GPS antenna provides accurate Date, TOD and LAT/LONG for positioning
- Simple to use "GO/NO-GO" operation
- Selected Mode S BDS register information



NSN – 6625-01-562-0715  
P/N – 90000125 (Includes all Accessories)  
P/N – 89000215 (Test Set Only)

The TS-4530A includes a large 2.8 inch, color OLED display and a new 3-button switch assembly that adds a 4-way directional toggle action with push-in to select capability for user friendly fast operation.

|                     |                    |  |
|---------------------|--------------------|--|
| Auto Test 1/2       | <b>ACCEPT&gt;</b>  |  |
| <b>Mode 1</b> Pass  | <b>Mode 4</b> Pass |  |
| <b>Mode 2</b> Pass  | <b>Mode 5</b> Pass |  |
| <b>Mode 3A</b> Pass | <b>Mode S</b> Pass |  |
| <b>Mode C</b> Pass  |                    |  |
| <b>More Details</b> |                    |  |

Additional features include:

- Over-the-Air and Direct Connect test methods
- Rugged and durable MIL-PRF-28800, Class 1 package
- Extensive built-in diagnostics
- Improved power management for extended test set operation
- Reduced unit weight
- Remote download capability
- Bench Utility capability
- Multiple stored user presets

### Additional

The TS-4530A is lighter than previous versions of the Test Set. Advanced power management extends battery operation time. The KIV-77 crypto housing blends into the unit and the crypto is readily visible with the same viewing line as the display in the unit. Rapid one button GO/NO-GO test can be performed based on stored parameters and criteria.

## Signal Generator

|                      |  |
|----------------------|--|
| Generator Frequency  | 1030 or 1090 MHz   |
| Generator Power      |  |
| Antenna              | +4 to -44 dBm with 1 dB resolution, 1.5 dB accuracy at antenna connector (2 dB accuracy for radiated field strength)             |
| Direct               | -40 to -95 dBm with 1 dB resolution, 1.5 dB accuracy   |
| Waveforms            | IFF Modes 1, 2, 3/A, C, 4, S & 5 comply DoD AIMS 03-1000A. IFF Mode S / TCAS / EHS complies with RTCA/DO-181C                    |
| ISLS Amplitude       | Equal to P1 on difference or sum ports when ISLS suppression enabled. Provides ISLS pulse on difference antenna during Mode S P6 |
| Interrogation Rate   | Mode 1, 2, 3/A, C, 4<br>A/A mode – 235 Hz $\pm$ 5 Hz<br>Direct Connect 450 Hz $\pm$ 5 Hz   |
| Short                | 45 – 50 Hz   |
| Long                 | 13-16 Hz   |
| Mode 5               | 200 – 225 Hz   |
| Harmonics & Spurious | Complies with MIL-STD-461E (see EMC/RFI section)   |
| Spectral Mask        | Complies with DoD AIMS 03-1000A  |

## Physical Characteristics

|                          |  |
|--------------------------|--|
| Packaging                | MIL-T-28800, Class1                        |
| Size                     | Length 14.1"<br>Width 11.5"<br>Height 7.5" |
| Weight Test Set Only     | < 9 lbs. (with battery, without KIV77)     |
| Weight with Transit case | 37 lbs (without KIV-77)                    |
| Op Temperature           | -40° C to +55° C                           |
| Battery Type             | (2)7.2V NiCad provided                     |
| Battery Life             | 12 Hours at 20% DC                         |
| Battery Charger          | Internal and External                      |
| Power requirements       | 100-240 VAC, 50-400 Hz<br>12 to 36 VDC     |
| Antenna Configuration    | Case Mounted                               |
| Integrated GPS           | Mounted in crypto cover<br>Antenna         |

## Measurement Receiver

|                       |  |
|-----------------------|--|
| Frequency Range       | 1030 or 1090 MHz   |
| Amplitude Range       | +68 to +20 dBm at direct port,<br>+24 to -24 dBm at antenna port   |
| Input Protection      | Antenna Ports: +40 dBm peak 30 $\mu$ s max @ 1% DC, +27 dBm average<br>Direct Port: + 68 dBm peak 30 $\mu$ s max, 1% DC, +43 dBm average |
| Receiver Measurements |  |
| Power                 | 0.1 dB resolution<br>1.5 dB accuracy direct,<br>2 dB over the air  |
| Frequency             | 10 kHz resolution<br>Accuracy for IFF Modes 1, 2, 3/A, C, 4, S<br>0.1 MHz Transponder<br>0.05 MHz Interrogator                           |
| Pulse Spacing         | Accuracy within 25 ns for pulses with rise times <100ns  |
| Pulse Width           | Accuracy within 25 ns for pulses with rise time <100ns and fall time <200ns  |
| Receiver Bandwidth    | >10 MHz at -3dB response   |

## COMSEC Interface

|                 |   |
|-----------------|---|
| KIV-77          | Appliqué plugs directly into Test Set                             |
| KIT-1C / KIR-1C | Accessory cable connects to 37 pin circular connector on Test Set |

## Accessories

Standard 2-year TIC Warranty  
 External Battery Charger  
 AC Adapter, Power Cord  
 DC Power Cable  
 Direct Connect Cable TNC  
 Transit Case  
 Cable, KIT/KIR-1C Interface  
 USB Cable, RS-232 Cable, 9-Pin  
 RF Adapter TNC to N  
 CD-ROM, Operation Manual