

ATC-600A Portable Transponder/DME Test Set

A portable transponder/DME ramp test set, the rugged ATC-600A is the ideal solution for both ramp or bench use.



- **Read XPDR code and altitude numerically**
- **Measure transponder frequency and check for correct DME channel**
- **Measure transponder receiver sensitivity**
- **Performs all tests required by the revised Federal Aviation Regulations (91.177 and 43 Appendix F)**
- **Two-year limited warranty**

IFR is a leader in the design, manufacture and marketing of Avionics test systems.

A portable transponder/DME ramp test set, the rugged ATC-600A is the ideal solution for both ramp or bench use. Providing simulation of the ground station or airborne environment, the ATC-600A meets the latest ARINC specifications and FAA regulations concerning transponder receiver sensitivity and SLS tests.

Transponder tests allow quick determination of transmitter power, frequency, percent reply, pilot's code and encoded altitude. For DME testing, the unit includes accurate range and velocity simulation, power and frequency and PRF measurements.

Performance Features

The ATC-600A will perform, with radiated signals, all the tests required by the revised Federal Aviation Regulations (91.177 and 43 Appendix F, as amended December 19, 1973).

- Reads out XPDR code and altitude numerically and also displays binary pulse information for code and altitude
- Measures transponder frequency and checks for correct DME channel
- Front panel connector provided to directly check the output of altitude encoders
- Capable of checking XPDR input pulse decoder gate for marginal operation
- Checks position of XPDR second framing pulse relative to F₁
- Measures transponder receiver sensitivity and SLS tests
- Precision DME range and velocity signals, both X and Y channel
- Uses remote tripod mounted antenna - can be accurately spaced from aircraft antenna for power measurements

Specification

Transponder

Interrogations Output

Frequency

1030 MHz ($\pm 0.006\%$)

Level

Variable from -66 to -79 dBm (± 1.5 dBm) with 34 dB pad or radiated with properly spaced antenna

Modes

A/C, Altitude or Pilot Code, 2:1 interlace, or Mode A
(Mode B available on request)

Pulse Spacing

| | | |
|--------|----------|--|
| Mode A | P1 to P3 | 8 μ s (± 0.1 μ s) |
| Mode C | P1 to P3 | 21 μ s (± 0.1 μ s) (In A/C Modes) |
| Mode C | P1 to P3 | 17 μ s (± 0.1 μ s) |
| SLS | P1 to P2 | ± 0.1 μ s |

Variable Spacing

P2 and P3 variable with respect to P1 (± 1 μ s), ± 1 μ s from nominal for input decoder gate tests

PRF

235 Hz ($\pm 10\%$)

SLS Test

± 1.0 dB P2 inserted at 0 or -9 dB relative to P1

Reply Measurements

Power (UUT)

10 W to 1.5 kW peak ($\pm 20\%$); direct with 34 dB pad
 ± 3 dB radiated with properly spaced antenna

Frequency Check

1086 to 1093 MHz (± 0.3 MHz)

Altitude Code

Binary and Numerical Readout, -1.0 to 126.7 thousand feet

Pilot Code

Binary and Numerical Readout, 0000 to 7777

Percent Reply

0% to 100%, either A/C or A(B) modes

F2 Pulse Position

Measurement of rising and falling edge ± 0.5 μ s from nominal (± 0.05 μ s)

Status Lamps

Ident Pulses, Invalid Altitude Code and No Altitude Code

Encoder Test

Direct connection accepts altitude encoder

DME

Interrogations Measurements

PRF

| | | |
|------------|-------------|----------------------|
| Track PRF | 0 to 30 Hz | $\pm 5\%$ full scale |
| Search PRF | 0 to 300 Hz | $\pm 5\%$ full scale |

Power (UUT)

10 W to 1.5 kW peak ($\pm 20\%$); direct with 34 dB pad
 ± 3 dB radiated with properly spaced antenna

Frequency Check

1038 to 1045 MHz (± 0.3 MHz)

Reply Output

Frequency

| | | |
|--------------|----------|-----------------------------------|
| 17X-channel: | 978 MHz | $\pm 0.006\%$ (108.00 MHz paired) |
| 17Y-channel: | 1104 MHz | $\pm 0.006\%$ (108.05 MHz paired) |
| 18X-channel: | 979 MHz | $\pm 0.006\%$ (108.10 MHz paired) |

Level

Approximately -45 direct with 34 dB pad or radiated with properly spaced antenna

Reply Pulses

3.5 μ s wide (± 0.5 μ s)

Pulse Spacing

X channel: 12 μ s wide (± 0.2 μ s)
Y channel: 30 μ s wide (± 0.2 μ s)

Range

0 to 399 NM in 1 NM steps. Accuracy ± 0.07 NM ($\pm 0.02\%$)

Velocity

Crystal-controlled digital velocity with rates of 50, 75, 100, 150, 200, 300, 400, 600, 800, 1200, 1600 and 2400 knots ($\pm 0.02\%$ of setting). Inbound or outbound starting from any selected range. Range steps in velocity mode are 0.025 NM (system), 0.1 NM displayed.

Percent Reply

50% or 100%

Squitter

2700 PRF (± 50 Hz)

Ident Tone

1350 Hz (± 8 Hz) with equalizing pulses

General

ENVIRONMENTAL

Temperature

-20° to 55°C

Relative Humidity

$\leq 80\%$ for temperature up to 31°C, decreasing linearly to 50% at 40°C (Non-condensing)

Altitude

≤ 4000 meters (13,124 feet)

GENERAL

Calibration Interval

1 year

Power

102 to 120 VAC, 220 to 240 VAC, 50 Hz to 400 Hz, $\leq \pm 10\%$ of the nominal voltage, 24 W maximum

Internal 2.0 AH NICAD battery operation for approximately 2 hours

Dimensions

Housed in a portable case 290 mm wide, 130 mm high, 410 mm deep

Housed in a portable case 11.4 in. wide, 5.1 in. high, 16.1 in. deep

Weight

8.1 kg (18 lbs.) approximately

Electromagnetic Compatibility

Complies with the limits in the following standards:

EN 55011 Class B

EN 50082-1

Safety

Complies with EN 61010-1 for class 1 portable equipment and is for use in a pollution degree 2 environment. The instrument is designed to operate from an installation category 1 or 2 supply.

Versions and Accessories

When ordering please quote the full ordering number information.

Ordering Numbers

Versions

| | | | | |
|---------|----------|--|------|------|
| 600-110 | ATC-600A | Transponder/DME Equipment, 110 VAC operation | Ramp | Test |
| 600-220 | ATC-600A | Transponder/DME Equipment, 220 VAC operation | Ramp | Test |

All IFR Avionics products delivered with Factory Certificate Of Calibration

IFR - "Working together to create solutions for the world of communications."

IFR is a world leader in developing leading edge test and measurement equipment. The priority at IFR is to understand your communications test needs and respond to them. IFR has the flexibility and expertise to create just the right test solution for you. We understand that just as you are the expert in designing wireless products, we are expert in wireless test.

Combining the quality of our test products with their reliability, excellent price/performance ratio and minimal requirements for maintenance, every IFR test system represents an outstanding lifetime value.

IFR - "Working together with our customers to be flexible and innovative in providing effective test solutions for the rapid design, manufacture and maintenance of communications systems."

The added value IFR includes with each and every test set we sell will make you more productive. We offer a two-year standard warranty on all products and we will continue to support your product for five years beyond its final production. Our outstanding Customer Service Department offers calibration, out-of warranty repairs and consulting. Our Sales and Training Departments offer clear and concise product information with realistic performance specifications, technology training and application training. Our experienced engineers will help you develop application software and through continuous improvement programs, upgrades are always available.

IFR will continue to build upon our technology resources with an aggressive commitment that will enable you to excel in some of the world's most dynamic, high growth markets.

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