The ATC-601 performs Mode S/A/C transponder tests required by Federal Aviation Regulations.

- Accurate measurement of transponder transmitting frequency, power and receiver sensitivity
- AUTO TEST minimizes test time
- Tests include Flight ID, Tail Number decode and UELM/DELM data link
- Non-volatile storage for two sets of test data
- Operating range of 0 to 300 feet from the aircraft under test
- Dump test data to printer via RS-232
- Built-in self test
- LCD display with automatic backlight
- Tripod mountable directional antenna
- 2 hour battery operation
- FCC Type Acceptance approved
- Two-year limited warranty

** ATC-601 **

The ATC-601 performs the ATC transponder test required by the revised Federal Aviation Regulations (91.172 and Part 43, Appendix F as amended August 18, 1990) for Mode S, A, and C transponders. The ATC-601 provides a comprehensive ‘AUTO TEST’ function which allows the operator to verify and certify the operation of Mode S/A/C transponders with little or no intervention once the test has been commanded.

Tests may be individually run for diagnostic fault finding purposes during routine maintenance.

The ATC-601 is environmentally packaged to operate in all weather conditions and protected against the shock and vibration encountered during ramp use.

** OPERATION **

** Setup Menu **

The set up menus are used to program parameters for power and sensitivity measurements, RS-232 parameters, test data storage, recall and data dump.

** AUTO TEST - PASSED **

MODE TESTED = A, C, S
FREQ: 1090.00 MHz
MODE PASSED = A, C, S
UEP = 53 dBm
MODE FAILED = MTL: +7 dBm
DIVERSITY ISOLATION = 25 dBm
Press RUN to start

** ATC Test **

F100 = 92 SPACING A=20.38 us C=20.38 us
F1 PULSE WIDTH A: 0.45 us C: 0.45 us
F2 PULSE WIDTH A: 0.45 us C: 0.45 us
CODE= 7777
ALT= 10,700 FT [3240]
Press RUN to start

** ATC Test **

F100 = 92 SPACING A=20.38 us C=20.38 us
F1 PULSE WIDTH A: 0.45 us C: 0.45 us
F2 PULSE WIDTH A: 0.45 us C: 0.45 us
CODE= 7777
ALT= 10,700 FT [3240]
Press RUN to start

** ATCRBS Reply Test - PASSED **

** Modex S UF1 Test - PASSED **

** Mode S AF1 Test - PASSED **

** Mode S AF20 Test - PASSED **

** Mode S AF20 Test - PASSED **

** Mode S AF11 Test - PASSED **

** Squitter Test - PASSED **

** Flight ID Test - PASSED **

** Flight ID Test - PASSED **

** Flight ID Test - PASSED **

http://www.ifrinternational.com
Mode S UELM Test

** Mode S UELM Test - PASSSED **

** RES: DF20 3W=15 IIS-F IIS=-3 **

ACK: DF24 XA=4 NO=0 TAS=CDF

CLG: DF20 3W=15 IIS=F IIS=3

ADDRESS=JAC421  ERR=20

Press RUN to start

Power

** POWER TEST - PASSSED **

TOP AVG (dBM) = 53.0 -73.4 PASSED

Notes:

INSTANTANEOUS = 47.0 -73.4

Press RUN to start

Individual Tests

V2.01/2.1 Firmware

1. REPLY DELAY
2. REPLY JITTER
3. ATCRBS REPLY
4. SLS LEVEL
5. ATCRBS ONLY ALL-CALL
6. MODE S ALL-CALL
7. INVAUD MODE S ADDRESS
8. SPR ON/OFF
9. MODE S UFO
10. MODE S UF4
11. MODE S UF5
12. MODE S UF11
13. MODE S UF16
14. MODE S UF20
15. MODE S UF21
16. SQUITTER
17. FREQUENCY
18. DIVERSITY
19. MTL DIFFERENCE
20. POWER
21. FLIGHT ID
22. UELM
23. DELM

Specification

** Signal Generator **

Output

1030 MHz DCXO controlled 10 kHz

Level

-57 to -7 dBm typically, into 50 Ω (Automatically controlled to determine receiver sensitivity [MTL] for the selected range and 4 dB typically, higher than MTL for test interrogations)

TEST ANTENNA

VSWR

1.5:1

Gain

10 dB typical, specified on the antenna

Interrogation Test Signals

Rate

235 kHz PRF (±5 Hz)

Interlace Ratio

MTL Interrogations to test interrogations

ATCRBS 2:1

Mode S 5:1

Modes A, C, S, Intermode

NOTE: The ATC-601 Interrogates with the mode(s) selected for test interrogation

Pulse Characteristics

ATCRBS/Mode S Pulse Spacing

Mode A

P1 to P2 2.00 s (± 50 ns)

P1 to P3 8.00 s (± 50 ns)

Mode S

P1 to P2 2.00 s (± 50 ns)

P1 to P3 21.00 s (± 50 ns)

Intermediate Pulse Spacing

Mode A

P1 to P2 8.00 s (± 50 ns)

P1 to P3 10.00 s (± 50 ns)

Mode C

P1 to P2 21.00 s (± 50 ns)

P1 to P3 23.00 s (± 50 ns)

Pulse Widths

Mode A, C, S, Intermode

P1, P2, P3 0.80 s

Mode S

P1, P2 (Short) 16.25 s

P1, P2 (Long) 30.25 s

Intermode

P1, P2 (Short) 0.80 s

P1, P2 (Long) 1.60 s

All Modes

Accuracy ± 50 ns

Range

50 to 200 ns

Fall Time 50 to 200 ns

Phase Modulation

Transition time

≤ 800 ns

Phase Shift

≤ 10°

Amplitude Levels

SLS Level (P1)

-9 dB (± 1 dB) and 0 dB relative to P1 level

NOTE: SLS Level is automatically controlled in the SLS LEVEL Test

UUT Measurements (replies)

XMTR POWER (AT 1090 MHz)

Effective Radiated Power (ERP)

Range

±48.5 to ± 57 dBm (71 to 500 watts)

Accuracy

± 2 dB

DIRECT CONNECTION - PEAK PULSE POWER

Range

±46.5 to ± 59 dBm (45 to 800 watts)

Accuracy

± 1 dB

Resolution

0.1 dB

XMTR FREQUENCY

Range

1087 to 1093 MHz

Accuracy

50 kHz

Resolution

10 kHz

RECEIVER SENSITIVITY

Direct Connection - Minimum Triggering Level (MTL)

Range

-67 to -79 dBm

Accuracy

± 2 dB

RADIATED FIELD STRENGTH (MTL)

Range

-69 to -77 dBm into 0 dBm antenna (-77 dB W/m² to -85 dB W/m²)

SQuitter Period

Range

0.10 to 4.88 sec

Accuracy

± 10 ms

REPLY DELAY

Mode S

Range

1.80 to 7.00 ms

Accuracy

≤ 100 ns

DIVERSITY ISOLATION

Range

0 to > 20 dB (depending on Antenna range)

Antenna Range

1.83 m (6 feet) to 28.96 m (95 feet)

Accuracy

± 3 dB

Environmental

Temperature

-20 to 55°C

Relative humidity

≤ 80% for temperatuers up to 31°C decreasing linearily to 50% at 40°C (Non-condensing)

Altitude

≤ 4000 meters (13,124 feet)

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.

Dimensions

284 mm (11.2 in) W; 361 mm (14.2 in) D; 279 mm (11 in) H

Weight

13.7 kg (30 lb)

Ordering Information

When ordering please quote the full ordering information

<table>
<thead>
<tr>
<th>Ordering Number</th>
<th>Versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>601-110</td>
<td>ATC-601 Transponder Mode S Ramp Test Equipment</td>
</tr>
<tr>
<td>601-110-C</td>
<td>ATC-601 Transponder Mode S Ramp Test Equipment with Certificate of Calibration</td>
</tr>
<tr>
<td>601-220</td>
<td>ATC-601, 220 VAC operation</td>
</tr>
<tr>
<td>601-220-C</td>
<td>ATC-601, 220 VAC with Certificate of Calibration</td>
</tr>
</tbody>
</table>

Accessories (Supplied)

RF Coax Cable

Antenna Shield

Operators Manual

Operators Guide

Line Cord

Directional Antenna

Omnidirectional Antenna

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