

The IFF-701Ti is an organizational level/1st Line, portable battery operated test set for testing IFF transponders & interrogators installed in airborne, naval or land based platforms. The IFF-701Ti may also be used at an intermediate level/2nd Line.



- **Accurate measurement of transponder/interrogator transmitting frequency, power and receiver sensitivity**
- **AUTO TEST minimizes test time**
- **Configuration control provides user selectable predetermined test limits**
- **GO/NO-GO or Diagnostic operation**
- **Mode 4 Stored Code/Crypto Operation**
- **Built-in self test**
- **TCAS/E-TCAS Test Capability**
- **Hand Held directional antenna**
- **Compliant with test requirements of FAR Part 43 Appendix 'F'**
- **CE compliant**

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

The IFF-701Ti provides a comprehensive 'AUTO TEST' function which allows the operator to verify and certify the operation of MK10A, MK12, MK12/Mode S IFF transponders with minimal intervention once the test has been commanded. Interrogator testing is semi automatic.

Testing may be conducted 'over the air' or by direct connection to the transponder/interrogator.

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

The IFF-701Ti is environmentally packaged to operate in all weather conditions.

### SELECTABLE FUNCTIONS

The IFF-701Ti provides three selectable functional modes of operation, Transponder Test, Interrogator Test and TCAS Test. The functional mode is selected with the FUNC SEL key.

### TRANSPONDER OPERATION

#### 1st Line Auto Test

The 'PWR UP' field in Setup # 1 menu is used to determine which autotest mode is available after power up. If '1ST/L' is selected, the 1ST LINE AUTO TEST screen is displayed when the 'AUTO TEST' key is pressed.

The 1st Line mode is used to provide simple 'point and press' testing using a hand held directional antenna. A ratiometric test is used to confirm that ERP (Effective Radiated Power) and MTL (Minimum Trigger Level) are within pass limits. This test is independent of distance from the transponder antenna, over a 6 ft to 250 ft range.

The modes tested, specific tests and PASS/FAIL limits are determined by the configuration selected in the 'CONFIG' field.

During the Mode 4 reply tests the operator is prompted to change transponder control panel settings, to verify the crypto A/B code select and verify bit 1 functions. The test may be configured to only use the A code without operator prompt.

Upon completion the 1ST LINE AUTO TEST screen displays the modes tested, the modes passed, the modes failed, ERP/MTL pass or fail and LOBING PASS or FAIL (if enabled in the selected configuration). The 'LOBING' field is used to display correct operation of a lobing antenna RF switch, typically used with MK10A transponders.

The 'DIST' field is used by the operator to confirm the approximate distance from the antenna under test.

The detailed results of individual tests conducted during AUTO TEST are stored in memory and may be reviewed by using the 'SELECT' keys. Once selected the test may be initiated by the 'RUN/STOP' key, and will continue to run until the 'RUN/STOP' key is pressed again.

```

** 1ST LINE AUTO TEST - PASSED **
MODE TESTED-C,1,2,3      FRQ:1090.00 MHz
MODE PASSED-C,1,2,3      ERP/MTL: PASS
MODE FAILED-              DIST: 16-32 ft
CONFIG: MK10A             LOBING ANT: PASS
                          Press RUN TO start

```

Access to a direct connect POWER TEST is provided in 1st Line mode and is used for testing feeder and lobing switch losses. Access to the setup menus is prevented in 1st Line mode.

The 2nd Line mode may be entered when the IFF-701Ti is in 1st Line mode by a twin key press on power up.

### 2nd Line Auto Test

If '2ND/L' is selected in setup menu #1, the IFF-701Ti will power up in 2nd Line mode. The 2ND LINE AUTO TEST screen is displayed when the 'AUTO TEST' key is pressed. Pressing the 'SETUP' key provides access to the setup menus.

The 2nd Line mode provides precise 'over the air' ERP and MTL testing using the directional antenna. Range and height parameters are entered in setup #1 menu.

This mode may be used periodically to confirm specific installation performance and monitor feeder/antenna deterioration. Direct connection via the RF I/O port is also selectable for bench operation.

The 2ND LINE AUTO TEST operation is identical to the 1st Line AUTO TEST mode except ERP and MTL measurements are displayed. LOBING ANT and DIST are not displayed. Configuration files are selected in setup #2 menu.

Two sets of test results may be stored in non volatile memory stores and the last set of results are held in current memory. Test results may be dumped to a PC or printer for hardcopy.

```

** 2ND LINE AUTO TEST - PASSED **
MODE TESTED-C,S,1,2,3,4  FRQ:1090.00 MHz
MODE PASSED-C,S,1,2,3,4  ERP: 55 dBm
MODE FAILED-              MTL: -75 dBm
DIVERSITY: NOT RUN       LOBING: NOT RUN
                          Press RUN TO start

```

### Setup Menus

Three Setup Menus are used to program parameters for power and sensitivity measurements, test set operational modes, test data storage and recall.

```

** SETUP#1 MENU **
UUT ANTENNA: RANGE HEIGHT PWR UP=1ST/L
TOP:      20      15
BOTTOM:   20      3
SELECTED: BOTTOM
GAIN_1030=11.5 GAIN_1090=12.0 LOSS=1.0

```

```

** SETUP#2 MENU **
STORED CODE:LOADED      ERP UNITS= WATTS
STORE= 0 RECALL= 1      DIVERSITY= ON
CONFIG= MK12/M_S       XPDR MODES:C,S,1,2,3,4
CODE SOURCE= STORED A(VB) INTERR= BURST
Change store/recall field then press RUN

```

### Reply Delay Test

```

** REPLY DELAY TEST - PASSED **
MODE S: 128.00 uS
ITM 3: 128.00 uS C: 128.00 uS
ATC 3: 3.02 uS C: 3.10 uS
Press RUN to start

```

### ATCRBS Reply Test

```

** ATCRBS REPLY TEST - PASSED **
F1 TO F2 SPACING 3:20.30 uS C:20.30 uS
F1 PULSE WIDTH 3: 0.45 uS C: 0.45 uS
F2 PULSE WIDTH 3: 0.45 uS C: 0.45 uS
CODE=EM7777 ALT= 10,700 FT [6140]
Press RUN to start

```

### ATCRBS Decoder Test

```

** ATCRBS DECODER TEST - PASSED **
MODE A:7.90uS: REPLY 8.10uS: REPLY
7.20uS: NO REPLY 8.80uS: NO REPLY
MODE C:20.9uS: REPLY 21.1uS: REPLY
20.2uS: NO REPLY 21.8uS: NO REPLY
Press RUN to start

```

### Mode 4 Reply Test

Verifies correct Mode 4 replies to Mode 4 interrogation challenges derived from one of three selectable code sources.

1. Test A/B
2. Crypto A/B or A/B with verify bit 1
3. Stored A/B or A/B with verify bit 1

```

** MODE 4 REPLY TEST - PASSED **
CODES TESTED: :A :B :A(VB) :B(VB)
CODE SOURCE= STORED A(VB) T1 PW: 0.45 uS
T1 TO T2 SP: 1.800 uS T2 PW: 0.45 uS
T1 TO T3 SP: 3.500 uS T3 PW: 0.45 uS
Press RUN to start

```

### Mode 1,2,4 Reply Delay Test

```

** 1,2,4 REPLY DELAY TEST - PASSED **
MODE 1: 3.02 uS
MODE 2: 3.02 uS
MODE 4: TDV:268.20 uS
CODE SOURCE: STORED A
Press RUN to start

```

### Mode 1,2,4 SLS Level Test

```

** 1,2,4 SLS LEVEL TEST - PASSED **
MODE 1: -9 dB: REPLY 0 dB: NO REPLY
MODE 2: -9 dB: REPLY 0 dB: NO REPLY
MODE 4: -9 dB: REPLY 0 dB: NO REPLY
Press RUN to start

```

### Mode 1,2 Reply Test

```

** MODE 1,2 REPLY TEST - PASSED **
F1 TO F2 SPACING 3: 20.30 uS C: 20.30 uS
F1 PULSE WIDTH 3: 0.45 uS C: 0.45 uS
F2 PULSE WIDTH 3: 0.45 uS C: 0.45 uS
M1_CODE=EM7777 M2_CODE=EM7120
Press RUN to start

```

### MTL Difference Test

```
** MTL DIFFERENCE TEST - PASSED **
A-C = 1.0 dB  A-4 = 2.0 dB  A-4 = 2.0 dB
A-S = 1.0 dB  C-S = 1.0 dB  1-2 = 1.0 dB
A-1 = 1.0 dB  C-2 = 1.0 dB  1-4 = 2.0 dB
A-2 = 1.0 dB  C-2 = 1.0 dB  2-4 = 2.0 dB
Press RUN to start
```

### Power Test

```
** POWER TEST - PASSED **
ERP      MTL
TOP AVG (dBm) = 53.0  -73.4 PASSED
•BOT AVG (dBm) = 52.0  -74.3 PASSED
INSTANTANEOUS = 47.0  -73.4
Press RUN to start
```

### Mode S Tests (General)

The discrete address reported in each individual DF reply content, is verified against the address reported in the All-Call DF11 replies. Where altitude is displayed, the Mode S reported altitude is verified against Mode C reported altitude.

Downlink data is displayed in RTCA DO-181A format.

### Squitter Test

This test displays the squitter address (aircraft's discrete address) in Hexadecimal and Octal numeric formats. The squitter period is also displayed.

```
** SQUITTER TEST - PASSED **
PERIOD = 1.00 SECONDS
TAIL NUMBER = N12345
SQUITTER ADDRESS = 3AC421 [1654201]
Press RUN to start
```

### Mode S UF0 Test

This test displays the DF0 (Short Special Surveillance) reply content .

```
** MODE S UF0 TEST - PASSED **
DF 0 VS=1  RI=C  AC= 10,700 FT
ADDRESS=3AC421
Press RUN to start
```

### Mode S UF4 Test

Displays the DF4 (Surveillance Altitude) reply content.

```
** MODE S UF4 TEST - PASSED **
DF 4 FS=1  DR=00 UM=00 AC= 10,700 FT
ADDRESS=3AC421
Press RUN to start
```

### Mode S UF5 Test

Displays the DF4 (Surveillance Altitude Request) reply content.

```
** MODE S UF5 TEST - PASSED **
DF 5 FS=1  DR=00 UM=00 ID= 3247
ADDRESS=3AC421
Press RUN to start
```

### Mode S UF11 Test

Displays the DF11 (All-Call Reply) content and tests the II Interrogator Identity in the reply.

```
** MODE S UF11 TEST - PASSED **
DF11  CA=0  AA=3AC421  PI=000000
Press RUN to start
```

### Mode S UF16 Test

Displays the DF16 (Long Special Surveillance) reply content.

```
** MODE S UF16 TEST - PASSED **
DF16 VS=0  SL=0  RI=0  AC= 10,700 FT
MV=0000000000000000 ADDRESS=3AC421
Press RUN to start
```

### Mode S DF20 Test

Displays the DF20 (Comm-B Altitude) & AIS reply content.

```
** MODE S DF20 TEST - PASSED **
DF20 FS=0  DR=00 UM=00 AC= 10,700 FT
MB=0000000000000000 ADDRESS=3AC421
Press RUN to start
```

### Mode S DF21 Test

Displays the DF21 (Comm-B Identity) & AIS reply content.

```
** MODE S DF21 TEST - PASSED **
DF21 FS=0  DR=00 UM=00 ID= 3247
MB=0000000000000000 ADDRESS=3AC421
Press RUN to start
```

### Flight ID Test

Displays the Flight Identity information encoded in the AIS subfield contained in the MB message field within DF20.

```
** FLIGHT ID TEST - PASSED **
DF20  BDS1=02  BDS2=00
AIS=20420CCB9C1041  FLIGHT ID=BA349
ADDRESS=3AC421
Press RUN to start
```

### Mode S DELM Test

Provides a 15 segment DELM (Down Link Extended Length Message), displaying transfer protocol.

```
** MODE S DELM TEST - PASSED **
RES:  DF20  DR=15  IIS=F  IDS=2
SEG:  DF24  KE=1  ND=0  TAS=000F
CLO:  DF20  DR=15  IIS=F  IDS=2
ADDRESS=3AC421  ERROR=0  SEGMENTS=15
Press RUN TO start
```

### Mode S UELM Test

Provides a 15 segment UELM (Up Link Extended Length Message), displaying transfer protocol.



```

** MODE S UELM TEST - PASSED **
RES: DF20 DR=15 IIS=F IDS=2
ACK: DF24 KE=1 ND=0 TAS=000F
CLO: DF20 DR=15 IIS=F IDS=2
ADDRESS= 3AC421 ERROR=
Press RUN TO start

```

**IFF-701Ti Individual Tests**

1. REPLY DELAY
2. REPLY JITTER
3. ATRCBS REPLY
4. SLS LEVEL
5. ATRCBS ONLY ALL-CALL
6. MODE S ALL-CALL
7. INVALID 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. FLIGHT ID
19. MODE S UELM
20. MODE S DELM
21. DIVERSITY
22. MTL DIFFERENCE
23. MODE 1,2,4 REPLY DELAY
24. MODE 1,2,4 REPLY JITTER
25. MODE 1,2, REPLY
26. MODE 1,2,4 SLS LEVEL
27. ATRCBS DECODER
28. MODE 1,2 DECODER
29. MODE 4 DECODER
30. MODE 4 REPLY
31. POWER

**INTERROGATOR OPERATION**

The Interrogator functional mode provides radiated test capability for MK12 interrogators and a comprehensive direct connect test capability when utilized with an optional Monopulse Antenna

Simulator.

**Setup Menus**

Three Setup Menus are used to program parameters for power and sensitivity measurements, test set operational modes, test data storage and recall.

```

** INTERROGATOR SETUP#1 MENU **
UUT ANTENNA: RANGE= 50 HEIGHT= 2
STORE= 0 RECALL= 0 ERP UNITS= dBW
CONFIG= APX-113
GAIN_1030=11.5 GAIN_1090=12.0 LOSS=1.0
Change store/recall field then press RUN

```

```

** INTERROGATOR SETUP#2 MENU **
ALT REPORTING= ON AUTO REPLY= ON
X PULSE= ON CODE SOURCE= CRYPTO A(VB)

RANGE MAX: +80 nm MIN: 0 nm
ALT MAX: +126,700 ft MIN: 0 ft

```

```

** INTERROGATOR SETUP#3 MENU **
BAUD RATE= 9600 REMOTE ECHO= ON
DATA BITS= 8 PREFIX STRING= ON
STOP BITS= 1 HANDSHAKE= NONE
PARITY= NONE DUMP= 1

```

**Screen Selection**

Pressing the MON REPLY key repeatedly allows the operator to select related monitor and reply screens. The SELECT keys are used while displaying monitor screens to select specific interrogator modes.

**Interrogator Auto test**

The Interrogator Auto Test captures a snapshot of the current interrogator characteristics and passes data to the mode monitors for validation.

```

** INTERROGATOR AUTO TEST **
MODES PASSED: 1,2,3,4,C FRQ:1030.000 MHz
MODES FAILED:
MAIN ERP: +60.0 dBm ISLS ERP: +58.0 dBm
INTERR RATE: 400 Hz
Press RUN TO start

```

**Interleave Monitor**

The Interleave Monitor provides interrogation percentages for modes captured. REPLY displays the actual percentage of all interrogations to which were replied. UNRECOG displays the percentage of unrecognized interrogations. P1 ONLY displays the percentage of interrogations containing only P1.

```

**INTERLEAVE MONITOR**
ATRCBS MODES 3: 20% C: 20%
IFF MODES 1: 20% 2: 20% 4: 10%
SCAN RATE: 20 SPM
REPLY:100% UNRECOG: 0% P1 ONLY: 0%
Press RUN TO start

```

**Mode Monitor Screens**

The Mode Monitor Screens display interrogator pulse measurements, and verify pass fail limits.

```

** MODE 1 MONITOR **
P1 TO P3 SPACING :3.0 uS
P1 WIDTH: 0.80 uS   P3 WIDTH: 0.80 uS
P1 TO P2 SPACING :2.0 uS   P2 LEVEL:-4 dB
P2 WIDTH: 0.80 uS   INTERR RATE: 400 Hz

```

```

** MODE 2 MONITOR **
P1 TO P3 SPACING :5.0 uS
P1 WIDTH: 0.80 uS   P3 WIDTH: 0.80 uS
P1 TO P2 SPACING :2.0 uS   P2 LEVEL:-4 dB
P2 WIDTH: 0.80 uS   INTERR RATE: 400 Hz

```

```

** MODE 3 MONITOR **
P1 TO P3 SPACING: 8.0 uS
P1 WIDTH: 0.80 uS   P3 WIDTH: 0.80 uS
P1 TO P2 SPACING:2.0 uS   P2 LEVEL:-4 dB
P2 WIDTH: 0.80 uS   INTERR RATE: 400 Hz

```

```

** MODE C MONITOR **
P1 TO P3 SPACING:21.0 uS
P1 WIDTH: 0.80 uS   P3 WIDTH: 0.80 uS
P1 TO P2 SPACING:2.0 uS   P2 LEVEL:-4 dB
P2 WIDTH: 0.80 uS   INTERR RATE: 400 Hz

```

```

** MODE 4 MONITOR **
PULSE SPACING P2:2.0 uS   P3:4.0 uS
P4:6.0 uS   P5:8.0 uS   INTERR RATE: 400 Hz
PULSE WIDTH P1:0.50 uS   P2:0.5 uS
P4:0.50 uS   P5:0.5 uS   P5 LEVEL: -11dB
Press RUN TO start

```

### Reply Tests

Reply test selections are Mode 1, 2, 3, 4, C & S. Reply simulations may be static or dynamic dependant on rate settings. Top line annunciations are NO DATA, PASSED & FAILED. Bottom line annunciations are PROGRAMMING, MONITOR ONLY and MONITOR/REPLY.

```

** MODE 3 REPLY TEST **
CODE = 7777   RF LVL= -80 dBm
REPLY = NORM (EMERG) (IDENT)
F1 TO F2 SPACING = 20.3 uS   %REPLY = 100
RANGE=260.00 nm   RATE=+540 kt
Press RUN TO start

```

```

** MODE C REPLY TEST **
RF LVL= -80 dBm
ALT= 84000ft   RATE= +030 ft/S
F1 TO F2 SPACING = 20.3 uS   %REPLY = 100
RANGE=260.00 nm   RATE= +540 kt
Press RUN TO start

```

```

** MODE 2 REPLY TEST **
CODE = 7777   RF LVL= -110 dBm
REPLY = NORM (EMERG) (IDENT)
F1 TO F2 SPACING = 20.3 uS   %REPLY = 100
RANGE=260.00 nm   RATE= +540 kt
Press RUN TO start

```

```

** MODE 4 REPLY TEST **
CODE VERIFY: PASS   RF LVL= -110 dBm
CODE SOURCE= CYPTO A(VB)
DISPARITY = 198.0 uS   %REPLY = 100
RANGE=125.00 nm   RATE= +540 kt
Press RUN TO start

```

### Interrogator Radiated Testing

The IFF-701Ti may be configured for stand alone, automatic

radiated testing within a radiation hazard area. An optional case spacer is available which is used to store the antenna pole sections, provide antenna pole mounting and stowage for an optional crypto mount tray/power converter & umbilical cable, designed to interface a KIV-6 or KIV-16 appliqué crypto. The unit may be operated with the case lid shut for extreme weather operation.

### Power & Frequency Test

The Power & Frequency Test screen monitors Frequency, Main beam ERP and ISLS ERP. The Mode and Pulse fields allow the selection of a specific interrogation mode and pulse to be monitored.

```

** POWER & FREQUENCY **
ERP   FRQ
MAIN:  +38 dBW   1030.000 MHz
ISLS:  +34 dBW
MODE:  1   PULSE: P1
Press RUN TO start

```

### TCAS OPERATION

The TCAS functional mode provides civil TCAS 1 or 2 test capability, plus additional UF/DF 4 & 5 capability for testing military Enhanced TCAS (E-TCAS).

### Setup Menus

Three Setup Menus are used to program parameters for power and sensitivity measurements, test set operational modes, test data storage and recall. The Aircraft Address is entered by the user in hex and the test set uses this address in the Mode S squitters and all-call reply (DF11) when testing TCAS 2. Setup menu #4 contains Mode S DF4,5,11 & 16 data field parameters used by the reply tests.

```

** TCAS SETUP#1 MENU **
UUT ANTENNA: RANGE= 50   HEIGHT= 2
STORE= 0   RECALL= 0   ERP UNITS= dBm
REPLY ADDR: 12FE54
GAIN_1030=11.5   GAIN_1090=12.0   LOSS=1.0
Change store/recall field then press RUN

```

```

** TCAS SETUP#2 MENU **
ALT REPORTING= ON
SQUITTERS= ON
RANGE MAX: +80 nm   MIN: 0 nm
ALT MAX: +126,700 ft   MIN: 0 ft

```

```

** TCAS SETUP#3 MENU **
BAUD RATE= 9600   REMOTE ECHO= ON
DATA BITS= 8   PREFIX STRING= ON
STOP BITS= 1   HANDSHAKE= NONE
PARITY= NONE   DUMP= 1

```

```

** TCAS SETUP#4 MENU **
DF04: FS=0   DR=00   UM=00
DF05: FS=0   DR=00   UM=00
DF11: CA=0
DF16: VS=0   SL=0   RIa=8   Rit=3
ARA=0000   RAC=0   VDS=30

```

### TCAS Auto Test

The TCAS Auto Test runs either the ATCRBS or Mode S monitor test to verify interrogation mode content. The Auto Test also runs



the current ATCRBS or Mode S reply test to verify intruder target tracking on the aircraft TCAS TA/RA display. Interrogation parametrics are also verified. The TCAS TYPE field allows the selection of TCAS 1, TCAS 2 or E-TCAS systems to test.

```

** TCAS AUTO TEST **
FRQ: 1090 MHz CODE: 1200
ERP: + 38.0 dBW STATUS: TRAFFIC
RANGE= 11.00 nm ALT= 9,157 ft
TCAS TYPE= TCAS 2 INTRUDER= ATCRBS
Press RUN TO start

```

### ATCRBS Reply Test

The ATCRBS reply test is used to simulate a Mode C intruder with dynamic range and altitude in response to Mode C all-call (TCAS 2) or Mode C (TCAS 1) interrogations.

```

** ATCRBS REPLY TEST - RUNNING **
%REPLY = 100 TIME: 1:39:0:46
RANGE= 5.86 nm RATE= +540 kt
ALT = 9,157 ft RATE= +1500 fpm
STATUS: TRAFFIC
W-S SEQUENCE INTERVAL: 1.00 sec

```

### Mode S Reply Test

The Mode S reply test is used to simulate a Mode S equipped intruder with dynamic range and altitude. Mode S replies include DF0,11& 16 (TCAS 2) and DF0,4,5,11 & 16 (E-TCAS).

The CODE field is used to enter the squawk code for DF5 replies, the same as the Mode 3/A squawk code.

The ALT field is used to enter the simulated altitude used for DF4 replies, the same as the Mode C altitude.

The REPLY field allows IDENT, NORM (normal reply selection) or SETUP. IDENT sets the FS field SPI+ AIRBORNE in the DF5 reply. NORM sets the FS field AIRBORNE in the DF5 reply. SETUP allows the FS field in setup menu #4 to be used.

```

** MODE S REPLY TEST - RUNNING **
TIME: 1:39:0:46
RANGE = 5.86 nm RATE= +540 kt
ALT = 9,157 ft RATE= +1500 fpm
STATUS: TRAFFIC CODE= 1234 REPLY= IDENT
SURVEILLANCE INTERVAL: 1.00 sec

```

### ATCRBS Monitor

When selected from a running scenario or reply test, replies continue while displaying monitor parameters. When run from monitor mode, replies are not generated.

The monitor accepts TCAS 2 Mode C all-call interrogations or TCAS 1 Mode C interrogations (P4 not present). The Whisper/Shout sequence interval is also displayed.

```

** ATCRBS MONITOR - RUNNING **
RANGE: 12.80 nm ALT: 8000 ft
P1/P3 SPACING: 21.0 uS P3 WIDTH: 0.8 uS
S1/P1 SPACING: 2.0 uS S1 WIDTH: 0.8 uS
P3/P4 SPACING: 2.0 uS P4 WIDTH: 0.8 uS
W-S SEQUENCE INTERVAL: 1.01 sec

```

```

** ATCRBS MONITOR - RUNNING **
-MONITOR ONLY-
P1/P3 SPACING: 21.0 uS P3 WIDTH: 0.8 uS
S1/P1 SPACING: 2.0 uS S1 WIDTH: 0.8 uS
P3/P4 SPACING: 2.0 uS P4 WIDTH: 0.8 uS
W-S SEQUENCE INTERVAL: 1.01 sec

```

### Mode S UF0/16 Monitor

The Mode S UF0/16 monitor screen may be selected by pressing the MON/REPLY key or when running a Mode S reply test or scenario test with a Mode S intruder type, by pressing the MON/REPLY key. When selected from a scenario or reply test, the replies continue while displaying monitor parameters. The Mode S monitor is used for monitoring TCAS 2 (UF0 & 16) acquisition & tracking interrogations, during a surveillance period or for monitoring Broadcast interrogations.

```

** MODE S UF0/16 MONITOR - RUNNING **
UF: 16 RANGE: 12.80 nm ALT: 8000 ft
RL: 1 AQ: 0 UDS: 30 LCK: MTB:
CVC: VRC: CHC: HRC: ESB:
MID: 1D34A5 B/CAST INTVL: CNT: 0
SURVEILLANCE INTERVAL: 1.00 sec

```

### Mode S UF4/5 Monitor

The Mode S UF4/5 monitor screen may be selected by pressing the MON/REPLY key or when running a Mode S reply test or scenario test with a Mode S intruder type. When selected from a scenario or reply, the monitor is used to verify E-TCAS FM mode operation.

```

** MODE S UF4/5 MONITOR - RUNNING **
RANGE: 12.80 nm ALT: 8000 ft
UF: 04 PC: 0 RR: 15 DI: 0 SD: 0000 AA: 12FE54
UF: 05 PC: 0 RR: 15 DI: 0 SD: 0000 AA: 12FE54
SURVEILLANCE INTERVAL: 1.00 sec

```

### Whisper/Shout Monitor

When simulating an ATCRBS intruder the test set monitors the Whisper/Shout sequence. The Whisper/Shout Monitor screen provides information used to verify whisper/shout steps and Side Lobe Suppression (SLS).

```

** WHISPER-SHOUT MONITOR **
RANGE: 12.80 nm ALT: 8000 ft
ATTEN= 0.0 dB NO SUPP:
S1: P2: BOTH:
SPACING:
NO WHISPER-SHOUT SEQUENCE

```

### Power & Frequency Test

The Power & Frequency Test screen measures Frequency and ERP. Mode S squitters are used to obtain the power and frequency readings. Squitters starting with the address loaded in the AIRCRAFT ADDRESS field in Setup Menu #1 use up to 512 different addresses. Readings are calculated from detected interrogations received from the squitters.

** POWER & FREQUENCY RUNNING **		
	ERP	FRQ
CURRENT:	+49.4 dBm	1030.000 MHz
AVERAGE:	+50.2 dBm	
INTERRS:	3	
W-S SEQUENCE INTERVAL: 1.00 sec		

## Transponder Mode Specification

### SIGNAL GENERATOR

#### Output Frequency

1030 MHz ( $\pm 0.01$  MHz)

#### RF Output Level ( $P_x$ )

NOTE: The RF Output Level is automatically controlled to determine receiver sensitivity (MTL) for the selected range and is typically 4 dB higher than MTL for test interrogations.

ANTENNA Connector: -3.6 to -53.6 dBm in 0.5 dB steps  
 $\pm 2.5$  dB (-3.6 to -42.6 dBm)  
 $\pm 3.5$  dB (-43.1 to -53.6 dBm)

Direct I/O: -50.85 to -100.85 dBm in 0.5 dB steps  
 $\pm 1.0$  dB (-50.85 to -89.85 dBm)  
 $\pm 2.0$  dB (-90.35 to -100.85 dBm)

#### Antenna

VSWR:  $< 1.5:1$

Gain (specified on antenna): 10 dB typical

Range: 6 feet (1.83 meters) to 250 feet (76.2 meters)

#### Test Signals (Interrogations)

##### PRF Rate

Modes 1, 2, 3/A, 4, C: 235 Hz ( $\pm 5$  Hz)

Mode S: 47 Hz ( $\pm 3$  Hz)

Operating Modes: 1, 2, 3/A, 4, C, S, Intermode

NOTE: The IFF-701Ti interrogates with the mode(s) necessary to run selected test.

#### Pulse Spacing

##### Mode 1

$P_1$  to  $P_2$ : 2.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_3$ : 3.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Mode 2

$P_1$  to  $P_2$ : 2.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_3$ : 5.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Mode 3/A

$P_1$  to  $P_2$ : 2.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_3$ : 8.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Mode C

$P_1$  to  $P_2$ : 2.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_3$ : 21.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Mode 4 INT

$P_1$  to  $P_2$ : 2.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_3$ : 4.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_4$ : 6.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_5$ : 8.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_6$  (Test A & B): 10.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Mode S

$P_1$  to  $P_2$ : 2.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to  $P_6$ : 3.50  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_1$  to SPR: 4.75  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Intermode 3/A

$P_1$  to  $P_3$ : 8.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_3$  to  $P_4$ : 2.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Intermode C

$P_1$  to  $P_3$ : 21.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_3$  to  $P_4$ : 2.00  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Pulse Width

##### Modes 1, 2, 3/A, C

$P_1, P_2, P_3$ : 0.80  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Mode 4

Sync Pulse Group

( $P_1, P_2, P_3, P_4$ ): 0.50  $\mu$ s ( $\pm 0.05$   $\mu$ s)

ISLS  $P_5$ : 0.50  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_6$  through  $P_{37}$ : 0.50  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Mode S

$P_1, P_2$ : 0.80  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_6$  (Short): 16.25  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_6$  (Long): 30.25  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Intermode

$P_1, P_2, P_3$ : 0.80  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_4$  (Short): 0.80  $\mu$ s ( $\pm 0.05$   $\mu$ s)

$P_4$  (Long): 1.60  $\mu$ s ( $\pm 0.05$   $\mu$ s)

##### Pulse Rise and Fall Time

Rise time (all modes): 30 to 100 ns

Fall time (all modes): 30 to 200 ns

##### Phase Modulation

Transition Time:  $< 80$  ns

Phase Balance:  $180^\circ$  ( $\pm 10^\circ$ )

##### Pulse Amplitude Levels

SLS ( $P_x$ ): -9 dB ( $\pm 1$  dB) relative to  $P_1$





	0 dB ( $\pm 1$ dB) relative to $P_1$
	OFF
ISLS ( $P_2$ ):	-9 dB ( $\pm 1$ dB) relative to $P_1$
	0 dB ( $\pm 1$ dB) relative to $P_1$
	OFF

NOTE: SLS/ISLS Level is automatically controlled in the SLS/ISLS LEVEL Test.

## UUT MEASUREMENTS (REPLIES)

### XMTR Frequency

Range:	1087 to 1093 MHz
Accuracy:	$\pm 50$ kHz
Resolution:	10 kHz

### XMTR Power (Direct Connection- Peak Pulse Power)

Range:	46 to 60 dBm (45 to 1000 W)
Accuracy:	$\pm 2$ dB
Resolution:	$\pm 0.1$ dB

### Effective Radiated Power (ERP)

Range:	48.5 to 57 dBm (71 to 500 W)
Accuracy:	$\pm 2$ dB
Resolution:	0.1 dB

### Receiver Sensitivity (Direct Connection - Minimum Triggering Level [MTL])

Range:	-67 to -79 dBm
Accuracy:	$\pm 2$ dB
Radiated Field Strength (MTL)	
Range:	-69 to -77 dBm (-77 to -85 dBW/m <sup>2</sup> )

### REPLY DELAY

#### Modes 1, 2, 3/A, C

Range:	1.80 to 7.00 $\mu$ s
Accuracy:	$\pm 100$ $\mu$ s

#### Mode 4

Range:	195.00 to 265.00 $\mu$ s
Accuracy:	$\pm 100$ $\mu$ s

### Mode S and ATCRBS/Mode S

#### All-Call

Range:	125.00 to 131.00 $\mu$ s
Accuracy:	$\pm 100$ ns

#### Time Decoded Video (TDV)

Range:	195.00 to 265.00 $\mu$ s
Accuracy:	$\pm 250$ ns

### REPLY DELAY JITTER

#### Modes 1, 2, 3/A, C, 4

Range:	0.00 to 2.30 $\mu$ s
Accuracy:	$\pm 90$ ns

### Mode S and ATCRBS/Mode S

#### All-Call

Range:	0.00 to 6.00 $\mu$ s
Accuracy:	$\pm 90$ ns

#### Time Decoded Video (TDV)

Range:	0 to 10.5 $\mu$ s
Accuracy:	$\pm 90$ ns

### F<sub>1</sub> TO F<sub>2</sub> SPACING

#### Modes 1, 2, 3/A, C

Range:	19.70 to 21.60 $\mu$ s
Accuracy:	$\pm 50$ ns

### F<sub>1</sub> AND F<sub>2</sub> PULSE WIDTH

#### Modes 1, 2, 3/A, C

Range:	0.25 to 1.00 $\mu$ s
Accuracy:	$\pm 50$ ns

#### Mode 4 Triplet Spacing

1st Pulse to 2nd Pulse:	1.30 to 2.00 $\mu$ s
1st Pulse to 3rd Pulse:	3.05 to 3.75 $\mu$ s
Accuracy:	$\pm 50$ ns

#### Mode 4 Triplet Width

Range:	0.35 to 0.60 $\mu$ s
Accuracy:	$\pm 50$ ns

#### Squitter Period

Range:	0.10 to 4.88 sec
Accuracy:	$\pm 100$ ms

### Diversity Isolation

Range:	0 to 20 dB (depending on Antenna Range)
Antenna Range:	6 feet (1.83 meters) to 50 feet (15.24 meters)
Accuracy:	$\pm 3$ dB

### SLS Test (at MTL + 10 dB)

Antenna Range:	6 feet (1.83 meters) to 95 feet (28.96 meters)
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## INTERROGATOR MODE SPECIFICATIONS

### SIGNAL GENERATOR

Output Frequency:	1090 MHz ( $\pm 0.01$ MHz)
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### RF Output Level ( $P_2$ )

ANTENNA Connector, Direct Mode	-3.6 to -53.6 dBm in 0.5 dB steps
	$\pm 2.5$ dB (-3.6 to -42.6 dBm)
	$\pm 3.5$ dB (-43.1 to -53.6 dBm)

ANTENNA Connector, Switched Attenuator In



	-21.0 to -71.0 dBm in 0.5 dB steps
	±2.5 dB (-21.0 to -60.0 dBm)
	±3.5 dB (-60.5 to -71.0 dBm)
Direct I/O:	-50.85 to -100.85 dBm in 0.5 dB steps
	±1.0 dB (-50.85 to -89.85 dBm)
	±2.5 dB (-90.35 to -100.85 dBm)

#### Remote Test Antenna

VSWR:	<1.5:1
Gain (specified on antenna):	10 dB typical
Range:	6 feet (1.83 meters) to 100 feet (30.5 meters)
Cable Loss:	1.5 dB typical

#### REPLY TYPES

##### Mode 3/A Reply Type

Normal:	1 Reply Group
Ident:	1 Reply Group + SPI
Emergency:	1 Reply Group + 3 Sets of Framing Pulses
Civil Mode A:	1 Reply Group, Code = 7700

##### Mode C Reply Type

Normal:	1 Reply Group
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##### Mode 1 Reply Type

Normal:	1 Reply Group
Ident:	2 Reply Groups
Emergency:	1 Reply Group + 3 Sets of Framing Pulses

##### Mode 2 Reply Type

Normal:	1 Reply Group
Ident:	1 Reply Group + SPI
Emergency:	1 Reply Group + 3 Sets of Framing Pulses

#### REPLY CHARACTERISTICS

##### Modes 1, 2, 3/A, C

$F_1$ to $F_2$ Spacing:	19.40 to 21.30 $\mu$ s
Resolution:	100.0 ns
Accuracy:	±50 ns
Ident Spacing ( $F_1$ to SPI):	24.650 $\mu$ s (±0.50 $\mu$ s)
Emergency Mode Spacing:	4.350 $\mu$ s (±0.05 $\mu$ s)
Reply Delay:	3.0 $\mu$ s (±0.05 $\mu$ s)

##### Pulse Characteristics

Pulse Width:	0.450 $\mu$ s (±0.05 $\mu$ s)
Pulse Rise Time:	30 to 100 ns
Fall Time:	30 to 200 ns

#### Percent Reply

Range:	0 to 100%
Resolution:	10%
Accuracy:	±10%

#### Range

0.50 to 260 nmi	
Resolution:	50 ns
Accuracy:	±0.02 nmi
Range Rate:	-1200 to +1200 kts
Resolution:	10 kts
Accuracy:	±10%

#### Altitude

Range:	-1000 to 126,700 ft
Resolution:	100 ft
Altitude Rate:	-10000 to + 10000 fpm
Resolution:	100 fpm
Accuracy:	±10%

#### UUT MEASUREMENTS (INTERROGATIONS)

##### XMTR Frequency (averaged over 30 sec)

NOTE: Specified accuracy applies with nominal interrogation width and position.

Selectable:	$P_1$ or $P_3$ for Modes 1,2,3/A
	$P_1, P_3$ or $S_1$ for Mode C
	$P_1, P_2, P_3$ or $P_4$ for Mode 4
Measurement Range:	1029.9 to 1030.1 MHz
Accuracy:	±25 kHz
Resolution:	1 kHz

##### Main and ISLS Effective Radiated Power (ERP) (averaged over 30 seconds)

NOTE: Specified accuracy applies with nominal interrogation width and position.

Selectable (Main ERP):	$P_1$ or $P_3$ for Modes 1,2,3/A
	$P_1, P_3$ or $S_1$ for Mode C
	$P_1, P_2, P_3$ or $P_4$ for Mode 4
Range:	41.3 to 80 dBm
	14 to 10000 W
Accuracy:	±2.7 dB (41.3 to 67 dBm)
	±3.3 dB (67 to 80 dBm)

##### Direct Connect Peak Pulse Power

NOTE: Specified accuracy applies with nominal interrogation width and position.

Selectable (Main ERP):	$P_1$ or $P_3$ for Modes 1,2,3/A
	$P_1, P_3$ or $S_1$ for Mode C
	$P_1, P_2, P_3$ or $P_4$ for Mode 4



Range:	33.0 to 62.2 dBm 2 to 1660 W
Accuracy:	$\pm 2.1$ dB (33.0 to 58.2 dBm) $\pm 2.7$ dB (58.3 to 62.2 dBm)
Resolution:	0.1 dB

#### Interrogation Monitor (Mode 1, 2, 3/A and C)

NOTE: Specified accuracy applies with nominal interrogation width and position.

#### $P_1$ to $P_2$ Spacing

#### $P_1$ to $P_2$ Spacing

Accuracy:	$\pm 50$ ns
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#### $P_1$ , $P_2$ , $P_3$ Pulse Width

Accuracy:	$\pm 50$ ns
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#### PRF

Range:	0 to 1000 Hz
Accuracy:	$\pm 10$ Hz

#### $P_2$ Level (Relative to $P_1$ )

Range:	-13 to +3 dB
Accuracy:	$\pm 2$ dB
Scan Rate:	0, 6 to 60 SPM
Accuracy:	$\pm 10\%$

#### Interrogation Monitor (Mode 4)

NOTE: Specified accuracy applies with nominal interrogation width and position.

#### $P_1$ to $P_2$ Spacing

#### $P_1$ to $P_3$ Spacing

#### $P_1$ to $P_4$ Spacing

#### $P_1$ to $P_5$ Spacing

Accuracy:	$\pm 50$ ns
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#### $P_1$ , $P_2$ , $P_3$ , $P_4$ , $P_5$ Pulse Width

Accuracy:	$\pm 50$ ns
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#### $P_5$ Level (Relative to $P_1$ )

Range:	-13 to +3 dB
Accuracy:	$\pm 2$ dB

#### Scan Rate

Range:	0, 6 to 60 SPM
Accuracy:	$\pm 10\%$

#### PRF

Range:	0 to 990 Hz
Accuracy:	$\pm 10$ Hz

## TCAS MODE SPECIFICATIONS

### SIGNAL GENERATOR

Output Frequency:	1090 MHz ( $\pm 0.01$ MHz)
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### RF Output Level ( $P_1$ )

ANTENNA Connector:	Simulates +44.25 dBm at the Interrogator
Direct I/O:	Simulates +44.25 dBm at the Interrogator

### Reply Types

ATCRBS:	Mode C
Mode S:	DF 0, 4, 5, 16, Squitter DF11

### Mode C Pulse Spacing

$F_1$ to $F_2$ :	20.30 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $C_1$ :	1.45 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $A_1$ :	2.90 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $C_2$ :	4.35 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $A_2$ :	5.80 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $C_4$ :	7.25 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $A_4$ :	8.70 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $B_1$ :	11.60 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $D_1$ :	13.05 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $B_2$ :	14.50 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $D_2$ :	15.95 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $B_4$ :	17.40 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$F_1$ to $D_4$ :	18.85 $\mu$ s ( $\pm 0.05$ $\mu$ s)

### Mode S Pulse Spacing

$P_1$ to $P_2$	1.00 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$P_1$ to $P_3$ :	3.50 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$P_1$ to $P_4$ :	4.50 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$P_1$ to $D_1$ :	8.00 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$D_1$ to $D_n$ ( $n = 2$ to 112):	1.0 $\mu$ s times ( $n-1$ ) ( $\pm 0.05$ $\mu$ s)

### Pulse Width

Mode C:	0.45 $\mu$ s ( $\pm 0.05$ $\mu$ s)
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### Mode S

$P_1$ through $P_4$ :	0.50 $\mu$ s ( $\pm 0.05$ $\mu$ s)
$D_1$ through $D_{112}$ :	0.50 $\mu$ s ( $\pm 0.05$ $\mu$ s) 1 $\mu$ s chip width

### Pulse Rise and Fall Times

Rise Time (all modes):	30 to 100 ns
Fall Time (all modes):	30 to 200 ns

### Range Delay (selected range plus antenna separation distance)

Range:	0.5 to 260 nmi
Resolution:	0.1 nmi
Accuracy:	±0.02 nmi

### Range Rate

Range:	-1200 to +1200 kts
Resolution:	10 kts
Accuracy:	0.02 nmi

### Altitude Range

Range:	-1000 to +126,700 feet
Resolution:	25 / 100 feet

### Altitude Rate

Rate:	-10,000 to +10,000 fpm
Resolution:	100 fpm
Accuracy:	±10%

### Squitter

Mode:	Selectable ON or OFF
Rate:	0.8 to 1.2 seconds (Random)

## UUT MEASUREMENTS (INTERROGATIONS)

### Mode S Transmitter

NOTE: Specified accuracy applies with nominal interrogation width and position.

Range:	1029.9 to 1030.1 MHz
Accuracy:	±25 kHz
Resolution:	1 kHz

### ATCRBS Monitor

NOTE: Specified accuracy applies with nominal interrogation width and position.

$P_1$ to $P_3$ Spacing:	±50 ns
$S_1$ to $P_1$ Spacing:	±50 ns
$P_3$ to $P_4$ Spacing:	±50 ns
$P_3$ Width:	±50 ns
$S_1$ Width:	±50 ns
$P_4$ Width:	±50 ns

## ENVIRONMENTAL AND POWER SPECIFICATIONS

### POWER AND FUSE

#### Battery Operation

Duration:	≥1.5 hours (before recharge at 25° C)
Automatic Shutoff:	After 15 minutes of non-use

#### AC Power Requirements

Voltage and Frequency:	100 to 120 VAC, 60 Hz
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220 to 240 VAC, 50 Hz

Maximum Power Consumption: 47 W

Mains Supply Fluctuations: ≤10% of nominal voltage

Transient Overvoltage: Installation Category II

### FUSE REQUIREMENTS

#### F1 and F2

100 to 120 VAC:	1.0 A, 250 V, Type F
220 to 240 VAC:	0.5 A, 250 V, Type F

### ACCESSORY POWER AND FUSE SPECIFICATIONS

#### Universal Crypto Umbilical Power Requirements

AC Voltage and Frequency: 100 to 120 VAC, 60 Hz, ≤2 A

DC Voltage: 22 to 29 Vdc, ≤2 A

#### Universal Crypto Umbilical Fuse Requirements

$F_1$  (22 to 29 Vdc): 2 A, 250 V, Type F

$F_2$  and  $F_3$  (100 to 120 VAC): 2 A, 250 V, Type T

#### KIV-6 Crypto Interface Adaptor

$F_1$ : 1 A, 32 V, Type F

### ENVIRONMENTAL

Operating Temperature: -20°C to +50°C

Humidity: ≤80 % up to 31°C, decreasing linearly to 50% at 40°C

Use: Pollution Degree 2

Altitude: ≤13,124 ft (4000 m)

### DIMENSIONS

28.4 cm Width; 36.1 cm Depth; 27.9 cm Height excluding spacer

11.2 in. Width; 14.2 in. Depth; 11 in. Height excluding spacer

### WEIGHT

15.5 kg (34 lbs)

20.0 kg (42 lbs) with spacer section

### CALIBRATION PERIOD

12 Months

### NATO stock numbers

#### IFF-701

6625-01-468-7633 (USA)

#### IFF-701Ti

6625-01-468-4809 (USA)

#### SIM-701

6625-99-5938197 (UK)



## Accessories

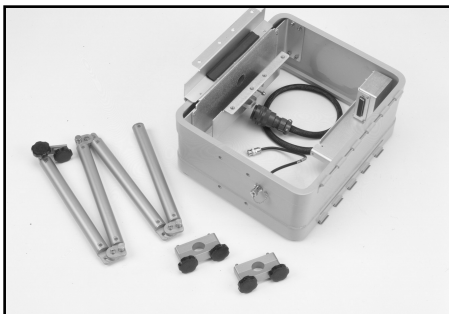
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When ordering please quote full ordering number information

Item	Description/Use
<b>Supplied Accessories</b>	
Line Cord	
RF Coax Cable	Connects Directional Antenna to IFF-701Ti
Operators Manual	
Directional Antenna	Used for all tests
TNC-BNC Adaptor x 2	For direct connection to antenna feeders, lobe switches and transponder
Crypto Umbilical Cable Length 3ft	Connects IFF-701Ti to KIR/KIT-1C-TSEC Crypto, for stored code loading or direct Crypto operation. Provided with 4ft power leads for +28 VDC aircraft battery connection. Also provides 115 VAC input.
<b>Optional Accessories</b>	
SIM-701 Monopulse Antenna Simulator	For direct connect testing of interrogator sum & difference channels.
Case spacer section AC1006	Provides antenna pole mounting brackets & antenna bulkhead connector for sealed case operation. Also provides antenna mount poles, storage for antenna mount pole sections and antenna bulkhead to test set RF coax cable. Provides KIV-6/16 applique crypto mount tray stowage and umbilical cable.
AC-201B TCAS	For testing TCAS installations within a high multi-path environment.

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All IFR Avionics products delivered with Factory Certificate Of Calibration



Optional spacer (AC1006) and accessories

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