

Avionics

IFR 6000 Ramp Test Set

AEROFLEX
A passion for performance.



El IFR 6000 es un equipo compacto, ligero y a prueba de agua, diseñado para prueba de transpondedores modos A/C/S, TCAS I y II y DME.

- Un menú principal para cada modo
- Antena desmontable
- Gran pantalla
- Interfaz de usuario sencilla
- Ligero y compacto < 8 lbs. (3.6 kg)
- Batería con 6 horas de autonomía
- Cumple con FAR part 43 appendix F
- "European Elementary and Enhanced Surveillance"

Las prestaciones del IFR 6000 y su facilidad de manejo permiten además visualizar todos los parámetros que el usuario necesita en su trabajo.



Controles

Teclas dedicadas a cada Modo para XPDR, DME y TCAS para un rápido acceso en funcionamiento manual.

Las teclas soft y las del cursor consiguen un intuitivo interfaz hombre-máquina.

En Modo DME cuenta con teclas dedicadas para selección de frecuencia/canal y para control de nivel RF.

Dispone de teclas dedicadas para parámetros variables en Modo DME y TCAS, como "Range" y "Rate".

Modos de funcionamiento

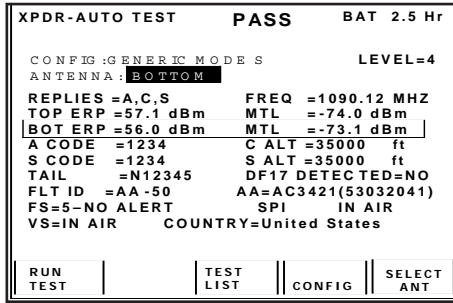
Cada modo de funcionamiento tiene una pantalla principal de menú. Los modos de funcionamiento son :

XPDR (Sub-Modos: ADS-B MON, ADS-B GEN & GICB)

DME

TCAS 1,2 (Sub-Modos: TIS)

La mayoría de las pruebas se pueden ejecutar sin dejar la pantalla principal, lo que simplifica la tarea del técnico.



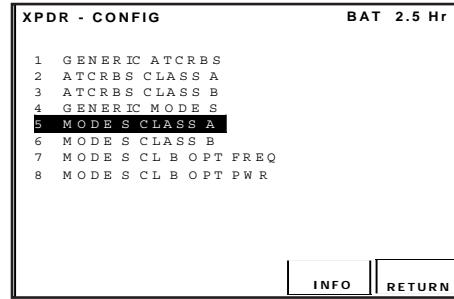
Modo S y ATCRBS

Xpdr Auto-Test:

Todos los parámetros que necesita el usuario se muestran en una sola pantalla.

La prueba automática ejecuta todas las pruebas definidas en FAR Part 43 Appendix F, incluyendo las pruebas adicionales propuestas de "Eurocontrol".

Las pruebas se ajustan automáticamente a los niveles del transpondedor que corresponda para evitar fallos erróneos.



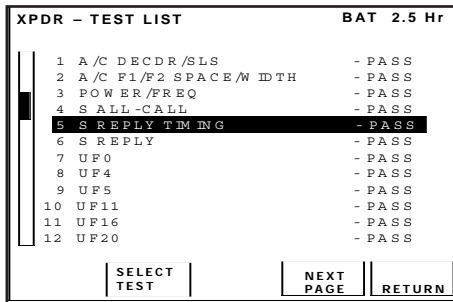
El usuario selecciona la configuración requerida para la prueba.

Si se desconoce la clase de transpondedor, podremos seleccionar la configuración genérica que aplica los mayores límites.

El equipo de prueba determinará automáticamente el nivel del transpondedor Modo S.

Se pueden mostrar los parámetros de configuración elegidos pulsando la tecla soft INFO.

Se ofrecen 8 configuraciones predeterminadas que satisfacen a las necesidades de los transpondedores más comunes.



La lista de pruebas se elige en la pantalla de pruebas automáticas. Resulta muy sencillo elegir las pruebas individuales que compondrán la prueba automática.

Las pruebas de la 2ª pantalla (no mostrada) son :

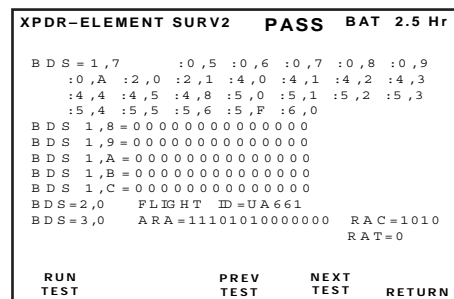
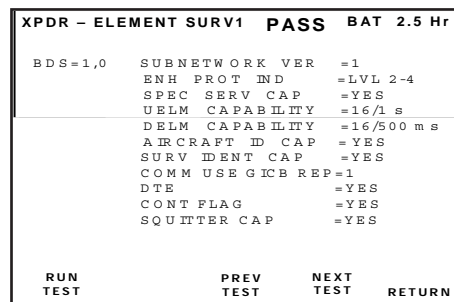
13 UF21

14 UF24

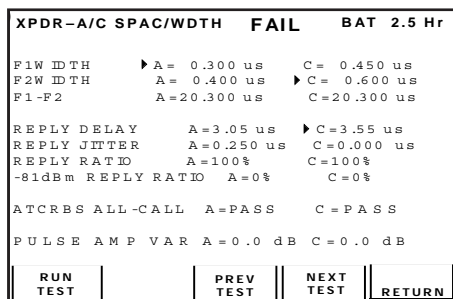
15 ELEMENTARY SURVEILLANCE 1

16 ELEMENTARY SURVEILLANCE 2

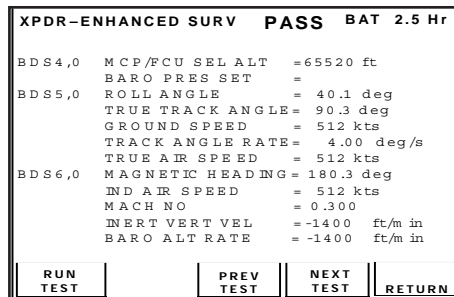
15 ENHANCED SURVEILLANCE



El Eurocontrol Elementary Surveillance DAP's (Downlink Aircraft Parameters) se muestra en dos pantallas.



Las pruebas individuales se pueden revisar para identificar los fallos, señalados por una flecha.



Eurocontrol Enhanced Surveillance DAP's se muestra en una pantalla.

```

XPDR - UFO          PASS          BAT 2.5 Hr

DF = 0
VS = 0 - IN AIR
CC = 0 - NOT SUPPORTED
SL = 0 - NO TCAS SENS LEVEL REPORTED
RI = 12 - AIRSPEED 301 TO 600 KNOTS

AC = 03A0(01640) 10700 FT
MODE C ALT COMPARE = PASS
AA = AC3421(53032041)
DF11 ADDRESS COMPARE = PASS

RUN TEST | PREV TEST | NEXT TEST | RETURN

```

```

TCAS          BAT 2.5 Hr
SCENARIO: 0-CUSTOM
TCAS TYPE:TCAS II          %REPLY: 100
INTRUDER TYPE:MODE S
RANGE START: 10.00 nm     STOP: 0.00 nm
RANGE RATE : 350 kts
ALT START: +1000 ft      STOP: 0 ft
ALT RATE : 600 fpm      CONVERGE :OFF
UUT ALT : 31200 ft      ALT DETECT: ON
FREQ= 1030.000 MHz      ERP= 57.0 dBm
RANGE= 21.00 nm IN      ALT= +1000 ft
TCAS STATUS= TRACKING
STATUS= NON-THREAT      ENCOUNTER= 0: 00

RUN TEST | PREV PARAM | NEXT PARAM | MON | STORE/RECALL

```

Ya no hay que interpretar datos en hexadecimal HEX!

Todos los formatos de los parámetros en pruebas Modo S se expresan en unidades de ingeniería.

```

XPDR-UF11       PASS          BAT 2.5 Hr

DF=11
CA=0-LEVEL 2 CA MODE
PI = 02F08D
AA=AC3421(53032041)
II LOCKOUT TIMER=18S
II MATCH=PASS
SI LOCKOUT TIMER=18S
SI MATCH=PASS

RUN TEST | PREV TEST | NEXT TEST | RETURN

```

Prueba completa de temporizador de bloqueo y de Código II / SI

```

XPDR-S ALL-CALL PASS          BAT 2.5 Hr

ITM REPLY
DELAY      A=128.08 us C=128.07 us
JITTER     A=0.510 us C=0.510 us
ADDRESS    A=2AC421 C=2AC421
RATIO      A=100% C=100%
-81dBm     A=0% C=0%

MODE S ALL-CALL = PASS
ADDRESS      = 2AC421
TAIL= N12345
COUNTRY= United States

RUN TEST | PREV TEST | NEXT TEST | RETURN

```

```

DME          BAT 2.5 Hr

VOR: 108.00 MHz      RFLVL: -2.0 dBm
FREQ: 978 MHz       RATE: 650 kts IN
CHAN: 17X           RANGE: 450.00 nm

% REPLY: 100      ECHO :OFF
SQTR : ON         IDENT: OFF

TX FREQ = 1041.00 MHz      ERP=55.0 dBm
P1 WIDTH= 3.500 us        PRF=150 Hz
P2 WIDTH= 3.500 us
P1-P2 = 36.00 us(Y)
UUTLVL = -38.2 dBm

RUN TEST | PREV PARAM | NEXT PARAM | STOP RATE | IN/OUT

```

DME

Todo lo que el usuario necesita está en una pantalla.

- Control de nivel RF para pruebas de sensibilidad de seguimiento
- Soporta todos los canales DME/TACAN seleccionables en parejas de canales VOR.
- Todas las medidas de la unidad bajo prueba en pantalla.

TCAS

Tipos de TCAS...

TCAS 1 MODO C

TCAS 2 ATCRBS

TCAS 2 MODO S

La Altitud automática interroga Modo S XPDR de A/C bajo prueba para obtener la altitud actual.

Selecciona escenarios prefijados directamente desde la pantalla de pruebas automáticas.

ADS-B y GICB

ADS-B MON: Para monitorizar squitter ampliado DF17 de transpondedores y squitter ampliado DF18 de transmisores ADS-B de 1090 MHz.

ADS-B GEN: Para generar squitter ampliado DF17/DF18, simulando transpondedores y transmisores ADS-B de 1090MHz.

GICB: Para monitorizar DAP's (todos los campos).

```

ADS-B MON DF17          BAT 2.5 Hr
1 0,5 AIRBORNE POS      - AVAIL
2 0,6 SURFACE POS      - NOT CAP
3 0,8 IDENT & CAT       - AVAIL
4 0,9 AIRBORNE VEL     - AVAIL
5 6,1 A/C STATUS       - AVAIL
6 6,2 TARG STATE      - AVAIL
7 6,3 A/C OP STATUS    - NO SQTR

RUN TEST | BDS DATA | RETURN

```

ADS-B MON:

La lista ADS-B MON LIST muestra los formatos BDS soportados.

El estado BDS se anuncia para indicar si se ha capturado el squitter, no está disponible o no se ha visto.

La tecla BDS DATA muestra la pantalla de datos BDS del número BDS elegido.

```

ADS-B MON BDS 0,5      AVAIL      BAT 2.5 Hr
BDS=0,5 AIRBORNE POS  TYPE=14
DF17 AA=3AC421 (16542041)  COUNT=1000
ME=00000000000000000000  PERIOD=DEFAULT
LAT= 37 39 00 N          LONG= 97 25 48 W
POS=GLOBAL SAF=1        T=N/UTC
SURVEILLANCE STATUS    = NO INFO
BARO PRES ALT=131025 ft
GNSS ALT = N/A

RUN TEST  PREV TEST  NEXT TEST  RETURN

```

ADS-B MON:

La pantalla BDS DATA muestra el contenido completo del formato BDS elegido recibido por squitter ampliados DF17 o DF18.

```

GICB BDS 3,0          AVAIL      BAT 2.5 Hr
BDS=3,0 ACAS ARA
DF20 AA=3AC421 (16542041)
MB=00000000000000000000
TIDB= 70 deg
TIDA= 32000 ft          TIDR= 1.00 nm
ARA=11101010000000000000  TID=3A4518
RAC=1010 RAT=1        MTE=3
THREAT ADDRESS=N/A
TTI=2-ALT/RANGE/BEARING DATA

RUN TEST  PREV TEST  PREV TEST  RETURN

```

GICB:

Las pantallas BDS DATA muestran el contenido completo del formato BDS seleccionado que se recibe a través de GICB DF20 o DF21 en unidades de ingeniería RTCA/ICAO.

```

ADS-B GEN DF17          BAT 2.5 Hr
1 0,5 AIRBORNE POS    - DISABLED
2 0,6 SURFACE POS     - ENABLED
3 0,8 IDENT & CAT     - ENABLED
4 0,9 AIRBORNE VEL    - ENABLED
5 6,1 A/C STATUS      - ENABLED
6 6,2 TARG STATE     - ENABLED
7 6,3 A/C OP STATUS   - ENABLED

RUN TEST  BDS DATA  BDS ON  RETURN

```

La tecla BDS ENABLE/DISABLE activa o desactiva el número BDS elegido para recepción de squitters ampliados DF17 o DF18.

La tecla BDS DATA muestra la pantalla BDS DATA del número BDS seleccionado.

```

TIS                      BAT 2.5 Hr
TARGETS:5                UUT HDG:180 deg
BRG(deg) : 120 90 234 182 23
RNG(nm) : 6.00 4.00 3.00 2.00 1.00
ALT(ft) : 3500 2000 1000 500 0
ALT RATE:CLIMB LEVEL LEVEL CLIMB LEVEL
HDG(deg) : 234 178 56 22 0
TRAFFIC : PROX PROX PROX PROX TRFC

ADDR=3AC421 (16542041) N12345
TSCR= 5 TSDR= 1 ALT=126700 ft
TIS STATUS=CONNECTING INFO=0000

RUN TEST  PREV PARAM  NEXT PARAM

```

TIS

Se pueden simular hasta 5 intrusos estáticos relativos al A/C (de la unidad bajo prueba)

General

Prueba por antena:

El IFR 6000 se suministra con una antena direccional completamente sellada que se puede montar sobre el equipo, sobre un trípode o sujetarla con la mano.

Prueba con conexión directa:

El IFR 6000 se puede conectar directamente a la unidad bajo prueba mediante el cable coaxial de RF suministrado, conectado al puerto RF I/O.



Maleta de transporte:

El IFR 6000 se suministra con una maleta de transporte de plástico rígido que admite el equipo de prueba, la antena direccional, el cable coaxial de RF, apantallamiento de antena, la extensión de conectores y el cargador.

```

ADS-B GEN BDS 0,5      BAT 2.5 Hr
BDS=0,5 AIRBORNE POS  TYPE: 9
DF17 AA:3AC421 (16542041)  COUNT=1000
ME=490844AE8319EA        PERIOD: 1.00 s
LAT: 37 39 00 N          LONG: 97 25 48 W
POS:                      SAF:1        T:N/UTC
SURVEILLANCE STATUS : NO INFO
BARO PRES ALT:126700 ft
GNSS ALT : N/A

RUN TEST  BDS OFF  PREV PARAM  NEXT PARAM  RETURN

```

ADS-B GEN:

La pantalla BDS DATA muestra el contenido completo del formato BDS elegido, en unidades de ingeniería RTCA/ICAO.

Las teclas NEXT y PREV PARAM seleccionan los campos de datos para su edición.

```

GICB DF20              BAT 2.5 Hr
1 0,5 AIRBORNE POS    - AVAIL
2 0,6 SURFACE POS     - NOT CAP
3 0,7 SQTR STATUS     - AVAIL
4 0,8 IDENT & CAT     - AVAIL
5 0,9 AIRBORNE VEL    - AVAIL
6 1,0 DATA LNK CAP   - AVAIL
7 1,7 COM GICB CAP    - AVAIL
8 1,8 SPEC SERV CAP #1 - AVAIL
9 1,9 SPEC SERV CAP #2 - AVAIL
10 1,A SPEC SERV CAP #3 - AVAIL
11 1,B SPEC SERV CAP #4 - AVAIL
12 1,C SPEC SERV CAP #5 - AVAIL

RUN TEST  BDS DATA  RETURN

```

GICB:

BDS LIST muestra los formatos BDS soportados.

La tecla BDS DATA muestra la pantalla BDS DATA del número BDS seleccionado.



ESPECIFICACIONES

NOTA: Se requiere un período de calentamiento de 5 minutos para cumplir todas las especificaciones

DME MODE SPECIFICATIONS

SIGNAL GENERATOR

OUTPUT FREQUENCY

REPLY FREQUENCY

Range

962 to 1213 MHz

Accuracy

±10 kHz

OUTPUT LEVEL

ANTENNA PORT

Range

-67 to -2 dBm at Antenna port

Resolution

1 dB

Accuracy

±2 dB

Distance to UUT antenna

6 to 300 ft with supplied antenna

RF I/O PORT

Range

-115 to -47 dBm

Resolution

1 dB

Accuracy

-95 dBm to -47 dBm ±1 dB

Accuracy

-115 dBm to <-95 dBm ±2 dB

REPLY PULSE SPACING

P1 to P2

12 μs (±100 ns) (X Channel) @ 50% peak

P1 to P2

30 μs (±100 ns) (Y Channel) @ 50% peak

REPLY PULSE WIDTH

P1/P2

3.5 μs (±0.5 μs)

ECHO REPLY

Control

On/Off

Position

30 nmi (±1 nmi)

Amplitude

-11 dB (±1 dB) relative to reply level

REPLY PULSE RISE AND FALL TIMES

ALL PULSES

Rise Time

2.5 μs (±0.25 μs) (10% to 90%)

Fall Time

2.5 μs (±0.25 μs) (90% to 10%)

REPLY DELAY

X CHANNEL

Fixed Reply Delay

50 μs (±100 ns)

Y CHANNEL

Fixed Reply Delay

56 μs (±100 ns)

RANGE DELAY

X AND Y CHANNEL

Range

0 to 450.00 nmi

Resolution

0.01 nmi

Accuracy

±0.01 nmi

RANGE RATE

X AND Y CHANNEL

Range

10 to 6500 kts

Resolution

1 kts

Accuracy

±0.01% typical, tested to ±0.5%

SQUITTER

PRF

2700 Hz

Accuracy

±2%

Distribution

Per ARINC 568

REPLY EFFICIENCY

Range

0 to 100%

Resolution

1% increments

Accuracy

±0.5%

IDENT TONE

Selection

Selectable three letter code

Frequency

1350 Hz

Accuracy

±2 Hz

UUT MEASUREMENTS

ERP

Range

+47 to +64 dBm

Resolution

0.1 dB

Accuracy

±2 dB

DIRECT CONNECTION PEAK PULSE POWER

Range

+47 to +64 dBm

Resolution

0.1 dB

Accuracy

±1 dB

FREQUENCY

Range

1025.00 to 1150.00 MHz

Resolution

10 kHz

Accuracy

±20 kHz

INTERROGATION PULSE WIDTH

P1 AND P2 PULSE WIDTHS

Range

2.00 to 5.00 μ s

Resolution

1 ns

Accuracy

±50 ns

INTERROGATION PULSE SPACING

P1 to P2 Spacing

10 to 14 μ s (X Channel)

P1 to P2 Spacing

34 to 38 μ s (Y Channel)

Resolution

10 ns

Accuracy

±20 ns

INTERROGATION PRF

Range

1 to 300 Hz

Resolution

1 Hz

Accuracy

±2 Hz

TRANSPONDER MODE SPECIFICATIONS

SIGNAL GENERATOR

RF OUTPUT FREQUENCY

Interrogation Frequency

1030 MHz

Accuracy

±10 kHz

RF OUTPUT LEVEL

ANTENNA CONNECTOR

MTL + 6 dB typical, automatically controlled for a MTL range of -83 to -68 dBm

Range

-67 to -2 dBm at antenna connector

Resolution

0.5 dB

Accuracy

±2 dB

Distance to UUT antenna

6 to 200 ft with supplied antenna

RF I/O CONNECTOR

MTL + 6 dB typical, automatically controlled

Range

-115 to -47 dBm

Resolution

0.5 dB

Accuracy

-95 to -47 dBm, ±1 dB

Accuracy

-115 to <-95 dBm, ±2 dB

ATCRBS/MODE S INTERROGATION PULSE SPACING

MODE A

P1 to P2

2.00 μ s (±25 ns)

P1 to P3

8.00 μ s (±25 ns)

MODE C

P1 to P2

2.00 μ s (±25 ns)

P1 to P3

21.00 μ s (±25 ns)

MODE S

P1 to P2

2.00 μ s (±25 ns)

P1 to P6

3.50 μ s (±25 ns)

P1 to SPR

4.75 μ s (±25 ns)

P5 to SPR

0.40 μ s (±50 ns)

INTERMODE INTERROGATION PULSE SPACING

MODE A

P1 to P3

8.00 μ s (\pm 25 ns)

P1 to P4

10.00 μ s (\pm 25 ns)

MODE C

P1 to P3

21.00 μ s (\pm 25 ns)

P1 to P4

23.00 μ s (\pm 25 ns)

INTERROGATION PULSE WIDTHS

MODE A,C,S,INTERMODE

P1,P2,P3

0.80 μ s (\pm 50 ns)

MODE S

P6 (Short DPSK Block)

16.25 μ s (\pm 50 ns)

P6 (Long DPSK Block)

30.25 μ s (\pm 50 ns)

P5

0.80 μ s (\pm 50 ns)

INTERMODE

P4 (Short)

0.80 μ s (\pm 50 ns)

P4 (Long)

1.60 μ s (\pm 50 ns)

INTERROGATION PULSE RISE AND FALL TIMES

ALL MODES

Rise Time

50 to 100 ns

Fall Time

50 to 200 ns

PHASE MODULATION

ALL MODES

Transition Time

\leq 80 ns

Phase Shift

180° (\pm 10°)

SLS LEVELS

ATCRBS

SLS Level (P2)

-9 dB, -1 to +0 dB relative to P1 level

0 dB, -0 to +1 dB relative to P1 level

OFF

MODE S

SLS Level (P5)

-12 dB, -1 to +0 dB relative to P6 level

+3 dB, -0 to +1 dB relative to P6 level

OFF

Note: SLS level is automatically controlled in the SLS LEVEL test.

INTERROGATION TEST SIGNALS

MODE S

PRF

50 Hz (\pm 5 Hz)

ATCRBS

PRF

235 Hz (\pm 5 Hz)

UUT MEASUREMENTS

ERP (@ 1090 MHz)

Range

+45.5 to +59 dBm (35.5 to 800 watts)

Resolution

0.1 dB

Accuracy

\pm 2 dB

Direct Connection Peak Pulse Power (@ 1090 MHz)

Range

+46.5 to +59 dBm (45 to 800 watts)

Resolution

0.1 dB

Accuracy

\pm 1 dB

TRANSMITTER FREQUENCY

Range

1087.000 to 1093.000 MHz

Resolution

10 kHz

Accuracy

\pm 50 kHz

RECEIVER SENSITIVITY, RADIATED MTL

Range

-79 to -67 dBm into 0 dBi antenna

Resolution

0.1 dB

Accuracy

\pm 2 dB, typical

RECEIVER SENSITIVITY, DIRECT CONNECTION MTL

Range

-79 to -67 dBm

Resolution

0.1 dB

Accuracy

\pm 2 dB

REPLY DELAY

ATCRBS

Range

1.80 to 7.00 μ s

Resolution

10 ns

Accuracy

\pm 50 ns

REPLY DELAY, MODE S AND ATRCBS MODE S ALL-CALL

Range

125.00 to 131.00 μ s

Resolution

10 ns

Accuracy

\pm 50 ns

REPLY DELAY JITTER

ATRCBS

Range

0.00 to 2.30 μ s

Resolution

1 ns

Accuracy

\pm 20 ns

MODE S AND ATRCBS MODE S ALL-CALL

Range

0.00 to 6.00 μ s

Resolution

1 ns

Accuracy

\pm 20 ns

PULSE SPACING

F1 TO F2

Range

19.70 to 21.60 μ s

Resolution

1 ns

Accuracy

\pm 20 ns

MODE S PREAMBLE

Range, P1 to P2

0.8 to 1.2 μ s

Range, P1 to P3

3.3 to 3.7 μ s

Range, P1 to P4

4.3 to 4.7 μ s

Resolution

1 ns

Accuracy

\pm 20 ns

PULSE WIDTHS

F1 AND F2

Range

0.25 to 0.75 μ s

Resolution

1 ns

Accuracy

\pm 20 ns

MODE S PREAMBLE

Range

0.25 to 0.75 μ s

Resolution

1 ns

Accuracy

\pm 20 ns

PULSE AMPLITUDE VARIATION

Range, Mode S (Relative to P1)

-3 to +3 dB

Range, ATRCBS (Relative to F1)

-3 to +3 dB

Resolution

0.1 dB (0.01 dB via RCI)

Accuracy

\pm 0.5 dB

DF 11 SQUITTER PERIOD

Range

0.10 to 4.88 sec

Resolution

10 ms

Accuracy

\pm 10 ms

DIVERSITY ISOLATION

Range

0 to >20 dB (Depending on Test Distance)

Test Distance

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

Resolution

0.1 dB

Accuracy

\pm 3 dB

TCAS MODE SPECIFICATIONS

SIGNAL GENERATOR

OUTPUT FREQUENCY

REPLY FREQUENCY

1090 MHz

Accuracy

\pm 10 kHz

OUTPUT LEVEL (SIMULATED ERP)

ANTENNA CONNECTOR ^{Note 1}

Radiated power at 0dBi UUT antenna

-68 dBm typical @ 10 Nmi Range, automatically controlled

Range

-67 to -2 dBm at Antenna connector

Resolution

0.5 dB

Accuracy

\pm 2 dB

Distance to UUT antenna

6 to 300 ft with supplied antenna

RF I/O CONNECTOR

Automatic mode

-68 dBm @ 10 Nmi Range, automatically controlled

Manual mode Range

-115 to -47 dBm

Resolution

0.5 dB

Accuracy

-95 to -47 dBm, \pm 1 dB

Accuracy

-115 to <-95 dBm, \pm 2 dB

REPLY PULSE SPACING

MODE C

F1 to F2

20.30 μ s (\pm 25 ns)

F1 to C1

1.45 μ s (\pm 25 ns)

F1 to A1

2.90 μ s (\pm 25 ns)

F1 to C2

4.35 μ s (\pm 25 ns)

F1 to A2

5.80 μ s (\pm 25 ns)

F1 to C4

7.25 μ s (\pm 25 ns)

F1 to A4

8.70 μ s (\pm 25 ns)

F1 to B1

11.60 μ s (\pm 25 ns)

F1 to D1

13.05 μ s (\pm 25 ns)

F1 to B2

14.50 μ s (\pm 25 ns)

F1 to D2

15.95 μ s (\pm 25 ns)

F1 to B4

17.40 μ s (\pm 25 ns)

F1 to D4

18.85 μ s (\pm 25 ns)

MODE S

P1 to P2

1.00 μ s (\pm 25 ns)

P1 to P3

3.50 μ s (\pm 25 ns)

P1 to P4

4.50 μ s (\pm 25 ns)

P1 to D1

8.00 μ s (\pm 25 ns)

D1 to Dn (n=2 to 112)

1.00 μ s times (n-1) (\pm 25 ns)

REPLY PULSE WIDTHS

MODE C

All Pulses

0.45 μ s (\pm 50 ns)

MODE S

P1 through P4

0.50 μ s (\pm 50 ns)

D1 through D112

0.50 μ s (\pm 50 ns), 1 μ s chip width

Reply Modes

TCAS I / II Mode C (with altitude reporting)

TCAS II Mode S formats 0, 11, 16

REPLY PULSE AMPLITUDES

ATCRBS

\pm 1 dB relative to F1

Mode S

\pm 1 dB relative to P1

REPLY PULSE RISE AND FALL TIMES

ALL MODES

Rise Time

50 to 100 ns

Fall Time

50 to 200 ns

PERCENT REPLY

Range

0 to 100%

Resolution

10%

Accuracy

\pm 1%

REPLY DELAY

ATCRBS

3.0 μ s (\pm 50 ns)

Mode S

128 μ s (\pm 50 ns)

RANGE DELAY

Range

0 to 260 nmi

Resolution

0.1 nmi

Accuracy

\pm 0.02 nmi

RANGE RATE

Range

-1200 to +1200 kts

Resolution

10 kts

Accuracy

10%

ALTITUDE RANGE

Range

-1000 to 126,000 ft

Resolution, Mode C

100 ft

Resolution, Mode S

25 ft

ALTITUDE RATE

Range

-10,000 to +10,000 fpm

Resolution

100 fpm

Accuracy

10%

SQUITTER

Control

On/Off

Rate

0.8 to 1.2 seconds, randomly distributed

RECEIVER

PULSE SPACING

ATCRBS (Mode C All Call)

S1 to P1	2.0 μ s
Accepts	$\leq \pm 200$ ns
Rejects	$\geq \pm 1.0$ μ s
P1 to P3	21.0 μ s
Accepts	$\leq \pm 200$ ns
Rejects (<10% Replies)	$\geq \pm 1.0$ μ s
P1 to P4	23.0 μ s
Accepts	$\leq \pm 200$ ns
Rejects (<10% Replies)	$\geq \pm 1.0$ μ s

Mode S

P1 to P2	2.0 μ s
Accepts	$\leq \pm 200$ ns
Rejects (<10% Replies)	$\geq \pm 1.0$ μ s
P1 to SPR	4.75 μ s
Accepts	$\leq \pm 200$ ns
Rejects (<10% Replies)	$\geq \pm 1.5$ μ s

SUPPRESSION

ATCRBS (P2 or S1)

>0.5dB above level of P1 <10% Replies

UIUT MEASUREMENTS

ERP (@ 1030 MHz)

ATCRBS

Range

+43 to +58 dBm (20 to 631 watts)

Resolution

0.1 dB

Accuracy

± 2 dB

MODE S

Range

+43 to +58 dBm (20 to 631 watts)

Resolution

0.1 dB

Accuracy

± 2 dB

DIRECT CONNECTION PEAK PULSE POWER (@ 1030 MHz)

ATCRBS

Range

+43 to +58 dBm (20 to 631 watts)

Resolution

0.1 dB

Accuracy

± 1 dB

MODE S

Range

+43 to +58 dBm (20 to 631 watts)

Resolution

0.1 dB

Accuracy

± 1 dB

FREQUENCY

Range

1029.900 to 1030.100 MHz

Resolution

1 kHz

Accuracy

± 10 kHz

TCAS BROADCAST INTERVAL

Range

1.0 to 12.0 sec

Resolution

0.1 sec

Accuracy

± 0.2 sec

MISCELLANEOUS INPUT/OUTPUTS

RF I/O

Type

Input/Output

Impedance

50 Ω typical

Maximum Input Level

4 kW peak

10 W average

VSWR

<1.3:1

ANTENNA

Type

Input/Output

Impedance

50 Ω typical

Maximum Input Level

10 W peak

0.5 W average

VIDEO

Type

Output

Impedance

50 Ω typical

Generate Video Level

1.1 Vpp (± 0.4 V) into 50 Ω

Receive Video Level

Proportional to IF level

Baseline

± 0.5 V referenced to ground

TEST ANTENNA

VSWR

<1.5:1

Gain

6 dB, Typical

TIME BASE (TCXO)**Temperature Stability**

±1 ppm

Aging

±1 ppm per year

Accuracy

±1 ppm

Test Limit

±0.3 ppm

BATTERY**Type**

Li Ion

Duration

>4 hrs continuous operation

>6 hrs, Typical

INPUT POWER (TEST SET)**Input Range**

11 to 32 Vdc

Power Consumption

55 W Maximum

16 W Nominal at 18 Vdc with charged battery

Fuse Requirements

5 A, 32 Vdc, Type F

INPUT POWER (SUPPLIED EXTERNAL AC TO DC CONVERTER)**Input Range**

100 to 250 VAC, 1.5 A Max, 47 to 63 Hz

Mains Supply Voltage Fluctuations

≤10% of the nominal voltage

Transient Overvoltages

According to Installation Category II

ENVIRONMENTAL (TEST SET)**Use**

Pollution Degree 2

Altitude

≤4800 meters

Operating Temperature^{NOTE 2} -20°C to 55°C**Storage Temperature**^{NOTE 3} -30°C to 71°C**Relative Humidity**

95% (±5%) from 5° to 30°C

75% (±5%) from 30° to 40°C

45% (±5%) from 40° to 55°C

ENVIRONMENTAL (SUPPLIED EXTERNAL AC TO DC CONVERTER)**Use**

Indoors

Altitude

≤10,000 meters

Operating Temperature

0° to 40°C

Storage Temperature

-20°C to 71°C

PHYSICAL CHARACTERISTICS**DIMENSIONS****Height**

11.2 inches (28.5 cm)

Width

9.1 inches (23.1 cm)

Depth

2.7 inches (6.9 cm)

Weight (Test set only)

<8 lbs. (3.6 kg)

SUPPLEMENTAL INFORMATION**Test Set Certifications**

Altitude, operating	MIL-PRF-28800F	Class 2
Altitude, not operating	MIL-PRF-28800F	Class 2
Bench Handling	MIL-PRF-28800F	Class 2
Blowing Dust	MIL-STD-810F	Method 510.4, Procedure I
Drip-proof	MIL-PRF-28800F	Class 2
Explosive Atmosphere	MIL-STD-810F	Method 511.4, Procedure 1
Relative Humidity	MIL-PRF-28800F	Class 2
Shock, Functional	MIL-PRF-28800F	Class 2
Vibration Limits	MIL-PRF-28800F	Class 2
Temp, operating ^{NOTE 4}	MIL-PRF-28800F	Class 2
Temp, not operating ^{NOTE 5}	MIL-PRF-28800F	Class 2
Transit Drop	MIL-PRF-28800F	Class 2
Safety Compliance	UL-61010B-1 EN 61010-1 CSA 22.2 No 61010-1	
EMC	EN 61326	

External AC-DC Converter Certifications

Safety Compliance	UL 1950 DS CSA 22.2 No. 234 VDE EN 60 950	
EMI/RFI Compliance	FCC Docket 20780	Curve "B"
EMC	EN 61326	

Transit Case Certifications

Drop Test	FED-STD-101C	Method 5007.1 Paragraph 6.3, Procedure A, Level A
Falling Dart Impact	ATA 300	Category I
Vibration, Loose Cargo	FED-STD-101C	Method 5019
Vibration, Sweep	ATA 300	Category I
Simulated Rainfall	MIL-STD-810F	Method 506.4 Procedure II of 4.1.2
	FED-STD-101C	Method 5009.1 Sec 6.7.1
Immersion	MIL-STD-810F	Method 512.4

VERSIONS AND ACCESSORIES

When ordering please quote the full ordering number information.

Ordering Numbers

	Versions
6000-110	IFR 6000 Mode A/C/S Transponder and DME Ramp Test Set, with US Mains Leads
6000-220	IFR 6000 Mode A/C/S Transponder and DME Ramp Test Set, with European Mains Leads
6000OPT2	TCAS (TIS)
6000OPT3	ADS-B

Extended Standard Warranties with Calibration for 6000

W6000/203C	Extended standard warranty 36 months with scheduled calibration
W6000/205C	Extended standard warranty 60 months with scheduled calibration

Accessories for 6000

AC0820	Desk Top Stand
AC0826	Tripod
AC24006	Tripod, Dolly, Stand
AC0824CD	IFR 6000 Maintenance Manual - CD
AC0825CD	IFR 6000 Operation Manual - CD
AC0829	25ft TNC/TNC COAX
AC0830	50ft TNC/TNC COAX

Notes

- NOTE 1 Simulates a 50.5 dBm XPDR ERP at 10 nMi range.
- NOTE 2 Battery charging temperature range: 5°C to 40°C (controlled by internal charger).
- NOTE 3 Li Ion Battery must be removed below -20°C and above 60°C.
- NOTE 4 Temperature range extended to -20°C to 55°C.
- NOTE 5 Temperature range reduced to -30°C to 71°C.

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.