BRX-900 I-Band Converter IFF-701 Accessory

The BRX-900 is a Microwave Converter used with the IFF-701 for transmitting and receiving I-Band pulsed interrogations and replies.

- ***IFF-701 powered accessory***
- ***Adapts IFF-701 to test I-Band radar transponders***
- ***Transponder over the air or direct connect testing***
- ***Auto test verifies operational performance***
- ***Stored in separate carrying case***
- ***6-50 ft. operational test distance***
- ***Battery and line power***
- ***CE compliant***

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

What Are I-Band Radar Beacon Transponders?

I-Band radar beacon transponders are usually installed in naval aircraft operating over water. They may also be installed on oil rigs.

In the naval environment, the ships primary radar provides strong returns from target aircraft under ideal conditions. However, when operating at low level or under adverse weather conditions return signal degradation can result in loss of target.

The I-band radar beacon transponder replies to the ship's primary radar pulse either with a single pulse or a coded pulse reply at a frequency of 9310 MHz.

The reply power is in the order of 100 W>, which ensures that a stable target is displayed. The ship's primary radar has to be equipped with a beacon receiver tuned to the 9310 MHz reply.

BRX-900 I-Band Converter

The BRX-900 I-Band Converter is a microwave accessory that converts the 1030 MHz pulse interrogation from the IFF-701 to a 9250 MHz pulse signal. Also the 9310 MHz Radar Transponder pulse coded reply is converted to a 1090 MHz pulse signal for measurement and decoding by the IFF-701.

The BRX-900 has an integral directional antenna for over the air testing or it may be directly connected to the Radar Transponder. The BRX-900 is powered from the IFF-701 power supply via the Crypto/Utility connector.

The BRX-900 is environmentally packaged to operate in all weather conditions.

Operation

When the BRX-900 is connected to the IFF-701, the CPU detects the presence of the BRX-900 on power-up and initializes the BRX-900 setup menu and test screens. When the BRX-900 is disconnected normal transponder or interrogator setup menus and test screens are initialized.

A software and hardware revision to the IFF-701 is required to support the accessory.

```
     ** BRX-900 AUTO TEST - PASSED **
F1 to F2 SPACING:14.5uS   FRQ:9310.00 MHz
F1 PULSE WIDTH: 0.40uS    ERP: +54 dBm
F2 PULSE WIDTH: 0.40uS    MTL: -66 dBm
REPLY: CONT               CODE: 16
            Press RUN TO start
```

BRX-900 AUTO TEST

The BRX-900 AUTO TEST screen is displayed when the 'AUTO TEST' key is pressed. The AUTO TEST may be used periodically to confirm specific installation performance and monitor feeder/antenna deterioration.

The AUTO TEST verifies transponder framing pulse width and pulse spacing, displays selected code or identifies single pulse replies. Transponder TX Frequency, ERP and MTL are also displayed. AUTO TEST Pass/Fail limits are stored in configuration files, which may be maintained on a PC.

Testing 'over the air' is via an integral directional antenna. Direct connection via the RF I/O port is also selectable for bench operation.

```
         ** BRX-900 SETUP MENU **
UUT ANTENNA:   RANGE HEIGHT
                 20     15
CONFIG: MA-COM
TDCL_92050 = 41.7 RDCL_9310= 34.6
GAIN_9250 = 19.0    GAIN_9310=17.6 LOSS=1.3
```

BRX-900 Setup Menu

Pressing the 'SETUP' key provides access to the setup menu. Range and height parameters are entered for power (ERP) and sensitivity (MTL) measurements. Calibration data (shown in bold) is automatically loaded from the BRX-900, no further calibration is required.

Specification

SIGNAL GENERATOR

RF Output Frequency

9250 MHz ±35 kHz

RF Output Level (RF I/O Connector)

–97 to -47 dBm

Steps	*0.5 dB*
Accuracy	*±5.0 dB (-97 dBm to -86.5 dBm)*
	±3.0 dB (-86 dBm to -47 dBm)

Note: Unit stores ERP & MTL calibration factors which are used by host IFF-701.

Test Antenna (built-in)

VSWR	*<1.5:1*
Gain	*12 dB typical*
Beamwidth (approx)	*Horizontal 35° Vertical 35°*
Range	*6 ft. (1.83 m) to 50 ft. (15.25 m)*

UUT MEASUREMENTS (REPLIES)

XMTR Power (at 9310 MHz)

Direct Connection - Peak Pulse Power

Range	*+43 to +59 dBm (20 to 795 W)*
Accuracy	*±2 dB*
Resolution	*0.1 dB*

Effective Radiated Power (ERP)

Range	*+48 to +64 dBm (63 to 2,510 W)*
Accuracy	*±3 dB*

XMTR Frequency

Range	*9300 to 9320 MHz*
Accuracy	*±75 kHz (9307 to 9313 MHz)*
	±500 kHz (9300 to 9306.99 and 9313.01 to 9320 MHz)
Resolution	*10 kHz*

Receiver Sensitivity

Direct Connection - Minimum Triggering Level (MTL)

Range	*-63 to -73 dBm*
Accuracy	*±2 dB*

Radiated Field Strength (MTL)

Range	*-69 to -79 dBm into 0 dBi antenna*

Pulse Spacing

F1 to F2

Range	*13.20 to 15.80 µs*
Accuracy	*±50 ns*

Pulse Widths (F2 for coded replies only)

F1 / F2

Range	*0.25 to 1.00 µs*
Accuracy	*±50 ns*

INTERROGATION TEST SIGNALS

Rate

235 Hz (±5 Hz)

Mode

Single pulse

PULSE CHARACTERISTICS

Pulse Width

Fixed 0.40 µs (±50 ns)

Rise & Fall Times

Rise time	*30 to 100 ns*
Fall time	*30 to 200 ns*

GENERAL

DC Supply

Derived From IFF-701/Ti

5 W Maximum

Environmental

Parametric Operating Temperature	*+5° to +40° C*
Functional Operating Temperature	*-20°C to +40° C*
Storage Temperature Range	*-20 °C to +65° C*
Weather Resistance	*Designed to MIL-PRF-28800 F for Class 2 equipment*
Shock	*Designed to MIL-PRF-28800 F for Class 2 equipment*
Vibration	*Designed to MIL-PRF-28800 F for Class 2 equipment*

Dimensions

250 mm wide x 625 mm deep x 125 mm high

10.0 in. wide x 2.5 in. deep x 5 in. high

Weight

5 lbs. (2.27 Kg) (BRX-900 Only)

Calibration Period

12 Months

Accessories

When ordering please quote full ordering number information.

Supplied Accessories

Carrying Case

Operator's Guide

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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Part No. 46891/134
Issue 1
05/2002