

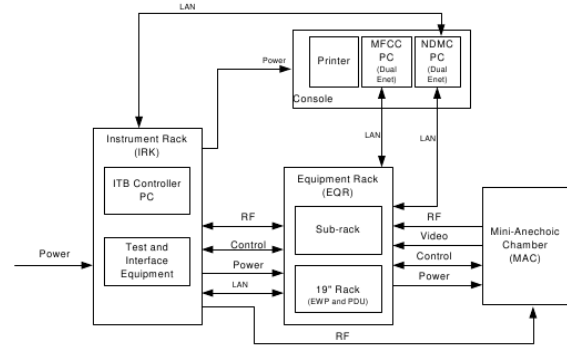
The INTEGRATED TEST BENCH (ITB) suite comprise a family of systems and applications, aimed at the proper test and support for maintenance of state of the art analog, digital and RF circuitry of legacy and contemporary ESM sensors and equipment in today's multinational environment.

The test bench is assembled with standard high performance test modules to cover the wide range of test applications of both military and commercial implementations. The test bench is a mix of off the shelf test instruments and developed test jigs with GPIB, USB and serial interfaces.

The maintenance philosophy is based on LRU repair by SRU replacement, with the aid of an automated tester. The ITB test philosophy is based on computerized fault diagnostics guiding the maintainer through the process.

Features

- The ITB can quickly determine the problem
- Identifies the area of the subsystem where the fault is most likely to exist
- Recommends the diagnostic process to follow
- Technician intervention and guided probing of signals are kept to an absolute minimum
- Record time-stamping and logging facilities of failure data as well as the repair data
- Provides a failure trend analysis to assist the operator in future troubleshooting and recommended repair
- Open architecture allows the development of new device drivers / protocol stacks for integration of future sensors and equipment
- Complete on-line documentation for the equipment being tested
- The ITB minimizes:
 - ambiguous repair patterns
 - false removals
 - test time
 - fault not found percentages
 - replacement of non defective parts
- The test bench includes the following safety and warning features:
 - Unit Under Test Power On
 - Test Bench Power On
 - Current Consumption
 - An Emergency Cut Off
 - Temperature Warnings.



LAYOUT OF THE ITB Instruments equipment

The ESM ITB includes a number of commercial test equipment supplemented with custom test jigs. The following test equipment, which is fully capable of performing all the specified tests for the UME, is used in the test bench:

- Test Bench Controller (work station).
- Spectrum Analyzer with power measurement capability
- Oscilloscope
- Synthesized Sweeper
- Pulse Repetition Interval (PRI) simulator (also acts as pulse generator)
- RF Test Jig.
- Digital Multimeter (handheld)

Application

The ESM ITB includes a number of software modules which enable structured automatic operation while informing the operator of the status or prompting the operator to perform the next task in the sequence of operations.

- Test Executive Module
- Communications Module
- User Identification Module
- Documentation Module
- Test Bench Calibration Module
- Test Bench Self Test Module
- ITB Controller Mode
- System Identification Module
- Fault Analysis and Recommendation Modules
- Maintenance module
- Export Module
- Software Maintenance Module
- Report Module
- Controller Data Storage

INTEGRATED TEST BENCH specifications	
Interfaces	GPIB, USB, Serial.
Application	ESM maintenance – testing. Analog, Digital and RF circuitry testing.
Test Bench Controller (work station)	Desktop, Notebook computer or Rack-mounted computer (permanent ITB products).
Status Display	Graphics for real-time monitoring and troubleshooting.
Time-stamping & Archiving	Continuous time-stamping and archiving of raw (interface) and cooked (protocol translation) data on multiple interfaces. Text and/or binary storage.
Events	All activities regarding the repair and maintenance activities of the LRU are recorded. Feedback is provided at all stages.
Post-processing	Data are exported for further analysis.
Safety	The test bench includes the following safety and warning features: <ul style="list-style-type: none"> • Unit Under Test power on • Test Bench Power On • Current Consumption • An Emergency cut off • Temperature warnings.
Test facilities	<p>Test bench calibration. RF characteristics of the cables and instruments are measured and used to create a calibration table which is used by the ITB to ensure instruments are set up correctly.</p> <p>Automatic Self Test upon Switch-on. The self test may also be initiated by the operator from the test menu.</p> <p>ITB Test state, where all elements of the Instrument rack, MAC, ITB EQR, NDMC and MFCC computers are tested, and to establish whether the populated Equipment rack and mast units are available, and report system status as a go/nogo test.</p> <p>System Automatic Testing</p> <p>System Interactive Testing</p> <p>Sub-System Testing</p>
Power Distribution	<p>a. Input Power: 220 V AC \pm 10%, <1000 VA.</p> <p>b. Output Power to components:</p> <ul style="list-style-type: none"> • 220 V AC - all instruments and test jigs. • 115 V AC - ITB Equipment Rack with equipment under test. • 28 V DC - Antennas
Additional facilities	Customization for specific applications Fabrication of special cables for testing custom equipment

List of Services Offered	
Training	Maintenance Personnel.
Pre-Installation	Application planning, installation study.
Installation	Installation, Setting to work, calibration of equipment in user's country.
Post-Installation	After sales technical support.



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