

*Integris*

## Mobile Access Network Performance Tester

*Characterize RRH to BBU communications for reliability, performance and interoperability*



*Integris* Field Test Unit and Software  
Interface  
(Other chassis also available)

### Test Applications

- Tests performance of remote radio head (RRH) to base band unit (BBU) communications for both fibre and copper networks, including BER, latency, and failover
- Evaluate interoperability between multiple devices in your mobile access network
- Perform service disruption testing to increase confidence in network error recovery and redundant circuit performance
- Find connectivity faults and identify network impairments

### Key Features

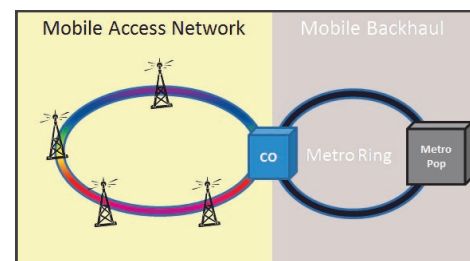
- Increase reliability of your network by measuring real time performance for **Bit Error Rate (BER)**, **Latency**, and **Failover/Recovery switch time**.
- Test **Gigabit Ethernet**, **Fibre Channel**, **CPRI**, **OBSAI** on **DWDM** or **CWDM** or **uncolored optics** all with the same hardware test platform.
- Full support for testing **Layer 1** (physical layer) up to **Layer 4** (transport layer).
- Portable and compact chassis for **laboratory or field testing**
- Form factors for both **laboratory** and **field testing** environments.

### Overview

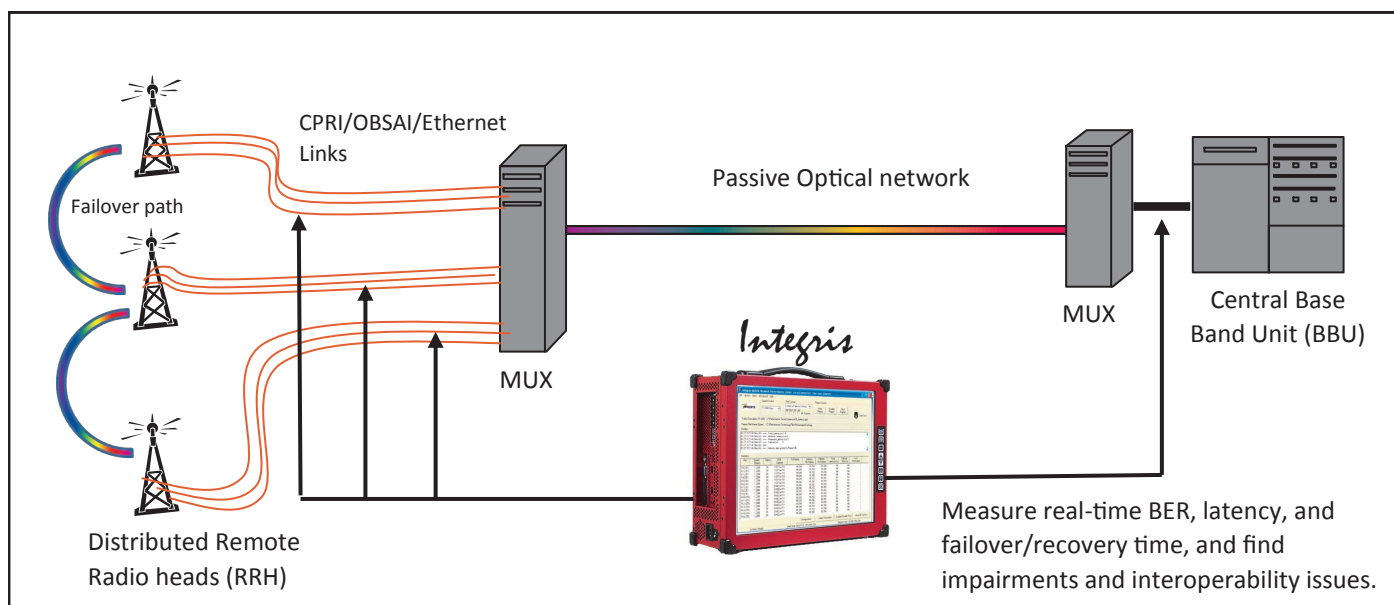
**Integris** is a highly integrated test platform designed to measure the performance and reliability of mobile access networks during all phases of a mobile network life cycle. It provides the entire design and field test teams the functionality and flexibility to test today's demanding LTE and LTE Advanced networks.

The Integris platform is ideal for testing access networks that use DWDM or CWDM as their transport, as these types of networks require monitoring and testing of multiple points in the network to ensure performance will meet specifications. Gigabit Ethernet, CPRI, and OBSAI protocols are supported.

Included in its functionality are tests to measure bit error rate, round trip or point-to-point latency, and failover/redundancy delay. The power of Integris lies not only in being able to make these measurements, but also in providing data to be able to pinpoint impairments or malfunctioning network devices quickly, saving you significant time and money.



## Sample Application: RRH to BBU Performance Testing



### Meeting the LTE Challenge

Network operators must meet the bandwidth requirements of today's LTE and 4G networks by having proper test plans to ensure reliability, performance, and quality of service. Integris provides the test functionality to meet these requirements.

### Confidence in Network Performance

Integris is a tool designed to completely cover as many scenarios as possible. Thorough testing instills confidence in network performance. Integris does this by not only testing for compliance, but also including different stress testing capabilities.

### Meeting Time to Market Demands

Test and debug can often use up to 50% of a product development cycle. Integris helps reduce this time by providing the ability to locate misbehaving devices in the network quickly, and then debugging these devices at a deep packet inspection level. No other tool can provide this information quickly.

### Reduce Testing Costs

Mobile networks are complex, often containing multiple media types and multiple technologies. The multi-function, multi-technology Integris is designed so test engineers will not have to purchase several pieces of test equipment to validate their mobile network performance.

### Where to Use Integris

Integris is a perfect fit for both laboratory testing and field testing, at each stage of the network lifecycle.

- **Research & Development:** Quickly evaluate different network topologies, configurations, and vendors without needing to spend money on multiple pieces of equipment. Integris provides all you need for performance testing in one box.
- **Equipment Benchmarking:** Understand which devices will meet your network specifications by being able to characterize each device individually.
- **Interoperability Testing:** Know exactly which devices are not interoperating with your network. Stress each device individually to check for proper error recovery.
- **Pre-Deployment Testing:** Test the full end-to-end performance of the network while still in the lab. Find network impairments and interoperability issues quickly.
- **Field Testing:** Use our portable field module to quickly test for connectivity and performance. Capture link traces to send back to the lab for further analysis.



## Obtain the Performance Data You Need

The Integris GUI below exhibits the complete picture for testing your network. Up to 32 ports are available, depending upon configuration.

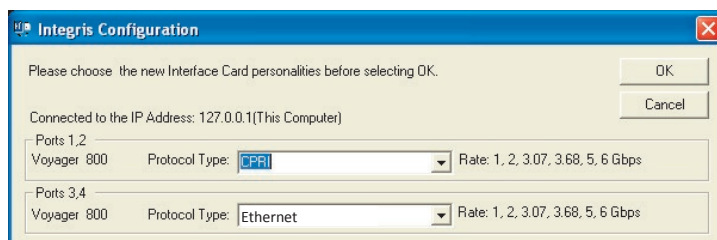
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The screenshot shows the main GUI of the Integris Mobile Network Performance Tester. Annotations point to various features:

- Link Speed Control:** Points to the 'Speed Control' dropdown menu showing '1.2288 Gbps'.
- Test Definition:** Points to the 'Test Control' section, including 'Latency/Failover Testing' and a timer.
- Report File:** Points to the 'Report Control' section with buttons for 'View Report', 'Disable Report', and 'Clear Display'.
- Test Start Button:** Points to the 'Start Test' button with a traffic light icon.
- Latency Measurements:** Points to the 'Display' section showing latency statistics.
- Failover (Redundancy) Measurement:** Points to the 'Statistics' section, specifically the 'Failover Time (ns)' column.
- Individual Port Measurements:** Points to the 'Statistics' table, which lists 32 ports (P1 to P32) with columns for Port, Speed, Status, BER, Tx Frames, Latency, Filtered Rx Frames, Total Latency, Failover Time, and Lost Rx Frames.
- Traffic Test Pattern Selection:** Points to the 'Configuration' button at the bottom.
- Port Control:** Points to the 'Enable/Disable Ports' button at the bottom.

## Multiple Protocol Port Configuration

Multiple technologies are supported in a single platform, and are defined in the Port Configuration window. Here is an example of both CPRI and Ethernet defined within the same box.



# *Integris* Mobile Access Network Performance Tester

## Summary of Features and Specifications

<i>Application</i>	Laboratory and field performance testing of mobile access networks, specifically radio head to base station communications
<i>Test functions</i>	Latency (point to point, round trip), recovery (failover) delay, BER measurements, trace capture of error conditions
<i>Test Port Interfaces</i>	SFP, Universal Push/Pull (UPP)  Calibrated Wavelength: 850 nm  (Additional wavelengths available.)
<i>Protocol Support</i>	Ethernet 10/100/1000Base-T and 1000Base-X  CPRI 1.2288, 2.4576, 3.072, 4.9152 and 6.144Gbps (up to version 4.2 of the CPRI specification)  OBSAI RP3 1.536, 3.072 and 6.144Gbps ( up to version 4.1 of the OBSAI specification)
<i>Chassis Types</i>	Portable Unit: 4 ports or 8 ports  (Higher Port Counts available on Request)
<i>Display Features and Resolution</i>	TFT Display features an LCD touch screen, 17". Resolution is 1280x1024
<i>Storage and I/O Interfaces</i>	2x USB 2.0, 2x Ethernet 10/100/1000Base-T  1x HDMI
<i>Optional Components</i>	Keyboard with built-in mouse pad
<i>Power Supply</i>	Input 100—240V, 50—60 Hz
<i>Size and Weight</i>	15.5" x 12.5" x 4.75" (LxWxD), 17.5 lbs  39.4 cm x 31.8 cm x 12 cm (LxWxD), 7.95 kg
<i>Environmental Specifications</i>	Operating Temperature -4 to 122 F, --20 to + 50 C  Humidity (non-condensing) 95%
<i>Ordering Information</i>	AA-Int04-T Integris 4 full-duplex SFP ports AA-Int08-T Integris 8 full-duplex SFP ports -Optional high port count rack mount option -Optional SFP transceivers (1310nm, 1550nm, RJ45)

Information included in this overview is subject to change without notice.  
CPRI is a trademark of Nokia Siemens Networks.  
OBSAI is a trademark of the Open Base Station Architecture Initiative.

## Training

Absolute Analysis offers comprehensive training courses for products and protocols. Training can be provided at your location or remotely, and can be customized to your requirements.

## Service and Support

Absolute Analysis provides unsurpassed service to all Integris users including remote diagnostics, extended warranties, and upgrade paths to current offerings from any Investigator™ system.

## For More Information

### Contact

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**NextGigSystems.com**

