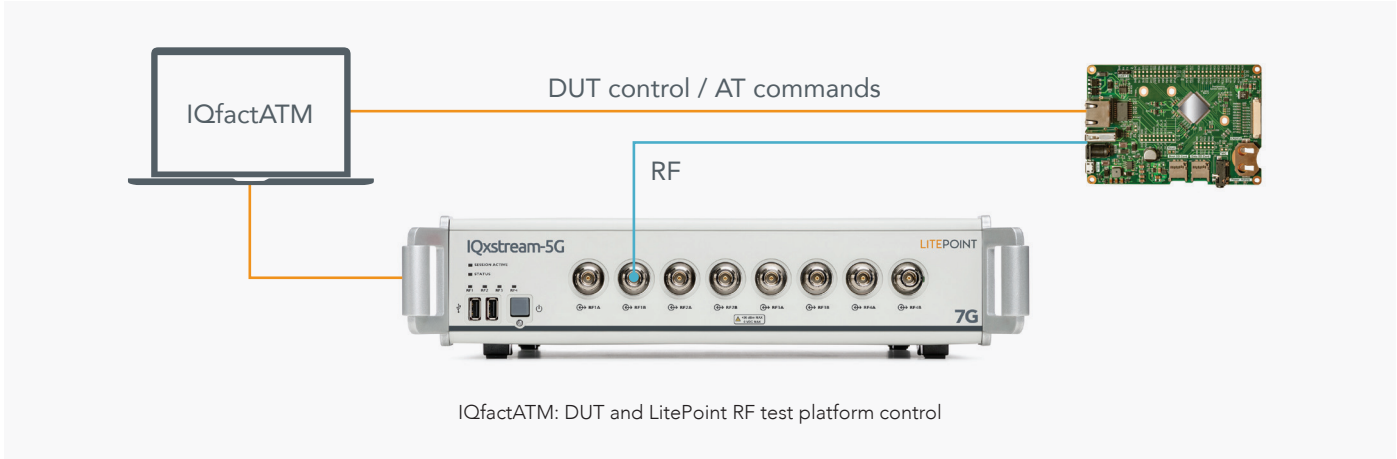# IQfactATM

Cellular technology, especially LTE and 5G NR, is evolving to enable connectivity in a variety of applications such as Fixed Wireless Access (FWA) CPE and IoT with uses like smart utilities, asset tracking and patient monitoring. Device manufacturers often use pre-certified cellular modules in their designs as a practical and easy way to add cellular connectivity.

Cellular modules from manufacturers provide excellent solutions that can be easily integrated into end user devices. Although modules are pre-calibrated by the module vendor, end device manufacturers need to perform simple RF verification in manufacturing to insure the wireless transmitter and receiver are functional and the antenna connection is properly assembled. To address this need, LitePoint has developed IQfactATM, an automated test solution specifically designed for reliable, high speed, and cost effective verification of these pre-certified cellular modules.

## Module Manufacturer Testing vs End User Device Testing

When the modules are initially manufactured, the module vendors use chipset tools that provide rigorous RF testing and calibration for parameters such as transmitter power, receiver sensitivity and crystal oscillator frequency. Once the module has been installed in the end user device, it is generally not necessary to repeat the full verification but most module vendors do recommend a limited set of parametric tests of the transmitter, receiver, and crystal frequency. The module vendors provide test commands, often "AT" commands, that will enable the device for transmitter or receiver testing. The LitePoint IQfactATM solution controls the module with these "AT" commands and rapidly performs automated RF verification of the transmitter power, transmitter frequency, and receiver RSSI. These tests provide high confidence that the module was not damaged and is installed properly, including any associated antenna.

IQfactATM: DUT and LitePoint RF test platform control

The IQfactATM solution

IQfactATM is an automated test manager that works together with LitePoint RF test platforms such as IQxel-MW, IQxstream-M, and IQxstream-5G. This turnkey solution allows the user to build a custom test flow and performs rapid RF parametric testing, including pass/fail checking. IQfactATM controls the DUT, controls the RF tester, checks limits, and logs the test results for further analysis and process monitoring.
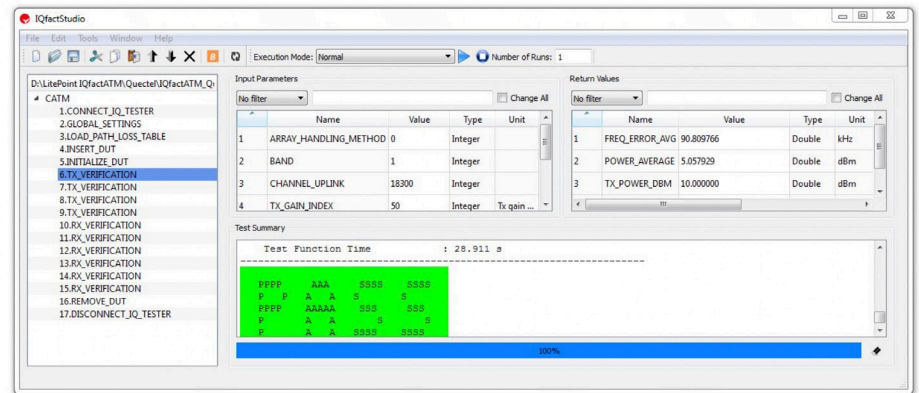
IQfactATM user interface

Optimized for Manufacturing

This solution ensures optimized test speed and efficiency by utilizing LitePoint's Asynchronous Parallel Test (APT) multi-DUT scheduling capability and realizes dramatic throughput increases compared to single-device systems.

Single Solution, Many Modules

Module vendors typically have multiple different modules that support a variety of different wireless technologies or cellular bands. Each IQfactATM package is designed to support a range of modules from a single vendor. Module vendors are frequently adding new modules and new capabilities, and LitePoint is continually developing new IQfactATM capabilities. Contact your LitePoint sales representative to find out availability of an IQfactATM package which supports your specific modules.

Typical RF Tests
Transmitter Power (CW or Modulated)
Frequency Accuracy (CW)
Receiver RSSI (CW or Modulated)

LitePoint RF Test Platforms
IQxel-MW   IQxstream-M

IQxel-MW 7G   IQxstream-5G

How LitePoint Can Help

Wireless connectivity opens up a wide range of applications for device manufacturers and RF testing helps ensure consistent quality and a positive customer experience from these devices. LitePoint is a global leader in wireless test solutions and our engineers are here to help you design a wireless test strategy that is right for you.
For more information or to contact your LitePoint sales representative, visit us at www.litepoint.com.

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