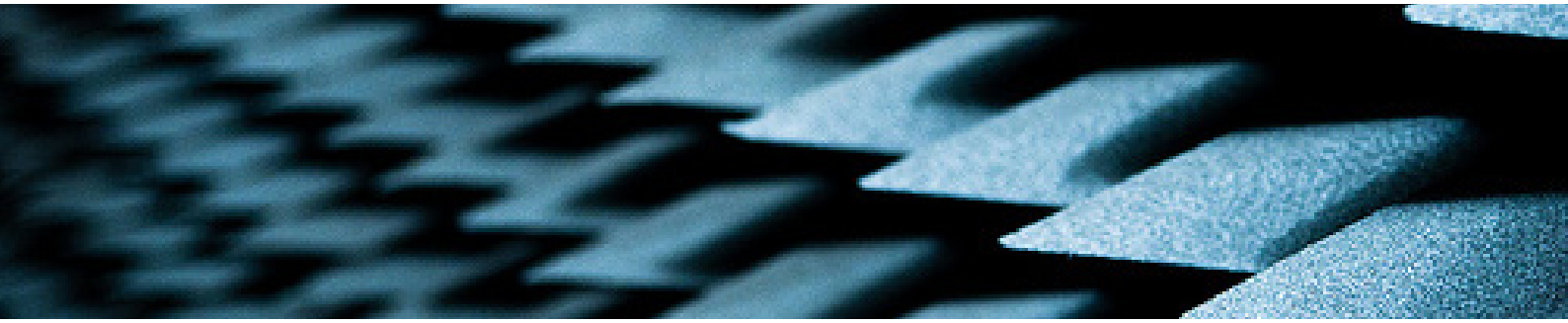
CSA.36

LTE Device Active Mode Testing – TRP



Service name:

CSA.36 LTE Device Active Mode Testing – TRP

Deliverables

TRP Performance Report

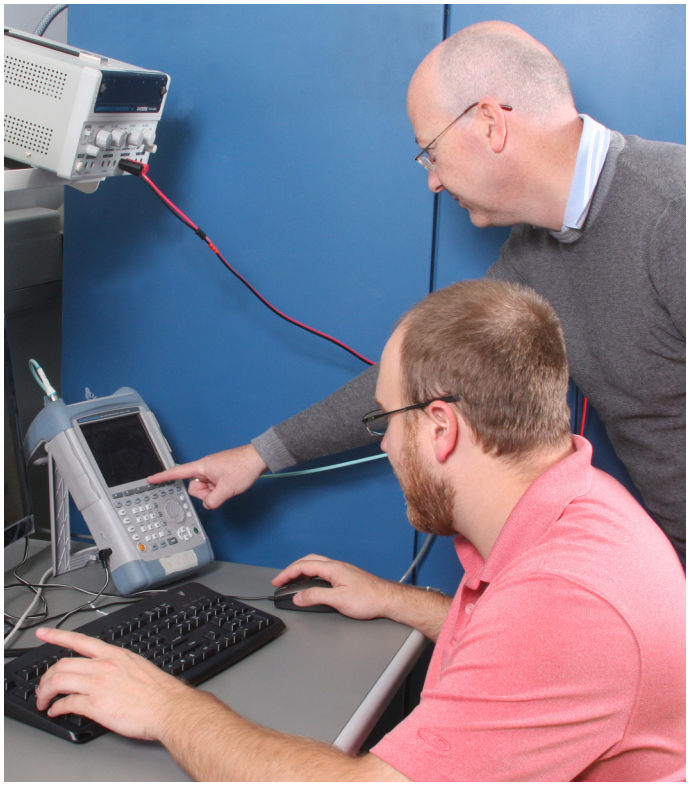
Duration:

1 Week

Items

A. Test in 3D anechoic chamber – Full TRP analysis

B. If fail consult with sales for recommendations or custom solution



What is the problem or concern we are addressing?

Post-integration verification of device Total Radiated Power (TRP) performance. TRP is directly dependent on the antenna performance and cellular modem integration.

Many of the network operators in North America have specific tests and metrics for radiated performance on transmit (TRP), receive TIS (Total Isotropic Sensitivity) and co-existence/ interference RSE (Radiated Spurious Emissions). These tests enforce a minimum level of performance on the wireless product. This is done to ensure end customer use-experience expectations are met, thus protecting the carrier's network brand.

Testing these performance parameters early in the design cycle can reduce risk of certification failure and costly design and tooling changes late in the design cycle. The best way to test these parameters is through completing the real testing in a real chamber.

The large-scale roll-out of LTE networks has enabled LTE only devices—devices which do not support older 2G and 3G technologies and instead rely completely on LTE technology. Often these devices support two bands. To efficiently service these devices, CSA.36 provides LTE-only TRP testing on two bands. This service offering is intended for these LTE-only devices, but can be used for testing two LTE bands only on any LTE device.

The Processes

Part 1

- Taoglas will setup your device in our chamber and power the device as per your instructions. If the device is intended to be used on a person, a phantom will be used.
- A base station emulator will be used to establish a call or test-mode connection with the device.
- Taoglas' automated test system will perform the TRP tests at the high, middle, and low channels of the appropriate bands.
- Taoglas will complete the test report detailing the setup and results.

What does Taoglas need?

In all cases Taoglas will require the following:

- Two complete devices should be supplied with enclosures, even if they are mockups. If mockups are provided, they need to be of a representative material, i.e. metal objects need to be metal. One complete set of all other system elements, such as battery, interface cables, charger, etc. should be provided for testing.
- Terminal access to the cell modem's AT command interface is preferred.
- Instructions on how to connect the device, power on the device, and connect to the AT command interface must be provided. If the battery will need to be charged or replaced, include instructions on how to do so.
- The device must be configured so that the radio is automatically enabled when power is applied.
- Device software must be disabled so it does not communicate with the radio.
- The device must have a test SIM. If the device uses a SIM IC, contact the carrier for test SIMs.
- If there is a SIM holder present, Taoglas has test SIMs that can be used.
- Taoglas cannot make adjustments to device software in any way. The device must be able to connect to a standard callbox, such as a CMW500, and remain connected for at least 1 hour without interruption.
- Taoglas will spend no more than 1 hour attempting to achieve this connection before contacting the customer. If the customer directs Taoglas to "keep trying", any time spent beyond this initial hour or any customer directed/guided interactive effort will be billed at $500 USD per hour. If we cannot get the device to connect, we will send the device back to the customer for proper configuration.

Part 2

Taoglas engineering, in consultation with the customer on the final report will determine if the measured performance factors are sufficient for the product to meet its performance and certification requirements. If the antenna performance is not acceptable, Taoglas sales and engineering can make recommendations to improve the antenna performance. If the antenna performance is acceptable, the next step would be further active measurement – TIS and RSE.

Deliverables

Taoglas will compile a report on the TRP measurements, including:

- Device test setup picture.
- TRP values for low, middle, and high channels in the designated bands.