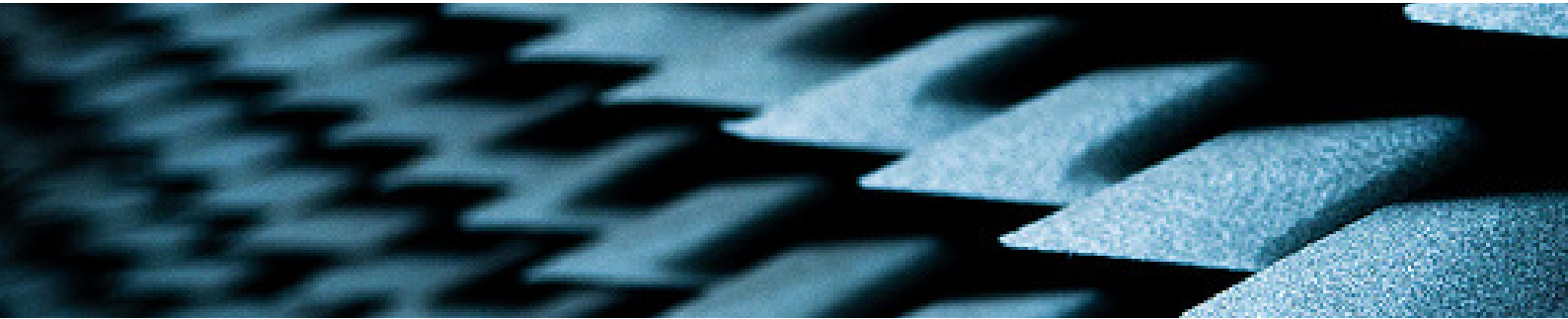


CSA.30L

LTE Device Active Mode Testing – TRP



Service name:

CSA.30L LTE Device Active Mode Testing – TRP

Deliverables

TRP Performance Report

Duration:

2 Days

Items

- A. Test in 3D anechoic chamber – Full TRP analysis
- B. If fail consult with sales for recommendations or custom solution

Variant

- CSA.30L.1 LTE Device Active Mode Testing – TRP (North America)
- CSA.30L.2 LTE With Fall Back Device Active Mode Testing – (North America)
- CSA.30L.3 LTE Device Active Mode Testing – TRP (Global)



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) and receive (TIS). 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 roll-out of LTE networks has introduced a number of new frequency bands dedicated to LTE, and the re-use of other spectrum for LTE. Several operators own exclusive frequency bands—thus heightening the need to select a network operator during the design phase. Taoglas will test for a particular carrier, according to the table below.

LTE-only devices will undergo testing in the carrier’s LTE bands. LTE devices which support fallback to another technology (e.g., CDMA or UMTS) will undergo testing in the carrier’s LTE bands plus the identified fallback bands.

Carrier	LTE Bands	Fallback Bands	Fallback Technology
AT&T	E-UTRA Bands 2, 4, 5, & 17	UTRA Bands 2, 5	WCDMA (3G)
Verizon	E-UTRA Bands 4 and 13	Cellular 850 and PCS1900	CDMA 1xRTT
T-Mobile	E-UTRA Bands 2 and 4	UTRA Bands 2, 4	WCDMA (3G)

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 (2) complete devices, with all the bits and pieces. The devices need to be functional enough to enable the cellular modem and enable AT command access to the modem. The devices should be built-up as much as possible, the closer to the final assembly the more accurate the results. Batteries, displays, and metallic sub-assemblies will impact the test results and should be included.
- One complete set of any support devices such as spare battery packs, battery charger, interface cables, etc.
- Instructions on how to connect the device, power on the device, and connect to the AT command interface. If the battery will need to be charged or replaced, include instructions on how to do so.

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.

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.

