BAROMETRIC PERFORMANCE TESTING FOR CARRIER ACCEPTANCE AND STANDALONE R&D

Rohde&Schwarz presents a customizable solution for testing barometric performance to ensure z-axis accuracy in line with FCC regulations

Your task

What is different when testing barometric sensors in mobile devices? In October 2019, the FCC introduced a regulation to supply floor level information for emergency calls. To achieve this goal, the FCC agreed on a directive that requires all E911 calls to ensure 3 m z-axis accuracy. Barometric measurements are the most promising method to estimate the altitude, especially in high-rise buildings. US network operators have adopted barometric sensor based technologies to meet the requirements of the new directive.

The directive requires all mobile devices in a network to be certified and fulfill FCC specifications.

Currently, in many mobile devices the barometric pressure performance is low and does not meet the strict FCC regulations. Therefore, many devices are highly susceptible to z-axis performance.

To sell mobile devices in the United States, suppliers have to make sure that they fulfill this directive. All mobile network carriers in the Unites States are requested to self-certify compliance of their devices or have them tested at validated test houses.

Rohde&Schwarz solution

The R&S®TS-LBS test system is a scalable and re-usable solution ready to address the diversified mobile device testing market. It provides mobile positioning testing including barometric performance testing. The R&S®TS-LBS test system can be used together with an R&S®CMW500 base station emulator or as a standalone barometric performance test setup especially for R&D purposes.

Carrier acceptance testing

Most United States carrier implementations use LPP and LPPe protocols to exchange position information between mobile devices and the base station. These protocols include barometric sensor information. The Rohde&Schwarz solution tests network operator-specific performance parameters including accuracy tests for uncompensated barometric (UBP) and sensor drift values.

The Rohde&Schwarz GUI is used for testing the barometric sensor performance for over-the-top (OTT) emergency positioning technologies (e.g. ELS). The PC based GUI communicates and exchanges data with mobile apps via Wi-Fi access points.

The mobile app collects the data on the device and reports the results via Wi-Fi directly to the GUI.

User-friendly GUI including mobile app

Test cases can be easily executed and parameterized via the well organized GUI and a mobile app.

Integrated automation in the GUI speeds up test times and provides comfortable handling. Thanks to the mobile app, the measured results can be easily reported to the GUI over the base station emulator or directly via Wi-Fi to the GUI reporting.

Application Card | Version 01.00

ROHDE&SCHWARZ

Make ideas real

Required equipment with the R&S®TS-LBS

- R&S®CMW500 (base station emulator)
- Barometric pressure chamber
- Barometric pressure controller
- PC running test cases (GUI)
- Cabling set

Required equipment for standalone setup

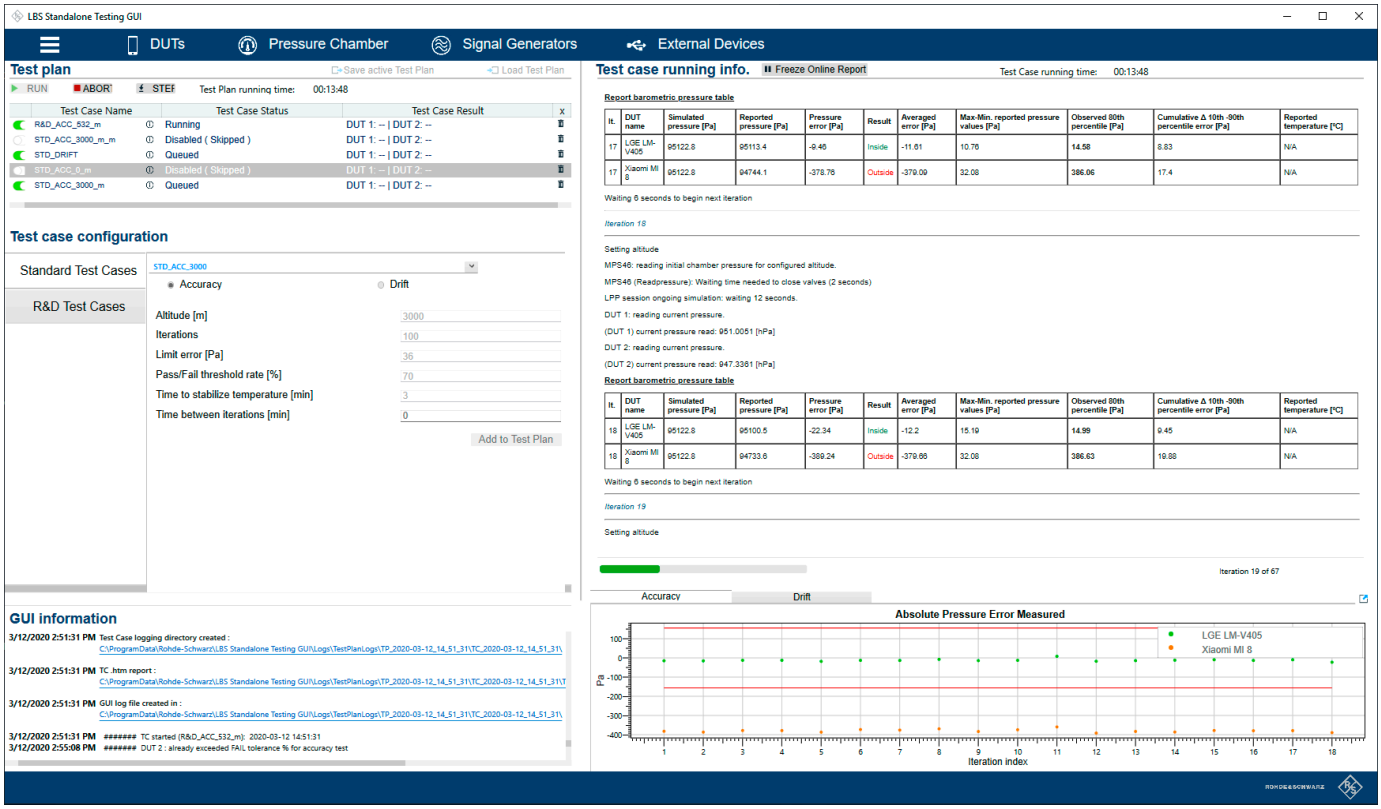
- Barometric pressure chamber
- Barometric pressure controller
- Wi-Fi hotspot
- PC running test cases (GUI)
- Cabling set

Why us and not them?

- One-stop shopping with single-source turnkey solution
- Full coverage of z-axis FCC requirements
- Fully automated testing
- Extendable to other mobile positioning testing such as A-GNSS
- Automated test reports
- Highly accurate barometric pressure equipment

See also

- www.rohde-schwarz.com/product/TS-LBS



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Data without tolerance limits is not binding | Subject to change

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