

GNSS PERFORMANCE TESTING FOR eCALL MODULES

Automated tests with R&S®CMWrun and R&S®SMBVB-K361



Your benefit	Features
Tests are 100% reproducible	The GNSS simulator in the R&S®SMBV100B makes sure that scenarios are fully reproducible and ideal for validation measurements prior to official certification tests.
Tests are fully automated	The R&S®SMBVB-K361 in combination with the R&S®CMWrun sequencer software automatically configures the signal generator with no manual instrument configuration required.
Efficiently plan, execute and evaluate validation and certification tests	The test solution features R&S®CMWrun for automatic test configuration, scheduling, DUT configuration, data analysis and test report generation.

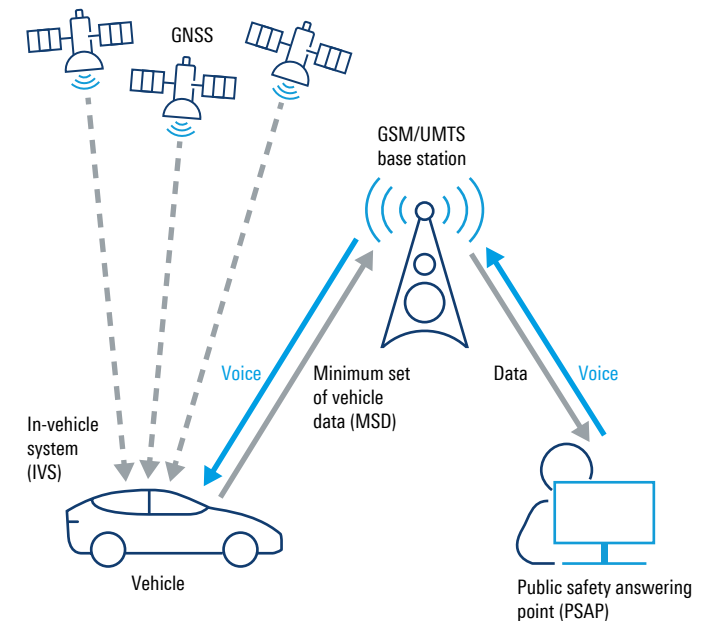
Test challenges

- ▶ Starting April 1, 2018, newly registered cars and vans in the European Union must come with the eCall automatic emergency call system
- ▶ Each eCall module be certified before being installed in a car. The process involves a series of conformance and performance tests
- ▶ The performance of the built-in GNSS receivers has to be tested against EU regulation EU2017/76, Annex VI
- ▶ Tests cannot be performed in a real-world environment since doing so is difficult, time-consuming, costly and almost impossible to reproduce

Test solution

- ▶ Perform tests in the lab are possible under controlled and repeatable conditions with the GNSS simulator in the R&S®SMBV100B
- ▶ Install the R&S®SMBVB-K361 and turn the R&S®SMBV100B into a fully automated eCall performance tester
- ▶ Schedule, configure and analyze your tests using the R&S®CMWrun sequencer software
- ▶ Required GNSS performance tests include:
 - Tracking sensitivity
 - Acquisition sensitivity
 - Time to first fix (TTFF)
 - Location accuracy

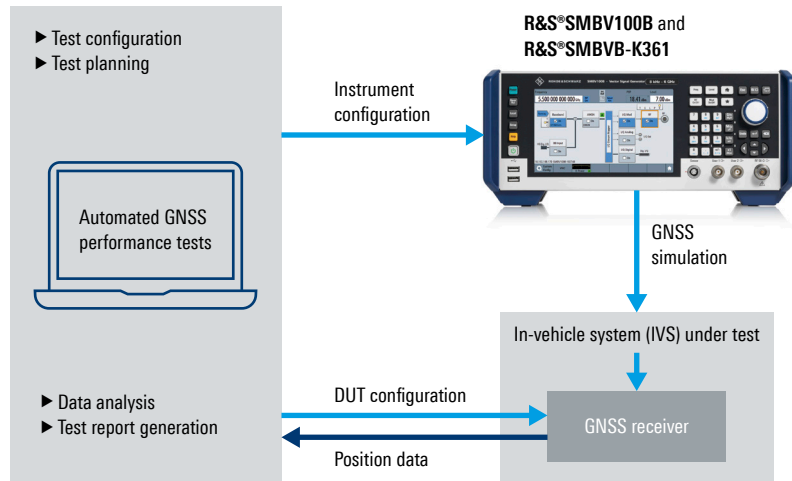
eCall/ERA-GLONASS data transfer principle



For more information, visit

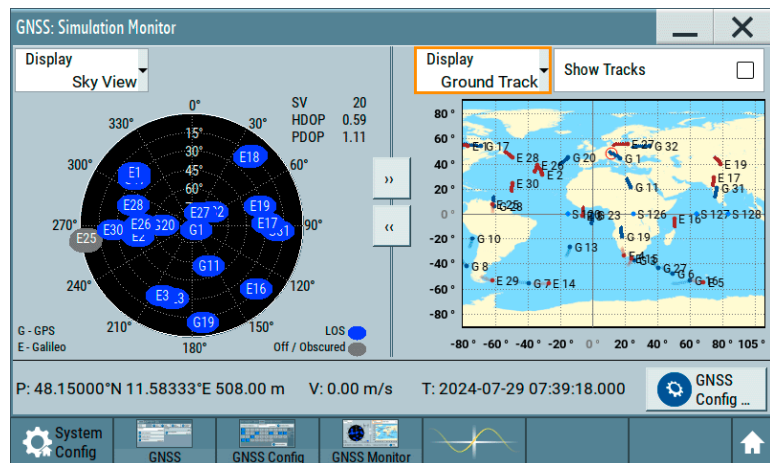
<https://www.rohde-schwarz.com/product/SMBV100B>

Test setup for automated GNSS performance tests



GNSS simulator in the R&S®SMBV100B

Combined GPS/Galileo/SBAS simulation with the R&S®SMBV100B



Instrument configuration

Designation	Type
Minimum hardware configuration	
Vector signal generator, including baseband generator with ARB (64 Msample, 120 MHz RF bandwidth)	R&S®SMBV100B
Frequency option, 8 kHz to 3 GHz	R&S®SMBVB-B103
Baseband real-time extension	R&S®SMBVB-K520
Minimum software configuration	
Test cases in line with EU2017/79, Annex VI; required for test cases 2.1, 2.2, 2.3, 2.5, 2.6, 2.7	
GPS option	R&S®SMBVB-K44
Galileo option	R&S®SMBVB-K66
SBAS/QZSS option	R&S®SMBVB-K106
Add 12 GNSS channels option	R&S®SMBVB-K137
Required for full coverage	
Test cases in line with EU2017/79, Annex VI; required for test case 2.4 (location accuracy with obstructed signals)	
GNSS real world simulation option	R&S®SMBVB-K108
GLONASS option	R&S®SMBVB-K94
Add 6 GNSS channels option	R&S®SMBVB-K136
Test automation	
eCall test suite	R&S®SMBVB-K361
Sequencer software tool to be installed on a control PC	R&S®CMWrun

Other GNSS test solutions from Rohde & Schwarz



GNSS waveforms with R&S®WinIQSIM2 simulation software, 1 channel



GNSS simulation with R&S®SMW200A vector signal generator, up to 612 channels

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GNSS performance testing for eCall modules

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Data without tolerance limits is not binding | Subject to change

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