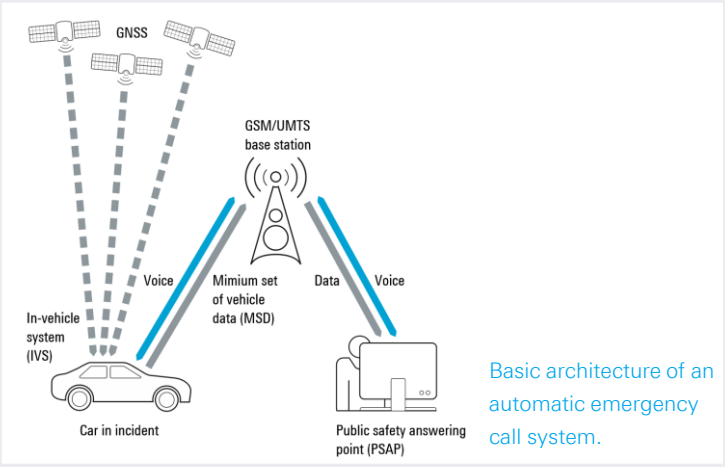
GNSS Performance Testing for ERA-Glonass Modules

Automated tests with R&S®CMWrun and the R&S®SMBV-K360

Test challenges

- All newly registered cars, trucks and buses in Russia and the Eurasian Customs Union must be equipped with the ERA-Glonass automatic emergency call system
- Each ERA-Glonass module has to undergo a certification process before being used in a car; this process comprises a series of conformance and performance tests
- The performance of the built-in GNSS receivers has to be tested against the GOST-55534/33471 standards
- Tests cannot be performed in a real-world environment since this is difficult to implement, time-consuming, costly and almost impossible to reproduce



Basic architecture of an automatic emergency call system.

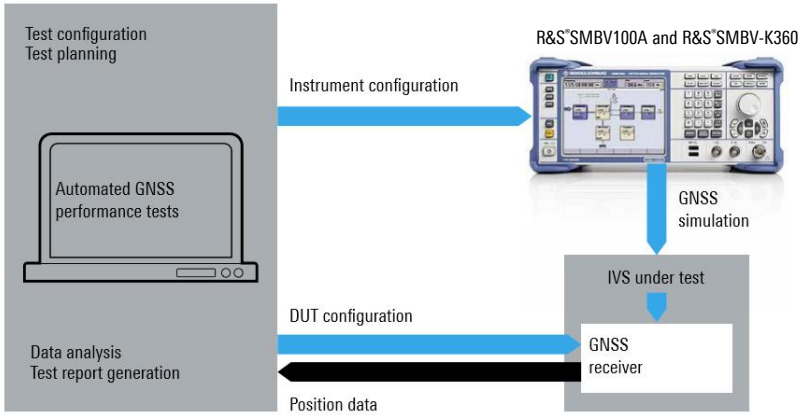
Test solution

- Perform tests in the lab under controlled and repeatable conditions using the GNSS simulator in the R&S®SMBV100A
- Install the R&S®SMBV-K360 and turn the R&S®SMBV100A into a fully automated ERA-Glonass performance tester
- Schedule, configure and analyze your tests using the R&S®CMWrun sequencer software

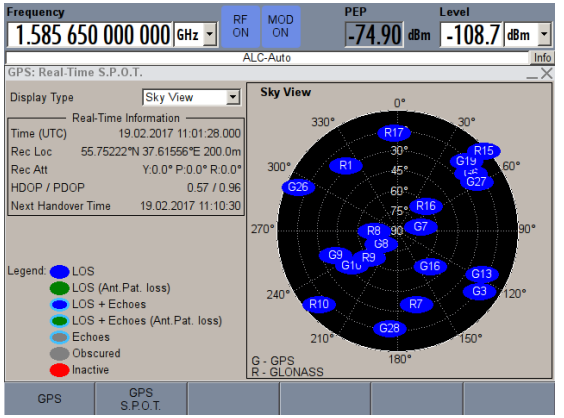
- Required GNSS performance tests include:
  - Tracking sensitivity
  - Acquisition sensitivity
  - Time to first fix (TTFF)
  - Location accuracy

Your benefits	Features
Tests are 100 % reproducible	The GNSS simulator in the **R&S®SMBV100A** makes sure that scenarios are fully reproducible, which makes the solution ideal for validation measurements prior to official certification tests.
Tests are fully automated	The **R&S®SMBV-K360** in combination with the R&S®CMWrun sequencer software automatically configures the signal generator; no manual instrument configuration is 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 setup for automated GNSS performance tests



GNSS simulator in the R&S®SMBV100A



Combined GPS/Glonass simulation performed by the R&S®SMBV100A.

Instrument configuration

Minimum HW configuration		
R&S®SMBV100A	Vector signal generator	
R&S®SMBV-B103	Frequency up to 3.2 GHz	
R&S®SMBV-B10	Baseband generator	
R&S®SMBV-B92	Hard disk	
Minimum SW configuration		**Test cases according to GOST-R-55534/33471**
R&S®SMBV-K44	GPS	Required for TC 5.1, 5.2, 5.3, 5.4, 5.6, 5.7, 5.8 (location accuracy without obstructed signals), 5.9, 5.10, 5.11, 5.12, 5.13, 5.14
R&S®SMBV-K94	Glonass	
R&S®SMBV-K92	GNSS enhanced	
R&S®SMBV-K91	Extension to 12 satellites	
R&S®SMBV-K96	Extension to 24 satellites	
To add for full test coverage		**Test cases according to GOST-R-55534/33471**
R&S®SMBV-K110	SBAS	Required for TC 5.5 (RAIM)
R&S®SMBV-K102	Antenna pattern	Required for TC 5.8 (location accuracy with obstructed signals)
Test automation		
R&S®SMBV-K360	ERA-Glonass test suite	+ R&S®CMWrun to be installed on a control PC

▷ For more information, see www.rohde-schwarz.com/catalog/smbv100a

Other GNSS test solutions offered by Rohde &Schwarz

- GNSS waveforms with R&S®WinIQSIM2, 1 channel
- GNSS production tester R&S®SMBV-P101, 4 channels
- GNSS simulator R&S®SMBV100A, 24 channels
- GNSS simulator R&S®SMW200A, 72 channels

Rohde & Schwarz GmbH & Co. KG | Europe, Africa, Middle East +49 89 4129 12345 | North America 1 888 TEST RSA (1 888 837 87 72)
Latin America +1 410 910 79 88 | Asia Pacific +65 65 13 04 88 | China +86 800 810 82 28 / +86 400 650 58 96
www.rohde-schwarz.com | customersupport@rohde-schwarz.com
R&S® is a registered trademark of Rohde & Schwarz GmbH & Co. KG | PD 5215.3656.32 | Version 01.02 | December 2017 (mi)