

GPS

Frequency range	Modulation	Multiple access	Duplex	Channel bandwidth	Number of channels	Peak data rate
L1: 1575.42 MHz L2: 1227.6 MHz	BPSK	Not needed	Not needed	20.46 MHz	Up to 32 satellites	50 bit/s

Selected products



R&S®SMU

To be able to determine its position, a GPS receiver must “see” at least three satellites. With the R&S®SMU-K44 option, the R&S®SMU provides up to four virtual satellites.



R&S®CRTU-G

GPS will be an important feature of future mobile phone generations. The R&S®CRTU-G supports this integration with 3GPP-based A-GPS test cases.

Application notes

Title	Designation
Synchronization for CDMA Base Stations (GPSOne Measurements)	1CM33

GPS measurement solutions

	Recommended products	Features/measurements
Signal generation	<ul style="list-style-type: none"> • Signal Generator R&S®SMU 200A or • Signal Generator R&S®SMJ 100A or • Signal Generator R&S®SMATE 200A + R&S®SMx-K44 software option 	<ul style="list-style-type: none"> • Ranging codes C/A • Receiver tests • Simulation of up to four GPS satellites • Fading simulator (option) with up to 40 fading paths (R&S®SMU 200A) • Extremely fast setting times and addressable list mode for production (R&S®SMATE 200A) • Up to two signal generators in one box (e.g. useful signal + interferer, R&S®SMU 200A and R&S®SMATE 200A), both up to 6 GHz in the R&S®SMATE 200A
Signaling measurements	<ul style="list-style-type: none"> • Radio Communication Test Set R&S®CRTU-G • Universal Radio Communication Tester R&S®CMU 200 	<ul style="list-style-type: none"> • 3GPP-based A-GPS test cases • Control of GPS simulator from test cases • Support of all signaling messages • Enables gpsOne® tests

The screenshot shows the 'GPS A: Satellite Configurations' software interface. It features a table for satellite settings with columns for Satellite 1, 2, 3, and 4. The 'State' row shows Satellite 1 is 'ON' while others are 'OFF'. Below this, there are fields for Space Vehicle ID, Ranging Code, Time Shift, and Power. A 'GPS A' dialog box is open, showing 'State' as 'On' and 'Simulation Mode' as 'Generic'. At the bottom, the 'Navigation Data' section includes 'Data Source' set to 'Real Navigation Data', 'Almanac for GPS week 1210', and 'Date' set to '10 10 2004 - 16 10 2004'.

GPS configuration with the R&S®SMx-K44 option for the Signal Generators R&S®SMU/SMJ/SMATE.