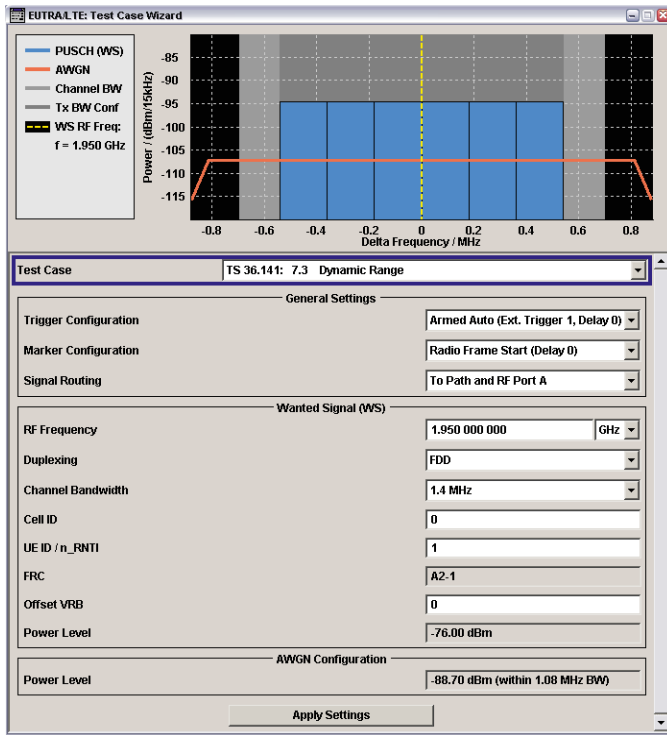


# Use the LTE test case wizard for your eNB conformance testing

The test case wizard for signal generators simplifies LTE base station receiver and performance testing in line with 3GPP TS 36.141 Release 8 by providing complete and automatic configuration of the instrument.



The LTE test case wizard significantly simplifies the configuration of Rohde & Schwarz signal generators for conformance testing.

## Your task

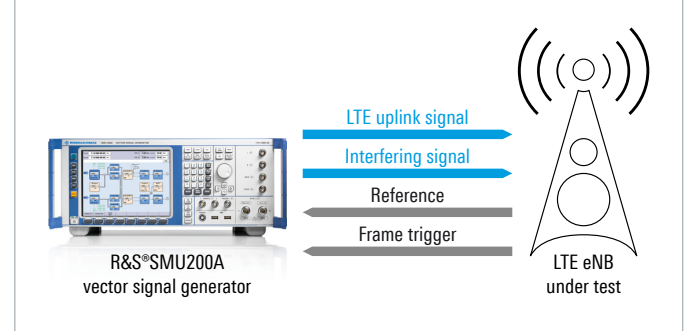
For 3GPP long term evolution (LTE) base stations, a series of conformance test cases are defined in the 3GPP technical specification (TS) 36.141 comprising transmitter, receiver and performance tests.

Various LTE uplink signals, interfering signals and fading simulations are needed for these test cases. Setting up the test equipment to generate such signals can quickly become complicated and time consuming.

## T & M solution

The R&S®SMU200A vector signal generator with the LTE test case wizard is the most compact and easiest to use solution for conformance testing of LTE base stations.

### Simple and effective conformance testing



In addition to flexible, standard-conformant LTE signal generation, the R&S®SMU200A also offers additive white Gaussian noise (AWGN) generation and realtime signal fading for SISO and MIMO. Furthermore, its second path can be used to generate interfering signals.

The R&S®SMU200A provides everything you need for receiver and performance testing in line with TS 36.141 in just one single instrument. By adding a second R&S®SMU200A, performance testing of base stations with four RX antennas is also possible.

Configuration of the R&S®SMU200A in line with the conformance test cases is significantly faster and easier with the LTE test case wizard, which is included in the R&S®SMx-K55 LTE option.

The test case wizard configures the instrument in line with all test cases in TS 36.141 Release 8 that require a signal generator. The user simply selects the desired test case and the R&S®SMU200A sets the LTE test signal, fading simulation and interfering signals such as AWGN, CW and LTE interferers – automatically and standard-conformant. The parameters that are not defined by the specification can be set by the user.

The test case wizard makes it possible to set up even complex test cases such as receiver intermodulation test 7.8 with minimum effort – and using just one R&S®SMU200A. When this test case is selected, the instrument generates the required LTE uplink signal, a CW interferer and an interfering LTE signal.

The test case wizard is also available for the R&S®SMBV100A, R&S®SMATE200A and R&S®SMJ100A signal generators, though the functional range is limited. This unique test case wizard is a simple and effective solution for LTE base station conformance testing.

### Major advantages of the test case wizard:

- Complete instrument setup in just one click including configuration of interfering signals and fading simulation
- Graphical display for visualization of the wanted LTE signal and the interfering signal(s)
- Full support of performance testing including closed loop testing with HARQ feedback and timing adjustment (using the R&S®SMx-K69 option)
- Setup of two R&S®SMU200A for performance testing of eNBs with four receive antennas (one instrument generates the uplink signals for antennas 1 and 2 and the other instrument for antennas 3 and 4)
- Automatic resource block allocation for the fixed reference channels (FRCs with full channel coding) and additional channels as required
- Automatic leveling including RF output level, signal to noise ratio (SNR) and ratio of wanted signal to interfering signal(s)
- Remote operation via SCPI commands possible

### See also:

[www.rohde-schwarz.com/technology/lte](http://www.rohde-schwarz.com/technology/lte)  
[www.rohde-schwarz.com/product/SMU200A](http://www.rohde-schwarz.com/product/SMU200A)

LTE test cases in line with TS 36.141 Release 8 supported by the LTE test case wizard	Generated signal(s) and used features	Number of R&S®SMU200A
<b>Transmitter tests</b>		
6.7 Transmitter intermodulation	Interferer (LTE downlink)	1
<b>Receiver tests</b>		
7.2 Reference sensitivity level	LTE uplink	1
7.3 Dynamic range	LTE uplink, AWGN	1
7.4 In-channel selectivity	LTE uplink, interferer (LTE)	1
7.5A Adjacent-channel selectivity	LTE uplink, interferer (LTE)	1
7.5B Narrowband blocking	LTE uplink, interferer (LTE)	1
7.6 Blocking	LTE uplink, interferer (LTE or CW) up to 6 GHz	1
7.8 Receiver intermodulation	LTE uplink, 2 interferers (LTE and CW)	1
<b>Performance tests</b>		
8.2.1 Performance requirements of PUSCH in multipath fading propagation conditions	LTE uplink for 2 (or 4) receive antennas, fading, AWGN, HARQ feedback	1 (or 2)
8.2.2 Performance requirements for UL timing adjustment	2 LTE uplinks (moving and stationary UE), fading, AWGN, HARQ feedback	1
8.2.3 Performance requirements for HARQ-ACK multiplexed on PUSCH	LTE uplink, fading, AWGN	1
8.2.4 Performance requirements for high speed train conditions	LTE uplink, fading, AWGN, HARQ feedback	1
8.3.1 ACK missed detection for single user PUCCH format 1a	LTE uplink for 2 (or 4) receive antennas, fading, AWGN	1 (or 2)
8.3.2 CQI missed detection for PUCCH format 2	LTE uplink, fading, AWGN	1
8.3.3 ACK missed detection for multi user PUCCH format 1a	LTE uplink, 3 interferers (LTE uplink), fading, AWGN	2
8.4.1 PRACH false alarm probability and missed detection	LTE uplink for 2 (or 4) receive antennas, fading, AWGN	1 (or 2)

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