5G New Radio Standards and Conformance Tests

5G NR Connectivity

UNDERSTAND AVAILABLE OPTIONS

5G NR can operate in standalone or non-standalone mode:

- Non-standalone options use the LTE base station to connect to the Evolved Packet Core (EPC) or 5G Core (5GC) network.
- Standalone options 2 mean it operates independent of the 4G LTE network using a 5G NR base station referred to as poolless.

5G NR Tests

DETERMINE THE MINIMUM REQUIREMENTS

5G NR tests are required for conformance testing, device acceptance, and manufacturing R&D protocol, RF/RRM testing to conformance, and device acceptance, and manufacturing.

Technical Specifications

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5G NR Working Groups

FIND THE SPECIFICATIONS

3GPP working groups conduct studies and specify technical specifications for the different layers and interfaces in the 5G network.

5G NR technical reports and specifications are provided in the 3GPP series documents at: www.3gpp.org/3gpp-series

Base Station Tests

UNDERSTAND SPECIFIC REQUIREMENTS FOR BASE STATIONS

Base station test requirements are determined by the reference point:

- Conducted Tests: Type 1-C at antenna connector and Type 1-H at the transmitter assembling boundary (TAM)
- Radiated Tests: Type 1-H at the radiated interface boundary (RRB) and all Types 1-D and 2-D

5G NR Release-15 Operating Bands

ENSURE COEXISTENCE FOR SUCCESSFUL OPERATION

5G NR operating bands introduce new coexistence interference scenarios in the mid-band (2.5 GHz to 5.3 GHz) and in under-the-band fixed satellite services (FSS) at 24 GHz.

New FR2 millimetre wavelength bands require new interference test cases for all base stations and devices resulting in increased test complexity.

5G NR Device Tests

UNDERSTAND SPECIFIC REQUIREMENTS FOR DEVICES

5G NR devices introduce a huge matrix of conformance test requirements across frequencies, carrier aggregation combinations, and connectivity options. Device conformance must be validated by certification organizations such as the CTIA and PTCRB.

Keysight Solutions

High-performance, multi-channel signal generators and analysis for 5G NR frequency and bandwidth coverage.

High-performance network analysis for microwave characterization and GMI calibration.

Cascaded chambers with PROFORM-5G for evaluating beamforming blocking, throughput, and latency under real-world conditions.

R&D protocol, BB/RF/SM testing for conformance, device acceptance, and manufacturing.

5G New Radio Acronym Decoder

http://www.keysight.com/find/5G

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