5G DEVICE APPLICATIONS

Fifth generation mobile communications (5G) is the first communications standard designed to support a wide variety of consumer and industry applications. Within just a few decades, mobile devices have evolved from simple telephones into powerful computing platforms capable of a vast range of applications with highly diverse communications requirements.

Learn more about mobile device testing:
https://www.rohde-schwarz.com/mobile-device-testing

3GPP RELEASES

3GPP Release 15 laid the foundation for 5G New Radio (5G NR) by introducing new, flexible numerology, advanced channel coding and modulation schemes. It made more radio resources available by enabling wider channel bandwidths and using extended carrier aggregation schemes while also extending frequencies into the millimeterwave range. Release 16 provided numerous enhancements over Release 15 and introduced private 5G network capabilities and network slicing. In addition to improving many features in Releases 15 and 16, Release 17 introduced non-terrestrial networks (NTN), reduced capability (RedCap), and improved battery health. Release 18 is dubbed 5G Advanced since it includes major feature enhancements for artificial intelligence, extended reality, and continuous evolution of NTN and RedCap.

Extended reality

Automotive and NR V2X enhancements

Artificial intelligence (AI)

Release 18
New wave of 5G innovations in the decade-long 5G evolution

Non-terrestrial network enhancements

Enhanced RedCap (eRedCap)

Centimeter accuracy IIoT with mmWave

NR-Light RedCap for low-complexity IoT

Release 17
Continued expansion and enhancements

Non-terrestrial network

Expand sidelink for V2X reliability

Enhanced DL/UL MIMO

eMBB evolution

5G NR Cellular V2X

Release 16
Expanding to new use cases and industries

Mission-critical services with eURLLC

In-band eMTC/NB-IoT and 5G Core

Mobile mmWave

Release 15
Establishing 5G NR technology foundation

eMBB

mMTC

URLLC

mmWave connectivity

Offers extreme capacity, ultra-high throughput, and low latency. 5G mmWave is an optimal solution for use cases with massive through-put requirements, such as venue connectivity, industrial use cases and fixed wireless access.

NTN

Non-terrestrial networks bring connectivity to areas where terrestrial coverage is either patchy or lacking, providing ubiquitous messaging, voice and emergency services.

Cellular V2X

Cellular vehicle-to-everything enables vehicles to communicate with transportation infrastructure, other vehicles, the cloud, cellular network infrastructure and even pedestrians.

XR

Extended reality services include augmented reality, mixed reality and virtual reality applications for the metaverse. Fueled by 5G and low latency, these devices have endless possibilities.
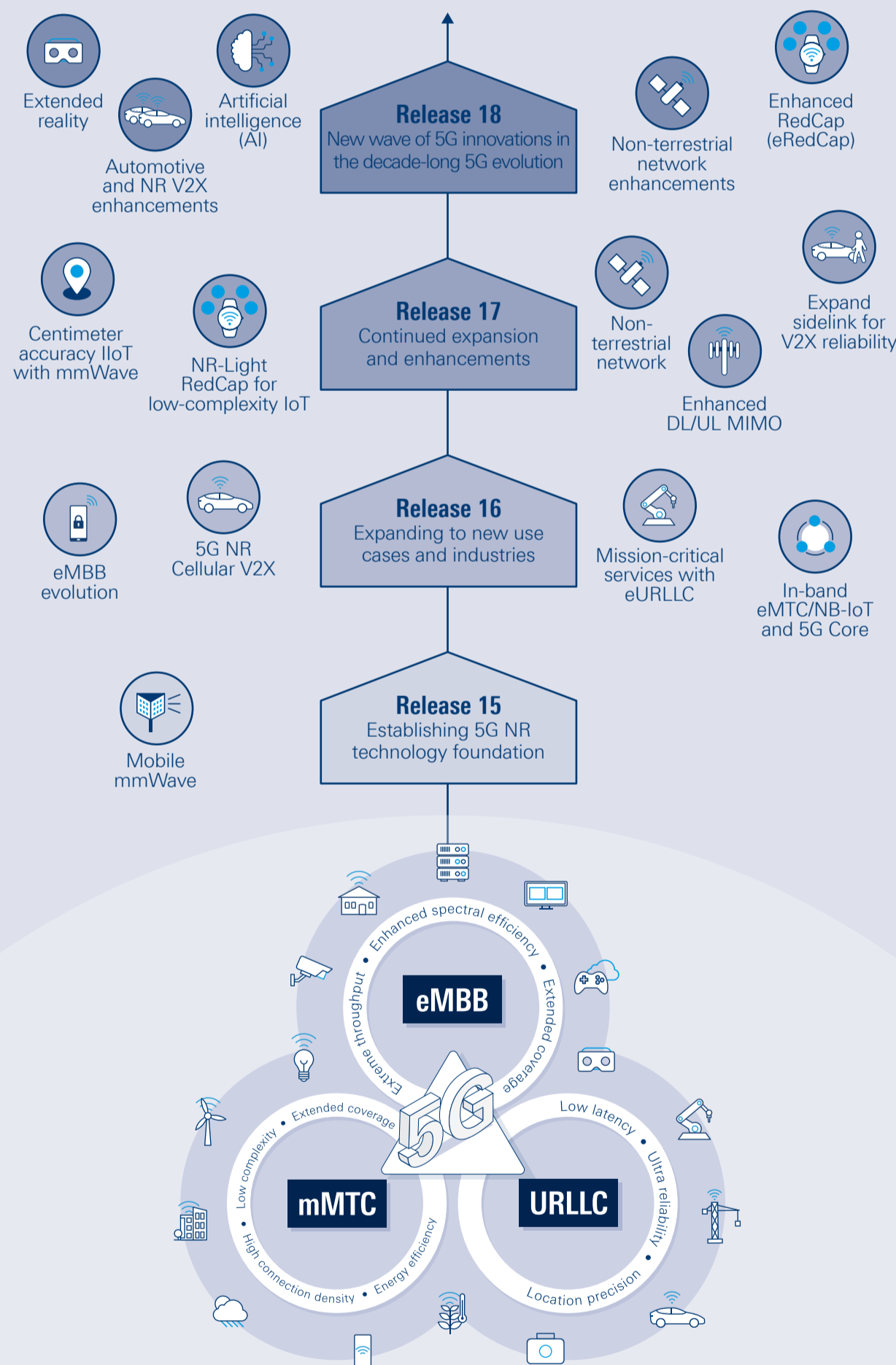
IoT / wearables

Connectivity and services for specific wearable devices such as smart watches and fitness trackers fueled by RedCap.

Fixed Wireless Access

FWA brings fixed broadband connectivity to homes and enterprises, so users can enjoy the same ultra-fast, reliable 5G experience across an eco-system of devices in places where they spend most of their time.

Industrial IoT (IIoT)

IIoT extends 5G to other use cases and device types. 5G routers, surveillance cameras and other peripheral sensor-linked devices based on RedCap enable connectivity in 5G smart factories.

Mobile broadband

Provides throughput speeds that could reach 10 Gbps when milli-meterwave (mmWave) frequencies are available; eMBB results in a faster and better user experience.

5G one-box signaling tester

R&S®CMX500

Extensive device testing including RF parametric, protocol and application testing from R&D to validation and pre-conformance.

Radio communication tester

R&S®CMP180/200

Non-signaling testing for R&D and production to verify FR1 and FR2 TX/RX chains.

Conformance test system

R&S®TS8980 and R&S®ATS1800C

RF conformance testing for 5G NR FR1/FR2 including a 3GPP-compliant CATR over-the-air (OTA) test system.

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