Base station communication numerology

What are 5G NR subcarriers and numerology?
The idea of 5G NR subcarriers and numerology (u) underlines the flexibility and scalabilityof the 5G technology. 5G NR is able to serve a wide spectrum of use cases from massive IoT networks to ultra-reliable,low-latency communications by offering multiple subcarrier spacing.

What is a mixed numerology waveform for 5G New Radio?
For 5G New Radio (NR),the 3rd Generation Partnership Project (3GPP) has selected Orthogonal Frequency Division Multiplexing(OFDM) with mixed numerology as the waveform . Mixed numerology involves using different subcarrier spacings and symbol durations within the OFDM framework.

Which numerology should be used in a 5G system?
From the results obtained,it can be concluded that the operating frequency should not be the only parameter to take into account when deciding which numerology should be used in a given system. All 5G OFDM numerologiescan be used throughout the 5G spectrum,depending on the characteristics of the system.

Which parameter sets the changes in the numerology?
The parameter that sets the changes in the numerology is the subcarrier spacing,and it can be scaled according to the following factor: 15 × 2 n kHz,where n is an integer and 15 kHz is the subcarrier spacing used in LTE.

In many ongoing universal projects, base stations are located in the different type of aerial vehicles with the increasing number of aeronautical platforms and applications. It ...

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In this mode, the resource allocation for communication is facilitated through the cellular infrastructure, such as the gNB (5G base station). To aid the resource allocation ...

KHz and 1/2u ms, respectively. Therefore, by adapting the numerology concept, 5G NR reduces the slot duration down to 125 microseconds, considerably reducing the RAN ...

This could be useful to determine the best 5G OFDM numerology for systems where base stations are drones that constantly change height and position, in order to ...

Abstract--In this paper, we use a New Radio (NR) simulator, based on ns-3, to assess the impact of 5G NR numerologies on the end-to-end (E2E) latencies in a realistic and complex scenario, ...

The base station is shown Fig. 6 a, and consists of several main blocks: user-based numerology and waveform, user data prefix/suffix, filtering/windowing, frequency shift, and ...

Hence, it is propitious to configure the base station numerology to the benefit of the focused deployment scenario and traffic types. The initial access in 5G NR broadly ...

The 3rd Generation Partnership Project (3GPP) adopted cyclic prefix OFDM (CP-OFDM) for both uplink and downlink communications (although DFT-s-OFDM is also allowed ...