

**EQACC SOLAR**

# **Base station communication numerology**



## Overview

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What are 5G NR subcarriers and numerology?

The idea of 5G NR subcarriers and numerology ( $\mu$ ) underlines the flexibility and scalability of 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.

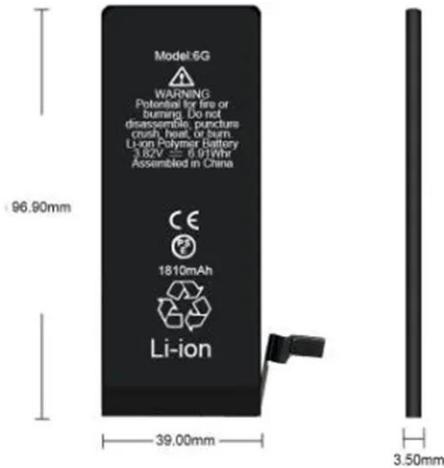
Which numerology should be used in a 5G system?

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 numerologies can 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:  $15 \times 2^n$  kHz, where  $n$  is an integer and 15 kHz is the subcarrier spacing used in LTE.

## Base station communication numerology

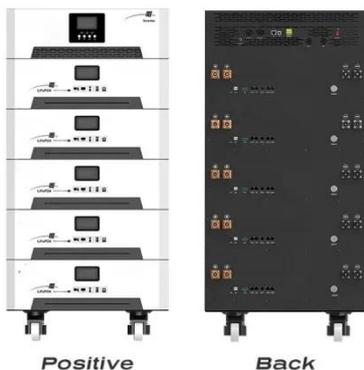


### Flexible Numerology in 5G NR: Interference Quantification ...

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 ...

### Understanding 5G NR Subcarriers and Numerology: The ...

Learn about 5G NR subcarriers, numerology, and subcarrier spacing -- the core principles enabling flexible and efficient 5G communication.



### Enhancing flexibility and system performance in 6G and ...

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 ...

### Evaluating the Impact of Numerology and ...

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 ...



### Radio Resource Management in Multi-numerology 5G ...

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 ...

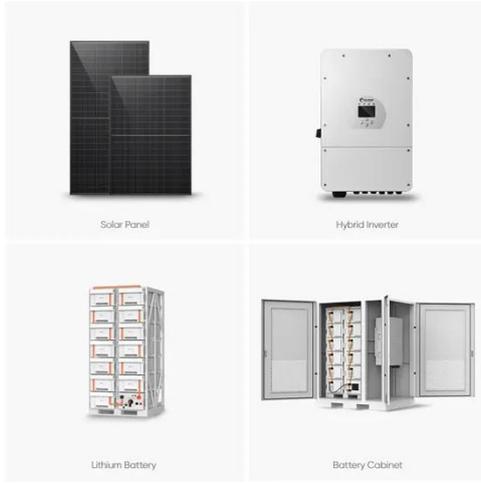
### Flexible Numerology in 5G NR: Interference

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 ...



### 02\_Ahmet\_Yazar.dvi

A BW Part (BWP) is a new term that defines a fixed band over which the communication taking place uses the same numerology throughout the existence of the BWP ...



## Contextual Bandit Based Adaptive Numerology for Initial ...

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 ...



## Flexible Numerology in 5G NR: Interference

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## Communications Scenarios and a New Mixed Numerology ...

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 ...



### **Communications Scenarios and a New Mixed Numerology**

Article "Communications Scenarios and a New Mixed Numerology Set for Flying Base Stations in 5G and Beyond"  
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