NR: 3GPP’s answer to 5G radio requirements

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Operation from **low to very high** bands: 0.4 – 100Ghz
- Including standalone operation in unlicensed bands

**Ultra wide** bandwidth
- Up to 100MHz in <6GHz
- Up to 400MHz in >6GHz
What is 5G NR?

- Set of different numerologies for optimal operation in different frequency ranges
- Native forward compatibility mechanisms
- New channel coding
  - LDPC for data channel, Polar coding for control channel
What is 5G NR?

- Native support for **Low Latency and Ultra Reliability**

- **Flexible and modular** RAN architecture: split fronthaul, split control- and user-plane

- Native end-to-end support for **Network Slicing**
Delivering the 5G vision through multiple phases
5G phase-1 in Rel-15

**Summary**

- Licensed bands between 600MHz – 39 GHz
- LTE-Anchored 5G (NSA), and Standalone (SA) 5G
- Basic URLLC support
- Massive MIMO
- Flexible RAN architecture
- Fulfills IMT2020 criteria
5G phase-2 in Rel-16

… towards the full 5G vision:

- V2X support – autonomous driving
- Enhanced MIMO
- Support for Unlicensed bands
- Factory automation
- Support of higher bands (>52.6 GHz)
- ...

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<thead>
<tr>
<th>2017</th>
<th>2018</th>
<th>2019</th>
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<tbody>
<tr>
<td>Q4</td>
<td>Q1</td>
<td>Q2</td>
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- **3GPP #80**: Release-16 Study approval
- **3GPP #83&84**: Release-16 Work Item approval
- **3GPP #86**: Release-16 freeze
The global spectrum landscape

Low Band
- 1 GHz
- 600/700 MHz

Mid Band
- 3 GHz
- 4 GHz
- 5 GHz
- 3.1–4.2 GHz
- 4.4–4.99 GHz

High Band
- 20 GHz
- 30 GHz
- 100 GHz
- 26/28 GHz
- 38/42 GHz
Thank You!

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