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# On unlicensed standalone as part of the 5G NR study item

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CableLabs, Dish, Ericsson, Intel,  
Interdigital, Nokia, Qualcomm, RED  
Technologies, Ruckus Wireless, Sprint,  
TeliaSonera, Verizon, Vodafone, ZTE**



# From the approved 5G-NR study item

- *Study and identify the technical features necessary to enable the new radio access to meet objective 1 and 2, also including:*
  - *Tight interworking between the new RAT and LTE*
  - *Interworking with non-3GPP systems*
  - *Operation in licensed bands (paired and unpaired), and licensed assisted operations in unlicensed bands*
    - *[Standalone operation in unlicensed bands is FFS]*

# Relevance of standalone unlicensed scenarios to 5G NR studies

- 5G NR will be the next generation cellular platform until ~2030
- The “square brackets” for standalone unlicensed refer to a [study](#)
- Thus, the decision is **NOT** whether “standalone unlicensed” will be in any specific 3GPP release
- The decision is “do we want to [preclude](#) this development of the technology entirely”
  - If we do not study in some form right away & we decide to add this later, it will be sub-optimal

# Standalone unlicensed should be part of the 5G NR study

- There is a shared interest in expanding the footprint of cellular technology
- Also cellular technology is competing & will compete with other technologies
  - Other non-3GPP technologies targeting 5G use cases on unlicensed spectrum are able to operate standalone
- IOT, industrial, hotspots, connectivity in remote areas, isolated environments, D2D/sidelink
  - We cannot predict all of the scenarios where connectivity is going to be valuable from now to 2030
- What we can do is to **make the technology fundamentally flexible** so that it adapts to more scenarios & gains more scale

# Standalone unlicensed should be part of the 5G NR study

## Topologies & deployment models

- A standalone unlicensed 5G allows to deploy the technology in a way that is unconstrained by the topology of the licensed part, eg **unlicensed spectrum** and **shared spectrum**
  - There may be interest to enable different topologies especially as we move higher in frequency
  - Eg 60 GHz unlicensed (see recent FCC decision)
- Standalone unlicensed & shared spectrum can also open new opportunities to existing operators
  - Venue-specific radio networks connected to existing MNO core networks
- Enabling 5G in standalone unlicensed also provides an **“entry point”** for new players that later could move to using it in licensed spectrum

# Conclusions

- We should **not preclude the study** of unlicensed standalone as part of 5G NR
- It is too early to preclude this scenario for the next decade & beyond
- Propose to add corresponding requirements in TR 38.913 (see RP-161580)
- Propose to update the study item as follows:
  - *Study and identify the technical features necessary to enable the new radio access to meet objective 1 and 2, also including:*
    - [...]
      - Operation in licensed bands (paired and unpaired), ~~and~~ licensed assisted operations in unlicensed bands, *and standalone operation in unlicensed bands*
      - ~~[Standalone operation in unlicensed bands is FFS]~~

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# Thank you

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