



Federal Ministry
of Transport and
Digital Infrastructure

5G Strategy for Germany

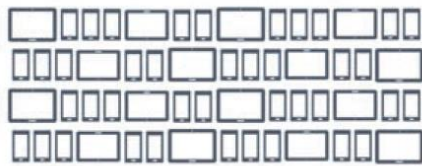
A scheme to promote the development of Germany to become a lead market for 5G



Preamble: What is 5G?

Enhanced Mobile Broadband

eMBB



- Improved user experience
- High device connectivity
- High mobile data rates
- Mobile virtual and augmented reality applications

Massive Machine Type Communications

mMTC



- eHealth applications
- Industry 4.0 applications
- Intelligent logistics
- Environmental monitoring
- Smart grids
- Smart farming

Ultra-Reliable and Low-Latency Communications

URLLC



- Car-to-X communication
- Control of parcel drones
- Vital data monitoring
- Smart manufacturing

Figure 1 – Three key application groups for 5G: eMBB, mMTC and URLLC

Source: Federal Government based on Ofcom 2017: update on 5G spectrum in the UK



Five Fields of Action (1)

1. Accelerate network rollout

- Facilitate connection of base stations via fibre optic cables
- Step up co-usability of passive carrier infrastructures for the deployment of 5G cells
- Support timely network rollout with unbuerocratic administrative procedures, yet maintaining health protection

2. Make available 5G frequencies

- Intensify harmonisation of 5G spectrum at global and European level
- Make available spectrum below 6 GHz – award process planned for 2018
- Create planning reliability for the 26 GHz band early on
- Secure compatibility/co-existence with existing band-users on a non-interference basis
- Promote use of trial frequencies already available



Five Fields of Action (2)

3. Promote cooperation between telecoms sector and vertical industries

- Continue the „5G Dialogue Forum“
- Actively support the standardization process

4. Support 5G research

- Support and strengthen research activities
- Fund research and development activities in a systematic manner, e.g. test beds
- Connect and coordinate research activities in Germany

5. Initiate 5G for towns and cities

- Organise the „5G Competition“
- Support project planning with the help of industry partners



Satellite Opportunities in 5G

Drawbacks

- Due to high latency, satellite is a no-go for most uRLLC applications (especially GEO and MEO).
- High costs for satellite deployments.

Opportunities

- Satellite is able to provide almost ubiquitous connectivity.
- For most mMTC and some eMBB use cases discussed, satellite latency is not critical.
- 3GPP identified a „satellite extension to terrestrial“ use case:

Application: Fill-in on roads and rural areas.

Use case considers satellite for access as well as backhaul.

Thank you for your attention!

5G Strategy on the Internet:

<http://www.bmvi.de/goto?id=258024>

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