



**WorldDAB General Assembly 2019**

# **5G – a complement not a replacement**

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# 5G – Timeline – looking back and forward

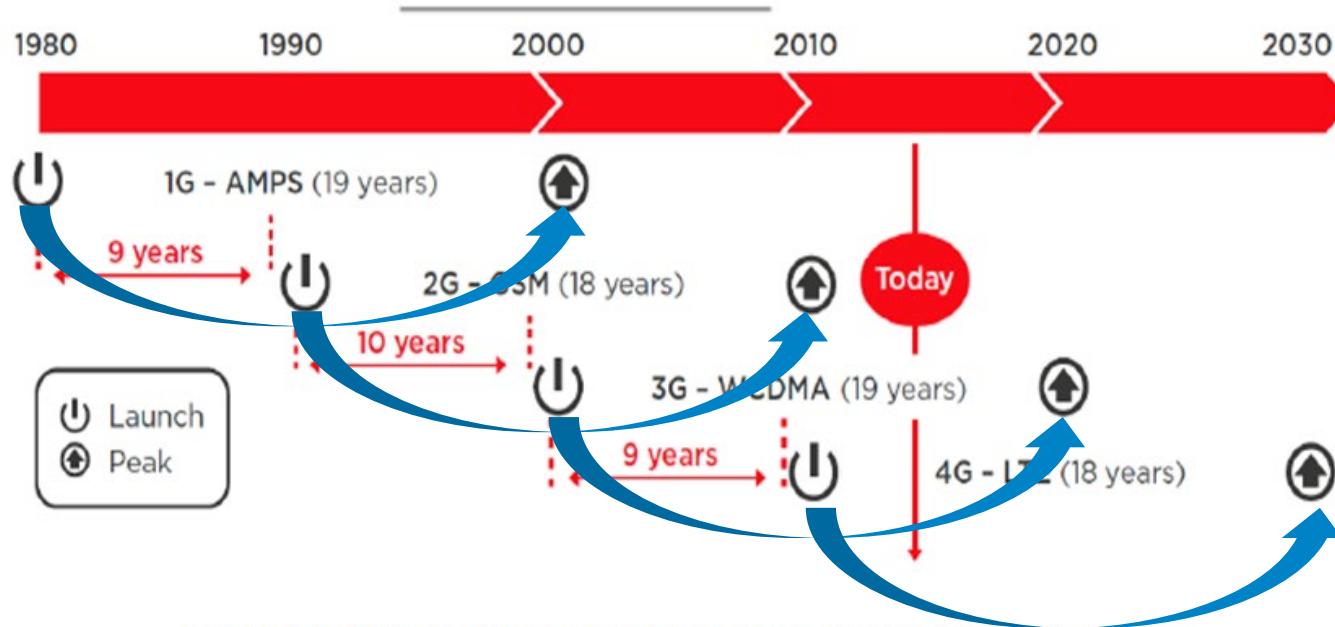


Figure 5: Evolution of mobile technology by generation, 1980 onwards

Source: GSMA Intelligence

# „5G Today“ – Field Trials in Bavaria - Introduction



- Research an implementation of the FeMBMS specification for the large scale transmission of media content in broadcast mode based on a mobile technology
- funded by the Bavarian Research Foundation
- **Duration 28 month** (July 2017 to February 2020)



Bayerische  
Forschungsstiftung

Project Partners:



ROHDE & SCHWARZ

KATHREIN

Associated Partners:



Telefonica O<sub>2</sub>



# „5G-Today“ – Field Trials in Bavaria

## Wendelstein

Site height: 1838 m  
ant. height 53 m

- UHF antenna; Vertically polarized

## SFN

UHF Channel 56 (750 – 758 MHz)

5 MHz Channel Width

100 kW ERP each transmitter

FeMBMS according to 3GPP Release 14

## Ismaning

Site height 483 m  
ant. height 215 m

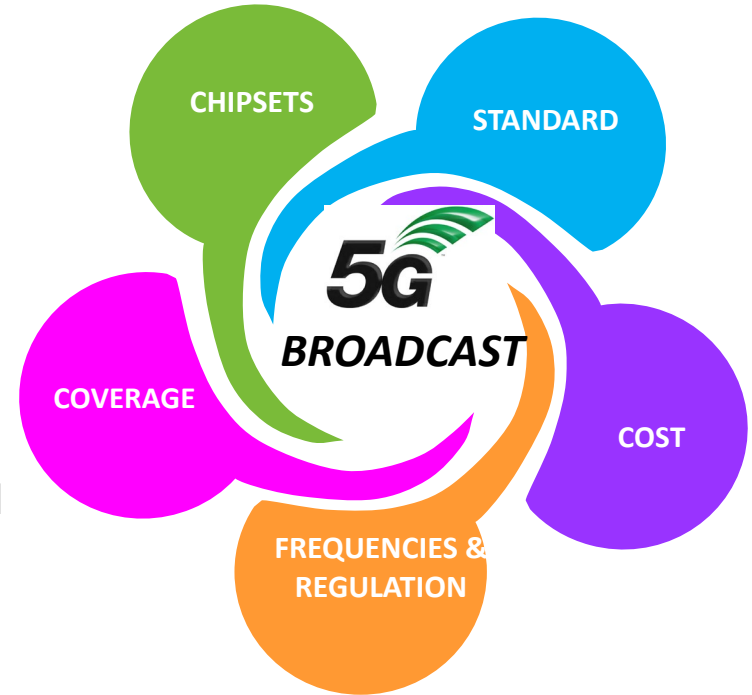
- UHF antenna; Polarisation switchable, H / V / Circular



# But...are we ready?

## The ecosystem for 5G Broadcast is yet under development

- 5G Broadcast (Release 16) is still under standardization
- No chipsets are yet available in the market (not even clear if in „production plans“)
- Regulation to operate 5G Broadcast in dedicated spectrum is not ready
- The service layer for TV Services has been developed but needs to be evaluated
- Performance, Coverage and Spectral Efficiency to be analysed according to broadcasters' expectations



# And what about 5G and radio ? (1)

- Listeners want to receive linear and individual (non-linear) audio-services anywhere and at any time. Therefore ARD is preferring a **hybrid model** with DAB+ and Internet-Radio.
- Now „5G“ generally offers the possibility to transfer multimedia services with higher datarates. We see an realistic chance to standardize a **worldwide „broadcastmode“** in mobile networks which fullfills the requirements of broadcasters **and is supported** by mobile network operators.
- EBU and Public Broadcasters and their research institutes are working in 3GPP for video in 5G. **No work is done for radio**, radio providers are not involved in 3GPP. There is no dedicated radio-broadcast-modus in 5G for signaling and additional data... as we have it in DABplus.
- There are **no business models for radio** in cellular networks. In contrast video is a strong driver for new systems and uses the bigger part of mobile data rate.

# And what about 5G and radio ? (2)

- Radio needs a very low-threshold access to the listeners **without gate-keepers**.
- In respect to the **time to market** for availability of 5G for the normal consumers: all cellular systems have taken time (~10 years) to penetrate the market.
- The DAB+ network with its low number of transmitters (in comparison to a cellular network) is the **most efficient** network to realize a **full area coverage**.  
(Source: Dr. Chris Weck; <https://www.radioworld.com/columns-and-views/does-5g-make-sense-for-radio>)

**To become digital analog radio can not risk to be dependent (chronological and technical) on a system (5G) on which broadcasters have only very limited influence.**

# 5G Timeline:

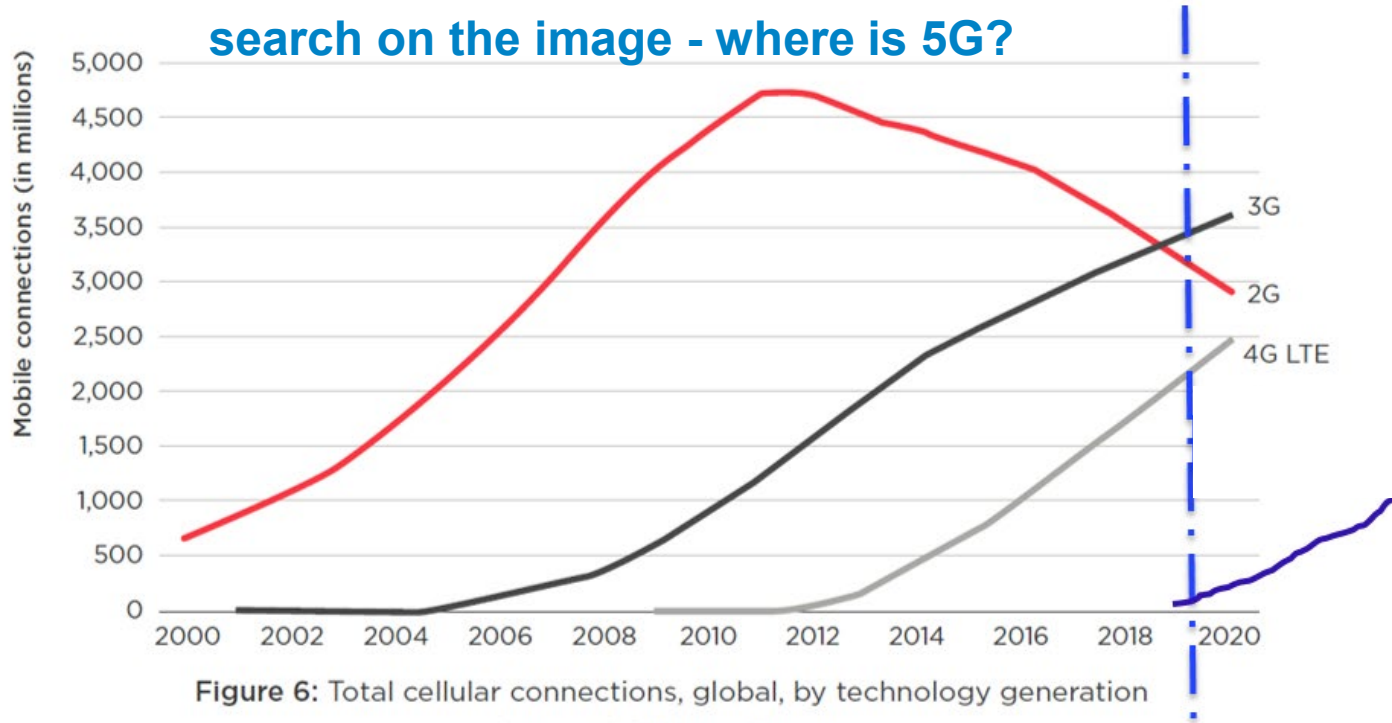


Figure 6: Total cellular connections, global, by technology generation

Source: GSMA Intelligence

Quelle: Dr. Beutler / SWR





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