



# The Impact That 5G

will have on Broadcast, including DVB Specifications

By Peter MacAvock, Chairman, DVB

**This article examines the possible scenarios where DTT delivery might have synergies with 5G, how 3GPP is supporting broadcast over 5G and the role played by the DVB in all of this.**



**Peter MacAvock,  
Chairman, DVB**

Peter MacAvock is Head of Delivery, Platforms and Services, EBU Technology and Development and DVB Chairman. At EBU,

he heads the team responsible for innovation projects relating to delivery technologies, spectrum management and software platforms. Amongst other things, he is responsible for spectrum matters and high-level projects related to Hybrid Radio and Television including HbbTV, DVB, RadioDNS and others.

In July 2016, he was elected Chairman of the DVB Project, and retains a role as Co-Chair of the HbbTV Requirements Group. He is an Irish national, living and working in Switzerland.

5G is expected to play a critical role in the future of video delivery. Therefore, it is only natural that people want to know whether 5G is suitable for broadcast. One of the unique things about 5G is that, compared to its predecessors, it is the first mobile telecommunications technology to embrace verticals outside the telecom space during the development process. Some of the contributors to the 5G standards within 3GPP include automotive, medical and media organisations.

The broadcast industry has been especially active in contributing ideas as to how 5G specifications can benefit its needs. This article will examine possible scenarios where DTT delivery might have synergies with 5G, how 3GPP is supporting broadcast over 5G and the role played by the DVB in all of this.

## Possible 5G use cases for DTT

DVB has an ongoing study mission to analyse the role of 5G in broadcast delivery. As part of that process, we have defined scenarios where 5G could collaborate with other networks for the delivery of DVB services. The most obvious scenario is to use 5G networks to transmit existing linear DVB services, such as free-to-air or Pay-TV.

## “ DVB has an ongoing study mission to analyse the role of 5G in broadcast delivery. ”

Such a scenario could make use of networks that are low-power, low-tower (LPLT), high-power high-tower (HPHT) or a combination of the two. Traditionally, LPLT networks have used unicast delivery, in some cases enhanced with multicast. Combining the two network architectures enables broadcasters to use a mixture of both, based upon whether unicast or multicast is most appropriate.

For HPHT use cases, spectrum is an issue. The UHF band is of most interest, as higher frequencies result in decreased reach. As of today, only the 700MHz and 800MHz bands have been allocated for mobile broadband in UHF. Furthermore, for UHF frequencies below 700MHz, where broadcast retains a primary allocation, the channels are typically either 6- or 8MHz-wide. These bandwidths are not supported by the 5G radio specification. While allocations in the UHF band may change in the future, presently its use for 5G-based HPHT broadcast services is restricted.

Today's broadcasters are looking to reduce costs and maximise efficiency. The latest DTT technologies for fixed reception (i.e. DVB-T2 and ATSC 3.0) are more spectrum-efficient than 5G broadcast technology. For that reason, 5G broadcast is highly unlikely to replace DVB-T2 in countries that still rely heavily on DTT distribution. However, 5G could make sense as an alternative terrestrial path for broadcast in regions of the world where DTT plays a minor or non-existent role (i.e. Switzerland).

It is also possible that 5G could complement DVB-T2 transmission if additional features, such as mobile reception, an interactive return channel or 5G-core-based edge computing, were supported. This would require tight collaboration between the mobile broadband and digital broadcast standards organisations.

### Next steps

As the global standards body for mobile telecommunications technologies, 3GPP is ultimately responsible for guiding the industry on 5G. It was with its Release 14, which included

FeMBMS or EnTV, that 3GPP first included broadcaster-friendly features such as free-to-air reception (including on SIM-free devices) and techniques to facilitate operation with HTHP networks. Before Release 14, there wasn't a mobile mode for video broadcast defined by 3GPP.

3GPP is currently working on Release 16 and determining whether Release 14 meets all of the key broadcast requirements.

### DVB's role in 5G

DVB is focused on understanding the 5G process and identifying opportunities where the new technology may complement DVB specifications. The first step in that process was establishing the aforementioned study mission dedicated to examining how 5G will impact broadcast delivery.

We have also been working on DVB-I, a new suite of specifications that is designed to improve OTT delivery, providing increased scalability and cost savings with the same user-friendliness and robustness as classical broadcast delivery solutions. Since 5G is an access technology, DVB-I could be useful to 3GPP and DVB distribution technologies, in general, could complement other 5G access networks.

Ultimately, we do not expect 5G to replace DVB-T2 for DTT delivery. Rather, we see this as an opportunity to explore ways that DTT and 5G complement each other. As online video consumption grows, 5G is likely to be an important technology for delivering media services in the future.

Our job is to continue being the voice of the broadcast industry, initiate projects and study missions that show how 5G can benefit our members, as well as partner with external bodies, such as 3GPP and other stakeholders, to ensure that broadcasters' requirements are met when 5G goes global.



## “ We have also been working on DVB-I, a new suite of specifications that is designed to improve OTT delivery. ”