

# Wireless Broadband and Broadcasting

New Business Models and Challenges for Spectrum Policy

Philip Kelley

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# What is Broadcasting?

The ITU-R definition of the broadcasting service is:

*1.38 broadcasting service: A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, television transmissions or other types of transmission (CS).*

# Who are Broadcasters?

It is appropriate to distinguish between two sorts of “broadcasters”:

- Broadcast Network Operators (BNOs)
- Editors responsible for the choice of the content of the audiovisual service, aka “TV channels” or “Radio channels”

In the following, the focus is on the requirements and business of editors. They are challenged by Over The Top (OTT) players and have a compelling need:

1. To offer Replay/Catchup/VoD in addition to their traditional linear service
2. To distribute their contents also to tablets and smartphones

# Technologies

- Satellite and Terrestrial transmission from High Tower / High Power (HPHT) only address the traditional linear service
- ADSL, Cable and Fiber transmissions fulfil the first requirement of editors, but not the second one
- LTE Broadcast is the only currently available technology to successfully address the two requirements. It has the terminal ecosystem ready, and it is available in the bands below 1 GHz that make economically sustainable the coverage including rural areas. Furthermore it can operate in hybrid multicast (for linear distribution) and unicast (for replay) modes.

# Coexistence and Convergence

- Traditional HPHT transmission using DVB technology can coexist in vicinity with LTE Broadcast in the same UHF band. This has been experimented in Germany by the IMB5 consortium. This could help addressing mobile terminals.
- But Replay/VoD requires some form of convergence where uplinks are made available to send individual requests for specific content at a specific time. Broadcasting licenses are not sufficient and Wireless Broadband (WBB) licenses are held by Mobile Network Operators (MNOs).

Some form of agreement between holders of broadcasting licenses and WBB licenses is needed for convergence to happen. The business model has not been found yet; meanwhile OTTs gain market share and start to address pay-TV linear service in addition to VoD.

- Will editors take the same road and forget about broadcasting licenses and agreements with MNOs?
- Or will they contribute to the deployment of a Supplemental Downlink (SDL) network associated with MNOs' uplinks?

## Back to the definition

### Are SDL and Replay part of Broadcasting Service?

The ITU-R definition of the broadcasting service is:

*1.38 broadcasting service: A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, television transmissions or other types of transmission (CS).*

Provided that the service delivered is intended for *direct reception by the general public*:

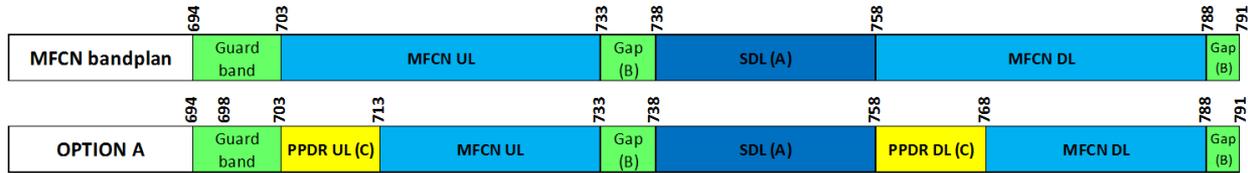
- Supplemental Downlink (SDL) transmission could belong to the broadcasting service
- Delivery of data in the downlink channel for a specific user – e.g. in the context of Replay– could be considered as broadcasting service

Administrations clarifying which services can be considered as belonging to the broadcasting service - and which cannot – could impact the scene one way or the other.

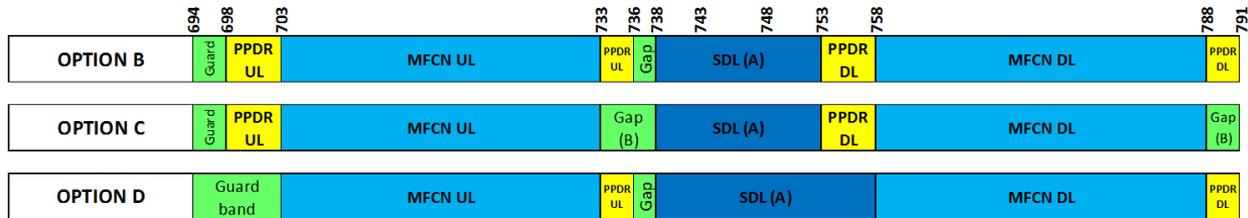
# And now: the case of the 700 MHz band

## What will be made of the SDL sub-band?

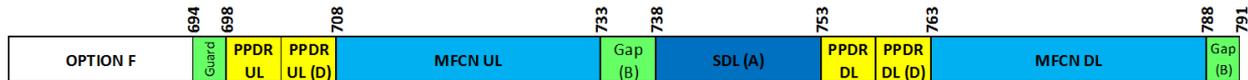
Options based on 700 MHz Harmonised MFCN (ECC Decision (15)01)



PPDR in spectrum assigned to PPDR:



PPDR in a combination of MFCN and dedicated spectrum:

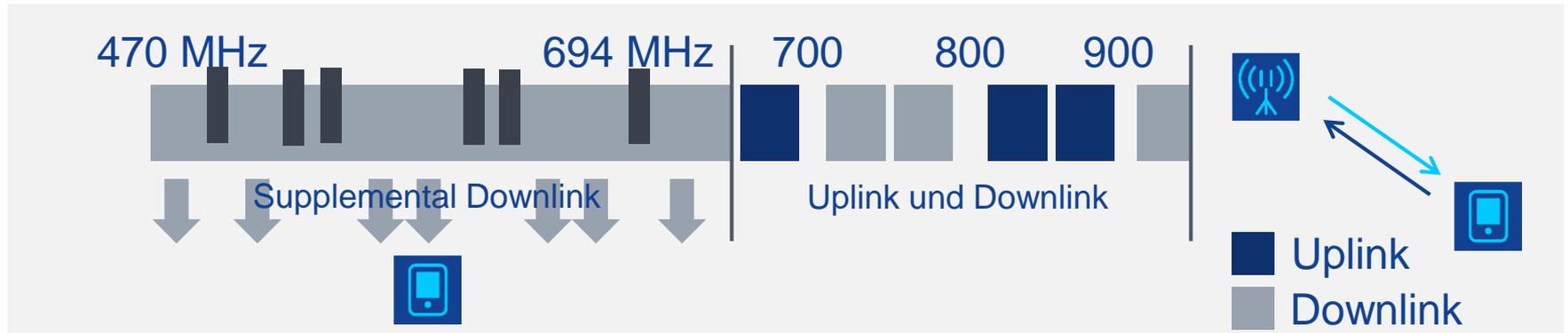


CEPT noted that the additional SDL option in the duplex gap may require further standardisation initiatives. The aggregation of the flexible SDL option in 738-758 MHz with an FDD mobile band outside the 700 MHz band may require further study

## Then the “broadcast” band 470-694 MHz: More SDL?

Supplemental Downlink = additional capacity to (FDD) band in downlink direction

- Complements LTE capacity for video streaming and intense audio visual use
- Easier to coordinate with Digital Terrestrial Television (DTT) use than conventional uplink and downlink operation within the band
- LTE broadcast technology can complement or in the more distant future even replace DVB-T for terrestrial TV distribution in supplemental downlink capacity



SDL may provide win-win between DTT and MBB way before 2030

# Cooperation between broadcast and mobile broadband

## What could be achieved

- Distribution of linear audio-visual content to mobile devices
- Mobile device may become the TV receiver for the large screen
- Flexible allocation of bandwidth to linear and non-linear content as needed
- Required capacity can be found in 470-694 MHz
- Broadcast - Mobile Broadband cooperation can open win-win with more efficient spectrum use



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