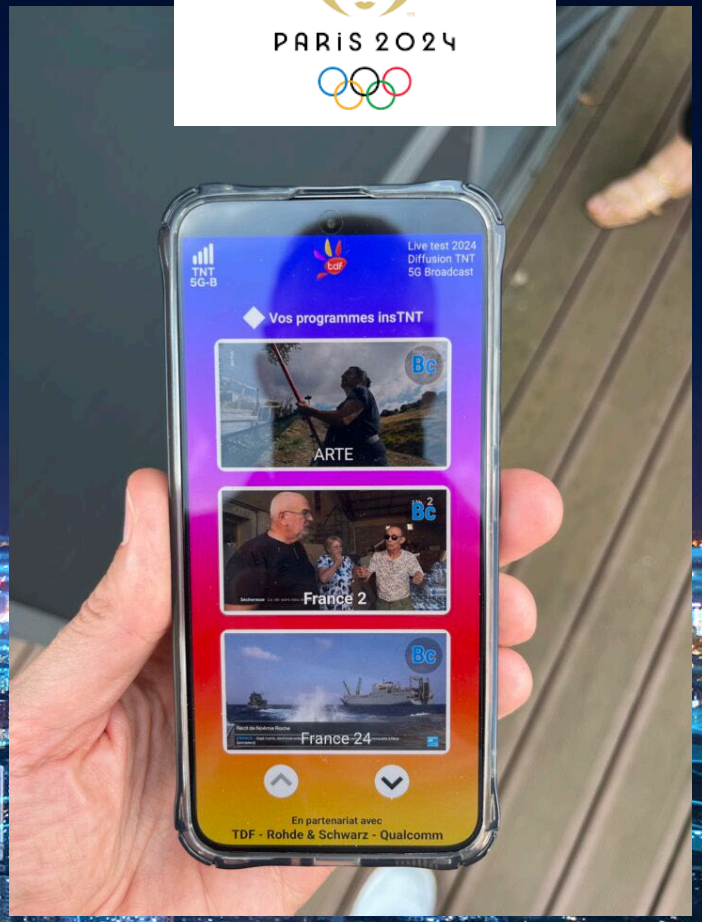
Qualcomm

November 7, 2024

5G Broadcast

Making D2M work in / for India

Spectrum Considerations for Direct to Device Broadcast



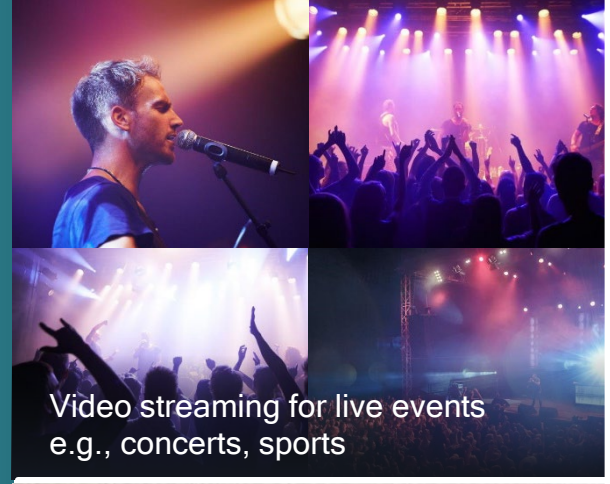
Qualcomm Technologies Inc.

Broadcast to Mobile brings benefits to a wide range of deployments

More efficient delivery of mass data and live media content

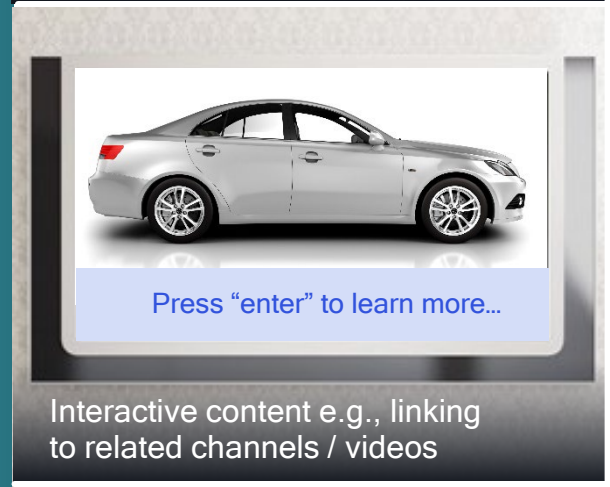
Richer, more immersive and personalized viewer experience

Expanded use cases beyond mobile such as automotive

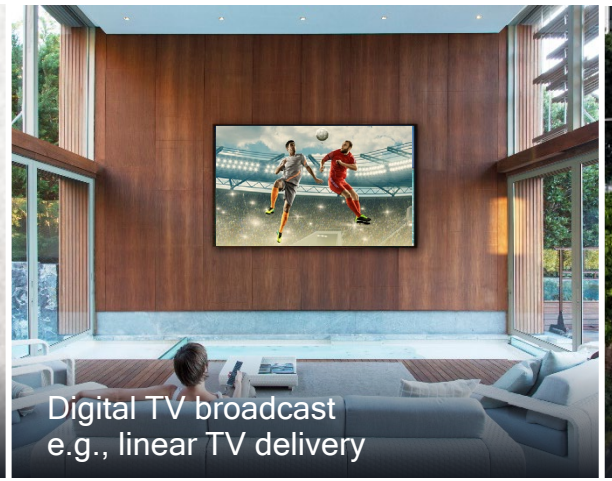

Video streaming for live events
e.g., concerts, sports


Livestream commerce e.g.,
broadcast phone shopping

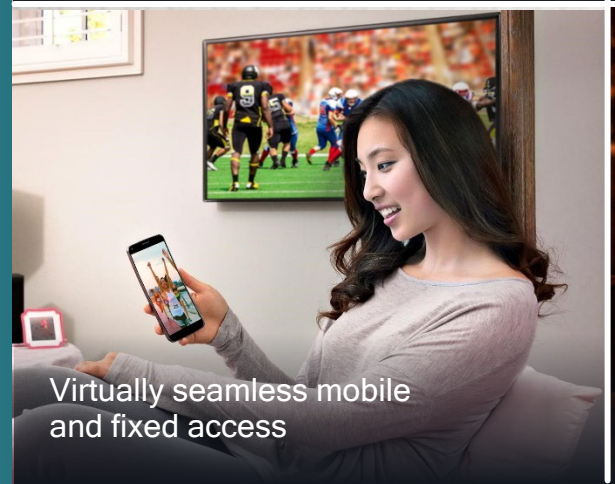
Public safety
communication



Interactive content e.g., linking
to related channels / videos


Digital TV broadcast
e.g., linear TV delivery


Automotive safety
e.g., cellular V2X

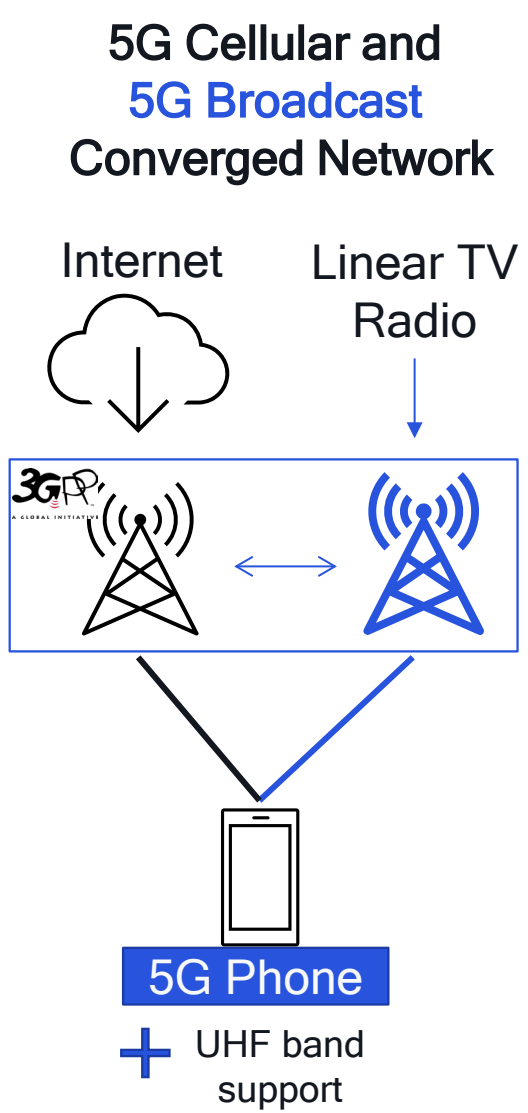

Virtually seamless mobile
and fixed access


New media formats, e.g.,
extended Reality (XR)

Group firmware update
for IoT devices

Value Proposition of 5G Broadcast

- 5G Broadcast is a broadcasting technology from 3GPP designed with hardware reuse of cellular modems in mind.
- Features needed for broadcasters (HPHT deployments, operation without SIM card, support of UHF spectrum, support of fixed reception) are supported by 5G Broadcast.
- Integration with the 3GPP stack allows for advanced features such as emergency notifications, interactive broadcast, etc.
- The 5G Broadcast system, apart from its ease of integration in handsets, inherits features of cellular systems, including integration with DVB systems.
- Continuous innovation in 3GPP, including new band definitions for Introducing 6/7/8MHz channel bandwidth, and may be further enhanced if new use cases / requirements arise.



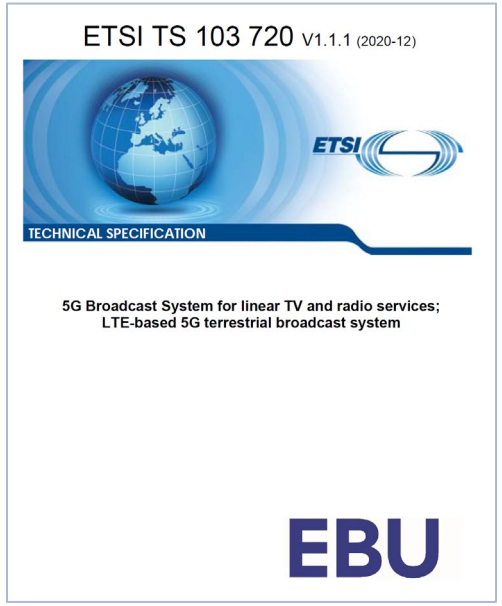
Increase Broadcaster's viewership by enabling the most efficient delivery of mass data and live media content

5G Broadcast – Core Features / USP

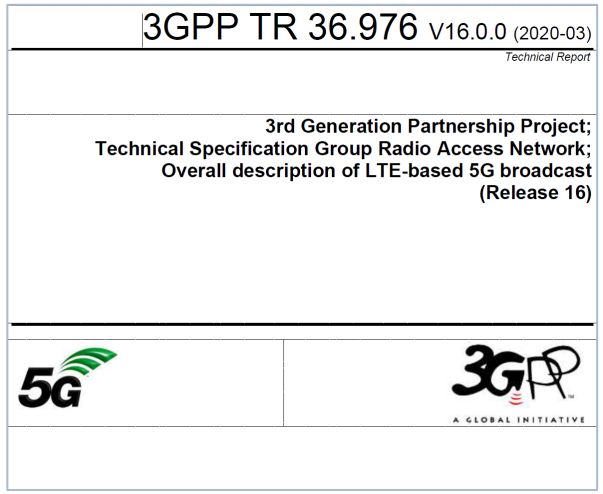
- SIM-less reception with simplified architecture
- Receive-Only Mode (ROM) & Free-to-Air (FTA)
- Different spectrum options (e.g., UHF, SDL), as well as SFN/MFN
- Service layer integration (DVB-I, Dash, CMAF, App, etc.)
- Using existing infrastructure (HPHT, MPMT and LPLT)
- Highly flexible velocities (up to 250 KM/h Vs up to 300 µS)
- Can be combined with existing 4G and 5G features (unicast, PWS)

For more information on 5G broadcast standards…

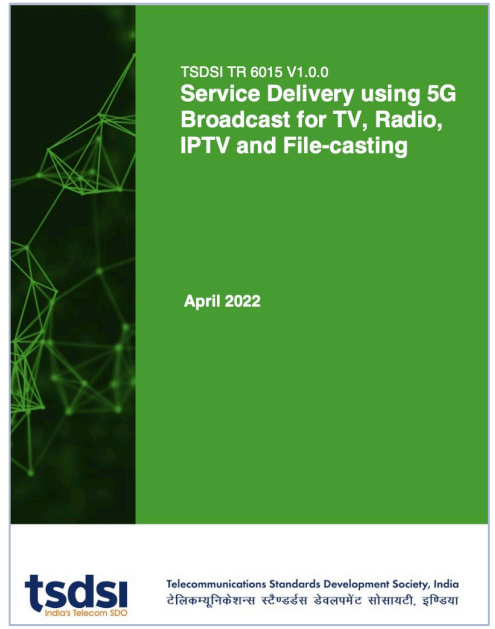
ETSI TS 103 720: Profile of 3GPP specification containing the necessary parts to deploy 5G broadcast



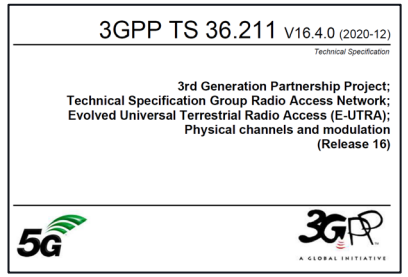
3GPP TR 36.976: Overall description of enhanced TV (enTV) for 5G broadcast

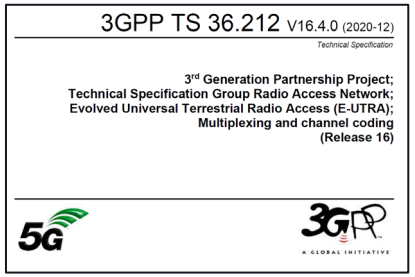


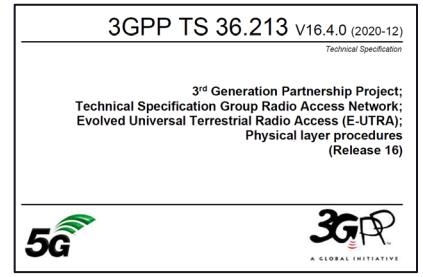
TSDSI TR 6015: Service Delivery using 5G Broadcast for TV, Radio, IPTV and File-casting



Various specifications of 5G PHY supporting broadcast together with unicast in TS 36.211, 36.212, 36.213





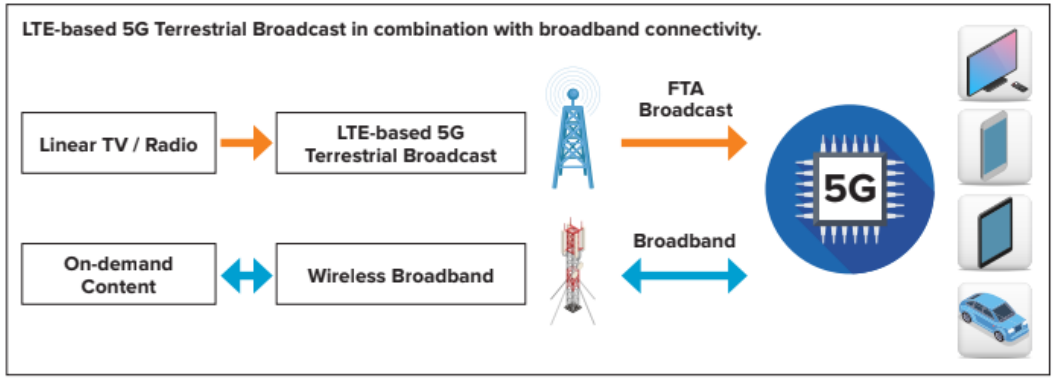


Note: the Telecom Engineering Center (TEC) has adopted these into Indian standards

Making D2M Work in India

Commonality and standards-based ecosystem is of extreme important to facilitate mass market adoption

5G data and 5G Broadcast Convergence

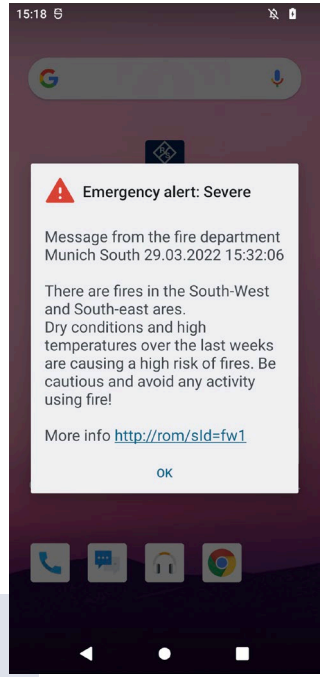


Designed with hardware reuse of cellular modems in mind

Re-use 4G/5G building blocks

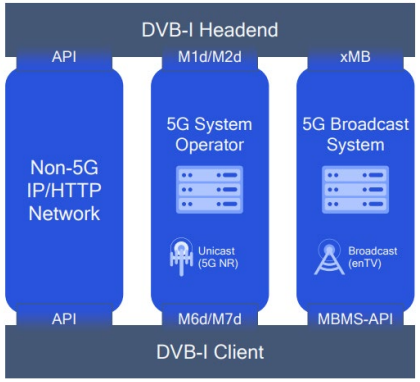
- Coding
- Tone Mapping
- Searcher
- Etc.

Integration with the 3GPP stack, inherits features of cellular systems



Service Layer Integration

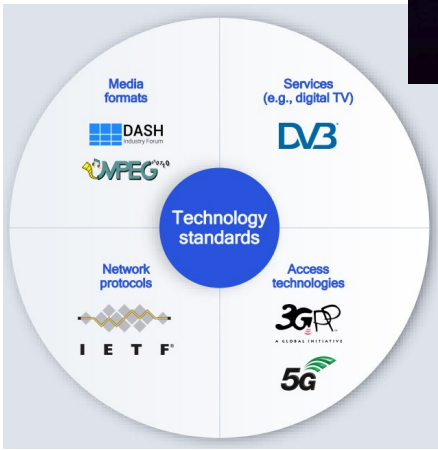
Allows Broadcaster apps, DVB-I[1], CMAF[2], DASH/HLS[3], as well as unicast to be deployed with/on top of 5G broadcast



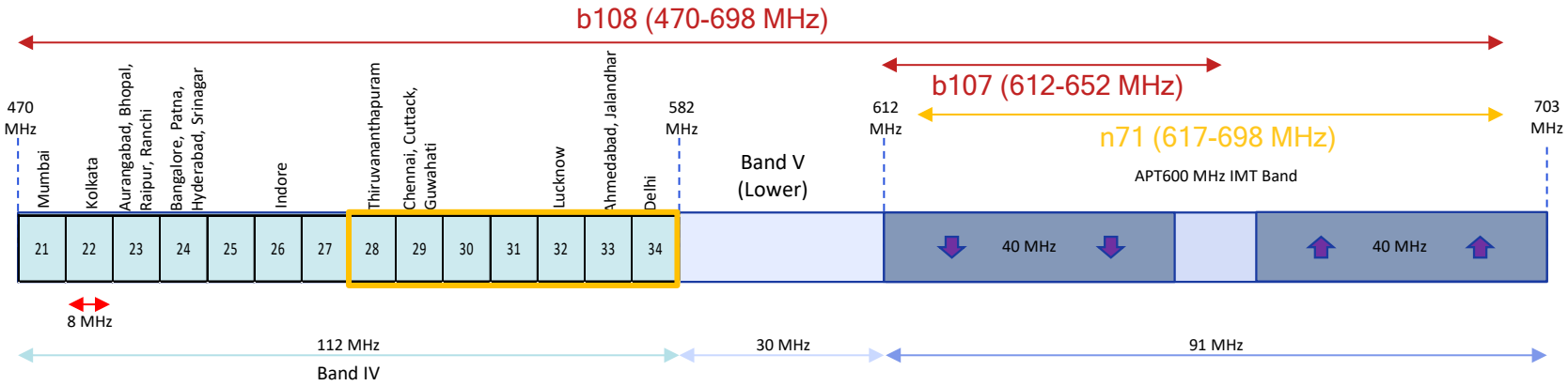
1. Digital Video Broadcasting;
2. Common Media Application Format
3. Dynamic Adaptive Streaming over HTTP and HTTP Live Streaming;

Standards Based Ecosystem

Leverage existing investments made on DVB



Product Roadmap



Antenna design begins to become complicated here

Reference designs

Xiaomi
OnePlus
Motorola
+1

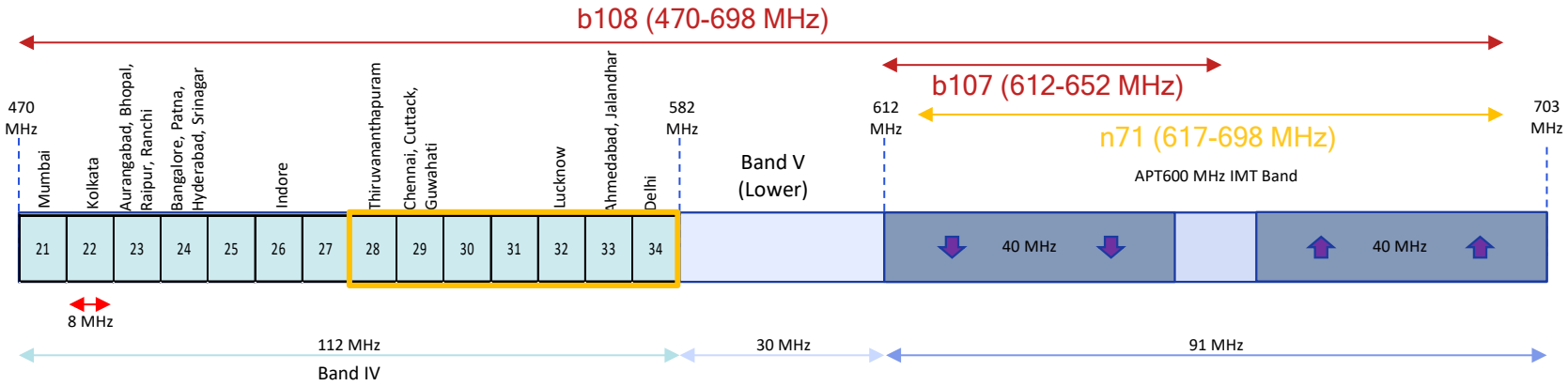
Commercial grade devices

CPE

Made in India

Making D2M Work for India

Commonality of standards is of extreme important to facilitate right use of broadcast spectrum



DoT L-14006/01/2021-NTG dated 13.09.2021

3. …, new frequency bands (mentioned below) have also been decided to be used for IMT/5G:

- 526-582 MHz in all the LSAs in coordination with Ministry of information & Broadcasting (MIB). The use will be coordinated with minimum keep out distance from MIB transmitters.

The technology choice for the spectrum range 526-582 MHz will decide the optimal utilization of this band (service and revenue perspective),

- If D2M service begins and the band is repurposed for IMT in the future, a **wrong technology choice will seek incumbent protection**
- For India to make the best use of this band, the technology selected **should be radio compatible with IMT and Broadcast services**

Qualcomm

Thank you

Follow us on:

For more information, visit us at:

www.qualcomm.com & www.qualcomm.com/blog