



# Joint ESA & 5G-MAG Workshop

## Broadcast and NTN

December 1st, 2021, Nicolas Chuberre



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# Considerations on satellite Broadcast

## 📡 Broadcasting service to broadcast mode

- 📡 Linear TV towards any multimedia content delivery
- 📡 push to store & streaming

## 📡 Rational for a **framework fostering integration of both satellite broadcast & broadband technologies** ?

- 📡 Interactive broadcast channel: Profiling, Customisation, subscription management
- 📡 Satellite BB + In band satellite BC for resource saving
- 📡 Terrestrial BB + Out of band satellite BC for off load

## 📡 Which Standardisation Organisation & eco system would support the integration framework?

- 📡 If satellite broadcast based on 3GPP radio protocol => 3GPP
- 📡 If satellite broadcast based on DVB-S2x radio protocol => forum/SDO or proprietary implementation ?

## 📡 **Satellite broadcast versus terrestrial broadband (CDN)**

- 📡 The higher the audience, the lower the delivery cost ?
- 📡 Towards higher resolution video
- 📡 Spectrum usage & energy efficiency ?

## 📡 **Challenges associated to this framework**

- 📡 DVB-S2x + 3GPP versus 3GPP only: Depends on targeted terminals ?
- 📡 GEO and/or NGSO (Earth fixed, Earth moving cells)
- 📡 satellite (BC) + terrestrial BB with different network topology ?
- 📡 Cross boarder foot print: National regulatory requirements

Integrated satellite broadcast/broadband is the future  
but how ?



# Integration of Satellite broadcast in 5G and beyond

## 📡 Use cases

- 📡 Direct To Home/Local network, to moving platforms (incl. Vehicle), to Handsets
- 📡 Entertainment, Software upgrade, Public warning system/Alert, Guidance

## 📡 At terminal level: shared or separate Rx chains

- 📡 Antenna & RF front end system
- 📡 Modem
- 📡 Edge caching ?

## 📡 At satellite ground network infrastructure level

- 📡 Support migration path from legacy broadcast to 5G broadcast ?
- 📡 Interworking with MEC ?
- 📡 Integration with telecom Security framework ?

## 📡 At space segment level

- 📡 Dedicated (BC) or multi mission (BC & BB) satellites ?
  - 📡 Narrow and wide beams ?
- 📡 Flexibility to support migration from legacy to 5G ?
- 📡 Rational for MEC on board ?

## Migration towards 3GPP ?



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# Thank you

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Work supported partly by

- ESA funded ALIX project: <https://artes.esa.int/projects/alix> "Support to Standardisation of Satellite 5G Component"
- H2020 DYNASAT project: <https://www.dynasat.eu/>

