Challenges of the Broadcast Networks

MBT ASSOCIATION CONFERENCE

SKOPJE - 2026

HIGH FREQUENCY PERFORMANCE WORLDWIDE

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Operation Challenges

Ageing transmission equipment in networks infrastructure

- Typical product life span is 15 – 25 years
- Antennas and feeders
- Tower infrastructure
- Transmitters and combiners
- Responsible operators classify and prioritize sites and systems for modernization
- Constant burden on the OPEX

Operation Challenges

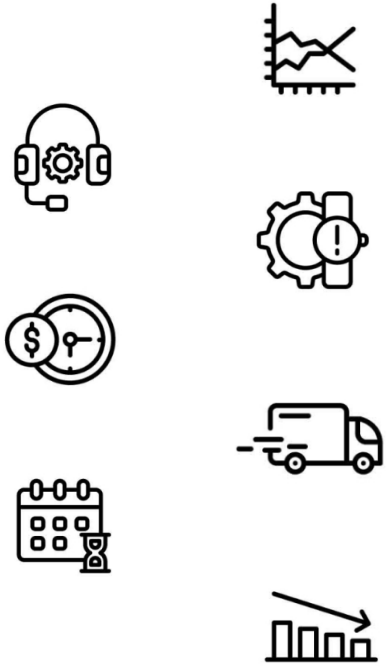
Scarcity of experience in niche such as Broadcast

- Shrinking personnel in networks dept.
- Most experienced personnel near retirement
- Knowledge on projects gone with retired engineers
- Network’s field technical team often reduced or dissolved
- Integrator’s experience - hard to substitute broadcast riggers

Operation Challenges

Supplier’s difficulties in recent years

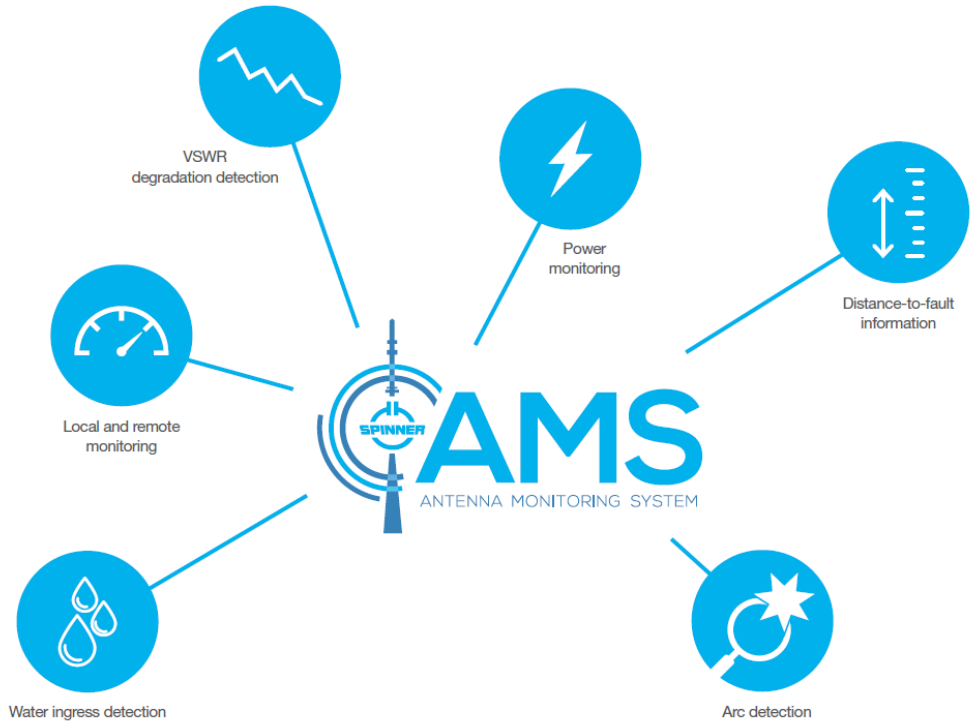
- Manufacturers have reorganized or withdrawn from the market
- Lack of spare parts and discontinued technical support
- Necessity to replace unserviceable systems
- Risk of down time for prolonged period
- Increased delivery times
- Missed installation schedule
- Reduced next year’s budget



Network Reliability

Key aspects for network reliability

- Importance of infrastructure maintenance
- Refurbishment or replacement dilemma
- Deployment of integrated remote monitoring systems
- Embedded redundancy with backup transmission systems
- SLA and response time of the technical team
- Availability of spare parts



The show must go on

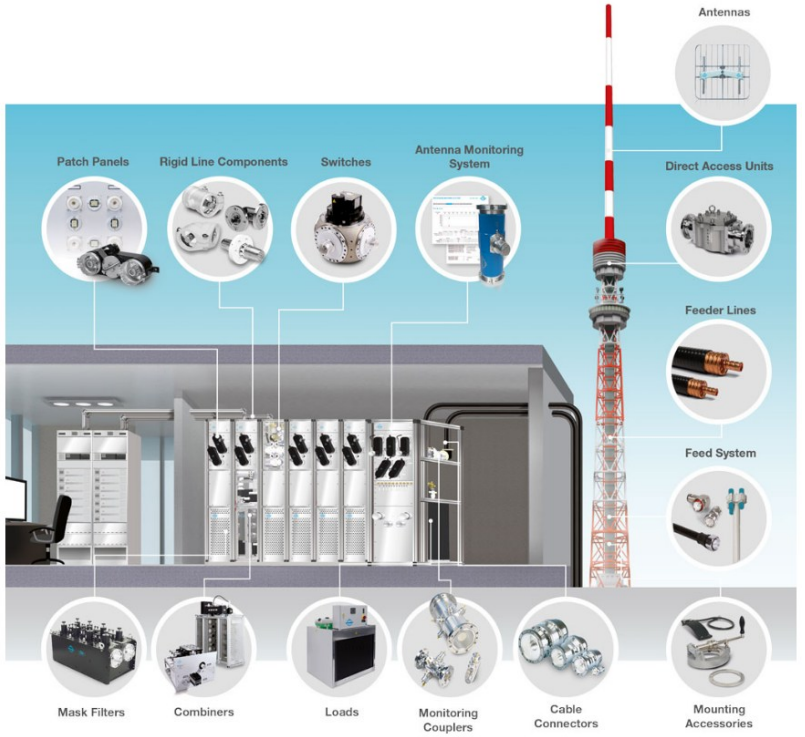
Drivers for investments and network modernization

- Terrestrial TV is here to stay
- Commitment of authorities to continue FM service despite of DAB rollouts
- Provides majority of network's revenue even with attempts of income stream diversification
- New TV services emerging with 5G Broadcast and ATSC3.0

On course despite the headwind

Spinner expands its Broadcast product portfolio with antennas

- Acquisition of IP from RFS in 2024
- The customers expressed interest in antenna parts availability since
- Introduction of comprehensive broadcast antenna portfolio manufactured at Spinner factories
- Establishment of the team with 200+ years of combined experience in design, development and manufacturing
- Complex end to end solution from the TX outputs to top of the tower
- In house fabrication allows fast development and customization, encompassing full quality control
- Design & supply only or complete turn-key solution with support of certified for climbing, experienced RF engineers



DTV+
Next-generation Brazilian TV

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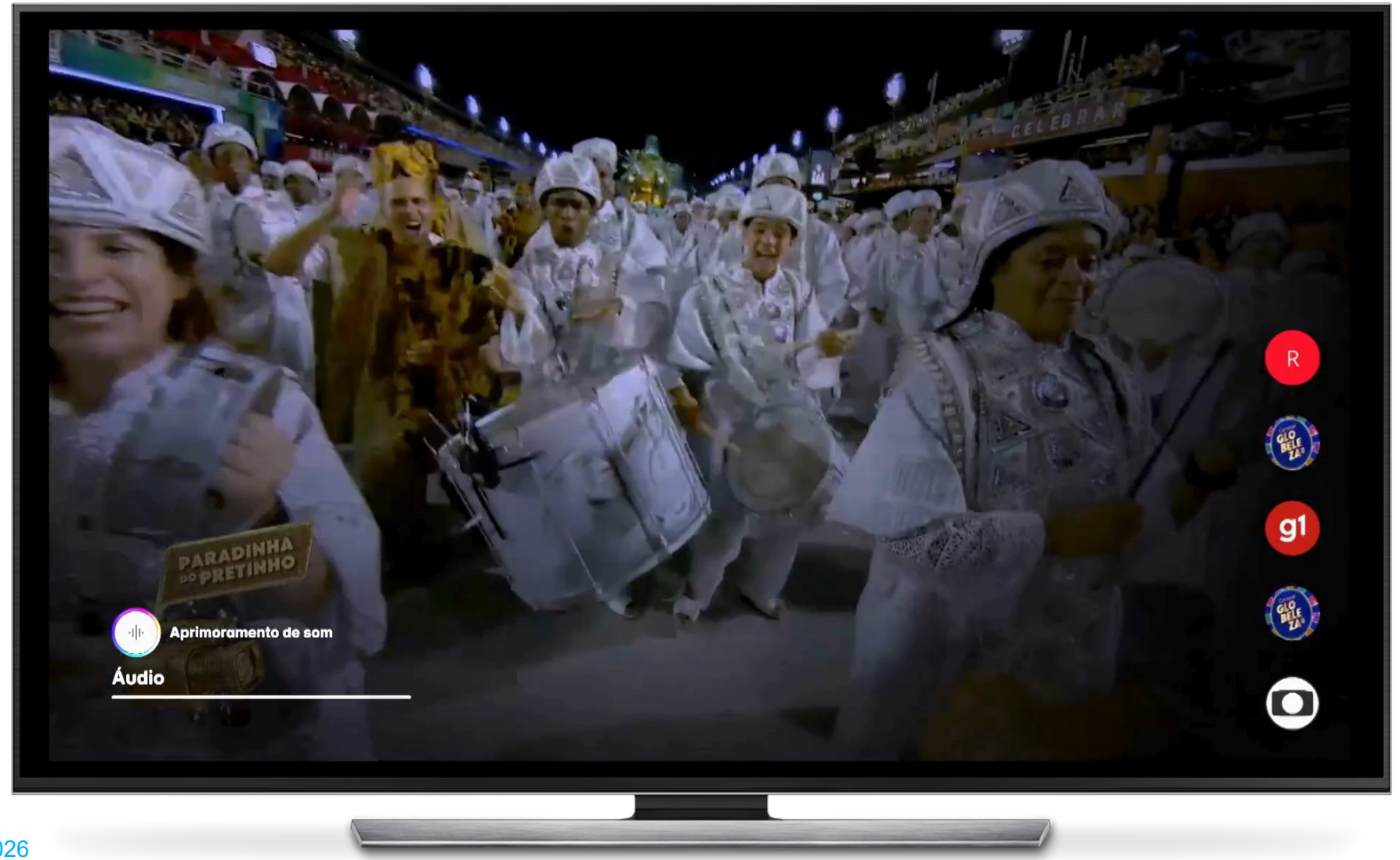
Statistics, Replay, Poll

Pools

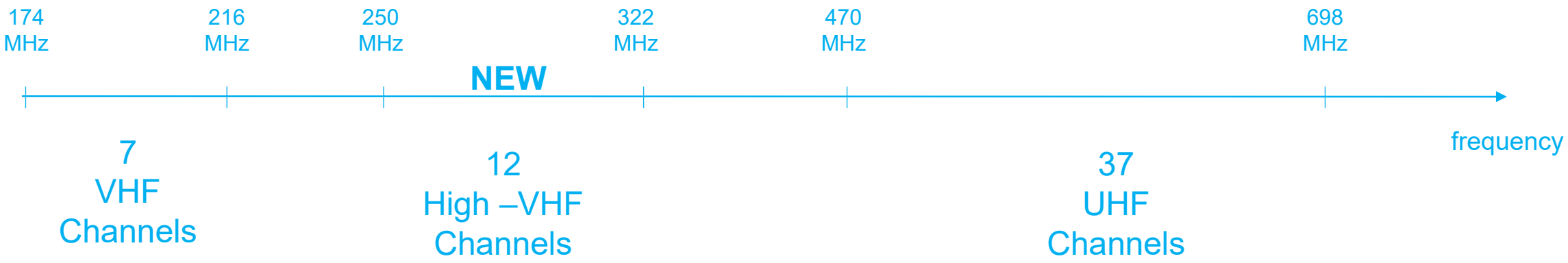
Immersive Sounds



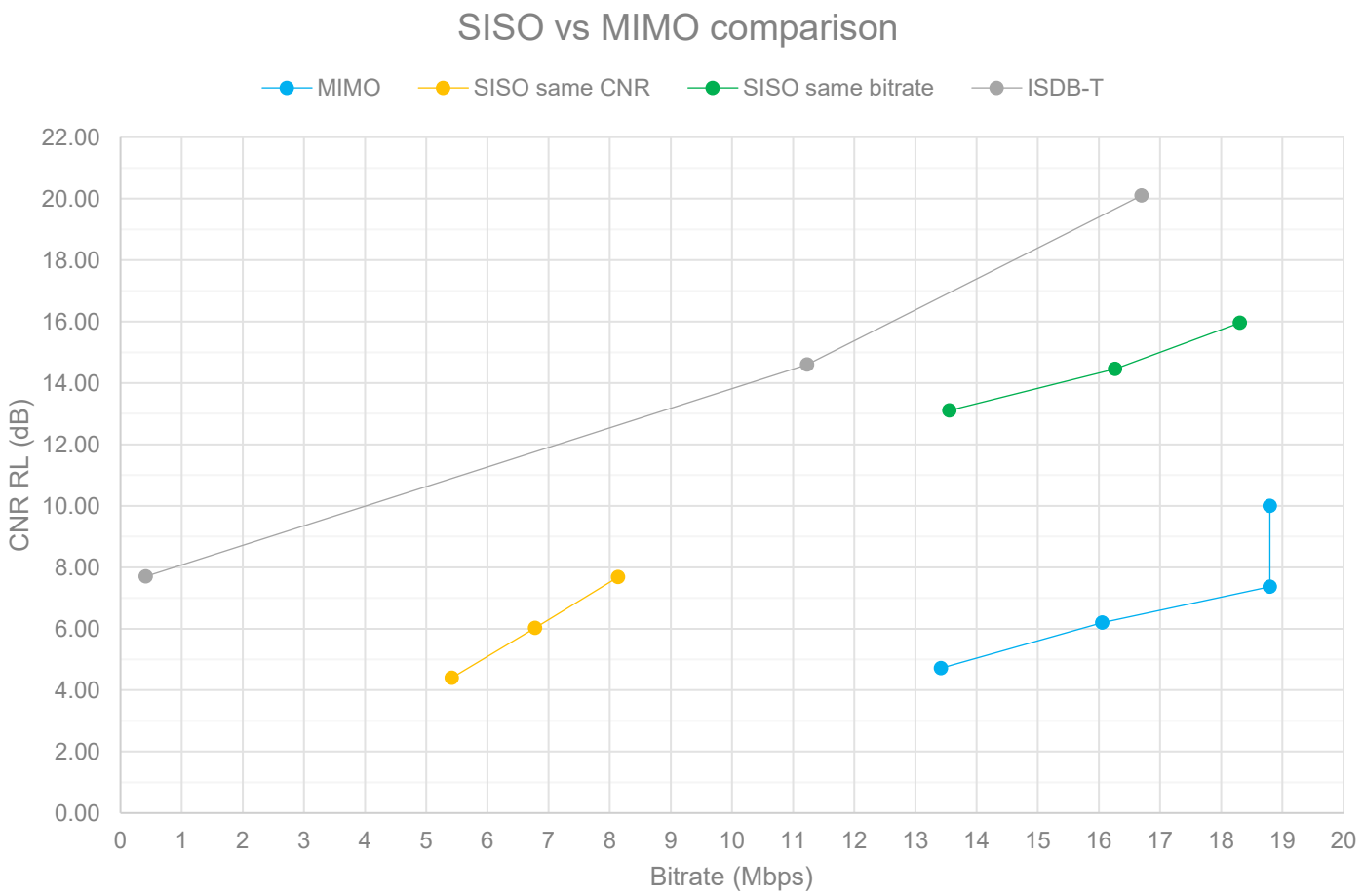
T-Commerce

Physical Layer – TV Standard

Physical Layer – Channel Plan



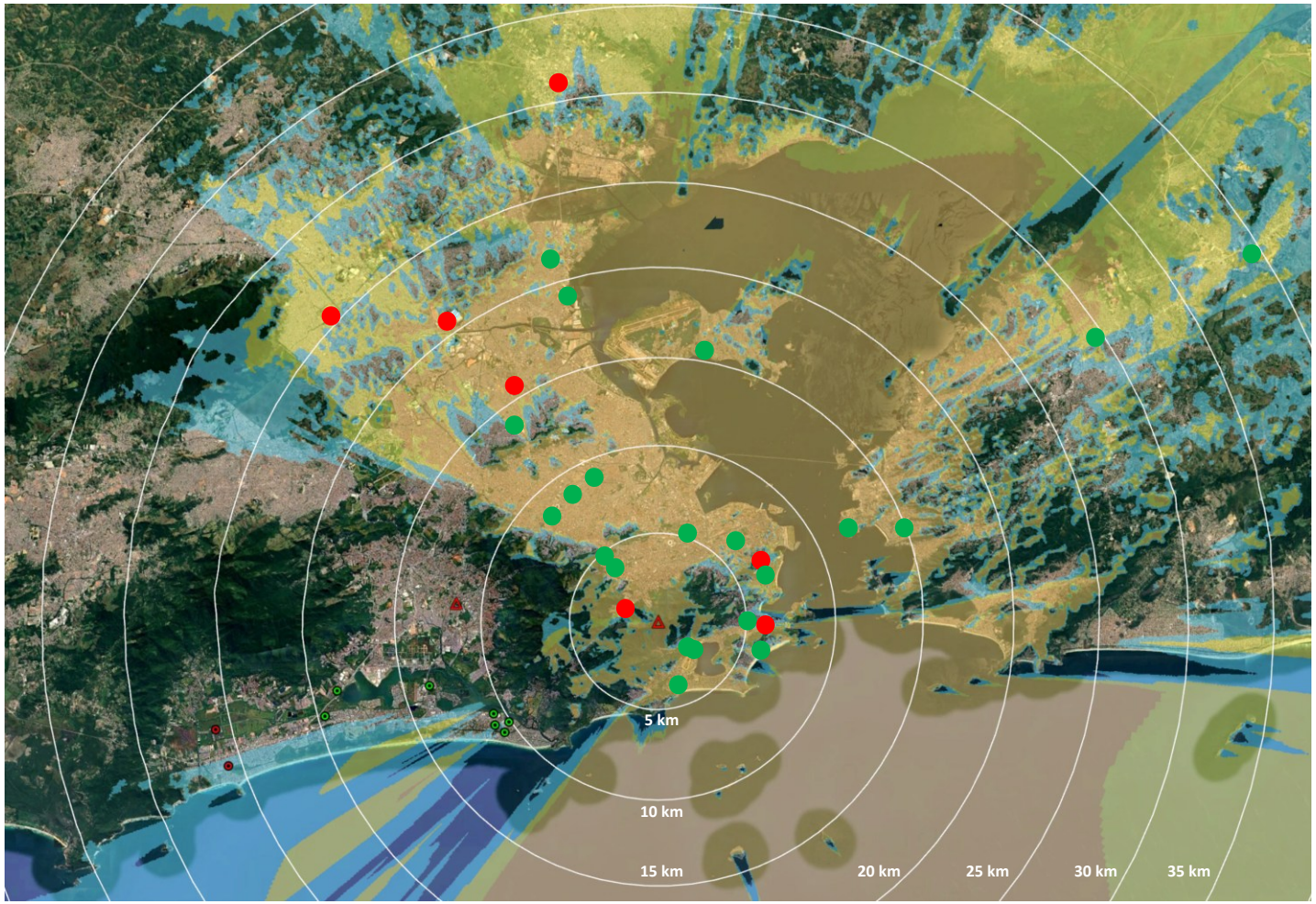
Physical Layer – MIMO Polarization



MIMO delivers the massive data required for 4K video (13 to 19 Mbps).

It keeps the signal robust enough (CNR < 10 dB) to pierce through walls and work on a simple indoor antenna , i.e. built-in in a TV.

Coverage



>= 70 dBuV/m

>= 80 dBuV/m

>= 85 dBuV/m

SPINNER DTV+ Antenna

- Successfully delivered to Globo this year, marking deployment at its first commercial sites
- 4 × 4 antenna system for 5 KW
- MIMO polarization using four dipole elements
- Engineered for the new high VHF frequency band
- Low wind load
- Designed, developed, and delivered within 12 weeks

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