

# Shortwave broadcasting in Slovakia

Towercom, a.s.

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## Towercom company - about us

- Leading company on the television and radio broadcasting market in Slovakia
- Nationwide provider of broadcasting services related to the terrestrial network of digital TV and radio transmitters and digital satellite uplink services
- Provider of the modulation and service data transport services from studios to single broadcasting centers using the state-wide network of microwave links
- Nationwide provider of the leasing of local and trunk digital data circuits in standard and individualized parameters.

## Television broadcast

- Operation of the television broadcasting all over the Slovak Republic is the Company's core business. Terrestrial digital broadcasting is provided by its television transmitters and frequency transposers in UHF bands for the public broadcaster and for license's holders.
- Towercom also provides the design, building and operation of television transmitters and frequency transposers for the broadcasters.
- Company operates a number of television transmitters in a wide spectrum of power outputs (from a few watts up to tens of kilowatts).



## Radio broadcast

- Towercom provided nationwide for public radio broadcaster and commercial radio licence holders.
- Transmission of analogue radio signals are carrying out by AM broadcasting in the MW and SW bands and by FM broadcasting including RDS services. Radio broadcasting also use digital satellite broadcasting on the Skylink platform.
- In accordance with ongoing broadcasting digitalization trends, in Europe, in March 2006 Towercom, a.s., together with its technological partners, conducted a testing operation of the first digital radio broadcast in Slovakia using the DRM system in the MW band.

## Satellite broadcast

- We provides leasing of satellite capacity and uplink services designated for the distribution of television and radio programs in digital form via satellite
- Towercom operate own uplink station on Kamzík in Bratislava and on Barrandov in Praha .
- Towercom is provider and operator of satellite FTA and Pay TV platform



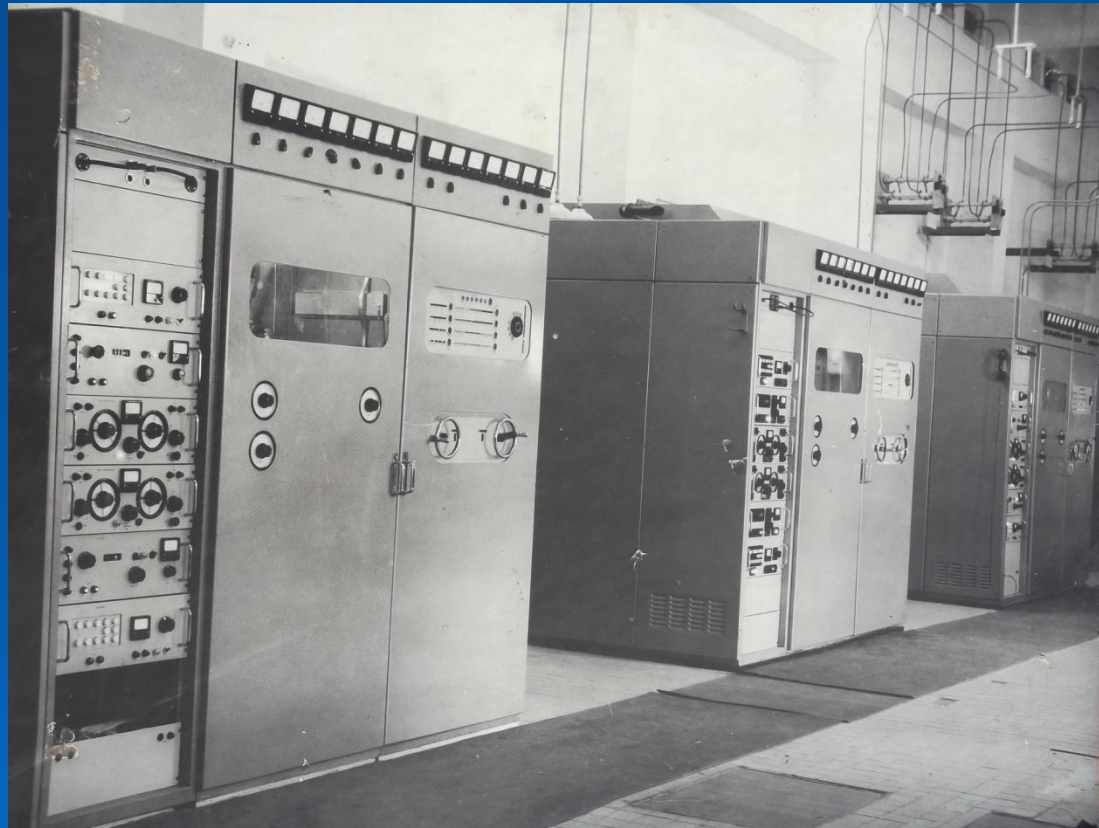
## Start of shortwave broadcasting in Slovakia

- First shortwave broadcast started in 1949
- Broadcasting station in Velke Kostolany (west of Slovakia) VKY
- 4 transmitters with 100kW output power
- in 1970 were transmitters renewed and added new antennas
- Increase of SW broadcasting – new station was build in Rimavska Sobota (southeast of Slovakia) RSO

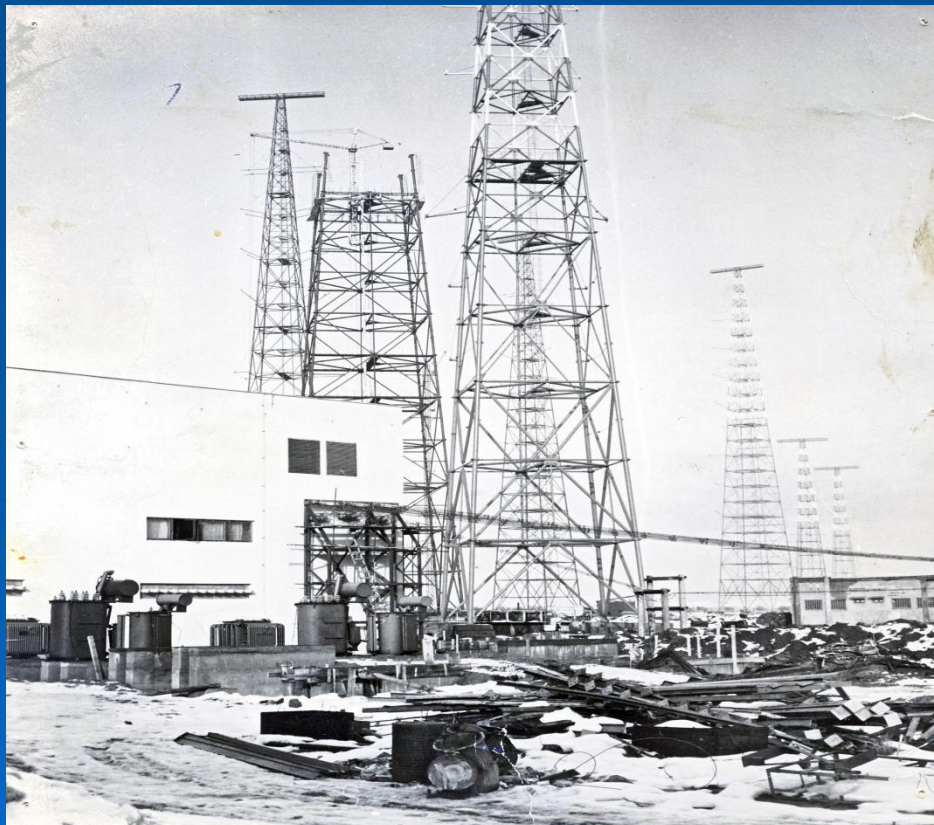




## Tesla transmitters 100kW - 1960



## SW antenna bulding 1980







## Expansion of shortwave broadcasting in Slovakia

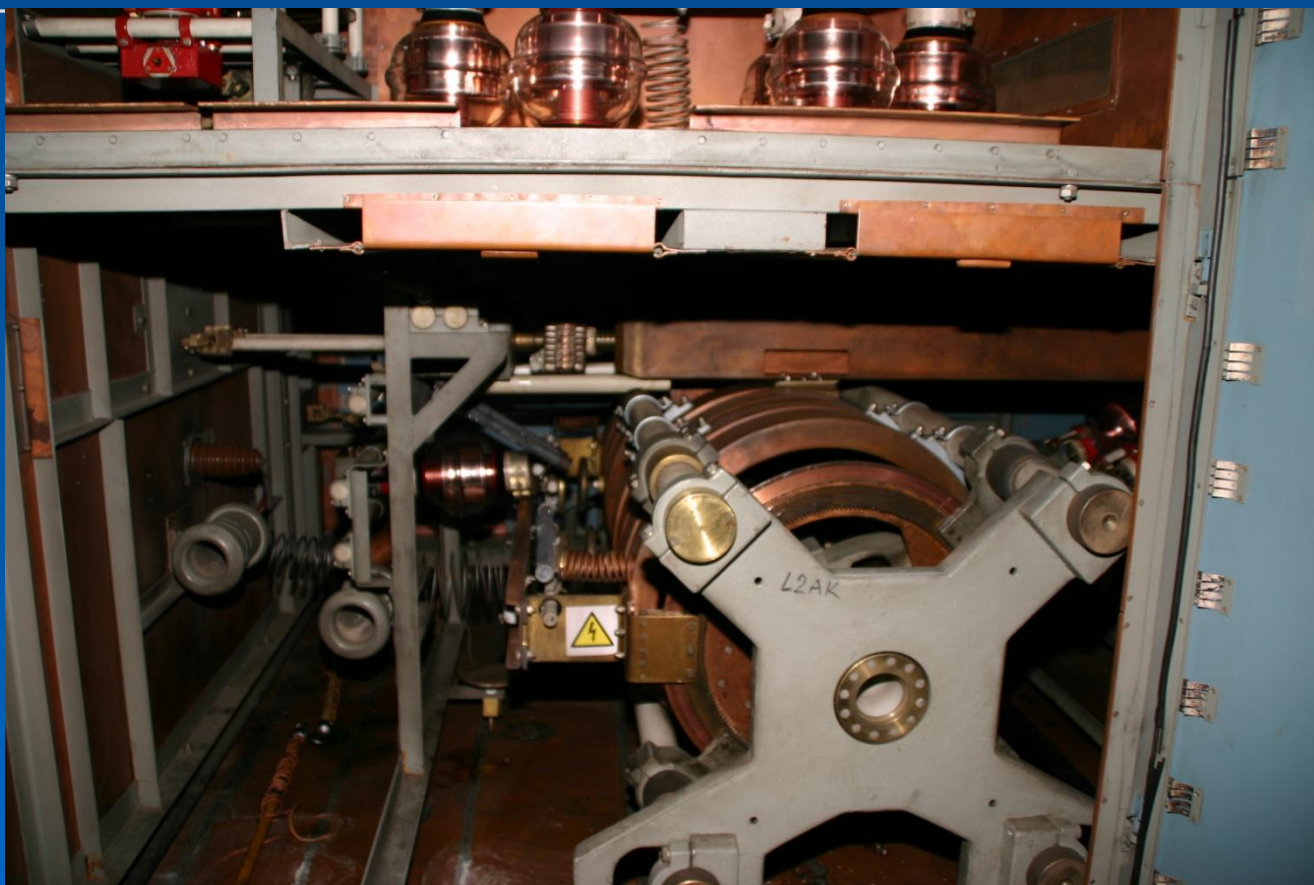
- Rimavska Sobota was build in 1956
- Broadcasting started with 2 x 100kW Tesla transmitters
- In 1982 trasnmitted were changed for 250kW
- Total of 15 shortwave antennas
- Curtains antennas can be moved 15 in azimuth
- Every of 4 transmitters can be switch to any of 15 SW antennas



## Station Rimavska Sobota – 250kW transmitters



## Tube in the 250kW transmitter







# Antenna switching unit





## Detail of antenna switch







## Main feeder lines to antennas







# SW antenna for North America

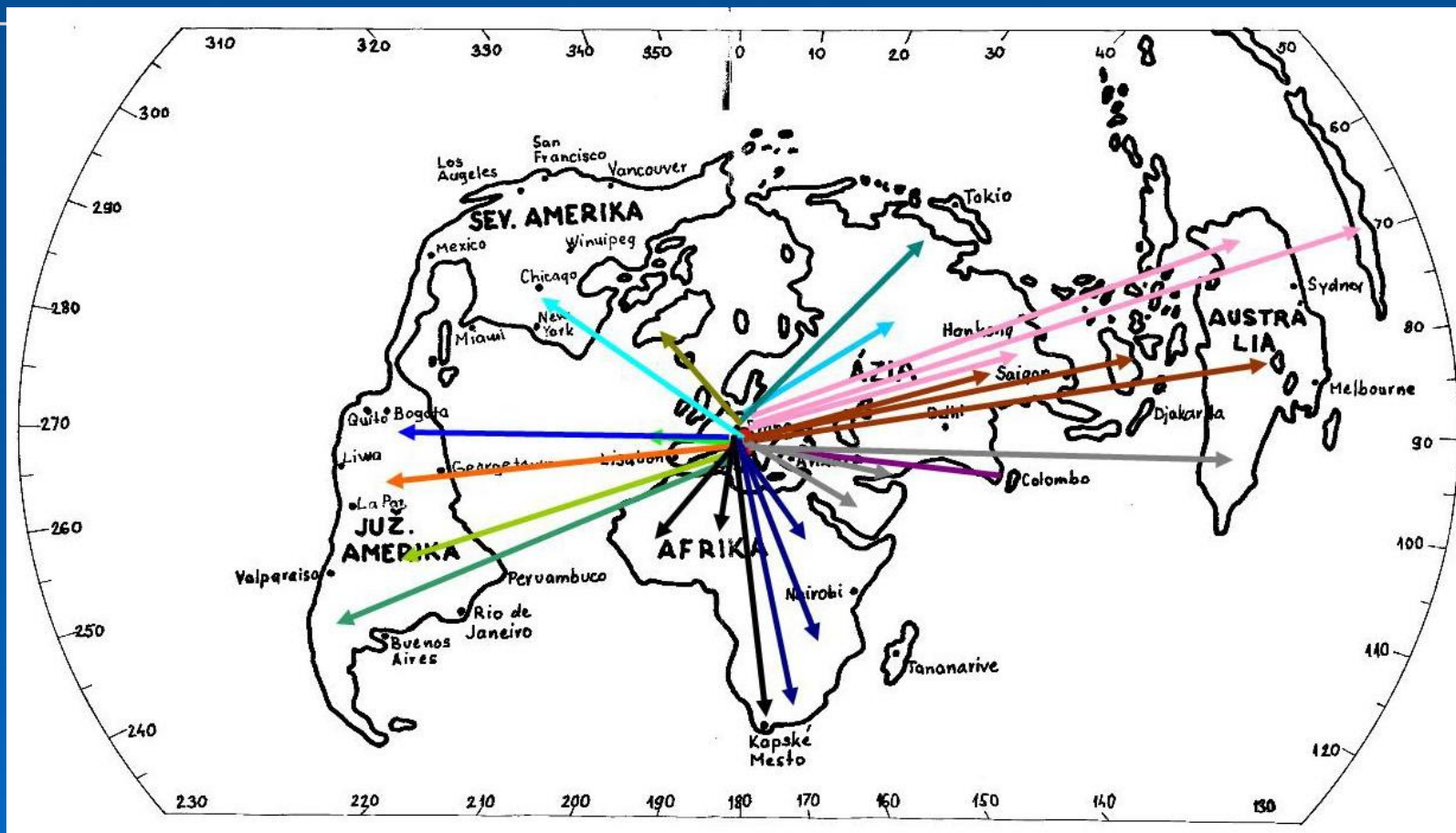




# Rimavska Sobota shortwave station



# Rimavska Sobota – radiating azimuths



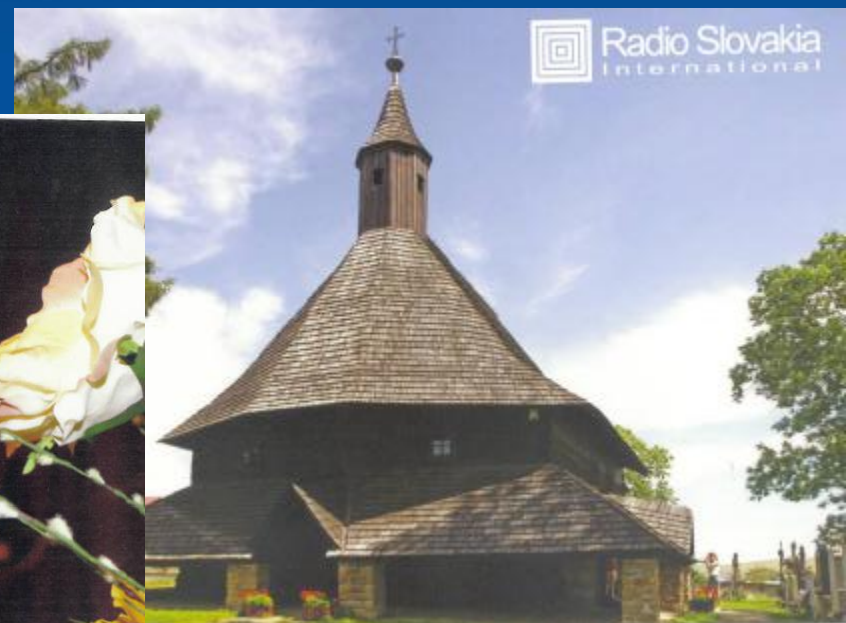


## Future of short wave broadcasting

- We are preparing to start with existing broadcasting technology next season
- Now we are considering to renewing our analog transmitter technology
- We will use existing antenna systems
- Broadcast in the future should be in digital standard



# QSL cards from Radio Slovakia





**Thanks for your attention**