



World Class Standards

# The Road To GSM

How the political will and momentum were created to agree on one mobile system in Europe

The Madeira decision on the basic parameters of the GSM standard in 1987

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GSM...younger than ever

Lemesos, Cyprus

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# Europe 1982

- **Telecommunication monopolies**
- **Strictly regulated, legal complications regarding roaming**
- **Bodies for cooperation CEPT and ITU**
- **Very fragmented market in mobile communication**

# Spectrum issues

- ❑ Many different bands in use, mostly below 470 MHz
- ❑ Technology evolved rapidly to higher frequencies
- ❑ 470-890 MHz almost exclusively for TV
- ❑ WARC 79 allocated new frequency band above 890 MHz
- ❑ New opportunities

## CEPT Com/T conference 1982

- Proposal by The Netherlands and Nordic Administrations
- Objective: To use the new band for a common European system
- Last opportunity for a common system in the 20th century
- Com/T decision: Harmonisation in the CEPT countries



### CEPT

- CEPT area: 26 European countries (mostly Western Europe)**
- Unanimity rarely achieved**
- Voluntary (i. e. often poor) adherence to standards**
- Slow progress**
- Doubts as to the realism of the GSM project, both in- and outside the PTTs**



# Working principles

- Working language: English
- Subgroups
- Permanent nucleus
- Strong support from all PTTs

### Main technical issues

- Interim system?
- Analog or digital system?
- If digital, TDMA?
- If TDMA; narrow- or wideband?
- If digital, what bitrate?



### EEC views

- Open borders, no barriers to trade
- Free circulation
- Spectrum directive
- One system in Europe



## French-German cooperation

- Early system: S-900 (analog)
- Decision to go for Pan-European digital system
- Narrowband and broadband solutions were studied
- Working level preferred NB, high-level preferred BB
- Decision rested with the politicians



### Criteria for selection

- Spectrum efficiency**
- Voice quality**
- Viability of hand-portable mobiles**
- Viability of data transmission**
- Cost of the mobile**
- Cost of the infrastructure**



## Madeira meeting, main outcome

**Digital system**

**13 kbit/s speech coder with PSTN quality**

**TDMA**

**Narrowband vs. wideband undecided (13 to 2)**

**Narrowband as working assumption**

### Decision in May 1987

- Narrowband solution accepted by politicians**
- Minor revision of modulation principle**
- Frequency hopping in mobiles, optional in base stations**