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# Spectrum policy and mobile multimedia – an initial UK view

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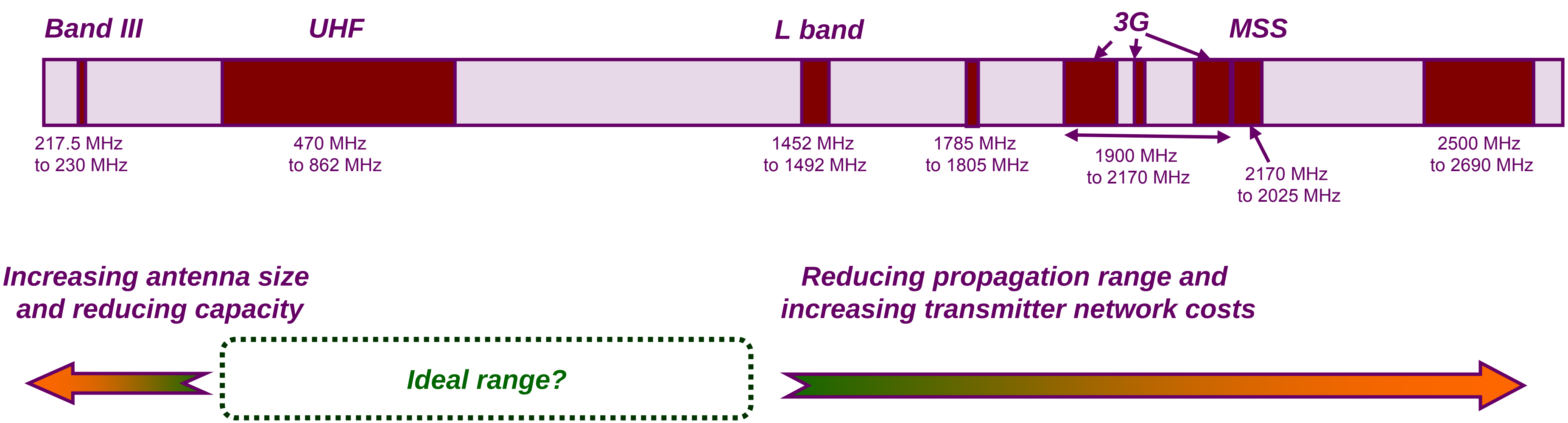
# Wide range of potential spectrum opportunities

- VHF Band III (174-230MHz)
- UHF: spectrum released after digital switchover
- 1452-1492 MHz
- Existing 3G spectrum
- 1980-2010 and 2170-2200 MHz (potential MSS band)
- 2500-690MHz
- Deciding factors: timing, capacity, propagation, network build costs, receiver antenna size, handset economies of scale

# Spectrum opportunities for mobile multimedia




► **UHF seen by many to have some advantages but other bands may be available earlier and are potential substitutes.**

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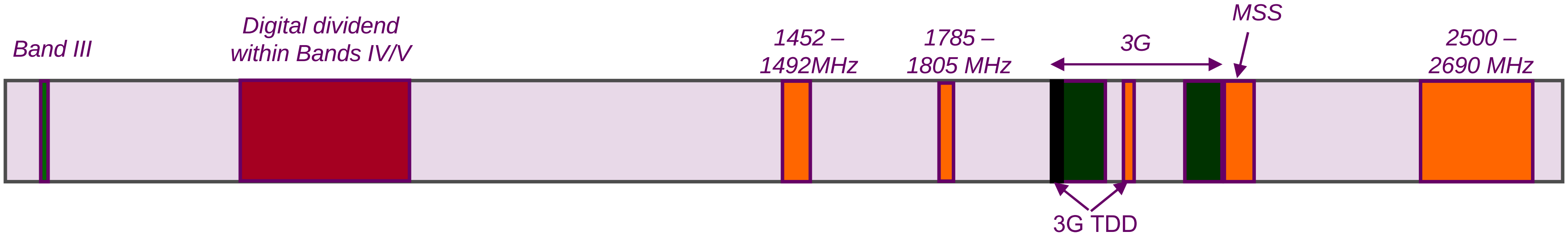
# Spectrum availability in UK




**Now:** *3G (including 1900-1920MHz), Band III*

**1 to 3 yrs:** *more in Band III, 1452 to 1492 MHz, MSS, 3G(TDD), 2500 to 2690 MHz*

**3 to 6 yrs:** *UHF spectrum released from digital switchover*

# Mobile television standards

- Variety of standards available. Some differences in required bandwidths
  - 1.7 MHz Digital Radio channels in Band III and 1452 to 1492 MHz (Wiesbaden and Maastricht Plans)
    - Worldwide: DAB-IP, DMB-T
  - 5 to 8 MHz Digital Terrestrial Television channels in UHF and higher frequencies
    - DVB-H
    - MediaFLO
    - ISDB-T (Japan)
- Other factors:
  - Transmitter and handset equipment economies of scale
    - Developments outside UK
    - Different vendor commercial interests
      - » Intellectual property rights

# 3G Mobile TV is also available

| *Today* | | *2006/7* | | *2007/8?* |
|---|---|---|---|---|
| Unicasting mobile TV channels in spare 3G capacity | → | HSDPA increases 3G network capacity | → | MBMS enables multicasting of mobile TV channels |

IPWireless
Generations Ahead

TDtv

# UK developments in Band III

## BT Movio

- DAB-IP similar to T-DMB
  - Video sent using IP packets rather than using DVB transport stream packets
- Most capacity on DAB multiplexes reserved for sound services under broadcasting law, by Secretary of State
- But 20% DAB multiplex capacity available for data – which includes video
- Now:
  - proposals to relax limit, by raising to 30%
  - also, additional capacity should become available for DAB post-RRC (though will be subject to same regulatory constraints)
- Capacity sufficient for limited number of TV channels on mobile phone screens

# UK spectrum policy

- UK implementing major programme of reform to spectrum policy:
  - increase flexibility for users of spectrum, reduce regulatory intervention to minimum required
  - trading, liberalisation, and release of spectrum to market
  - technology- and use-neutrality key general principles
  - regulators should avoid picking technologies
- Consistent with European reform agenda – promoting competition and innovation, allowing faster access to spectrum for new & expanding technologies & services
  - RSPG Opinions on WAPECS, spectrum trading; Commission communications
- Major effort in UK to release spectrum for market, and reduce constraints on use of existing spectrum, for example:
  - proposals for technology- and use-neutral auctions of 1452-1492MHz and 2500-2690MHz
  - Digital Dividend Review;
  - support for EU/CEPT work on MSS 2GHz bands

# Harmonisation

- UK does not favour “old model” of harmonisation – in which regulators reserved particular bands for particular technologies and/or uses
  - in many cases, excessive harmonisation has reduced spectrum availability for long periods: TFTS, ERMES, Maastricht Arrangement
  - GSM a major success – but now GSM Directive is major constraint on change of use in 900MHz band
- But this does not mean no need for any kind of harmonisation; “new model”
  - making similar frequencies available to market, to similar timescales, across EU, can allow operators to realise economies of scale more easily
  - no need to reserve exclusively for particular uses/technologies; framework should be flexible and consistent with principles of WAPECS
- Example: UK supportive of addressing L-band (1452-1492MHz) as priority for this new approach:
  - task is to reduce excessive harmonisation, to allow much wider range of technologies
  - requires joint European action, as proposed by draft RSPG Opinion