

The looming battle for spectrum in the UK

An overview presented to the IDATE European Workshop

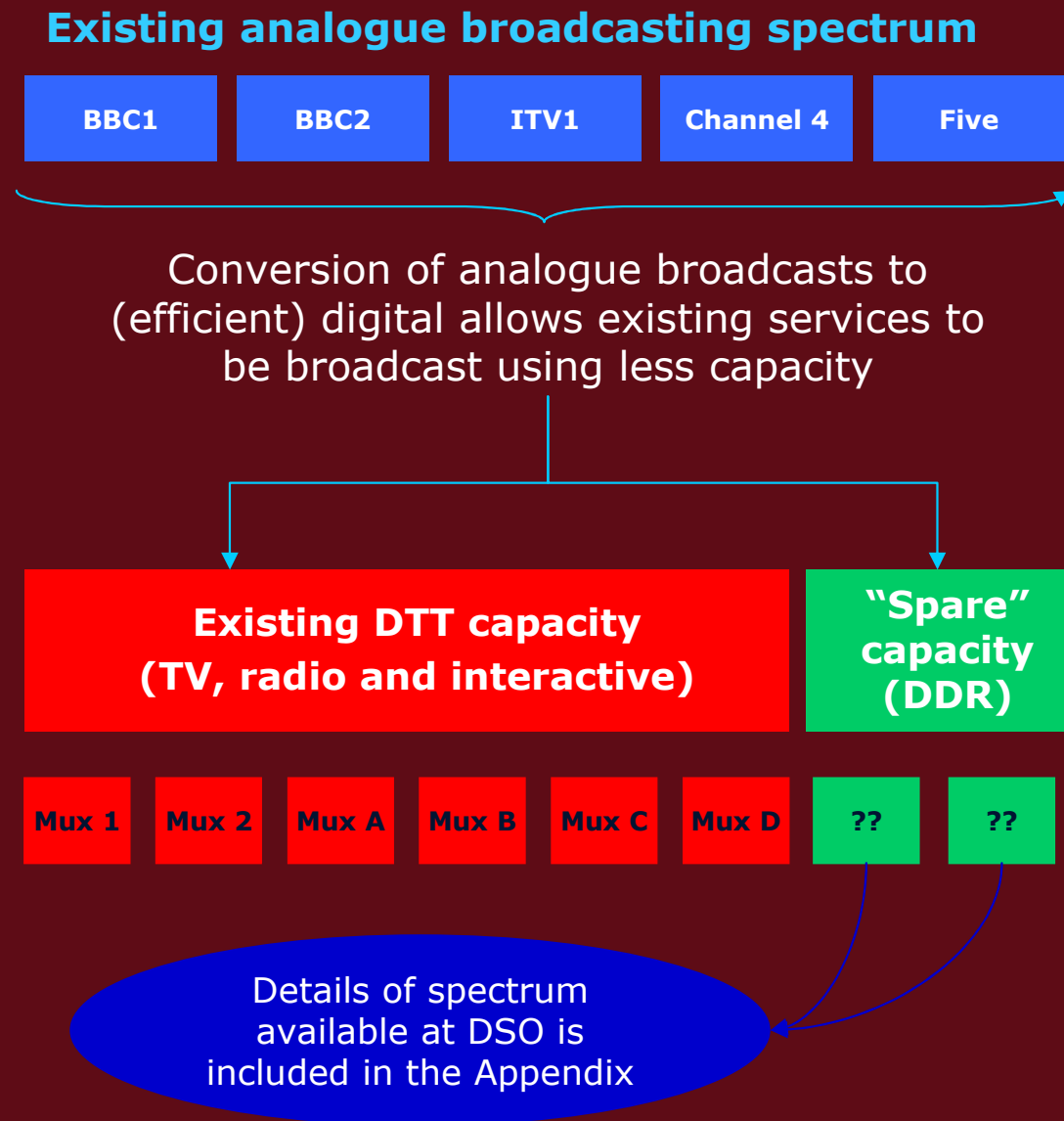
5 June 2008

MEDIATIQUE

The battle for spectrum...

The UK is fast approaching digital switchover...

- The DSO process frees up significant spectrum capacity
- Ofcom is preparing its biggest market auction to date for such spectrum
- There are several potential uses of this spectrum:
 - New mobile services (including TV)
 - Wireless broadband services
 - Wider coverage for advanced services in rural and remote areas
 - Additional TV channels, including HD



Ofcom favours an open auction...

- Ofcom is minded to sell the spectrum to the highest bidder
- This market approach means that the use of the spectrum will not be pre-determined, and any number of applications will be considered
- The auction process, to be launched in 2009, will at the very least pit TV against telecoms
 - ...an apt topic for discussion in this forum!
- The outcome will have serious implications for the TV market, which is already facing a number of challenges
- This presentation focuses on the opportunities and risks associated with the spectrum award, and the implications for the media and telecoms industries in the UK

Some background

The TV market is in major evolution

- Platform trends, media distribution and business models are all in a state of transition:

Platform trends

- Digital TV reaching ubiquity
- Pay-TV growth reaching maturity
- Platforms seeking deeper relationships with subscribers
 - E.g. BSkyB shifting focus to market retention
 - E.g. Virgin is again re-positioning its offering

Distribution models

- Media distribution profoundly affected by technological developments (e.g. PVR, VOD)
- Emerging platforms seeking critical mass (e.g. online, mobile)
- New entrants targeting the mass market for delivery of video, voice and data
- Pressure on existing funding models, and emergence of new models (e.g. bundling, targeted advertising)

This places competition between TV platforms into sharp focus

- As platform competition intensifies, the relative functionality of individual platforms becomes more significant
- Functionality, price, packaging and customer service are all key elements in platform differentiation and their ability to retain viewers
- These developments are widening competition to FTA platforms...
- ...which represent a major source of growth (in the battle for primary sets)
- Their ability to incorporate sufficiently compelling functionality/content will be crucial in their ability to compete for growing (and retaining) household penetration

Relative market positions define the battleground for competing platforms...

*Decreasing
functionality*



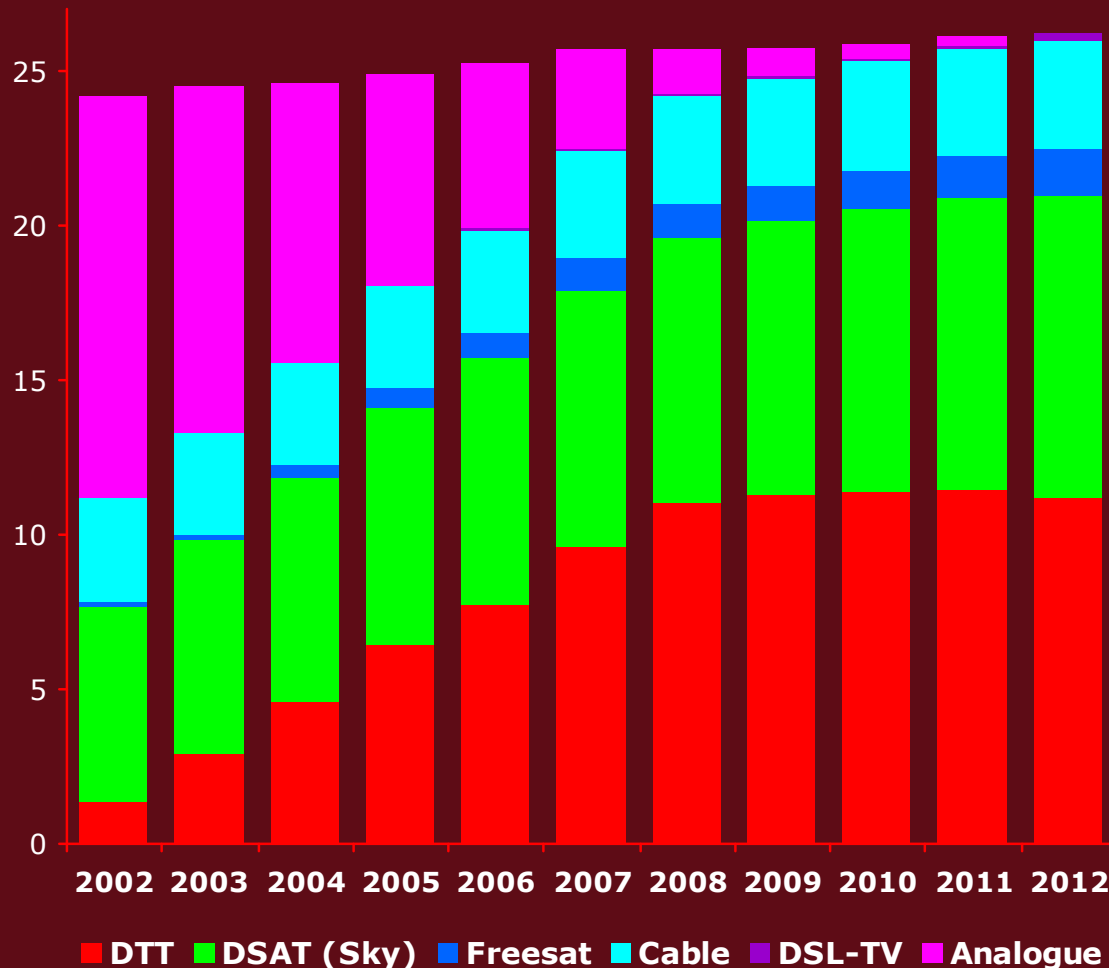
Platform	Sky	Cable/DSL	Freesat	DTT/Freeview
Entry level price	£16+ (install @ £30)	£11+ (install @ £150)	Free (box @ £50-£150)	Free (box @ £10+)
Premium content	Yes	Yes	No	Yes (limited)
Functional EPG	Yes	Yes	Yes	No
PVR	Yes	Yes	Yes	Yes
VOD (push or pull)	Yes	Yes	Yes (limited)	Yes (limited)
HD-enabled	Yes	Yes (limited)	Yes (limited)	No (2009+)
Triple-play	Yes	Yes	No	Yes (limited)
iDTV compatible	No	No	No	Yes

...this all leaves Freeview exposed

- Freeview is least developed of platforms, yet the most important to regulators
- The service is broadcast using the DVB-T standard, at MPEG-2, and has yet to embrace the requirements for new services/standards
- The current service is virtually “full”: there is some prospect for limited additional capacity to be released but significant increases in capacity must await DDR and/or standards upgrade
- Current boxes / idTVs only support existing standards; any upgrade to DVB-T2 and MPEG 4 will require equipment upgrades by consumers
- Without access to additional capacity, Freeview may be relegated to “dumb” status, and subject to fierce competition, especially from pay platforms (including nascent IPTV propositions)
- The current DTT architecture does not naturally provide a “migration path” to higher spec services

The competitive threat is very real...

TV platform projections (main set, m)

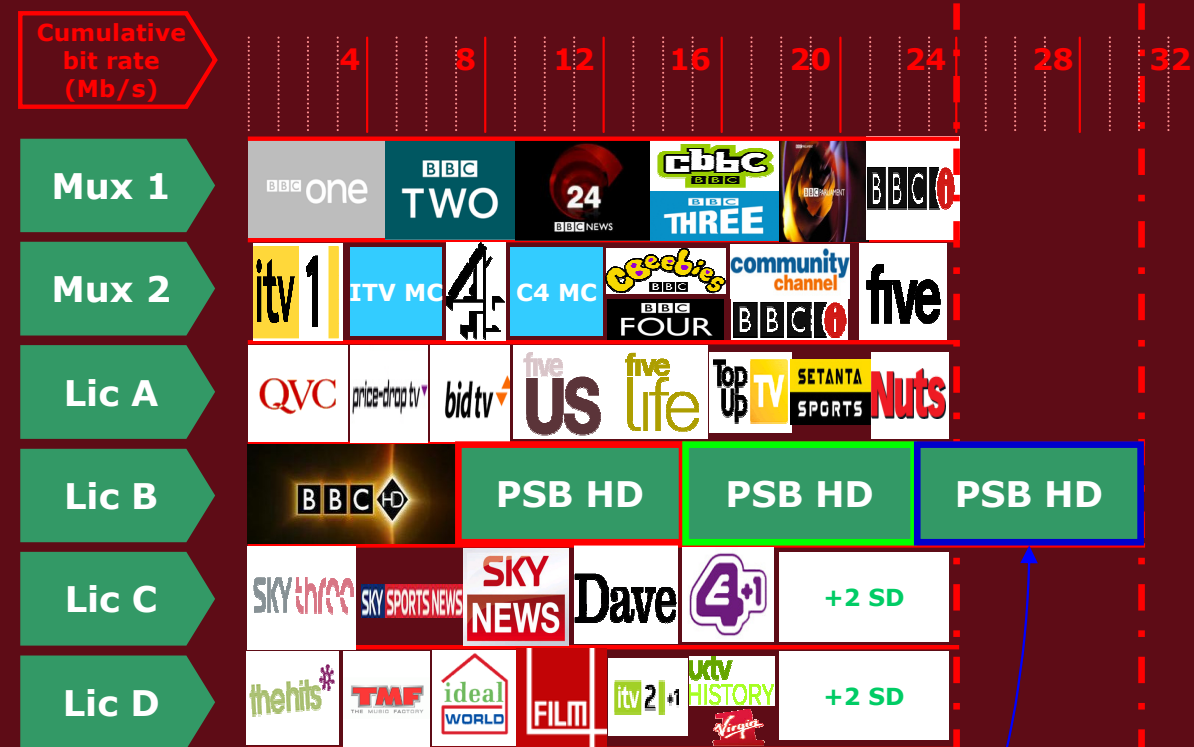


- Freeview's incredible growth in the past five years is likely to stall as DSO point approaches
- There is a limit to the number of FTA propositions that can be supported on Freeview with current functionality
- Future growth will be determined by spectrum availability and platform enhancement
- ...but Freeview is in danger of becoming "the new analogue"

New DTT services are already being planned...

- Ofcom is encouraging the development of new services on DTT, starting with HD
- It is currently conducting a beauty parade of the PSBs, to encourage the launch of three HD services (one reserved for the BBC)
- These plans rely on the re-use of existing capacity... and are unlikely to ensure "critical mass" for HD on DTT
- Relative to other HD-enabled platforms, any lack of compelling HD services may impair DTT's ability to compete for audiences

Launch of HD services on existing capacity



Are 4 linear HD channels (with PSB content) sufficiently compelling?

The differences between the UK and other countries are marked

- There is no mandate for HD-ready sets to have HD tuners
- There is as yet no “reservation” of spectrum for broadcast/HD/pay or FTA
- Even if the current HD DTT plans bear fruit, the UK will have far fewer HD services in terrestrial than other markets
- There is currently no pay on DTT, and Sky’s application to provide pay via its planned *Picnic* service has been delayed during Ofcom’s market review
- This makes the competitive position of DTT uniquely exposed in the UK

The DDR opportunity

DDR spectrum could be the solution for DTT...

- DDR spectrum would provide enough capacity for two new multiplexes
- This represents a major opportunity to enhance the platform's consumer proposition and ensure its competitive future
 - Provides capacity to carry new channels (+16 on "old" standards or +30 on "new" standards – DVB-T2 and MPEG 4)
 - Potential launch of FTA or pay services, including in HD
- *lite pay* on DTT could be the "missing link": there is no option currently for DTT homes to get access to sports and movies
- With new services, operators could encourage take-up of new boxes/idTVs capable of receiving services broadcast at higher standards
- Over time, this could lead to the upgrade of the whole of DTT, ensuring greater spectrum efficiency and platform competition
- **But**, could broadcasters win a market auction?

...they are likely to face stiff competition from other bidders

Mobile services

Wireless broadband

Closed networks

**Search/
other internet**

- The DDR spectrum could be used for mobile TV or mobile broadband
- All mobile operators are looking at wireless broadband opportunities
- The troubled 2.6G auction might meet demand
 - for use by mobile operators to introduce new services
- ...but it appears clear that operators will still look at DDR in light of their planned LTE services
- If the major mobile operators all bid, how much might they justify?

The recent US auction provides some clues...

- The US recently completed its own DDR auction
- This was dominated by telco operators AT&T, Verizon and TDS, all of which intend to build LTE networks
- On an adjusted read-across, the US auction implies that the UK's DDR spectrum could be worth £4.5bn
- This is far above what any broadcaster could afford to pay on Mediatique's modelling of the broadcasting opportunity
- There are major differences, however:
 - Maturity of voice markets
 - Geographic factors
 - Availability of alternative spectrum

Total US auction:

Blocks A-D: \$19bn



Key differences:

- Auctioned capacity (# Mhz)
- Size of population
- Structure of auction



UK read-across:

Total DDR: £4.5bn



**...perhaps 4x the amount
broadcasters could justify on
hybrid pay/FTA basis**

The UK telcos might submit bids at this level...

- The UK telco industry has a track record in misjudging the value of auctioned spectrum (e.g. 3G outcome)
- The telcos are differentially exposed to broadband growth and are still seeking to replace fixed line in home and office
- Demand for mobile broadband remains untested with current WiMax application (let alone LTE), but, the mobile operators are still striving for the Holy Grail of voice and fast data
- Indeed, mobile operators are desperate for growth in ex-growth markets, and may take the risk of over-bidding for spectrum
- ...their biggest worry is not so much getting the spectrum as seeing the competition do so!
- Ultimately, business models in telco applications are uncertain...but they might bid nonetheless

This leaves broadcast out in the cold...

- A telco-only solution threatens the future of terrestrial TV
- The current DTT structure provides no clear migration path to new services such as HD and IPTV
- New services such as Kangaroo may require additional bandwidth to be efficiently delivered to DTT homes
- Sky and cable continue to innovate, and Sky dominates premium pay; no other platform operator is able to compete for these revenues
- DTT is the default TV service for second and third sets, and is the only platform whose spectrum is directly regulated by Ofcom (and *de facto* scarce)
 - Cable is based on franchise model
 - Satellite spectrum is commercially supplied
- Insuring universality of DTT is also central to supporting PSB objectives, which Ofcom continues to value highly

The solution?

Is there scope for a more “managed” approach to spectrum allocation?

- Despite its intentions to run an open market auction – and despite the EU’s preference for this approach – Ofcom may be persuaded to provide “guidance” in regard to spectrum bids

Future of DTT

- Reserving spectrum for broadcast use would meet the broadcast industry’s requirement for additional spectrum to promote service upgrades

Public policy

- It would retain the role of spectrum as a tool of public policy – particularly where Ofcom’s ability to secure programming outcomes is increasingly limited

Broader market outcomes

- Would provide a more level-playing field among broadcast platforms (cable, satellite, DTT)
- Might allow Ofcom to address competitive issues:
 - E.g. Sky’s desire to operate a DTT pay service
 - E.g. ensure more competition for football and movie rights

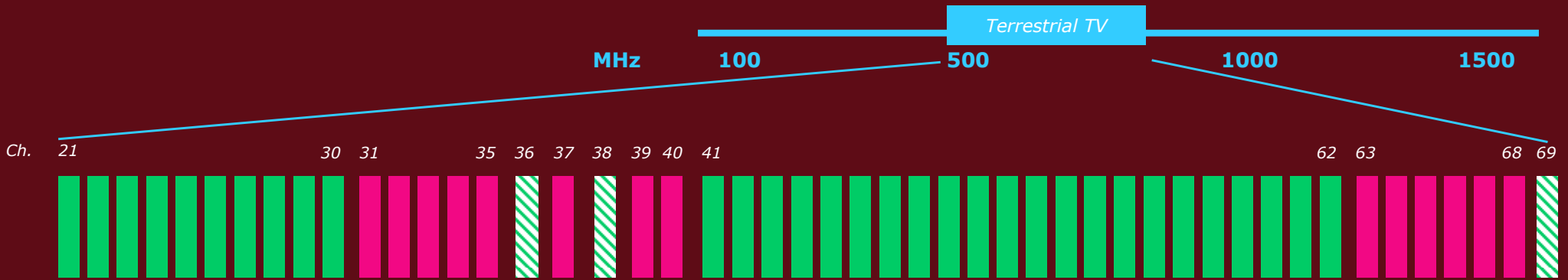
...or might there be a “market” solution for both telco and broadcast?

- The current auction structure pits broadcasters against telco operators (and others)
- But, hybrid uses of spectrum are possible
- Of the two multiplexes, one might be used for non-broadcast; depending on technical issues, even sub-multiplexes might be configured for variable use
- Might it be in the interests of broadcasters and telco operators to work together to optimise outcomes?

Appendix

Position of DDR within UK spectrum

Digital spectrum map – position of DDR spectrum



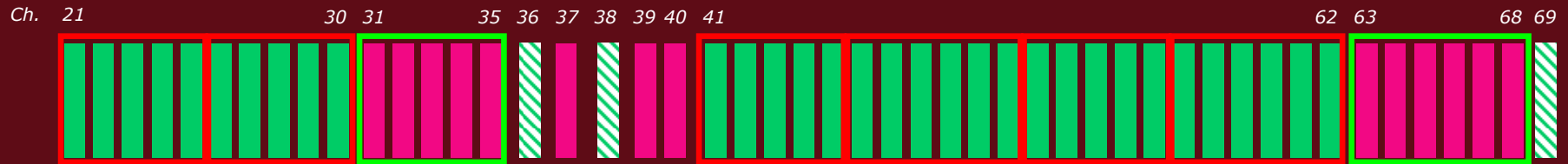
Existing licensees

- The frequency range in the UHF band between 470 and 854 MHz is divided into 48 channels, each of 8 MHz, numbered between 21 and 68
 - Channels 21-30 and 41-62 will be used for the six DTT multiplexes post-switchover
 - Channels 36 and 38 are currently used for radar and astronomy respectively – Channel 69 is used for Programme Making and Special Events (e.g. wireless microphones in theatres) and may be included in the digital dividend auction

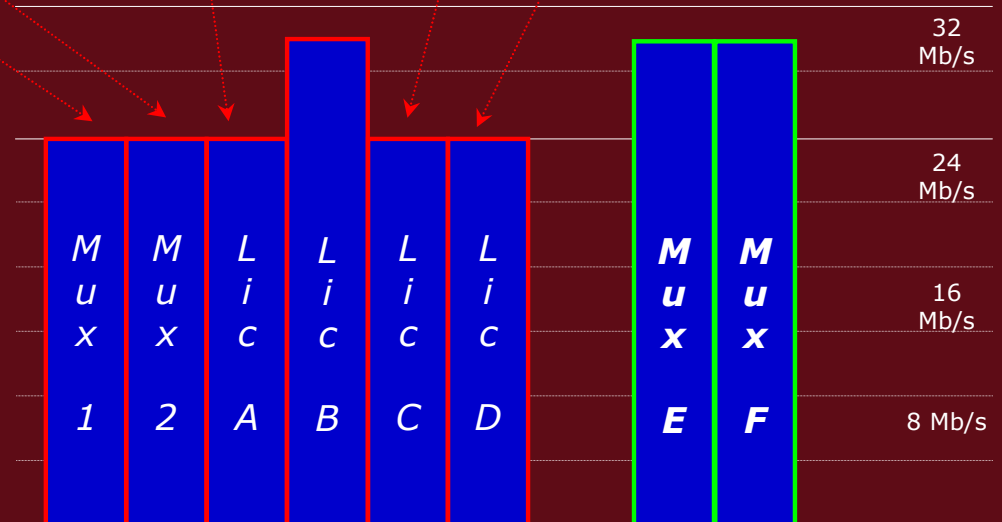
Digital dividend

- The remaining channels (31-35, 37, 39-40 and 63-68) will become available after digital switchover in 2012
 - These divide naturally into frequency blocks of 40 MHz, 8 MHz, 16 MHz and 48 MHz – 112 MHz in total
 - There are several potential uses of this spectrum: new mobile services (including TV); wireless broadband services; wider coverage for advanced services in rural and remote areas; advanced business and broadcasting services (e.g. for major sporting events); additional TV channels, including High Definition

...which creates "spare" capacity, equivalent to 2 new multiplexes



- One nationwide multiplex requires between five and six 8Mhz channels
- At DSO, the six existing DTT multiplexes will be configured to use 32 channels across the UK, effectively 5 1/3 each
- The 14 "channels" becoming available will, therefore, offer the opportunity to build two additional national multiplexes (hereafter Mux "E" and Mux "F")
- The exact number of "channels" these two multiplexes will need to use will depend on the coverage required and standards used



Channel allocations shown are only representative – in any one location, only one channel is used for each multiplex. The channels used vary around the country in a 'patchwork quilt' effect

Mediatique

21 Little Portland Street

London W1W 8BT United Kingdom

Telephone: +44 (0)20 7291 6900

Facsimile: +44 (0)20 7291 6901

www.mediatique.co.uk