

# Future options for HD delivery

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1



## What we are trying to achieve!

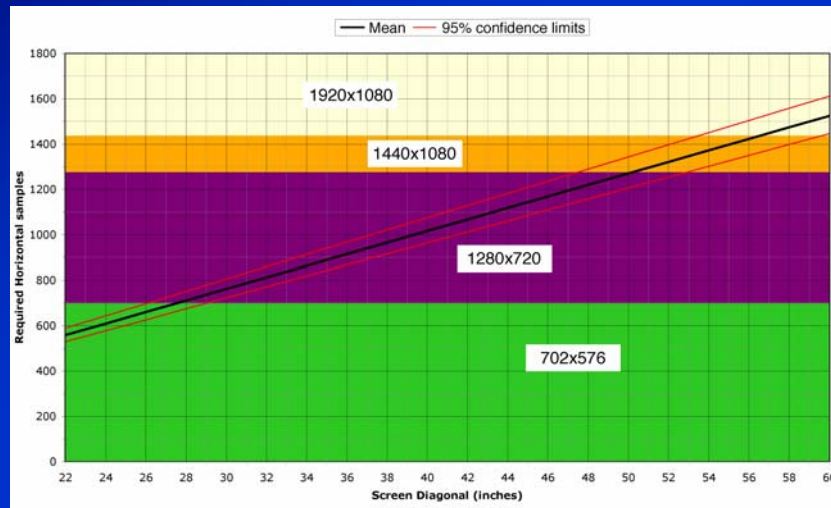
- a) deliver a great many more samples of video information to a domestic large flat-screen display that uses new technology, eg plasma or LCD (generally 30 - 50 inches).
- b) deliver a signal that is perceptually free from transmission artefacts (from limited motion portrayal compression and interlacing).
- c) Achieve this within efficiencies demanded by European broadcasters

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## Horizontal sampling of TV standard for different screen sizes, viewed at 2.7m

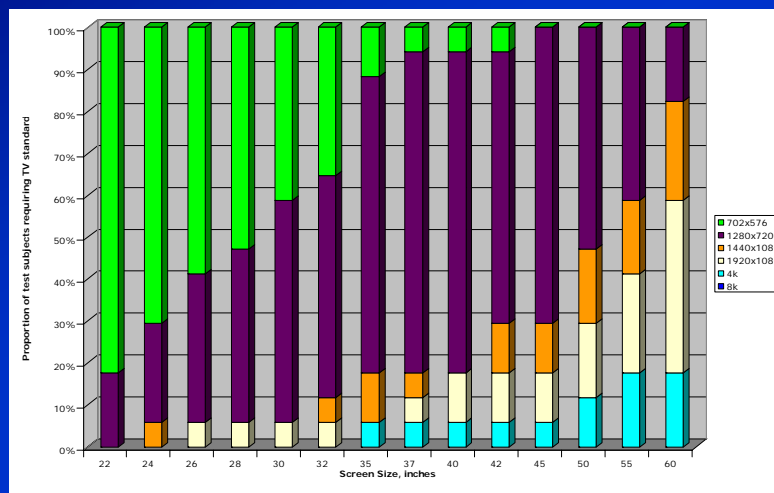


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## Observers requiring a given standard at different screen sizes, at 2.7m



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Must focus the attention of  
Public Service Broadcasters

Is HD just for a premium service – or  
will it be the norm in 6-7 yrs ?

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Until we have a European HD system – its all  
work in progress

- Availability of domestic HD equipment of good performance
- Availability of full broadcast support equipment
- Availability of production equipment suitable for all genres of production giving good quality at a reasonable price
- Coherence of manufacturers, broadcasters and others involved in the industry

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## Whack-a-Mole thanks Broadcast Engineering

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### If this takes time!

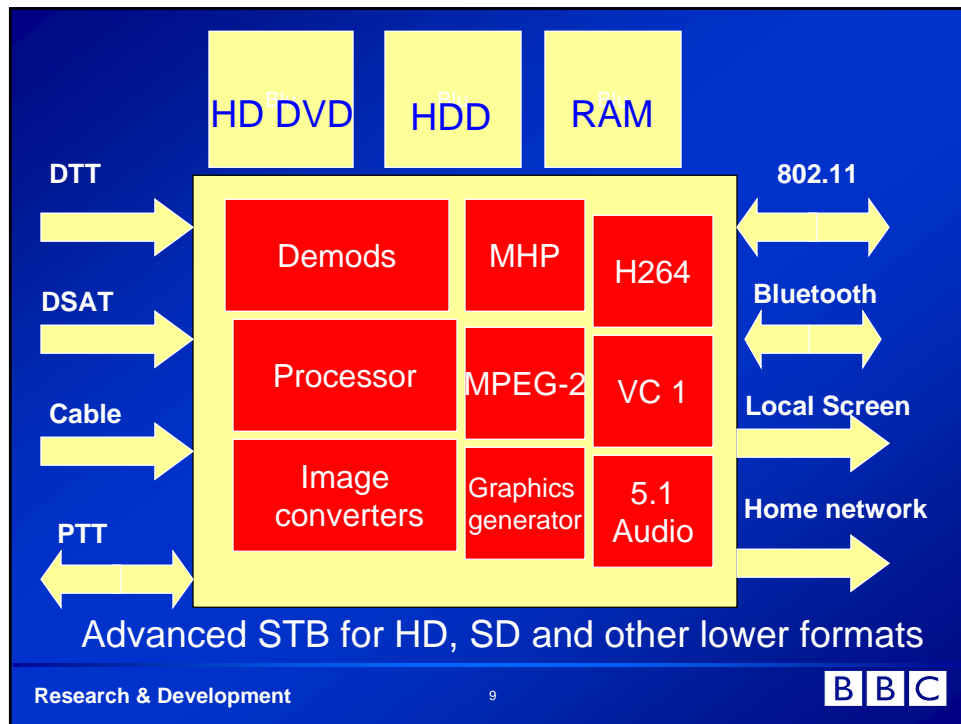
- Technology will advance
- Expectations will be higher
- The HD system will fit within an even more highly developed portable consumption and interactive media industry

Lets look at what's just round the corner

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## New HDDs

- 20GB drives now in pocket audio and video players
- ½ TB drives almost here
- Very high read and write speeds



## HDD for storing digital television

20 GB	2hrs@ 20Mb/s	6hrs@ 6Mb/s
500GB	500hrs@20M b/s	1500hrs@6M b/s

## Split delivery

Could deliver HD “patches” over SD  
programmes

Demo

[demo\HD\\_demo.exe](#)

## DVD formats for HD

- Current red-laser formats
- Extended versions of the these – with multi-layer and advanced compression

- Advanced DVD formats



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## Advanced DVD formats

- There are two competitors
- Each has a number of variants
  - Different numbers of layers
  - Different basic formats for RAM and ROM applications
  - Variants depending on the read and write speeds of RAMs
- The formats will be decided by Hollywood (wants HD DVD) and the iT industry – still to decide

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## Comparison of advanced (blue) DVDs

Some of the re-writable formats available

Parameters	HD DVD	Blu-ray	DVD	DVD
Storage capacity	20GB	50GB	4.7GB	9.4GB
Number of layers	single-layer	dual-layer	single-layer	dual-layer
Laser wavelength	405nm	405nm	650nm	650nm
Protection layer	0.6mm	0.1mm	0.6mm	0.6mm

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802.11 Will develop to deliver content

**December 09, 2004 - Broadband Wireless Provider Weighs in With WiMAX Platform**

**The Singapore-based company said on Thursday that its WiMAX platform called Horizon is based on the IEEE 802.16-2004 standard and incorporates early 802.16e mobility features.**

**With its flexible architecture, nex-G customers can take advantage of open frequencies from 600 MHz through 6 GHz as the platform is deployed."**

**WiMAX has captured the imagination of the wireless industry, because it can cover wide tracks of geography at a low cost.**

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## Broadband

- UK – Broadband is one of the hottest products
- Broadband speeds will improve
- Uses for one to many develop
- Person-2-person communications increase
  - Maybe this becomes a major distribution of broadcast content

But while all this is happening

Compression is still set to develop

<u>H264 or VC-1</u>	<u>Now</u>	<u>2 Years Time</u>	<u>5 Years time</u> <i>assumes new compression</i>	HD Bit-rates
<u>720P1280/50</u>	12Mb/s	8Mb/s (4-12)	5.6Mb/s	
<u>1080i1920/25</u>	16Mb/s	10Mb/s (5-15)		
<u>720P1280/25</u>	6Mb/s	4Mb/s	3.4Mb/s	
<u>1080P1920/25</u>	12.2Mb/s	7 Mb/s	4.2 Mb/s	
<u>1080P1920/50</u>	24.4Mb/s	14 Mb/s	8.4 Mb/s	

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Thank you for our attention