

EBU R115-2005



FUTURE HIGH DEFINITION TELEVISION SYSTEMS:

The need to develop
television production equipment
for a progressively scanned image format of
1920 horizontal by 1080 vertical resolution
at 50 and 60 Hz frame rates

Status: EBU Statement

Geneva
May 2005

<i>EBU Committee</i>	<i>First Issued</i>	<i>Revised</i>	<i>Re-issued</i>
<i>PMC</i>	<i>05.2005</i>		

Keywords: HDTV, High Definition, progressive scanning

Future High Definition Television Systems

The Need to Develop Television Production Equipment For a Progressively Scanned Image Format of 1920 Horizontal by 1080 Vertical Resolution at 50 And 60 Hz Frame Rates

The EBU,

noting that:

1. HD has an increasing role in broadcasting throughout the world.
2. The future HD display environment will be characterised by the widespread use of non-CRT progressively scanned flat panel displays with, for example, 1366 x 768 and 1920 x 1080 resolutions.
3. Display technology development will continue and higher resolution displays will be available.
4. The higher the intrinsic technical quality of a production standard, the more freedom the programme maker has ('quality headroom') to use downstream picture processing systems.
5. Investigations made in the EBU have shown that progressive scanning is preferred for emission of HDTV, and that:
 - a. The 720p/50 standard is recommended by the EBU Technical Committee as currently the optimum solution for emission, taking into account the available compression technology, available bit-rates in the transmission channels, and European HD display characteristics.
 - b. The 1080p/50 standard will be an attractive solution in the longer term, when equipment and compression technologies become available.
6. Programme production in 1080 lines progressive would offer many advantages. These will include higher quality headroom with easier high quality conversions to all delivery formats and to formats used in different regions of the world. It may also eventually prove a cost-effective delivery format itself.
7. While a range of different production formats for exchange is available today, only a 1080 lines progressive format at either 50 or 60 Hz could provide a world-wide basis for programme production and exchange.

Concludes that:

1. Manufacturers have an important partnership role to play in the development of European HD. The broadcast products divisions of the major manufacturers are encouraged to support European broadcasters, both by appropriate pricing and technology, to enable the evolution to HD production in Europe, without the need for costly and repeated upgrades. This will mean that both broadcasters and manufacturers will need to work together:
 - a. Currently to provide equipment that complies to EBU Tech 3299 [1] System 1 to 3 (720p/50, 1080i/25 and 1080p/25);
 - b. To agree user requirements and basic principles for a 1080p/50 infrastructure and production chain according to EBU Tech 3299 System 4;
 - c. To develop appropriate open standards for compression technology for 1080 lines progressive format at either 50 or 60 Hz to allow the use of existing HD infrastructures.
 - d. To develop suitable signal infrastructures for 1080p/50-60 (including open standards) in real-time and

non-real time environments (e.g. via MXF);

- e. To provide, as soon as practical, the elements of a functional 1080p/50 production chain including a variety of professional devices with a pricing policy that encourages the broadcast industry's migration to this format;
- f. To investigate and provide suitable migration scenarios from both 720p/50 and 1080i/25 environments to the 1080p/50 production chain.
- g. To enable seamless interchange of programmes between the four EBU HD production systems described in EBU Tech 3299.

References

- [1] EBU Tech 3299-2004 *High Definition (HD) Image Formats for Television Production*