



OPERATING EUROVISION AND EURORADIO

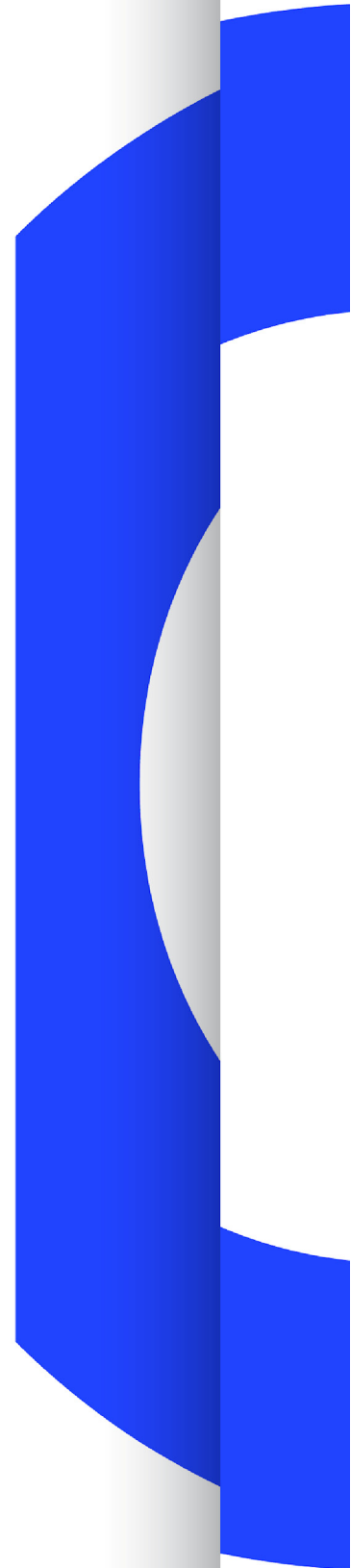
TR 028

EBU POLICY STATEMENT ON ULTRA HIGH DEFINITION TELEVISION

This document contains an important and fairly complex statement.
It may only be reproduced and distributed in its entirety.
Partial quotation is strictly forbidden.

This instruction must accompany the document at all times.

Geneva
July 2015



EBU POLICY STATEMENT ON UHDTV

<i>EBU Committee</i>	<i>First Issued</i>	<i>Revised</i>	<i>Re-issued</i>
TC ¹	July 2014	July 2015	

Keywords: Ultra High Definition Television, UHDTV, 4k, HFR, HDR, WCG, BT.2020, compatibility.

Introduction

The EBU notes the growing interest throughout the world in Ultra High Definition Television (UHDTV). The technical parameter values of such systems include higher image resolution, higher image frame rate (HFR), higher image dynamic range (HDR), wider colour gamut (WCG), and advanced sound system technologies. All together, these enhancements will give a more “immersive” and better experience for viewers.

This document is intended to guide strategic decisions in regard to UHDTV and future TV services. It is addressed at Senior Management of EBU Members and other broadcasters, and those who are stakeholders in the audiovisual content industries.

The issues

At the time of publication, July 2015, the issues confronting broadcasters are:

- Televisions advertised as “4K/Ultra-HD” have entered the market. These displays provide four times (3840 x 2160 pixels) the resolution of progressively scanned HDTV. It is predicted² that all television panels larger than 50 inches, sold in 2018 will be ‘4K/Ultra-HD’ resolution.
- The *UHDTV standard*, however, provides several other additional enhancements over HDTV spatial resolution parameters. These are higher frame rates, more contrast in images (dynamic range), better colours and immersive and personalised audio. The intent of a combination of all these enhanced parameters is to provide a more “immersive” and better experience for the viewer (“better pixels”).
- The CE industry is delivering many innovative new display solutions. New broadband services, such as YouTube, Netflix and Amazon, and technologies such as Dolby Vision, are capable of delivering these extended options as Over-the-Top-Television (unmanaged IP services) or IPTV services. Such services do not require the major production and delivery infrastructure changes that would be required by a traditional, live satellite or terrestrial broadcaster.
- The EBU Technical Committee believes there is a need for coherent and comprehensive standards. A sufficiently large step is needed to justify the introduction of new broadcasting services. If it is not possible for the cross industry bodies to agree adequate technical standards, the EBU will need to consider other options for their broadcaster members.

¹ TC; The EBU Technical Committee, comprised of 13 members, coordinates and manages the EBU's technical work.

² Display Search presentation at the EBU Production Technology Seminar in January 2015.

- In Japan, the Administration, together with major broadcasters and manufacturers, has a roadmap to deliver a UHDTV service called “Super Hi-Vision” (“8k”) starting in 2018 - fully established in the market in time for the 2020 Olympics³. There are plans in Korea with a similar timetable for UHDTV services.

UHDTV in production:

In the short term, some broadcasters and producers of high value programmes are already taking advantage of the latest “UHD” equipment in the market⁴ to provide greater production headroom, and to future-proof their content for the archive.

In the same way that HD production technologies have improved the image quality of SD services over the last decade, UHD cameras and production equipment will enhance the technical quality of current HD services. “UHD” capture technologies will also enable innovative possibilities to create HD programmes (e.g. extracting HD frames from a “UHD” image). The ITU-R has already recommended “the use of UHDTV image systems for capturing, editing, finishing and archiving high-quality HDTV programmes”⁵. It should be noted, however, that mainstream production infrastructures for UHDTV are still in development.

UHDTV in distribution:

The DVB Project has specified that a Phase 1 UHDTV broadcast format shall only include the higher resolution and does not take into account other enhanced parameters for “better pixels”. The parameters that provide a more immersive viewing experience, such as frame rate, dynamic range, colour gamut and enhanced audio, should be included in a DVB Phase 2 UHDTV broadcast format. Broadcasters are in favour of a limited number of profiles to prevent market fragmentation and consumer confusion.

1080p- and 1440p-based services that include a certain combination of UHDTV parameters (e.g. higher frame rate, higher dynamic range, wider gamut and advanced sound system audio) should be considered as transmission formats. Such formats could be an attractive option for some broadcasters as sub-set of UHDTV.

Conclusions:

The EBU Technical Committee believes that the best approach for the success of UHDTV broadcasting is to introduce the full parameter set as soon as this can practically be done.

- This will avoid significant public confusion as to what is meant by UHDTV.
- This will allow the development of a UHDTV roadmap for European broadcasters.

The EBU Technical Committee has therefore asked its technical groups to investigate and interpret the available data, to encourage ‘future-proof’ standards, and the collection and creation of objective information about performance and infrastructure implications, so that Members can make well informed strategic decisions.

EBU Members will continue to work for an adequate standard (i.e. a full “DVB UHD-1 Phase 2”) service as agreed at a joint DVB and EBU workshop in 2013.

³ May 2014 - first 4k broadcasts happened in Japan. Expect first 8k test transmissions by 2016

⁴ Only some equipment allows the production of images that go beyond current HD standards

⁵ ITU-R BT.2050-0 (02/2014)