

## 4K SUMMIT

2/11/2015

### RTVE in collaboration with Cellnex Telecom, Hispasat, Dolby Laboratories and SAPEC will present two worldwide premieres at the 4K Summit in Seville

On the occasion of the 4K Summit that will be held in Seville the 5th and 6th of November, RTVE, in collaboration with Cellnex Telecom, Hispasat, Dolby Laboratories and SAPEC, will present two worldwide premieres that will show not only the new features that Ultra High Definition (UHD) offers with respect to HD, but also its distribution through the different platforms used by citizens.

The Chair of RTVE in the Telecommunication Engineering School of the Universidad Politécnica de Madrid has been responsible for coordinating the efforts aimed at carrying out this initiative.

In particular, the two worldwide premieres are the following ones:

- **First worldwide UHD content with HDR, WCG and AC-4 transmitted over DVB-T2**

Cellnex Telecom has launched a DVB-T2 service from Valencia's broadcast center, using a 500-watt transmitter and providing coverage to the city of Seville. The modulation chosen can be used at a bit rate of up to 34 Mbps, enough for broadcasting the first worldwide distribution of UHD content with High Dynamic Range (HDR), a Wider Color Gamut (WCG) and Dolby AC-4. This service can be received in Seville during the 4K Summit on UHF Channel 36.

Dolby Vision is a new technology for imaging that delivers a new visual experience, increasing brightness, contrast, and color gamut by combining HDR and WCG. Even though most of the content is captured and rendered using technology that produces the colors and brightness of real life, much of that richness is lost by the time it gets to the audience. That's because current color-grading standards are based on the limitations of current television technologies, dramatically reducing the range of colors, brightness, and contrast. Dolby Vision permits the use of the full gamut of colors, peak highlights, brightness, and contrast, reproducing them faithfully on televisions that feature this technology.

On the other hand, Dolby AC-4 is a new audio format in the Dolby Audio™ family that addresses the current and future needs of next-generation video and audio services, including broadcast and Internet streaming. The core elements of Dolby AC-4 have been standardized with the European Telecommunications Standards Institute (ETSI) as TS 103 190 and have been adopted by DVB in TS 101 154, and they are ready for adoption for next-generation services.

HEVC encoding is used and an additional metadata channel with HDR information is sent jointly. That's why those devices that do not support HDR can decode this transmission, showing Standard Dynamic Range (SDR) content on screen.

This demonstrates the common will to work towards reaching an adequate UHD standard service (i.e. a full DVB UHD-1 Phase 2), as agreed by EBU and DVB.

- **First worldwide simultaneous UHD content distribution using DVB-T2, DVB-S2 and HbbTV**

Although there have already been several trial broadcasts with RTVE's UHD content encoded by SAPEC, Dolby Digital Plus (E-AC3) audio and transmitted over DVB-T2 and DVB-S2 by Cellnex Telecom and Hispasat, respectively, this is the first demonstration ever using the aforementioned two platforms simultaneously along with an HbbTV service (Hybrid TV) provided by RTVE that offers UHD content.

A set of videos with a 3840 x 2160 resolution have been encoded in HEVC at 25p and 50p frame rates for this HbbTV service. The format chosen was MP4 and constant bit rates (10, 15, 20 and 25 Mbps) with progressive download are used for providing different image qualities.

This opens the door for the delivery of UHD content through the RTVE HbbTV service called "Botón Rojo" (Red Button) and shows the possibility of the coexistence of broadcast and broadband in a foreseeable future.

All this confirms the RTVE's commitment to innovation and to boosting the audiovisual sector in Spain through trials using the most advanced technologies. These cutting-edge technologies permit the implementation of those standards and platforms that provide improvements that are clearly perceived by the audience, in terms of both efficiency and quality with respect to the distribution of audiovisual content.

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