Opinion ITU-R 102-1

The use of UHDTV[[1]](#footnote-1) and/or HDR-TV[[2]](#footnote-2) image systems in television image capture to post-produce HDTV programmes of improved picture quality

(2013-2017)

ITU Radiocommunication Study Group 6,

considering

*a)* that Recommendation ITU-R BR.785 pointed out that, when television programmes are captured and post-produced using a television system whose parameter values exceed the parameter values of the television system intended for distribution of the programme, there is an improvement in the perceived image quality of the programmes distributed and broadcast after down-conversion;

*b)* that according to information provided to Study Group 6, several television broadcasters and programme makers are already experimenting with capture of programme material in UHDTV and/or HDR-TV for the production and postproduction of HDTV programmes having subjectively improved image quality;

*c)* that the headroom in image resolution obtained by capturing programme material in UHDTV facilitates complex image post-production with minimal image artefacts on the finished HDTV programme;

*d)* that the headroom in image dynamic-range obtained by capturing programme material in HDR-TV also facilitates complex image post-production, e.g. to optimize the tonal balance of image highlights and lowlights in programmes intended for standard dynamic range release;

*e)* that the headroom in image gradation due to the use of a quantization level of 12 bits per component in UHDTV and HDR-TV extends the range of image tonal grading that can be implemented before artefacts appear in down-converted HDTV images; that furthermore, the use of these practices in the production of television programmes allows broadcasters and television programme makers to store programme material in the television system in which it was captured and build a library of superior image quality material that can be used for international exchange as well as, eventually, for future higher quality broadcasting,

is of the opinion

that the attention of developers of professional digital image processing tools should be called to the need for a comprehensive inventory of the post-production tools required to optimally exploit the image quality headroom of UHDTV and HDR-TV image systems that can be used to capture programme material in the highest possible image quality and post-produce it to obtain images of optimal picture quality even after down-conversion to HDTV.

1. UHDTV is the acronym of the family of 3 840 × 2 160 and 7 680 × 4 320 television image systems specified in Recommendation ITU-R BT.2020. [↑](#footnote-ref-1)
2. HDR-TV is the acronym of the television systems that capture images with a High Dynamic Range specified in Recommendation ITU-R BT.2100. [↑](#footnote-ref-2)