

GY

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GY/T 330-2020

**Ultra HD High Dynamic Range Video System Color Bar Test
Chart**

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the redrafting method to modify and adopt ITU-R BT.2111-1.2019 "High Dynamic Range TV System Color Bar Test Chart Specification".

Compared with ITU-R BT.2111-1.2019, this standard has many adjustments in structure. Appendix A lists this standard and ITU-R BT.2111-1. The list of changes to the chapter numbering in 2019.

The technical difference between this standard and ITU-R BT.2111-1.2019 is that the description of the 2K resolution color bar test chart is deleted. The reason is Mainly considering that this standard is an ultra-high-definition color bar test chart standard, which only includes 4K and 8K resolutions.

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This standard is under the jurisdiction of the National Radio, Film and Television Standardization Technical Committee (SAC/TC 239).

Drafting organizations of this standard. The Academy of Radio and Television Science of the State Administration of Radio and Television, the Academy of Radio and Television Planning of the State Administration of Radio and Television, Jiangsu Radio and Television

General Station (Group), Guangdong Radio and Television Station, Guangzhou Radio and Television Station.

1 Scope

This standard specifies the color bar test chart of ultra-high-definition high dynamic range (HDR) video system, including the narrow range of hybrid logarithmic gamma (HLG) Color bar test chart, perceptual quantification (PQ) narrow range color bar test chart, PQ full range color bar test chart.

This standard applies to the design, production, acceptance, operation and maintenance of ultra-high-definition HDR video systems and equipment.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this file. For undated references, the latest version (including all amendments) applies to this document.

3 Abbreviations

The following abbreviations apply to this document.

HDR high dynamic range HLG mixed logarithmic gamma PQ perceptual quantification

4 Purpose

The reference color bar test chart specified in this standard mainly includes but is not limited to the following purposes.

- Quality control of chroma and brightness in the production link;
- Calibration and adjustment of chromaticity and brightness of broadcasting equipment, especially video monitor equipment;
- General testing of video production, transmission and presentation equipment;
- Confirm that the video link is working properly.

5 System type

The color bar test chart described in this standard should be used in conjunction with the system described in GY/T 315-2018. The differences between these systems are the resolution is different from the color coding (or "color system").

6 Test chart composition

The composition of the HLG narrow range test chart is shown in Fig. 1, the composition of the PQ narrow range test chart is shown in Fig. 2, and the composition of the PQ full range test chart is shown in Fig. 3. Color bar test See Figure 4 for an example, refer to Appendix B for an example of the HLG color bar test chart, and refer to Appendix C for the HLG color bar signal test waveform on the waveform monitor.

Appendix A

(Informative appendix) Structural changes of this standard compared with ITU-R BT.2111-1.2019 Compared with ITU-R BT.2111-1.2019, this standard has many adjustments in structure. See Table A.1 for the comparison of specific chapter numbers.

Appendix B Appendix 1 Appendix 1

Appendix C Appendix 1 Appendix 2

References Appendix 1 Section 1 Appendix B (Informative appendix) HLG color bar test chart example Color bar. the main color bar is 75% HLG, and the top is 100% HLG color bar.

BT.709 color bar. generally obtained by HLG OETF and linear conversion matrix conversion, located in the lower left corner and lower right corner, avoiding waves it overlaps with the main color bar when monitoring on the shape monitor.

Ramp signal. the level is from -7%HLG to 109%HLG, and the 0% video level is at the leftmost side of the green color bar signal.

Ladder signal. the level is from -7%HLG to 109%HLG, the leftmost side of the 0% stepped signal is at the leftmost side of the yellow color bar signal. 0%HLG it is separated from 100%HLG at 10% intervals, and the width of each step is half of the width of the color bar. The location of the step signal and ramp signal Ensure that there is no overlap when monitoring on the wave monitor.

Black signal. Composed of 0%, -2%, 0%, 2%, 0%, 4%, and 0% video levels, placed in the lower left away from the bright area, to improve visibility.

Gray bars (right and left). optional, can be used to place other test patterns that meet specific needs.