International Telecommunication Union

ITU-R

Radiocommunication Sector of ITU

Recommendation ITU-R BT.2111-1

(06/2019)

Specification of colour bar test pattern for high dynamic range television systems

BT Series

Broadcasting service (television)

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Foreword

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RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

Note: *This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.*

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RECOMMENDATION ITU-R BT.2111-1

Specification of colour bar test pattern for high dynamic range television systems

(2017-2019)

Scope

This Recommendation specifies reference test patterns for the high dynamic range television systems specified in Recommendation ITU-R BT.2100.

Keywords

Colour bars, HDR, HDR-TV, HLG, PQ, test pattern, test signal

The ITU Radiocommunication Assembly,

considering

a) that test patterns provide a convenient means of assessing chrominance and luminance performance in a television system;

b) that such a test pattern may be useful when broadcasting in multiple formats or when converting between formats;

c) that the use of a test pattern can simplify test procedures and reduce the opportunity for misinterpretation of signal parameters and misalignment of systems,

noting

that Recommendation ITU-R BT.2100 specifies image parameter values for high dynamic range television for use in production and international programme exchange,

recommends

that the test patterns defined in Annex 1 should be implemented and may be used for production and distribution purposes in high dynamic range television (HDR-TV) systems.

Annex 1
(normative)

Specifications of test pattern

1 Normative references

Recommendation ITU-R BT.471 – Nomenclature and description of colour bar signals

Recommendation ITU-R BT.709 – Parameter values for the HDTV standards for production and international programme exchange.

Recommendation ITU-R BT.2100 – Image parameter values for high dynamic range television for use in production and international programme exchange

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2 Purpose

The reference test pattern has several purposes:

– quality control of chrominance and luminance through the production chain;

– checking and adjusting the chrominance and luminance alignment of broadcast equipment, particularly video monitors;

– general testing of equipment for video production, emission and presentation;

– establishing that a video circuit is active and that associated audio is available.

It is not intended that this test pattern be used for black level adjustment, which is best set using a PLUGE signal.

3 System types

The pattern described in this Recommendation is intended for use with Recommendation ITU-R BT.2100. These systems are distinguished by the proportions of their colour encoding (or "colorimetry") and by their resolution.

4 Sections of test pattern[1]

The various sections of the test pattern for the HLG system with narrow range coding are shown in Fig. 1; the pattern for the PQ system with narrow range coding is shown in Fig. 2, and the pattern for the PQ system with full range coding is shown in Fig. 3. A colour diagram is shown in Fig. 4. See also Attachments 1 and 2.

[1] It is desirable that implementers should include in this test signal some visual identification of the signal format (HLG narrow range, PQ narrow range, or PQ full range). The test pattern includes grey bars (top right and top left) that may optionally be used for this and/or other purposes.

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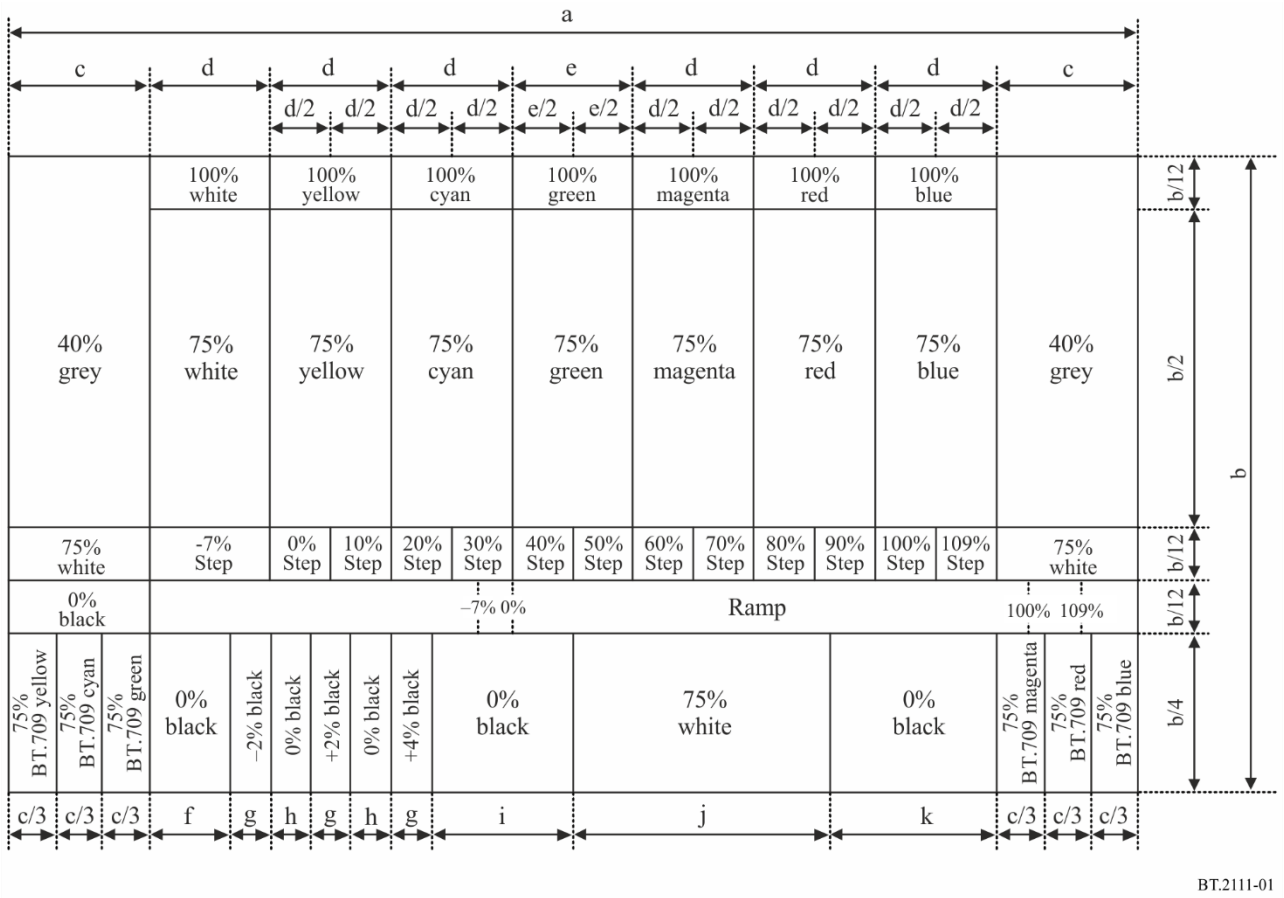
FIGURE 1

Test pattern details for HLG narrow range



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