



Recommendation ITU-R BT.2124-0
(01/2019)

**Objective metric for the assessment
of the potential visibility of colour
differences in television**

BT Series
Broadcasting service
(television)



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Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Resolution ITU-R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from <http://www.itu.int/ITU-R/go/patents/en> where the Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the ITU-R patent information database can also be found.

Series of ITU-R Recommendations

(Also available online at <http://www.itu.int/publ/R-REC/en>)

Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M	Mobile, radiodetermination, amateur and related satellite services
P	Radiowave propagation
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.2124-0*

**Objective metric for the assessment of the potential visibility
of colour differences in television**

(2019)

Scope

This Recommendation defines an objective colour difference metric that is suitable for use in assessing the potential visibility of small colour differences in television images and signals. To do this, it presumes a state of viewer adaptation that is most sensitive for the colour being evaluated. Applications include, but are not limited to, display calibration, camera and display characterization, and objective assessment of differences introduced by signal processing techniques.

Keywords

Calibration, metric, measurement, colour, HDR, HDR-TV, IC_{TCp}

The ITU Radiocommunication Assembly,

considering

- a) that colour fidelity is an important parameter of television systems and equipment;
- b) that subjective evaluations of colour fidelity are complex and time consuming;
- c) that an objective measure, or metric, of small colour differences that correspond to subjective perception would facilitate evaluation of television systems and equipment;
- d) that existing colour difference metrics assume a state of viewer adaptation (e.g. white point, illumination level, viewing environment etc.);
- e) that with television the state of viewer adaptation is variable and often not known;
- f) that it is desirable to have a metric that indicates the potential perceptibility of colour differences,

recommends

that a colour difference metric, ΔE_{ITP} , for the assessment of the potential visibility of colour differences in television images and signals, should be calculated as described in Annex 1.

* Radiocommunication Study Group 6 made editorial amendments to this Recommendation in February 2020 in accordance with Resolution ITU-R 1.