

SMPTE RECOMMENDED PRACTICE

Measurement and Calibration Procedure for HDTV Display Luminance Levels and Chromaticity



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Foreword

SMPTE (the Society of Motion Picture and Television Engineers) is an internationally-recognized standards developing organization. Headquartered and incorporated in the United States of America, SMPTE has members in over 80 countries on six continents. SMPTE's Engineering Documents, including Standards, Recommended Practices, and Engineering Guidelines, are prepared by SMPTE's Technology Committees. Participation in these Committees is open to all with a bona fide interest in their work. SMPTE cooperates closely with other standards-developing organizations, including ISO, IEC and ITU.

SMPTE Engineering Documents are drafted in accordance with the rules given in its Standards Operations Manual.

SMPTE RP 2080-2 was prepared by Technology Committee 10E.

Intellectual Property

At the time of publication no notice had been received by SMPTE claiming patent rights essential to the implementation of this Engineering Document. However, attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SMPTE shall not be held responsible for identifying any or all such patent rights.

Introduction

This section is entirely informative and does not form an integral part of this Engineering Document.

The creation of television images that are intended to follow a standard of consistency in appearance benefits from the definition of a reference display, of a controlled viewing environment, and of a set of measurement procedures to enable consistent calibration of both display and environment. To ensure consistent viewing conditions, periodic checks of both display and environment are necessary. It is suggested that the checks specified in this Recommended Practice be done every day the display is in use.

1 Scope

This Recommended Practice specifies methods to be used for routine measurements and calibration of absolute luminance levels and white point chromaticity produced by HDTV Displays that are intended to reproduce images conforming to the specifications of SMPTE ST 274 and SMPTE ST 296.

Some displays are designed for automated calibration using measuring devices supplied or certified by the display manufacturer for this purpose. Such automated calibration is outside the scope of this Recommended Practice. However, manufacturers implementing automated calibration are urged to consider the implications of the calibration procedures described herein, especially Sections 4.3.1 and 4.4.

2 Conformance Notation

Normative text is text that describes elements of the design that are indispensable or contains the conformance language keywords: "shall", "should", or "may". Informative text is text that is potentially helpful to the user, but not indispensable, and can be removed, changed, or added editorially without affecting interoperability. Informative text does not contain any conformance keywords.

All text in this document is, by default, normative, except: the Introduction, any section explicitly labeled as "Informative" or individual paragraphs that start with "Note:"

The keywords "shall" and "shall not" indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted.

The keywords, "should" and "should not" indicate that, among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

The keywords "may" and "need not" indicate courses of action permissible within the limits of the document.

The keyword "reserved" indicates a provision that is not defined at this time, shall not be used, and may be defined in the future. The keyword "forbidden" indicates "reserved" and in addition indicates that the provision will never be defined in the future.

A conformant implementation according to this document is one that includes all mandatory provisions ("shall") and, if implemented, all recommended provisions ("should") as described. A conformant implementation need not implement optional provisions ("may") and need not implement them as described.

Unless otherwise specified, the order of precedence of the types of normative information in this document shall be as follows: Normative prose shall be the authoritative definition; Tables shall be next; followed by formal languages; then figures; and then any other language forms.

3 Normative References

Note: All references in this document to other SMPTE documents use the current numbering style (e.g. SMPTE ST 274:2008) although, during a transitional phase, the document as published (printed or PDF) may bear an older designation (such as SMPTE 274-2008). Documents with the same root number (e.g. 274) and publication year (e.g. 2008) are functionally identical.

The following documents contain provisions that, through reference in this text, constitute provisions of this Recommended Practice. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Recommended Practice are encouraged to investigate the possibility of applying the most recent edition of the documents listed below.