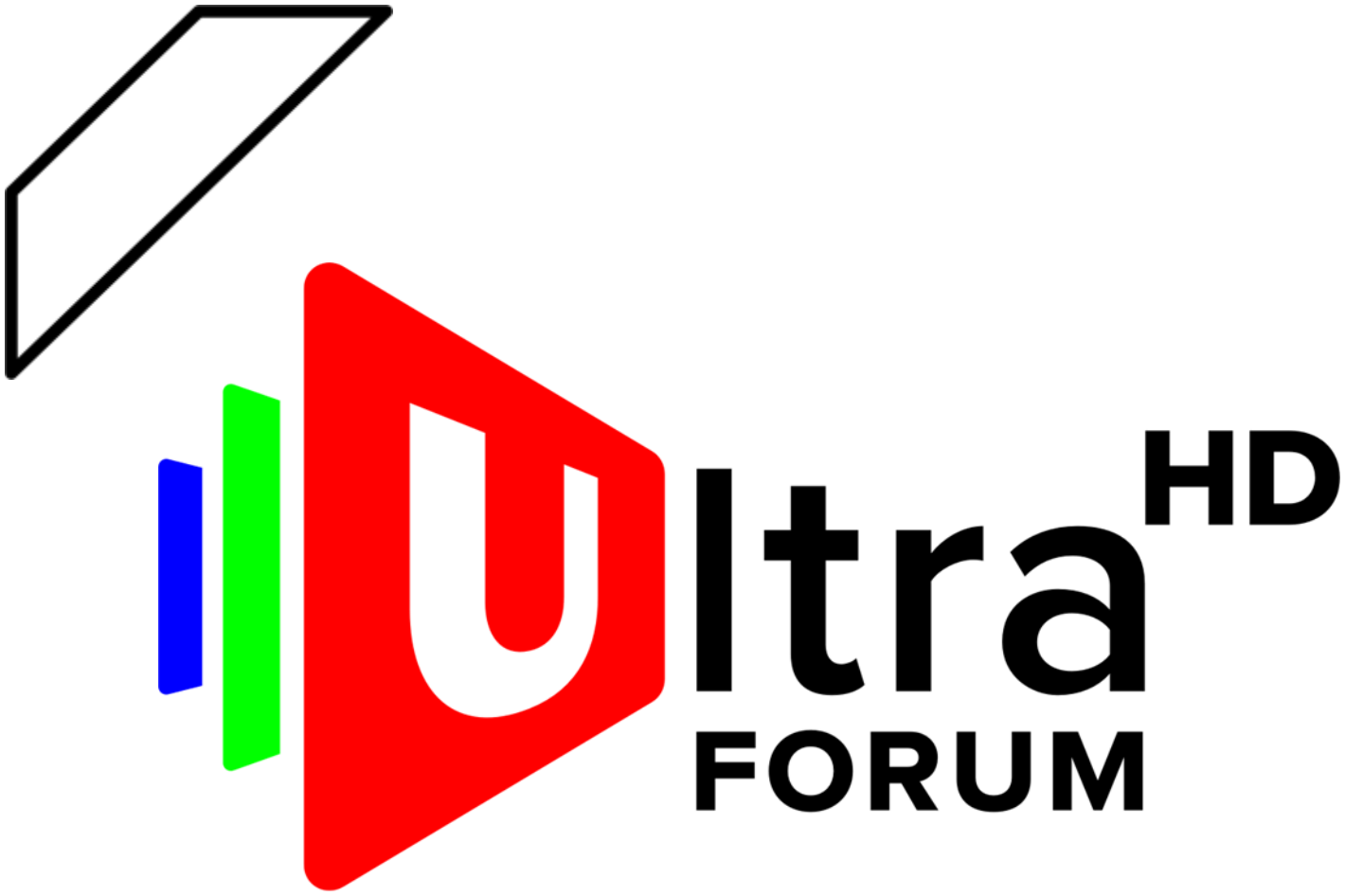

Ultra HD Forum Guidelines

White Book – References

Ultra HD Forum

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UNITED STATES

VERSION 3.3.0

Sep 10, 2024

1. Foreword

The Ultra HD Forum Guidelines provides a holistic view of modern media systems, their mechanisms and workflows, and how those are impacted by the latest generation of improvements – the “Ultra HD” technologies, those that take media beyond the limits established at the start of this millennia, as characterized in large part by the video resolutions and the dynamic range offered for media in of “high definition” (i.e., ITU-R Rec. BT.709). The Forum considers Ultra HD to not only be any UHD media (i.e., 4K resolution, or higher), but also HD-resolution media with enhancements such as High Dynamic Range, Wide Color Gamut, etc. Ultra HD is a constellation of technologies that can provide significant improvements in media quality and audience experience. In addition, the Forum collaborates in promoting the understanding of the various deployments and delivery methods for Ultra HD media that continuously evolve around the world.

This work represents over eight years of collaborative effort by the membership of the Ultra HD Forum. The Guideline books would not have been possible without the leadership of Jim DeFilippis, who represents Fraunhofer, and chair of our Guidelines Work Group with invaluable support from the co-chair, Pete Sellar of Xperi as well as technical assistance from Ian Nock of Fairmile West Consulting, chair of the Interop Working Group.

Our gratitude to all the companies listed in the Acknowledgments that have participated in this effort over the years and specifically to Nabajeet Barman (Brightcove), Elena Burdiel Pérez (Fraunhofer), Andrew Cotton (BBC), Jean Louis Diascorn (Harmonic), Richard Doherty (Dolby), Felix Nemirovsky (Dolby),Chris Johns (Sky UK), Katy Noland (BBC), Bill Redmann (InterDigital), Yuriy Reznik (Brightcove), Chris Seeger (Comcast/NBCUniversal), Adrian Murtaza (Fraunhofer) and Alessandro Travaglini (Fraunhofer).

This document, *Guidelines Index and References* (Black Book), is one of a series of books, referred to as the Rainbow Books, that compose the Ultra HD Forum Guidelines. If any of these terms sound unfamiliar, follow the link below to the Black Book. If a particular standard is of interest, links such as the one above are available to take you to the White Book, where references are collected.

The Rainbow Books are, in their entirety:

White Book	**Guidelines Index and References**
Red Book	Introduction to Ultra HD
Orange Book	Foundational Technologies for Ultra HD
Yellow Book	Beyond Foundational Technologies
Green Book	Ultra HD Distribution
Blue Book	Ultra HD Production and Post Production
Indigo Book	Ultra HD Technology Implementations
Violet Book	Real World Ultra HD
Black Book	Terms and Acronyms

Updates in this new version of the Ultra HD Forum Guidelines are described on the following page.
I hope you will enjoy reading today.

If you want to know more about Ultra HD and join our discussions on how it can be deployed, I invite you to join the Ultra HD Forum. You can start by visiting our website: www.ultrahdforum.org.

Dr. Yasser Syed, President, Ultra HD Forum
Sept 2024

1.1 Changes from version 3.2 to 3.3

What's new in the Fall 2024 version of the UHDF Guidelines Red Book, Guidelines Index and References (v3.3), edited by Jim DeFilippis and Ian Nock.

The Guidelines Index and References is a reference book for the series of Rainbow Books on the Guidelines for Ultra HD. The scope and purpose of this book is to provide an overall table of contents for each book as well as a compilation of all the technical references used throughout the Guidelines.

While most of the information in this edition is material from the previous version of the Guidelines (v3.2), the information has been updated. Two (2) New references have been Added:

[150] IEC 61966-2-1:1999, Multimedia systems and equipment - Colour measurement and Management - Part 2-1: Colour management - Default RGB colour space - sRGB, 2014,
https://webstore.iec.ch/en/publication/6169

[151] IEC 61966-2-5:2007, Multimedia systems and equipment - Colour measurement and Management - Part 2-5: Colour management - Default RGB colour space -opRGB, (AdobeRGB), 2007,
https://webstore.iec.ch/en/publication/6175

We hope this new format will be helpful in understanding Ultra HD technologies as well as planning for new or expanded UHD services.

Jim DeFilippis and Pete Sellar,

Guidelines Working Group Co-Chairs, Ultra HD Forum, Sept 2024

2. Acknowledgements

We would like to provide the acknowledgment to all the member companies, past and present, of the Ultra HD Forum who have contributed in some small or large part to the body of knowledge that has been contributed to the Guidelines Rainbow Books, including the specific subject of this book.

ARRIS	ATEME	ATT DIRECTV
British Broadcasting Corporation	BBright	Beamr
Brightcove Inc.	Broadcom	B<>COM
Comcast / NBC Universal LLC	Comunicare Digitale	Content Armor
CTOiC	Dolby	DTG
Endeavor Streaming	Eurofins Digital Testing	Fairmile West
Fraunhofer IIS	Harmonic	Huawei Technologies
InterDigital	LG Electronics	Mediakind
MovieLabs	NAB	Nagra, Kudelski Group
NGCodec	Sky UK	Sony Corporation
Xperi	Technicolor SA	Verimatrix Inc.
V-Silicon		

3. Notice

The Ultra HD Forum Guidelines are intended to serve the public interest by providing recommendations and procedures that promote uniformity of product, interchangeability, and ultimately the long-term reliability of audio/video service transmission. This document shall not in any way preclude any member or nonmember of the Ultra HD Forum from manufacturing or selling products not conforming to such documents, nor shall the existence of such guidelines preclude their voluntary use by those other than Ultra HD Forum members, whether used domestically or internationally.

The Ultra HD Forum assumes no obligations or liability whatsoever to any party who may adopt the guidelines. Such an adopting party assumes all risks associated with the adoption of these guidelines and accepts full responsibility for any damage and/or claims arising from the adoption of such guidelines.

Attention is called to the possibility that implementation of the recommendations and procedures described in these guidelines may require the use of subject matter covered by patent rights. By publication of these guidelines, no position is taken with respect to the existence or validity of any patent rights in connection therewith. Ultra HD Forum shall not be responsible for identifying patents for which a license may be required or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.

Patent holders who believe that they hold patents that are essential to the implementation of the recommendations and procedures described in these guidelines have been requested to provide information about those patents and any related licensing terms and conditions.

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5. Rainbow Books Index

The Rainbow Books are as follows:

White Book	Guidelines Index and References (this book)
Red Book	Introduction to Ultra HD
Orange Book	Foundational Technologies for Ultra HD
Yellow Book	Beyond Foundational Technologies
Green Book	Ultra HD Distribution
Blue Book	Ultra HD Production and Post Production
Indigo Book	Ultra HD Technology Implementations
Violet Book	Real World Ultra HD
Black Book	Terms and Acronyms

5.1. White Book – Guidelines Index and References

Guidelines Index and References - This document is where you can find the view of the content of all Rainbow Books as well as the full list of References used in all the Rainbow Books. A necessary amount of recursion.

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5.2. Red Book – Introduction to Ultra HD

Introduction to Ultra HD - A general introduction to Ultra HD.

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5.3. Orange Book – Foundational Technologies for Ultra HD

Foundational Technologies for Ultra HD - All about the Foundational Technologies for Ultra HD

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5.4. Yellow Book – Beyond Foundational Technologies

Beyond Foundational Technologies - Going beyond the Foundational Technologies of Ultra HD

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5.5. Green Book – Ultra HD Distribution

Ultra HD Distribution - All about Ultra HD Distribution.

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5.6. Blue Book – Ultra HD Production and Post Production

Ultra HD Production and Post Production - A dive into Production and Post Production of Ultra HD.

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5.7. Indigo Book – Ultra HD Technology Implementations

Ultra HD Technology Implementations - A run-through of Ultra HD Technology Implementation.

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5.8. Violet Book – Real World Ultra HD

Real World Ultra HD - Going into the Real World with Ultra HD.

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