

ANSI/I3A IT10.7666-2002

American National Standard

*for Photography –
Electronic Still Picture Imaging –
Reference Output Medium Metric RGB
Color Encoding: ROMM-RGB*



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Reference Output Medium Metric RGB
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Secretariat

International Imaging Industry Association, Inc. (I3A)

Approved July 18, 2002

American National Standards Institute, Inc.

American National Standard

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Foreword (This foreword is not part of American National Standard ANSI/I3A IT10.7666-2002.)

This I3A standard has been developed in order to meet the industry need for a complete, fully documented, publicly available definition of a wide-primary output-referred extended color-gamut RGB color encoding. This encoding provides a way to represent output-referred images that does not limit the color gamut to those colors capable of being displayed on a CRT monitor, such as that represented by the sRGB color encoding, or require the use of negative RGB colorimetry co-ordinates, such as with extended sRGB color encodings like e-sRGB. An extended color-gamut color encoding is particularly desirable for professional photography applications. For example, colors used for company logos may be outside a monitor gamut and would therefore need to be clipped or compressed to a less saturated color. Similarly, scanned photographic prints that are to be duplicated may contain colors outside a monitor RGB color-gamut. By using a standard output-referred extended color-gamut color encoding, images containing such colors can be stored, interchanged, manipulated, and later printed, without limiting or distorting the colors of the final output. The Reference Output Medium Metric RGB (ROMM RGB) color encoding specified in this I3A standard meets the needs of these types of applications.

A new project proposal for an ISO/TC42 joint project with ISO/TC130 on extended color encoding for digital still image storage, manipulation, and interchange has been submitted through the ISO Central Secretariat. Work in this area may progress as part of a new joint working group between ISO/TC42 and IEC/TC100 that will be set up according to JTAB Decision 3/2000. After an international standard specifying ROMM-RGB is published, it is anticipated that this I3A standard will be withdrawn.

Annexes A through C of this I3A standard are for information only.

Suggestions for the improvement of this standard will be welcome. They should be sent to the International Imaging Industry Association, Inc. (I3A), 550 Mamaroneck Avenue, Suite 307, Harrison, NY 10528-1615, e-mail: i3astds@i3a.org.

This standard was processed and approved for submittal to ANSI by I3A Technical Committee IT10 on Electronic Still Picture Imaging. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this edition of the standard, the IT10 Committee had the following members:

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1 Scope

This I3A standard specifies a family of extended color-gamut output-referred RGB color encodings designated as Reference Output Medium Metric RGB (ROMM RGB). Digital images encoded using ROMM RGB can be manipulated, stored, transmitted, displayed, or printed by digital still picture imaging systems. Three precision levels are defined using 8, 12 and 16 bits/channel.

2 Normative References

The following standards contain provisions, which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid standards.

CIE Publication No. 15.2, *Colorimetry*

ISO 3664:2000, *Viewing conditions - Graphic Technology and Photography*

ISO/CIE 10527:1991, *CIE Standard Colorimetric Observers*

ICC.1:2001, *File Format for Color Profiles*

3 Definitions

For the purpose of this standard, the following definitions apply:

3.1 Color rendering

Mapping of image data representing the colorimetric coordinates of the elements of a scene or original to image data representing the colorimetric coordinates of the elements of a reproduction.

3.2 Observer adaptive luminance factor

Ratio of the luminance of a stimulus to the luminance of a stimulus which an observer adapted to the viewing environment would interpret to be a perfect white diffuser.

3.3 Adapted white

Color stimulus that an observer who is adapted to the viewing environment would judge to be perfectly achromatic and to have a luminance factor of unity; i.e, absolute colorimetric coordinates that an observer would consider to be a perfect white diffuser.