



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

**H.263
Implementors'
Guide**

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

(5 August 2005)

SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS
Coding of moving video

**Implementors Guide for H.263: “Video coding
for low bit rate communication”**

Summary

This document is a compilation of reported defects identified in ITU-T Recommendation H.263 (2005-01). It must be read in conjunction with the Recommendations to serve as an additional authoritative source of information for implementers.

This Implementors' Guide contains all updates submitted up to and including those at Study Group 16 meeting, July/August 2005, in Geneva (TD 152/PLEN), and was approved on 5 August 2005.

Document History

Version	Date	Description
1	5 August 2005	Initial version - completed at the ITU-T Study Group 16 meeting, Geneva, 26 July – 5 August 2005

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IMPLEMENTORS' GUIDE FOR ITU-T H.263: "VIDEO CODING FOR LOW BIT RATE COMMUNICATION"

1 Introduction

This document is a compilation of reported defects identified in ITU-T Recommendation H.263 approved 2005-01. It must be read in conjunction with the Recommendations to serve as an additional authoritative source of information for implementors. The changes, clarifications and corrections defined herein are expected to be included in future versions of H.263.

Upon discovering technical defects with H.263, please provide a written description directly to the editor of the Recommendation with a copy to the Q6/16 Rapporteur. The template for a defect report is located at the end of the Guide. Contact information for these parties is included at the front of the document. Return contact information should also be supplied so a dialogue can be established to resolve the matter and an appropriate reply to the defect report can be conveyed. This defect resolution process is open to any interested party. Formal membership in the ITU is not required to participate in this process.

2 Scope

This guide resolves defects in the following categories:

- editorial errors
- technical errors, such as omissions and inconsistencies
- ambiguities

In addition, the Implementors' Guide may include explanatory text found necessary as a result of interpretation difficulties apparent from the defect reports.

This Guide will not address proposed additions, deletions, or modifications to the Recommendations that are not strictly related to implementation difficulties in the above categories. Proposals for new features should be made in through contributions to the ITU-T.

3 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation

- ITU-T Recommendation H.263 (2005-01), Video coding for low bit rate communication

4 Nomenclature

In addition to traditional revision marks, the following marks and symbols are used to indicate to the reader how changes to the text of a Recommendation should be applied:

Symbol	Description
<u>[Begin Correction]</u>	Identifies the start of revision marked text based on extractions from the published Recommendations affected by the correction being described.
<u>[End Correction]</u>	Identifies the end of revision marked text based on extractions from the published Recommendations affected by the correction being described.
...	Indicates that the portion of the Recommendation between the text appearing before and after this symbol has remained unaffected by the correction being described and has been omitted for brevity.
--- SPECIAL INSTRUCTIONS --- {instructions}	Indicates a set of special editing instructions to be followed.

5 Technical and Editorial Corrections to H.263

5.1 Division operation in Figures Q.8/H.263 and Q.9/H.263

Description:	<p>The currently-specified rounding in subclause Q.6.1 Figure Q.8/H.263 and subclause Q.6.2 Figure Q.9/H.263 specifies a division by a denominator value D of the form $D = 2^K$ where K is a positive integer constant. In Figure Q.8/H.263, the value of D is equal to 16 (and thus K is equal to 4 in this case). In Figure Q.9/H.263, the value of D is equal to 4 (and thus K is equal to 2 in this case).</p> <p>The equations found in these figures in the Recommendation specify to perform a rounding division of some numerator N by this denominator using equations of the form as follows:</p> $\text{Result} = (N+D/2) / D$ <p>where the "/" symbol denotes division with truncation of fractional remainders toward zero.</p> <p>These equations appear to produce undesirable results when the numerator N is less than zero, which is possible in these equations of the Recommendation.</p> <p>For example, the current rounding specification would cause a problem if N is equal to $-1.25 * D$. In such a case, the computed result of the rounded division would be 0 instead of the likely intended value of -1.</p> <p>The tentative corrected interpretation suggested for implementers is to change these equations to the form as follows:</p> $\text{Result} = (N+D/2) \gg K$ <p>where the ">>" symbol denotes an arithmetic right-shift operation that removes the least-significant K bits in a two's complement representation of $(N+D/2)$. For example, using this interpretation, the result will be equal to -1 if N is equal to $-1.25 * D$, will be equal to -1 if N is equal to $-1.5 * D$, will be equal to $+1$ if N is equal to $1.25 * D$, and will be equal to $+2$ if N is equal to $+1.5 * D$.</p>
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Q.6.1 Upsampling procedure for the pixels inside a 16 × 16 reconstructed prediction error block

The creation of reconstructed prediction error for pixels inside block is described in Figure Q.8. "/" indicates division by truncation.

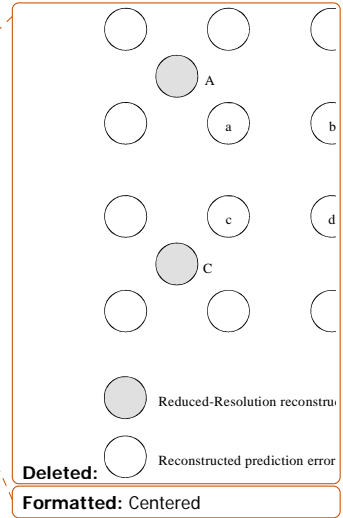
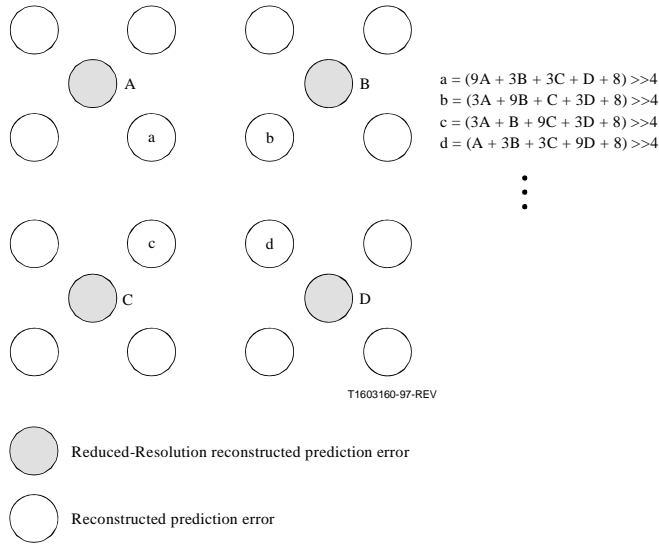


Figure Q.8/H.263 – Creation of reconstructed prediction error for pixels inside block

Q.6.2 Upsampling procedure for the pixels at the boundary of 16 × 16 reconstructed prediction error block

The creation of reconstructed prediction error for pixels of a 16 × 16 block is shown in Figure Q.9.

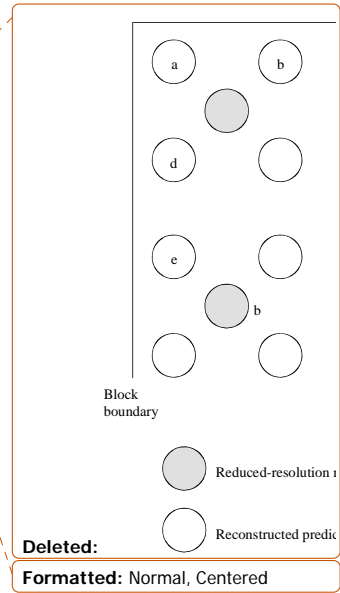
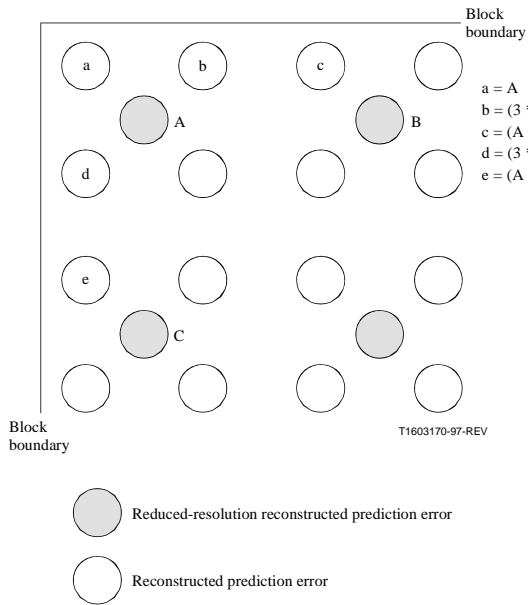


Figure Q.9/H.263 – Creation of reconstructed prediction error for pixels at the block boundary

[End Correction]

Annex: ITU-T Rec. H.263 Defect Report Form

DATE:	
CONTACT INFORMATION NAME: COMPANY: ADDRESS: TEL: FAX: EMAIL:	
AFFECTED RECOMMENDATIONS:	
DESCRIPTION OF PROBLEM:	
SUGGESTIONS FOR RESOLUTION:	

NOTE - Attach additional pages if more space is required than is provided above.