International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.1070
Amendment 1
(11/2009)

SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

Multimedia Quality of Service and performance – Generic and user-related aspects

Opinion model for video-telephony applications

Amendment 1: Revised Appendix I – Coefficients in video quality estimation function with respect to coding and packet-loss degradations

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Revised Appendix I – Coefficients in video quality estimation function with respect to coding and packet-loss degradations

Summary

Amendment 1 to Recommendation ITU-T G.1070 revises Appendix I by adding provisional coefficients for video quality estimation associated with VGA video codecs.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

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Revised Appendix I – Coefficients in video quality estimation function with respect to coding and packet-loss degradations

(This appendix does not form an integral part of this Recommendation)

This appendix provides the provisional coefficient tables to be used for the video quality estimation. Table I.1 summarizes the conditions under which each coefficient table was constructed.

NOTE 1 – The provisional coefficient tables given in this appendix cannot be applied to arbitrary MPEG-4 or MPEG-2 codecs. That is dependent on the implementation and setting of the codec, as noted in clause 7. Therefore, if one needs coefficient values for a codec which is not included in this table, the procedure described in Annex A should be used to create appropriate tables.

Table I.1 – Conditions for deriving coefficient tables

Factors	# 1	# 2	# 3
Codec type	MPEG-4	MPEG-4	MPEG-2
Video format	QVGA	QQVGA	VGA
Key frame interval (s)	1	1	1
Video display size (inch)	4.2	2.1	9.2

The resultant provisional coefficient values are provided in Table I.2.

NOTE 2 – These provisional coefficient values were determined based on subjective tests with video sequences 10 s. Therefore, the quality estimation based on these coefficients may result in optimistic evaluation in comparison with that of the video quality of longer video sequences in evaluating the effects of packet loss.

Table I.2 – Provisional coefficient table for video quality estimation function

Coefficients	# 1	# 2	# 3
v_1	1.431	7.160	4.78
v_2	2.228×10^{-2}	2.215×10^{-2}	1.22×10^{-2}
v_3	3.759	3.461	2.614
v_4	184.1	111.9	51.68
v_5	1.161	2.091	1.063
v_6	1.446	1.382	0.898
v_7	3.881×10^{-4}	5.881×10^{-4}	6.923×10^{-4}
v_8	2.116	0.8401	0.7846
v_9	467.4	113.9	85.15
v_{10}	2.736	6.047	1.32
v_{11}	15.28	46.87	539.48
v_{12}	4.170	10.87	356.6

NOTE 3 – The provisional values for the condition number #3 have been obtained for a packet loss rate smaller than or equal to 2% and for coding bit rates higher than 128 kbit/s. The coefficients of Table I.2 should be used only within the specified ranges.

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