INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.1020

Amendment 1
(05/2004)

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

Quality of service and performance - Generic and user-related aspects

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Performance parameter definitions for quality of speech and other voiceband applications utilizing IP networks

Amendment 1: New Annex A – VoIP gateway-specific reference points and performance parameters

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ITU-T Recommendation G.1020 (2003) – Amendment 1

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ITU-T Recommendation G.1020

Performance parameter definitions for quality of speech and other voiceband applications utilizing IP networks

Amendment 1

New Annex A – VoIP gateway-specific reference points and performance parameters

Summary

VoIP gateways are usually deployed to interconnect packet and circuit switched networks and require new reference points for delay and other parameters. This annex defines the gateway-specific reference points and parameters.

Source

Amendment 1 to ITU-T Recommendation G.1020 (2003) was approved on 14 May 2004 by ITU-T Study Group 12 (2001-2004) under the ITU-T Recommendation A.8 procedure.

FOREWORD

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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.

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New Annex A – VoIP gateway-specific reference points and performance parameters

A.1 Introduction

VoIP gateways are usually deployed to interconnect packet and circuit switched networks and require new reference points for delay and other parameters. This annex defines the gateway-specific reference points and parameters.

A.2 Definitions

This Recommendation defines the following terms:

A.2.1 packet input reference point: A measurement point in the physical medium connecting an IP network to a gateway that is crossed as IP packets leave the IP network and enter the gateway. This measurement point is as close to the terminal as possible.

A.2.2 packet output reference point: A measurement point in the physical medium connecting a gateway to an IP network that is crossed as IP packets leave the gateway and enter the IP network. This measurement point is as close to the gateway as possible.

A.2.3 TDM input reference point: A measurement point in the physical medium connecting a Time Division Multiplex Network to a VoIP gateway. Signals that cross this point are packetized and enter the IP network. This measurement point is as close to the gateway as possible.

A.2.4 TDM output reference point: A measurement point in the physical medium connecting a gateway to a Time Division Multiplex Network. Signals that cross this point are carried to the end terminal. This measurement point is as close to the gateway as possible.

A.3 Source gateway parameters

This clause gives the relevant source gateway packet parameters that have a direct effect on perceived speech and voiceband application quality. Figure A.1 indicates the positions of measurement points and system components.

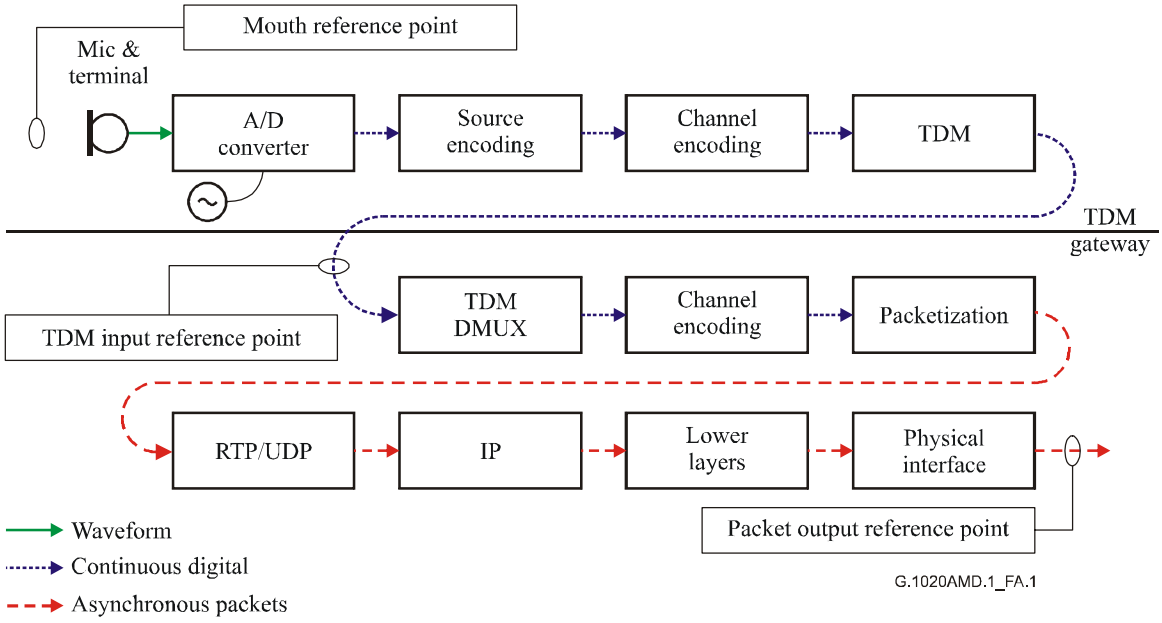

Figure A.1/G.1020 – Source gateway diagram and reference points

We note that some gateways will include coders that provide bit rate compression, while others will simply packetize the PCM waveform, or provide other processing to the voiceband signals such as Fax Demod/Remod.

Most of the source terminal parameters defined in clause 5/G.1020 are relevant to source gateways. Some parameters require the following reference point substitutions in Table A.1.

Table A.1/G.1020 – Source Reference Point Substitution

Source Terminal	Substitute Source Gateway Reference Point
Mouth Reference Point	TDM Input Reference Point
Send Electrical Reference Point	TDM Input Reference Point
Terminal Output Reference Point	Packet Output Reference Point

The source terminal to source gateway parameter mapping is as follows.

Table A.2/G.1020 – Source Parameter Mapping

Source Terminal Parameter	Source Gateway Parameter
Source Terminal Delay	Source Gateway Delay
Source Terminal Delay Variation	Source Gateway Delay Variation

Parameters such as Packet Information Field Size require no modifications.

A.4 Destination gateway parameters

This clause gives the relevant destination gateway packet parameters that have a direct effect on perceived speech and voiceband application quality. Figure A.2 indicates the positions of measurement points and system components.

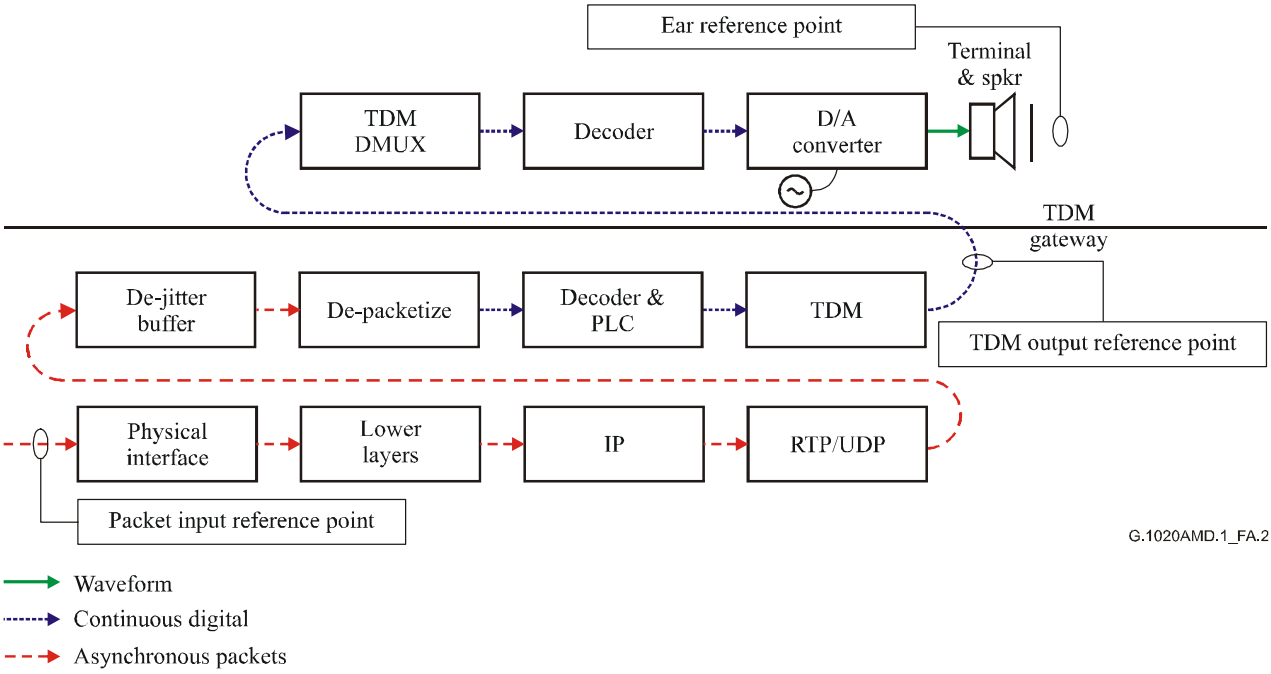

Figure A.2/G.1020 – Destination gateway diagram and reference points

Most of the destination terminal parameters defined in clause 7/G.1020 are relevant to destination gateways. Some parameters require the reference point substitutions in Table A.3.

Table A.3/G.1020 – Destination Reference Point Substitution

Destination Terminal	Substitute Destination Gateway Reference Point
Ear Reference Point	TDM Output Reference Point
Receive Electrical Reference Point	TDM Output Reference Point
Terminal Input Reference Point	Packet Input Reference Point

The destination terminal to destination gateway parameter mapping is as follows.

Table A.4/G.1020 – Destination Parameter Mapping

Destination Terminal Parameter	Destination Gateway Parameter
Destination Terminal Delay	Destination Gateway Delay

Parameters such as Packet Loss Concealment require no modifications.

A.5 Overall delay

When a gateway is present in the end-end path, the additional delay in the TDM network between the Mouth or Ear Reference point and the gateway must be included in the overall delay. The TDM network elements usually have fixed delays, so they can be added to the delay for the packet network components.

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