



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Y.1541

Amendment 1
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AND NEXT GENERATION NETWORKS

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**Amendment 1: Revised Appendix VI:
Applicability of the Y.1221 transfer capabilities
and IETF differentiated services to IP QoS
classes**

ITU-T Recommendation Y.1541 (2002) – Amendment 1

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Network performance objectives for IP-based services

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Revised Appendix VI: Applicability of the Y.1221 transfer capabilities and IETF differentiated services to IP QoS classes

Source

Amendment 1 to ITU-T Recommendation Y.1541 (2002) was agreed by ITU-T Study Group 13 (2001-2004) on 1 August 2003.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. 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.

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ITU-T Recommendation Y.1541

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Revised Appendix VI: Applicability of the Y.1221 transfer capabilities and IETF differentiated services to IP QoS classes

This appendix addresses the applicability of the transfer capabilities defined in ITU-T Rec. Y.1221 in support of the Y.1541 IP QoS classes. It also specifies the relationship between Y.1221 transfer capabilities and IETF Differentiated Services Per Hop Behaviours consistent with what is specified in ITU-T Rec. Y.1221.

ITU-T Rec. Y.1221 defines three transfer capabilities (TC) called Dedicated Bandwidth (DBW), Statistical Bandwidth (SBW), and Best-effort (BE). Each of the service models specified as part of the definitions of the Y.1221 transfer capabilities currently specify a set of network performance parameters consistent with those specified in Table 1. Transfer capabilities defined in ITU-T Rec. Y.1221 can be used to meet the performance objectives of the six QoS classes defined in ITU-T Rec. Y.1541.

QoS classes 0 and 1 in Table 1 define bounds on both IP packet delay and delay variation, and on IP packet loss ratio. The transfer capability of Y.1221 that allows a traffic contract to specify bounds on IP Packet Delay/Delay variation and IP packet loss is the Dedicated Bandwidth transfer capability. QoS classes 2, 3 and 4 in Table 1 define bounds on IP packet loss ratio but not on IP packet delay variation. The transfer capability of Y.1221 that allows a traffic contract to specify bounds on both IP packet loss and delay is Under Study. QoS class 5 in Table 1 does not define bounds on IP packet loss ratio or IP packet delay/delay variation. The transfer capability of ITU-T Rec. Y.1221 that does not offer any QoS commitment is the Best-effort transfer capability. Table VI.1 specifies the mapping between Y.1541 QoS classes and Y.1221 transfer capabilities.

ITU-T Rec. Y.1221 provides a mapping between the three transfer capabilities it defines and the IETF Differentiated Services Per Hop behaviours that should be used in networks that use the DiffServ architecture. Table VI.1 specifies the mapping between Y.1221 transfer capabilities and IETF DiffServ Per Hop behaviours.

Table VI.1/Y.1541 – Association of Y.1541 QoS classes with Y.1221 transfer capabilities and differentiated services PHBs

Y.1221 transfer capabilities	Associated DiffServ PHBs	IP QoS class	Remarks
Best-effort (BE)	Default	Unspecified QoS class 5	A legacy IP service, when operated on a lightly loaded network may achieve a good level of IP QoS.
Under Study (a new or modified TC will be used)	AF	QoS classes 2, 3, 4	The IPLR objective only applies to the IP packets in the higher priority levels of each AF class. The IPTD applies to all packets.
Dedicated Bandwidth (DBW)	EF	QoS classes 0 and 1	

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