INTERNATIONAL TELECOMMUNICATION UNION

CCITT G.707

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

GENERAL ASPECTS OF DIGITAL TRANSMISSION SYSTEMS;

TERMINAL EQUIPMENTS

SYNCHRONOUS DIGITAL HIERARCHY BIT RATES

Recommendation G.707

Geneva, 1991

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT 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 Plenary Assembly of CCITT which meets every four years, establishes the topics for study and approves Recommendations prepared by its Study Groups. The approval of Recommendations by the members of CCITT between Plenary Assemblies is covered by the procedure laid down in CCITT Resolution No. 2 (Melbourne, 1988).

Recommendation G.707 was prepared by Study Group XVIII and was approved under the Resolution No. 2 procedure on the 5 of April 1991.

CCITT NOTES

1) In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication Administration and a recognized private operating agency.

2) A list of abbreviations used in this Recommendation can be found in Annex A.

Recommendation G.707

SYNCHRONOUS DIGITAL HIERARCHY BIT RATES

(Melbourne 1988, revised 1990)

The CCITT,

considering

(a) that Recommendation G.702 specifies a number of digital hierarchy bit rates for 1544 kbit/s and 2048 kbit/s based digital networks;

(b) that the various hierarchy levels specified in Recommendation G.702 are interconnected by means of digital multiplexing employing justification methods;

(c) that synchronous digital multiplexing and a related synchronous digital hierarchy offer advantages such as:

– simplified multiplexing/demultiplexing techniques;

– direct access to lower speed tributaries, without need to multiplex/demultiplex the entire high speed signal;

– enhanced operations administration and maintenance (OAM) capabilities;

– easy growth to higher bit rates in step with evolution of transmission technology;

(d) that the synchronous digital hierarchy rates need to be chosen such that they allow the transport of digital signals:

– at hierarchical bit rates as specified in Recommendation G.702;

– at broadband channel bit rates;

(e) that Recommendation G.708 specifies the network node interface (NNI) for the synchronous digital hierarchy;

(f) that Recommendation G.709 specifies the synchronous multiplexing structure;

(g) that Recommendations G.707, G.708, and G.709 form a coherent set of specifications for the synchronous digital hierarchy and network node interface (NNI),

recommends

(1) that the first level of the synchronous digital hierarchy shall be 155 520 kbit/s;

(2) that higher synchronous digital hierarchy bit rates shall be obtained as integer multiples of the first level bit rate;

(3) that higher synchronous digital hierarchy levels should be denoted by the corresponding multiplication factor of the first level rate;

(4) that the following bit rates should constitute the synchronous digital hierarchy.

TABLE 1/G.707

Synchronous digital hierarchy level	Hierarchical bit rate kbit/s
1	155 520
4	622 080
16	2 488 320

Note – The specification of levels higher than 16 requires further study.

ANNEX

(to Recommendation G.707)

Alphabetical list of abbreviations used in this Recommendation

NNI Network-node interface

OAM Operations, administration and maintenance

SDH Synchronous digital hierarchy

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