

RECOMMENDATION ITU-R V.607-2

TERMS AND SYMBOLS FOR INFORMATION QUANTITIES
IN TELECOMMUNICATIONS

(1982-1986-1990)*

The ITU Radiocommunication Assembly,

considering

- a) that in telecommunications data transmission is more and more widely used;
- b) that the ISO/IEC (International Organization for Standardization/International Electrotechnical Commission) Joint Technical Committee for information technology (JTC1) is concerned with international standardisation in the field of data processing;
- c) that IEC Technical Committee No. 25 has requested the ITU-R and ITU-T to assist with the definition of letter symbols for terms and units used in data communication;
- d) that ITU-R texts and documents sometimes contain equivalent designations of the baud or its multiples, for example the megasymbol per second and its symbol MSPS,

unanimously recommends

1. that the terms “binary digit” or “bit”, “baud”, “shannon”, “byte” or “octet” or “8-bit byte” and “*n*-bit byte” should be used with the definitions appearing in Annex 1, which are extracted from the International Electrotechnical Vocabulary (IEV) or from the vocabulary established by JTC1, and that other terms should not be used for the same concept;
2. that the term “bit” is synonymous with “binary digit” and is also used as the letter symbol for this unit; the term being an abbreviation of the English term “binary digit” and being adopted also in French and Spanish; for multiples of this unit and for derived units letter symbols such as kbit, Mbit, kbit/s should be used;
3. that the unit “baud” should have as its letter symbol Bd with possible multiples such as kBd and MBd;
4. that the unit “shannon” should have as its letter symbol Sh;
5. that for the term “byte” it is the task of the JTC1 or TC 25 to provide the letter symbol it judges to be necessary. In the meantime this term and its multiples should be written in full in the ITU-R and ITU-T documents and texts. For example 10 kilo-bytes, 1 mega-byte. The term “*N*-bit byte” has no multiples.

ANNEX 1

binary digit, bit; *élément binaire, bit; dígito binario, bit*

A member of a set of two elements commonly used to represent information.

Note – In the interest of clarity, it is recommended that the term “bit” shall not be used in two-condition start-stop modulation instead of “unit-element”.

binary digit rate, bit rate; *débit binaire; velocidad binaria*

The number of binary elements transferred in a time interval divided by that time.

Note – The binary digit rate is expressed in bits per second (bit/s) and multiples of this unit.

* This Recommendation was updated in 1997 for editorial reasons only.

baud (Bd); baud (Bd); baudio (Bd)

The unit of modulation rate in telegraphy and data communication or the unit of line digit rate in digital transmission; when expressed in terms of this unit, the modulation rate or line digit rate equals the reciprocal of the duration in seconds of the shortest signal element or of the unit interval in a digital signal composed of signal elements of constant duration.

Example: If the duration of the unit interval is 20 milliseconds, the modulation rate is 50 bauds.

shannon; shannon; shannon

A unit of logarithmic measure of information equal to the decision content of a set of two mutually exclusive events expressed as a logarithm to base two.

Example: The decision content of a character set of eight characters equals 3 shannons ($\log_2 8 = 3$).

byte, octet, 8-bit byte; octet; octeto (byte)

An ordered set group of 8 binary digits operated upon as an entity.

n-bit byte; multiplet, n-uplet; multibit, n-bit

An ordered set of a specified number of binary digits operated upon as an entity.

Note – This IEV definition is compatible with the definition of JTC1 (Information processing systems – Vocabulary. Part 4: Data Organization).
