INTERNATIONAL TELECOMMUNICATION UNION

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CONSULTATIVE COMMITTEE

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SERIES T: TERMINAL EQUIPMENT AND PROTOCOLS FOR TELEMATIC SERVICES

CLASSIFICATION OF FACSIMILE APPARATUS FOR DOCUMENT TRANSMISSION OVER THE PUBLIC NETWORKS

Reedition of CCITT Recommendation T.0 published in the Blue Book, Fascicle VII.3 (1988)

NOTES

1 CCITT Recommendation T.0 was published in Fascicle VII.3 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

Recommendation T.0

CLASSIFICATION OF FACSIMILE APPARATUS FOR DOCUMENT TRANSMISSION OVER THE PUBLIC NETWORKS

(Geneva, 1976; amended at Geneva, 1980; Malaga-Torremolinos, 1984 and Melbourne, 1988)

1 For document facsimile transmission by international communications carried on the public networks there is a need for providing sufficient operating speeds to meet users' requirements.

2 Users' requirements may best be served at the present time by classifying the following four basic categories of document facsimile apparatus.

2.1 *Apparatus for use over the* public telephone network

Group 1 (see Note 1)

Apparatus which uses double sideband modulation without any special measures to compress the bandwidth of the transmitted signal and which is suitable for the transmission of documents of ISO A4 size at nominally 4 lines per mm in about six minutes via a telephone-type circuit.

Apparatus in this group may be designed to operate at a lower definition suitable for the transmission of documents of ISO A4 size in a time between three and six minutes.

Group 2 (see Note 2)

Apparatus which exploits bandwidth compression techniques in order to achieve a transmission time of about three minutes for the transmission of an ISO A4 size document at nominally 4 lines per mm via a telephone-type circuit. Bandwidth compression in this context includes encoding and/or vestigial sideband working but excludes processing of the document signal to reduce redundancy.

Group 3 (see Note 3)

Apparatus which incorporates means for reducing the redundant information in the document signal prior to the modulation process and which can achieve a transmission time of about 1 minute for a typical typescript document of ISO A4 size via a telephone-type circuit. The apparatus may incorporate bandwidth compression of the line signal.

2.2 *Apparatus for use over the public data networks*

Group 4 (see Note 4)

Apparatus which incorporates means for reducing the redundant information in the document signal prior to transmission mainly via public data networks (PDNs). The apparatus will utilize procedures applicable to the PDN and will assure an essentially error-free reception of the document. The apparatus may also be used on the public telephone network where an appropriate modulation process will be utilized.

3 The users will choose among this apparatus, in accordance with their needs and the facilities afforded by the connection and the network.

4 Procedures for Groups 1, 2 and 3 document facsimile transmission in the public switched telephone network should be in accordance with Recommendation T.30.

5 Procedures for Group 4 document facsimile transmission should be in accordance with Recommendations T.62, T.62 *bis*, and T.70.

Note 1 – This apparatus has been standardized in Recommendation T.2.

Note 2 – This apparatus has been standardized in Recommendation T.3.

Note 3 – This apparatus has been standardized in Recommendation T.4.

Note 4 – This apparatus has been standardized in Recommendations T.6, T.503, T.521 and T.563.

6 Annex A contains definitions for terms used in the T-series Recommendations applicable to facsimile apparatus.

ANNEX A

(to Recommendation T.0)

Definitions for terms used in the T-series Recommendations applicable to fascimile apparatus

The following definitions apply to Recommendations T.1, T.2, T.3 and T.4:

A.1 **dead sector** (Recommendations T.1, T.2)

In drum apparatus, that portion of the drum surface the scanning time of which cannot be used for picture signal transmission.

A.2 **drum factor** (Recommendation T.1)

In drum apparatus, the ratio of the usable scanning length of the drum to its diameter.

A.3 **facsimile** (Series T)

The process of scanning a document (page), converting the image scanned into electrical signals for transmission to a remote receiver and the conversion of the received signals to produce a copy of the image originally scanned.

A.4 **factor of cooperation** (Recommendation T.1)

The product of the total scanning line length and the scanning density.

A.5 **flat-bed transmitter** (Recommendation T.1)

Apparatus in which the original document is placed flat and scanned line by line.

A.6 **index of cooperation** (Recommendations T.1, T.2, T.3)

Quotient of the factor of cooperation divided by the quantity π. In the case of a drum apparatus, the index of cooperation is also equal to the product of the drum diameter and the scanning density.

A.7 **judder, longitudinal** (Recommendation T.1)

Effect due to the irregular rotation of the drum or helix causing, on the reproduced picture, slight waviness or breaks in lines that are regular on the original document.

A.8 **judder, transverse** (Recommendation T.1)

Effect due to irregularity of the scanning pitch resulting in concurrent overlapping and underlapping in the reproduced picture.

A.9 **lost time** (Recommendation T.3)

The portion of the scanning line period which cannot be used for picture signal transmission.

Note – In the case of drum apparatus, this is the same as the dead sector scanning time.

A.10 **nominal black (white)** (Recommendation T.1)

Level or frequency of the signal corresponding to a pure black (white).

A.11 **pel** (Series T)

A contraction of “picture element”.

A.12 **phasing** (Recommendations T.1, T.2, T.3)

At the receiver, ensuring the exact coincidence of the midpoint of the scanning field, with the corresponding point at the transmitter so as to ensure the correct positioning of the picture on the recording medium.

A.13 **phasing signal** (Recommendations T.1, T.2, T.3)

A signal sent by the transmitter for phasing purposes.

Note – Phasing is known as "phase white (black)" if the phasing signal is a black (white) signal of which a short interruption corresponding to the white (black) is sent during the lost time.

A.14 **phototelegraphy** (Recommendation T.1)

Method of reception of facsimile telegraphy which is chiefly intended for the reproduction of graded tonal densities and in which a photographic process is used at the receiver.

A.15 **picture element** (Recommendations T.3, T.4)

a) at transmission:

The part of the area of the original document which coincides with the scanning spot at a given instant and which is of one intensity only, with no distinction of the details that may be included.

b) at reception:

The area of the finest detail that can be effectively reproduced on the recording medium.

A.16 **reproduction ratio** (Recommendation T.1)

The ratio of the linear dimensions of the reproduced document to the corresponding dimensions of the original document.

A.17 **resolution** (Series T)

A measure of the capability for delineating picture detail. In Group 3 and Group 4 facsimile transmission resolution is expressed as picture elements or pels per mm (horizontal resolution) and lines per mm (vertical resolution).

A.18 **scanning density** (Recommendations T.1, T.2, T.3)

Number of scanning pitches per unit length.

A.19 **scanning line** (Recommendations T.1, T.2, T.3)

The area explored by the scanning spot in one sweep from one side to the other of the scanning field.

A.20 **scanning pitch** (Recommendation T.1)

The distance between the corresponding edges of two consecutive scanning lines.

A.21 **skew** (Recommendation T.3)

A defect in reproduction in which lines that should be at right-angles to the scanning direction are inclined to it, owing to a difference between the scanning speeds at transmission and reception.

A.22 **synchronization** (Recommendation T.1)

The establishment of equal scanning line frequencies at the transmitter and receiver.

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