

The text approved is:

5 Binary coded signalling for facsimile procedure

For Group 1 and Group 2 machines that require additional facilities to those provided by the procedures described in § 4 above, the binary coded control procedures should be transmitted in a synchronous mode at 300 bits per second.

For Group 3 machines, 300 bits per second is the standard data signalling rate for the transmission of binary coded procedural data. Additionally, signalling of the binary coded procedural data at 2400 bits per second is allowed as a recognized option.

For Group 3 machines, an error correction capability is utilized as a recognized option. This procedure is defined in Annex A.

Except as otherwise noted, the binary coded control procedures should be transmitted in a synchronous mode on the general switched telephone network at 300 bits per second \pm 0.01% utilizing the characteristics of the Recommendation V.21 channel No. 2 modulation system. (For the tolerances, see § 3 of Recommendation V.21.) Signal generators should have a distortion not exceeding 1% and the control signal receivers should accept signals with a distortion not exceeding 40%.

Note 1 – For Group 3 machines, the transmission of training, TCF, and all in-message signals, shall be at the data rate of the high-speed message channel.

Note 2 – It is acknowledged that existing equipments may not conform in all aspects to this Recommendation. Other methods may be possible as long as they do not interfere with the recommended operation.

Note 3 – Transmission of signals utilizing the modulation system of Recommendation V.21 channel No. 2 should be followed by a delay of 75 ± 20 milliseconds before the signalling, utilizing a different modulation system commences (e.g. the delay between DCS and the Recommendation V.27 *ter*, V.29, V.33 or V.17 training sequence).

Note 4 – The transmission of signalling utilizing the modulation systems of Recommendations V.27 *ter*, V.29, V.33 or V.17 should be followed by a delay of 75 ± 20 milliseconds before the signalling, utilizing a different modulation system, commences (e.g. the delay between RTC and MPS).

Note 5 – Group 3 machines using the modulation system defined in V.17 (as specified by bits 11, 12, 13 and 14 of Table 2/T.30) shall use the short resynchronization sequence defined in Table 3/V.17 for all trellis mode training except during a TCF message and the first high speed message after a CTC/CTR ECM message sequence. The long synchronization sequence shall be used in the TCF and the first high speed message after the CTC/CTR sequence.

A.7.1 Flow diagram key

COMMAND REC

The “command received” subroutine searches for an error-free standard command. The decision diamonds in the flow diagram refer to the most recent standard command received (e.g., EOM, MPS, etc.).

COMPT REMOTE

The FIF associated with the DIS has indicated a “compatible remote receiver”.

REC

DOC TO XMIT The station has “at least one document to be transmitted”.

COMPT REMOTE

The FIF associated with the DIS has indicated a “compatible remote transmitter” which has

XMTR documents to send.

RESPONSE REC

The “response received” subroutine which searches for an error-free standard response.

LAST DOC The “last document”, for the given operating mode, has been transmitted.

SET MODE

The system controller will “set the appropriate mode” of operation.

3RD TRY The command has been repeated three times without an appropriate response.

CAPABLE RE-XMIT

The transmitting station is “capable of retransmitting” a document which was not received with acceptable quality.

MSG CARRIER

The “message channel carrier has been received”. This carrier is 1800 Hz for the Group 3

REC

modulation scheme, and 1700 Hz for the Group 3 optional modulation scheme, 2100 Hz for

the Group 2 modulations, and 1300-2100 Hz for the Group 1 modulation scheme.

PHASE/TRAIN OK The phasing/train-TCF signal has been analyzed and the results of “phasing/training were OK”.

CHANGE MODE

The transmitting unit desires to exit from the transmitting mode of operation and reestablish the capabilities.

NSP REQ A “non-specified procedure” has been “recognized” by a unit compatible with the station initiating that procedure.

COPY QUALITY OK

By some algorithm, the “copy quality was deemed OK”.

REPHASE/TRAIN

By some algorithm, it is deemed desirable to transmit a new phasing/train signal.

FLAG There has been the detection of a “flag”.

RECEIVE A FRAME

The unit has “received one complete HDLC frame”.

FCS ERROR

The HDLC frame received contained an “FCS error”.

OPTIONAL RESPNS

The HDLC frame received contained one of the listed “optional response”.

OPTIONAL

The HDLC frame received contained one of the listed “optional commands”.
COMMAND

CRP OPTION

The facsimile unit has the “CRP option” and can, therefore, request an immediate retransmission of the most recent command.

LOCAL INT

Either the “local” machine or the “local” operator wishes to generate an interrupt of the standard facsimile procedures. An operator would use this as

a means to request the establishment of voice contact.

LINE REQ This means that the local operator has “requested” that the telephone line be connected to the handset for voice contact with the remote end.

PRI-Q A general term referring to either PRI-EOM, a PRI-MPS, or a PRI-EOP post-message command, i.e., the fifth bit of the standard post-message command is set to 1.

END OF PAGE? The transmitting station may have further data to transmit to complete the page.

4TH PPR? PPR has been received 4 times.

TRANSMIT ERROR

The frame defined in the information field associated with PPR are transmitted using the FRAMES

V.27 *ter*/V.29/V.33/V.17 modulation system.

CONTINUE TO
CORRECT? The transmitting station by some algorithm decides to continue correcting the previous message.

CONT WITH
NEXT MSG? The transmitting station by some algorithm decides to continue and transmit the next message.
The previous message was not satisfactorily transmitted.

PPS · PRI-Q? The terminal has “received either PPS · PRI-EOM, PPS · PRI-MPS or PPS · PRI-EOP post-message command”.

PPS · Q? The terminal has “received either PPS · EOM, PPS · MPS, PPS · EOP or PPS · Null post-message command”.

EOR · PRI-Q? The terminal has “received either EOR · PRI-EOM, EOR · PRI-MPS, or EOR · PRI-EOP post-message command”.

EOR · Q? The terminal has “received either EOR · EOM, EOR · MPS, EOR · EOP or EOR · Null post-message command”.

RECEIVE

READY?

The receiving station is ready to receive the next message.

RR RESPONSE The “RR response received” subroutine searches for an error-free response for the RR REC?

command.

CTC RESPONSE

The “CTC response received” subroutine searches for an error-free response for the CTC REC? command.

Note 1 – The non-specified procedure, NSP, refers to a procedure which takes 6 seconds or less to complete. It may not necessarily be a definable signal sequence.

Note 2 – This signal pertains to Group 3 apparatus only.

Note 3 – The PRI-EOM, PRI-EOP, PRI-MPS post-message commands are sent when a local interrupt request is pending.

Note 4 – At any time during the operation an interrupt may be generated which would result in a procedural interrupt. It is understood that if this interrupt happens during the transmission of the document, the EOM/RTC signal will be transmitted prior to invoking the procedural interrupt.

Note 5 – Where the symbol / is used, the term to the left of the symbol refers to Groups 1 and 2 equipment, and the term to the right of the symbol refers to Group 3 equipment.

Note 6 – Where the symbols { } are used, the signals within these symbols are a response to DIS from the calling unit wishing to receive.

Note 7 – Where the symbols () are used, the signals within these symbols are optional.

A.8 *Signal sequence examples in case of error correction procedure*

The examples below are based on the flow diagrams and for illustrative and instructional purposes only. They should not be interpreted as establishing or limiting the protocol. The exchange of the various commands and responses is limited only by the rules specified in this Recommendation.

The notations used in these diagrams are as follows:

- the dashed lines indicate transmission at the message data rate (Recommendations V.27 *ter*, V.29, V.33, V.17 and (X, Y) means (page modulo number, block modulo number).

APPENDIX V

(to Recommendation T.30)

Signal sequence examples

The examples below are based on the flow diagrams and are for illustrative and instructional purpose only. They should not be interpreted as establishing or limiting the protocol. The exchange of the various commands and responses is limited only by the rules specified in this Recommendation. (See §§ 5.3 and 5.4.)

The notations used in these diagrams are as follows:

- an arrowhead signifies the receiver of the signal;
- a solid line indicates transmission of the signal at the data rate of 300 bit/s;
- the dashed lines indicate transmission at the message data rate (Recommendations V.27 *ter*, V.29, V.33, V.17);
- a lightning bolt () indicates an invalid frame;
- a bold solid line indicates the transmission of tonal signals.

In the following figures, the examples given assume that DIS will be repeated for T1 seconds unless responded by a valid signal.

FIGURE V-1/T.30