INTERNATIONAL TELECOMMUNICATION UNION

Amendment 1

ITU-T

T.30

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TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

TERMINALS FOR TELEMATIC SERVICES

PROCEDURES FOR DOCUMENT FACSIMILE TRANSMISSION IN THE GENERAL SWITCHED TELEPHONE NETWORK

Amendment 1 to ITU-T Recommendation T.30

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The 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 Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

Amendment 1 to ITU-T Recommendation T.30 was prepared by ITU-T Study Group 8 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 11th of November 1994.

The previous version of ITU-T Recommendation T.30 was approved by the World Telecommunication Standardization Conference (WTSC) (Helsinki, 1993).

NOTE

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

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PROCEDURES FOR DOCUMENT FACSIMILE TRANSMISSION IN THE GENERAL SWITCHED TELEPHONE NETWORK

Summary

The amendments include the following aspects:

- the capability to operate at 64 kbit/s over ISDN is included in T.30 (Annex C), T.4 (Annex F), in conjunction with modifications of T.90 (Annex F);
- in order to facilitate terminal selection based on CNG detection at receiving side, CNG becomes the mandatory at calling side, even in case of manual call;
- the set of characters allowed in SEP, PWD and SUB frames is extended to include "*" and "#" (star and square). This will be consistent with the facilities offered by a telephone keypad;
- meaning of some bits of DIS/DTC/DCS table is clarified;
- some clarification is brought to mixed mode definition;
- the capability to enable continuous-tone colour and gray-scale modes for G3.

CNG Calling signal

SEP Selective polling

PWD Password

SUB Subaddress

DIS Digital identification signal

DTC Digital transmit command

DCS Digital command to send

This publication also includes some corrigendum to T.30 (1993).

1) In subclause 3.1.1, Figure 2 should be amended as shown below:

Call event No.	Calling station	Called station
1	Operator hears dial tone and dials desired number	
2	Operator hears ringing tone	Calls ring and operator answers the call
3	Verbal identification	Verbal identification
4	Facsimile machine is switched to line and transmits CNG	Facsimile machine is switched to line
5	Begin facsimile procedure (see clauses 4 and/or 5)	Begin facsimile procedure (see clauses 4 and/or 5)

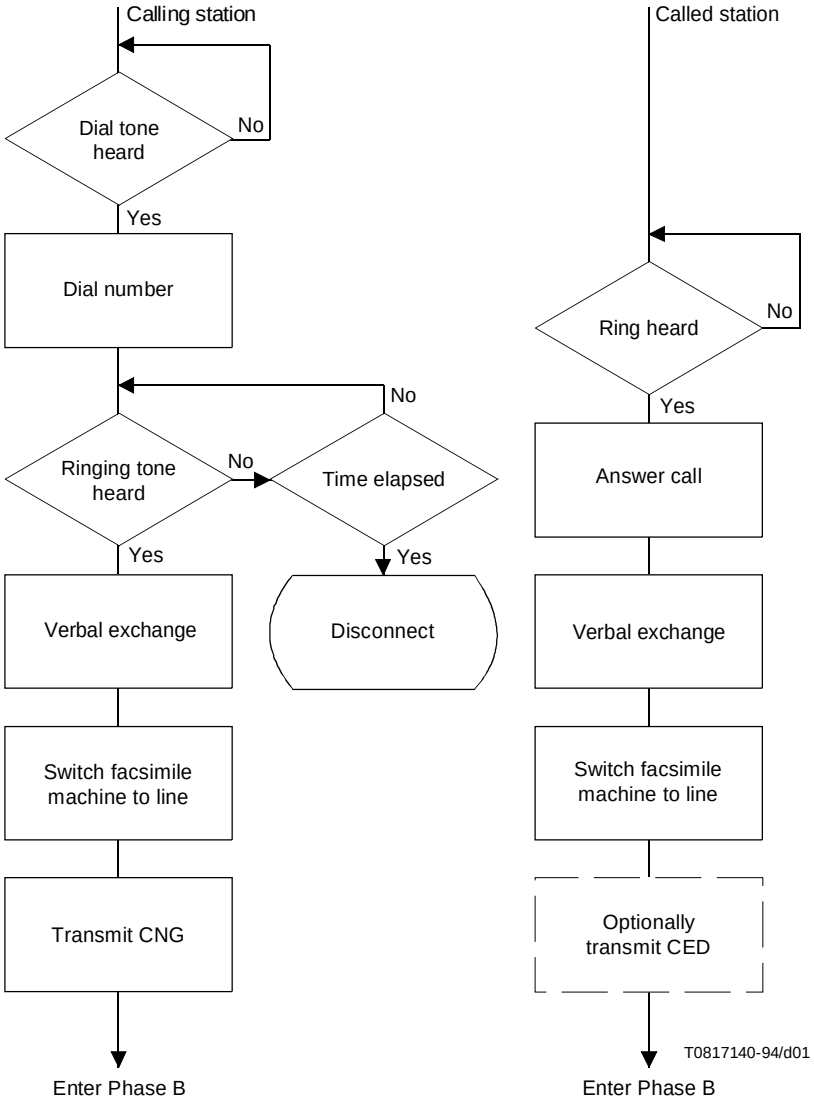


FIGURE 2/T.30

Call establishment, operating method 1

2) In subclause 3.1.2, Figure 3 should be amended as shown below:

Call event No.	Calling station	Called station
1	Operator hears dial tone and dials desired number	
2	Operator hears ringing tone	Equipment detects ring and answers the call
3		Optionally, a recorded verbal announcement may be transmitted
4	Operator hears CED or an optional recorded announcement and facsimile machine is switched to line and transmits CNG	Transmit CED
5	Begin facsimile procedure (see clauses 4 and/or 5)	Begin facsimile procedure (see clauses 4 and/or 5)

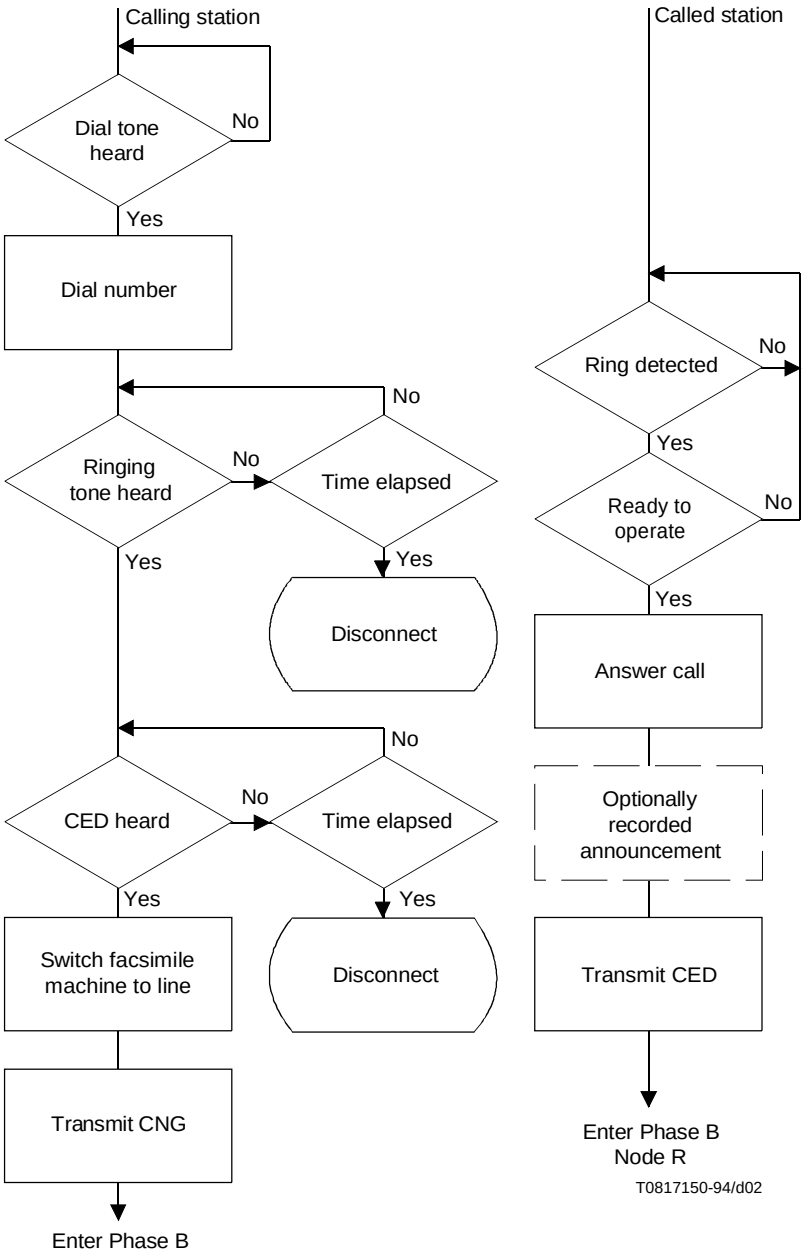


FIGURE 3/T.30

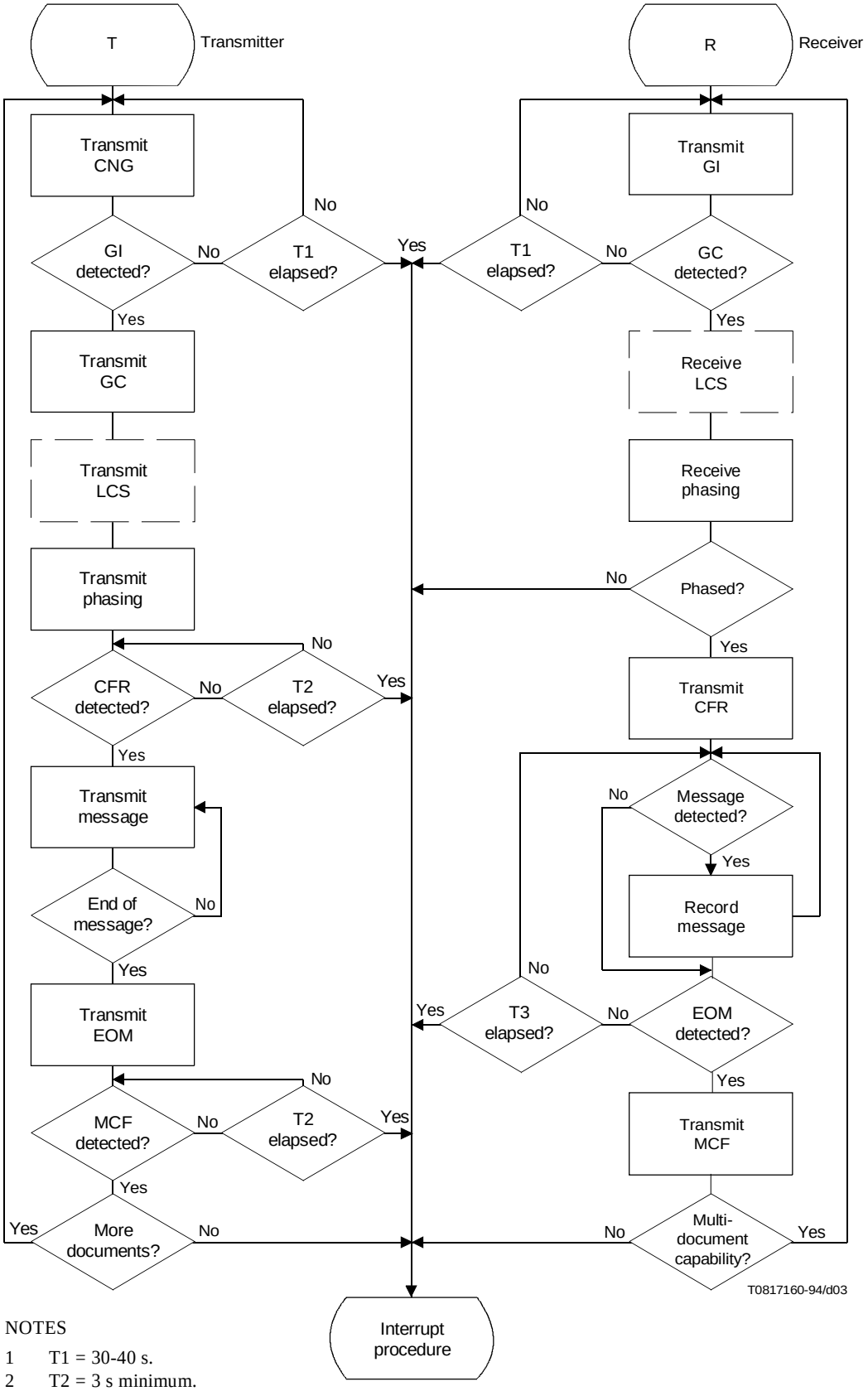
Call establishment, operating method 2

3) In subclause 3.2.1, the third paragraph should be amended as shown below:

"Recommendations concerning the interaction between tonal and binary coded signalling recognize the principle of the priority of coded procedures such that, when available, binary coded signalling shall be tried first. The interaction steps are as follows:

- The unattended called station shall answer a call with the CED signal.
- The calling station shall indicate a call with the CNG signal.
- Whenever it is capable of binary coded signalling, the called station will start with binary coded signalling.
- Facsimile stations being capable of tonal signalling only will start tonally.
- Facsimile stations being capable of both binary coded and tonal signalling will send a sequence of signals, the first being a binary coded signal and the second and all following signals being a composite of tonal and binary coded information.
- If the calling station reacts tonally, then the tonal signalling goes on through all procedures."

4) In subclause 4.2, Figure 9 should be amended as shown below:



NOTES

1 T1 = 30-40 s.
2 T2 = 3 s minimum.
3 T3 = 1 s minimum.
4 Broken boxes indicate signals not used in all methods.

FIGURE 9/T.30

5) In subclause 4.3.3.3, the paragraph headed "Function" should be amended as shown below:

"l) To indicate a calling non-speech terminal. This signal is mandatory for automatic calling units and for manual units. However, manual calling units conforming to the 1993 and previous versions of Recommendation T.30 may not transmit this signal.

2) To indicate that the apparatus is in the transmit mode and is ready to transmit on receipt of the appropriate GI or digital identification signal (DIS).

3) Where an apparatus is capable of sending more than one document without the necessity of operator assistance, this signal may be transmitted between documents whilst the transmitter is waiting for the appropriate GI or digital identification signal (DIS). It would indicate to an operator that the transmitter was still connected to line.

NOTE – It should generally be assumed that for Group 1 and Group 2 transmissions, echo suppressors may be in the circuit."

6) In subclause 5.2, Figure 5.2A should be amended as shown below:

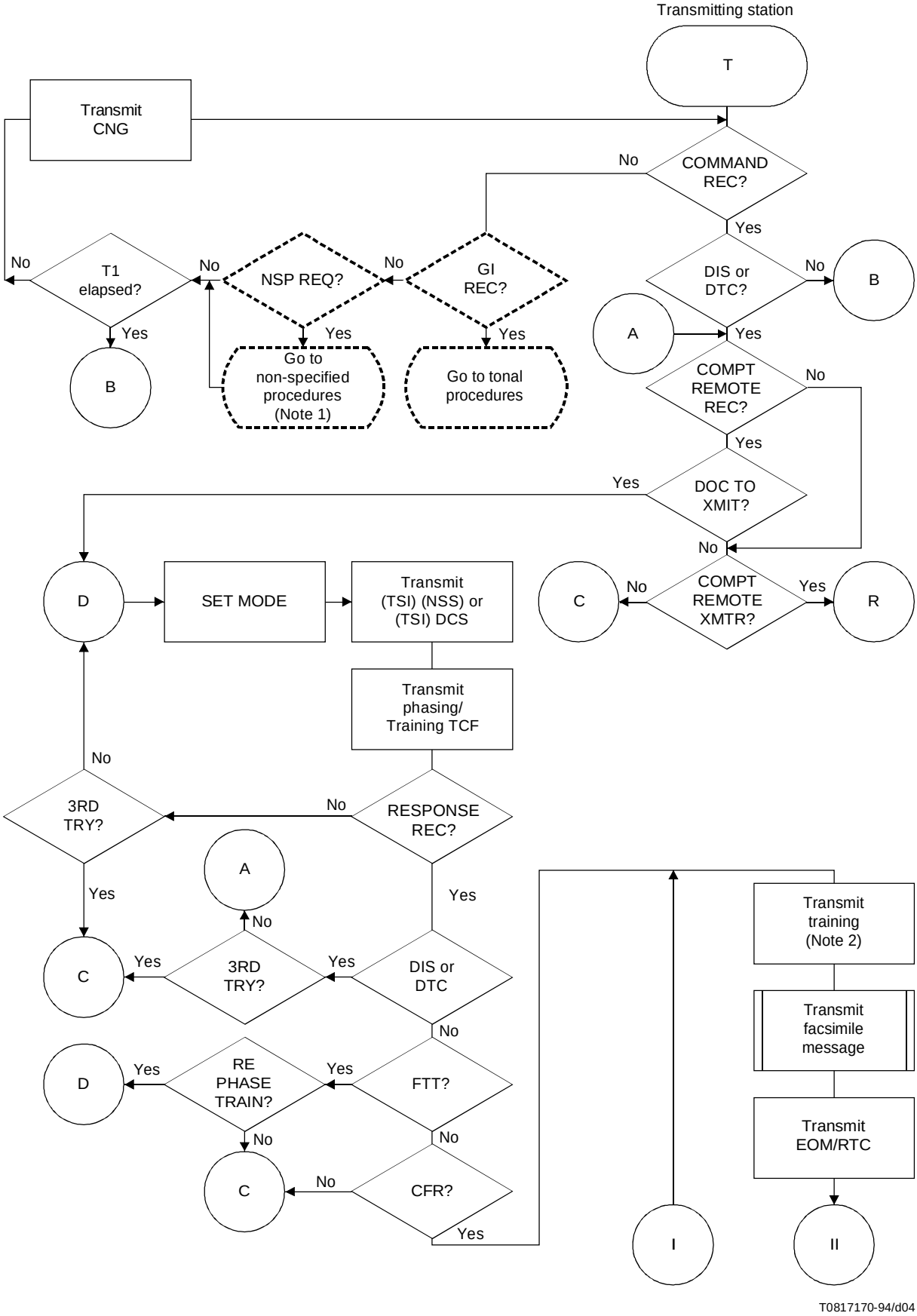
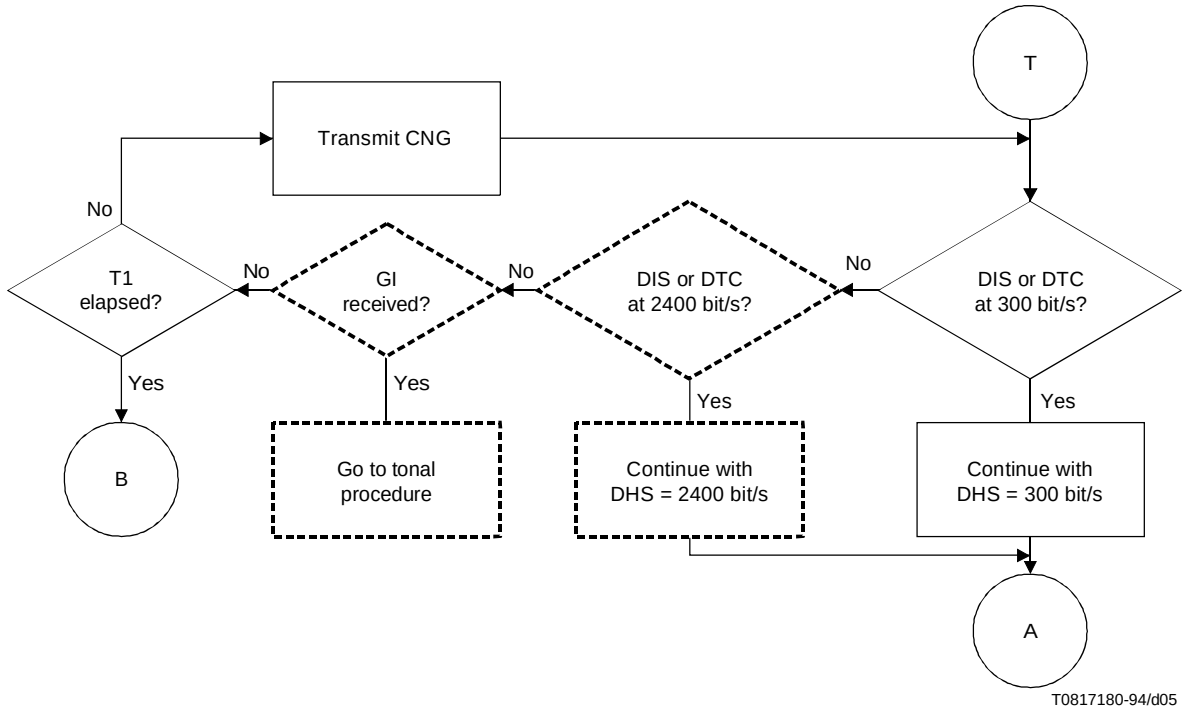


FIGURE 5.2A/T.30

7) In subclause 5.2, Figure 5.2G should be amended as shown below:



NOTE – DHS = Digital handshaking speed and dotted lines: optional.

FIGURE 5.2G/T.30

8) In Table 2:

a) the entries for bits 9, 10, 51 and 59 should be amended as shown below:

Bit No.	DIS/DTC	DCS
9	Ready to transmit a facsimile document (polling) (see Note 22)	Set to “0”
10	Receiver, fax operation (see Note 23)	Receiver, fax operation (see Note 24)
51	Ready to transmit a data file (polling) (see Note 25)	Set to “0”
59	Ready to transmit a character or mixed mode document polling (see Note 26)	Set to “0”

b) amendments are made to include the following entries:

Bit No.	DIS/DTC	DCS
68	JPEG coding	JPEG coding
69	Full colour mode	Full colour mode
70	Always set to zero	Preferred Huffman tables
71	12 bits/pel/component	12 bits/pel/component
72	Extend field	Extend field
73	No subsampling (1:1:1)	No subsampling (1:1:1)
74	Custom illuminant	Custom illuminant
75	Custom gamut range	Custom gamut range
76	Reserved for future use	Reserved for future use
77	Reserved for future use	Reserved for future use
78	Reserved for future use	Reserved for future use
79	Reserved for future use	Reserved for future use
80	Extend field	Extend field

c) the following Notes should be added:

"22 Bit 9 indicates that there is a Group 3 facsimile document ready to be polled from the answering terminal. It is not an indication of a capability.

23 Bit 10 indicates that the answering terminal has Group 3 receiving capabilities.

24 Bit 10 is a command to the receiving terminal to set itself in the Group 3 mode.

25 Bit 51 indicates that there is a data file ready to be polled from the answering terminal. It is not an indication of a capability. This bit is used in conjunction with bits 52, 53, 54 and 57.

26 Bit 59 indicates that there is a character code or mixed mode document ready to be polled from the answering terminal. It is not an indication of a capability. This bit is used in conjunction with bits 60, 61, 62 and 65.

27 When the optional procedure defined in Annex C is used, in DIS/DTC bits 1 to 8, 25, 28 and 29 shall be set to "0" and bits 21 to 23 and 27 shall be set to "1".

28 When the optional procedure defined in Annex C is used, in DCS bits 1 to 8, 25, 28 and 29 shall be set to "0" and bits 21 to 23 and 27 shall be set to "l".

29 The optional continuous-tone colour mode and gray-scale mode protocols are described in Annex E. If bit 68 in the DIS/DTC frame is set to one, indicating JPEG mode capability, then bit 15 and bit 27 in the DIS/DTC frame are also set to one. Bit 15 indicates 200 × 200 pels/25.4 mm resolution capability, which is basic for colour facsimile. Bit 27 indicates error correction mode capability, which is mandatory for colour facsimile. Bits 69 to 75 are relevant only if bit 68 is set to 1 (JPEG mode). See definitions of parameters in E.5.1.1-E.5.1.7."

9) Subclause 5.3.6.2.4 should be amended as shown below:

"5.3.6.2.4 CSI coding format

The facsimile information field of the CSI signal shall be the international telephone number including the "+" character, the telephone country code, area code, and subscriber number. This field shall consist of 20 numeric digits coded as shown in Table 3 but excluding the "*" and "#" characters. The least significant bit of the least significant digit shall be the first bit transmitted.**"**

10) Subclause 5.3.6.2.5 should be amended as shown below:

"5.3.6.2.5 CIG coding format

The facsimile information field of the CIG signal shall be the international telephone number including the "+" character, the telephone country code, area code, and subscriber number. This field shall consist of 20 numeric digits coded as shown in Table 3 but excluding the "*" and "#" characters. The least significant bit of the least significant digit shall be the first bit transmitted.**"**

11) Subclause 5.3.6.2.6 should be amended as shown below:

"5.3.6.2.6 TSI coding format

The facsimile information field of the TSI signal shall be the international telephone number including the "+" character, the telephone country code, area code, and subscriber number. This field shall consist of 20 numeric digits coded as shown in Table 3 but excluding the "*" and "#" characters. The least significant bit of the least significant digit shall be the first bit transmitted.**"**

12) Subclause 5.3.6.2.8 should be amended as shown below:

"5.3.6.2.8 PWD coding format

The facsimile information field of the PWD signal shall consist of 20 numeric digits coded as shown in Table 3 but excluding the "+" character. The least significant bit of the least significant digit shall be the first bit transmitted. The unused octets in the information field shall be filled with the "space" character and the information should be right justified.**"**

13) Subclause 5.3.6.2.9 should be amended as shown below:

"5.3.6.2.9 SEP coding format

The facsimile information field of the SEP signal shall consist of 20 numeric digits coded as shown in Table 3 but excluding the "+" character. The least significant bit of the least significant digit shall be the first bit transmitted. The unused octets in the information field shall be filled with the "space" character and the information should be right justified.**"**

14) Subclause 5.3.6.2.10 should be amended as shown below:

"5.3.6.2.10 SUB coding format

The facsimile information field of the SUB signal shall consist of 20 numeric digits coded as shown in Table 3 but excluding the "+" character. The least significant bit of the least significant digit shall be the first bit transmitted. The unused octets in the information field shall be filled with the "space" character and the information should be right justified.**"**

15) Table 3 should be amended as shown below:

Digit	MSB (FB)	Bits	LSB
+	0	010101	1
0	0	011000	0
1	0	011000	1
2	0	011001	0
3	0	011001	1
4	0	011010	0
5	0	011010	1
6	0	011011	0
7	0	011011	1
8	0	011100	0
9	0	011100	1
Space	0	010000	0
*	0	010101	0
#	0	010001	1

MSB Most significant bit
LSB Least significant bit
FB Fill bit

NOTES

1 The "+" character shall not be used in the PWD/SEP/SUB signals.

2 The "*" and "#" characters shall not be used in the CSI/CIG/TSI signals.

16) In subclause A.7, Figure A.7 should be amended as shown below:

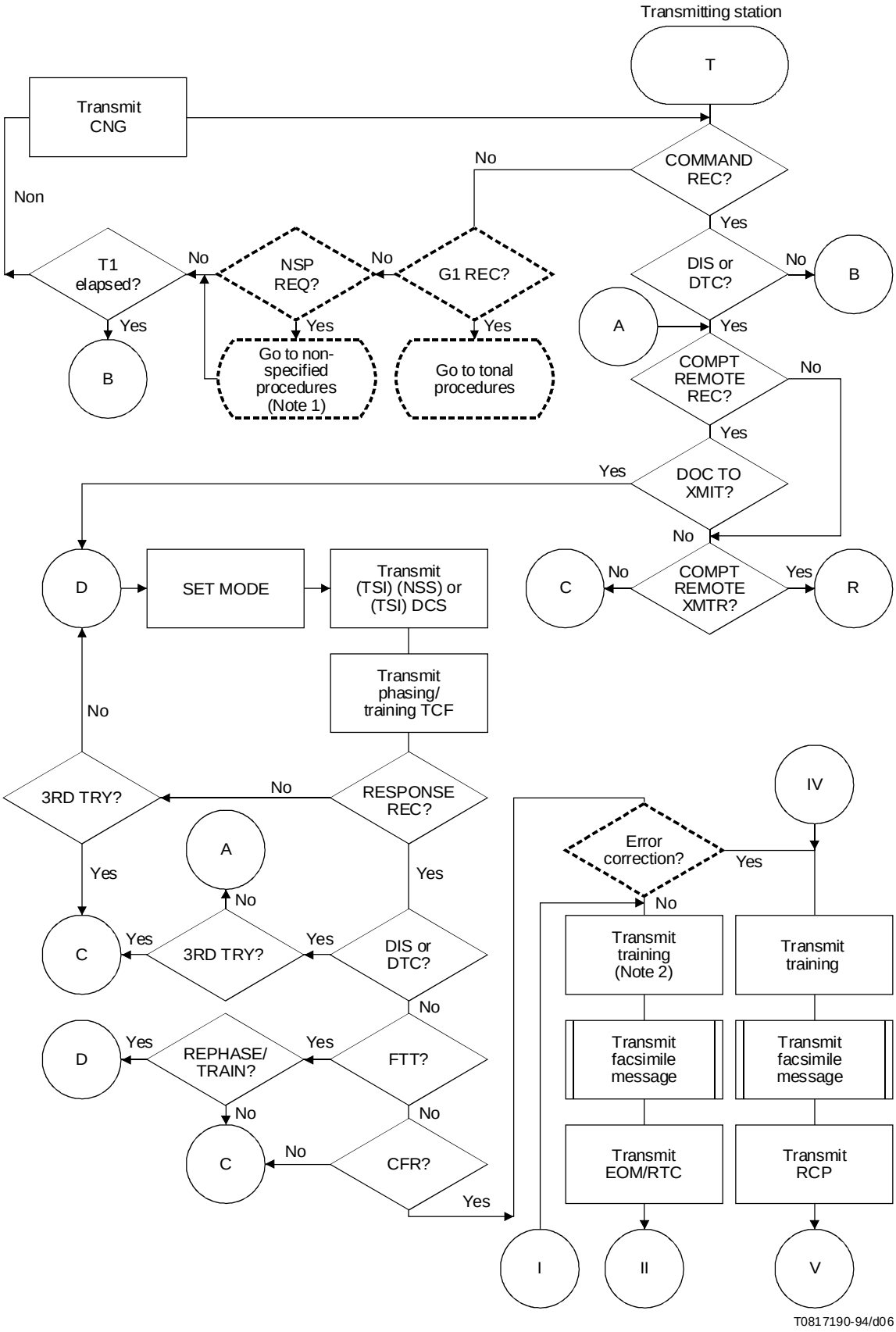


FIGURE A.7/T.30 (sheet 1 of 4)

17) In subclause C.1.2, replace the last sentence with:

"The format of the initial identification is a repeated sequence of XID + DIS or XID + NSF + DIS or XID + NSF + CSI + DIS sent three times concatenated together followed by 256 flags. This sequence is transmitted until a valid response is received from the calling terminal subject to a maximum time of 5 seconds.

The flow diagrams in C.5 do not address the issue of resilience against the remainder of the sequence but rather consider that this is implicitly ensured."

18) In subclause C.3.1, replace the existing text with the following:

"Call Establishment Procedures

The call establishment procedures for this option are defined in Annex F/T.90."

19) In subclause C.3.2, delete all the existing text after the first sentence and replace with the following:

"The format of the XID frame is defined in Annex F/T.90."

20) In subclause C.3.4:

a) amend references to "Figure C.2" to read "Figure C.1" and renumber "Figure C.2" as "Figure C.1",

b) amend references to "Figure C.3" to read "Figure C.2" and renumber "Figure C.3" as "Figure C.2".

21) In subclause C.3.6.1, amend reference to "Table C.1" to read "Table 2".

22) In subclause C.3.6.2, amend reference to "Table C.1" to read "Table 2".

23) In subclause C.3.6.3, amend reference "Table C.1" to read "Table 2".

24) In subclause C.4.4, amend reference to "Figure C.4" to read "Figure C.3" and renumber "Figure C.4" as "Figure C.3".

25) Table C.1 should be deleted.

26) In subclause C.5, amend the last sentence to read:

"For the Notes and an explanation of terms to the flow diagrams see 5.2.1, A.7.1 and C.5. l."

27) In subclause C.5.1 amend the existing text as follows:

a) After the heading "Explanation of Flow Chart Terms", add the following sentence:

"Unless defined otherwise below the definition of the flow chart terms is as given in the main body and/or Annex A."

b) Delete the following flow chart terms and their associated explanations:

CHANGE MODE, COMMAND REC., COMPT REMOTE REC., COMPT REMOTE XMTR, DOC TO XMIT, END OF PAGE?, FCS ERROR, FLAG, LAST DOC, OPTIONAL COMMAND, OPTIONAL RESPNS, PPS-Q, RECEIVE A FRAME, RECEIVE READY, RESPONSE REC, SET MODE and TRANSMIT ERROR FRAMES.

c) Delete Notes 1, 2 and 3.

28) Amend Figure C.5 as shown below:

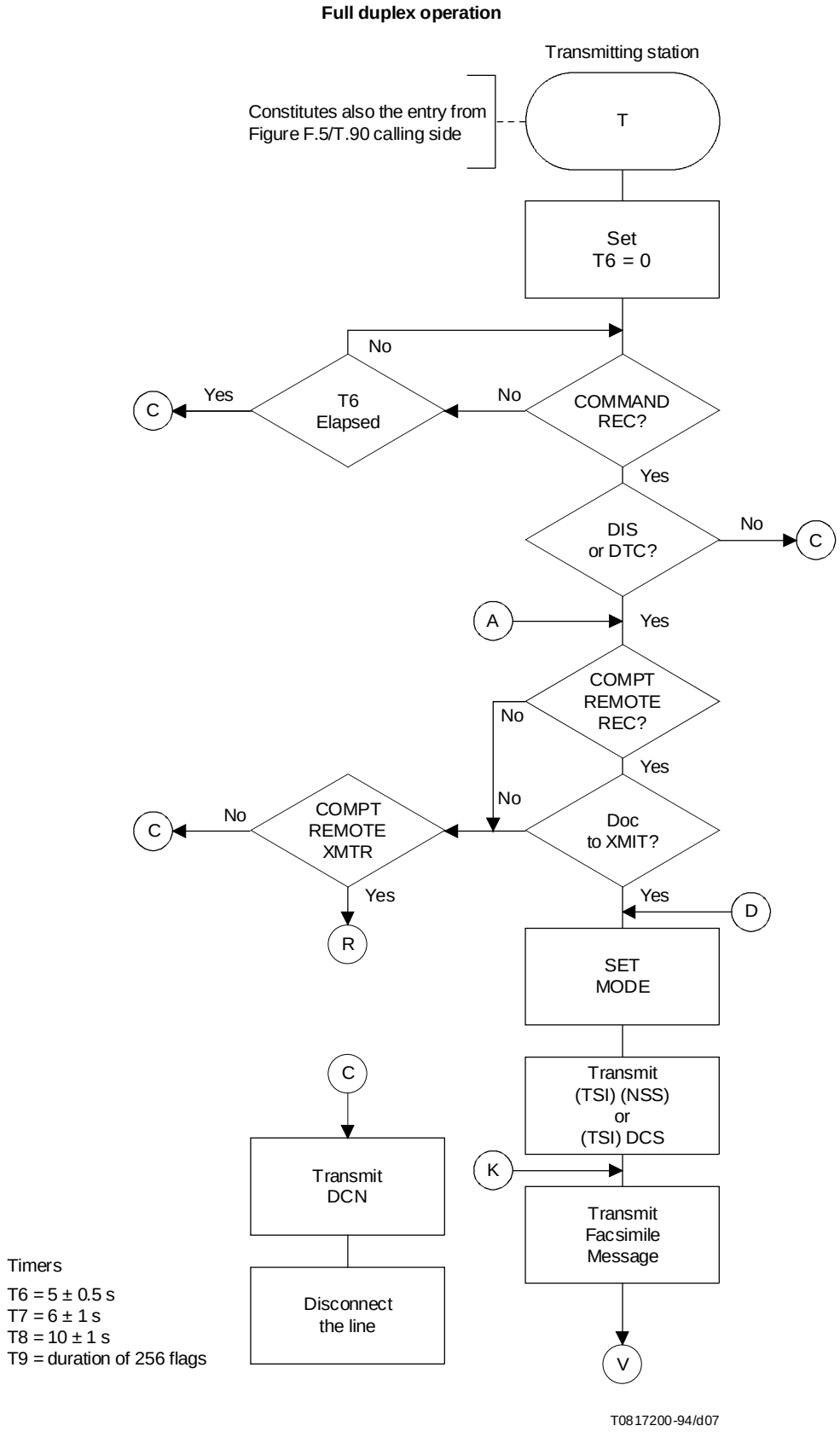


FIGURE C.5/T.30

29) Insert new Figure C.11 as shown below:

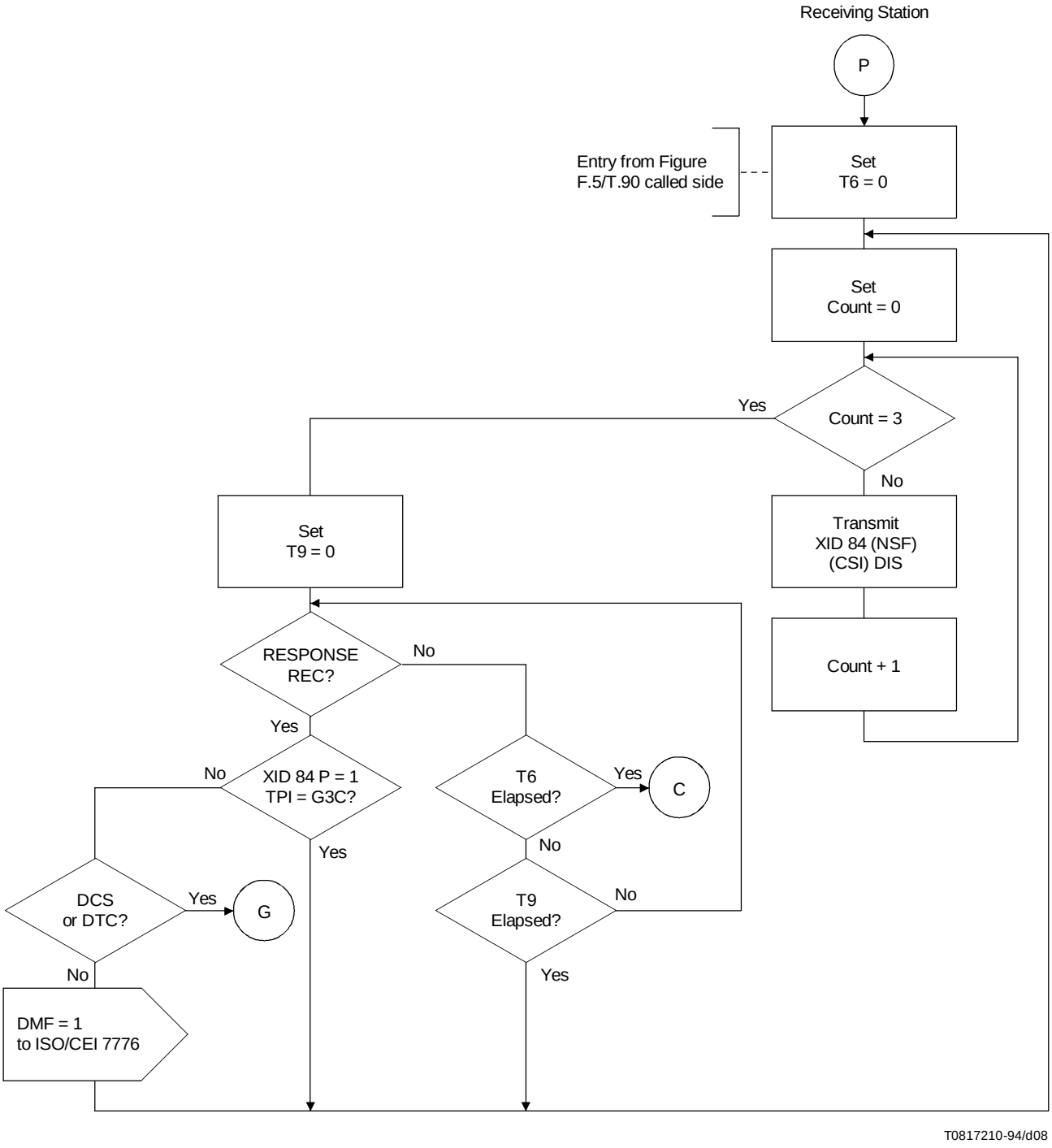


FIGURE C.11/T.30

30) Renumber existing "Figure C.11" as "Figure C.12" and amend as shown below:

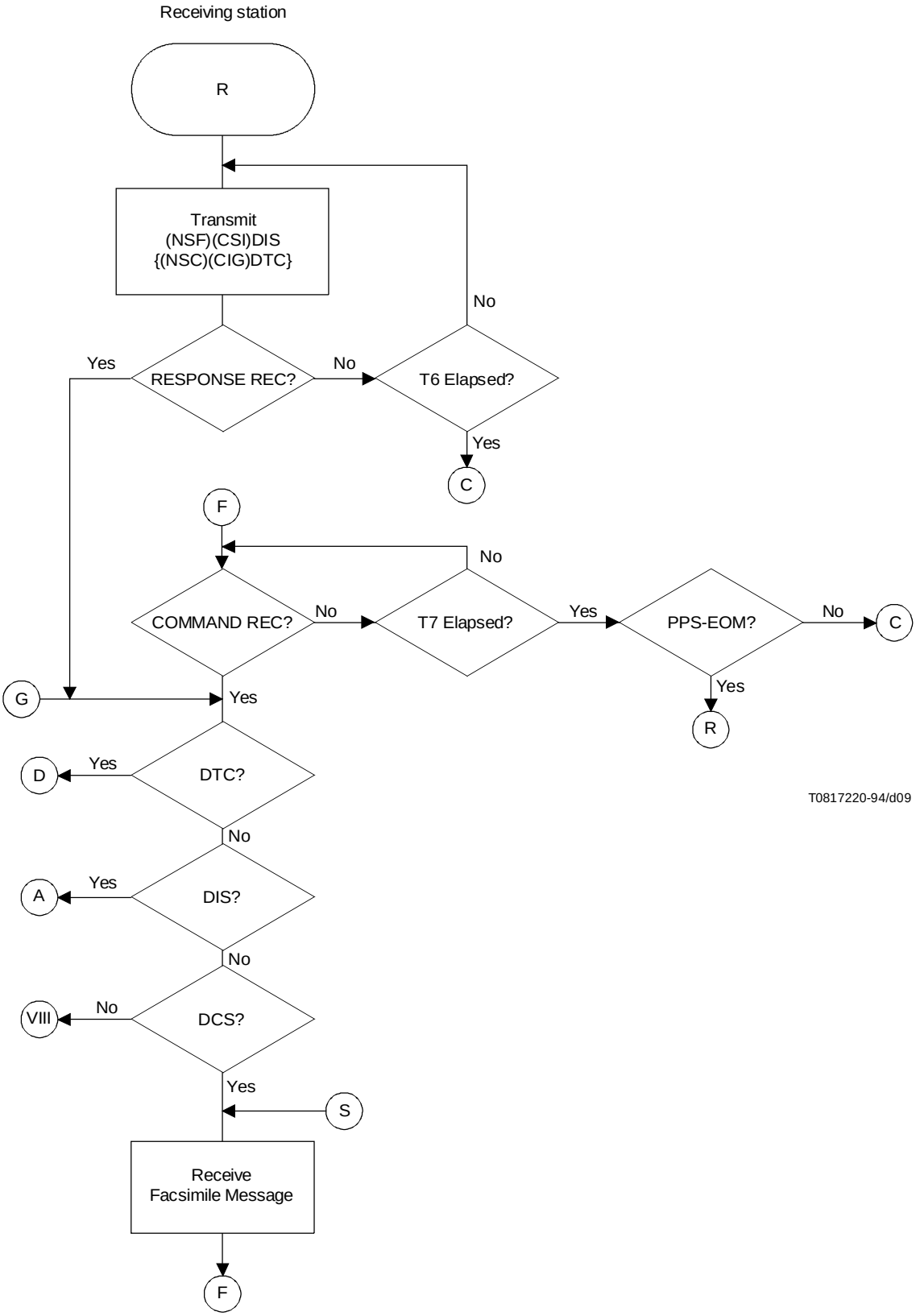


FIGURE C.12/T.30

31) Renumber existing "Figure C.12" as "Figure C.13".

32) Renumber existing "Figure C.13" as "Figure C.14" and amend as shown below:

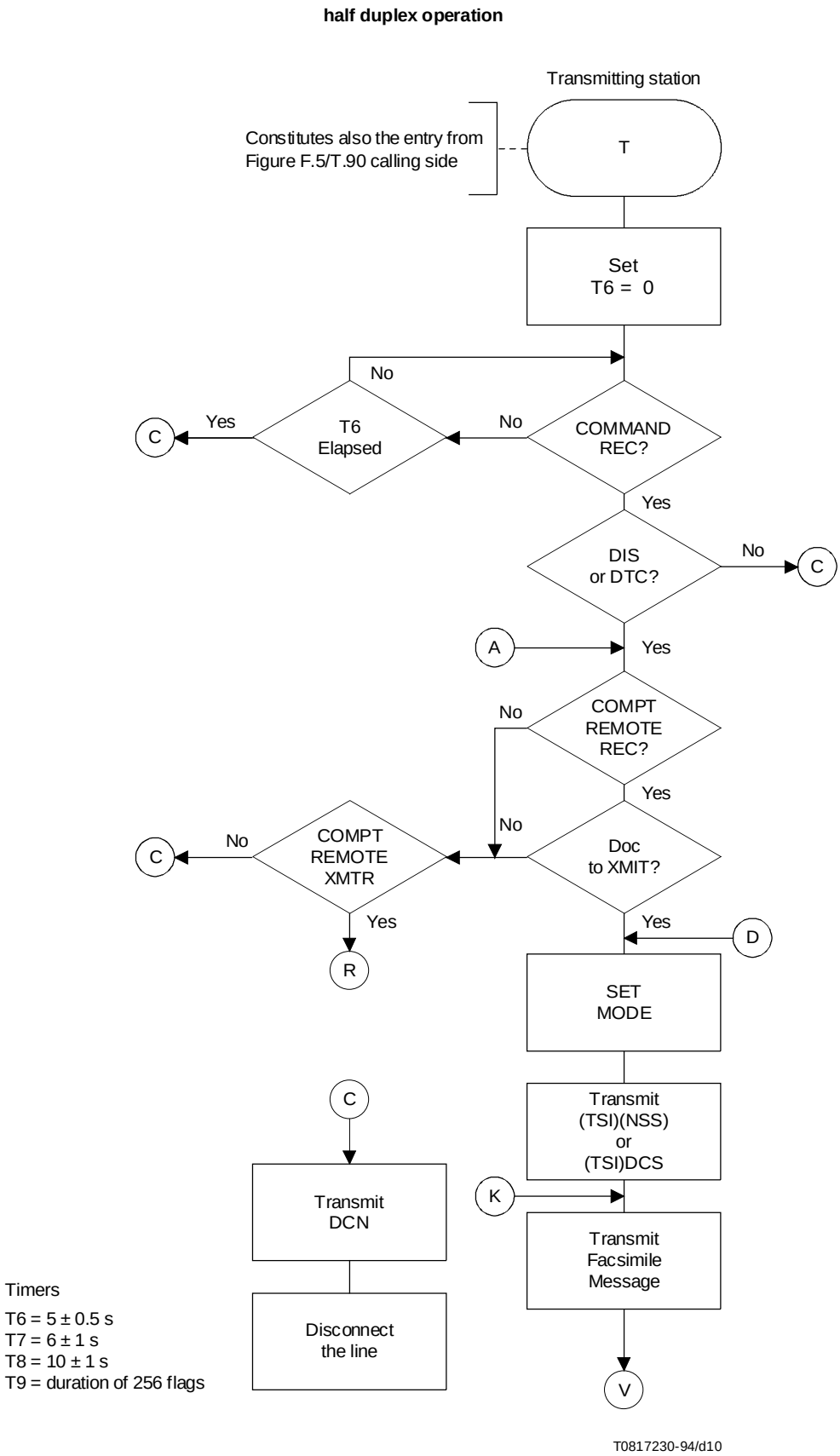


FIGURE C.14/T.30

33) Renumber existing "Figures C.14 to C.18" as "Figures C.15 to C.19" respectively.

34) Insert new "Figure C.20" as shown below:

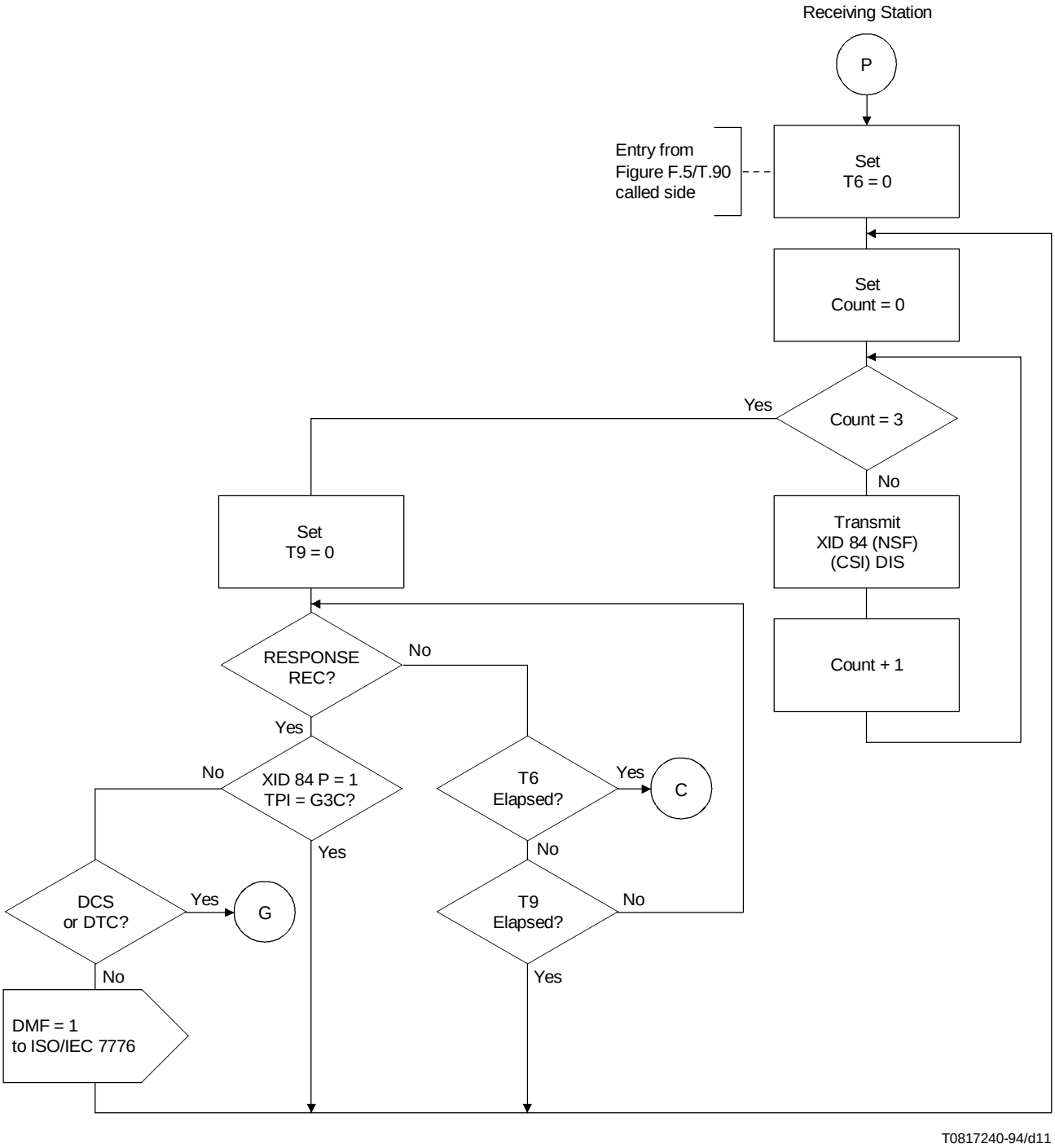


FIGURE C.20/T.30

35) Renumber existing "Figure C.19" as "Figure C.21" and amend as shown below:

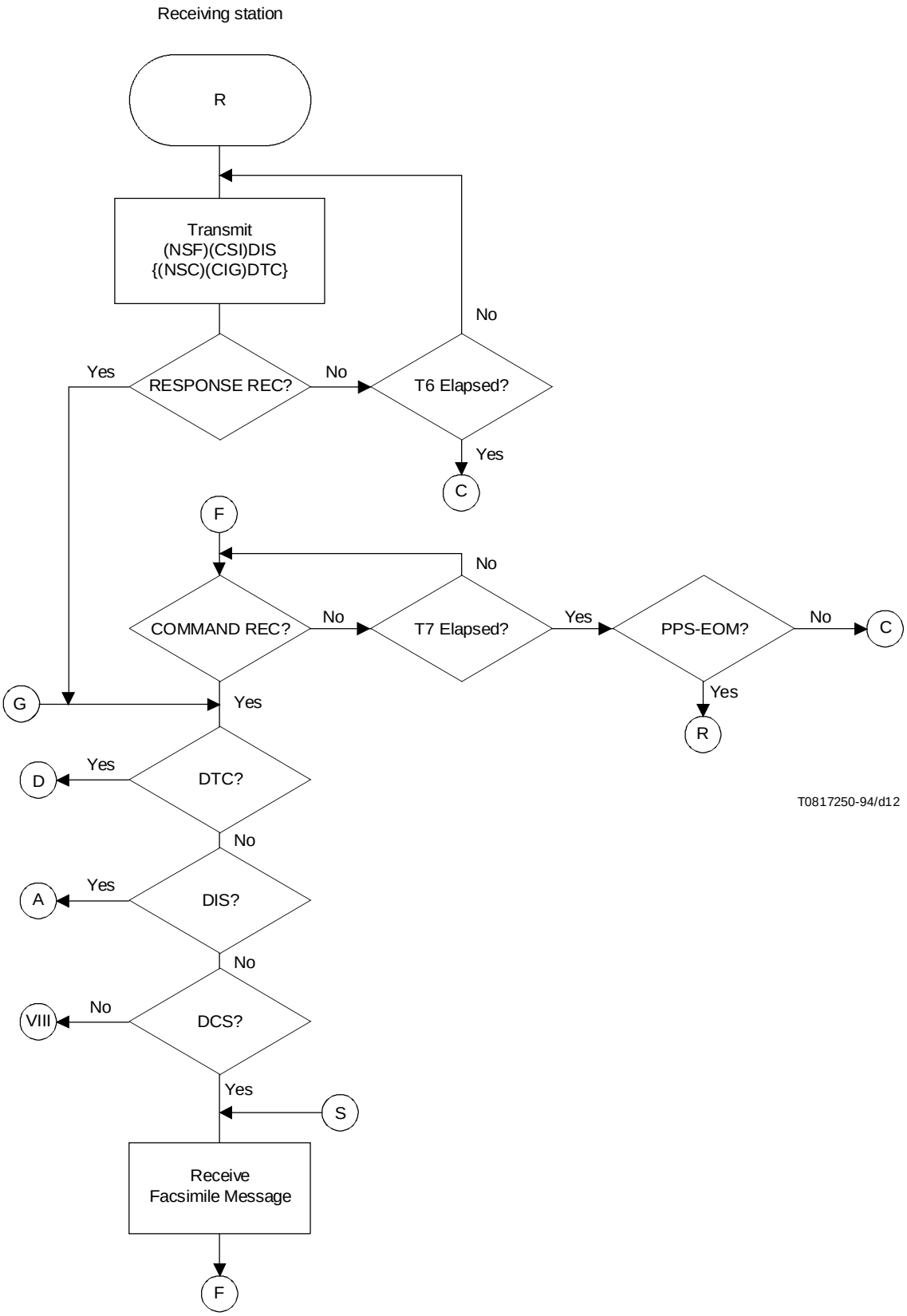


FIGURE C.21/T.30

36) Renumber existing "Figures C.20 to C.50" as "Figures C.22 to C.52" respectively.

37) Append the following Annex E to T.30:

Annex E

Procedure for the G3 document facsimile transmission of continuous-tone colour images

(This annex forms an integral part of this Recommendation)

E.1 Introduction

This annex describes the additions to this Recommendation to enable the transmission of continuous-tone (multi-level) colour and gray-scale images for Group 3 facsimile mode of operation.

The objective is to enable the efficient transmission of high quality, full colour and gray-scale images over the general switched telephone network and other networks. The images are normally obtained by scanning the original sources with scanners of 200 pels/25.4 mm or higher, and bit depths of eight bits per picture element per colour component or higher. The original sources are typically colour or gray-scale photographs or hard copies from high quality printing systems.

The method specified here performs well on full colour images, but for transmission of multi-colour images such as business graphics, other methods may be more efficient. Two such methods would be the transmission of images using ITU-T Recommendation T.434, Binary File Transfer, and ITU-T Recommendation T.82, (JBIG encoding). This annex does not address the encoding of multi-colour images. This topic is left for further study.

The encoding methodology for continuous-tone (multi-level) images is based on the JPEG (ITU-T Recommendation T.81 | ISO/IEC 10918-1) image encoding standard. The JPEG image coding method includes both a lossy mode and a lossless mode of encoding. This annex adopts the lossy mode of encoding which is based on the Discrete Cosine Transform.

The representation of colour image data is based on ITU-T Recommendation T.42. It adopts a device-independent colour space representation, the CIELAB space, that allows unambiguous exchange of colour information.

This annex explains the procedure for negotiation of the capabilities for transmission of continuous-tone colour and gray-scale images. It specifies the definitions and the specifications of new entries to the Facsimile Information Field of the DIS/DTC and DCS frames of this Recommendation.

Information is specified pertaining to image digitization resolution (in bits/pel), sampling ratio of colour components, JPEG capability, colour capability, and image data scaling that is subject to negotiation in the pre-message phase of the Recommendation T.30 protocol.

This annex does not address the semantics and syntax of the actual encoding of the continuous-tone colour and gray-scale images. That information is included in Annex A/T.4.

The use of error correction mode (ECM) for error free transmission is mandatory in the procedure described by this annex. Under the error correction mode of transmission, the JPEG encoded image data are embedded in the Facsimile Coded Data (FCD) part of the HDLC (High Level Data Link Control) transmission frames specified by Annex A.

The technical features of encoding and decoding the continuous-tone colour and gray-scale image data are described in Annex A/T.4. It describes two modes of image encoding (lossy gray-scale and lossy colour) which are defined using Recommendation T.81.

E.2 Definitions

CIELAB	CIE 1976 (L* a* b*) space. A colour space defined by the CIE (Commission internationale de l'éclairage), having approximately equal visually perceptible difference between equally spaced points throughout the space. The three components are L*, or Lightness, and a* and b* in chrominance.
JPEG	Joint Photographic Experts Group, and also shorthand for the encoding method, described in Recommendation T.81, which was defined by this group.
Baseline JPEG	A particular eight-bit sequential Discrete Cosine Transform (DCT) – based encoding and decoding process specified in Recommendation T.81.
Quantization table	A set of 64 values used to quantize the DCT coefficients in baseline JPEG.
Huffman table	A set of variable length codes required in a Huffman encoder and a Huffman decoder.

E.3 References

- ITU-T Recommendation T.81 | ISO/IEC 10918-1, *Information Technology – Digital compression and coding of continuous-tone still images, Part 1: Requirements and guidelines. (Commonly referred to as JPEG standard.)*
- ITU-T Recommendation T.42, *Continuous-tone colour representation method for fascimile*.
- ITU-T Recommendation T.4, *Standardization of Group 3 facsimile apparatus for document transmission*.

E.4 Negotiation procedure

The negotiation to transmit and receive JPEG encoded continuous-tone colour and gray-scale images under the Group 3 facsimile protocol is invoked through the setting of the bits in the DIS/DTC and DCS frames during the pre-message procedure (Phase B) of the Recommendation T.30 protocol.

The first capability to be established between the calling unit and the called unit is to indicate whether JPEG mode is available. Then the second capability to be established is whether full colour mode is available.

Thirdly, a means is provided to indicate to the called unit that the Huffman tables are the preferred tables. The transmission of Huffman tables is mandatory.

In addition to these three characteristics, the following four capabilities that pertain to mandatory or optional capabilities are exchanged (see Table E.1).

TABLE E.1/T.30

Mandatory and optional capabilities

Mandatory	Optional
8 bits/pel/component	8 bits/pel/component
4:1:1 Chrominance subsampling	No subsampling (1:1:1)
CIE Standard Illuminant D50	Custom illuminant
Default gamut range	Custom gamut range

E.5 New entries to DIS/DTC and DCS frames

One additional octet to the DIS/DTC and DCS frames is defined in this annex. The new octet is to occupy bits 68 to bits 75.

The definitions, excerpted from Table 2 and Table C.1, are as follows:

Bit No.	DIS/DTC	DCS
68	JPEG coding	JPEG coding
69	Full colour mode	Full colour mode
70	Always set to zero	Preferred Huffman tables
71	12 bits/pel/component	12 bits/pel/component
72	Extend field	Extend field
73	No subsampling (1:1:1)	No subsampling (1:1:1)
74	Custom illuminant	Custom illuminant
75	Custom gamut range	Custom gamut range

E.5.1 Definitions of new entries to DIS/DTC and DCS frame

E.5.1.1 Capability to enable JPEG

Bit 68 is called “Capability to enable JPEG”.

In a DIS/DTC frame, setting bit 68 to 1 indicates that the called unit’s JPEG mode is available and can decode continuous-tone image data (8 bits/component or more). Setting bit 68 to 0 indicates that the called unit’s JPEG mode is not available and it cannot decode JPEG encoded data.

In a DCS frame, setting bit 68 to 1 indicates that the calling unit’s JPEG mode is used and JPEG encoded image data are sent. Setting bit 68 to 0 indicates that the JPEG mode is not used and image is not encoded using JPEG.

E.5.1.2 Capability to enable colour

Bit 69 is called “Capability to enable colour”.

In a DIS/DTC frame, setting bit 69 to 1 indicates that the called unit has full colour capability. It can accept full colour image data in CIELAB space. Setting bit 69 to 0 indicates that the called unit has gray-scale mode only, that is, it accepts only the lightness component (the L* component) in the CIELAB representation.

In a DCS frame, setting bit 69 to 1 indicates that the calling unit sends image in full colour representation in the CIELAB space. Setting bit 69 to 0 indicates that the calling unit sends only the lightness component (the L* component) in the CIELAB representation.

NOTE – If bit 68 = 1 and bit 69 = 0, the continuous-tone image data have no colour component. The image data are called gray-scale or black and white gray-scale images. Continuous-tone full colour image capability is enabled only when bits 68 and 69 are both set to one.

E.5.1.3 Indication of preferred Huffman table

Bit 70 is called “Indication of preferred Huffman tables”.

The transmission of Huffman tables is mandatory. A means is provided to the called unit that the Huffman tables are the preferred tables. Preferred tables are specified only for the default image intensity resolution (8 bits/pel/component). The preferred Huffman tables are Tables K.3-K.6 in Annex K/T.81.

In a DIS/DTC frame, bit 70 is not used and is set to zero.

In a DCS frame, setting 70 to 0 indicates that the calling unit does not identify the Huffman tables that it uses to encode the image data as the preferred tables. Setting bit 70 to 1 indicates that the calling unit identifies the Huffman tables that it uses to encode the image data as the preferred tables.

E.5.1.4 Image intensity resolution

Bit 71 is called "Image intensity resolution".

In a DIS/DTC frame, setting bit 71 to 0 indicates that the called unit can only accept image data that are digitized to 8 bits/pel/component. Setting bit 71 to 1 indicates that the called unit can also accept image data that are digitized to 12 bits/pel/component.

In a DCS frame, setting bit 71 to 0 indicates that the calling unit's image data are digitized to 8 bits/pel/component. Setting bit 71 to 1 indicates that the calling unit's image data are digitized to 12 bits/pel/component.

E.5.1.5 Chrominance subsampling ratio

Bit 73 is called "Chrominance subsampling ratio".

In a DIS/DTC frame, setting bit 73 to 0 indicates that the called unit expects a 4:1:1 subsampling ratio of the chrominance components in the image data; the a* and b* components in the CIELAB colour space representation are subsampled four times to one against the L* (Lightness) component. The details are described in Annex A/T.4. Setting bit 73 to 1 indicates that the called unit, as an option, accepts no subsampling in the chrominance components in the image data.

In a DCS frame, setting bit 73 to 0 indicates that the called unit uses a 4:1:1 subsampling ratio of the a* and b* components in the image data. Setting bit 73 to 1 indicates that the called unit does no subsampling.

E.5.1.6 Illuminant

Bit 74 is called "Illuminant".

In a DIS/DTC frame, setting bit 74 to 0 indicates that the called unit expects that the CIE Standard Illuminant D50 is used in the colour image data as specified in Recommendation T.42. Setting bit 74 to 1 indicates that the called unit can also accept other illuminant types beside the D50 illuminant. The specification of illuminant is embedded into the JPEG syntax as described in Annex A/T. 4.

In a DCS frame, setting bit 74 to 0 indicates that the calling unit uses the D50 illuminant in the colour image data representation as specified in Recommendation T.42. Setting bit 74 to 1 indicates that another type of illuminant is used, the specification of which is embedded into the JPEG syntax as described in Annex A/T.4.

E.5.1.7 Gamut range

Bit 75 is called "Gamut range".

In a DIS/DTC frame, setting bit 75 to 0 indicates that the called unit expects that the colour image data are represented using the default gamut range as specified in Recommendation T.42. Setting bit 75 to 1 indicates that the called unit can also accept other gamut ranges, the specification of which is embedded into the JPEG syntax as described in Annex A/T.4.

In a DCS frame, setting bit 75 to 0 indicates that the calling unit uses the default gamut range as specified in Recommendation T.42. Setting bit 75 to 1 indicates that the calling unit uses a different gamut range, the specification of which is embedded into the JPEG syntax as described in Annex A/T.4.

38) In Appendix VI, subclause VI.3, the third and the fourth paragraphs should be deleted.

39) Corrigendum to the English version of Recommendation T.30 (1993) published (including the following pages: i, 2, 23, 39, 53, 57, 69, 95, 140 and 141).

CONTENTS

TABLE 1/T.30

Method No.	Description of operating method	Direction of facsimile transmission	Overall designation
1	*Manual* operation at calling station and	Calling station *transmits to* called station	1-T
	Manual operation at called station and	Calling station *receives from* called station	1-R
2	*Manual* operation at calling station and	Calling station *transmits to* called station	2-T
	Automatic operation at called station	Calling station *receives from* called station	2-R
3	*Automatic* operation at calling station and	Calling station *transmits to* called station	3-T
	Manual operation at called station	Calling station *receives from* called station	3-R
4	*Automatic* operation at calling station and	Calling station *transmits to* called station	4-T
	Automatic operation at called station and	Calling station *receives from* called station	4-R
NOTE – There may also be operating methods which will allow messages to be received by more than one station (multipoint connection).			

1.3 Station identification

1.3.1 For the purpose of classifying an automatic facsimile station as a non-speech terminal, a tone must be transmitted to line. As both automatic calling and called facsimile stations transmit tones to line during call establishment, a normal telephone user who becomes inadvertently connected to one will receive tone signals for a period of sufficient duration to indicate clearly to him that he is incorrectly connected.

1.3.2 Additionally an automatic verbal announcement may be used which can provide station identification.

1.4 General provisions

1.4.1 The control signals specified in this Recommendation have been chosen in such a way that the telephone service is not affected.

1.4.2 If any malfunction of the facsimile procedures described in this Recommendation is detected, the call should be released.

1.4.3 Where the called station has automatic facsimile apparatus which is not ready or not able to operate, the call should not be answered automatically.

1.4.4 This Recommendation includes procedures for switching from facsimile to speech. However, speech facilities may be omitted if this is permitted by the regulations of the Administrations.

1.5 Optional provisions

1.5.1 The operator at each station may have the possibility of calling the other station at any time during the progress of the facsimile procedure (see 2.2).

1.5.2 The procedures in this Recommendation allow a facsimile station to transmit and/or receive several documents successively without the aid of an operator.

1.5.3 This Recommendation includes procedures for incorporating a unique station identification command if required to prevent unauthorized stations from demanding a message.

If enhanced security is required, this may be provided by the use of the non-standard facilities frame.

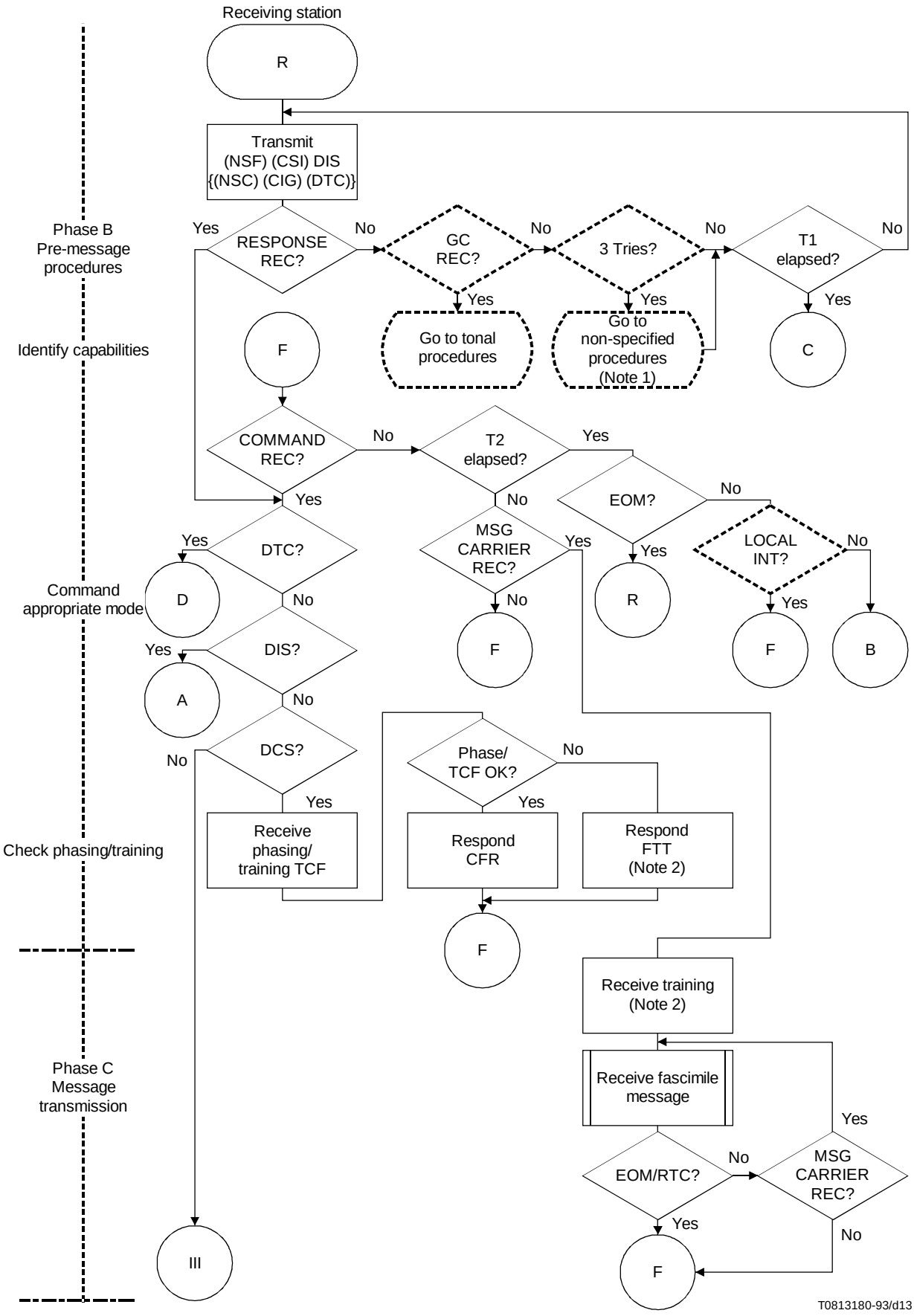
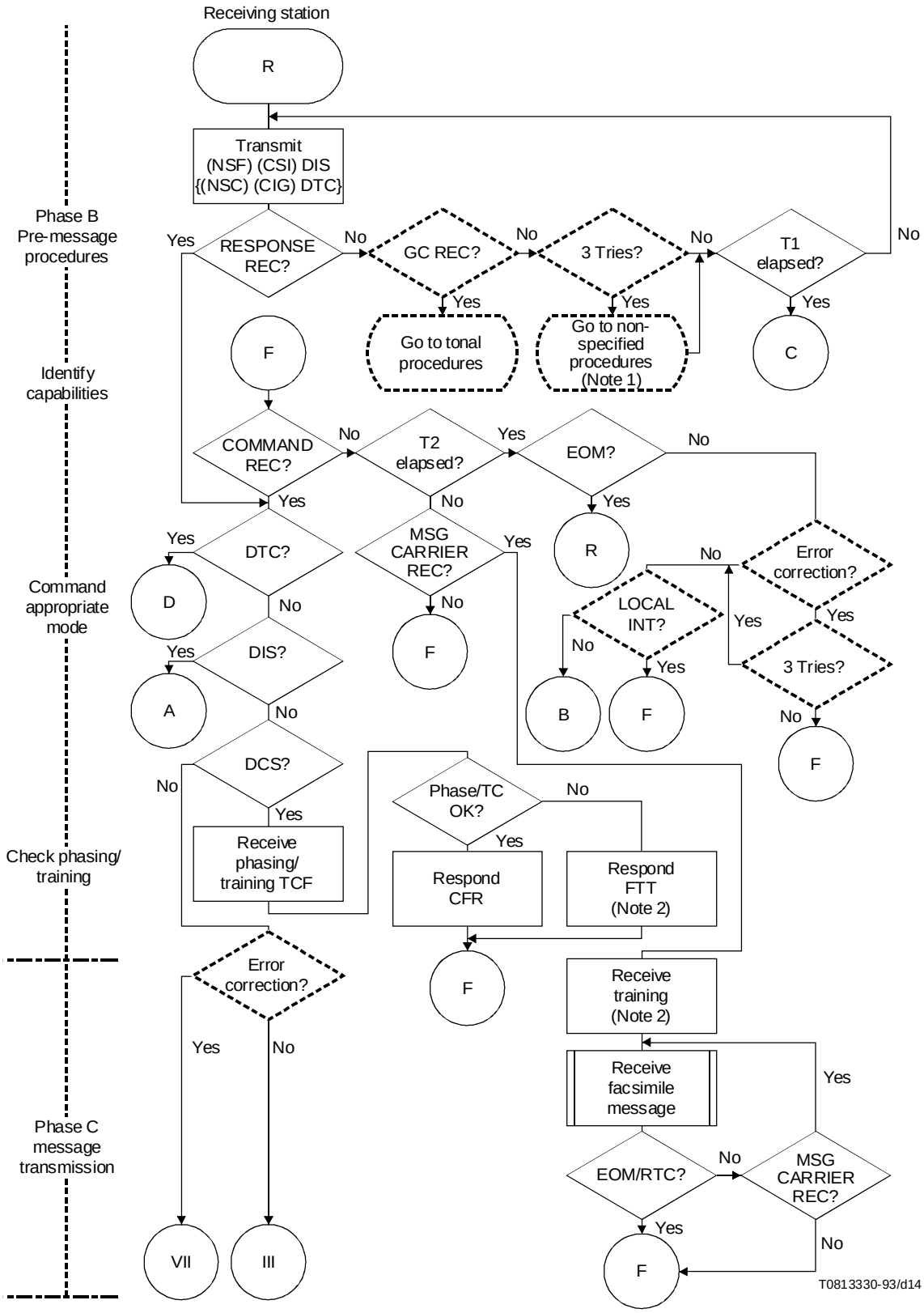


FIGURE 5.2B/T.30

TABLE 2/T.30 *(cont.)*

Bit No.	DIS/DTC	DCS
42	300 × 300 pels/25.4 mm	300 × 300 pels/25.4 mm
43	R16 × 15.4 lines/mm and/or 400 × 400 pels/25.4 mm (See Notes 13, 15)	R16 × 15.4 lines/mm and/or 400 × 400 pels/25.4 mm (See Note 13)
44	Inch based resolution preferred (See Notes 16, 17)	Resolution type selection "0": metric based resolution "1": inch based resolution (See Notes 16, 17)
45	Metric based resolution preferred (See Notes 16, 17)	Don't care
46	Minimum scan line time capability for higher resolutions "0": $T_{15.4} = T_{7.7}$ "1": $T_{15.4} = 1/2\ T_{7.7}$ (See Note 18)	Don't care
47	Selective polling capability	Set to "0"
48	Extend field	Extend field
49	Subaddressing capability	Set to "0"
50	Password capability	Set to "0"
51	Capable to emit data file	Not used
52	Reserved for facsimile service info (FSI)	Reserved for facsimile service info (FSI)
53	Binary file transfer (BFT) (See Note 19)	Binary file transfer (BFT) (See Note 19)
54	Document transfer mode (DTM)	Document transfer mode (DTM)
55	Electronic data interchange (EDI)	Electronic data interchange (EDI)
56	Extend field	Extend field
57	Basic transfer mode (BTM)	Basic transfer mode (BTM)
58	Reserved for future negotiation mechanism for data file transmission	Reserved for future negotiation mechanism for data file transmission
59	Capable to emit character file	Not used
60	Character mode	Character mode
61	Reserved for control document	Reserved for control document
62	Mixed mode (Annex E/T.4)	Mixed mode (Annex E/T.4)
63	Reserved for future negotiation mechanism for character file transmission	Reserved for future negotiation mechanism for character file transmission
64	Extend field	Extend field
65	Processable mode 26 (T.505)	Processable mode 26 (T.505)
66	Digital network capability	Digital network capability



NOTE – The last command, except RR, was one of EOM, PPS-EOM or EOR-EOM?

FIGURE A.7/T.30 (sheet 2 of 4)

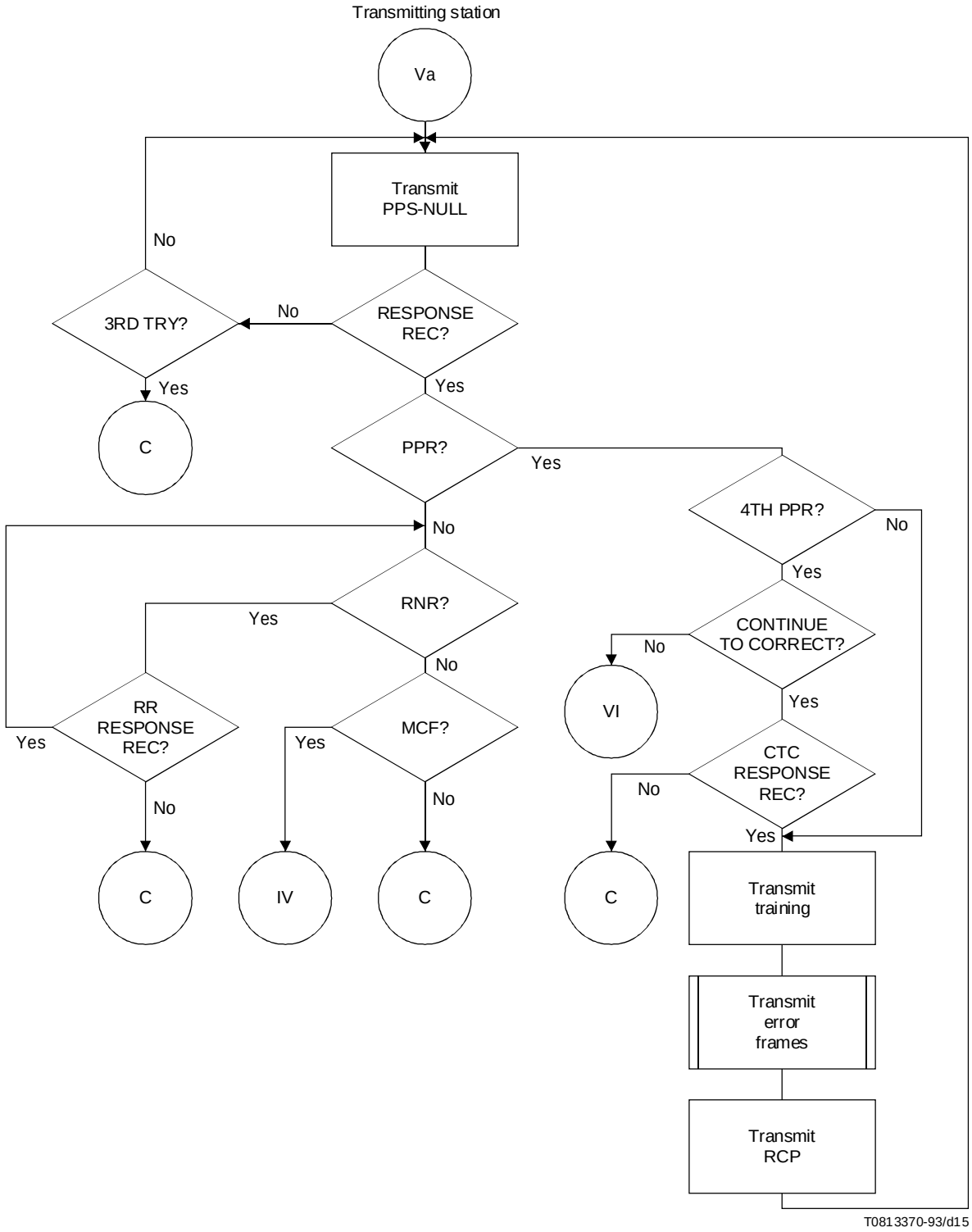


FIGURE A.9/T.30

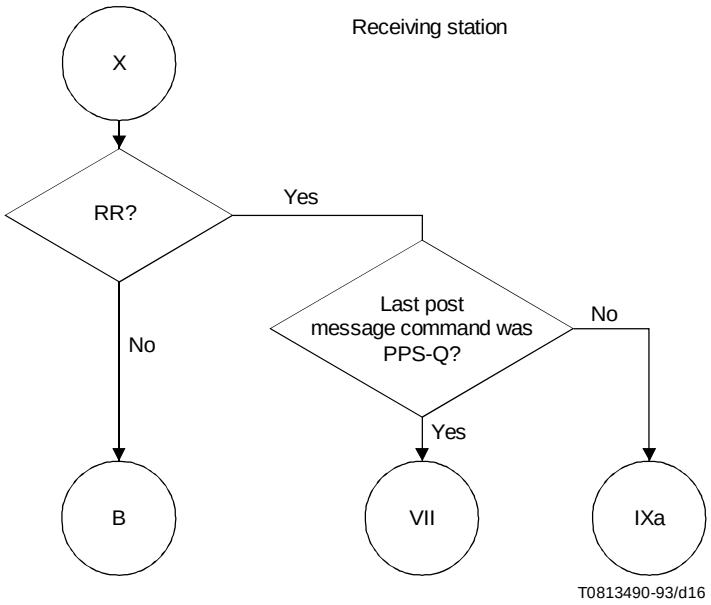


FIGURE A.21/T.30

TABLE C.1/T.30 *(end)*

Bit No.	DIS/DTC	DCS
54	Document transfer mode (DTM)	Document transfer mode (DTM)
55	Electronic document interchange (EDI)	Electronic document interchange (EDI)
56	Extend field	Extend field
57	Basic transfer mode(BTM)	Basic transfer mode(BTM)
58	Reserved for future negotiation mechanism for data file transmission	Reserved for future negotiation mechanism for data file transmission
59	Capable of emitting a character file	Not used
60	Character mode	Character mode
61	Reserved for control document	Reserved for control document
62	Reserved for mixed mode (Annex E/T.4)	Reserved for mixed mode
63	Reserved for future negotiation mechanism for character file trans.	Reserved for future negotiation mechanism for character file trans.
64	Extend field	Extend field
65	Processable mode 26 (T.505)	Processable mode 26 (T.505)
66	Digital network capability	Digital network capability
67 (0) (1)	Full and half duplex capabilities Half duplex operation only Full and half duplex operation	Full and half duplex capabilities Half duplex operation Full duplex operation
68 69 70 71	Reserved for future use	Reserved for future use
72	Extend field	Extend field

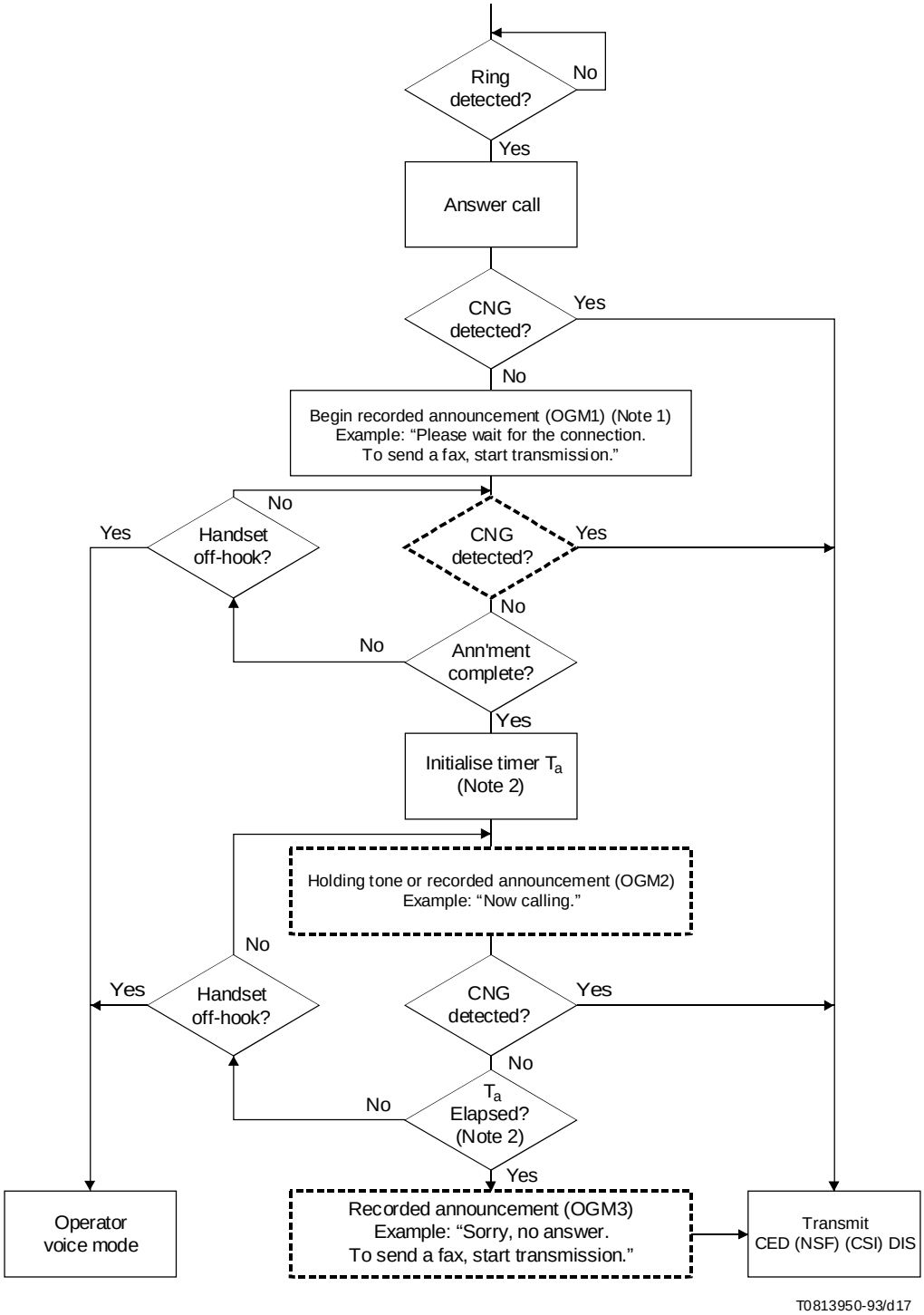
C.3.7.2 Timing considerations

C.3.7.2.1 Time-Outs

Time-out T6 defines the amount of time two stations will continue to attempt to identify each other. T6 is 5 ± 0.5 seconds. The time-out begins upon entering Phase B and is reset upon detecting a valid signal or when T6 times out.

Time-out T7 is used to detect loss of command/response synchronization. T7 is 6 ± 1 seconds. The time-out begins when initiating a command search (e.g. the first entrance into the "command received" sub-routine – see flow diagram in C.5) and is reset upon detecting a valid signal or when T7 times out.

Time-out T8 defines the amount of time waiting for clearance of the busy condition of the receiving station. T8 is 10 ± 1 seconds, begins on the first detection of the combination of no outstanding corrections and the RNR response. T8 is reset when T8 times out or MCF response is received. If the timer T8 has expired, DCN command is transmitted for call release.



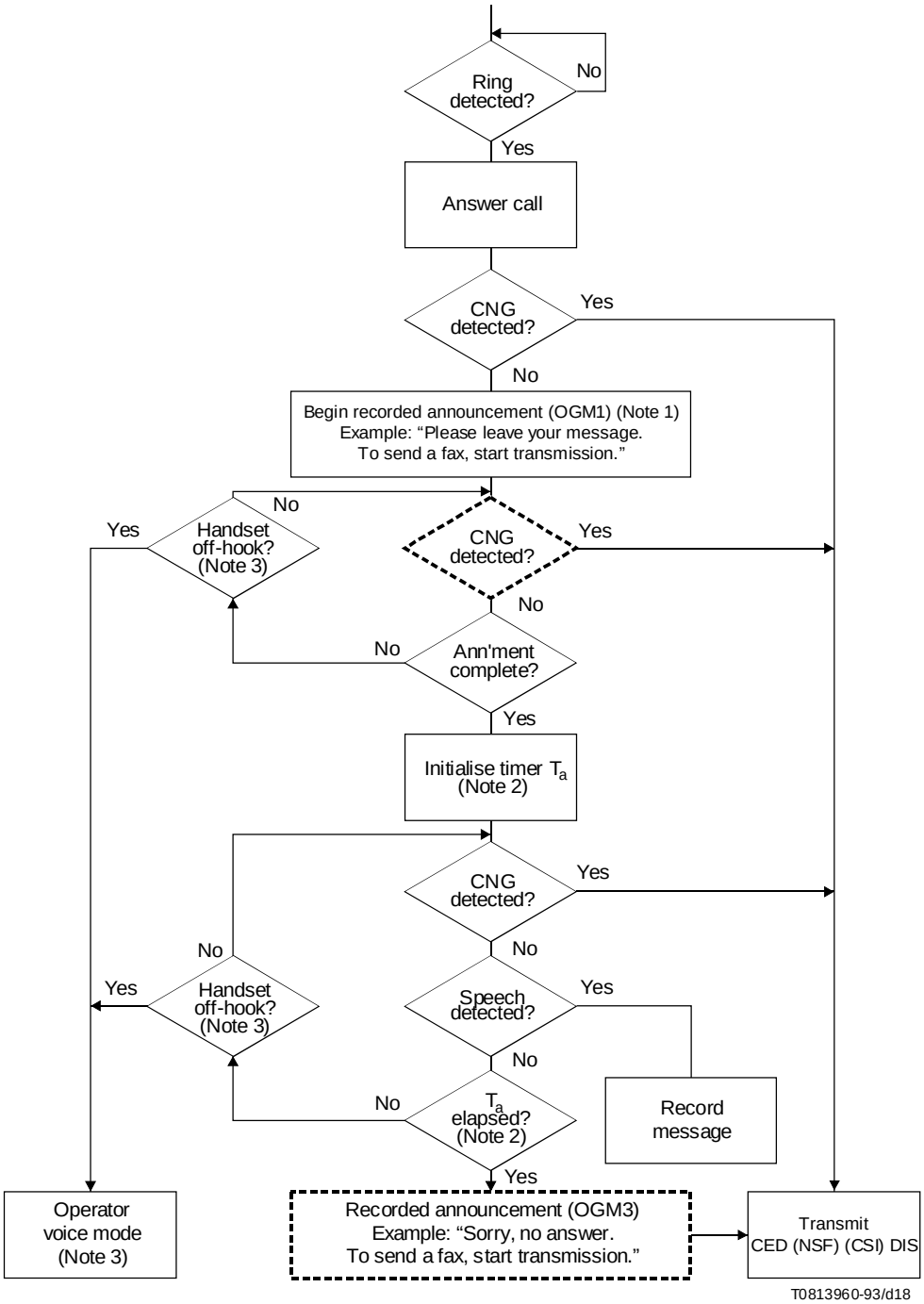
NOTES

1 At 1.8 to 2.5 seconds after the called station is connected to line, it sends a recorded announcement CNG detection during this silent period.

2 3.5 (CNG) × 1.15 (tolerance) × 2 ≤ T_a < T1 – OGM1 – (OGM3), T1 = 35 ± 5 seconds.

FIGURE D.1/T.30

Terminal selection method for combined facsimile and telephone answering



NOTES

1 At 1.8 to 2.5 seconds after the called station is connected to line, it sends announcement. CNG detection during this silent period.

2 3.5 (CNG) × 1.15 (tolerance) × 2 $\leq T_a <$ T1 – (OGM1) – (OGM3). T1 = 35 ± 5 seconds.

3 Procedure when operator is in attendance.

FIGURE D.2/T.30

Terminal selection method for combined facsimile, telephone answering and recording device

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