EUROPEAN TELECOMMUNICATION STANDARD

ETS 300 266

February 1994

Source: ETSI TC-SPS

Reference: T/S 22-16

ICS: 33.080

Key words: ISDN, teleservice.

Integrated Services Digital Network (ISDN); Videotelephony teleservice Functional capabilities and information flows

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE
Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE
X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

Contents

Blank page

Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

In accordance with CCITT Recommendation I.130, the following three level structure is used to describe the telecommunication services as provided by European public telecommunications operators under the pan-European Integrated Services Digital Network (ISDN):

- Stage 1: is an overall service description, from the user's standpoint;

- Stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and,

- Stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

This ETS details the stage 2 aspects (functional capabilities and information flows) needed to support the videotelephony teleservice. The stage 1 and stage 3 aspects are detailed in ETS 300 264 (1994) and ETS 300 267-1 (1994), respectively.

Blank page

1 Scope

This ETS defines the stage two for the videotelephony teleservice of the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators. The stage two description identifies the functional capabilities and the information flows needed to support the service description. The stage two description also identifies user operations not directly associated with a call (see CCITT Recommendation I.130 [2]).

This ETS is specified according to the methodology specified in CCITT Recommendation Q.65 [4].

In addition, this ETS does not specify the requirements where the service is provided to the user via a private ISDN. This ETS does not specify the requirements for the allocation of defined functional entities within a private ISDN; it does, however, define which functional entities may be allocated to a private ISDN.

This ETS does not specify the additional requirements where the service is provided to the user via a telecommunications network that is not an ISDN.

The videotelephony teleservice is a realtime, audiovisual teleservice in which speech and moving pictures are interchanged by means of one or two 64 kbit/s circuit-mode connections in the ISDN. The picture information transmitted is sufficient for adequate representation of fluid movements of a person displayed in head and shoulders view.

Procedures for the correlation of two independent connections within the same videotelephony call are outside the scope of this ETS. This places responsibility on the user of this service to avoid situations where certain supplementary services are being used, and also situations where multiple calls are being presented to the same user at the same time.

This ETS is applicable to the stage three standards for the ISDN videotelephony teleservice. The term "stage three" is also defined in CCITT Recommendation I.130 [2]. Where the text indicates the status of a requirement, i.e. as a strict command or prohibition, as authorisation leaving freedom, as a capability or possibility, this shall be reflected in the text of the relevant stage three standards.

Furthermore, conformance to this ETS is met by conforming to the stage three standards with the field of application appropriate to the equipment being implemented. Therefore, no method of testing is provided for this ETS.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".

[2] CCITT Recommendation I.130 (1988): "Method for the characterisation of telecommunication services supported by an ISDN and network capabilities of an ISDN".

[3] CCITT Recommendation I.210 (1988): "Principles of telecommunication services supported by an ISDN and the means used to describe them".

[4] CCITT Recommendation Q.65 (1988): "Stage 2 of the method for the characterisation of services supported by an ISDN".

[5] CCITT Recommendation Q.71 (1988): "ISDN 64 kbit/s circuit-mode switched bearer services".

[6] CCITT Recommendation Z.100 (1988): "Functional Specification and Description Language (SDL)".

[7] ETS 300 143: "Integrated Services Digital Network (ISDN); Audiovisual services; Inband signalling procedures for audiovisual terminals using digital channels up to 2 048 kbit/s" (equivalent to ITU-T Recommendation H.242).

[8] ETS 300 144: "Integrated Services Digital Network (ISDN); Audiovisual services; Frame structure for a 64 kbit/s to 1 920 kbit/s channel and associated syntax for inband signalling" (equivalent to ITU-T Recommendation H.221).

3 Definitions

For the purposes of this ETS, the following definitions apply:

3,1 kHz terminal: a terminal that supports only the telephony 3,1 kHz teleservice.

7 kHz terminal: a terminal that supports the telephony 7 kHz teleservice.

Connection: see CCITT Recommendation I.112 [1], § 2.3, definition 309.

Integrated Services Digital Network (ISDN): see CCITT Recommendation I.112 [1], § 2.3, definition 308.

Service; telecommunications service: see CCITT Recommendation I.112 [1], § 2.2, definition 201.

Supplementary service: see CCITT Recommendation I.210 [3], § 2.4.

Teleservice: see CCITT Recommendation I.112 [1], § 2.2, definition 203.

Videotelephony terminal: a terminal that supports the videotelephony teleservice.

4 Symbols and abbreviations

For the purposes of this ETS, the following abbreviations apply:

CC	Call Control
CCA	Call Control Agent
FE	Functional Entity
FEA	Functional Entity Action
SDL	Specification and Description Language

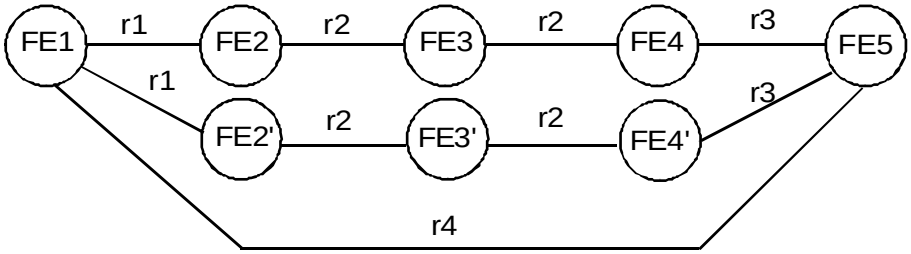
5 Description

Not applicable.

6 Derivation of the functional model

6.1 Functional model description

The functional model for the videotelephony teleservice is shown in figure 1.



NOTE: FE2', FE3' and FE4' relate to the provision of a second connection. FE2', FE3' and FE4' are identical in functionality to that of FE2, FE3 and FE4 respectively, except as described in Clauses 8 and 9.

Figure 1: Functional model

6.2 Description of the functional entities

The Functional Entities (FEs) required by the videotelephony teleservice are those of basic call and are as follows:

FE1: Originating Call Control Agent (CCA);
FE2: Call Control (CC);
FE3: Call control;
FE4: Call control;
FE5: Terminating call control agent.

7 Information flows

The following information flow diagrams contain only the information flows modified for the videotelephony teleservice. For the complete information flow diagrams, see CCITT Recommendation Q.71 [5]. Only the additional functional entity actions are mentioned in the flow diagrams.

The interworking between a videotelephony terminal requesting a call based on using two circuit-mode 64 kbit/s connections and other terminals (e.g. 3,1 kHz terminal) is identical to the interworking between a videotelephony terminal requesting a call based on using one circuit-mode 64 kbit/s connection and other terminals.

7.1 Information flow diagrams

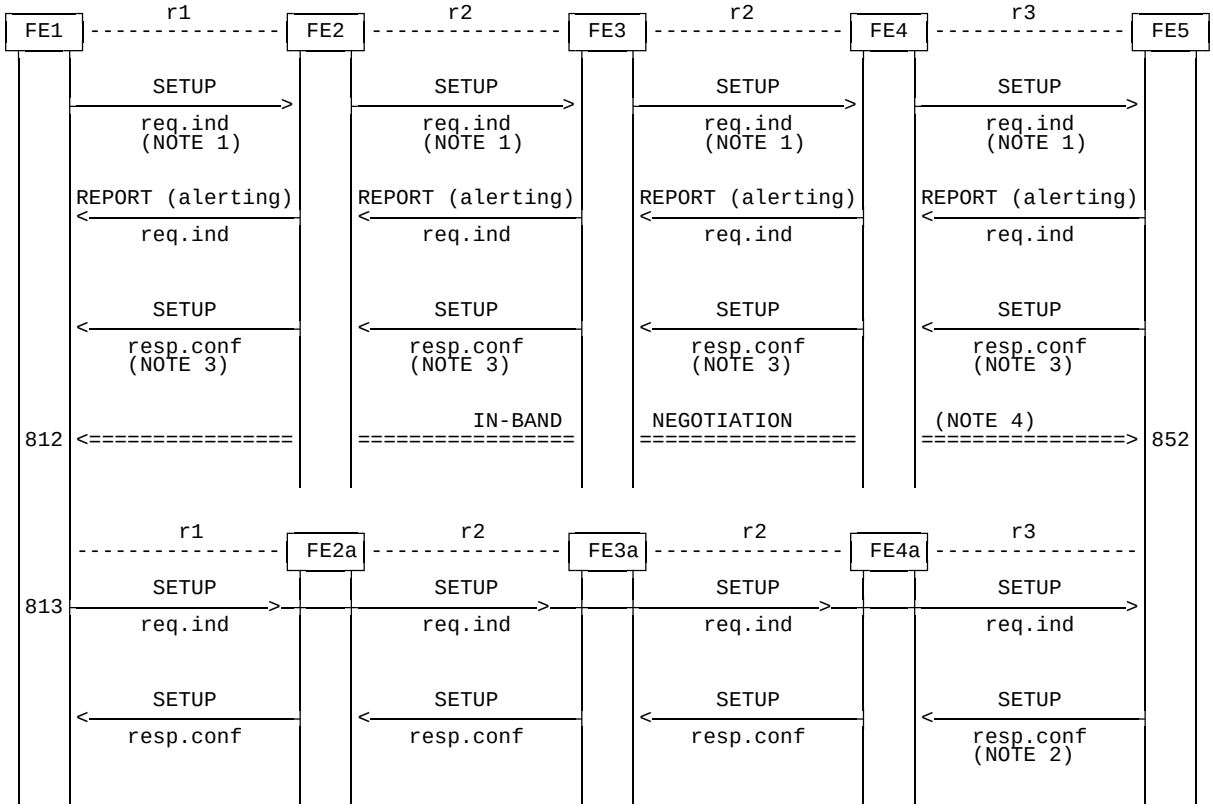
The information flows are shown in figures 2 to 5. The following information flows are depicted:

Figure 2: Call according to the videotelephony teleservice using two circuit-mode 64 kbit/s connections;

Figure 3: Videotelephony terminal to 3,1 kHz terminal call setup (the calling videotelephony terminal allows the fallback to the telephony 3,1 kHz teleservice);

Figure 4: Videotelephony terminal to 7 kHz terminal call setup (the calling videotelephony terminal allows the fallback);

Figure 5: Videotelephony terminal capable of supporting two 64 kbit/s connections to a videotelephony terminal capable of supporting only one 64 kbit/s connection call setup.



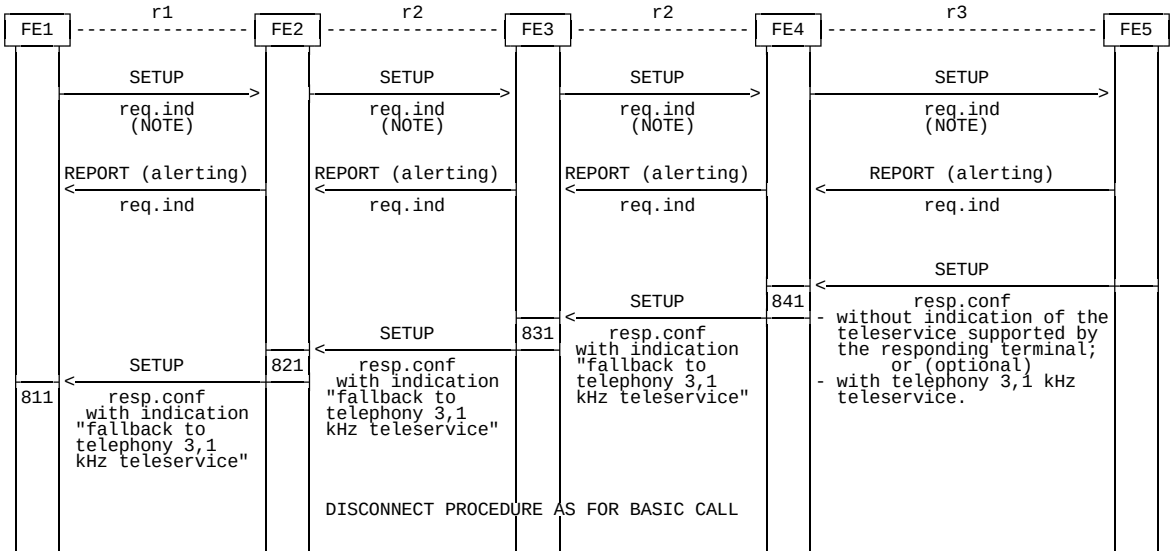
NOTE 1: For a call according to the videotelephony teleservice, the first connection request, compatibility information indicates the videotelephony teleservice with fallback allowed to the telephony 3,1 kHz teleservice.

NOTE 2: For a call according to the videotelephony teleservice, the second connection request, the called 2B videotelephony terminal answers as an automatic answer terminal.

NOTE 3: Response information flow with indication "videotelephony teleservice".

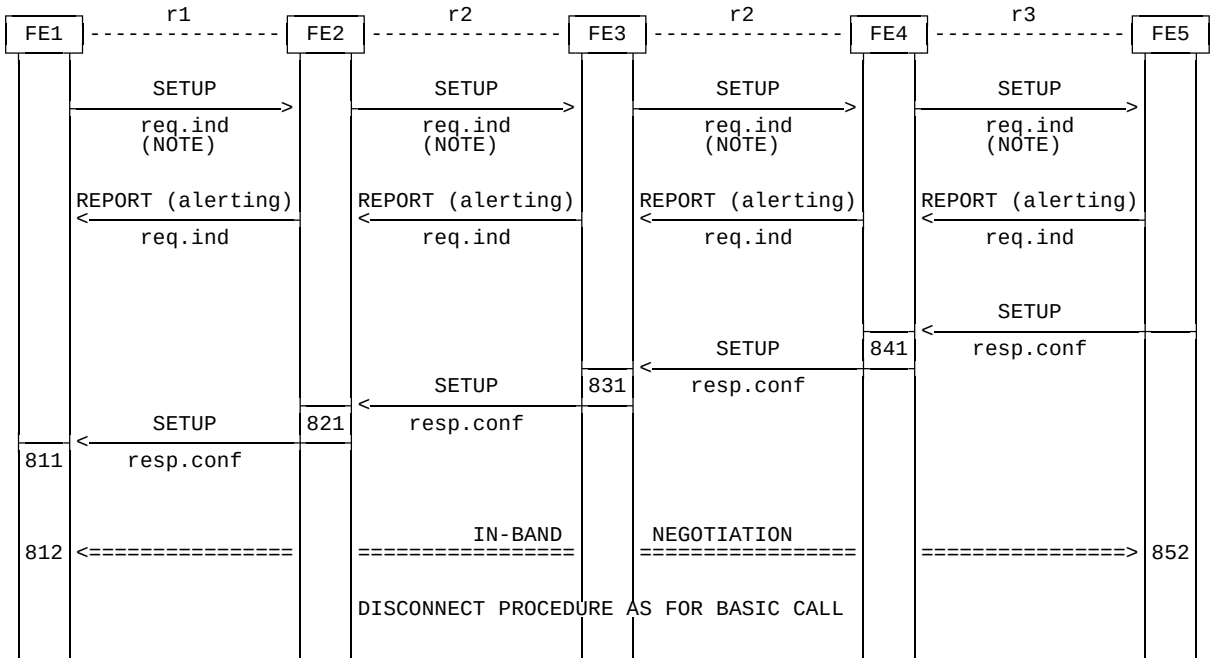
NOTE 4: Initial communication mode setup as described in ETS 300 143 [7] and ETS 300 144 [8]. The second call will be setup at the end of the in-band negotiation conducted on the first connection. The second connection will be setup only if the two videotelephony terminals are working in the 2 x 64 kbit/s mode at the end of the in-band negotiation.

Figure 2: Call according to the videotelephony teleservice using two circuit-mode 64 kbit/s connections



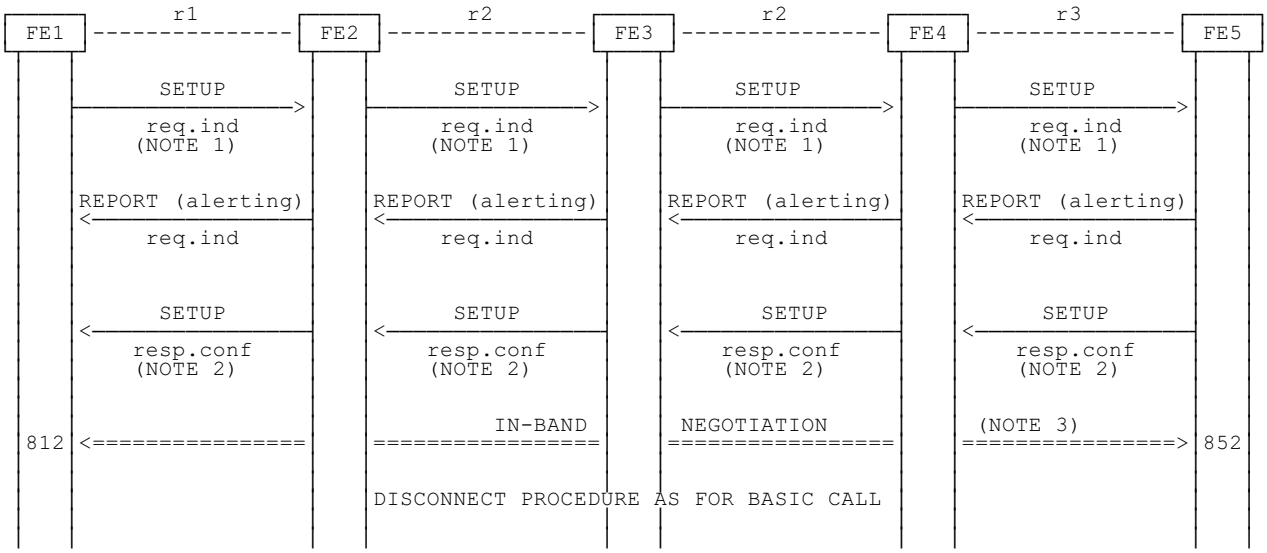
NOTE: For a call according to the videotelephony teleservice, the first connection request, compatibility information indicates the videotelephony teleservice with fallback allowed to the telephony 3,1 kHz teleservice.

Figure 3: Videotelephony terminal to 3,1 kHz terminal call setup (the calling videotelephony terminal allows the fallback to the telephony 3,1 kHz teleservice)



NOTE: For a call according to the videotelephony teleservice, the first connection request, compatibility information indicates the videotelephony teleservice with fallback allowed to the telephony 3,1 kHz teleservice.

Figure 4: Videotelephony terminal to 7 kHz terminal call setup (the calling videotelephony terminal allows the fallback)



NOTE 1: For a call according to the videotelephony teleservice, the first connection request, compatibility information indicates the videotelephony teleservice with fallback allowed to the telephony 3,1 kHz teleservice.

NOTE 2: Response information flow with indication "videotelephony teleservice".

NOTE 3: Initial communication mode setup as described in ETS 300 143 [7] and ETS 300 144 [8]. The second call will be setup at the end of the in-band negotiation conducted on the first connection. The second connection will be setup only if the two videotelephony terminals are working in the 2 x 64 kbit/s case at the end of the in-band negotiation.

NOTE 4: At the end of the in-band negotiation, the communication is enhanced to the best common mode: videotelephony based on one 64 kbit/s connection.

Figure 5: Videotelephony terminal capable of supporting two 64 kbit/s connections to a videotelephony terminal capable of supporting only one 64 kbit/s connection call setup

7.2 Definition of information flows

After the in-band negotiation between the two CCA functional entities FE1 and FE5, via the r4 relationship, using a network independent in-band protocol described in ETS 300 143 [7] and using ETS 300 144 [8] framing, the two videotelephony terminals know the characteristics (mode, transfer rate for speech, transfer rate for video...) of the remote terminal. Then, the two terminals change the communication to the best common mode.

In CCITT Recommendation Q.71 [5], § 2.2.2.5 (REPORT), amend the table as shown in table 1.

Table 1

Item	**Relationship**	**req.ind**
Alternative service (NOTE)	r1,r2	optional
Channel identity	r1,r2	optional
Connect request	r2	optional
Called line category	r2	mandatory
Called line status	r2	mandatory
Report type	r1,r2	mandatory

NOTE: For the videotelephony teleservice, this parameter is set to "telephony 3,1 kHz teleservice" or "telephony 7 kHz teleservice". If included, fallback has occurred.

In CCITT Recommendation Q.71 [5], § 2.2.2.6 (SETUP), amend the table as shown in table 2.

Table 2

Use	**Item**	**Relationship**	**req.ind**	**resp.conf**
Protocol info	Connect request	r2	optional	optional
Service/bearer info	Service (NOTE 1)	r1,r2	mandatory	optional
Service/bearer info	Alternative service (NOTE 2)	r1,r2	optional	optional
Bearer info	Nature of transaction	r2	mandatory	
Bearer info	Channel identity	r1,r2	mandatory	optional
Routing info	Called number	r1,r2	mandatory	
Routing info	Transit network selection	r1,r2	optional	
Originating info	Calling line identity	r1,r2	optional	
Terminating info	Connected line identity	r2		mandatory
Access info	Additional compatibility	r1	optional (NOTE 3)	

NOTE 1: For the videotelephony teleservice, this parameter is set to "videotelephony teleservice".
NOTE 2: For the videotelephony teleservice, this parameter is set to "telephony 3,1 kHz teleservice" and/or "telephony 7 kHz teleservice". If included in the req.ind, fallback is allowed. If included in the resp.conf, fallback has occurred.
NOTE 3: If fallback is allowed (i.e. an alternative service is specified) this parameter shall not be included.

8 SDL diagrams for functional entities

The Specification and Description Language (SDL) diagrams are provided according to CCITT Recommendation Z.100 [6].

The second connection of a videotelephony call requiring two 64 kbit/s connections is established as a basic call defined in CCITT Recommendation Q.71 [5] without any additional features. The establishment of the second connection of a videotelephony call requiring two 64 kbit/s connections is not described by the SDL diagrams: see CCITT Recommendation Q.71 [5].

The first connection of a videotelephony call requiring one or two 64 kbit/s connections is established as defined in CCITT Recommendation Q.71 [5] but with some modifications and additional features. Figures 8 to 11 and figure 14 show only the CCITT Recommendation Q.71 [5] SDL diagram sheets modified for first connection of a videotelephony call requiring one or two 64 kbit/s connections.

NOTE: All references to notes in figures 9 to 11 refer to the respective notes in CCITT Recommendation Q.71 [5].

A co-ordination of the connections is shown in figures 6 and 12, with the co-ordination processes described in figures 7 and 13.

The in-band negotiation between FE1 and FE5 using the relationship r4 is not specified in this ETS, it is described in ETS 300 143 [7] and ETS 300 144 [8].

8.1 SDL diagrams for FE1

The SDL diagrams for FE1 are shown in figures 6 to 8.

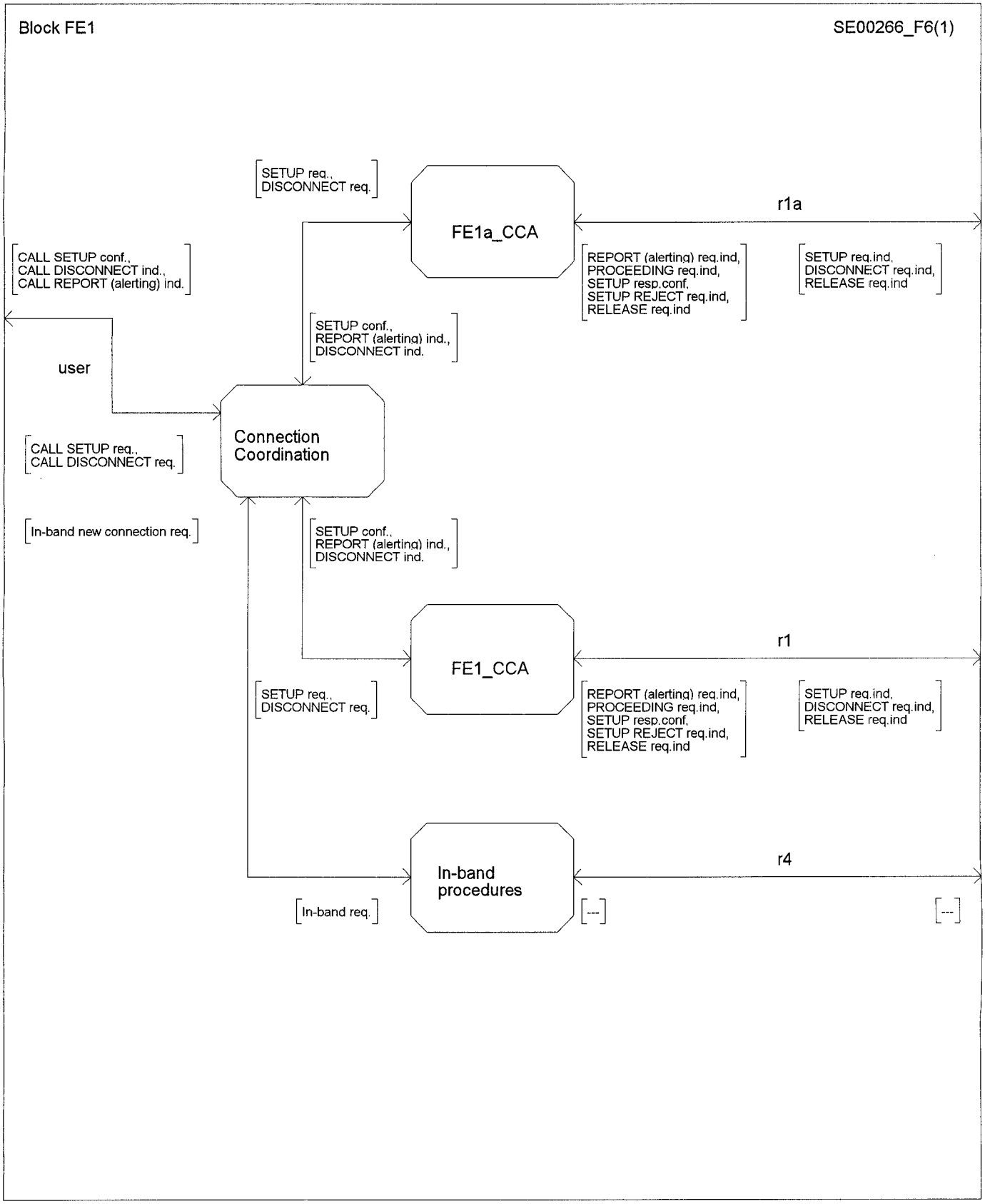
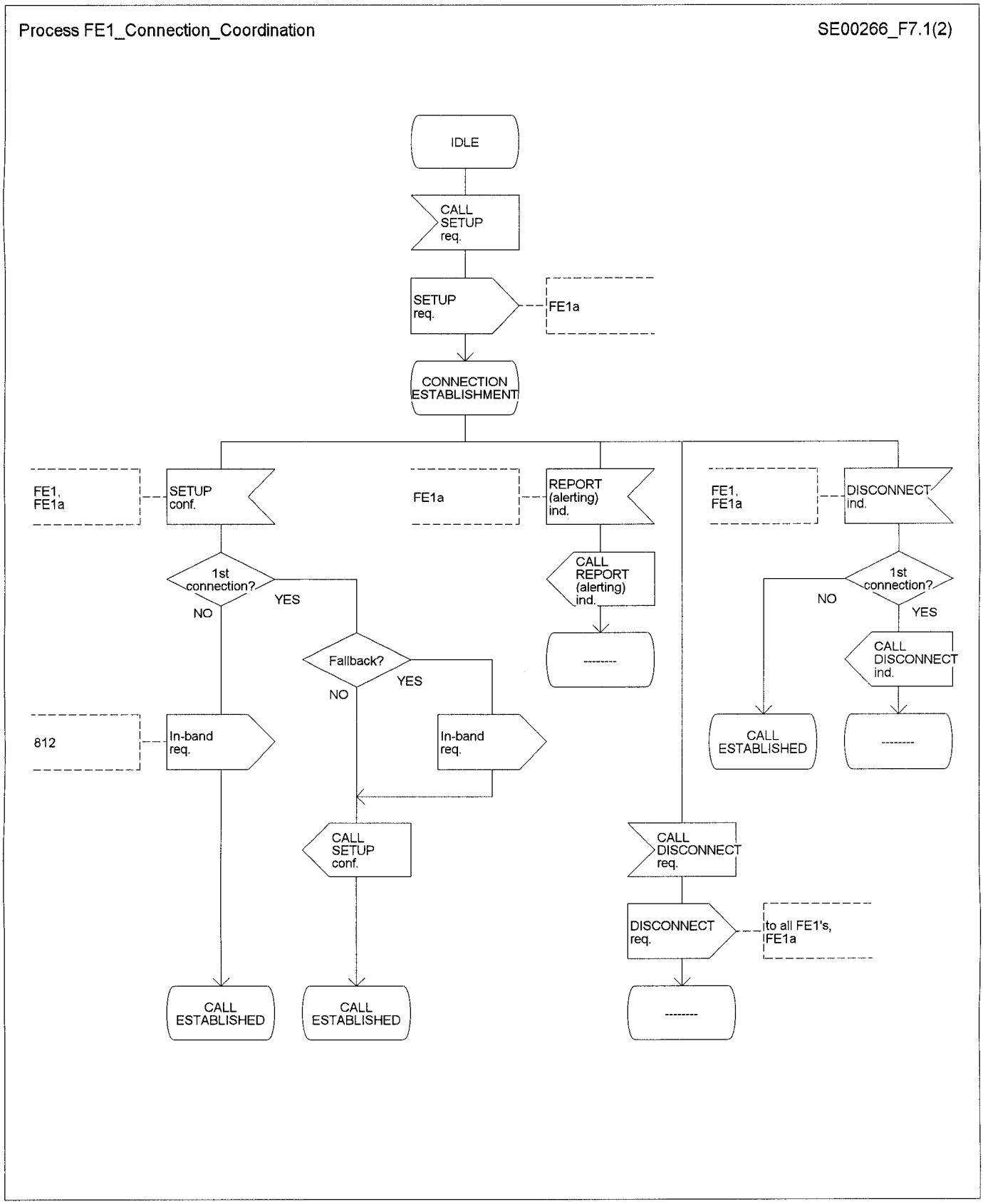


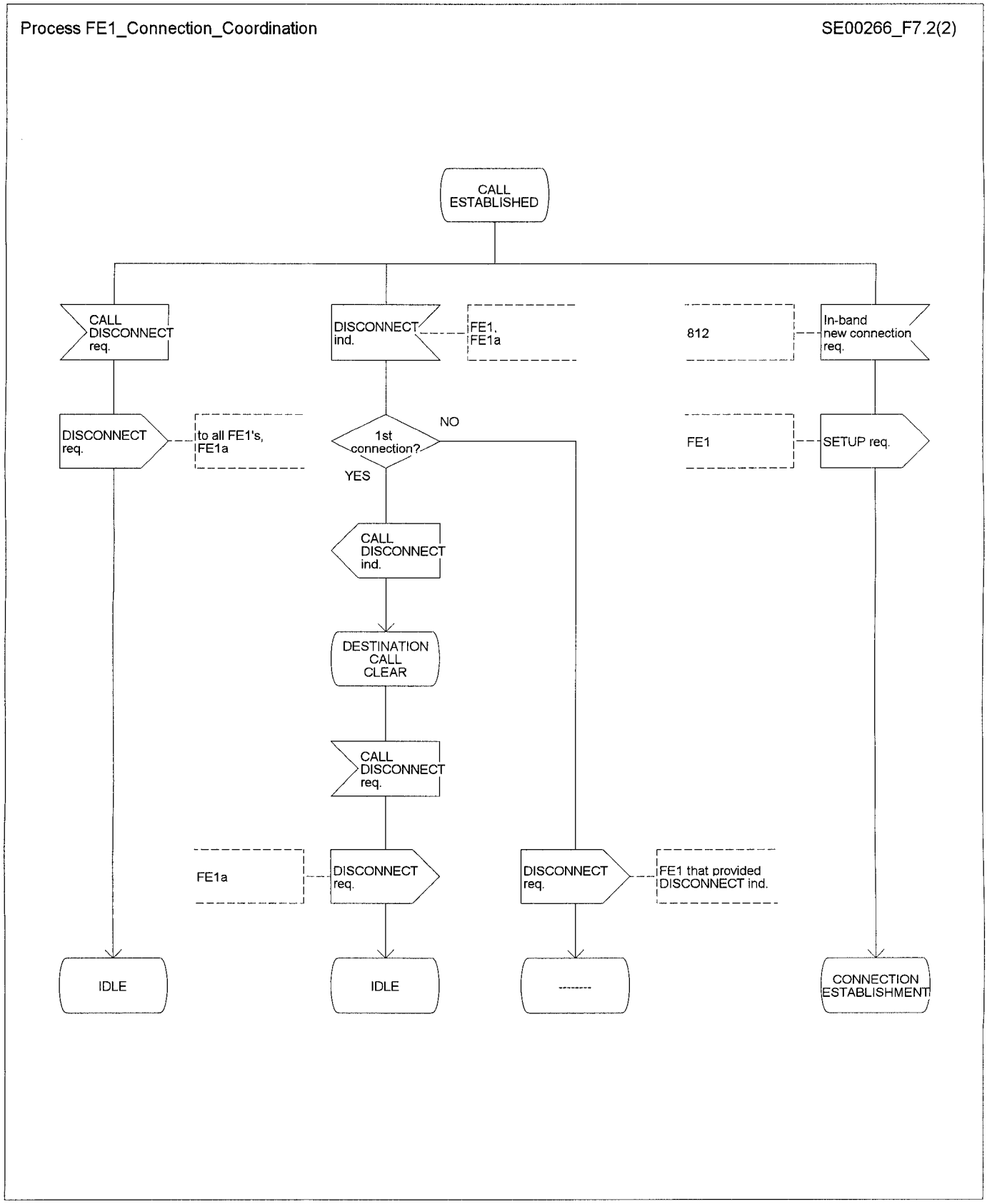
Figure 6


Process FE1_Connection_Coordination
SE00266_F7.1(2)
IDLE
CALL SETUP req.
SETUP req.
FE1a
CONNECTION ESTABLISHMENT
FE1, FE1a
SETUP conf.
1st connection?
YES
NO
Fallback?
YES
NO
812
In-band req.
In-band req.
CALL SETUP conf.
CALL ESTABLISHED
CALL ESTABLISHED
FE1a
REPORT (alerting) ind.
CALL REPORT (alerting) ind.

FE1, FE1a
DISCONNECT ind.
1st connection?
NO
YES
CALL DISCONNECT ind.
CALL ESTABLISHED

CALL DISCONNECT req.
DISCONNECT req.
to all FE1's, FE1a

Figure 7.1


Process FE1_Connection_Coordination
SE00266_F7.2(2)
CALL ESTABLISHED
CALL DISCONNECT req.
DISCONNECT ind.
FE1, FE1a
812
In-band new connection req.
DISCONNECT req.
to all FE1's, FE1a
1st connection?
NO
YES
FE1
SETUP req.
CALL DISCONNECT ind.
DESTINATION CALL CLEAR
CALL DISCONNECT req.
FE1a
DISCONNECT req.
DISCONNECT req.
FE1 that provided DISCONNECT ind.
IDLE
IDLE

CONNECTION ESTABLISHMENT

Figure 7.2

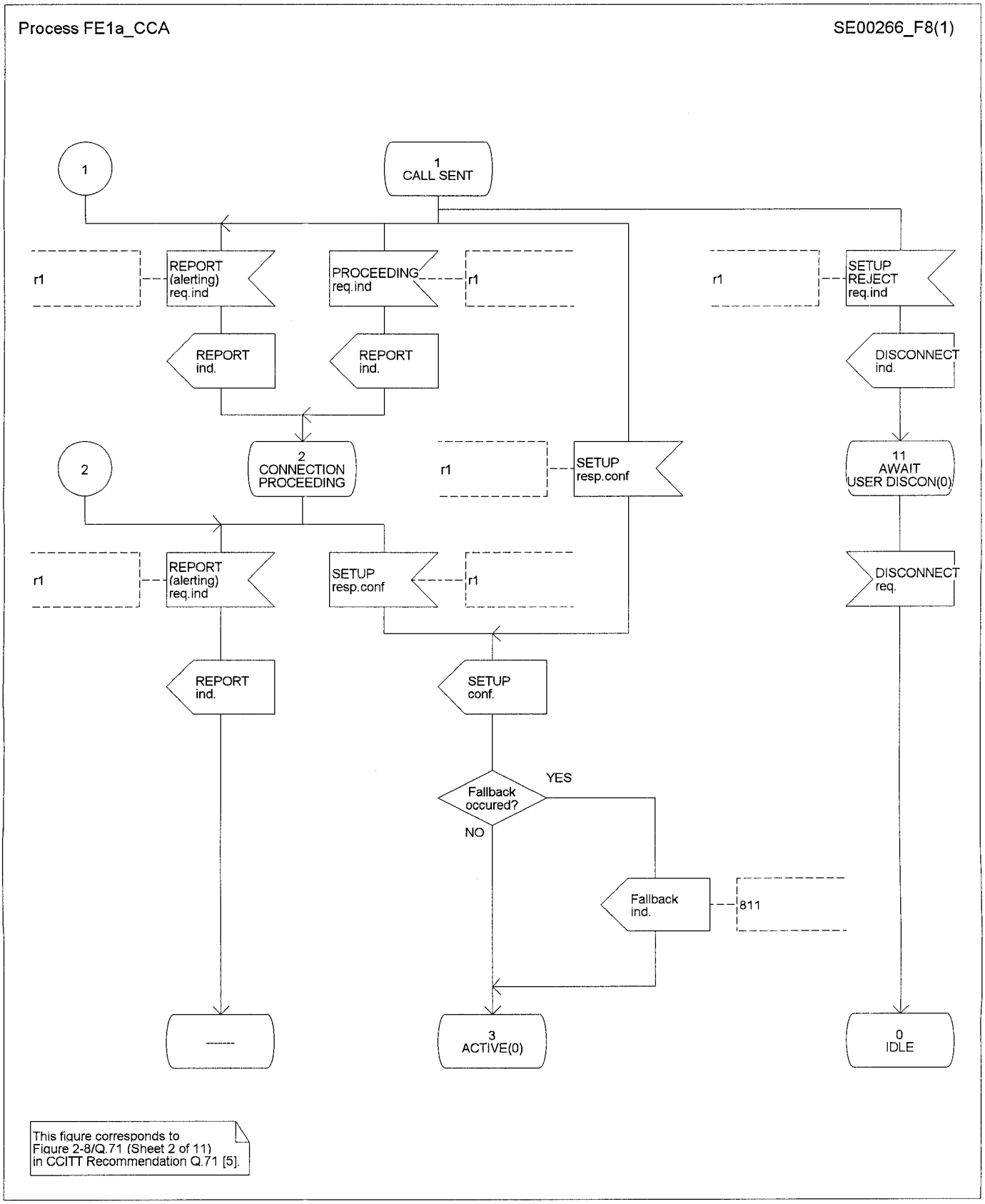

Process FE1a_CCA
SE00266_F8(1)
1
1
CALL SENT
r1
REPORT
(alerting)
req.ind
PROCEEDING
req.ind
r1
r1
SETUP
REJECT
req.ind
REPORT
ind.
REPORT
ind.
DISCONNECT
ind.
2
2
CONNECTION
PROCEEDING
r1
SETUP
resp.conf
11
AWAIT
USER DISCON(0)
r1
REPORT
(alerting)
req.ind
SETUP
resp.conf
r1
DISCONNECT
req.
REPORT
ind.
SETUP
conf.
Fallback
occured?
YES
NO
Fallback
ind.
811
3
ACTIVE(0)
0
IDLE
This figure corresponds to
Figure 2-8/Q.71 (Sheet 2 of 11)
in CCITT Recommendation Q.71 [5].

Figure 8

8.2 SDL diagrams for FE2

The SDL diagrams for FE2 are shown in figure 9.

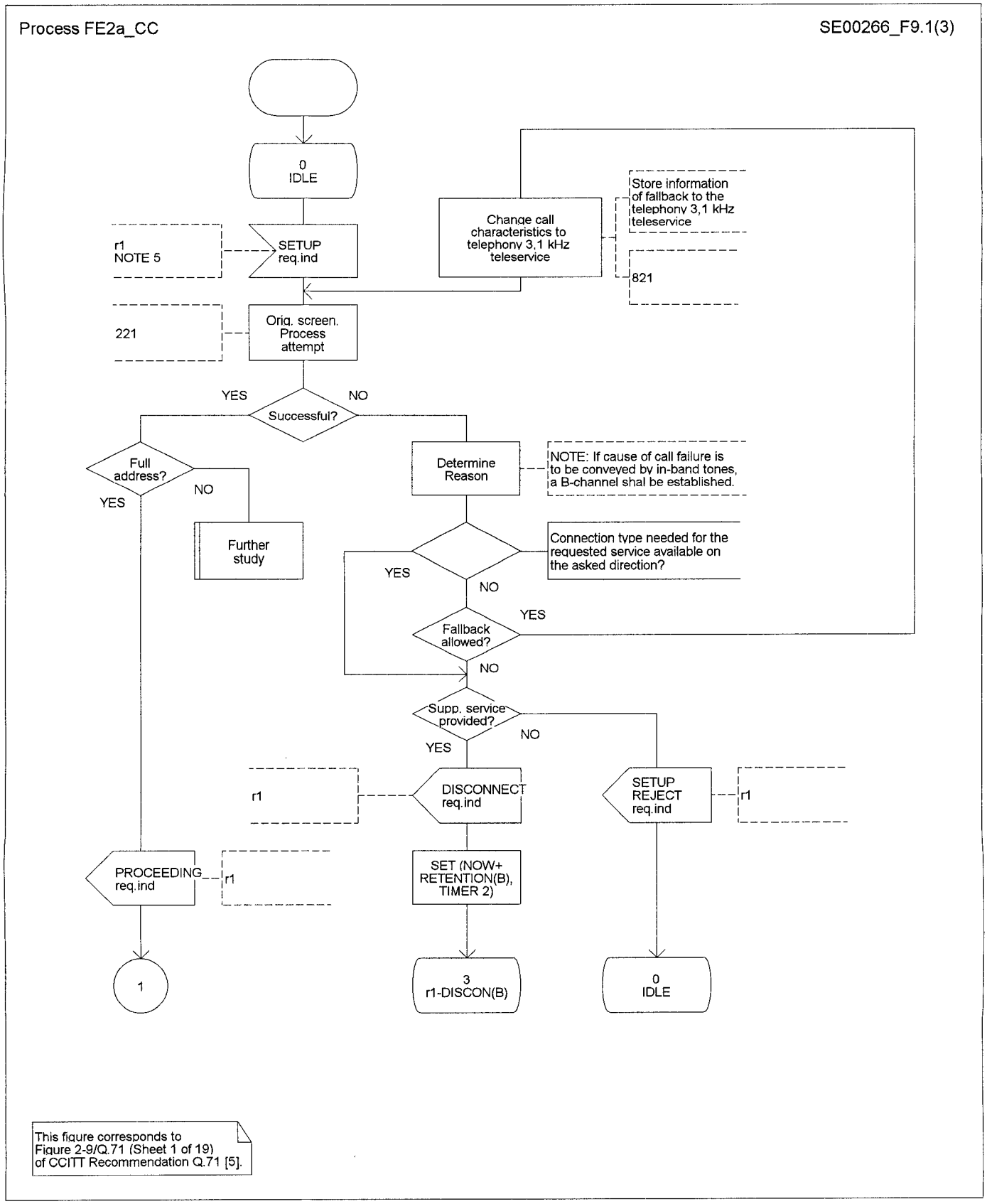


Figure 9.1

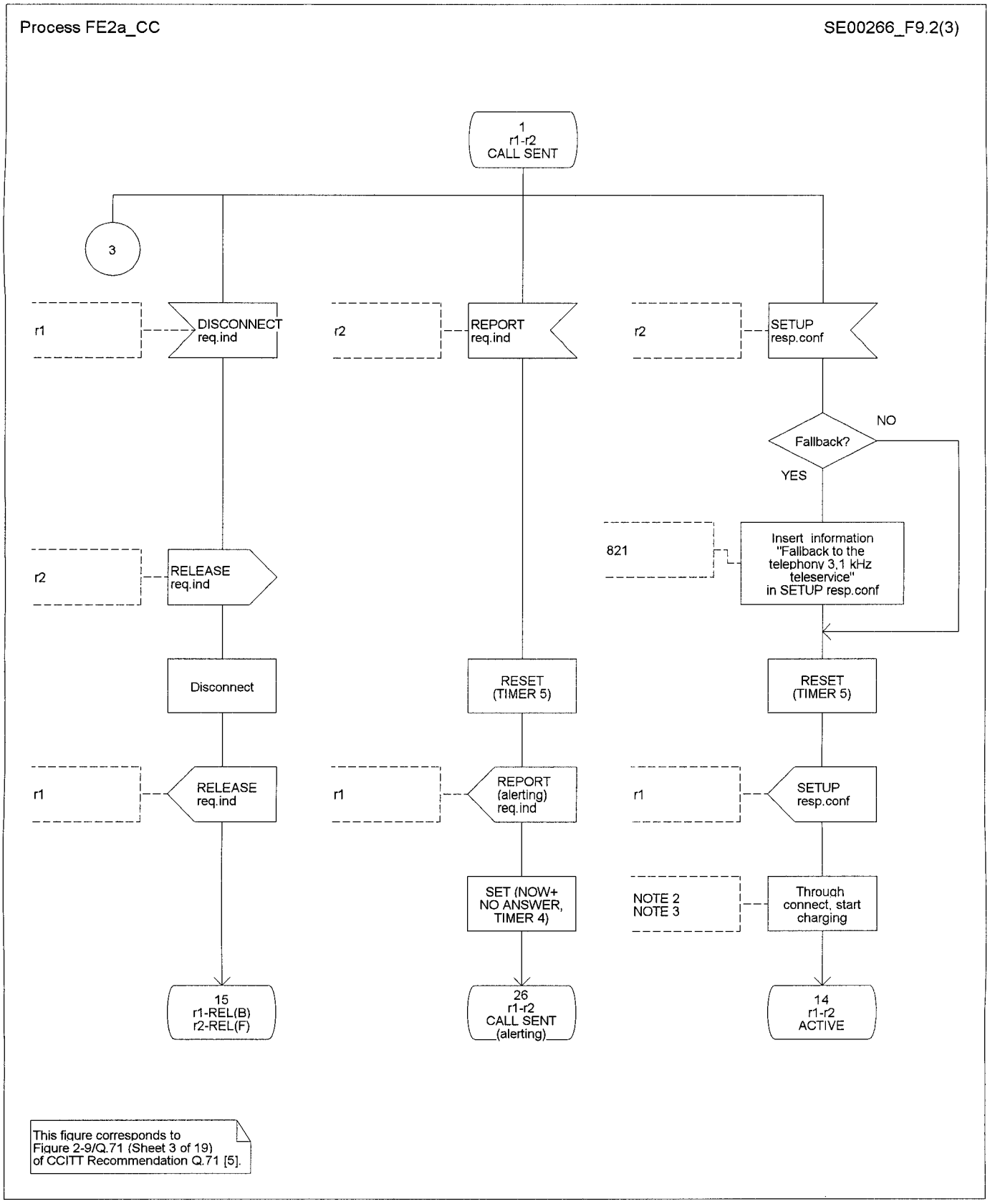

Process FE2a_CC
SE00266_F9.2(3)
1
r1-r2
CALL SENT
3
r1
DISCONNECT
req.ind
r2
REPORT
req.ind
r2
SETUP
resp.conf
NO
Fallback?
YES
821
Insert information
"Fallback to the
telephony 3,1 kHz
teleservice"
in SETUP resp.conf
r2
RELEASE
req.ind
Disconnect
RESET
(TIMER 5)
RESET
(TIMER 5)
r1
RELEASE
req.ind
r1
REPORT
(alerting)
req.ind
r1
SETUP
resp.conf
SET (NOW+
NO ANSWER,
TIMER 4)
NOTE 2
NOTE 3
Through
connect, start
charging
15
r1-REL(B)
r2-REL(F)
26
r1-r2
CALL SENT
(alerting)
14
r1-r2
ACTIVE
This figure corresponds to
Figure 2-9/Q.71 (Sheet 3 of 19)
of CCITT Recommendation Q.71 [5].

Figure 9.2

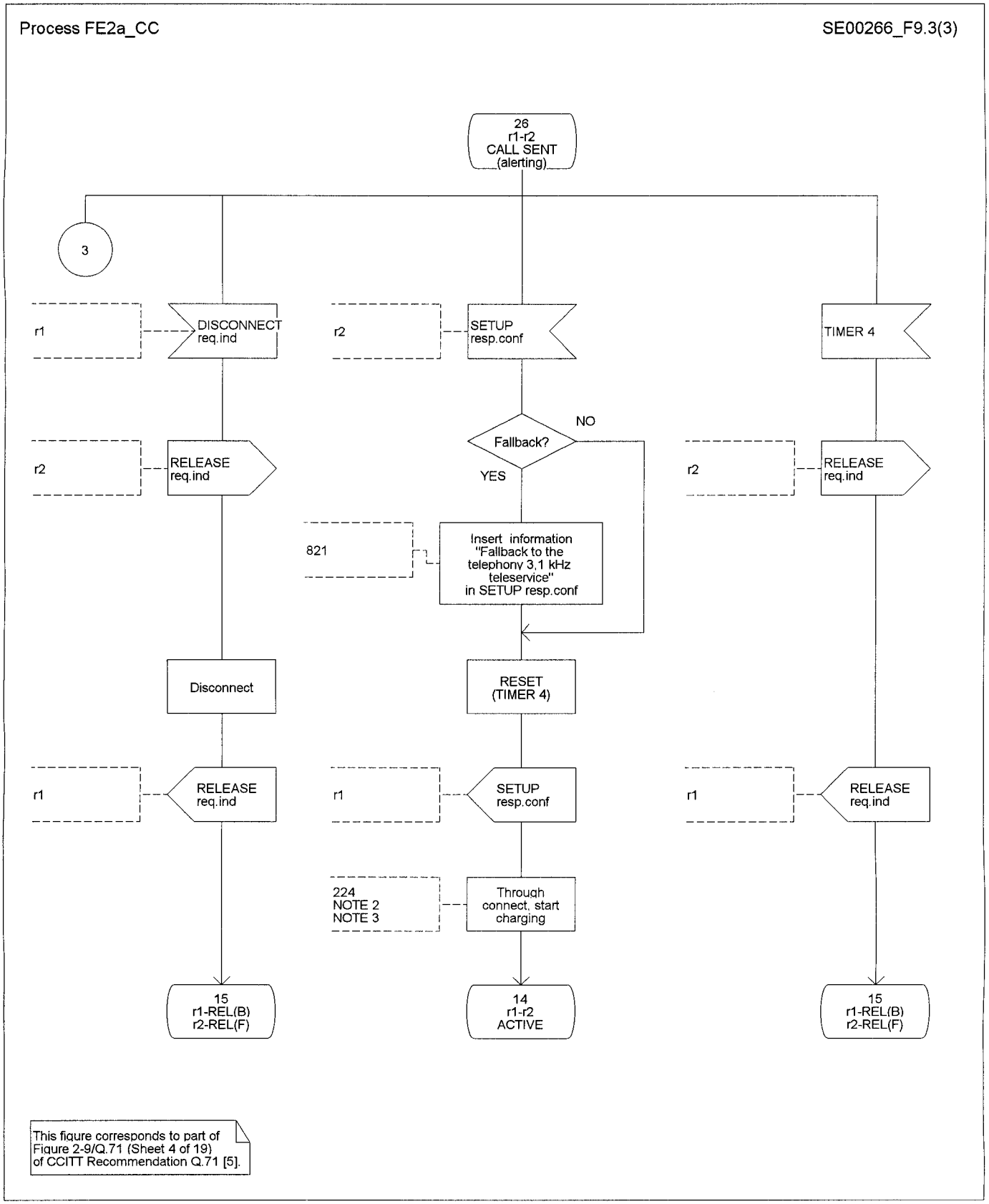

Process FE2a_CC
SE00266_F9.3(3)
26
r1-r2
CALL SENT
(alerting)
3
r1
DISCONNECT
req.ind
r2
SETUP
resp.conf
TIMER 4
NO
Fallback?
YES
r2
RELEASE
req.ind
r2
RELEASE
req.ind
821
Insert information
"Fallback to the
telephony 3,1 kHz
teleservice"
in SETUP resp.conf
Disconnect
RESET
(TIMER 4)
r1
RELEASE
req.ind
r1
SETUP
resp.conf
r1
RELEASE
req.ind
224
NOTE 2
NOTE 3
Through
connect, start
charging
15
r1-REL(B)
r2-REL(F)
14
r1-r2
ACTIVE
15
r1-REL(B)
r2-REL(F)
This figure corresponds to part of
Figure 2-9/Q.71 (Sheet 4 of 19)
of CCITT Recommendation Q.71 [5].

Figure 9.3

8.3 SDL diagrams for FE3

The SDL diagrams for FE3 are shown in figure 10.

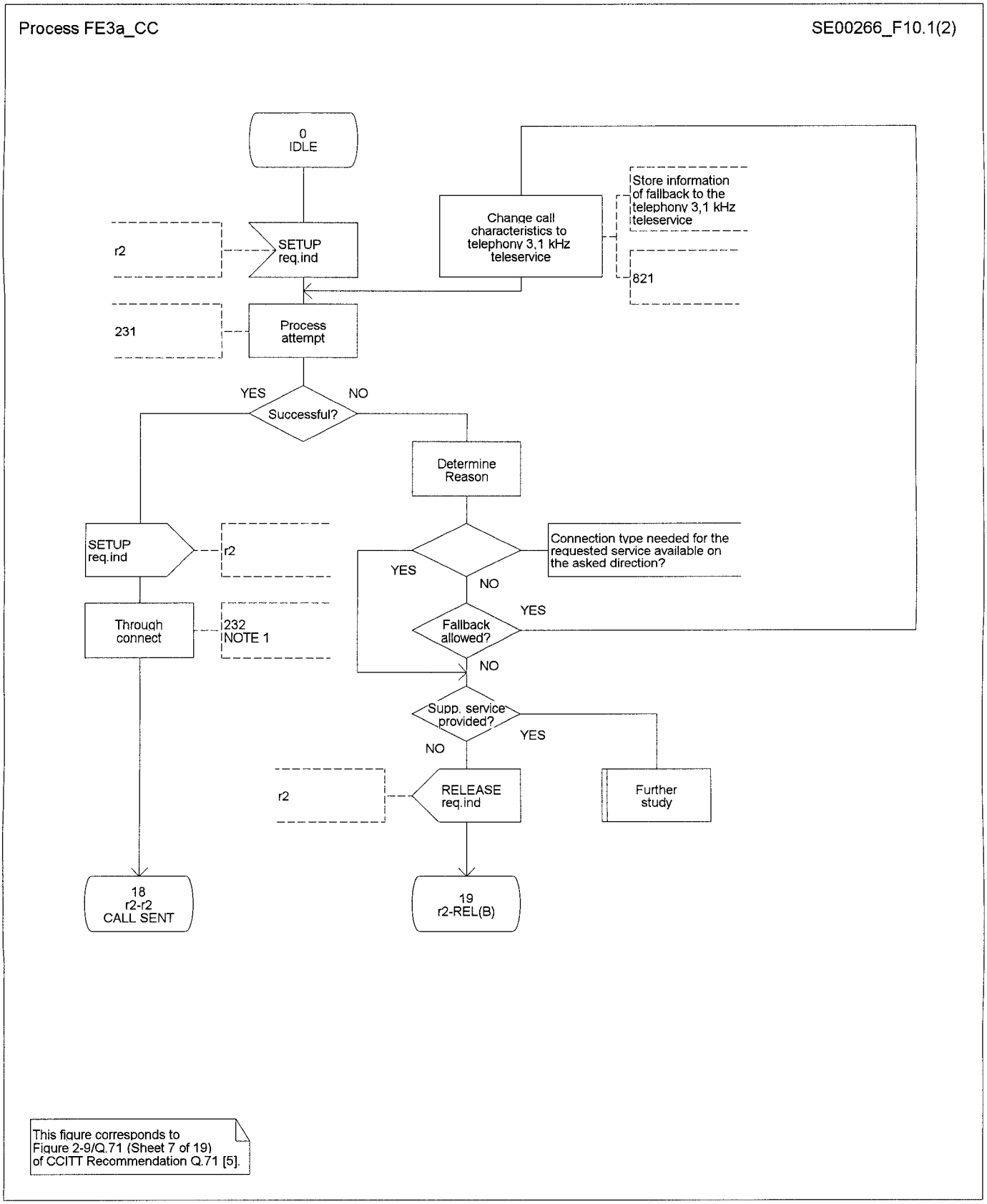
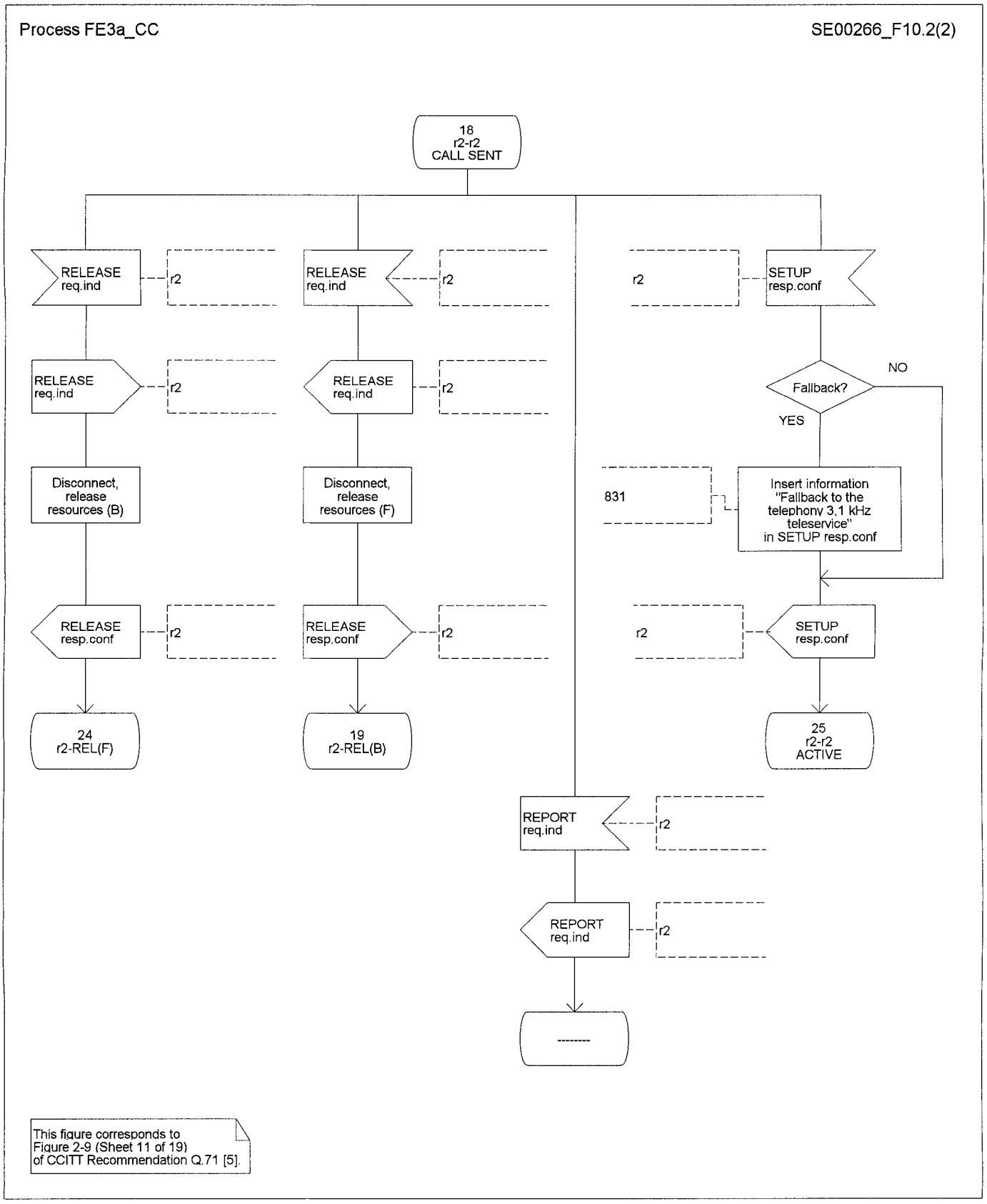


Figure 10.1


Process FE3a_CC
SE00266_F10.2(2)
18
r2-r2
CALL SENT
RELEASE
req.ind
r2
RELEASE
req.ind
r2
r2
SETUP
resp.conf
RELEASE
req.ind
r2
RELEASE
req.ind
r2
Fallback?
NO
YES
Disconnect,
release
resources (B)
Disconnect,
release
resources (F)
831
Insert information
"Fallback to the
telephony 3,1 kHz
teleservice"
in SETUP resp.conf
RELEASE
resp.conf
r2
RELEASE
resp.conf
r2
r2
SETUP
resp.conf
24
r2-REL(F)
19
r2-REL(B)
25
r2-r2
ACTIVE
REPORT
req.ind
r2
REPORT
req.ind
r2

This figure corresponds to
Figure 2-9 (Sheet 11 of 19)
of CCITT Recommendation Q.71 [5].

Figure 10.2

8.4 SDL diagrams for FE4

The SDL diagrams for FE4 are shown in figure 11.

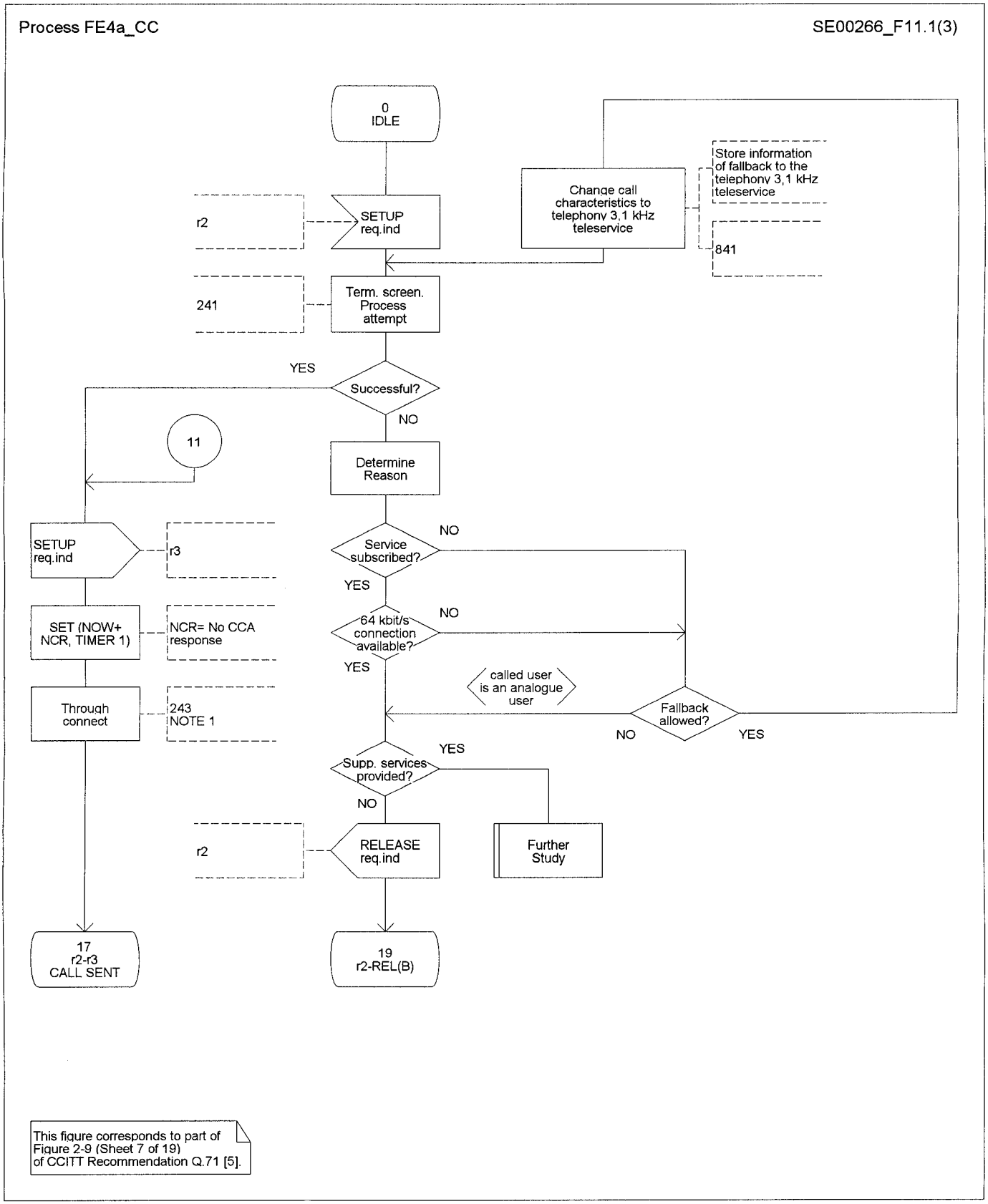
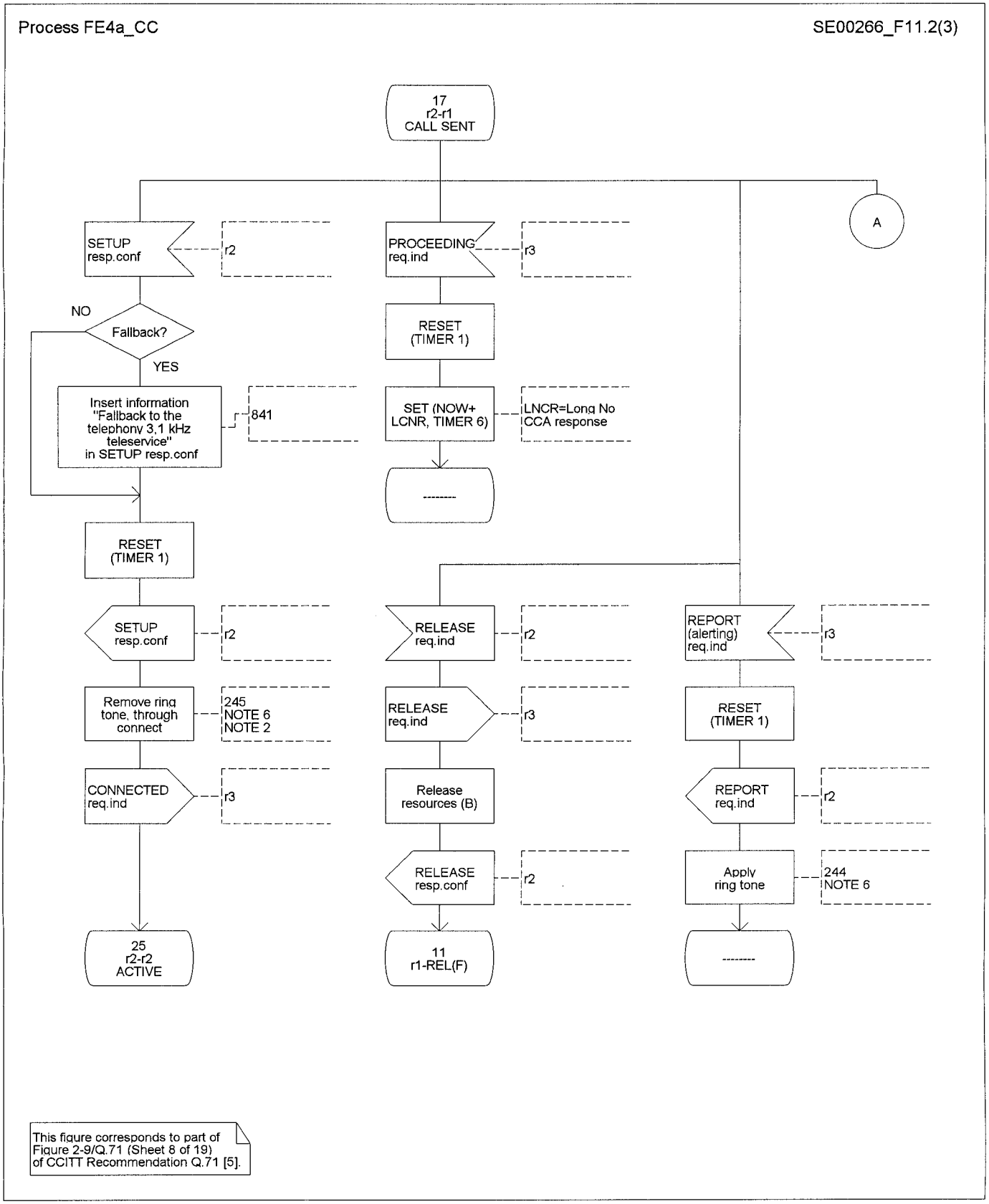


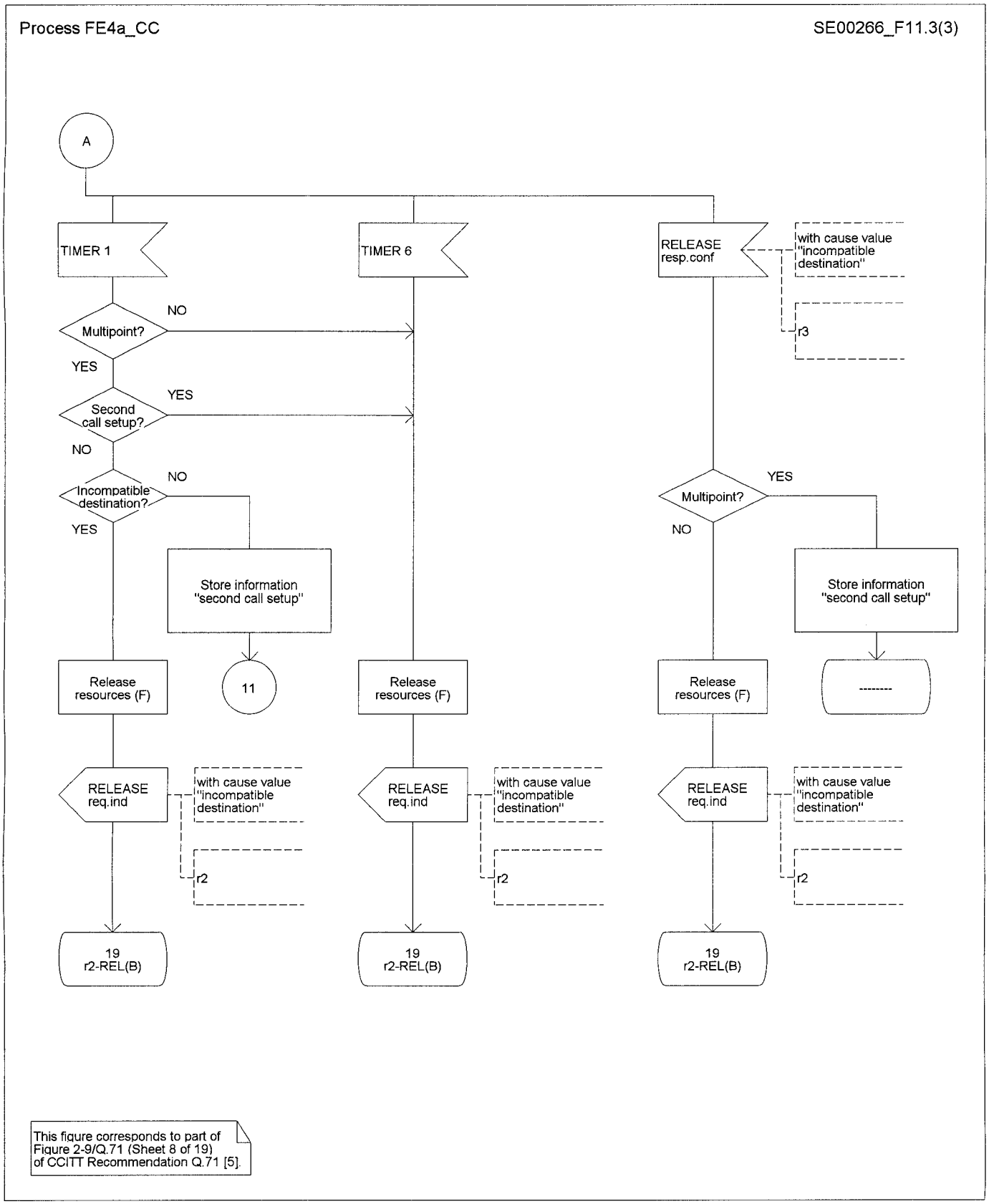
Figure 11.1


Process FE4a_CC
SE00266_F11.2(3)
17
r2-r1
CALL SENT
A
SETUP
resp.conf
r2
PROCEEDING
req.ind
r3
NO
Fallback?
YES
RESET
(TIMER 1)
Insert information
"Fallback to the
telephony 3,1 kHz
teleservice"
in SETUP resp.conf
841
SET (NOW+
LCNR, TIMER 6)
LNCR=Long No
CCA response

RESET
(TIMER 1)
SETUP
resp.conf
r2
RELEASE
req.ind
r2
REPORT
(alerting)
req.ind
r3
Remove ring
tone, through
connect
245
NOTE 6
NOTE 2
RELEASE
req.ind
r3
RESET
(TIMER 1)
CONNECTED
req.ind
r3
Release
resources (B)
REPORT
req.ind
r2
RELEASE
resp.conf
r2
Apply
ring tone
244
NOTE 6
25
r2-r2
ACTIVE
11
r1-REL(F)

This figure corresponds to part of
Figure 2-9/Q.71 (Sheet 8 of 19)
of CCITT Recommendation Q.71 [5].

Figure 11.2


Process FE4a_CC
SE00266_F11.3(3)
A
TIMER 1
TIMER 6
RELEASE resp.conf
with cause value "incompatible destination"
r3
Multipoint?
NO
YES
Second call setup?
YES
NO
Incompatible destination?
NO
YES
Store information "second call setup"
11
Release resources (F)
RELEASE req.ind
with cause value "incompatible destination"
r2
19 r2-REL(B)
Multipoint?
YES
NO
Store information "second call setup"

This figure corresponds to part of Figure 2-9/Q.71 (Sheet 8 of 19) of CCITT Recommendation Q.71 [5].

Figure 11.3

8.5 SDL diagrams for FE5

The SDL diagrams for FE5 are shown in figures 12 to 14.

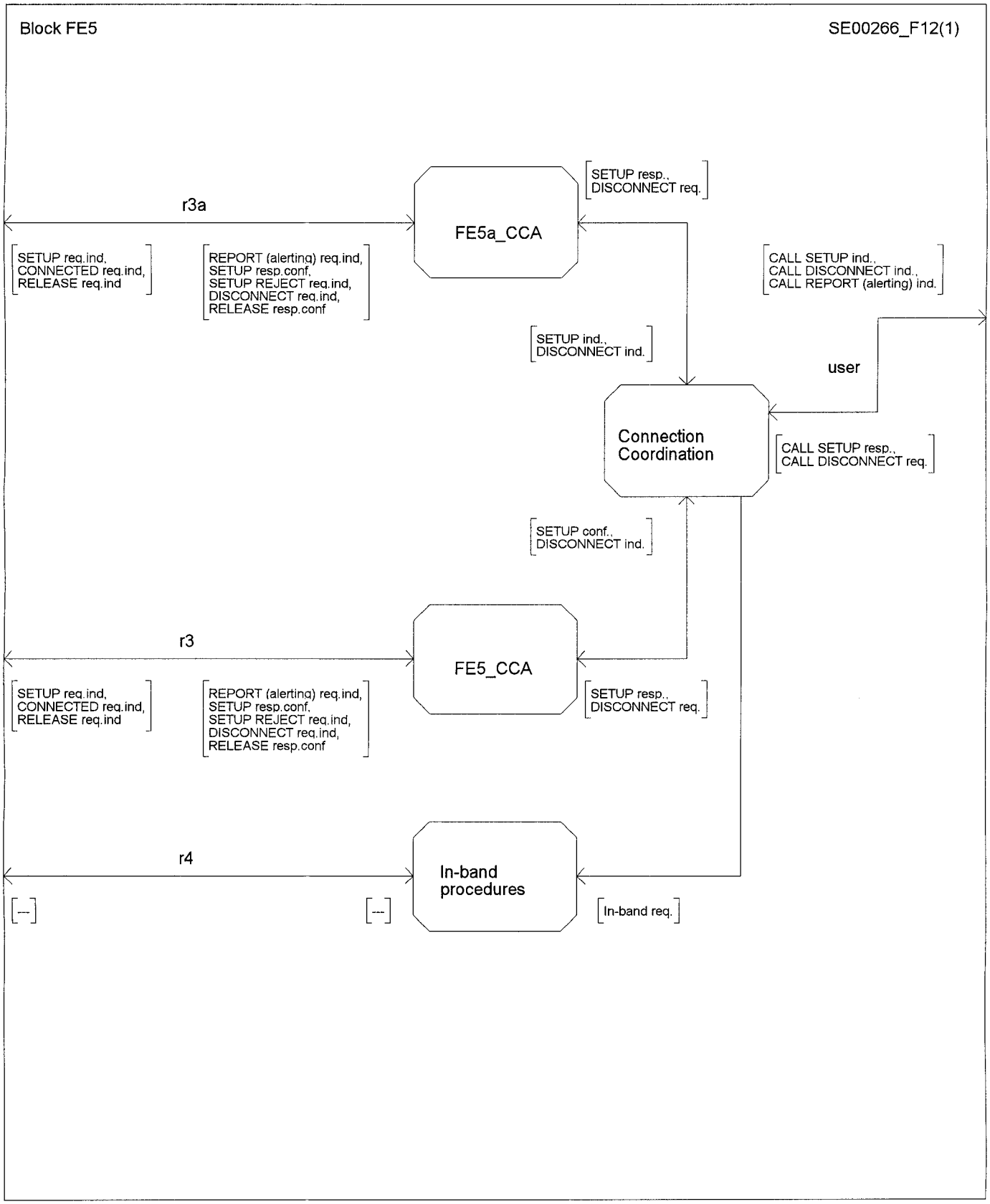
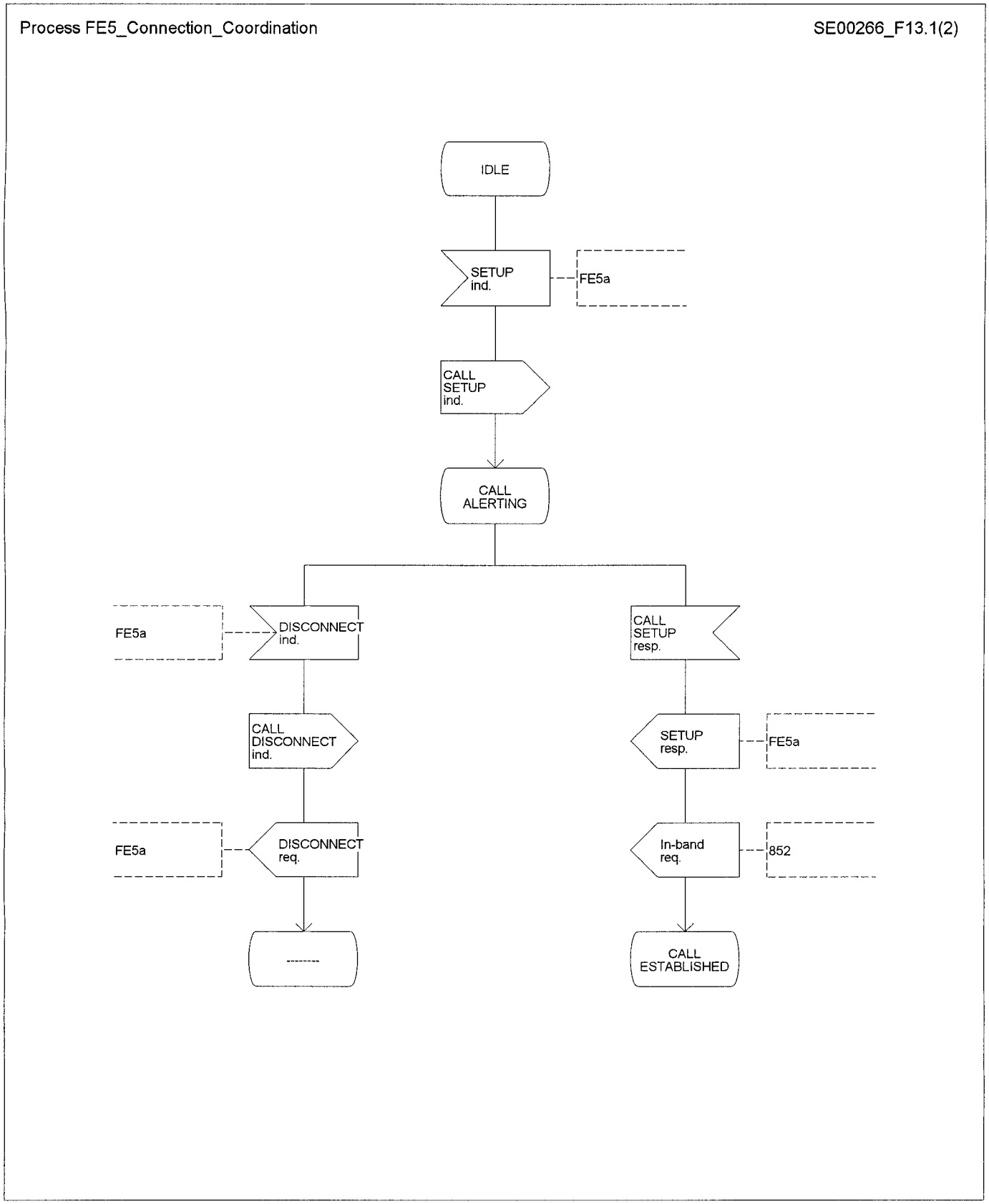
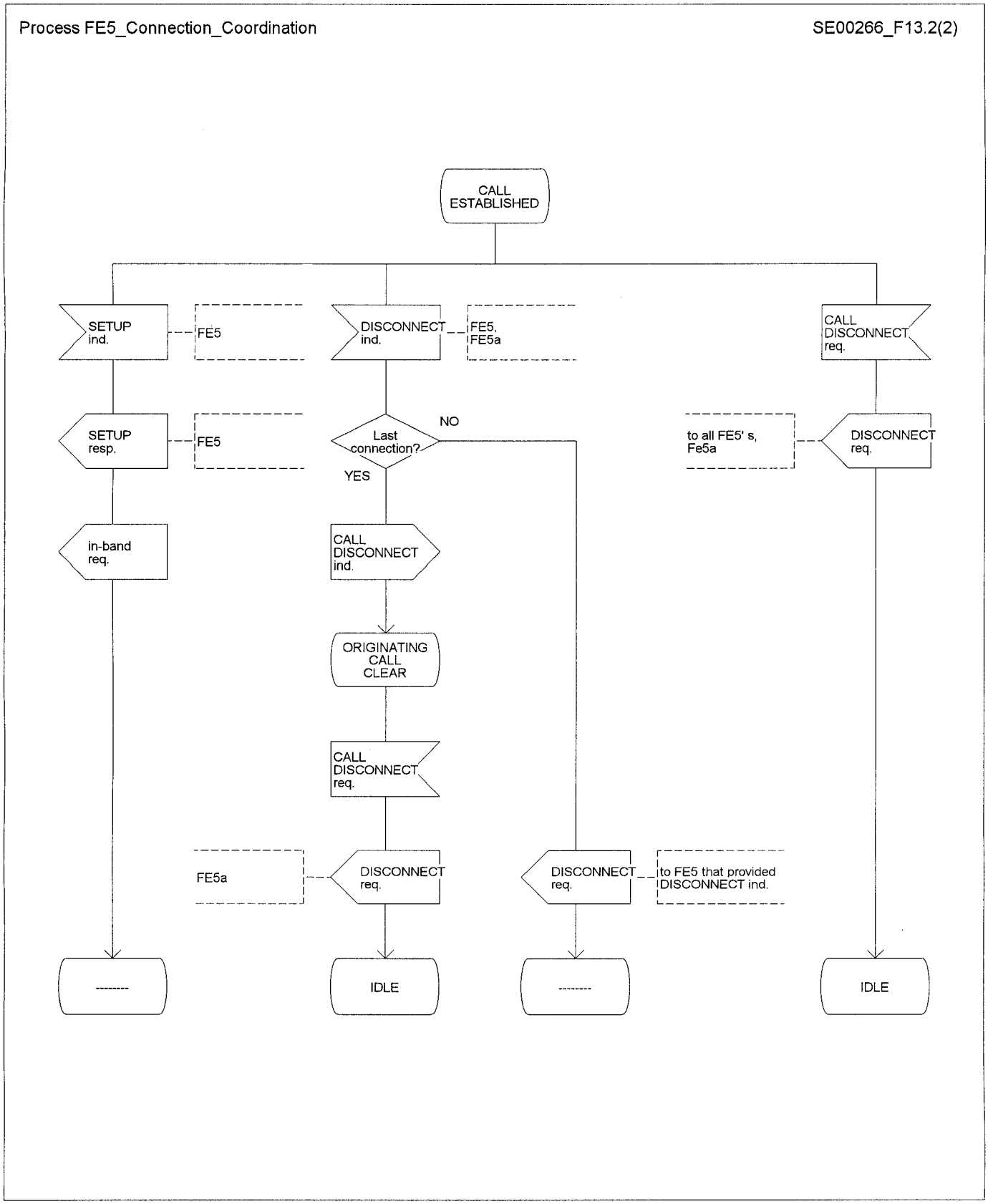


Figure 12


Process FE5_Connection_Coordination
SE00266_F13.1(2)
IDLE
SETUP ind.
FE5a
CALL SETUP ind.
CALL ALERTING
FE5a
DISCONNECT ind.
CALL SETUP resp.
CALL DISCONNECT ind.
SETUP resp.
FE5a
FE5a
DISCONNECT req.
In-band req.
852

CALL ESTABLISHED

Figure 13.1


Process FE5_Connection_Coordination
SE00266_F13.2(2)
CALL ESTABLISHED
SETUP ind.
FE5
DISCONNECT ind.
FE5, FE5a
CALL DISCONNECT req.
SETUP resp.
FE5
Last connection?
NO
YES
to all FE5' s, Fe5a
DISCONNECT req.
in-band req.
CALL DISCONNECT ind.
ORIGINATING CALL CLEAR
CALL DISCONNECT req.
FE5a
DISCONNECT req.
DISCONNECT req.
to FE5 that provided DISCONNECT ind.

IDLE

IDLE

Figure 13.2

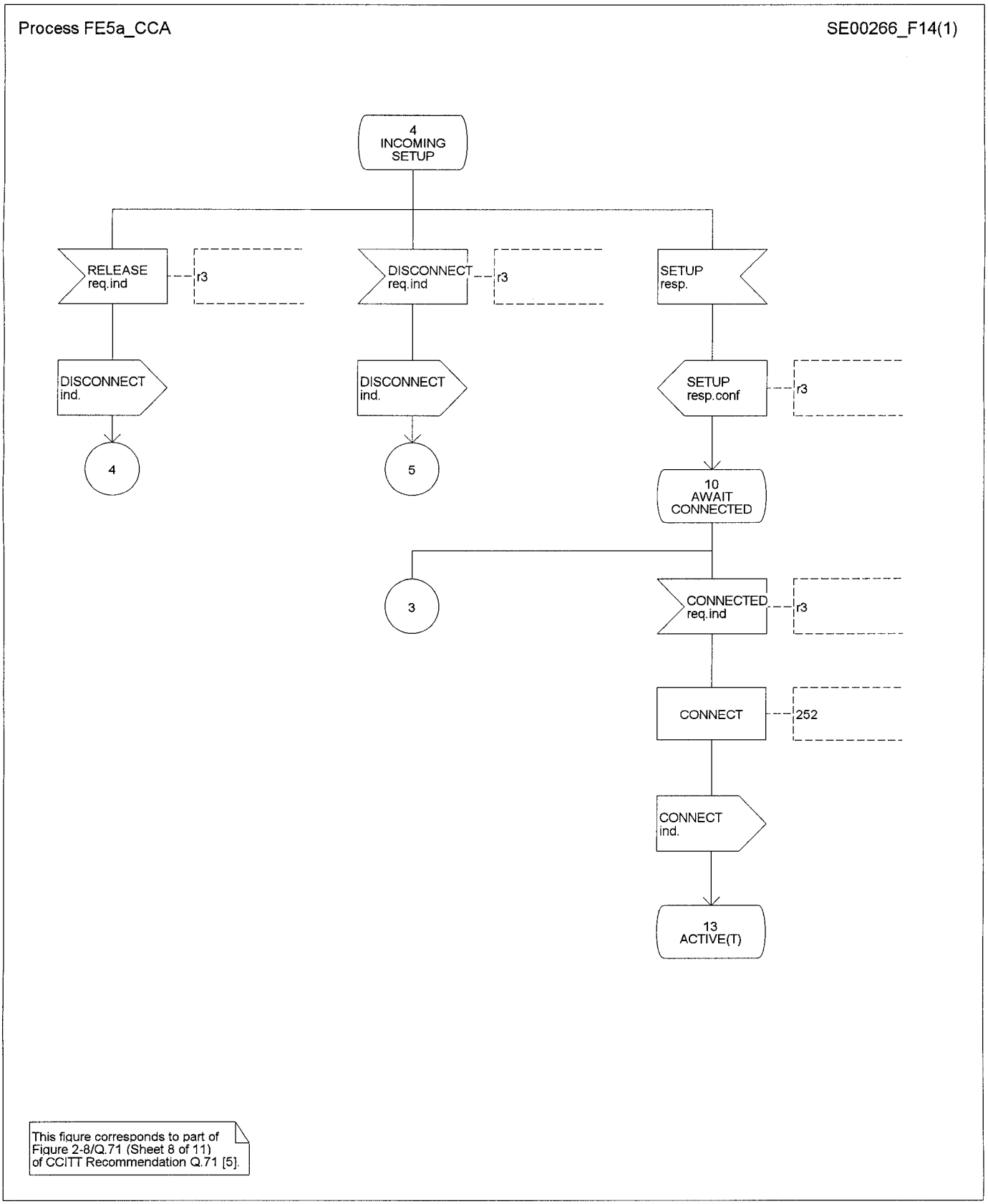

Process FE5a_CCA
SE00266_F14(1)
4
INCOMING
SETUP
RELEASE
req.ind
r3
DISCONNECT
req.ind
r3
SETUP
resp.
DISCONNECT
ind.
DISCONNECT
ind.
SETUP
resp.conf
r3
4
5
10
AWAIT
CONNECTED
3
CONNECTED
req.ind
r3
CONNECT
252
CONNECT
ind.
13
ACTIVE(T)
This figure corresponds to part of
Figure 2-8/Q.71 (Sheet 8 of 11)
of CCITT Recommendation Q.71 [5].

Figure 14

9 Functional Entity Actions (FEAs)

9.1 FEAs of FE1

In addition to the FEAs defined in CCITT Recommendation Q.71 [5]:

811: FE1 shall handle the fallback to the telephony 3,1 kHz teleservice if authorised by the calling user;

812: FE1 shall handle in-band negotiation as per ETS 300 144 [8];

813: FE1 shall initiate the second connection.

9.2 FEAs of FE2

In addition to the FEAs defined in CCITT Recommendation Q.71 [5]:

821: FE2 shall handle the fallback to the telephony 3,1 kHz teleservice if authorised by the calling user.

9.3 FEAs of FE3

In addition to the FEAs defined in CCITT Recommendation Q.71 [5]:

831: FE3 shall handle the fallback to the telephony 3,1 kHz teleservice if authorised by the calling user.

9.4 FEAs of FE4

In addition to the FEAs defined in CCITT Recommendation Q.71 [5]:

841: FE4 shall handle the fallback to the telephony 3,1 kHz teleservice if authorised by the calling user.

9.5 FEAs of FE5

In addition to the FEAs defined in CCITT Recommendation Q.71 [5]:

852: FE5 shall handle in-band negotiation as per ETS 300 144 [8].

In CCITT Recommendation Q.71 [5], § 2.4, FEA 251 (Process attempt) is modified and the item:

- Formulate REPORT (alerting) req.ind

is not applicable.

10 Network physical location scenarios

As described in CCITT Recommendation Q.71 [5], see table 2.

History

Document history	
February 1994	First Edition
May 1996	Converted into Adobe Acrobat Portable Document Format (PDF)