3GPP TSG_CN **Tdoc NP-000476**
Plenary Meeting #9, Oahu, Hawaii
20th – 22nd September 2000.

Source: **TSG_N WG 3**

Title: **CRs to R00 Work Item RT Facsimile part 1 of 2**

Agenda item: **7.7.3**

Document for: **APPROVAL**

Introduction:

This document contains **2** CRs on **R00** Work Item **RT Facsimile**, that has been agreed by **TSG_N WG3**, and is forwarded to TSG_N Plenary meeting #9 for approval.

Doc-2nd-	Spec	CR	Rev	Phase	Subject	Cat	Version-Current
N3-000380	23.146	001		R00	Correction of SDL Diagrams	F	4.0.0
N3-000329	29.007	025		R00	Correction of incomplete part related to introduction of UMTS	F	3.5.0

3GPP N3/SMG3 WPD Meeting #11
Oslo, Norway, 10th – 14th July 2000

Document N3-000329
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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29.007	CR	025	Current Version:	3.5.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG CN#9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]
(at least one should be marked with an X)

Source: TSG_N3 **Date:** 2000-07-11

Subject: Correction of incomplete part related to introduction of UMTS NT-RT FAX

Work item: RT Facsimile

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	
				Release 00	X

Reason for change: Incomplete part related to introduction of UMTS NT-RT FAX should be corrected.

Clauses affected: See attached pages

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] ITU-T Recommendation G.711: "Pulse code modulation (PCM) of voice frequencies".

[2] ITU-T Recommendation I.460: "Multiplexing, rate adaption and support of existing interfaces".

[3] ITU-T Recommendation I.464: "Multiplexing, rate adaption and support of existing interfaces for restricted 64 kbit/s transfer capability".

[4] ITU-T Recommendation Q.922 (1992): "DSS 1 Data link layer: ISDN data link layer specification for frame mode bearer services".

[5] ITU-T Recommendation Q.931 (05/98): "DSS 1 - ISDN user network interface layer 3 specification for basic call control".

[6] ITU-T Recommendation V.22: "1200 bits per second duplex modem standardized for use in the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[7] ITU-T Recommendation V.24: "List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)".

[8] ITU-T Recommendation V.25: "Automatic answering equipment and/or parallel automatic calling equipment on the general switched telephone network including procedures for disabling of echo control devices for both manually and automatically established calls".

[9] ITU-T Recommendation V.32: "A family of 2-wire, duplex modems operating at data signalling rates of up to 9600 bit/s for use on the general switched telephone network and on leased telephone-type circuits".

[10] ITU-T Recommendation V.32bis: "A duplex modem operating at data signalling rates of up to 14 400 bit/s for use on the general switched telephone network and on leased point-to-point 2-wire telephone-type circuits"

[11] ITU-T Recommendation V.34: "A modem operating at data signalling rates of up to 33 600 bit/s for use on the general switched telephone network and on leased point-to-point 2-wire telephone-type circuits".

[12] ITU-T Recommendation V.42: "Error-correcting procedures for DCEs using asynchronous-to-synchronous conversion".

[13] ITU-T Recommendation V.42bis: "Data Compression for Data Circuit Terminating Equipment (DCE) using Error Correction Procedures".

[14] ITU-T Recommendation V.90: "A digital modem and analogue modem pair for use on the Public Switched Telephone Network (PSTN) at data signalling rates of up to 56 000 bit/s downstream and up to 33 600 bit/s upstream".

[15] ITU-T Recommendation V.110: "Support of data terminal equipments (DTEs) with V-Series interfaces by an integrated services digital network".

[16] ITU-T Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".

[17] ETR 018: "Integrated Services Digital Network (ISDN); Application of the Bearer Capability (BC), High Layer Compatibility (HLC) and Low Layer Compatibility (LLC) information elements by terminals supporting ISDN services".

[18] ETS 300 102-1 Edition 1 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3 Specifications for basic call control".

[19] EN 300 403-1 V1.2.2 (1998-04): "Integrated Services Digital Network (ISDN); Digital Sunscriber Signalling System No. One (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification".

[20] GSM 01.01: "Digital cellular telecommunication system (Phase 2+); GSM Release 1999 Specifications".

[21] GSM 01.04: "Digital cellular telecommunication system (Phase 2+); Abbreviations and acronyms".

[22] GSM 02.01: "Digital cellular telecommunication system (Phase 2+); Principles of telecommunication services supported by a GSM Public Land Mobile Network (PLMN)".

[23] GSM 02.03: "Digital cellular telecommunications system (Phase 2+); Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[24] GSM 03.10: "Digital cellular telecommunications system (Phase 2+); GSM PLMN Connection types".

[25] GSM 03.45: "Digital cellular telecommunications system (Phase 2+); Technical realization of facsimile group 3 transparent".

[26] GSM 03.50: "Digital cellular telecommunications system (Phase 2+); Transmission planning aspects of the speech service in the GSM Public Land Mobile Network (PLMN) system".

[27] GSM 04.21: "Digital cellular telecommunications system (Phase 2+); Rate adaption on the Mobile Station - Base Station System (MS - BSS) interface".

[28] GSM 08.20: "Digital cellular telecommunication system (Phase 2+); Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[29] GSM 08.60: "Digital cellular telecommunications system (Phase 2+); Inband control of remote transcoders and rate adaptors for Enhanced Full Rate (EFR) and full rate traffic channels".

[30] GSM 09.02 version 3.x.y: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification".

[31] GSM 09.03: "Digital cellular telecommunication system (Phase 2+); Signalling requirements on interworking between the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) and the Public Land Mobile Network (PLMN)".

[32] 3G TS 21.101: "3rd Generation Partnership Project; Technical Specification Group: Release 1999 Specifications".

[33] 3G TS 22.002: " Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".

[34] 3G TS 22.004: "General on supplementary services".

[35] 3G TS 23.003: "Numbering, addressing and identification".

[36] 3G TS 23.008: "Organization of subscriber data".

[37] 3G TS 23.011: "Technical realization of supplementary services".

[38] 3G TS 23.~~046~~146: "Technical realization of facsimile group 3 non-transparent".

[39] 3G TS 23.054: "Description for the use of a Shared Inter Working Function in a GSM PLMN; Stage 2".

[40] 3G TS 24.008: " Mobile radio interface layer 3 specification".

[41] 3G TS 24.022: "Radio Link Protocol (RLP) for data and telematic services on the Mobile Station - Base Station System (MS - BSS) interface and the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".

[42] 3G TS 25.415: "Iu Interface CN-UTRAN User Plane Protocols".

[43] 3G TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[44] 3G TS 27.002: "Terminal Adaptation Functions (TAF) for services using asynchronous bearer capabilities".

[45] 3G TS 27.003: "Terminal Adaptation Functions (TAF) for services using synchronous bearer capabilities".

[46] 3G TS 29.002: "Mobile Application Part (MAP) specification".

[47] 3G TS 29.006: "Interworking between a Public Land Mobile Network (PLMN) and a Packet Switched Public Data Network/Integrated Services Digital Network (PSPDN/ISDN) for the support of packet switched data transmission services".

[48] ISO/IEC 3309: "Telecommunications and information exchange between systems - High-level data link control (HDLC) procedures - Frame structure".

[49] IETF RFC 1662: "PPP in HDLC-like framing".

[50] Mobile Internet Access Forum: "PIAFS Specification Ver. 1.1, 2.1".

[51] ITU-T Recommendation V.8: "Procedures for starting sessions of data transmission over the public switched telephone network".

[52] TS 26.111: "Codec for Circuit Switched Multimedia Telephony Service; Modifications to H.324".

[53] 3G TR 23.910: " Circuit Switched Data Bearer Services".

10 Interworking to the ISDN

10.3 Interworking Alternate speech facsimile group 3 calls

10.3.1 Alternate speech data bearer interworking

10.3.1.1 General

The procedure for the alternate speech/facsimile group 3 service is invoked at the MS-MSC link during the call set-up phase. This service is invoked by indication of repeated bearer capability information elements in the setup message and/or call confirmed message, respectively (preceded by a repeat indicator "circular"), one indicating speech and the other indicating "facsimile group 3" plus user rate etc., as for normal single calls. The bearer capability first indicated i.e. speech or facsimile determines the first selection required of the network by the subscriber. Depending on the type of service requested and direction of call establishment (M0/MT, see relevant clauses of the 3G TS 27 series) low layer and high layer capabilities may also be included. The MSC/IWF will perform both compatibility checking and subscription checking for mobile originated calls and optionally for mobile terminated calls (single numbering scheme) on both sets of capabilities as for normal data calls. If either the subscription check or the compatibility check fails then the call shall be rejected. The only exception to this is when TS61/TS62 negotiation takes place, see 3G TS 27.001.

As regards the supplementary services the application rules are laid down in 3G TS 22.004.

The speech phase of the call, when invoked, is handled by the transcoder and will utilize the normal telephony teleservice interworking requirements and mobile network capabilities. The Facsimile group 3 phase of the call, when invoked, will utilize the appropriate data interworking capability (e.g. IWF) and may use either the transparent or non-transparent mobile network capability in the case of GSM. In UMTS only the non-transparent service is applicable.

The network shall provide, for service and operational reasons, a rapid and reliable changeover of capability upon request from the mobile user. This changeover may involve the disabling, by-passing or introduction of particular network functions (e.g. speech coder, modem etc.) and change of the channel configuration on the radio interface. This changeover is initiated on the receipt of the "MODIFY" message (see 3G TS 24.008) from the MS. The network itself will not initiate a changeover.

10.3.1.2 Mobile originated ISDN terminated

If one bearer capability information element indicates the ITC value "facsimile group 3", the call set up is as for the PSTN case. Interworking is provided to the ISDN bearer service 3,1 kHz audio for the whole connection, including the speech phase. The MODIFY message (see 3G TS 24.008) will be generated by the mobile subscriber. This message is not transmitted to the ISDN, i.e. no outband correlation between the user on the fixed network and the mobile user will be possible. In this instance it is necessary for change of network capabilities to be carried out in the mobile network.

10.3.1.3 ISDN originated mobile terminated

In principle this is handled as for normal ISDN originated call.

When the calling user however indicates an ISDN BC-IE with an ITC value "3,1 kHz audio" and a HLC "facsimile group 3", i.e. the call arrives at the ~~GSM~~ PLMN with compatibility information allowing for deducing the Teleservice "Facsimile transmission", the call setup is as described in subclause 10.2.2 (case 3 in HLR, case 5 in VMSC).

In the information transfer phase the call is dealt with as indicated in the previous paragraph.

3GPP N3/SMG3 WPD Meeting #11
Oslo, Norway, 10th – 14th of July,2000

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23.146	CR	001	Current Version:	4.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG CN#9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	X

Source: TSG_N3 **Date:** 2000-07-10

Subject: Correction of SDL diagrams

Work item: RT facsimile

Category: *(only one category shall be marked with an X)*				**Release:**		
F	Correction	X		Phase 2		
A	Corresponds to a correction in an earlier release			Release 96		
B	Addition of feature			Release 97		
C	Functional modification of feature			Release 98		
D	Editorial modification			Release 99		
				Release 00	X	

Reason for change: Correction to SDL diagrams including some editorial modifications.

Clauses affected: Annex D (figure D6,D15,D19,D26,D33,D35)

Other specs affected:				
Other 3G core specifications		→	List of CRs:	
Other GSM core specifications		→	List of CRs:	
MS test specifications		→	List of CRs:	
BSS test specifications		→	List of CRs:	
O&M specifications		→	List of CRs:	

Other comments:

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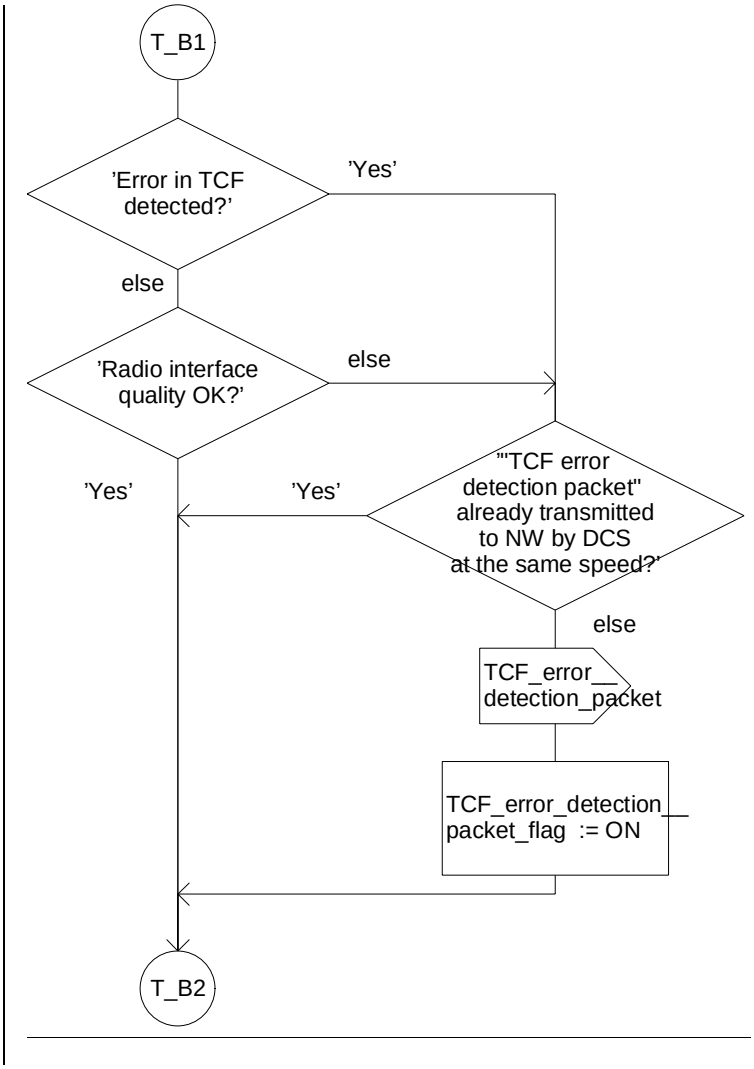

T_B1
'Error in TCF detected?'
'Yes'
else
'Radio interface quality OK?'
else
'Yes'
'Yes'
"'TCF error detection packet" already transmitted to NW by DCS at the same speed?'
else
TCF_error_detection_packet
TCF_error_detection_packet_flag := ON
T_B2

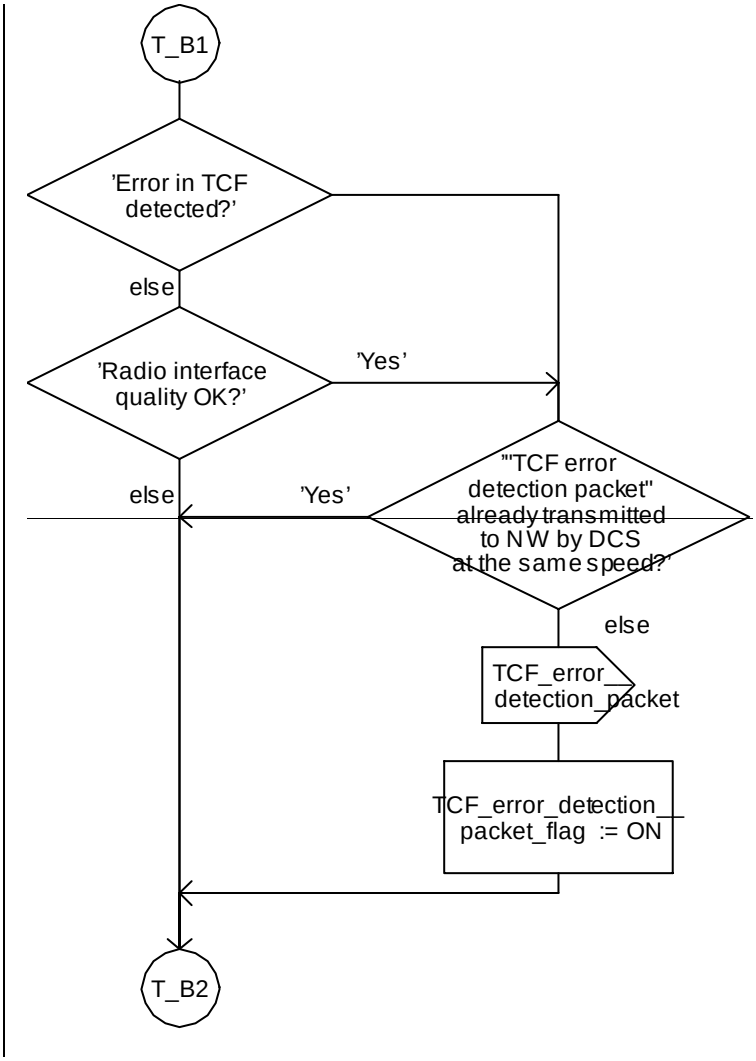
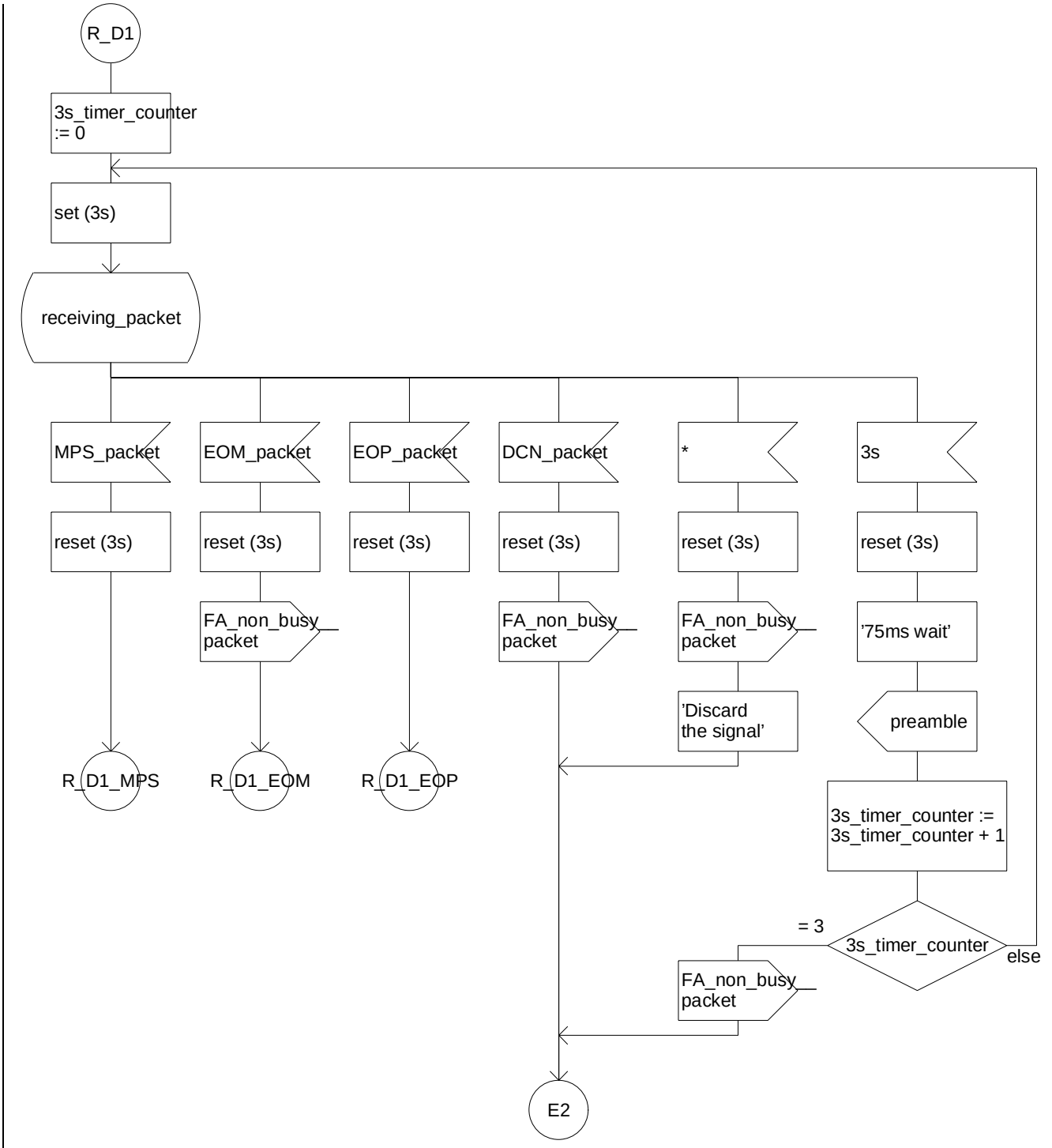


Figure D.6: Output conditions for "TCF error detection" for ECM&NONECM


R_D1
3s_timer_counter := 0
set (3s)
receiving_packet
MPS_packet
EOM_packet
EOP_packet
DCN_packet
*
3s
reset (3s)
reset (3s)
reset (3s)
reset (3s)
reset (3s)
reset (3s)
FA_non_busy packet
FA_non_busy packet
FA_non_busy packet
'75ms wait'
'Discard the signal'
preamble
R_D1_MPS
R_D1_EOM
R_D1_EOP
3s_timer_counter := 3s_timer_counter + 1
= 3
3s_timer_counter
else
FA_non_busy packet
E2

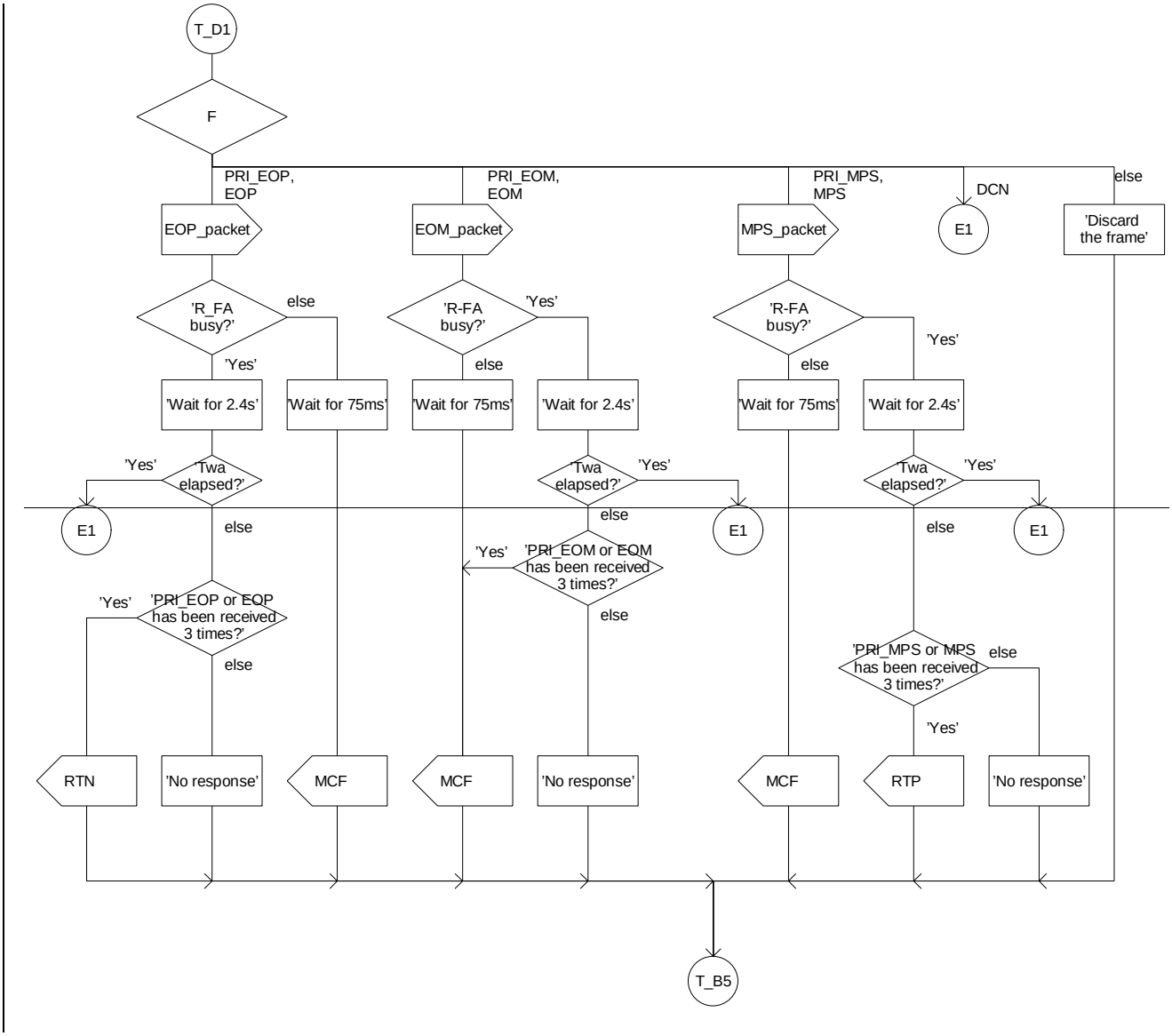
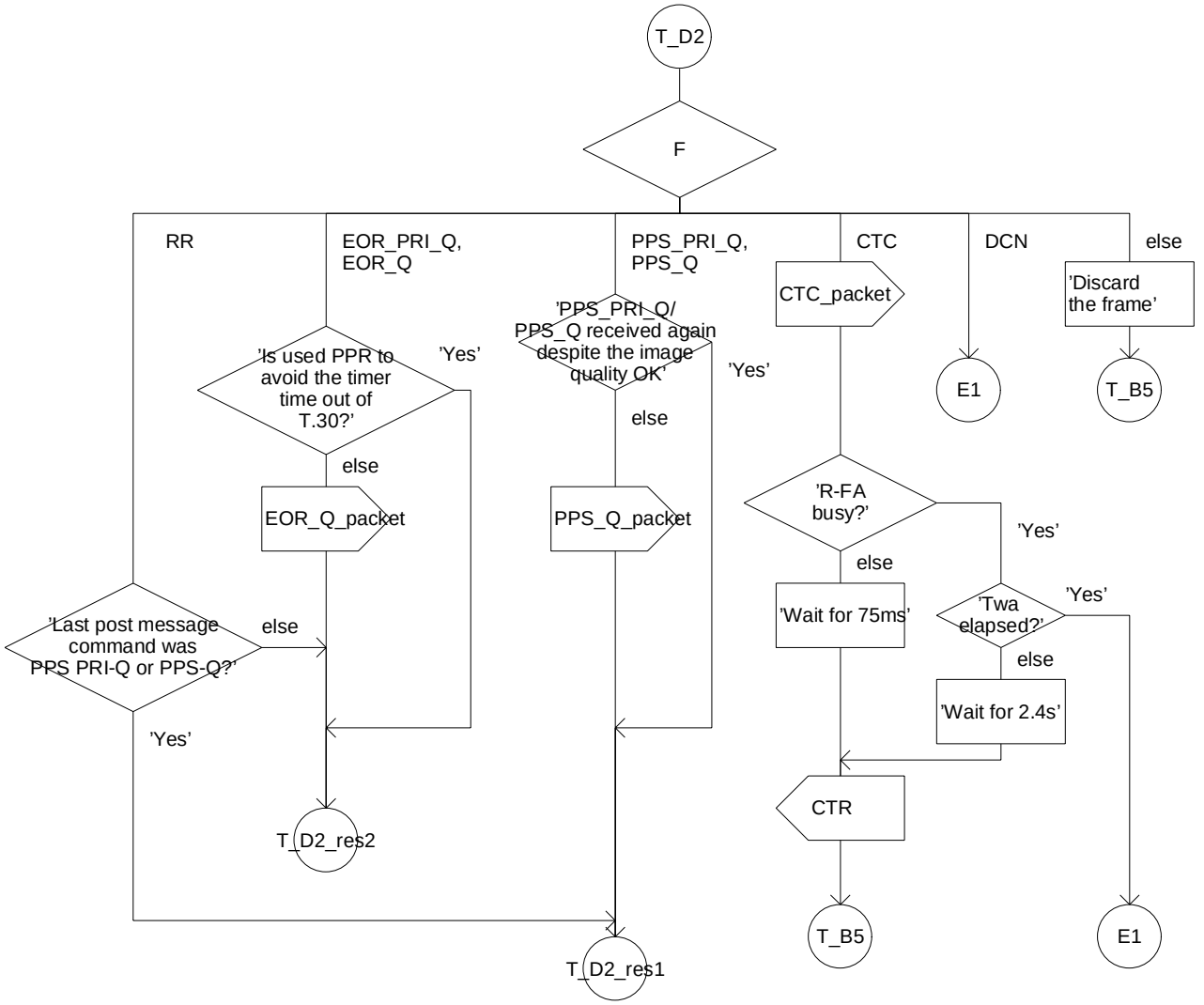


Figure D.15: Reception side FA for NON ECM, Phase D (Basic control flow)


T_D2
F
RR
EOR_PRI_Q, EOR_Q
PPS_PRI_Q, PPS_Q
CTC
DCN
else
CTC_packet
'Discard the frame'
'Is used PPR to avoid the timer time out of T.30?'
'Yes'
'PPS_PRI_Q/ PPS_Q received again despite the image quality OK'
'Yes'
E1
T_B5
else
else
EOR_Q_packet
PPS_Q_packet
'R-FA busy?'
'Yes'
else
'Last post message command was PPS PRI-Q or PPS-Q?'
else
'Wait for 75ms'
'Twa elapsed?'
'Yes'
else
'Wait for 2.4s'
'Yes'
CTR
T_D2_res2
T_B5
E1
T_D2_res1

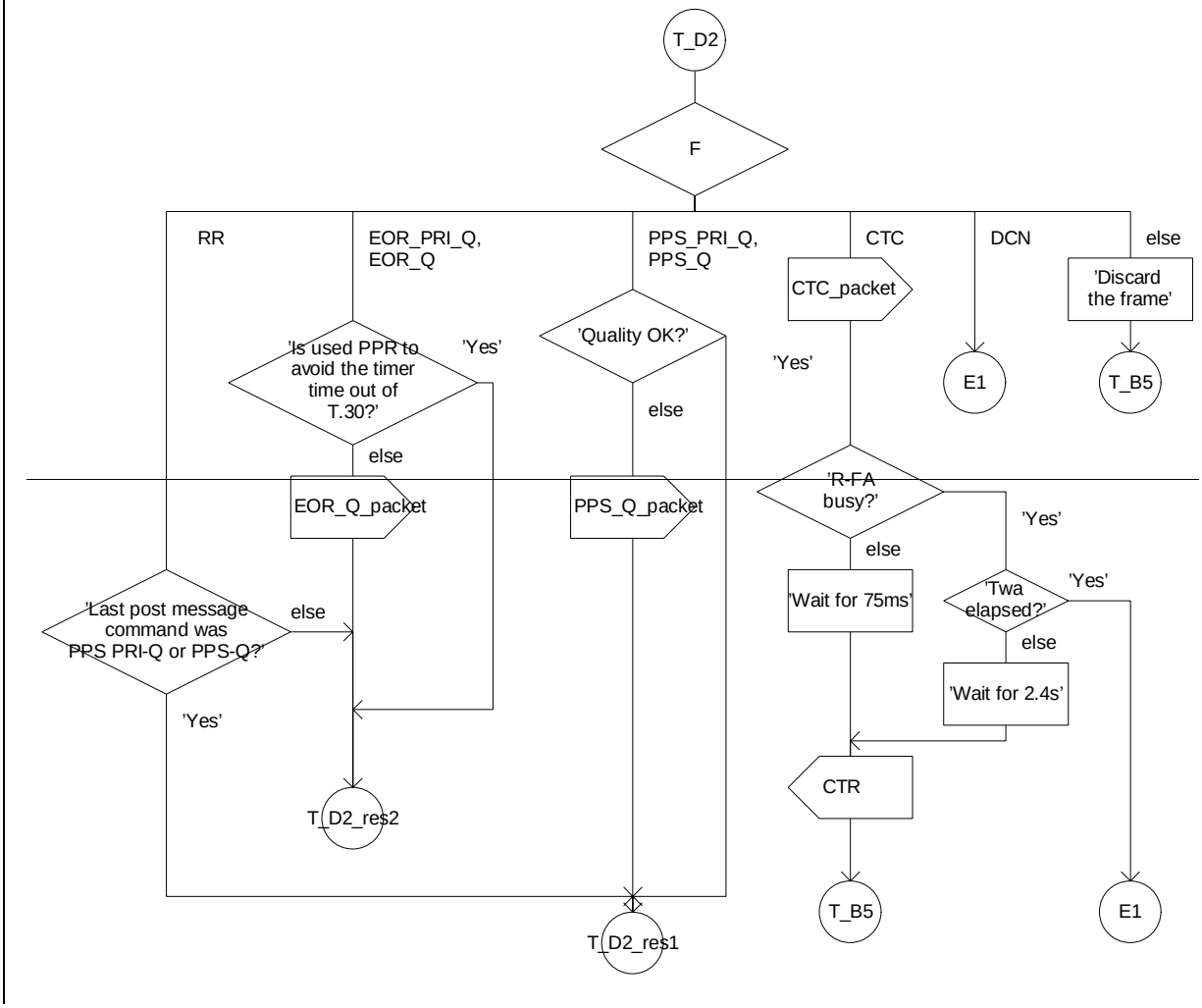
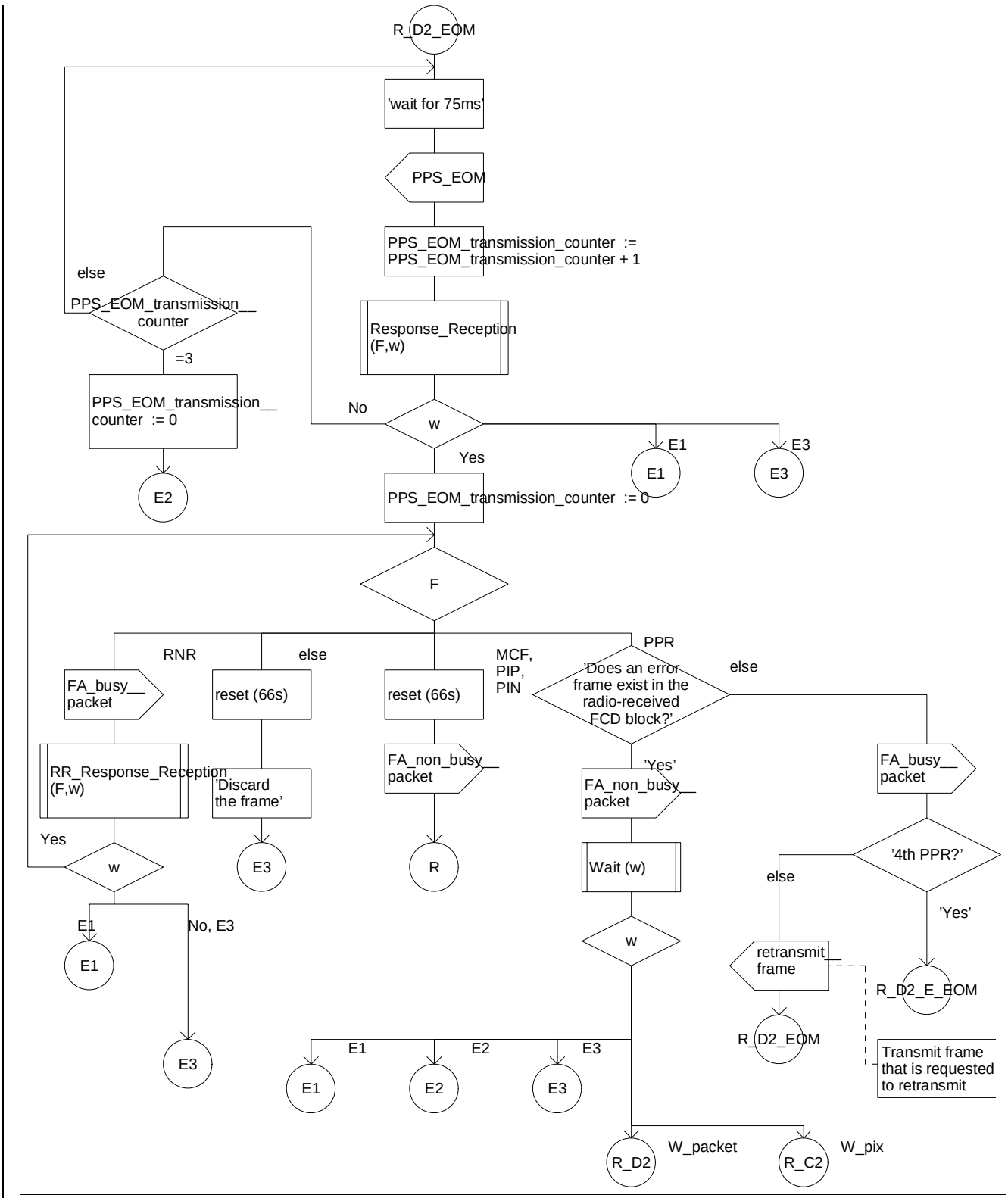


Figure D.19: Transmission side FA for ECM, Phase D (Basic control flow)


R_D2_EOM
'wait for 75ms'
PPS_EOM
PPS_EOM_transmission_counter := PPS_EOM_transmission_counter + 1
Response_Reception (F,w)
w
No
Yes
E1
E3
PPS_EOM_transmission_counter := 0
else
PPS_EOM_transmission__ counter
=3
PPS_EOM_transmission__ counter := 0
E2
F
RNR
else
MCF, PIP, PIN
PPR
'Does an error frame exist in the radio-received FCD block?'
else
FA_busy__ packet
reset (66s)
reset (66s)
FA_non_busy__ packet
'Yes'
FA_busy__ packet
RR_Response_Reception (F,w)
'Discard the frame'
FA_non_busy__ packet
'4th PPR?'
Yes
w
E3
R
Wait (w)
else
'Yes'
E1
No, E3
w
retransmit__ frame
R_D2_E_EOM
E1
E3
R_D2_EOM
E1
E2
E3
Transmit frame that is requested to retransmit
E1
E2
E3
R_D2
W_packet
R_C2
W_pix

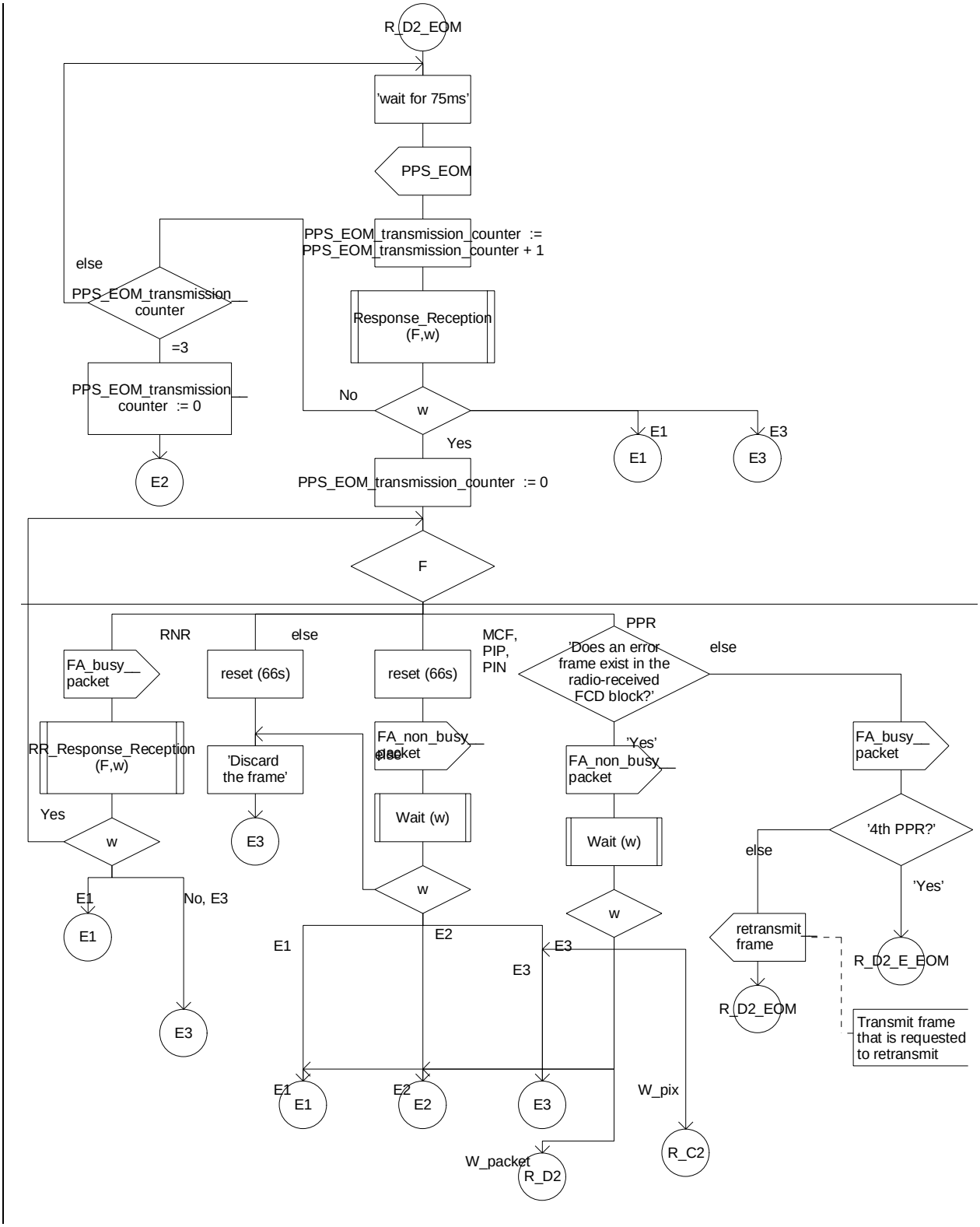
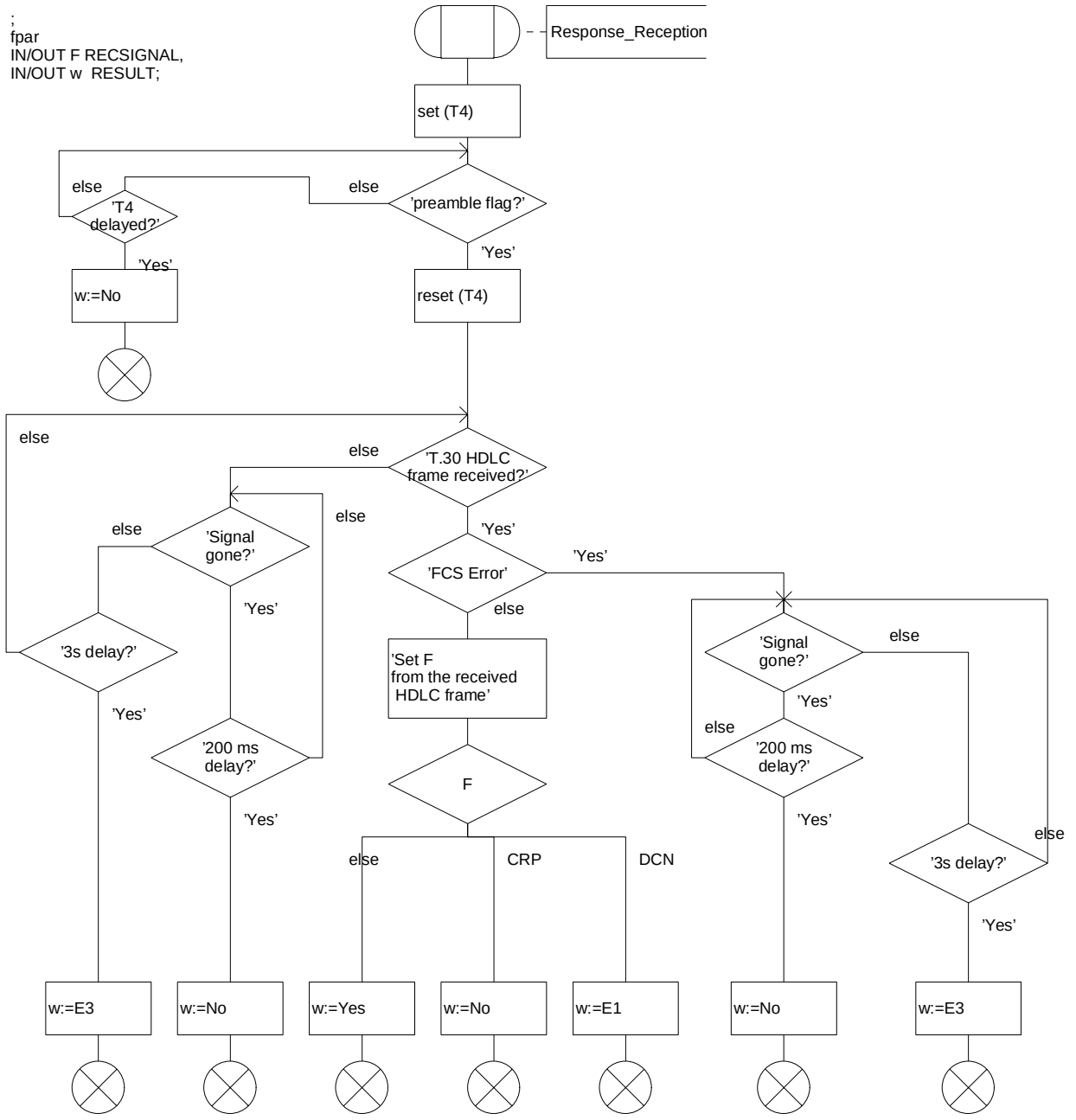


Figure D.26: Reception FA, Phase D (PPS-EOM)

Procedure Response_Reception



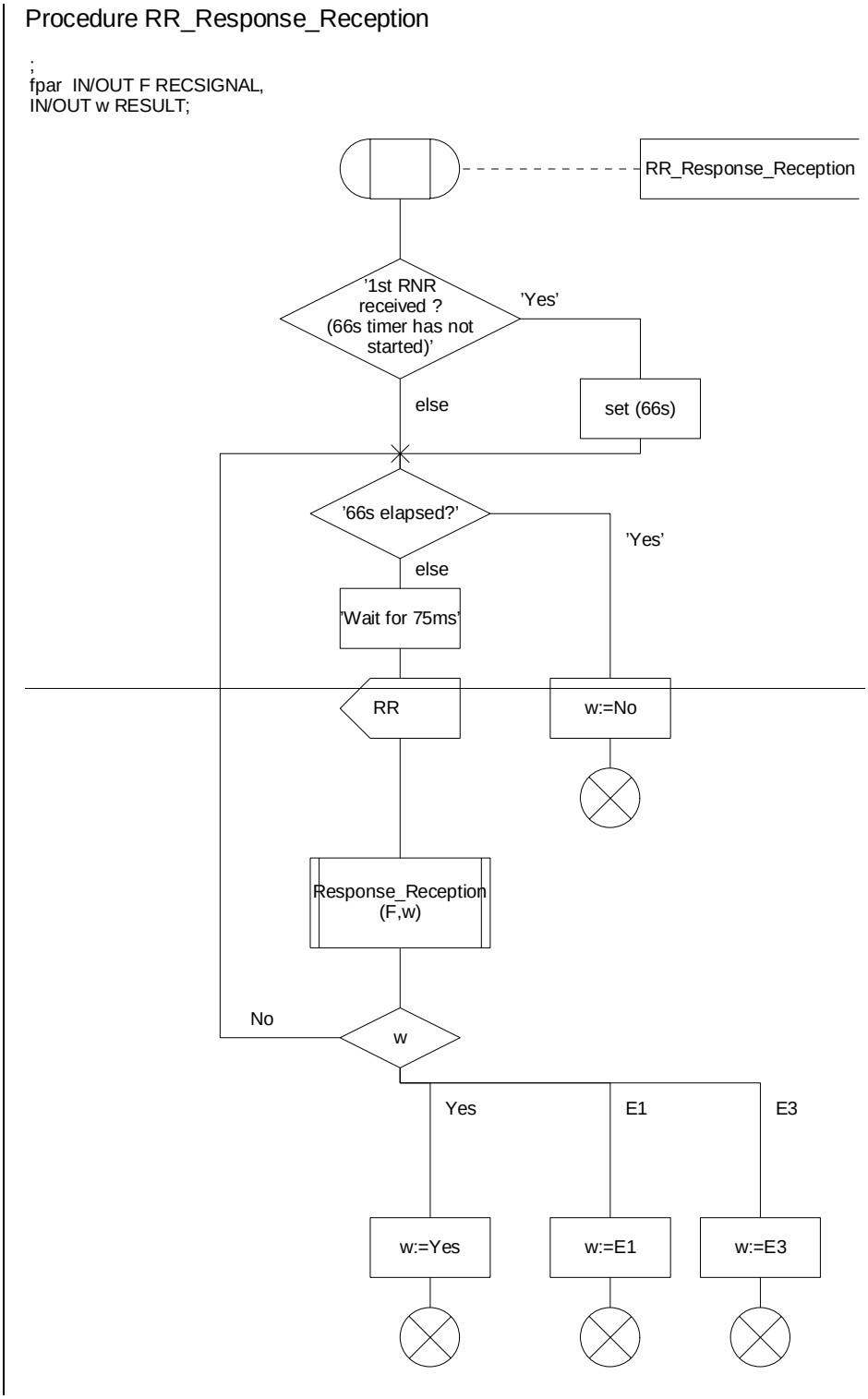
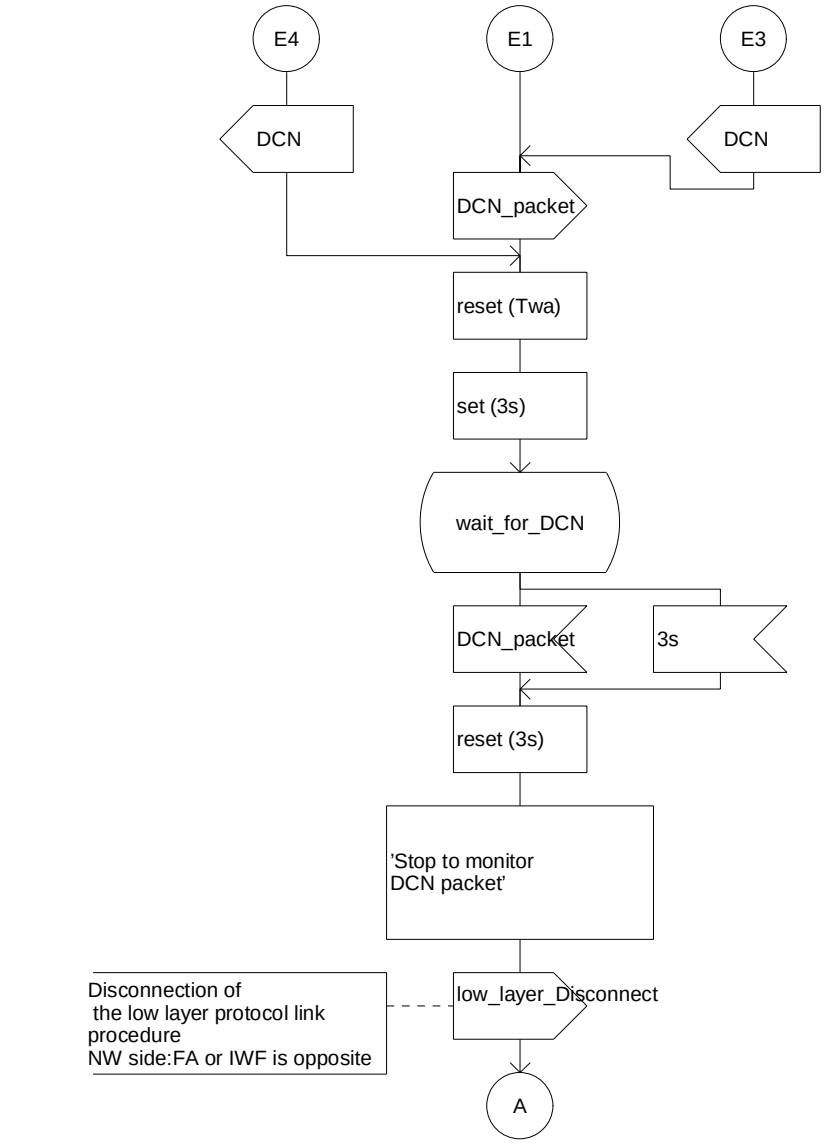


Figure D.33: Response reception subroutine


E4
E1
E3
DCN
DCN
DCN_packet
reset (Twa)
set (3s)
wait_for_DCN
DCN_packet
3s
reset (3s)
'Stop to monitor
DCN packet'
Disconnection of
the low layer protocol link
procedure
NW side:FA or IWF is opposite
low_layer_Disconnect
A

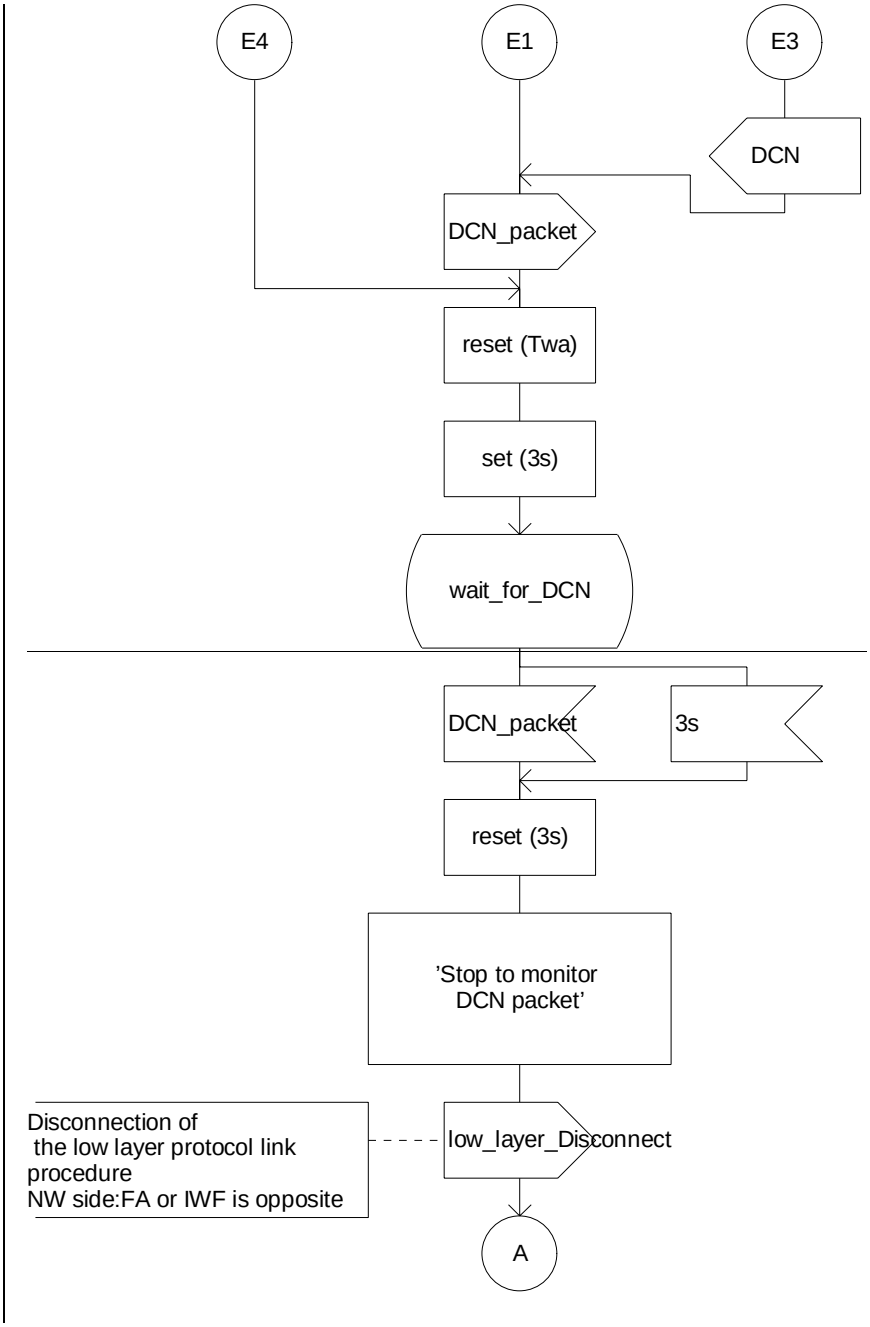


Figure D.35: FA release flow (1)