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## Contents

Foreword .....	5
1 Scope .....	7
2 Normative references .....	7
3 Definitions and abbreviations .....	7
3.1 Definitions .....	7
3.2 Abbreviations .....	7
3.2.1 General abbreviations .....	7
3.2.2 Supplementary service abbreviations .....	8
4 Supplementary Service Call Authorized by Dispatcher (SS-CAD) stage 1 specification .....	8
4.1 Description .....	8
4.1.1 General description .....	8
4.1.2 Qualifications on applicability to telecommunication services .....	9
4.2 Procedures .....	9
4.2.1 Provision and withdrawal .....	9
4.2.1.1 Category of calling user .....	9
4.2.1.2 Restricted basic service .....	10
4.2.1.3 Restricted destination address .....	10
4.2.1.4 Restricted source address .....	10
4.2.1.5 Restricted area .....	10
4.2.1.6 Verification and acceptance .....	11
4.2.2 Normal procedures .....	11
4.2.2.1 Activation, deactivation, definition, registration, interrogation, and cancellation .....	11
4.2.2.1.1 Activation and deactivation .....	11
4.2.2.1.2 Definition .....	11
4.2.2.1.3 Registration .....	11
4.2.2.1.4 Interrogation .....	11
4.2.2.2 Invocation and operation .....	11
4.2.2.2.1 Outgoing calls .....	11
4.2.2.2.2 Incoming calls .....	12
4.2.2.2.3 Category of calling user .....	12
4.2.2.2.4 Restricted basic service .....	12
4.2.2.2.5 Restricted destination address .....	12
4.2.2.2.6 Restricted area .....	12
4.2.2.3 Cancellation .....	12
4.2.3 Exceptional procedures .....	13
4.2.3.1 Activation, deactivation, definition, registration, interrogation, and cancellation .....	13
4.2.3.1.1 Activation .....	13
4.2.3.1.2 Deactivation .....	13
4.2.3.1.3 Definition .....	13
4.2.3.1.4 Registration .....	13
4.2.3.1.5 Interrogation .....	14
4.2.3.2 Cancellation .....	14
4.2.3.3 Invocation and operation .....	14
4.3 Interactions with other supplementary services .....	14
4.3.1 Calling Line Identification Presentation (SS-CLIP) .....	14
4.3.2 Connected Line identification Presentation (SS-COLP) .....	14
4.3.3 Calling/Connected Line Identification Restriction (SS-CLIR) .....	14
4.3.4 Call report .....	14
4.3.5 Talking Party Identification (SS-TPI) .....	14
4.3.6 Call Forwarding Unconditional (SS-CFU) .....	14
4.3.7 Call Forwarding on Busy (SS-CFB) .....	14

4.3.8	Call Forwarding on No Reply (SS-CFNRY).....	14
4.3.9	Call Forwarding on Not Reachable (SS-CFNRC).....	15
4.3.10	List Search Call (SS-LSC) .....	15
4.3.11	Call authorized by dispatcher.....	15
4.3.12	Short Number Addressing (SS-SNA) .....	15
4.3.13	Area Selection (SS-AS) .....	15
4.3.14	Access Priority (SS-AP).....	15
4.3.15	Priority Call (SS-PC) .....	15
4.3.16	Call Waiting (SS-CW).....	15
4.3.17	Call Hold (SS-HOLD).....	15
4.3.18	Call Completion to Busy Subscriber (SS-CCBS).....	15
4.3.19	Late Entry (SS-LE).....	15
4.3.20	Transfer of Control (SS-TC) .....	15
4.3.21	Pre-emptive Priority Call (SS-PPC) .....	15
4.3.22	Include Call (SS-IC) .....	16
4.3.23	Advice of Charge (SS-AoC).....	16
4.3.24	Barring of Outgoing Calls (SS-BOC) .....	16
4.3.25	Barring of Incoming Calls (SS-BIC) .....	16
4.3.26	Discreet Listening (SS-DL) .....	16
4.3.27	Ambience Listening (SS-AL).....	16
4.3.28	Dynamic Group Number Assignment (SS-DGNA) .....	16
4.3.29	Call Completion on No Reply (SS-CCNR).....	16
4.3.30	Call retention.....	16
4.4	Inter-working considerations .....	16
4.5	Overall SDL.....	16
History .....		19

## Foreword

This European Telecommunication Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS is a multi-part standard and will consist of the following parts:

- Part 1: "General network design".
- Part 2: "Air Interface (AI)".
- Part 3: "Inter-working", (DE/RES-06001-3).
- Part 4: "Gateways", (DE/RES-06001-4).
- Part 5: "Terminal equipment interface", (DE/RES-06001-5).
- Part 6: "Line connected stations", (DE/RES-06001-6).
- Part 7: "Security".
- Part 8: "Management services", (DE/RES-06001-8).
- Part 9: "Performance objectives", (DE/RES-06001-9).
- Part 10: "Supplementary services stage 1".**
- Part 11: "Supplementary services stage 2", (DE/RES-06001-11).
- Part 12: "Supplementary services stage 3", (DE/RES-06001-12).
- Part 13: "SDL Model of the Air Interface", (DE/RES-06001-13).
- Part 14: "PICS Proforma", (DE/RES-06001-14).
- Part 15: "Inter-working - Extended Operations", (DE/RES-06001-15).
- Part 16: "Gateways for Supplementary Services", (DE/RES-06001-16).

<b>Transposition dates</b>	
Date of adoption of this ETS:	1 March 1996
Date of latest announcement of this ETS (doa):	31 July 1996
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## 1 Scope

This European Telecommunication Standard (ETS) defines the stage 1 specifications of the Supplementary Service Call Authorized by Dispatcher (SS-CAD) for the Trans-European Trunked Radio System (TETRA). Stage 1 is an overall service description from the users point of view but does not deal with the details of the human interface itself.

This ETS specifies the service description of the supplementary service and the procedures to be expected with successful and unsuccessful outcomes. In addition this ETS specifies the interactions with other TETRA supplementary services and inter-working considerations.

Charging principles shall be outside the scope of this ETS.

The SS-CAD ensures that predefined TETRA calls shall not proceed without first being authorized by a dispatcher.

## 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.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [2] ITU-T Recommendation Z.100 (1993): "Specification and Description Language (SDL)".

## 3 Definitions and abbreviations

### 3.1 Definitions

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

**broadcast call:** A multipoint call in which the same information is transmitted simultaneously by the calling terminal to all available terminals.

**outgoing call:** A call which, from the viewpoint of an individual participant in the call, is initiated by that participant.

**restricted user:** The user (individual TETRA user or a user via a gateway) who is required to seek authorization from the dispatcher before the request for service can proceed.

**served user:** The user or a group of users, to whom the request for authorization shall be directed to. It is normal that the served user is also the dispatcher that is responsible for that call.

### 3.2 Abbreviations

#### 3.2.1 General abbreviations

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

GTSI	Group TETRA Subscriber Identity
ISDN	Integrated Services Digital Network
ITSI	Individual TETRA Subscriber Identity
LS	Line Station
SDL	(Functional) Specification and Description Language
SS	Supplementary Service

NOTE: The abbreviation SS is only used when referring to a specific supplementary service.

SwMI	Switching and Management Infrastructure
TETRA	Trans-European Trunked RAdio
V+D	Voice Plus Data

### 3.2.2 Supplementary service abbreviations

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

SS-AL	Ambience Listening
SS-AoC	Advice of Charge
SS-AP	Access Priority
SS-AS	Area Selection
SS-BIC	Barring of Incoming Calls
SS-BOC	Barring of Outgoing Calls
SS-CAD	Call Authorized by Dispatcher
SS-CCBS	Call Completion to Busy Subscriber
SS-CCNR	Call Completion on No Reply
SS-CFB	Call Forwarding on Busy
SS-CFNry	Call Forwarding on No Reply
SS-CFNrc	Call Forwarding on Not Reachable
SS-CFU	Call Forwarding Unconditional
SS-CLIP	Calling Line Identification Presentation
SS-CLIR	Calling/Connected Line Identification Restriction
SS-COLP	Connected Line Identification Presentation
SS-CR	Call Report
SS-CW	Call Waiting
SS-DGNA	Dynamic Group Number Assignment
SS-DL	Discreet Listening
SS-HOLD	Call Hold
SS-IC	Include Call
SS-LE	Late Entry
SS-LSC	List Search Call
SS-PC	Priority Call
SS-PPC	Pre-emptive Priority Call
SS-SNA	Short Number Addressing
SS-SDS	Short Data Service
SS-TC	Transfer of Control
SS-TPI	Talking Party Identification

## 4 Supplementary Service Call Authorized by Dispatcher (SS-CAD) stage 1 specification

### 4.1 Description

#### 4.1.1 General description

SS-CAD is defined as the ability of the dispatcher to verify and approve a call request before the call is allowed to proceed.

The supplementary service shall also apply to the option whereby the dispatcher authorization of incoming call requests to specified TETRA addresses is required before the service can proceed. The specified TETRA addresses may be TETRA users or gateways. The incoming calls may be generated inside or outside of the operator's TETRA domain.

The service shall enable immediate interception of calls due to the following conditions:

- 1) category of calling user;
- 2) restricted basic service request;

- 3) restricted destination or source address;
- 4) restricted area.

#### 4.1.2 Qualifications on applicability to telecommunication services

SS-CAD shall be applicable to all TETRA circuit mode teleservices and bearer services. SS-CAD shall not be applicable to Short Data Service (SDS).

### 4.2 Procedures

#### 4.2.1 Provision and withdrawal

The SS-CAD supplementary service shall be provided by prior arrangement with the service provider.

This service may be withdrawn by the service provider or upon request from the served user.

Conditions for SS-CAD shall be defined and linked with the source, basic service request and destination of the call as shown in table 1.

**Table 1: Implementation options, authorization conditions**

Implementation options	Source	Basic service request	Destination
Category of calling user	Internal TETRA number, restricted user's Individual TETRA Subscriber Identity (ITSI)	TETRA teleservices and bearer services	Internal TETRA number External to TETRA
Restricted basic service	Internal TETRA number, restricted user's ITSI	TETRA teleservices and bearer services	Internal TETRA number External to TETRA
Restricted destination address	Internal TETRA number, restricted user's ITSI	TETRA teleservices and bearer services	Internal TETRA number External to TETRA
Restricted destination address	Other TETRA systems or gateways	Supported services	Internal TETRA number
Restricted source address	Internal TETRA number, restricted user's ITSI	TETRA teleservices and bearer services	Internal TETRA number External to TETRA
Restricted source address	Other TETRA systems or gateways	Supported services	Internal TETRA number
Restricted area	Internal TETRA number, restricted user's ITSI	TETRA teleservices and bearer services	Specified TETRA area

As an implementation option, the calling user may receive notification that the call is intercepted according to table 2.

**Table 2: Implementation options, notification**

Implementation options	Value
Notification to the restricted user	- No - Yes, without dispatcher's number - Yes, with dispatcher's number

#### 4.2.1.1 Category of calling user

To provide this implementation option the served user shall supply the following to the service provider:

- 1) the identifications of the restricted users to which authorization shall be given before their request for service can proceed;
- 2) the served user address where all requests for service shall be diverted for approval.

#### 4.2.1.2 Restricted basic service

To provide this implementation option the served user shall supply the following to the service provider:

- 1) the identifications of the restricted users to which authorization shall be given before their request for service can proceed;
- 2) the restricted basic service applicable to each restricted user, for which authorization shall be given by the dispatcher, e.g. clear speech group call;

NOTE: If no basic service is inserted by the user, this is interpreted as all services.

- 3) the served user address where all requests for service shall be diverted for approval.

#### 4.2.1.3 Restricted destination address

To provide this implementation option the served user shall supply the following to the service provider:

- 1) the identifications of the restricted destination address(es) or gateway address(es), to which, all incoming calls shall be authorized before being offered;
- 2) the restricted basic service(s) applicable to each restricted destination address, for which authorization shall be given by the dispatcher, e.g. individual clear speech call;

NOTE: If no basic service is inserted by the user, this is interpreted as all services.

- 3) the served user address where all requests for service shall be diverted for approval.

#### 4.2.1.4 Restricted source address

To provide this implementation option the served user shall supply the following to the service provider:

- 1) the identifications of the restricted source address(es) or gateway address(es), from which, all incoming calls shall be authorized before being offered;
- 2) the restricted basic service(s) applicable to each restricted source address, for which authorization shall be given by the dispatcher, e.g. individual clear speech call;

NOTE: If no basic service is inserted by the user, this is interpreted as all services;

- 3) the served user address where all requests for service shall be diverted for approval.

#### 4.2.1.5 Restricted area

To provide this implementation option the served user shall supply the following to the service provider:

- 1) the identifications of the restricted users to which authorization shall be given before their request for service can proceed;
- 2) the restricted areas, applicable to each restricted user, for which authorization shall be given by the dispatcher before the call request can proceed;
- 3) the restricted basic service applicable to each restricted user, for which authorization shall be given by the dispatcher, e.g. clear speech group call;

NOTE: If no basic service is inserted by the user, this is interpreted as all services.

- 4) the served user address where all requests for service shall be diverted for approval.

#### **4.2.1.6 Verification and acceptance**

In all cases, verification of the restricted users shall be accomplished before completing the SS-CAD provision. This verification is done by a check of the restricted users numbers to ascertain if the numbers are within the jurisdiction of the served user, and within the allowed number range.

When the served user is provided with SS-CAD, the service provider shall return notification of acceptance or rejection of the request to the served user. This notification shall include the implementation option, the restricted users and to which basic services SS-CAD is registered.

As an operator option the restricted users may receive a notification of the services to which SS-CAD shall apply.

#### **4.2.2 Normal procedures**

##### **4.2.2.1 Activation, deactivation, definition, registration, interrogation, and cancellation**

###### **4.2.2.1.1 Activation and deactivation**

The supplementary service shall be activated and/or deactivated upon provision and/or withdrawal or may be activated and/or deactivated by the served user.

###### **4.2.2.1.2 Definition**

The served user shall be able to carry out definition upon provision.

###### **4.2.2.1.3 Registration**

The served user shall be registered upon provision.

###### **4.2.2.1.4 Interrogation**

The served user may interrogate the system. The Switching and Management Infrastructure (SwMI) shall support interrogation on a per number basis for all basic services and/or for a served user specified basic service. The TETRA response to an interrogation request may provide the following information to the user:

- notification to the restricted user;
- restricted area;
- activated or deactivated state of the supplementary service;
- restricted users;
- applicable basic services;
- applicable destination address/es.

###### **4.2.2.2 Invocation and operation**

NOTE: In the following subclauses, the calling or called party address may be replaced by, or include, a gateway address for calls to or from a SwMI.

###### **4.2.2.2.1 Outgoing calls**

In the case of outgoing calls from a restricted user, this supplementary service shall be invoked by the infrastructure when a call request is received from the restricted user. The infrastructure shall be able to use the calling party address, the called party address or area, and the basic service request to determine whether the SS-CAD shall be invoked.

Should authorization be required, an indication may be optionally sent to the restricted user and the call is temporarily diverted to the served user for authorization. A notification of the calling party address, the called party address or area, the basic service request and the condition for the generation of the authorization request is presented to the served user. The served user/dispatcher may interrogate the restricted user for the reason of the call before authorization is granted.

Should authorization be granted, the dispatcher shall forward a confirmation of authorization to the infrastructure thus allowing the call set up request to continue.

Should authorization not be granted, the dispatcher shall forward a barring indication to the infrastructure and the call shall be disconnected. The disconnection shall include an indication to the restricted user that the call has been disconnected as authority to proceed has not been given.

#### **4.2.2.2 Incoming calls**

In the case of incoming calls to a restricted user, this supplementary service shall be invoked by the infrastructure when a call request to the restricted user is received. The infrastructure shall be able to use the calling party address, the restricted user's address and the basic service request to determine whether SS-CAD should be invoked.

Should authorization be required, an indication may be optionally sent to the calling party and the call is temporarily diverted to the served user for authorization. A notification of the calling party address, the called party address, the area, the basic service request and the condition for the generation of the authorization request shall be sent to the served user. The served user may interrogate the calling user for the reason of the call before authorization is granted.

Should authorization be granted, the served user shall forward a confirmation of authorization to the infrastructure thus allowing the call set up request to continue.

Should authorization not be granted, the served user shall forward a barring indication to the infrastructure. The call shall be disconnected. The disconnection shall include an indication to the calling party where possible that the call has been disconnected as authority to proceed has not been given.

Once authority has been given for a call to proceed, there shall not be any need for the call to be returned to the served user for further authorization providing that the authorized call remains within the bounds of what has been authorized.

#### **4.2.2.3 Category of calling user**

If this condition is selected, all calls made by the restricted user shall be intercepted.

#### **4.2.2.4 Restricted basic service**

If this condition is selected, only outgoing calls of a restricted basic service made by restricted user's shall be intercepted.

#### **4.2.2.5 Restricted destination address**

If this condition is selected, incoming calls of a restricted basic service to restricted user's or to gateways shall be intercepted.

#### **4.2.2.6 Restricted area**

If this condition is selected, outgoing calls of a restricted basic service made by restricted user's to a restricted area shall be intercepted.

#### **4.2.2.3 Cancellation**

Cancellation shall not be applicable to SS-CAD.

### **4.2.3 Exceptional procedures**

#### **4.2.3.1 Activation, deactivation, definition, registration, interrogation, and cancellation**

##### **4.2.3.1.1 Activation**

If the system cannot accept an activation request, the served user shall receive a notification that SS-CAD activation was not successful. Possible causes can be:

- service or condition not subscribed to;
- insufficient information;
- invalid ITSI for the restricted user;
- invalid ITSI/Group TETRA Subscriber Identity (GTSI) for the destination address;
- invalid gateway for the destination address;
- basic service to which relevance is requested, is not subscribed to;
- unauthorized user.

##### **4.2.3.1.2 Deactivation**

If the infrastructure cannot accept a request for deactivation, the registered user shall receive a notification that SS-CAD deactivation was not successful. Possible causes can be:

- service or option not subscribed to;
- insufficient information;
- invalid ITSI for the restricted user;
- invalid ITSI/GTSI for the destination address;
- invalid gateway for the destination address;
- basic service to which relevance is requested is not subscribed to;
- unauthorized user.

If the infrastructure deactivates SS-CAD without the served user having requested deactivation (e.g. when an exceptional condition occurs), the served user shall receive notification along with the cause.

##### **4.2.3.1.3 Definition**

If the SwMI cannot accept a definition request, the defining user shall receive a notification that SS-CAD definition was unsuccessful. Possible causes for rejection can be:

- insufficient information;
- invalid ITSI for the restricted user;
- invalid ITSI/GTSI for the destination address;
- invalid gateway for the destination address;
- basic service to which relevance is requested, is not subscribed to;

##### **4.2.3.1.4 Registration**

Exceptional procedures for registration shall not be applicable to SS-CAD.

#### **4.2.3.1.5 Interrogation**

If the SwMI cannot accept an interrogation request, the interrogating user shall receive a notification that SS-CAD interrogation was unsuccessful. Possible causes for rejection can be:

- service or option not subscribed to;
- insufficient information;
- invalid ITSI for the restricted user;
- invalid ITSI/GTSI for the destination address;
- invalid gateway for the destination address;
- basic service to which relevance is requested is not subscribed to;
- unauthorized user.

#### **4.2.3.2 Cancellation**

Exceptional procedures for cancellation shall not be applicable to SS-CAD.

#### **4.2.3.3 Invocation and operation**

If the infrastructure cannot invoke the service, the cause shall be returned to the served user.

### **4.3 Interactions with other supplementary services**

#### **4.3.1 Calling Line Identification Presentation (SS-CLIP)**

SS-CAD shall not have any interaction with SS-CLIP.

#### **4.3.2 Connected Line identification Presentation (SS-COLP)**

SS-CAD shall not have any interaction with SS-COLP.

The interception to the dispatcher shall not invoke SS-COLP.

#### **4.3.3 Calling/Connected Line Identification Restriction (SS-CLIR)**

SS-CAD shall not have any interaction with SS-CLIR.

#### **4.3.4 Call report**

SS-CAD shall not have any interaction with SS-CR.

#### **4.3.5 Talking Party Identification (SS-TPI)**

SS-CAD shall not have any interaction with SS-TPI.

#### **4.3.6 Call Forwarding Unconditional (SS-CFU)**

SS-CAD shall not have any interaction with SS-CFU.

#### **4.3.7 Call Forwarding on Busy (SS-CFB)**

SS-CAD shall not have any interaction with SS-CFB.

#### **4.3.8 Call Forwarding on No Reply (SS-CFNRy)**

SS-CAD shall not have any interaction with SS-CFNRy.

**4.3.9 Call Forwarding on Not Reachable (SS-CFNRc)**

SS-CAD shall not have any interaction with SS-CFNRc.

**4.3.10 List Search Call (SS-LSC)**

SS-CAD shall not have any interaction with SS-LSC.

**4.3.11 Call authorized by dispatcher**

SS-CAD shall not have any interaction with SS-CAD.

**4.3.12 Short Number Addressing (SS-SNA)**

SS-CAD shall not have any interaction with SS-SNA.

As an operator option it may be possible to allow restricted user's to automatically complete call requests made with SS-SNA without requesting authorization from a dispatcher whereas normally they shall require authorization to be given for the same calls made without SS-SNA.

**4.3.13 Area Selection (SS-AS)**

SS-CAD shall not have any interaction with SS-AS.

**4.3.14 Access Priority (SS-AP)**

SS-CAD shall not have any interaction with SS-AP.

**4.3.15 Priority Call (SS-PC)**

SS-CAD shall not have any interaction with SS-PC.

**4.3.16 Call Waiting (SS-CW)**

SS-CAD shall not have any interaction with SS-CW.

**4.3.17 Call Hold (SS-HOLD)**

SS-CAD shall not have any interaction with SS-HOLD.

**4.3.18 Call Completion to Busy Subscriber (SS-CCBS)**

SS-CAD shall not have any interaction with SS-CCBS.

The restricted user shall be able to request the SS-CCBS supplementary service if the original call has been authorized by the dispatcher.

**4.3.19 Late Entry (SS-LE)**

SS-CAD shall not have any interaction with SS-LE.

**4.3.20 Transfer of Control (SS-TC)**

SS-CAD shall not have any interaction with SS-TC.

**4.3.21 Pre-emptive Priority Call (SS-PPC)**

SS-PPC shall take precedence over SS-CAD. In the case where the restricted user makes a SS-PPC then the call shall be offered directly to the called user and the dispatcher may receive an indication of the pre-emptive priority call as a result of SS-CAD. In the case where a pre-emptive priority call is made to a

restricted user, the pre-emptive priority call shall be offered directly to the restricted user and the dispatcher may receive an indication of the call as a result of SS-CAD.

#### **4.3.22 Include Call (SS-IC)**

SS-CAD shall not have any interaction with SS-IC.

If the parameters of the SS-IC are such that the restricted user requires authorization from the dispatcher, then the SS-IC request shall generate a request for authorization.

#### **4.3.23 Advice of Charge (SS-AoC)**

SS-CAD shall not have any interaction with SS-AoC.

#### **4.3.24 Barring of Outgoing Calls (SS-BOC)**

SS-CAD shall not have any interaction with SS-BOC.

#### **4.3.25 Barring of Incoming Calls (SS-BIC)**

SS-CAD shall not have any interaction with SS-BIC.

#### **4.3.26 Discreet Listening (SS-DL)**

SS-CAD shall not have any interaction with SS-DL.

#### **4.3.27 Ambience Listening (SS-AL)**

SS-CAD shall not have any interaction with SS-AL.

An SS-AL call may require authorization from a dispatcher.

#### **4.3.28 Dynamic Group Number Assignment (SS-DGNA)**

SS-CAD shall not have any interaction with SS-DGNA.

#### **4.3.29 Call Completion on No Reply (SS-CCNR)**

SS-CAD shall not have any interaction with SS-CCNR.

The restricted user shall be able to request the SS-CCNR supplementary service if the original call has been authorized by the dispatcher.

#### **4.3.30 Call retention**

SS-CAD shall not have any interaction with SS-CR.

### **4.4 Inter-working considerations**

SS-CAD shall be available across the intersystem interface. If the restricted user has moved to a visited SwMI and wishes to make a call that would normally require dispatcher approval in the home TETRA system, then the call request may be routed to the dispatcher in the home TETRA system to seek authorization for the call request.

### **4.5 Overall SDL**

Figure 1 contains the dynamic description of SS-CAD using the Specification and Description Language (SDL) defined in ITU-T Recommendation Z.100 [2]. The SDL process represents the behaviour of the network in providing SS-CAD. Input signals from the left and output signals to the left represent primitives from and to the served user.

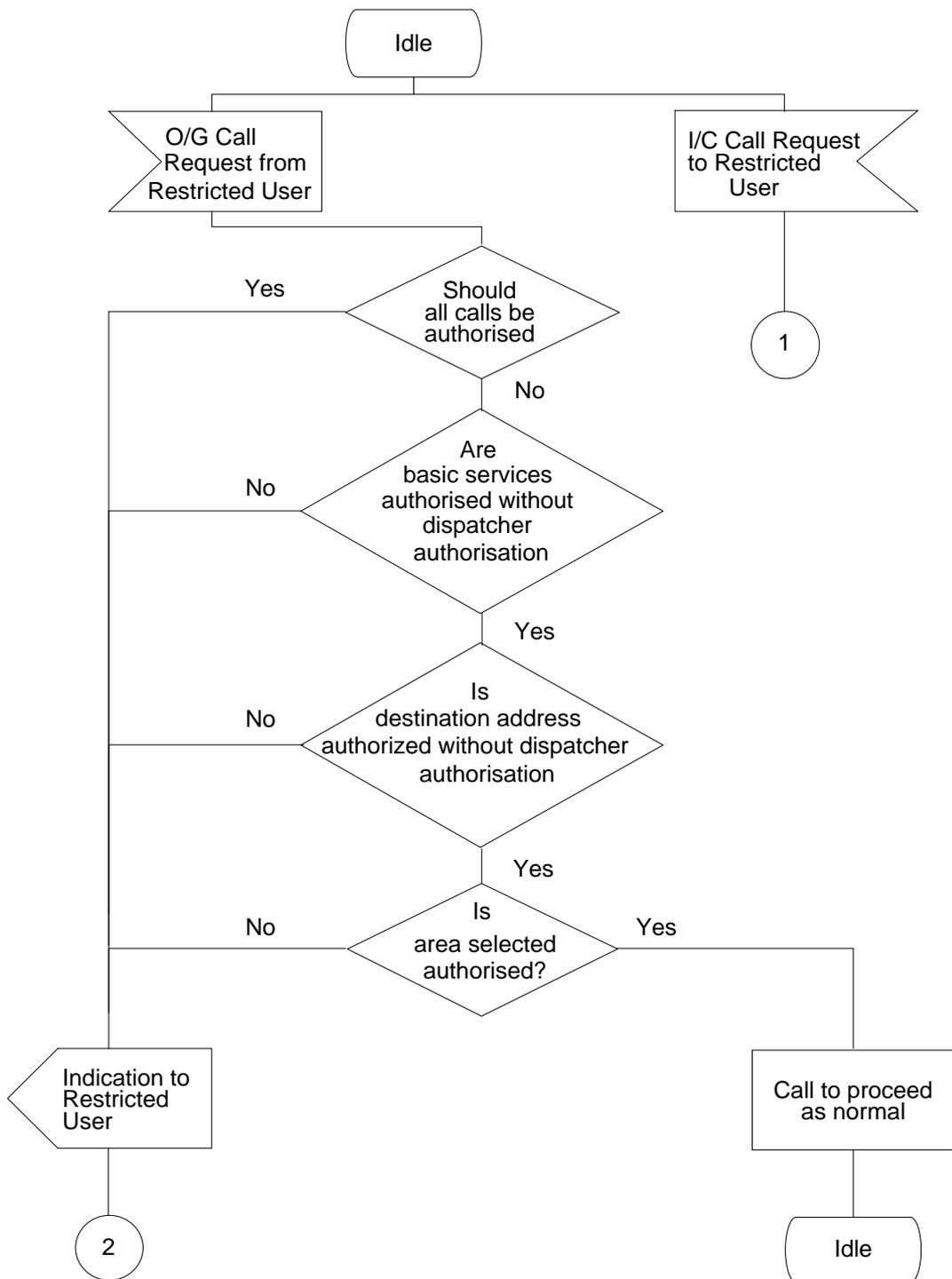


Figure 1 (sheet 1 of 2): SS-CAD supplementary service, overall SDL

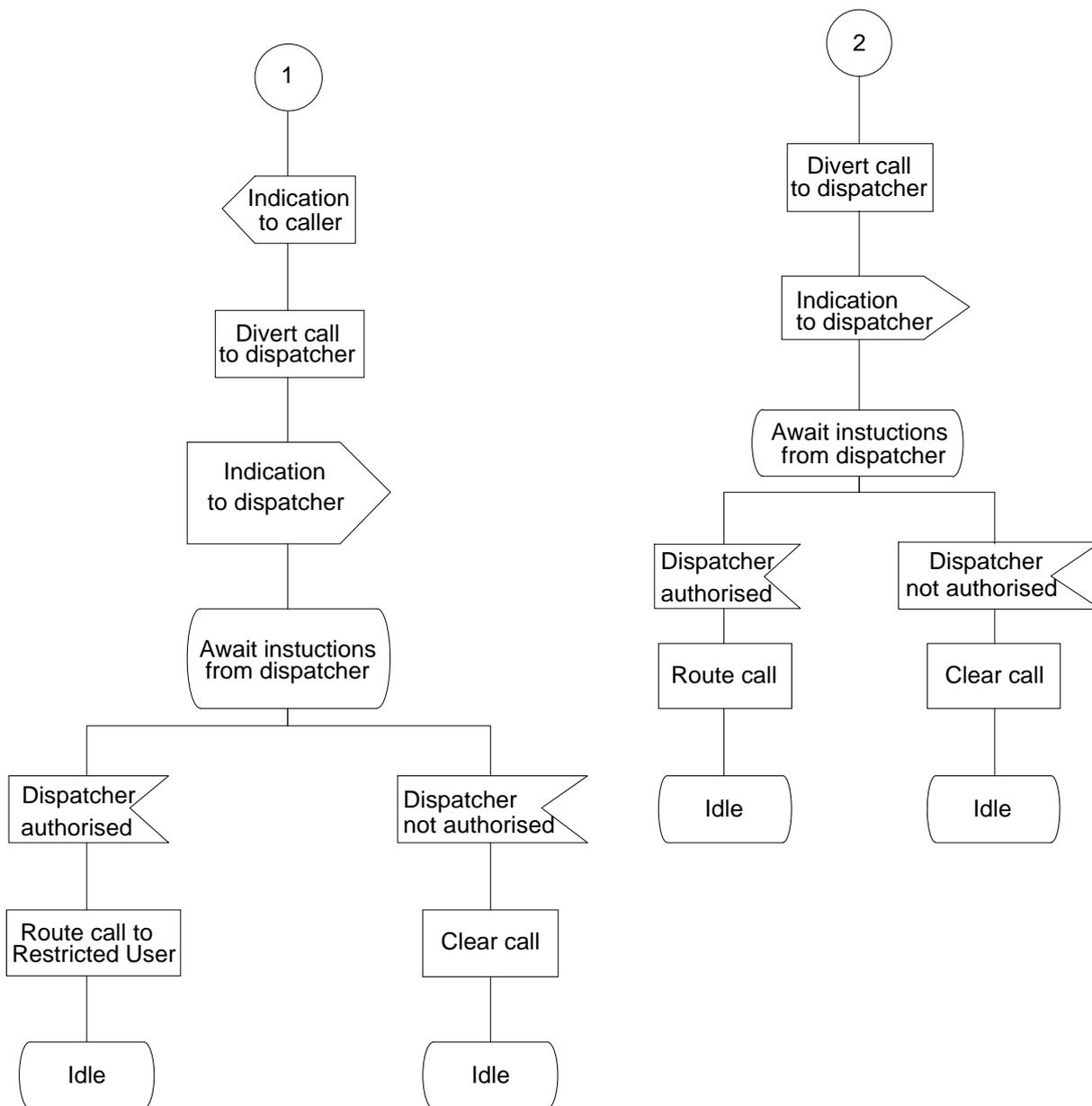


Figure 1 (sheet 2 of 2): SS-CAD supplementary service, overall SDL

## History

Document history			
November 1994	Public Enquiry	PE 73:	1994-11-07 to 1995-03-03
December 1995	Vote	V 94:	1995-12-27 to 1996-02-16
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