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**Human Factors (HF);  
Universal Personal Telecommunications (UPT);  
Specification of the Minimum Man-Machine Interface (MMI) for  
Phase 1 UPT**

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*European Telecommunications Standards Institute*

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## Foreword

This ETSI standard (ES) has been produced by ETSI Technical Committee Human Factors (HF), and is now submitted for the ETSI standards Membership Approval Procedure.

The present document specifies the man-machine interface for the Phase 1 UPT service.

The intended users of the present document include:

**Table 1: Intended users and potential benefits**

	<b>User</b>	<b>ES used for</b>	<b>Potential Benefit</b>
1	Service designers	Development of minimum user control procedures for phase 1 UPT service	Establish a minimum level of usability through the use of harmonized and supportive user control procedures
2	Service providers	To assist the qualification of phase 1 UPT minimum user control procedures	Minimum level of usability of services
3	User groups	To identify problems within phase 1 UPT minimum user control procedures	Increased awareness by user groups of the value of a minimum level of usability through harmonized control procedures and a consistent level of supportive indications
4	ETSI Technical committees	Development of UPT phase 1 standards that support user's minimum control and indication needs	Minimum level of usability of services by ensuring provision for the controls and indications necessary

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# 1 Scope

The present document defines the minimum Man-Machine Interface (MMI) for the phase 1 UPT service. It describes the requirements to be met jointly by the UPT service provider, the network operator enabling access to the UPT service and the UPT access device manufacturer.

The present document applies to phase 1 UPT services provided for access from within public and private (or corporate) telecommunications networks, including the:

- Public Switched Telephone Network (PSTN);
- Integrated Services Digital Network (ISDN).

Although excluded from the service description (ETS 300 779 [11]), the present document may also be applied to other public and private (or corporate) networks that enable access to a UPT phase 1 service, including:

- analogue Public Land Mobile Networks (PLMN), including: Total Access Communication Systems (TACS), Extended Total Access Communication Systems (ETACS) and Nordic Mobile Telephone System (NMT);
- digital PLMNs, including: Global System for Mobile communications (GSM), Digital Cellular System (DCS) 1 800;
- analogue and digital private (or corporate) networks;
- virtual private (or corporate) networks.

The minimum MMI defined in the present document includes only the requirements for access and control of a phase 1 UPT Service having a restricted number of core features. It contains also some general requirements associated with any terminal utilized for UPT access. The minimum MMI defines:

- UPT user access and control procedures;
- UPT service menu contents and key allocations;
- UPT tones and voice announcements.

This definition of the minimum MMI for phase 1, is intended to complement the UPT User Requirements defined in ETR 208 [5], and the phase 1 UPT technical aspects defined in ETR 066 [2], ETR 144 [3], ETR 231 [6], ETR 315 [7], ETS 300 391-1 [9] and ETS 300 779 [11].

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# 2 Normative references

References may be made to:

- a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or
- b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or
- c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or
- d) publications without mention of a specific version, in which case the latest version applies.

A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] ETR 055 (1993): "Universal Personal Telecommunication (UPT); The service concept, Parts 1-11".

- [2] ETR 066 (1993): "Universal Personal Telecommunication (UPT); Requirements on information flows and protocols".
- [3] ETR 144 (1994): "Universal Personal Telecommunication (UPT); UPT Phase 1 Numbering, dialling and evolution for incall".
- [4] ETR 170 (1995): "Human Factors (HF); Generic user control procedures for telecommunication terminals and services".
- [5] ETR 208 (1995): "Human Factors (HF); HF aspects of Universal Personal Telecommunication (UPT); User requirements".
- [6] ETR 231 (1995): "Universal Personal Telecommunication (UPT); UPT Routing".
- [7] ETR 315 "Universal Personal Telecommunication (UPT); UPT access parameters and identities for the UPT users".
- [8] ETR 329: "Human Factors (HF); Guidelines for procedures and announcements in Stored Voice Services (SVS) and Universal Personal Telecommunication (UPT)".
- [9] ETS 300 391-1: "Universal Personal Telecommunication (UPT); Specification of the security architecture for UPT phase 1: Part 1 Specification".
- [10] ETS 300 738: "Human Factors (HF); Minimum Man-Machine Interface (MMI) to public network based supplementary services".
- [11] ETS 300 779: "Network Aspects (NA) Universal Personal Telecommunications (UPT); Phase 1-Service description".
- [12] ISO/IEC 13714 (1995): "User interface to telephone-based services: Voice messaging applications".
- [13] ITU-T Recommendation E.123: "Notation for national and international telephone numbers".
- [14] ITU-T Recommendation E.161: "Arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network".
- [15] ITU-T Recommendation E.163: "Numbering plan for the international telephone service".
- [16] ITU-T Recommendation E.164: "Numbering plan for the ISDN era".
- [17] ITU-T Recommendation E.168: "Application of E.164 numbering plan for UPT".
- [18] ITU-T Recommendation E.212 "Identification plan for land mobile stations".
- [19] ITU-T Recommendation F.853 "Supplementary services in the universal personal telecommunication (UPT) environment".
- [20] ITU-T Recommendation Z.100: "Specification and description language (SDL)".
- [21] NA-TR 012 (1993): "UPT Phase 1 Supplementary Services".
- [22] TR 101 041-1: "European harmonization of network generated tones; Part 1: A review and recommendations".

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## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following definitions shall apply:

**access registration address:** The assigned E.164 number of the terminal at which an authenticated UPT user has temporarily registered for UPT services.

**announcement (also referred to as voice announcement):** An audible indication in the form of recorded speech (see ETR 329 [8]), utilized for information, instructions and guidance in a stored voice service.

**control menu:** A menu of control functions provided in Type B Stored Voice Services (SVS) and accessible from any SVS dialogue state. This menu is presented when the user presses the star (\*) key in any context other than the control menu itself, see ETR 329 [8].

**interactive dialogue:** A dialogue format which enables a user to control a service by following step by step the indications (prompts) given by the service. No prior knowledge of the service or its command syntax is required for the user to use the service. Each time the user reaches a new service state or stays idle, the service prompts for the next user actions.

**man-machine interface:** The interface through which a user communicates with a telecommunications terminal or via a telecommunications terminal to a telecommunications service provider. The communication is bi-directional and includes the information presented to the user before a control action, the control actions initiated by the user and the information presented to the user after a control action.

**menu:** A menu offers a user a list of choices from which a selection can be made. A menu dialogue offers a user a series of lists of choices from which a series of selections can be made. The result from any one selection may be another menu.

**mobility:** The capability within a single telecommunications subscription to access and control telecommunication services related to that subscription at different geographical locations (see also ITU-T Recommendation E.168 - Personal Mobility [17]) (extrapolated from F.851) - The ability of a user to access telecommunication services at any terminal on the basis of a personal identifier (e.g. the UPT personal identification number), and the capability of the network to provide those services delineated in the user's service profile. Personal mobility involves the network capability to locate the terminal associated with the user for the purposes of addressing, routing and charging the UPT user's calls.

**network operator:** The entity which provides the telecommunications network offering connection to the service provider. For the purposes of the present document the network operator may be one or many, between a user and a UPT service provider, and should also include any telecommunications infrastructure providers.

**password:** A security device for defining the authenticity of the identification of a service user.

**roaming:** The facility provided by mobility services by which a user may access telecommunication functions from within telecommunication environments other than the one to which they subscribe.

**standard telephone keypad array:** Standard 4 x 3 array for the numeric keys 0-9 and the symbol keys star (\*) and square (#), see ITU-T Recommendation E.161 [14].

**stored voice service:** A telecommunication service that involves the use of stored voice announcements and messages. Such a service may employ general announcements which are for information and guidance only, or be part of an interactive dialogue with the user, see ETR 329 [8].

**UPT access code:** A numeric code the UPT user may need to dial, when using certain terminals and networks, in order to access UPT facilities before any UPT procedures can be carried out. The UPT access code does not contain any geographical or service provider specific information, see ETR 315 [7].



**UPT access device:** Is a physical device intended to facilitate the UPT user's (and subscriber's) interactions with the UPT service, i.e. to help the UPT user to carry out the defined UPT procedures, and to increase the security level while doing so (see ETR 055-5 [1]). No distinction is made in this report between different possible implementations of the UPT device (magnetic strip card, modem, smart card, DTMF signalling device, etc.).

**UPT access number:** A number the UPT user may need to dial, when using certain terminals and networks, in order to contact his UPT service provider. The UPT access number contains the necessary geographic and UPT service provider identity to route the call to the UPT user's UPT service provider, see ETR 315 [7].

**UPT access provider:** The entity which provides an access point or terminal to a network, to enable interaction with the UPT service. The UPT access provider may be an organization or an individual and who may be ordinary or UPT subscribers.

**UPT authentication:** A UPT security procedure for confirming a UPT user's personal identity.

**UPT control menu:** A menu of UPT specific service control functions provided in UPT services and accessible from any UPT service state, including during the alerting and connected phases of an out-going UPT call and perhaps during the ringing and connected phases of an in-coming UPT call set-up. This menu is presented when the user presses the star (\*) key in any context other than the control menu itself. The minimum MMI for the phase 1 UPT service specifically defines 6 functions and allocates the keys 7-9, 0, star (\*) and square (#).

**UPT home environment:** The telecommunications environment within which a UPT user has established a subscription. The extent of a UPT user's home environment may depend on the type of subscription the user holds with the UPT service provider and the current service provision agreements between the UPT service provider and local network operators.

**UPT identification:** A UPT security procedure for disclosing a UPT user's personal identity.

**UPT main menu:** The first menu of UPT specific functions provided in UPT services and presented to the user after successful completion of UPT access, identification and authentication. The minimum MMI for the phase 1 UPT service specifically defines 5 functions and allocates the keys 1-3, 0, and star (\*).

**UPT number:** A number that uniquely identifies the UPT user; it is also used by a calling party to reach the UPT user. A UPT user may have more than one UPT number (for example, a business UPT number for business calls and a private UPT number for private calls), see ITU-T Recommendation E.168 [17].

**UPT Personal Identification Number (PIN):** A digit string which is associated to a UPT personal user identity and by which a UPT user may confirm their identity to a UPT service provider. It authenticates a UPT user, and shall not be known to third parties, see ETR 315 [7].

**UPT personal user identity (PUID):** A digit string defining the identity by which a UPT user is known to the UPT service providers and networks supporting UPT. The personal user identity is used for flexibility and security purposes. It identifies a UPT user unambiguously, and shall not be known to third parties, see ETR 315 [7].

**UPT roaming environment:** Any telecommunications environment which supports UPT services accessed by visiting UPT users. The extent of a UPT user's capability within a roaming environment may depend on the type of subscription the user holds with their UPT service provider and the current service provision agreements between the user's UPT service provider and local UPT service providers and network operators.

**UPT service profile:** A record maintained by a UPT service provider and containing all the information related to a UPT user and the personal rules for handling the UPT user's mobility. It contains information on the users location and to the dynamic management of UPT calls, in addition to security, billing and other UPT service subscription data.

**UPT service provider:** The entity providing the UPT service.

**UPT subscriber:** The UPT user, organizational body or collection of UPT users who has made arrangements with a UPT service provider for the provision of UPT services.

**UPT supplementary services:** One or more services which modify or supplement the basic UPT service, but which cannot be offered to a customer as stand-alone services. For example, within the phase 1 service the proposed supplementary services include, Call Forwarding on Busy (CFB), Call Forwarding on No Reply (CFNRy), Call Forwarding on Not Reachable (CFNRc) and Variable Routeing (CLIP or Time Dependency), see NA-TR 012 [21] and ETS 300 779 [11]. Within subsequent phases additional services may be offered, including: Calling Line Identification (Presentation and Restriction), Connected Line Identification (Presentation and Restriction), Calling Name Identification (Presentation and Restriction), Call Waiting, Call Transfer, 3-Party Conference, Conference, Meet Me Conference, Call Hold, Multi-Level Precedence and Priority (see ITU-T Recommendation F.853 [19]).

**UPT user control procedures:** The specific sequences of user control actions and service indications (prompts and feedback) required by a UPT user interface to enable completion of a UPT user's task or sub-task.

**UPT user interface:** The specific man-machine interface provided to give access to and control of a UPT service.

**UPT user:** The person who uses a telecommunications terminal to gain access to and control of a UPT service. The user may or may not be the person who has subscribed to the provision of the service. Also, the user may or may not be a person with impairment, e.g. elderly or disabled persons.

**UPT voice mail:** A voice mail service which is offered to UPT subscribers and users as an option or as part of their UPT service.

## 3.2 Symbols

For the purposes of the present document the symbols used within the Specification Description Language (SDL) figures are defined in ITU-T Recommendation Z.100 [20]. In addition, the following symbols apply:

- + The international dialling prefix, see ITU-T Recommendation E.123 [13]. Also known as the plus sign;
- \* The Star on the standard telephone keypad arrays, see ITU-T Recommendation E.161 [14]. Also known as the asterisk;
- # The Square on the standard telephone keypad arrays, see ITU-T Recommendation E.161 [14]. Also known as the hash, number or sharp sign ("pound" in the USA).

## 3.3 Abbreviations

For the purposes of the present document, the following abbreviations shall apply:

ARA	Access Registration Address
C	Control (See figures 4-26)
CFB	Call Forward on Busy
CFNRc	Call Forward on Not Reachable
CFNRy	Call Forward on No Reply
CFU	Call Forward Unconditional
CLIP	Calling Line Identification Presentation
DCS	Digital Cellular System
DTMF	Dual Tone Multi-Frequency
ETACS	Extended Total Access Communication Systems
ES	European Standard
FFS	For Further Study
GSM	Global System for Mobile communications
HF	Human Factors
I	Indication (See figures 4-26)
IC	In-Coming
IEC	International Electrotechnical Committee
ISDN	Integrated Services Digital Network
ITU-T	International Telecommunications Union - Telecommunications Standardization Sector (formerly CCITT)
MMC	Mobile Country Code (as in the PUI definition)
MMI	Man Machine Interface
MNC	Mobile Network Code (as in the PUI definition)

N	Network (see figures 4-26)
NDUB	Network Declared User Busy
NMT	Nordic Mobile Telephone System
NN...N	Numeric digit strings of 2 or more digits
OG	Out-Going
PIN	Personal Identification Number
PLMN	Public Land Mobile Networks
PSTN	Public Switch Telephone Network
PUI	Personal User Identity
s	State (as in the State Transition Diagrams)
SDL	Specification and Description Language
SIM	Subscriber Identification Module
SVS	Stored Voice Services
TACS	Total Access Communication System
TC-HF	Technical Committee for Human Factors
UC	User Code (as in the PUI definition)
UDUB	User Declared User Busy
UPT	Universal Personal Telecommunication
UPTAC	UPT Access Code
UPTAN	UPT Access Number

## 4 UPT service - phase 1

### 4.1 Basic functionality

The Phase 1 UPT service shall support the small number of core functions that enable personal mobility and facilitate basic user control over a UPT subscription. A general description of the UPT Phase 1 service is defined in ETS 300 779 [11].

The basic functions for phase 1 are:

- access;
- identity and authentication;
- registration for In-coming Calls, including De-Registration;
- Out-going Call Set-up;
- Service Profile Management, including Change of Personal Identification Number (PIN), Profile Interrogation and Profile Modification.

Supplementary Services that may be expected as a standard provision within a phase 1 service include:

- Call Forward Unconditional (CFU);
- Call Forward on Busy (CFB);
- Call Forward on No Reply (CFNRy);
- Call Forward on Not Reachable (CFNRc).

Additional functions that may be expected as a normal provision within a phase 1 service, but excluded from the service description in ETS 300 779 [11], include:

- Voice Mail2.

### 4.1.1 Access

Ideally, the basic ability to access, without incurring local charges, a UPT service from anywhere in the world which supports UPT service access, or pragmatically, from within any network which has a roaming agreement with a user's service provider. Access for a UPT user to a UPT service provider for registration or any other purpose, is provided by the user dialling either the universal UPT Access Code (UPTAC) or their service providers unique UPT Access Number (UPTAN). To ensure there are no local charges incurred, both UPTAC and UPTAN are expected to be Universal Freephone Numbers (see subclause 5.4).

### 4.1.2 Identity and authentication

The basic facility to enable the UPT user to identify themselves and to authenticate that identification. Within phase 1 two types of identification and authentication are provided: Weak and Strong. The "Weak" type uses unidirectional signalling of the Personal User Identity (PUI) and PIN from the user to the UPT service provider, either via the keypad or from a Dual Tone Multi-Frequency (DTMF) sending device. The "Strong" type uses a UPT Access Device for the bi-directional exchange of user identity data. Both types shall be accommodated within the minimum MMI.

### 4.1.3 Register for in-coming calls

The basic facility to register at a terminal to receive in-coming UPT calls, and to have UPT on-costs assigned to a specific UPT account. The phase 1 facility is expected to be limited to registration for in-coming calls only (registering for out-going calls is planned for subsequent phases). Once registration is successfully completed the user should be able to use the follow-on procedure to make an out-going call, access their service profile, etc. until the terminal goes back to idle (the user goes on-hook). Subsequent registrations of the UPT user identity will automatically override previous registrations.

#### 4.1.3.1 Registration options

Individual UPT subscriptions may also enable a number of registration options, these include:

- multiple teleservices;
- registration schedules;
- incoming call filtering.

##### 4.1.3.1.1 Multiple teleservices

The phase 1 registration facility may or may not support the user having and using more than one UPT teleservice, e.g. voice, data, fax, videotelephony, etc. Individual teleservices may be assigned to one or more accounts, registration schedules, or specific Access Registration Address (ARA), as the user wants and the service provider/s offer. This may require the user to choose which teleservice they wish to register for at any one registration.

This is a matter for service providers.

##### 4.1.3.1.2 Registration schedules

The Phase 1 registration facility may or may not support the user having one or more pre-planned schedules of registration. For example:

- Workday: 09.00 - 17.00 Office, ARA;
- 17.00 - 18.00 Mobile, ARA;
- 18.00 - 23.00 Home, ARA;
- 23.00 - 09.00 Voice Mail, ARA;
- CFB Voice Mail, ARA;
- CFNRc Voice Mail, ARA;

- CFNRy Voice Mail, ARA;
- Weekend 09.00 - 23.00 Home, ARA;
- 23.00 - 09.00 Voice Mail, ARA;
- CFB Voice Mail, ARA;
- CFNRc Voice Mail, ARA;
- CFNRy Voice Mail, ARA.

NOTE: This facility is described in ETS 300 779 [11] as the optional supplementary service "Variable routing on time dependency".

Alternatively, service providers may or may not require the user to define time-limits to individual registrations. This may be specifically appropriate when a user is roaming.

This is a matter for the service providers.

#### 4.1.3.1.3 In-Coming call filtering by black or white Lists

The Phase 1 registration facility may or may not support the user having one or more pre-defined in-coming call filters. These filters may be positive, often called a white list; or negative, often called a black list. A general description of their function is given below:

**Black Lists:** Callers with the recorded Calling Line Identification Presentation (CLIP) identities will be presented at a defined ARA which is most likely different to the current ARA, or presented with a suitable indication, e.g. not reachable, busy, number unobtainable, etc. All other callers are presented at the current ARA.

**White Lists:** Only callers with the recorded CLIP identities may be presented at the current ARA, callers with other CLIPs may be presented at another defined ARA or presented with a suitable indication, e.g. not reachable, busy, number unobtainable, etc.

These call filter facilities may or may not be integrated with a registration schedule, see subclause 4.1.3.1.2.

The provision and detailed operation of either a "black" or "white" call filter facility is a matter for the service providers.

NOTE: This facility is described in ETS 300 779 [11] as the optional supplementary service "Variable routing on calling line identity".

#### 4.1.3.2 De-registration

The phase 1 facility is expected to offer the user the option to deregister and therefore be unreachable. Service providers may determine whether there shall always be a default ARA for each UPT user, e.g. to a voice mail box. The minimum provision shall be for service providers to present an announcement, confirming that the user is temporarily unreachable, to parties calling deregistered UPT users.

#### 4.1.4 Out-going call set-up

The basic facility to make an out-going UPT call, and to have the call charges assigned to a specific UPT account. The phase 1 facility is expected to be limited to a per call out-going service with follow-on allowed. That is, once access, identification and authentication have been completed the user may make one or more out-going calls, until the terminal goes back to idle (the user goes on-hook). Further UPT out-going calls will require the access, identification and authentication procedures to be repeated.

The phase 1 out-going call facility may or may not support the UPT user having and using more than one UPT billable account. These accounts may be assigned to UPT User Roles, e.g. personal calls, business calls, etc.; (see also subclause 4.1.3.1.2).

The phase 1 out-going call facility may expect to offer a menu of predetermined frequently called numbers, e.g. home, office, voice mailbox, friend 1, etc. These numbers may be determined at subscription and may or may not be changed by the UPT User while accessing their service profile from their home or a roaming network (see also subclause 4.1.3.1.3).

#### 4.1.5 Service profile management

The basic facility to access the UPT User's Service Profile and to manage its contents. The exact profile contents and the opportunity to review and modify this profile are largely a matter for the service provider.

The minimum provision within phase 1 is:

- to enable PIN changes (for "Weak" authentications only);
- to enable profile interrogation, and;
- to enable profile modification.

To help interworking between UPT services this minimum provision shall have a consistent path of access from the UPT Main Menu.

#### 4.1.6 Follow-on

The basic facility to access another UPT procedure without requiring further identification and authentication. For security reasons follow-on will be restricted in phase 1 to a UPT session. The start of a session being identified by the access to the UPT service and the finish by the accessing terminal going back to idle. There is no predefined limit to the number of follow-on requests a user may make. This is a matter for service providers, but it may help to ensure interworking between services that a minimum of two follow-on procedures is allowed per UPT session.

The follow-on may be one of two types: Global or Outcall. Global Follow-on occurs after any UPT procedure, and re-presents the user with the UPT Main Menu. Outcall Follow-on occurs only after an out-going UPT call set-up is started and re-presents the user with the out-going call set-up prompt or menu.

The follow-on may be one of the methods by which a user may be able to terminate a UPT call (out-going or in-coming with authentication), and initiate another UPT facility including making a UPT out-going call.

#### 4.1.7 In-coming call

The basic facility to receive an in-coming UPT call. This may or may not be identifiable as a UPT call by the Ring Signal. Depending on the called UPT user's service profile or the calling UPT user's security requirements, the answering UPT user may or may not have to authenticate their identity before the call is connected.

## 5 Minimum MMI for the phase 1 UPT service

A MMI bi-directional is the communication interface provided to enable communication between a system and its human users. The MMI for UPT services is the communication interface between the system (the terminal, the network/s and the UPT service) and the user.

The minimum interface is defined here to include: informative and instructional material that allow a user access and use a UPT service, the software and physical items of hardware that facilitate control and command actions that effect a UPT service and static or dynamic elements that provide information (prompts and feedback) about a UPT service.

Therefore the minimum MMI which shall be used to gain access to and control of the phase 1 UPT service shall include the following elements:

- a) the information provided to a user before a control action is performed (e.g. prompts);
- b) the control actions a user performs to gain access to and control of a service;
- c) the information provided to a user after a control action has been performed (e.g. feedback).

The minimum MMI is intended to be facilitated by all telecommunications terminals that can access the services provided.

Ideally, this minimum MMI should be independent of the type of signalling protocols used between the terminal and the network or service provider, (stimulus or functional); and of the method of signalling, (dual-tone multi-frequency (DTMF), or digital). It should also be independent of the media used for presenting information back from the service provider (auditory - tones or verbal messages; or visual - text based messages, symbols, signalling lights, etc.).

However, pragmatically to ensure the phase 1 UPT service can be operated universally, the minimum man machine interface is based on an interactive Type B Stored Voice Service, see ETR 329 [8]. This means, the access and control of the basic service functions is via the standard telephone keys (0-9, \* and #), with prompts and feedback provided by tones and voice announcements.

## 5.1 UPT service menus

Following successful completion of Access, Identification and Authentication the UPT user, is presented by a hierarchy of auditory menus supported by context sensitive help and error announcements. Within a phase 1 service four dialogue elements are defined. These are:

- Main Menu;
- Registration Menu;
- Out-going Call Set up;
- Service Profile Menu.

In addition to these, the user's interaction shall be supported by a Control Menu to enable access and control of a number of generic functions, e.g. Help, Forced Disconnect, Language Selection, etc.

Although it is not a mandatory facility of a phase 1 UPT service, Voice Mail is seen as a highly desirable additional facility that will enhance the basic service. To help interworking between UPT services the minimum provision is to provide a consistent point of access from the UPT Main Menu.

### 5.1.1 Main menu

The Main Menu is the UPT user's starting point for all aspects of the UPT user interface. Within the phase 1 minimum MMI, four mandatory and one optional function are defined and allocated to keypad control, see table 2. The mandatory functions are:

- **Registration Menu:** enables the user to access a menu (or hierarchy of menus) presenting the available choices for UPT Registration. Access to the Registration Menu shall be allocated to key '1' in the Main Menu;
- **Out-going Call Set-up:** enables the user to access either, a menu (or hierarchy of menus) presenting the available choices for making a UPT Out-going Call, or a data entry field for entering an out-going call number. Access to the Out-going Call shall be allocated to key '2' in the Main Menu;
- **Service Profile Management:** enables the user to access a menu (or hierarchy of menus) presenting the available choices for the management of their service profile. Access to the Service Profile Management shall be allocated to key '0' in the Main Menu;
- **Control Menu:** enables the user to access the UPT Control Menu. Access to the Control Menu shall be allocated to the key star '\*' in the Main Menu.

The optional function is:

- **UPT Voice Mail:** enables the user to access one or more menus presenting the available UPT voice mail functions. Where Voice Mail is provided as part of a phase 1 UPT service access to the voice mail functions shall be allocated to key 3 in the Main Menu.

**Table 2: Allocation of functions within phase 1 UPT main menu**

Key	Main Menu	Status
1	Registration Menu	Mandatory
2	Out-going Call Set-up	Mandatory
3	UPT Voice Mail	Mandatory, if provided
4		
5		
6		
7		
8		
9		
0	Service Profile Management	Mandatory
*	Control Menu	Mandatory
#		

## 5.1.2 Registration menu

On first entering the Registration Menu, and before the available options are presented, an announcement shall give the user their current registration status, including:

- **Access registration address:** the assigned E.164 number of the terminal with their existing registration. At the service providers option this may be offered as a name rather than a number, e.g. "Home", "Office", etc;
- **Timeout:** if applicable, the limit of any timeout that applies to the existing registration;
- **Type:** if applicable, the type of UPT service defined for the existing registration (within phase 1 these are expected to be: in-call only, in-call with authentication);
- **Teleservices:** if applicable, the type of teleservice (telephony, facsimile, videotelephony, etc.) that applies to the existing registration.

Following the announcement, the registration menu is provided to enable a number of registration options to be presented to the UPT user. Within the phase 1 minimum MMI, four mandatory functions are defined and allocated to keypad control, see table 3. The mandatory functions are:

- **Explicit Number:** enables the user to define the terminal they wish to use as their access registration address by entering a valid E.164 number. This may or may not identify the terminal they are currently using. Access to the Explicit Number data entry field shall be allocated to key '1' in the Registration Menu;
- **De-Register:** enables the user to De-Register from the existing registration without defining a new registration. The UPT user's service profile shall define what happens to in-coming calls when the user is De-Registered. Access to the De-Registration function shall be allocated to key '0' in the Registration Menu ;
- **Control Menu:** enables the user to access the UPT Control Menu. Access to the Control Menu shall be allocated to the key star '\*' in the Registration Menu;
- **Confirm:** enables the user to confirm the existing registration defined in the opening announcement and return to the Main Menu. The Confirm function shall be allocated to the key square '#' in the Registration Menu.



**Table 3: Allocation of functions within phase 1 UPT registration menu**

	Registration Menu	Status
1	Explicit Number	Mandatory
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
0	De-Register	Mandatory
*	Control Menu	Mandatory
#	Confirm, the existing Registration	Mandatory

In addition to these mandatory functions the UPT service provider may wish to consider other registration options. Four examples are provided:

**EXAMPLE 1:** The user may have a Registration List of preferred or frequently used ARAs, e.g. Home, Office, Mobile Phone, etc. Access to this list may be provided directly in the Registration Menu (e.g. key 2 = Home, key 3, = Office, etc.) or as a subsequent menu accessed from the Registration Menu (e.g. key 2 = Registration List).

**EXAMPLE 2:** The user may have one or more Agendas of preferred ARA schedules defined in their service profile. For instance, 08.00 - 16.00 Office, 18.00 - 23.00 Home, all other time Voice Mail. Access to this agenda or list of agendas may be provided directly on the Registration Menu or via a subsequent menu accessed from the Registration Menu.

**EXAMPLE 3:** The user may have one or more black or white call filtering lists defined in their service profile. Where, for example, callers with specific CLIPs are filtered in or out of the calls to be presented to the current ARA.

**EXAMPLE 4:** The user may be able to enter a variety of full and short code numbers via the explicit number option. For instance: entering NNNNNN.....N# will define a full E.164 number, but as a service provider's option entering N# or NN# may enter a short code number which references to a full E.164 number within the user's service profile, both of which identify the required ARA.

**NOTE:** When the user enters data in the explicit number field to define an E.164 number as the current ARA, it would be desirable for current number entry practices within the Public Switch Telephone Network (PSTN) and ISDN to be valid. For example: a user who enters "00 44 1 234 567890 #" has defined the ARA by a full international E.164 number. Equally a user who enters "01 234 567890" may be assumed to be defining an ARA within the current country; and a user who only enters "567890" may be assumed to be entering an ARA within the current area code, within the current country. Within phase 1 at least, users who define an E.168 UPT number should be presented with an error indication.

On successful completion of a registration data entry or selection, the UPT service provider may present other subsequent menus to enable the user to define further registration options. These may include:

- setting time limits for the registration (e.g. Until 24.00 hrs, For 5 hours, etc.);
- setting registration types (all in-coming calls, white list in-coming calls only, business calls only, etc.);
- setting different teleservices (facsimile calls only, telephone calls only, etc.).

If, after selecting the Registration menu, no registration data is entered, the user should in the first case be supported according to the recommended MMI supporting announcements, see subclause 5.3.

If the user hangs up after selecting the Registration menu, without defining the Access Registration Address (ARA) the previous registration shall continue.

### 5.1.3 Out going call set-up

Within the phase 1 UPT service, out-going UPT calls are only possible on a per successful access, identification and authentication basis. For security reasons, there is no facility to register in advance for out-going calls. The only possibility for making second or subsequent call without going through the identification and authentication procedures is for the user to invoke the follow-on procedure before replacing the handset.

On selecting Out-going Call Set-up from the Main Menu, the user shall be prompted to enter an E.164 number and to indicate its completion with a square '#'.

In addition to this mandatory function the UPT service provider may wish to consider other Out-going Call set-up options. Two examples are provided:

**EXAMPLE 1:** Within the Out-going Call Number Field, the user may be able to enter a variety of full and short code numbers. For instance: entering NNNNN.....N# will define a full international, national or local E.164 number, but as a service provide's option entering N# or NN# may enter a short code number which references to a full E.164 number within the user's service profile, and simply entering # may enable the user to redial the last previously dialled UPT out-going call number.

**EXAMPLE 2:** The user may have an Out-Call List of preferred or frequently dialled numbers, e.g. Home, Office, Friend A, Friend B, etc. Access to this list may be provided directly in an Out-going Call Menu. (e.g. key 2 = Home, key 3, = Office, etc.) or as a subsequent menu accessed from the Registration Menu (e.g. key 2 = Out-Call List). If this Out-going Call Menu option is considered then it may be appropriate to reserve key '1' for an Explicit Number option to enable access to a Out-going Call Number Field, as described in example 1 above.

#### 5.1.3.1 Out-call follow-on

At any time following the initiation of a UPT Out-going Call Set-up (i.e. during the call set-up process, during the alerting of the called party, and during the connected call) the user may wish to disconnect from the call and try another number, without going on-hook (hanging-up). In these cases the user may press the star '\*' key to access the Control Menu and then press key '9', to initiate a "Forced Disconnect". The user shall then be re-presented with either the Main Menu or the Out-going Call Menu (if there is one) (see also subclause 5.2.5 on Nested Services).

#### 5.1.3.2 B-party disconnects

If at any time during an out-going call the B-Party Disconnects, the call is completed and, if they have not gone on-hook, the user is re-presented with the Main Menu. This also enables users to make subsequent or follow-on calls.

### 5.1.4 Voice mail

The specification of the MMI for a UPT Voice Mail service is outside the scope of this document, but service providers who offer this facility as part of their UPT service should comply with the user procedures and MMI recommendations included in ISO/IEC 13714 [12].

### 5.1.5 Service profile management menu

On entering the Service Profile Management Menu it is expected that the user will be presented with the menu of available service profile options. It is not intended that an announcement should give the user their current service status. This is made available as a separate selectable option.

Within the phase 1 minimum MMI, five mandatory functions are defined and allocated to keypad control, see table 4. The mandatory functions are:

- **Service Profile Status:** enables the user to listen to a listing of all their available service profile parameters and their current settings. This is presented as a skip and scan list (see also subclause 5.2.4 on Skip and Scan Control) which should enable the user to select a specific parameter and to change the current settings. For security reasons, not all service profile parameters may be available to change whilst roaming. Access to the Service Profile Status list shall be allocated to key '1' in the Service Profile Management Menu;

- **Supplementary Services:** enables the user to access and control the UPT supplementary services to which they subscribe. Within the phase 1 service these may be restricted to Call Forwarding on Busy (CFB), Call Forwarding on No Reply (CFNRy), Call Forwarding when Not Reachable (CFNRc) and Variable Routing (CLIP or Time Dependency). The detailed procedures for control of these services (switching them on or off or changing the target numbers, etc.) is a matter for the service provider, but these should be compliant with the interactive dialogue format specified in ETS 300 738 [10]. Access to the Supplementary Services options shall be allocated to key '8' in the Service Profile Management Menu;
- **Changing Password or PIN:** enable the user using the weak authentication option to edit their existing UPT Passwords or PIN numbers. These do not include their UPT number or their PUI. The detailed procedures for editing these codes is a matter for the service provider, but due attention shall be paid to the UPT service's requirements for security. Access to the Changing Password and PIN options shall be allocated to key '9' in the Service Profile Management Menu. Users who use the UPT strong authentication option will not be able to edit their password in this way;
- **Changing Default Settings:** enable the user to edit their existing Default Settings. These default settings include the user's default registration locations for a number of conditions. For example, when the UPT user is de-registered, when the registered terminal is busy or is not answered. Access to the Changing Defaults options shall be allocated to key '0' in the Service Profile Management Menu;
- **Control Menu:** enables the user to access the UPT Control Menu. Access to the Control Menu shall be allocated to the star '\*' key in the Service Profile Management Menu.

NOTE 1: Within the current UPT service proposals there is no requirement foreseen to support the command dialogue format for supplementary service access and control described in ETS 300 738 [10].

NOTE 2: The Changing Default Settings option may be seen as a duplication of supplementary service access and control in some cases, but this function specifically enables the user to edit defaults, where these impact the supplementary service these are expected to be included for completeness.

**Table 4: Allocation of functions within phase 1 UPT service profile management menu**

Key	Service Profile Management Menu	Status
1	Service Profile Status	Mandatory
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	UPT Supplementary Services	Mandatory
9	Changing Password/s or PIN/s	Mandatory, for weak authentication
0	Changing Defaults Settings	Mandatory
*	Control Menu	Mandatory
#	-	-

NOTE: Key 9 should remain unassigned for UPT users with strong authentication.

### 5.1.6 UPT control menu

This menu enables the UPT user to access a set of generic UPT functions from any point of a UPT dialogue. The UPT Control Menu shall be available from any point after successful completion of identification and authentication, it shall also be available during a UPT out-going call set-up and whilst connected to a UPT in-coming or out-going call. The UPT Control Menu shall be accessed via the star '\*' key. Within the phase 1 minimum MMI, six mandatory functions are defined and allocated to keypad control, see table 5. The six mandatory functions are:

- **Return to Main Menu:** enables the user to break out of their current dialogue point and return to the main menu. The Return to Main Menu function shall be allocated to the key '7' in the Control Menu;

- **Language Menu:** enables the user to select one of a number of languages in which the recorded announcements may be presented. The Language Menu function shall be allocated to the key '8' in the Control Menu;
- **Forced Disconnect:** enables the user to disconnect from a connected line or service and to return to the UPT service (e.g. disconnect from an answering machine and enable a follow-on call). The Forced Disconnect function shall be allocated to the key '9' in the Control Menu;
- **Help:** enables the user to ask for a context sensitive help announcement, or to access a human operator. The Help function shall be allocated to the key '0' in the Control Menu;
- **Cancel Last Input:** enables the user to cancel the last input made. In the case of a data entry field, the whole entry is cancelled and the data entry prompt is re-played. In the case of a menu selection, the menu choice is cancelled and the user is returned to the start of the previous menu, i.e. the user goes back one step in the dialogue. The Cancel last Input function shall be allocated to the star '\*' key in the Control Menu;
- **Return to Dialogue:** enables the user to escape from the control menu back to where they were in the dialogue, at the point they pressed the star '\*' key. The Return to Dialogue function shall be allocated to the square '#' key in the Control Menu.

**Table 5: Allocation of functions within phase 1 UPT control menu**

Key	Control Menu	Status
1	-	unassigned
2	-	unassigned
3	-	unassigned
4	-	unassigned
5	-	unassigned
6	-	unassigned
7	Return to Main Menu	Mandatory
8	Language Menu	Mandatory
9	Forced Disconnect	Mandatory
0	Help	Mandatory
*	Cancel last Input or Selection, Go back one step	Mandatory
#	Return to the Dialogue	Mandatory

NOTE 1: It is highly desirable to maintain consistency between the allocation of functions to keys within the Control Menu and Reduced Control Menu (see subclause 5.2.5) . Therefore, although keys 1 - 6 in table 5 are declared unassigned, service providers may wish to consider any supplementary service access and control provided within the Reduced Control Menu, before allocating any function to these keys within the Control Menu.

During the alerting and connected phase of an out-going UPT call it is essential to enable access to at least a reduced set of control menu functions, see subclause 5.2.5 Nested Services.

### 5.1.7 Global follow-on

After successful completion of any dialogue function, i.e. registration, out-going call, service profile management, the user should be returned to the Main Menu, to enable him to follow-on with other functions or procedures.

This is in addition to the Control Menu facility to return to the Main Menu from any point of the dialogue, i.e. key '\*' followed by key '7'. In this case any uncompleted function or procedure is likely to be cancelled, and any data entered as part of that procedure are likely to be lost.

## 5.2 MMI control functions

In addition to the mandatory functions provided within the UPT service menus, there are five MMI control functions that shall be supported within the phase 1 UPT service:

- cut-through;
- dial ahead;
- data entry;
- skip and scan;
- nested service escape.

### 5.2.1 Cut-through

Cut-through enables the user to short-cut a system state by invoking a command before the end of an announcement, ETR 329 [8]. When a valid command is entered during an announcement, the announcement should be interrupted and the system should go to the same state as if the command had been entered at the end of the announcement. To maximize the user's facility to "cut-through" at all points of the dialogue, all the announcements should be interruptible. The exceptions that should prevent cut-through occur when the user must be made aware of specific information. There are two instances where non-interruptible announcements must be used, these are:

1. when an announcement has to explain to the user, he is not in the state he is expecting. There are two possibilities:
  - the user makes a mistake and the system has to inform him that it cannot react positively to the user input (e.g. access to the short-code NN is not possible, since short-code NN does not exist);
  - the system is not able to provide the user with the usual sequence of events: for instance, when the user requests an action that the system is temporarily unable to achieve (e.g. dial a number when the authentication process failed).
2. when an announcement is confirming an action leading to a change in the system (e.g. a supplementary service setting has been changed, a registration is accepted).

Cut-through shall be supported within the phase 1 service from any point of the dialogue after a UPT service provider has been accessed and a valid UPT Access Tone (see subclause 5.5.1) has been started.

### 5.2.2 Dial ahead

Dial ahead enables users to enter commands for one or more dialogue states before the system has reached those states. A user can then enter several commands in a rapid sequence. When a sequence of commands is entered, the system shall keep track of them and treat them one at a time. If the sequence makes correct sense, the system should bring the user directly to the corresponding state, see ETR 329 [8].

**EXAMPLE:** A UPT user who wants to make an out-going call needs to enter his PUI and PIN, select the feature "Out-call" and enter the number. After accessing a UPT service provider, the user should be able to dial all the digits and delimiters necessary for this command as a single string. This facility will also enable the use of pre-programmed UPT access devices.

When the sequence leads to a state where a non-interruptible announcement has to be played, any subsequent command entered during the period after the entry of the command that led to that state, and before the non-interruptible announcement is fully played, shall be ignored.

Dial ahead shall be supported within the phase 1 service from any point in the dialogue after a UPT service provider has been accessed and a valid UPT Access Tone has been started.

### 5.2.3 Data entry

Data entry fields enable the user to input numeric data in response to a prompt announcement, ETR 329 [8]. Possible examples include: PUI, PIN, date, time or telephone number.

At any time during numeric data entry the user shall be able to cancel the entry and start again. The Cancel function is provided by the star key in the Control Menu. Therefore at any time to cancel a data entry the user presses the star key twice '\*', i.e. press '\*' to access the control menu and press '\*' again to cancel the input and return to the data entry field prompt .

A digit counter or an explicit command from the user can be used to determine the end of data entry within a data field. The command function acts as a delimiter to the numeric data entry. Within numeric data entry the square '#' key shall be the delimiter, see table 6.

A digit counter can be used when the data entry is of fixed length.

A delimiter should be required when:

- the entry can be a data string of variable length;
- the same string can be either a valid complete string or only the beginning of another valid string (e.g. for a time entry: 200 can be either 2:00am or the beginning of the string 2 000 for 8:00pm);
- the system prompts the user for a sequence of entries, a delimiter should be used in order to prevent chain errors, e.g. where a user for some reason omits a particular entry and the system gets the data out of 'synchronization';
- a few do not it may be useful to require a delimiter even for data of fixed length as this would keep the user from wondering each time whether a delimiter is needed or not.

When a numeric data entry does not require a delimiter, entering the square '#' for the delimiter at the end of the entry should have no other effect than replacing the time-out.

When the user stays idle before the entry is complete (e.g. at least one digit or a delimiter is missing), the system should assume that the user needs more information about the entry and a help announcement should then be played explaining the current state and what can be done to complete or cancel the entry. A timeout may also be required to detect any incomplete data entries.

The format of numeric data entries that depends on the culture (e.g. time, date) should be available for user customization, with a predefined default for local expectations.

**EXAMPLE:** For 8:00pm, a user calling a service targeted at North Americans may wish to be able to enter his time as 8:00pm, whereas a user calling a service targeted at Europeans may wish to be able to enter 2 000.

**Table 6: Allocation of functions within phase 1 UPT data entry fields**

Key	Control Menu	Status
1	Numeric data entry	Mandatory
2	Numeric data entry	Mandatory
3	Numeric data entry	Mandatory
4	Numeric data entry	Mandatory
5	Numeric data entry	Mandatory
6	Numeric data entry	Mandatory
7	Numeric data entry	Mandatory
8	Numeric data entry	Mandatory
9	Numeric data entry	Mandatory
0	Numeric data entry	Mandatory
*	Control Menu	Mandatory
#	Delimit Entry	Mandatory

## 5.2.4 Skip and scan

Skip and scan is a technique to allow a user to select rapidly one item from a lengthy list of related items, i.e. more than the recommended limit of 6 in any menu. The user is prompted to use three dedicated controls, one to select the correct item and one to skip to the next item in the list and one to skip back to a previous item. The list is then presented one item at a time without the need to define further which key to press. At any time, the user should be able to exit the skip and scan mode by invoking the "go back one step" command, see ETR 329 [8].

No specific key allocation is recommended for the "skip and scan" functions. However, the keypad convention of right-hand column for going forward, left-hand column for going back and centre column for staying still, suggests the following:

- "go-to-previous-item", left-hand column (e.g. key '4');
- "select", same row, middle column (e.g. key '5');
- "go-to-next-item", same row, right-hand column (e.g. key '6');
- "go back one step" select Control Menu, select Cancel (e.g. key '\*',\*').

Skip and scan shall be at least one method for interrogating and modifying a UPT user's service profile parameters, it need not be the only method or the user's preferred method.

## 5.2.5 Nested service escape

A UPT User making UPT out-going calls may run into different systems and conditions for example:

- his own Voice Mail system;
- a Voice Mail system of the called party;
- a Banking Application or an Information Retrieval service (i.e. another Stored Voice Service);
- an Answering Machine;
- a no Reply condition (or other B-party service).

Equally a UPT user may accept a call from an automated incoming call service, e.g. from his voice mail service.

There are two problems that these conditions may cause:

1. the voice mail services (either his own or that of the called user), and the other examples of a stored voice service (the banking application and the information retrieval service) may have their own Control Menu (or indeed other functions controlled by the key '\*' star). The user must be able to declare to which, of the services they are accessing, they wish a key '\*' star activation to cause a response. For example, do they wish to access the Follow-On activities within the UPT Service, or the Change Language menu in a Banking application?.
2. the Answering Machine and No Reply condition both expect the calling user to disconnect the call and return to idle. However the Calling UPT User may wish to access Follow-on, therefore there must be a facility to enable the user to disconnect from an alerting or connected party without going on hook.

The recommended solution for escaping nested services is to give a reduced UPT Control Menu in response to the activation of the key '\*' (star) during the alerting and connected phase of an out-going UPT call. The star is detected by the UPT Service, but is not forwarded to any connected service. The UPT Service shall play an announcement which defines the reduced UPT Control Menu functions, see table 7. For example: "This is the UPT Control Menu. To disconnect the current call, press '9', or to suspend this menu (for the duration of this call) and send 'star' (\*) to the connected service, press 'star' (\*) again".

- If the UPT User presses 9: the Out-going call is disconnected and the UPT Service goes back to the Out-going Call Menu; the automated incoming call is disconnected and the UPT user is prompted to "go on-hook" or "hang up".

- If the UPT User presses 0, the Out-going (or automated incoming) call is maintained and the UPT Service presents a Help announcement that gives more explanation of the purpose of this reduced Control Menu for the alerting and connected phases of an out-going UPT call.
- If the UPT User presses \*, the UPT Service shall transmit '\*' (star) to the connected service and suspend the UPT Control Menu (it cannot be recalled during this call). The UPT User will now be presented with the response to star from within the connected service, this may be the Control Menu of that service or it may be some other announcement. They will then be able to make selections within the connected service without further intervention from the UPT Service.
- If the UPT User presses #, the UPT service shall return to the alerting or connected call state that existed before the Reduced Control Menu was accessed.

As an alternative, when a UPT User is calling the UPT User's own Voice Mail, this is expected to be accessed from a selection in the UPT Main Menu. This selection may wish to suspend the UPT Control Menu until the Voice Mail system is disconnected (using a standard Exit selection in a Voice Mail menu or the Forced Disconnect in the Voice Mail Control Menu).

**Table 7: Allocation of reduced control menu functions during the alerting and connected phase of an out-going call**

Key	Control Menu	Status
1	-	Unassigned
2	-	Unassigned
3	-	Unassigned
4	-	Unassigned
5	-	Unassigned
6	-	Unassigned
7	No function	Mandatory
8	No function	Mandatory
9	Forced Disconnect	Mandatory
0	Help	Mandatory
*	Send Star '*' to Connected Service and suspend UPT Control Menu	Mandatory
#	Return to the Previous State	Mandatory

NOTE 1: Keys 1-6 are at present unassigned. However, some provision will be required within the "Reduced Control Menu" for UPT supplementary service access and control, within future phases, e.g. to enable a conference or 3-party call, to hold and switch between UPT calls (incoming and outgoing), to invoke a call completion service, etc. Where practicable the allocation of functions to keys for these services should be consistent with the codes allocated as supplementary service switching orders, within ETS 300 738 [10].

NOTE 2: It is highly desirable to maintain consistency between the allocation of functions to keys within the Reduced Control Menu and Control Menu. Hence, keys 7 and 8 in table 7, are declared to have a mandatory 'No function'.

The reduced UPT Control Menu shall be supported in phase 1 services during the alerting and connected phases of out-going UPT calls, and if possible during the ringing and connected phases of in-coming UPT calls, especially if the in-coming call was authenticated.

## 5.3 MMI supporting announcements

In addition to the mandatory announcements required to support the UPT service menus, there are two types of MMI supporting announcements that shall also be provided within the phase 1 service:

- error announcements (see subclause 5.3.1);
- help (see subclause 5.3.2).



### 5.3.1 Error announcements

The UPT service dialogue should be error tolerant and try to prevent errors. When the system detects an error from the user, it shall play a context sensitive error announcement:

- an error announcement should include a statement of the nature of the error;
- an error announcement may be preceded by an error tone (see subclause 5.5.4).

To make sure the user cannot 'dial-ahead' or 'cut-through' an error condition, the error announcement should be non-interruptible. This error announcement should be short and followed by a more detailed interruptible announcement that explains the current state and the available commands. This current state is the state the user was in when he made the mistake. More supportive announcements may be used on second and subsequent errors made in the same context.

After a number of consecutive errors or total errors, to be determined by the service designer, including periods of no input from the user, the system may take some special action such as disconnecting the user or connecting them to a human operator. An announcement should be provided to inform the user that such an action will occur.

### 5.3.2 Help

A help announcement shall be available at any point of the dialogue. This announcement should be context-dependent and should include one or more of the following:

- a reminder of the action which just brought the user into the current state;
- a description of the user current state;
- a detailed list of the actions available to the user in that state;
- a detailed list of the additional generic actions available to the user.

The help announcement should be played each time a time-out occurs after the user has been prompted for an input. In addition, at any time, the user shall be able to invoke a help announcement by the Help command within the Control Menu via the key '0'. Therefore at any time the user can press '\*',0' to invoke Help. The only exception is when a non-interruptible message is being played.

When providing help, the system should not change state; the user is in exactly the same state as before he invoked help or before the time-out occurred. This means that all the commands available before the help announcement has been called should be available while it is played so that when a valid command is entered, the system should behave exactly as if it had been entered before the help announcement. There should be no notion of "help state" to the user, help is only a more detailed announcement explaining the current user's state.

Help on generic commands may be given as help at the main menu or when the user requests help during a help announcement.

## 5.4 Access numbers and codes

The basic definitions for the UPT numbers and codes are derived from ITU-T Recommendation E.168 [17].

### 5.4.1 UPT access code

The UPT Access Code (UPTAC) has been defined by ITU-T Recommendation E.168 [17] It comprises three elements:

- International Dialling Prefix    +;
- UPT Country Code                878;
- UPT Service suffix               800.

NOTE: 878 has also been designated by ITU-T as a Universal Freephone Number.

Therefore the international UPTAC that shall enable a UPT user to gain access to a UPT service provider within any UPT supporting network shall be the six digit string:

+ 878 800

NOTE: ITU-T Recommendation E.163 [15] recommends the adoption of 00 as the preferred International Dialling Prefix (signified by the '+' character ITU-T Recommendation E.123 [13]). Therefore the most common international UPTAC that shall enable a UPT user to gain access to a UPT service provider within any UPT supporting network shall be the eight digit string: 00 878 800.

For ease of use, this string may be encoded within a UPT Access Device or UPT Personal SIM.

## 5.4.2 UPT access number (UPTAN)

The UPTAN has been defined by ITU-T Recommendation E.168 [17] in either of two formats, International Freephone number format or Universal Freephone number format.

### 5.4.2.1 International freephone number format

This format comprises 4 elements:

- International Dialling Prefix +;
- International Country Code e.g. 44;
- National Destination Code Freephone Number e.g. 500;
- National Freephone Subscriber Number UPT Service Provider e.g. 123 456 789.

With this format the UPTAN is of variable length, but it does enable national numbering and dialling formats to be used. For example within the UPT user's home environment only the National Freephone number and service provider number would be necessary. However, whilst roaming this number may not be usable without incurring local charges.

For ease of use, this string may be encoded within a UPT Access Device or UPT Personal SIM.

### 5.4.2.2 Universal freephone format

This format comprises 3 elements:

- International Dialling Prefix +;
- Universal Freephone Number 800;
- Global Freephone Subscriber Number for UPT Service Provider e.g. 1234 5678.  
(max. 8 digits)

With this format the UPTAN is of fixed maximum length (11 digits), and in principle it enables freephone access from anywhere in the world, thereby guaranteeing access whilst roaming without incurring local charges.

For ease of use, this string may be encoded within a UPT Access Device or UPT Personal SIM.

## 5.4.3 UPT Personal User Identity (PUI) code

The UPT Personal User Identity (PUI) Code is defined by ITU-T (x). It comprises a 15 digit string, as follows:

- Mobile Country Code (MCC) 3 digits as defined in ITU-T Recommendation E.212 [18];
- Mobile Network Code (MNC) 2 or 3 digits;
- UPT User Code (UC) 9 or 10 digits.

NOTE: The combined length of the MNC and the UC shall not exceed 12 digits.

For security, this string may also be encoded within a UPT Access Device or a UPT Personal Subscriber Identification Module (SIM).

#### 5.4.4 UPT Personal Identification Number code (PIN)

The UPT Personal Identification Number Code shall be defined by the UPT service provider and shall be customizable by the UPT subscriber. It is expected to be a minimum of a 4 digit string.

For security, this string may also be encoded within a UPT Access Device or a UPT Personal Subscriber Identification Module (SIM).

#### 5.4.5 UPT number

The UPT Number uniquely and unambiguously identifies each UPT User. It will be used by a calling party to reach a registered UPT User. This number is independent of the terminal, network or service used and must conform to ITU-T Recommendation E.164 [16].

### 5.5 Service tones and signals

In addition to the announcements required in subclauses 5.1 and 5.3, there is a requirement to provide three unique auditory tones and signals within a UPT service which are independent of language and will enable users to operate a basic service access, through to identification and authentication. These are a UPT Access Tone, UPT Ring Tone and UPT Ring Signal.

#### 5.5.1 UPT access tone

The UPT Access Tone shall be used as the first response to all calls to an UPT Access Code or UPT Access Number. The advantage of such a tone is to enable users who do not understand the local language to use the local UPT service. The access tone shall be presented immediately before any UPT welcome announcement or prompt for the user to enter their UPT personal user identity and PIN code. The characteristics of the tone shall comply with the model described in TR 101 041-1 [22] and are For Further Study (FFS).

NOTE: The cadence should probably be short, e.g. not exceeding 1s. The tone should not imply an error state, but may be complex (not a single frequency). For example, the 878 DTMF tone sequence might be a useful analogue.

#### 5.5.2 UPT ring tone

The UPT Ring Tone should be presented to the calling party to indicate that a successful connection has been made to a registered UPT user and/or a UPT service and that an alerting signal is being applied to the called terminal or service.

The characteristics of the UPT ring tone shall comply with the model described in TR 101 041-1 [22] and are FFS.

#### 5.5.3 UPT ring signal

The UPT Ring Signal could be used when an in-coming UPT call is presented to a terminal and the terminal alerts the users. A unique UPT Ring Signal of the same cadence as the UPT Ring Tone could be used, if the local network and/or terminal will support it.

#### 5.5.4 Other possible UPT tones

Depending on the development of the phase 1 UPT service, there are a number of call handling and other tones that the UPT service may wish to consider. For example:

- **UPT Dial Tone** - may be presented to a UPT user as an alternative to an announcement to prompt the user to enter an out-going call number;

- **UPT Busy Tone** - may be presented to a UPT or ordinary user calling a UPT number when the called party is engaged on a UPT call;
- **UPT Call Waiting Tone** - may be presented to a UPT user who is engaged on a UPT call (in-coming or out-going) to indicate a new call is arriving and that UPT call control functions may apply;
- **UPT Error Tone** may precede error announcements so that the user realizes immediately that something wrong has happened. An error tone, if used, should be the same whenever an error occurs and be consistent between service providers. This could help users who are being given announcements in a language other than their preferred language/s.

In each case the characteristics of the tone should comply with the model described in TR 101 041-1 [22] and are FFS. As these additional tones may comprise some of a family of UPT tones and signals, there is a case for these to have an identifiable UPT "family image", so that informed users can differentiate them from ordinary network tones and signals. The "family image" concept should not deter the UPT tones and signals from compliance with the model.

## 5.6 Language

A UPT User's preferred language/s should be able to be determined from his PUI. All announcements in all UPT services following the first welcome announcement should be available in the users preferred language. The first announcement is assumed to be presented in the local language. As a phase dependent option, to limit the number of languages that a UPT service provider shall make available, the UPT user's service profile shall indicate, as a non-preferred default, one of a minimum set of languages that all service providers shall support. This minimum set of languages is FFS, but for example within Europe the list should expect to include: English, French, German, Italian and Spanish. The language chosen as the non-preferred default option shall be part of the user's service profile indicated to enquiries from roaming environments.

Ideally, from the start of the first welcome announcement, the UPT user shall have the facility to select the Language Selection menu from the UPT Control Menu. The user shall use star (\*) to select the control menu and eight (8) to select the Language Menu, ISO/IEC 13714 [12].

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# 6 User interface states - UPT phase 1

## 6.1 Minimum MMI states

The UPT User's User Interface States for the Minimum MMI offered by a Phase 1 UPT service shall be:

- **0: IDLE:** The User Interface is in its resting state, waiting for input from the UPT User or the UPT Service.
- **1: ACCESS:** The User Interface is waiting for the UPT User to enter the UPT Access Code (UPTAC) or UPT Access Number (UPTAN).
- **2: IDENTIFY:** The UPT User has entered the correct UPTAC or UPTAN. The UPT User Interface is waiting for identification (e.g. Personal User Identity (PUI)). Two routes are available, based on the strength of the authentication, Weak and Strong. Ideally, the UPT User may also access the UPT Control Menu, for Help and access to the Language Menu.
- **3: WEAK\_AUTHENTICATE:** The UPT User has entered a UPT identity. The UPT User Interface is waiting for weak authentication information (e.g. Personal Identification Number (PIN)) to confirm the identity. Ideally, the UPT User may also access the UPT Control Menu, for Help and access to the Language Menu.
- **3a: STRONG\_AUTHENTICATE:** The UPT User has selected strong authentication, the PUI and PIN are entered automatically and the user is aware that a UPT data exchange is taking place. Ideally, the UPT User may also access the UPT Control Menu, for Help and access to the Language Menu.
- **4: MAIN\_MENU:** The UPT User has successfully completed Access, Identification and Authentication. The UPT User Interface has presented the UPT Main Menu and is waiting for a user defined choice, which may be Registration for personal mobility, Call Set-up, Service Profile Management, or any other UPT facility (see subclause 5.1.1). The UPT User may also access the UPT Control Menu.

- **5: DISCONNECT:** The UPT User's session has been terminated by the UPT Service or by the Network or by a Third Party. The UPT User Interface is expecting the UPT User to terminate at his/her end and return to Idle.
- **6: REGISTRATION\_MENU:** The UPT User has selected Registration from the Main Menu. The UPT User Interface has presented the UPT Registration Menu and is waiting for the UPT User to select from a set of predefined In-Coming Call Registration Options or to enter a in-coming call registration directory number (see subclause 5.1.2). The UPT User may also access the UPT Control Menu.
- **6a: REGISTRATION\_ADDRESS:** The UPT User has selected to register for in-coming calls at an explicit address (it may or may not be their current terminal). The UPT User Interface has prompted the user to enter a full directory number. The UPT User Interface is waiting for the UPT User to enter the access registration address. The UPT User may also access the UPT Control Menu, unless this has to be suspended to allow \* (star) to be included in the ARA's E.164 address.
- **7: Out-Going (OG)\_CALL\_DIALLING:** The UPT User has selected Out-Going Call from the Main Menu and the UPT User Interface has prompted the UPT User to enter an out-going call directory number (see subclause 5.1.3). The UPT User may also access the UPT Control Menu, unless this has to be suspended to allow \* (star) to be included in the directory number's E.164 address.
- **7a: OG\_CALL\_MENU:** The UPT User has selected Out-Going Call from the Main Menu and the UPT User Interface is waiting for the UPT User to select from a set of predefined Out-Going Call Stored Number Options or to enter a out-going call directory number (see subclause 5.1.3). The UPT User may also access the UPT Control Menu.

NOTE: State 7a is optional for Phase 1.

- **8: VOICE\_MAIL\_MENU:** The UPT User has selected Voice Mail from the Main Menu. The UPT User Interface has presented the UPT Voice Mail Menu and is waiting for the UPT User to select from a set of predefined UPT Voice Mail Options (these are outside the scope of the present document). The UPT User may also access the UPT Control Menu (see also subclause 5.2.5 on Nested Services).

NOTE: State 8 is optional for Phase 1.

- **9: SERVICE PROFILE MENU:** The UPT User has selected UPT Service Profile Management from the Main Menu. The UPT User Interface has presented the UPT Service Profile Management Menu and is waiting for the UPT User to select from a set of predefined UPT Service Profile Management options (see subclause 5.1.5). The UPT User may also access the UPT Control Menu.
- **10: CONTROL\_MENU:** The UPT User has selected the UPT Control Menu from the Main or another menu. The UPT User Interface has presented the UPT Control Menu and is waiting for the UPT User to select from the set of predefined UPT Control Menu Functions (see subclause 5.1.6). The UPT User may also return to their previous UPT state.
- **10a: In-Coming (IC)/(OG)\_CONTROL\_MENU:** The UPT User has selected the UPT Control Menu during the set-up, alerting or connected phase of a call. The UPT User Interface has presented a revised version of the UPT Control Menu and is waiting for the UPT User to select from the set of revised UPT Control Menu Functions, principally the functions 'Forced Disconnect' or 'Send Star' (and disconnect UPT Control Menu). The UPT User may also return to their previous UPT state. See subclause 5.2.5 on Nested Services.
- **10b: LANGUAGE\_MENU:** The UPT User has selected the Language Menu from the Control Menu. The UPT User Interface has presented the Language Menu and is waiting for the UPT User to select from the set of available languages (see subclauses 5.1.6 & 5.6). The UPT User may also return access the UPT Control Menu to get Help or to return to their previous UPT state.
- **11: OG\_ALERTING:** The UPT User has chosen an Out-Going Call facility and has entered UPT Call Handling information (B-Party's number) correctly. The UPT service has completed call set-up correctly and there is alerting on the called B-Party's side. The UPT User Interface is waiting for the B-Party to answer. If the UPT Service detects Busy (NDUB or UDUB) or Unreachable the calling UPT User is presented with the available options (FFS). The UPT User may also access the UPT Control Menu and disconnect the out-going call. This will enable access to Follow-On facilities, either OutCall or Global, by returning the user to the Main Menu.
- **11a: OG\_CALL\_SET-UP FAIL:** The UPT User has chosen an Out-Going Call facility and has entered UPT Call Handling information (B-Party's number) correctly. The UPT service has completed call set-up correctly and

there is a failed call indication (e.g. busy, congestion, number unobtainable, or unreachable indication) on the called B-Party's side. If the UPT Service can detect busy (NDUB or UDUB) or unreachable, the calling UPT User may be presented with supplementary service options (FFS). The UPT User may also access the UPT IC/OG Control Menu and disconnect the out-going call. This will enable access to Follow-On facilities, either OutCall or Global, by returning the user to the Main Menu.

- **12: OG\_CONNECTED:** The UPT User has made an out-going call and is connected to the called party. The UPT User will be able to terminate the current call. The UPT User may also access the UPT IC/OG Control Menu and disconnect the out-going call. This will enable access to Follow-On facilities, either OutCall or Global, by returning the user to the Main Menu.
- **12a: B\_PARTY SERVICES:** The UPT User has successfully invoked an out-going call procedure and the call has been connected with unidentified B-Party Services which are operational, e.g. Local Answering Machine, Local Voice Mail, etc. The UPT User Interface may also access the UPT IC/OG Control Menu, disconnect the out-going call and return to the UPT User Interface (see subclause 5.2.5) . This will enable access to Follow-On facilities, either OutCall or Global, by returning the user to the Main Menu.
- **13: IC\_ALERTING:** The UPT User is being alerted of an in-coming call. The UPT User Interface is waiting for the UPT User to accept the call.
- **13a: IC\_ALERTING AUTHENTICATE:** The UPT User's Service Profile is set up to use secure answering. The UPT User is being alerted of an in-coming call which requires authentication. The UPT User Interface is waiting for the UPT User to accept and authenticate the call.

NOTE: State 13a is optional for Phase 1.

- **14: IC\_AUTHENTICATE:** The UPT User's Service Profile is set up to use secure answering. The UPT User has answered an alerting in-coming call and the UPT User Interface is waiting for the UPT User to go through the authentication procedure in order to connect the in-coming call.

NOTE: State 14 is optional for Phase 1.

- **15: IC\_CONNECTED:** The UPT User has received an in-coming call, and is connected to the calling party. The UPT User will be able to terminate the current call.
- **15a: IC\_CONNECTED\_AUTHENTICATED:** The UPT User's Service Profile is set up to use secure answering. The UPT User has received and authenticated an in-coming call, and is connected to the calling party. The UPT User will be able to terminate the current call. The UPT User may also access the UPT IC/OG Control Menu and disconnect the in-coming call. This will enable access to Global Follow-On facilities, by returning the user to the Main Menu.

NOTE: State 15a is optional for Phase 1.

## 6.2 Additional UPT user interface states

In addition to the minimum user interface states defined in subclause 6.1 the service provider may wish to consider some of the following:

- **OG\_OPTIONS\_MENU:** Depending on the UPT User's chosen subscription, the UPT User Interface may be set up to provide a variety of options that may be applied to outgoing calls, e.g. billing alternatives, teleservice requirements, supplementary service functions, etc. The detailing of these options is outside the scope of the present document.
- **REGISTRATION\_OPTIONS\_MENU:** Depending on their chosen subscription options a UPT User may be able to choose between different registration options. For example, the schedule or time span of a registration, the teleservice requirements, the billing options (business vs. personal) and the type of registration (e.g. in-coming only, in-coming with authentication, in-coming with some out-going facilities, etc.) The detailing of these options is outside the scope of the present document.

- **SERVICE\_PROFILE\_STATUS\_LIST/MENU:** The UPT user's service profile should be available for the UPT user to check its status and to modify some or all of the associated parameters. This list or menu provides the user with the access to their service profile and the ability to change the parameters available to change. The detailing of this list and scan list or menu (and any submenus) is outside the scope of the present document.
- **SUPPLEMENTARY\_SERVICES\_MENU:** The UPT user's service profile has a record of the UPT supplementary services to which the UPT user subscribes. This menu provides the user with the opportunity to change the parameters associated with the available services, e.g. change the directory number for a CFNRc service. The detailing of this menu and any submenus is outside the scope of the present document.
- **PASSWORDS\_MENU:** The UPT user's service password (e.g. PIN) should be available for the UPT user to modify as required for maintaining personal security. The detailing of this menu (and any submenus) is outside the scope of the present document.
- **IC/OG\_DEFAULTS\_MENU:** The UPT user's default registration and out-going call options (including preferred ARA addresses, repertory or short code dialling memories, registration schedules, etc. should be available for the UPT user to verify and modify as required. The detailing of this menu (and any submenus) is outside the scope of the present document.
- **REGISTRATION\_FAIL:** The UPT service security requires that the number of attempts a user may make at a valid registration is limited. When this limit is reached, the UPT user interface is set to Registration Fail. The subsequent user procedures are currently outside the scope of the present document.
- **OG\_DIAL\_FAIL:** The UPT service security requires that the number of attempts a user may make at dialling a valid out-going call is limited. When this limit is reached, the UPT user interface is set to Out-Going Dial Fail. The subsequent user procedures are currently outside the scope of the present document.
- **SPECIAL\_CONTROL\_MENU:** The UPT User may require access to the Language Menu and the Help facility whilst trying to authenticate his identity on an Incoming UPT call. This may be a special reduced version of the standard Control Menu. This Special Control Menu may also be appropriate from the Identity and Authentication States, to support the roaming UPT user without infringing UPT security. FFS.

It is recognized that some network providers may support a re-answer facility to enable users who accidentally disconnect from a current call to be re-connected provided the other party is still active. The interaction of these facilities with the UPT service is for further study (FFS).

## 6.3 State transition diagrams

The minimum transitions between the UPT user interface states for the minimum MMI offered by a Phase 1 UPT service shall be as defined by the State Transition Diagrams shown in figures 1 - 3. The UPT service provider is entitled to provide additional transitions to these minimum set.

NOTE 1: For the sake of the clarity of the diagrams, the transition between any state and the idle state, are only shown if they specifically require emphasis. Of course the UPT user has the opportunity to return to Idle (state 0) at any time. The UPT service provider should ensure that the UPT service automatically resets to the default starting point. The status of any data entered during a UPT session prior to the UPT user returning to Idle, should depend on the completeness of the procedure in which the data was entered. For example if the procedure was completed successfully, the data should not be lost, but if the procedure was not completed successfully or was interrupted, the data may be lost (see also subclause 5.2.3).

NOTE 2: The transitions and states drawn with a dotted outline are not strictly part of the minimum MMI but are included for completeness. Their design is outside the scope of the present document.

### 6.3.1 UPT out-going calls - user interface states, including global and out-call follow-on

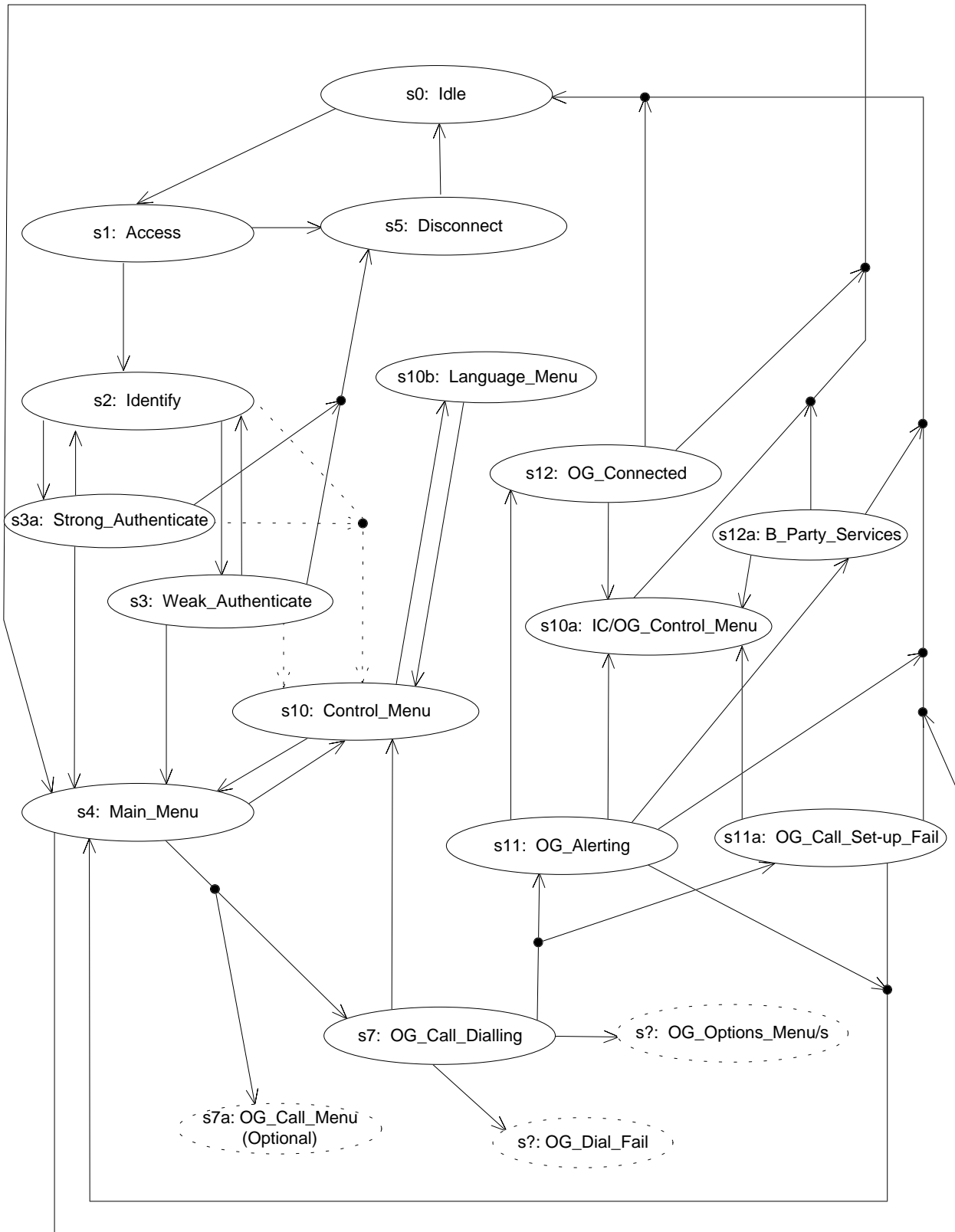
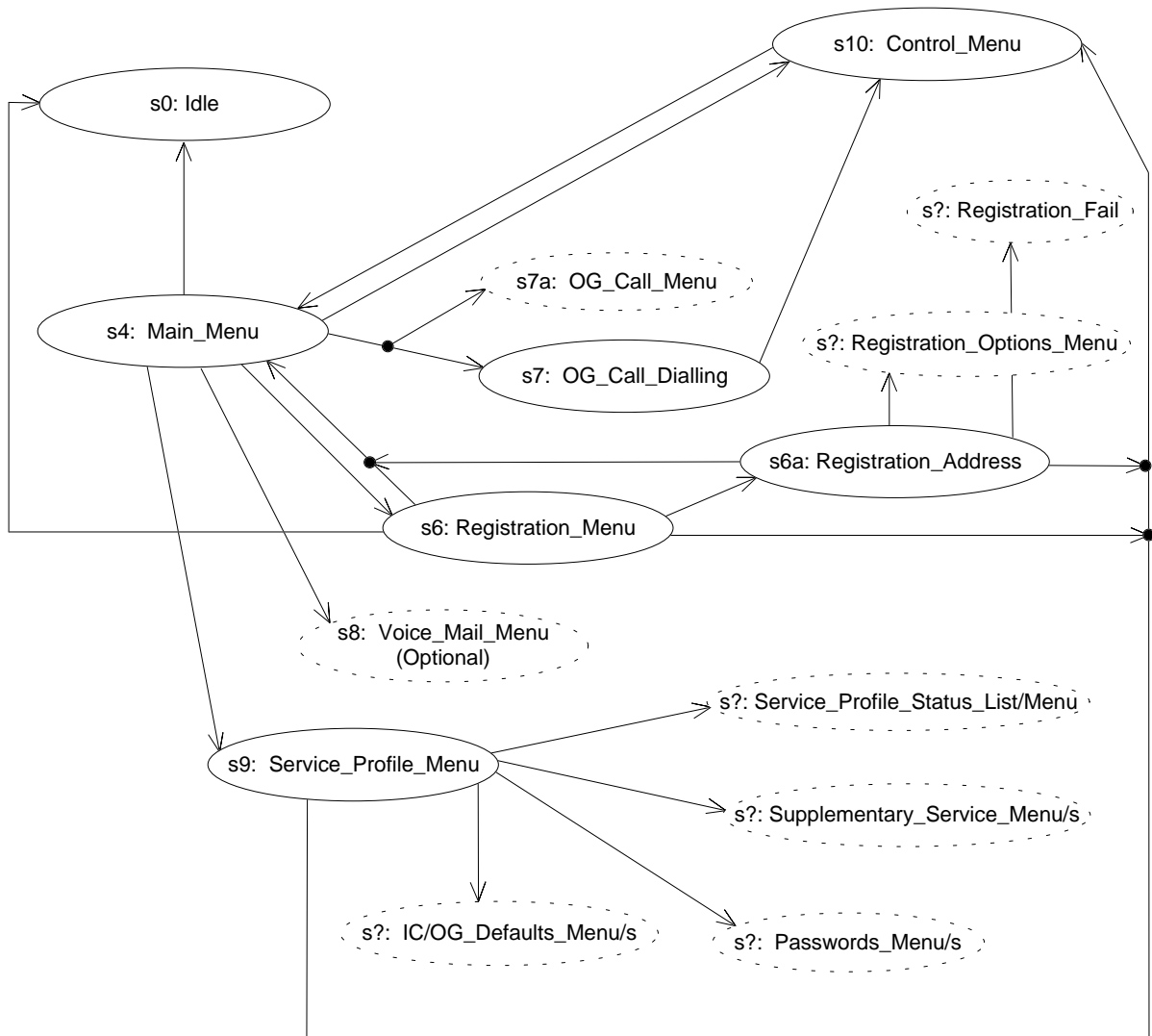


Figure 1: Phase 1 UPT out-going call set-up state transition diagram



### 6.3.2 UPT registration and service profile management - user interface states



**Figure 2: Phase 1 UPT out-going call set-up state transition diagram**

### 6.3.3 UPT in-coming calls - user interface states

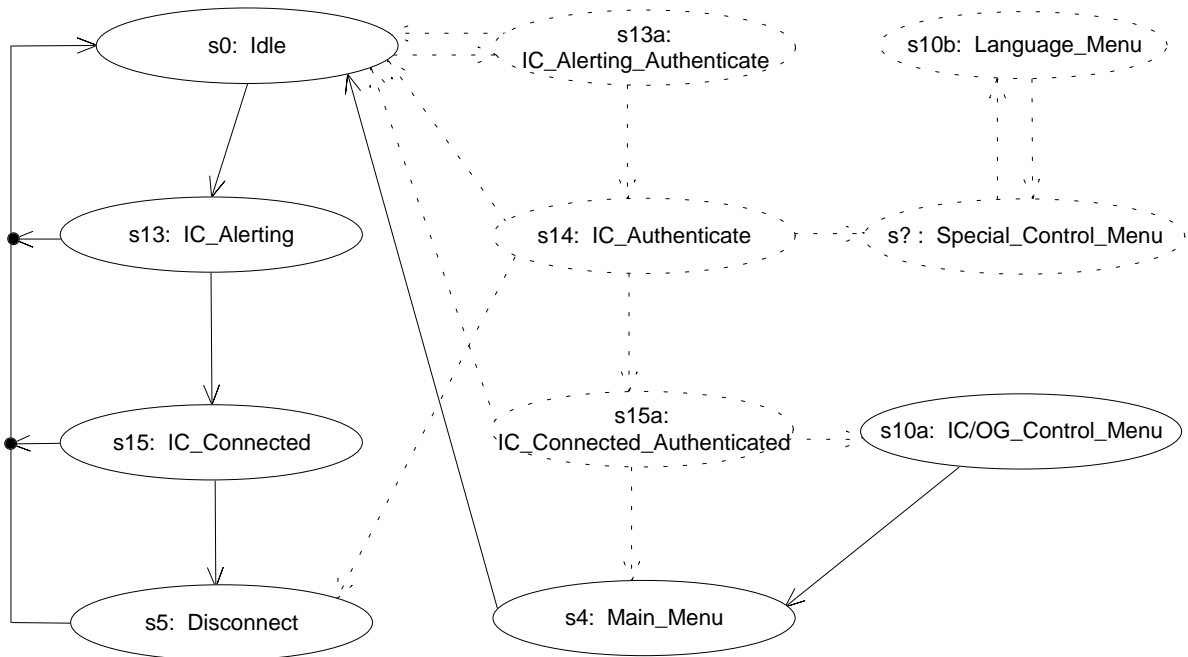


Figure 3: UPT in-coming call with or without authentication, state transition diagram

## 7 User control procedures - UPT phase 1

The UPT User Control Procedures required for a minimum phase 1 service shall be the sequence of control actions and feedback and prompt indications defined to progress from one UPT user interface state to another. The sequences are defined in the set of SDL diagrams given in figures 4 - 25, see subclause 7.1. Each UPT user control procedure follows the sequence based on the generic user control procedure shown in figure 3, and is compliant with the recommendations given in ETR 170 [4].

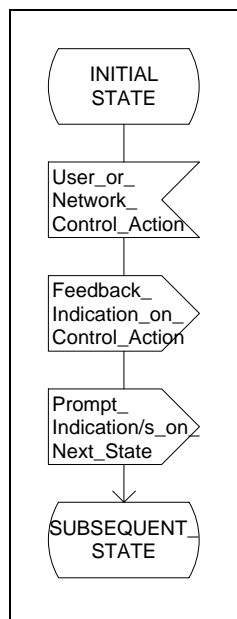


Figure 4: SDL showing the generic user control procedure

The complete set of control actions and indications required are listed in subclause 7.2.

### 7.1 SDL diagrams

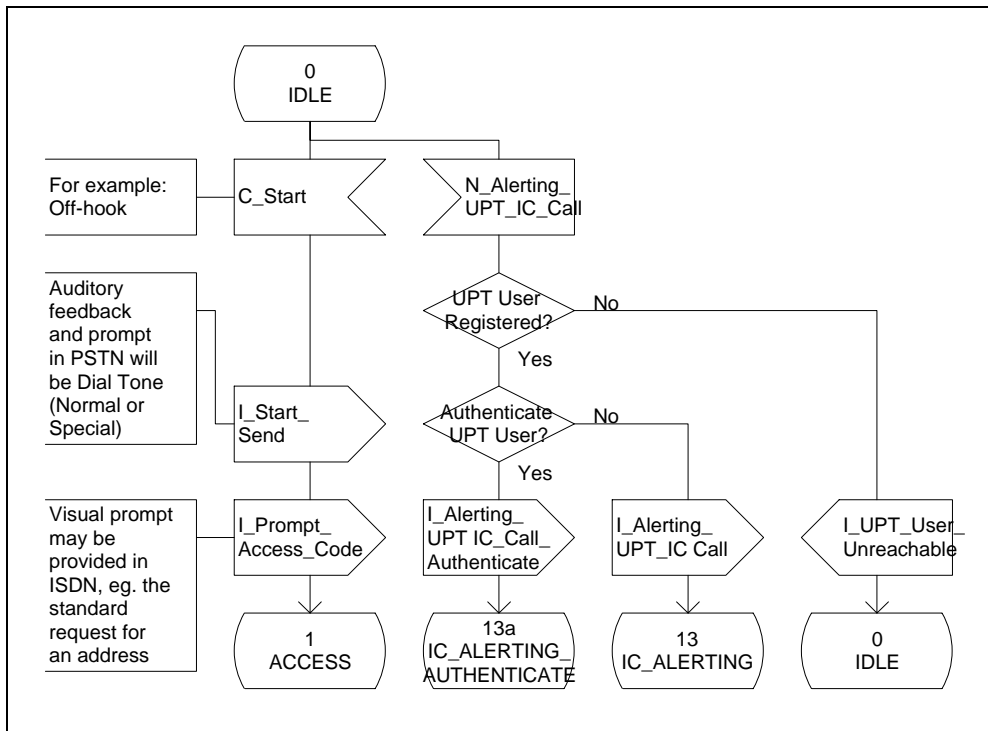


Figure 5: User procedures from state 0 "IDLE"

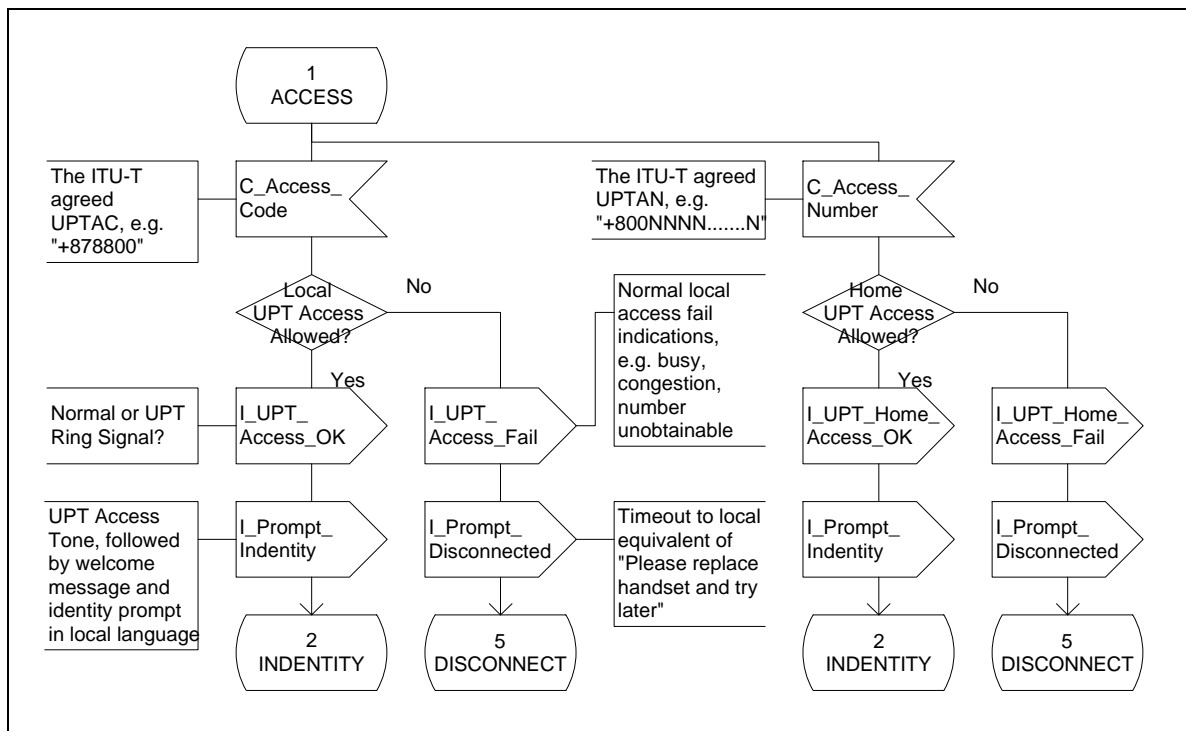


Figure 6: User procedures from state 1 "ACCESS"

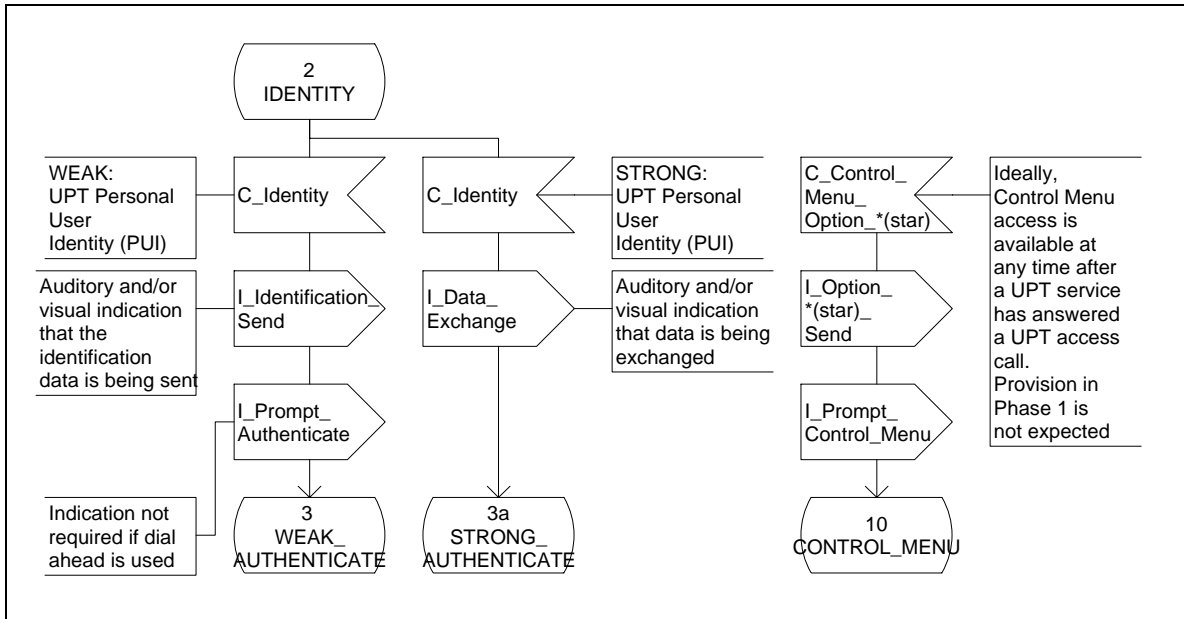


Figure 7: User procedures from state 2 "IDENTITY"

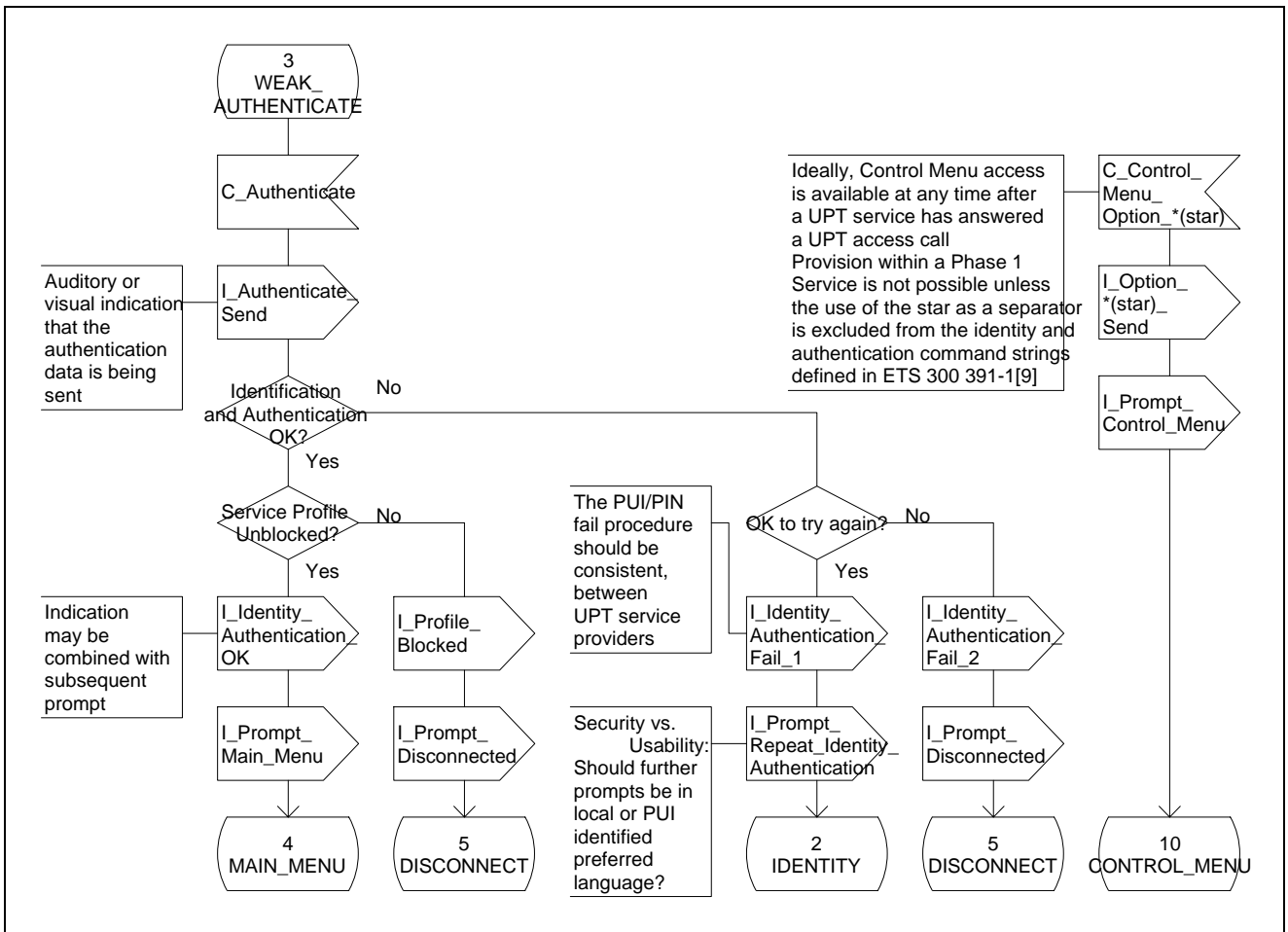


Figure 8: User procedures from state 3 "WEAK\_AUTHENTICATE"

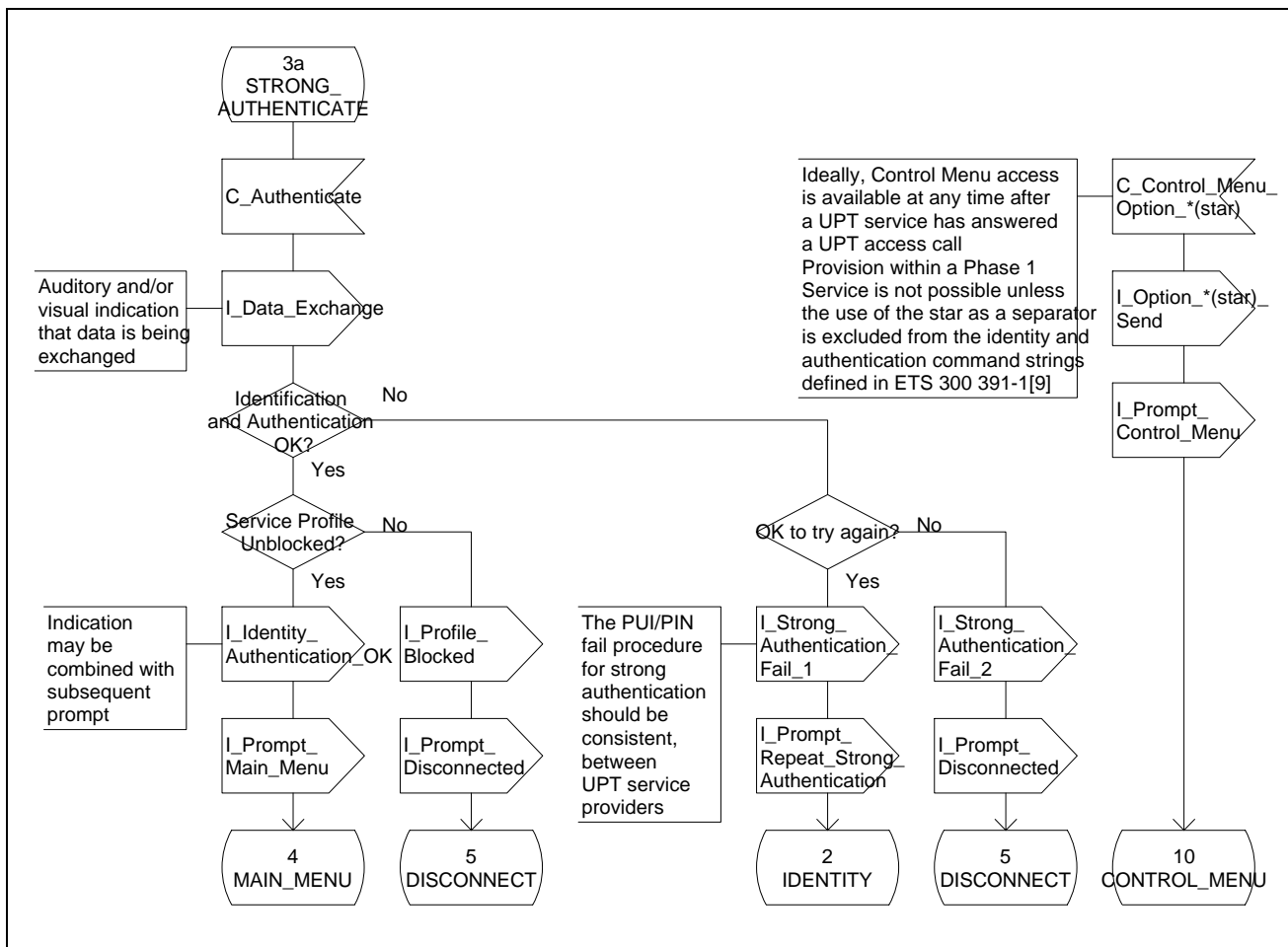


Figure 9: User procedures from state 3a "STRONG\_AUTHENTICATE"

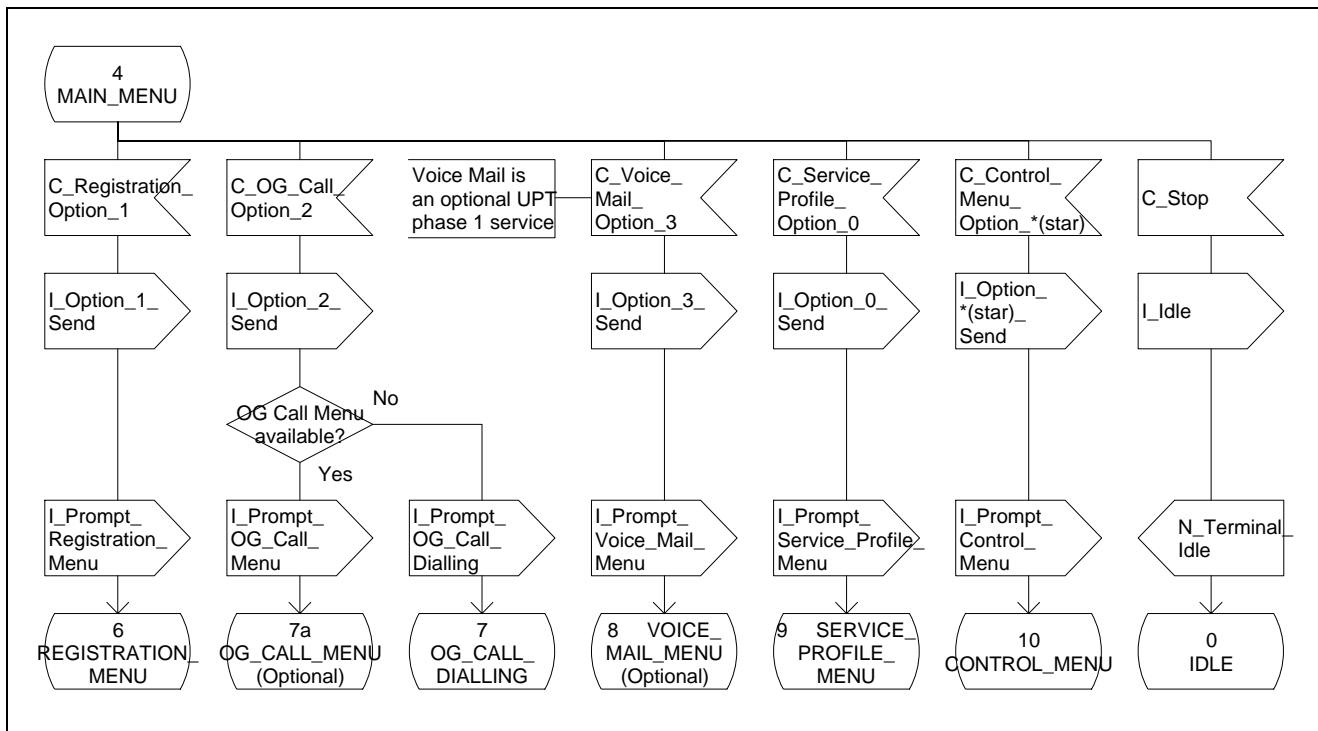


Figure 10: User procedures from state 4 "MAIN MENU"

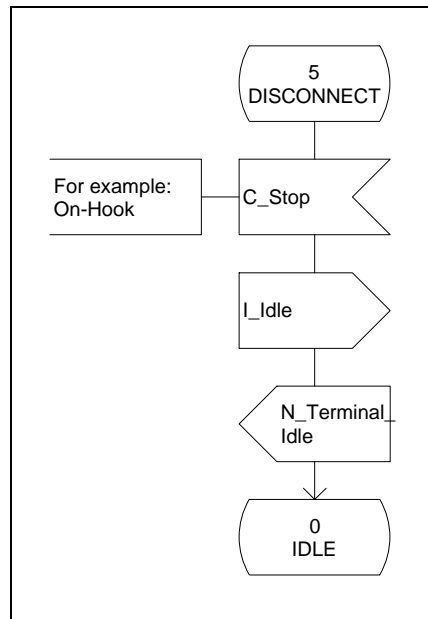


Figure 11: User procedures from state 5 "DISCONNECT"

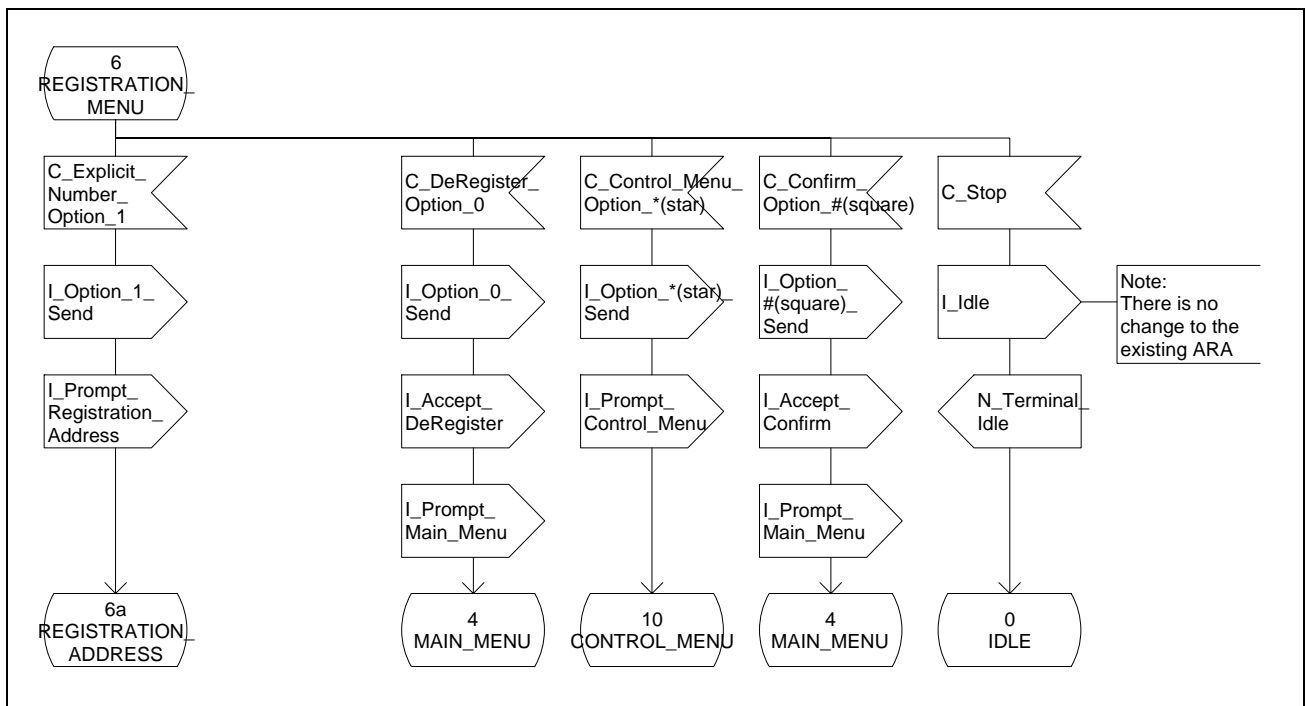


Figure 12: User procedures from state 6 "REGISTRATION MENU"

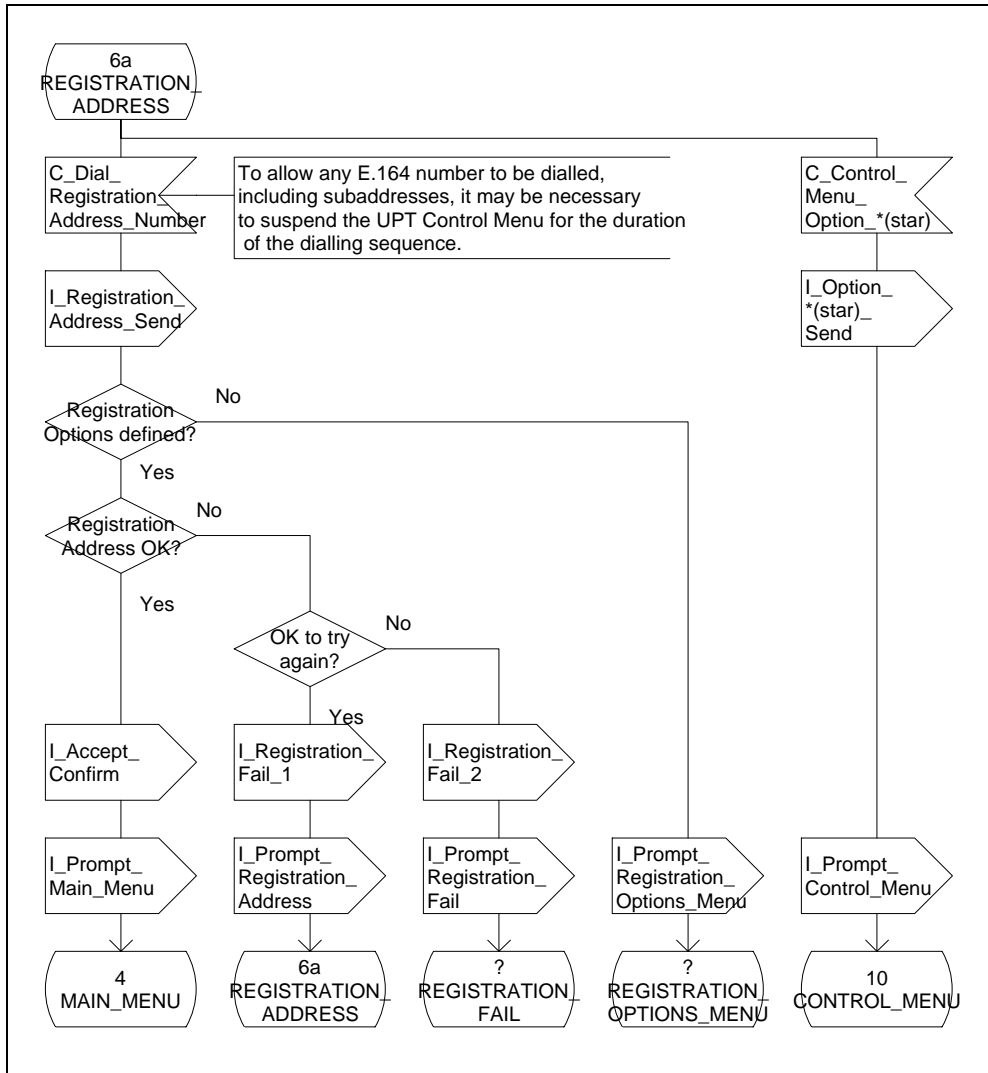


Figure 13: User procedures from state 6a "REGISTRATION ADDRESS"

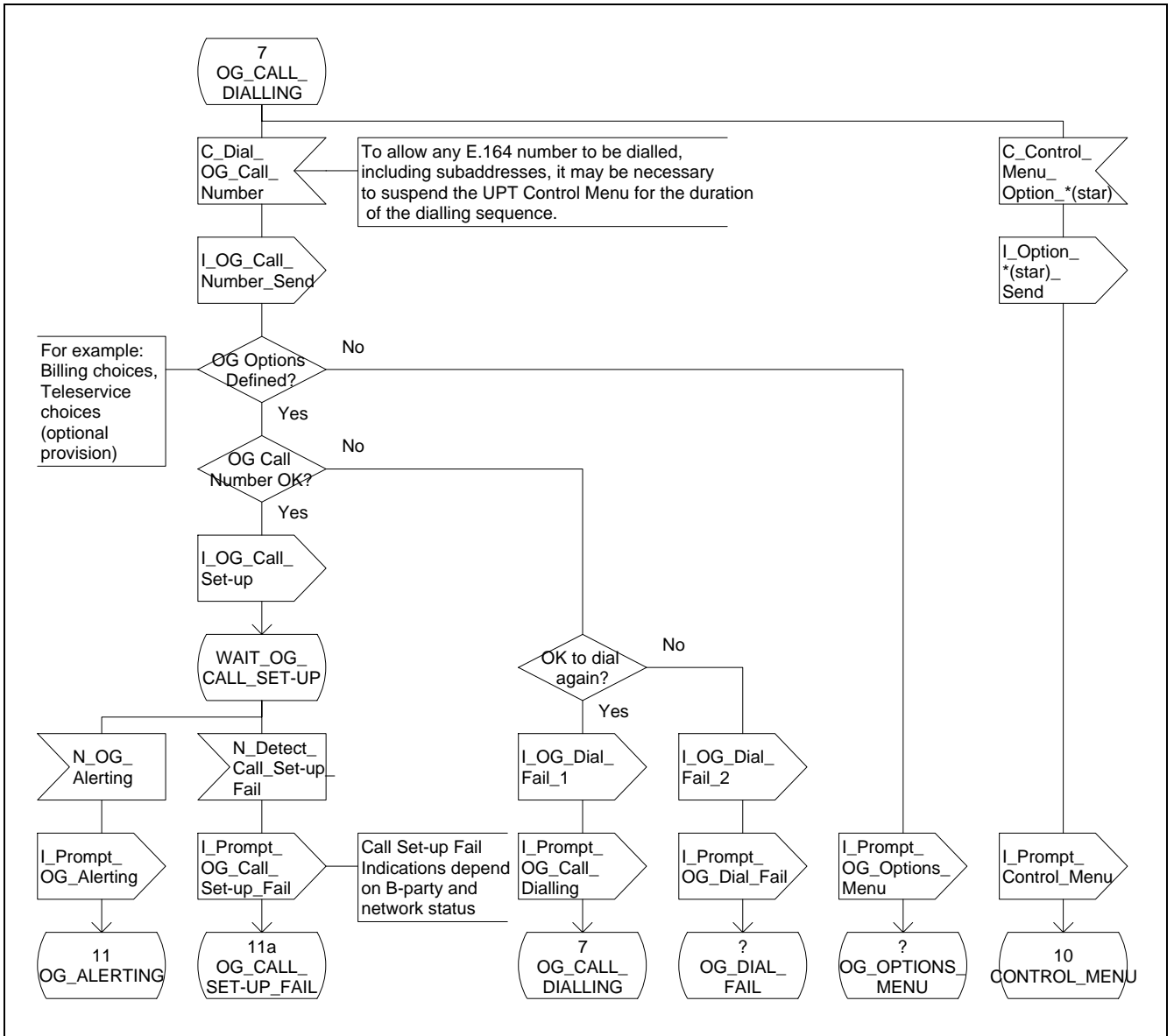


Figure 14: User procedures from state 7 "OUT-GOING CALL DIALLING"



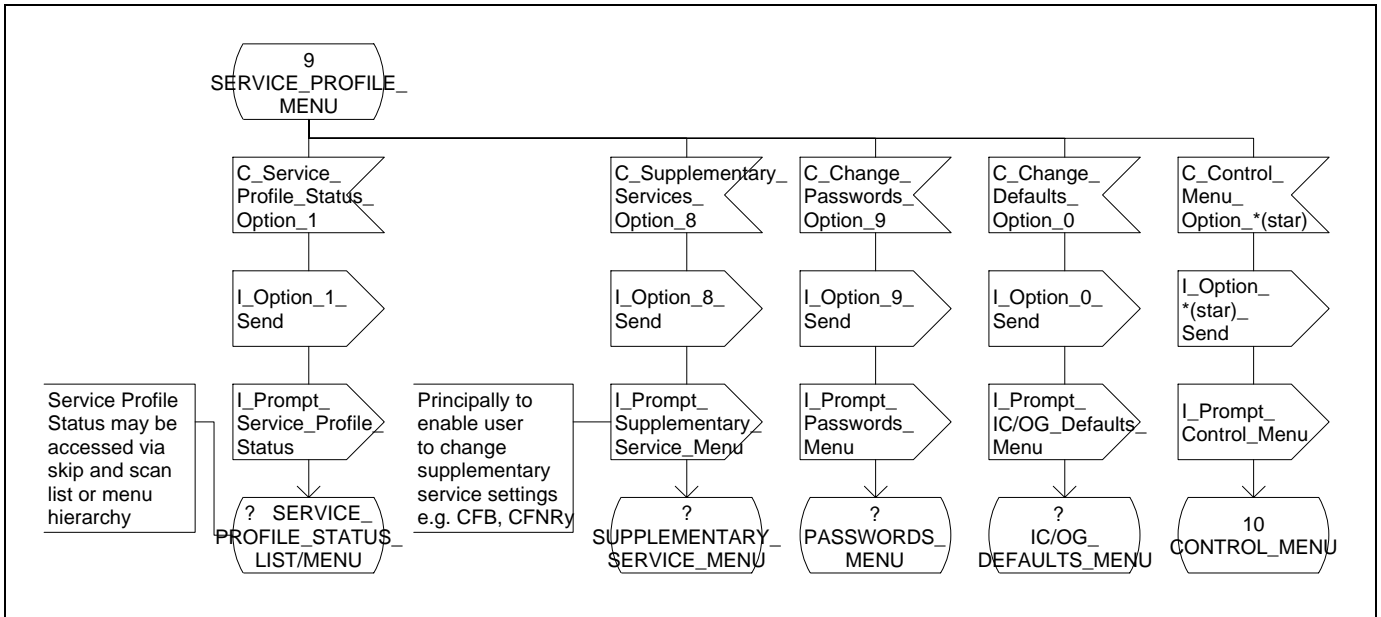


Figure 15: User procedures from state 9 "SERVICE PROFILE MENU"

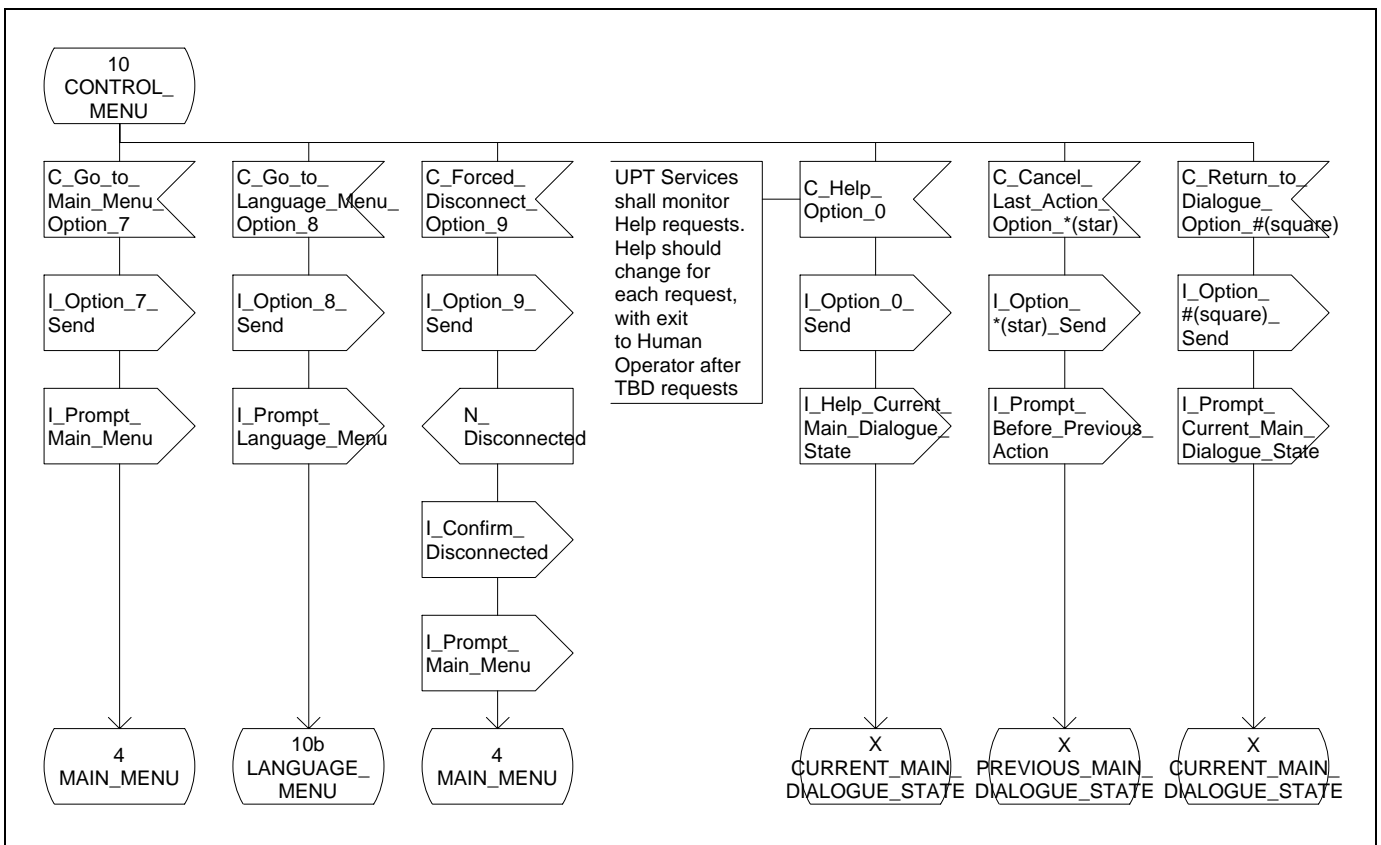


Figure 16: User procedures from state 10 "CONTROL MENU"

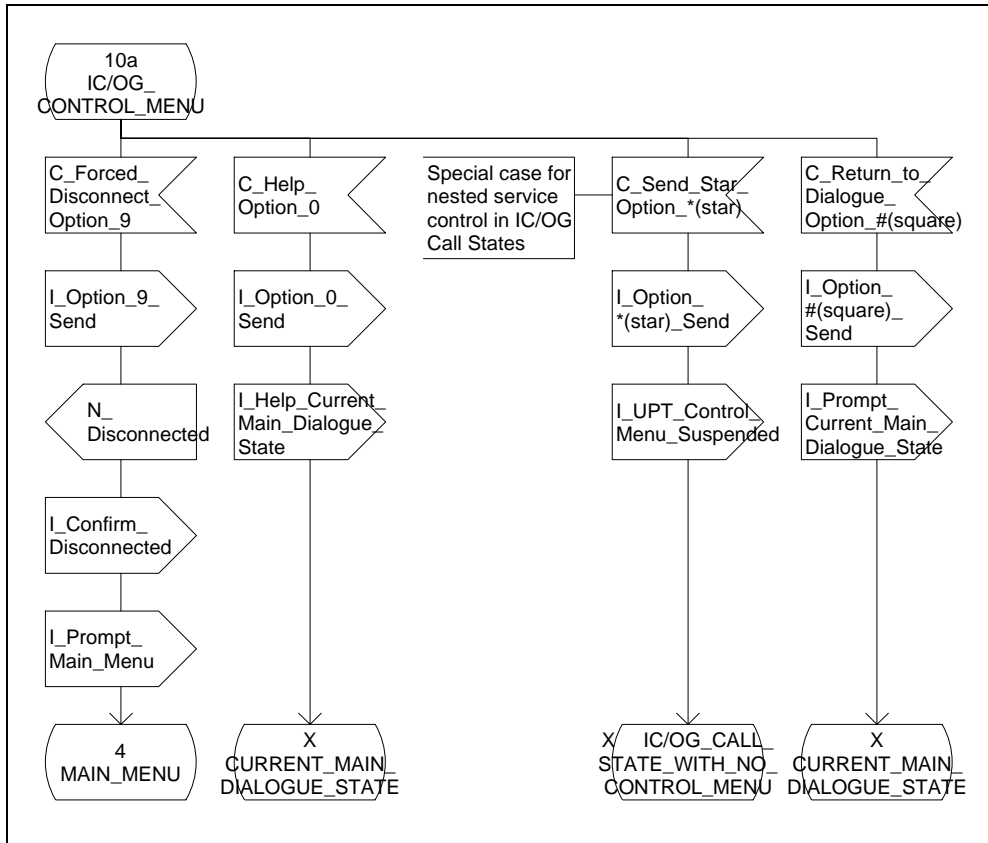


Figure 17: User procedures from state 10a "IC/OG CONTROL MENU"

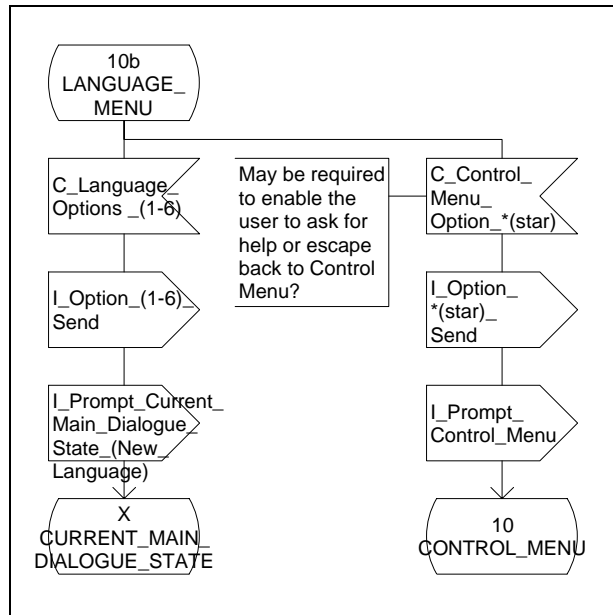
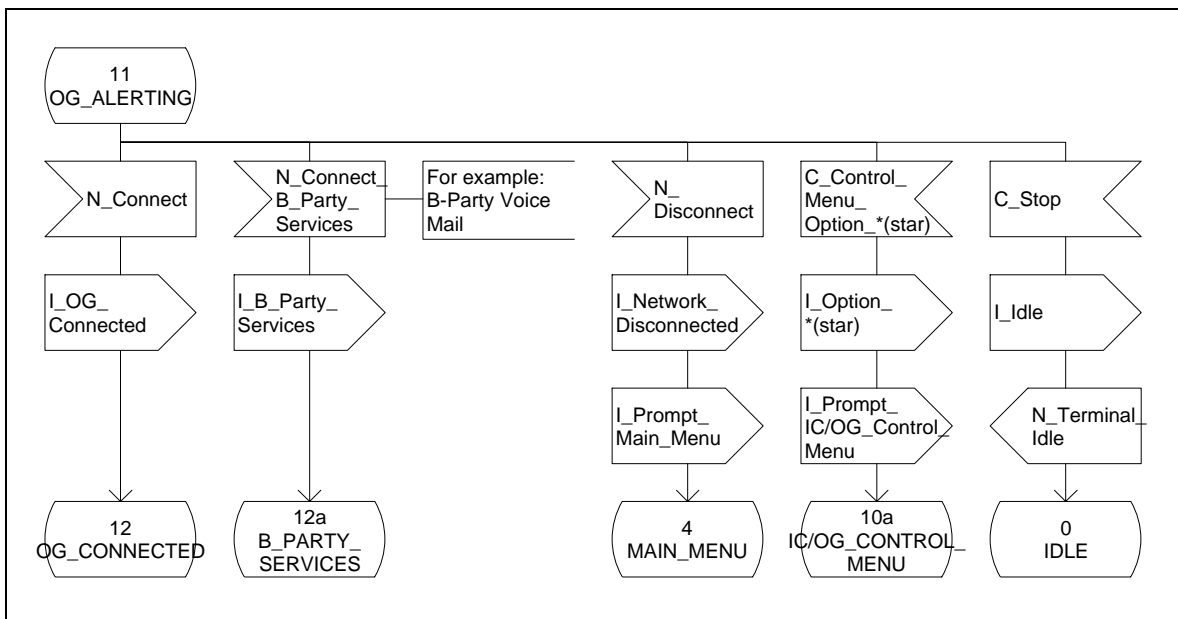
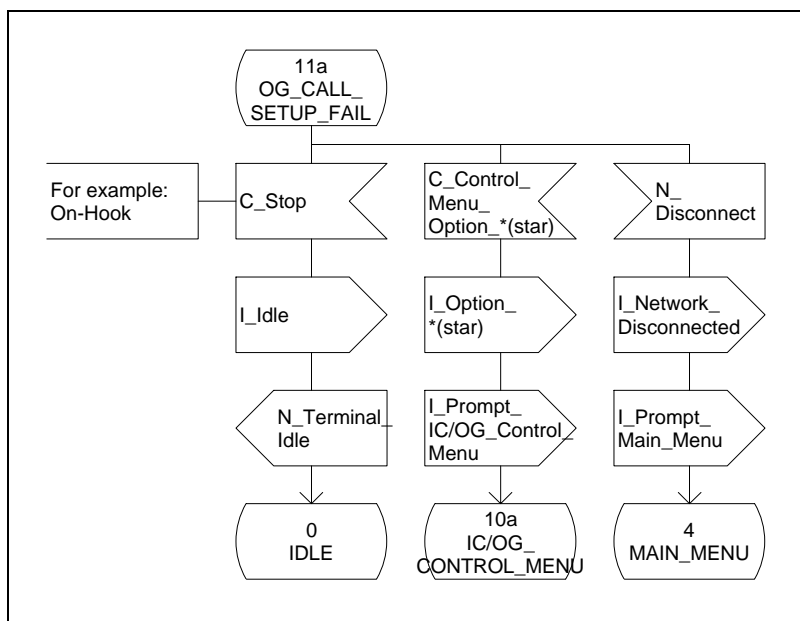


Figure 18: User procedures from state 10b "LANGUAGE MENU"

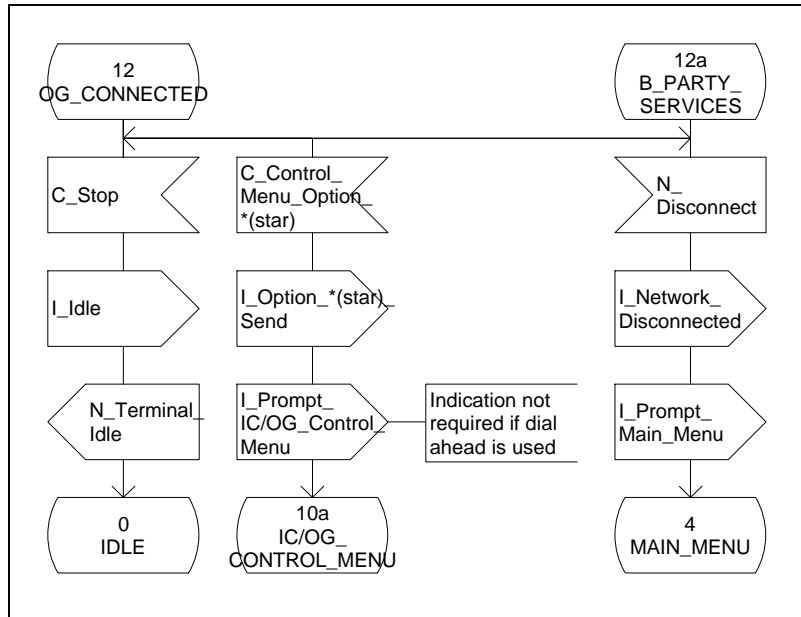


**Figure 19: User procedures from state 11 "OUT-GOING CALL ALERTING"**



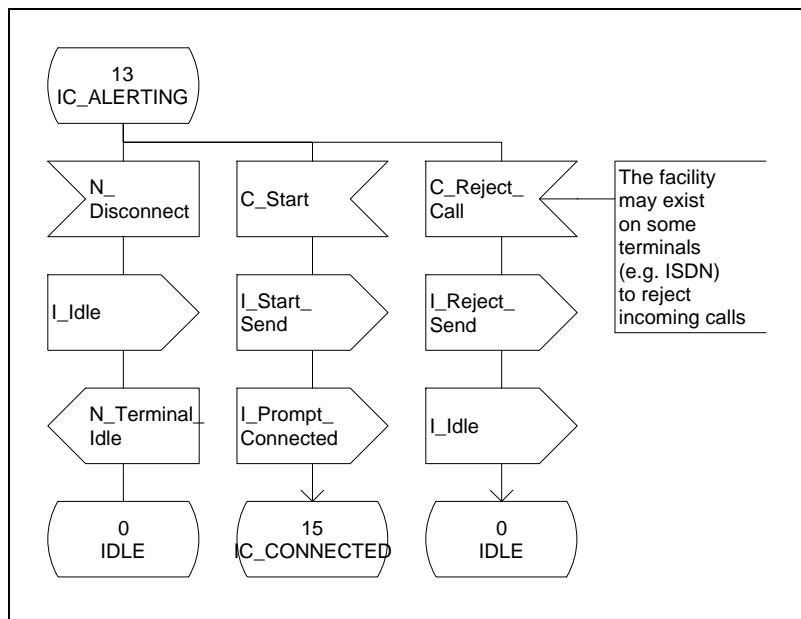
**Figure 20: User procedures from state 11a "OUT-GOING CALL SET-UP FAIL"**

NOTE: Future phases of UPT may be expected to offer Supplementary Services to support call failure indications, e.g. Call Completion Services.



**Figure 21: User procedures from state 12 "OUT-GOING CALL CONNECTED"**

NOTE: Future phases of UPT may be expected to offer Supplementary Services to support multiparty calls, e.g. Call Waiting, Hold, Transfer, 3-Party Conference, etc.



**Figure 22: User procedures from state 13 "IN-COMING ALERTING"**

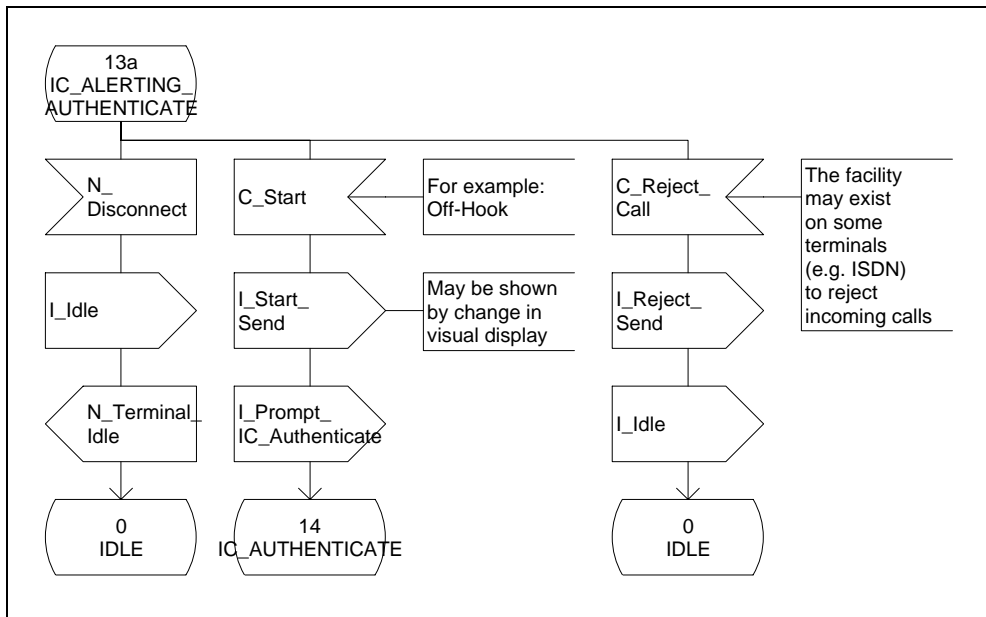


Figure 23: User procedures from state 13a "IN-COMING ALERTING AUTHENTICATE"

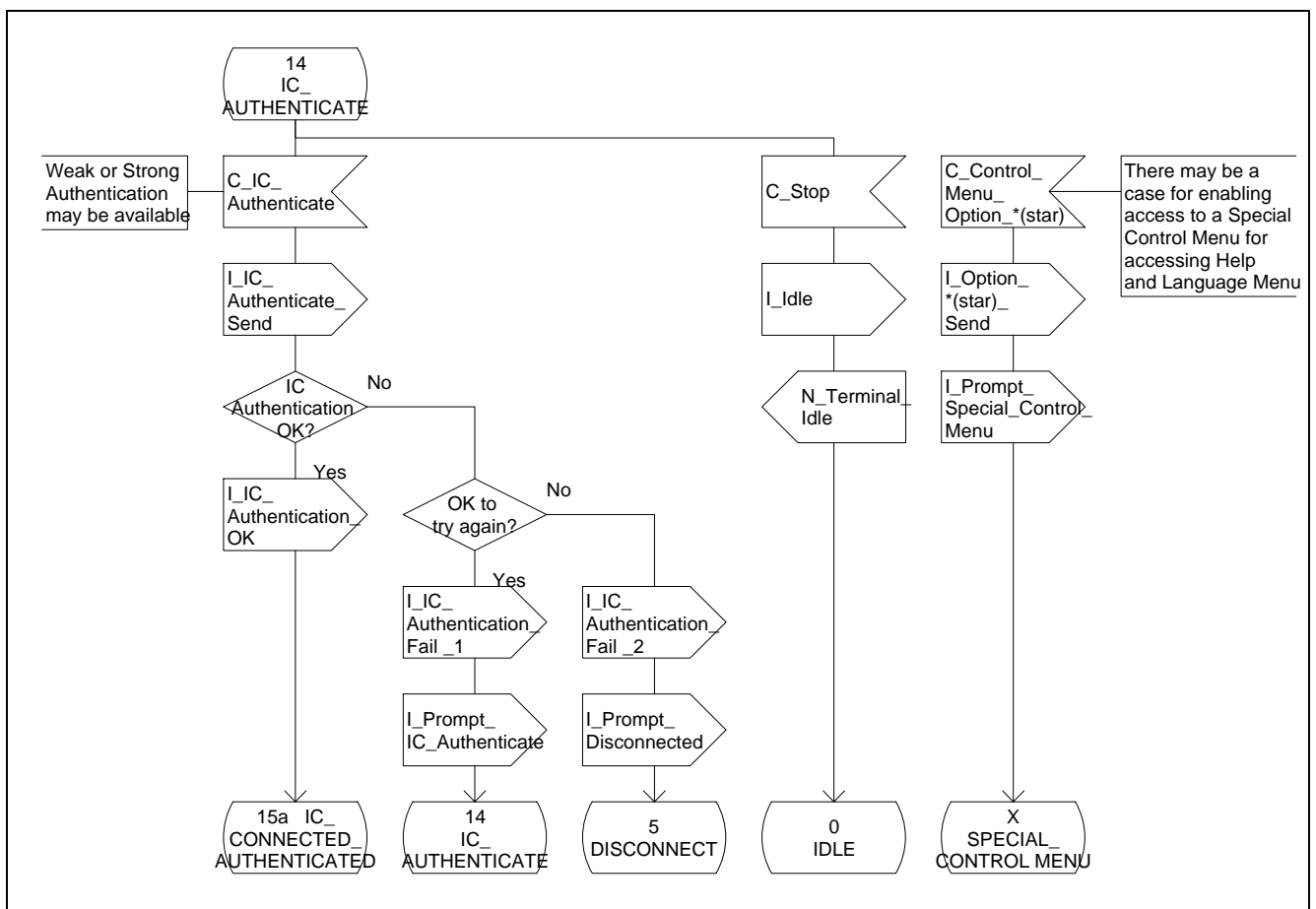


Figure 24: User procedures from state 14 "IN-COMING AUTHENTICATE"

NOTE: This procedure is not strictly required within the phase 1 service, but if it is provided then the user should be able to use either Weak or Strong Authentication.

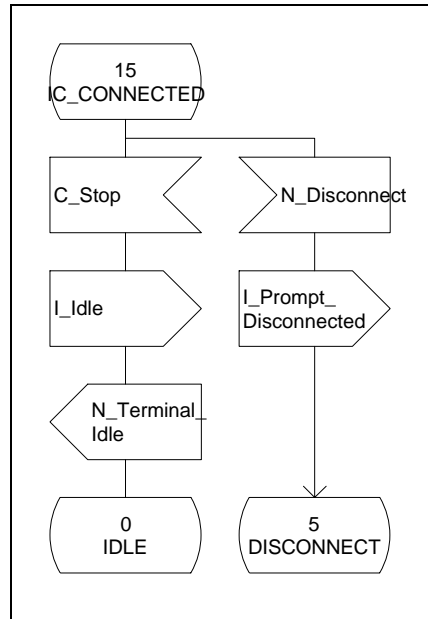


Figure 25: User procedures from state 15 "IN-COMING CONNECTED"

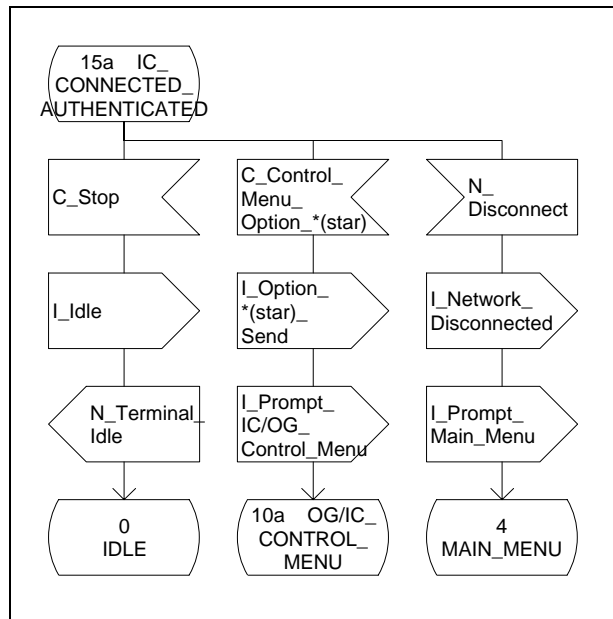


Figure 26: User procedures from state 15a "IN-COMING CONNECTED AUTHENTICATED"

## 7.2 Controls and indications

### 7.2.1 Required control actions for phase 1 UPT service

#### 7.2.1.1 User control actions

**Table 8: List of required user control actions**

User Control Action	State or States	Comments
Access Code	1	Dial UPTAC
Access Number	1	Dial UPTAN
Authenticate	3, 3a	Dial UPT PIN
Cancel Last Action Option * (star)	10	Press key *
Change Defaults Option 0	9	Press key 0
Change Passwords Option 9	9	Press key 9
Confirm Option # (square)	6	Press key #
Control Menu Option * (star)	2, 3, 3a, 4, 6, 6a, 7, 9, 10b, 11, 11a, 12, 12a, 14, 15a	Press key *
DeRegister Option 0	6	Press key 0
Dial Out-Going Call Number	7	Dial required directory number
Dial Registration Address Number	6a	Dial required ARA
Explicit Number Option 1	6	Press key 1
Forced Disconnect Option 9	10, 10a	Press key 9
Go to Language Menu Option 8	10	Press key 8
Go to Main Menu Option 7	10	Press key 7
Help Option 0	10, 10a	Press key 0
Identity	2	Dial UPT PUI
In-Coming Authenticate	14	Dial UPT PIN or similar code
Language Options (1-6)	10b	Press one of the keys 1-6
Out-Going Call Option 2	4	Press key 2
Registration Option 1	4	Press key 1
Reject	13, 13a	Undefined
Return to Dialogue Option # (square)	10, 10a	Press key #
Send Star Option * (star)	10a	Press key *
Service Profile Option 0	4	Press key 0
Service Profile Status Option 1	9	Press key 1
Start	0, 13, 13a	Off-Hook or similar
Stop	4, 5, 6, 11, 11a, 12, 12a, 14, 15, 15a	On-Hook or similar
Supplementary Services Option 8	9	Press key 8
Voice Mail Option 3	4	Press key 3

#### 7.2.1.2 Network control actions

**Table 9: List of required network control actions**

Network Control Action	State or States	Comments
Alerting UPT In-Coming Call	0	UPT/Network forwards call to registered UPT user
Connect	11	B-party answers Network connects
Connect B-Party Services	11	B-party service invoked
Detect Call Set-up Fail	7	Detect call set-up failure e.g. Network Congestion, B-party Busy, Unreachable, etc. Connection to UPT service maintained
Disconnect	11, 11a, 12, 12a, 13, 13a, 15, 15a	Network invokes a disconnect e.g. other party releases call, timeout, etc.
Out-Going Alerting	7	Network invokes alerting to B-party

## 7.2.2 Required indications for phase 1 UPT service

### 7.2.2.1 User indications

User indications may be supplied by the UPT service, network or terminal. The expected source is shown in the table.

**Table 10: List of required user oriented indications**

User indications	State or States	Source	Comments
Accept Confirm	6, 6a	UPT	
Accept De-Register	6	UPT	
Authenticate Send	3	Terminal	
B-Party Services	11	Network or B-party service provider or terminal	
Confirm Disconnected	10, 10a	UPT	
Data Exchange	2, 3a	UPT Access Device	
Help Current Main Dialogue State	10, 10a	UPT	
Identity/Authentication Fail 1	3, 3a	UPT	
Identity/Authentication Fail 2	3, 3a	UPT	
Identity/Authentication OK	3, 3a	UPT	
Idle	4, 5, 6, 11, 11a, 12, 12a, 13, 13a, 14, 15, 15a	Terminal	
In-Coming Authenticate Fail 1	14	UPT	
In-Coming Authenticate Fail 2	14	UPT	
In-Coming Authenticate Send	14	UPT	
Incoming Authenticate OK	14	UPT	
Identification Send	2	Terminal or UPT Access Device	
Network Disconnected	11, 11a, 12, 12a, 15a	UPT	
Option # (square) Send	6, 10, 10a	Terminal	
Option * (star) Send	2, 3, 3a, 4, 6, 6a, 7, 9, 10, 10a, 10b, 11, 11a, 12, 12a, 14, 15a	Terminal	
Option 0 Send	4, 6, 9, 10, 10a	Terminal	
Option 1 Send	4, 6, 9, 10b	Terminal	
Option 2 Send	4, 10b	Terminal	
Option 3 Send	4, 10b	Terminal	
Option 4 Send	10b	Terminal	
Option 5 Send	10b	Terminal	
Option 6 Send	10b	Terminal	
Option 7 Send	10	Terminal	
Option 8 Send	9, 10	Terminal	
Option 9 Send	9, 10, 10a	Terminal	
Out-Going Call Number Send	7	Terminal	
Out-Going Call Set-up	7	UPT	
Out-Going Connected	11	UPT	
Out-Going Dial Fail 1	7	UPT	
Out-Going Dial Fail 2	7	UPT	
Profile Blocked	3, 3a	UPT	
Prompt Access Code/Number	0	UPT	
Prompt Alerting UPT In-Coming Call	0	UPT	
Prompt Alerting UPT In-Coming Call Authenticate	0	UPT	
Prompt Authenticate	2	UPT	
Prompt Before Previous Action	10	UPT	



**Table 11: List of required user oriented indications, ...completed**

Prompt Connected	13	UPT	
Prompt Control Menu	2, 3, 3a, 4, 6, 6a, 7, 9, 10b	UPT	
Prompt Current Main Dialogue State (Existing Language)	10, 10a	UPT	
Prompt Current Main Dialogue State (New Language)	10b	UPT	
Prompt IC/OG Defaults Menu	9	UPT	
Prompt Identity	1	UPT	
Prompt In-Coming Authenticate	13a, 14	UPT	
Prompt In-Coming/Out-Going Control Menu	11, 11a, 12, 12a, 15a	UPT	
Prompt Language Menu	10	UPT	
Prompt Main Menu	3, 3a, 6, 6a, 10, 10a, 11, 11a, 12, 15a	UPT	
Prompt Out-Going Alerting	7	Network/UPT	
Prompt Out-Going Call Dialling	4, 7	UPT	
Prompt Out-Going Call Menu	4	UPT	
Prompt Out-Going Call Set-up Fail	7	UPT	
Prompt Out-Going Dial Fail	7	UPT	
Prompt Out-Going Options Menu/s	6a, 7	UPT	
Prompt Passwords Menu	9	UPT	
Prompt Registration Fail	6a	UPT	
Prompt Registration Menu	4	UPT	
Prompt Registration Options Menu/s	6a	UPT	
Prompt Registration Address	6, 6a	UPT	
Prompt Disconnected	1, 3, 3a, 14, 15	UPT	
Prompt Repeat Identity/Authentication	3, 3a	UPT	
Prompt Service Profile Menu	4	UPT	
Prompt Service Profile Status List/Menu	9	UPT	
Prompt Special Control Menu	14	UPT	Depends on service provision during In-Coming Authentication
Prompt Supplementary Service Menu/s	9	UPT	
Prompt Voice Mail Menu	4	UPT/Voice Mail Service	
Registration Address Send	6a	UPT	
Registration Fail 1	6a	UPT	
Registration Fail 2	6a	UPT	
Reject Send	13, 13a	Terminal	
Start Send	0, 13, 13a	Terminal	
UPT Access Fail	1	Network	
UPT Access OK	1	UPT	
UPT Control Menu Suspended	10a	UPT	
UPT Home Access Fail	1	Network	
UPT Home Access OK	1	UPT	

### 7.2.2.2 Network indications

**Table 12: List of required network oriented indications**

Network indications	State or States	Source	Comments
Disconnected	10, 10a	UPT/Network	Network disconnects from B-Party, Connection to UPT service maintained
Terminal Idle	4, 5, 6, 11, 11a, 12, 12a, 13, 13a, 14, 15, 15a	Terminal	Indicates to Network terminal is Idle
UPT User Unreachable	0	UPT/Network	Indication to an A-party calling a UPT user

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## 8 Compliance

Compliance with the present document shall be the responsibility of the UPT service provider, the network operator and other UPT access providers enabling access to UPT services and the UPT access device manufacturer or supplier. Their separate responsibilities are:

For the UPT service provider:

- to provide the descriptive and procedural information for the services offered;
- to provide information on the operational state of the service necessary before a user's control action, including auditory tones and announcements;
- to recognize the user's control actions, and to change the service's operational state accordingly;
- to provide information on the operational state of the service after a user's control action, including supportive error and context sensitive help information when required.

For the network operator and other UPT access providers:

- to provide the necessary signals relating to the call states of the various parties involved within a UPT access;
- to provide for the transfer of information relating to indications for the users from the service provider to the user's terminal;
- to provide for the transfer of information relating to user's control actions from the user's terminal to the service provider.

For the UPT access device manufacturer or supplier:

- to support the provision of the descriptive and procedural information for the services offered;
- to facilitate the display of information provided on the operational state of the service necessary before a user's control action;
- to facilitate the user's control actions, as required;
- to facilitate the display of information provided on the operational state of the service after a user's control action.

### 8.1 Compliance testing the minimum MMI for a phase 1 UPT service

Compliance with the minimum man-machine interface to a phase 1 UPT service shall be demonstrated by 100 % compliance with the mandatory statements in the following clauses and subclauses:

#### 5 Minimum MMI for the phase 1 UPT service

- 5.1 UPT Service menus;
  - 5.1.1 Main menu;
  - 5.1.2 Registration menu;
  - 5.1.3 Out-going call set-up;
  - 5.1.4 Voice mail;
  - 5.1.5 Service profile management menu;
  - 5.1.6 UPT control menu;
  - 5.1.7 Global follow-on;
- 5.2 MMI control functions;

- 5.2.1 Cut-through;
- 5.2.2 Dial ahead;
- 5.2.3 Data entry;
- 5.2.4 Skip and scan;
- 5.2.5 Nested service escape;
- 5.3 MMI supporting announcements;
  - 5.3.1 Error announcements;
  - 5.3.2 Help;
- 5.5 Service tones and signals;
  - 5.5.1 UPT access tone;
  - 5.5.2 UPT ring tone;
  - 5.5.3 UPT ring signal;
- 5.6 Language;
- 6 User interface states - UPT phase 1;
  - 6.1 Minimum MMI states;
  - 6.3 State transition diagrams;
    - 6.3.1 UPT out-going calls, including global and outcall follow-on;
    - 6.3.2 UPT registration and service profile management;
    - 6.3.3 UPT in-coming calls;
- 7 User control procedures - UPT phase 1;
  - 7.1 SDL diagrams;
  - 7.2 Controls and indications;
    - 7.2.1 Required control actions for phase 1 UPT service;
      - 7.2.1.1 User control actions;
      - 7.2.2.2 Network control action;
    - 7.2.2 Required indications for phase 1 UPT service;
      - 7.2.2.1 User indications;
      - 7.2.2.2 Network indications.

Compliance with the mandatory clauses and subclauses should establish a common minimum level of usability for the man-machine interface of the phase 1 UPT service.

The control functions, indications and user procedures that comprise the man-machine interface of the phase 1 UPT service are defined in the text, state transition diagrams and descriptive SDL diagrams. In the case of an inconsistency between these elements, the control and indication functions shall be defined by the text, and the control indication sequences that comprise the user procedures shall be defined by the descriptive SDL diagrams.

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## History

<b>Document history</b>		
V1.1.1	November 1997	Membership Approval Procedure MV 9804: 1997-11-25 to 1998-01-23