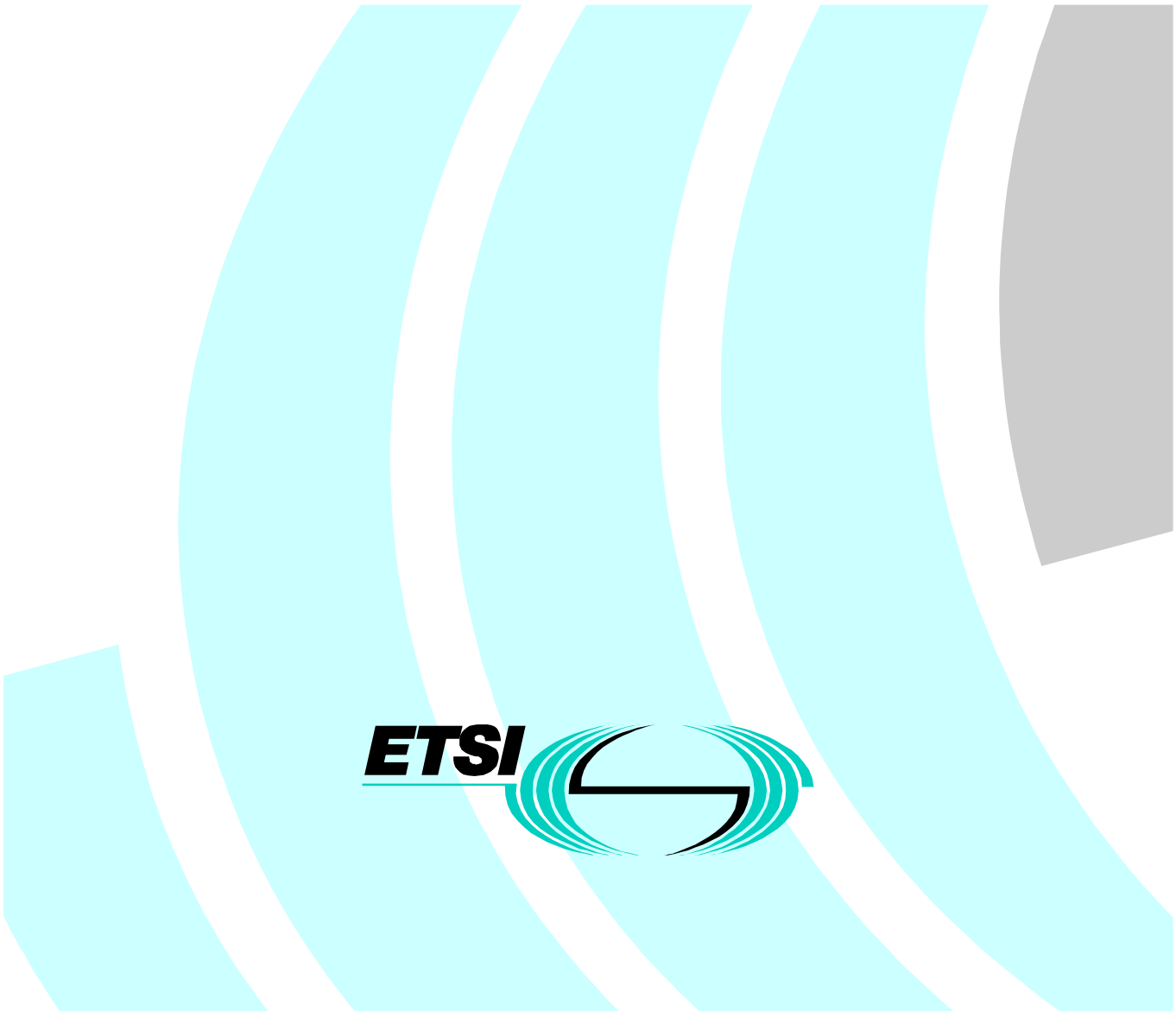
Final draft EN 300 291-1 V1.2.1 (1998-10)

European Standard (Telecommunications series)

Telecommunications Management Network (TMN); Functional specification of Customer Administration (CA) on the Operations System/Network Element (OS/NE) interface; Part 1: Single line configurations



Reference
REN/TMN-00033 (2p090ioo.PDF)

Keywords
TMN, Q3 interface, network

ETSI

Postal address
F-06921 Sophia Antipolis Cedex - FRANCE

Office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16
Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Internet
secretariat@etsi.fr
http://www.etsi.org

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available **free of charge** from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://www.etsi.org/ipr).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Telecommunications Management Network (TMN), and is now submitted for the Voting phase of the ETSI standards Two-step Approval Procedure.

The present document is part 1 of a multi-part EN covering the functional specification of Customer Administration (CA) on the Operations System / Network Element (OS/NE) interface, as identified below:

Part 1: "Single line configurations";

Part 2: "Multi line configurations" (DEN/TMN-00042).

Further parts are under study.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

Introduction

For the present document, the following priorities were assigned for the scope of the customer administration model:

- modelling of analogue, digital and Integrated Services Digital Network (ISDN) customer installation configurations;
- modelling of the most frequently required ETSI ISDN teleservices, bearer services, and supplementary services;
- modelling of the most frequently required CEPT services and non-standardized services;
- re-definition of the V5 interface related object classes as far as they are affected by changes in their superclasses as defined in the recent I-ETS 300 291 when re-defining them in the present document.

Extendibility to cover all ETSI ISDN teleservices, bearer services and supplementary services, Private Branch Exchanges (PBXs), mobile customers, ATM, cordless and Universal Personal Telecommunication (UPT) customers, Centrex, packet switching, the full range of CEPT services, non-standardized services (e.g. hunting, etc.) is foreseen via subclassing (see entity-relationship diagram subclause 5.1, and descriptions in subclause 6.1).

In the present document, the customer administration model is restricted to modelling of semi-permanent customer data. Call processing and dynamic (state) information are no subject of the present document.

The present document is based on the ITU-T Recommendation Q.824 series [46] to [50], from which all relevant object classes were subclassed as far as necessary.

1 Scope

The present document specifies the management aspects of Customer Administration (CA) for Public Switched Telephone Network (PSTN), and public Integrated Services Digital Network (ISDN), in line with descriptions in ETR 047 [67], and restricted to service provisioning and service configuration only. The aspects of the local exchange part of V5 configuration management influenced by the present document are considered as well.

The model is restricted to the Operations System to Network Element (OS/NE) interface.

Although not included in the present document, the model has been designed to be extendible for Private Branch Exchanges (PBXs), Centrex, mobile, Asynchronous Transfer Mode (ATM), cordless and Universal Personal Telecommunication (UPT) customers.

Since Centrex is no standardized service and implementations vary, no Centrex related definitions are introduced into the normative part of the present document. In the informative annex D, a modelling approach for Centrex is given.

The ISDN teleservices, bearer services and supplementary services included in this issue of the model have been selected from ETR 010 [65], to test the structure of the model and ensure that it is applicable to all services.

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

2.1 Normative references

[1] EN 300 196-1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[2] ETS 300 108: "Integrated Services Digital Network (ISDN); Circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category; Service description".

[3] ETS 300 109: "Integrated Services Digital Network (ISDN); Circuit-mode 64 kbit/s 8 kHz structured bearer service category usable for speech information transfer; Service description".

[4] ETS 300 110: "Integrated Services Digital Network (ISDN); Circuit-mode 64 kbit/s 8 kHz structured bearer service category usable for 3,1 kHz audio information transfer; Service description".

[5] ETS 300 389: "Integrated Services Digital Network (ISDN); Circuit-mode multiple-rate unrestricted 8 kHz structured bearer service category; Service description".

[6] ETS 300 048: "Integrated Services Digital Network (ISDN); ISDN Packet Mode Bearer Services (PMBS); ISDN Virtual Call (VC) and Permanent Virtual Call (PVC) bearer services provided by the B-channel of the user access - basic and primary rate".

[7] ETS 300 049: "Integrated Services Digital Network (ISDN); ISDN Packet Mode Bearer Services (PMBS); ISDN Virtual Call (VC) and Permanent Virtual Call (PVC) bearer services provided by the D-channel of the user access - basic and primary rate".

[8] ETS 300 111: "Integrated Services Digital Network (ISDN); Telephony 3,1 kHz teleservice; Service description".

[9] ETS 300 120: "Integrated Services Digital Network (ISDN); Service requirements for telefax group 4".

[10] ETS 300 262: "Integrated Services Digital Network (ISDN); Syntax-based Videotex teleservice; Service description".

[11] ETS 300 263: "Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice; Service description".

[12] ETS 300 264: "Integrated Services Digital Network (ISDN); Videotelephony teleservice; Service description".

[13] ETS 300 050: "Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service; Service Description".

[14] ETS 300 053: "Integrated Services Digital Network (ISDN); Terminal Portability (TP) supplementary service; Service Description".

[15] ETS 300 056: "Integrated Services Digital Network (ISDN); Call Waiting (CW) supplementary service; Service Description".

[16] ETS 300 059: "Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service; Service Description".

[17] ETS 300 062: "Integrated Services Digital Network (ISDN); Direct Dialling In (DDI) supplementary service; Service Description".

[18] ETS 300 089: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".

[19] ETS 300 648: "Public Switched Telephone Network (PSTN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".

[20] ETS 300 090: "Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service; Service description".

[21] ETS 300 649: "Public Switched Telephone Network (PSTN); Calling Line Identification Restriction (CLIR) supplementary service; Service description".

[22] ETS 300 094: "Integrated Services Digital Network (ISDN); Connected Line Identification Presentation (COLP) supplementary service; Service description".

[23] ETS 300 095: "Integrated Services Digital Network (ISDN); Connected Line Identification Restriction (COLR) supplementary service; Service description".

[24] ETS 300 128: "Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service; Service description".

[25] ETS 300 136: "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Service description".

[26] ETS 300 139: "Integrated Services Digital Network (ISDN); Call Hold (HOLD) supplementary service; Service description".

[27] ETS 300 178: "Integrated Services Digital Network (ISDN); Advice of Charge: charging information at call set-up time (AOC-S) supplementary service; Service description".

[28] ETS 300 179: "Integrated Services Digital Network (ISDN); Advice of Charge: charging information during the call (AOC-D) supplementary service; Service description".

[29] ETS 300 180: "Integrated Services Digital Network (ISDN); Advice of Charge: charging information at the end of the call (AOC-E) supplementary service; Service description".

[30] ETS 300 183: "Integrated Services Digital Network (ISDN); Conference call, add-on (CONF) supplementary service; Service description".

[31] ETS 300 186: "Integrated Services Digital Network (ISDN); Three-Party (3PTY) supplementary service; Service description".

[32] ETS 300 199: "Integrated Services Digital Network (ISDN); Call Forwarding Busy (CFB) supplementary service; Service description".

[33] ETS 300 200: "Integrated Services Digital Network (ISDN); Call Forwarding Unconditional (CFU) supplementary service; Service description".

[34] ETS 300 201: "Integrated Services Digital Network (ISDN); Call Forwarding No Reply (CFNR) supplementary service; Service description".

[35] ETS 300 202: "Integrated Services Digital Network (ISDN); Call Deflection (CD) supplementary service; Service description".

[36] ETS 300 284: "Integrated Services Digital Network (ISDN); User-to-User Signalling (UUS) supplementary service; Service description".

[37] ETS 300 357: "Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; Service description".

[38] EN 300 367: "Integrated Services Digital Network (ISDN); Explicit Call Transfer (ECT) supplementary service; Service description".

[39] ETS 300 650: "Integrated Services Digital Network (ISDN); Message Waiting Indication (MWI) supplementary service; Service description".

[40] EN 301 082: "Integrated Services Digital Network (ISDN); Outgoing Call Barring-Fixed (OCB-F) supplementary service; Service description".

[41] EN 301 084: "Integrated Services Digital Network (ISDN); Outgoing Call Barring-User Controlled (OCB-UC) supplementary service; Service description".

[42] EN 300 292: "Telecommunication Management Network (TMN); Functional specification of call routeing information management on the Operation System / Network Element (OS/NE) interface".

[43] CCITT Recommendation E.164 (1997): "The international public telecommunication numbering plan".

[44] CCITT Recommendation I.210: "Principles of telecommunication services supported by an ISDN and the means to describe them".

[45] CCITT Recommendation M.3100: "Generic network information model".

[46] ITU-T Recommendation Q.824.0 (1996): "Stage 2 and stage 3 description for the Q3 interface; customer administration; common information".

[47] ITU-T Recommendation Q.824.1 (1996): "Stage 2 and stage 3 description for the Q3 interface; customer administration; Integrated Services Digital Network (ISDN) basic and primary rate access".

[48] ITU-T Recommendation Q.824.2 (1996): "Stage 2 and stage 3 description for the Q3 interface; customer administration - Integrated Services Digital Network (ISDN) supplementary services".

[49] ITU-T Recommendation Q.824.3 (1996): "Stage 2 and stage 3 description for the Q3 interface; customer administration; Integrated Services Digital Network (ISDN) optional user facilities".

[50] ITU-T Recommendation Q.824.4 (1996): "Stage 2 and stage 3 description for the Q3 interface; customer administration; Integrated Services Digital Network (ISDN) teleservices".

[51] CCITT Recommendation X.121 (1996): "International numbering plan for public data networks".

[52] CCITT Recommendation X.720: "Information technology; Open Systems Interconnection; Structure of management information: Management information model".

[53] CCITT Recommendation X.721: "Information technology; Open Systems Interconnection; Structure of management information: Definition of management information".

[54] Void.

[55] CCITT Recommendation X.730 (1992): "Information technology; Open Systems Interconnection; Systems management: Object management function".

[56] CCITT Recommendation X.731 (1992): "Information technology; Open Systems Interconnection; Systems management: State management function".

[57] CCITT Recommendation X.732 (1992): "Information technology; Open Systems Interconnection; Systems management: Attributes for representing relationships".

[58] CEPT Handbook on services and facilities offered to the subscribers in telephone system Section I and II: "Services and facilities within the Public Network. 3rd Edition 1981".

[59] ETS 300 377-1: "Q3 interface at the Local Exchange (LE) for configuration management of V5 interfaces and associated customer profiles. Part 1: Q3 interface specification".

[60] ITU-T Recommendation I.324: "ISDN network architecture".

[61] ETS 300 379-1: "Q3 interface at the Local Exchange (LE) for fault and performance management of V5 interfaces and associated customer profiles; Part 1:Q3 interface specification".

[62] ETS 300 007: "Integrated Services Digital Network (ISDN); Support of packet-mode terminal equipment by an ISDN".

[63] EN 301 134: "Integrated Services Digital Network (ISDN); Completion of calls on No Reply (CCNR) supplementary service; Service description".

[64] EN 301 175: "Cordless Terminal Mobility (CTM); Phase 1; Service description".

2.2 Informative references

[65] ETR 010: "ISDN Standards Management (ISM); The ETSI Basic Guide on the European Integrated Services Digital Network (ISDN)".

[66] Void.

[67] ETR 047: "Network Aspects (NA); Telecommunications Management Network (TMN); Management services".

3 Definitions and abbreviations

3.1 Definitions

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

customer administration: The function of managing customer service provisioning information on an exchange.

The following definitions apply to managed classes which are more fully described in clause 6 and formally defined in clause 7.

access port profile: The access port profile object class represents the logical view on a termination point of the customer service access within the exchange.

access port: The access port object class represents the physical view on termination points of the customer service access within the exchange.

access channel: The access channel object class represents the logical termination of an ISDN B-channel or D-channel or an individual channel of a digital access port.

customer profile: The customer profile object class relates resources used by the customer and contains services provisioned for him.

customized resource: The customized resource object class relates a subset of the customer's services and resources where all services are not applicable to all access ports, access channels and directory numbers (DNs).

The definition of all ISDN teleservices, bearer services and supplementary services may be found in the ETS/EN listed in clause 6 of ETR 010 [65].

connection related function: The connection related function (CRF) is the function of the managed element to provide the telecommunication service to a customer (see ITU-T Recommendation I.324 [60]).

3.2 Abbreviations

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

ASN.1	Abstract Syntax Notation 1
ATM	Asynchronous Transfer Mode
CA	Customer Administration
CUG	Closed User Group
DTMF	Dual Tone Multi Frequency
GDMO	Guidelines for the Definition of Managed Objects
ISDN	Integrated Services Digital Network
M/C/O	Mandatory / Conditional / Optional
NE	Network Element
OS	Operations System
PABX	Private Automatic Branch Exchange
PBX	Private Branch Exchange
PSTN	Public Switched Telephone Network
PIN	Personal Identification Number
RDN	Relative Distinguished Name
S	Interface reference point S
T	Interface reference point T
TIB	Task Information Base
TMN	Telecommunications Management Network
UPT	Universal Personal Telecommunications

4 Functional requirements

The functional requirements are derived from the TIB A and TIB B specified in ETR 047 [67] for the customer administration service.

Customer administration is a management activity that the network operator performs in order to exchange with the customer all the customer related management data and functions required to offer a telecommunication service and to exchange with the network all the customer related management data and functions necessary for the network to produce that telecommunication service.

In a wide sense, this could include interactions for the purpose of service provision management, configuration administration, fault administration, charging (including detailed billing) administration, complaints administration, quality of service administration, traffic measurement administration etc. Here, however, only customer administration in the more traditional sense of service provision and service configuration has been included.

The components of service mentioned hereafter are within the scope of the present document.

4.1 Manage service provision

After receiving a customer order, find an available directory number and a suitable access port in an appropriate exchange and connect these.

4.2 Administer service facilities and supplementary services

Record user service requirements as data related to directory number. Some services can be both customer controlled and operator controlled.

Examples are abbreviated dialling, priority, malicious call tracing, charging observation, traffic restriction, free of charge etc.

4.3 Administer customer line

Administer line characteristics which are relevant for the local exchange (e.g. line status, traffic direction).

5 Information model diagrams

The following information model diagrams have been drawn for the purpose of clarifying the relations between the different object classes of customer administration. There are three different types of diagrams:

- entity relationship models, showing the relations of the different managed objects;
- inheritance hierarchy, showing how managed objects are derived from each other (i.e. the different paths of inherited characteristics of the different managed objects);
- naming hierarchy showing the derivation of names for managed objects (i.e. the different naming paths for instances of managed objects).

These three different diagrams are only for clarification. The formal specification in terms of Guidelines for the Definition of Managed Objects (GDMO) templates and Abstract Syntax Notation 1 (ASN.1) type definitions are the relevant information for the implementation of the present document.

5.1 Entity relationship diagrams

Figure 1 shows the relationships of the object classes defining an ISDN/PSTN customer configuration. The service fragment indicated in figure 1 is detailed in figure 2.

In figure 3, the relationships of the object classes used for general service provision are shown.

Figure 4 gives the relationships of the object classes used for reference service configurations.

Object classes defined in the present document are indicated in the entity relationship diagrams by **bold** letters.

The relationships of the V5 interface related object classes are given in ETS 300 377-1 [59].

The relationships of object classes defined in other documents are only shown as far as needed.

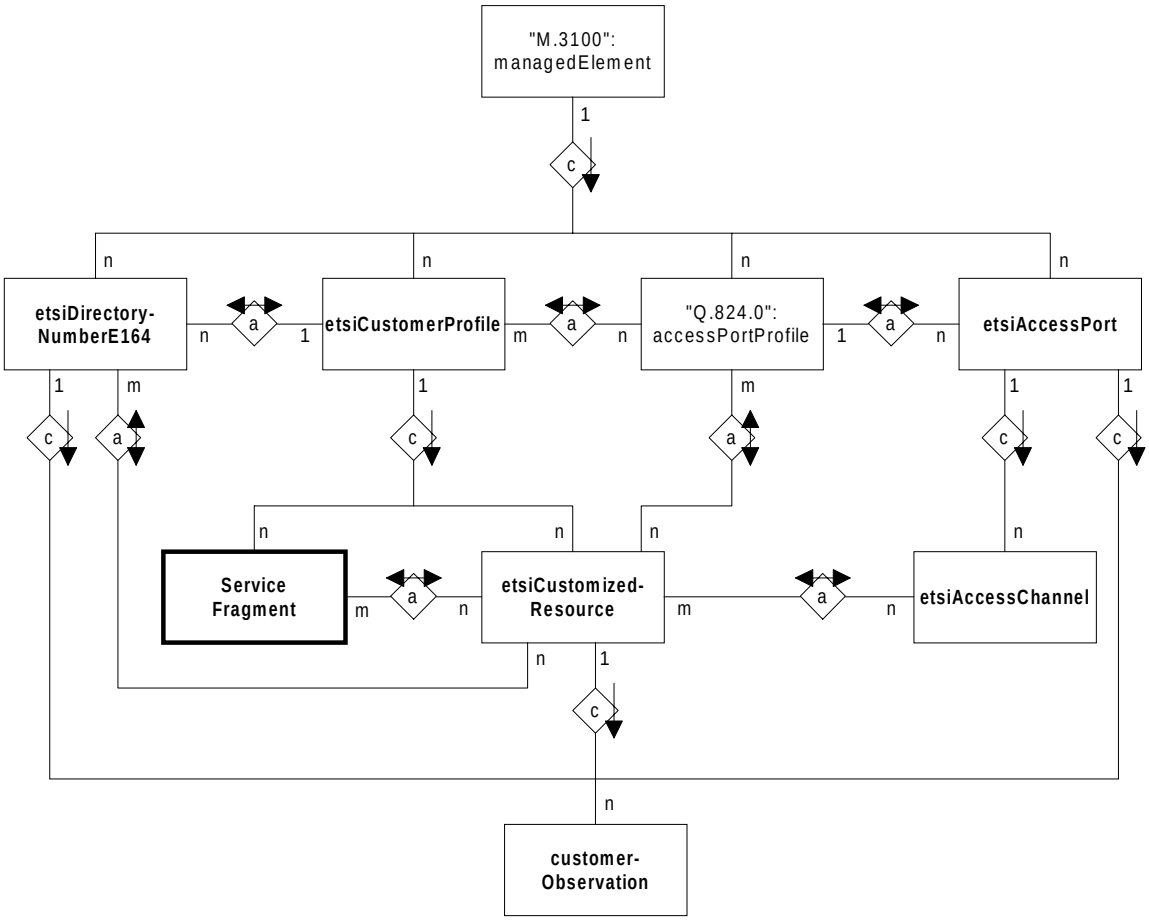


Figure 1: ISDN/PSTN customer configuration

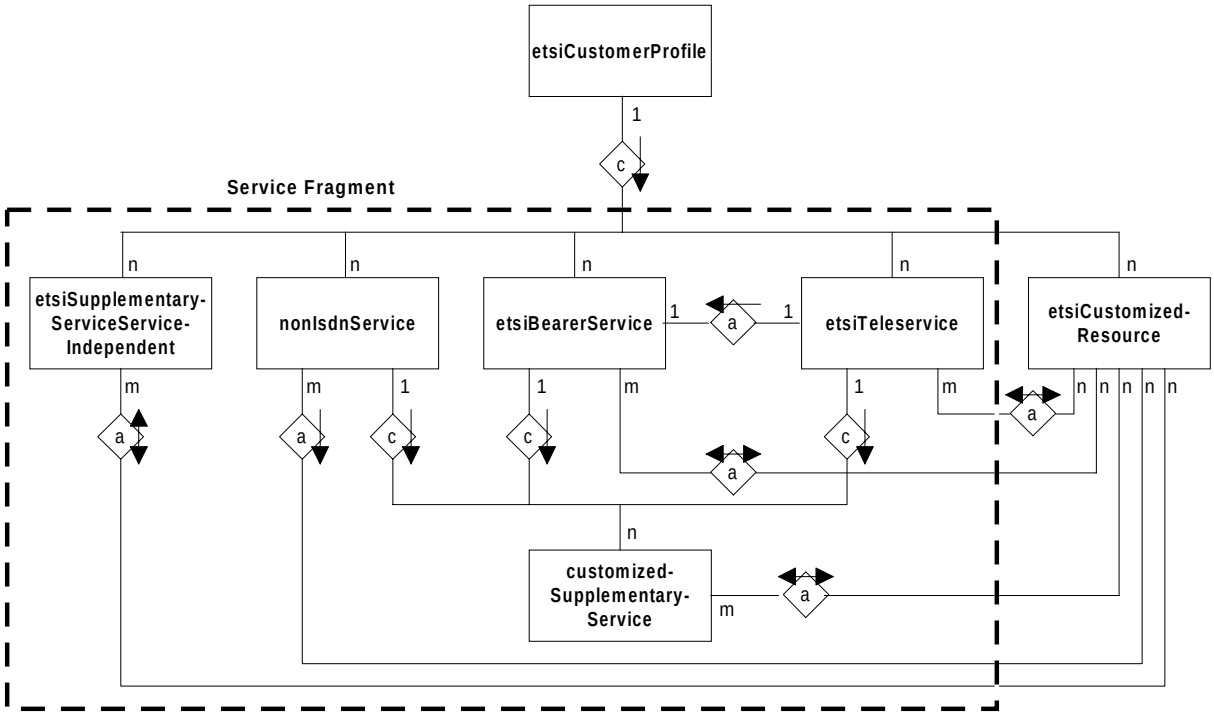


Figure 2: Customer specific services fragment

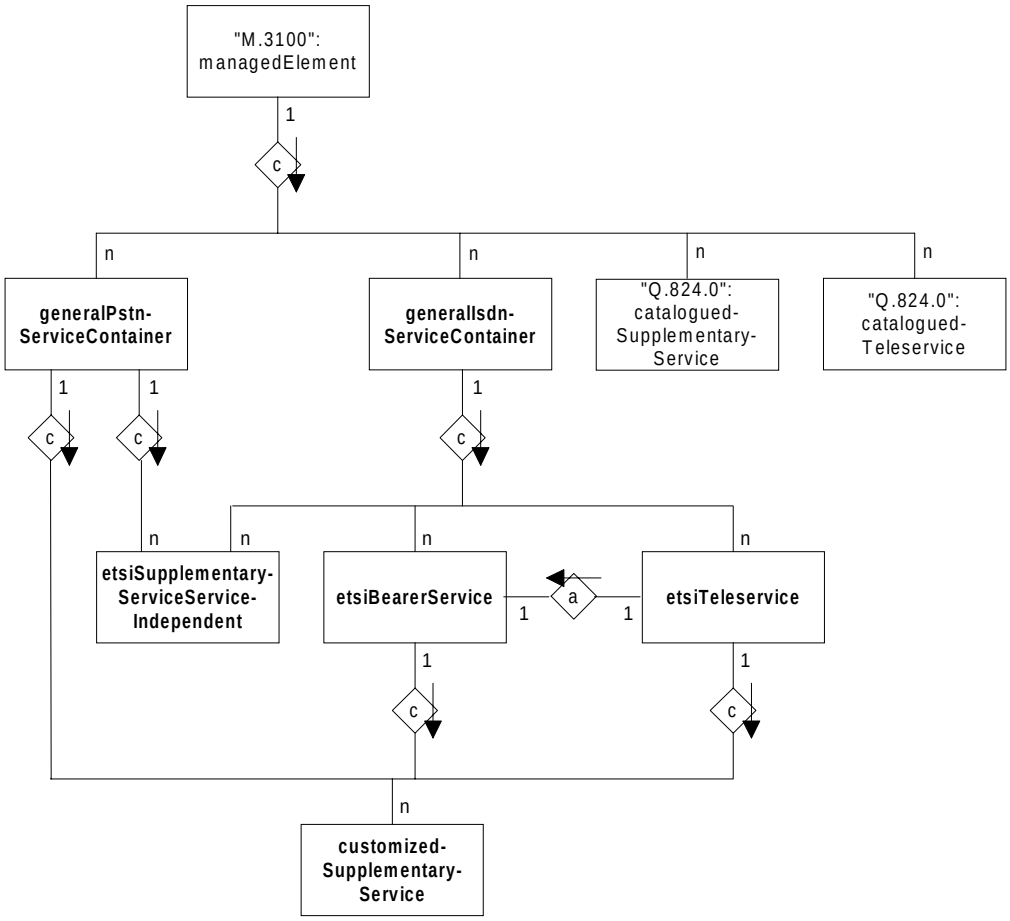


Figure 3: General services fragment

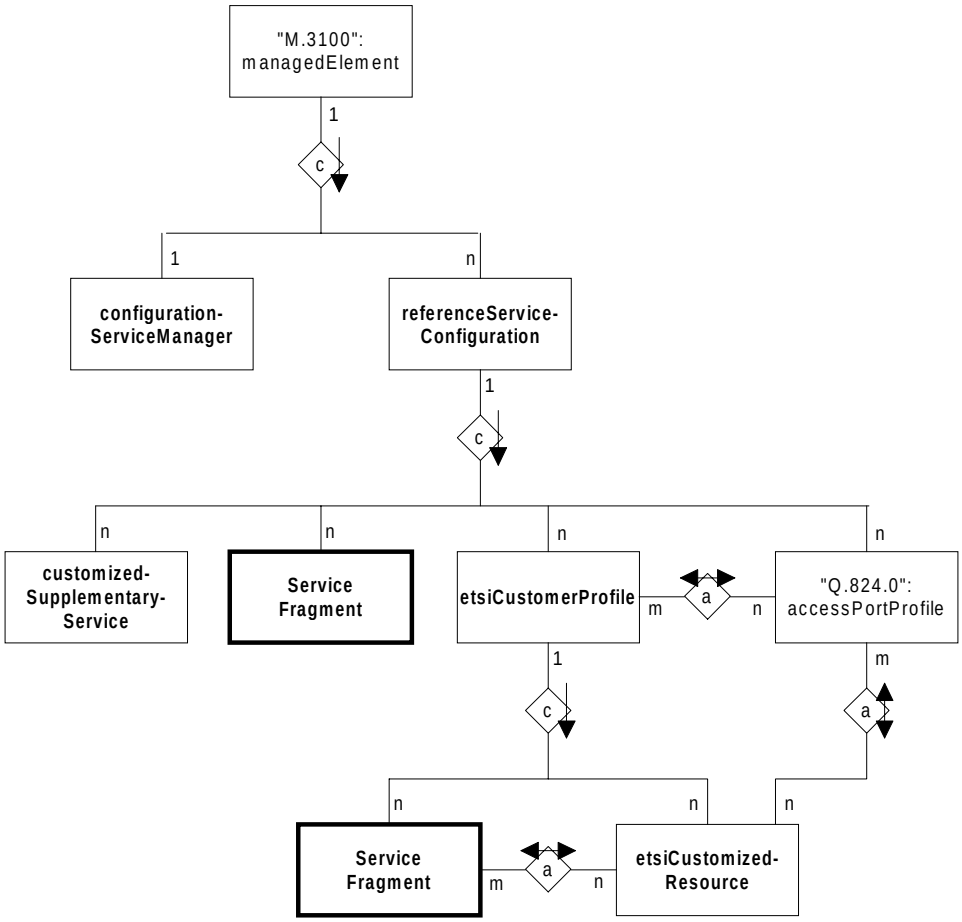


Figure 4: Service provision fragment

5.2 Inheritance hierarchy

These figures show the inheritances of the object classes defined in the present document. The inheritances of object classes referenced from other documents but not subclassed in the present document are defined in the referenced documents. As well, the inheritance of the service related object classes (subclasses) defined in the present document is not shown in these figures. Within the present document they are to be found in the fragment where their superclass is defined (e.g. telephony 3,1 kHz within the teleservice fragment). Object classes defined in the present document are highlighted in **bold** letters.

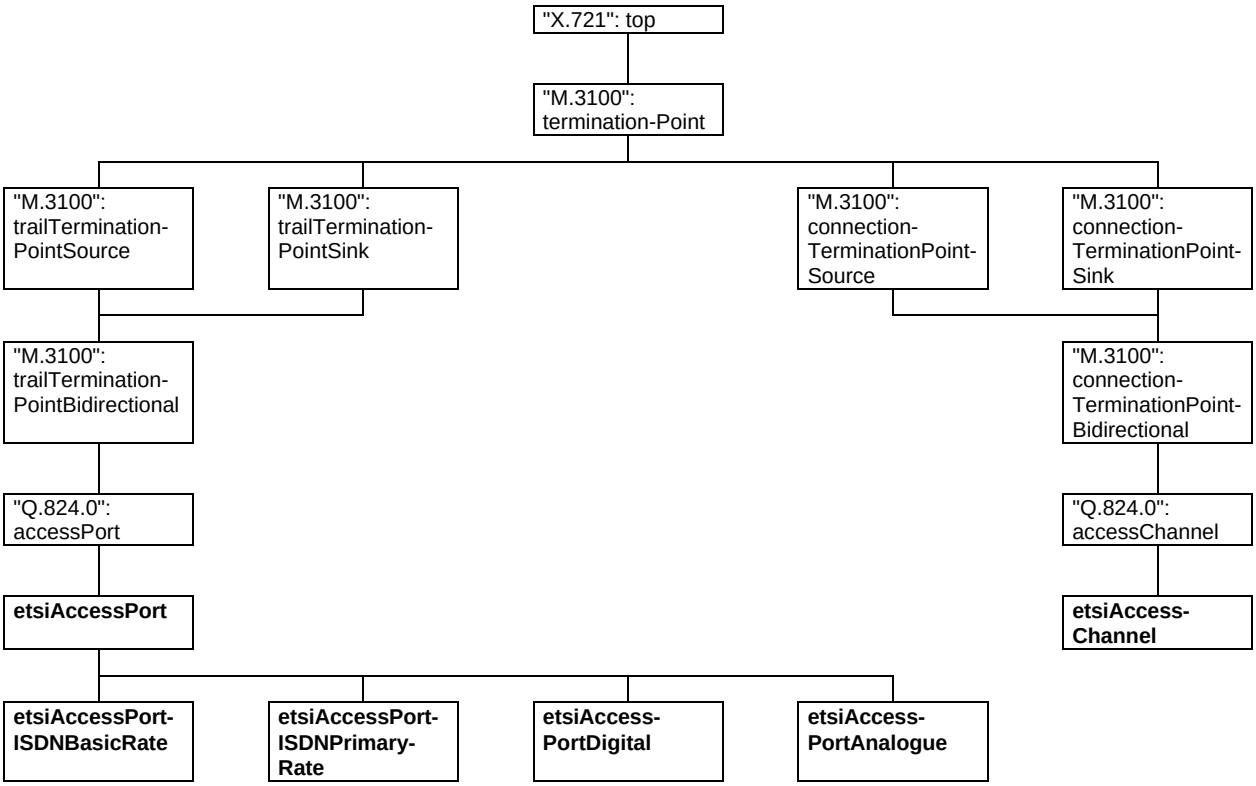


Figure 5: Inheritance hierarchy (1)

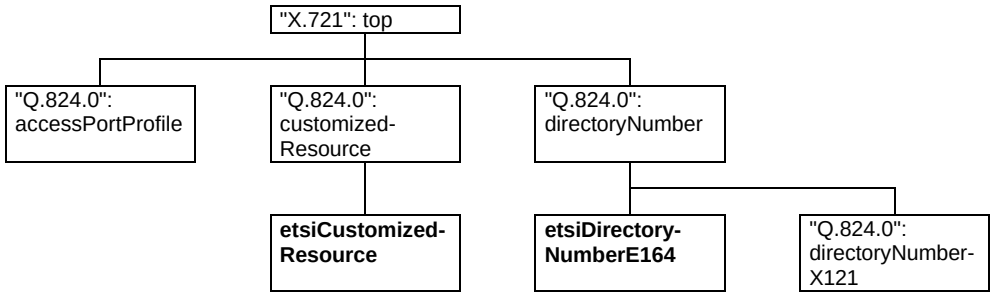


Figure 6: Inheritance hierarchy (2)

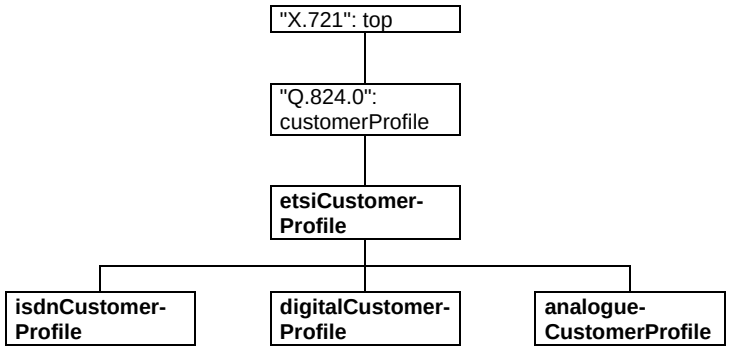


Figure 7: Inheritance hierarchy (3)

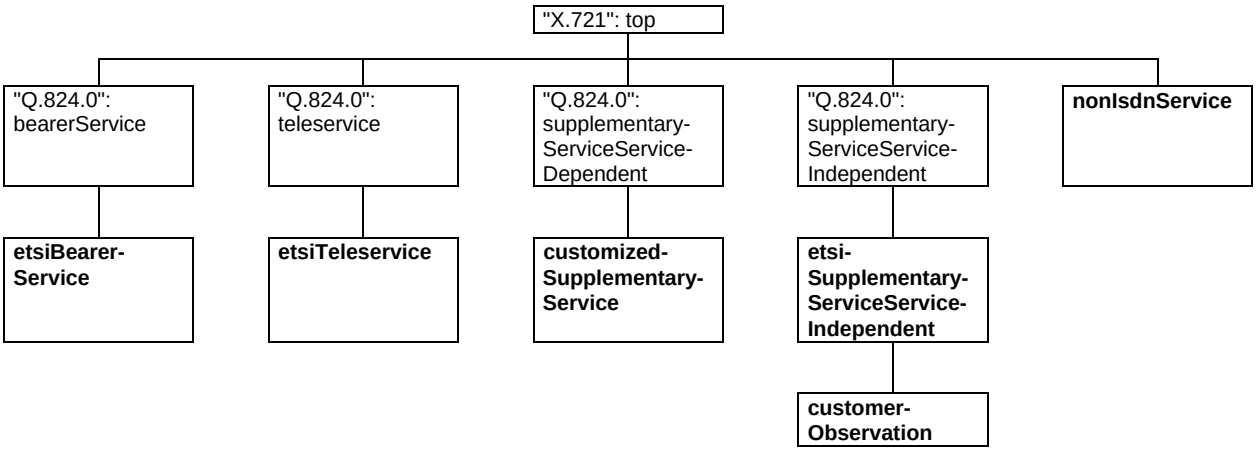


Figure 8: Inheritance hierarchy (4)

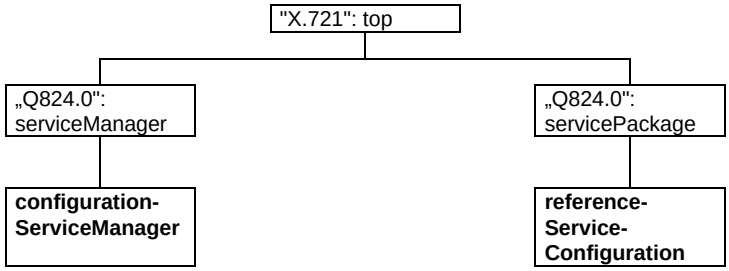


Figure 9: Inheritance hierarchy (5)

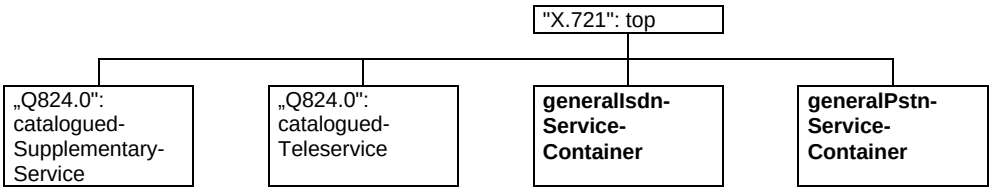


Figure 10: Inheritance hierarchy (6)

5.3 Naming hierarchy

This figure shows the name bindings (containment relationships) of the object classes defined in the present document. The name bindings of object classes referenced from other documents are defined in the referenced documents. They are only indicated in this table where necessary. Object classes defined in the present document are highlighted in **bold** letters.

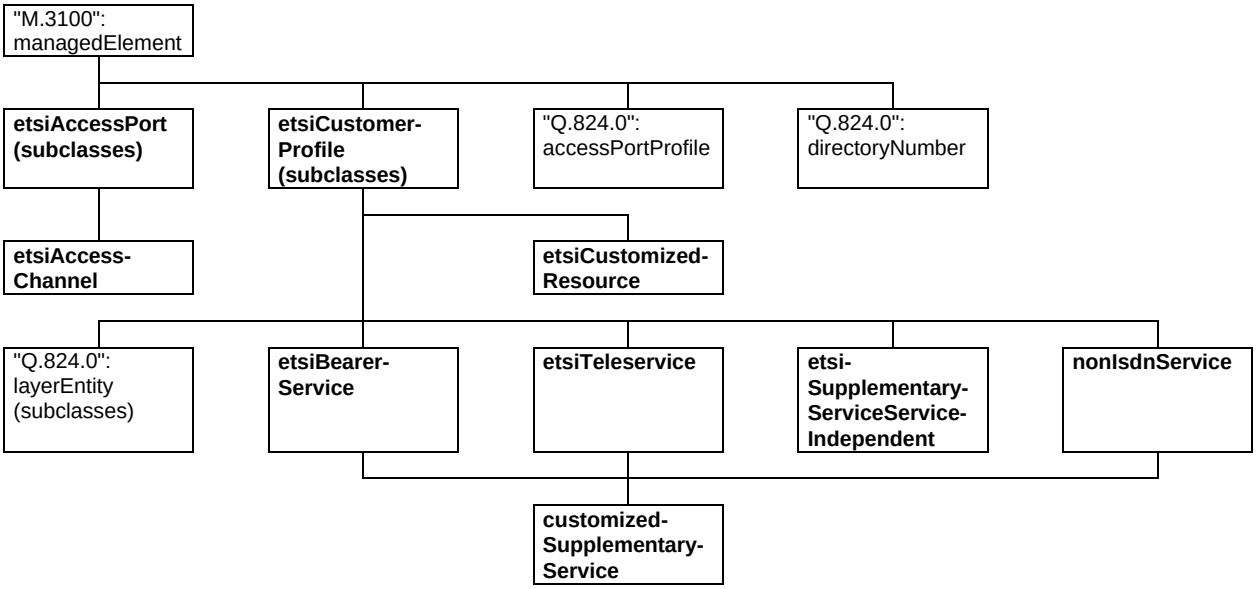


Figure 11: Naming hierarchy (1)

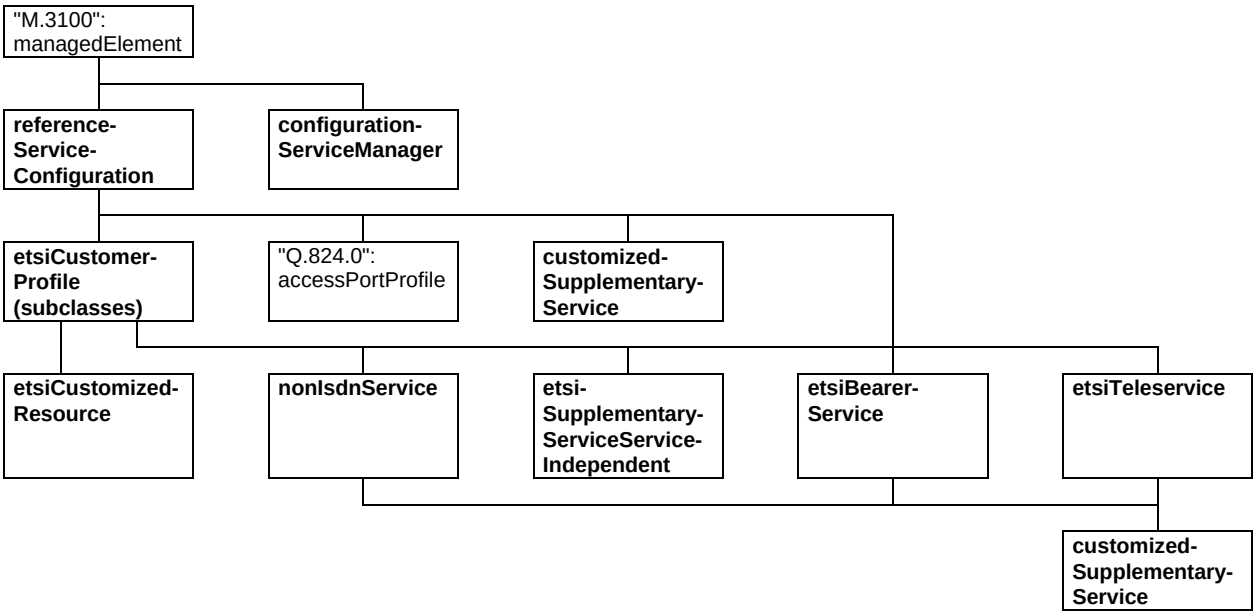


Figure 12: Naming hierarchy (2)

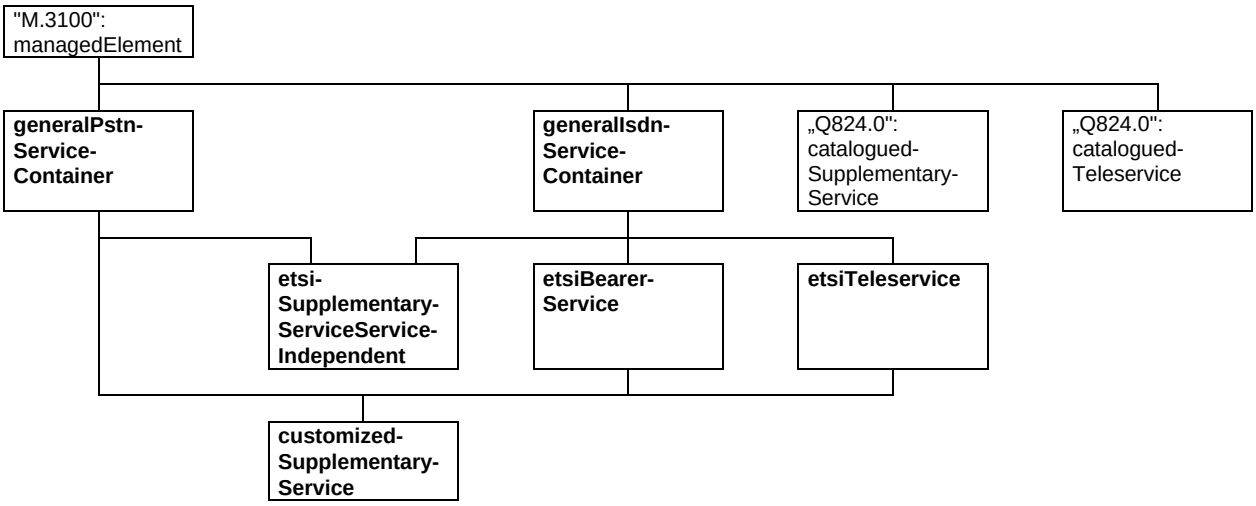


Figure 13: Naming hierarchy (3)

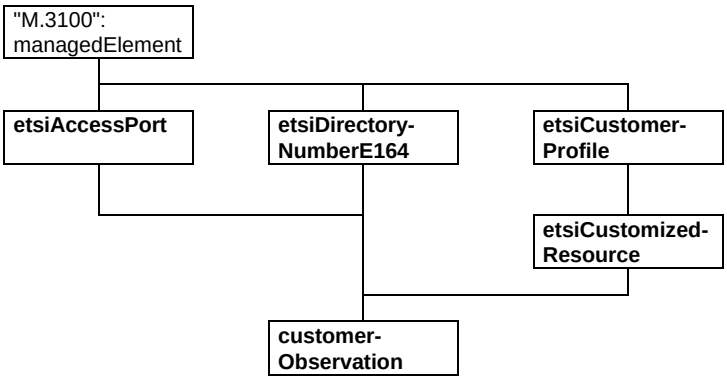


Figure 14: Naming hierarchy (4)

6 Information model description

This clause provides a high-level informal description of the customer administration information model.

Subclause 6.1 contains a brief description for each object class used in the model covering:

- the purpose of the object class;
- the attributes defined for the object class; and
- the relationship of the object class to other object classes.

Attributes which are common to several object classes are described in subclause 6.2.

Subclause 6.3 describes actions which are influencing several object classes in the information model.

Subclause 6.4 describes the common aspects of the notifications used in the information model.

6.1 Object class descriptions

This subclause is divided into subclauses in which the object classes of the information model are described, where they are not described in other documents. In these cases, references are given.

In the tables listing the attributes of the object classes, the attributes inherited from CCITT Recommendation X.721 [53]: top are not mentioned explicitly, although they are present in these object classes as defined in CCITT Recommendation X.721 [53].

6.1.1 Managed element

The managedElement object class represents the location where the Q3 interface and its associated resources are provided. This managed object class is defined in CCITT Recommendation M.3100 [45].

6.1.2 Access port fragment

6.1.2.1 Access port

The accessPort object class is defined in ITU-T Recommendation Q.824.0 [46]. It represents the resource concept and is used to identify the resource capabilities supporting a customer services. The resource abstraction is defined as the trail termination points that terminates trails between the switching network element and the customer premise equipment. These trail termination points send the signalling and service information to the customer.

6.1.2.2 ETSI access port

The etsiAccessPort is derived from ITU-T Recommendation Q.824.0 [46]: accessPort. It represents the resource concept and is used to identify the resource capabilities supporting a customer services.

Both etsiDirectoryNumberE164 and etsiAccessPort have the conditional package meteringCounterPkg containing the meteringCounter attribute. This package shall only be instantiated with one of these two object classes or their subclasses within the same managed element.

Within one network operators environment preferably only one of those two possibilities of instantiating the meteringCounterPkg should be chosen.

This object class is not instantiated.

Table 1: ETSI access port

Name		M/C/O	Value Set
meteringCounter		C	single
localDefinedNumber		O	single
meteringCounter	gives the current value of the metering counter for charging.		
localDefinedNumber	is an identifier for the access port that is used if in a configuration the port itself is not associated with a E.164 directory number.		

6.1.2.3 ETSI access port analogue

The etsiAccessPortAnalogue object class is the conventional two-wire loop access to a basic telephone set.

It is derived from etsiAccessPort. It represents the resource concept and is used to identify the resource capabilities supporting a customer services.

This information model only covers the aspect of relationship of a customer configuration to a semi permanent connection. The semi permanent connection as such might e.g. be modelled by using the M3100:crossConnection object class or a subclass of it. If the semi permanent connection as such is managed by this means, the semipermanentLine attribute should not be used. Instead, the information whether a customer configuration is involved in a semi permanent line can be retrieved by reading the crossConnectionObjectPointer attribute.

The Q.824.0 [46]: officeEquipment attribute shall be used to identify special types of line cards, e.g. such providing a third wire, or DSL capability, etc.

Table 2: ETSI access port analogue

Name		M/C/O	Value Set
lineSignalling		M	single
lineCharacteristics		M	single
semipermanentLine		C	single
lineSignalling	specifies which signalling the analogue access port uses for the line (e.g. Dual Tone Multi Frequency (DTMF) or pulse dialling).		
lineCharacteristics	specifies the transmission characteristics of the analogue line (e.g. attenuation). The following values shall be assigned: 0: short line (with attenuation) 1: long line (without attenuation) Other values are for implementation specific use.		
semipermanentLine	indicates whether this entity is related to a semipermanent line (TRUE) or not (FALSE).		

6.1.2.4 ETSI access port digital

The etsiAccessPortDigital object class represents the termination of any non-ISDN digital access.

It is derived from etsiAccessPort. It represents the resource concept and is used to identify the resource capabilities supporting a customer services.

No specific attributes were identified.

6.1.2.5 ETSI access port ISDN basic rate

The etsiAccessPortISDNBasicRate is derived from etsiAccessPort. It represents the resource concept and is used to identify the resource capabilities supporting a customer services.

The etsiAccessPortISDNBasicRate object class supports up to 2 B-channels of 64 kbit/s for transfer of information and data and 1 D-channel of 16 kbit/s for signalling and data transfer (2 B + D).

Table 3: ETSI access port ISDN basic rate

Name		M/C/O	Value Set
dChannelLayer1Activation		M	single
dChannelLayer2Activation		M	single
dChannelLayer1Activation, dChannelLayer2Activation	specifies whether layers one and/or two have to be held active.		

6.1.2.6 ETSI access port ISDN primary rate

The etsiAccessPortISDNPrimaryRate is derived from etsiAccessPort. It represents the resource concept and is used to identify the resource capabilities supporting a customer services.

The etsiAccessPortISDNPrimaryRate object class supports up to 30 B-channels of 64 kbit/s for transfer of information and data and 1 D-channel of 64 kbit/s for signalling and data transfer (30 B + D).

Table 4: ETSI access port ISDN primary rate

Name		M/C/O	Value Set
dChannelLayer2Activation		M	single
dChannelLayer2Activation	specifies whether layer two has to be held active.		

6.1.2.7 Access channel

The accessChannel object class is defined in ITU-T Recommendation Q.824.0 [46]. It represents an individual ISDN B-channel or D-channel of an ISDN access port or an individual channel of a digital access port. This object class is a specialization of the bi-directional connection termination point object class defined in CCITT Recommendation M.3100 [45].

The number of access channels belonging to an access port depends on the access port architecture. This object class may be related to a set of customizedResource when services shall be provisioned on a per access channel basis.

6.1.2.8 ETSI access channel

The etsiAccessChannel is derived from ITU-T Recommendation Q.824.0 [46]: accessChannel. It represents an individual ISDN B-channel or D-channel of an ISDN access port or an individual channel of a digital access port.

It identifies the set of attributes which apply in common to all types of ISDN and digital access channels. Instances of this object class are contained within ISDN or digital access ports.

This information model only covers the aspect of relationship of a customer configuration to a semi permanent connection. The semi permanent connection as such might e.g. be modelled by using the CCITT Recommendation M.3100 [45]: crossConnection object class or a subclass of it. If the semi permanent connection as such is managed by this means, the semipermanentLine attribute should not be used. Instead, the information whether a customer configuration is involved in a semi permanent line can be retrieved by reading the crossConnection object pointer attribute.

Table 5: ETSI access channel

Name		M/C/O	Value Set
channelType		M	single
semipermanentLine		C	single
channelType	specifies the channel type (e.g. ISDN D-channel, non-ISDN channel)		
semipermanentLine	indicates whether this entity is related to a semipermanent line (TRUE) or not (FALSE).		

6.1.2.9 Access port profile

The accessPortProfile object class is defined in ITU-T Recommendation Q.824.0 [46].

The accessPortProfile object class (and its subclasses) represents those aspects of an exchange access that cannot be configured until subscription at which time the mode in which the access port is to be used by the customer is known.

6.1.3 V5 interface fragment

ETS 300 377-1 [59] covers the configuration management of V5 interfaces and associated customer profiles. Since the customer administration related part of it was based on I-ETS 300 291 which is replaced by the present document, hereafter a re-definition of the affected object classes is given. The corresponding labels are extended by "R1".

6.1.3.1 Virtual access port

A virtualAccessPortR1 is an object class representing an image of the customer access port which is located in an AN and connected to the LE via V5 interface. It is a subclass of etsiAccessPort and used for provisioning services to the customer.

The upstreamConnectivityPointer and the downstreamConnectivityPointer attributes have NULL value.

The inherited operationalStatePackage is mandatory in this object class.

The operationalState attribute indicates whether or not the user port is able to provide its service to the customer's terminal equipment. It reflects the states of the user port Finite State Machine (FSM) in the LE according to annex A of ETS 300 377-1 [59].

An access port may have assigned one or more bearer time slots and/or one or more C-paths providing transport for different data types (bearer, signalling, f-type, p-type). The operationalState attribute shall be set to "enabled" as long as the port has access to any service, and if there are no other contradictory conditions.

The operationalState attribute shall be set to "disabled" if an access port has no service at all, i.e. the V5 interface itself or the related ISDN Ds or the PSTN C-path has failed.

The assocV5Interface attribute gives the relation to the V5 interface, that virtual access port is assigned to. It is a group relationship attribute according to CCITT Recommendation X.732 [57]. The V5 interface is the owner object.

The relationships are maintained by use of the setReciprocalPointers and releaseReciprocalPointers actions of the v5Interface object class.

If the CCITT Recommendation M.3100 [45]: tmnCommunicationsAlarmInformationPackage is instantiated, then the communicationsAlarm notification shall be used to report errors related to this object class. The errors to be reported and the usage of the alarm report parameters are specified in ETS 300 379-1 [61].

This object class is subclassed for the different types of virtual access ports and not instantiated within the scope of this application.

Table 6: Virtual access port

Name		M/C/O	Value Set
"ETS 300 377-1 (1995)" [59]: assocV5Interface		M	single
assocV5Interface	gives the relation to the V5 interface, that virtual access port is assigned to. It is a group relationship attribute according to CCITT Recommendation X.732 [57]. The V5 interface is the owner object.		

6.1.3.2 Virtual analogue access

A virtualAnalogueAccessR1 is an information entity used for the association of a PSTN customer's layer 3 port address with a V5.1/V5.2 interface. It is a specialization of the virtualAccessPortR1 object class.

If no virtualAccessChannelR1 object instance is contained in the virtualAnalogueAccessR1 object instance in the case of a V5.1 interface, the assocV5TimeSlot attribute points to the associated V5 time slot object instance. Otherwise it has NULL value. It is a peer relationship according to CCITT Recommendation X.732 [57]. The V5 time slot is provider.

Table 7: Virtual analogue access

Name		M/C/O	Value Set
"ETS 300 377-1 (1995)" [59]: layer3PortAddress		M	single
"ETS 300 377-1 (1995)" [59]: assocV5TimeSlot		M	single
lineSignalling		M	single
semipermanentLine		C	single
layer3PortAddress	gives the layer 3 port address the analogue access is assigned to.		
assocV5TimeSlot	points to the associated V5 time slot object instance in the case of a V5.1 interface. It is a peer relationship according to CCITT Recommendation X.732 [57].		
lineSignalling	specifies which signalling the analogue access port uses for the line (e.g. Dual Tone Multi Frequency (DTMF) or pulse dialling).		
semipermanentLine	indicates whether this entity is related to a semipermanent line (TRUE) or not (FALSE).		

6.1.3.3 Virtual basic rate access

A virtualBasicRateAccessR1 is an information entity used for the association of an envelope function address representing an ISDN basic access with a V5.1/V5.2 interface. It is a specialization of the virtualAccessPortR1 object class.

Table 8: Virtual basic rate access

Name	M/C/O	Value Set
dChannelLayer1Activation	M	single
dChannelLayer2Activation	M	single
"ETS 300 377-1 (1995)" [59]: envelopeFunctionAddress	M	single
"ETS 300 377-1 (1995)" [59]: assocV5TimeSlotB1	M	single
"ETS 300 377-1 (1995)" [59]: assocV5TimeSlotB2	M	single
"ETS 300 377-1 (1995)" [59]: assocIsdnSignallingCommPath	M	single
"ETS 300 377-1 (1995)" [59]: assocPacketCommPath	M	single
"ETS 300 377-1 (1995)" [59]: assocFrameCommPath	M	single

dChannelLayer1Activation, dChannelLayer2Activation	specifies whether layers one and/or two have to be held active.
envelopeFunctionAddress	gives the envelope function address the basic access is assigned to.
assocV5TimeSlotB1, assocV5TimeSlotB2	indicates for B-channel 1 or 2 the associated V5 time slot object instance, if no virtual access channel object instance is contained in the virtual basic rate access object instance in the case of a V5.1 interface. It is a peer relationship according to CCITT Recommendation X.732 [57].
assocIsdnSignallingCommPath	points to the associated ISDN communication path carrying the signalling messages of the assigned ISDN access. It is a group relationship according to CCITT Recommendation X.732 [57]. The ISDN communication path is owner.
assocPacketCommPath	points to the associated ISDN communication path carrying the D-channel packet mode data of the assigned ISDN access if the customer has subscribed to this service. It is a group relationship according to CCITT Recommendation X.732 [57]. The ISDN communication path is owner.
assocFrameCommPath	points to the associated ISDN communication path carrying the D-channel frame mode data of the assigned ISDN access if the customer has subscribed to this service. It is a group relationship according to CCITT Recommendation X.732 [57]. The ISDN communication path is owner.

6.1.3.4 Virtual Leased Access

A virtualLeasedAccessR1 is an information entity used for the association of a single analogue or digital semipermanent leased line or a multiple digital semipermanent leased line configuration with a V5.1/V5.2 interface. It is a specialization of the virtualAccessPortR1 object class.

If it is a single semipermanent leased line, and if no virtualAccessChannelR1 object instance is contained in the virtualLeasedAccessR1 object instance, and if it is associated with a V5.1 interface, the assocV5TimeSlot attribute points to the associated V5 Time Slot object instance. Otherwise it has NULL value. It is a peer relationship according to CCITT Recommendation X.732 [57]. The relationship shall be maintained by use of the setReciprocalPointer and releaseReciprocalPointer actions of the V5 Interface object class.

A virtualLeasedAccessR1 object instance representing a single semipermanent leased line shall contain either no or one object instance. In a multiple semipermanent leased line configuration, the virtualLeasedAccessR1 object instance shall contain the appropriate number of virtualAccessChannelR1 object instances.

The v5UserPortAddress attribute gives for a single semipermanent leased line the layer 3 port address the access is assigned to, otherwise it gives the envelope function address.

Table 9: Virtual Leased Access

Name	M/C/O	Value Set
"ETS 300 377-1 (1995)" [59]: v5UserPortAddress	M	single
"ETS 300 377-1 (1995)" [59]: assocV5TimeSlot	M	single

v5UserPortAddress	gives for a single semipermanent leased line the layer 3 port address the access is assigned to, otherwise it gives the envelope function address.
assocV5TimeSlot	points to the associated V5 Time Slot object instance in the case of a V5.1 interface. It is a peer relationship according to CCITT Recommendation X.732 [57].

6.1.3.5 Virtual primary rate access

A virtualPrimaryRateAccessR1 is an information entity used for the association of an envelope function address representing an ISDN primary rate access with a V5.2 interface. It is a specialization of the virtualAccessPortR1 object class.

Table 10: Virtual primary rate access

Name		M/C/O	Value Set
dChannelLayer2Activation		M	single
"ETS 300 377-1 (1995)" [59]: envelopeFunctionAddress		M	single
"ETS 300 377-1 (1995)" [59]: assocIsdnSignallingCommPath		M	single
"ETS 300 377-1 (1995)" [59]: assocPacketCommPath		M	single
"ETS 300 377-1 (1995)" [59]: assocFrameCommPath		M	single
dChannelLayer2Activation	specifies whether layer two has to be held active.		
envelopeFunctionAddress	gives the envelope function address the primary rate access is assigned to.		
assocIsdnSignallingCommPath	points to the associated ISDN communication path carrying the signalling messages of the assigned ISDN access. It is a group relationship according to CCITT Recommendation X.732 [57]. The ISDN communication path is owner.		
assocPacketCommPath	points to the associated ISDN communication path carrying the D-channel packet mode data of the assigned ISDN access if the customer has subscribed to this service. It is a group relationship according to CCITT Recommendation X.732 [57]. The ISDN communication path is owner.		
assocFrameCommPath	points to the associated ISDN communication path carrying the D-channel frame mode data of the assigned ISDN access if the customer has subscribed to this service. It is a group relationship according to CCITT Recommendation X.732 [57]. The ISDN communication path is owner.		

6.1.3.6 Virtual access channel

A virtualAccessChannelR1 is an object class representing an individual ISDN B-/D-channel of an ISDN access port, or the bearer channel for an analogue access port, or an individual channel of an access port for a semipermanent leased line. It is a subclass of etsiAccessChannel.

Table 11: Virtual access channel

Name		M/C/O	Value Set
"ETS 300 377-1 (1995)" [59]: permanentLineReservation		M	single
"ETS 300 377-1 (1995)" [59]: assocV5TimeSlot		M	single
permanentLineReservation	indicates whether this access channel is reserved as permanent line or not.		
assocV5TimeSlot	points to the associated V5 time slot object instance if the channel type is an ISDN B-channel or a channel of a non-ISDN access in the case of a V5.1 interface. It is a peer relationship according to CCITT Recommendation X.732 [57].		

6.1.3.7 V5 bearer channel reservation

The assignment of a V5 bearer channel reservation object instance to a customized resource indicates that a fixed assignment of bearer channels of a V5.2 interface is made for a customer. Which V5 time slot is assigned is controlled by the resource manager but visible at the Q3 interfaces.

It is a subclass of etsiSupplementaryServiceServiceIndependent.

Table 12: V5 bearer channel reservation

Name		M/C/O	Value Set
"ETS 300 377-1 (1995)" [59]: noOfBcRequested		M	single
"ETS 300 377-1 (1995)" [59]: bcReserved		M	set
noOfBcRequested	indicates the number of bearer channels requested for reservation.		
bcReserved	indicates in a set of octets 3 and 4 of V5 time slot identification information elements which time slots are actually assigned by the BCC protocol.		

6.1.3.8 V5 leased line reservation

The assignment of a V5 leased line reservation object instance to a customized resource indicates that a fixed assignment of the bearer channel of a V5 interface is made for a customer. It is used either for analogue semipermanent leased lines without signalling or for digital semipermanent leased lines without signalling. Which V5 time slot in the case of a V5.2 interface is assigned is controlled by the resource manager but visible at the Q3 interface.

It is a subclass of etsiSupplementaryServiceServiceIndependent.

Table 13: V5 leased line reservation

Name		M/C/O	Value Set
"ETS 300 377-1 (1995)" [59]: bcReserved		M	set
bcReserved	indicates in a set of octets 3 and 4 of V5 time slot Identification information elements which time slots are actual assigned by the BCC protocol.		

6.1.4 Directory number fragment

6.1.4.1 Directory number

The directoryNumber object class is a resource in its own right. It is a constituent part of the user interface and is directly related to one or more dialling plans being part of the managed element. DNs may be assigned to an individual customer independently of the access port architecture and subscription service type. A directoryNumber object instance may be associated with one or more customerProfile object instances. A directoryNumber object instance may be associated with several customizedResource instances. This association is used to represent the services and ports provisioned for the directory number.

The directoryNumber object class is defined in ITU-T Recommendation Q.824.0 [46]. It has no instantiations of itself.

6.1.4.2 ETSI directory number E.164

The etsiDirectoryNumberE164 represents directory numbers belonging to the ISDN numbering plan defined in CCITT Recommendation E.164 [43].

Both etsiDirectoryNumberE164 and etsiAccessPort have the conditional package meteringCounterPkg containing the meteringCounter attribute. This package shall only be instantiated with one of these two object classes or their subclasses within the same managed element.

Within one network operator's environment preferably only one of those two possibilities of instantiating the meteringCounterPkg should be chosen.

Table 14: ETSI directory number E.164

Name		M/C/O	Value Set
etsiE164DirectoryNumber		M	single
"ITU-T Recommendation Q.824.0 [46]": interceptTreatmentTerm		M	single
meteringCounter		C	single
routeingInformation		C	single
etsiE164DirectoryNumber	represents the ISDN number according to the ISDN numbering plan defined in CCITT Recommendation E.164 [43]. It is composed of two fields: country code (optional); national significant number. The national significant number is itself composed of two fields: national destination code (optional); customer number.		
interceptTreatmentTerm	specifies the treatment (e.g. announcement) to be provided for an unconnected directory number.		
meteringCounter	gives the current value of the metering counter for charging.		
routeingInformation	gives the directory number porting information. If this attribute is empty string, the directory number is not ported. If it has NULL value, the routeing information is to be retrieved from another server (e.g. IN SCP). In all other cases, the information relevant for routeing is given.		

6.1.4.3 Directory number X.121

The directoryNumberX121 object class characterizes the ITU-T Recommendation X.121 [51] packet switched directory number resource.

The directoryNumberX121 object class is defined in ITU-T Recommendation Q.824.0 [46].

6.1.5 Customer profile fragment

6.1.5.1 Customer profile

The customerProfile object class represents a single point of reference used to bind together a range of services and resources for customer administration purposes. it is a class of managed objects representing the characteristics of the directory number(s) assigned to an individual customer, independent of the access type and bearer service. each instance of the customer profile object class includes a directory number pointer list attribute that represents the directory number(s) assigned to the customerProfile object and an accessPortProfilePointerList attribute that represents access port profile(s) also assigned to the customerProfile object.

The customerProfile object class is defined in ITU-T Recommendation Q.824.0 [46].

6.1.5.2 ETSI customer profile

The ETSI customer profile object class provides a single point of reference for a customer's installation to one or more ISDN, analogue, and/or digital lines. An instance of a etsiCustomerProfile subclass may be related to zero, one, or more instances of accessPortProfile and/or one instance of etsiDirectoryNumberE164.

The etsiCustomerProfile object class is not instantiated.

Table 15: ETSI customer profile

Name		M/C/O	Value Set
customerType		M	single
customerCategory		M	single
"CCITT Recommendation X.721:1992" [53]: administrativeState		M	single
"EN 300 292 (1998)" [42]:originForRouteing		C	single
originForCharging		C	single
"EN 300 292 (1998)" [42]:originForAnalysis		C	single
customerType	specifies whether the customer profile is for a single line or for a multi-line customer.		
customerCategory	The customer category attribute identifies the customer as being for instance: a standard customer; a coin box; a mobile customer; a test equipment; an operator, etc.		
administrativeState	is defined in CCITT Recommendation X.721 [53]. It indicates the current administrative state of the customer profile.		
originForRouteing	groups customer profiles for call routeing purposes as defined in EN 300 292 [42].		
originForCharging	groups customer profiles for charging and/or tariffing purposes.		
originForAnalysis	groups customer profiles for digit analysis purposes within the call routeing context as defined in EN 300 292 [42].		

6.1.5.3 Analogue customer profile

This object class is the reference point for the services, directory numbers, and access ports being part of the related profile. Only accessPortAnalogue or virtualAnalogueAccessR1 shall be associated via the appropriate accessPortProfile instances with this object class.

No specific attributes were identified.

6.1.5.4 ISDN customer profile

This object class is the reference point for the services, directory numbers, and access ports being part of the related profile. Only accessPortISDNBasicRate / accessPortISDNPrimaryRate or virtualBasicRateAccessR1 / virtualPrimaryRateAccessR1 shall be associated via the appropriate accessPortProfile instances with this object class.

No specific attributes were identified.

Table 16: ISDN customer profile

Name		M/C/O	Value Set
connectionType		C	single
connectionType	indicates whether it is a point to point or a point to multipoint configuration		

6.1.5.5 Customized Resource

The customizedResource object class is defined in ITU-T Recommendation Q.824.0 [46].

6.1.5.6 ETSI customized Resource

The etsiCustomizedResource object class allows refinement of the service provisioning for a customer. It allows association of a set of services to:

- one or more access ports;
- one or more DNs;
- one or more access channels.

The channels may span more than one access port. The etsiCustomizedResource object class also allows association between DNs and access ports without any services associated with them.

The etsiCustomizedResource object class is needed when a service is applicable only to a subset of access ports, access channels or DNs. It is not needed when all the services specified are applicable to all the access ports, access channels and DNs.

Table 17: ETSI customized Resource

Name		M/C/O	Value Set
supplementaryServiceServiceDependentPtrList		M	set
supplementaryServiceServiceIndependentPtrList		M	set
directionality		C	single
connectionType		C	single
supplementaryService-ServiceDependentPtrList	points to the associated supplementaryServiceServiceDependent object instances.		
supplementaryService-ServiceIndependentPtrList	points to the associated supplementaryServiceServiceIndependent object instances.		
directionality	indicates the directionality (incoming, outgoing, bothways)		
connectionType	indicates whether it is a point to point or a point to multipoint configuration		

6.1.6 Bearer service fragment

6.1.6.1 Bearer service

This object class is defined in ITU-T Recommendation Q.824.0 [46].

This object class contains the characteristics common to all bearer services as defined in CCITT Recommendation I.210 [44]. A bearer service may be associated with a set of supplementary services.

This object class is not instantiated.

6.1.6.2 ETSI bearer service

This object class is derived from ITU-T Recommendation Q.824.0 [46]: bearerService.

The ITU-T Recommendation Q.824.0 [46]: numberOfChannelsPkg and the ITU-T Recommendation Q.824.0 [46]: bearerSignallingPkg shall not be instantiated with subclasses of this object class.

The references of its subclasses to the service describing standards are given in annex A.

This object class is not instantiated.

6.1.6.3 Circuit mode 3,1 kHz audio

This object class is a specialization of the etsiBearerService object class and defines the "3,1 kHz audio" bearer service.

Table 18: Circuit mode 3,1 kHz audio

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.1 (1996)" [47]: networkProvidedTone		C	single
maxNumOfInfoChannels		C	single
maxNumOfTotalCalls		C	single
networkProvidedTone	indicates that tones and/or announcements are to be provided by the network to indicate the progress or otherwise the status of a call.		
maxNumOfInfoChannels	gives the maximum number of information channels.		
maxNumOfTotalCalls	gives the maximum number of total calls.		

6.1.6.4 Circuit mode 64 kbit/s unrestricted

This object class is a specialization of the etsiBearerService object class and defines the "64 kbit/s unrestricted" bearer service.

Table 19: Circuit mode 64 kbit/s unrestricted

Name		M/C/O	Value Set
maxNumOfInfoChannels		C	single
maxNumOfTotalCalls		C	single
maxNumOfInfoChannels	gives the maximum number of information channels.		
maxNumOfTotalCalls	gives the maximum number of total calls.		

6.1.6.5 ETSI packet B channel

This object class is a specialization of the etsiBearerService object class and defines the packet mode bearer service running over a B channel.

According to ETS 300 007 [62], the value of the notificationClass attribute shall be restricted to noNotificationClass and conditionalNotification respectively.

Table 20: ETSI packet B channel

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.1 (1996)" [47]: notificationClass		C	single
"ITU-T Recommendation Q.824.1 (1996)" [47]: layer2InfoEntityPtr		C	single
"ITU-T Recommendation Q.824.1 (1996)" [47]: layer3InfoEntityPtr		C	single
maxNumOfInfoChannels		C	single
notificationClass	indicates whether the packet mode bearer service is with "noNotificationClass" or "conditionalNotification" respectively.		
layer2InfoEntityPtr, layer3InfoEntityPtr	point to the appropriate "ITU-T Recommendation Q.824.0 (1996)" [46]: layerEntity subclass instance.		
maxNumOfInfoChannels	gives the maximum number of information channels.		

6.1.6.6 ETSI packet D channel

This object class is a specialization of the etsiBearerService object class and defines packet mode bearer service running over a D channel .

According to ETS 300 007 [62], the value of the notificationClass attribute shall be restricted to noNotificationClass and conditionalNotification respectively.

Table 21: ETSI packet D channel

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.1 (1996)" [47]: notificationClass		C	single
"ITU-T Recommendation Q.824.1 (1996)" [47]: layer2InfoEntityPtr		C	single
"ITU-T Recommendation Q.824.1 (1996)" [47]: layer3InfoEntityPtr		C	single
notificationClass	indicates whether the packet mode bearer service is with "noNotificationClass" or "conditionalNotification" respectively.		
layer2InfoEntityPtr, layer3InfoEntityPtr	point to the appropriate "ITU-T Recommendation Q.824.0 (1996)" [46]: layerEntity subclass instance.		

6.1.6.7 Layer entity

The layerEntity object class is defined in ITU-T Recommendation Q.824.0 [46].

Its subclasses layerEntityLAPB, layerEntityLAPD, layerEntityX25PLP, and layerEntityX25PLPShared are defined in ITU-T Recommendation Q.824.1 [47].

6.1.6.8 Multiple rate unrestricted

This object class is a specialization of the etsiBearerService object class and defines the "multiple rate unrestricted" bearer service.

Table 22: Multiple rate unrestricted

Name		M/C/O	Value Set
maxNumOfInfoChannels		C	single
maxNumOfInfoChannels	gives the maximum number of information channels.		

6.1.6.9 Speech

This object class is a specialization of the etsiBearerService object class and defines the "speech" bearer service.

Table 23: Speech

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.1 (1996)" [47]: networkProvidedTone		C	single
maxNumOfInfoChannels		C	single
maxNumOfTotalCalls		C	single
networkProvidedTone	indicates that tones and/or announcements are to be provided by the network to indicate the progress or otherwise the status of a call.		
maxNumOfInfoChannels	gives the maximum number of information channels.		
maxNumOfTotalCalls	gives the maximum number of total calls.		

6.1.6.10 Unrestricted digital info with tones / announcements (7 kHz audio)

This object class is a specialization of the etsiBearerService object class and defines the "unrestricted digital info with tones / announcements" bearer service.

Table 24: Unrestricted digital info with tones / announcements (7 kHz audio)

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.1 (1996)" [47]: networkProvidedTone		C	single
maxNumOfInfoChannels		C	single
maxNumOfTotalCalls		C	single
networkProvidedTone	indicates that tones and/or announcements are to be provided by the network to indicate the progress or otherwise the status of a call.		
maxNumOfInfoChannels	gives the maximum number of information channels.		
maxNumOfTotalCalls	gives the maximum number of total calls.		

6.1.7 Teleservice fragment

6.1.7.1 Teleservice

This object class is defined in ITU-T Recommendation Q.824.0 [46].

It contains the characteristics common to all teleservices as defined in CCITT Recommendation I.210 [44]. A teleservice may or may not be associated with a set of supplementary services.

This object class is not instantiated.

6.1.7.2 ETSI teleservice

This object class is derived from "ITU-T Recommendation Q.824.0 [46]": teleservice.

The "ITU-T Recommendation Q.824.0 [46]": cataloguedTeleservicePtrPkg and the "ITU-T Recommendation Q.824.0 [46]": layerInfoPkg shall not be instantiated with subclasses of this object class.

The bearerServicePtr attribute shall only point to object instances representing bearer services which are permitted to be related to a teleservice represented by the instance of this object class, regarding EN 300 196-1 [1]. Otherwise, it shall be empty string.

The references of its subclasses to the service describing standards are given in annex A.

This object class is not instantiated.

6.1.7.3 Telefax group 4

This object class is a specialization of the etsiTeleservice object class and defines the telefax group 4 teleservice.

6.1.7.4 Telephony 3,1 kHz

This object class is a specialization of the etsiTeleservice object class and defines the telephony 3,1 kHz teleservice.

Table 25: Telephony 3,1 kHz

Name		M/C/O	Value Set
maxNumOfInfoChannels		C	single
maxNumOfTotalCalls		C	single
maxNumOfInfoChannels	gives the maximum number of information channels.		
maxNumOfTotalCalls	gives the maximum number of total calls.		

6.1.7.5 Telephony 7 kHz

This object class is a specialization of the etsiTeleservice object class and defines the telephony 7 kHz teleservice.

Table 26: Telephony 7 kHz

Name		M/C/O	Value Set
maxNumOfInfoChannels		C	single
maxNumOfTotalCalls		C	single
maxNumOfInfoChannels	gives the maximum number of information channels.		
maxNumOfTotalCalls	gives the maximum number of total calls.		

6.1.7.6 Videotelephony

This object class is a specialization of the etsiTeleservice object class and defines the videotelephony teleservice.

Table 27: Videotelephony

Name		M/C/O	Value Set
maxNumOfInfoChannels		C	single
maxNumOfTotalCalls		C	single
maxNumOfInfoChannels	gives the maximum number of information channels.		
maxNumOfTotalCalls	gives the maximum number of total calls.		

6.1.7.7 Videotex

This object class is a specialization of the etsiTeleservice object class and defines the videotex teleservice.

Table 28: Videotex

Name		M/C/O	Value Set
maxNumOfInfoChannels		C	single
maxNumOfTotalCalls		C	single
maxNumOfInfoChannels	gives the maximum number of information channels.		
maxNumOfTotalCalls	gives the maximum number of total calls.		

6.1.8 Service dependent supplementary service fragment

A supplementary service is considered being service dependent, if it is configurable on a per teleservice and/or bearer service basis according to the underlying service definitions. Configurability does not only mean the presence of attributes, but may as well be given by presence or absence of respective supplementary service instances in a service configuration.

If in future additional requirements arise, the need might occur to redefine a supplementary service given hereafter as service independent.

It is to be regarded that services defined hereafter may apply both to ISDN and PSTN.

6.1.8.1 Supplementary service - service dependent

This object class is defined in ITU-T Recommendation Q.824.0 [46].

It represents the supplementary services providing additional capabilities to be used with a basic telecommunication service.

This object class is not instantiated.

6.1.8.2 Customized supplementary service

This object class is derived from "ITU-T Recommendation Q.824.0 (1996)" [46]: supplementaryServiceServiceDependent.

It represents the supplementary services providing additional capabilities to be used with a basic telecommunication service. It may represent:

- an ISDN supplementary service as defined in ETSI;
- a CEPT supplementary service as defined in the CEPT Handbook on services and facilities [58];
- a non-standard supplementary service, i.e. operator-specific service.

A customized supplementary service may be related with a bearer service or teleservice thereby supplementing this service.

The references of its subclasses to the service describing standards are given in annex A.

This object class is not instantiated.

Table 29: Customized supplementary service

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.0 (1996)" [46]: customizedResourcePtrList		M	set
customizedResourcePtrList	is a set-valued attribute whose value(s) points to the associated customizedResource object instances		

6.1.8.3 Absent customer fixed announcement

The absent customer fixed announcement supplementary service provides the possibility for a subscriber to divert his incoming calls to a fixed announcement.

This object class is derived from customizedSupplementaryService.

Table 30: Absent customer fixed announcement

Name		M/C/O	Value Set
customerControlPermission		C	single
serviceActivated		C	single
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.4 Absent customer operator position

The absent customer operator position supplementary service provides the possibility for a subscriber to divert his incoming calls to an operator position.

This object class is derived from customizedSupplementaryService.

Table 31: Absent customer operator position

Name		M/C/O	Value Set
forwardImmediately		M	single
customerControlPermission		C	single
serviceActivated		C	single
forwardImmediately	indicates call forward immediately (TRUE) or call forward on no reply (FALSE).		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.5 Absent customer predetermined announcement

The absent customer fixed predetermined announcement supplementary service provides the possibility for a subscriber to divert his incoming calls to a predetermined announcement.

This object class is derived from customizedSupplementaryService.

Table 32: Absent customer predetermined announcement

Name		M/C/O	Value Set
announcementNumber		M	single
customerControlPermission		C	single
modificationPermission		C	single
serviceActivated		C	single
announcementNumber	gives the announcement number (INTEGER). Which announcement corresponds with an announcement number is a matter of local implementation.		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
modificationPermission	indicates whether a customer is allowed to modify a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.6 Advice of charge: charging information at call set-up time

This supplementary service provides the served user with information about the charging rates at call establishment. In addition, the served user shall be informed if a change in charging rates takes place during the call. The information can be sent for all calls, or on a per call basis. The charge information given shall relate to the charges incurred on the network to which the served user is attached.

This object class is derived from customizedSupplementaryService.

Table 33: Advice of charge: charging information at call set-up time

Name		M/C/O	Value Set
adviceOfChargeActivation		M	single
adviceOfChargeActivation	is a flag indicating whether the service is available for all calls automatically or on a per call basis		

6.1.8.7 Advice of charge: charging information at the end of the call

This supplementary service provides the served user with charging information for a call when the call is terminated. The information can be sent for all calls, or on a per call basis. The charge information given relates to the charges incurred on the network to which the served user is attached.

This object class is derived from customizedSupplementaryService.

Table 34: Advice of charge: charging information at the end of the call

Name		M/C/O	Value Set
adviceOfChargeActivation		M	single
adviceOfChargeActivation	is a flag indicating whether the service is available for all calls automatically or on a per call basis		

6.1.8.8 Advice of charge: charging information during the call

This supplementary service provides the served user with cumulative charging information during the call. The information can be sent for all calls, or on a per call basis. The charge information given relates to the charges incurred on the network to which the served user is attached.

This object class is derived from customizedSupplementaryService.

Table 35: Advice of charge: charging information during the call

Name		M/C/O	Value Set
adviceOfChargeActivation		M	single
adviceOfChargeActivation	is a flag indicating whether the service is available for all calls automatically or on a per call basis		

6.1.8.9 Blocking

This object class gives the reason(s) for which a subscriber or a service is blocked. The accessibility of e.g. emergency numbers during blocking conditions is an implementation matter.

It is derived from customizedSupplementaryService.

Table 36: Blocking

Name		M/C/O	Value Set
adminBlocking		M	single
maintBlocking		M	single
accountSuspension		M	single
catastrophe		M	single
adminBlocking	gives the blocking direction for administrative blocking (none, incoming, outgoing, bothways)		
maintBlocking	gives the blocking status for maintenance blocking		
accountSuspension	gives the blocking direction for blocking (none, incoming, outgoing, bothways) due to non-payment		
catastrophe	indicates the preference category of the access during catastrophe		

6.1.8.10 Call deflection

This service enables the subscriber to respond to an incoming call by requesting redirection of that call to another subscriber.

This object class is derived from customizedSupplementaryService.

Table 37: Call deflection

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.2 (1996)" [48]: deflectingNumberDelivery		M	single
etsiDeflectingNumberNotification		M	single
deflectingNumberDelivery	is a Boolean attribute indicating the subscription option of allowing whether the a serviced user is permitted to release his directory number to the deflected-to terminal (TRUE) or not (FALSE)		
etsiDeflectingNumberNotification	indicates the subscription option of whether a calling user receives notification that his call has been deflected (1) or not (0). In the case the use is to be notified, the deflected to number may be sent to the originator of the call (2)		

6.1.8.11 Call forwarding busy

This supplementary service permits a served user to have the network send all incoming calls, which meet busy and are addressed to the served user's number, to another number. The served user's originating service is unaffected.

This object class is derived from customizedSupplementaryService.

Table 38: Call forwarding busy

Name		M/C/O	Value Set
etsiE164DirectoryNumber		M	single
callForwardActiveNotification		M	single
callForwardCallingNotification		M	single
callForwardReleaseNotification		M	single
callForwardServedNotification		M	single
customerControlPermission		C	single
modificationPermission		C	single
serviceActivated		C	single
etsiE164DirectoryNumber	represents the ISDN number according to the ISDN numbering plan defined in CCITT Recommendation E.164 [43]. It is composed of two fields: country code (optional); national significant number. The national significant number is itself composed of two fields: national destination code (optional); customer number.		
callForwardActiveNotification	is a flag indicating whether the served user is to be notified that call forwarding is active		
callForwardCallingNotification	is a flag indicating whether the calling user is to be notified that his call has been forwarded		
callForwardReleaseNotification	is a flag indicating whether served user releases number information to forwarded-to user		
callForwardServedNotification	is a flag indicating whether served user receives notification that a call has been forwarded		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
modificationPermission	indicates whether a customer is allowed to modify a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.12 Call forwarding unconditional

This supplementary service permits a served user to have the network send all incoming calls addressed to the served user's number, to another number. The served user's originating service is unaffected. If this service is activated, calls are forwarded no matter what the condition of the termination.

This object class is derived from customizedSupplementaryService.

Table 39: Call forwarding unconditional

Name		M/C/O	Value Set
etsiE164DirectoryNumber		M	single
callForwardActiveNotification		M	single
callForwardCallingNotification		M	single
callForwardReleaseNotification		M	single
callForwardServedNotification		M	single
customerControlPermission		C	single
modificationPermission		C	single
serviceActivated		C	single
etsiE164DirectoryNumber	represents the ISDN number according to the ISDN numbering plan defined in CCITT Recommendation E.164 [43]. It is composed of two fields: country code (optional); national significant number. The national significant number is itself composed of two fields: national destination code (optional); customer number.		
callForwardActiveNotification	is a flag indicating whether the served user is to be notified that call forwarding is active		
callForwardCallingNotification	is a flag indicating whether the calling user is to be notified that his call has been forwarded		
callForwardReleaseNotification	is a flag indicating whether served user releases number information to forwarded-to user		
callForwardServedNotification	is a flag indicating whether served user receives notification that a call has been forwarded		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
modificationPermission	indicates whether a customer is allowed to modify a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.13 Call forwarding no reply

This supplementary service permits a served user to have the network send all incoming calls, which meet no reply and are addressed to the served user's number, to another number. The served user's originating service is unaffected.

This object class is derived from customizedSupplementaryService.

Table 40: Call forwarding no reply

Name		M/C/O	Value Set
etsiE164DirectoryNumber		M	single
callForwardActiveNotification		M	single
callForwardCallingNotification		M	single
callForwardReleaseNotification		M	single
callForwardServedNotification		M	single
customerControlPermission		C	single
modificationPermission		C	single
serviceActivated		C	single
etsiE164DirectoryNumber	represents the ISDN number according to the ISDN numbering plan defined in CCITT Recommendation E.164 [43]. It is composed of two fields: country code (optional); national significant number. The national significant number is itself composed of two fields: national destination code (optional); customer number.		
callForwardActiveNotification	is a flag indicating whether the served user is to be notified that call forwarding is active		
callForwardCallingNotification	is a flag indicating whether the calling user is to be notified that his call has been forwarded		
callForwardReleaseNotification	is a flag indicating whether served user releases number information to forwarded-to user		
callForwardServedNotification	is a flag indicating whether served user receives notification that a call has been forwarded		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
modificationPermission	indicates whether a customer is allowed to modify a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.14 Call hold

This supplementary service allows a user to interrupt communications on an existing call and then subsequently, if desired, re-establish communications.

No specific attributes were identified.

This object class is derived from customizedSupplementaryService.

6.1.8.15 Call waiting

This supplementary service permits a user to be informed of an incoming call with an indication when all access to the user is busy. The user then has the choice of accepting, rejecting, or ignoring the waiting call.

This object class is derived from customizedSupplementaryService.

Table 41: Call waiting

Name		M/C/O	Value Set
callWaitingCallingNotification		M	single
maxNumberOfWaitingCalls		M	single
customerControlPermission		C	single
serviceActivated		C	single
callWaitingCallingNotification	is a flag indicating whether the calling user is to be notified that his call is waiting.		
maxNumberOfWaitingCalls	gives the maximum number of calls that can be waiting.		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.16 Calling line identification presentation

This supplementary service provides the called party with the possibility of receiving identification of the calling party. In addition to the ISDN number, the calling line identity may include a subaddress generated by the calling user and transparently transported by the network. The network will deliver the calling line identity to the called party during call establishment, regardless of the terminal capability to handle the information.

No specific attributes were identified.

This object class is derived from customizedSupplementaryService.

6.1.8.17 Calling line identification restriction

This supplementary service provides the calling party with the possibility to prevent presentation of the calling party's ISDN number, and subaddress information (if any) to the called party. If the called party subscribes to the calling line identification presentation supplementary service then the called party receives an indication that the calling party information is not available due to restriction.

This object class is derived from customizedSupplementaryService.

Table 42: Calling line identification restriction

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.2 (1996)" [48]: callIdRestrictionOptions		M	single
callIdRestrictionOptions	gives the options for the calling line identification restriction.		

6.1.8.18 Closed user group subscription option

The CUG subscription options object shall only be instantiated if either attribute preferredCUGIndex is assigned a non-NULL value or attribute interCUGAccess is not empty. M_SET operations, which would result in preferredCUGIndex value NULL and interCUGAccess value empty set, shall be rejected. The value of attribute preferredCUGIndex should not be NULL when interCUGAccess value is 'none' or 'incomingAccess'.

This object class is derived from customizedSupplementaryService.

Table 43: Closed user group subscription option

Name		M/C/O	Value Set
preferredCUGIndex		M	single
interCUGAccess		M	single
preferredCUGIndex	is used to identify the required CUG in the absence of a CUG index being included in the outgoing call request.		
interCUGAccess	indicates the inter-CUG access of per service subscription option in ETS 300 136 [25]. The values are none, outgoingAccess, incomingAccess and outgoingAndIncomingAccess.		

6.1.8.19 Completion of call on no reply

This supplementary service permits a user A, encountering a destination B, which does not answer the call (no reply), to be notified when the destination B becomes free after having terminated an activity, and to have the network reinitiate the call to the specified destination B if user A desires.

This object class is derived from customizedSupplementaryService.

Table 44: Completion of call on no reply

Name		M/C/O	Value Set
callCompletionNoReplyRecallMode		C	single
callCompletionNoReply-RecallMode	is a flag indicating whether a completion of calls on no replying customer recall is offered to the termination which activated the service or to all compatible terminations.		

6.1.8.20 Completion of calls to busy subscriber

This supplementary service enables a calling user, encountering a busy destination, to have the call completed when the busy destination becomes not busy, without having to make a new call attempt.

This object class is derived from customizedSupplementaryService.

Table 45: Completion of calls to busy subscriber

Name		M/C/O	Value Set
callCompletionBusyRecallMode		C	single
callCompletionBusyRecallMode	is a flag indicating whether a completion of calls to busy subscribers recall is offered to the termination which activated the service or to all compatible terminations.		

6.1.8.21 Conference call add-on

The Conference call add-on object class is used to indicate that the customer is authorized to use the conference call add-on supplementary service.

This object class is derived from customizedSupplementaryService.

No specific attributes were identified.

6.1.8.22 Connected line identification presentation

The colpSupplService object class represents a supplementary service offered for the calling party, which indicates the called party at the calling party. The COLP supplementary service is service dependent.

No specific attributes were identified.

This object class is derived from customizedSupplementaryService.

6.1.8.23 Connected line identification restriction

The COLR supplementary service enables the connected party to prevent presentation of its directory number to the calling party. The COLR supplementary service is applicable to all telecommunication services.

This object class is derived from customizedSupplementaryService.

Table 46: Connected line identification restriction

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.2 (1996)" [48]: callIdRestrictionOptions		M	single
callIdRestrictionOptions	gives the options for the calling line identification restriction. TRUE: presentation restricted FALSE: presentation not restricted		

6.1.8.24 Explicit call transfer

The explicit call transfer managed object class is used to indicate that the customer is authorized to use the explicit call transfer supplementary service.

This object class is derived from customizedSupplementaryService.

No specific attributes were identified.

6.1.8.25 Fixed destination call

This object class is used to administer the fixed destination call (hot line) service both with or without the possibility of administration via customer controlled input.

For administration controlled service operation, the instantiation of the object is initiated by the OS. The values of the attributes variant and fixedDestinationNumber shall be set at creation, but may afterwards be modified by the OS.

In the case of service operation by the customer on service provision basis, the instantiation of the object is as well initiated by the OS to indicate that the customer has the authorization to use the service. The value of the variant attribute shall be set at creation by the OS according to the service subscription. The value of the fixedDestinationNumber attribute shall be set to NULL. The value of this attribute shall be modified by the resource management of the exchange on the customer input of the service control operation.

If the service is available generally for all subscribers without previous arrangement with the network operator, the resource shall create an object instance according to the customer input of the service control operation (i.e. registration and/or activation). The values of the variant and fixedDestinationNumber attributes shall be set by the resource management of the exchange according to the access code and destination number used in the customer input of the service control operation.

It is left to individual implementations whether the service assignment by the OS or the customer's activation in the case of a generally available service has priority.

This object class is derived from customizedSupplementaryService.

Table 47: Fixed destination call

Name		M/C/O	Value Set
variant		M	single
fixedDestinationNumber		M	single
customerControlPermission		C	single
modificationPermission		C	single
serviceActivated		C	single
variant	identifies whether the call is forwarded to the fixed destination immediately (TRUE) or after time out (FALSE).		
fixedDestinationNumber	gives the directory number to which the call shall be forwarded. Its value NULL means that calls are not to be forwarded to a fixed destination unless the OS or the customer by remote control changes its value to a directory number.		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
modificationPermission	indicates whether a customer is allowed to modify a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.26 Incoming call barring

With this object class, incoming call barring is assigned. It may activate as well a do-not-disturb announcement.

This object class is derived from customizedSupplementaryService.

Table 48: Incoming call barring

Name		M/C/O	Value Set
doNotDisturb		M	single
customerControlPermission		C	single
serviceActivated		C	single
doNotDisturb	indicates whether the do-not-disturb announcement is activated (TRUE) or not (FALSE).		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.27 Interception of calls

This object class allows an interception of calls on a per-service basis.

It is derived from customizedSupplementaryService.

Table 49: Interception of calls

Name		M/C/O	Value Set
interceptionReason		M	single
"ITU-T Recommendation Q.824.0 (1996)" [46]: interceptTreatmentTerm		M	single
interceptionReason	gives the reason for the interception		
interceptTreatmentTerm	specifies the treatment (e.g. announcement) to be provided.		

6.1.8.28 Malicious call identification

This supplementary service allows a subscriber to start up the tracing of the malicious call originator.

Since due to legal and network operator's requirements the format of the malicious call identification notification may vary from country to country, this notification shall be defined with an implementation specific subclass.

This object class is derived from customizedSupplementaryService.

Table 50: Malicious call identification

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.2 (1996)" [48]: automaticInvocation		O	single
automaticInvocation	controls the activation of Malicious Call Identification so that calls that are not answered will be traced automatically.		

6.1.8.29 Outgoing call barring

With this object class, outgoing call barring with fixed and/or user controlled program is assigned. The barring program may cover as well subscriber controlled input restrictions.

This object class is derived from customizedSupplementaryService.

Table 51: Outgoing call barring

Name		M/C/O	Value Set
fixedPrograms		M	set
userControlledPrograms		M	set
customerControlPermission		C	single
serviceActivated		C	single
fixedPrograms	gives the assigned fixed barring programs.		
userControlledPrograms	gives the barring programs assigned by user control.		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.30 Subaddressing

The subaddressing object class is used to indicate that the called customer is authorized to use the subaddressing supplementary service.

This object class is derived from customizedSupplementaryService.

No specific attributes were identified.

6.1.8.31 Terminal portability

This supplementary service allows a user engaged in an active call to adjourn communication by an appropriate signalling procedure and resume the call at a later time.

No specific attributes were identified.

This object class is derived from customizedSupplementaryService.

6.1.8.32 Three party

This supplementary service enables a user to establish a three-way conversation, i.e. a simultaneous communication between the user and two other parties.

No specific attributes were identified.

This object class is derived from customizedSupplementaryService.

6.1.8.33 User to user signalling

This supplementary service permits a user to send / receive a limited amount of information to/from another user over the signalling channel in association with a call to the other user.

This object class is derived from customizedSupplementaryService.

Table 52: User to user signalling

Name		M/C/O	Value Set
uusService1Implicit		M	single
uusService1Explicit		M	single
uusService2		M	single
uusService3		M	single
uusService1Implicit	indicates whether the service is available (TRUE) or not (FALSE) during origination and termination of calls by means of an implicit request.		
uusService1Explicit	indicates whether the service is available (TRUE) or not (FALSE) during origination and termination of calls by means of an implicit request.		
uusService2	is a flag indicating whether the service is available (TRUE) or not (FALSE) after the calling user has received an indication that the called user is being informed of the call and prior to the establishment of the connection.		
uusService3	is a flag indicating whether the service is available (TRUE) or not (FALSE) only during the connection is established.		

6.1.8.34 Voice messaging busy

The voice messaging busy supplementary service allows the customer to activate a centralized voice messaging system to collect voice messages for calls which meet busy.

This object class is derived from customizedSupplementaryService.

Table 53: Voice messaging busy

Name		M/C/O	Value Set
voiceMessagingNumber		C	single
mwiReceiverPointer		C	single
customerControlPermission		C	single
serviceActivated		C	single
voiceMessagingNumber	gives the routeing information (directory number) to the voice messaging box in the voice messaging system.		
mwiReceiverPointer	gives the associated mwiReceiver instance.		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.35 Voice messaging no reply

The voice messaging no reply supplementary service allows the customer to activate a centralized voice messaging system to collect voice messages for calls which meet no reply.

This object class is derived from customizedSupplementaryService.

Table 54: Voice messaging no reply

Name		M/C/O	Value Set
voiceMessagingNumber		C	single
mwiReceiverPointer		C	single
customerControlPermission		C	single
serviceActivated		C	single
voiceMessagingNumber	gives the routeing information (directory number) to the voice messaging box in the voice messaging system.		
mwiReceiverPointer	gives the associated mwiReceiver instance.		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.8.36 Voice messaging unconditional

The voice messaging unconditional supplementary service allows the customer to activate a centralized voice messaging system to collect voice messages for all calls no matter what the condition of the termination is.

This object class is derived from customizedSupplementaryService.

Table 55: Voice messaging unconditional

Name		M/C/O	Value Set
voiceMessagingNumber		C	single
mwiReceiverPointer		C	single
customerControlPermission		C	single
serviceActivated		C	single
voiceMessagingNumber	gives the routeing information (directory number) to the voice messaging box in the voice messaging system.		
mwiReceiverPointer	gives the associated mwiReceiver instance.		
customerControlPermission	indicates whether a customer is allowed to activate / deactivate a service allowing for customer control		
serviceActivated	indicates whether the service is activated (TRUE) or not (FALSE)		

6.1.9 Service independent supplementary service fragment

A supplementary service is considered being service independent, if it is applicable to multiple services in a uniform manner according to the underlying service definitions.

If in future additional requirements arise, the need might occur to redefine a supplementary service given hereafter as service dependent.

It is to be regarded that services defined hereafter may apply both to ISDN and PSTN.

6.1.9.1 Supplementary service - service independent

This object class is defined in ITU-T Recommendation Q.824.0 [46].

It represents the supplementary services providing additional capabilities to be used independent from a basic telecommunication service.

The references of its subclasses to the service describing standards are given in annex A.

This object class is not instantiated.

6.1.9.2 ETSI supplementary service - service independent

This object class is derived from "ITU-T Recommendation Q.824.0 (1996)" [46]: supplementaryServiceServiceIndependent.

It represents the supplementary services providing additional capabilities to be used with a basic telecommunication service. It may represent:

- an ISDN supplementary service as defined in ETSI;
- a CEPT supplementary service as defined in the CEPT Handbook on services and facilities [57];
- a non-standard supplementary service, i.e. operator-specific service.

The references of its subclasses to the service describing standards are given in annex A.

This object class is not instantiated.

Table 56: ETSI supplementary service - service independent

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.0 (1996)" [46]: customizedResourcePtrList		M	set
customizedResourcePtrList	is a set-valued attribute whose value(s) points to the associated customizedResource object instances		

6.1.9.3 Abbreviated dialling

This managed object class is used to indicate that the customer is authorized to use the abbreviated dialling supplementary service.

This object class shall be instantiated either with the ownedListPkg or the sharedListPkg. This choice is exclusive.

It is a subclass of etsiSupplementaryServiceServiceIndependent.

Table 57: Abbreviated dialling

Name		M/C/O	Value Set
ownedList		C	set
listShared		C	single
maxNumberOfEntries		C	single
sharedList		C	set
ownedList	it gives an owned list.		
listShared	indicates whether the owned list is shared (TRUE) or not (FALSE).		
maxNumberOfEntries	gives the maximum number of entries for abbreviated dialling		
sharedList	is a pointer to one or more object instances of abbreviatedDialling representing a shared list.		

6.1.9.4 Alarm call

The alarm call supplementary service provides the possibility for a user to cause an alarm call or calls to be made to his line at the time or times specified in advance to him, and to hear an appropriate announcement when the call is answered.

An instance of this object class shall be automatically deleted if all related alarm calls are performed and if it is contained in a customer configuration.

Its failedAlarmCall notification indicates directory number, date, time and reason of unsuccessful alarm calls (e.g. due to absent subscriber, busy line, etc.).

More than one instance of alarmCall may exist for a specific customer profile.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

Table 58: Alarm call

Name		M/C/O	Value Set
timeOfDay		M	single
kindOfAlarmCall		M	single
alarmCallType		M	single
timeOfDay	gives the time of day (hours and minutes) for the execution of the alarm call.		
kindOfAlarmCall	gives the kind of alarm call (manual, automatic, semi automatic).		
alarmCallType	gives the type of alarm call (casual, regular consecutive days, regular specified days) and the related program if the type is not casual.		

6.1.9.5 Closed user group

The managed object class is used to store the closed user group general subscription options.

The attribute cUGIndex shall be explicitly assigned upon object creation.

No two instances of object class etsiCUG contained within a single object shall have identical values for attribute cUGIndex.

No two instances of object class etsiCUG contained within a single object shall have identical values of attribute cUGInterlockCode and cUGDataNetworkIdentification.

When the value of attribute cUGBarring is outBarred, this CUG shall not be a preferential closed user group (denoted by attribute preferredCUGIndex in cUGSubscriptionOption managed object).

It is a subclass of etsiSupplementaryServiceServiceIndependent.

Table 59: Closed user group

Name		M/C/O	Value Set
cUGIndex		M	set
cUGInterlockCode		M	set
cUGDataNetworkIdentification		M	set
cUGBarring		M	set
cUGIndex	gives the index of the closed user group. It is used by the calling user to select a particular CUG when originating a call		
cUGInterlockCode	gives the interlock code of the closed user group. The attribute is a means of identifying a CUG membership within the network.		
cUGDataNetworkIdentification	is the information signalled during set-up of a CUG call and serves (in conjunction with the cUGInterlockCode) to uniquely identify the CUG in the international network. It can be thought of as the area code of the CUG.		
cUGBarring	maintains the intra-CUG restriction of the general subscription option in ETS 300 136 [25]. It may have one of the following values: none, incomingCallsBarred or outgoingCallsBarred.		

6.1.9.6 Cordless terminal mobility

The cordless terminal mobility service allows users of cordless terminals to be mobile within and between networks. Where radio coverage is provided and the cordless terminal has appropriate access rights the user is able to make calls from, and to receive calls at, any location within the fixed public and/or private networks, and may move without interruption of a call in progress.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

Table 60: Cordless terminal mobility

Name		M/C/O	Value Set
ctmId		M	single
permittedMobileArea		M	single
ctmId	provides the relevant data for the search of DECT terminals being part of a CTM configuration.		
permittedMobileArea	gives the area of the network in which the DECT terminal can make and receive calls.		

6.1.9.7 Customer observation

The customer observation service activates the recording of call details e.g. for verification of the increments to the metering counter of the customer, supervision purposes, quality of service verification, etc.

The format of the customer observation records is an implementation matter, since e.g. due to legal requirements it may vary from network operator to network operator.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

Table 61: Customer observation

Name		M/C/O	Value Set
observationMode		O	single
observationMode	distinguishes between e.g. charging observation, expensive call monitoring, and quality of service verification, or between observation of incoming calls and/or outgoing calls, etc. Which observation mode corresponds with the value of this attribute number is a matter of local implementation.		

6.1.9.8 Detailed billing

The service of detailed billing gives the customer the possibility of being billed with a complete detail of the originated traffic. The completeness of the data presented on the bill depends on the detail class subscribed by the customer or available in the network and/or exchange.

It is a subclass of etsiSupplementaryServiceServiceIndependent.

Table 62: Detailed billing

Name		M/C/O	Value Set
detailClass		M	single
detailClass	defines the detail class for the detailed billing service. This detail can be limited e.g. to international calls, national long distance calls, special service calls, successful calls.		

6.1.9.9 Different ringing

The differentRinging managed object class is used to allocate different directory numbers to a single analogue access. For calls to such an access, different ringing signals (e.g. different sequences) are to be sent to the customer installation, according to the directory number dialled by the calling party.

It is to be considered that the assigned port must be capable to provide the different ringing. This object class shall only be assigned to non-ISDN customer configurations.

It is a subclass of etsiSupplementaryServiceServiceIndependent.

Table 63: Different ringing

Name		M/C/O	Value Set
primaryDN		M	single
ringingSequence		M	single
primaryDN	defines whether the line is a primary (TRUE) or secondary (FALSE) line of the customer.		
ringingSequence	defines the characteristics of the ringing signal to be sent.		

6.1.9.10 Direct dialling in

The direct dialling in supplementary service enables a user to call directly via a public ISDN a user on a private ISDN by use of the public ISDN numbering plan.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

Table 64: Direct dialling in

Name		M/C/O	Value Set
"ITU-T Recommendation Q.824.2 (1996)" [48]: numOfDigitsNotToTransmit		C	single
numOfDigitsNotToTransmit	gives the number of digits not to be transmitted to a PABX.		

6.1.9.11 General facility reset

The general facility reset object class is used to indicate that the customer is authorized to use the general facility reset supplementary service.

The general facility reset supplementary service allows a customer to deactivate with one subscriber controlled input command (SCI) a number of supplementary services.

The supplementary services to be deactivated as a result of the SCI can be network operator dependent.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

No specific attributes were identified.

6.1.9.12 Home meter

The homeMeter managed object class is used to assign to a customer configuration the transmission of metering pulses to the customer premises.

This object class shall only be assigned to non-ISDN customer configurations. It is to be considered that the assigned port must be capable to provide the installation in the customer's premises with the metering pulses.

No specific attributes were identified.

It is a subclass of etsiSupplementaryServiceServiceIndependent.

6.1.9.13 Message waiting indication controller

This service permits a user to activate and deactivate the message waiting indication of a user which supports the voice messaging supplementary service. The user of this object class is likely to be a voice mail box.

No specific attributes were identified.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

6.1.9.14 Message waiting indication receiver

This service permits a user to receive changes to the condition of a message waiting indicator. The user of this object class is likely to be subscribed to a voice messaging service which forwards calls to a voice mail box.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

Table 65: Message waiting indication receiver

Name		M/C/O	Value Set
mwiInvocationMode		M	single
messageWaitingIndicator		M	single
mwiControllingUser		C	single
mwiInvocationMode	Indicates when the service is to be invocated either when the receiving user makes an outgoing call or on activation of the service (by the controlling user).		
messageWaitingIndicator	Indicates if one or more messages are waiting for the receiving user.		
mwiControllingUser	Gives the controlling user number.		

6.1.9.15 Multiple subscriber number

The MSN supplementary service provides the possibility for assigning multiple directory numbers (not necessarily consecutive) to a customer configuration. This enables the selection of one or more multiple distinct terminals attached to the same interface.

The service provider shall fix the length of the numbers to be transmitted to the user's installation. They may comprise from the least significant digit up to the full ISDN number (see CCITT Recommendation E.164 [43]). The digit(s) significant for terminal differentiation shall be an integral part of the ISDN numbering scheme.

NOTE 1: Within a private ISDN, multiple subscriber number digits may be different from the digits of the public ISDN number. This additional possibility, if provided, has no impact on the public ISDN.

NOTE 2: More than one multiple subscriber number may be assigned to one terminal.

NOTE 3: The actual method of relating the ISDN number to a particular terminal is a matter of national implementation.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

Table 66: Multiple subscriber number

Name		M/C/O	Value Set
assocDefaultDN		M	single
assocDefaultDN	gives the default directory number for an MSN configuration.		

6.1.9.16 Personal Identification Number

The pin managed object class is used to assign a PIN to one or more supplementary services to prevent from their unauthorized use.

The initial value and the default value of the pin attribute is determined by the network element resource on its own.

The PIN given in the pin attribute is valid for all PIN controlled customized services assigned to a customer configuration identified by the PIN profile reference.

It is a subclass of etsiSupplementaryServiceServiceIndependent.

Table 67: Personal Identification Number

Name		M/C/O	Value Set
pin		M	single
pinProfileRef		M	single
pin	contains the PIN. The initial value and the default value of this attribute is determined by the network element resource on its own.		
pinProfileRef	identifies the PIN controlled customized services assigned to a customer configuration for which the PIN given in the pin attribute is valid. It is a choice between an INTEGER representing pre-defined profiles on exchange level and a SET OF ObjectClass representing supplementary service object classes.		

6.1.9.17 Preselected carrier supplementary service

This object class is used for assignment of a preselected carrier to a customer configuration.

It is derived from etsiSupplementaryServiceServiceIndependent.

Table 68: Preselected carrier supplementary service

Name		M/C/O	Value Set
preselectedCarrier		M	set
modificationPermission		C	single
preselectedCarrier	gives the preselected carrier. A carrierType value shall only appear once in this attribute.		
modificationPermission	indicates whether a customer is allowed to modify a service allowing for customer control		

6.1.9.18 Priority

This supplementary service is used to assign priority to some or all access ports of the related customer profile e.g. to override traffic controls assigned to non-priority traffic.

No specific attributes were identified.

6.1.9.19 Remote control of supplementary service

This supplementary service enables a user to control a supplementary service or a number of supplementary services associated with that user's configuration from another access using the procedures provided for the (supplementary) service(s) to be controlled at the served user's access. Remote control service can be invoked independently of the state of the served user's access, and existing calls at the served user's access shall not be affected by the invocation of the remote control service.

It is a subclass of etsiSupplementaryServiceServiceIndependent.

Table 69: Remote control of supplementary service

Name		M/C/O	Value Set
remotelyControlledService		C	single
callDiversionRestrictions		C	single
remotelyControlledService	indicates which supplementary services the served user has subscribed for remote control.		
callDiversionRestrictions	indicates whether the forwarded-to number specified at remote activation shall have some restrictions (choice within a specified geographical area or belonging to a list of predetermined forwarded-to numbers) or not.		

6.1.9.20 Semi permanent connection

This information model only covers the aspect of relationship of a customer configuration to a semi permanent connection. The semi permanent connection as such might e.g. be modelled by using the M3100:crossConnection object class or a subclass of it. If the semi permanent connection as such is managed by this means, the semipermanentLine attribute of etsiAccessPortAnalogue / virtualAnalogueAccessR1 should not be used. Instead, the information whether a customer configuration is involved in a semi permanent line can be retrieved by reading the crossConnection object pointer attribute.

6.1.9.21 Terminating calls not charged

The supplementary service terminating calls not charged is a service associated with the called party.

Calls to a directory number with this service will not be charged.

To prevent the charging in the originating exchange in case of an incoming terminating call, the terminating exchange will, if the signalling system supports it, send a backward signal "no charge" and provide for the answer signal or, in case the signalling system does not support the sending of information that the call is not to be charged, withhold the answer signal.

No specific attributes were identified.

This object class is derived from etsiSupplementaryServiceServiceIndependent.

6.1.10 General services

The object classes given hereafter are placeholders for methods of general service provision to all customer configurations accessed to an exchange. With the catalogued service object classes, superclasses are provided for teleservice and supplementary service facilities to be configured on exchange base. Appropriate subclasses may be derived from them. The service container object classes are superior object classes for e.g. supplementary services defined in the present document, which may be subject to be provided on a general base to all customer configurations.

6.1.10.1 Catalogued supplementary service

This object class is defined in ITU-T Recommendation Q.824.0 [46].

The catalogued supplementary service managed object class is a superclass for other service subclasses that have attributes that are not customizable by the customer. The subclasses will be defined once candidates for the non-customizable attributes have been identified.

This object class is not instantiated.

6.1.10.2 Catalogued teleservice

This object class is defined in ITU-T Recommendation Q.824.0 [46].

The catalogued teleservice managed object class defines a communication service that makes available layer 4 - layer 7 capabilities. and has attributes that are not customizable by the customer. This object class is a superclass from which specific catalogued teleservice objects may be derived as subclasses.

This object class is not instantiated.

6.1.10.3 General ISDN service container

The General ISDN service container is the superior object class for supplementary services available to all ISDN customer configurations.

It is to be considered that a service configuration within a customer configuration overrides this general service configuration.

This object class shall only be used for the general provision of services for which the resource (i.e. the exchange) is capable to provide them generally on exchange level.

Table 70: General ISDN service container

Name		M/C/O	Value Set
serviceContainerId		M	single
generalServiceList		O	single
serviceContainerId	gives the RDN		
generalServiceList	lists the services having no configurable attributes which are available generally for the respective customer configurations.		

6.1.10.4 General PSTN service container

The General PSTN service container is the superior object class for supplementary services available to all PSTN customer configurations.

It is to be considered that a service configuration within a customer configuration overrides this general service configuration.

This object class shall only be used for the general provision of services for which the resource (i.e. the exchange) is capable to provide them generally on exchange level.

Table 71: General PSTN service container

Name		M/C/O	Value Set
serviceContainerId		M	single
generalServiceList		O	single
serviceContainerId	gives the RDN		
generalServiceList	lists the services having no configurable attributes which are available generally for the respective customer configurations.		

6.1.10.5 Non ISDN service

The non ISDN service object class is defined to allow the creation of specific supplementary services for analogue customer profiles.

Table 72: Non ISDN service

Name		M/C/O	Value Set
nonIsdnServiceId		M	single
"CCITT Recommendation X.721 [53]: 1992": administrativeState		M	single
"ITU-T Recommendation Q.824.0 (1996)" [46]: customizedResourcePtrList		M	set
nonIsdnServiceId	gives the RDN.		
administrativeState	is defined in CCITT Recommendation X.721 [53]. It indicates the current administrative state of the non ISDN service.		
customizedResourcePtrList	is a set-valued attribute whose value(s) points to the associated customizedResource object instances		

6.1.11 Service provision fragment

6.1.11.1 Service manager

The serviceManager is a support object that is needed complete the exchange provisioning without a detailed knowledge of the provisioning model. The serviceManager is a superclass object that can be subclassed to support specific actions for specific functions or technologies. The serviceManager is used in conjunction with servicePackage object instances to perform these actions. The servicePackage contains instances of managed objects with initial values that are used in creating all or part of a customer's service. If resource managed object classes are included in a servicePackage, then their attributes (e.g., etsiE164DirectoryNumber attribute of the etsiDirectoryNumberE164 object or the officeEquipment attribute of the accessPort object) must have dummy values. The actual values are taken from the ACTION parameters. Knowledge of the serviceManager or service packages used to create the customer service is not retained. Different service packages may be defined by service providers to meet specific business requirements.

Service packages that can be defined for a particular serviceManager must only use those parameters that are defined in the Action of that serviceManager. If additional input parameters are required, a new subclass of serviceManager has to be created.

These service packages are defined using the same object classes as in the model providing service definitions.

The serviceManager object class is defined in ITU-T Recommendation Q.824.0 [46].

6.1.11.2 Configuration service manager

The configurationServiceManager object class is derived from ITU-T Recommendation Q.824.0 [46]: serviceManager.

The configurationServiceManager performs actions which establish customer configurations and services. In addition, the configurationServiceManager performs actions which change directory number and access port assignments.

No specific attributes were identified.

6.1.11.3 Service package

This object class is used to group instances of different object classes that are used to provide initial values for attributes of service objects created by the serviceManager object class.

The servicePackage object class is defined in ITU-T Recommendation Q.824.0 [46].

6.1.11.4 Reference service configuration

The referenceServiceConfiguration object class is derived from ITU-T Recommendation Q.824.0 [46]: servicePackage.

An instance of this object class contains reference profiles for service assignments which are referenced in ACTIONS on an instance of configurationServiceManager. If the override attribute is not empty set, an addServiceToConfiguration action shall replace an instance of a service defining object class indicated in this attribute if this object class is part of the contained profile. Else, an existing instance of a service defining object class shall not be replaced. In both cases, no error information shall be indicated.

Table 73: Reference service configuration

Name		M/C/O	Value Set
override		O	set
override	identifies whether an instance of a service defining object class indicated in this attribute shall be replaced by an addServiceToConfiguration action if this object class is part of the contained profile. The instantiation of conditional packages is considered in this attribute as an option.		

6.2 Attributes description

This subclause provides the description of all generic attributes used within the customer administration model. It is to be regarded that they are either inherited from superclasses, or attributes defined in the present document are derived from them.

6.2.1 Relative distinguished name

The semantics of the RDN attribute type are specified in CCITT Recommendation X.720 [52]. This attribute type is used to identify an instance of a managed object uniquely within the scope of its immediate superior in the management information tree.

6.2.2 Relationship attributes

Relationship attributes of managed objects for customer administration conform to the generic relationship model as defined by CCITT Recommendation X.732 [57]. In general the group relationship is utilized.

6.2.3 State attributes

State related attributes of managed objects in this information model comprise the generic state model as defined by CCITT Recommendation X.731 [56].

6.2.4 Counter

The counter attribute is defined in CCITT Recommendation X.721 [53].

6.3 Actions description

The following actions are defined within the present document:

Table 74: Actions description

Action	Purpose
addServiceToConfiguration	This action is used to add service instances to a customer configuration.
changeAccessPort	This action is used to change the accessPort for a given customer profile.
changeDirectoryNumber	This action is used to change the etsiE164DirectoryNumber for a given customer profile.
establishCustomerConfiguration	This action is used to create all instances relevant for a single line access.

6.4 Notifications description

The following generic notifications will be utilized by the customer administration:

- object creation according to CCITT Recommendations X.721 [53] and X.730 [55];
- object deletion according to CCITT Recommendations X.721 [53] and X.730 [55];
- attribute value change according to CCITT Recommendations X.721 [53] and X.730 [55];
- state change according to CCITT Recommendations X.721 [53] and X.731 [56];
- relationship change according to CCITT Recommendations X.721 [53] and X.732 [57].

It is to be considered that in most cases these notifications applying to the object classes defined in the present document are inherited from their superclasses defined in the ITU-T Q.824 Recommendation series.

The following specific notification will be utilized by the customer administration:

- failedAlarmCall.

The failedAlarmCall notification indicates directory number, date, time and reason of unsuccessful alarm calls (e.g. due to absent subscriber, busy line, etc.).

7 Formal object class definitions

7.1 Definition of object classes

7.1.1 Managed element

The managedElement object class is defined in CCITT Recommendation M.3100 [45].

7.1.2 Access port fragment

7.1.2.1 Access port

The accessPort object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.2.2 ETSI access port

```
etsiAccessPort MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)": accessPort;
    CHARACTERIZED BY
    etsiAccessPortPkg PACKAGE
        BEHAVIOUR
        etsiAccessPortBhv BEHAVIOUR
        DEFINED AS "It represents the resource concept and is used to identify the resource
        capabilities supporting a customer services.
        Both etsiDirectoryNumberE164 and etsiAccessPort have the conditional package
        meteringCounterPkg containing the meteringCounter attribute. This package shall only be
        instantiated with one of these two object classes or their subclasses within one managed
        element.";;;;
    CONDITIONAL PACKAGES
        meteringCounterPkg
        PRESENT IF "an instance supports it and if this package is not instantiated with
        etsiDirectoryNumberE164 or its subclasses within the same managed element",
        localDefinedNumberPkg
        PRESENT IF "an instance supports it";
REGISTERED AS {ocaManagedObjectClass 1};
```

7.1.2.3 ETSI access port analogue

```
etsiAccessPortAnalogue MANAGED OBJECT CLASS
    DERIVED FROM etsiAccessPort;
    CHARACTERIZED BY
    etsiAccessPortAnaloguePkg PACKAGE
        BEHAVIOUR
        etsiAccessPortAnalogueBhv BEHAVIOUR
        DEFINED AS "It is the conventional two-wire loop access to a basic telephone set.
        It represents the resource concept and is used to identify the resource capabilities
        supporting a customer services.
        The Q.824.0:officeEquipment attribute shall be used to identify special types of line cards,
        e.g. such providing a third wire, or ...DSL capability, etc.";;
        ATTRIBUTES
        lineSignalling          DEFAULT VALUE
                                CustomerAdminModuleV2.lineSignallingDefault
                                GET-REPLACE,
        lineCharacteristics     DEFAULT VALUE
                                CustomerAdminModuleV2.lineCharacteristicsDefault
                                GET-REPLACE;;;
    CONDITIONAL PACKAGES
        semipermanentLinePkg
        PRESENT IF "this entity may be related to a semipermanent line and it is required in the
        customer configuration";
REGISTERED AS {ocaManagedObjectClass 2};
```

7.1.2.4 ETSI access port digital

```
etsiAccessPortDigital MANAGED OBJECT CLASS
    DERIVED FROM etsiAccessPort;
    CHARACTERIZED BY
    etsiAccessPortDigitalPkg PACKAGE
        BEHAVIOUR
        etsiAccessPortDigitalBhv BEHAVIOUR
        DEFINED AS "It represents the termination of any non-ISDN digital access. It represents the
        resource concept and is used to identify the resource capabilities supporting a customer
        services.";;;;
REGISTERED AS {ocaManagedObjectClass 3};
```

7.1.2.5 ETSI access port ISDN basic rate

```
etsiAccessPortISDNBasicRate MANAGED OBJECT CLASS
    DERIVED FROM etsiAccessPort;
    CHARACTERIZED BY
    etsiAccessPortISDNBasicRatePkg PACKAGE
        BEHAVIOUR
        etsiAccessPortISDNBasicRateBhv BEHAVIOUR
        DEFINED AS "It represents the resource concept and is used to identify the resource
        capabilities supporting a customer services.
        The etsiAccessPortISDNBasicRate object class supports up to 2 B-channels of 64 kbit/s for
        transfer of information and data and 1 D-channel of 16 kbit/s for signalling and data
        transfer (2 B + D).";;
        ATTRIBUTES
        dChannelLayer1Activation        DEFAULT VALUE
                                        CustomerAdminModuleV2.dChannelActivationDefault
                                        GET-REPLACE,
        dChannelLayer2Activation        DEFAULT VALUE
                                        CustomerAdminModuleV2.dChannelActivationDefault
                                        GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 4};
```

7.1.2.6 ETSI access port ISDN primary rate

```
etsiAccessPortISDNPrimaryRate MANAGED OBJECT CLASS
    DERIVED FROM etsiAccessPort;
    CHARACTERIZED BY
    etsiAccessPortISDNPrimaryRatePkg PACKAGE
        BEHAVIOUR
        etsiAccessPortISDNPrimaryRatePkgBhv BEHAVIOUR
        DEFINED AS "It represents the resource concept and is used to identify the resource
        capabilities supporting a customer services.
        The etsiAccessPortISDNPrimaryRate object class supports up to 30 B-channels of 64 kbit/s for
        transfer of information and data and 1 D-channel of 64 kbit/s for signalling and data
        transfer (30 B + D).";;
        ATTRIBUTES
        dChannelLayer2Activation        DEFAULT VALUE
                                        CustomerAdminModuleV2.dChannelActivationDefault
                                        GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 5};
```

7.1.2.7 Access channel

The accessChannel object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.2.8 ETSI access channel

```
etsiAccessChannel MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":accessChannel;
    CHARACTERIZED BY
    etsiAccessChannelPkg PACKAGE
        BEHAVIOUR
        etsiAccessChannelBhv BEHAVIOUR
        DEFINED AS "It represents an individual ISDN B-channel or D-channel of an ISDN access port
        or an individual channel of a digital access port. It identifies the set of attributes which
        apply in common to all types of ISDN and digital access channels. Instances of this object
        class are contained within ISDN or digital access ports.
        The number of access channels belonging to an access port depends on the access port
        architecture. This object class may be related to a set of customizedResource when services
        shall be provisioned on a per access channel basis.";;
        ATTRIBUTES
        channelType     GET-REPLACE;;;
    CONDITIONAL PACKAGES
        semipermanentLinePkg
        PRESENT IF "this entity may be related to a semipermanent line and it is required in the
        customer configuration";
REGISTERED AS {ocaManagedObjectClass 6};
```

7.1.2.9 Access port profile

The accessPortProfile object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.3 V5 interface fragment

ETS 300 377-1 [59] covers the configuration management of V5 interfaces and associated customer profiles. Since the customer administration related part of it was based on I-ETS 300 291 which is replaced by the present document, hereafter a re-definition of the affected object classes is given. The corresponding labels are extended by "R1".

The "ASN1DefinedTypesModule" references in the INITIAL VALUE definitions within this fragment refer to ETS 300 377-1 [59].

7.1.3.1 Virtual access port

This object class is subclassed for the different types of customer access ports and not instantiated within the scope of this application.

```
virtualAccessPortR1 MANAGED OBJECT CLASS
    DERIVED FROM etsiAccessPort;
    CHARACTERIZED BY
    "CCITT Recommendation M.3100:1992":ttpInstancePackage,
    "ETS 300 377-1 (1995)":commonDeleteBehaviourPackage,
    virtualAccessPortR1Pkg PACKAGE
        BEHAVIOUR
        virtualAccessPortR1Bhv BEHAVIOUR
        DEFINED AS "A virtualAccessPortR1 is an object class representing an image of the customer
        access port which is located in an AN and connected to the LE via V5 interface.
        The upstreamConnectivityPointer and the downstreamConnectivityPointer attributes have NULL
        value.
        The inherited operationalStatePackage is mandatory in this object class.
        The operationalState attribute indicates whether or not the user port is able to provide its
        service to the customer's terminal equipment. It reflects the states of the user port FSM in
        the LE according to annex A of ETS 300 377-1 (1995).
        An access port may have assigned one or more bearer time slots and/or one or more C-paths
        providing transport for different data types (bearer, signalling, f-type, p-type). The
        operationalState attribute shall be set to 'enabled' as long as the port has access to any
        service, and if there are no other contradictory conditions.
        The operationalState attribute shall be set to 'disabled' if an access port has no service
        at all, i.e. the V5 interface itself or the related ISDN Ds or the PSTN C-path has failed.
        The assocV5Interface attribute gives the relation to the V5 interface, that virtual access
        port is assigned to. It is a group relationship attribute according to CCITT Recommendation
        X.732. The V5 interface is the owner object.
        The relationships are maintained by use of the setReciprocalPointers and
        releaseReciprocalPointers actions of the v5Interface object class.
        If the 'CCITT Recommendation M.3100:1992':tmnCommunicationsAlarmInformationPackage is
        instantiated, then the communicationsAlarm notification shall be used to report errors
        related to this object class. The errors to be reported and the usage of the alarm report
        parameters are specified in ETS 300 379-1.";;
        ATTRIBUTES
        "ETS 300 377-1 (1995)":assocV5Interface     INITIAL VALUE
                                                    ASN1DefinedTypesModule.initialPointer
                                                    GET;;;
    CONDITIONAL PACKAGES
        "CCITT Recommendation M.3100:1992":tmnCommunicationsAlarmInformationPackage
        PRESENT IF "an instance supports it",
        "CCITT Recommendation M.3100:1992":alarmSeverityAssignmentPointerPackage
        PRESENT IF "an instance supports it",
        "ETS 300 377-1 (1995)":anFaultReportedPackage
        PRESENT IF "the associated interface is a V5.2 interface and an instance supports it";
REGISTERED AS {ocaManagedObjectClass 7};
```

7.1.3.2 Virtual analogue access

```
virtualAnalogueAccessR1 MANAGED OBJECT CLASS
    DERIVED FROM virtualAccessPortR1;
    CHARACTERIZED BY
    virtualAnalogueAccessR1Pkg PACKAGE
        BEHAVIOUR
        virtualAnalogueAccessR1Bhv BEHAVIOUR
        DEFINED AS "A virtualAnalogueAccessR1 is an information entity used for the association of a
        PSTN customer's layer 3 port address with a V5.1/V5.2 interface.
        If no virtualAccessChannelR1 object instance is contained in the virtualAnalogueAccessR1
        object instance in the case of a V5.1 interface, the assocV5TimeSlot attribute points to the
        associated V5 time slot object instance. Otherwise it has NULL value. It is a peer
        relationship according to CCITT Recommendation X.732. The V5 time slot is provider.";;
        ATTRIBUTES
        "ETS 300 377-1 (1995)":layer3PortAddress    GET-REPLACE,
        "ETS 300 377-1 (1995)":assocV5TimeSlot      INITIAL VALUE
                               ASN1DefinedTypesModule.initialPointer
                               GET,
        lineSignalling          DEFAULT VALUE
                               CustomerAdminModuleV2.lineSignallingDefault
                               GET-REPLACE;;;
    CONDITIONAL PACKAGES
        semipermanentLinePkg
        PRESENT IF "this entity may be related to a semipermanent line and it is required in the
        customer configuration";
REGISTERED AS {ocaManagedObjectClass 8};
```

7.1.3.3 Virtual basic rate access

```
virtualBasicRateAccessR1 MANAGED OBJECT CLASS
    DERIVED FROM virtualAccessPortR1;
    CHARACTERIZED BY
    virtualBasicRateAccessR1Pkg PACKAGE
        BEHAVIOUR
        virtualBasicRateAccessR1Bhv BEHAVIOUR
        DEFINED AS "A virtualBasicRateAccessR1 is an information entity used for the association of
        an envelope function address representing an ISDN basic access with a V5.1/V5.2 interface.
        The assocIsdnSignallingCommPath attribute points to the associated ISDN communication path
        carrying the signalling messages of the assigned ISDN access.
        The assocPacketCommPath attribute points to the associated ISDN communication path carrying
        the D-channel packet mode data of the assigned ISDN access if the customer has subscribed to
        this service. Else, it has NULL value.
        The assocFrameCommPath attribute points to the associated ISDN communication path carrying
        the D-channel frame mode data of the assigned ISDN access if the customer has subscribed to
        this service. Else, it has NULL value.
        They are group relationships according to CCITT Recommendation X.732. The ISDN communication
        path is owner.
        The assocV5TimeSlotB1 and assocV5TimeSlotB2 attributes indicate for both B-channels the
        associated V5 time slot object instances, if no virtualAccessChannelR1 object instance is
        contained in the virtualBasicRateAccessR1 object instance in the case of a V5.1 interface.
        Otherwise it has NULL value. It is a peer relationship according to
        CCITT Recommendation X.732.
        These relationships are maintained by use of the setReciprocalPointer and
        releaseReciprocalPointer actions of the v5Interface object class.";;
        ATTRIBUTES
        dChannelLayer1Activation        DEFAULT VALUE
                                        CustomerAdminModuleV2.dChannelActivationDefault
                                        GET-REPLACE,
        dChannelLayer2Activation        DEFAULT VALUE
                                        CustomerAdminModuleV2.dChannelActivationDefault
                                        GET-REPLACE,
        "ETS 300 377-1 (1995)":envelopeFunctionAddress      GET-REPLACE,
        "ETS 300 377-1 (1995)":assocIsdnSignallingCommPath  INITIAL VALUE
                                        ASN1DefinedTypesModule.initialPointer
                                        GET,
        "ETS 300 377-1 (1995)":assocPacketCommPath          INITIAL VALUE
                                        ASN1DefinedTypesModule.initialPointer
                                        GET,
        "ETS 300 377-1 (1995)":assocFrameCommPath           INITIAL VALUE
                                        ASN1DefinedTypesModule.initialPointer
                                        GET,
        "ETS 300 377-1 (1995)":assocV5TimeSlotB1            INITIAL VALUE
                                        ASN1DefinedTypesModule.initialPointer
                                        GET,
        "ETS 300 377-1 (1995)":assocV5TimeSlotB2            INITIAL VALUE
                                        ASN1DefinedTypesModule.initialPointer
                                        GET;;;
```

```
    CONDITIONAL PACKAGES
        "ETS 300 377-1 (1995)":qualityOfServiceAlarmPackage
        PRESENT IF "there is a remote digital subclause or if performance parameters are to be
        monitored against a pre-defined threshold";
REGISTERED AS {ocaManagedObjectClass 9};
```

7.1.3.4 Virtual leased access

```
virtualLeasedAccessR1 MANAGED OBJECT CLASS
    DERIVED FROM virtualAccessPortR1;
    CHARACTERIZED BY
    virtualLeasedAccessR1Pkg PACKAGE
        BEHAVIOUR
        virtualLeasedAccessR1Bhv BEHAVIOUR
        DEFINED AS "A virtualLeasedAccessR1 is an information entity used for the association of a
        single analogue or digital semipermanent leased line or a multiple digital semipermanent
        leased line configuration with a V5.1/V5.2 interface.
        If it is a single semipermanent leased line, and if no virtualAccessChannelR1 object
        instance is contained in the virtualLeasedAccessR1 object instance, and if it is associated
        with a V5.1 interface, the assocV5TimeSlot attribute points to the associated V5 Time Slot
        object instance. Otherwise it has NULL value. It is a peer relationship according to CCITT
        Recommendation X.732. The relationship shall be maintained by use of the
        setReciprocalPointer and releaseReciprocalPointer actions of the V5 Interface object class.
        A virtualLeasedAccessR1 object instance representing a single semipermanent leased line
        shall contain either no or one virtualAccessChannelR1 object instance. In a multiple
        semipermanent leased line configuration, the virtualLeasedAccessR1 object instance shall
        contain the appropriate number of virtualAccessChannelR1 object instances.
        The v5UserPortAddress attribute gives for a single semipermanent leased line the layer 3
        port address the access is assigned to, otherwise it gives the envelope function address.";;
        ATTRIBUTES
        "ETS 300 377-1 (1995)":v5UserPortAddress    INITIAL VALUE
                                    ASN1DefinedTypesModule.initialPointer
                                    GET-REPLACE,
        "ETS 300 377-1 (1995)":assocV5TimeSlot      INITIAL VALUE
                                    ASN1DefinedTypesModule.initialPointer
                                    GET;;;
REGISTERED AS {ocaManagedObjectClass 10};
```

7.1.3.5 Virtual primary rate access

```
virtualPrimaryRateAccessR1 MANAGED OBJECT CLASS
    DERIVED FROM virtualAccessPortR1;
    CHARACTERIZED BY
    virtualPrimaryRateAccessR1Pkg PACKAGE
        BEHAVIOUR
        virtualPrimaryRateAccessR1Bhv BEHAVIOUR
        DEFINED AS "A virtualPrimaryRateAccessR1 is an information entity used for the association
        of an envelope function address representing an ISDN primary rate access with a V5.2
        interface.
        The assocIsdnSignallingCommPath attribute points to the associated ISDN communication path
        carrying the signalling messages of the assigned ISDN access.
        The assocPacketCommPath attribute points to the associated ISDN communication path carrying
        the D-channel packet mode data of the assigned ISDN access if the customer has subscribed to
        this service. Else, it has NULL value.
        The assocFrameCommPath attribute points to the associated ISDN communication path carrying
        the D-channel frame mode data of the assigned ISDN access if the customer has subscribed to
        this service. Else, it has NULL value.
        They are group relationships according to CCITT Recommendation X.732. The ISDN communication
        path is owner. These relationships are maintained by use of the setReciprocalPointer and
        releaseReciprocalPointer actions of the v5Interface object class.";;
        ATTRIBUTES
        dChannelLayer2Activation        DEFAULT VALUE
                                    CustomerAdminModuleV2.dChannelActivationDefault
                                    GET-REPLACE,
        "ETS 300 377-1 (1995)":envelopeFunctionAddress  GET-REPLACE,
        "ETS 300 377-1 (1995)":assocIsdnSignallingCommPath  INITIAL VALUE
                                    ASN1DefinedTypesModule.initialPointer
                                    GET,
        "ETS 300 377-1 (1995)":assocPacketCommPath      INITIAL VALUE
                                    ASN1DefinedTypesModule.initialPointer
                                    GET,
        "ETS 300 377-1 (1995)":assocFrameCommPath       INITIAL VALUE
                                    ASN1DefinedTypesModule.initialPointer
                                    GET;;;
    CONDITIONAL PACKAGES
        "ETS 300 377-1 (1995)":qualityOfServiceAlarmPackage
        PRESENT IF "there is a remote digital subclause or if performance parameters are to be
        monitored against a pre-defined threshold";
REGISTERED AS {ocaManagedObjectClass 11};
```

7.1.3.6 Virtual access channel

```
virtualAccessChannelR1 MANAGED OBJECT CLASS
    DERIVED FROM etsiAccessChannel;
    CHARACTERIZED BY
    "ETS 300 377-1 (1995)":commonDeleteBhvPackage,
    "CCITT Recommendation M.3100:1992":ctpInstancePackage,
    virtualAccessChannelR1Pkg PACKAGE
        BEHAVIOUR
        virtualAccessChannelR1Bhv BEHAVIOUR
        DEFINED AS "A virtualAccessChannelR1 is an object class representing an individual ISDN
        B-/D-channel of an ISDN access port, or the bearer channel for an analogue access port, or
        an individual channel of an access port for a semipermanent leased line.
        If the channel type is an ISDN B-channel or a channel of a non-ISDN access in the case of a
        V5.1 interface, the assocV5TimeSlot attribute points to the associated V5 time slot object
        instance. Otherwise it has NULL value. It is a peer relationship according to CCITT
        Recommendation X.732.
        The relationship is maintained by use of the setReciprocalPointers and
        releaseReciprocalPointers actions of the v5Interface object class.
        The upstreamConnectivityPointer and the downstreamConnectivityPointer attributes have NULL
        value.";;
        ATTRIBUTES
        "ETS 300 377-1 (1995)":permanentLineReservation     GET-REPLACE,
        "ETS 300 377-1 (1995)":assocV5TimeSlot
                                    INITIAL VALUE ASN1DefinedTypesModule.initialPointer
                                    GET;;;
REGISTERED AS {ocaManagedObjectClass 12};
```

7.1.3.7 V5 bearer channel reservation

```
v5BcReservationR1 MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    v5BcReservationR1Pkg PACKAGE
        BEHAVIOUR
        v5BcReservationR1Bhv BEHAVIOUR
        DEFINED AS "The assignment of a v5BcReservationR1 object instance to a customized resource
        indicates that a fixed assignment of bearer channels of a V5.2 interface is made for a
        customer. Which V5 time slot is assigned is controlled by the resource manager but visible
        at the Q3 interface.";;
        ATTRIBUTES
        "ETS 300 377-1 (1995)":noOfBcRequested  GET-REPLACE,
        "ETS 300 377-1 (1995)":bcReserved       GET SET-BY-CREATE;;;
REGISTERED AS {ocaManagedObjectClass 13};
```

7.1.3.8 V5 leased line reservation

```
v5LlReservationR1 MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    v5LlReservationR1Pkg PACKAGE
        BEHAVIOUR
        v5LlReservationR1Bhv BEHAVIOUR
        DEFINED AS "The assignment of a v5LlReservationR1 object instance to a customized resource
        indicates that a fixed assignment of the bearer channel of a V5 interface is made for a
        customer. It is used either for analogue semipermanent leased lines without signalling or
        for digital semipermanent leased lines without signalling. Which V5 time slot in the case of
        a V5.2 interface is assigned is controlled by the resource manager but visible at the Q3
        interface.";;
        ATTRIBUTES
        "ETS 300 377-1 (1995)":bcReserved       GET SET-BY-CREATE;;;
REGISTERED AS {ocaManagedObjectClass 14};
```

7.1.4 Directory number fragment

7.1.4.1 Directory number

The directoryNumber object class is defined in ITU-T Recommendation Q.824.0 [46]. It has no instantiations of itself.

7.1.4.2 ETSI directory number E.164

```
etsiDirectoryNumberE164 MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":directoryNumber;
    CHARACTERIZED BY
    etsiDirectoryNumberE164Pkg PACKAGE
        BEHAVIOUR
        etsiDirectoryNumberE164Bhv BEHAVIOUR
        DEFINED AS "The etsiDirectoryNumberE164 represents directory numbers belonging to the ISDN
        numbering plan defined in CCITT Recommendation E.164.
        Both etsiDirectoryNumberE164 and etsiAccessPort have the conditional package
        meteringCounterPkg containing the meteringCounter attribute. This package shall only be
        instantiated with one of these two object classes or their subclasses within one managed
        element.";;
        ATTRIBUTES
        "ITU-T Recommendation Q.824.0 (1996)":interceptTreatmentTerm    GET-REPLACE,
        etsiE164DirectoryNumber                GET SET-BY-CREATE;;;
    CONDITIONAL PACKAGES
        meteringCounterPkg
        PRESENT IF "an instance supports it and if this package is not instantiated with
        etsiAccessPort or its subclasses within the same managed element",
        portedDirectoryNumberPkg
        PRESENT IF "required for the administration of number portability";
REGISTERED AS {ocaManagedObjectClass 15};
```

7.1.4.3 Directory number X.121

The directoryNumberX121 object class characterizes the ITU-T Recommendation X.121 [51] packet switched directory number resource.

The directoryNumberX121 object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.5 Customer profile fragment

7.1.5.1 Customer profile

The customerProfile object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.5.2 ETSI customer profile

```
etsiCustomerProfile MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":customerProfile;
    CHARACTERIZED BY
    customerCharacteristicsPkg,
    etsiCustomerProfilePkg PACKAGE
        BEHAVIOUR
        etsiCustomerProfileBhv BEHAVIOUR
        DEFINED AS "An instance of an etsiCustomerProfile subclass may be related to zero, one, or
        more instances of accessPortProfile and/or one instance of etsiDirectoryNumberE164.";;
        ATTRIBUTES
        "CCITT Recommendation X.721: 1992":administrativeState  GET-REPLACE;;;
    CONDITIONAL PACKAGES
        originForRouteingPkg
        PRESENT IF "aspects for call routeing purposes are to be considered",
        originForChargingPkg
        PRESENT IF "aspects for charging and/or tariffing purposes are to be considered",
        originForAnalysisPkg
        PRESENT IF "aspects for digit analysis purposes within the call routeing context are to be
        considered";
REGISTERED AS {ocaManagedObjectClass 16};
```

7.1.5.3 Analogue customer profile

```
analogueCustomerProfile MANAGED OBJECT CLASS
    DERIVED FROM etsiCustomerProfile;
    CHARACTERIZED BY
    analogueCustomerProfilePkg PACKAGE
        BEHAVIOUR
        analogueCustomerProfileBhv BEHAVIOUR
        DEFINED AS "This object class is the reference point for the services, directory numbers,
        and access ports being part of the related profile. Only accessPortAnalogue or
        virtualAnalogueAccessR1 shall be associated via the appropriate accessPortProfile instances
        with this object class.";;;;
REGISTERED AS {ocaManagedObjectClass 17};
```

7.1.5.4 ISDN customer profile

```
isdnCustomerProfile MANAGED OBJECT CLASS
    DERIVED FROM etsiCustomerProfile;
    CHARACTERIZED BY
    isdnCustomerProfilePkg PACKAGE
        BEHAVIOUR
        isdnCustomerProfileBhv BEHAVIOUR
        DEFINED AS "This object class is the reference point for the services, directory numbers,
        and access ports being part of the related profile. Only
        accessPortISDNBasicRate / accessPortISDNPrimaryRate or
        virtualBasicRateAccessR1 / virtualPrimaryRateAccessR1 shall be associated via the
        appropriate accessPortProfile instances with this object class.";;;;
    CONDITIONAL PACKAGES
        connectionTypePkg
        PRESENT IF "required by the customer configuration";
REGISTERED AS {ocaManagedObjectClass 18};
```

7.1.5.5 Customized resource

The customizedResource object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.5.6 ETSI customized resource

```
etsiCustomizedResource MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":customizedResource;
    CHARACTERIZED BY
    etsiCustomizedResourcePkg PACKAGE
        BEHAVIOUR
        etsiCustomizedResourceBhv BEHAVIOUR
        DEFINED AS "This object class allows refinement of the service provisioning for a customer.
        It allows association of a set of services to:
        -   one or more access ports
        -   one or more DNs
        -   one or more access channels
        The channels may span more than one access port. The etsiCustomizedResource object class
        also allows association between DNs and access ports without any services associated with
        them.
        This object class is needed when a service is applicable only to a subset of access ports,
        access channels or DNs. It is not needed when all the services specified are applicable to
        all the access ports, access channels and DNs.";;
        ATTRIBUTES
        supplementaryServiceServiceDependentPtrList     DEFAULT VALUE
                                        CustomerAdminModuleV2.defaultPointerList
                                        GET-REPLACE ADD-REMOVE,
        supplementaryServiceServiceIndependentPtrList       DEFAULT VALUE
                                        CustomerAdminModuleV2.defaultPointerList
                                        GET-REPLACE ADD-REMOVE;;;
    CONDITIONAL PACKAGES
        directionalityPkg
        PRESENT IF "directionality is required in the customer configuration for this entity",
        connectionTypePkg
        PRESENT IF "required by the customer configuration";
REGISTERED AS {ocaManagedObjectClass 19};
```

7.1.6 Bearer service fragment

7.1.6.1 Bearer service

This object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.6.2 ETSI bearer service

The references of the bearer service subclasses to the service describing standards are given in annex A.

```
etsiBearerService MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":bearerService;
    CHARACTERIZED BY
    etsiBearerServicePkg PACKAGE
        BEHAVIOUR
        etsiBearerServiceBhv BEHAVIOUR
        DEFINED AS "The 'ITU-T Recommendation Q.824.0':numberOfChannelsPkg and the
        'ITU-T Recommendation Q.824.0': bearerSignallingPkg shall not be instantiated with
        subclasses of this object class.";;;;
REGISTERED AS {ocaManagedObjectClass 20};
```

7.1.6.3 Circuit mode 3,1 kHz audio

```
circuitMode3100Hz MANAGED OBJECT CLASS
    DERIVED FROM etsiBearerService;
    CHARACTERIZED BY
    circuitMode3100HzPkg PACKAGE
        BEHAVIOUR
        circuitMode3100HzBhv BEHAVIOUR
        DEFINED AS "This object class defines the '3,1 kHz audio' bearer service.";;;;
    CONDITIONAL PACKAGES
        "ITU-T Recommendation Q.824.1 (1996)":networkProvidedTonePkg
        PRESENT IF "supported by the network",
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network",
        maxNumOfTotalCallsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 21};
```

7.1.6.4 Circuit mode 64 kbit/s unrestricted

```
circuitMode64kb MANAGED OBJECT CLASS
    DERIVED FROM etsiBearerService;
    CHARACTERIZED BY
    circuitMode64kbPkg PACKAGE
        BEHAVIOUR
        circuitMode64kbBhv BEHAVIOUR
        DEFINED AS "This object class defines the '64 kbit/s unrestricted' bearer service .";;;;
    CONDITIONAL PACKAGES
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network",
        maxNumOfTotalCallsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 22};
```

7.1.6.5 ETSI packet B channel

```
etsiPacketBChannel MANAGED OBJECT CLASS
    DERIVED FROM etsiBearerService;
    CHARACTERIZED BY
    etsiPacketBChannelPkg PACKAGE
        BEHAVIOUR
        etsiPacketBChannelBhv BEHAVIOUR
        DEFINED AS "This object class defines the packet mode bearer service running over a B
        channel .";;;;
    CONDITIONAL PACKAGES
        localPacketHandlerPkg
        PRESENT IF "the packet handler is integrated into the local connection related function",
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network and the packet handler is integrated into the local
        connection related function";
REGISTERED AS {ocaManagedObjectClass 23};
```

7.1.6.6 ETSI packet D channel

```
etsiPacketDChannel MANAGED OBJECT CLASS
    DERIVED FROM etsiBearerService;
    CHARACTERIZED BY
    etsiPacketDChannelPkg PACKAGE
        BEHAVIOUR
        etsiPacketDChannelBhv BEHAVIOUR
        DEFINED AS "This object class defines the packet mode bearer service running over a D
        channel .";;;;
    CONDITIONAL PACKAGES
        localPacketHandlerPkg
        PRESENT IF "the packet handler is integrated into the local connection related function";
REGISTERED AS {ocaManagedObjectClass 24};
```

7.1.6.7 Layer entity

The layerEntity object class is defined in ITU-T Recommendation Q.824.0 [46].

Its subclasses layerEntityLAPB, layerEntityLAPD, layerEntityX25PLP, and layerEntityX25PLPShared are defined in ITU-T Recommendation Q.824.1 [47].

7.1.6.8 Multiple rate unrestricted

```
multipleRateUnrestricted MANAGED OBJECT CLASS
    DERIVED FROM etsiBearerService;
    CHARACTERIZED BY
    multipleRateUnrestrictedPkg PACKAGE
        BEHAVIOUR
        multipleRateUnrestrictedBhv BEHAVIOUR
        DEFINED AS "This object class defines the 'multiple rate unrestricted' bearer service .";;;;
    CONDITIONAL PACKAGES
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 25};
```

7.1.6.9 Speech

```
speech MANAGED OBJECT CLASS
    DERIVED FROM etsiBearerService;
    CHARACTERIZED BY
    speechPkg PACKAGE
        BEHAVIOUR
        speechBhv BEHAVIOUR
        DEFINED AS "This object class defines the 'speech' bearer service .";;;;
    CONDITIONAL PACKAGES
        "ITU-T Recommendation Q.824.1 (1996)":networkProvidedTonePkg
        PRESENT IF "supported by the network",
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network",
        maxNumOfTotalCallsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 26};
```

7.1.6.10 Unrestricted digital info with tones / announcements (7 kHz audio)

```
audio7khz MANAGED OBJECT CLASS
    DERIVED FROM etsiBearerService;
    CHARACTERIZED BY
    audio7khzPkg PACKAGE
        BEHAVIOUR
        audio7khzBhv BEHAVIOUR
        DEFINED AS "This object class defines the 'unrestricted digital info with
        tones / announcements' bearer service.";;;;
    CONDITIONAL PACKAGES
        "ITU-T Recommendation Q.824.1 (1996)":networkProvidedTonePkg
        PRESENT IF "supported by the network",
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network",
        maxNumOfTotalCallsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 27};
```

7.1.7 Teleservice fragment

7.1.7.1 Teleservice

This object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.7.2 ETSI teleservice

The references of the teleservice subclasses to the service describing standards are given in annex A.

```
etsiTeleservice MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":teleservice;
    CHARACTERIZED BY
    etsiTeleservicePkg PACKAGE
        BEHAVIOUR
        etsiTeleserviceBhv BEHAVIOUR
        DEFINED AS "The 'ITU-T Recommendation Q.824.0': cataloguedTeleservicePtrPkg and the
        'ITU-T Recommendation Q.824.0': layerInfoPkg shall not be instantiated with subclasses of
        this object class.
        The bearerServicePtr attribute shall only point to object instances representing bearer
        services which are permitted to be related to a teleservice represented by the instance of
        this object class, regarding EN 300 196-1. Otherwise, it shall be empty string.";;;;
REGISTERED AS {ocaManagedObjectClass 28};
```

7.1.7.3 Telefax group 4

```
telefaxG4 MANAGED OBJECT CLASS
    DERIVED FROM etsiTeleservice;
    CHARACTERIZED BY
    telefaxG4Pkg PACKAGE
        BEHAVIOUR
        telefaxG4Bhv BEHAVIOUR
        DEFINED AS "This object class defines the telefax group 4 teleservice.";;;;
REGISTERED AS {ocaManagedObjectClass 29};
```

7.1.7.4 Telephony 3,1 kHz

```
telephony MANAGED OBJECT CLASS
    DERIVED FROM etsiTeleservice;
    CHARACTERIZED BY
    telephonyPkg PACKAGE
        BEHAVIOUR
        telephonyBhv BEHAVIOUR
        DEFINED AS "This object class defines the telephony 3,1 kHz teleservice.";;;;
    CONDITIONAL PACKAGES
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network",
        maxNumOfTotalCallsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 30};
```

7.1.7.5 Telephony 7 kHz

```
telephony7khz MANAGED OBJECT CLASS
    DERIVED FROM etsiTeleservice;
    CHARACTERIZED BY
    telephony7khzPkg PACKAGE
        BEHAVIOUR
        telephony7khzBhv BEHAVIOUR
        DEFINED AS "This object class defines the telephony 7 kHz teleservice.";;;;
    CONDITIONAL PACKAGES
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network",
        maxNumOfTotalCallsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 31};
```

7.1.7.6 Videotelephony

```
videotelephony MANAGED OBJECT CLASS
    DERIVED FROM etsiTeleservice;
    CHARACTERIZED BY
    videotelephonyPkg PACKAGE
        BEHAVIOUR
        videotelephonyBhv BEHAVIOUR
        DEFINED AS "This object class defines the videotelephony teleservice.";;;;
    CONDITIONAL PACKAGES
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network",
        maxNumOfTotalCallsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 32};
```

7.1.7.7 Videotex

```
videotex MANAGED OBJECT CLASS
    DERIVED FROM etsiTeleservice;
    CHARACTERIZED BY
    videotexPkg PACKAGE
        BEHAVIOUR
        videotexBhv BEHAVIOUR
        DEFINED AS "This object class defines the videotex teleservice.";;;;
    CONDITIONAL PACKAGES
        maxNumOfInfoChannelsPkg
        PRESENT IF "supported by the network",
        maxNumOfTotalCallsPkg
        PRESENT IF "supported by the network";
REGISTERED AS {ocaManagedObjectClass 33};
```

7.1.8 Service dependent supplementary service fragment

It is to be regarded that services defined hereafter may apply both to ISDN and PSTN.

7.1.8.1 Supplementary service - service dependent

This object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.8.2 Customized supplementary service

The references of the supplementary service subclasses to the service describing standards are given in annex A.

```
customizedSupplementaryService MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceServiceDependent;
    CHARACTERIZED BY
    customizedSupplementaryServicePkg PACKAGE
        BEHAVIOUR
        customizedSupplementaryServiceBhv BEHAVIOUR
        DEFINED AS "It represents the supplementary services providing additional capabilities to be
        used with a basic telecommunication service. It may represent:
        -   an ISDN supplementary service as defined in ETSI;
        -   a CEPT supplementary service as defined in the CEPT Handbook;
        -   a non-standard supplementary service, i.e. operator-specific service.
        A customized supplementary service may be related with a bearer service or teleservice
        thereby supplementing this service.";;
        ATTRIBUTES
        "ITU-T Recommendation Q.824.0 (1996)":customizedResourcePtrList     GET-REPLACE
        ADD-REMOVE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        modificationPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 34};
```

7.1.8.3 Absent customer fixed announcement

```
absentCustomerFixedAnnouncement MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    absentCustomerFixedPkg PACKAGE
        BEHAVIOUR
        absentCustomerFixedBhv BEHAVIOUR
        DEFINED AS "The absent customer fixed announcement supplementary service provides the
        possibility for a subscriber to divert his incoming calls to a fixed announcement.";;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 35};
```

7.1.8.4 Absent customer operator position

```
absentCustomerOperatorPosition MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    absentCustomerOperatorPkg PACKAGE
        BEHAVIOUR
        absentCustomerOperatorBhv BEHAVIOUR
        DEFINED AS "The absent customer operator position supplementary service provides the
        possibility for a subscriber to divert his incoming calls to an operator position.";;
        ATTRIBUTES
        forwardImmediately      GET-REPLACE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 36};
```

7.1.8.5 Absent customer predetermined announcement

```
absentCustomerPredeterminedAnnouncement MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    absentCustomerPredeterminedPkg PACKAGE
        BEHAVIOUR
        absentCustomerPredeterminedBhv BEHAVIOUR
        DEFINED AS "The absent customer predetermined announcement supplementary service provides
        the possibility for a subscriber to divert his incoming calls to a predetermined
        announcement.";;
        ATTRIBUTES
        announcementNumber      GET-REPLACE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        modificationPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 37};
```

7.1.8.6 Advice of charge: charging information at call set-up time

```
adviceOfChargeSetup MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    adviceOfChargeSetupPkg PACKAGE
        BEHAVIOUR
        adviceOfChargeSetupBhv BEHAVIOUR
        DEFINED AS "This service provides the served user with information about the charging rates
        at call establishment. In addition, the served user shall be informed if a change in
        charging rates takes place during the call. The information can be sent for all calls, or on
        a per-call basis. The charge information given shall relate to the charges incurred on the
        network to which the served user is attached.";;
        ATTRIBUTES
        adviceOfChargeActivation        GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 38};
```

7.1.8.7 Advice of charge: charging information during the call

```
adviceOfChargeDuring MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    adviceOfChargeDuringPkg PACKAGE
        BEHAVIOUR
        adviceOfChargeDuringBhv BEHAVIOUR
        DEFINED AS "This service provides the served user with cumulative charging information
        during the call. The information can be sent for all calls, or on a per-call basis. The
        charge information given shall relate to the charges incurred on the network to which the
        served user is attached.";;
        ATTRIBUTES
        adviceOfChargeActivation        GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 39};
```

7.1.8.8 Advice of charge: charging information at the end of the call

```
adviceOfChargeEnd MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    adviceOfChargeEndPkg PACKAGE
        BEHAVIOUR
        adviceOfChargeEndBhv BEHAVIOUR
        DEFINED AS "This service provides the served user with charging information for a call when
        the call is terminated. The information can be sent for all calls, or on a per-call basis.
        The charge information given shall relate to the charges incurred on the network to which
        the served user is attached.";;
        ATTRIBUTES
        adviceOfChargeActivation        GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 40};
```

7.1.8.9 Blocking

```
blocking MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    blockingPkg PACKAGE
        BEHAVIOUR
        blockingBhv BEHAVIOUR
        DEFINED AS "This object class gives the reason(s) for which a subscriber or a service is
        blocked. The accessibility of e.g. emergency numbers during blocking conditions is an
        implementation matter.";;
        ATTRIBUTES
        adminBlocking           DEFAULT VALUE
                                CustomerAdminModuleV2.blockingDirectionDefault
                                GET-REPLACE,
        maintBlocking           DEFAULT VALUE
                                CustomerAdminModuleV2.maintBlockingDefault
                                GET-REPLACE,
        accountSuspension       DEFAULT VALUE
                                CustomerAdminModuleV2.blockingDirectionDefault
                                GET-REPLACE,
        catastrophe             GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 41};
```

7.1.8.10 Call deflection

```
callDeflection MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
        callDeflectionPkg PACKAGE
        BEHAVIOUR
        callDeflectionBhv BEHAVIOUR
        DEFINED AS "This service enables the subscriber to respond to an incoming call by requesting
        redirection of that call to another subscriber.";;
        ATTRIBUTES
        "ITU-T Recommendation Q.824.2 (1996)":deflectingNumberDelivery      GET-REPLACE,
        etsiDeflectingNumberNotification                                    GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 42};
```

7.1.8.11 Call forwarding busy

```
callForwardBusy MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    callForwardBusyPkg PACKAGE
        BEHAVIOUR
        callForwardBusyBhv BEHAVIOUR
        DEFINED AS "This service permits a served user to have the network send all incoming calls,
        which meet busy and are addressed to the served user's number to another number. The served
        user's originating service is unaffected.";;
        ATTRIBUTES
        etsiE164DirectoryNumber             GET-REPLACE,
        callForwardActiveNotification       GET-REPLACE,
        callForwardCallingNotification      GET-REPLACE,
        callForwardReleaseNotification      GET-REPLACE,
        callForwardServedNotification       GET-REPLACE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        modificationPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 43};
```

7.1.8.12 Call forwarding no reply

```
callForwardNoReply MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    callForwardNoReplyPkg PACKAGE
        BEHAVIOUR
        callForwardNoReplyBhv BEHAVIOUR
        DEFINED AS "This service permits a served user to have the network send all incoming calls,
        which meet no reply and are addressed to the served user's number to another number. The
        served user's originating service is unaffected.";;
        ATTRIBUTES
        etsiE164DirectoryNumber             GET-REPLACE,
        callForwardActiveNotification       GET-REPLACE,
        callForwardCallingNotification      GET-REPLACE,
        callForwardReleaseNotification      GET-REPLACE,
        callForwardServedNotification       GET-REPLACE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        modificationPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 44};
```

7.1.8.13 Call forwarding unconditional

```
callForwardUnc MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    callForwardUncPkg PACKAGE
        BEHAVIOUR
        callForwardUncBhv BEHAVIOUR
        DEFINED AS "This service permits a served user to have the network send all incoming calls
        addressed to the served user's number to another number. The served user's originating
        service is unaffected. If this service is activated, calls are forwarded no matter what is
        the condition of the termination.";;
        ATTRIBUTES
        etsiE164DirectoryNumber             GET-REPLACE,
        callForwardActiveNotification       GET-REPLACE,
        callForwardCallingNotification      GET-REPLACE,
        callForwardReleaseNotification      GET-REPLACE,
        callForwardServedNotification       GET-REPLACE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        modificationPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 45};
```

7.1.8.14 Call hold

```
callHold MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    callHoldPkg PACKAGE
        BEHAVIOUR
        callHoldBhv BEHAVIOUR
        DEFINED AS "This service allows a user to interrupt communications on an existing call and
        then subsequently, if desired, re-establish communications.";;;;
REGISTERED AS {ocaManagedObjectClass 46};
```

7.1.8.15 Calling line identification presentation

```
clipSupplService MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    clipSupplServicePkg PACKAGE
        BEHAVIOUR
        clipBhv BEHAVIOUR
        DEFINED AS "This supplementary service provides the called party with the possibility of
        receiving identification of the calling party. In addition to the ISDN number, the calling
        line identity may include a subaddress generated by the calling user and transparently
        transported by the network. The network shall deliver the calling line identity to the
        called party during call establishment, regardless of the terminal capability to handle the
        information.";;;;
REGISTERED AS {ocaManagedObjectClass 47};
```

7.1.8.16 Calling line identification restriction

```
clirSupplService MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    clirSupplServicePkg PACKAGE
        BEHAVIOUR
        clirBhv BEHAVIOUR
        DEFINED AS "This supplementary service provides the calling party with the possibility to
        prevent presentation of the calling party's ISDN number, and subaddress information (if any)
        to the called party. If the called party subscribes to the CLIP supplementary service then
        the called party shall receive an indication that the calling party information is not
        available due to restriction.";;
        ATTRIBUTES
        "ITU-T Recommendation Q.824.2 (1996)":callIdRestrictionOptions      GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 48};
```

7.1.8.17 Call waiting

```
callWaiting MANAGED OBJECT CLASS
    DERIVED customizedSupplementaryService;
    CHARACTERIZED BY
    callWaitingPkg PACKAGE
        BEHAVIOUR
        callWaitingBhv BEHAVIOUR
        DEFINED AS "This service permits a user to be informed of an incoming call with an
        indication when all access to the user is busy. The user then has the choice of accepting,
        rejecting or ignoring the waiting call.";;
        ATTRIBUTES
        callWaitingCallingNotification      GET-REPLACE,
        maxNumberOfWaitingCalls             GET-REPLACE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 49};
```

7.1.8.18 Closed user group subscription options

```
etsiCUGSubscriptionOption MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    etsiCUGSubscriptionOptionPkg PACKAGE
        BEHAVIOUR
        etsiCUGSubscriptionOptionBhv BEHAVIOUR
        DEFINED AS "The CUG subscription options object shall only be instantiated if either
        attribute preferredCUGIndex is assigned a non-NULL value or attribute interCUGAccess is not
        empty. M_SET operations, which would result in preferredCUGIndex value NULL and
        interCUGAccess value empty set, shall be rejected. The value of attribute preferredCUGIndex
        should not be NULL when interCUGAccess value is 'none' or 'incomingAccess'.";;
        ATTRIBUTES
        preferredCUGIndex           GET-REPLACE,
        interCUGAccess              GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 50};
```

7.1.8.19 Completion of call on no reply

```
callCompletionNoReply MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    callCompletionNoReplyPkg PACKAGE
        BEHAVIOUR
        callCompletionNoReplyBhv BEHAVIOUR
        DEFINED AS "The completion of call on no reply supplementary service permits a user A,
        encountering a destination B, which does not answer the call (no reply), to be notified when
        the destination B becomes free after having terminated an activity, and to have the network
        reinitiate the call to the specified destination B if user A desires.";;;;
    CONDITIONAL PACKAGES
        callCompletionNoReplyRecallModePkg
        PRESENT IF "the recall mode is offered on a per customer configuration basis";
REGISTERED AS {ocaManagedObjectClass 51};
```

7.1.8.20 Completion of calls to busy subscribers

```
callCompletionBusy MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    callCompletionBusyPkg PACKAGE
        BEHAVIOUR
        callCompletionBusyBhv BEHAVIOUR
        DEFINED AS "This service enables a calling user, encountering a busy destination, to have
        the call completed when the busy destination becomes not busy, without having to make a new
        call attempt.";;;;
    CONDITIONAL PACKAGES
        callCompletionBusyRecallModePkg
        PRESENT IF "the recall mode is offered on a per customer configuration basis";
REGISTERED AS {ocaManagedObjectClass 52};
```

7.1.8.21 Conference call add-on

```
conferenceCallAddOn MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    conferenceCallAddOnPackage PACKAGE
        BEHAVIOUR
        conferenceCallAddOnBehaviour BEHAVIOUR
        DEFINED AS "This managed object class is used to indicate that the customer is authorized to
        use the conference call add-on supplementary service.";;;;
REGISTERED AS {ocaManagedObjectClass 53};
```

7.1.8.22 Connected line identification presentation

```
colpSupplService MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService ;
    CHARACTERIZED BY
    colpPkg PACKAGE
        BEHAVIOUR
        colpBhv BEHAVIOUR
        "This object class is a supplementary service offered for the calling party, which indicates
        the called party at the calling party. ";;;;
REGISTERED AS {ocaManagedObjectClass 54};
```

7.1.8.23 Connected line identification restriction

```
colrSupplService MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    colrSupplServicePkg PACKAGE
        BEHAVIOUR
        colrSupplServiceBhv BEHAVIOUR
        DEFINED AS "The called line identification restriction supplementary service is a
        supplementary service offered to the called party to prevent presentation of the called
        party's ISDN number, and subaddress information (if any) to the calling party.";;
        ATTRIBUTES
        "ITU-T Recommendation Q.824.2 (1996)":callIdRestrictionOptions      GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 55};
```

7.1.8.24 Explicit call transfer

```
explicitCallTransfer MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    explicitCallTransferPkg PACKAGE
        BEHAVIOUR
        explicitCallTransferBhv BEHAVIOUR
        DEFINED AS "This managed object class is used to indicate that the customer is authorized to
        use the explicit call transfer supplementary service.";;;;
REGISTERED AS {ocaManagedObjectClass 56};
```

7.1.8.25 Fixed destination call

```
fixedDestinationCall MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
        fixedDestinationCallPkg PACKAGE
        BEHAVIOUR
        fixedDestinationCallBhv BEHAVIOUR
        DEFINED AS "This object class is used to administer the fixed destination call (hot line)
        service both with or without the possibility of administration via customer controlled
        input.
        For administration controlled service operation, the instantiation of the object is
        initiated by the OS. The values of the attributes variant and fixedDestinationNumber shall
        be set at creation, but may afterwards be modified by the OS.
        In the case of service operation by the customer on service provision basis, the
        instantiation of the object is as well initiated by the OS to indicate that the customer has
        the authorization to use the service. The value of the variant attribute shall be set at
        creation by the OS according to the service subscription. The value of the
        fixedDestinationNumber attribute shall be set to NULL. The value of this attribute shall be
        modified by the resource management of the exchange on the customer input of the service
        control operation.";;
        ATTRIBUTES
        variant                     GET-REPLACE,
        fixedDestinationNumber      GET-REPLACE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        modificationPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 57};
```

7.1.8.26 Incoming call barring

```
incomingCallBarring MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    incomingCallBarringPkg PACKAGE
        BEHAVIOUR
        incomingCallBarringBhv BEHAVIOUR
        DEFINED AS "With this object class, incoming call barring is assigned. It may activate as
        well a do-not-disturb announcement.";;
        ATTRIBUTES
        doNotDisturb        GET-REPLACE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 58};
```

7.1.8.27 Interception of calls

```
interceptionOfCalls MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    interceptionOfCallsPkg PACKAGE
        BEHAVIOUR
        interceptionOfCallsBhv BEHAVIOUR
        DEFINED AS "This object class allows an interception of calls on a per-service basis.";;
        ATTRIBUTES
        interceptionReason          GET-REPLACE,
        "ITU-T Recommendation Q.824.0 (1996)":interceptTreatmentTerm        GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 59};
```

7.1.8.28 Malicious call identification

Since due to legal and network operator's requirements the format of the malicious call identification notification may vary from country to country, this notification shall be defined with an implementation specific subclass.

```
maliciousCallIdentification MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    maliciousCallIdentificationPkg PACKAGE
        BEHAVIOUR
        maliciousCallIdentificationBhv BEHAVIOUR
        DEFINED AS "This supplementary service allows a subscriber to start up the tracing of the
        malicious call originator.";;;;
    CONDITIONAL PACKAGES
        automaticInvocationPkg
        PRESENT IF "an instance supports it";
REGISTERED AS {ocaManagedObjectClass 60};
```

7.1.8.29 Outgoing call barring

```
outgoingCallBarring MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    outgoingCallBarringPkg PACKAGE
        BEHAVIOUR
        outgoingCallBarringBhv BEHAVIOUR
        DEFINED AS "With this object class, outgoing call barring with fixed and/or user controlled
        program is assigned. The barring program may cover as well subscriber controlled input
        restrictions.";;
        ATTRIBUTES
        fixedPrograms               GET-REPLACE ADD-REMOVE,
        userControlledPrograms      GET-REPLACE ADD-REMOVE;;;
    CONDITIONAL PACKAGES
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 61};
```

7.1.8.30 Subaddressing

```
subaddressing MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    subaddressingPackage PACKAGE
        BEHAVIOUR
        subaddressingBehaviour BEHAVIOUR
        DEFINED AS " This managed object class is used to indicate that the called customer is
        authorized to use the subaddressing supplementary service.";;;;
REGISTERED AS {ocaManagedObjectClass 62};
```

7.1.8.31 Terminal portability

```
termPortabilitySupplService MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    termPortabilitySupplServicePkg PACKAGE
        BEHAVIOUR
        termPortabilityBhv BEHAVIOUR
        DEFINED AS "This supplementary service allows a user engaged in an active call to adjourn
        communication by an appropriate signalling procedure and resume the call at a later
        time.";;;;
REGISTERED AS {ocaManagedObjectClass 63};
```

7.1.8.32 Three party

```
threeParty MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    threePartyPkg PACKAGE
        BEHAVIOUR
        threePartyBhv BEHAVIOUR
        DEFINED AS "This service enables a user to establish a three-way conversation, i.e. a
        simultaneous communication between the user and two other parties.";;;;
REGISTERED AS {ocaManagedObjectClass 64};
```

7.1.8.33 User to user signalling

```
userToUserSignalling MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    userToUserSignallingPkg PACKAGE
        BEHAVIOUR
        userToUserSignallingBhv BEHAVIOUR
        DEFINED AS "The user to user signalling supplementary service permits a user to
        send / receive a limited amount of information to/from another user over the signalling
        channel in association with a call to the other user.";;
        ATTRIBUTES
        uusService1Implicit     GET-REPLACE,
        uusService1Explicit     GET-REPLACE,
        uusService2             GET-REPLACE,
        uusService3             GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 65};
```

7.1.8.34 Voice messaging busy

```
voiceMessagingBusy MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    voiceMessagingBusyPkg PACKAGE
        BEHAVIOUR
        voiceMessagingBusyBhv BEHAVIOUR
        DEFINED AS "The voice messaging supplementary service allows the customer to activate a
        centralized voice messaging system to collect voice messages for calls which meet busy.";;;;
    CONDITIONAL PACKAGES
        voiceMessagingNumberPkg
        PRESENT IF "needed for routeing to the voice messaging system on subscription basis",
        mwiReceiverPointerPkg
        PRESENT IF "a dedicated mwiReceiver object class is to be assigned",
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 66};
```

7.1.8.35 Voice messaging no reply

```
voiceMessagingNoReply MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    voiceMessagingNoReplyPkg PACKAGE
        BEHAVIOUR
        voiceMessagingNoReplyBhv BEHAVIOUR
        DEFINED AS "The voice messaging supplementary service allows the customer to activate a
        centralized voice messaging system to collect voice messages for calls which meet no
        reply.";;;;
    CONDITIONAL PACKAGES
        voiceMessagingNumberPkg
        PRESENT IF "needed for routeing to the voice messaging system on subscription basis",
        mwiReceiverPointerPkg
        PRESENT IF "a dedicated mwiReceiver object class is to be assigned",
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 67};
```

7.1.8.36 Voice messaging unconditional

```
voiceMessagingUnconditional MANAGED OBJECT CLASS
    DERIVED FROM customizedSupplementaryService;
    CHARACTERIZED BY
    voiceMessagingUnconditionalPkg PACKAGE
        BEHAVIOUR
        voiceMessagingUnconditionalBhv BEHAVIOUR
        DEFINED AS "The voice messaging supplementary service allows the customer to activate a
        centralized voice messaging system to collect voice messages for all calls no matter what
        the condition of the termination is.";;;;
    CONDITIONAL PACKAGES
        voiceMessagingNumberPkg
        PRESENT IF "needed for routeing to the voice messaging system on subscription basis",
        mwiReceiverPointerPkg
        PRESENT IF "a dedicated mwiReceiver object class is to be assigned",
        customerControlPermissionPkg
        PRESENT IF "required by service administration",
        serviceActivatedPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 68};
```

7.1.9 Service independent supplementary service fragment

It is to be regarded that services defined hereafter may apply both to ISDN and PSTN.

7.1.9.1 Supplementary service - service independent

This object class is defined in ITU-T Recommendation Q.824.0 [46].

The references of its subclasses to the service describing standards are given in annex A.

7.1.9.2 ETSI supplementary service - service independent

The references of the supplementary service subclasses to the service describing standards are given in annex A.

```
etsiSupplementaryServiceServiceIndependent MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    etsiSupplementaryServiceServiceIndependentPkg PACKAGE
        BEHAVIOUR
        etsiSupplementaryServiceServiceIndependentBhv BEHAVIOUR
        DEFINED AS "It represents the supplementary services providing additional capabilities to be
        used with a basic telecommunication service. It may represent:
        -   an ISDN supplementary service as defined in ETSI;
        -   a CEPT supplementary service as defined in the CEPT Handbook;
        -   a non-standard supplementary service, i.e. operator-specific service.";;
        ATTRIBUTES
        "ITU-T Recommendation Q.824.0 (1996)":customizedResourcePtrList GET-REPLACE ADD-REMOVE;;;
REGISTERED AS {ocaManagedObjectClass 69};
```

7.1.9.3 Abbreviated dialling

```
abbreviatedDialling MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    abbreviatedDiallingPkg PACKAGE
        BEHAVIOUR
        abbreviatedDiallingBhv BEHAVIOUR
        DEFINED AS "This managed object class is used to indicate that the customer is authorized to
        use the abbreviated dialling supplementary service.
        This object class shall be instantiated either with the ownedListPkg or the sharedListPkg.
        This choice is exclusive.";;;;
    CONDITIONAL PACKAGES
        ownedListPkg
        PRESENT IF "an owned list for abbreviated dialling is to be assigned to a customer
        configuration and the sharedListPkg package is not present",
        sharedListPkg
         PRESENT IF "one or more shared lists for abbreviated dialling are to be assigned to a
         customer configuration and the ownedListPkg package is not present";
REGISTERED AS {ocaManagedObjectClass 70};
```

7.1.9.4 Alarm call

```
alarmCall MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
        alarmCallPkg PACKAGE
        BEHAVIOUR
        alarmCallBhv BEHAVIOUR
        DEFINED AS "The alarm call supplementary service provides the possibility for a user to
        cause an alarm call or calls to be made to his line at the time or times specified in
        advance to him, and to hear an appropriate announcement when the call is answered.
        An instance of this object class shall be automatically deleted if all related alarm calls
        are performed and if it is contained in a customer configuration.
        More than one instance of alarmCall may exist for a specific customer profile.";;
        ATTRIBUTES
        timeOfDay           GET SET-BY-CREATE,
        kindOfAlarmCall     GET SET-BY-CREATE,
        alarmCallType       GET SET-BY-CREATE;
        NOTIFICATIONS
        failedAlarmCall;;;
REGISTERED AS {ocaManagedObjectClass 71};
```

7.1.9.5 Closed user group

```
etsiCUG MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    etsiCUGPkg PACKAGE
        BEHAVIOUR
        etsiCUGBhv BEHAVIOUR
        DEFINED AS "The managed object class is used to store the closed user group general
        subscription options .
        The attribute cUGIndex shall be explicitly assigned upon object creation.
        No two instances of object class etsiCUG contained within a single object shall have
        identical values for attribute cUGIndex.
        No two instances of object class etsiCUG contained within a single object shall have
        identical values of attribute cUGInterlockCode and cUGDataNetworkIdentification.
        When the value of attribute cUGBarring is outBarred, this CUG shall not be a preferential
        closed user group (denoted by attribute preferredCUGIndex in cUGSubscriptionOption managed
        object).";;
        ATTRIBUTES
        cUGIndex                        GET SET-BY-CREATE,
        cUGInterlockCode                GET SET-BY-CREATE,
        cUGDataNetworkIdentification    GET SET-BY-CREATE,
        cUGBarring                      GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 72};
```

7.1.9.6 Cordless terminal mobility

```
cordlessTerminalMobility MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    cordlessTerminalMobilityPkg PACKAGE
        BEHAVIOUR
        cordlessTerminalMobilityBhv BEHAVIOUR
        DEFINED AS "The cordless terminal mobility service allows users of cordless terminals to be
        mobile within and between networks. Where radio coverage is provided and the cordless
        terminal has appropriate access rights the user is able to make calls from, and to receive
        calls at, any location within the fixed public and/or private networks, and may move without
        interruption of a call in progress.";;
        ATTRIBUTES
        ctmId                   GET-REPLACE,
        permittedMobileArea     GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 73};
```

7.1.9.7 Customer observation

```
customerObservation MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    customerObservationPkg PACKAGE
        BEHAVIOUR
        customerObservationBhv BEHAVIOUR
        DEFINED AS "The customer observation service activates the recording of call details e.g.
        for verification of the increments to the metering counter of the customer, supervision
        purposes, quality of service verification, etc. ";;;;
    CONDITIONAL PACKAGES
        observationModePkg
        PRESENT IF "an instance supports it";
REGISTERED AS {ocaManagedObjectClass 74};
```

7.1.9.8 Detailed billing

```
detailedBilling MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    detailedBillingPkg PACKAGE
        BEHAVIOUR
        detailedBillingBhv BEHAVIOUR
        DEFINED AS "The service of detailed billing gives the customer the possibility of being
        billed with a complete detail of the originated traffic. The completeness of the data
        presented on the bill depends on the detail class subscribed by the customer or available in
        the network and/or exchange.";;
        ATTRIBUTES
        detailClass     GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 75};
```

7.1.9.9 Different ringing

```
differentRinging MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    differentRingingPkg PACKAGE
        BEHAVIOUR
        differentRingingBhv BEHAVIOUR
        DEFINED AS "It is used to allocate different directory numbers to a single analogue access.
        For calls to such an access, different ringing signals (e.g. different sequences) are to be
        sent to the customer installation, according to the directory number dialled by the calling
        party.
        It is to be considered that the assigned port must be capable to provide the different
        ringing. This object class shall only be assigned to non-ISDN customer configurations.";;
        ATTRIBUTES
        primaryDN                   GET REPLACE,
        ringingSequence             GET REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 76};
```

7.1.9.10 Direct dialling in

```
ddi MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    ddiPkg PACKAGE
        BEHAVIOUR
        ddiBhv BEHAVIOUR
        DEFINED AS "This supplementary service enables a user to call directly via a public ISDN a
        user on a private ISDN by use of the public ISDN numbering plan.";;;;
    CONDITIONAL PACKAGES
        "ITU-T Recommendation Q.824.2 (1996)":digitsOptionsPkg
        PRESENT IF "supported by the administration";
REGISTERED AS {ocaManagedObjectClass 77};
```

7.1.9.11 General facility reset

```
generalFacilityReset MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    generalFacilityResetPackage PACKAGE
        BEHAVIOUR
        generalFacilityResetBehaviour BEHAVIOUR
        DEFINED AS " This managed object class is used to indicate that the customer is authorized
        to use general facility reset supplementary service.
        The general facility reset supplementary service allows a customer to deactivate with one
        subscriber controlled input command (SCI) a number of supplementary services.
        The supplementary services to be deactivated as a result of the SCI can be network operator
        dependent.";;;;
REGISTERED AS {ocaManagedObjectClass 78};
```

7.1.9.12 Home meter

```
homeMeter MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    homeMeterPkg PACKAGE
        BEHAVIOUR
        homeMeterBhv BEHAVIOUR
        DEFINED AS "It is used to assign to a customer configuration the transmission of metering
        pulses to the customer premises.
        This object class shall only be assigned to non-ISDN customer configurations. It is to be
        considered that the assigned port must be capable to provide the installation in the
        customer's premises with the metering pulses.";;;;
REGISTERED AS {ocaManagedObjectClass 79};
```

7.1.9.13 Message waiting indication controller

```
mwiController MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    mwiControllerPkg PACKAGE
        BEHAVIOUR
        mwiControllerBhv BEHAVIOUR
        DEFINED AS "This service permits a user to activate and deactivate the message waiting
        indication of a user which supports the voice messaging supplementary service. The user of
        this object class is likely to be a voice mail box.";;;;
REGISTERED AS {ocaManagedObjectClass 80};
```

7.1.9.14 Message waiting indication receiver

```
mwiReceiver MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    mwiReceiverPackage PACKAGE
        BEHAVIOUR
        mwiReceiverBehaviour BEHAVIOUR
        DEFINED AS "This service permits a user to receive changes to the condition of a message
        waiting indicator. The user of this object class is likely to be subscribed to a voice
        messaging service which forwards calls to a voice mail box.";;
        ATTRIBUTES
        mwiInvocationMode           GET-REPLACE,
        messageWaitingIndicator     GET;;;
    CONDITIONAL PACKAGES
        mwiControllingUserPkg
        PRESENT IF "an instance supports it";
REGISTERED AS {ocaManagedObjectClass 81};
```

7.1.9.15 Multiple subscriber number

```
msn MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    msnPkg PACKAGE
        BEHAVIOUR
        msnBhv BEHAVIOUR
        DEFINED AS "The MSN supplementary service provides the possibility for assigning multiple
        directory numbers (not necessarily consecutive) to a customer configuration. This enables
        the selection of one or more multiple distinct terminals attached to the same interface.
        The MSN supplementary service is only valid for single line, standard subscribers connected
        to a basic access port. The MSN supplementary service shall be created prior to assignment
        of the second CCITT Recommendation E.164 DN to attribute directoryNumberPtrList of the ISDN
        customer profile.
        The MSN supplementary service object class may not be deleted unless attribute
        directoryNumberPtrList of the ISDN customer profile contains two or more CCITT
        Recommendation E.164 DN.";;
        ATTRIBUTES
        assocDefaultDN              GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 82};
```

7.1.9.16 PIN

```
pinSvc MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    pinSvcPkg PACKAGE
        BEHAVIOUR
        pinSvcBhv BEHAVIOUR
        DEFINED AS "This managed object class is used to assign a PIN to one or more supplementary
        services to prevent from their unauthorized use.
        The initial value and the default value of the pin attribute is determined by the network
        element resource on its own.
        The PIN given in the pin attribute is valid for all PIN controlled customized services
        assigned to a customer configuration identified by the PIN profile reference.";;
        ATTRIBUTES
        pin                         REPLACE-WITH-DEFAULT
                DEFAULT VALUE DERIVATION RULE
                pinDefaultAndInitialBhv BEHAVIOUR
                DEFINED AS "The initial value and the default value of the pin attribute is
                determined by the network element resource on its own.";
                INITIAL VALUE
                DERIVATION RULE pinDefaultAndInitialBhv,
        pinProfileRef               GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass 83};
```

7.1.9.17 Preselected carrier supplementary service

```
preselectedCarrierSupplementaryService MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    preselectedCarrierSupplementaryServicePkg PACKAGE
        BEHAVIOUR
        preselectedCarrierSupplementaryServiceBhv BEHAVIOUR
        DEFINED AS " This object class is used for assignment of a preselected carrier to a customer
        configuration ";;
        ATTRIBUTES
        preselectedCarrier              GET-REPLACE;;;
    CONDITIONAL PACKAGES
        modificationPermissionPkg
        PRESENT IF "required by service administration";
REGISTERED AS {ocaManagedObjectClass 84};
```

7.1.9.18 Priority

```
priority MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    priorityPkg PACKAGE
        BEHAVIOUR
        priorityBhv BEHAVIOUR
        DEFINED AS "This supplementary service is used to assign priority to some or all access
        ports of the related profile e.g. to override traffic controls assigned to non-priority
        traffic.";;;;
REGISTERED AS {ocaManagedObjectClass 85};
```

7.1.9.19 Remote control of supplementary service

```
remoteControlService MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    remoteControlServicePkg PACKAGE
        BEHAVIOUR
        remoteControlServiceBhv BEHAVIOUR
        DEFINED AS "The remote control supplementary service enables a user to control a
        supplementary service or a number of supplementary services associated with that user's
        configuration from another access using the procedures provided for the (supplementary)
        service(s) to be controlled at the served user's access. Remote control service can be
        invoked independently of the state of the served user's access, and existing calls at the
        served user's access shall not be affected by the invocation of the remote control
        service.";;;;
    CONDITIONAL PACKAGES
        remotelyControlledServicePkg
        PRESENT IF "this service facility is provided on subscription basis",
        callDiversionRestrictionsPkg
        PRESENT IF "this service facility is provided on subscription basis";
REGISTERED AS {ocaManagedObjectClass 86};
```

7.1.9.20 Terminating calls not charged

```
terminatingCallsNotCharged MANAGED OBJECT CLASS
    DERIVED FROM etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    terminatingCallsNotChargedPkg PACKAGE
        BEHAVIOUR
        terminatingCallsNotChargedBhv BEHAVIOUR
        DEFINED AS "The terminating calls not charged supplementary service is a service associated
        with the called party.
        Calls to a directory number with this service will not be charged.
        To prevent the charging in the originating exchange in case of an incoming terminating call,
        the terminating exchange will, if the signalling system supports it, send a backward signal
        'no charge' and provide for the answer signal or, in case the signalling system does not
        support the sending of information that the call is not to be charged, withhold the answer
        signal.";;;;
REGISTERED AS {ocaManagedObjectClass 87};
```

7.1.10 General services

In this clause, services are defined which are subject to be provided on a per exchange basis.

7.1.10.1 Catalogued supplementary service

This object class is defined in ITU-T Recommendation Q.824.0 [46].

The catalogued supplementary service managed object class is a superclass for other service subclasses that have attributes that are not customizable by the customer. The subclasses will be defined once candidates for the non-customizable attributes have been identified.

This object class is not instantiated.

7.1.10.2 Catalogued teleservice

This object class is defined in ITU-T Recommendation Q.824.0 [46].

The catalogued teleservice managed object class defines a communication service that makes available layer 4 - layer 7 capabilities. and has attributes that are not customizable by the customer. This object class is a superclass from which specific catalogued teleservice objects may be derived as subclasses.

This object class is not instantiated.

7.1.10.3 General ISDN service container

```
generalIsdnServiceContainer MANAGED OBJECT CLASS
    DERIVED FROM "CCITT Recommendation X.721: 1992":top;
    CHARACTERIZED BY
    generalIsdnServiceContainerPkg PACKAGE
        BEHAVIOUR
        generalIsdnServiceContainerBhv BEHAVIOUR
        DEFINED AS "The General ISDN service container is the superior object class for
        supplementary services available to all ISDN customer configurations.
        It is to be considered that a service configuration within a customer configuration
        overrides this general service configuration.
        This object class shall only be used for the general provision of services for which the
        resource (i.e. the exchange) is capable to provide them generally on exchange level.";;
        ATTRIBUTES
        serviceContainerId      GET;;;
    CONDITIONAL PACKAGES
        generalServiceListPkg
        PRESENT IF "an instance supports it";
REGISTERED AS {ocaManagedObjectClass 88};
```

7.1.10.4 General PSTN service container

```
generalPstnServiceContainer MANAGED OBJECT CLASS
    DERIVED FROM "CCITT Recommendation X.721: 1992":top;
    CHARACTERIZED BY
    generalPstnServiceContainerPkg PACKAGE
        BEHAVIOUR
        generalPstnServiceContainerBhv BEHAVIOUR
        DEFINED AS "The General PSTN service container is the superior object class for
        supplementary services available to all PSTN customer configurations.
        It is to be considered that a service configuration within a customer configuration
        overrides this general service configuration.
        This object class shall only be used for the general provision of services for which the
        resource (i.e. the exchange) is capable to provide them generally on exchange level.";;
        ATTRIBUTES
        serviceContainerId      GET;;;
    CONDITIONAL PACKAGES
        generalServiceListPkg
        PRESENT IF "an instance supports it";
REGISTERED AS {ocaManagedObjectClass 89};
```

7.1.10.5 Non ISDN service

```
nonIsdnService MANAGED OBJECT CLASS
    DERIVED FROM "CCITT Recommendation X.721: 1992":top;
    CHARACTERIZED BY
        nonIsdnServicePkg PACKAGE
        BEHAVIOUR
        nonIsdnServiceBhv BEHAVIOUR
        DEFINED AS "This object class is defined to allow the creation of specific supplementary
        services for analogue customer profiles.";;
        ATTRIBUTES
        nonIsdnServiceId                                            GET,
        "CCITT Recommendation X.721: 1992":administrativeState      GET-REPLACE,
        "ITU-T Recommendation Q.824.0 (1996)":customizedResourcePtrList GET-REPLACE ADD-REMOVE;
        NOTIFICATIONS
        "CCITT Recommendation X.721: 1992":stateChange,
        "CCITT Recommendation X.721: 1992":attributeValueChange;;;
REGISTERED AS {ocaManagedObjectClass 90};
```

7.1.11 Service provision fragment

7.1.11.1 Service manager

The serviceManager object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.11.2 Configuration service manager

```
configurationServiceManager MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":serviceManager;
    CHARACTERIZED BY
    configurationServiceManagerPkg PACKAGE
        BEHAVIOUR
        configurationServiceManagerBhv BEHAVIOUR
        DEFINED AS "The configurationServiceManager performs actions which establish customer
        configurations and services. In addition, the configurationServiceManager performs actions
        which change directory number and access port assignments.";;
        ACTIONS
        changeDirectoryNumber "ITU-T Recommendation Q.824.1 (1996)":invalidReferenceError,
        changeAccessPort "ITU-T Recommendation Q.824.1 (1996)":invalidReferenceError,
        establishCustomerConfiguration "ITU-T Recommendation Q.824.1 (1996)":invalidReferenceError,
        addServiceToConfiguration "ITU-T Recommendation Q.824.1 (1996)":invalidReferenceError;;;
REGISTERED AS {ocaManagedObjectClass 91};
```

7.1.11.3 Service package

The servicePackage object class is defined in ITU-T Recommendation Q.824.0 [46].

7.1.11.4 Reference service configuration

```
referenceServiceConfiguration MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":servicePackage;
    CHARACTERIZED BY
    referenceServiceConfigurationPkg PACKAGE
        BEHAVIOUR
        referenceServiceConfigurationBhv BEHAVIOUR
        DEFINED AS "An instance of this object class contains reference profiles for service
        assignments which are referenced in ACTIONS on an instance of
        configurationServiceManager.";;;;
    CONDITIONAL PACKAGES
        overridePkg
        PRESENT IF "an instance supports it";
REGISTERED AS {ocaManagedObjectClass 92};
```

7.2 Name bindings

7.2.1 Access channel-service package

```
accessChannel-servicePackage NAME BINDING
    SUBORDINATE OBJECT CLASS        "ITU-T Recommendation Q.824.0 (1996)":accessChannel
                                    AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":servicePackage
                                    AND SUBCLASSES;
    WITH ATTRIBUTE "CCITT Recommendation M.3100":cTPId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 1};
```

7.2.2 Access port profile-managed element

```
accessPortProfile-managedElement NAME BINDING
    SUBORDINATE OBJECT CLASS        "ITU-T Recommendation Q.824.0 (1996)":accessPortProfile
                                    AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "CCITT Recommendation M.3100(1992)":managedElement
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":accessPortProfileId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 2};
```

7.2.3 Access port profile-service package

```
accessPortProfile-servicePackage NAME BINDING
    SUBORDINATE OBJECT CLASS        "ITU-T Recommendation Q.824.0 (1996)":accessPortProfile
                                    AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":servicePackage
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":accessPortProfileId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 3};
```

7.2.4 Customer observation-ETSI access port

```
customerObservation-etsiAccessPort NAME BINDING
    SUBORDINATE OBJECT CLASS        customerObservation AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  etsiAccessPort AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 4};
```

7.2.5 Customer observation-ETSI customized resource

```
customerObservation-etsiCustomizedResource NAME BINDING
    SUBORDINATE OBJECT CLASS        customerObservation AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  etsiCustomizedResource AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 5};
```

7.2.6 Customer observation-ETSI directory number E.164

```
customerObservation-etsiDirectoryNumberE164 NAME BINDING
    SUBORDINATE OBJECT CLASS        customerObservation AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  etsiDirectoryNumberE164 AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 6};
```

7.2.7 Customer profile-managed element

```
customerProfile-managedElement NAME BINDING
    SUBORDINATE OBJECT CLASS        "ITU-T Recommendation Q.824.0 (1996)":customerProfile
                                    AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "CCITT Recommendation M.3100(1992)":managedElement
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":customerProfileId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 7};
```

7.2.8 Customer profile-service package

```
customerProfile-servicePackage NAME BINDING
    SUBORDINATE OBJECT CLASS        "ITU-T Recommendation Q.824.0 (1996)":customerProfile
                                    AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":servicePackage
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":customerProfileId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 8};
```

7.2.9 Customized supplementary service-general ISDN service container

```
customizedSupplementaryService-generalIsdnServiceContainer NAME BINDING
    SUBORDINATE OBJECT CLASS        customizedSupplementaryService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  generalIsdnServiceContainer AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 9};
```

7.2.10 Customized supplementary service-general PSTN service container

```
customizedSupplementaryService-generalPstnServiceContainer NAME BINDING
    SUBORDINATE OBJECT CLASS        customizedSupplementaryService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  generalPstnServiceContainer AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 10};
```

7.2.11 Customized supplementary service-non ISDN service

```
customizedSupplementaryService- nonIsdnService NAME BINDING
    SUBORDINATE OBJECT CLASS        customizedSupplementaryService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  nonIsdnService AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 11};
```

7.2.12 Customized supplementary service-service package

```
customizedSupplementaryService-servicePackage NAME BINDING
    SUBORDINATE OBJECT CLASS        customizedSupplementaryService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":servicePackage
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 12};
```

7.2.13 Directory number-managed element

```
directoryNumber-managedElement NAME BINDING
    SUBORDINATE OBJECT CLASS        "ITU-T Recommendation Q.824.0 (1996)":directoryNumber
                                    AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "CCITT Recommendation M.3100(1992)":managedElement
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":directoryNumberId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 13};
```

7.2.14 ETSI access channel-ETSI access port

```
etsiAccessChannel-etsiAccessPort NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiAccessChannel AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  etsiAccessPort AND SUBCLASSES;
    WITH ATTRIBUTE                  "CCITT Recommendation M.3100:1992":cTPId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 14};
```

7.2.15 ETSI access port-managed element

```
etsiAccessPort-managedElement NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiAccessPort AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "CCITT Recommendation M.3100(1992)":managedElement
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "CCITT Recommendation M.3100":tTPId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 15};
```

7.2.16 ETSI bearer service-customer profile

```
etsiBearerService-customerProfile NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiBearerService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":customerProfile
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":bearerServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 16};
```

7.2.17 ETSI bearer service- general ISDN service container

```
etsiBearerService-generalIsdnServiceContainer NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiBearerService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  generalIsdnServiceContainer AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":bearerServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 17};
```

7.2.18 ETSI bearer service-service package

```
etsiBearerService-servicePackage NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiBearerService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":servicePackage
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":bearerServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 18};
```

7.2.19 ETSI customized Resource-customer profile

```
etsiCustomizedResource-customerProfile NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiCustomizedResource AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":customerProfile
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":customizedResourceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 19};
```

7.2.20 ETSI supplementary service - service independent-general ISDN service container

```
etsiSupplementaryServiceServiceIndependent-generalIsdnServiceContainer NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiSupplementaryServiceServiceIndependent AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  generalIsdnServiceContainer AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 20};
```

7.2.21 ETSI supplementary service - service independent-general PSTN service container

```
etsiSupplementaryServiceServiceIndependent-generalPstnServiceContainer NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiSupplementaryServiceServiceIndependent AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  generalPstnServiceContainer AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 21};
```

7.2.22 ETSI supplementary service - service independent-service package

```
etsiSupplementaryServiceServiceIndependent-servicePackage NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiSupplementaryServiceServiceIndependent AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":servicePackage
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding 22};
```

7.2.23 ETSI teleservice-customer profile

```
etsiTeleservice-customerProfile NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiTeleservice AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":customerProfile
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":teleserviceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 23};
```

7.2.24 ETSI teleservice-general ISDN service container

```
etsiTeleservice-generalIsdnServiceContainer NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiTeleservice AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  generalIsdnServiceContainer AND SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":teleserviceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 24};
```

7.2.25 ETSI teleservice-service package

```
etsiTeleservice-servicePackage NAME BINDING
    SUBORDINATE OBJECT CLASS        etsiTeleservice AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":servicePackage AND
    SUBCLASSES;
    WITH ATTRIBUTE                  "ITU-T Recommendation Q.824.0 (1996)":teleserviceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 25};
```

7.2.26 General ISDN service container-managed element

```
generalIsdnServiceContainer-managedElement NAME BINDING
    SUBORDINATE OBJECT CLASS        generalIsdnServiceContainer AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "CCITT Recommendation M.3100(1992)":managedElement
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  serviceContainerId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 26};
```

7.2.27 General PSTN service container-managed element

```
generalPstnServiceContainer-managedElement NAME BINDING
    SUBORDINATE OBJECT CLASS        generalPstnServiceContainer AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "CCITT Recommendation M.3100(1992)":managedElement
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  serviceContainerId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 27};
```

7.2.28 Non ISDN service-customer profile

```
nonIsdnService-customerProfile NAME BINDING
    SUBORDINATE OBJECT CLASS        nonIsdnService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  "ITU-T Recommendation Q.824.0 (1996)":customerProfile
                                    AND SUBCLASSES;
    WITH ATTRIBUTE                  nonIsdnServiceId
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE DELETES-CONTAINED-OBJECTS;
REGISTERED AS {ocaNameBinding 28};
```

7.2.29 Service manager-managed element

The serviceManger-managedElement name binding is defined in ITU-T Recommendation Q.824.0 [46].

7.2.30 Service package-managed element

The servicePackage-managedElement name binding is defined in ITU-T Recommendation Q.824.0 [46].

7.3 Definition of packages

7.3.1 Administrative state package

```
adminStatePkg PACKAGE
    ATTRIBUTES
    "CCITT Recommendation X.721:1992":adminstrativeState    GET-REPLACE;
REGISTERED AS {ocaPackage 1};
```

7.3.2 Automatic invocation package

```
automaticInvocationPkg PACKAGE
    ATTRIBUTES
    "ITU-T Recommendation Q.824.2 (1996)":automaticInvocation       GET-REPLACE;
REGISTERED AS {ocaPackage 2};
```

7.3.3 Call completion busy recall mode package

```
callCompletionBusyRecallModePkg PACKAGE
    ATTRIBUTES
    callCompletionBusyRecallMode        GET-REPLACE;
REGISTERED AS {ocaPackage 3};
```

7.3.4 Call completion no reply recall mode package

```
callCompletionNoReplyRecallModePkg PACKAGE
    ATTRIBUTES
    callCompletionNoReplyRecallMode     GET-REPLACE;
REGISTERED AS {ocaPackage 4};
```

7.3.5 Call diversion restrictions package

```
callDiversionRestrictionsPkg PACKAGE
    ATTRIBUTES
    callDiversionRestrictions       GET-REPLACE;
REGISTERED AS {ocaPackage 5};
```

7.3.6 Connection type package

```
connectionTypePkg PACKAGE
    ATTRIBUTES
    connectionType              GET-REPLACE;
REGISTERED AS {ocaPackage 6};
```

7.3.7 Customer characteristics package

```
customerCharacteristicsPkg PACKAGE
    BEHAVIOUR
    customerCharacteristicsPkgBhv BEHAVIOUR
    DEFINED AS "The Customer Type attribute specifies whether the customer profile is for:
    -   a single line customer; or
    -   a hot line customer; or
    -   a multi line customer.

    -   'customerType' attribute value = 'singleLine': The customer profile instance
        may be related to at most one access Port instance:
        In the case where the access port is analogue or digital the customer profile is
        related to a single directory Number instance and may contain CEPT or non-
        standard supplementary services.
        In the case of a basicAccess / primaryRateAccess the customer profile may be
        related to one or more directory Number instances and contains at least one
        bearer- and/or teleservice.
    -   customerType' attribute value = 'multiLinePBX' or 'multiLineNonPBX ': The
        customer profile instance may be related to several instances of access Port
        which may be of different architecture:
        In case of an homogeneous analogue access architecture the customer profile is
        non-related to one or more directory number instance(s) and may contain CEPT or
        standard supplementary services.
        In case of an homogeneous digital access architecture the customer profile is
        related to one or more directory number instance(s) and may contain CEPT or
        non-standard supplementary services.
        In case of an homogeneous basic access / primary rate access architecture the
        customer profile may be related to one or more directory number instance(s) and
        contains at least one bearer- and/or teleservice.
        In case of a mixture of analogue- / ISDN- / digital access the customer profile may
        be related to one or more directory number instance(s) and contains for each
        access port architecture at least one customized Resource instance and its
        appropriate service instance(s).

    The Customer Category attribute identifies the customer as being for instance:
    -   a standard customer (default value);
    -   a coin box;
    -   a mobile customer;
    -   a test equipment;
    -   an operator etc.

    The Customer Type attribute is a single-valued, read-write attribute. In the initial state, it
    has the 'singleLine' value. Changing the value of the Customer Type attribute generates an
    attribute value change notification.

    The Customer Category attribute is a single-valued, read-write attribute. In the initial state,
    it has the 'standard' value. Changing the value of the Customer Category attribute generates an
    attribute value change notification.";;
    ATTRIBUTES
    customerType                    DEFAULT VALUE
                                    CustomerAdminModuleV2.customerTypeDefault
                                    GET-REPLACE,
    customerCategory                DEFAULT VALUE
                                    CustomerAdminModuleV2.customerCategoryDefault
                                    GET-REPLACE;
REGISTERED AS {ocaPackage 7};
```

7.3.8 Customer control permission package

```
customerControlPermissionPkg PACKAGE
    ATTRIBUTES
    customerControlPermission   GET-REPLACE;
REGISTERED AS {ocaPackage 8};
```

7.3.9 Directionality package

```
directionalityPkg PACKAGE
    ATTRIBUTES
    directionality              GET SET-BY-CREATE;
REGISTERED AS {ocaPackage 9};
```

7.3.10 General service list package

```
generalServiceListPkg PACKAGE
    ATTRIBUTES
    generalServiceList      GET-REPLACE;
REGISTERED AS {ocaPackage 10};
```

7.3.11 Local defined number package

```
localDefinedNumberPkg PACKAGE
    ATTRIBUTES
    localDefinedNumber              GET-REPLACE;
REGISTERED AS {ocaPackage 11};
```

7.3.12 Local packet handler package

```
localPacketHandlerPkg PACKAGE
    BEHAVIOUR
    localPacketHandlerPkgBhv BEHAVIOUR
        DEFINED AS "According to ETS 300 007, the value of the notificationClass attribute shall be
        restricted to noNotificationClass and conditionalNotification respectively.
        The layer2InfoEntityPtr shall only point to an instance of layerEntityLAPB in the case of
        packet B channel or to an instance of layerEntityLAPD in the case of packet D channel or its
        subclasses.
        The layer3InfoEntityPtr shall point to the appropriate instance of layerEntityX25PLP or
        layerEntityX25PLPShared or its subclasses.";;
    ATTRIBUTES
    "ITU-T Recommendation Q.824.1 (1996)": notificationClass                GET-REPLACE
                        PERMITTED VALUES CustomerAdminModuleV2.PermittedNotificationClass,
    "ITU-T Recommendation Q.824.1 (1996)": layer2InfoEntityPtr              GET-REPLACE,
    "ITU-T Recommendation Q.824.1 (1996)": layer3InfoEntityPtr              GET-REPLACE;
REGISTERED AS {ocaPackage 12};
```

7.3.13 Maximum number of information channels package

```
maxNumOfInfoChannelsPkg PACKAGE
    BEHAVIOUR
        maxNumOfInfoChannelsPkgBhv BEHAVIOUR
        DEFINED AS "The value of the maxNumOfInfoChannels attribute shall not be in contradiction
        with the value of this attribute in the corresponding bearer resp. teleservice object
        instance.";;
    ATTRIBUTES
    maxNumOfInfoChannels    GET SET-BY-CREATE;
REGISTERED AS {ocaPackage 13};
```

7.3.14 Maximum number of total calls package

```
maxNumOfTotalCallsPkg PACKAGE
    BEHAVIOUR
        maxNumOfTotalCallsPkgBhv BEHAVIOUR
        DEFINED AS "The value of the maxNumOfTotalCalls attribute shall not be in contradiction with
        the value of this attribute in the corresponding bearer resp. teleservice object
        instance.";;
    ATTRIBUTES
    maxNumOfTotalCalls      GET SET-BY-CREATE;
REGISTERED AS {ocaPackage 14};
```

7.3.15 Message waiting indication controlling user package

```
mwiControllingUserPkg PACKAGE
    ATTRIBUTES
    mwiControllingUser              GET-REPLACE;
REGISTERED AS {ocaPackage 15};
```

7.3.16 Message waiting indication receiver pointer package

```
mwiReceiverPointerPkg PACKAGE
    ATTRIBUTES
    mwiReceiverPointer              GET-REPLACE;
REGISTERED AS {ocaPackage 16};
```

7.3.17 Metering counter package

```
meteringCounterPkg PACKAGE
    BEHAVIOUR
    meteringCounterPkgBhv BEHAVIOUR
    DEFINED AS "Both etsiDirectoryNumberE164 and etsiAccessPort have the conditional package
    meteringCounterPkg containing the meteringCounter attribute. This package shall only be
    instantiated with one of these two object classes or their subclasses within one managed
    element.";;
        ATTRIBUTES
        meteringCounter     GET;
REGISTERED AS {ocaPackage 17};
```

7.3.18 Modification permission package

```
modificationPermissionPkg PACKAGE
    ATTRIBUTES
    modificationPermission  GET-REPLACE;
REGISTERED AS {ocaPackage 18};
```

7.3.19 Observation mode package

```
observationModePkg PACKAGE
    ATTRIBUTES
    observationMode     GET-REPLACE;
REGISTERED AS {ocaPackage 19};
```

7.3.20 Origin for analysis package

```
originForAnalysisPkg PACKAGE
    ATTRIBUTES
    "EN 300 292 (1998)":originForAnalysis              GET-REPLACE;
REGISTERED AS {ocaPackage 20};
```

7.3.21 Origin for charging package

```
originForChargingPkg PACKAGE
    ATTRIBUTES
    originForCharging               GET-REPLACE;
REGISTERED AS {ocaPackage 21};
```

7.3.22 Origin for routeing package

```
originForRouteingPkg PACKAGE
    ATTRIBUTES
    "EN 300 292 (1998)":originForRouteing              GET-REPLACE;
REGISTERED AS {ocaPackage 22};
```

7.3.23 Override package

```
overridePkg PACKAGE
    BEHAVIOUR
    overridePkgBhv BEHAVIOUR
    DEFINED AS "If the override attribute is not empty set, an addServiceToConfiguration action
    shall replace an instance of a service defining object class indicated in this attribute if this
    object class is part of the contained profile. Else, an existing instance of a service defining
    object class shall not be replaced. In both cases, no error information shall be indicated.";;
    ATTRIBUTES
    override    GET-REPLACE ADD-REMOVE;
REGISTERED AS {ocaPackage 23};
```

7.3.24 Owned list package

```
ownedListPkg PACKAGE
    ATTRIBUTES
    ownedList                   GET-REPLACE ADD-REMOVE,
    listShared                  DEFAULT VALUE
                                CustomerAdminModuleV2.listSharedDefault
                                GET-REPLACE,
    maxNumberOfEntries          GET-REPLACE;
REGISTERED AS {ocaPackage 24};
```

7.3.25 Ported directory number package

```
portedDirectoryNumberPkg PACKAGE
    ATTRIBUTES
    routeingInformation     GET-REPLACE;
REGISTERED AS {ocaPackage 25};
```

7.3.26 Remotely controlled service package

```
remotelyControlledServicePkg PACKAGE
    ATTRIBUTES
    remotelyControlledService       GET-REPLACE;
REGISTERED AS {ocaPackage 26};
```

7.3.27 Shared list package

```
sharedListPkg PACKAGE
    ATTRIBUTES
    sharedList          GET-REPLACE ADD-REMOVE;
REGISTERED AS {ocaPackage 27};
```

7.3.28 Semipermanent line package

```
semipermanentLinePkg PACKAGE
    BEHAVIOUR
    semipermanentLinePkgBhv BEHAVIOUR
    DEFINED AS "This information model only covers the aspect of relationship of a customer
    configuration to a semi permanent connection. The semi permanent connection as such might e.g.
    be modelled by using the M3100:crossConnection object class or a subclass of it. If the semi
    permanent connection as such is managed by this means, the semipermanentLine attribute should
    not be used. Instead, the information whether a customer configuration is involved in a semi
    permanent line can be retrieved by reading the crossConnection object pointer attribute.";;
    ATTRIBUTES
    semipermanentLine           DEFAULT VALUE
                                CustomerAdminModuleV2.semipermanentLineDefault
                                GET-REPLACE;
REGISTERED AS {ocaPackage 28};
```

7.3.29 Service activated package

```
serviceActivatedPkg PACKAGE
    ATTRIBUTES
    serviceActivated    GET SET-BY-CREATE;
REGISTERED AS {ocaPackage 29};
```

7.3.30 Voice messaging number package

```
voiceMessagingNumberPkg PACKAGE
    ATTRIBUTES
    voiceMessagingNumber        GET-REPLACE;
REGISTERED AS {ocaPackage 30};
```

7.4 Definition of attributes

```
accountSuspension ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.BlockingDirection;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    accountSuspensionBhv BEHAVIOUR
    DEFINED AS "It gives the blocking direction for blocking (none, incoming, outgoing, bothways)
    due to non-payment.";;
REGISTERED AS {ocaAttribute 1};

adminBlocking ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.BlockingDirection;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    adminBlockingBhv BEHAVIOUR
    DEFINED AS "It gives the blocking direction for administrative blocking (none, incoming,
    outgoing, bothways)";;
REGISTERED AS {ocaAttribute 2};

adviceOfChargeActivation ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.AdviceOfChargeActivation;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    adviceOfChargeActivationBhv BEHAVIOUR
    DEFINED AS "Flag indicating whether the service is available for all calls automatically or on a
    per call basis.";;
REGISTERED AS {ocaAttribute 3};

alarmCallType ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.AlarmCallType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    alarmCallTypeBhv BEHAVIOUR
    DEFINED AS "It gives the type of alarm call (casual, regular consecutive days, regular specified
    days) and the related program if the type is not casual.";;
REGISTERED AS {ocaAttribute 4};

announcementNumber ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Number;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    announcementNumberBhv BEHAVIOUR
    DEFINED AS "It gives the announcement number (INTEGER). Which announcement corresponds with an
    announcement number is a matter of local implementation.";;
REGISTERED AS {ocaAttribute 5};

assocDefaultDN ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.IsdnNb;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    assocDefaultDNBhv BEHAVIOUR
    DEFINED AS "It gives the default directory number for an MSN configuration.";;
REGISTERED AS {ocaAttribute 6};

callCompletionBusyRecallMode ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CallCompletionRecallMode;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    callCompletionBusyRecallModeBhv BEHAVIOUR
    DEFINED AS "Flag indicating whether a completion of calls to busy subscribers recall is offered
    to the termination which activated the service or to all compatible terminations.";;
REGISTERED AS {ocaAttribute 7};

callCompletionNoReplyRecallMode ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CallCompletionRecallMode;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    callCompletionNoReplyRecallModeBhv BEHAVIOUR
    DEFINED AS "It is a flag indicating whether a completion of calls on no replying customer recall
    is offered to the termination which activated the service or to all compatible terminations.";;
REGISTERED AS {ocaAttribute 8};
```

```
callDiversionRestrictions ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CallDiversionRestrictions;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    callDiversionRestrictionsBhv BEHAVIOUR
    DEFINED AS "It indicates whether the forwarded-to number specified at remote activation shall
    have some restrictions (choice within a specified geographical area or belonging to a list of
    predetermined forwarded-to numbers) or not.";;
REGISTERED AS {ocaAttribute 9};

callForwardActiveNotification ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    callForwardActiveNotificationBhv BEHAVIOUR
    DEFINED AS "Flag indicating whether the served user is to be notified that call forwarding is
    active.";;
REGISTERED AS {ocaAttribute 10};

callForwardCallingNotification ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CallForwardCallingNotification;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    callForwardCallingNotificationBhv BEHAVIOUR
    DEFINED AS "Flag indicating whether the calling user is to be notified that his call has been
    forwarded.";;
REGISTERED AS {ocaAttribute 11};

callForwardReleaseNotification ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CallForwardReleaseNotification;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    callForwardReleaseInformationBhv BEHAVIOUR
    DEFINED AS "Flag indicating whether served user releases number information to forwarded-to
    user.";;
REGISTERED AS {ocaAttribute 12};

callForwardServedNotification ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CallForwardServedNotification;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    callForwardServedNotificationBhv BEHAVIOUR
    DEFINED AS "Flag indicating whether served user receives notification that a call has been
    forwarded.";;
REGISTERED AS {ocaAttribute 13};

callWaitingCallingNotification ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CallWaitingCallingNotification;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    callWaitingCallingNotificationBhv BEHAVIOUR
    DEFINED AS "Flag indicating whether the calling user is to be notified that his call is
    waiting.";;
REGISTERED AS {ocaAttribute 14};

catastrophe ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Catastrophe;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    catastropheBhv BEHAVIOUR
    DEFINED AS "It indicates the preference category of the access during catastrophe.";;
REGISTERED AS {ocaAttribute 15};

channelType ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.ChannelType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    channelTypeBhv BEHAVIOUR
    DEFINED AS "It specifies the channel type (e.g. ISDN D-channel, non-ISDN channel).";;
REGISTERED AS {ocaAttribute 16};

connectionType ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.ConnectionType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    connectionTypeBhv BEHAVIOUR
    DEFINED AS "It indicates whether it is a point to point or a point to multipoint
    configuration.";;
REGISTERED AS {ocaAttribute 17};
```

```
ctmId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.DialledDigits;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    ctmIdBhv BEHAVIOUR
    DEFINED AS "It provides the relevant data for the search of DECT terminals being part of a CTM
    configuration.";;
REGISTERED AS {ocaAttribute 18};

cUGBarring ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CUGBarring;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    cUGBarringBhv BEHAVIOUR
    DEFINED AS "This attribute maintains the intra-CUG restriction of the general subscription
    option in ETS 300 136. It may have one of the following values: none, incomingCallsBarred or
    outgoingCallsBarred.";;
REGISTERED AS {ocaAttribute 19};

cUGDataNetworkIdentification ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CUGDataNetworkIdentification;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    cUGDataNetworkIdentificationBhv BEHAVIOUR
    DEFINED AS "This information is signalled during set-up of a CUG call and serves (in conjunction
    with the closed user group interlock code) to uniquely identify the CUG in the international
    network. It can be thought of as the area code of the CUG.";;
REGISTERED AS {ocaAttribute 20};

cUGIndex ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CUGIndex;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    cUGIndexBhv BEHAVIOUR
    DEFINED AS "cUGIndex of general subscription option in ETS 300 136 must be explicitly assigned
    upon object creation. The cUGIndex is used by the calling user to select a particular CUG when
    originating a call.";;
REGISTERED AS {ocaAttribute 21};

cUGInterlockCode ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CUGInterlockCode;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    cUGInterlockCodeBhv BEHAVIOUR
    DEFINED AS "The attribute cUGInterlockCode must be explicitly assigned upon object creation. The
    attribute is a means of identifying a CUG membership within the network.";;
REGISTERED AS {ocaAttribute 22};

customerCategory ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CustomerCategory;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    customerCategoryBhv BEHAVIOUR
    DEFINED AS "The customer category attribute identifies the customer as being for instance:
    - a standard customer,
    - a coin box,
    - a mobile customer,
    - a test equipment,
    - an operator, etc.";;
REGISTERED AS {ocaAttribute 23};

customerControlPermission ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    customerControlPermissionBhv BEHAVIOUR
    DEFINED AS "This attribute indicates whether a customer is allowed to activate / deactivate a
    service allowing for customer control.";;
REGISTERED AS {ocaAttribute 24};

customerType ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.CustomerType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    customerTypeBhv BEHAVIOUR
    DEFINED AS "It specifies whether the customer profile is for a single line or for a multi-line
    customer.";;
REGISTERED AS {ocaAttribute 25};
```

```
dChannelLayer1Activation ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.DChannelActivation;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    dChannelLayer1ActivationBhv BEHAVIOUR
    DEFINED AS "It specifies whether layer one has to be held active.";;
REGISTERED AS {ocaAttribute 26};

dChannelLayer2Activation ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.DChannelActivation;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    dChannelLayer2ActivationBhv BEHAVIOUR
    DEFINED AS "It specifies whether layer two has to be held active.";;
REGISTERED AS {ocaAttribute 27};

detailClass ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.DetailClass;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    detailClassBhv BEHAVIOUR
    DEFINED AS "It defines the detail class for the detailed billing service. This detail can be
    limited e.g. to international calls, national long distance calls, special service calls,
    successful calls.";;
REGISTERED AS {ocaAttribute 28};

directionality ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Directionality;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    directionalityBhv BEHAVIOUR
    DEFINED AS "It indicates the directionality (incoming, outgoing, bothways, where bothways is
    default value)";;
REGISTERED AS {ocaAttribute 29};

doNotDisturb ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    doNotDisturbBhv BEHAVIOUR
    DEFINED AS "It indicates whether the do-not-disturb announcement is activated (TRUE) or not
    (FALSE).";;
REGISTERED AS {ocaAttribute 30};

etsiDeflectingNumberNotification ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.EtsiDeflectingNumberNotification;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    etsiDeflectingNumberNotificationBhv BEHAVIOUR
    DEFINED AS "It indicates the subscription option of whether a calling user receives notification
    that his call has been deflected (1) or not (0). In the case the use is to be notified, the
    deflected to number may be sent to the originator of the call (2).";;
REGISTERED AS {ocaAttribute 31};

etsiE164DirectoryNumber ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.EtsiE164DirectoryNumber;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    etsiE164DirectoryNumberBhv BEHAVIOUR
    DEFINED AS "It represents the ISDN number according to the ISDN numbering plan defined in CCITT
    Recommendation E.164. It is composed of two fields:
    - country code (optional);
    - national significant number.
    The national significant number is itself composed of two fields:
    - national destination code (optional);
    - customer number.";;
REGISTERED AS {ocaAttribute 32};

fixedDestinationNumber ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.FixedDestinationNumber;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    fixedDestinationNumberBhv BEHAVIOUR
    DEFINED AS "It gives the directory number to which the call shall be forwarded. Its value NULL
    means that calls are not to be forwarded to a fixed destination unless the OS or the customer by
    remote control changes its value to a directory number.";;
REGISTERED AS {ocaAttribute 33};
```

```
fixedPrograms ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Programs;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    fixedProgramsBhv BEHAVIOUR
    DEFINED AS "It gives the assigned fixed barring programs.";;
REGISTERED AS {ocaAttribute 34};

forwardImmediately ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    forwardImmediatelyBhv BEHAVIOUR
    DEFINED AS "It indicates call forward immediately (TRUE) or call forward on no reply (FALSE).";;
REGISTERED AS {ocaAttribute 35};

generalServiceList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.GeneralServiceList;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    generalServiceListBhv BEHAVIOUR
    DEFINED AS "It lists the services having no configurable attributes which are available
    generally for the respective customer configurations.";;
REGISTERED AS {ocaAttribute 36};

interCUGAccess ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.InterCUGAccess;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    interCUGAccessCodeBhv BEHAVIOUR
    DEFINED AS "Inter-CUG access of per service subscription option in ETS 300 136. The values are
    none, outgoingAccess, incomingAccess and outgoingAndIncomingAccess";;
REGISTERED AS {ocaAttribute 37};

interceptionReason ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    interceptionReasonBhv BEHAVIOUR
    DEFINED AS "It gives the reason for the interception";;
REGISTERED AS {ocaAttribute 38};

kindOfAlarmCall ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.KindOfAlarmCall;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    kindOfAlarmCallBhv BEHAVIOUR
    DEFINED AS "It gives the kind of alarm call (manual, automatic, semi automatic).";;
REGISTERED AS {ocaAttribute 39};

lineCharacteristics ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.LineCharacteristics;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    lineCharacteristicsBhv BEHAVIOUR
    DEFINED AS "It specifies the transmission characteristics of the analogue line (e.g.
    attenuation).";;
REGISTERED AS {ocaAttribute 40};

lineSignalling ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.LineSignalling;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    lineSignallingBhv BEHAVIOUR
    DEFINED AS "It specifies which signalling the analogue access port uses for the line (e.g. Dual
    Tone Multi Frequency (DTMF) or pulse dialling).";;
REGISTERED AS {ocaAttribute 41};

listShared ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    listSharedBhv BEHAVIOUR
    DEFINED AS "It indicates whether the owned list is shared (TRUE) or not (FALSE).";;
REGISTERED AS {ocaAttribute 42};

localDefinedNumber ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.EtsiE164DirectoryNumber;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    localDefinedNumberBhv BEHAVIOUR
    DEFINED AS "It is an identifier for the access port that is used if in a configuration the port
    itself is not associated with a E.164 directory number.";;
```

```
REGISTERED AS {ocaAttribute 43};

maintBlocking ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.MaintBlocking;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    maintBlockingBhv BEHAVIOUR
    DEFINED AS "It gives the blocking status for maintenance blocking.";;
REGISTERED AS {ocaAttribute 44};

maxNumberOfEntries ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Number;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    maxNumberOfEntriesBhv BEHAVIOUR
    DEFINED AS "It gives the maximum number of entries for abbreviated dialling.";;
REGISTERED AS {ocaAttribute 45};

maxNumOfInfoChannels ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.MaxNb;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    maxNumOfInfoChannelsBhv BEHAVIOUR
    DEFINED AS "It gives the maximum number of information channels.";;
REGISTERED AS {ocaAttribute 46};

maxNumOfTotalCalls ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.MaxNb;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    maxNumOfTotalCallsBhv BEHAVIOUR
    DEFINED AS "It gives the maximum number of total calls.";;
REGISTERED AS {ocaAttribute 47};

maxNumberOfWaitingCalls ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Number;
    MATCHES FOR EQUALITY, ORDERING;
    BEHAVIOUR
    maxNumberOfWaitingCallsBhv BEHAVIOUR
    DEFINED AS "The maximum number of calls that can be waiting.";;
REGISTERED AS {ocaAttribute 48};

messageWaitingIndicator ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    messageWaitingIndicatorBhv BEHAVIOUR
    BEHAVIOUR
    DEFINED AS "It indicates if one or more messages are waiting for the receiving user (TRUE).";;
REGISTERED AS {ocaAttribute 49};

meteringCounter ATTRIBUTE
    DERIVED FROM "CCITT Recommendation X.721:1992":counter;
    BEHAVIOUR
    meteringCounterBhv BEHAVIOUR
    DEFINED AS "It gives the current value of the metering counter for charging.";;
REGISTERED AS {ocaAttribute 50};

modificationPermission ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    modificationPermissionBhv BEHAVIOUR
    DEFINED AS "This attribute indicates whether a customer is allowed to modify a service allowing
    for customer control.";;
REGISTERED AS {ocaAttribute 51};

mwiControllingUser ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.EtsiE164DirectoryNumber;
    MATCHES FOR EQUALITY;
    mwiControllingUserBhv BEHAVIOUR
    BEHAVIOUR
    DEFINED AS "It gives the controlling user's directory number.";;
REGISTERED AS {ocaAttribute 52};

mwiInvocationMode ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    mwiInvocationModeBhv BEHAVIOUR
    BEHAVIOUR
    DEFINED AS "It indicates when the service is to be invocated either when the receiving user
    makes an outgoing call (TRUE) or on activation of the service (by the controlling user)
    (FALSE).";;
```

```
REGISTERED AS {ocaAttribute 53};

mwiReceiverPointer ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Pointer;
    MATCHES FOR EQUALITY;
    mwiReceiverPointerBhv BEHAVIOUR
    BEHAVIOUR
    DEFINED AS "It gives the associated mwiReceiver instance.";;
REGISTERED AS {ocaAttribute 54};

nonIsdnServiceId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    nonIsdnServiceIdBhv BEHAVIOUR
    DEFINED AS "It gives the RDN.";;
REGISTERED AS {ocaAttribute 55};

observationMode ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Number;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    observationModeBhv BEHAVIOUR
    DEFINED AS "It distinguishes between e.g. charging observation, expensive call monitoring, and
    quality of service verification, or between observation of incoming calls and/or outgoing calls,
    etc. Which observation mode corresponds with the value of this attribute number is a matter of
    local implementation.";;
REGISTERED AS {ocaAttribute 56};

originForCharging ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Origin;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    originForChargingBhv BEHAVIOUR
    DEFINED AS "It groups customer profiles for charging and/or tariffing purposes.";;
REGISTERED AS {ocaAttribute 57};

override ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Override;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    overrideBhv BEHAVIOUR
    DEFINED AS "It identifies whether an instance of a service defining object class indicated in
    this attribute shall be replaced by an addServiceToConfiguration action if this object class is
    part of the contained profile. The instantiation of conditional packages is considered in this
    attribute as an option.";;
REGISTERED AS {ocaAttribute 58};

ownedList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.OwnedList;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    ownedListBhv BEHAVIOUR
    DEFINED AS "It gives an individual list for abbreviated dialling.";;
REGISTERED AS {ocaAttribute 59};

permittedMobileArea ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Area;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    permittedMobileAreaBhv BEHAVIOUR
    DEFINED AS "It gives the area of the network in which the DECT terminal can make and receive
    calls.";;
REGISTERED AS {ocaAttribute 60};

pin ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Pin;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    pinBhv BEHAVIOUR
    DEFINED AS "It contains the PIN. The initial value and the default value of this attribute is
    determined by the network element resource on its own.";;
REGISTERED AS {ocaAttribute 61};

pinProfileRef ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.PinProfileRef;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    pinProfileRefBhv BEHAVIOUR
    DEFINED AS "It identifies the PIN controlled customized services assigned to a customer
    configuration for which the PIN given in the pin attribute is valid. It is a choice between an
    INTEGER representing pre-defined profiles on exchange level and a SET OF ObjectClass
    representing supplementary service object classes.";;
```

```
REGISTERED AS {ocaAttribute 62};

preferredCUGIndex ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.PreferredCUGIndex;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    preferredCUGIndexBhv BEHAVIOUR
    DEFINED AS "CUG index of general subscription option in ETS 300 136. It is used to identify the
    required CUG in the absence of a CUG index being included in the outgoing call request";;
REGISTERED AS {ocaAttribute 63};

preselectedCarrier ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.PreselectedCarrier;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    preselectedCarrierBhv BEHAVIOUR
    DEFINED AS "It gives the preselected carrier. A carrierType value shall only appear once in this
    attribute.";;
REGISTERED AS {ocaAttribute 64};

primaryDN ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    primaryDNBhv BEHAVIOUR
    DEFINED AS "It defines whether the line is a primary (TRUE) or secondary (FALSE) line of the
    customer.";;
REGISTERED AS {ocaAttribute 65};

remotelyControlledService ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.RemotelyControlledService;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    remotelyControlledServiceBhv BEHAVIOUR
    DEFINED AS "It indicates which supplementary services the served user has subscribed for remote
    control.";;
REGISTERED AS {ocaAttribute 66};

ringingSequence ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.RingingSequence;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    ringingSequenceBhv BEHAVIOUR
    DEFINED AS "It defines the characteristics of the ringing signal to be sent.";;
REGISTERED AS {ocaAttribute 67};

routeingInformation ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.RouteingInformation;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    routeingInformationBhv BEHAVIOUR
    DEFINED AS "It gives the directory number porting information. If this attribute is empty
    string, the directory number is not ported. If it has NULL value, the routeing information is to
    be retrieved from another server (e.g. IN SCP). In all other cases, the information relevant for
    routeing is given.";;
REGISTERED AS {ocaAttribute 68};

semipermanentLine ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.SemipermanentLine;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    semipermanentLineBhv BEHAVIOUR
    DEFINED AS "It indicates whether this entity is related to a semipermanent line (TRUE) or not
    (FALSE).";;
REGISTERED AS {ocaAttribute 69};

serviceActivated ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    serviceActivatedBhv BEHAVIOUR
    DEFINED AS "It indicates whether the service is activated (TRUE) or not (FALSE).";;
REGISTERED AS {ocaAttribute 70};

serviceContainerId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    serviceContainerIdBhv BEHAVIOUR
    DEFINED AS "It gives the RDN.";;
REGISTERED AS {ocaAttribute 71};
```

```
sharedList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.SharedList;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    sharedListBhv BEHAVIOUR
    DEFINED AS "It is a pointer to one or more object instances of abbreviatedDialling representing
    shared lists.";;
REGISTERED AS {ocaAttribute 72};

supplementaryServiceServiceDependentPtrList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.PointerList;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    supplementaryServiceServiceDependentPtrListBhv BEHAVIOUR
    DEFINED AS "It points to the associated supplementaryServiceServiceDependent object
    instances.";;
REGISTERED AS {ocaAttribute 73};

supplementaryServiceServiceIndependentPtrList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.PointerList;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    supplementaryServiceServiceIndependentPtrListBhv BEHAVIOUR
    DEFINED AS "It points to the associated supplementaryServiceServiceIndependent object
    instances.";;
REGISTERED AS {ocaAttribute 74};

timeOfDay ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TimeOfDay;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    timeOfDayBhv BEHAVIOUR
    DEFINED AS "It gives the time of day (hours and minutes) for the execution of the alarm call.";;
REGISTERED AS {ocaAttribute 75};

userControlledPrograms ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.Programs;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    userControlledProgramsBhv BEHAVIOUR
    DEFINED AS "It gives the barring programs assigned by user control.";;
REGISTERED AS {ocaAttribute 76};

uusService1Implicit ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    uusService1ImplicitBhv BEHAVIOUR
    DEFINED AS "It indicates whether the service is available (TRUE) or not (FALSE) during
    origination and termination of calls by means of an implicit request.";;
REGISTERED AS {ocaAttribute 77};

uusService1Explicit ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    uusService1ExplicitBhv BEHAVIOUR
    DEFINED AS "It indicates whether the service is available (TRUE) or not (FALSE) during
    origination and termination of calls by means of an implicit request.";;
REGISTERED AS {ocaAttribute 78};

uusService2 ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    uusService2Bhv BEHAVIOUR
    DEFINED AS "It is a flag indicating whether the service is available (TRUE) or not (FALSE) after
    the calling user has received an indication that the called user is being informed of the call
    and prior to the establishment of the connection.";;
REGISTERED AS {ocaAttribute 79};

uusService3 ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    uusService3Bhv BEHAVIOUR
    DEFINED AS "It is a flag indicating whether the service is available (TRUE) or not (FALSE) only
    during the connection is established.";;
REGISTERED AS {ocaAttribute 80};
```

```
variant ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.TrueFalse;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    variantBhv BEHAVIOUR
    DEFINED AS "It identifies whether the call is forwarded to the fixed destination immediately
    (TRUE) or after time out (FALSE).";;
REGISTERED AS {ocaAttribute 81};

voiceMessagingNumber ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.VoiceMessagingNumber;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    voiceMessagingNumberBhv BEHAVIOUR
    DEFINED AS "It gives the routeing information (directory number) to the voice messaging box in
    the voice messaging system.";;
REGISTERED AS {ocaAttribute 82};
```

7.5 Definition of behaviours

No general behaviours were identified.

7.6 Definition of actions

7.6.1 Add service to configuration

```
addServiceToConfiguration ACTION
    BEHAVIOUR
    addServiceToConfigurationBhv BEHAVIOUR
        DEFINED AS "The action adds the subtrees contained in the referenceServiceConfiguration
        addressed with referenceServiceConfiguration instance to an already existing customerProfile
        or any object class of the subtree of it referenced with managedObjectClass and
        managedObjectInstance.
        The action first verifies that the referenceServiceConfiguration identified in the action is
        valid. If not the agent returns an invalid reference error.
        If elements in the referenceServiceConfiguration instance are conflicting with the
        destination configuration, the action shall be rejected without changing the customer
        configuration.
        The service(s) provided by the referenced referenceServiceConfiguration is (are)
        instantiated based on the definition provided by a referenceServiceConfiguration.
        Further data of existing object instances of the customer configuration (e.g. data which are
        configurable on a per subscriber basis) can be given with parameter customerData. The
        subcomponent attributeList of parameter customerData indicates how the data of the reference
        object classes / object instances (components of customerData) are replaced for the extended
        customer service configuration.
        The parameter selectionInformation indicates to which destination class / instance(s) the
        subtree under the specified referenceServiceConfiguration instance shall be added. The
        destination instance(s) may be selected by scope / filter mechanisms.
        The attribute values of conditional packages to be instantiated shall be supplied within the
        component customerData of the information syntax of the action.
        If the action is successful or partly executed, the reply may also contain the list of names
        of the object instances just created. How far the action was successful can be recognized
        from the executed value in the reply syntax. Optionally, services being not created may be
        indicated. If the action has failed, the action leaves the MIB unaffected (unchanged).";;
    MODE CONFIRMED;
    WITH INFORMATION SYNTAX CustomerAdminModuleV2.AddServiceToConfigurationRequest;
    WITH REPLY SYNTAX CustomerAdminModuleV2.AddServiceToConfigurationReply;
REGISTERED AS {ocaAction 1};
```

7.6.2 Change access port

```
changeAccessPort ACTION
    BEHAVIOUR
    changeAccessPortBhv BEHAVIOUR
        DEFINED AS "This action is used to change the accessPort for a given customer profile. The
        action request identifies the customer profile with the old accessPort. The request also
        indicates the new accessPort to use.
        The action verifies that the old accessPort is in service and assigned to the given customer
        profile, and that the new accessPort is valid. The new accessPort is considered valid if it
        exists and does not have a relationship with an accessPortProfile (it is not in service). If
        not, the agent returns an invalid reference error.
        This action shall alter the relationship between accessPortProfile and the old accessPort to
        the new accessPort, create copies of the accessChannel instances under the new accessPort,
        change the pointers between customizedResource and accessChannel instances from old to new,
        and delete the old accessChannel instances.";;
    MODE CONFIRMED;
    WITH INFORMATION SYNTAX CustomerAdminModuleV2.ChangeAccessPortRequest;
    WITH REPLY SYNTAX CustomerAdminModuleV2.ManagedInstancesNames;
REGISTERED AS {ocaAction 2};
```

7.6.3 Change directory number

```
changeDirectoryNumber ACTION
    BEHAVIOUR
    changeDirectoryNumberBhv BEHAVIOUR
        DEFINED AS "This action is used to change the etsiE164DirectoryNumber for a given customer
        profile. The action request identifies the customer profile with the old
        etsiE164DirectoryNumber. The request also indicates the new etsiE164DirectoryNumber to use
        and the interceptTreatmentTerm to apply to the old etsiE164DirectoryNumber.
        The action verifies that the old etsiE164DirectoryNumber is in service, and that the new
        etsiE164DirectoryNumber and interceptTreatmentTerm are valid. The new
        etsiE164DirectoryNumber is considered valid if it exists and does not have a relationship
        with a customerProfile or its subclasses (it is not in service). If not, the agent returns
        an invalid reference error.
        The action sets the interceptTreatmentTerm of the new etsiE164DirectoryNumber based on the
        values of those attributes of the old etsiE164DirectoryNumber and then sets the value of
        interceptTreatmentTerm of the old etsiE164DirectoryNumber to the value provided by the
        action request information.
        Moreover, the relationship of the customerProfile or its subclasses associated with the old
        etsiE164DirectoryNumber is deleted and replaced by a relationship with the new
        etsiE164DirectoryNumber.";;
    MODE CONFIRMED;
    WITH INFORMATION SYNTAX CustomerAdminModuleV2.ChangeDirectoryNumberRequest;
    WITH REPLY SYNTAX CustomerAdminModuleV2.ManagedInstancesNames;
REGISTERED AS {ocaAction 3};
```

7.6.4 Establish customer configuration

```
establishCustomerConfiguration ACTION
    BEHAVIOUR
    establishCustomerConfigurationBhv BEHAVIOUR
        DEFINED AS "The action copies the subtree (e.g. of a customerProfile) contained under an
        instance of referenceServiceConfiguration to a customer configuration contained in
        managedElement. It establishes the links from the customerProfile to the
        etsiDirectoryNumberE164 and the accessPort (or accessPortProfile if accessPortProfile is
        already existing) and vice versa.
        If the referenceServiceConfiguration instance does not exist, the agent returns an invalid
        reference error.
        The links to the etsiDirectoryNumberE164 and the accessPort / accessPortProfile have to be
        exclusively supplied in the following way:
        The link to etsiDirectoryNumberE164 is indicated with parameter directoryNumber.
        If the accessPortProfile already exists, the link between the customerProfile and the
        accessPortProfile has to be indicated in parameter access.
        If the accessPortProfile does not yet exist, the accessPortProfile has to be present in the
        reference customer configuration contained in referenceServiceConfiguration and the link to
        the accessPort has to be indicated in parameter access.
        The action verifies that the access port trail termination point name respectively the
        accessPortProfile instance identified in the service is valid. Otherwise the agent returns
        an invalid reference error. The access port trail termination point name or the
        accessPortProfile instance is considered valid if an instance for the identifier provided in
        the action exists.
        Furthermore, the trail termination point (either supplied with the action or already
        present) and the etsiDirectoryNumberE164 must be compatible with the data given in the
        customer profile and contained object classes (e.g. supplementary services).
        Further data of existing object instances of the customer configuration (e.g. data which are
        configurable on a per subscriber basis) can be given with parameter customerData. The
        subcomponent attributeList of parameter customerData indicates how the data of the reference
        object classes / object instances (components of customerData) are replaced for the customer
        configuration to be instantiated.
        It has to be verified that the resulting customer configuration is consistent in itself.
        If the naming attribute(s) is (are) not given, automatic instance naming is applied.
        If the action is successful, the reply shall contain at least a list of object instances
        created subordinate to managed element. It may as well contain all instances of the created
        subtree.
        If the action is not successful, the MIB is left unaffected (unchanged).";;
    MODE CONFIRMED;
    WITH INFORMATION SYNTAX CustomerAdminModuleV2.EstablishCustomerConfigurationRequest;
    WITH REPLY SYNTAX CustomerAdminModuleV2.ManagedInstancesNames;
REGISTERED AS {ocaAction 4};
```

7.7 Definition of notifications

7.7A Failed alarm call

```
failedAlarmCall NOTIFICATION
    BEHAVIOUR
    failedAlarmCallBhv BEHAVIOUR
    DEFINED AS "The failedAlarmCall notification indicates directory number, date, time and reason
    of unsuccessful alarm calls (e.g. due to absent subscriber, busy line, etc.).";;
    WITH INFORMATION SYNTAX CustomerAdminModuleV2.FailedAlarmCall;;
REGISTERED AS {ocaNotification 1};
```

7.8 ASN.1 defined types module

```
CustomerAdminModuleV2 {ccitt(0) identified-organization(4) etsi(0) customerAdministration(291)
            part1(1) informationModel(1) asn1Module(2) asn1DefinedTypesModule(0)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

IMPORTS
    -- CCITT Recommendation X.711
        ObjectClass, ObjectInstance, Attribute, Scope, CMISFilter
        FROM CMIP-1 {joint-iso-ccitt ms(9) cmip(1) version1(1) protocol(3)}
    -- CCITT Recommendation X.721
        AttributeList
        FROM Attribute-ASN1Module {joint-iso-ccitt ms(9) smi(3) part2(2) asn1Module(2) 1}
    -- ITU-T Recommendation Q.821.0
        InterceptTreatmentTerm
        FROM CACommonModule {itu-t(0) recommendation (0) q(17) ca(824) dot(127) common(0)
        informationModel(0) asn1Modules(2) cACommonModule(0)};

informationModel            OBJECT IDENTIFIER ::= {ccitt(0) identified-organization(4) etsi(0)
                                        customerAdministration(291)
                                        informationModel(1)}
ocaManagedObjectClass       OBJECT IDENTIFIER ::= {informationModel managedObjectClass    (3)}
ocaPackage                  OBJECT IDENTIFIER ::= {informationModel package               (4)}
ocaParameter                OBJECT IDENTIFIER ::= {informationModel parameter             (5)}
ocaNameBinding              OBJECT IDENTIFIER ::= {informationModel nameBinding           (6)}
ocaAttribute                OBJECT IDENTIFIER ::= {informationModel attribute             (7)}
ocaAction                   OBJECT IDENTIFIER ::= {informationModel action                (9)}
ocaNotification             OBJECT IDENTIFIER ::= {informationModel notification          (10)}


AddServiceToConfigurationReply ::= SEQUENCE {
    createdInstances    [0]     ManagedInstancesNames OPTIONAL,
    execution           [1]     Execution,
    failedInstances     [2]     FailedInstances OPTIONAL }

AddServiceToConfigurationRequest ::= SEQUENCE {
    referenceServiceConfigurationInstance       ObjectInstance,
    selectionInformation                        SelectionInformation,
    customerData                                CustomerData OPTIONAL}

AdviceOfChargeActivation ::= ENUMERATED {
    allCalls    (0),
    perCall     (1)}

AlarmCallEnd ::= CHOICE {
    repetitions     INTEGER,
    -- gives the number of days(for DailyAlarmCall) or the number of weeks (for SpecificAlarmCall)
    -- 0 means infinite
    endDate         Date}
-- support of endDate is optional

AlarmCallType ::= CHOICE {
    casual      [0] CasualAlarmCall,
    daily       [1] DailyAlarmCall,
    specific    [2] SpecificAlarmCall}

Area ::= ENUMERATED {
    limited     (0),        -- A DECT terminal can make and receive calls only within the area
                            -- code of the directory number
    extended    (1),        -- A DECT terminal can make outgoing calls even outside his area code
                            -- of the directory number but not receive incoming calls outside his
                            -- area code of the directory number
    universal   (2)}        -- A DECT terminal can make and receive calls even outside the area
                            -- code of the directory number

BlockingDirection ::= ENUMERATED {
    noBlocking  (0),
    incoming    (1),
    outgoing    (2),
    bothWay     (3)}

CallCompletionRecallMode ::= ENUMERATED {
    recallAll           (0),
    recallActivator     (1)}
```

```
CallDiversionRestrictions ::= CHOICE {
    noRestrict      [0]     NULL,
    geogrRestrict   [1]     DialledDigits,  -- National destination number
    listRestrict    [2]     NumberList}

CallForwardCallingNotification ::= ENUMERATED {
    no                  (0),
    yesWithoutNumber    (1),
    yesWithNumber       (2)}

CallForwardReleaseNotification ::= BOOLEAN

CallForwardServedNotification ::= BOOLEAN

CallWaitingCallingNotification ::= BOOLEAN

CarrierType ::= CHOICE {
    objectIdentifier    OBJECT IDENTIFIER,
    name                NameType}

CasualAlarmCall ::= CHOICE {
    within24H   [0] NULL,
    date        [1] Date}

Catastrophe ::= INTEGER

ChangeAccessPortRequest ::= SEQUENCE {
    customerProfile     ObjectInstance,
    accessPortProfile   ObjectInstance,
    oldAccessPort       ObjectInstance,
    newAccessPort       ObjectInstance}

ChangeDirectoryNumberRequest ::= SEQUENCE {
    customerProfile                 ObjectInstance,
    oldEtsiE164DirectoryNumber      ObjectInstance,
    oldDirectoryNumberIntercept     InterceptTreatmentTerm,
    newEtsiE164DirectoryNumber      ObjectInstance}

ChannelType ::= CHOICE {
    isdn    [0] Isdn,
    nonIsdn [1] NonIsdn}

CondPackages ::= SET OF OBJECT IDENTIFIER
-- object identifiers of conditional packages to be instantiated with the service object class

ConnectionType ::= ENUMERATED {
    pointToPoint        (0),
    pointToMultipoint   (1)}

CUGBarring ::= ENUMERATED {
    none        (0)     -- no blocking of CUG calls
    inBarred    (1)     -- Subscriber cannot receive calls from other members of his CUG.
    outBarred   (2)}    -- Subscriber cannot originate calls to other members of his CUG.

CUGDataNetworkIdentification ::= DialledDigits (SIZE(4))

-- this information is signalled during set-up of a CUG call and serves (in conjunction with the
-- cugInterlockCode) to uniquely identify the CUG in the international network. It can be thought
-- of as the area code of the CUG.

CUGIndex ::= DialledDigits

CUGInterlockCode ::= DialledDigits (SIZE(5))
-- this information is signalled during set-up of a CUG call and serves to uniquely identify the
-- CUG in the national network. It can be thought of as the 'directory number' for the CUG.

CustomerCategory ::= ENUMERATED {
    standard        (0),
    coinBox         (1),
    mobile          (2),
    testEquipment   (3),
    operator        (4)}

CustomerData := SET OF SEQUENCE {
    referenceObjectClass        ObjectClass,
    referenceObjectInstance     ObjectInstance OPTIONAL,
    attributeList               AttributeList}

CustomerType ::= ENUMERATED {
    singleLine          (0),
    multiLinePBX        (1),
    multiLineNonPBX     (2)}
```

```
DailyAlarmCall ::= SEQUENCE {
    alarmCallEnd    [0] AlarmCallEnd,
    holidays        [1] BOOLEAN OPTIONAL}

Date ::= SEQUENCE {
    year    NumericString(SIZE(4))(FROM("0"|"1"|..|"9")), -- gives the year in four digits
    month   NumericString(SIZE(2))(FROM("0"|"1"|..|"9")), -- gives the month in two digits
    day     NumericString(SIZE(2))(FROM("0"|"1"|..|"9"))} -- gives the day in two digits

Day ::= ENUMERATED {
    monday      (1),
    tuesday     (2),
    wednesday   (3),
    thursday    (4),
    friday      (5),
    saturday    (6),
    sunday      (7)}

DChannelActivation ::= ENUMERATED {
    deact       (0),    --link deactivated
    act1        (1),    --layer 1 maintained
    act2        (2)}    --layer 1 and 2 maintained

DetailClass ::= INTEGER
-- success long distance    = 0
-- success international    = 1
-- successful calls         = 2
-- calls                    = 3
-- special service 1        = 4
-- special service 2        = 5
-- etc.

DetailedNb ::= SEQUENCE {
    incoming        INTEGER,
    outgoing        INTEGER,
    bothWay         INTEGER}

DialledDigits ::= IA5String
    (FROM ("0"|"1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"|"*"|"#"|"A"|"B"|"C"|"D"|"E"|"F"))
-- According to Q.23 only 16 frequency combinations are available. Therefore, # and * are mapped
-- internally on two of the letters from A to F. This mapping is implementation dependent.

DigitTreatment ::= INTEGER
-- operator         = 0
-- external         = 1
-- emergency        = 2
-- activationCode1  = 3
-- accessCode1      = 4
-- activationCode2  = 5
-- accessCode2      = 6
-- etc.

Directionality ::= ENUMERATED {
    incoming        (0),
    outgoing        (1),
    bothways        (2)}

EstablishCustomerConfigurationRequest ::= SEQUENCE {
    referenceServiceConfigurationInstance       ObjectInstance,
    access                                      ObjectInstance,     -- accessPort(Profile)
    directoryNumber                             ObjectInstance,
    customerData                                CustomerData OPTIONAL}

EtsiDeflectingNumberNotification ::= ENUMERATED {
    noNotification      (0),
    withoutDN           (1),
    withDN              (2)}

EtsiE164DirectoryNumber ::= SEQUENCE {
    countryCode                 DialledDigits OPTIONAL,
    nationalSignificantNumber   SEQUENCE {
                nationalDestinationNumber   DialledDigits OPTIONAL,
                subscriberNumber            DialledDigits}}

Execution ::= ENUMERATED {
    successful          (0),        -- all required instances could be copied
    partlyExecuted      (1),        -- not all required instances could be copied
    failed              (2)}        -- none of the required instances could be copied
```

```
FailedAlarmCall ::= SEQUENCE {
    directoryNumber     EtsiE164DirectoryNumber,
    date                Date,
    time                TimeOfDay,
    alarmCallType       AlarmCallType,
    kindOfAlarmCall     KindOfAlarmCall,
    reason              Reason}

FailedInstances ::= SET OF SEQUENCE {
    destinationConfigurationInstance    ObjectInstance,     -- destination instance
    referenceConfigurationInstances         PointerList }   -- instances to be copied

FixedDestinationNumber ::= CHOICE {
    noDestination           NULL,
    fixedDestination        DialledDigits}

GeneralServiceList ::= SET OF CHOICE {
    registeredService       ObjectClass,        -- gives the object identifier of a registered
                                                -- service representing object class
    nonRegisteredService    NameType}           -- represents a non-registered service

InterCUGAccess ::= ENUMERATED {
    none                        (1),
    outgoingAccess              (2),    -- Calls to non-CUG members allowed
    incomingAccess              (3),    -- Incoming calls from non-CUG members allowed
    outgoingAndIncomingAccess   (4)}    -- Subscriber can be accessed by other members of CUG

Isdn ::= ENUMERATED {
    bChannel    (0),
    dChannel    (1)}

IsdnNb ::= DialledDigits

KindOfAlarmCall ::= ENUMERATED {
    manual          (0),
    semiAutomatic   (1),
    automatic       (2)}

LineCharacteristics ::= INTEGER
-- short: 0
-- long: 1

LineSignalling ::= ENUMERATED {
    dtmf    (0),    -- push button
    pulse   (1),    -- rotary
    both    (2)}

MaintBlocking ::= ENUMERATED {
    locked          (0),
    unlocked        (1),
    shuttingDown    (2)}

ManagedInstancesNames ::= SET OF SEQUENCE {
    objectClass         ObjectClass,
    objectInstance      ObjectInstance}

MaxNb ::= CHOICE {
    detailed    [0] DetailedNb,
    total       [1] INTEGER}

NameType ::= CHOICE {
    number      INTEGER,
    string      GraphicString}

NonIsdn :: ENUMERATED {
    kbit64      (0),
    kbit32      (1),
    kbit16      (2),
    kbit8       (3)}

Number ::= INTEGER

NumberList ::= SET OF EtsiE164DirectoryNumber

Origin ::= NameType

OwnedList ::= SET OF SEQUENCE {
    shortCode               DialledDigits,
    fullDirectoryNumber     DialledDigits}
```

```
Override ::= SET OF SEQUENCE {
    service             ObjectClass,
    serviceInstance     ObjectInstance OPTIONAL,
    condPackages        CondPackages OPTIONAL}

Pin ::= IA5String(SIZE4..12)(FROM("0"|"1"|..|"9"|"A"|"B"|..|"Z"|"a"|"b"|..|"z"))

PinProfileRef ::= CHOICE {
    pinProfile      INTEGER,                -- pre-defined profiles on exchange level
    serviceList     GeneralServiceList}     -- explicit pointing to supplementary services

Pointer ::= ObjectInstance

PointerList ::= SET OF ObjectInstance

PreferredCUGIndex ::= CHOICE {
    notDefined  [0]     NULL,
    defined     [1]     CUGIndex}

PreselectedCarrier ::= SET OF SEQUENCE {
    carrierType         CarrierType,
    preselectedCarrier  IA5String}

Programs ::= SET OF INTEGER

Reason ::= CHOICE {
    specificReason  [0] SpecificReason,
    otherReason     [1] NameType}

RemotelyControlledService ::= CHOICE {
    all             [0]     NULL,
    serviceList     [1]     GeneralServiceList}

RingingSequence ::= INTEGER

RouteingInformation ::= CHOICE {
    server          NULL,
    routeingNumber  DialledDigits}

SelectionInformation ::= SEQUENCE {
    destinationObjectClass          ObjectClass,
    destinationObjectInstance       ObjectInstance,
    scope                           Scope DEFAULT baseObject,
    filter                          CMISFilter DEFAULT and {} }

SemipermanentLine ::= BOOLEAN

SharedList ::= SET OF ObjectInstance

SpecificAlarmCall ::= SEQUENCE {
    daysOfWeek      SET OF Day,
                    --  gives the days of the week on which alarm calls are to be performed
    alarmCallEnd    AlarmCallEnd,
    holidays        BOOLEAN}
                    -- indicates whether alarm calls are to be performed on public holidays
                    -- (TRUE) or not (FALSE)

SpecificReason ::= INTEGER
-- absent customer:     0,
-- busy line:           1,
-- network congestion:  2,
-- resource problem:    3, etc.

TimeOfDay ::= SEQUENCE {
    hour        INTEGER(0..23),
    minute      INTEGER(0..59)}

TrueFalse ::= BOOLEAN

VoiceMessagingNumber ::= SEQUENCE {
    etsiE164DirectoryNumber EtsiE164DirectoryNumber,
    controlCode             GraphicString OPTIONAL}

-- default value definitions
```

```
blockingDirectionDefault    BlockingDirection           ::= noBlocking
customerCategoryDefault     CustomerCategory            ::= standard
customerTypeDefault         CustomerType                ::= singleLine
dChannelActivationDefault   DChannelActivation          ::= deact
defaultPointerList          PointerList                 ::= {}
lineCharacteristicsDefault  LineCharacteristics         ::= 0
lineSignallingDefault       LineSignalling              ::= both
listSharedDefault           TrueFalse                   ::= FALSE
maintBlockingDefault        MaintBlocking               ::= unlocked
semipermanentLineDefault    SemipermanentLine           ::= FALSE


-- permitted value definitions

PermittedNotificationClass ::= notificationClass(noNotificationClass|conditionalNotification)

END -- of CustomerAdminModuleV2
```

Annex A (normative): References to service description standards

The following tables give references to the service description standards.

Table A.1: Circuit mode bearer services

Service	ITU-T Recommendation	ETS/EN	Service representing object class
3,1 kHz audio	I.231.3	300 110 [4]	circuitMode3100Hz
64 kbit/s unrestricted	I.231.1	300 108 [2]	circuitMode64kb
Multiple-rate unrestricted	I.231.10	300 389 [5]	multipleRateUnrestricted
Speech	I.231.2	300 109 [3]	speech
Unrestricted digital info with tones / announcements (7 kHz audio)	-	(300 196-1 [1])	audio7khz

Table A.2: Packet -mode bearer services

Service	ITU-T Recommendation	ETS	Service representing object class
X.31 case B - B channel	-	300 048 [6]	etsiPacketBChannel
X31 case B - D channel	-	300 049 [7]	etsiPacketDChannel

Table A.3: Teleservices

Service	ITU-T Recommendation	ETS	Service representing object class
Telefax 4	I.241.3	300 120 [9]	telefaxG4
Telephony 3,1 kHz	I.241.1	300 111 [8]	telephony
Telephony 7 kHz	I.241.7	300 263 [11]	telephony7khz
Videotelephony	-	300 264 [12]	videotelephony
Videotex	I.241.5	300 262 [10]	videotex

Table A.4: Supplementary services

Service	ITU-T Recommendation	ETS/EN/ Work Item	Service representing object class
Advice of Charge: charging information at call set-up time (AOC-S)	I.256.2.a	300 178 [27]	adviceOfChargeSetup
Advice of charge: charging information at the end of the call (AOC-E)	I.256.2.c	300 180 [29]	adviceOfChargeEnd
Advice of Charge: charging information during the call (AOC-D)	I.256.2.b	300 179 [28]	adviceOfChargeDuring
Call Deflection (CD)	I.252.5	300 202 [35]	callDeflection
Call Forwarding Busy (CFB)	I.252.2	300 199 [32]	callForwardBusy
Call Forwarding No Reply (CFNR)	I.252.3	300 201 [34]	callForwardNoReply
Call Forwarding Unconditional (CFU)	I.252.4	300 200 [33]	callForwardUnc
Call Hold (HOLD)	I.253.2	300 139 [26]	callHold
Call Waiting (CW)	I.253.1	300 056 [15]	callWaiting
Calling Line Identification Presentation (CLIP)	I.251.3	300 089 [18] (ISDN) 300 648 [19] (PSTN)	clipSupplService
Calling Line Identification Restriction (CLIR)	251.4	300 090 [20] (ISDN) 300 649 [21] (PSTN)	clirSupplService
Closed User Group (CUG)	I.255.1	300 136 [25]	etsiCUG, etsiCUGSubscriptionOption
Completion of Call on no Reply (CCNR)	I.253.4	301 134 [63]	callCompletionNoReply
Completion of Calls to Busy Subscribers (CCBS)	I.253.3	300 357 [37]	callCompletionBusy
Conference call, add-on (CONF)	I.254.1	300 183 [30]	conferenceCallAddOn
Connected Line Identification Presentation (COLP)	251.5	300 094 [22]	colpSupplService
Connected Line Identification Restriction (COLR)	I.251.6	300 095 [23]	colrSupplService
Cordless Terminal Mobility (CTM)		301 175 [64]	cordlessTerminalMobility
Direct Dialling In (DDI)	I.251.1	300 062 [17]	ddi
Explicit Call Transfer (ECT)	I.252.7	300 367 [38]	explicitCallTransfer
Malicious Call Identification (MCID)	I.251.7	300 128 [24]	maliciousCallIdentification
Message waiting indication (MWI)		300 650 [39]	mwiReceiver, mwiController
Multiple Subscriber Number (MSN)	I.251.2	300 050 [13]	msn
Outgoing Call Barring- User Controlled (OCB-UC)		301 084 [41]	outgoingCallBarring
Outgoing Call Barring-Fixed (OCB-F)		301 082 [40]	outgoingCallBarring
Remote Control of Supplementary Service (RCSS)	I.258.3	DEN/NA-020009	remoteControlService
Subaddressing (SUB)	I.251.8	300 059 [16]	subaddressing
Terminal portability (TP)	I.258.1	300 053 [14]	termPortabilitySupplService
Three Party (3PTY)	I.245.2	300 186 [31]	threeParty
User-to-User Signalling (UUS)	I.257.1	300 284 [36]	userToUserSignalling

Table A.5: Selection of additional services not yet defined by ITU-T or ETSI ISDN service descriptions

Service	CEPT Handbook on services and facilities [58], section:	Service representing object class
abbreviated dialling	1.1	abbreviatedDialling
absent subscriber	4.1	absentCustomerFixed-Announcement, absentCustomerOperatorPosition, absentCustomerPredetermined-Announcement
alarm call (wake up)	2.1	alarmCall
call observation		customerObservation
charging observation		customerObservation
coinbox		customerCategory attribute in customerProfile
detailed billing		detailedBilling
do not disturb	5.1	incomingCallBarring
fixed destination call (hot line)	1.2	fixedDestinationCall
general deactivation	14.8	generalFacilityReset
home meter		homeMeter
incoming call barring	3.2	incomingCallBarring
interception of calls	13.1	interceptionOfCalls
modify keyword		pin
permanent active layer 1/2		dChannelLayer1Activation / dChannelLayer2Activation in etsiAccessPortISDNBasicRate / etsiAccessPortISDNPrimaryRate
private number ringing signal		differentRinging
semipermanent / nailed up connection		(M3100:crossConnection)
terminating calls not charged		terminatingCallsNotCharged
toll catastrophe		blocking
traffic restriction		blocking, outgoingCallBarring
voice messaging		voiceMessagingBusy, voiceMessagingNoReply, voiceMessagingUnconditional

Annex B (informative): Object classes defined in the ITU-T Recommendation Q.824 series which are not used in the context of the present document

The paragraph numbers given hereafter with the object classes refer to the respective ITU-T Recommendation.

B.1 ITU-T Recommendation Q.824.0

3.4 Administered Circuit Endpoint Subgroup
3.8 Directory Number E164
3.11 Routing Block
4.1 Catalogued Optional User Facilities
4.5 Optional User Facilities

B.2 ITU-T Recommendation Q.824.1

3.1.1 Access Channel B-Channel
3.1.2 Access Channel D-Channel
3.2.1 Access Port ISDN Basic Rate
3.2.2 Access Port ISDN Primary Rate
3.3.1 Access Port Profile ISDN
3.3.2 Access Port Profile ISDN Basic Rate
3.3.3 Access Port Profile ISDN Primary Rate
3.3.4 Calling Number Screening
3.3.5 Network User Identification
4.1 Catalogued Access Port ISDN Primary Rate
4.2 Catalogued Access Port Profile ISDN
4.3 Catalogued Access Port Profile ISDN Basic Rate
4.4 Catalogued Layer Entity DSS1
4.5 Catalogued Layer Entity LAPD
5.1 Terminal Configuration
5.2 Terminal Service Profile
6.1.1 Bearer Service For 384 kbps Data
6.1.2 Bearer Service For 1536 kbps Data
6.1.3 Bearer Service For 1920 kbps Data
6.1.4 Bearer Service For Multiple Rate Data
6.1.5 Circuit 3.1 kHz
6.1.6 Circuit Combined Switched Digital Data
6.1.7 Circuit Combined Voice Band
6.1.8 Circuit MultiUse
6.1.9 Bearer Service For 64 kbps Data (Unrestricted) Rate Adapted From 56 kbps
6.1.10 Circuit Speech
6.1.11 Circuit Unrestricted Digital Data
6.1.12 Packet
6.1.13 Packet B Channel
6.1.14 Packet D Channel
7.1 Service Manager ISDN
7.2 Service Manager Retrieve Service

B.3 ITU-T Recommendation Q.824.2

3.1.1. ISDN Circuit Service Set
3.1.2. Service Restrictions
3.2.1. Advice of Charge at Call Set-Up Time
3.2.2. Advice of Charge During the Call
3.2.3. Advice of Charge End of The Call
3.2.4. Call Deflection
3.2.5. Call Forwarding Busy
3.2.6. Call Forwarding No Reply
3.2.7. Call Forwarding Unconditional
3.2.8. Call Hold
3.2.9. Call Transfer
3.2.10. Call Waiting
3.2.11. CLIP
3.2.12. CLIR
3.2.13. Conference Calling
3.2.14. Direct Dialling In
3.2.15. Malicious Call Identification
3.2.16. Multiple Subscriber Number
3.2.17. Outgoing Call Barring
3.2.18. Three Party
3.2.19. User-to-User Signalling
4.1 Catalogued Call Hold

B.4 ITU-T Recommendation Q.824.3

2.1.1. Service X25 Permanent Virtual Circuit (PVC)
2.1.2 Semi-Permanent Access To Packet Handler
2.2.1. ChargingControl
2.2.2. Call Restrictions
2.2.3. Path Control

B.5 ITU-T Recommendation Q.824.4

3.1. Telefax 4
3.2. Telephony
3.3. Teletex

Annex C (informative): Examples for customer configurations

This annex gives examples for customer configurations on object instance basis.

In these examples the service assignment to the customer configurations is not drawn.

C.1 PSTN single line configuration

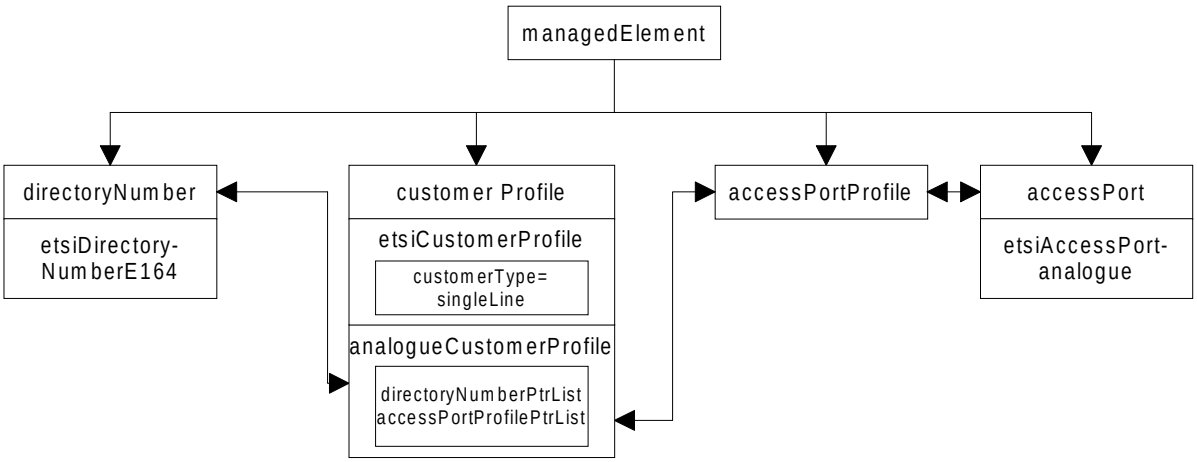


Figure C.1: Logical configuration

C.2 ISDN single line configuration

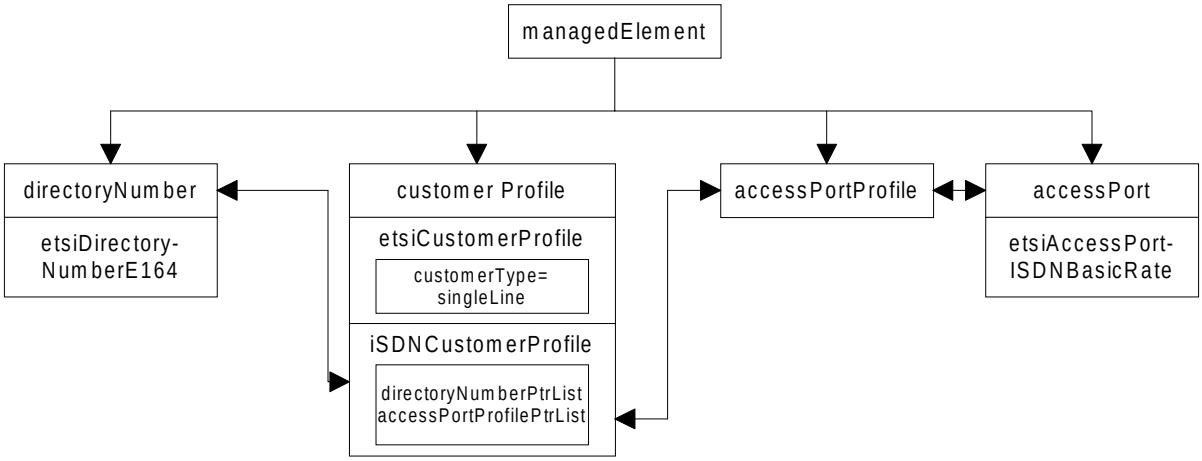


Figure C.2: Logical configuration

Annex D (informative): Modelling of Centrex

Centrex is not to be considered as a standardized service. Therefore, the information model fragment given hereafter is to be seen as a potential and non-normative modelling approach for an implementation of Centrex within a network.

D.1 Entity relationship diagram

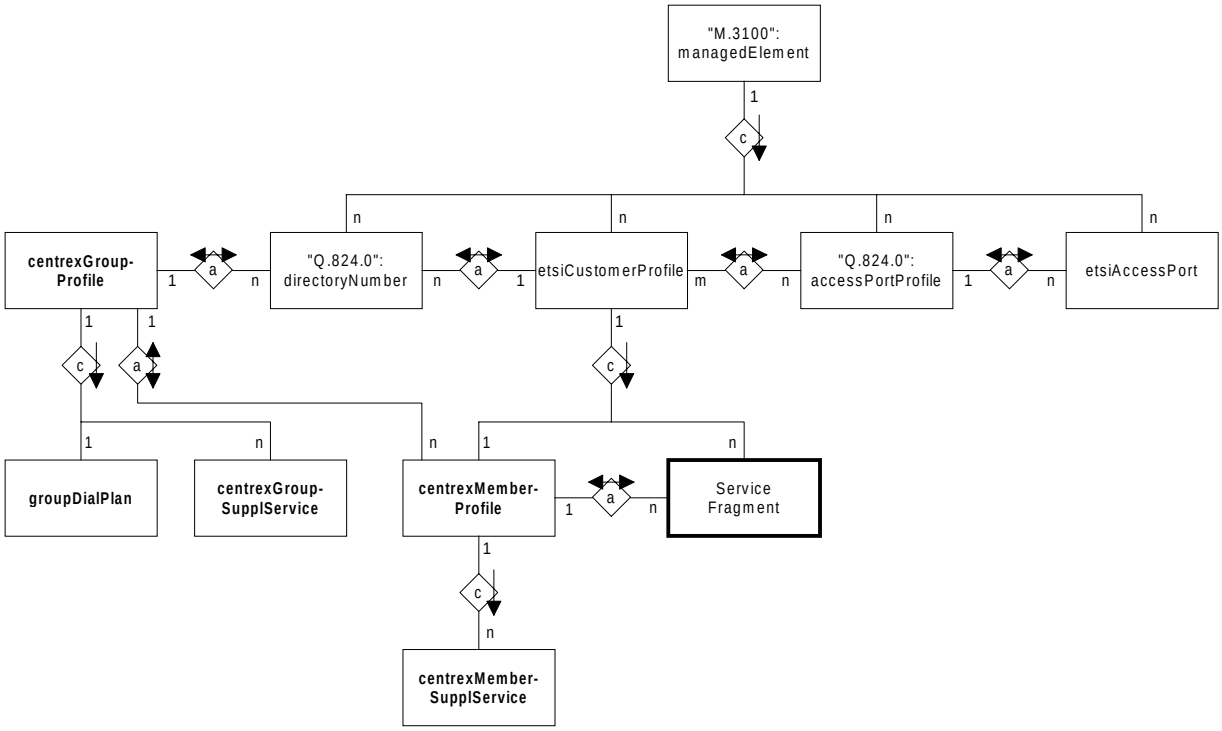


Figure D.1: Entity relationship diagram

D.2 Inheritance hierarchy

An inheritance hierarchy diagram of the Centrex specific object classes is given in the following:

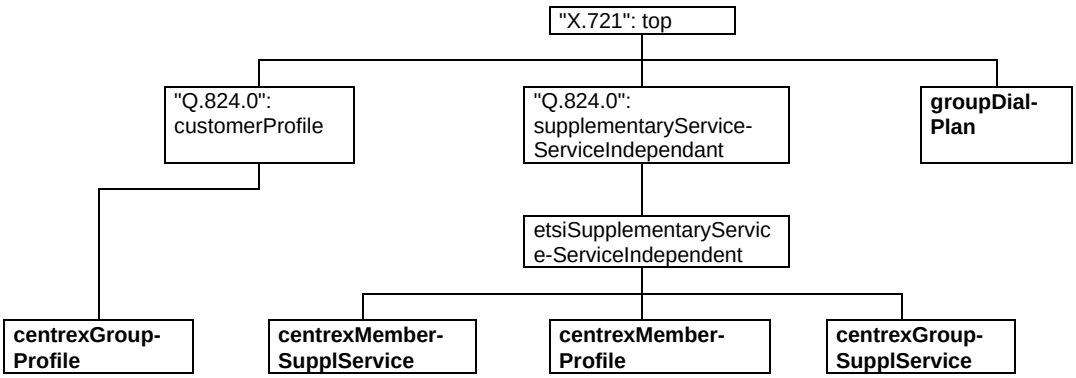


Figure D.2: Inheritance hierarchy

D.3 GDMO definitions

Thus the GDMO template for the object classes and attribute might look as follows:

D.3.1 Object class definitions

The following object class definitions are provided:

```
centrexGroupProfile MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.824.0 (1996)":customerProfile;
    CHARACTERIZED BY
    centrexGroupProfilePkg PACKAGE
        BEHAVIOUR
        centrexGroupProfileBhv BEHAVIOUR
        DEFINED AS "The Centrex group profile provides the common characteristics for a Centrex
        group. It is a subclass of the customer profile object class. It provides a single point of
        reference to the (supplementary) services associated with all users of the group.
        The accessPortProfilePtrList attribute inherited from customerProfile may only contain an
        empty set.";;
        ATTRIBUTES
        centrexCustomerPtrList      GET;;;
REGISTERED AS {ocaManagedObjectClass x};

centrexMemberProfile MANAGED OBJECT CLASS
    DERIVED FROM :etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    centrexMemberProfilePkg PACKAGE
        BEHAVIOUR
        centrexMemberProfileBhv BEHAVIOUR
        DEFINED AS "The Centrex member profile provides the common characteristics for all members
        of the Centrex group. It provides a single point of reference to the resources and services
        associated with the customer.
        The attribute centrexGroupPtr must not have a NULL value.
        Only one instance of centrexMemberProfile may exist for a given customerProfile.";;
        ATTRIBUTES
        centrexGroupPtr     GET SET-BY-CREATE,
        intercomNumber      GET-REPLACE;;;
REGISTERED AS {ocaManagedObjectClass x};

centrexGroupSupplService MANAGED OBJECT CLASS
    DERIVED FROM :etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    centrexGroupSupplServicePkg PACKAGE
         BEHAVIOUR
         centrexGroupSupplServiceBhv BEHAVIOUR
        DEFINED AS "The centrexGroupSupplService provides the common characteristics for all
        supplementary services associated to an instance of object class centrexGroupProfile.";;;;
REGISTERED AS {ocaManagedObjectClass x};

centrexMemberSupplService MANAGED OBJECT CLASS
    DERIVED FROM :etsiSupplementaryServiceServiceIndependent;
    CHARACTERIZED BY
    centrexMemberSupplServicePkg PACKAGE
         BEHAVIOUR
         centrexMemberSupplServiceBhv BEHAVIOUR
         DEFINED AS
        "The centrexMemberSupplService provides the common characteristics for all Centrex specific
        supplementary services of an instance of object class centrexMemberProfile.";;;;
REGISTERED AS {ocaManagedObjectClass x};

groupDialPlan MANAGED OBJECT CLASS
    DERIVED FROM "CCITT Recommendation X.721: 1992":top;
    CHARACTERIZED BY
    groupDialPlanPkg PACKAGE
        BEHAVIOUR
        groupDialPlanBhv BEHAVIOUR
        DEFINED AS "The group dial plan object class represents the treatment of dialled digits on
        the terminating equipment of Centrex users, within a specific Centrex group.";;
        ATTRIBUTES
            groupDialPlanId                 GET SET-BY-CREATE,
            dialledCodesList                GET-REPLACE ADD-REMOVE,
            translationTable                GET-REPLACE ADD-REMOVE;;;
REGISTERED AS {ocaManagedObjectClass x};
```

D.3.2 Name bindings

```
centrexGroupProfile-groupDialPlan NAME BINDING
    SUBORDINATE OBJECT CLASS        groupDialPlan AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  centrexGroupProfile AND SUBCLASSES;
    WITH ATTRIBUTE                  groupDialPlanId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding x};

centrexMemberProfile-centrexMemberSupplService NAME BINDING
    SUBORDINATE OBJECT CLASS        centrexMemberSupplService AND SUBCLASSES;
    NAMED BY SUPERIOR OBJECT CLASS  centrexMemberProfile AND SUBCLASSES;
    WITH ATTRIBUTE                  supplementaryServiceId;
    CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
    DELETE;
REGISTERED AS {ocaNameBinding x};
```

D.3.3 Attribute definitions

```
centrexGroupPtr ATTRIBUTE
    WITH ATTRIBUTE SYNTAX "M.3100":Pointer;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    centrexGroupPtrBhv  BEHAVIOUR
    DEFINED AS
    "It points to the associated instance of object class centrexGroupProfile.";;
REGISTERED AS {ocaAttribute x};

centrexCustomerPtrList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.PointerList;
    MATCHES FOR EQUALITY,SET-COMPARISON,SET-INTERSECTION;
    BEHAVIOUR
    centrexCustomerPtrListBhv   BEHAVIOUR
    DEFINED AS
    "It points to the associated instances of object class centrexCustomerProfile.";;
REGISTERED AS {ocaAttribute x};

dialledCodesList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX OcaAnnexD.DialledCodesList;
    MATCHES FOR SET-INTERSECTION, SET-COMPARISON;
    BEHAVIOUR
    dialledCodesListBhv BEHAVIOUR
    DEFINED AS "It defines the range of dialled digits which are to receive specific treatments
    within the Centrex group. Examples include specific digits used to access attendants, external
    lines, emergency switchboards, etc., as well as the list of access and activation codes for
    service features used within the group.";;
REGISTERED AS {ocaAttribute x};

groupDialPlanId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.NameType;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    groupDialPlanIdBhv BEHAVIOUR
    DEFINED AS "It gives the RDN.";;
REGISTERED AS {ocaAttribute x};

intercomNumber ATTRIBUTE
    WITH ATTRIBUTE SYNTAX CustomerAdminModuleV2.DialledDigits;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    intercomNumberBhv   BEHAVIOUR
    DEFINED AS
    "It gives the intercom number of a Centrex customer.";;
REGISTERED AS {ocaAttribute x};

translationTable ATTRIBUTE
    WITH ATTRIBUTE SYNTAX OcaAnnexD.TranslationTable;
    MATCHES FOR EQUALITY;
    BEHAVIOUR
    translationTableBhv BEHAVIOUR
    DEFINED AS "It defines how calls are routed between extensions in the customer group. A sequence
    of dialled digits will translate to a PSTN number range for routeing. These need to be mutually
    compatible. A $ is used as a wild card.";;
REGISTERED AS {ocaAttribute 83};
```

D.3.4 ASN.1 types

```
OcaAnnexD

BEGIN

DialledCodesList ::= SET OF SEQUENCE {
    code        DialledDigits,
    treatment   DigitTreatment}

TranslationTable ::= SET OF SEQUENCE {
    dialledNumLength    INTEGER (1..16),
    dialledNum          DialledDigits,
    actualNum           DialledDigits}

END
```

D.4 Further remarks

The extension of the model to Centrex consoles, Centrex attendant groups and Centrex attendants is not yet covered.

Centrex group specific supplementary services (e.g. distinctive ringing, feature control, message detail recording, ...) are not yet defined.

Centrex customer specific supplementary services (e.g. call restrictions, call diversion restrictions, ...) are not yet defined. These supplementary services may also have an impact on PSTN supplementary services.

Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

- CCITT Recommendation X.722: "Information technology; Open Systems Interconnection; Structure of management information: Guidelines for the definition of managed objects".
- ETR 037: "Network Aspects (NA); Telecommunications Management Network (TMN); Objectives, principles, concepts and reference configurations".
- ETR 046: "Network Aspects (NA); Telecommunications management networks modelling guidelines".
- ETR 078: "Maintenance: Telecommunications management network; TMN interface specification methodology [CCITT Recommendation M.3020 (1992)]".
- ETR 088: "Network Aspects (NA); Time / type of day dependant scheduling function support object classes".
- Draft ITU-T Recommendation Q.824.5 (1996): "Stage 2 and stage 3 description for the Q3 interface - customer administration - analogue access".
- CCITT Recommendation M.3010 (1996): "Principles for a telecommunications management network".
- DEN/NA-020009: "Integrated Services Digital Network (ISDN); Remote Control (RC) supplementary service; Service description".

History

Document history				
Edition 1	January 1995	Published as I-ETS 300 291		
V1.2.1	April 1998	Public Enquiry	PE 9833:	1998-04-17 to 1998-08-14
V1.2.1	October 1998	Vote	V 9852:	1998-10-27 to 1998-12-25