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GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS

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Contents

Foreword

This Technical Specification (TS) has been produced by the 3rd Generation Partnership Project (3GPP).

The present document defines the coding of information necessary for support of supplementary service operation on the mobile radio interface layer 3 within the 3GPP system.1

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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1 Scope

The present document contains the coding of information necessary for support of supplementary service operation on the mobile radio interface layer 3.

Clause 2 gives the functional definitions and contents of messages for call independent supplementary service operations. Messages necessary for support of call related supplementary service operations are defined in TS 24.008.

Clause 3 gives the general format and coding for messages used for call independent supplementary service and the format and coding of information elements used for both call related and call independent supplementary service operations.

Clause 4 gives the specification of the call related and call independent supplementary service operations.

1.1 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]   TR 21.905: "3G Vocabulary".

[2]   TS 22.024: "Description of Charge Advice Information (CAI)".

[3]   GSM 04.06: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface Data Link (DL) layer specification".

[4]   TS 24.007: "Mobile radio interface signalling layer 3; General aspects".

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

[6]   TS 24.010: "Mobile radio interface layer 3; Supplementary services specification; General aspects".

[7]   TS 24.080: "Mobile radio interface layer 3 supplementary services specification; Formats and coding".

[8]   TS 24.090: "Unstructured supplementary services operation - Stage 3".

[9]   TS 29.002: "Mobile Application Part (MAP) specification".

[10]   TS 29.011: "Signalling interworking for supplementary services".

[11]   ITU-T Recommendation X.208: "Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)".

[12]   ITU-T Recommendation X.209: "Specification of Abstract Syntax Notation One (ASN.1)".

[13]   ITU-T Recommendation Q.773: "Transaction capabilities formats and encoding".

1.2 Abbreviations

Abbreviations used in the present document are listed in TR 21.905.

2 Message functional definitions and contents

2.1 General

This clause defines the structure of the messages of the layer 3 protocol defined in TS 24.080. These messages are standard L3 messages as defined in TS 24.007.

Each definition includes:

a) a brief description of the message;

b) a table listing the information elements in the order of their appearance in the message. In a sequence of consecutive IEs with half octet length, the first IE occupies bits 1 to 4 of octet N, the second bits 5 to 8 of octet N, the third bits 1 to 4 of octet N+1 etc..

For each IE the table indicates:

1) the information element identifier, in hexadecimal notation, if the IE has format T, TV or TLV. If the IEI has half octet length, it is specified by a notation representing the IEI as a hexadecimal digit followed by a "-" (example: B-);

2) the name of the IE (which gives an idea of the semantics of the element), which is used in this and other specifications as a reference to the IE within the message;

3) the name of the type of the IE (which indicates the coding of the value part of the IE), and a reference to a description of the value part of the IE;

4) the presence requirement indication (M, C or O) for the IE, as defined in TS 24.007;

5) the format of the IE (T, V, TV, LV, TLV) as defined in TS 24.007;

6) the length of the IE (or permissible range of lengths), in octets, in the message, where "?" means that the maximum length of the IE is only constrained by the link layer protocol, and in the case of the facility IE by possible further considerations specified in TS 24.010. This indication is non-normative.

c) Subclauses specifying conditions for IEs with presence requirement C or O in the relevant message. Together with other conditions specified in TS 24.080, TS 24.010 or TS 24.08x and 24.09x-series this defines when the IE shall be included or not, what non-presence of such IEs means, and (for IEs with presence requirement C) the static conditions for presence and/or non-presence of the IEs (see TS 24.007).

2.2 Messages for supplementary services control

Table 2.1 summarizes the messages for call independent supplementary services control (see TS 24.010 for a detailed description of call independent supplementary service messages).

Table 2.1: Messages for call independent supplementary service control

Messages for supplementary service control	Reference
FACILITY	2.3
REGISTER	2.4
RELEASE COMPLETE	2.5

2.3 Facility

This message is sent by the mobile station or the network to request or acknowledge a supplementary service. It is used when information is to be conveyed and the transaction already exists, but is not to be released. The supplementary service to be invoked, and its associated parameters, are specified in the Facility information element (see table 2.2).

Table 2.2: FACILITY message content

IEI	Information element	Type / Reference	Presence	Format	Length
	Supplementary service protocol discriminator	Protocol discriminator 3.2	M	V	1/2
	Transaction identifier	Transaction identifier 3.3	M	V	1/2
	Facility message type	Message type 3.4	M	V	1
	Facility	Facility 3.5	M	LV	2-?

2.4   Register

2.4.1   Register (network to MS direction)

This message is sent by the network to the mobile station to assign a new transaction identifier for call independent supplementary service control and to request or acknowledge a supplementary service (see table 2.3).

Table 2.3: REGISTER message content (network to MS direction)

IEI	Information element	Type / Reference	Presence	Format	Length
	Supplementary service protocol discriminator	Protocol discriminator 3.2	M	V	1/2
	Transaction identifier	Transaction identifier 3.3	M	V	1/2
	Register message type	Message type 3.4	M	V	1
1C	Facility	Facility 3.5	M	TLV	2-?

2.4.2   Register (MS to network direction)

This message is sent by the mobile station to the network to assign a new transaction identifier for call independent supplementary service control and to request or acknowledge a supplementary service (see table 2.4).

Table 2.4: REGISTER message content (MS to network direction)

IEI	Information element	Type / Reference	Presence	Format	Length
	Supplementary service protocol discriminator	Protocol discriminator 3.2	M	V	1/2
	Transaction identifier	Transaction identifier 3.3	M	V	1/2
	Register message type	Message type 3.4	M	V	1
1C	Facility	Facility 3.5	M	TLV	2-?
7F	SS version	SS version indicator 3.8.2	O	TLV	3

2.4.2.1   SS version

This information element shall be included if the supplementary service operation being invoked is implemented according to the phase 2 or higher protocol version.

2.5 Release complete

This message is sent by the mobile station or the network to release a transaction used for call independent supplementary service control. It may also request or acknowledge a supplementary service (see table 2.5).

Table 2.5: RELEASE COMPLETE message content

IEI	Information element	Type / Reference	Presence	Format	Length
	Supplementary service protocol discriminator	Protocol discriminator 3.2	M	V	1/2
	Transaction identifier	Transaction identifier 3.3	M	V	1/2
	Release Complete message type	Message type 3.4	M	V	1
08	Cause	Cause TS 24.008	O	TLV	4-32
1C	Facility	Facility 3.5	O	TLV	2-?

2.5.1 Cause

This information element shall be included when the functional handling of the Cause IE is specified in the service description or TS 29.011. If the functional handling of the Cause IE is not specified, the receiving entity may ignore the IE.

2.5.2 Facility

This information element shall be included as required by the service description and the procedures defined in TS 24.010.

3 General message format and information elements coding

The figures and text in this clause describe message contents. Within each octet, the bit designated "bit 1" is transmitted first, followed by bits 2, 3, 4, etc. Similarly, the octet shown at the top of each figure is sent first.

3.1 Overview

Within the layer 3 protocol defined in TS 24.080, every message is a standard L3 message as defined in TS 24.007. This means that the message consists of the following parts:

   a) protocol discriminator;

   b) transaction identifier;

   c) message type;

   d) other information elements, as required.

Unless specified otherwise, a particular information element may be present only once in a given message.

When a field extends over more than one octet, the order of bit values progressively decreases as the octet number increases. The least significant bit of the field is represented by the lowest numbered bit of the highest numbered octet of the field.

3.2 Protocol discriminator

The Protocol Discriminator (PD) and its use are defined in TS 24.007. TS 24.080 defines the protocols relating to the PD values:

1 0 1 1 supplementary services (call independent).

3.3 Transaction identifier

For general rules, format and coding of transaction identifier values, see TS 24.008.

3.4 Message type

The message type IE and its use are defined in TS 24.007. Table 3.1 defines the value part of the message type IE used in the supplementary service protocol.

Table 3.1: Message types

8	7	6	5	4	3	2	1		Message types
0	x	1	0	.	.	.	.		Clearing messages:
				1	0	1	0		- RELEASE COMPLETE
0	x	1	1	.	.	.	.		Miscellaneous message group:
				1	0	1	0		- FACILITY
				1	0	1	1		- REGISTER
NOTE 1: Bit 8 is reserved for possible future use as an extension bit, see TS 24.007.									
NOTE 2: Bit 7 is reserved for the send sequence number in messages sent from the mobile station. In messages sent from the network, bit 7 is coded with a "0", see TS 24.007.									

3.5 Other information elements

These information elements are coded according to the general coding rules as defined in TS 24.008.

Table 3.2 contains the code-points allocated to the information elements used in messages defined in this specification. All IEs are defined in TS 24.008, but the content of the Facility and SS version indicator IEs are defined within this specification.

Table 3.2: Information elements specific to call independent supplementary service control

8 7 6 5 4 3 2 1		Reference (IE content)
0	Type 3 and 4 information elements	
0 0 0 1 0 0 0	Cause	TS 24.008
0 0 1 1 1 0 0	Facility	3.6
1 1 1 1 1 1 1	SS version indicator	3.8.2

3.6 Facility information element

The purpose of the Facility information element is to indicate the invocation and operation of supplementary services, identified by the corresponding operation code within the Facility information element.

The Facility information element is coded as shown in figure 3.1 and tables 3.3 to 3.17.

The Facility is a type 4 information element with no upper length limit except that given by the maximum number of octets in a L3 message, see GSM 04.06.

8	7	6	5	4	3	2	1	
0	0	0	1	1	1	0	0	octet 1
Facility IEI								
Length of Facility contents								octet 2
Component(s) (note)								octet 3 etc.
NOTE: One or more components may be included depending on specific service requirements.								

Figure 3.1: Facility information element

3.6.1   Component (octet 3 etc.)

This subclause provides the formats and encoding of components in the Facility information element. Formats and encoding methods make use of and is a subset of CCITT Recommendation Q.773 (Transaction Capabilities formats and Encoding) and T/S 43/BB. The used part of CCITT Recommendation Q.773 respectively T/S 43/BB is almost the same as the Component Portion of TC messages. The only difference is that returnResultNotLast is not used.

This subclause is further based on:

-    CCITT Recommendation X.208 (Specification of Abstract Syntax Notation One (ASN.1));

-    CCITT Recommendation X.209 (Specification of basic encoding rules for Abstract Syntax Notation One);

and is consistent with these CCITT recommendations.

The CCITT Recommendations X.208 and X.209 formal description language is not used.

The parameters in tables 3.3 to 3.6 may be one of the following:

-    a Sequence of Parameters;

-    a Set of Parameters;

-    a specific Parameter with its own tag (i.e. not part of a Sequence or Set);

-    nothing at all (i.e. absent).

NOTE: Concerning the general rules for encoding (structure of encoding, identifier octets, length octets, etc.) see CCITT Recommendations X.208 and X.209. For these general rules the same exceptions apply as stated in TS 29.002. This holds also for tables 3.3 to 3.6.

Table 3.3: Invoke component

Invoke component	Reference	Mandatory indication
Component type tag Component length	3.6.2 X.209	M
Invoke ID tag Invoke ID length Invoke ID	3.6.3 X.209 3.6.3	M
Linked ID tag Linked ID length Linked ID	3.6.3 X.209 3.6.3	O
Operation Code tag Operation Code length Operation Code	3.6.4 X.209 3.6.4	M
Parameters	4	O

Table 3.4: Return Result component

Return Result component	Reference	Mandatory indication
Component type tag Component length	3.6.2 X.209	M
Invoke ID tag Invoke ID length Invoke ID	3.6.3 X.209 3.6.3	M
Sequence tag Sequence length	3.6.5 X.209	O (note)
Operation Code tag Operation Code length Operation Code	3.6.4 X.209 3.6.4	O (note)
Parameters	4	O (note)
NOTE: Omitted if the Return Result component does not include any parameters.		

Table 3.5: Return Error component

Return Error component	Reference	Mandatory indication
Component type tag Component length	3.6.2 X.209	M
Invoke ID tag Invoke ID length Invoke ID	3.6.3 X.209 3.6.3	M
Error Code tag Error Code length Error Code	3.6.6 X.209 3.6.6	M
Parameters	4	O

Table 3.6: Reject component

Reject component	Reference	Mandatory indication
Component type tag Component length	3.6.2 X.209	M
Invoke ID tag (note) Invoke ID length Invoke ID	3.6.3 X.209 3.6.3	M
Problem Code tag Problem Code length Problem Code	3.6.7 X.209 3.6.7	M
NOTE: If the Invoke ID is not available, Universal Null (table 3.9) with length = 0 shall be used.		

3.6.2   Component type tag

The Component type tag is coded context-specific, constructor as indicated in table 3.7.

Table 3.7: Coding of Component type tag

Component type tag	8 7 6 5 4 3 2 1
Invoke	1 0 1 0 0 0 0 1
Return Result	1 0 1 0 0 0 1 0
Return Error	1 0 1 0 0 0 1 1
Reject	1 0 1 0 0 1 0 0

3.6.3   Component ID tag

The term Component ID refers to the Invoke ID or the Linked ID. The Component ID tag is coded as shown in table 3.8.

Table 3.8: Coding of Component ID tag

Component ID tag	8 7 6 5 4 3 2 1
Invoke ID	0 0 0 0 0 0 1 0
Linked ID (note)	1 0 0 0 0 0 0 0
NOTE: This tag differs from the Invoke ID tag, which is coded as a Universal INTEGER, in order to distinguish it from the following tag (Operation Code) which is also coded as a Universal INTEGER.	

The length of a Component ID is 1 octet.

An Invoke Component has one or two Component IDs: an Invoke ID, and if it is desired to associate the Invoke with a previous Invoke, then the Linked ID is provided in addition to the Invoke ID.

Return Result and Return Error Components have one Component ID, called an Invoke ID which is the reflection of the Invoke ID of the Invoke Component to which they are responding.

The Reject Component uses as its Invoke ID, the Invoke ID in the Component being rejected. If this ID is unavailable (e.g. due to mutilation of the message not detected by lower layers), then the Invoke ID tag is replaced with a universal NULL tag as shown in table 3.9. Universal NULL has always length = 0.

Any kind of component, except a reject component, may be rejected.

Table 3.9: Coding of NULL tag

	8 7 6 5 4 3 2 1
NULL tag	0 0 0 0 0 1 0 1

If an Invoke containing both Invoke and Linked IDs is being rejected, only the Invoke ID is used in the Reject Component.

3.6.4 Operation Code

Each Operation is assigned an Operation Code to identify it. An Operation Code follows an Operation Code tag and Operation Code length. The Operation Code tag is coded as shown in table 3.10.

Table 3.10: Coding of Operation Code tag

	8 7 6 5 4 3 2 1
Operation Code tag	0 0 0 0 0 0 1 0

The Operation Codes for the different Operations are defined in subclause 4.5.

3.6.5 Sequence and Set tags

When there is more than one parameter in a Component (applicable to all Component types), they follow the Sequence or Set tag, which are coded universal, constructor as shown in table 3.11.

Table 3.11: Coding of Sequence and set tags

Sequence and set tags	8 7 6 5 4 3 2 1
Sequence tag	0 0 1 1 0 0 0 0
Set tag	0 0 1 1 0 0 0 1

3.6.6 Error Code

Each Error is assigned a value (Error Code) to identify it.

An Error Code follows an Error Code tag and Error Code length. The Error Code tag is coded as shown in table 3.12.

Table 3.12: Coding of Error Code tag

	8 7 6 5 4 3 2 1
Error Code tag	0 0 0 0 0 0 1 0

The Error Codes for the different Errors are defined in subclause 4.5.

3.6.7   Problem Code

The Problem Code consists of one of the four elements: General Problem, Invoke Problem, Return Result Problem or Return Error Problem. The tags for these elements are coded as shown in table 3.13.

Table 3.13: Coding of Problem tags

Problem tags	**8 7 6 5 4 3 2 1**
General Problem tag	1 0 0 0 0 0 0 0
Invoke Problem tag	1 0 0 0 0 0 0 1
Return Result Problem tag	1 0 0 0 0 0 1 0
Return Error Problem tag	1 0 0 0 0 0 1 1

The Problem Codes for the different Problems are shown in tables 3.14 to 3.17.

Table 3.14: Coding of General Problem Codes

General Problem Codes	**8 7 6 5 4 3 2 1**
Unrecognized Component	0 0 0 0 0 0 0 0
Mistyped Component	0 0 0 0 0 0 0 1
Badly Structured Component	0 0 0 0 0 0 1 0

Table 3.15: Coding of Invoke Problem Codes

Invoke Problem Codes	**8 7 6 5 4 3 2 1**
Duplicate Invoke ID	0 0 0 0 0 0 0 0
Unrecognized Operation	0 0 0 0 0 0 0 1
Mistyped Parameter	0 0 0 0 0 0 1 0
Resource Limitation	0 0 0 0 0 0 1 1
Initiating Release	0 0 0 0 0 1 0 0
Unrecognized Linked ID	0 0 0 0 0 1 0 1
Linked Response Unexpected	0 0 0 0 0 1 1 0
Unexpected Linked Operation	0 0 0 0 0 1 1 1

Table 3.16: Coding of Return Result Problem Codes

Return Result Problem Codes	**8 7 6 5 4 3 2 1**
Unrecognized Invoke ID	0 0 0 0 0 0 0 0
Return Result Unexpected	0 0 0 0 0 0 0 1
Mistyped Parameter	0 0 0 0 0 0 1 0

Table 3.17: Coding of Return Error Problem Codes

Return Error Problem Codes	**8 7 6 5 4 3 2 1**
Unrecognized Invoke ID	0 0 0 0 0 0 0 0
Return Error Unexpected	0 0 0 0 0 0 0 1
Unrecognized Error	0 0 0 0 0 0 1 0
Unexpected Error	0 0 0 0 0 0 1 1
Mistyped Parameter	0 0 0 0 0 1 0 0

3.7 Version handling for supplementary services

3.7.1 Supplementary service screening indicator

The purpose of the supplementary service screening indicator is to allow the network to asses the capabilities of the MS in advance of a network initiated SS activity. The SS screening indicator is sent in the mobile station classmark 2 as defined in TS 24.008. The handling of the SS screening indicator is described in TS 24.010.

8	7	6	5	4	3	2	1
(note)	(note)	SS screening indicator		(note)			

NOTE: Values not relevant to supplementary services.

Figure 3.2: Coding of SS screening indicator in mobile station classmark 2

Table 3.18: Coding of SS screening indicator in mobile station classmark 2

SS screening indicator in mobile station classmark 2	6	5
default value of phase 1	0	0
capability of handling of ellipsis notation and phase 2 error handling (note 1)	0	1
for future use (note 2)	1	0
for future use (note 2)	1	1
NOTE 1: Ellipsis notation is described in TS 24.010 and TS 29.002. SS Error handling is described in TS 24.010.		
NOTE 2: The network shall interpret these values the same as "01".		

3.7.2 Supplementary service version indicator

The purpose of the supplementary service version indicator is to allow the network to select the correct version of a protocol for a specific supplementary service. The SS version indicator is included in messages as defined in TS 24.008 and TS 24.080. The coding described in table 3.19 refers to the first octet received in the SS version indicator. Any other octets received shall be ignored. The handling of the SS version indicator is described in TS 24.010.

Table 3.19: Coding of SS version indicator

SS version indicator	8 7 6 5 4 3 2 1
phase 2 service, ellipsis notation, and phase 2 error handling is supported (note 1)	0 0 0 0 0 0 0 0
SS-Protocol version 3 is supported, and phase 2 error handling is supported (note 1) all other values are for future use (note 2)	0 0 0 0 0 0 0 1
NOTE 1: Ellipsis notation is described in TS 24.010 and TS 29.002. SS Error handling is described in TS 24.010.	
NOTE 2: The network shall interpret all higher values of the SS version indicator the same as "00000001".	

4 Supplementary services operation specifications

4.1 General

This clause specifies the abstract syntax for the Supplementary Service protocol using the Abstract Syntax Notation One (ASN.1), defined in CCITT Recommendation X.208 (1998).

The mapping of OPERATION and ERROR to components is defined in clause 3 of this specification.

The encoding rules which are applicable to the defined abstract syntax are the Basic Encoding Rules for Abstract Syntax Notation One, defined in CCITT Recommendation X.209 (1998) with the same exceptions as stated in TS 29.002. For each Supplementary Service parameter which has to be transferred by a Supplementary Service message, there is a PDU field (an ASN.1 NamedType) whose ASN.1 identifier has the same name as the corresponding parameter, except for the differences required by the ASN.1 notation (blanks between words are removed, the first letter of the first word is lower-case and the first letter of the following words are capitalized (e.g. "bearer service" is mapped to "bearerService"). In addition some words may be abbreviated as follows:

- ms   mobile subscriber;

- ss   supplementary services;

- cug   closed user group.

The ASN.1 data type which follows the keywords ARGUMENT "PARAMETER" or "RESULT" (for OPERATION and ERROR) is always optional from a syntactic point of view. However, except specific mention, it has to be considered as mandatory from a semantic point of view. When in an invoke component, a mandatory element is missing in any component or inner data structure, a reject component is returned with the problem code "Mistyped Parameter". When an optional element is missing in an invoke component or in an inner data structure while it is required by the context, an error component is returned; the associated type of error is "DataMissing".

In case an element is defined as mandatory in the protocol description (TS 24.080 including imports from TS 29.002), but is not present according to the service description (stage 1 to stage 3), the ASN.1 protocol description takes precedence over the diagrams in the TS 24.08x and 24.09x-series of technical specifications.

When possible operations and errors are imported from TS 29.002 thereby making the MSC transparent to most of the messages sent to or from the MS.

Timer values for operations which require timers are shown as ASN.1 comments.

Ellipsis Notation shall be used in the same way as described in TS 29.002 and shall be supported on the radio interface by the MS and the network for all operations defined in this specification including those imported from TS 29.002.

4.2   Operation types

Table 4.1 summarizes the operations defined for supplementary services in this specification and shows which of these operations are call related and call independent. The terms "call related" and "call independent" are defined in TS 24.010.

Table 4.1: Relevance of supplementary service operations

Operation name	Call related SS	Call independent SS
RegisterSS	-	+
EraseSS	-	+
ActivateSS	-	+
DeactivateSS	-	+
InterrogateSS	-	+
RegisterPassword	-	+
GetPassword	-	+
ProcessUnstructuredSS-Data	+	+
ForwardCheckSS-Indication	-	+
ProcessUnstructuredSS-Request	-	+
UnstructuredSS-Request	-	+
UnstructuredSS-Notify	-	+
ForwardChargeAdvice	+	-
NotifySS	+	-
ForwardCUG-Info	+	-
BuildMPTY	+	-
HoldMPTY	+	-
RetrieveMPTY	+	-
SplitMPTY	+	-
ExplicitCT	+	-
AccessRegisterCCEntry	+	-
EraseCCEntry	-	+
CallDeflection	+	-
UserUserService	+	-
LCS-LocationNotification	-	+
LCS-MOLR	-	+
NOTE: The ProcessUnstructuredSS-Data operation may be used call related by a GSM Phase 1 MS.		

```
SS-Operations {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
   ss-Operations (0) version6 (6)}

DEFINITIONS ::=

BEGIN

EXPORTS

-- exports operation types

-- operations defined in this specification
ProcessUnstructuredSS-Data, NotifySS, ForwardChargeAdvice, ForwardCUG-Info, BuildMPTY, HoldMPTY,
RetrieveMPTY, SplitMPTY, ExplicitCT, AccessRegisterCCEntry, CallDeflection, UserUserService,
LCS-LocationNotification, LCS-MOLR;

IMPORTS

OPERATION FROM
TCAPMessages {
   ccitt recommendation q 773 modules (2) messages (1) version2 (2)}

-- The MAP operations:
-- RegisterSS, EraseSS, ActivateSS, DeactivateSS, InterrogateSS, RegisterPassword,
-- GetPassword, ProcessUnstructuredSS-Request, UnstructuredSS-Request, UnstructuredSS-Notify
-- ForwardCheckSS-Indication
-- are imported from MAP-Operations in SS-Protocol module.

-- imports SS-data types
NotifySS-Arg,
ForwardChargeAdviceArg,
ForwardCUG-InfoArg,
SS-UserData,
AccessRegisterCCEntryArg,
CallDeflectionArg,
UserUserServiceArg,
LocationNotificationArg,
LocationNotificationRes,
LCS-MOLRArg,
LCS-MOLRRes
FROM SS-DataTypes {
```

```
      ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
      ss-DataTypes (2) version6 (6)}

-- imports MAP-SS-data types
RegisterCC-EntryRes
FROM MAP-SS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-SS-DataTypes (14) version6 (6)}

-- imports MAP-errors
IllegalSS-Operation, SS-ErrorStatus, SS-NotAvailable, SS-SubscriptionViolation,
SS-Incompatibility, SystemFailure, FacilityNotSupported, CallBarred,UnexpectedDataValue,
ShortTermDenial, LongTermDenial, DataMissing, ForwardingViolation, ForwardingFailed,
PositionMethodFailure
FROM MAP-Errors {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-Errors (10) version6 (6)}

-- imports SS-Errors
ResourcesNotAvailable, MaxNumberOfMPTY-ParticipantsExceeded,DeflectionToServedSubscriber,
InvalidDeflectedToNumber, SpecialServiceCode, RejectedByUser, RejectedByNetwork
FROM SS-Errors {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
   ss-Errors (1) version6 (6)}
;

-- operation types definition

ProcessUnstructuredSS-Data::=   OPERATION -- Timer T(PUSSD)= 15s to 30s
    ARGUMENT
    ss-UserData      SS-UserData
    RESULT
    ss-UserData      SS-UserData
-- optional
    ERRORS{
    SystemFailure,
    UnexpectedDataValue}

NotifySS ::=   OPERATION
    ARGUMENT
    notifySS-Arg    NotifySS-Arg

ForwardChargeAdvice ::= OPERATION -- Timer T(AoC)= 1s to 40s
    ARGUMENT
    forwardChargeAdviceArg  ForwardChargeAdviceArg
    RESULT

ForwardCUG-Info ::= OPERATION
    ARGUMENT
    forwardCUG-InfoArg  ForwardCUG-InfoArg

BuildMPTY ::=   OPERATION -- Timer T(BuildMPTY)= 5s to 30s
    RESULT
    ERRORS{
    IllegalSS-Operation,
    SS-ErrorStatus,
    SS-NotAvailable,
    SS-Incompatibility,
    SystemFailure,
    ResourcesNotAvailable,
    MaxNumberOfMPTY-ParticipantsExceeded}

HoldMPTY ::=   OPERATION -- Timer T(HoldMPTY)= 5s to 30s
    RESULT
    ERRORS{
    IllegalSS-Operation,
    SS-ErrorStatus,
    SS-Incompatibility,
    FacilityNotSupported,
    SystemFailure}

RetrieveMPTY ::=   OPERATION -- Timer T(RetrieveMPTY)= 5s to 30s
    RESULT
    ERRORS{
    IllegalSS-Operation,
    SS-ErrorStatus,
    SS-Incompatibility,
    FacilityNotSupported,
```

```
    SystemFailure}

SplitMPTY ::=   OPERATION -- Timer T(SplitMPTY)= 5s to 30s
    RESULT
    ERRORS{
    IllegalSS-Operation,
    SS-ErrorStatus,
    SS-Incompatibility,
    FacilityNotSupported,
    SystemFailure}

ExplicitCT ::=  OPERATION -- Timer T(ECT)= 5s to 15s
    RESULT
    ERRORS{
    IllegalSS-Operation,
    SS-ErrorStatus,
    SS-NotAvailable,
    SS-Incompatibility,
    FacilityNotSupported,
    SystemFailure,
    ResourcesNotAvailable,
    CallBarred}

AccessRegisterCCEntry ::= OPERATION -- Timer T(AccRegCCEntry)= 30s
    ARGUMENT
    accessRegisterCCEntryArg     AccessRegisterCCEntryArg
    RESULT
    registerCCEntryRes  RegisterCC-EntryRes
    ERRORS{
    SystemFailure,
    DataMissing,
    UnexpectedDataValue,
    CallBarred,
    IllegalSS-Operation,
    SS-ErrorStatus,
    SS-Incompatibility,
    ShortTermDenial,
    LongTermDenial,
    FacilityNotSupported}

-- the timer value is defined by T308, see also in TS 24.008 for definition of timer T308

CallDeflection ::=  OPERATION -- Timer T(CD)= 30s
    ARGUMENT
    callDeflectionArg   CallDeflectionArg
    RESULT
    ERRORS{
    IllegalSS-Operation,
    SS-ErrorStatus,
    SS-NotAvailable,
    SS-Incompatibility,
    FacilityNotSupported,
    SystemFailure,
    ResourcesNotAvailable,
    ForwardingViolation,
    CallBarred,
    DeflectionToServedSubscriber,
    InvalidDeflectedToNumber,
    SpecialServiceCode,
    ForwardingFailed}

-- the timer value is defined by T305, see also in TS 24.008 for definition of timer T305
-- extensionContainer shall not be used with this operation

UserUserService ::= OPERATION -- Timer T(UUS3)= 10s
    ARGUMENT
    userUserServiceArg  UserUserServiceArg
    RESULT
    ERRORS{
    IllegalSS-Operation,
    SS-ErrorStatus,
    SS-NotAvailable,
    SS-Incompatibility,
    FacilityNotSupported,
    SystemFailure,
    ResourcesNotAvailable,
    RejectedByNetwork,
    RejectedByUser}
```

```
-- The timer value for UUS3 is 10s; it is applicable only if UUS3 is activated by FACILITY
-- message. If UUS service (UUS1, UUS2 or UUS3) is activated by SETUP message, no timers are
-- needed. In those cases Return Result or Return Error must be received within certain call
-- control messages, see GSM 04.87.
-- extensionContainer shall not be used with this operation.


LCS-LocationNotification::= OPERATION -- Timer T(LCSN)= 10s to 20s
    ARGUMENT
    locationNotificationArg      LocationNotificationArg
    RESULT
    locationNotificationRes      LocationNotificationRes
    ERRORS{
    SystemFailure,
    UnexpectedDataValue}


LCS-MOLR::= OPERATION -- Timer T(LCSL)= 10s to 30s
    ARGUMENT
    lcs-MOLRArg     LCS-MOLRArg
    RESULT
    lcs-MOLRRes     LCS-MOLRRes
    ERRORS{
    SystemFailure,
    UnexpectedDataValue,
    DataMissing,
    FacilityNotSupported,
    SS-SubscriptionViolation,
    PositionMethodFailure}

END
```

4.2.1 Void

4.2.2 Operation types description

For each operation type this subclause provides a brief prose description.

4.2.2.1 RegisterSS (MS --> network)

This operation type is invoked by an MS to register data related to a supplementary service in the network. When no BasicService parameter is provided, the registration applies to all provisioned and applicable basic services.

4.2.2.2 EraseSS (MS --> network)

This operation type is invoked by an MS to erase data related to a supplementary service in the network. When no BasicService parameter is provided, the erasure applies to all provisioned and applicable basic services.

4.2.2.3 ActivateSS (MS --> network)

This operation type is invoked by an MS to request the network for a supplementary service activation. When no BasicService parameter is provided, the activation applies to all provisioned and applicable basic services.

4.2.2.4 DeactivateSS (MS --> network)

This operation type is invoked by an MS to request the network for a supplementary service deactivation. When no BasicService parameter is provided, the deactivation applies to all provisioned and applicable basic services.

4.2.2.5 InterrogateSS (MS --> network)

This operation type is invoked by an MS to request the network for a supplementary service interrogation. When no BasicService parameter is provided, the interrogation applies to all provisioned and applicable basic services.

4.2.2.6 NotifySS (network --> MS)

This operation type is invoked by the network to forward a supplementary service notification towards a mobile subscriber.

4.2.2.7 RegisterPassword (MS --> network)

This operation type is invoked by an MS to register a new password related to the management by the subscriber himself of subscription data in the HLR. The operation "Register password" will be successful if the subscriber can provide the old password, the new password and the new password again as results of 3 subsequent operations "Get password".

4.2.2.8 GetPassword (network --> MS)

This operation type is invoked by the network to request a password from the mobile subscriber. It may be used to allow the registration of a new password or the management of subscription data by the subscriber himself (e.g. modification of call barring activation status).

4.2.2.9 ProcessUnstructuredSS-Data (MS --> network)

This operation type is invoked by an MS to relay unstructured information in order to allow end to end SS operation between the MS and the network following specific rules (e.g. embedding of keypad commands). The operation is used in order to provide backward compatibility (see TS 24.090).

4.2.2.10 ProcessUnstructuredSS-Request (MS --> network)

This operation type is invoked by an MS to start an unstructured supplementary service data application in the network.

4.2.2.11 UnstructuredSS-Request (network --> MS)

This operation type is invoked by the network to request unstructured information from the MS in order to perform an unstructured supplementary service data application.

4.2.2.12 UnstructuredSS-Notify (network --> MS)

This operation type is invoked by the network to give an unstructured supplementary service notification to the mobile user.

4.2.2.13 ForwardCheckSSIndication (network --> MS)

This operation type is invoked by the network to indicate to the mobile subscriber that the status of supplementary services may not be correct in the network. The procedures for initiating ForwardCheckSSIndication are specified in TS 29.002.

4.2.2.14 ForwardChargeAdvice (network --> MS)

This operation type is invoked by the network to forward Advice of Charge information to the mobile subscriber.

4.2.2.15 BuildMPTY (MS --> network)

This operation type is invoked by an MS to request the network to connect calls in a multi party call.

4.2.2.16 HoldMPTY (MS --> network)

This operation type is invoked by an MS to put the MS-connection to a multi party call (invoked by that MS) on hold.

4.2.2.17 RetrieveMPTY (MS --> network)

This operation type is invoked by an MS to request retrieval of a multi party call held by that MS.

4.2.2.18 SplitMPTY (MS --> network)

This operation type is invoked by an MS to request a private communication with one of the remote parties in a multi party call invoked by that MS.

4.2.2.19 ForwardCUG-Info (MS --> network)

This operation type is used by an MS to explicitly invoke a CUG call.

4.2.2.20 ExplicitCT (MS --> Network)

This operation type is invoked by an MS to request the network to connect the two calls of the subscriber.

4.2.2.21 AccessRegisterCCEntry (MS --> Network)

This operation type is invoked by an MS to activate a CCBS request in the network.

4.2.2.22 CallDeflection (MS --> Network)

This operation type is invoked by an MS to request the network to deflect the incoming call to a specified destination.

4.2.2.23 UserUserService (MS --> Network, Network --> MS)

This operation type is invoked by an MS to request the network to allow an MS to send/receive information to/from another subscriber in association with a call.

4.2.2.24 LCS-LocationNotification (network --> MS)

This operation type is invoked by the network to request a verification from the mobile subscriber for the attempted location request or to notify the subscriber about authorized location request.

4.2.2.25 LCS-MOLR (MS --> Network)

This operation type is invoked by an MS to request the network to start location procedure, which is used to provide the MS location estimate, location assistance data or deciphering keys for broadcast assistance data.

4.3 Error types

4.3.1 Error types ASN.1 specification

The following ASN.1 module provides an ASN.1 specification of errors. Errors from MAP are imported in the SS-Protocol module in subclause 4.5.

```
SS-Errors {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
   ss-Errors (1) version6 (6)}

DEFINITIONS ::=

BEGIN

IMPORTS

ERROR FROM
TCAPMessages {
   ccitt recommendation q 773 modules (2) messages (1) version2 (2)};
```

```
-- The MAP errors
-- UnknownSubscriber, BearerServiceNotProvisioned, TeleserviceNotProvisioned,
-- IllegalSS-Operation, SS-ErrorStatus, SS-NotAvailable, SS-SubscriptionViolation,
-- SS-Incompatibility, SystemFailure, DataMissing, UnexpectedDataValue, FacilityNotSupported,
-- PW-RegistrationFailure, NegativePW-Check, CallBarred, NumberOfPW-AttemptsViolation,
-- AbsentSubscriber, IllegalSubscriber, IllegalEquipment, USSD-Busy, UnknownAlphabet,
-- ForwardingViolation, ForwardingFailed
-- are imported from MAP-Errors in SS-Protocol module.


-- error types definition
ResourcesNotAvailable ::= ERROR
MaxNumberOfMPTY-ParticipantsExceeded ::= ERROR
InvalidDeflectedToNumber ::= ERROR
SpecialServiceCode ::= ERROR
DeflectionToServedSubscriber ::= ERROR
RejectedByNetwork ::= ERROR
RejectedByUser ::= ERROR

END
```

4.3.2 Error types description

For each error type this subclause provides a brief prose description.

4.3.2.1 UnknownSubscriber

This error is returned by the network when it is requested to perform an operation concerning an unknown subscriber.

4.3.2.2 BearerServiceNotProvisioned

This error is returned by the network when it is requested to perform an operation on a supplementary service and not even a subset of the requested bearer service group has been subscribed to.

4.3.2.3 TeleServiceNotProvisioned

This error is returned by the network when it is requested to perform an operation on a supplementary service and not even a subset of the requested teleservice group has been subscribed to.

4.3.2.4 IllegalSS-Operation

This error is returned by the network when it is requested to perform an illegal operation which is defined as not applicable for the relevant supplementary service(s) (e.g. registration request for a service which must be registered by the administration). For the definition of the allowed operations for the individual supplementary services, see TS 24.08x and 24.09x-series of technical specifications.

4.3.2.5 SS-ErrorStatus

This error is returned by the network when it is requested to perform an operation which is not compatible with the current status of the relevant supplementary service. The current status may be given as additional information by use of the SS-parameter.

4.3.2.6 SS-NotAvailable

This error is returned by the network when it is requested to perform an operation on a supplementary service which is not available in the current location area.

4.3.2.7 SS-SubscriptionViolation

This error is returned by the network when it is requested to perform an operation on a supplementary service, transgressing the subscription restrictions. The nature of the restriction or the transgressed options may be sent as parameters.

4.3.2.8 SS-Incompatibility

This error is returned by the network when it is requested for a supplementary service operation incompatible with the status of an other supplementary service or with the teleservice or bearer service for which the operation is requested. This error shall only be used if the operation is not compatible for even a subset of the teleservice group or bearer service group specified in the request. The identity and status of the conflicting service may also be indicated. The additional information may contain the SS-code parameter, the Basic Service Group parameter and the SS-status parameter.

4.3.2.9 SystemFailure

This error is returned by the network, when it cannot perform an operation because of a failure in the network.

4.3.2.10 DataMissing

This error is returned by the network when an optional parameter is missing in an invoke component or an inner data structure, while it is required by the context of the request.

4.3.2.11 UnexpectedDataValue

This error is returned by the network when it receives a parameter with an unexpected value, without type violation.

4.3.2.12 PasswordRegistrationFailure

This error is returned when a password registration procedure fails because of abnormal subscriber inputs. A more specific diagnostic may be passed as error parameter and indicates situations such as:

- invalid password format;

- new passwords mismatch.

4.3.2.13 NegativePasswordCheck

This error is returned to indicate the negative result of a password check because the subscriber has not provided the required password or has provided a password which does not match the valid one.

4.3.2.14 FacilityNotSupported

This error is returned by the network receiving a request about a facility which is not supported in the PLMN.

4.3.2.15 ResourcesNotAvailable

This error is returned by the network to the MS if temporarily there are no resources to support e.g. a multi party call available in the network.

4.3.2.16 MaxNumberOfMPTY-ParticipantsExceeded

This error is returned by the network to the MS if the request must be rejected because the number of subscribers to join a multi party call would exceed the maximum value.

4.3.2.17 CallBarred

This error is returned by the network to the MS when call independent subscriber control procedures are barred by the operator. The parameter "operator barring" shall be included.

4.3.2.18 NumberOfPW-AttemptsViolation

This error is returned by the network to the MS when the maximum number of wrong password attempts is exceeded.

4.3.2.19   AbsentSubscriber

This error is returned when the subscriber has activated the detach service or the system detects the absence condition. This error is not used on the radio interface but only between network entities.

4.3.2.20   IllegalSubscriber

This error is returned when illegality of the access has been established by use of authentication procedure. This error is not used on the radio interface but only between network entities.

4.3.2.21   IllegalEquipment

This error is returned when the IMEI check procedure has shown that the IMEI is blacklisted or not white—listed. This error is not used on the radio interface but only between network entities.

4.3.2.22   USSD-Busy

This error is returned by the MS to the network when the MS is not able to process the unstructured supplementary service data operation due to an on-going MMI input of the user or an already existing call independent supplementary service transaction.

4.3.2.23   UnknownAlphabet

This error is returned by the MS or the network when the alphabet/language used for the unstructured supplementary service data operation is not known by the network or the MS.

4.3.2.24   InvalidDeflectedToNumber

This error is returned if the requested deflected-to number is invalid.

4.3.2.25   SpecialServiceCode

This error is returned if diversion to a special service code was requested.

4.3.2.26   DeflectionToServedSubscriber

This error is returned if a diversion to the served subscriber's number was requested.

4.3.2.27   RejectedByNetwork

This error is returned by the network when the network rejects User-to-User Signalling service request.

4.3.2.28   RejectedByUser

This error is returned by the remote party when the remote party rejects User-to-User Signalling service request.

4.4   Data types and identifiers

4.4.1   General

The data types used in the SS protocol specifications are described in the ASN.1 module provided in subclause 4.4.2, while subclause 4.4.3 provides an overview of the identifiers used in SS ASN.1 specifications.

Since size constraints are subject to modifications named values have been defined in the following module for the upper boundaries of the value ranges associated to several sub-type specifications.

4.4.2 ASN.1 data types

This subclause provides an ASN.1 module defining the abstract data types in operations and errors specification. Only data types which are specific for this specification are defined. All other data types are imported from MAP together with the import of operations and errors.

```
SS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
   ss-DataTypes (2) version6 (6)}

DEFINITIONS

IMPLICIT TAGS ::=

BEGIN

-- exports all data types defined in this module

IMPORTS

SS-Code
FROM MAP-SS-Code {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-SS-Code (15) version6 (6)}

-- imports MAP-SS-DataTypes
SS-Status, USSD-DataCodingScheme, USSD-String, CCBS-Feature
-- USSD-DataCodingScheme, USSD-String were introduced because of CNAP.
FROM MAP-SS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-SS-DataTypes (14) version6 (6)}

CUG-Index,
NotificationToMSUser
FROM MAP-MS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-MS-DataTypes (11) version6 (6)}

maxSignalInfoLength,
ISDN-AddressString,
ISDN-SubaddressString,
AlertingPattern,
LCSClientExternalID
FROM MAP-CommonDataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-CommonDataTypes (18) version6 (6)}

LocationType,
LCSClientName,
LCS-QoS,
Horizontal-Accuracy,
ResponseTime,
Ext-GeographicalInformation
FROM MAP-LCS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-LCS-DataTypes (25) version6 (6)}

;

-- data types definition

SS-UserData ::= IA5String (SIZE (1.. maxSignalInfoLength))

NotifySS-Arg ::= SEQUENCE{
    ss-Code                   [1]     SS-Code OPTIONAL,
    ss-Status                 [4]     SS-Status OPTIONAL,
    ss-Notification           [5]     SS-Notification OPTIONAL,
    callIsWaiting-Indicator   [14]    NULL OPTIONAL,
    callOnHold-Indicator      [15]    CallOnHold-Indicator OPTIONAL,
    mpty-Indicator            [16]    NULL OPTIONAL,
    cug-Index                 [17]    CUG-Index OPTIONAL,
    clirSuppressionRejected   [18]    NULL OPTIONAL,
    ... ,
    ect-Indicator             [19]    ECT-Indicator OPTIONAL,
    nameIndicator             [20]    NameIndicator OPTIONAL,
    ccbs-Feature              [21]    CCBS-Feature OPTIONAL,
    alertingPattern           [22]    AlertingPattern OPTIONAL}
```

```
--  The nameIndicator is defined because of CNAP.

ForwardChargeAdviceArg ::= SEQUENCE{
    ss-Code                   [0]     SS-Code,
    chargingInformation       [1]     ChargingInformation,
    ...}

SS-Notification ::= OCTET STRING (SIZE (1))

--    Bit 8 7 6 5 4 00000 (Unused)

-- Bit 3   Call is forwarded indication to A-subscriber
--     (calling subscriber)
-- 0   No information content
-- 1   Outgoing call has been forwarded to C

-- Bit 2   Call is forwarded indication to B-subscriber
--     (forwarding subscriber)
-- 0   No information content
-- 1   Incoming call has been forwarded to C

-- Bit 1   Call is forwarded indication to C-subscriber
--     (forwarded-to subscriber)
-- 0   No information content
-- 1   Incoming call is a forwarded call

ChargingInformation ::= SEQUENCE{
    e1 [1] E1 OPTIONAL,
    e2 [2] E2 OPTIONAL,
    e3 [3] E3 OPTIONAL,
    e4 [4] E4 OPTIONAL,
    e5 [5] E5 OPTIONAL,
    e6 [6] E6 OPTIONAL,
    e7 [7] E7 OPTIONAL,
    ...}

E1 ::= INTEGER (0..max10TimesUnitsPerTime)
max10TimesUnitsPerTime INTEGER ::= 8191

E2 ::= INTEGER (0..max10TimesTimeInterval)
max10TimesTimeInterval INTEGER ::= 8191

E3 ::= INTEGER (0..max100TimesScalingFactor)
max100TimesScalingFactor INTEGER ::= 8191

E4 ::= INTEGER (0..max10TimesIncrement)
max10TimesIncrement INTEGER ::= 8191

E5 ::= INTEGER (0..max10TimesIncrementPerDataInterval)
max10TimesIncrementPerDataInterval INTEGER ::= 8191

E6 ::= INTEGER (0..maxNumberOfSegmentsPerDataInterval)
maxNumberOfSegmentsPerDataInterval INTEGER ::= 8191

E7 ::= INTEGER (0..max10TimesInitialTime)
max10TimesInitialTime INTEGER ::= 8191

CallOnHold-Indicator     ::= ENUMERATED {
        callRetrieved (0),
        callOnHold (1)}

ForwardCUG-InfoArg ::= SEQUENCE {
    cug-Index          [0] CUG-Index OPTIONAL,
    suppressPrefCUG    [1] NULL OPTIONAL,
    suppressOA         [2] NULL OPTIONAL,
    ...}

ECT-Indicator   ::= SEQUENCE {
    ect-CallState      [0] ECT-CallState,
    rdn [1] RDN OPTIONAL,
    ...}

ECT-CallState   ::= ENUMERATED {
        alerting (0),
        active (1)}

    NameIndicator ::= SEQUENCE {
```

```
            callingName      [0] Name OPTIONAL,
            ...}

     Name ::= CHOICE {
         namePresentationAllowed     [0] NameSet,
         presentationRestricted      [1] NULL,
         nameUnavailable             [2] NULL,
         namePresentationRestricted  [3] NameSet}

     NameSet ::= SEQUENCE {
         dataCodingScheme         [0] USSD-DataCodingScheme,
         lengthInCharacters       [1] INTEGER,
         nameString               [2] USSD-String,
         ...}

-- NameIndicator, Name and NameSet are defined because of CNAP.
-- The USSD-DataCodingScheme shall indicate use of the default alphabet through the
-- following encoding:
--    bit 7  6  5  4  3  2  1  0
--       | 0  0  0  0 | 1  1  1  1|

RDN ::= CHOICE {
    presentationAllowedAddress            [0] RemotePartyNumber,
    presentationRestricted                [1] NULL,
    numberNotAvailableDueToInterworking   [2] NULL,
    presentationRestrictedAddress         [3] RemotePartyNumber}

RemotePartyNumber   ::= SEQUENCE {
    partyNumber           [0] ISDN-AddressString,
    partyNumberSubaddress [1] ISDN-SubaddressString OPTIONAL,
    ...}

AccessRegisterCCEntryArg    ::= SEQUENCE {
    ...}

CallDeflectionArg   ::= SEQUENCE {
    deflectedToNumber     [0] ISDN-AddressString,
    deflectedToSubaddress [1] ISDN-SubaddressString OPTIONAL,
    ...}

UserUserServiceArg ::= SEQUENCE {
    uUS-Service    [0] UUS-Service,
    uUS-Required   [1] BOOLEAN,
    ... }

UUS-Service ::= ENUMERATED {
    uUS1 (1),
    uUS2 (2),
    uUS3 (3),
    ... }

-- exception handling:
-- In case of UUS-Service with any other value, indicated as "UUS required",
-- but not understood by the MS, the call will be cleared.

LocationNotificationArg ::= SEQUENCE {
    notificationType    [0] NotificationToMSUser,
    locationType        [1] LocationType,
    lcsClientExternalID [2] LCSClientExternalID    OPTIONAL,
    lcsClientName       [3] LCSClientName          OPTIONAL,
    ...}
-- exception handling:
-- At reception of an unrecognised notificationType value the receiver shall reject the
-- operation with a return error cause of unexpected data value.
-- At reception of an unrecognised locationType value the receiver shall reject the
-- operation with a return error cause of unexpected data value.


LocationNotificationRes ::= SEQUENCE {
    verificationResponse       [0] VerificationResponse OPTIONAL,
    ...}

VerificationResponse::= ENUMERATED {
    permissionDenied   (0),
    permissionGranted  (1),
    ... }

-- exception handling:
```

```
-- an unrecognized value shall be treated the same as value 0 (permissionDenied)

LCS-MOLRArg ::= SEQUENCE {
    molr-Type           [0] MOLR-Type,
    locationMethod      [1] LocationMethod          OPTIONAL,
    lcs-QoS             [2] LCS-QoS                 OPTIONAL,
    lcsClientExternalID [3] LCSClientExternalID     OPTIONAL,
    mlc-Number          [4] ISDN-AddressString      OPTIONAL,
    gpsAssistanceData   [5] GPSAssistanceData       OPTIONAL,
    ...}
-- The parameter locationMethod shall be included if and only if the molr-Type is set to value
-- deCipheringKeys or assistanceData.
-- The parameter gpsAssistanceData shall be included if and only if the molr-Type is set to value
-- assistanceData and LocationMethod is set to value assistedGPS.

MOLR-Type::= ENUMERATED {
    locationEstimate        (0),
    assistanceData          (1),
    deCipheringKeys         (2),
    ... }
-- exception handling:
-- an unrecognized value shall be rejected by the receiver with a return error cause of
-- unexpected data value.

LocationMethod::= ENUMERATED {
    msBasedEOTD        (0),
    msAssistedEOTD     (1),
    assistedGPS        (2),
    ... }
-- exception handling:
-- an unrecognized value shall be rejected by the receiver with a return error cause of
-- unexpected data value.

GPSAssistanceData::= OCTET STRING (SIZE (1..38))
-- Octets 1 to 38 are coded in the same way as the octets 3 to 7+2n of Requested GPS Data IE
-- in GSM 09.31.

LCS-MOLRRes::= SEQUENCE {
    locationEstimate       [0] Ext-GeographicalInformation     OPTIONAL,
    decipheringKeys        [1] DecipheringKeys                 OPTIONAL,
    ...}
-- Parameter locationEstimate shall be included if and only if the
-- molr-Type in LocationRequestArg was set to value locationEstimate.
-- Parameter decipheringKeys shall be included if and only if the molr-Type
-- in LocationRequestArg was set to value deCipheringKeys.
--


DecipheringKeys::= OCTET STRING (SIZE (15))
-- Octets in DecipheringKeys are coded in the same way as the octets 3 to 17 of Deciphering Key IE
-- in GSM 09.31. I.e. these octets contain Current Deciphering Key, Next Deciphering Key and
-- Ciphering Key Flag.


END
```

4.4.3   Identifiers definition

The parameters which are described in the following subclauses correspond to the identifiers used in operation and error types description.

4.4.3.1   chargingInformation

The chargingInformation identifier refers to the necessary information for the Advice of Charge supplementary service (see TS 22.024).

4.4.3.2   e1

The e1 identifier refers to 10 times the number of LPLMN units per time interval in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.3   e2

The e2 identifier refers to 10 times the length of the time interval in seconds in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.4   e3

The e3 identifier refers to 100 times the scaling factor to convert from LPLMN units to HPLMN units in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.5   e4

The e4 identifier refers to 10 times the LPLMN increment in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.6   e5

The e5 identifier refers to 10 times the number of LPLMN units incremented per data interval in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.7   e6

The e6 identifier refers to the number of segments per data interval in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.8   e7

The e7 identifier refers to 10 times the length of the initial time interval in seconds in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.9   ss-Code

The ss-Code identifier refers to the code which identify a supplementary service or a group of supplementary services.

4.4.3.10   ss-Notification

The ss-Notification identifier refers to one or several supplementary service notifications which have to be forwarded to a mobile subscriber.

4.4.3.11   ss-Status

The ss-Status identifier refers to the status of a supplementary service.

4.4.3.12   callIsWaiting-Indicator

The callIsWaiting-Indicator identifier refers to the indication given to the mobile station that the call is waiting.

4.4.3.13   callOnhold-Indicator

The callOnHold-Indicator identifier refers to the indication given to the mobile station that the call has been put on hold or has been retrieved.

4.4.3.14   mpty-Indicator

The mpty-Indicator identifier refers to the indication given to the mobile station that the multi party call has been invoked.

4.4.3.15 forwardCUG-InfoArg

The forwardCUG-InfoArg identifier refers to the indication given from the mobile subscriber to the network in connection with explicit invocation of a CUG call.

4.4.3.16 cug-Index

The cug-Index identifier refers to the index of a CUG given in an explicit invocation of a CUG call.

4.4.3.17 suppressPrefCUG

The suppressPrefCUG identifier refers to the mobile subscribers request to the network to prohibit the use of the preferential CUG.

4.4.3.18 suppressOA

The suppressOA identifier refers to the mobile subscribers request to the network to prohibit the use of the subscriber option "OA allowed".

4.4.3.19 clirSuppressionRejected

The clirSuppressionRejected identifier refers to the indication given to the mobile station that the CLIR suppression request has been rejected.

4.4.3.20 ect-Indicator

The ect-Indicator identifier refers to the indication given to the mobile station that the call was transferred.

4.4.3.21 ect-CallState

The ect-CallState identifier refers to the state of the call to the other remote party in which Explicit Call Transfer was invoked.

4.4.3.22 rdn

The Rdn identifier refers to the line identity information of the other remote party.

4.4.3.23 presentationAllowedAddress

The presentationAllowedAddress identifier refers to the line identity of the other remote party that is allowed to be presented.

4.4.3.24 presentationRestricted

The presentationRestricted identifier refers to the restriction of presentation of the line identity of the other remote party.

Also, the identifier refers to the restriction of presentation of the name identity of the calling party to the called party.

4.4.3.25 numberNotAvailableDueToInterworking

The numberNotAvailableDueToInterworking identifier refers to the unavailability of the line identity of the other remote party.

4.4.3.26 presentationRestrictedAddress

The presentationRestrictedAddress identifier refers to the line identity of the other remote party which presentation restriction is overridden.

4.4.3.27 partyNumber

The partyNumber identifier refers to the remote party number.

4.4.3.28 partyNumberSubaddress

The partyNumberSubaddress identifier refers to remote party number subaddress.

4.4.3.29 nameIndicator

The nameIndicator identifier refers to the indication given to the mobile station that the name presentation has been invoked.

4.4.3.30 namePresentationAllowed

The namePresentationAllowed identifier refers to the presentation of the calling party's name identity to the called party.

4.4.3.31 nameUnavailable

The nameUnavailable identifier refers to the unavailability of the calling party's name identity to be offered to the called party.

4.4.3.32 namePresentationRestricted

The namePresentationRestricted identifier refers to the calling party's name identity to be offered to the called party with which presentation restriction is overridden.

4.4.3.33 deflectedToNumber

The DeflectedToNumber identifier refers to a party an incoming shall be deflected to.

4.4.3.34 deflectedToSubaddress

The DeflectedToSubaddress identifier refers to a subaddress an incoming call shall be deflected to.

4.4.3.35 uUS-Service

The uUS-Service identifier refers to the UUS service (service 1, service 2 or service 3) to be requested.

4.4.3.36 uUS-Required

The uUS-Required identifier refers to the option ("UUS required" or "UUS not required") given when requesting the UUS service.

4.4.3.37 locationNotificationArg

The locationNotificationArg identifier refers to the location notification request which is sent to the MS by the network.

4.4.3.38 notificationType

The notificationType identifier refers to the type of location notification (notification or privacy verification).

4.4.3.39 locationNotificationRes

The locationNotificationRes identifier refers to the location notification response which is sent to the network by the MS.

4.4.3.40 verificationResponse

The VerificationResponse identifier refers to the privacy verification response given by the MS user.

4.4.3.41 lcs-MOLRArg

The lcs-MOLRArg identifier refers to the MO-LR request parameters which are sent to the network by the MS.

4.4.3.42 molr-Type

The molr-Type identifier refers to the type of MO-LR.

4.4.3.43 locationMethod

The locationMethod identifier refers to the location method, for which assistance data is requested by the MS.

4.4.3.44 gpsAssistanceData

The gpsAssistanceData identifier refers to the indication, which GPS assistance data is requested by the MS.

4.4.3.45 lcs-MOLRRes

The lcs-MOLRRes identifier refers to the MO-LR response parameters which are sent to the MS by the network.

4.4.3.46 decipheringKeys

The decipheringKeys identifier refers to the set of deciphering keys, that contains Current Deciphering Key, Next Deciphering Key and Ciphering Key Flag.

4.5 Operations and errors implementation

For the actual implementation of supplementary services, operations and errors have to be defined by value. The following ASN.1 module, imports operation types from the ASN.1 module described in subclause 4.2 and operation and error types from MAP. It defines operations by allocating operations and errors a local value. For the involved operations and errors the same local values as in MAP are allocated.

```
SS-Protocol {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Access (2) modules (3) ss-Protocol (3) version6 (6)}

DEFINITIONS ::=

BEGIN

IMPORTS

-- imports operation types

-- imports operation type from MAP-MobileServiceOperations
ForwardCheckSS-Indication
FROM MAP-MobileServiceOperations {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-MobileServiceOperations (5) version6 (6)}

-- imports operation types from MAP-SupplementaryServiceOperations
RegisterSS, EraseSS, ActivateSS, DeactivateSS, InterrogateSS, RegisterPassword, GetPassword,
ProcessUnstructuredSS-Request, UnstructuredSS-Request, UnstructuredSS-Notify, EraseCC-Entry
FROM MAP-SupplementaryServiceOperations {
   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-SupplementaryServiceOperations (8) version6 (6)}

-- imports operation types from SS-Operations
ProcessUnstructuredSS-Data, NotifySS, ForwardChargeAdvice, BuildMPTY, HoldMPTY, RetrieveMPTY,
SplitMPTY, ExplicitCT, ForwardCUG-Info, AccessRegisterCCEntry, CallDeflection, UserUserService,
LCS-LocationNotification, LCS-MOLR
FROM SS-Operations {
```

```
        ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
        ss-Operations (0) version6 (6)}

-- imports error types

-- imports error types from MAP-Errors
UnknownSubscriber, BearerServiceNotProvisioned, TeleserviceNotProvisioned,
IllegalSS-Operation, SS-ErrorStatus, SS-NotAvailable, SS-SubscriptionViolation,
SS-Incompatibility, SystemFailure, DataMissing, UnexpectedDataValue, PW-RegistrationFailure,
NegativePW-Check, FacilityNotSupported, CallBarred, NumberOfPW-AttemptsViolation,
AbsentSubscriber, IllegalSubscriber, IllegalEquipment, USSD-Busy, UnknownAlphabet,
ShortTermDenial, LongTermDenial, ForwardingViolation, ForwardingFailed

FROM MAP-Errors {
        ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
        map-Errors (10) version6 (6)}

-- imports error types from SS-Errors
ResourcesNotAvailable, MaxNumberOfMPTY-ParticipantsExceeded,
InvalidDeflectedToNumber, SpecialServiceCode, DeflectionToServedSubscriber,
RejectedByNetwork, RejectedByUser

FROM SS-Errors {
        ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
        ss-Errors (1) version6 (6)}
;

-- allocation of local values to operations

registerSS  RegisterSS ::= localValue 10
eraseSS     EraseSS ::= localValue 11
activateSS  ActivateSS ::= localValue 12
deactivateSS    DeactivateSS ::= localValue 13
interrogateSS   InterrogateSS ::= localValue 14
notifySS    NotifySS ::= localValue 16
registerPassword    RegisterPassword ::= localValue 17
getPassword     GetPassword ::= localValue 18
processUnstructuredSS-Data  ProcessUnstructuredSS-Data ::= localValue 19
forwardCheckSS-Indication   ForwardCheckSS-Indication ::= localValue 38
processUnstructuredSS-Request   ProcessUnstructuredSS-Request ::= localValue 59
unstructuredSS-Request  UnstructuredSS-Request ::= localValue 60
unstructuredSS-Notify   UnstructuredSS-Notify ::= localValue 61
eraseCCEntry    EraseCC-Entry ::= localValue 77
callDeflection  CallDeflection ::= localValue 117
userUserService UserUserService ::= localValue 118
accessRegisterCCEntry   AccessRegisterCCEntry ::= localValue 119
forwardCUG-Info ForwardCUG-Info ::= localValue 120
splitMPTY   SplitMPTY ::= localValue 121
retrieveMPTY    RetrieveMPTY ::= localValue 122
holdMPTY    HoldMPTY ::= localValue 123
buildMPTY   BuildMPTY ::= localValue 124
forwardChargeAdvice ForwardChargeAdvice ::= localValue 125
explicitCT  ExplicitCT ::= localValue 126
lcs-LocationNotification    LCS-LocationNotification::= localValue 116
lcs-MOLR    LCS-MOLR::= localValue 115


-- allocation of local values to errors

unknownSubscriber   UnknownSubscriber ::= localValue 1
illegalSubscriber   IllegalSubscriber ::= localValue 9
bearerServiceNotProvisioned BearerServiceNotProvisioned ::= localValue 10
teleserviceNotProvisioned   TeleserviceNotProvisioned ::= localValue 11
illegalEquipment    IllegalEquipment ::= localValue 12
callBarred  CallBarred ::= localValue 13
illegalSS-Operation IllegalSS-Operation ::= localValue 16
ss-ErrorStatus  SS-ErrorStatus ::= localValue 17
ss-NotAvailable SS-NotAvailable ::= localValue 18
ss-SubscriptionViolation    SS-SubscriptionViolation ::= localValue 19
ss-Incompatibility  SS-Incompatibility ::= localValue 20
facilityNotSupported    FacilityNotSupported ::= localValue 21
absentSubscriber    AbsentSubscriber ::= localValue 27
shortTermDenial ShortTermDenial ::= localValue 29
longTermDenial  LongTermDenial ::= localValue 30
systemFailure   SystemFailure ::= localValue 34
dataMissing DataMissing ::= localValue 35
unexpectedDataValue UnexpectedDataValue ::= localValue 36
pw-RegistrationFailure  PW-RegistrationFailure ::= localValue 37
```

```
negativePW-Check     NegativePW-Check ::= localValue 38
numberOfPW-AttemptsViolation     NumberOfPW-AttemptsViolation ::= localValue 43
unknownAlphabet UnknownAlphabet ::= localValue 71
ussd-Busy   USSD-Busy ::= localValue 72
rejectedByUser  RejectedByUser ::= localValue 121
rejectedByNetwork   RejectedByNetwork ::= localValue 122
deflectionToServedSubscriber     DeflectionToServedSubscriber ::= localValue 123
specialServiceCode  SpecialServiceCode ::= localValue 124
invalidDeflectedToNumber     InvalidDeflectedToNumber ::= localValue 125
maxNumberOfMPTY-ParticipantsExceeded     MaxNumberOfMPTY-ParticipantsExceeded ::= localValue 126
resourcesNotAvailable   ResourcesNotAvailable ::= localValue 127


END
```

Annex A (informative): Expanded ASN.1 Module "SS-Protocol"

```
--           Expanded ASN1 Module 'SS-Protocol'
--SIEMENS ASN.1 Compiler       R4.60  (46-00-01)
--           Date: 2000-04-04 Time: 10:09:17

SS-Protocol{ 0 identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3) ss-
Protocol (3) version6 (6) }

DEFINITIONS

::=

BEGIN

registerSS OPERATION
    ARGUMENT
      registerSS-Arg SEQUENCE {
          ss-Code              OCTET STRING (  SIZE (1 ) ),
          basicService          CHOICE {
            bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
            teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
          forwardedToNumber      [4] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) OPTIONAL,
          forwardedToSubaddress  [6] IMPLICIT OCTET STRING (  SIZE (1 .. 21 ) ) OPTIONAL,
          noReplyConditionTime   [5] IMPLICIT INTEGER ( 5 .. 30 ) OPTIONAL,
          ... ,
          defaultPriority        [7] IMPLICIT INTEGER ( 0 .. 15 ) OPTIONAL,
          nbrUser                [8] IMPLICIT INTEGER ( 1 .. 7 ) OPTIONAL}
    RESULT
      ss-Info    CHOICE {
          forwardingInfo      [0] IMPLICIT SEQUENCE {
            ss-Code                OCTET STRING (  SIZE (1 ) ) OPTIONAL,
            forwardingFeatureList   SEQUENCE (  SIZE (1 .. 13 ) ) OF
                SEQUENCE {
                  basicService           CHOICE {
                    bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                    teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
                  ss-Status            [4] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                  forwardedToNumber    [5] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1
.. 9 ) ) OPTIONAL,
                  forwardedToSubaddress [8] IMPLICIT OCTET STRING (  SIZE (1 .. 21 ) ) OPTIONAL,
                  forwardingOptions    [6] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                  noReplyConditionTime [7] IMPLICIT INTEGER ( 5 .. 30 ) OPTIONAL,
                  ... ,
                  longForwardedToNumber [9] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1
.. 15 ) ) OPTIONAL},
                ... },
          callBarringInfo     [1] IMPLICIT SEQUENCE {
            ss-Code                OCTET STRING (  SIZE (1 ) ) OPTIONAL,
            callBarringFeatureList   SEQUENCE (  SIZE (1 .. 13 ) ) OF
                SEQUENCE {
                  basicService    CHOICE {
                    bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                    teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
                  ss-Status    [4] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                  ... },
                ... },
          ss-Data             [3] IMPLICIT SEQUENCE {
            ss-Code                OCTET STRING (  SIZE (1 ) ) OPTIONAL,
            ss-Status              [4] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
            ss-SubscriptionOption   CHOICE {
                cliRestrictionOption    [2] IMPLICIT ENUMERATED {
                  permanent                 (0 ),
                  temporaryDefaultRestricted   (1 ),
                  temporaryDefaultAllowed     (2 )},
                overrideCategory        [1] IMPLICIT ENUMERATED {
                  overrideEnabled   (0 ),
                  overrideDisabled  (1 )}} OPTIONAL,
            basicServiceGroupList   SEQUENCE (  SIZE (1 .. 13 ) ) OF
                CHOICE {
                  bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                  teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
```

```
                ... ,
                defaultPriority        INTEGER ( 0 .. 15 ) OPTIONAL,
                nbrUser                [5] IMPLICIT INTEGER ( 1 .. 7 ) OPTIONAL}}
    ERRORS {
        -- systemFailure -- localValue : 34,
        -- dataMissing -- localValue : 35,
        -- unexpectedDataValue -- localValue : 36,
        -- bearerServiceNotProvisioned -- localValue : 10,
        -- teleserviceNotProvisioned -- localValue : 11,
        -- callBarred -- localValue : 13,
        -- illegalSS-Operation -- localValue : 16,
        -- ss-ErrorStatus -- localValue : 17,
        -- ss-Incompatibility -- localValue : 20}
  ::= localValue : 10


eraseSS    OPERATION
    ARGUMENT
        ss-ForBS    SEQUENCE {
            ss-Code            OCTET STRING (  SIZE (1 ) ),
            basicService       CHOICE {
                bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
            ... ,
            longFTN-Supported  [4] IMPLICIT NULL OPTIONAL}
    RESULT
        ss-Info    CHOICE {
            forwardingInfo     [0] IMPLICIT SEQUENCE {
                ss-Code                  OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                forwardingFeatureList    SEQUENCE (  SIZE (1 .. 13 ) ) OF
                    SEQUENCE {
                        basicService           CHOICE {
                            bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                            teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
                        ss-Status              [4] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                        forwardedToNumber      [5] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1
.. 9 ) ) OPTIONAL,
                        forwardedToSubaddress  [8] IMPLICIT OCTET STRING (  SIZE (1 .. 21 ) ) OPTIONAL,
                        forwardingOptions      [6] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                        noReplyConditionTime   [7] IMPLICIT INTEGER ( 5 .. 30 ) OPTIONAL,
                        ... ,
                        longForwardedToNumber  [9] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1
.. 15 ) ) OPTIONAL},
                    ... },
            callBarringInfo    [1] IMPLICIT SEQUENCE {
                ss-Code                  OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                callBarringFeatureList   SEQUENCE (  SIZE (1 .. 13 ) ) OF
                    SEQUENCE {
                        basicService   CHOICE {
                            bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                            teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
                        ss-Status      [4] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                        ... },
                ... },
            ss-Data            [3] IMPLICIT SEQUENCE {
                ss-Code                  OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                ss-Status                [4] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                ss-SubscriptionOption    CHOICE {
                    cliRestrictionOption    [2] IMPLICIT ENUMERATED {
                        permanent                  (0 ),
                        temporaryDefaultRestricted (1 ),
                        temporaryDefaultAllowed    (2 )},
                    overrideCategory        [1] IMPLICIT ENUMERATED {
                        overrideEnabled   (0 ),
                        overrideDisabled  (1 )}} OPTIONAL,
                basicServiceGroupList    SEQUENCE (  SIZE (1 .. 13 ) ) OF
                    CHOICE {
                        bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                        teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
                ... ,
                defaultPriority          INTEGER ( 0 .. 15 ) OPTIONAL,
                nbrUser                  [5] IMPLICIT INTEGER ( 1 .. 7 ) OPTIONAL}}
    ERRORS {
        -- systemFailure -- localValue : 34,
        -- dataMissing -- localValue : 35,
        -- unexpectedDataValue -- localValue : 36,
        -- bearerServiceNotProvisioned -- localValue : 10,
        -- teleserviceNotProvisioned -- localValue : 11,
        -- callBarred -- localValue : 13,
```

```
        -- illegalSS-Operation -- localValue : 16,
        -- ss-ErrorStatus -- localValue : 17}
 ::= localValue : 11


activateSS OPERATION
   ARGUMENT
      ss-ForBS    SEQUENCE {
         ss-Code           OCTET STRING ( SIZE (1 ) ),
         basicService         CHOICE {
            bearerService   [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
            teleservice     [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
         ... ,
         longFTN-Supported  [4] IMPLICIT NULL OPTIONAL}
   RESULT
      ss-Info    CHOICE {
         forwardingInfo      [0] IMPLICIT SEQUENCE {
            ss-Code                 OCTET STRING ( SIZE (1 ) ) OPTIONAL,
            forwardingFeatureList   SEQUENCE ( SIZE (1 .. 13 ) ) OF
               SEQUENCE {
                  basicService          CHOICE {
                     bearerService   [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
                     teleservice     [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
                  ss-Status            [4] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                  forwardedToNumber    [5] IMPLICIT OCTET STRING ( SIZE (1 .. 20 ) ) ( SIZE (1
.. 9 ) ) OPTIONAL,
                  forwardedToSubaddress [8] IMPLICIT OCTET STRING ( SIZE (1 .. 21 ) ) OPTIONAL,
                  forwardingOptions    [6] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                  noReplyConditionTime [7] IMPLICIT INTEGER ( 5 .. 30 ) OPTIONAL,
                  ... ,
                  longForwardedToNumber [9] IMPLICIT OCTET STRING ( SIZE (1 .. 20 ) ) ( SIZE (1
.. 15 ) ) OPTIONAL},
              ... },
         callBarringInfo     [1] IMPLICIT SEQUENCE {
            ss-Code                 OCTET STRING ( SIZE (1 ) ) OPTIONAL,
            callBarringFeatureList  SEQUENCE ( SIZE (1 .. 13 ) ) OF
               SEQUENCE {
                  basicService   CHOICE {
                     bearerService   [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
                     teleservice     [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
                  ss-Status    [4] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                  ... },
              ... },
         ss-Data          [3] IMPLICIT SEQUENCE {
            ss-Code                 OCTET STRING ( SIZE (1 ) ) OPTIONAL,
            ss-Status            [4] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
            ss-SubscriptionOption   CHOICE {
               cliRestrictionOption    [2] IMPLICIT ENUMERATED {
                  permanent                  (0 ),
                  temporaryDefaultRestricted (1 ),
                  temporaryDefaultAllowed    (2 )},
               overrideCategory        [1] IMPLICIT ENUMERATED {
                  overrideEnabled    (0 ),
                  overrideDisabled   (1 )}} OPTIONAL,
            basicServiceGroupList   SEQUENCE ( SIZE (1 .. 13 ) ) OF
               CHOICE {
                  bearerService   [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
                  teleservice     [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
            ... ,
            defaultPriority      INTEGER ( 0 .. 15 ) OPTIONAL,
            nbrUser              [5] IMPLICIT INTEGER ( 1 .. 7 ) OPTIONAL}}
   ERRORS {
      -- systemFailure -- localValue : 34,
      -- dataMissing -- localValue : 35,
      -- unexpectedDataValue -- localValue : 36,
      -- bearerServiceNotProvisioned -- localValue : 10,
      -- teleserviceNotProvisioned -- localValue : 11,
      -- callBarred -- localValue : 13,
      -- illegalSS-Operation -- localValue : 16,
      -- ss-ErrorStatus -- localValue : 17,
      -- ss-SubscriptionViolation -- localValue : 19,
      -- ss-Incompatibility -- localValue : 20,
      -- negativePW-Check -- localValue : 38,
      -- numberOfPW-AttemptsViolation -- localValue : 43}
 ::= localValue : 12


deactivateSS OPERATION
   ARGUMENT
      ss-ForBS    SEQUENCE {
```

```
            ss-Code           OCTET STRING ( SIZE (1 ) ),
        basicService          CHOICE {
            bearerService    [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
            teleservice      [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
        ... ,
        longFTN-Supported    [4] IMPLICIT NULL OPTIONAL}
    RESULT
        ss-Info   CHOICE {
            forwardingInfo    [0] IMPLICIT SEQUENCE {
                ss-Code              OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                forwardingFeatureList   SEQUENCE ( SIZE (1 .. 13 ) ) OF
                    SEQUENCE {
                        basicService         CHOICE {
                            bearerService    [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
                            teleservice      [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
                        ss-Status           [4] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                        forwardedToNumber   [5] IMPLICIT OCTET STRING ( SIZE (1 .. 20 ) ) ( SIZE (1
.. 9 ) ) OPTIONAL,
                        forwardedToSubaddress [8] IMPLICIT OCTET STRING ( SIZE (1 .. 21 ) ) OPTIONAL,
                        forwardingOptions   [6] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                        noReplyConditionTime [7] IMPLICIT INTEGER ( 5 .. 30 ) OPTIONAL,
                        ... ,
                        longForwardedToNumber [9] IMPLICIT OCTET STRING ( SIZE (1 .. 20 ) ) ( SIZE (1
.. 15 ) ) OPTIONAL},
                ... },
            callBarringInfo    [1] IMPLICIT SEQUENCE {
                ss-Code                 OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                callBarringFeatureList  SEQUENCE ( SIZE (1 .. 13 ) ) OF
                    SEQUENCE {
                        basicService   CHOICE {
                            bearerService    [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
                            teleservice      [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
                        ss-Status    [4] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                        ... },
                ... },
            ss-Data           [3] IMPLICIT SEQUENCE {
                ss-Code                 OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                ss-Status          [4] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
                ss-SubscriptionOption   CHOICE {
                    cliRestrictionOption   [2] IMPLICIT ENUMERATED {
                        permanent                  (0 ),
                        temporaryDefaultRestricted (1 ),
                        temporaryDefaultAllowed    (2 )},
                    overrideCategory      [1] IMPLICIT ENUMERATED {
                        overrideEnabled   (0 ),
                        overrideDisabled  (1 )}} OPTIONAL,
                basicServiceGroupList   SEQUENCE ( SIZE (1 .. 13 ) ) OF
                    CHOICE {
                        bearerService    [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
                        teleservice      [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
                ... ,
                defaultPriority         INTEGER ( 0 .. 15 ) OPTIONAL,
                nbrUser            [5] IMPLICIT INTEGER ( 1 .. 7 ) OPTIONAL}}
    ERRORS {
        -- systemFailure -- localValue : 34,
        -- dataMissing -- localValue : 35,
        -- unexpectedDataValue -- localValue : 36,
        -- bearerServiceNotProvisioned -- localValue : 10,
        -- teleserviceNotProvisioned -- localValue : 11,
        -- callBarred -- localValue : 13,
        -- illegalSS-Operation -- localValue : 16,
        -- ss-ErrorStatus -- localValue : 17,
        -- ss-SubscriptionViolation -- localValue : 19,
        -- negativePW-Check -- localValue : 38,
        -- numberOfPW-AttemptsViolation -- localValue : 43}
    ::= localValue : 13

interrogateSS OPERATION
    ARGUMENT
        ss-ForBS   SEQUENCE {
            ss-Code           OCTET STRING ( SIZE (1 ) ),
            basicService          CHOICE {
                bearerService    [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
                teleservice      [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
            ... ,
            longFTN-Supported    [4] IMPLICIT NULL OPTIONAL}
    RESULT
        interrogateSS-Res CHOICE {
```

```
            ss-Status                [0] IMPLICIT OCTET STRING (  SIZE (1 ) ),
            basicServiceGroupList    [2] IMPLICIT SEQUENCE  (  SIZE (1 .. 13 ) ) OF
                CHOICE {
                    bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                    teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )},
            forwardingFeatureList    [3] IMPLICIT SEQUENCE  (  SIZE (1 .. 13 ) ) OF
                SEQUENCE {
                    basicService            CHOICE {
                        bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                        teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
                    ss-Status               [4] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                    forwardedToNumber       [5] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 ..
9 ) ) OPTIONAL,
                    forwardedToSubaddress   [8] IMPLICIT OCTET STRING (  SIZE (1 .. 21 ) ) OPTIONAL,
                    forwardingOptions       [6] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
                    noReplyConditionTime    [7] IMPLICIT INTEGER ( 5 .. 30 ) OPTIONAL,
                    ... ,
                    longForwardedToNumber   [9] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 ..
15 ) ) OPTIONAL},
            genericServiceInfo       [4] IMPLICIT SEQUENCE {
                ss-Status                OCTET STRING (  SIZE (1 ) ),
                cliRestrictionOption     ENUMERATED {
                    permanent                (0 ),
                    temporaryDefaultRestricted   (1 ),
                    temporaryDefaultAllowed  (2 )} OPTIONAL,
                ... ,
                maximumEntitledPriority  [0] IMPLICIT INTEGER ( 0 .. 15 ) OPTIONAL,
                defaultPriority          [1] IMPLICIT INTEGER ( 0 .. 15 ) OPTIONAL,
                ccbs-FeatureList         [2] IMPLICIT SEQUENCE  (  SIZE (1 .. 5 ) ) OF
                    SEQUENCE {
                        ccbs-Index           [0] IMPLICIT INTEGER ( 1 .. 5 ) OPTIONAL,
                        b-subscriberNumber   [1] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1
.. 9 ) ) OPTIONAL,
                        b-subscriberSubaddress [2] IMPLICIT OCTET STRING (  SIZE (1 .. 21 ) ) OPTIONAL,
                        basicServiceGroup    [3] CHOICE {
                            bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                            teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
                        ... } OPTIONAL,
                nbrSB                    [3] IMPLICIT INTEGER ( 2 .. 7 ) OPTIONAL,
                nbrUser                  [4] IMPLICIT INTEGER ( 1 .. 7 ) OPTIONAL,
                nbrSN                    [5] IMPLICIT INTEGER ( 1 .. 7 ) OPTIONAL}}
    ERRORS {
        -- systemFailure -- localValue : 34,
        -- dataMissing -- localValue : 35,
        -- unexpectedDataValue -- localValue : 36,
        -- bearerServiceNotProvisioned -- localValue : 10,
        -- teleserviceNotProvisioned -- localValue : 11,
        -- callBarred -- localValue : 13,
        -- illegalSS-Operation -- localValue : 16,
        -- ss-NotAvailable -- localValue : 18}
  ::= localValue : 14

notifySS    OPERATION
    ARGUMENT
        notifySS-Arg SEQUENCE {
            ss-Code                  [1] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
            ss-Status                [4] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
            ss-Notification          [5] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
            callIsWaiting-Indicator  [14] IMPLICIT NULL OPTIONAL,
            callOnHold-Indicator     [15] IMPLICIT ENUMERATED {
                callRetrieved   (0 ),
                callOnHold      (1 )} OPTIONAL,
            mpty-Indicator           [16] IMPLICIT NULL OPTIONAL,
            cug-Index                [17] IMPLICIT INTEGER ( 0 .. 32767 ) OPTIONAL,
            clirSuppressionRejected  [18] IMPLICIT NULL OPTIONAL,
            ... ,
            ect-Indicator            [19] IMPLICIT SEQUENCE {
                ect-CallState   [0] IMPLICIT ENUMERATED {
                    alerting   (0 ),
                    active     (1 )},
                rdn             [1] CHOICE {
                    presentationAllowedAddress            [0] IMPLICIT SEQUENCE {
                        partyNumber        [0] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1
.. 9 ) ),
                        partyNumberSubaddress [1] IMPLICIT OCTET STRING (  SIZE (1 .. 21 ) ) OPTIONAL,
                        ... },
                    presentationRestricted                [1] IMPLICIT NULL,
                    numberNotAvailableDueToInterworking   [2] IMPLICIT NULL,
```

```
                presentationRestrictedAddress        [3] IMPLICIT SEQUENCE {
                    partyNumber           [0] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1
.. 9 ) ),
                    partyNumberSubaddress [1] IMPLICIT OCTET STRING (  SIZE (1 .. 21 ) ) OPTIONAL,
                    ... }} OPTIONAL,
            ... } OPTIONAL,
        nameIndicator         [20] IMPLICIT SEQUENCE {
            callingName  [0] CHOICE {
                namePresentationAllowed       [0] IMPLICIT SEQUENCE {
                    dataCodingScheme    [0] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                    lengthInCharacters  [1] IMPLICIT INTEGER,
                    nameString          [2] IMPLICIT OCTET STRING (  SIZE (1 .. 160 ) ),
                    ... },
                presentationRestricted        [1] IMPLICIT NULL,
                nameUnavailable               [2] IMPLICIT NULL,
                namePresentationRestricted    [3] IMPLICIT SEQUENCE {
                    dataCodingScheme    [0] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                    lengthInCharacters  [1] IMPLICIT INTEGER,
                    nameString          [2] IMPLICIT OCTET STRING (  SIZE (1 .. 160 ) ),
                    ... }} OPTIONAL,
            ... } OPTIONAL,
        ccbs-Feature          [21] IMPLICIT SEQUENCE {
            ccbs-Index          [0] IMPLICIT INTEGER ( 1 .. 5 ) OPTIONAL,
            b-subscriberNumber      [1] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9
) ) OPTIONAL,
            b-subscriberSubaddress  [2] IMPLICIT OCTET STRING (  SIZE (1 .. 21 ) ) OPTIONAL,
            basicServiceGroup       [3] CHOICE {
                bearerService    [2] IMPLICIT OCTET STRING (  SIZE (1 ) ),
                teleservice      [3] IMPLICIT OCTET STRING (  SIZE (1 ) )} OPTIONAL,
            ... } OPTIONAL,
        alertingPattern          [22] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL}
 ::= localValue : 16

registerPassword OPERATION
    ARGUMENT
        ss-Code   OCTET STRING (  SIZE (1 ) )
    RESULT
        newPassword NumericString ( FROM ("0"|"1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9" ) |  SIZE (4 ) )
    ERRORS {
        -- systemFailure -- localValue : 34,
        -- dataMissing -- localValue : 35,
        -- unexpectedDataValue -- localValue : 36,
        -- callBarred -- localValue : 13,
        -- ss-SubscriptionViolation -- localValue : 19,
        -- pw-RegistrationFailure -- localValue : 37,
        -- negativePW-Check -- localValue : 38,
        -- numberOfPW-AttemptsViolation -- localValue : 43}
    LINKED {
        -- getPassword -- localValue : 18}
 ::= localValue : 17

getPassword OPERATION
    ARGUMENT
        guidanceInfo ENUMERATED {
            enterPW           (0 ),
            enterNewPW        (1 ),
            enterNewPW-Again  (2 )}
    RESULT
        currentPassword NumericString ( FROM ("0"|"1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9" ) |  SIZE (4 ) )
 ::= localValue : 18

processUnstructuredSS-Data OPERATION
    ARGUMENT
        ss-UserData IA5String (  SIZE (1 .. 200 ) )
    RESULT
        ss-UserData IA5String (  SIZE (1 .. 200 ) )
    ERRORS {
        -- systemFailure -- localValue : 34,
        -- unexpectedDataValue -- localValue : 36}
 ::= localValue : 19

forwardCheckSS-Indication OPERATION
 ::= localValue : 38

processUnstructuredSS-Request OPERATION
    ARGUMENT
        ussd-Arg   SEQUENCE {
            ussd-DataCodingScheme   OCTET STRING (  SIZE (1 ) ),
```

```
         ussd-String              OCTET STRING (  SIZE (1 .. 160 ) ),
         ... ,
         alertingPattern          OCTET STRING (  SIZE (1 ) ) OPTIONAL,
         msisdn                    [0] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) )
OPTIONAL}
   RESULT
      ussd-Res   SEQUENCE {
         ussd-DataCodingScheme   OCTET STRING (  SIZE (1 ) ),
         ussd-String              OCTET STRING (  SIZE (1 .. 160 ) ),
         ... }
   ERRORS {
      -- systemFailure -- localValue : 34,
      -- dataMissing -- localValue : 35,
      -- unexpectedDataValue -- localValue : 36,
      -- unknownAlphabet -- localValue : 71,
      -- callBarred -- localValue : 13}
 ::= localValue : 59

unstructuredSS-Request OPERATION
   ARGUMENT
      ussd-Arg   SEQUENCE {
         ussd-DataCodingScheme   OCTET STRING (  SIZE (1 ) ),
         ussd-String              OCTET STRING (  SIZE (1 .. 160 ) ),
         ... ,
         alertingPattern          OCTET STRING (  SIZE (1 ) ) OPTIONAL,
         msisdn                    [0] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) )
OPTIONAL}
   RESULT
      ussd-Res   SEQUENCE {
         ussd-DataCodingScheme   OCTET STRING (  SIZE (1 ) ),
         ussd-String              OCTET STRING (  SIZE (1 .. 160 ) ),
         ... }
   ERRORS {
      -- systemFailure -- localValue : 34,
      -- dataMissing -- localValue : 35,
      -- unexpectedDataValue -- localValue : 36,
      -- absentSubscriber -- localValue : 27,
      -- illegalSubscriber -- localValue : 9,
      -- illegalEquipment -- localValue : 12,
      -- unknownAlphabet -- localValue : 71,
      -- ussd-Busy -- localValue : 72}
 ::= localValue : 60

unstructuredSS-Notify OPERATION
   ARGUMENT
      ussd-Arg   SEQUENCE {
         ussd-DataCodingScheme   OCTET STRING (  SIZE (1 ) ),
         ussd-String              OCTET STRING (  SIZE (1 .. 160 ) ),
         ... ,
         alertingPattern          OCTET STRING (  SIZE (1 ) ) OPTIONAL,
         msisdn                    [0] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) )
OPTIONAL}
   ERRORS {
      -- systemFailure -- localValue : 34,
      -- dataMissing -- localValue : 35,
      -- unexpectedDataValue -- localValue : 36,
      -- absentSubscriber -- localValue : 27,
      -- illegalSubscriber -- localValue : 9,
      -- illegalEquipment -- localValue : 12,
      -- unknownAlphabet -- localValue : 71,
      -- ussd-Busy -- localValue : 72}
 ::= localValue : 61

eraseCCEntry OPERATION
   ARGUMENT
      eraseCC-EntryArg SEQUENCE {
         ss-Code     [0] IMPLICIT OCTET STRING (  SIZE (1 ) ),
         ccbs-Index  [1] IMPLICIT INTEGER ( 1 .. 5 ) OPTIONAL,
         ... }
   RESULT
      eraseCC-EntryRes SEQUENCE {
         ss-Code     [0] IMPLICIT OCTET STRING (  SIZE (1 ) ),
         ss-Status   [1] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
         ... }
   ERRORS {
      -- systemFailure -- localValue : 34,
      -- dataMissing -- localValue : 35,
      -- unexpectedDataValue -- localValue : 36,
```

```
       -- callBarred -- localValue : 13,
       -- illegalSS-Operation -- localValue : 16,
       -- ss-ErrorStatus -- localValue : 17}
 ::= localValue : 77

callDeflection OPERATION
    ARGUMENT
       callDeflectionArg SEQUENCE {
          deflectedToNumber      [0] IMPLICIT OCTET STRING ( SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) ),
          deflectedToSubaddress  [1] IMPLICIT OCTET STRING ( SIZE (1 .. 21 ) ) OPTIONAL,
          ... }
    ERRORS {
       -- illegalSS-Operation -- localValue : 16,
       -- ss-ErrorStatus -- localValue : 17,
       -- ss-NotAvailable -- localValue : 18,
       -- ss-Incompatibility -- localValue : 20,
       -- facilityNotSupported -- localValue : 21,
       -- systemFailure -- localValue : 34,
       -- resourcesNotAvailable -- localValue : 127,
       --  -- ,
       -- callBarred -- localValue : 13,
       -- deflectionToServedSubscriber -- localValue : 123,
       -- invalidDeflectedToNumber -- localValue : 125,
       -- specialServiceCode -- localValue : 124,
       --  -- }
 ::= localValue : 117

userUserService OPERATION
    ARGUMENT
       userUserServiceArg SEQUENCE {
          uUS-Service    [0] IMPLICIT ENUMERATED {
             uUS1       (1 ),
             uUS2       (2 ),
             uUS3       (3 ),
             ... },
          uUS-Required  [1] IMPLICIT BOOLEAN,
          ... }
    ERRORS {
       -- illegalSS-Operation -- localValue : 16,
       -- ss-ErrorStatus -- localValue : 17,
       -- ss-NotAvailable -- localValue : 18,
       -- ss-Incompatibility -- localValue : 20,
       -- facilityNotSupported -- localValue : 21,
       -- systemFailure -- localValue : 34,
       -- resourcesNotAvailable -- localValue : 127,
       -- rejectedByNetwork -- localValue : 122,
       -- rejectedByUser -- localValue : 121}
 ::= localValue : 118

accessRegisterCCEntry OPERATION
    ARGUMENT
       accessRegisterCCEntryArg SEQUENCE {
          ... }
    RESULT
       registerCCEntryRes SEQUENCE {
          ccbs-Feature   [0] IMPLICIT SEQUENCE {
             ccbs-Index             [0] IMPLICIT INTEGER ( 1 .. 5 ) OPTIONAL,
             b-subscriberNumber     [1] IMPLICIT OCTET STRING ( SIZE (1 .. 20 ) ) ( SIZE (1 .. 9
) ) OPTIONAL,
             b-subscriberSubaddress [2] IMPLICIT OCTET STRING ( SIZE (1 .. 21 ) ) OPTIONAL,
             basicServiceGroup      [3] CHOICE {
                bearerService   [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
                teleservice     [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
             ... } OPTIONAL,
          ... }
    ERRORS {
       -- systemFailure -- localValue : 34,
       -- dataMissing -- localValue : 35,
       -- unexpectedDataValue -- localValue : 36,
       -- callBarred -- localValue : 13,
       -- illegalSS-Operation -- localValue : 16,
       -- ss-ErrorStatus -- localValue : 17,
       -- ss-Incompatibility -- localValue : 20,
       -- shortTermDenial -- localValue : 29,
       -- longTermDenial -- localValue : 30,
       -- facilityNotSupported -- localValue : 21}
 ::= localValue : 119
```

```
forwardCUG-Info OPERATION
   ARGUMENT
      forwardCUG-InfoArg SEQUENCE {
         cug-Index        [0] IMPLICIT INTEGER ( 0 .. 32767 ) OPTIONAL,
         suppressPrefCUG  [1] IMPLICIT NULL OPTIONAL,
         suppressOA       [2] IMPLICIT NULL OPTIONAL,
         ... }
 ::= localValue : 120

splitMPTY  OPERATION
   RESULT
      zzzz-empty NULL
   ERRORS {
      -- illegalSS-Operation -- localValue : 16,
      -- ss-ErrorStatus -- localValue : 17,
      -- ss-Incompatibility -- localValue : 20,
      -- facilityNotSupported -- localValue : 21,
      -- systemFailure -- localValue : 34}
 ::= localValue : 121

retrieveMPTY OPERATION
   RESULT
      zzzz-empty NULL
   ERRORS {
      -- illegalSS-Operation -- localValue : 16,
      -- ss-ErrorStatus -- localValue : 17,
      -- ss-Incompatibility -- localValue : 20,
      -- facilityNotSupported -- localValue : 21,
      -- systemFailure -- localValue : 34}
 ::= localValue : 122

holdMPTY   OPERATION
   RESULT
      zzzz-empty NULL
   ERRORS {
      -- illegalSS-Operation -- localValue : 16,
      -- ss-ErrorStatus -- localValue : 17,
      -- ss-Incompatibility -- localValue : 20,
      -- facilityNotSupported -- localValue : 21,
      -- systemFailure -- localValue : 34}
 ::= localValue : 123

buildMPTY  OPERATION
   RESULT
      zzzz-empty NULL
   ERRORS {
      -- illegalSS-Operation -- localValue : 16,
      -- ss-ErrorStatus -- localValue : 17,
      -- ss-NotAvailable -- localValue : 18,
      -- ss-Incompatibility -- localValue : 20,
      -- systemFailure -- localValue : 34,
      -- resourcesNotAvailable -- localValue : 127,
      -- maxNumberOfMPTY-ParticipantsExceeded -- localValue : 126}
 ::= localValue : 124

forwardChargeAdvice OPERATION
   ARGUMENT
      forwardChargeAdviceArg SEQUENCE {
         ss-Code             [0] IMPLICIT OCTET STRING (  SIZE (1 ) ),
         chargingInformation [1] IMPLICIT SEQUENCE {
            e1       [1] IMPLICIT INTEGER ( 0 .. 8191 ) OPTIONAL,
            e2       [2] IMPLICIT INTEGER ( 0 .. 8191 ) OPTIONAL,
            e3       [3] IMPLICIT INTEGER ( 0 .. 8191 ) OPTIONAL,
            e4       [4] IMPLICIT INTEGER ( 0 .. 8191 ) OPTIONAL,
            e5       [5] IMPLICIT INTEGER ( 0 .. 8191 ) OPTIONAL,
            e6       [6] IMPLICIT INTEGER ( 0 .. 8191 ) OPTIONAL,
            e7       [7] IMPLICIT INTEGER ( 0 .. 8191 ) OPTIONAL,
            ... },
         ... }
   RESULT
      zzzz-empty NULL
 ::= localValue : 125

explicitCT OPERATION
   ERRORS {
      -- illegalSS-Operation -- localValue : 16,
      -- ss-ErrorStatus -- localValue : 17,
      -- ss-NotAvailable -- localValue : 18,
```

```
        -- ss-Incompatibility -- localValue : 20,
        -- facilityNotSupported -- localValue : 21,
        -- systemFailure -- localValue : 34,
        -- resourcesNotAvailable -- localValue : 127,
        -- callBarred -- localValue : 13}
 ::= localValue : 126

lcs-LocationNotification OPERATION
    ARGUMENT
      locationNotificationArg SEQUENCE {
        notificationType    [0] IMPLICIT ENUMERATED {
          notifyLocationAllowed                        (0 ),
          notifyAndVerify-LocationAllowedIfNoResponse  (1 ),
          notifyAndVerify-LocationNotAllowedIfNoResponse (2 ),
          ... },
        locationType        [1] IMPLICIT SEQUENCE {
          locationEstimateType  [0] IMPLICIT ENUMERATED {
            currentLocation           (0 ),
            currentOrLastKnownLocation (1 ),
            initialLocation           (2 ),
            ... },
          ... },
        lcsClientExternalID  [2] IMPLICIT SEQUENCE {
          externalAddress     [0] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) OPTIONAL,
          extensionContainer  [1] IMPLICIT SEQUENCE {
            privateExtensionList  [0] IMPLICIT SEQUENCE (  SIZE (1 .. 10 ) ) OF
                SEQUENCE {
                  extId    MAP-EXTENSION .&extensionId ( {
                  ,
                  ...} ) ,
                  extType   MAP-EXTENSION .&ExtensionType ( {
                  ,
                  ...} { @extId   } )  OPTIONAL} OPTIONAL,
            pcs-Extensions        [1] IMPLICIT SEQUENCE {
              ... } OPTIONAL,
            ... } OPTIONAL,
          ... } OPTIONAL,
        lcsClientName        [3] IMPLICIT SEQUENCE {
          dataCodingScheme  [0] IMPLICIT OCTET STRING (  SIZE (1 ) ),
          nameString        [2] IMPLICIT OCTET STRING (  SIZE (1 .. 160 ) ) (  SIZE (1 .. 63 ) ),
          ... } OPTIONAL,
        ... }
    RESULT
      locationNotificationRes SEQUENCE {
        verificationResponse  [0] IMPLICIT ENUMERATED {
          permissionDenied  (0 ),
          permissionGranted (1 ),
          ... } OPTIONAL,
        ... }
    ERRORS {
        -- systemFailure -- localValue : 34,
        -- unexpectedDataValue -- localValue : 36}
 ::= localValue : 116

lcs-MOLR   OPERATION
    ARGUMENT
      lcs-MOLRArg SEQUENCE {
        molr-Type            [0] IMPLICIT ENUMERATED {
          locationEstimate  (0 ),
          assistanceData    (1 ),
          deCipheringKeys   (2 ),
          ... },
        locationMethod       [1] IMPLICIT ENUMERATED {
          msBasedEOTD    (0 ),
          msAssistedEOTD (1 ),
          assistedGPS    (2 ),
          ... } OPTIONAL,
        lcs-QoS              [2] IMPLICIT SEQUENCE {
          horizontal-accuracy       [0] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
          verticalCoordinateRequest [1] IMPLICIT NULL OPTIONAL,
          vertical-accuracy         [2] IMPLICIT OCTET STRING (  SIZE (1 ) ) OPTIONAL,
          responseTime              [3] IMPLICIT SEQUENCE {
            responseTimeCategory   ENUMERATED {
              lowdelay     (0 ),
              delaytolerant (1 ),
              ... },
            ... } OPTIONAL,
          extensionContainer        [4] IMPLICIT SEQUENCE {
```

```
                    privateExtensionList    [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
                        SEQUENCE {
                            extId      MAP-EXTENSION .&extensionId ( {
                            ,
                            ...} ) ,
                            extType   MAP-EXTENSION .&ExtensionType  ( {
                            ,
                            ...} { @extId   } ) OPTIONAL} OPTIONAL,
                    pcs-Extensions          [1] IMPLICIT SEQUENCE {
                        ... } OPTIONAL,
                    ... } OPTIONAL,
                ... } OPTIONAL,
            lcsClientExternalID  [3] IMPLICIT SEQUENCE {
                externalAddress     [0] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) OPTIONAL,
                extensionContainer  [1] IMPLICIT SEQUENCE {
                    privateExtensionList    [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
                        SEQUENCE {
                            extId      MAP-EXTENSION .&extensionId ( {
                            ,
                            ...} ) ,
                            extType   MAP-EXTENSION .&ExtensionType  ( {
                            ,
                            ...} { @extId   } ) OPTIONAL} OPTIONAL,
                    pcs-Extensions          [1] IMPLICIT SEQUENCE {
                        ... } OPTIONAL,
                    ... } OPTIONAL,
                ... } OPTIONAL,
            mlc-Number          [4] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) (  SIZE (1 .. 9 ) )
OPTIONAL,
            gpsAssistanceData    [5] IMPLICIT OCTET STRING (  SIZE (1 .. 38 ) ) OPTIONAL,
            ... }
    RESULT
        lcs-MOLRRes SEQUENCE {
            locationEstimate   [0] IMPLICIT OCTET STRING (  SIZE (1 .. 20 ) ) OPTIONAL,
            decipheringKeys    [1] IMPLICIT OCTET STRING (  SIZE (15 ) ) OPTIONAL,
            ... }
    ERRORS {
        -- systemFailure -- localValue : 34,
        -- unexpectedDataValue -- localValue : 36,
        -- dataMissing -- localValue : 35,
        -- facilityNotSupported -- localValue : 21,
        -- ss-SubscriptionViolation -- localValue : 19,
        -- -- }
 ::= localValue : 115

unknownSubscriber ERROR
    PARAMETER
        unknownSubscriberParam SEQUENCE {
            extensionContainer           SEQUENCE {
                privateExtensionList    [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
                    SEQUENCE {
                        extId      MAP-EXTENSION .&extensionId ( {
                        ,
                        ...} ) ,
                        extType   MAP-EXTENSION .&ExtensionType  ( {
                        ,
                        ...} { @extId   } ) OPTIONAL} OPTIONAL,
                pcs-Extensions       [1] IMPLICIT SEQUENCE {
                    ... } OPTIONAL,
                ... } OPTIONAL,
            ... ,
            unknownSubscriberDiagnostic   ENUMERATED {
                imsiUnknown                 (0 ),
                gprsSubscriptionUnknown     (1 ),
                ... ,
                npdbMismatch                (2 )} OPTIONAL}
 ::= localValue : 1

illegalSubscriber ERROR
    PARAMETER
        illegalSubscriberParam SEQUENCE {
            extensionContainer   SEQUENCE {
                privateExtensionList    [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
                    SEQUENCE {
                        extId      MAP-EXTENSION .&extensionId ( {
                        ,
                        ...} ) ,
                        extType   MAP-EXTENSION .&ExtensionType  ( {
```

```
                                   ,
                            ...} { @extId    } )   OPTIONAL} OPTIONAL,
                 pcs-Extensions         [1] IMPLICIT SEQUENCE {
                    ... } OPTIONAL,
                 ... } OPTIONAL,
              ... }
   ::= localValue : 9

bearerServiceNotProvisioned ERROR
      PARAMETER
         bearerServNotProvParam SEQUENCE {
            extensionContainer    SEQUENCE {
               privateExtensionList   [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
                  SEQUENCE {
                     extId      MAP-EXTENSION .&extensionId ( {
                            ,
                            ...} ) ,
                     extType    MAP-EXTENSION .&ExtensionType ( {
                            ,
                            ...} { @extId   } )   OPTIONAL} OPTIONAL,
                 pcs-Extensions         [1] IMPLICIT SEQUENCE {
                    ... } OPTIONAL,
                 ... } OPTIONAL,
              ... }
   ::= localValue : 10

teleserviceNotProvisioned ERROR
      PARAMETER
         teleservNotProvParam SEQUENCE {
            extensionContainer    SEQUENCE {
               privateExtensionList   [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
                  SEQUENCE {
                     extId      MAP-EXTENSION .&extensionId ( {
                            ,
                            ...} ) ,
                     extType    MAP-EXTENSION .&ExtensionType ( {
                            ,
                            ...} { @extId   } )   OPTIONAL} OPTIONAL,
                 pcs-Extensions         [1] IMPLICIT SEQUENCE {
                    ... } OPTIONAL,
                 ... } OPTIONAL,
              ... }
   ::= localValue : 11

illegalEquipment ERROR
      PARAMETER
         illegalEquipmentParam SEQUENCE {
            extensionContainer    SEQUENCE {
               privateExtensionList   [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
                  SEQUENCE {
                     extId      MAP-EXTENSION .&extensionId ( {
                            ,
                            ...} ) ,
                     extType    MAP-EXTENSION .&ExtensionType ( {
                            ,
                            ...} { @extId   } )   OPTIONAL} OPTIONAL,
                 pcs-Extensions         [1] IMPLICIT SEQUENCE {
                    ... } OPTIONAL,
                 ... } OPTIONAL,
              ... }
   ::= localValue : 12

callBarred ERROR
      PARAMETER
         callBarredParam CHOICE {
            callBarringCause            ENUMERATED {
               barringServiceActive   (0 ),
               operatorBarring        (1 )},
            extensibleCallBarredParam     SEQUENCE {
               callBarringCause               ENUMERATED {
                  barringServiceActive   (0 ),
                  operatorBarring        (1 )} OPTIONAL,
               extensionContainer              SEQUENCE {
                  privateExtensionList   [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
                        SEQUENCE {
                           extId      MAP-EXTENSION .&extensionId ( {
                            ,
                            ...} ) ,
```

```
                    extType   MAP-EXTENSION .&ExtensionType ( {
                            ,
                     ...} { @extId   } ) OPTIONAL} OPTIONAL,
             pcs-Extensions        [1] IMPLICIT SEQUENCE {
                ... } OPTIONAL,
             ... } OPTIONAL,
          ... ,
          unauthorisedMessageOriginator   [1] IMPLICIT NULL OPTIONAL}}
 ::= localValue : 13

illegalSS-Operation ERROR
   PARAMETER
      illegalSS-OperationParam SEQUENCE {
         extensionContainer   SEQUENCE {
            privateExtensionList   [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
                SEQUENCE {
                    extId       MAP-EXTENSION .&extensionId ( {

                            ,
                     ...} ) ,
                    extType   MAP-EXTENSION .&ExtensionType ( {

                            ,
                     ...} { @extId   } ) OPTIONAL} OPTIONAL,
            pcs-Extensions        [1] IMPLICIT SEQUENCE {
                ... } OPTIONAL,
            ... } OPTIONAL,
         ... }
 ::= localValue : 16

ss-ErrorStatus ERROR
   PARAMETER
      ss-Status  OCTET STRING ( SIZE (1 ) )
 ::= localValue : 17

ss-NotAvailable ERROR
   PARAMETER
      ss-NotAvailableParam SEQUENCE {
         extensionContainer   SEQUENCE {
            privateExtensionList   [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
                SEQUENCE {
                    extId       MAP-EXTENSION .&extensionId ( {

                            ,
                     ...} ) ,
                    extType   MAP-EXTENSION .&ExtensionType ( {

                            ,
                     ...} { @extId   } ) OPTIONAL} OPTIONAL,
            pcs-Extensions        [1] IMPLICIT SEQUENCE {
                ... } OPTIONAL,
            ... } OPTIONAL,
         ... }
 ::= localValue : 18

ss-SubscriptionViolation ERROR
   PARAMETER
      ss-SubscriptionViolationParam SEQUENCE {
         extensionContainer   SEQUENCE {
            privateExtensionList   [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
                SEQUENCE {
                    extId       MAP-EXTENSION .&extensionId ( {

                            ,
                     ...} ) ,
                    extType    MAP-EXTENSION .&ExtensionType ( {

                            ,
                     ...} { @extId   } ) OPTIONAL} OPTIONAL,
            pcs-Extensions        [1] IMPLICIT SEQUENCE {
                ... } OPTIONAL,
            ... } OPTIONAL,
         ... }
 ::= localValue : 19

ss-Incompatibility ERROR
   PARAMETER
      ss-IncompatibilityCause SEQUENCE {
         ss-Code      [1] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
         basicService  CHOICE {
            bearerService    [2] IMPLICIT OCTET STRING ( SIZE (1 ) ),
            teleservice      [3] IMPLICIT OCTET STRING ( SIZE (1 ) )} OPTIONAL,
         ss-Status    [4] IMPLICIT OCTET STRING ( SIZE (1 ) ) OPTIONAL,
         ... }
```

```
 ::= localValue : 20

facilityNotSupported ERROR
   PARAMETER
      facilityNotSupParam SEQUENCE {
         extensionContainer    SEQUENCE {
            privateExtensionList   [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
               SEQUENCE {
                  extId      MAP-EXTENSION .&extensionId ( {
                     ,
                     ...} ) ,
                  extType    MAP-EXTENSION .&ExtensionType ( {
                     ,
                     ...} { @extId   } )   OPTIONAL} OPTIONAL,
            pcs-Extensions       [1] IMPLICIT SEQUENCE {
               ... } OPTIONAL,
            ... } OPTIONAL,
         ... }
 ::= localValue : 21

absentSubscriber ERROR
   PARAMETER
      absentSubscriberParam SEQUENCE {
         extensionContainer      SEQUENCE {
            privateExtensionList  [0] IMPLICIT SEQUENCE ( SIZE (1 .. 10 ) ) OF
               SEQUENCE {
                  extId      MAP-EXTENSION .&extensionId ( {
                     ,
                     ...} ) ,
                  extType    MAP-EXTENSION .&ExtensionType ( {
                     ,
                     ...} { @extId   } )  OPTIONAL} OPTIONAL,
            pcs-Extensions        [1] IMPLICIT SEQUENCE {
               ... } OPTIONAL,
            ... } OPTIONAL,
         ... ,
         absentSubscriberReason   [0] IMPLICIT ENUMERATED {
            imsiDetach      (0 ),
            restrictedArea  (1 ),
            noPageResponse  (2 ),
            ... ,
            purgedMS        (3 )} OPTIONAL}
 ::= localValue : 27

shortTermDenial ERROR
   PARAMETER
      shortTermDenialParam SEQUENCE {
         ... }
 ::= localValue : 29

longTermDenial ERROR
   PARAMETER
      longTermDenialParam SEQUENCE {
         ... }
 ::= localValue : 30

systemFailure ERROR
   PARAMETER
      systemFailureParam CHOICE {
         networkResource               ENUMERATED {
            plmn            (0 ),
            hlr             (1 ),
            vlr             (2 ),
            pvlr            (3 ),
            controllingMSC  (4 ),
            vmsc            (5 ),
            eir             (6 ),
            rss             (7 )},
         extensibleSystemFailureParam    SEQUENCE {
            networkResource     ENUMERATED {
               plmn            (0 ),
               hlr             (1 ),
               vlr             (2 ),
               pvlr            (3 ),
               controllingMSC  (4 ),
               vmsc            (5 ),
               eir             (6 ),
               rss             (7 )} OPTIONAL,
```

```
              extensionContainer    SEQUENCE {
                 privateExtensionList   [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
                     SEQUENCE {
                         extId      MAP-EXTENSION .&extensionId  ( {

                             ,
                             ...} ) ,
                         extType    MAP-EXTENSION .&ExtensionType  ( {

                             ,
                             ...} { @extId   }  )  OPTIONAL} OPTIONAL,
                 pcs-Extensions         [1] IMPLICIT SEQUENCE {
                     ... } OPTIONAL,
                 ... } OPTIONAL,
              ... }}
 ::= localValue : 34

dataMissing ERROR
   PARAMETER
      dataMissingParam SEQUENCE {
         extensionContainer    SEQUENCE {
            privateExtensionList   [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
                SEQUENCE {
                    extId      MAP-EXTENSION .&extensionId  ( {

                        ,
                        ...} ) ,
                    extType    MAP-EXTENSION .&ExtensionType  ( {

                        ,
                        ...} { @extId   }  )  OPTIONAL} OPTIONAL,
            pcs-Extensions         [1] IMPLICIT SEQUENCE {
                ... } OPTIONAL,
            ... } OPTIONAL,
         ... }
 ::= localValue : 35

unexpectedDataValue ERROR
   PARAMETER
      unexpectedDataParam SEQUENCE {
         extensionContainer    SEQUENCE {
            privateExtensionList   [0] IMPLICIT SEQUENCE  (  SIZE (1 .. 10 ) ) OF
                SEQUENCE {
                    extId      MAP-EXTENSION .&extensionId  ( {

                        ,
                        ...} ) ,
                    extType    MAP-EXTENSION .&ExtensionType  ( {

                        ,
                        ...} { @extId   }  )  OPTIONAL} OPTIONAL,
            pcs-Extensions         [1] IMPLICIT SEQUENCE {
                ... } OPTIONAL,
            ... } OPTIONAL,
         ... }
 ::= localValue : 36

pw-RegistrationFailure ERROR
   PARAMETER
      pw-RegistrationFailureCause ENUMERATED {
         undetermined            (0 ),
         invalidFormat           (1 ),
         newPasswordsMismatch    (2 )}
 ::= localValue : 37

negativePW-Check ERROR
 ::= localValue : 38

numberOfPW-AttemptsViolation ERROR
 ::= localValue : 43

unknownAlphabet ERROR
 ::= localValue : 71

ussd-Busy  ERROR
 ::= localValue : 72

rejectedByUser ERROR
 ::= localValue : 121

rejectedByNetwork ERROR
 ::= localValue : 122

deflectionToServedSubscriber ERROR
```

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 ::= localValue : 123

specialServiceCode ERROR
 ::= localValue : 124

invalidDeflectedToNumber ERROR
 ::= localValue : 125

maxNumberOfMPTY-ParticipantsExceeded ERROR
 ::= localValue : 126

resourcesNotAvailable ERROR
 ::= localValue : 127

END
```

```
 ::= localValue : 123




specialServiceCode ERROR
 ::= localValue : 124
```

Annex B (informative):
Change history

Document history		
V3.0.0	May 1999	Approved at TSGN #3. Under TSG TSG CN Change Control.
V3.1.0	January 2000	Approved at TSGN#06. Change of references from GSM to TS and TR
V3.2.0	April 2000	Approved at TSGN#07.

Change history						
TSG CN#	**Spec**	**Version**	**CR**	**<Phase>**	**New Version**	**Subject/Comment**
Apr 1999	GSM 04.80	7.0.0				Transferred to 3GPP CN1
CN#03	24.080				3.0.0	Approved at CN#03
CN#06	24.080	3.0.0	001	R99	3.1.0	Addition of LCS operations
CN#07	24.80	3.1.0	002r1	R99	3.2.0	Correction to Location Notification Type and LCS-MOLR errors

History

Document history		
V3.2.0	March 2000	Publication