Technical Specification Group Services and System Aspects
Meeting #7, Madrid, Spain, 15-17 March 2000

***TSGS#7(00)0063***

**Source:** **TSG SA1**

**Title:** **CR to 22.090 on UCS2 character set**

**Document for:** **Approval**

**Agenda Item:** **5.1.3**

| Doc-1st-Level | Status-1st-Level | Spec | CR | Rev | Phase | Subject | Cat | Version-Current | Version-New |
|---|---|---|---|---|---|---|---|---|---|
| SP-000063 | | 22.090 | 002 | | R99 | UCS2 character set for MMI mode | C | 3.0.1 | 3.1.0 |

**3GPP SA1 # 7**
**Sophia Antipolis, 9.-11. February 2000**

***Document (00) 048***
*Agenda 5.13*
*e.g. for 3GPP use the format TP-99xxx or for SMG, use the format P-99-xxx*

# CHANGE REQUEST

*Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

| 22.090 | CR | 002 | Current Version: | 3.0.1 |
|---|---|---|---|---|

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

| For submission to: SA # 7 *list expected approval meeting # here ↑* | for approval | X | strategic | | *(for SMG use only)* |
|---|---|---|---|---|---|
| | for information | | non-strategic | X | |

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

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

**Source:** TSG SA1 **Date:** 1/2/2000

**Subject:** UCS2 character set for MMI mode

**Work item:**

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

| | | |
|---|---|---|
| F | Correction | |
| A | Corresponds to a correction in an earlier release | |
| B | Addition of feature | |
| C | Functional modification of feature | X |
| D | Editorial modification | |

**Release:**

| | |
|---|---|
| Phase 2 | |
| Release 96 | |
| Release 97 | |
| Release 98 | |
| Release 99 | X |
| Release 00 | |

**Reason for change:** During USSD enhancement it has been agreed to allow same characters set for USSD and SMS. The change to Stage 1 has no been incorporated.

**Clauses affected:** 5.1 and 5.2

**Other specs affected:**

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

**Other comments:**


help.doc

<--------- double-click here for help and instructions on how to create a CR.

# 5 Unstructured SS data operations – MMI mode

## 5.1 Mobile initiated unstructured SS data operations

### 5.1.1 Initiating action at the Mobile Station (MS)

If the user enters an MMI string that, according to TS 22.030 [3], should be treated as USSD, the MS shall send this string to the network using the appropriate operation from TS 24.080 [5].

The mobile initiated operation shall contain an alphabet indicator and language indicator. ~~The alphabet indicator shall indicate the alphabet used in the operation and shall be set to "SMS default alphabet". The language indicator shall indicate "language unspecified".~~The alphabet indicator shall indicate the alphabet used in the operation. The selection of values for these indicators is a matter for the user.

The MS may initiate an USSD Operation either during a call or out of call.

### 5.1.2 Action at the network

A network supporting USSD shall examine the alphabet indicator. If the serving network does not recognize the alphabet indicated in the mobile initiated USSD operation, it shall send the operation to the HLR.
On recognition of the alphabet, the network shall examine the contents of the string, and take appropriate action, according to the following rules, depending of the format of the message.

Case a) 1, 2 or 3 digits from the set (*, #) followed by 1X(Y), where X=any number 0-4, Y=any number 0-9, then, optionally "* followed by any number of any characters", and concluding with # SEND:

This case is reserved for HPLMN use. When a serving network receives such a message from a visiting subscriber, it shall pass the USSD message directly to the HPLMN. If it receives it from a home subscriber, it is up to the network to decide whether to treat it locally or to pass it to the HLR.

Case b) 1, 2 or 3 digits from the set (*, #) followed by 1X(Y), where X=any number 5-9, Y=any number 0-9, then, optionally "* followed by any number of any characters", and concluding with # SEND:

This case is reserved for VPLMN use. It is up to the VPLMN to decide how to treat it.

Case c) 7(Y) SEND, where Y=any number 0-9:

This case is reserved for HPLMN use. When a serving network receives such a message from a visiting subscriber, it shall pass the USSD message directly to the HPLMN. If it receives it from a home subscriber, it is up to the network to decide whether to treat it locally or to pass it to the HLR.

Case d) All other formats:

The visited network examines the message. If it is able, it acts upon it. Failing that, it passes the message to the HLR.

If the HLR does not support the alphabet indicated, it shall inform the MS.
The network shall terminate the mobile initiated operation by responding to the request from the mobile with either an error signal, or a text string indicating the outcome of the operation. The response string uses the characters available in the ~~"Default Alphabet"~~selected alphabet as defined in TS 23.038 [4]. If no indication to the user is required, the response string may be empty.
The response to the mobile initiated USSD operation shall contain alphabet and language indicators. The selection of values for these indicators is a matter for the network operator.

### 5.1.3 Mobile initiated USSD cross phase compatibility

In situations of incompatibility the mobile initiated USSD operation will be rejected by a non-supporting network and the attempt will fail. In this situation, if it is possible to encode the content of the USSD message in the IA5 alphabet, the MS shall attempt the operation again using the IA5 format without the alphabet and language indicators.
This procedure is not applicable if an operation failure is due to alphabet support problems, services not supported or network failure problems.

### 5.1.4 Allocation of service codes (to be noted by network operators)

Service codes for use in control of Supplementary Services are standardized by international agreement, so must not be used by PLMNs unless authorized, except for those codes allocated for PLMN use.
If the message is of the format:

1, 2 or 3 digits from the set (*, #), followed by

NN(N), where N=0-9,

optionally followed by "* and any number of any characters",

and terminating in # SEND:

then NN(N) is known as the service code. Only codes specified in TS 22.030 [3] and those defined in cases a) and b) above may be used. All other values are reserved.
Similarly, if the message is of the format:

X(Y) SEND, where X=0-6 or 8-9 and Y=0-9:

the codes X(Y) are standardized. Only codes specified in TS 22.030 [3] subclause 4.5.5 may be used. All other values are reserved.

## 5.2 Network initiated unstructured SS data operation

### 5.2.1 Initiating actions in the network

At any stage while the MS is registered with a network, the network may send an unstructured string to the MS. This string contains operator determined information that is relevant to the user. If the network is unable to successfully reach the MS, then an error shall be returned to the node that originated the operation.
The network initiated USSD operation shall contain an alphabet indicator and language indicator. The alphabet indicator shall indicate the alphabet used in the operation. The selection of values for these indicators is a matter for the network operator.

### 5.2.2 Actions at the MS

If the MS is unable to process the network initiated unstructured SS data operation (e.g. the feature is not supported or the user is engaged in another MMI activity) then an error indication shall be returned to the node that originated the operation. If the alphabet indicated by the network is not supported by the MS, the MS shall inform the network.
The network may explicitly indicate to the MS that a response from the user is required. In this case, the next string entered by the user shall be used as the response (and is not interpreted according to normal MMI procedures stated in TS 22.030 [3]). An MMI command shall be provided to allow the user to terminate the dialogue with a null response.
The response string uses the characters available in the ~~"default~~ selected alphabet~~"~~ as defined in TS 23.038 [4]. The response is sent to the node that originated the operation. If the network does not indicate that a response is required, then the normal MMI procedures on the MS continue to apply.
The MS shall include alphabet and language indicators in the response to the network (if any).~~ The alphabet indicator shall indicate "SMS default alphabet". The language indicator shall indicate "language unspecified".~~

## 5.3 Network aspects of unstructured SS data operation

Applications that use Unstructured SS Data Operations may be located in either the HPLMN or a roamed to VPLMN. Network applications using Unstructured SS Data Operations may:

- use several Unstructured SS Data Operations (possibly a mixture of mobile initiated and network initiated) in combination as part of a dialogue with the user. Linkage between separate operations as part of a dialogue is only implemented locally in the network application and does not lead to any special mode of operation in the

MS. The network initiated request for a response from the user and the corresponding response is a single operation;

- act on calls in progress, or place new calls, as part of the service the application provides.

Release of the connection used for an unstructured dialogue is normally the responsibility of the network and may be carried out at the request of the application using the Unstructured SS Data Operations. The user may also initiate connection release through an MMI procedure.