

Source: TSG CN WG 1

Title: CRs to R99 (with mirror CRs) on Work Item GSM/UMTS interworking towards 23.014

Agenda item: 7.6

Document for: APPROVAL

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**Introduction:**

This document contains 3 CRs on R99 including mirror CRs to Work Item " GSM/UMTS interworking", that have been agreed by TSG CN WG1, and are forwarded to TSG CN Plenary meeting #17 for approval.

Spec	CR #	Rev	CAT	Rel	Tdoc Title	Meeting	TDoc #	C Version
23.014	004	2	F	R99	Dual Tone Multi-Frequency signalling : Support in the whole 3GPP system, and editorial modifications.	N1-25	N1-021653	3.1.0
23.014	005	1	A	Rel-4	Dual Tone Multi-Frequency signalling : Support in the whole 3GPP system, and editorial modifications.	N1-25	N1-021654	4.0.0
23.014	006		A	Rel-5	Dual Tone Multi-Frequency signalling : Support in the whole 3GPP system, and editorial modifications.	N1-25	N1-021655	5.0.0

**3GPP TSG CN WG1 Meeting #25**  
**Helsinki, Finland, 29 July – 2 August**

**Tdoc N1-021653**

CR-Form-v3
<b>CHANGE REQUEST</b>
⌘ <b>23.014 CR 004</b> ⌘ rev <b>2</b> ⌘ Current version: <b>3.1.0</b> ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘	Dual Tone Multi-Frequency signalling : Support in the whole 3GPP system, and editorial modifications.	
<b>Source:</b>	⌘	ETSI- NEC Technologies (UK) LTD	
<b>Work item code:</b>	⌘	GSM/UMTS Interworking	<b>Date:</b> ⌘ 2002-05-01
<b>Category:</b>	⌘	<b>F</b>	<b>Release:</b> ⌘ R99
		Use <u>one</u> of the following categories: <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.	Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

<b>Reason for change:</b>	⌘	DTMF was not clearly supported in whole 3GPP system.
<b>Summary of change:</b>	⌘	DTMF is declared to be supported in the whole 3GPP system, and not only in the GSM system. Some editorial points are clarified. One error in the scope is corrected.
<b>Consequences if not approved:</b>	⌘	DTMF is not clearly supported in 3GPP system.

<b>Clauses affected:</b>	⌘	Foreword, 1, 4,
<b>Other specs affected:</b>	⌘	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
<b>Other comments:</b>	⌘	

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## Foreword

This Technical Specification has been produced by the 3GPP.

This TS defines the [Dual Tone Multi Frequency \(DTMF\) signalling](#) ~~Discontinuous Reception (DRX) in the GSM system~~ within the 3GPP system.

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 this TS, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version 3.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 Indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the specification;

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## 1 Scope

The present document describes how Dual Tone Multi Frequency (DTMF) signals are supported in the [GSM-3GPP](#) system.

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## 2 References

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

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

[1] GSM 01.04: "Digital cellular telecommunication system (Phase 2+); Abbreviations and acronyms".

[2] GSM 05.02: "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path".

[3] CEPT T/CS 34-08: "Automatic sender for push-button multifrequency signalling".

[4] CEPT T/CS 46-02: "Multifrequency signalling system to be used for push-button telephones".

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## 3 Abbreviations

Abbreviations used in the present document are listed in GSM 01.04.

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## 4 Requirement

Dual Tone Multi Frequency (DTMF) is an inband one out of four plus one out of four signalling system, primarily used from terminal instruments in telecommunication networks. The international recommendations which apply are ETSI Technical Report ETR 204 (sender) and ETSI Technical Report ETR 206 (receiver) as detailed in sections 6.2 and 6.3. For PCS 1900 for North America the Standards which apply are operator specific.

In the [GSM-3GPP](#) system the MSC must support DTMF in the mobile to land direction.

The support of this facility in the land to mobile direction is for further study.

The use of DTMF is only permitted when the speech teleservice is being used or during the speech phase of alternate speech/data and alternate speech/facsimile teleservices. The responsibility for checking this lies in the MS.

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## 5 Cause of DTMF generation

A user may cause a DTMF tone to be generated by depression of a key in the Mobile Station (MS). Optionally (on a MS basis) manufacturers of mobile equipment may choose to allow DTMF to be controlled from a remote terminal.

The man-machine interface questions associated with this facility are not discussed further in this [GTS](#).

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## 6 Support of DTMF across the air interface

### 6.1 General

A message based signalling system is used across the ~~GSM~~[3GPP system](#) air interface.

This requires that the relevant user action (e.g. a key depression) is interpreted by the MS as a requirement for a DTMF digit to be sent, this is converted by the MS into a message, the message is transmitted across the air interface, and is converted by the MSC into a DTMF tone which is applied towards the network, which should then respond with an acknowledgement. When the user completes the key depression, an message that the DTMF sending should cease is also passed to the MSC, which again will respond with an acknowledgement.

**3GPP TSG CN WG1 Meeting #25**  
**Helsinki, Finland, 29 July – 2 August**

**Tdoc N1-021654**

CR-Form-v3
<h2 style="margin: 0;">CHANGE REQUEST</h2>
⌘ <b>23.014 CR 005</b> ⌘ rev <b>1</b> ⌘ Current version: <b>4.0.0</b> ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘	Dual Tone Multi-Frequency signalling : Support in the whole 3GPP system, and editorial modifications.	
<b>Source:</b>	⌘	ETSI- NEC Technologies (UK) LTD	
<b>Work item code:</b>	⌘	GSM/UMTS Interworking	<b>Date:</b> ⌘ 2002-05-01
<b>Category:</b>	⌘	<b>A</b>	<b>Release:</b> ⌘ REL-4
		Use <u>one</u> of the following categories: <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.	Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

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<b>Summary of change:</b>	⌘	DTMF is declared to be supported in the whole 3GPP system, and not only in the GSM system. Some editorial points are clarified. One error in the scope is corrected.
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<b>Clauses affected:</b>	⌘	Foreword, 1, 4,
<b>Other specs affected:</b>	⌘	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
<b>Other comments:</b>	⌘	

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Version 3.y.z

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## CHANGE REQUEST

⌘ **23.014 CR 006** ⌘ rev      ⌘ Current version: **5.0.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘	Dual Tone Multi-Frequency signalling : Support in the whole 3GPP system, and editorial modifications.
<b>Source:</b>	⌘	ETSI- NEC Technologies (UK) LTD
<b>Work item code:</b>	⌘	GSM/UMTS Interworking
		<b>Date:</b> ⌘ 2002-07-29
<b>Category:</b>	⌘	<b>A</b>
		Use <u>one</u> of the following categories:
		<b>F</b> (correction)
		<b>A</b> (corresponds to a correction in an earlier release)
		<b>B</b> (addition of feature),
		<b>C</b> (functional modification of feature)
		<b>D</b> (editorial modification)
		Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .
		<b>Release:</b> ⌘ REL-5
		Use <u>one</u> of the following releases:
		2 (GSM Phase 2)
		R96 (Release 1996)
		R97 (Release 1997)
		R98 (Release 1998)
		R99 (Release 1999)
		Rel-4 (Release 4)
		Rel-5 (Release 5)
		Rel-6 (Release 6)

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<b>Consequences if not approved:</b>	⌘	DTMF is not clearly supported in 3GPP system.

<b>Clauses affected:</b>	⌘	Foreword, 1, 4, 6.1								
<b>Other specs affected:</b>	⌘	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> </table> Other core specifications ⌘ <span style="background-color: yellow;">    </span> Test specifications ⌘ <span style="background-color: yellow;">    </span> O&M Specifications ⌘ <span style="background-color: yellow;">    </span>	Y	N		X		X		X
Y	N									
	X									
	X									
	X									
<b>Other comments:</b>	⌘	<span style="background-color: yellow;">    </span>								

### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.



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[1] Void.

[1a] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 45.002: "Multiplexing and Multiple Access on the Radio Path".

[3] CEPT T/CS 34-08: "Automatic sender for push-button multifrequency signalling".

[4] CEPT T/CS 46-02: "Multifrequency signalling system to be used for push-button telephones".

[5] ETSI ETR 204: "Public Switched Telephone Network (PSTN); Automatic sender for push-button multifrequency signalling [CEPT Recommendation T/CS 34-08 E (1985)]".

[6] ETSI ETR 206: "Public Switched Telephone Network (PSTN); Multifrequency signalling system to be used for push-button telephones [CEPT Recommendation T/CS 46-02 E (1985)]".

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## 3 Abbreviations

For the purposes of the present document, the abbreviations used in the present document are listed in 3GPP TR 21.905.

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