Technical Specification Group Services and System Aspects **TSGS#27(05)0097**
Meeting #27, Tokyo, Japan
14-17 March 2005

Source: TSG-SA WG4

Title: CR TS 26.235 on Correction of inconsistency regarding the maximum number of speech frames per RTP packets for PoC (Release 6)

Document for: Approval

Agenda Item: 7.4.3

The following CR, agreed at the TSG-SA WG4 meeting #34, is presented to TSG SA #27 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.235	012	1	Rel-6	Correction of inconsistency regarding the maximum number of speech frames per RTP packets for PoC	F	6.3.0	S4	TSG-SA WG4#34	S4-050228

3GPP TSG-SA WG4 Meeting #34
Lisbon, Portugal, 21-25 February 2005

Tdoc ⌘S4-050228

CR-Form-v7.1

CHANGE REQUEST

⌘ **26.235** **CR** **012** ⌘ **rev** **1** ⌘ Current version: **6.3.0** ⌘

*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 ☐

Title:	⌘	Correction of inconsistency regarding the maximum number of speech frames per RTP packets for PoC
Source:	⌘	TSG SA WG4
Work item code:	⌘	PoC
Date:	⌘	15/03/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 *(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)*
Rel-7 *(Release 7)*

Reason for change:	⌘	It was agreed at SA4#33 that for PoC, the number of speech frames in RTP packets should not exceed 20. This was correctly reflected in a CR to TS 26.236 but not in the modifications to TS 26.235.
Summary of change:	⌘	Alignment of Annex D of TS 26.235 to TS 26.236. The change introduced is such that Annex D states that it is recommended to limit the number of speech codec frames per packet to 20. Also the associated delay is removed as it is no more correct.
Consequences if not approved:	⌘	If not approved, the inconsistency will remain and will overly restricts receivers to small RTP packets. There is a risk that receivers do not handle correctly RTP packets with more than 10 speech frames and hence disrupt the PoC service.

Clauses affected:	⌘	Annex D			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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.

Annex D (informative): Push-to-Talk over cellular (PoC)

For PoC the audio codecs specified in section 6.1, namely AMR or AMR-WB are applicable. Speech codec bit rates and transport formats settings have to be selected considering the available transmission bandwidth and the allowable transport delay. In order not to introduce undue delay ~~of more than 200 ms~~ for RTP packetization, it is recommended to limit the number of speech codec frames per packet to ~~10~~ 20 and not to use interleaving.

Under the assumption of RTP packetization according to [35] using octet-aligned mode, no interleaving and using 10 frames per RTP packet and depending on the IP version in IMS, the following tables show the required bandwidth for the available AMR and AMR-WB speech codec modes. Bandwidth restrictions may imply that only the lowest AMR/AMR-WB modes can be used for PoC. In order to maximize speech quality, it is recommended to use the respective highest possible bit rate.

Table 1: Required bandwidth for PoC using AMR

AMR Mode	Required bandwidth when IPv4 is used [bits/s] [Note]	Required bandwidth when IPv6 is used [bits/s]
AMR 4.75	6840	7640
AMR 5.15	7240	8040
AMR 5.9	8040	8840
AMR 6.7	8840	9640
AMR 7.4	9640	10440
AMR 7.95	10040	10840
AMR 10.2	12440	13240
AMR 12.2	14440	15240
Note: For the usage of IP version in IMS see TS 23.221 [44], subclause 5.1.		

Table 2: Required bandwith for PoC using AMR-WB

AMR-WB Mode	Required bandwidth when IPv4 is used [bits/s] [Note]	Required bandwidth when IPv6 is used [bits/s]
AMR-WB 6.60	8840	9640
AMR-WB 8.85	11240	12040
AMR-WB 12.65	14840	15640
AMR-WB 14.25	16440	17240
AMR-WB 15.85	18040	18840
AMR-WB 18.25	20440	21240
AMR-WB 19.85	22040	22840
AMR-WB 23.05	25240	26040
AMR-WB 23.85	26040	26840
Note: For the usage of IP version in IMS see TS 23.221 [44], subclause 5.1.		