

Technical Specification Group Services and System Aspects **TSGS#15(02)0079**
Meeting #15, Cheju Island, Korea, 11-14 March 2002

Source: TSG-SA WG4

Title: CRs to TS 26.104 on Maintaining bit-exactness with TS 26.073 (R99, Release 4)

Document for: Approval

Agenda Item: 7.4.3

The following CRs, agreed at the TSG-SA WG4 meeting #20, are presented to TSG SA #15 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.104	020		R99	Maintaining bit-exactness with TS 26.073	F	3.3.0	S4	TSG-SA WG4#20	S4-020066
26.104	019		REL-4	Maintaining bit-exactness with TS 26.073	A	4.2.0	S4	TSG-SA WG4#20	S4-020058

CHANGE REQUEST

⌘ **26.104 CR 019** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

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

Title:	⌘ Maintaining bit-exactness with TS 26.073		
Source:	⌘ TSG SA WG4		
Work item code:	⌘ TEI	Date:	⌘ 11 March 2002
Category:	⌘ A	Release:	⌘ Rel-4
	<i>Use one of the following categories:</i> 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.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ To maintain TS26.104 decoder bit-exactness with TS26.073 decoder after the following approved change requests to TS26.073: "Correction of RX-DTX handling of NO_DATA frames in AMR decoder" (Tdoc S4-010670). and "Correction in AMR decoder to avoid division by zero in RX-DTX Handling" (S4-010673).
Summary of change:	⌘ Four code lines changed in the file "sp_dec.c"
Consequences if not approved:	⌘ TS26.104 and TS26.073 decoders are not bit-exact in error conditions.

Clauses affected:	⌘ sp_dec.c		
Other specs Affected:	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘ Division by zero error doesn't occur in TS26.104 decoder. Changes are made to maintain bit-exactness with TS26.073.		

1 How the code and execution is changed

1.1 File sp_dec.c

1.1.1 Function: rx_dtx_handler

```
static enum DTXStateType rx_dtx_handler( dtx_decState *st, enum RXFrameType frame_type )
{
    enum DTXStateType newState;
    enum DTXStateType encState;

    /* DTX if SID frame or previously in DTX{MUTE} and (NO_RX OR BAD_SPEECH) */
    if ( table_SID[frame_type] | ( ( st->dtxGlobalState != SPEECH ) &
        table_speech_bad[frame_type] ) ) {
        newState = DTX;

        /* stay in mute for these input types */
        if ( ( st->dtxGlobalState == DTX_MUTE ) & table_mute[frame_type] ) {
            newState = DTX_MUTE;
        }

        /*
         * evaluate if noise parameters are too old
         * since_last_sid is reset when CN parameters have been updated
         */
        st->since_last_sid += 1;

        /* no update of sid parameters in DTX for a long while */
        if ( st->since_last_sid > DTX_MAX_EMPTY_THRESH ) {
        if ( (frame_type != RX_SID_UPDATE) & ( st->since_last_sid > DTX_MAX_EMPTY_THRESH ) ) {
            newState = DTX_MUTE;
        }
        else {
            newState = SPEECH;
            st->since_last_sid = 0;
        }

        /*
         * reset the decAnaElapsed Counter when receiving CNI data the first
         * time, to robustify counter mismatch after handover
         * this might delay the bwd CNI analysis in the new decoder slightly.
         */
        if ( ( st->data_updated == 0 ) & ( frame_type == RX_SID_UPDATE ) ) {
            st->decAnaElapsedCount = 0;
        }

        /*
         * update the SPE-SPD DTX hangover synchronization
         * to know when SPE has added dtx hangover
         */
        st->decAnaElapsedCount += 1;
        st->dtxHangoverAdded = 0;
        encState = SPEECH;

        if ( table_DTX[frame_type] ) {
            encState = DTX;
            if ( ( frame_type == RX_NO_DATA ) & ( newState == SPEECH ) ) {
            encState = SPEECH;
            }
        }

        if ( encState == SPEECH ) {
            st->dtxHangoverCount = DTX_HANG_CONST;
        }
    }
}
```

CHANGE REQUEST

⌘ **26.104 CR 020** ⌘ rev **-** ⌘ Current version: **3.3.0** ⌘

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

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Source:	⌘ TSG SA WG4		
Work item code:	⌘ TEI	Date:	⌘ 11 March 2002
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	Use <u>one</u> 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 <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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        if ( encState == SPEECH ) {
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