Technical Specification Group Services and System Aspects ***TSGS#13(01)0459***
Meeting #13, Beijing, China, 24-27 September 2001

Source:	**TSG-SA WG4**
Title:	**Work Item Description: Floating-point ANSI-C code for the AMR-WB speech codec**
Document for:	**Approval**
Agenda Item:	**7.4.3**

Work Item Description

Title Floating-point ANSI-C code for the AMR-WB speech codec

1 3GPP Work Area

	Radio Access
	Core Network
✓	Services

2 Linked work items

Wideband Telephony Service (AMR-WB)

3 Justification

AMR (Adaptive Multi-Rate) and AMR-WB (Adaptive Multi-Rate Wideband, Rel-5) speech codecs are defined for speech service for UTRAN and GERAN in fixed-point ANSI C-code. The bit-exact C-code is given in TSs 26.073 (AMR) and 26.173 (AMR-WB). In addition to speech service, these speech codecs are defined for other applications such as multimedia (in circuit switched 3G-324M terminal specified in 3GPP TS 26.110, and in packet-based applications specified in TS 26.234 for streaming and in TS 26.235 for conversational services). In these applications, a floating-point speech codec implementation may suit better the implementation platform than the fixed-point codec. Therefore, it is useful to produce a floating-point definition of the AMR-WB speech codec as an alternative way to implement the codec.

The bit-exact fixed-point ANSI-C code remains the preferred implementation for all services. Like for AMR, the fixed-point specification (TS 26.173) is the only allowed implementation of the AMR wideband codec for speech service, and the use of the floating-point code is strictly limited to other services.

For the AMR speech codec, a floating-point code has already been defined in TS 26.104.

4 Objective

To produce floating-point ANSI C-code for AMR-WB speech codec as an alternative implementation of the codec.

The floating-point encoder is a non-bit-exact implementation of the fixed-point encoder producing quality indistinguishable from that of the fixed-point encoder. The decoder is a bit-exact implementation of the fixed-point decoder, but the code has been optimised for speed and the standard fixed-point libraries are not used as such.

It will be verified that the fixed-point and floating-point codecs interoperate with each other without any artefacts.

5 Service Aspects

The same as in the Feature “Wideband Telephony Service” in which this work task belongs.

6 MMI-Aspects

The same as in the Feature “Wideband Telephony Service” in which this work task belongs.

7 Charging Aspects

The same as in the Feature “Wideband Telephony Service” in which this work task belongs.

8 Security Aspects

The same as in the Feature “Wideband Telephony Service)” in which this work task belongs.

9 Impacts

Affects:	U		A	C	Others
Yes		✓			
No					
Don't kno	✓		✓	✓	

10 Expected Output and Time scale (to be updated at each plenary)

New specifications						
Spec No.	Title	Prime rsp	2ndary rsp.	Presented for info plenary#	Approved at p	Comments
TS 26.204	ANSI-C code for the float AMR-WB speech codec	SA4		SA#14	SA#15	

Affected existing specifications				
Spec No.	CR	Subject	Approved at plenary#	Comments

11 Work item Rapporteur

Janne Vainio (Nokia)

12 Work item leadership

TSG SA WG 4

13 Supporting Companies

Ericsson, France Telecom, Nokia, Siemens

14 Classification of the WI (if known)

	Feature (go to 14a)
	Building Block (go to 14b)
X	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature:

Specification, Implementation

14b The WI is a Building Block: parent Feature:

“Wideband Telephony Service (AMR-WB)”

14c The WI is a Work Task: Belongs to the Feature “Wideband Telephony Service (AMR-WB)”, BB "Specification"