3GPP TSG-SA4 #33 Meeting   _Tdoc S4-040856_
22 ñ 26 November, 2004, Helsinki, Finland

Source: **TSG SA WG4**
Title: **WID on Video Codec Performance Requirements (Release 7)**
Document for: **Approval**
Agenda Item: **7.4.3**

Work Item Description

Video Codec Performance Requirements

Specification of Video encoder quality metrics, quality requirements, and specification that meets those requirements; and decoder quality requirements under channel errors for 3GPP packet switched services. The specifications will include minimum performance requirements and reference implementations.

1   3GPP Work Area

x	Radio Access
	Core Network
x	Services

2   Linked work items

New Feature.

3   Justification

At the SA#25 meeting, SA Plenary asked SA4 to investigate the feasibility of specifying encoder specifications for video services in 3GPP. Traditionally, MPEG and ITU have specified only encoded bitstream syntax and decoders normatively for audio and video codecs. The decoders specified are only for error-free bitstreams, i.e., packet losses are not considered. In contrast, 3GPP speech/audio specifications include encoders and decoders pair. They also address the codec operation over typical channel conditions.

4   Objective

This work will address specification of video encoders and decoders under channel errors for 3GPP services. The specifications will include minimum performance requirements and reference implementations.

Objective video quality measurement is subject of heavy research, and is it unclear, whether good correlation between subjective and objective results can be achieved. Nevertheless, objective testing is primarily considered to allow for reproducible results and to minimize cost.

Objective testing should, as a minimum, take into account:
1. reproduced picture quality,
2. losses of complete pictures (frame rate reduction),
3. application specific requirements (such as delay) to be discussed.
Both the quality of the uncrorrupted and of the corrupted reproduced stream shall be reported.

The encoder specifications are informative. The error concealment techniques at the decoder are also informative. The reference implementations shall meet the minimum performance requirements specified. The vendors are encouraged to surpass the specified minimum performance requirements.

- Create a specification that describes decoder operation under typical GERAN/UTRAN channel conditions including
  - A reference decoder implementation
  - Capability to detect packet losses
  - Ability to perform minimal concealment for video regions in error (e.g., copy from co-located regions in previous frame(s))
- Create a specification that describes encoder operation including
  - A reference encoder implementation
  - Generate valid bitstreams that under the constraint of average and peak bitrates achieve specified video quality when decoded by above specified decoder

5   Service Aspects

User experience may be enhanced

6   MMI-Aspects

MMI aspects not affected

7   Charging Aspects

Outside the scope of SA4; however, existing charging models will still be valid.

8   Security Aspects

Outside the scope of SA4; however, existing security features will still be valid.

9   Impacts

Affects:	UICC apps	ME	AN	CN	Others
Yes		x	x		
No	x			x	
Don't know					X

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

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
tbd				March 2006		
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	
26.234		PSS service				
26.235		PSC service				
26.140		MMS service				
26.346		MBMS service				

11   Work item rapporteur(s)

Juergen Pandel (Siemens AG)

12   Work item leadership

SA4

13   Supporting Companies

Qualcomm Europe S.A.R.L., Siemens AG, 3, Vodafone

14   Classification of the WI (if known)

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

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

(list of Work Items identified as building blocks)

14b   The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c   The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)