CCITT SGXV
Specialists Group on Coding
for Visual Telephony

Document #333
March 1988

Title: European position on Outstanding Items for H.12x

Source: France, FRG, Italy, Netherlands, Norway, Sweden, UK

Annex 6 to Document #317R lists 39 items needing further study for Recommendation H.12x. This document summarises the European position on those items.

1. Interfaces using ISDN 'B' channels

This topic is still under study although the information available to date implies that H0 Switching will be provided by means of multiple switching of 2B channels which implies that operation below 384kbit/s is a mandatory service requirement.

2. More than one 64kbit/s data channel

Leave for further study.

3. Error handling

More study is required and no error corrector should be included in the Recommendation until field trials have been carried out on real national and international links using flexible hardware.

4. Range of motion vectors

The range of motion vectors should be ±16 - this is more compatible with the macro-block technique. Fractional motion vectors are not ruled out due to the need to operate down to 64kbit/s, but more simulation work is required to clarify whether the increased complexity is awarded by performance. Compensation of chrominance signals is not ruled out.

5. Loop filter shape and boundary

A 1.2.1 filter is acceptable within the block.

6. Loop filter signalling

Both existing methods of loop filter signalling should be retained and 1 bit within the picture header used to indicate to the decoder which mode is used. Recent simulation results also identify that some gains are possible by including motion vectors and filtering on the chrominance signal.

7. Transform

Detailed study required of the mis-match approach particularly at low bit rates. Manufacturers should be invited to join CCITT deliberations.

8. Number of quantisers

More study required, a major influence on quality at low bit rates.

9. Quantiser laws

More study of the quantiser laws should be undertaken in the flexible hardware, no evidence has yet been found within Europe of the advantages of using different quantisers for luminance and chrominance.

10. Quantiser assignment

More study required in the flexible hardware.

Document #334 contains a new method which offers more flexibility in the rate of changing the quantiser than the existing specification. It may be almost essential at 64kbit/s for satisfactory buffer control especially if the number of groups of blocks were reduced from 18 to 9.

11. Number of classes

A maximum of 4 classes seems acceptable but further study may indicate that a single class is appropriate at lower bit rates.

12. Sequence orders

More study required.

13. Forced update

Related to transform. No results yet available from Europe, studies will take place in France and DNL when tapes are made available by AT&T.

14. Picture Headers in dropped fields

It is proposed that headers are not sent for dropped pictures but the number of bits is increased for the temporal reference.

15. Last five bits of PSC

The last bits of the PSC should be the binary code for the number of groups of block plus one.

16. Definition of transmitted buffer status

Hardware study is required but we feel it should be possible to operate successfully without including the buffer status in the PSC.

17. Spare bits in TYPE1

See Document #334.

18. Extra bits optionally inserted in Picture Header

See Document #334.

19. Transmission of GOB Headers for empty GOBs

Group of block headers should be retained even when blocks are not transmitted for error resilience purposes.

The overhead for low bit rate operation will be reduced somewhat if the macro-block technique is used.

20. Number and use of spare bits in TYPE2

See Document #334.

21. Extra bits optionally inserted in GOB Header

Keep at 1 and 2 times 8 bits.

22. GOB Global motion vector

More study required.

23. Order of elements for each block

More Study required.

24. Block addressing and block order

See Document #334.

25. Block types and codewords

More study required.

26. VLC words for CLASS

No change from flexible hardware specification.

28. Transform coefficient coding; 1-D or 2-D VLC; VLC tables

More study required.

29. EOB

See Document #334.

30. Freeze picture request

More study required.

31. Fast update request

More study required.

32. Picture freeze release flag

Insert in TYPE1 information in picture header.

33. Data continuity - multipoint

Further study required.

34. Video data buffer - size and strategy

The Japanese proposal is to be studied by means of hardware experiments in Europe but no results are available so this item needs to be left for further study.

35. Channel clock

See Document #332 - no change to original proposal merely a clarification.

36. Bits in application channel

Further study required.

37. Audio - video delay

Depends on Item 34.

38. Encryption

Further study required - an Experts Group on this topic has been set up within CEPT.

39. Ones density

Clarification sought from AT&T of points raised at Tokyo meeting - we would prefer a gateway based solution.