Title: <u>Parity information in the PSC</u>
Source: UK,F,FRG,NL,S,I

In the current specification for p*64 kbit/s flexible hardware there
is provision to send parity information for the locally decoded CIF
image. The purpose of the parity information is to identify when the
decoder has lost track due to transmission errors. This is intended
to allow a fast error recovery strategy by the means of issuing a
fast update request to the remote transmitter. A number of problems
are associated with this method.

1. DCT mismatch error

The H261 specification will include an inverse DCT specification
which permits a degree of mismatch between various designs. Hence it
is likely that a decoder will only exactly track the encoder when
both inverse DCT designs are from the same manufacturer. Even if
there is only a single level mismatch error this could result in
01111111 (127) being shifted to 10000000 (128) and therefore all bit
planes may have incorrect parity. Therefore the parity information
is only useful if the remote codec can be identified as being from
the same manufacturer.

2. Codec identification

In the H120 specification some bits were identified as 'reserved for
national use'. These bits proved to be unusable in practice since no
gateway units were in use at national boundaries and most countries
deployed H120 codecs from many codec vendors. The few situations
where these bits were used, resulted in considerable confusion and
problems for several customers. The other possibility is to include
a codec identifier within the specification. This would present the
problem of how to control the allocation of these codes and could
eventually result in incompatibilities between H261 codecs from
different manufacturers and therefore should be avoided.

3. Fast update request

The fast update request signal is required as part of the MCU
control strategy. The normal sequence of events during a MCU switch
is as follows. The MCU issues a freeze frame request to a decoder
which freezes its currently stored image. The MCU then switches the
video source and issues a fast update request to the codec of the
new speaker. This codec responds by sending a fast update with the
freeze picture release flag set in the picture start header. This
allows the previously frozen decoder to correctly release its frozen
image on receipt of the fast update frame. However if a codec were
to transmit a fast update as a result of a parity error, just before
the MCU switched the video source, the frozen decoder would be
incorrectly released resulting in a corrupted decoded image prior to
the fast update frame.

Proposal

The FEC scheme included in the H261 specification together with the previously demonstrated error resilience in the H261 coding scheme would suggest that parity checking of the decoded image data is not essential. Therefore, given the problems outlined above it is proposed that the parity information is removed from the final specification.