Participating in a videoconference

Dressing for the Camera and CODEC

Videoconferencing is a form of television so the guidelines for appearing on television are relevant. Because videoconferencing uses a reduced quality network link to keep costs down some other limitations are also introduced.

Television cameras can only handle a very limited range of contrast so wear clothes in pastel shades and plain weaves. Strong saturated colours and white shirts are not recommended. Within a videoconference, faces are the focal point, so clothing must not pre-dominate the image. Avoid clothes that are brightly coloured or with a distinctive pattern. Videoconferencing signals are “heavily compressed” by the CODEC to enable transmission over cost effective networks. Compression of the visual signal is achieved by removing elements of the picture that remain unchanged between pictures (redundant information).

For a participant wearing plain clothes the relative changes in the image between successive picture frames will be concentrated on movements of the faces and arms as the image of the clothes will remain virtually unchanged. If however they are wearing a busily patterned shirt the changes will be significant. The large amount of changing information will absorb an appreciable part of the available transmission space. This will have the effect of leaving less space for the more important facial images that will subsequently be degraded.

Delays in the Sound (Latency)

To keep transmission costs to a minimum, the data rate for videoconferencing is generally very low. This means that the vision signals need significant compression to squeeze into the small space available.

Compression requires a considerable amount of electronic processing. One penalty to pay for this is the time taken for the vision signals to travel through all the circuitry.

The delays are appreciable and can be of the order of 0.25 second. The delays introduced in compressing the sound signals are very much less, as not so much signal processing is needed. The result of this is that sound and vision from a site will be transmitted (and received) out of synchronisation, unless the situation is corrected.

Even small errors are objectionable as demonstrated on television by films that are transmitted with a lack of lip synchronisation.

To overcome this problem in videoconferencing, the sound signals are delayed to synchronise them with the vision. Two consequences of this delayed sound are that there can be an appreciable delay introduced when conferencing with a remote site (latency) and that an

echo can also be generated. This echo is most objectionable and can render a conference unintelligible.

Echo Cancellers

To reduce echoes caused by transmission delays, special devices known as “Echo Cancellers” are used. These devices when operating efficiently can almost eliminate all traces of echo during a conference. Room acoustics and microphone positions also affect the level of echo. If a microphone is moved or its sensitivity is altered during the conference, echo could be introduced until the echo canceller has realigned itself to the new environment. A good echo canceller is dynamic in operation and is able to continually monitor the situation and alter the correction as a conference is taking place to reduce echo to a minimum. They are an essential element of high quality videoconferencing.

Conferencing with Delayed Sound

When videoconferencing over ISDN, IP and other networks, although echoes can be reduced to a manageable level delays on the sound or “Latency” remains. This introduces an unnatural element into a videoconference that participants need to be aware of. All participants have to learn to conference within the limitations of the time delay, and so interaction is less spontaneous than with a face to face meeting.

As most conferences are voice switched, sharp interjections will cause the conference to switch automatically to that site; this may clip another site’s presentation.

All participants have to be patient and let other sites finish their point before responding. Videoconferencing with latency encourages participants to wait until others finish before responding, which after all is how meetings should be conducted in any case, but seldom are.
