RECOMMENDATION ITU-R BT.1691

Adaptive image quality control in television systems

(Question ITU-R 98/6)

(2004)

The ITU Radiocommunication Assembly,

considering

a) that digital TV systems have been developed as a compromise between image quality and compression ratio with consideration of image statistics, human visual perception, methods of image processing, characteristics of transmission and receiving equipment, and capturing and display systems;

b) that use of digital representation brings an opportunity to transmit additional information inside the digital TV signal, the use of which provides the possibility of control of video signal processing characteristics at the transmitting and receiving ends;

c) that new methods of image processing and transmission, such as fractal analysis, wavelet transformation, object-oriented coding, transmission of content and corresponding tools, are now developed and may be used in future TV applications, and that parameters and characteristics of these methods may be controlled during video transmission;

d) that an objective of television broadcasting is to obtain optimum (for TV applications) subjective quality of the reproduced image for any programme content, any type of image compression, any source and reproducing devices, and any viewing conditions;

e) that the receiver of the future may contain adaptive processing that can calculate necessary processing parameters for optimum image quality;

f) that nominal parameters for image processing at the transmitting and receiving ends may be generated at the transmitting end and transmitted for use by image processing devices at the receiving end;

g) that an important part of adaptive image quality optimization is colour reproduction quality optimization and that this specific matter is a subject of Recommendation ITU-R BT.1692;

h) that the new methods should be compatible with existing colour transmission methods, so that future TV systems may operate at either of two levels:

– non-adaptive TV systems (conventional TV systems);

– adaptive TV systems,

recommends

1 that in adaptive TV systems methods of global optimization of image quality should be used, either by optimization of individual parameters, or by optimization of grouped parameters;

2 that for image quality optimization, information is needed on the characteristics of the transmitted image, on viewing conditions, on transmission conditions, on the method of presentation, and on any intermediate devices in the signal path which may affect the signal quality. This information should be inserted in a defined location in the bit stream so that it may be read by adaptive signal processing devices at the transmitting and receiving ends;

3 that adaptive TV systems should be compatible with existing TV systems.