

RECOMMENDATION ITU-R BT.811-1

**THE SUBJECTIVE ASSESSMENT OF ENHANCED PAL
AND SECAM SYSTEMS**

(Question ITU-R 211/11)

(1992-1994)

The ITU Radiocommunication Assembly,

considering

- a) that many proposals for improving the quality of PAL and SECAM systems are under discussion, some of which concern only the receiver (e.g. doubling of the frame-rate) while others involve a considerable change of the emission system;
- b) that for enhanced PAL and SECAM emission formats, separate evaluations will be necessary for the enhanced picture and for the compatible picture;
- c) that there will be a need to evaluate, for both the enhanced and compatible picture, the following:
 - basic picture quality;
 - failure characteristics;
 - echo behaviour; and
 - susceptibility to interference,

recommends

1. that for the evaluation of basic picture quality for enhanced PAL and SECAM emission systems, the double-stimulus continuous quality-scale method is recommended for both kinds of assessments (enhanced and compatible pictures) (see Recommendation ITU-R BT.500).

As a reference it is recommended to use:

- a 4:2:2 picture with an aspect ratio of 16:9 for the enhanced picture;
- a full-screen PAL or SECAM picture for the compatible picture, if necessary produced by a pan-and-scan technique.

Test sequences should be critical but not unduly so with respect to the intended enhancements and possible degradations mentioned above. The increasing use of computer graphics and video effects should also be taken into consideration. Some sequences should include fine detailed structures and edges, which could cause cross effects in the PAL or SECAM formats. Still and moving picture sequences are required;

2. that for the evaluation of failure characteristics, echo behaviour and interference behaviour, the double-stimulus impairment scale method (Recommendation ITU-R BT.500) should be used for the tests of the enhanced and the compatible picture. It is recommended to use the source references as in § 1 above;
3. that, for subjective assessments, the general viewing conditions be as given in Recommendation ITU-R BT.500, while specific viewing conditions be as given in Table 1;
4. that the quality and processing capabilities of the production format used as a source for the enhanced PAL or SECAM pictures should also be evaluated.

TABLE 1

**Specific viewing conditions for subjective assessments of enhanced
PAL and SECAM systems**

Condition	Item	Values
a	Ratio of viewing distance to picture height	4 H and 6 H for the enhanced picture ⁽¹⁾ 4 H and 6 H for the compatible picture ⁽²⁾
b	Peak luminance of the display	70 cd/m ²
c	Viewing angle subtended by that part of the background that satisfies specifications	$\geq 43^\circ$ high $\times 57^\circ$ wide
d	Displays	For the 16:9 enhanced picture, display should be high quality with a screen size of 28 in (72 cm) or greater For the 4:3 compatible image, display should be high quality with a screen size of 22 in (56 cm) or greater

⁽¹⁾ A distance of four times the height of the picture (4 H) is the preferred distance, but using assessors at 6 H also is acceptable, provided the results are given separately.

⁽²⁾ 6 H is the preferred distance, but using assessors at 4 H also is acceptable, provided the results are given separately.

ANNEX 1

Explanatory note

The fair evaluation of enhanced television systems, applying the assessment methodology described in Recommendation ITU-R BT.500, requires that particular attention be paid to the following items (among others):

- choice and display of the reference to assess the basic quality of the enhanced system under evaluation;
- choice and display of the reference to assess the quality if the compatible picture is viewed with a conventional television system (different aspect ratio, etc.).

For enhanced systems with a 16:9 aspect ratio, assessment of the compatible picture, usually with a letter-box presentation, implies comparison against a reference signal with a 4:3 aspect ratio. The comparison of signals with different aspect ratios requires special measures; the assessment should use the same 4:3 display and the same presentation arrangement.

Two possible alternative arrangements may be considered:

- presentation of the compatible picture on a 4:3 display in letter-box format and of the reference 16:9 source on a 4:3 display in letter-box format by anamorphic scan conversion to letter-box form; or
- presentation of the compatible picture on a 4:3 display with the side panels eliminated and the image magnified to the full height of the screen and of the reference 16:9 source on a 4:3 display in full height by eliminating the side panels and displaying in normal height.

In both cases, two 4:3 monitors with different vertical scanning are needed. Therefore, extreme care should be exercised in matching the two monitors.