

Recommendation ITU-R BT.1702-3 (11/2023)

BT Series: Broadcasting service (television)

Guidance for the reduction of photosensitive epileptic seizures caused by television

Foreword

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Series of ITU-R Recommendations

(Also available online at <https://www.itu.int/pub/R-REC/en>)

Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M	Mobile, radiodetermination, amateur and related satellite services
P	Radiowave propagation
RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.

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RECOMMENDATION ITU-R BT.1702-3¹**Guidance for the reduction of photosensitive epileptic seizures
caused by television**

(2005-2018-2019-2023)

Scope

Extensive studies on the subject of photosensitive epilepsy, which have taken place around the world, have led to formulation of this Recommendation. The guidance proposed in this Recommendation is for the protection of the vulnerable section of the viewing population who have photosensitive epilepsy, and who are therefore prone to seizures triggered by flashing lights, including certain types of flashing or flickering television images or rapidly changing images or certain types of regular patterns². Broadcasting organizations are encouraged to raise awareness among programme producers of the risks of creating television image content which may induce photosensitive epileptic seizures in susceptible viewers. Annexes 1 to 5 provide additional guidance information on this subject.

Keywords

Epilepsy, flashing images, photosensitive, seizures, regular patterns

The ITU Radiocommunication Assembly,

considering

- a) that several cases of individual or collective photosensitive epileptic seizures in vulnerable persons, in particular children, induced by flashing or flickering television images and regular patterning have been reported from various parts of the world;
- b) that while television images displayed on television receivers do not themselves cause photosensitive epilepsy, they can be a trigger of seizures in individuals who happen to be prone to photosensitive epilepsy;
- c) that it is useful to identify measures to help avoid the inadvertent creation of material for transmission on broadcast television that would be likely to induce photosensitive epileptic seizures;
- d) that measures should be proportionate to the risks and should not place undue burdens on broadcasting organizations or programme producers;
- e) that the impact of measures on broadcasters or programme producers may vary with their programme genres;
- f) that, to be applied effectively, such measures should be simple and easy to understand by non-technical programme producers:
 - that in the case of some live programming, such as news, programme production is often beyond the control of the broadcaster;
 - that measurement results to check compliance with the guidelines depend on a number of measurement parameters;

¹ This Recommendation should be brought to the attention of the World Health Organization.

² Sometimes referred to as spatial patterning.

- that the viewing environment and the display device, which can affect the likelihood of problems arising in susceptible viewers, may be different depending on a style of living around the world;
- g) that the risk of seizures cannot be eliminated for the most susceptible viewers:
 - that a small number of highly susceptible viewers may benefit from protection by means of filtering applied in the receiver;
 - that due to the complexity of the end-to-end broadcast chain that involves many organizations and technologies, from capture, through production, mastering, broadcast, reception to display, and considering the viewing environment, no single organization has end-to-end control over this effect,

recommends

1 that broadcasting organizations should be encouraged to provide guidance to programme producers of the risks of creating television image content which may induce photosensitive epileptic seizures in susceptible viewers of television broadcasts;

2 that producers of programme material for television broadcasting, consumer equipment manufacturers, and viewers, should refer to the technical guidance information provided in the Annexes,

further recommends

1 that further studies are required recognizing that different programme genres exist in broadcasting environments;

2 that due to the complexity of the issues involved, appropriate international medical organizations (e.g. World Health Organization) should be consulted, and routinely informed on this issue.

Annex 1

Guidelines for production organizations on flashing or patterned images in television

Flashing, flickering or rapidly changing images and certain types of regular pattern can cause problems for some viewers who have photosensitive epilepsy. Consideration of information from leading medical opinion in this area [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] and the experience of broadcasting organizations have led to drawing up guidelines aimed at reducing the risk of exposure to potentially harmful stimuli.

Television is by nature a flickering medium. Transmitted pictures are refreshed at typically 50 or 60 times each second, in which case interlaced scanning generates flicker 25 or 30 times each second. It is therefore impossible to eliminate the risk of flashing images on television causing convulsions in viewers with photosensitive epilepsy. To reduce risk, the following guidelines on visual content should be applied when flashing or regular patterns are clearly discernible in normal domestic viewing conditions.