

REPORT 484-2

RATIO OF PICTURE-SIGNAL TO SYNCHRONIZING-SIGNAL

(Question 1/11, Study Programme 1D/11)

(1970-1974-1986)

Study Programme 1D/11 considers the possibility of adopting one single figure for expressing the ratio of picture-signal to synchronizing-signal, for both the video and the radiated signals, independently of the systems employed.

It is considered desirable that such a ratio should reach as high a value as possible, compatible with receiver requirements.

It is felt that, to reduce the relative amplitude of the synchronizing signal below the values normally used, might give rise to difficulties in receivers and some types of studio equipment.

At the present time, the possible values of picture-signal to synchronizing-signal ratios that can be considered for a single standard are as follows: $7/3$ and $10/4$.

Since the ratio $10/4$ is the higher of the two and is more generally used for radiated signals (some countries using it also for the video signal), administrations should consider the possibility of adopting this value in the future.

Recent investigations in the Federal Republic of Germany have shown that it is possible with modern receivers to reduce the relative amplitude of the synchronizing signal significantly, below a value corresponding to a ratio of $10/4$. A ratio of, for example, $8/2$ can easily be afforded without affecting the synchronization reliability of the receivers [CCIR, 1970-1974]. Further studies should therefore be carried out to investigate the effect of a reduction to such a ratio on all parts of a television system. The cost of the necessary modification of the transmission facilities to a ratio of $8/2$ must also be taken into account before administrations can be asked to consider the adoption of such a value in the future.

Recent studies on receivers in India confirm stability with a ratio of picture signal to synchronizing signal of $8/2$ [CCIR, 1982-86].

REFERENCES

CCIR Documents

[1970-74]: 11/72 (Germany (Federal Republic of)).

[1982-86]: 11/397 (India).

BIBLIOGRAPHY

CCIR Documents

[1966-69]: XI/15-CMTT/3 (Italy): CMTT/81(Rev. 3) Study Group XI: XI/151 (Italy).

REPORT 961-1

TERRESTRIAL TELEVISION BROADCASTING IN THE 12 GHz BAND (BAND VI)

(Question 1/11, Study Programme 1G/11)

(1982-1986)

1. Introduction

Experimental amplitude-modulation terrestrial television broadcasting systems in the 12 GHz band have been set up in the Federal Republic of Germany [CCIR, 1974-78a], in the Netherlands [CCIR, 1974-78b], and in Switzerland [CCIR, 1974-78c] for system G, and in Japan for system M [CCIR, 1974-78d and e]. Further, an operational station for the same broadcasting system has been working in Japan since 1979 [CCIR, 1978-82a].

The WARC-BS-77 has established for Regions 1 and 3 a frequency and orbital position Assignment Plan for the broadcasting-satellite service in the 12 GHz band shared with the terrestrial broadcasting service. The Regional Administrative Radio Conference, Geneva, 1983 has established an analogous Plan for the broadcasting-satellite service in Region 2.

2. Technical characteristics**2.1 Systems using amplitude modulation****2.1.1 Characteristics of the radiated signal**

Both amplitude modulation and frequency modulation are applicable to terrestrial television broadcasting in the 12 GHz band. A system of amplitude modulation requires higher transmitting powers but will allow more television channels.

Amplitude modulated television signals in the 12 GHz band should conform to the standards given in Report 624 so that they can be received by a conventional television receiver equipped with a frequency converter.

2.1.2 Protection ratio

The ratio of wanted-to-unwanted signal power at the receiver input is an important factor in planning terrestrial television systems. The protection ratio required when considering interference between two amplitude-modulation vestigial-sideband (AM-VSB) television signals is given in Recommendation 655. The protection ratio between two frequency modulation television signals can be found in Report 634.

The required ratios are essentially independent of frequency band. However, in applying them to the planning of a terrestrial system in the 12 GHz band, it is necessary to take into account both signal fading and the frequency stability of transmitters. With regard to the latter, an experiment in Japan has shown that it is not practicable to use precision offset techniques for AM-VSB systems in the 12 GHz band [CCIR, 1978-82b].

2.1.3 Equipment characteristics**2.1.3.1 Transmitter**

Specifications of AM-VSB transmitters for a terrestrial television service in the 12 GHz band can be virtually the same as those in Bands III, IV and V.