

REPORT 1201

NUMBER OF HF SOUND BROADCASTING TRANSMITTERS USING A SINGLE CHANNEL

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(1990)

Investigations were carried out in the USSR [CCIR 1986-90] with a view to determine the maximum number of transmitters using a single channel in HF sound broadcasting networks. These investigations were carried out using network models taking into account the specific design features of international and national sound broadcasting networks.

On the basis of the results obtained, it was possible to evaluate the capacity of the HF bands allocated to the sound broadcasting service as a function of the requirements governing the operation of the networks.

The maximum number of transmitters in a channel (K_f) depends on a multiplicity of geophysical factors and technical network parameters. Particular attention was paid to the influence of the following factors on K_f :

- type of network model;
- frequency band used;
- size of service area;
- protection ratios adopted;

Three types of model were used:

- a model corresponding to national and local broadcasting networks;
- a model representing the characteristic features of the organization of international and national broadcasting over large areas;
- a mixed model taking into account the characteristics of the first two models.

On the basis of a study of these models, the following conclusions were obtained:

- the maximum possible number of transmitters using a channel at the same time varies from 6-7 in the low frequency bands to 2-3 in the high frequency bands;

- the maximum number of transmitters is practically independent of the type of the model considered; a dependence on the type of the model is apparent in the low and high frequency bands;
- with large service areas (some CIRAF zones) which in practice are frequently notified by broadcasters, the maximum number of stations depends only slightly on the protection ratios; for smaller areas there is a more marked dependence.

REFERENCES

CCIR Documents

[1986-90]: 10/225 (USSR)

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