

RECOMMENDATION ITU-R SM.377-4*

**Accuracy of frequency measurements at stations
for international monitoring**

(1948-1956-1959-1963-1966-1982-1994-2007)

Scope

This Recommendation specifies standards for frequency measurements at monitoring stations and the accuracies for the measurements.

Keywords

Frequency measurement, high accuracy frequency standards, international monitoring

The ITU Radiocommunication Assembly,

considering

- a) the requirements of the administrations, of international organizations carrying out monitoring observations and of the Radiocommunication Bureau with respect to the frequency measurements necessary for the efficient performance of their duties;
- b) the general availability of suitable monitoring equipment for frequency measurements and high accuracy frequency standards,

recognizing

- a) that errors of frequency measurement shall not exceed one-tenth of the frequency tolerances specified in Appendix 2 of the Radio Regulations,

recommends

- 1 that high accuracy standards such as provided by atomic clocks, radiodetermination and radiodetermination-satellite systems also be accepted as frequency measurement standards;
- 2 that monitoring equipment and procedures shall be such that frequency measurements shall be made with an accuracy equal to, or better than, that specified in Table 1:

* Radiocommunication Study Group 1 made editorial amendments to this Recommendation in the years 2018 and 2019 in accordance with Resolution ITU-R 1.

TABLE 1

Accuracy of frequency measurements at monitoring stations

Type of measurement	Accuracy
1. Measurements of the frequencies of stations, except broadcasting stations, operating in the frequency range 9-4 000 kHz	$\pm 5 \times 10^{-6}$ of the value (or where this would be less than ± 1 Hz, to an accuracy of ± 1 Hz)
2. Measurements of the frequencies of broadcasting stations, operating in the frequency range 9-4 000 kHz	± 1 Hz
3. Measurements of frequencies of stations operating in the frequency range 4 000 kHz to 29.7 MHz	± 1 Hz
4. Measurements of frequencies of stations, except television, operating in the frequency range 29.7-2 450 MHz	$\pm 10^{-8}$ of the value
5. Measurements of frequencies of television stations operating in the frequency range 47-960 MHz	± 50 Hz
6. Measurements of frequencies of stations operating in the frequency range 2 450 MHz to 10.5 GHz	$\pm 10^{-8}$ of the value
7. Measurements of frequencies of stations operating in the frequency range 10.5-40 GHz	$\pm 10^{-8}$ of the value

NOTE 1 – It is realized that, while the accuracies quoted above are sufficient for international monitoring, different accuracies may be needed to meet national requirements.