

## RECOMMENDATION 375-2

**STANDARD-FREQUENCY AND TIME-SIGNAL EMISSIONS  
IN ADDITIONAL FREQUENCY BANDS**

(Question 2/7)

(1959-1963-1966-1982)

The CCIR,

## CONSIDERING

- (a) that for many purposes a world-wide time synchronization with an uncertainty of less than 1 ms is required;
- (b) that precise intercontinental frequency comparisons have been achieved by the use of the frequency-stable emissions operating in band 4;
- (c) that time comparisons with an uncertainty of about 1  $\mu$ s are possible at distances greater than 2000 km by means of pulsed ground-wave signals;
- (d) that line-of-sight transmissions in bands 8 and 9, and predominantly ground-wave signals in band 5, provide means of distributing time signals and standard frequencies;
- (e) that precise continental and intercontinental frequency and time comparisons have been achieved by the use of satellite techniques;
- (f) that new methods for time and frequency comparisons may be developed, using laser techniques,

## UNANIMOUSLY RECOMMENDS

1. that the results and methods of measurements of phase instabilities over paths in bands 4 and 5, should be published;
  2. that advantage be taken of pulse ground-wave navigation systems, for establishing intercontinental and possibly world-wide time synchronization;
  3. that appropriate stations, existing in bands 5 and 6, should be employed as much as possible for distributing standard frequencies by precise control of their carrier frequencies;
  4. that existing frequency-modulation sound-broadcasting stations and television stations in bands 8 and 9 should be employed as much as possible for distribution of standard frequency and time signals, which can be added to, or make use of, the existing modulation (including sub-carrier modulation), without interference to the normal programme;
  5. that satellite systems, not specifically devoted to the standard-frequency and time-signal service, should be designed to include, whenever possible, standard-frequency and time-signal information or to allow the transmission of time signals.
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