

RECOMMENDATION ITU-R SM.1053

METHODS OF IMPROVING HF DIRECTION-FINDING
ACCURACY AT FIXED STATIONS

(1994)

The ITU Radiocommunication Assembly,

considering

- a) that long-range direction finding is necessary to locate unidentified sources of interference;
- b) that long-range direction finding is necessary to identify many signals;
- c) that a small incremental improvement in bearing accuracy can substantially reduce the fix area;
- d) that a small fix area is necessary to identify the administrations and operators responsible for the signal;
- e) that fixed stations are capable of obtaining class A bearings ($\pm 2^\circ$ accuracy);
- f) that Recommendation ITU-R SM.854 covers general aspects of HF direction-finding techniques,

recommends

1. that trained experienced personnel be used to operate the equipment;
 2. that the antenna system be deployed at a location of flat terrain, minimum of interfering structures and remote from industrial activity;
 3. that direction finders be dispersed to allow wide variations in the bearing angles constituting the fix;
 4. that the antenna capture area to wavelength ratio be kept large;
 5. that bearings be classified and more importance be given to highly classified bearings;
 6. that the relative field-strength level of signals be noted and more importance be given to bearings taken on high relative field-strength levels;
 7. that the results of a large number of individual bearings be processed to produce a final bearing;
 8. that automated mathematical procedures be applied to composite bearings and calculate a best fix;
 9. that for sky-wave signals the distance between the direction-finding site and the signal source be considered with less importance given to very close or very distant signals and an optimum distance of approximately 1 000 km for frequencies less than 10 MHz, ranging to values less than 2 000 km in the upper part of the HF spectrum, and depending on propagation conditions;
 10. that check bearings be obtained on known stations and the observed deviations be considered when calculating the fix.
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