

Before a new standard broadcasting station can be licensed or before modifications can be made in an existing station, engineering briefs covering the selection or change of frequency, amount of power and design of the directional antenna system must be approved by the Department of Transport and notification sent to the signatory countries of the North American Regional Broadcasting Agreement. After the establishment or change is completed, proof of performance must be submitted to establish that the actual installation is in accordance with the approved plan.

The allocation of high frequencies and their efficient utilization requires reasonably accurate information on the transmission properties of the ionosphere which vary with the season, the sunspot cycle and other factors. This information is obtained from hourly measurements of the ionosphere made at some 70 points throughout the world and analysed by the United States Bureau of Standards at Washington, D.C. The Canadian measurement stations are located at St. John's, Nfld.; Resolute Bay, Cornwallis Island and Baker Lake, N.W.T.; Fort Chimo, Que.; Churchill, Headingley and The Pas, Man.; Ottawa, Ont.; and Prince Rupert, B.C. Data from these stations are correlated by the Defence Research Board. Six frequency monitoring stations are maintained at suitable points across Canada to check operating frequencies of all classes of radio stations to ensure that they do not depart from the assigned frequency by an amount greater than permitted by the international conventions.

Under the Safety of Life at Sea Convention and the Canada Shipping Act, most passenger ships and larger cargo ships must be fitted with radiotelegraph or radiotelephone equipment, primarily for use in case of distress. Approval is given for each make and model of equipment that comes up to the required standard and, in addition, the ship station as a whole is inspected before the licence is issued and periodically thereafter. Foreign ships are subject to inspection before sailing from Canadian ports to ensure that they conform with the requirements of the Safety of Life at Sea Convention.

Analogous inspections of aircraft radio stations are carried out. Standards are provided specifying in detail the requirements to be met to ensure an airworthy installation. A certificate of airworthiness is granted to manufacturers for each type or model of aircraft radio equipment that has been demonstrated to meet the requirements. Only type-certificated equipment is accepted for use on scheduled airlines, though other equipment, if inspected, is acceptable for other aircraft.

Marine and aeronautical radio operator standards and related regulations are covered by international agreement. The International Telecommunication Convention prescribes the qualifications for radio operators on mobile stations and the Radio Act, 1938, provides that all operators, both commercial and amateur, must pass examinations to prove their ability to operate the respective classes of stations on which they are engaged. Competent operators are required on all classes of stations in order that the technical requirements prescribed under international agreement be closely adhered to and are particularly essential in the case of ships and aircraft stations in the interests of safety of life.