



## TECHNICAL INFORMATION

Radio Canada International's technical facilities are located in Montreal, Quebec; Sackville, New Brunswick; and Stittsville, Ontario.

The production centre in Montreal was designed specifically to meet the needs of shortwave broadcasting. The studios are connected to the transmitting facilities in Sackville by satellite through the master control centre of the Maison de Radio-Canada, the headquarters of the French networks of the Canadian Broadcasting Corporation (in Montreal).

The shortwave transmitter plant at Sackville, on Canada's Atlantic coast, is situated on marshland, where the soil provides an excellent reflective base for the effective transmission of shortwave signals. The plant operates eight transmitters, three of 100 kW and five of 250 kW. Two of the lower-power transmitters are used for domestic programming to northern Quebec. The 250 kW transmitters are controlled by a computer, into which is entered all the pertinent information of a given schedule well in advance of the actual time of transmission. As many as 200 different functions (such as transmitters on & off; high power & low power, etc.) can be pre-scheduled for these five transmitters up to 24 hours before the time required. They are automatically tunable to any frequency within the range of 3.95 to 26.5 MHz. The tuning operation takes 12 seconds or less to any point within this operating range.

The eight transmitters are connected to the various antennas by a switching matrix in a building separate from the main transmitter building. All of the antennas at Sackville are of the type known as "curtain arrays", suspended from steel masts. This type of antenna can be used to transmit in either of two directions, 180 degrees apart, by means of a simple switching operation. The current antennas are on beams to Africa, Europe, Central and South America, the Caribbean, the U.S.A., Mexico and Northern Canada.

The receiving station at Stittsville, near Ottawa, plays a vital role in the daily operations of RCI. The station's primary function is the monitoring of shortwave transmissions directed to North America by other broadcasters, who reciprocate by monitoring RCI's broadcasts abroad. These monitoring reports are used to evaluate the effectiveness of service in target areas.

The receiving station also serves as a back-up for direct off-air pick-up of BBC World Service programs when the regular transatlantic satellite circuit linking the BBC in London and RCI in Montreal is not available. Direct off-air pick-up of Deutsche Welle German programs destined for North American audiences is also a responsibility. These programs are fed to Sackville for retransmission to North America as part of an exchange agreement, under which BBC and Deutsche Welle relay RCI programs destined for Central and Eastern Europe from bases in Daventry, England and Sines, Portugal.

Other pick-ups of international broadcasters are fed to RCI newsrooms in Ottawa and Montreal as well as to the central newsrooms of the Canadian Broadcasting Corporation's English and French domestic radio and television networks.

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SHORTWAVE MONITORING STATION  
RADIO CANADA INTERNATIONAL

BY: Denis Casey, Manager  
Shortwave Monitoring  
Station, RCI  
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The Shortwave Monitoring Station is owned and operated by Radio Canada International. It is located on Richardson Side Road in West Carleton Township near Carp, Ontario, or approximately 30km from centre of Ottawa. The Station is manned by six (6) technicians and a Manager, and is operational seven days a week, 24 hours on weekdays and 16 hours on Saturdays and Sundays.

The Station's functions may be divided into four (4) main categories:

- 1) Monitoring of shortwave broadcasts directed to North America;
- 2) Band Survey Monitoring;
- 3) Program pick-up for RCI and Domestic Networks;
- 4) Program pick-up for simultaneous rebroadcast via Sackville, N.B.

1) Monitoring of Shortwave broadcasts directed to North America

The daily broadcasts of 21 different foreign broadcasting organizations are monitored on a regular basis and are airmailed to each broadcaster every week. The number of hours monitored for each organization varies and is approximately equivalent to the amount of monitoring provided on a reciprocal basis of observations of RCI transmissions by that organization. Only a few of these are not returning the favour but our service is provided as a courtesy through request via Government departments. A weekly total of some 600 transmitter/hours are observed and logged on a regular basis. In addition to this monitoring, we also scan all of RCI's transmissions out of Sackville for any irregularities in order to assist the transmitter plant in achieving the highest efficiency possible.

2) Band Survey Monitoring

Another function of the Shortwave Monitoring Station is to conduct shortwave observations of the 13, 16, 19, 21, 25, 31 and 49 meter bands. All bands are done on a rotational basis over a period of five weeks. Each band is of a different length and may represent from 70 to 110 channels to be scanned during 24 hours, before and after the 15 minute mark for identification, duration and signal strength of all stations. This information is also made available to the same foreign broadcasting organizations who also send us their own Band Surveys. This information is essential to Frequency Management for the selection of new frequencies and supplements the IFRB seasonal list of all international transmissions.

3) Program Pick-up

APPENDIX "A" shows a typical Daily Program Work Sheet.. The greater portion of tasks involves sending approximately 14 consecutive hours of programs from 12 different foreign broadcasting organizations to the French Network Newsroom and RCI in-house monitors in Montreal. In addition, special requests may be received from producers of weekly domestic Radio Programs for the news and commentary in English of Radio Moscow, Radio Prague and Radio Warsaw, or from the French Network Newsroom in Montreal for Radio Warsaw and Portugal, in French. These programs are usually recorded during the evening hours and played back the following morning.

4) Standby Program Pick-up

The Station picks up the BBC, Deutsche Welle, and ROI for standby daily feeds to Sackville for simultaneous rebroadcast as required when the Trans-Atlantic feed circuits are disrupted.

Miscellaneous

There are several other minor functions, associated with the monitoring tasks which the Station performs, such as: evaluating ionospheric propagation on the North Atlantic Path, preparing weekly reception summary cables to London, recommending free channels to foreign broadcasting organizations, recording various programs on shortwave for various sections of RCI, providing technical assistance and program schedules to shortwave listeners, etc. The Station is also called upon by foreign broadcasting organizations to supply field strength measurements and sample recordings of their transmissions. These are provided, along with strip chart recordings showing the behaviour of the signal over a period of time.

Technical Facilities

Receivers

Some 20 Racal communications receivers of different generations such as models RA-117, RA-6790 and the latest model RA-3701 are used for monitoring and program pick-up. In addition, the latest models of receivers (RA-6790 & 3701) are computer interfaced and can be programmed to receive and record any frequency at any time of the day.

Antennas

These consist of one all-band Horizontal Log Periodic array beamed to Europe, an omnidirectional rosette of Vertical Log Periodic array, one Rhombic antenna beamed to Europe, a rosette of four (4) reversible Hermes Aperiodic Loop arrays with eight (8) different azimuths and two (2) 25 feet omnidirectional Vertical antennas. These last two (2) antennas are used for monitoring purposes only. All antennas are available on most receivers through a network of multicouplers and antenna selection switches.

Program Lines

There is one (1) 5kHz audio line available between the Station and the CBC Network Ottawa Master Control facility.

Tape Recorders

Any six (6) different programs may be recorded simultaneously on reel-to-reel or cassette recorders.









