Today it is not unusual to have electrical power generated hundreds of kilometres away from its markets. Distribution networks have been interconnected to form complex power grids that daily exchange power from one company to another, in many cases between Canada and the United States. To control these remote generation plants and power grids, highly reliable national and international communications links have been established.

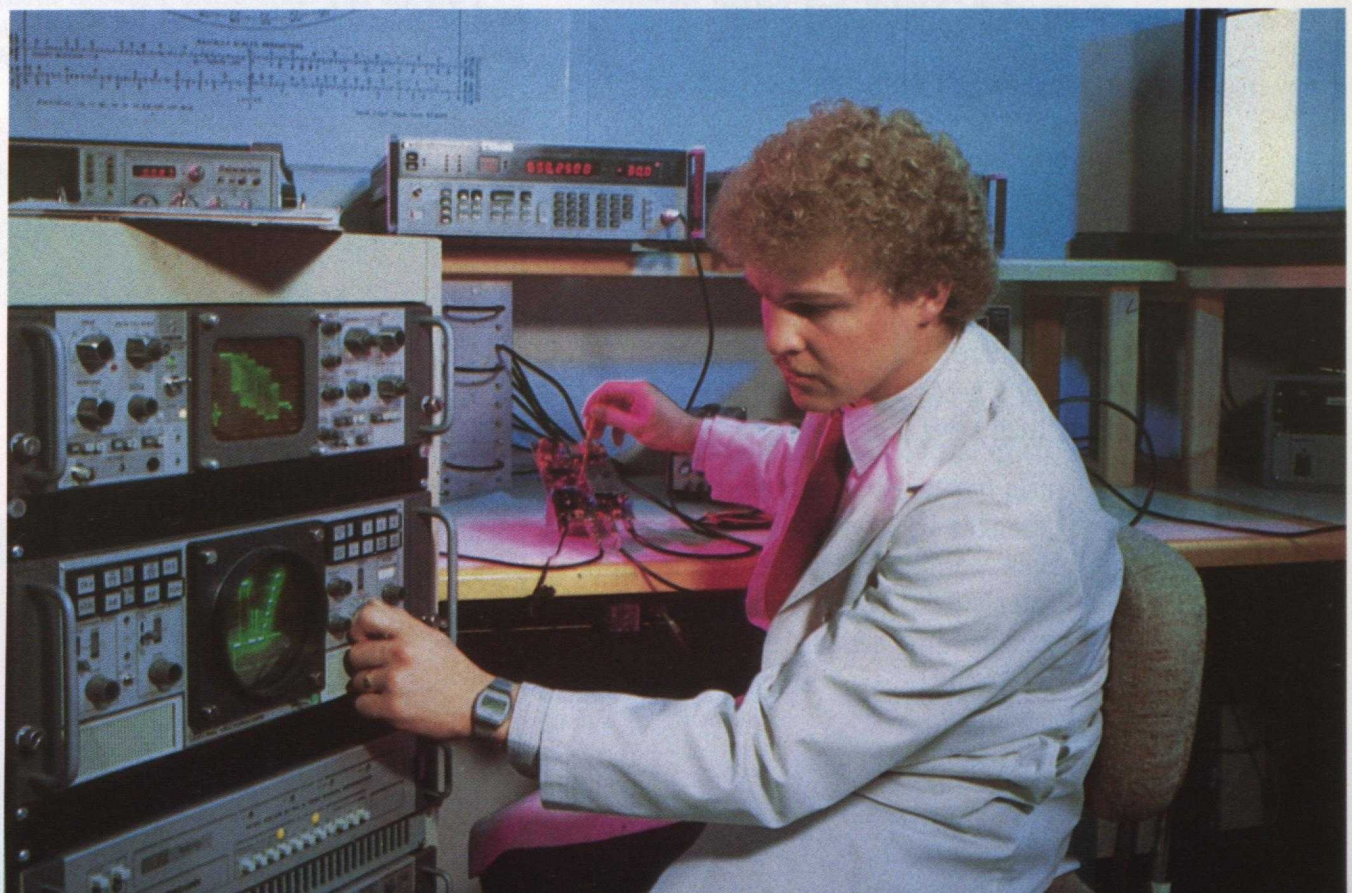
Within Canada, several hundred microwave communications links have been installed to form communications networks whose sole purpose is controlling the power network. Because ultra-high reliability is a necessity for minimizing signal delays in the transmission of control data, these networks employ design techniques that are unique to the communications industry.

A typical example is the communications system used by Ontario Hydro to control the generation and distribution of its electrical energy. Ontario Hydro has a series of generating plants based on thermal, nuclear, and hydro power sources, and maintains transmission lines to the United States. To control this complex, Ontario Hydro has constructed a communications system made up of numerous microwave sites interconnected to form a ring. All microwave sites within the ring are physically separated, so that the loss of one site will not destroy the integrity of the whole system. Control data are transmitted to the receiver in both directions around the ring. This approach acts as a safeguard; if one transmission path fails, the receiver will automatically switch to the other path.





NEXUS ENGINEERING CORP.



*Testing in the R&D lab*