



Communications
Research Centre
Canada

An Agency of
Industry Canada

Centre de recherches
sur les communications
Canada

Un organisme
d'Industrie Canada

Eye ON Technology

Issue No. 1 - Spring 2005 | www.crc.ca

In This Issue...

Cover Story

The launch of Eye on Technology brings a new resource for information on CRC research.

The Media of the Future

CRC's unique facilities bring broadcast technologies to new levels.

Connecting the World Through Broadband

Broadband research is bringing Canadians together through affordable and fast Internet.

Canadian Communications in Space

Canada's leadership in satellite and space technologies continues through CRC expertise.

Everyone is Going Wireless

Wireless technologies from CRC are resolving many communications challenges.

Publications

CRC has many publications and papers available for all audiences.

Launch of a New Era – Eye on Technology



Welcome to the first issue of Eye on Technology, your best source for the latest information on research and new technologies coming out of the Communications Research Centre (CRC). Within this publication, which will be published three times a year, you will find information about what CRC researchers are working on, and how that research fits within the overall picture in Canada.

CRC is the Federal Government's primary research laboratory for communications technology. From broadband applications like tele-health and e-learning to HDTV and wireless technologies, we work on the cutting edge and beyond, looking at what the next big technologies might be in communications. As an agency of Industry Canada, we also support and advise the decision-makers on technology and trends, helping to ensure that the Canadian government is on top of new technological developments.

Eye ON Technology

In this first issue, you will find some general information about the various areas that CRC researchers are investigating. In future issues, we'll take a closer look at specific R&D projects and activities. We'll also provide you with information on resources, publications and licensing opportunities for CRC technologies.

Of course, if there's anything you would like to see in future issues, or if you have any comments or questions about Eye on Technology, we would be more than happy to hear from you. Just send us an e-mail at eye-on-technology@crc.ca.

The Media of the Future



The Communications Research Centre is the only organization in Canada with an R&D program and unique facilities dedicated to Broadcast Technologies. It has been described by the Canadian magazine Broadcast Dialogue as "a treasure-trove of world-class and globally-acknowledged expertise, internationally-accepted laboratory facilities and expert independent evaluation and testing facilities."

The studies and experiments done by the Broadcast Technology Research Branch cover a broad range from audio/video coding and subjective evaluation, 3-D TV and surround sound to mobile television, digital transmission

techniques and software radio receivers. These technologies should feed the creativity of broadcasters and enable them to offer innovative services while making profitable their investment in a new digital transmission infrastructure.

CRC's research supports the efforts of various federal departments, including Industry Canada, in their diverse areas of responsibilities. In addition, our expertise is used in Canada by organizations such as the CBC, Telesat, IMAX, Algolith, and Genesis Microchips. Foreign organizations also refer to our well-respected technical capabilities from around the world. In fact, as an example, CRC recently joined a partnership with Telesat and the CBC to do some critical tests for the World Broadcasting Union to ensure the global interoperability of codecs used for high-definition television (HDTV) video transmissions. More information is available from Telesat at <http://www.telesat.ca>.

Connecting the World Through Broadband

Broadband is an essential tool for both the present and future of communications. Through broadband, we've been able to connect regions of the country and the world that were once extremely isolated, bringing Canada closer together. But broadband technologies continue to develop to provide even faster connections and greater capacity, opening the door to whole new worlds of connectivity and services.

The Broadband Network Technologies Research Branch addresses issues that affect or restrict the continued development of these technologies. These can include the interoperability, network standards and security, and the convergence of communications, broadcast and computer technologies. At the same time, we are working in photonics and optoelectronics to increase network capacity and versatility.

Eye ON Technology



By conducting research in these areas, we are also able to provide important information and advice to Industry Canada, National Defence and other federal departments and agencies, as well as the telecommunications industry as a whole. This allows these partners to better plan, develop and implement new systems and services.

CRC is also able to show how broadband can be used to make people's lives better through demonstration projects. Recently, the Terrestrial Wireless Branch collaborated with the Broadband Network Technologies Branch in a project demonstrating the use of standard Internet protocols to receive surveillance information from a mini unmanned air vehicle (UAV) flying in Canada on a monitoring station in Germany over 5000 kilometers away. This was part of the Canadian presence at CeBIT 2005, and more information is available at <http://www.canada-cebit.com>.

Canadian Communications in Space

Canada has a long history in the satellite communications (satcom) sector because of the technology's ability to easily reach the sparsely distributed population found in many parts of the country. As the third nation in space, Canada has always been a leader in space applications and that record continues to today.

As the governments centre of expertise for satellite communications, the Satellite Communications and Radio Propagation Research Branch is able to leverage its expertise in a wide range of areas into practical applications for government and the industry.

The branch performs important R&D, ranging from the design, testing and demonstration of new technologies to the management of major satcom programs. These R&D activities help determine the evolution of future satellite networks used for communication, navigation or search and rescue operations. They also help industry development through technology transfer. This expertise also allows the branch to act in an advisory capacity for CRC's parent department, Industry Canada, and its partners, which include the Canadian Space Agency, National Defence, and other government departments, academic institutions, the private sector and international agencies from around the world.

A perfect example of CRC's capabilities is our involvement with Telesat's Anik F2 satellite. Through a partnership with the Canadian Space Agency and several private sector companies including Telesat, EMS Technologies and COM DEV, CRC has provided technical advice and supervision for a number of technologies that are now up in orbit on Anik F2. The news release is available from Telesat at <http://www.telesat.ca>. Our next step is to use those technologies to test new ways of communicating in rural and remote areas of Canada, a goal we can all appreciate.

Everyone is Going Wireless

Cell phones. Pagers. Wireless e-mail. Wireless networks at home and work. Everyone is going wireless these days. But wireless communications means much more than that. It means easier and more affordable access to information and

Eye ON Technology

service, providing economic and social benefits around the world.

Through their work with government and industry, the Terrestrial Wireless Research Branch of CRC has developed everything from new wireless systems to components and technologies being used today around the world. They are also at the heart of the delivery of broadband to rural and remote areas, as wireless broadband offers an alternative for the delivery of Internet access to these areas.

The Terrestrial Wireless Branch has a number of clients and agreements in place to further wireless communication. They work closely with National Defence as well as Industry Canada and private sector companies to further the development of wireless technology. CRC is also a founding member of the Canada Network of Wireless Centres (CWCnet), which is a network of public wireless centres to support small- and medium-sized enterprises working in the wireless sector.

Recently, CRC has signed a number of international agreements with research partners in places like India and Hong Kong to help further develop wireless technologies. These technologies, which include the MILTON system recently developed at CRC, have the potential to bring Internet access to areas where it was not economically feasible before, both in Canada and abroad. Information on these agreements can be found in the Media Desk on the CRC web site at <http://www.crc.ca>.



CRC Publications

CRC has produced a number of corporate publications that can provide a great deal of useful information about the activities within CRC. Many of these publications can be found on the CRC web site.

They include:

- 2003-2004 Highlights of Activities
- General Information Brochures
- Product Pamphlets
- Initiative Fact Sheets

The site also includes an archive of older publications.

CRC's library also has access to a broad range of information, including a list of published reports from CRC researchers. You can access the CRC Publication Database at <http://www.crc.ca/en/html/library/home/publications>.

CRC's mission is to be the federal government's centre of excellence for communications R&D, ensuring an independent source of advice for public policy purposes. CRC, an agency of Industry Canada, also aims to help identify and close the innovation gaps in Canada's communications sector by:

- ▶ *engaging in industry partnerships;*
- ▶ *building technical intelligence;*
- ▶ *supporting small and medium-sized high technology enterprises.*