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NO. 14 SUMMER 1995

MSAT NEWS

AMSC satellite successfully launched and deployed

The American Mobile Satellite Corporation satellite, known as AMSC-1, was launched on April 7, and was successfully placed in geostationary orbit 36 000 km above the earth 20 days later. In geostationary orbit, a satellite circles the earth at the same speed as the earth rotates so that it always appears to be in the same position relative to users on the ground.

The satellite had what is called a "hot ride" into space: the launch was so accurate that no final orbit injection burn of the apogee motor was needed. Because the same fuel is used for the apogee motor and for the station-keeping thrusters, AMSC-1 will have an extra one to two years of life.

The AMSC-1 and the TMI Communications MSAT satellite, which will be launched later this year by Arianespace in French Guiana, are almost identical. They are being deployed in orbits that will allow them to be used for communications anywhere in continental North America and up to 400 km offshore, as well as in Hawaii, the western Caribbean, Mexico and parts of Central America.

Once launched, the Canadian satellite will have a slightly better look angle for users located near the northwestern limits of the coverage area than AMSC-1: MSAT will be located at 106.5° west longitude while AMSC-1 is in position at 101° west longitude. This will improve reception and transmission in the Yukon and Alaska. The launch of the second satellite will also mean greater assurance of uninterrupted service for users because the two satellites can act as backup for each other. ●

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Photo: Allister Pedersen/CRC

An Antonov 124, which can carry the world's heaviest cargo, was in Ottawa in late February to pick up the AMSC-1 satellite to transport it to the launch site at Cape Canaveral, Florida. The satellite had been in Ottawa for integration and pre-launch testing. The unusual shape of the cargo container, with its large conical end, accommodates the satellite's folding antennas, which fit inside the launch vehicle's nose cone.

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LIFT OFF!

Early in the evening (7:47 p.m.) on Friday, April 7, 1995, the most powerful commercial mobile communications satellite ever deployed was launched from Cape Canaveral in the top portion of a Martin-Marietta Atlas IIA launch vehicle.

Photo: American Mobile Satellite Corporation

A MOMENT OF REFLECTION

by Demetre Athanassiadis, Director of the MSAT Program, Industry Canada

For those of us involved in the MSAT Program, the successful launch on April 7 of the AMSC-1 satellite, which is identical to the Canadian MSAT satellite, provided a fitting climax to a pioneering effort started almost two decades ago that was marked by an unprecedented roller coaster ride of successes and failures.

At first it was a lonely road. At home and abroad, they told us, "It is not practically feasible. There is no demand for it." Then, international interests fought hard to deny us the required spectrum. We won that battle in 1987 by neutralizing INMARSAT's and the European Community's arguments and by enlisting the support of the United States and Japan.

In the next few years, the floodgates opened and administration after administration started to plan new domestic, regional and worldwide mobile satellite systems while at the same time supporting more and more mobile satellite spectrum allocations.

But the roller coaster continued, first because of keen competition in the United States, which cast doubt on the survival of TMI's American partner, AMSC; then because of the cashflow problems at Telesat Mobile Inc. and its subsequent restructuring and re-emergence as TMI Communications. Because of these events, five precious years were lost to the ever-growing competition from new emerging mobile satellite systems.

Still, the MSAT service is the only truly regional North American mobile satellite service, and it is up to AMSC and TMI to make the best of it. The AMSC-1 satellite is functioning well and will allow both companies to start offering commercial services this fall.

As for us in the MSAT Program, we have not forgotten in our euphoria that our support role must continue. There is still the Canadian bird to be launched successfully. There are numerous services and applications to be developed for government users through our funding support. There are still outstanding financial, administrative and regulatory issues to be taken care of and, yes, there is the need to start planning for "MSAT— the second generation."

This is, however, a time to reflect and to say thank you to all those in government and industry who have been involved in the MSAT Program, and who have worked so hard and persevered for what they believed to be good for Canada and a first for the world. Thank you and may we all see the fulfillment of our efforts through the successful launch of the Canadian bird. ●

GOVERNMENT CLIENTS CONSIDERING GMSS

The Royal Canadian Mounted Police (RCMP) and the Department of National Defence have shown serious interest in Government Mobile Satellite Service (GMSS).

The RCMP has planned a pilot test of GMSS services. The Department of National Defence is currently considering how the service could be used in its operations, says Alain Solari, Government Telecommunications and Informatics Services (GTIS) National Account Manager for the department.

The RCMP has a significant need for mobile communications, so exploring the possibilities offered by GMSS is an obvious option for the agency, says Tim Smith, GTIS National Account Manager for the RCMP. "At this stage, we are optimistic that we can provide many applications the RCMP can make good use of," he explains. The RCMP has ordered more than 50 mobile terminals for use in the tests.

Initially, the police force will be looking at voice-only applications of GMSS for communications with its officers operating out of range of terrestrial mobile radio systems. However, GTIS and TMI Communications are working closely with the RCMP to examine other applications, such as mobile data.

"We are very happy with the way the RCMP has been working with GTIS to develop this service, particularly with their willingness to provide feedback," adds Mr. Smith.

GTIS READY TO TALK TO YOU

GTIS local account managers are ready to answer clients' questions.

"Our staff have the information that federal government clients need to understand the potential of the Government Mobile Satellite Service," says Al Kingan, Product Director, GTIS Satellite Services. The agency has trained its account managers so they either have the answers ready at hand or know how to find them.

In addition, marketing materials have been prepared that explain the services available through the Government Mobile Satellite Service. These materials include slide show presentations and audio tapes of mobile satellite calls made on a similar system in Australia. Account managers are also being provided with regular updates about the launch and other aspects of the MSAT project's status.

For more information about GMSS, contact your local GTIS account manager or phone (613) 990-4444. ●

Low-cost paging options

At less than $500 each, data message converters that allow regular 930 MHz pagers to communicate with the MSAT system will be the most affordable satellite communications equipment ever available anywhere.

"Soon everyone will be able to afford the convenience of go-anywhere communications," says Glenn Egan of TMI Communications. On May 10, Calian Technology Ltd. signed a contract with TMI to develop and manufacture low-cost data messaging terminals. Calian will provide data message converters to authorized service providers beginning in early 1996.

The anticipated market for the converters includes users in the transportation, service and marine industries. ●

IMSC '95

This Ku-band steerable antenna for shipboard use was one of 19 exhibits at the fourth International Mobile Satellite Conference (IMSC '95) held in Ottawa in June. More than 350 people from 18 countries participated. IMSC '95 was sponsored by the Communications Research Centre and the Jet Propulsion Laboratory (JPL). JPL has offered to host the next conference, in California in 1997. For information on obtaining a copy of the conference proceedings (93 papers, 598 pages), fax Lynell Wight at (613) 990-0316.

Photo: John Brebner/CRC

TMI Communications Update

Secure MSAT communications

Ottawa's CAL Corporation has signed an agreement with TMI Communications to provide secure telephone digital interface units for use with the MSAT Network.

These units are designed to be used in conjunction with MSAT terminals. Using STU III technology, the unit encrypts data so that the person at the other end can only decipher the information being transmitted with a similarly programmed unit. There are four levels of encryption and access to equipment for each level is carefully controlled.

Users of these units will come mainly from the federal and provincial governments, among which STU III Type 1 and Type 2 encoding are the required security standards for calls in which highly sensitive information is transmitted. Interface units providing Type 3 and Type 4 encryption will be available for use with MSAT by the private sector.

The STU III secure interface unit is easily installed with all MSAT-type terminals; it produces high-quality voice transmission and is available at a low cost to users.

For more information, please contact CAL Corporation's Katherine Wong at (613) 820-8600, ext. 1290; TMI Communications at 1-800-558-4702 or Government Telecommunications and Informatics Services at (613) 990-4444.

Mobility Canada latest national full-service provider

The latest MSAT service provider to sign on with TMI Communications brings nation-wide marketing and support services with it.

"With the excellent national sales and service capacity of Mobility Canada on board, we have taken a major step forward in providing modern telecommunications to Canadians," says John Farrell, President and CEO of TMI Communications.

The agreement between TMI and Mobility Canada was announced on April 27. Under the agreement, Mobility Canada member companies will be offering two types of service to Canadians when commercial MSAT service becomes available this fall. Customers will be able to choose between mobile satellite phone service and combined satellite/cellular service. The satellite/cellular phones can be switched to the MSAT Network when users travel out of range of the current cellular network. The companies plan to offer packet data and dispatch radio at a later date.

Bell Mobility, a family of wireless communications companies that provides service to 868 000 customers in Ontario and Quebec, is the largest member company of Mobility Canada, which serves 1.5 million customers nation-wide. The other Mobility Canada companies are, in the west, AGT Mobility, BCTel Mobility, EdTel Mobility, SaskTel Mobility and MTS Mobility; in the Maritimes, MT&T Mobility, NewTel Mobility, NBTel Mobility and Island Tel Mobility; and in central Canada, QuébecTel Mobilité and Thunder Bay Cellular Mobility.

For more information, please call 1-800-927-0125 or contact any of the Mobility Canada members listed above.

New appointments

TMI Communications' President and CEO John Farrell recently made two appointments to ready his organization for the move from preparing for the launch of the Canadian satellite to actually operating the MSAT Network.

Lynda Partner, who has been with TMI since 1991, has been appointed Vice President, Business and Service Development, and T. Kent Elliott is now Vice President, Sales and Marketing. ●

Satellite industry veteran joins TMI for countdown to service

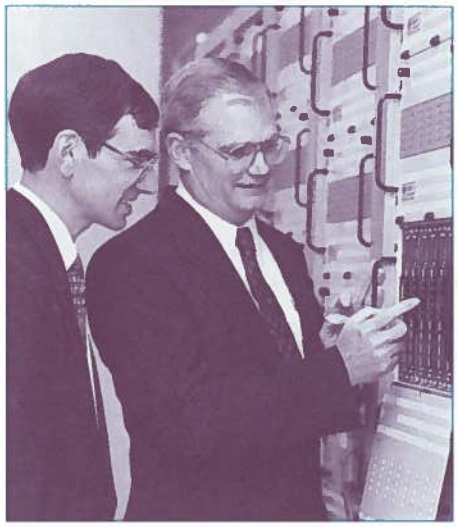

Photo: Janice Lang/CRC

John Forsey (left), TMI Communications' Vice President of Service Delivery, and Wayne Smith, Operations Technicians Supervisor, take a look at some of the MSAT channel units of the new Communications Ground System. The equipment, provided for the MSAT Network by Westinghouse, allocates channels for all calls.

Testing of the MSAT satellites is at the top of John Forsey's agenda.

"The service we deliver to paying customers has to be reliable," he explains. "Every system and procedure for service delivery has to be tested and retested between now and commercial service introduction in October 1995."

Mr. Forsey, who has recently joined TMI Communications, brings more than 20 years of experience in the satellite communications industry to the company. As Vice President, Service Delivery, he is overseeing the final transition of the MSAT initiative from project mode to operating mode.

The first stage of testing focused on the satellites. "With a satellite-based system you need an extra level of precaution because you cannot really fix anything on the satellite once it is launched," says Mr. Forsey. The Communications Ground System, or CGS, hardware has to be properly set up and monitored to avoid damage to the satellite. In this case, TMI is working closely with American Mobile Satellite Corporation, on whose satellite TMI will initially provide service. This satellite was launched in April.

Since then, TMI staff in Ottawa have been checking all the functions of the CGS with Westinghouse, the contractor that provided the equipment. This phase will end with a 30-day load test, during which calls will be simulated to run the system at full load (see "Simulating a functioning network," below).

Following the completion of this load test, TMI plans to sign provisional acceptance for the CGS equipment and then go into alpha testing. During these tests, the procedures for handling operations, as well as additional systems such as that for automatic billing, will be tested along with the hardware. Finally, TMI will move on to beta testing, which will include running test services for selected customers. ●

MSAT TECH TALK

Simulating a functioning network

Arthur Guibord, the Manager of Integration and Testing at TMI Communications, is a busy man these days.

Mr. Guibord is in charge of the load tests on the Communications Ground System (CGS) equipment recently installed at TMI's Ottawa headquarters. During these tests, the CGS is "loaded" with computer-generated calls to determine whether various aspects of the system function correctly.

An RF test translator (essentially an RF frequency converter) substitutes for the satellite during the load test. "This is a common way of testing satellite ground-station equipment," explains Mr. Guibord. "You can even add signal noise to simulate the appropriate satellite-link conditions."

The RF test translator is used in conjunction with software that acts as a mobile terminal emulator, simulating the connection of MSAT Communicators™ to the CGS.

The CGS in turn is connected to the public-switched telephone network (PSTN) to provide connections to any telephone worldwide. Some of the test calls go to the PSTN through a Northern Telecom MTX switch — a telephone switching machine often used for cellular telephone applications.

To begin the load test, Mr. Guibord is running the Westinghouse software that will handle the "set up" and "tear down" of each call. To do this, six short-duration calls are set up every second. This is equivalent to loading the system with more than 400 busy channels using longer call durations, typically 70 seconds.

As part of the testing of the customer management information system, the test calls will simulate the use of each of the optional features such as call waiting, conference calling and call forwarding, among others. "When we go into alpha testing, after load testing is complete, these features will all be checked out again," says Mr. Guibord. ●

MSAT News

MSAT News is produced by Industry Canada to increase awareness of the MSAT Program and related technologies. It is published on an as-required basis, approximately once every three months. The department will continue to publish the newsletter until the project is completed.

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