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IPStar News Summary
July 1999 – May 2005

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30 May 2005

IPSTAR In The News 2005

Thai Shin Satellite Says iPSTAR to be Launched Mid July

BANGKOK, May 27, 2005/Satnews Daily/ — Thailand's Shin Satellite PCL (SATTEL.TH) said on Thursday it plans to launch its iPSTAR satellite on July 14-18.

According to Shin Satellite, the delivery of the satellite was delayed by manufacturer Space Systems/Loral to allow more time for the testing procedures and ensure the success of the $400 million broadband satellite.

iPSTAR-1 (Thaicom 4) is a high-powered geostationary satellite to be used for broadband communications applications by Shin Satellite. iPSTAR-1 will provide direct-to-desktop, last-mile services, including new multimedia and data services to customers in Asia, India, and Australia.

Featuring 87 Ku-band transponders and 10 Ka-band transponders and weighting about 6700 kg, iPSTAR 1 will be one of the heaviest commercial geostationary communication satellite. It is based on Loral's LS-1300S bus.

Shin Satellite said the spacecraft will be sent to Arianespace's launch site in French Guiana on June 8, and is expected to complete a verification test on June 27 and be transferred to the launch pad on July 12.

In the meantime, activity at Arianspace's Spaceport is in full swing as preparations move forward for two upcoming Ariane 5 launches from French Guiana.

Two weeks ago, Arianespace said one Ariane 5 Generic vehicle has been transferred to the Spaceport's Final Assembly Building, readying it for the installation of mission's satellite payload and freeing up the Launcher Integration Building for the startup of assembly with another Ariane 5.

Arianespace, however, has not identified the payloads for the two upcoming Ariane 5 launches.

Thai Shin Sat to launch iPSTAR satellite in July

BANGKOK, May 26 (Reuters) - Thailand's Shin Satellite PCL , Asia's second-largest satellite operator, said on Thursday it planned to launch its new broadband iPSTAR satellite into orbit between July 14-18.

The precise launch schedule depended on weather conditions at the launch site in French Guyana, the company told the stock exchange.

Shin Sat, founded by Prime Minister Thaksin Shinawatra, operates three broadcasting satellites covering Asia, Australia, Africa and Europe. Its major rivals include Asia Satellite Telecommunications Co. Ltd. .

The iPSTAR satellite, the company's fourth, has a capacity of 45 gigabytes per second (Gbps), 20 times more than its three previous satellites combined, the company has said.

iPSTAR, seen by analysts as a major source of revenue for the company over the next few years, will be used for communications such as mobile telephony and the Internet.

Last week, Shin Satellite said it would launch a fifth satellite in the middle of 2006 to boost capacity.

Shin Sat is 51 percent-owned by Shin Corp , the flagship of the telecommunications group founded by Thaksin.

At 0748 GMT, Shin Sat shares were up 1.8 percent at 16.70 baht, while the overall Thai stock market was down 0.7 percent.

Thai Shin Satellite Budgets $100 Million for Satellite Replacement

BANGKOK, Feb. 22/Satnews Daily/ — Thailand's Shin Satellite PCL plans to spend around $90 million to $100 million to replace two of its satellites that will retire in the coming years, a Dow Jones report on Monday said.

Thaicom 1, launched on from Kourou, French Guiana on December 17, 1993 is to be retired in 2008 while Thaicom 2, launched on October 7, 1994 will retire in 2009.

The two satellites are light-weight versions of Hughes' HS-376 model. Each Thaicom satellite has two Ku-band transponders (plus one spare), powered by 47-watt traveling-wave tube amplifiers.

Dow Jones, quoting Executive Chairman Dumrong Kasemset, said Shin has not yet made a decision whether it will build one or two more satellites, but it will conclude the issue, including a funding plan, by the end of this year.

Kasemset told Dow Jones part of the funding for the replacement program will come from a $33 million insurance claim from the temporary failure of Thaicom 3 satellite transponders.

Shin Satellite is a unit of Thai telecommunications conglomerate Shin Corp. PCL, founded by Prime Minister Thaksin Shinawatra. Originally called Shinawatra Satellite, Shin Satellite was founded in 1991 and now has three satellites in geostationary orbit.

iPSTAR Launch Delayed To Mid-2005; Thai Shin Satellite Budgets $100 Million for Satellite Replacement

www.satnews.com, BANGKOK, Feb. 21 2005/Satnews Daily/ — Thailand's Shin Satellite PCL said on Friday it expects the launch of its iPSTAR broadband satellite to be delayed to mid-2005 from March.

Shin Satellite vice president Tanadit Charoenchan said the company will hold a meeting with manufacturer Space Systems/Loral and launcher Arianespace in March to finalize the launching process and to set a launch date for the $400 million iPSTAR satellite.

"Launching a satellite is not an easy thing...Rushing will not do any good," Tanadit said. He sounded optimistic saying he expects the satellite to be in orbit and ready to operate from June onwards.

He added, however, the delay won't have any impact on Shin Satellite's performance as the company is already expecting revenue from iPSTAR to be realized in the second half of this year.

The launch and operation of iPSTAR-1 satellite is already delayed by about one year. Earlier projections made by Shin Satellite indicated the satellite should have been fully opearational as early as first quarter of 2004.

iPSTAR is being touted to offer a low-cost, high-speed satellite broadband service that will bridge the Asia/Pacific digital divide. Shin Satellite said iPSTAR will make two-way broadband services accessible in Asia.

Shin Satellite also plans to spend around $90 million to $100 million to replace two of its satellites that will retire in the coming years, a Dow Jones report on Feb. 21 said.

Shin Satellite’s Thaicom 1 and Thaicom 2 satellites are due to be retired in 2008 and 2009.

Thaicom 1 was launched on from Kourou, French Guiana on December 17, 1993 while Thaicom 2 was launched on October 7, 1994. The two satellites are light-weight versions of Hughes' HS-376 model. Each Thaicom satellite has two Ku-band transponders (plus one spare), powered by 47-watt traveling-wave tube amplifiers.

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Thai Shin Satellite's iPSTAR Launch Delayed To Mid-2005

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IPSTAR Satellite Update: Pre-Shipment Review Completed IPSTAR satellite ready to ship

www.thaicom.net, February 2005 Nonthaburi, Thailand - Shin Satellite Public Company Limited successfully completed the pre-shipment review of its IPSTAR-1 broadband satellite in January and is now finalizing plans to deliver the satellite to the European launch service provider, Arianespace. The pre-shipment review confirms that the satellite has passed all critical tests and is ready for packing in preparation for delivery to the launcher.

In the next few weeks, Shin Satellite, together with the satellite manufacturer, Space Systems/Loral (SS/L), will have completed all final action items for the preparation of the satellite for shipment to the Kourou Space Center, in French Guiana, South America. The satellite will then be placed into soft storage and will be shipped via air transportation to the launch site once authorized.

In mid March, Shin Satellite, SS/L, the satellite manufacturer, and Arianespace, the launch service provider, will hold joint launch base operations planning meeting and Final Mission Analysis Review (RAMF). The parties will review the integration plan of satellite to launch vehicle, and the results of final system qualification, flight trajectory of launch vehicle and insertion of the satellite to transfer orbit. This is to demonstrate that the Ariane 5 G will be able to fulfill the mission of lifting the IPSTAR satellite into the Geosynchronous Transfer Orbit (GTO) as required.

At 6.5 tonnes, the IPSTAR-1 broadband satellite will be the largest commercial telecommunications satellite to be launched to date. The satisfactory completion of RAMF will lead to authorization to ship and a fixed launch date.

iPSTAR Mobile Trunking Service Nominated for GSM Award

Nomination puts Thai company in the running for the highest honor possible in the mobile telecommunications industry

www.thaicom.net, 8 February 2005

Nonthaburi, Thailand, Tuesday 8 February 2005: IPSTAR Co. Ltd., a subsidiary of Shin Satellite Plc, has been selected as one of the four finalists of the prestigious GSM Awards in the category for "Best Use of Mobile for Special Needs and Accessibility" by the GSM Association, an organization established to promote the development of telecommunications technology. This is the first time that a Thai company has been nominated for the award. The technology recognized for this nomination is one that links mobile telephone networks using a broadband connection via satellite, called Mobile Trunking. The Company commenced this service in 2004 in the Lao Peoples Democratic Republic, where it has been proven effective in accelerating the coverage of the country and thus providing telecommunications access to many more people. This was the criteria used in proposing the Company's nomination for the GSM Award.

IPSTAR Mobile Trunking was designed to provide complete coverage of an area by a mobile telecommunications network, especially in areas that made it uneconomical to use other types of network. It is of greatest benefit in countries where the communications infrastructure is insufficient but there is a demand for providing such services for a lower investment cost. Its other advantage is the speed with which an IPSTAR Mobile Trunking network can be rolled out compared with other technologies. One of its strengths is in providing immediate support to a saturated network by extending the supply of bandwidth. In this case, it is the most appropriate method of providing temporary support to an overloaded network until the terrestrial system can be upgraded.

The GSM Awards are a globally-recognized honor, well-known in telecommunications circles. It has been held for over 10 years. There are currently 650 members of the GSM Association serving 1.2 billion people in 210 countries. These account for 75% of the digital mobile phone market. The winners of the GSM Awards will be announced on 15 February 2005 in France. The Company has been nominated in the same category as some of the world's most famous communications technology firms, such as T-Mobile (Czech Republic), ScanSoft from the U.K. and America Online Inc (AOL) from the United States.

IPSTAR Signs Agreement with Macquarie Telecom Leading Australian Telco to expand coverage using IPSTAR

www.thaicom.net, January 2005

IPSTAR Co. Ltd., a subsidiary of Shin Satellite Plc., one of Asia's leading satellite operators, has signed a contract with Macquarie Telecom Pty Ltd, a leading Australian provider of Information and Communication Technology. IPSTAR's next generation, satellite-based Internet services will enhance Macquarie Telecom's network coverage across Australia and enable customers to access business voice and data networks not normally accessible via terrestrial communications services.

The new Macquarie Telecom IPSTAR Satellite Service will be a purpose-built broadband access network designed for two-way broadband services over satellite. It will support voice and data IP applications including high-speed access to the Internet, email, data broadcast, VOIP and videoconferencing.

According to Glen Noble, General Manager Data and Hosting, Macquarie Telecom, "Our business and government customers with regional or remote offices have told us they need secure, remote, high-speed IP connectivity. The Macquarie Telecom IPSTAR Satellite Service is a simple, modular way to deliver these services and integrate them into our customer's existing network infrastructure."

Mr. Komson Seripapong, IPSTAR General Manager for Australia and New Zealand, said, "Macquarie Telecom is one of the largest providers of voice and data services to the business and government sector in Australia, so we are honored the company has chosen to deploy the IPSTAR service."

"The agreement will add to the long-term viability of IPSTAR in Australia. Together with Macquarie Telecom we will deliver satellite broadband services to some of the leading organisations in the local market," said Komson.

"The IPSTAR service has a footprint that covers the whole of Australia and the wireless technology eliminates potential broadband blackspots. For customers this means superior access to voice and data services, which in turn enhances their day-to-day operations."

Added Komson, "The agreement with Macquarie Telecom builds on the applications IPSTAR has already successfully integrated into the Australian market, such as database (Citrix) and Video Conferencing."

Thailand's IPSTAR Satellite Passes Final Test

iPSTAR-1 will provide direct-to-desktop, last-mile services, including new multimedia and data services to customers in Asia, India, and Australia.

www.satnews.com

BANGKOK, Jan. 10 2005/Satnews Daily/ — Thailand's Shin Satellite PCL has announced its new broadband iPSTAR-1 satellite is on schedule for launch in March after completing a final test on its antennae system.

Space Systems/Loral (SS/L), the U.S. manufacturer of the iPSTAR-1, informed Shin Satellite PCL last week that the spacecraft has now successfully concluded its antenna patterns and end-to-end payload tests in compact antenna test range (CATR), the last of a series of tests to complete qualification of the satellite.

iPSTAR, Shin Satellite said, is on schedule and the company expects the final preparations for delivery by SS/L to be made next with the completion of this important qualification step.

CATR is an examination of the complete end-to-end communication channels including transmit and receive performance and coverage of service areas of the satellite after the satellite had been subjected to simulated space (thermal vacuum test) and launch environments (dynamics test).

Then, SS/L will perform final routine electrical systems checks and preparation of the satellite for delivery. The pre-shipment review of iPSTAR satellite is scheduled for the third week of January 2005 to review the readiness of the satellite prior to shipment to its Arianespace launch site in Kourou, French Guiana in South America.

Shin Satellite added with the completion of this important qualification step, the satellite is on schedule to move on to the final preparations for delivery by SS/L.

IPSTAR Satellite Completes CATR Testing

www.thaicom.net, January 2005

Nonthaburi, Thailand - Space Systems/Loral (SS/L), the U.S. manufacturer of the IPSTAR-1 satellite, has informed Shin Satellite Plc., that the spacecraft has now successfully concluded its Antenna Patterns and End-to-End Payload tests in Compact Antenna Test Range (CATR), the last of a series of tests to complete qualification of the satellite. The satellite is on schedule and the company expects the final preparations for delivery by SS/L to be made next with the completion of this important qualification step.

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IPSTAR In The News 2004

Shin Satellite Taps Tandberg Television for Video Distribution Upgrade and DTH Network

www.satnews.com, Hong Kong, Sept. 3 2004/Satnews Daily/ — Thailand's Shin Satellite has selected Tandberg Television to provide its 5000 compression system in carrying Shin Satellite's video distribution across the Asia Pacific region.

Tandberg said it won the contract because of its ability to deliver the industry's highest performance compression solutions, supported with a long history of pioneering development in the satellite broadcasting market.

Shin Satellite was a very early adopter of MPEG digital technology, pioneering Digital DTH using the Ku-band frequency in 1993 and was the world's first full scale user to adopt the MPEG-2/DVB standard in May 1995. This early system included some of the first Tandberg Television MPEG-2 products to ship anywhere in the world.

Teerayuth Boonchote, vice president of Operations of Shin Satellite said Tandberg Television was instrumental in the launch of Shin Satellite's DTH and satellite distribution network. "Today, the company continues to support us in the migration to the latest generation of equipment that enables us to roll-out more cost-effective and operationally efficient systems," he said.

The new system will be used for both the Direct-to-Home (DTH) and Global Digital TV distribution activities of Shinsat. The DTH Ku-band service allows Thailand's major pay television operator, The United Broadcasting Corporation Group (UBC), to provide up to 50 digital channels to its customers. Using Shinsat's Thaicom 3 Global Beam for Global Digital TV distribution, broadcasters and channel owners need only uplink once to ensure that over three billion people on four continents can potentially view their channel.

Australian Telco AirNet to Roll Out IPSTAR Services Nationwide

Education to benefit from high speed internet access via satellite

www.thaicom.net, 2004

Nonthaburi, Thailand – IPSTAR Co. Ltd., a subsidiary of Shin Satellite Plc., one of Asia's leading satellite operators, has signed a contract with telecommunications carrier AirNet Commercial Australia Ltd., to roll out a next generation satellite-based Internet service across Australia offering remote, regional and metropolitan subscribers access to high-speed, cost-competitive broadband facilities. Over the next five years, AirNet is expected to increase its bandwidth requirements to over 300 Mbps.

Under the agreement, AirNet has become a major channel partner for IPSTAR in Australia, an arrangement expected to enable AirNet to rapidly expand nationally. The service, to start in September 2004, will employ the IPSTAR gateway in Sydney, Australia and a conventional satellite until the IPSTAR-1 satellite is available for service early 2005.

Mr. Komson Seripapong, IPSTAR General Manager for Australia and New Zealand, said, "The contract to provide service to AirNet marks a milestone for IPSTAR as we a now taking a foothold in the Australian market. Following closely on deals made in New Zealand, we think the vast distances of Australia and the difficulties in laying terrestrial broadband networks economically make IPSTAR a natural choice for business and government, where reasonably priced communications is a major concern."

AirNet's Director of Sales and Marketing, Mr Peter Fortunatow, said, "The new service has a footprint that covers the whole of Australia and because it does not rely on copper wire technology, there are no broadband blackspots. It means that all suburban, regional and remote business and domestic users will be able to access high speed broadband services at a cost comparable to existing ADSL services. The new satellite platform will provide users with access to all Intranet, Internet, Voice over the Internet Protocol (VoIP), Video Conferencing and Email services, as well as future video on demand services.

“The new service is way ahead of any comparable satellite service and will be the most significant broadband development in coming years,” Mr. Fortunatow said.

Initial users are targeted to be educational institutions in regional and remote South Australia, taking advantage of the service to provide broadband access where there is a lack of terrestrial based infrastructure. In addition to this the IPSTAR/AirNet service has been approved to provide broadband Internet access to general practitioners through the Broadband for Health Program. This Australian Government initiative will provide AUS $35m over the next 3 years to support the uptake of broadband services for General Practices and Aboriginal Community Controlled Health Services nationwide.

For Editors:

AirNet Commercial Australia Ltd (AirNet) was founded in 1999 and specialises in the provision of telecommunications services which include broadband wireless networks using high frequency microwave technology, mobile wireless LAN networks, satellite services for regional areas and ISP services such as ADSL, dial-up and hosting. AirNet has especially invested in research and development of broadband wireless networks. For more information, please visit www.airnet.com.au.

AirNet iPSTAR Satellite Products

www.airnet.com.au - 2004

IPStar satellite is ideal for people and organisations who need broadband internet but can not access ADSL or ISDN services.

Spot Beams are situated over the bulk of the Australian population and require smaller dish sizes for satellite access. The shape beam covers all of Australia but is only for use by people outside the spot beams. Please note that dish size and spot and shape beam determinations are subject to verification by AirNet.

There are many plans to suit your budget and usage requirements.

Spot Beam

Service	Dish and Indoor Unit	Typical Dish Size	Installation Fee	Down/Up	Monthly Fee	Quota	Excess
256/64	$2990.00	84cm	POA	256/64	$75.00	1GB	11c/MB
256/128	$2990.00	84cm	POA	256/128	$105.00	2GB	11c/MB
512/512	$2990.00	84cm	POA	512/512	$250.00	2GB	11c/MB
1024/128	$2990.00	120cm	POA	1024/128	$490.00	3GB	11c/MB
1024/512	$2990.00	120cm	POA	1024/512	$750.00	5GB	11c/MB
1024/1024	$2990.00	120cm	POA	1024/1024	$1420.00	7GB	11c/MB
2048/1024	$3670.00	180cm	POA	2048/1024	$1960.00	10GB	11c/MB
2048/2048	$3670.00	180cm	POA	2048/1024	$4450.00	14GB	11c/MB
4096/2048	$3670.00	180cm	POA	4096/2048	$6400.00	19GB	11c/MB

Shape Beam

Service	Dish and Indoor Unit	Typical Dish Size	Installation Fee	Down/Up	Monthly Fee	Quota	Excess
256/64	$2990.00	120cm	POA	256/64	$79.00	1GB	11c/MB
256/128	$2990.00	120cm	POA	256/128	$109.00	2GB	11c/MB
512/256	$3670.00	120cm	POA	512/256	$275.00	2GB	11c/MB
1024/128	$3670.00	120cm	POA	1024/128	$499.00	3GB	11c/MB
1024/512	$3670.00	180cm	POA	1024/512	$790.00	5GB	11c/MB
1024/1024	$4640.00	240cm	POA	1024/1024	$1290.00	7GB	11c/MB
2048/1024	$4640.00	240cm	POA	2048/1024	$1999.00	10GB	11c/MB
4096/1024	$4640.00	240cm	POA	4096/1024	$3990.00	19GB	11c/MB

BayCity New Zealand Chooses IPSTAR for Rural Services Nationwide

Partnership with Ericsson leads to fruitful results

www.thaicom.net, 2004

Nonthaburi, Thailand - IPSTAR technology has been chosen by BayCity New Zealand Limited for broadband satellite services throughout New Zealand, under a five-year contract signed between IPSTAR's global partner, Ericsson, and BayCity. IPSTAR is a subsidiary of Shin Satellite Public Company Limited, one of Asia's leading satellite companies. Services commence 1 September 2004, using an IPSTAR gateway in Australia then moving traffic to a new gateway in Auckland, New Zealand for use with the new IPSTAR-1 broadband satellite.

Under the contract, BayCity and their customers will receive IPSTAR's next generation two-way satellite broadband services through Ericsson. These services target Fonterra's farmer shareholders and rural customers, residences and businesses throughout rural New Zealand. BayCity also works closely with Telecom New Zealand, which successfully completed 12 months' testing of IPSTAR. BayCity's satellite service will provide almost 100% broadband coverage across New Zealand and the outlying islands to close the digital divide between rural, urban and metropolitan areas.

Mr. Komson Seripapong, IPSTAR General Manager for New Zealand and Australia, says, "We are very proud that BayCity has chosen IPSTAR to provide more New Zealanders with access to the internet. IPSTAR is designed to provide equal access for everyone, wherever they live. We have implemented projects in China, India and Indochina and expect the New Zealand and Australian markets to become very enthusiastic about the benefits of IPSTAR, especially in terms of quick deployment for market expansion and a multitude of IP based applications."

BayCity is launching their commercial service immediately, with internet speeds of up to 2Mbps per subscriber, up to 8Mbps once the new IPSTAR satellite is launched in early 2005. The New Zealand trials effectively demonstrated fast internet, streaming video, voice and video-conferencing. A number of those involved in the trials have already signed up for the BayCity service.

Barry Payne, Managing Director of BayCity says, "This satellite service is set to change the face of rural NZ, allowing customers access to broadband services and high-speed internet regardless of location. It provides a tremendous opportunity to drive and facilitate broadband uptake in rural New Zealand."

Brian Phillips, Managing Director of Ericsson in New Zealand said: "I'm delighted to continue working with BayCity as we tailor solutions for the New Zealand rural market. Our experience in complex satellite technology, particularly integrating real-time voice and video conferencing applications will help close the digital divide between the urban and rural markets."

For Editors:

About BayCity New Zealand Limited Based in Timaru (South Island, New Zealand) and with Field Service Representatives in key areas nationwide, BayCity New Zealand is one of New Zealand's oldest Internet businesses having served national & international customers since 1997. Operations have developed from traditional ISP services into the present day business that include broadband network services, on-site equipment installation plus a range of e-farming solutions distributed under the FarmSide brand.

About Ericsson. Ericsson is shaping the future of Mobile and Broadband Internet communications through its continuous technology leadership. Providing innovative solutions in more than 140 countries, Ericsson is helping to create the most powerful communication companies in the world.

IPSTAR Passes Thermal Vacuum Test

Major milestone passed as satellite nears completion date

www.thaicom.net, August 2004

Nonthaburi, Thailand – IPSTAR Co. Ltd., a subsidiary of Shin Satellite Plc., has been informed by SS/Loral, the U.S. manufacturer of the IPSTAR-1 satellite, that following the successful completion of critical thermal vacuum testing the satellite will be entering the final phase of testing before delivery.

IPSTAR-1, the largest commercial satellite ever built, has been undergoing a series of stringent trials at the facilities of SS/Loral. The satellite was placed in a chamber where it was subject to intense heat and cold while in a vacuum, much as it will eventually experience in its geostationary orbit 35,000 kilometers above the earth. Successful testing has now significantly decreased many major risks associated with the construction of a satellite of this magnitude.

The final series of tests commences with a Dynamic Test. SS/Loral will attach the antennas and solar arrays to the satellite, as they will be on take-off. IPSTAR-1 will then be subjected to vibration and acoustic simulations to replicate the forces it will experience at launch. This will confirm the integrity of the whole satellite. The craft will then undergo testing of its ability to send and receive signals, called a Compact Antenna Range Test (CATR), followed by an electrical test of the other electronics onboard. The reflectors, solar arrays and batteries will then be permanently attached ready for launch. The satellite should be ready for delivery to the company before the end of 2004 and will take two to three months more for the satellite to be installed in the launch vehicle, tested then launched from Arianespace’s spaceport at French Guiana, South America.

Shin Satellite and IPSTAR Executive Chairman, Dr. Dumrong Kasemset, expressed satisfaction that the company now has a clear roadmap leading to the launch of the satellite.

“We have now put the most critical phase of the testing behind us and are pleased to inform shareholders and customers that shipment will be within this year,” he said. “To safeguard shareholders and lenders, we have always insisted on full and comprehensive testing. A satellite cannot be recalled for adjustments once it has been launched, and we have been determined to ensure the project’s success by rigorous testing and re-testing,” said Dr. Kasemset. “SS/Loral has informed us that the satellite will be ready to ship within this year, so we are looking forward to the launch and commencement of services immediately after.”

New IPSTAR Service Launched in Laos

Mobile Trunking to extend telecoms infrastructure nationwide

www.thaicom.net, 9 July 2004

Nonthaburi, Thailand 9 July 2004 – IPSTAR Co. Ltd., a subsidiary of Shin Satellite Plc., today announced the opening of its new IPSTAR gateway in Laos and the first commercial launch of its IPSTAR Mobile Trunk over Satellite solution. The low cost application using IPSTAR technology is designed to provide rural mobile telephony service directly to rural and remote areas where there is a lack of terrestrial infrastructure, such as microwave or fiber optics. Investing in such terrestrial infrastructure for these areas would be uneconomical. Secondly, IPSTAR Mobile Trunk application can be utilized to expand the main mobile coverage areas very quickly and effectively compared to terrestrial infrastructure. Lastly, it can also be used for ad-hoc or special events where the mobile operator requires additional voice channels on a temporary basis. The IPSTAR Mobile Trunk Application directly connects a mobile operator's Base Station Controller (BSC) to a Base Transceiver System (BTS) at the remote site.

Mr. Atip Ritaporn, Executive Director of Lao Telecom Co. Ltd., said, "We soft launched an IPSTAR broadband internet service in September 2003 using the IPSTAR gateway from Lad Lum Kaew, just outside Bangkok, Thailand, serving such customers as the French and Singapore embassies and the UNDP in Laos. Under an agreement signed 10 March 2004, we installed the IPSTAR gateway in Laos by the end of June. Initially, we intend to use IPSTAR for our GSM 900 MHz and 1800 MHz network expansion, but we will soon start to implement a very cost effective digital 450 MHz and 800 MHz CDMA network for home and office use using IPSTAR transmission. If successful, Lao citizens of the future may not use PSTN fixed line phones at all, but 3G compliant CDMA 450 MHz wireless local loop phones and faxes and CDMA 800 MHz mobile phones. Cost per line for the CDMA 450 MHz system is 6-7 times less than conventional PSTN.

"The IPSTAR system is flexible. Laos is a mountainous and heavily forested country in parts, so we were unable to reach everywhere with conventional networks. We can now push forward with telephone network expansion to these inaccessible areas and provide services like multicast E-Learning to communities as well as E-Government and thus assist the country's development," Atip said.

Mr. Piyawat Jriyasethapong, Shin Satellite Regional Sales Director, added, "We estimate that for remote areas with low density populations, this solution should be up to three times less costly for mobile operators than equivalent terrestrial options, like microwave. We foresee being able to cover 85% of the country by the end of the year. Besides a huge coverage area, our major advantages are the flexibility satellites offer; for instance, installation in a remote area would take less than a week, compared to three or four months for microwave; security and service availability are also more stable. Ground based networks in some areas are prone to security issues, and one microwave tower out of action puts out the entire transmission leg. We do not face these uncertainties with satellite communications.

"The industry in developing countries with harsh geographical conditions like parts of Asia, Latin America and the Middle East, will benefit from IPSTAR in that it will become more economical to expand telecommunications networks for the first time. We foresee a global demand for this technology," said Piyawat.

"The IPSTAR Mobile Trunk over Satellite solution is being implemented in cooperation with two leading multinational mobile equipment vendors, Alcatel and Ericsson. IPSTAR is excited at the prospect of taking this technology around the world," Piyawat added.

ICONZ to Deploy IPSTAR Service in New Zealand

www.thaicom.net, 10 June 2004

Nonthaburi, Thailand – 10 June 2004 – IPSTAR Co., Ltd., is to supply IPSTAR satellite broadband services to ICONZ in New Zealand, for a five-year period. The service will be deployed using the current IPSTAR gateway in Sydney, Australia and will be transferred to the IPSTAR gateway in Auckland, New Zealand once the IPSTAR-1 satellite is launched. The deal was won through a competitive bid against other leading global satellite and integrated system vendors. Target customers for this service are business and rural users in New Zealand's different regions, and special broadband applications, including virtual private networks for businesses and Distance Learning for schools for instance.

Chief Commercial Officer for IPSTAR, Mr. Yongsit Rojsrivichaikul, said, “We are honored to enter into this contract to provide service to ICONZ. It is significant for IPSTAR as New Zealand is one of our primary markets and this contract will account for 40% (200Mbps) of the total IPSTAR capacity over New Zealand at the end of the fifth year. Together, we will introduce an advanced and affordable broadband solution to the mainstream, mass market.”

ICONZ is a leading ISP in New Zealand whose major customers are business users in urban areas. The company offers its customers various value added services. The ICONZ range of broadband services provide fast, reliable and secure connections, including point-to-point and DSL, through to Virtual Private Networks (VPNs).

ICONZ General Manager Sean Weekes said "We are very happy to be able to supply this service to our nationwide customer base as it gives us the ability to reach areas that have been 'crying out' for high-speed and affordable broadband where none was available in New Zealand before. The satellite service also has the added-value of being able to service the ever-growing voice over IP market in New Zealand for the future."

Chinasat to use IPSTAR in China

Revolutionary IPSTAR technology to be operating in China in 2004

www.thaicom.net, February 23, 2004

Nonthaburi, Thailand - February 23, 2004 - IPSTAR Co. Ltd., a subsidiary of Shin Satellite Public Company Limited, has signed an agreement with China Satellite Communications Corporation (Chinasat). Chinasat will commence satellite-based broadband service using IPSTAR equipment technology and their own satellites, with deployment plan up to 2,000 user terminals in 2004 and 10,000 user terminals in 2005. IPSTAR will be used to provide a broad range of broadband applications and high speed internet access such as E-government, Corporate Intranet and Virtual Private Networks (VPN), and Voice over IP (VoIP).

Chinasat is China's national satellite operator and one of the five telecommunications companies with the most extensive telecom licenses including satellite communications. It has projects around the country that require very high-speed data transmission to be deployed quickly nationwide in which IPSTAR is considered the best solution to serve. It has more than one hundred seventy branches all over the country, and together with IPSTAR solution, this will play a crucial and significant role in placing Chinasat prominently on the road to a comprehensive satellite communications infrastructure.

Mr. Makin Petplai, Vice President of IPSTAR Co. Ltd. added, "The China market has enormous potential, so we are honored to work with such a very capable partner like Chinasat to deploy the IPSTAR service throughout China. Chinasat's service deployment of IPSTAR solution is a major step forward in the progress of our IPSTAR program, following the landmark agreement on frequency coordination made with the Chinese authorities late last year."

China is the biggest market in the Asia-Pacific Region for broadband services and for IPSTAR as it has more than 25% of its capacity over China and is able to serve several million users. Currently there are more than 80 million internet users and 8 million broadband users, and broadband is still growing fast. Furthermore there are many un-served areas that will require satellite service due to China's diverse geographical conditions, from mountainous areas to deserts.

The IPSTAR system provides high-speed, satellite based broadband services at a better cost-structure than any other alternative solutions. It supplies massive capacity that allows its partners to build a very large application platform to serve hundreds of thousands of users in each country, while still enjoying the advantages unique to satellites, such as nationwide coverage and deployment flexibility.

The IPSTAR broadband satellite project is one of the world's earliest satellite broadband systems to commence its commercial service with its first generation deployment in use since 2002. When launched in 2004, the IPSTAR satellite will be capable of providing broadband access service to millions of users in some 20 countries throughout Asia-Pacific, complementing other terrestrial broadband solutions such as DSL and cable modem.

STPI and iPSTAR to commence iPSTAR Service in India

Revolutionary iPSTAR technology expected to be operating in India

www.thaicom.net, February 18 2004

Nonthaburi, Thailand - February 18 2004 - iPSTAR Co. Ltd., a subsidiary of Shin Satellite Public Company Limited, has signed an iPSTAR Bandwidth Agreement with Software Technology Parks of India (STPI). Under the Agreement signed with STPI in February 2004, STPI will be iPSTAR's strategic partner by means of the purchase of up to 400 Mbps of bandwidth on the iPSTAR satellite. This bandwidth will be used to provide a broad range of broadband applications and services such as high speed Internet Access for business and consumers, Rural Telephony, E-Government, and E-Education.

Mr. S.N. Zindal Director General of STPI said, "STPI has been handling several projects which require very high-speed data transmission that can be rolled out anywhere in India. We believe that iPSTAR technology is the best solution, that allows us not only to deploy high-speed broadband services cost effectively, but it is also possible to provide various kinds of broadband applications on a national scale. Given the commercial and technological advantages of the iPSTAR technology, we are confident to participate as a gateway operator, for which we signed an agreement a few months back. This capacity will be fully deployed along with thousands of user terminals within the first 12 months of the launch of the satellite. This is a very important selling point in deploying a comprehensive broadband service and we believe that iPSTAR will help STPI increase the gamut of services offered by it tremendously."

Mr. Pradeep Unni, Vice President of iPSTAR Co. Ltd. added, "The Indian market has enormous potential so we are honored to work with such a very capable partner like STPI to deploy the first iPSTAR Gateway and Service for the Indian market. India is one of the biggest markets in Asia-Pacific for broadband services and for iPSTAR, given the size of country and population, and its leadership as the world's largest IT and software developer. This iPSTAR service deployment in India is a major step forward in the progress of our iPSTAR program."
STPI is an organization under the Ministry of Communications and Information Technology, Government of India and was set up in 1991, with the objective of encouraging, promoting and boosting software exports from India. There are more than 6,000 software developer units registered with STPI and these have been playing a crucial and significant role in placing India prominently on the world IT map.

The iPSTAR system provides high-speed satellite based broadband services at a better cost-structure than any other alternative solutions. It supplies massive capacity that allows its partners to build a very large application platform to serve hundreds of thousands of users in each country, while still enjoying the advantages unique to satellites, such as nationwide coverage and deployment flexibility.

The iPSTAR broadband satellite project is one of the world's earliest satellite broadband systems to commence its commercial service with its first generation deployment since 2002. When launched in 2004, iPSTAR will be capable of providing broadband access service to millions of users in some 20 countries throughout Asia -Pacific, complementing other terrestrial broadband solutions such as DSL and cable modem.

IPSTAR Clinches a Large Contract with Indian Customer

Broadband Pacenet (India) becomes the first service provider of IPSTAR in India

www.thaicom.net, 2 February 2004

Nonthaburi, Thailand – 2 February 2004 - Shin Satellite Public Company Limited today disclosed that its affiliate company IPSTAR Co., Ltd., has signed a contract with Broadband Pacenet (India) Pvt. Ltd., to supply 1,100 IPSTAR user terminals for Broadband Pacenet to roll out an IPSTAR high-speed broadband Internet service throughout India over the next twelve months. The contract comes just one month after Shin Satellite’s service partner in India, the Software Technology Parks of India (STPI) received a Letter of Intent from the Department of Telecommunications of India to allow the use of IPSTAR technology.

Broadband Pacenet is a pioneer in India's cable television industry, with partners who have over 18 years' experience in the cable television market. The company provides LAN distribution in Western India and is now seeking to provide broadband using IPSTAR's advanced technology to promote penetration throughout India. This will entail using Ethernet wide area network (WAN) connections between an IPSTAR terminal and residences. Broadband Pacenet has developed a set-top box, using IBM chip technology, that has both an Ethernet and a coaxial connection, enabling the company to tap the non-PC market. Residential users can surf the Internet using a built-in Oregon browser (used by Sony's Playstation 2) and read e-mail all on their television set. The company will use always-on connections in Western and Northern India, including India's major cities like New Delhi, Mumbai and Chennai.

Mr. Jagjit Singh Kohli, Chairman of Broadband Pacenet (India) said, "We are pleased to deploy IPSTAR in India as it frees us from physical constraints. We can roll out much faster using IPSTAR's advanced satellite technology. We feel proud that we are now building the Internet backbone of the future."

"This is a major entry achievement for IPSTAR in India," said Mr. Pradeep Unni, Vice President of Shin Satellite Plc. "Within a month of our service partner and gateway operator, STPI, receiving a letter of intent from the Department of Telecommunications for the use of IPSTAR technology in India, this first signing for 1,100 IPSTAR user terminals is an indication of things to come. India is a strategic market for IPSTAR due not only to its growing strength as an IT powerhouse but its large population provides us with huge future demand. The strength of Broadband Pacenet in the Indian cable market will be a tremendous asset in our deployment of IPSTAR. We are pleased to assist in serving the expanding demand for Internet access in India without relying on the drawbacks of a terrestrial network."

Broadband Pacenet (India) Pvt Ltd. (BPIL) offers its broadband Internet services under arrangements using the cable network infrastructure of its affiliates. BPIL commenced operations in Dec 2002 and has built up India's fastest growing broadband Internet service provider. It currently provides services to over 10,000 subscribers under the brand name Pacenet. In addition to Mumbai, BPIL's network is being launched in Delhi, Hyderabad, Bangalore, Nasik, and Nagpur. BPIL is also well advanced in its plan for deployment of Pay TV and NVOD services over the IP Network using the HomeGenie Set Top Box. For further information, go to http://www.pacenet-india.com

Selected Pre 2004 News

SA Telco To Partner With OS Satellite Group

www.airnet.com.au, Media Release 13/11/03

South Australian Internet Service Provider and Telecommunications Carrier AirNet Commercial has stolen a march on rival telcos by clinching a partnership with leading Asia-Pacific satellite operator Shin Satellite Plc.

The agreement paves the way for a new generation of Internet services to be delivered to regional areas of Australia at comparable cost to city-based Internet services.

Initially, the AirNet – Shin agreement will see satellite data services delivered in native IP format to almost all locations across South Australia, offering highly cost effective and fast broadband Internet services to both business and household users.

Shin Satellite (www.thaicom.net) is the owner and sole promoter of the iPSTAR Satellite Broadband project (www.ipstar.com.au).

The partnership enables AirNet to fast-track the roll-out of its state-wide broadband infrastructure project as early as December this year.

AirNet director Mr. Peter Karidis said: “This is a truly unique service compared to any other satellite based broadband offering currently available in Australia.

“iPSTAR transfers data in a native IP format. No one else in Australia offers this commercially and the benefits of doing so are many. These include significant price reductions in wholesale bandwidth and improved capacity and throughput per individual user.”

Apart from providing satellite Internet services to regional Australia, the deal will also enable AirNet to fast-track the rollout of satellite broadband infrastructure specifically within South Australia during the first phase and throughout Australia as milestones are achieved.

Mr Karidis said the agreement with Shin provided a launching pad for the faster adoption of broadband satellite Internet services throughout regional and metropolitan areas.

“Satellite Internet is significantly under-utilised in Australia, but it is fast gaining acceptance as people realise the benefits in terms of price and speed,” he said.

“Some of the most common complaints with satellite based data services has been the ability to guarantee high quality and service availability levels at reasonable prices. Another problem has been countering the effects of inherent latency in satellite, and this has tempered demand for these sorts of services by business, especially when communication technologies such as video conferencing and VoIP are required.

“The service we are offering is very different in this regard. iPSTAR has adopted an acceleration technology that allows much faster transfer rates than previously available with conventional satellite technologies.

“We offer a dedicated, native IP data service at transfer rates up to 8Mbps download and 4Mbpss upload with SLA up to 99.8%. This is better than current terrestrial based ISDN services that are guaranteed to 99.7%. Latency issues relating to throughput have been dramatically reduced by the packet acceleration technology, allowing reliable and fast multicast services to be run over the link.”

The iPSTAR service also features a state of the art dynamic power allocation technology that automatically increases power to areas that may experience localised rain-fade or dense cloud interference problems.

“AirNet and iPSTAR are joining forces to fast-track the introduction of satellite Internet services throughout Australia, with an initial focus on South Australia.

“There has been a great deal of media focus on the lack or slowness of Internet services to regional Australia. AirNet’s agreement with iPSTAR has the potential to be able to solve these issues in a cost-effective fashion.

“In the past, the problem has been providing services at a comparable cost to city-based landline Internet services. The iPSTAR rollout enables us to do this. It’s a real coup for regional Australians.”

iPSTAR has spent more than $US400 million building its new satellite and has invested almost $70 million in satellite broadband infrastructure in Australia.
Mr Karidis said that although the focus was on creating tangible benefits to regional users, there was broad application for the satellite Internet service.

“Many companies and private individuals do not have access to ADSL services because of their distance from a telephone exchange or the presence of optic fibre multiplexers which prevent the delivery of copper-wire based broadband services,” he said.

“The use of wireless technology and satellite in particular to provide broadband access is an outstanding solution to these problems.

“It’s not just a rural problem. It’s one confronting many metropolitan Internet users.”

AirNet provides broadband services to a number of South Australian councils, schools and private businesses.

Recently, AirNet beat Telstra to win a unique contract to eliminate broadband Internet “blackspots” in an Adelaide northern suburb.

An agreement between the South Australian Government and AirNet particularly benefits businesses in northern suburban Wingfield, streamlining their data transmission and making it easier for them to win and secure millions of dollars with of business.

Under the agreement, several hundred companies based at Wingfield have access to broadband through a wireless network using high frequency microwave technology instead of traditional copper wire or fibre optic technology.

Mr Karidis said that many businesses in Wingfield, particularly in the cast metals precinct, needed to be able to transfer large CAD files over the Internet, but were currently restricted to using slow traditional dial-up Internet connections.

“This new service enables companies in the Wingfield area to have the capacity to rapidly transfer large amounts of data, as well as access services such as video conferencing and voice across the Internet,” he said.

AirNet Commercial Australia Ltd (AirNet) was founded in 1999 and specialises in the provision of telecommunications services which include broadband wireless networks using high frequency microwave technology, mobile wireless LAN networks, satellite services for regional areas and ISP services such as ADSL, dial-up and hosting. AirNet has especially invested in research and development of broadband wireless networks.

AirNet is one of South Australia’s fastest growing companies with growth of 500 percent in the past two financial years. It presently has 20 employees.

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Shin Satellite Receives BOI Support with 8-Year Tax Holiday for IPSTAR

www.thaicom.net, 19 November 2003

Nonthaburi, Thailand - Shin Satellite Public Company Limited (SET ticker: SATTEL), has received Board of Investment (BOI) privileges for its broadband satellite system, IPSTAR, providing a corporate income tax holiday on foreign revenues for eight years.

The company revealed that a BOI meeting on 19 November 2003 resolved to support the project, which is to offer high speed internet services via its broadband satellite, IPSTAR. The project serves customers using a satellite, gateways and individual user satellite modem equipment. The Thai gateway is located just outside Nonthaburi, to the North of Bangkok. The service is expected to commence in 2004. The system is expected to have 18 gateways in 14 countries. The BOI agreed to waive corporate income tax for IPSTAR revenues earned abroad for eight years.

The IPSTAR project extends the use of telecommunications via satellite using new technology to meet the fast-growing demand for broadband Internet communications in the future. It will also play a part in helping Thailand to have one of the most modern communications technologies available, able to access information quickly and comprehensively, offering Thailand the potential to compete globally and effectively in the IT age.

Aussie bush to benefit from major infrastructure investment by new entrant, iPSTAR

www.thaicom.net, Aug 6, 2003

iPSTAR has invested 69 million AUD in satellite broadband infrastructure in Australia to date and today launched its first service offering at the iPSTAR conference in Sydney. iPSTAR will soon start work on two new multi-million dollar facilities in Broken Hill and Kalgoorlie to expand its service offering.

iPSTAR expects their offering to significantly drop the cost of delivering satellite broadband across Australia and New Zealand and predicts that it will create a more appealing economic model for the delivery of broadband to regional and remote areas.

As part of the launch, Ericsson and iPSTAR have signed a letter of intent and entered into exclusive negotiations for the provision of managed services to support iPSTAR's 1st generation satellite broadband platform and the project management of iPSTAR's 2nd generation gateway roll-out.

As part of the development of the iPSTAR Service, iPSTAR and Ericsson have launched a pilot service which started in July 2003. The pilot has been deployed in conjunction with negotiations between the two companies for a commercial roll out of the iPSTAR Service. The definitive agreement is expected to be signed this month.

Ericsson will manage the networks and work with iPSTAR distribution partners both wholesale and retail in Australia and New Zealand to provision the service on a day-to-day basis.

"Australians and New Zealanders need to have a choice of services that provide them with communications", noted Dr. Dumrong Kasemset, CEO of ShinSatellite, iPSTAR's parent company. "We believe the country is ready to consider new and innovative methods of communicating and iPSTAR is intended to provide them with a cost effective solution to their daily needs"

Moreover, we have always envisaged iPSTAR as a global system one day. Another reason for our serious consideration of Ericsson is what they have to offer on a global scale, with immediate plans to work together in a similar arrangement in Europe, South America and the Middle East'

We see Australia and New Zealand as the perfect markets to show how technology can help improve medical and educational services. In addition the capabilities of the iPSTAR platform will enable the delivery of a range of advanced applications for consumers and business such as corporate VPN, telephony on IP, video conferencing and video on demand to name just a few.

Tony Malligeorgos, Director of Marketing for Ericsson Australia added, "Ericsson Australia has been facilitating satellite broadband in Australia for several years now and we are particularly pleased to be involved with iPSTAR's new venture because we believe it will make satellite broadband more accessible for all Australians.

iPSTAR Company Limited, a Shin Satellite company.
The iPSTAR project plans to deliver broadband access to customers in the Asia-Pacific markets via a geostationary satellite. The largest satellite ever built, iPSTAR-1 has an aggregate capacity of 40 gigabits per second (Gbps) as compared with a conventional satellite's capacity of 2-3 Gbps. It is due to be launched in early 2004. iPSTAR will offer consumers high speed internet access and the ability to watch television or video films through an internet connection.

About Shin Satellite Plc:
Shin Satellite is one of the leading satellite operators in Asia with 3 Thaicom satellites in operation. For further information, please go to www.thaicom.net

About Ericsson
Ericsson is shaping the future of Mobile and Broadband Internet communications through its continuous technology leadership. Providing innovative solutions in more than 140 countries, Ericsson is helping to create the most powerful communication companies in the world. Read more at http://www.ericsson.com.au/press

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iPSTAR Set to Enter Australia and New Zealand

Thailand's Shin Satellite to cooperate with REACH

www.thaicom.net, May 21, 2003

Nonthaburi, Thailand, May 21, 2003 - Shin Satellite Public Company Limited of Thailand (SATTEL) has entered into a Memorandum of Understanding (MOU) with Reach Global Services Limited (a member of the REACH Group) to deploy its iPSTAR broadband satellite program in Australia and New Zealand. This cooperation brings together the services of Shin Satellite's iPSTAR technology and REACH's state-of-the-art global network and teleport infrastructure. The program is due to begin its first implementation period from June 2003 until October 2003. The introductory period is open for a select number of potential iPSTAR carrier customers and government organizations and will be available later for a larger group of participants such as Internet Service Providers.

The system will employ Intelsat Ku band satellite capacity with coverage of Australia and New Zealand that is being supplied by REACH. Shin Satellite will introduce its advanced iPSTAR Gateway in conjunction with high performance iPSTAR Professional Series user terminals capable of providing up to 4 Mbps download capacity and 2 Mbps of upload capacity. This performance is ideal to run applications that require high return speeds, such as Video Conferencing, Telemedicine and Long-distance Learning. The service will be provided using iPSTAR Gateway located at REACH's teleport in Sydney and will be available on Intelsat 804 for services covering Australia and New Zealand.

Dr. Dumrong Kasemset, Executive Chairman of Shin Satellite noted, SATTEL's strategy at this phase is to introduce its iPSTAR technology to the Australian and New Zealand markets prior to the launch of its iPSTAR 1 satellite in 2004. Australia is an ideal market for the broadband business because users there are sophisticated, and the large distances dividing the continent make it perfect for satellites. Australia has a population of more than twenty-two million with most able to afford high-end broadband service such as iPSTAR. Supply of efficient broadband access service today is far below demand, which should be an attractive market.

About Shin Satellite Plc:
Shin Satellite is one of the leading satellite operators in Asia with 3 satellites in operation, Thaicom-1A (120oE), Thaicom-2 and Thaicom-3 (both co-locate at 78.5oE), totaling 20 Ku-band and 49 C-band transponders. It also has extensive experience of end-to-end turnkey satellite service solutions, value-added services and other infrastructure, i.e., teleport facilities for satellite TV uplink, DTH services, global broadcast services, and Internet backbone and broadband services. Thaicom has an extensive customer base ranging across Asia, Africa, Europe and Australasia. With over 100 satellite television channels on its 3 satellites, it is considered one of the satellite TV hotbirds for Thailand, Indochina, India and the subcontinent, and Europe-Australia. Shin Satellite is a listed subsidiary of Shin Corporation, Thailand's leading telecom group with business interests in cellular mobile phones, Internet, satellite, data communications, etc.

About REACH
REACH is a joint venture between Australia's Telstra Corporation Limited and Hong Kong's PCCW Limited. It is Asia's largest international carrier of combined voice, private line and IP data services and one of the world's top ten carriers of international voice traffic. REACH's products and services include an extensive portfolio of voice, data, IP and satellite connectivity. It has interests in more than 40 submarine cable and satellite systems (including Asia's largest teleport), and operating licences and landing rights in most major markets including Hong Kong, Japan, Korea, Taiwan, Singapore, Australia, North America and Europe. REACH is headquartered in Hong Kong, with a significant presence in Australia and substantial businesses across Asia, North America and Europe. For further information, please visit www.reach.com

Shin Satellite Notifies the Rectification of Transponder Service Problem on Thaicom-3 Satellite

www.thaicom.net, February 7, 2003

Today at 1700 of February 7, 2003 Shin Satellite Plc notifies its rectification of Thaicom-3 satellite's anomaly in the power system of certain Ku-Band transponders which has caused a discontinuation of services in those affected transponders.

To rectify the problem, the company has rearranged customers on those affected Ku-band transponders to other transponders on Thaicom-1, 2 and 3 satellites where possible, in order to avail customers of continued services. It is noted that there is no impact on Thaicom-3's C-band transponders services.

For a latest update, the company has successfully recovered the services of most of Thaicom-3's Ku-Band transponders.

Nera sign broadband satellite contract with Shin Satellite

www.scandasia.com, December 2002

Nera ASA, through its wholly owned subsidiary Nera Broadband Satellite, has entered into an agreement with Shin Satellite to deliver gateways for use in the iPSTAR system, offering broadband communications via satellite.

The contract has a value of approximately NOK 125 million (USD 16.6 million). The agreement was signed in December 2002 and was registered as order intake in 2002.

Through the iPSTAR system, Shin Sat will supply low cost broadband services in the Asia-Pacific region. Nera has for several years cooperated with Shin Satellite on development of this system. With the present contract, Nera is confirming its position as one of the leading players in the market for next generation broadband via satellite.

"This agreement is another milestone for Nera. The iPSTAR project is innovative and the agreement that has been reached clearly states that Nera has a leading technological position within this market. We have faith in a broadband structure based upon satellite communications as an important and integral part of the total broadband communications market. It is also important for Nera, with the present situation in the telecom market, that the company can participate in projects of this magnitude," said CEO of Nera Bj ø rn Ove Skjeie.

Nera has already delivered many gateways that are now in operation for Shin Satellite. These gateways are serving broadband customers throughout the region, including those in Thailand, Malaysia and India.

The new contract Nera has signed with Shin Satellite covers 18 gateways. This year the iPSTAR deployment plan calls for them to be installed in anticipation of the start of commercial operations by the iPSTAR-1 satellite in early 2004, in target countries throughout Asia, including Thailand, Vietnam, India, China, Taiwan, Korea, Japan, Australia, New Zealand, Indonesia, the Philippines, Malaysia, and Cambodia.

"iPSTAR technology is considered the world's most efficient and cost effective -- with low cost, high bandwidth user terminals, and many times bandwidth improvement over other current technologies," said Dr Dumrong Kasemset, Executive Chairman of Shin Satellite.

The iPSTAR system will deliver high speed internet services via satellite, at speeds of 10 Mb/s and 4 Mb/s respectively to and from the user. The system is unique when compared with similar systems. The second generation of this system will consist of 92 Ku-spot beams, exclusive of video beams. With a data capacity of more than 35 Gb/s, millions of users in the area are able to use the system with low priced terminals. Asia is the part of the world where the number of Internet users is increasing the most, and satellites will be crucial in the development of this service as ground-based technologies have yet to make much headway.

The system that Nera is supplying will switch IP based traffic between low priced satellite terminals and international and national broadband networks. Delivery of gateways is scheduled for 2003, with the system becoming operational in 2004.

Shin Satellite Plc is a satellite operator offering C-band and Ku-band services for clients in Asia, Africa, Europe and Australia. The company owns and operates Thaicom 1A, 2 and 3. Thaicom satellites offer broadcasting services largely in Indo-China and India, but with customers extending from Europe to Australia.

Nera Broadband Satellite is a fully owned subsidiary of Nera ASA, a world-leading developer, manufacturer and supplier of fixed wireless and satellite communication equipment and systems. The Norwegian company also designs, develops, manufactures and markets point-to-point and point-to-multipoint radio link equipment, satellite terminals and gateways for mobile and fixed satellite communications.

iPSTAR in 2003 : Reaching for the Stars Will deploy 18 gateways in Asia-Pacific after its first year service anniversary

www.thaicom.net, December 3 , 2002

Bangkok - December 3 , 2002 - Shin Satellite Public Company Limited today announced that the First Generation iPSTAR satellite-based broadband services, using the new iPSTAR ground system technology with existing satellites, has reached its first year service deployment in Thailand, Malaysia, Myanmar, India, etc, since its service debut in Thailand in November 2001.

Next year iPSTAR deployment plan calls for 18 gateway installation in anticipation of the launch of iPSTAR-1 satellite later in the year, in target countries in Asia, including Thailand, Vietnam, Myanmar, India, China, Taiwan, Korea, Japan, Australia, New Zealand, Indonesia, the Philippines, Malaysia, and Cambodia. Currently, iPSTAR technology is considered the world's most efficient and cost effective - with low cost, high bandwidth user terminal, and many times bandwidth improvement over other current technologies.

Once launched, iPSTAR-1 satellite will be one of the largest communications satellites ever built, with a massive bandwidth capacity of 45 Gbps, almost equivalent to all satellites serving Asia today. iPSTAR-1 will offer much lower cost structure for both user terminals and bandwidth, and much larger bandwidth capacity unprecedented by any other satellite solutions, allowing it to serve mass broadband market to millions of users, with competitive product and cost to other terrestrial technologies.

"Shin Satellite is in a unique position," says Executive Chairman Dr. Dumrong Kasemset. "We are now the world's pioneer in creating a truly integrated solution for satellite broadband. These allow us to create technical and commercial synergy from the integration of gateways, terminals, satellite bandwidth and applications, which is a tremendous step forward for our industry in commercializing new advanced technology and providing end-to-end service to benefit customers. Moreover, iPSTAR is the only broadband satellite program in such advanced stage of development in technology, financing, and commercialization. We see great potentials in satellite-based broadband services made possible by iPSTAR technology and satellite."

L-3 Communications Selected By Shin Satellite To Provide Satellite Control Software For IPSTAR-1 Satellite

www.storm.com
HERNDON, VA, September 17, 2002 - Storm Control Systems, Inc. (L-3 Storm), a wholly owned subsidiary of L-3 Communications (NYSE:LLL), has been selected by Shin Satellite of Bangkok, Thailand, to supply the command and control software for the iPSTAR program. L-3 Storm will deliver a turnkey software suite, including its **InControl-*NextGeneration***™ (**InControl-*NG***) software, that supports satellite telemetry, commanding, ranging, orbit analysis and planning and data management. The suite will be used for all facets of iPSTAR-1 satellite operations.

In keeping with its commitment to provide leading-edge software solutions, L-3 Storm has teamed with Telesat Canada to combine **InControl-*NG*** with Telesat's Flight Dynamics System (FDS) product. The FDS platform is a flight-proven, easy-to-use suite of tools that can be used to determine, predict and control the orbits and spin-axes of geosynchronous satellites in a fuel-efficient manner during all mission phases.

Shin Satellite will use iPSTAR-1, a spacecraft with a hybrid Ka-/Ku-band communications payload, to provide direct-to-desktop, last-mile services, including new multi-media and data services to customers in Asia, India and Australia. The iPSTAR-1 spacecraft is a high-power 1300 series bus that is being manufactured by Space Systems/Loral. The iPSTAR-1 satellite is scheduled to begin service in early 2004.

L-3 Storm's **InControl-*NG*** product was selected to support the iPSTAR satellite thanks to its unmatched automation capabilities. "With **InControl-*NG***, Shin Satellite looks to reduce operational cost by automating spacecraft operations," said Dr. Thanapong Jaturavanich, satellite engineering manager for Shin Satellite. "**InControl-*NG*** will support our goal of automating activities such as ranging and the scheduling of spacecraft maneuvers and will ensure that iPSTAR customers receive continuous world-class service at all times."

Shin Satellite Public Company Limited is a subsidiary of Shin Corporation, Thailand's largest telecommunications company. Shin Satellite currently operates three satellites - Thaicom 1A, Thaicom 2 and Thaicom 3 - which provide a range of telecommunications services to customers in Asia, Australia, Africa, the Middle East and most of Europe, managed through the company's control center near Bangkok. For more information about Shin Satellite, please visit the company's web site at www.thaicom.net.

Telesat Canada is a world leader in satellite communications and systems management. Incorporated in 1969, the company made history with the launch of Anik A1 in 1972 - becoming the first company in the world to place a domestic geostationary satellite into commercial service. The company owns and operates a fleet of satellites for the provision of broadcast distribution and telecommunications services and is a highly respected consultant and partner in satellite ventures around the world. Additional information on Telesat Canada can be found on the company's web site at www.telesat.ca.

L-3 Storm offers end-to-end solutions for spacecraft command and control, payload processing, satellite integration, network management and remote equipment control. L-3 Storm solutions are characterized by the ability of a single system to control constellations comprised of several different types and models. Customers include the U.S. Air Force, Astrium, Boeing Satellite Systems, EarthWatch, Inmarsat, several Lockheed Martin divisions, Orbital Sciences, Raytheon, Space Systems/Loral, TRW and Telespazio. To learn more about L-3 Storm, please visit the company's web site at www.storm.com.

Headquartered in New York City, L-3 Communications is a leading merchant supplier of Intelligence, Surveillance and Reconnaissance (ISR) products, secure communications systems and products, avionics and ocean products, training products, microwave components and telemetry, instrumentation, space and wireless products. Its customers include the Department of Defense, selected U.S. government intelligence agencies, aerospace prime contractors and commercial telecommunications and wireless customers. To learn more about L-3 Communications, please visit the company's web site at www.L-3Com.com.

Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995: Except for historical information contained herein, the matters set forth in this news release are forward-looking statements. The forward-looking statements set forth above involve a number of risks and uncertainties that could cause actual results to differ materially from any such statement, including the risks and uncertainties discussed in the company's Safe Harbor Compliance Statement for Forward-looking Statements included in the company's recent filings, including Forms 10-K and 10-Q, with the Securities and Exchange Commission.

SHIN SAT Signs Five International Agreements for iPSTAR Broadband Services

www.thaicom.net, April 25, 2002

Bangkok April 25, 2002 Shin Satellite Public Company Limited has signed five agreements with companies to use its iPSTAR satellite broadband system for business and educational purposes. The company has signed a Framework Agreement with Shanghai VSAT Network Systems Co., Ltd. (SVC) to be an iPSTAR National Service Provider (NSP) in China. A Memorandum of Understanding (MOU) has also been signed with Videsh Sanchar Nigam Limited (VSNL), in India to provide an Internet backbone and international private leased circuit network. In Thailand, Shin Satellite has signed the agreements with SiamSat and Samart Telcom, VSAT providers, which will provide services using iPSTAR terminals to SME customers. A Memorandum of Understanding (MOU) with EdNet (National Education Network of Thailand) will provide iPSTAR technology to connect schools in a national education network.

Regarding the signing of the agreement with Shanghai VSAT, Mr. Yu Jianguo, President of Shanghai VSAT, said, "Shanghai VSAT is one of the largest VSAT enterprises in China. Several projects that we are handling require very high-speed data transfer that can be rolled out anywhere in China with good reliability and high efficiency. It is our intention to promote the use of broadband satellite system in the China market, and we feel that the iPSTAR system is the best solution. We believe that the iPSTAR system uses the most advanced technology to provide very high-speed broadband access at a very competitive cost per bandwidth so that we can readily compete with terrestrial networks. We are confident that we will be profitable using iPSTAR."

Shanghai VSAT is planning to provide the iPSTAR system, a high speed broadband Internet service to customers throughout China by the third quarter of 2002. Once the installation of an iPSTAR gateway is completed in China, SVC projects it will sell more than 5,000 iPSTAR user terminals nationwide. SVC will distribute iPSTAR user terminals in three major projects: a Community Information Center for the Ministry of Civil Affairs; for the Nationwide Welfare Lottery to connect to lottery terminals, and for two retail chains using a Virtual Private Network (VPN).

The Memorandum of Understanding (MOU) with Videsh Sanchar Nigam Limited (VSNL) India's recently privatized incumbent International Telecomunication Operator and India's largest ISP to provide iPSTAR high speed broadband Internet service distribution and IPLC service in India. According to the MOU, Shin Satellite and VSNL will jointly provide iPSTAR FG Service non-exclusively for the India market based on a Joint Service Commercial model to be worked out and included in the Definitive Agreements. In a joint effort to lower the cost structure, however, both parties have agreed to contribute the resources available to each party. To enable the service, SSA will set up an iPSTAR gateway system, while VSNL, the satellite operator of India, will provide the operations and maintenance of iPSTAR FG gateway, connectivity of appropriate bandwidth to its Internet backbone, sales , marketing and customer support. Shin Satellite and VSNL, are confident that iPSTAR will be able to expand the broadband satellite Internet market in India. The commencement of iPSTAR service in India is planned for the fourth quarter of the year 2002

In Thailand, Shin Satellite and SiamSat Network Co., Ltd. have signed an agreement for SiamSat to become an iPSTAR service provider. SiamSat is a current customer of Thaicom's VSAT services. Mr. Surasak Yurayrat, Managing Director of SiamSat Network commented that, "Recently, the company has been developing its business by searching for the most flexible technology available today and to use that in innovative ways. In addition to flexibility, we have been looking for reasonable prices compared to cable modem or ADSL. The rates to be offered for leasing iPSTAR transponders are reasonable enough to believe that the company will be able to expand it broadband business targets. SiamSat will provide VSAT services for large SME customers in the banking, finance, gas, and import and export industries.

Shin Satellite and Samart Telcom Plc. signed the Letter of Intent to become an iPSTAR service provider. Samart Telcom is one of the largest VSAT providers in Thailand. Mr. Pornchai Kaivichean,Managing Director of Samart Telcom stated that " VSAT business is very competitive in term of technology and pricing .There is an increase in bandwidth-on- demand and transactional type services together with internet and intranet services .Due to this increase in demand, the company has been searching for the most flexible and cost-effective technology available today and we feel that. iPSTAR is the most suited technology that can transmit information at high speeds and can be set up with internet and intranet. The competitive rates of the transponder leasing and user terminals will enable the company to compete aggressively in the broadband market in Thailand and serve the needs of various market segments.

A Memorandum of Understanding (MOU) has also been signed with EdNet (National Education Network of Thailand to provide iPSTAR technology in order to create a network and platform service for national education content. This will connect all schools and education institutions under the control of the Ministry of Education and the Ministry of University Affairs. In the first stage, Shin Satellite expects to install the iPSTAR system in more than 1,082 schools nationwide. This is expected to expand to more than 40,000 schools by 2005.

Dr. Tanakorn Auanaoon, the director of IT Management for Education Development, Office of the Under-Secretary-General to the Ministry of University Affairs said, " EdNet is cooperating with Shin Satellite to use iPSTAR for a platform service and national education network due to the efficiency of iPSTAR technology. This will be used for long-distance interactive learning and information-on-demand with multicast points. In additional, the rates to be offered for leasing iPSTAR transponder are reasonable with compatible size and promptly service"

Shin Satellite Public Company Limited is currently holding its annual iPSTAR Conference 2002 at the Siam Inter Continental Hotel in Bangkok. Major telecom and broadband companies are participating in the two-day conference on planning the expansion of a broadband customer base nationwide. Participants also learn about the installation of terrestrial gateways and user terminals.

Mr. Yongsit Rojsrivichaikul, Vice President of Shin Satellite, noted that, "This is the third annual iPSTAR conference. We aim to continue expanding the number of our partners under the iPSTAR project. The company plans to co-operate with them to install more iPSTAR gateways and user terminals. The conference includes a series of iPSTAR applications for various uses. On this occasion, a Yankee Group representative will participate as one of the speakers on the direction of the broadband business in Asia," he said.

"IPSTAR-1, Shin Satellite's new broadband satellite, can deliver more than 35 Gpbs of data - more than twenty times ordinary satellites. The rates to be offered for leasing transponder space are reasonable enough to believe we can expand into areas outside of Thailand, for instance, Malaysia, China, New-Zealand and Myanmar are potential customers," said Yongsit.

The US Ex-Im Bank, Coface Group of Finance, CITIBANK and BNP Paribas has approved loans for the iPSTAR Project. The company has chosen Arianespace of France to launch the satellite in 2003.

Arianespace Chosen to Launch iPSTAR for Shin Satellite

www.thaicom.net, April 18, 2002

Bangkok - Shin Satellite Public Company Limited has chosen France's Arianespace to launch its new broadband satellite iPSTAR-1 in 2003. The company will receive export credit funding from Coface of France to finance up to 85 percent of the launch services.

"We are satisfied that Arianespace has the experience, and an excellent track record, to provide us with a successful launch," said Dr. Dumrong Kasemset, Executive Chairman of Shin Satellite. "The iPSTAR project is now on track and proceeding well."

Shin Satellite received approval of its request for an export credit guarantee from the Export Import Bank of the United States in March 2002 to the amount of US$ 250 million, which was estimated to cover 85 percent of the US content of the project. The Company has agreed to allow the Coface Group of France to participate in the complete package by providing export credits for 85 percent of the French and German contents required for the project, notably the launch costs, which are estimated to be about US$ 90 million. Ex-Im financing will cover mainly satellite construction in the US by SS/Loral. Shin Satellite is also working closely with a group of commercial lenders, led by Citibank and BNP, who will arrange for the remaining amount of financing required by the project.

First Demonstration of iPSTAR Ground System a Success

Thaicom customers witness historic demonstration of technology that promises to revolutionize broadband Internet services via satellite

www.thaicom.net, April 27, 2001

Phuket, - Shin Satellite Public Company Limited successfully demonstrated the operation of its new iPSTAR two-way broadband Internet satellite ground system for current customers at the Thaicom International Users Conference in Phuket, South Thailand, on April 27. This is considered an important milestone for the iPSTAR project as it nears service commencement. The project is moving ahead as planned following the delivery of the gateway by Norwegian company Nera SatCom and the prototype terminal and headend from ECC of the USA.

The demonstration tested the service of a high speed broadband Internet connection from the iPSTAR gateway in Bangkok to the terminal in Phuket via Thaicom 3. By using Thaicom 3's Ku-band transponders and the iPSTAR ground system, Shin Satellite can offer customers increased broadband service efficiency and lower costs prior to the full commercial launch of services in 2003. At that time, its next generation broadband satellite, iPSTAR-1, will provide up to 40 gigabits per second of capacity to the Asia Pacific Region.

"This is a truly revolutionary product and one of its kind in the world that, at a price point of US$ 1,000 per set, costs about one fifth of current VSAT terminals and antennas smaller than one meter but with several times the transmission speed," noted Mr. Paiboon Panuwattanawong, Vice President for the Advanced Satellite Department. "The iPSTAR project will bring down the cost of broadband via satellite to be competitive with terrestrial equipment like ADSL and cable modem."

Following the demonstration, Shin Satellite expects to soft launch commercial use of the ground system in Thailand, Malaysia and some other Asian countries within 2001. In the early stages of deployment, each terminal's maximum downlink speed will be 7.7 Mbps, rising to more than 10 Mbps with the launch of iPSTAR-1 while the uplink speed will go from 512 Kbps up to 4 Mbps per terminal or user.

"We already have both domestic and international customers waiting to use the terminal," said Mr. Yongsit Rojsrivichaikul, Shin Satellite's Vice President of International Sales. "In Thailand our current VSAT customers are interested because of its price-performance advantage. Moreover, our own domestic ISP, CS Internet, will commence marketing the equipment to customers requiring a high speed connection to the Internet.

"VSAT has not really been developed for several years," concluded Yongsit, "and the price makes it a last option. We eventually aim to provide a 'last mile' service to people that will be their first choice for Internet access in the future."

First Step for iPSTAR Gateway Spectrum Acquisition Completed

Frequency Allocation in Australia provides green light for project

www.thaicom.net, January 15, 2001

Nonthaburi, Thailand--January 12, 2001--Shin Satellite, which is building the Asia's Pacific first dedicated broadband Internet satellite communications system, iPSTAR, has completed the first step in establishing an iPSTAR gateways in Australia. Since November 2000, the Australian Communications Authority (ACA) allocated 27.35-27.50 gigahertz bandwidth of the Ka-band covering the Western and Southern parts of Australia to Shin Satellite, which will be used by its gateways in that country under the iPSTAR project. Two gateways are planned to be set up in Australia.

"We are now moving ahead with the iPSTAR project," said Shin Satellite Executive Chairman, Dr.Dumrong Kasemset. "Gateways in the West and South of Australia will allow our first broadband satellite, iPSTAR-1, to cover the whole of the country."

IPSTAR-1 will allow two-way connections to the Internet at speeds of up to 8 Mbps. By utilizing state-of-the-art techniques, the satellite will have the total capacity of 40 gigabits per second, making its bandwidth highly competitive to consumers, on a par with terrestrial technologies like DSL and cable modem. The Australian frequency will be used for the iPSTAR-1 satellite and gateways.

"When the gateways are used in conjunction with our iPSTAR terminal, available later this year, they create the most cost-effective high-speed Internet solution for anyone living in the areas not covered by comparable terrestrial services. Australians are very Internet savvy and are demanding an inexpensive broadband solution," said Dr.Kasemset. "We foresee great demand for our services in Australia. When the our services commence in the year 2003, we expect to have many head-ends to take care of in the area under the iPSTAR-1 satellite coverage."

In addition to Thailand and Australia, Shin Satellite is looking for frequency allocations with other countries in the region to establish more gateways for the iPSTAR project.

The iPSTAR project is expected to cover the whole of the Asia -Pacific region following its launch in 2003.

Shin Satellite Signs Contract with Flash Networks

To use accelerated TCP/IP technology in iPSTAR system

www.thaicom.net, 30 August 2000

Nonthaburi - Shin Satellite Public Company Limited has signed a contract with Flash Networks Inc., of the U.S.A. to incorporate its NettGaintm technology in the terminals used in the iPSTAR broadband Internet system. The technology supplied by Flash Networks accelerates data transmission, reducing bandwidth requirements significantly. NettGaintm incorporates flow control, acceleration and real-time data compression algorithms that, in conjunction with the proprietary architecture of the iPSTAR system will enable the iPSTAR-1 satellite to operate at a nominal capacity of up to 40 gigabits per second.

"By incorporating NettGaintm into iPSTAR, Shin Satellite will ensure that consumers are able to get the benefit of high speed Internet access from a satellite at a price competitive with terrestrial systems," said Mr. Paiboon Panuwattanawong, Vice President for Advanced Satellite Systems at Shin Satellite.

Shin Satellite recently announced it had chosen Space Systems Loral of the U.S.A. to construct iPSTAR-1, its broadband Internet satellite. The company has developed a terminal that will be introduced in 2001 which significantly increases the bandwidth available on conventional satellites also.

"We have developed proprietary technology that allows satellites to maximize bandwidth, thus bringing down the cost of high speed Internet access via satellites," Paiboon explained. "Flash Networks will work closely with the supplier of the terminals to ensure that the units are available in 2001. We are satisfied that satellites can provide a useful alternative to terrestrial networks, but have never been considered a first choice for the provision of broadband access. That will change with iPSTAR."

"Multimedia Internet applications are experiencing rapid growth, and the demand for broadband Internet access in Asia continues to grow," said P.K. Prasanna, President of Flash Networks. "Integrating our technology into the iPSTAR solution will bring unprecedented levels of performance to Shin's revolutionary Internet broadband system."

About Flash Networks
Flash Networks Inc., develops network performance solutions that enable satellite and wireless data networks to effectively utilize existing bandwidth for high-speed TCP/IP connections. The company's NettGaintm family of products offers unique compression and acceleration techniques that increase bandwidth utilization and improve network throughput by up to 500 percent. Founded in 1996, the company has customers in North America, Europe, and Asia and maintains offices in New Jersey and Herzelia, Israel. For more information, visit www.flashnetworks.com

SPACE SYSTEMS/LORAL TO BUILD SHIN SAT'S NEW iPSTAR-1 SATELLITE FOR ASIA-PACIFIC BROADBAND COMMUNICATIONS SERVICES

www.loral.com
NEW YORK, August 2, 2000 --Shin Satellite Plc. of Thailand has awarded a contract to Space Systems/Loral (SS/L) for the design and construction of iPSTAR-1, a high-powered geostationary satellite to be used for broadband communications applications. The contract includes training and support services, as well as an option for a second satellite.

Shin Sat will use iPSTAR-1, a spacecraft with a hybrid Ka-/Ku-band communications payload, to provide direct-to-desktop, last-mile services, including new multi-media and data services to customers in Asia, India, and Australia. The iPSTAR-1 satellite is scheduled to begin service in early 2003.

Shin Sat is a wholly owned subsidiary of Shin Corporations Plc., Thailand's largest telecommunications company. Shin Sat currently operates three satellites, Thaicom 1A, Thaicom 2, and Thaicom 3, which provide a range of telecommunications services to customers in Asia, Australia, Africa, the Middle East, and most of Europe, managed through the company's control center near Bangkok.

"In the past, SS/L has been a key contractor for a variety of Asian satellite projects, and we are very pleased to be continuing our work in this fast-growing part of the world," said Dr. John M. Klineberg, president of Space Systems/Loral.

The Satellite
With total satellite power of approximately 14 kW, iPSTAR-1 will provide 100 beams in the Ku-band and the Ka-band -- to deliver broad coverage from its orbital location at 1200 East longitude. iPSTAR-1 is designed to provide 12 years of uninterrupted service life.

iPSTAR-1 will be a 1300S, a variation of SS/L's successful 1300 satellite product line that supports power requirements between 6 and 18 kW. The 1300S satellite bus uses advanced technologies to enable satellite operators to support their customers with a wider range of services, and to deliver them with greater reliability.

The 1300S features larger and more efficient power-generating solar arrays with improved subsystems for managing and storing power; a more efficient means of heat dissipation; proven, fuel-efficient ion propulsion thrusters for station-keeping; and advanced command and control systems, all combining to provide a long useful life on orbit, as well as the exceptional reliability for which SS/L satellites are known. In addition, the bus has an expanded component mounting area.

Overall, SS/L satellites have accumulated nearly 800 years of reliable on-orbit service.

The Companies
Shin Satellite Plc, a turnkey satellite operator, provides a C-band and Ku-band transponder leasing, teleport and other value-added and engineering services to users in Asia, Africa, Europe and Australasia. Shin Satellite owns and operates Thaicom 1A, 2, and 3. Thaicom 1A is located at 120°E, and Thaicom 2 and 3 are both located at 78.5°E with a total capacity of 49 C-band and 20 Ku-band transponders offering over 70 channels. Thaicom is a hotbird for Indochina and India, an emerging platform of choice for transcontinental Sat TV broadcasts from Europe to Australia. The company has spent almost five years researching and developing new technology to make Internet via satellite more efficient, thus reducing costs and improving the service to end-users.

Space Systems/Loral, a subsidiary of Loral Space & Communications, is a premier designer, manufacturer, and integrator of powerful satellites and satellite systems. SS/L also provides a range of related services, including mission control operations and procurement of launch services. Based in Palo Alto, California, the company has an international base of commercial and governmental customers whose applications include broadband digital communications, wireless telephony, direct-to-home broadcast, environmental monitoring, and air traffic control. SS/L is ISO 9001 certified. For more information, visit www.ssloral.com

Loral Space & Communications (NYSE: LOR) is a high technology company that concentrates primarily on satellite manufacturing and satellite-based services, including broadcast transponder leasing and value-added services, domestic and international corporate data networks, global wireless telephony, broadband data transmission and content services, Internet services, and international direct-to-home satellite services.

iPStar 1 Contract Awarded To Loral By Shin Satellite

www.spaceandtech.com, August 2, 2000

Shin Satellite Plc. of Thailand has awarded a contract to Space Systems/Loral (SS/L) for the design and construction of iPStar 1. The estimated cost of the project is US$350 million, which includes the cost of the satellite, launch cost, insurance and gateways. The contract also includes training and support services, as well as an option for a second satellite. The project will be financed 50% with export financing with the balance of system cost met by selling advanced capacity to national service operators who will in turn sell it to their customers.

IPStar 1, a spacecraft with a hybrid Ka-/Ku-band communications payload, will have a total of 100 beams: 87 Ku-band spot beams, three Ku-band shaped beams and 10 Ka-band spot beams. The iPStar 1 satellite is scheduled to begin service in early 2003. The satellite will be located at 120°E. The satellite EOL power is expected to be 14 kW after its expected 12-year life. IPStar 1 is a 1300S bus, a variation of SS/L's FS-1300 satellite product line that supports power requirements between 6 and 18 kW.

Shin Sat is a wholly owned subsidiary of Shin Corporations Plc. Shin Satellite Plc, a turnkey satellite operator, provides a C-band and Ku-band transponder leasing, teleport and other services to users in Asia, Africa, Europe and Australasia. Shin Satellite owns and operates Thaicom 1A, 2, and 3. Thaicom 1A is located at 120°E, and Thaicom 2 and 3 are both located at 78.5°E with a total capacity of 49 C-band and 20 Ku-band transponders offering over 70 channels.

Shin Sat Announces iPSTAR Terminal to Commence Production

Assigns US companies to implement advanced designs

www.thaicom.net, 27 July 2000

Nonthaburi - Shin Satellite Public Company Limited, the operator of the Thaicom satellite system, has announced that it has appointed Codespace Inc., of Monmouth, Oregon and Efficient Channel Coding (ECC) of Cleveland, Ohio in the USA to implement its advanced proprietary design and produce the first generation iPSTAR satellite terminal.

The terminal is a smart satellite modem that uses proprietary channel coding technology to enable more efficient use of satellite bandwidth. Although it is a part of iPSTAR broadband Internet satellite, it can be used initially with conventional satellites today to provide double the capacity of existing conventional technology. When iPSTAR is launched, the capacity will be further increased when coding performance is matched to the unique iPSTAR system design and capabilities.

"We will be able to use these terminals by the fourth quarter of 2000 and expect to increase production to allow the public to experience broadband access" said Paiboon Panuwattanawong, Chief Technical Officer of Shin Satellite. "By increasing the efficiency of the terminal, we can offer higher bandwidth to the consumer on our current satellites. This also makes the bandwidth correspondingly less expensive and a viable alternative to terrestrial networks as a last mile solution for consumers for the first time."

Shin Satellite has spent almost two million US dollars developing the technology for the terminal with expected cost approximately US$1,000 per terminal in volume production. The same technology will be a part of the implementation for its iPSTAR gateways, now under construction by NERA SatCom AS in Norway and may be used by consumers to enjoy broadband access speeds. The company expects to be able to offer iPSTAR's bandwidth at an affordable price, comparable with terrestrial broadband services like cable modem and ADSL.

Codespace is a start-up company that provides complete satellite solutions including overall system architecture, payload design, associated ground network systems design and end user outdoor unit definition and procurement.

Efficient Channel Coding (ECC), Inc. (www.eccincorp.com) is a privately owned, rapidly growing company that develops advanced physical layer technologies for digital communication systems. ECC has developed and patented turbo decoding algorithms that dramatically improve the capacity of a wide range of broadband digital communication channels. The technology is now embodied in commercially available chips and software products. ECC is currently leveraging its expertise in turbo codes and other physical layer technologies to significantly increase system capacity and Quality of Service in next generation communications systems.

Shin Sat Selects Nera to Provide Gateway Networking for iPSTAR

Gateway installation set for 2000-2001

www.thaicom.net, 14 June 2000

Nonthaburi - Shin Satellite has entered into an agreement with Norwegian equipment supplier Nera under which Nera will provide core gateway technology for the iPSTAR system at a cost of approximately US$ 4.9 million. The iPSTAR system is expected to provide low-cost broadband services throughout the Asia Pacific Region. The first generation technology will be rolled out in 2000 and 2001, while the second generation will support the further expansion of the terrestrial infrastructure as satellite coverage is extended further over Asia and Australia and the satellite capabilities are greatly enhanced. The iPSTAR system has the potential to be expanded into a global system by deploying additional satellites.

The iPSTAR system will deliver high speed broadband Internet via satellite services at download speeds of up to 10 Mbps to customers, and upload speeds to 4 Mbps. The system features a fully digital system offering the highest efficiency of any planned system by competing companies. The gateway will utilize turbo product code technology along with advanced air interface technology to offer unprecedented performance.

The second-generation system will consist of 92 Ku band spot beams, not including video beams, bringing service throughout Asia and Australia. With a data capacity of over 35 Gbps, millions of users can be supported allowing for low cost consumer and commercial terminals. As Asia currently has the highest growth rate of new Internet users, satellites will be key to the expansion of services in the region due to the limited terrestrial infrastructure and population distribution.

Shin Satellite Executive Chairman Dr. Dumrong Kasemset is pleased that one of the first steps to making iPSTAR a reality has now been taken. "We have been planning iPSTAR since 1996 and have taken a new look at satellite design that is remarkable in its effectiveness," he says. "This agreement will implement the first stage of the project from the ground-based perspective and will be an indicator of the expected success of the whole system."

Nera ASA's president and CEO, Bjorn Ove Skjeie says that Nera is very satisfied being a part of the iPSTAR project. "We strongly believe in satellite communications being an integral part of future broadband communications," he states.

Nera is a Norwegian company specializing in the design, development, manufacturing, and marketing of wireless telecommunications equipment and systems and the provision of related services. Nera supplies mobile satellite terminals, land earth stations and airtime billing services, principally for the Inmarsat global satellite communications network, and microwave radio relay systems and telecommunications management networks. Nera is listed on NASDAQ in New York (ticker: NERAY) and on the Oslo Stock Exchange. Nera ASA has an associated company, Nera Telecommunications Ltd., listed in the Singapore Exchange Ltd. (ticker: Nera Tel). For further information, visit http://www.nera.no/

Shareholders Sanction Shinawatra Satellite Name Change

Company enters new era as Shin Satellite

www.thaicom.net, 22 July 1999

Nonthaburi, Thailand - In a long-awaited decision, shareholders of Shinawatra Satellite Public Company Limited unanimously approved of a name change for the company to Shin Satellite Public Company at an extraordinary shareholders meeting held at the Thaicom Satellite Station on 22 July 1999. While the approval still has to wait for the registration of the new name with the Commercial Registration Department to be effective legally, the company believes that the registration will be completed sometime in August 1999.

Chief Executive Officer of Shinawatra Satellite, Dr. Dumrong Kasemset, commented that, "It is a necessary step for us following the general re-structure of the Shin group at the beginning of the year. The new direction that the company is taking requires us to strike out on our own and create a new identity. We are determined to provide world-class products and services to meet the expectations of our customers and to do this, we have to establish an identity that is professional and independent.

"The new name is sufficiently different from the old to warrant a new start, yet pragmatically close to that of the mother company, Shin Corporations, to express the synergy we share with the rest of the group."

The change in the company name follows shortly after the announcement in June of this year that it would launch a broadband satellite at the start of the new millenium. Shinawatra Satellite has always been one of the most innovative of satellite operators in Asia, launching the first digital Ku-Band satellites in the region and pioneering the use of the ground-breaking MPEG-2/DVB compression that made it into the top-selling company in India and most of Indochina. With the forthcoming name change, the company looks forward to introducing a more multimedia-oriented service over the next couple of years. Shinawatra Satellite currently spends roughly 2-3 per cent of its revenue on research and development, an investment that is expected to pay off as it approaches the launch date in late 2001, early 2002, of a satellite that it has been developing over the last two years.

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