

# New antennas increase VSAT suppliers' design freedom

The introduction of new VSAT antennas from Jotron, Maritime Broadband, and next year from Winegard, is providing fresh competition to existing suppliers who are responding with their own innovations

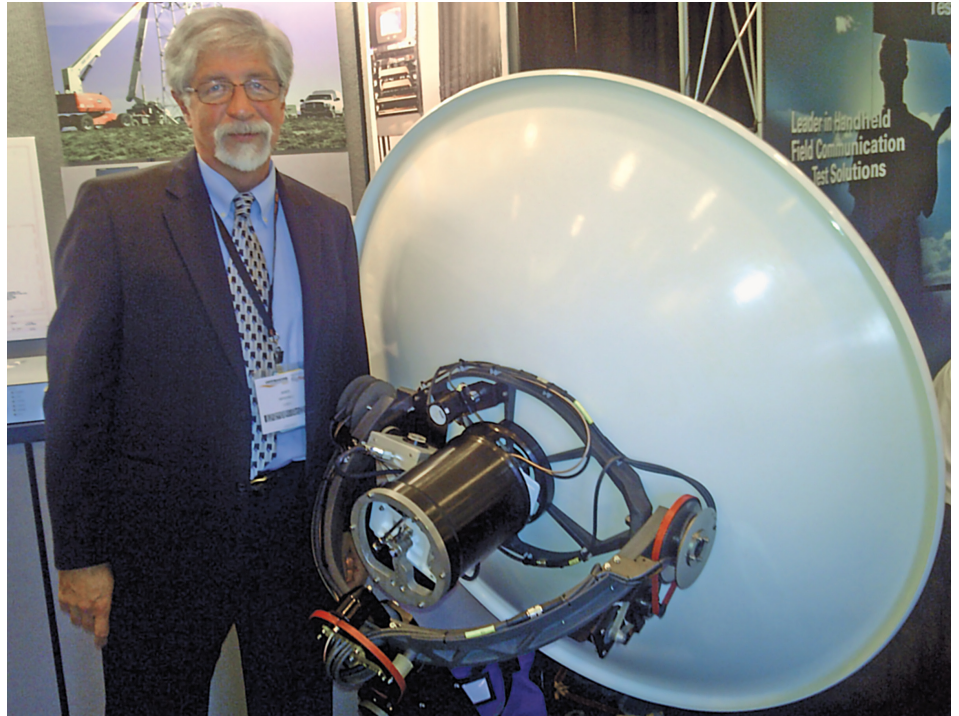
A new generation of VSAT antennas are being launched that will add serious competition to the established players. With demand for VSAT services increasing, especially in the offshore vessel and drillship market, manufacturers have developed more sophisticated antennas to receive Ku-band and C-band frequencies.

In response to this, the companies that currently dominate the antenna market are developing new equipment that either combines frequency band reception or will be ready for Ka-band services. Cobham, Intellian and Thrane & Thrane are all developing VSAT antennas for Ka-band services, while Korea's KNS and US-based KVH Technologies are selling mini-VSAT systems.

Norway-based Jotron SatCom is launching a new Ku-band VSAT antenna that weighs the same as a conventional 1m diameter system, but has a 25 per cent wider dish. The B120 stabilised VSAT antenna supports time division multiple access (TDMA), single channel carrier, spread spectrum or carrier-in-carrier services. The modem that goes with it supports broadband, e-mail, video conferencing and voice over IP.

The antenna has a 1.25m diameter dish that has 15-30 per cent more bits/Hz bandwidth capacity and better service during rain than competitors' 1m diameter antennas, says John Minetola, Jotron's area sales manager. The equipment on the back of the dish means space and weight savings compared with competing antennas, he adds.

"We put this dish inside a radome that would normally hold a 1m diameter antenna. It is 110kg in weight, a similar size as 1m antennas," explains Mr Minetola. "Our competitors have shock absorbers on their antennas. Instead our antenna is strengthened and is rigid so it rolls with the vessel. The centralised weight of the amplifier and transceiver means there is no



John Minetola introduces innovations on Jotron's new B120 VSAT antenna

need for a waveguide or counter weights. There is a special cross-elevation arm that is strengthened to eliminate the need for a suspension system."

The Jotron B120 is triaxial and has autoswitching capabilities. It has an elevation range of -23 degrees to -120 degrees that enables seamless signal reception while a vessel is travelling from the equator to polar regions. It uses the embedded Open AMIP protocol of the iDirect platform, but is compatible with other platforms such as SatLink. There is also a remote access suite that means engineers can access control systems from as far away as 10m.

"It has a WiFi router that allows engineers to maintain the dish outside the radome. There is a camera and LED lights inside to help with the remote maintenance," says Mr Minetola. "A spectrum analyser in the software enables engineers to lock the antenna onto the correct satellite. And we record the antenna performance every four seconds with records kept for two weeks."

The 1.25m antenna has been tested on 100m-long offshore support vessels: "We have the approvals and are ready to release our antenna to the market. We have tested the

antenna on three ships in the North Sea and one that operated across the Atlantic, so it is now proven technology," Mr Minetola adds.

Another rival with a new antenna is Maritime Broadband. Its C-Bird 2.4m diameter antenna does not need a radome as it is also strengthened. The C-band stabilised tracking antenna has been used on the product tanker *Hellespont Progress* in association with MTN Satellite Communications since 2010 under a 36-month agreement.

C-Bird is iDirect and Hughes network compatible and has a total weight of 400kg. It can be shipped in a kit form to reduce installation time to less than two hours, says Maritime Broadband's president, Mary Ellen Kramer.

Indiana-based Winegard is developing an antenna, to be launched in the middle of next year, to help barge operators and offshore support vessel owners improve their communications. "Owners have approached us to provide a 1m diameter unit and to do a 60cm one," says Winegard's director of sales and marketing, Brent Guffey. "The electronics will be based on our range of onshore terminals and should be ready sometime in 2012. We have a couple of customers that are interested in this and we will do business through RigNet and Harris CapRock."

In response to the new competition and future VSAT opportunities, Cobham subsidiary Sea Tel has developed a Ku-band VSAT antenna that could be upgraded into a Ka-band antenna in five simple steps. This means Sea Tel is the first supplier to have an antenna available that can be refitted for Inmarsat's Global Xpress Ka-band service when this is launched in 2014. The Sea Tel 4012 GX is available now for shipowners signing up to Inmarsat subsidiaries Stratos Global and Ship Equip's Xpress Link services. This combines Ku-band VSAT with L-band FleetBroadband (FB) back-up and the provision to upgrade to Global Xpress.

The 4012 GX antenna design is based on the 4009 antenna pedestal, says Sea Tel's product marketing manager, Atul Chawla. But there were key changes in design that enables the upgrade to Ka-band and improves remote maintenance and the user interface. "With the 4012 GX the media exchange point is inside the radome, compared with other terminals that have the control box on the bridge," says Mr Chawla. The antenna will have an integrated control unit that replaces the digital antenna controller and pedestal control unit.

"There are five steps to upgrade from Ku-band to Ka-band," Mr Chawla explains. "Firstly an engineer would remove the Ku-band vertex feed and RF module. Then he would install the Ka-band RF module and vertex feed, then change the media exchange box. This should be done by a Sea Tel trained technician, but it will be simple and could be done in 30 minutes."

Sea Tel redesigned the radome as a more spherical unit to accommodate the 4012 GX antenna. It will be running maritime tests in December on a vessel in the North Sea, and one in the US to prove the reliability of the antenna. Sea Tel has already gained approval from Eutelsat and Anatel for 4012 GX.

Another technical achievement for Sea Tel is the quadrature orientated reflector (QOR), which involves two reflectors on one antenna pedestal and in one radome. The QOR technology would allow ship operators to receive TV signals and broadband services on two different bands simultaneously. Mr Chawla says satellite communication companies are testing QOR antennas with C-band and Ku-band reflectors, and Sea Tel is preparing for the first orders.

Sea Tel is also entering the FB terminal market with the FX line of products. The FX 500, for Inmarsat's FB 500 service, will be the first to enter the market, scheduled for March 2012. This will be followed by the FX 250 and FX 150 terminals for the FB250 and FB150 services later that year.

Thrane & Thrane became the second terminal manufacturer to begin developing antennas to

receive Ka-band on Global Xpress. The European manufacturer is developing a new Sailor terminal for Ka-band that would be similar to its existing Sailor 900 VSAT antenna for Ku-band. The Ka-band antenna would be offered alongside the existing FB L-band terminals.

Thrane & Thrane made Sailor 900 terminals commercially available in September when it signed an agreement with service supplier Marlink for a combined VSAT offering. Marlink will add the Ku-band terminal to its VSAT portfolio. It is a four-axis stabilised antenna, with a low profile and high performance RF design. It can be integrated with most VSAT modems and the antenna control unit has multiple LAN and diagnostics ports, and built-in test equipment.

South Korean manufacturer Intellian will be developing Ka-band antennas in 2012 under an agreement with Inmarsat. Its development focus this year was to integrate its antennas with Comtech EF Data's antenna and modem management technology. Intellian's V-series of antennas were integrated with Comtech's Ross open antenna management (ROAM) protocol earlier in 2011. This enables VSAT systems to globally roam across multiple satellite beams and maintain connectivity through different satellite footprints. Also, Intellian was selected as a preferred supplier of VSAT hardware for SpeedCast's Ku-band service, which extends across more than 20 satellite beams worldwide.

Comtech's ROAM protocol offers a common management interface between Comtech's Roaming Oceanic Satellite Server (Ross) and the antenna control units by providing a generic set of commands, information, interfaces and status queries. Ross is an integrated location

server that works in conjunction with Comtech's Vipersat management system. Vessel position data, satellite signal and management status are constantly monitored to determine when satellite handoff is necessary.

Earlier this year Comtech's ROAM protocol was integrated with Korea's KNS SuperTrack antenna series. This includes the 40cm diameter SuperTrack K4 antenna, which KNS launched in the second quarter 2011. In October KNS and H2OSatellite launched the SuperTrack A6 60cm diameter VSAT designed to be used with the Astra2connect service. This will be included as a new product in the H2OLitespeed product range and will be aimed at offshore vessels and superyachts. This package offers download speeds and bandwidth of up to 4 Mbps.

The H2OLitespeed range already includes an 85cm diameter SuperTrack A9 terminal, over the Astra2connect service in Europe, says H2OSatellite managing director, Robert Kenworthy. "We had great success with the A9 terminal and we recently celebrated the installation of our 100th terminal. I am sure this new, smaller more compact A6 terminal will be an even greater success, as it is suitable for such a greater number of ships," he adds.

In other hardware developments, Orbit Communications has started offering the AL-7107 OrBand VSAT with a 2.7m diameter radome and Thrane & Thrane upgraded the Sailor 90 satellite TV antenna. KVH has developed the TracVision HD11 satellite TV system that allows vessels to switch seamlessly between satellite TV services. The four-axis stabilised 1m TV antenna provides unlimited HD and DVR support and utilises KVH's TriAD multiband antenna design for simultaneous



Thrane & Thrane's Ka-band terminal will be based on the Sailor 900 Ku-band VSAT hardware

tracking of Ka-band and Ku-band satellites.

Meanwhile, satellite service provider NSSLGlobal has increased its coverage in south east Asia with a new spot beam on the SES's NSS6 satellite at 95 East. This will be supported from NSSLGlobal's Cyprus hub. The spot beam will provide additional capacity over busy shipping routes over Thailand, Singapore and Malaysia, says NSSLGlobal's chief operating officer, Sally-Anne Ray.

"South east Asia is one of the busiest shipping regions. With the ever increasing bandwidth needs of shipping it makes sense for NSSLGlobal to be able to increase our capacity as well as plan for the future," she adds.

Globe Wireless was granted a blanket wireless radio station licence by the Japanese Ministry of Information and Communications in September, authorising the company to offer FB on Japanese registered vessels. This will allow Globe Wireless to expand its services throughout Asia.

In October, Globe Wireless gained a contract from Piraeus-based Marine Management Services to install Globe iFusion terminals on the Greek owner's fleet. Each installation involves an Inmarsat FB 250 terminal, a dual firewall, optimised IP connections and multiple least cost route gateways. This allows crew to use GSM utilising phones, e-mail and Internet. The Greek vessel operator will use Globe iFusion shoreside control to manage user profiles, browsing

capabilities, firewall settings, satellite gateways and least cost routing.

Meanwhile, Navarino has installed its 150th Infinity communications and system optimisation package. The company is on course to reach 600 installations by the second quarter of 2012 as it has a long backlog of contracts. Infinity was initially designed to increase the efficiency of using Inmarsat FB packages, but has become compatible with VSAT and Iridium OpenPort.

The system is comprised of a rugged onboard



*Sea Tel's 4012 can be upgraded to Ka-band by replacing the RF module and vertex feed*

computer with Infinity software and a web portal from which onshore administrators can manage their vessels' satcoms and networks. It includes compression, a web accelerator, proxy caching on board, image reduction, advertisement blocking, traffic filtering and automatic file synchronisation.

In addition, a number of administrative tools are included for vessel positioning, connectivity status reporting and traffic measurement – providing graphs, statistics and logs of all events. Most of the vessels that have installed Infinity have combined it with the very large allowances or shared corporate allowance plans for FB packages of more than 1GB.

Navarino gained an award at Inmarsat's recent partner conference, highlighting its contribution to growing FB business, which was partially due to the development of Infinity and allowance packages.

Meanwhile, Iridium has made AccessPoint products and services for its new Iridium Extreme satellite phones commercially available. The suite includes the Iridium AccessPoint Wi-Fi hotspot accessory for smartphones and laptops and e-mail optimisation software.

Also included is the AccessPoint Connect downloadable application, which turns any Windows laptop into a global WiFi hotspot when connected to an Iridium Extreme or Iridium 9555 satellite phone. **MEC**

## MOL installs broadband on gas carriers

Mitsui OSK Lines (MOL) has installed VSAT and telecommunication packages from Sky Perfect JSAT Corp on five liquefied natural gas (LNG) carriers after successful onboard trials. The Japanese owner, and the crew on these ships, is benefiting from high speed OceanBB Internet and Japan's first IP vessel telephone service.

The service is provided to the LNG carriers through KVH Industries' TracPhone V7 terminals. KVH's mini-VSAT broadband equipment can provide a managed airtime network solution with the high data upload rates to a maximum of 2 Mbps, plus voice over IP.

Sky Perfect JSAT and MOL have conducted onboard trials for broadband on LNG carriers since July 2008. Through these tests, MOL confirmed that the system was effective for vessel operation, and decided to proceed with installation, says Sky Perfect JSAT president, Shinji Takada.

The benefits to MOL include enhanced e-mail and voice communication between the vessels and shore bases and better onboard telecommunication operations. VSAT provides crew with broadband

Internet access and officers with weather and hydrographic information for more efficient vessel operations, says MOL.

MOL installed the Biztel Ocean IP vessel phone service featuring a cloud IP connection supplied by a SKY Perfect JSAT's business partner, Link Inc. This provides extension-to-extension calls between shore and vessels, reducing the



*KVH's TracPhone V7 terminals are installed on MOL's LNG carriers*

charge of telephone calls for both vessels and shore personnel.

Meanwhile, Hartman Marine affiliate Global Seatrade is the first ship operator to sign up for the new flat-rate Ku-band VSAT service package from Globecomm Systems. The services will be supplied to the operator of specialised heavy lifting and transport vessels by Globecomm subsidiary Mach6 through the se@FLEX VSAT platform.

Global Seatrade transports project cargo, such as offshore wind turbines, which require specialised handling and lifting. Growing levels of offshore windfarm construction in Europe led Global Seatrade to use a unified communications platform to provide reliable broadband connectivity for its fleet.

Globecomm's service will prioritise mission-critical traffic, such as vessel management, navigation and safety applications over crew welfare requirements. The VSAT supports voice over IP, e-mail and Internet broadband. The se@FLEX service will detect any loss of VSAT availability and automatically switches to the L-band backup.