

Leading Edge Technology Made in USA

Alexander Wiese

There are some sectors of satellite technology where the USA is clearly on top. One of them is motorized satellite two-way tracking antennas that are used mostly on ships. The market leader of this technology is SeaTel in California.



■ Lorna Brady Glover, President SeaTel Inc



Bobby Johns is TVRO Product Manager and is seen here in front of the SeaTel building in Concord, east of Oakland and San Francisco in northern California. ■

Lorna Brady Glover is President of SeaTel, Inc. and she refers to a recently publicized study by COMSYS in which it is reported that SeaTel has a 73% portion of this market segment. SeaTel, Inc. belongs to the Cobhan Satcom Group and has 205 employees in its Concord location in northern California. Human Resources Manager Audrey Anderson breaks it down for us:

"113 employees are in Production, 12 are in Sales, 20 in Customer Service, 39 in Technical Development (Engineering) and 21 in Management (Admin, Accounting and IT)". TELE-satellite recently reported (issue 03/2008) on their European branch office that was opened in 1996 by Lorna Brady Glover, operating under the name SeaTel Europe and currently run by James Boul-

ton. Another branch office was just recently opened in Singapore and SeaTel also operates an office in Fort Lauderdale, USA.

Lorna Brady Glover is very satisfied with the way business has been progressing: "It is regularly increasing! One reason for this is the US Dollar exchange rate and how that has changed, making our product more

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■ A look in the Development department. Susan Fu is their Senior Software engineer developing the three-axis control.

ship passengers are becoming more and more demanding”, explains Bobby Johns. Not only do they want their TV, but they also want their Internet access on these types of ships.

Those are very nice prospects for increased sales; SeaTel is certainly doing its part by consistently developing new products. Brand new to the scene is the model USAT24. USAT stands for “Ultra Small Aperture Terminal” and 24 represents its

affordable in other regions of the world.” Bobby Johns, TVRO Product Manager, explains their product line: “25% of our reception systems are meant for TV signals with the remaining 75% covering data services, i.e. Internet uplinks and downlinks.” Lorna Brady Glover is very optimistic about the way business is moving forward.

Geographically, Lorna Brady Glover sees the Asian market as the one with the most potential for growth and she is looking much closer at the container ship and tanker market: “They want to offer more entertainment and have access to the internet on these ships, which helps with crew retention, and they are ordering more and more of our satellite reception systems.”

“It’s also interesting”, adds Bobby Johns, “that there is a trend towards second and fourth dish antennas.” Cruise ships in particular are installing not just one dish but two so as to provide redundancy, or deal with blockage issues. Some already have two dishes in service to receive two different satellites or Internet services; then even four systems are being installed. “Cruise



■ A prototype is put together here by Josh Lahommedieu.

■ Quality control is extremely important for SeaTel. Chris Holt is their Quality Assurance inspector and uses a state-of-the-art Coordinated Measurement Machine to check the precision of the incoming turntables that are to be installed on the antennas.



■ Michael Rahbari is one of the five customer service engineers. When a customer has a problem with their system, they call SeaTel. The engineers then attempt to solve the problem. “We can be reached from 08:00 to 16:30 PST”, explains Michael Rahbari, “there is an on-call service available until midnight and on weekends. On weekdays, after midnight, our colleagues at SeaTel Europe take over.” This guarantees that SeaTel customers can reach a competent person every day around the clock. “We get between 250 and 300 calls every week”, says Michael Rahbari, “and if the problem can’t be solved over the phone, we’ll go on location to take care of it.”

size, in this case 24 inches or 60cm. “This dish will be used for the Internet”, explains John Phillips, Vice President of Engineering. It is a modified version of the Coastal 24 system, a 24” (60cm) TV antenna. These two antennas give yacht owners both TV and broadband Internet.

With the printing of this issue of TELE-satellite, the first ship-borne multi satellite system will make its appearance on the market! This project is headed by Bobby Johns who is responsible for TV reception products. This is accomplished with motors for three axes since azimuth and elevation are not enough; with multiple satellite reception the relative position of the LNBS must also be kept constant. This was quite a challenge for the SeaTel Engineers.

SeaTel has the market gap between motorized antennas and satellite tracking antennas completely under control. With consistently new products and developments, new niche applications are readily being conquered.

SeaTel has expanded satellite reception into areas that previously could not be realized. Typically American: challenges are there to be overcome!



■ A look in the warehouse: the small radomes are waiting for the assembled systems.



Henry Adams is Inventory Control Supervisor and keeps an eye on the central inventory. The base stands are used with the larger dishes. The base stand next to Henry Adams is for a 2.0-meter diameter antenna and the larger ones are for 3.6-meter dishes. "Our stockroom turnover time is about one week", explains Henry Adams. SeaTel has incorporated the Just-in-Time principle. He continues: "Base stands are actually delivered to us every two days." Ian J. Smith is Operations Coordinator and adds, "Smaller pieces such as screws and washers are filled up twice a day." This allows SeaTel to keep its in-house stock to a minimum. This is not only cost effective but also necessary when considering the available space.



■ Transporting such large systems requires special considerations. The individual pieces are packed and secured in custom-sized cartons. Robert McNeally is one of the shipping employees who makes sure the individual pieces are properly anchored for transport.

New at SeaTel: Multi-Satellite Motorized System

■ Brand new to the market: this 60cm system can receive five satellites.



■ Yes, it's five satellites, even if it looks like only three: the central feed receives three satellites – 101° in the center and 99° and 103° on either side. The two feeds to the left are for 110° and 119°. Bobby Johns, product manager of this system, is searching for monoblock LNBS with 2° offset. "This would provide a more elegant solution to the reception problem."

For the more experienced TELE-satellite readers the reception unit we see here involves circular polarization and a multiswitch built in to the housing. This explains the four "F" connectors.

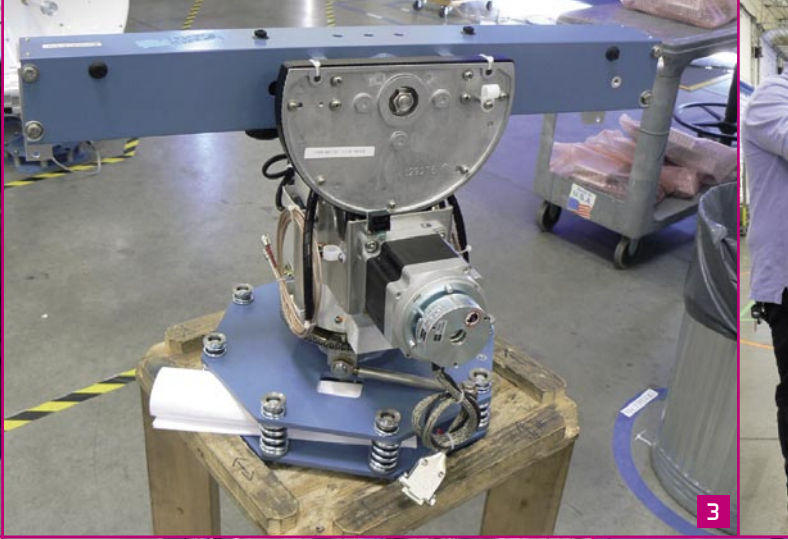


John Phillips is Vice President of Engineering and presents their newest development: a 60cm Internet system with uplink and downlink – the model USAT24 Broadband at Sea. The small black box in the dish is a GPS receiver that has for several years now been included by SeaTel as a standard accessory.

New at SeaTel: Miniature Up-/Downlink System



■ The small antenna is controlled by complex electronics. In the box to the lower left is the BUC (Block Up Converter) and in the box to the right is the antenna control.





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■ Daniel Blair is Manufacturing Engineer and responsible for the individual assembly steps that ultimately lead to the finished product.



How a maritime 3-Axis system is built

Step 1: The first step is handled by SeaTel employee Sandy Sneed: she puts together the base assembly, the heart of the rotating antenna system. An illustrated handbook helps her place assemble it correctly.

Step 2: Next the motors are installed; the resulting assembly is called the Canister. Diane Perno-Spiridonov is seen here at work. As with all production employees, she is wearing safety glasses.

Step 3: With the incorporation of the level beam the canister is finished and becomes the stabilization assembly. The basic assembly for a three-axis dish antenna system is thereby complete.

Step 4: Depending on dish size, a dish frame is installed. Eddie Estrada is seen at work here.

Step 5: The electronic components are installed at this point.

Step 6: Bobby Hughes installs the actual base stand.

Step 7: The dish is prepared. Jim Miller is seen here installing a feedhorn on a 2.4-meter offset reflector.

Step 8: The moment of truth! The dish is lowered onto the canister with a crane and both pieces are then connected together.

Step 9: Now the waveguide can be installed. This links the feedhorn to the electronics.

Step 10: Is the assembly complete? No, not yet. Jarvis Walker's work is only just beginning. He balances the antenna system with counterweights. The V-belts are all removed from the motors so that the antenna can swing freely. The antenna is placed in the horizontal position and should not drift to either side. If it does drift to one side, counterweights are added to the opposite side. A system like this with a 2.4-meter dish weighs roughly 200 kg (440

LBS) and thus needs to be perfectly balanced. Balancing the antenna is done manually after which the motor's V-belts are reinstalled so that further electronic fine adjustments can be performed. The small balance issues that might still be there can be found through differences in motor power usage in next step.

Step 11: The finished product is tested. Joaquin Sanchez fires up the motors and moves the antenna in every direction. If any balance problems are discovered, the necessary counterweights are then installed.

Step 12: Finished! The assembly is perfectly balanced and properly tested. Michael Flood tests how easy the dish can be moved.

Step 13: No, still not quite finished. At the customer site, the antenna is installed in a radome such as this one to provide weather protection. Here we see Ian J. Smith, SeaTel's Operations Coordinator.



■ A look in the production facility.