

SATELLITE evolution ASIA

...your connection to the industry...

ISSN: 1740-3413

Cobham SATCOM: Product performance and reliability

Q&A Comtech EF Data

Integrating the cloud into teleport services

In-orbit satellite servicing

Small data - the next big data

Sign-up for your FREE issue at www.satellite-evolution.com



Second Generation GaN based SSPAs/BUCs



Visit us at
IBC 2018
Booth 5.C34

Editor
Amy Saunders
amy.saunders@dsairpublications.com

Contributing Editors
Bert Sadtler, Mark Williamson

Sales Director
Christopher Ayres
chris.ayres@dsairpublications.com
Tel: +44 1778 441165

Sales Director
Sam Baird
sam@whitehillmedia.com
Tel: +44 1883 715697

Circulation Manager
Elizabeth George

Production
production@dsairpublications.com

Publisher
Richard Hooper
richard@dsairpublications.com

Managing Director
David Shortland
david@dsairpublications.com



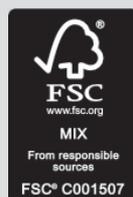
No part of this publication may be transmitted, reproduced or electronically stored without the written permission from the publisher.

DS Air Publications does not give any warranty as to the content of the material appearing in the magazine, its accuracy, timeliness or fitness for any particular purpose. DS Air Publications disclaims all responsibility for any damages or losses in the use and dissemination of the information.

All editorial contents
Copyright © 2018 DS Air Publications
All rights reserved
ISSN: 1740-3413

DS Air Publications
1 Langhurstwood Road
Horsham
West Sussex, RH12 4QD
United Kingdom
T: +44 1403 273973
F: +44 1403 273972
Email: admin@satellite-evolution.com
www.satellite-evolution.com

Printed by:
Times Printers Pte Ltd
16 Tuas Avenue 5
Singapore 639340



KDN number:
PPS1570/10/2012(022819)

MCI (P) 072/09/2017

Contents - volume 16 - issue 4

Regulars ►►

4 Satellite News Review

COVER STORY - 10

Performance and reliability

Cobham SATCOM was created in 2012 under Cobham plc following the acquisition of Thrane & Thrane, and today provides dependable communications and Internet access anywhere in the world, with terminals operating on land, at sea, or in the air. Its SAILOR and Sea Tel brand products are well-known throughout the industry for their reliance and outstanding performance. Here, Amy Saunders speaks with Stephan Jorgensen, Regional Director APAC at Cobham SATCOM, to find out more about the company's latest developments.



6 Integrating the cloud into teleport services

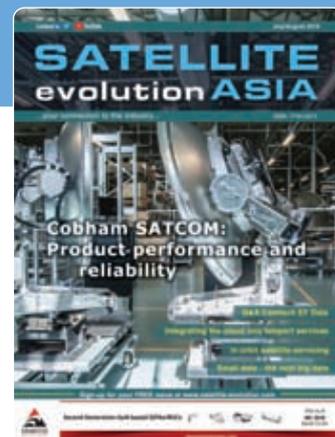
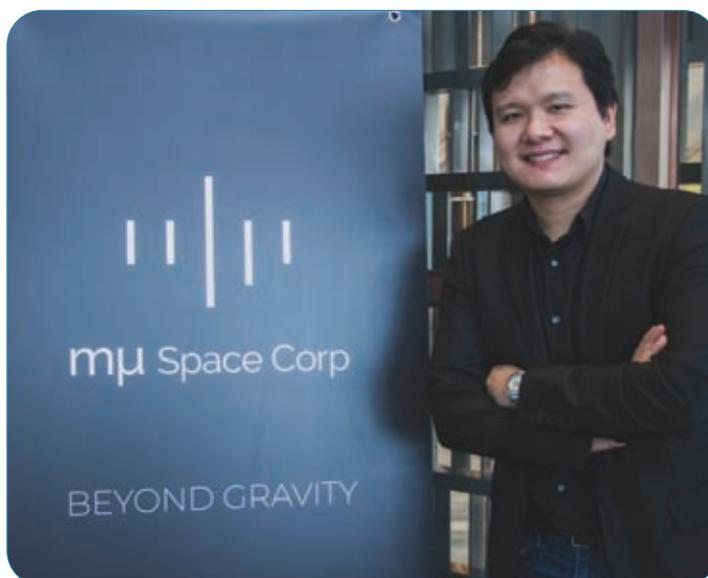
14 Targeting high end applications

18 Targeting Southeast Asia and beyond

22 Small Data – The next Big Data

26 Delving deeper into in-orbit satellite servicing

32 Resilience and redundancy in mobile satellite communications

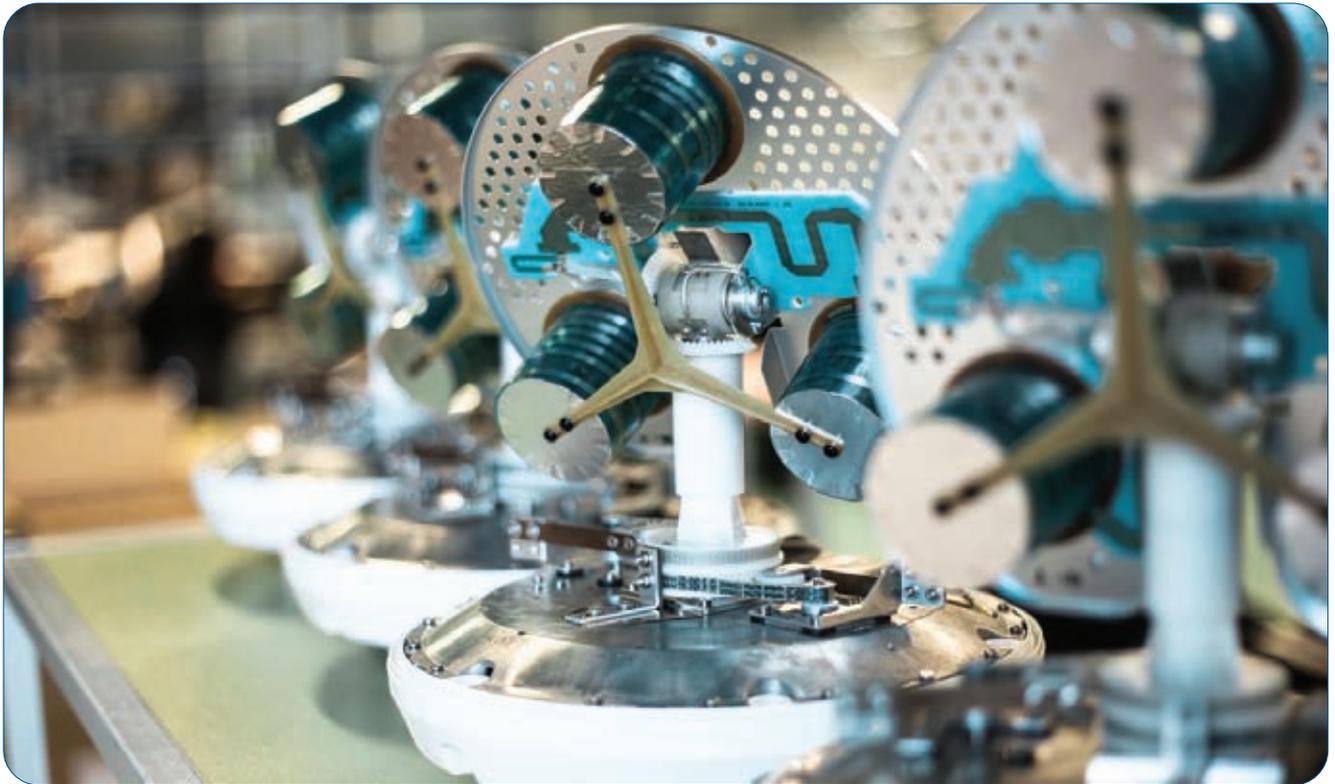


Front cover: Photo courtesy of Cobham SATCOM





Photo courtesy of Cobham SATCOM



Performance and reliability

Cobham SATCOM was created in 2012 under Cobham plc following the acquisition of Thrane & Thrane, and today provides dependable communications and Internet access anywhere in the world, with terminals operating on land, at sea, or in the air. Its SAILOR and Sea Tel brand products are well-known throughout the industry for their reliance and outstanding performance. Here, Amy Saunders speaks with Stephan Jorgensen, Regional Director APAC at Cobham SATCOM, to find out more about the company's latest developments.

Question: Cobham SATCOM has come a long way in the last few years; what can you tell us about its market presence and capabilities today?

Stephan Jorgensen: Cobham SATCOM has continually set the benchmark for terminal performance and reliability in the maritime satcoms space that other manufacturers follow. Today, we offer a diverse portfolio of antenna systems engineered specifically for use at sea that provide the connectivity mariners increasingly rely upon across a variety of satellite networks and different frequencies.

Our long background in maritime has furnished our team of 300 R&D engineers with an appreciation of what shipboard terminals have to endure and a deeper understanding of how the industry and our customers operate. In

recent times, this has led to solutions that not only blaze a trail in radio frequency (RF) performance, but are also easier to deploy and maintain.

Question: The mobility market is expected to be one of the biggest growth engines in the next few years. What are your expectations for the maritime sector, and how will Cobham SATCOM capitalise on that growth?

Stephan Jorgensen: The industry is going through a period of profound change as a sector-wide digital transformation takes hold. There is tremendous pressure within the commercial fleet to find new ways of shaving costs and improving efficiency. Attached to this, there is a strong belief that data analysis will form part of the

answer to achieving those targets and remaining nimble in a highly competitive marketplace.

Demand for access connectivity among crew continues to grow, but so has provision. As this year's *Futureonautics' Crew Connectivity* report points out, in absolute terms the number of seafarers who can now use the Internet at sea has increased by over half a million since the last survey, and those who can access it for free has increased by over 200,000. Three of every five seafarers now have access to crew communications services always or most of the time. More than nine out of ten reported that the level of onboard connectivity had a strong or very strong influence on who they worked for.

This trend is evidenced in some of



Stephan Jorgensen, Regional Director APAC at Cobham SATCOM

our recent contracts. For instance, Singaporean-Chinese shipowner and operator Winning International Group deployed SAILOR 900 VSAT antenna systems across its fleet of 30 bulk carriers, which transport bauxite and other raw materials from Indonesia to China. The decision to provide high-speed always-on Ku-band connectivity was driven by a desire to improve crew welfare and with a view to exploring new opportunities for optimising vessel operation. Since bulk operators are often painted as technology 'last-adopters,' this project really demonstrates how far the industry has advanced.

The situation in the offshore oil and gas sector is more complicated. Projects are driven by the prevailing oil price. Below a certain threshold, the economics of investing in deep-sea exploration do not work. That said, barrel prices have remained steady in recent months and there appears to be increased activity in the sector.

The concept of the Digital Oil Field certainly drives interest from the segment. In times of high oil prices, the focus was getting oil to market faster. Now, the focus is on getting the focus shifts to getting there cheaper. This requirement incentivizes the energy sector to view the entire supply chain from a holistic perspective, where cost optimization at every possible stage is essential to maintaining a competitive edge. There can be no doubt in the central role played by connectivity in that regard.

One part of the maritime industry which keeps on giving is the passenger and cruise sector. Whether checking in on social media to pass the time on

short-haul ferry crossings or posting photos and updating friends during a tropical cruise, people want Internet access. After a shaky start, the big cruise lines have cottoned on to this and really upped the quality of connectivity offered to passengers. It is a major differentiator and especially important one for attracting a younger demographic to holiday on the ocean.

Question: The satellite sector is in a major state of change right now as new space and ground technologies change the entire arena. Which are the biggest trends you're observing right now, and how will Cobham SATCOM respond?

Stephan Jorgensen: I think future historians will look back at the 2010s and describe it as the decade that saw high throughput take-off, literally and figuratively. We've seen an unprecedented level of investment and renewal of constellations by the major satellite operators. Service-providers and resellers have revamped their offerings and made the – sometimes painful – transition from selling data by the megabyte to providing a utility style service based on agreed uptime and performance metrics.

This story has been repeated – and is still unfolding – in the maritime sector. Inmarsat has launched Fleet Xpress, the maritime offering in Global Xpress, which it no doubt hopes will repeat the success of FleetBroadband. Elsewhere, Intelsat has reinvented traditional maritime Ku-band services with the introduction of its EpicNG network. Cobham SATCOM worked closely with both satellite operators in developing high performance terminals to extract

the best from both systems.

While not in HTS territory, Iridium's constellation renewal program is almost complete. In the maritime context, Iridium NEXT can act as a standalone service for ships with minimal data requirements, and remains a good fit for industrial M2M or IoT services. It is also interesting as a back-up channel to improve resilience on vessels where data has become mission-critical. Notably, Iridium approached us to build antenna terminals for the new service in an effort to scrub the slate clean in fixing the reliability issues that plagued the terminals in the past.

There are, of course, proposed new constellations from SpaceX, OneWeb and other big names from around Silicon Valley, although these are not aimed directly at the maritime community as most will lack inter-satellite links, leaving them of no use outside the reach of land infrastructure. It remains to be seen whether any of these go beyond the drawing board or, if they do reach orbit, are commercially sustainable. As any industry veteran will tell you, the history of satellite is littered with the remnants of skyward dreams that never left the Earth. In most cases, the hurdle was related to user terminal technology, which has come a long way in the past five years. We are actively engaged with numerous partners on this topic right now.

Question: In March 2018, Cobham SATCOM launched its Sea Tel 9711 Triband maritime antenna system, enabled by ViaSat. What can you tell us about the system and the benefits it brings to maritime vessels?



Photo courtesy of Cobham SATCOM



Stephan Jorgensen: Firstly, it is the world's first and only 2.4m maritime stabilized antenna capable of delivering full 2.4m gain performance across any C, Ku, or Ka-band network to maximize high-speed, high-quality broadband connectivity for high-demand customers. RF technology from our collaboration partner Viasat enables the system to potentially operate on any Ka-band satellite network in any orbit. Of course, there is a lot of certification work to be done with each network operator as well as the issue that some require proprietary RF components, but this solution does offer the ability to stop thinking about Ku vs. Ka and just simply say Kx. Going forward with so many new satellites, that becomes a strategic capability for any business.

The cruise industry leads the way in harnessing IP connectivity for business gains. They've shown that maritime Internet doesn't have to differ from land-based services. Some ships today are achieving speeds well over 1Gbps for operational, crew and guest use. Others have increased their average bandwidth by as much as 2,000 percent.

Connectivity on cruise ships has

moved beyond enabling passengers to email, post photos and make phone calls. These operators are investing heavily in digitalisation, IoT and analytics to glean new insights on customer behaviour and preferences in order to deliver a personalised experience. This is a common trend across the hospitality industry, but the Sea Tel 9711 Triband system enables it to happen in the middle of the ocean too.

Question: What other recent innovations has Cobham SATCOM launched in the past year and how has the market responded to these?

Stephan Jorgensen: We launched the SAILOR 600 VSAT Ku to meet the growing demand for high-speed maritime broadband on a wider range of vessel types and size, as the sector shifts into the digital age. As one of the lightest, most compact Ku-band antennas ever developed, it was designed to open up a level of Ku-band connectivity typically associated with 1m class antennas to smaller vessels and thus a larger proportion of the world fleet.

It is compatible with and can easily

roam between traditional wide beam satellites and HTS constellations utilising spot beams, such as Intelsat's EpicNG. Constructed from lightweight carbon fibre composites and aluminium, the SAILOR 600 VSAT Ku can be installed without the need for a crane in port. It can be configured for dual antenna installations out-of-the-box and features a range of advanced diagnostics and automatic event reporting to help plan maintenance and ensure service reliability.

As hinted above, we unveiled our first terminal, the SAILOR 4300, to function with Iridium NEXT. We designed it to get the most from Iridium's second generation constellation, which is now nearing completion. The Certus services provided over the LEO satellites will guarantee high bandwidth connectivity as a primary channel or as back-up channel as part of multi-band communication networks.

On the subject of L-band, we have also delivered our 50,000th SAILOR FleetBroadband terminal. Launched in parallel with Inmarsat's then game-changing L-band maritime satcom service in 2007, SAILOR Fleet

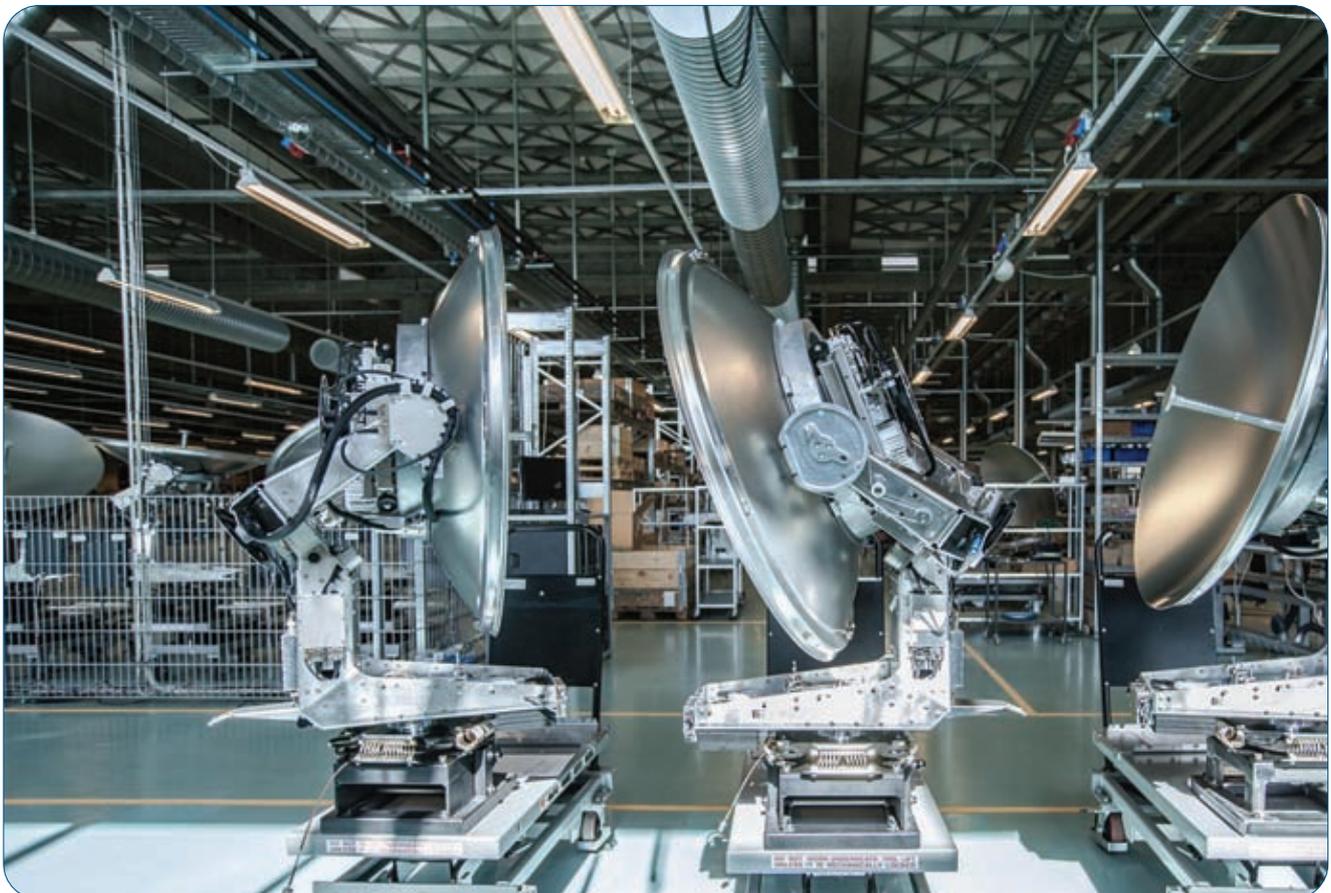


Photo courtesy of Cobham SATCOM



Broadband has played a major role in enabling safety and efficiency improvements on board merchant ship and fishing vessels, and we expect further acceleration in the latter given the increased demands for traceability and documentation required in the fisheries industry.

Question: In terms of product testing, Cobham SATCOM has some unique facilities. What are these and what benefits do they ensure for shipowners/operators?

Stephan Jorgensen: We take a very empirical, hands-on approach to product development, backed up by rigorous testing in the field. In developing the SAILOR 900 VSAT, for example, we fitted sensors on vessels operating in the rough North Sea and other areas and gathered data on the conditions our antennas have to tolerate. The resulting data on vessel motion was crucial for developing a high performance, robust antenna system capable of withstanding whatever the natural elements could throw at it. People underestimate the stress placed on electronic and mechanical systems at sea, which are expected to run at 100 percent peak performance, day in day out.

The data was eventually fed into Cobham's Advanced Dynamics Simulator (ADS) testing and development facility in Lyngby, Denmark. Similar to a flight simulator for pilots, the ADS is a computer-controlled platform that can be moved in any axes thanks to six electro-hydraulic pistons. It gives us the ability to run tests for extended periods, which wouldn't be possible on a ship. It is not unusual to subject a new antenna design to several thousand hours of physical testing. In addition to the motion tests, antennas are assessed for their resilience to vibration, extreme temperatures, salt corrosion, and dampness.

It might seem excessive, but this attention to detail is what allows us to deliver the high levels of reliability that end-users have not only come to expect, but increasingly depend on. It also boosts performance, which is a function of pointing accuracy. The time we spend testing our products in the lab and in manufacturing quality control reduces the time spent on antenna installation. Moreover, it means our end-users spend less time troubleshooting or finding workarounds to unnecessary failures.

Question: What are your expectations for the next 12 months, and how will Cobham SATCOM strive to advance?

Stephan Jorgensen: Shipping operators don't install Cobham SATCOM solutions on board their ships out of excitement for the hardware or a fascination with satellite constellations. It's there to perform a function – typically, to send operational data to and from shore – and the quieter it gets on with that job, the better. However, installations have historically demanded considerable attention to ensure they work as they should. So, our R&D efforts in recent years have been channelled into simplifying the installation process, reducing the maintenance burden and, generally, ensuring ease of use.

This has paid off in a number of innovations and improvements in the

design, quality and performance of our terminals. Going forward, we will continue in this direction by closely studying feedback from end-users and applying this insight to drive further streamlining and enhancements, whilst working closely with satellite operators to ensure we continue to deliver on reliability and performance. Vessel operators and even satellite network operators looking to expand market share in the maritime space must be able to shift their focus and resource allocation from hardware management to application development and value creation.

We intend to enable that shift by simply eliminating the complexity of hardware installation and management. The goal is to transform the maritime satcoms experience into the invisible, hands-free utility we all take for granted each day. ■

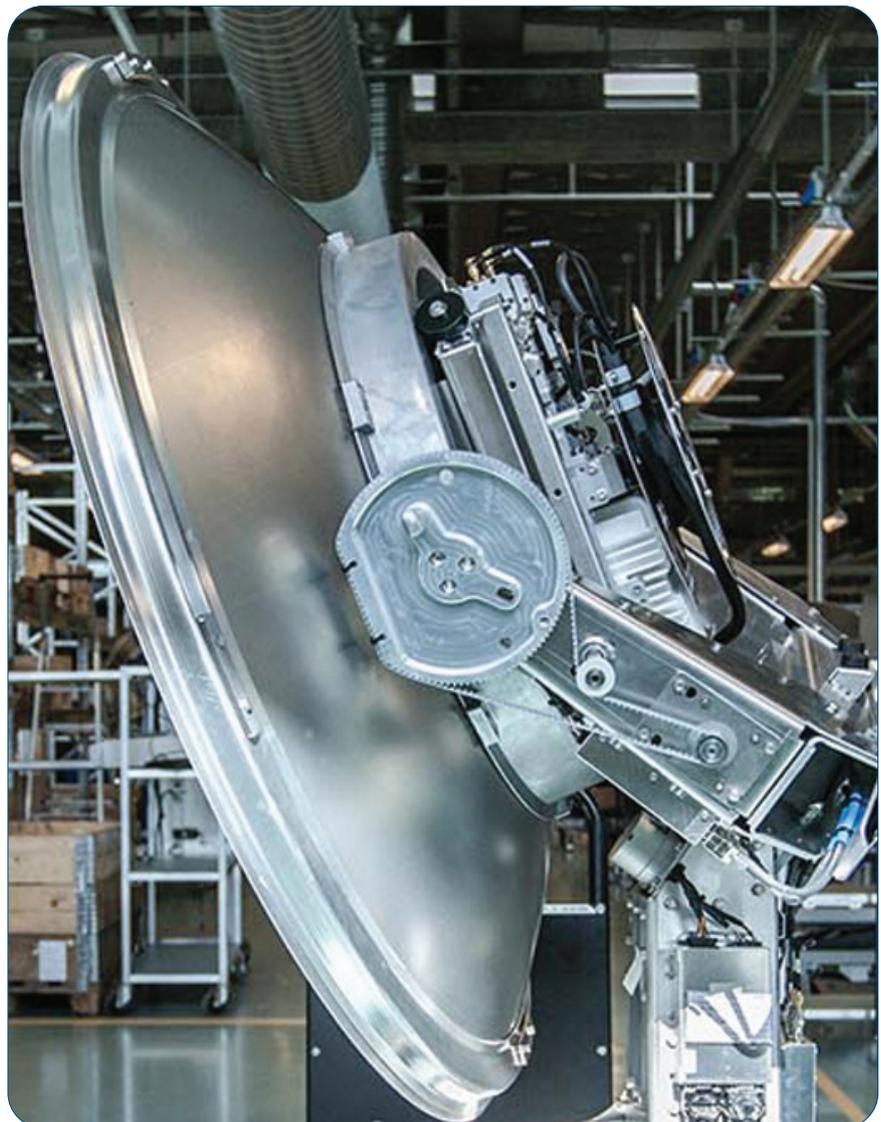


Photo courtesy of Cobham SATCOM