Cobham SATCOM Land
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Cobham SATCOM at a glance

Not just another BGAN

EXPLORER – a new name in VSAT

EXPLORER Push-To-Talk
Cobham at a glance

• Cobham's products and services have been at the heart of sophisticated military and civil systems for more than 75 years, keeping people safe, improving communications, and enhancing the capability of land, sea, air and space platforms.

Some numbers

• Annual revenue approaching £2bn / US$3bn

• £129m/ US$210 invested in R&D in 2011

• Employ over 10,000 people on five continents

• Acquired nearly 50 companies in the last decade
Cobham acquisition of Thrane & Thrane

• In June, 2012, Cobham plc acquired Thrane & Thrane.

• Rationale for the acquisition: Highly complementary businesses - increases scale in maritime, land and airborne satcom.

• Cobham specialises in antennas and VSAT. Thrane & Thrane has a strong track record in L band terminals and radios.

• Extends international reach through a combined dealer network.

• Makes it easier for all customers to buy a wider range of equipment, including integrated solutions.

• Opportunity to build on supply chain arrangements Thrane & Thrane has established outside of Denmark.

• Cultural compatibility eases transition: Both businesses have grown on the back of innovative technology and strong customer relationships.
Eight Strategic Business Units
Managed Through Three Divisions

### Mission Systems
- **Aviation Services**
  - Aerospace Engineering
  - Commercial Aviation
  - Special Mission
  - Support Services

- **Life Support**
  - Safety and Survival
  - Space Systems
  - Weapon Systems

- **Mission Equipment**
  - Air-to-Air Refuelling
  - Unmanned Systems
  - Weapons Carriage and Release

### Aerospace and Security
- **Aerospace Communications**
  - Antennas
  - Avionics
  - Communications
  - Microwave Components
  - Slip Rings

- **Antenna Systems**
  - Antenna Systems
  - Composite Technologies
  - Mast Systems
  - Microwave Antennas
  - Technical Services

- **Tactical Communications and Surveillance**
  - Military Platform Communications
  - Situational Awareness
  - Law Enforcement and Public Safety
  - Counter-Terrorism and Intelligence
  - Broadcast

- **SATCOM**
  - Marine
  - Air
  - Land
  - Systems

### Defence Systems
- **Defence Electronics**
  - Electronic Systems
  - Microwave Electronics
  - Sensor Electronics
Cobham SATCOM – the power of 4

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Cobham SATCOM Land – a perfect match

Cobham SATCOM

Sea

TracStar
(C-, X-, Ku-, Ka-band)
Orlando, Florida, USA

Land

thrane & thrane
(L-band)
Lyngby, Denmark

Air

Explorer
The EXPLORER Series from Cobham SATCOM is the most comprehensive range of satellite communication products in the market today. It is a well proven and thoroughly tested series of products, including a whole range of BGAN terminals and VSAT systems:

- Lightweight and easy-deployable Inmarsat BGAN terminals (L-band)
- Manual Deploy Backpack Fly-Away VSAT Antennas (0.75m – 1.2m)
- Auto-Deploy Fly-Away VSAT Antenna Systems (0.75m – 1.2m)
- Drive Away Communication-on-the-Pause (COTP) Antenna Systems (1.0-1.8m)
- Satcom-on-the-Move (SOTM) systems for both BGAN and VSAT
Introducing EXPLORER 710
- the bar is raised
Introducing the EXPLORER 710

• A state of the art BGAN setting new standards in terms of speed, size and features.

• Radical improvement in video quality - the first and only BGAN to support High Data Rate streaming service from Inmarsat.

• Ultra-portable and lightweight with more capability.

• Shipstart: September 2013
High Data Rate Streaming QoS

• HDR on-demand Streaming Service provides a guaranteed bandwidth (QoS) of est. 650 kbps.

• Service offerings:
  - **Asymmetrical** (650 kbps up / 64 kbps down); pay for what you need.
  - **Symmetrical** – or premium (650 kbps up/down).
  - **Half-channel** (325 kbps).

• Standard (shared) data will continue to be 492 kbps (Class 1).

• HDR will launch in Q4 2013 under existing I4 satellites.
EXPLORER 710
- Plug ‘n Play bonding

• Bonding: Connect two EXPLORER 710 with an Ethernet cable and get speeds in excess of 1 Mbps QoS.

• “De”-bonding: Simply install Linux software program on an internet connected PC or server at the receiving end.
EXPLORER 710
- Ultra-Portable BGAN

EXPLORER 700

EXPLORER 710 - the smallest Class 1 BGAN terminal
EXPLORER 710
- The ultimate BGAN

- Magnesium Casing
- Smallest Class 1 terminal
- High Data Rate Bonding
- Built-in SIP server
- Detachable antenna
- Backpack size
- High Data Rate Streaming
- Power over Ethernet
- Smartphone Apps
- Power over Ethernet
And much, much more...

- External WiFi antenna (SMA Connector)
- ISDN
- 2 x LAN (1 x PoE)
- 1 x phone/fax
- DC power 10-32V
- Connector for 2nd battery ("hot-swap")
- LED Display (2.5 x 8 cm)
- USB Host
- On/off
- Battery
- 1 SIM Card slot
- TNC / TNC antenna connector
Introducing EXPLORER VSAT
EXPLORER VSAT is a series of multiband (Ka & Ku) antenna systems formerly sold under the TracStar products brand.

The EXPLORER series includes a wide array of Manual and Auto-Deploy Fly-Away antennas, and a selection of Drive Away and Satcom-On-The-Move antennas:

- **EXPLORER 3000**: Manual Fly-Away Antennas
- **EXPLORER 5000**: Auto-Acquire Fly-Away Antennas
- **EXPLORER 7000**: Auto-Acquire Drive Away Antennas
- **EXPLORER 9000**: Satcom-On-The-Move Antennas

An EXPLORER VSAT antenna system comes with selected feed and BUC options.

Inmarsat Global Xpress Ka-band is supported on select models of the 3000/5000/7000 series.
The EXPLORER 3075 is a series of manual-point fly-away VSAT terminals with IATA-compliant transport cases.

- Features: Lightweight, rugged, highly portable, and modular mobile terminal capable of X-, Ku- and High Throughput Ka-band satellite operation. Its user-friendly design allows operators with minimal satellite experience to access broadband network services within minutes.

EXPLORER LVC750
- 75 cm multi segment parabolic reflector
- 4W TRIA Ka-band Transceiver and Modem
- Eutelsat type-approved for KA-SAT
- Avanti approved

EXPLORER 3075
- 3-axis Positioner for manual point
- 75 cm multi segment parabolic reflector
- Available in multiple Ka- and Ku-band options

EXPLORER 3075GX
- Global Xpress (GX) feed and Modem
  Available at Global Xpress service launch
EXPLORER 3075 Series

EXPLORER 3075 comes in an IATA-compliant Hardcase and an optional backpack inside for easy transportation.
The EXPLORER 3120 is a Manual Fly-Away system that provides users with a lightweight, mobile terminal capable of Ku-band operation.

**Features:**

- Easy to set up and use
- 3-axis positioner for manual point
- 120 cm multi-piece segmented parabolic reflector
- Rugged, highly portable within two IATA compliant cases. Airline Checkable
- Carbon fiber outrigger tripod to hold the positioner and RF equipment
- Available in Ku-band with several BUC options
EXPLORER 5000 Series

The EXPLORER 5000 series is a range of auto-deploy fly-away antennas with a web-based user GUI interface.

EXPLORER 5075GX
- 75 cm reflector
- Ka-band GX feed and Modem

EXPLORER 5100
- 100 cm aperture
- Ku-band
- Fly & Drive option
- Three cases for Fly Away

EXPLORER 5120
- 120 cm aperture
- Ku-band
- Fly & Drive option
- Three cases for Fly Away

Available at Global Xpress service launch
EXPLORER 7000 Series

The EXPLORER 7000 series is a range of auto-deployable Drive Away antenna systems with web-based user interface.

EXPLORER 7100
- 100 cm aperture
- Ku-band today, Ka-band tomorrow.
  - Upgrade path to GX Network: 7100GX model available at Global Xpress launch

EXPLORER 7120
- 120 cm aperture
- Ku-band
  - For multiband applications: See TracStar1200

EXPLORER 7180
- 180 cm aperture
- Ku band
  - For C-band: see TracStar1800C
Global Xpress launch partner

EXPLORER 3075GX
- 3-axis Positioner for manual point
- 75 cm multi segment parabolic reflector
- Global Xpress (GX) feed and Inmarsat Core Module

EXPLORER 5075GX
- 75 cm multi segment parabolic reflector
- Auto-deploy Fly-Away
- Global Xpress (GX) feed and Inmarsat Core Module

EXPLORER 7100GX
- 100 cm aperture
- Ka-band feed chain with 5W BUC
- Inmarsat Core Module
  - Upgrade path from 7100 to 7100GX available at launch
EXPLORER Push-To-Talk
- A growing family of effective communication tools
What is EXPLORER PTT?

- A hybrid communications solution designed to replace VHF/UHF based trunk radio systems
- Ruggedized and easy to use Digital Push-To-Talk communication
- Designed to cost effectively replace or expand VHF/UHF based trunk radio systems
- Voice-over-IP technologies optimized for use seamlessly under difficult satellite or terrestrial link conditions
- Automatic voice and data least cost routing between terrestrial (2G/3G/LTE) and Satellite (BGAN) networks
- Ensures Beyond Line-Of-Sight communication - global coverage.
1. Dispatch User terminal mounted in vehicle

- Connected to the BGAN terminal via Ethernet
- Voice-over-IP gateway optimized for satellite use
- Push-To-Talk with a connected rugged Hand Microphone/Speaker
- One-call option by design
- Least cost routing between 2 cellular networks and BGAN (2G/3G/4G)
- Communication and Assets / Call Groups handled by central dispatch
1. Dispatch Based PTT – ensures command and control of the mobile work force members

Communications provided by a PTT Box with both 2G/3G/LTE modem(s) and an EXPLORER BGAN terminal.
2. Closed User Group Terminal for vehicle mounting

- Connected to the BGAN terminal via Ethernet
- Voice-over-IP gateway optimized for satellite use
- Push-To-Talk with a connected rugged Hand Microphone/Speaker
- Set up and configuration from Handset
- Closed User Group selection from Handset
- Least cost routing between 2 cellular networks and BGAN (2G/3G/4G)
- Communication and Assets / Call Groups handled by central admin console
2. Closed User Groups (CUG) – ensures efficient collaboration between mobile entities

Communications provided by a PTT Box with both 2G/3G modem(s) and an EXPLORER BGAN terminal. Support for VHF Radio Integration.
Closed User Group Terminal for vehicle mounting – Radio-over-IP gateway

- The PTT terminal has a built-in 4 wire Ear&Mic (E&M) interface designed to provide direct interfacing to most VHF/UHF radios
  - Balanced 600Ω audio in and out with programmable gain and sensitivity
  - PTT in and Carrier Detect out

- Additional external interfaces:
  - Speaker output (4Ω passive speaker)
  - 2 General purpose inputs (GPIO), 2 General Purpose output (GPIO)
CUG – Closed User Group
Controlled from the fist mic

- Volume and on/off button
- Network status (BGAN, 3G, 3G)
- Current Group
- Connected / Disconnected
- Group selection wheel
- Menu Home button
- Call button
- Distress button on the rear

- Dim display
- Push to talk button
- Menu shift button
- Replay button
The most important thing we build is trust