

ST Electronics shares the commitment to environment sustainability. The pages of this brochure are printed on recycled paper which contains 55% recycled fibre (25% post consumer and 30% pre consumer) and 45% elemental chlorine free pulp. The stock has ISO 14001 Environment Management System (EMS) accreditation.



SATELLITE AND BROADBAND COMMUNICATIONS

global connectivity
extensive reach
together, we communicate
beyond boundaries

Contents

global communications made easy **1**

our products and solutions **3**

our company **7**

global communications made easy

ST Electronics designs, develops and markets reliable and versatile communications products and solutions to customers in more than 70 countries... pioneering seamless end-to-end broadband wireless solutions for various communication needs, business applications and platforms.

Businesses and organisations increasingly require powerful global networks that provide sustained connectivity in a dynamic and constantly changing environment, regardless of geography. This is made possible only via satellite communications.

In just the past few years, the satellite communication (satcom) industry has forged a broader value proposition. Satcom has grown in functionality and efficiency to become an integral component of next generation Internet Protocol (IP) networking.

As a leading manufacturer and solution provider of satellite broadband communications, Singapore Technologies Electronics (ST Electronics) has been equipping both public and private organisations with ground-breaking applications for almost two decades.

Manned by a team of dedicated engineers, equipped with advanced and comprehensive facilities sited in high-technology manufacturing premises, ST Electronics designs, develops and markets reliable and

versatile communications products and solutions to customers in more than 70 countries. This number is set to grow as we gear towards pioneering seamless end-to-end broadband wireless solutions for various communication needs, business applications and platforms.

ST Electronics' satellite broadband communication systems are provided from Singapore through ST Electronics (Satcom & Sensor Systems) Pte Ltd together with iDirect Asia Pte Ltd and from the US by VT iDirect Inc (iDirect). Our comprehensive suite of satcom products and solutions are sold under the globally renowned brands of Agilis and iDirect.



The miniV, one of the world's smallest portable VSAT in its class



Satellite Communications On The Move



our products and solutions

Our satcom solutions have found a niche in every industry, covering telecommunications, government, defence, business enterprises, education, oil and gas industry, financial sectors, homeland security, GSM backhaul networks, the maritime industry and more.

VSAT Products

The Agilis brand is ST Electronics' signature range of Very Small Aperture Terminal (VSAT) products for satellite broadband communications.

Building on our impeccable record in producing phase-locked, dielectric resonator oscillators (PL-DRO) and low-noise block down converters, we have fine-tuned the science and art of developing high quality VSAT products and systems.

Customers can find specific applications among the Agilis range of off-the-shelf VSAT products and sub-systems, which include:

- RF/Outdoor Units, such as C and Ku-band transceivers, Block-Up Converters (BUC), Solid State Power Amplifiers (SSPA) up to 400W and redundancy switching equipment
- Up/Down Converters
- Satellite Modems
- Specialised Terminals, such as Satcom-On-The-Move, mini-V, Swiftlet Flyaway System and Maritime VSAT Stabilised Antenna

Our satcom solutions have found a niche in every industry, covering telecommunications, government, defence, business enterprises, education, oil and gas industry, financial sectors, homeland security, GSM backhaul networks, the maritime industry and more.

ST Electronics' products and solutions are well accepted by eminent customers locally and globally. The superior features and functions, as well as low operating costs and easy set-up of our

VSAT products and satcom solutions allow our customers to deploy them in many mission-critical and remote sites worldwide. The dependability of our equipment, even under the harshest environmental conditions, has led to us being awarded contracts to supply to major telcos and VSAT service providers, enterprises and governments worldwide.

Some of our most popular products include the high power SSPA and the BUC. The BUC is highly sought after for its compact size, ease of installation, low power consumption, and wide DC input voltage range, from +18V to +60V, ideal for a 24V DC or 48V DC modem power supply which allows the equipment to operate reliably even when the power source is unstable.

Complementing the Agilis range of VSAT products is the iDirect satellite-based IP (Internet Protocol) communication portfolio consisting of hubs, routers and network management software to address the growing complexity of deploying and managing global satellite broadband networks.

The iDirect Intelligent Platform™ is an engineering feat unmatched by any other technology provider in the satcom industry. As a single integrated IP platform, it can support any customer application regardless of satellite band, network topology, location or bandwidth requirement. Designed to provide reliable support to critical applications, the iDirect technology has enjoyed rapid adoption worldwide, making it a leading brand in the industry.



Agilis Block-Up Converter

Hubs, Routers & Network Management Solutions

Through iDirect, we offer a range of solutions that enable service providers and enterprises to optimise bandwidth efficiency across numerous critical scenarios from GSM backhaul to bandwidth-intensive network applications.

The iDirect Intelligent Platform™ integrates advanced technology into its portfolio of hubs, routers and network management software to address the growing complexity of deploying and managing global IP networks.

Our iDirect Evolution product line delivers dramatic gains in bandwidth efficiency. Built on the DVB-S2 (Digital Video Broadcasting - Satellite - Second Generation) standard and featuring Adaptive Coding and Modulation (ACM) capabilities, our suite of DVB-S2/ACM products enable service providers to lower operating costs and increase their business opportunities. Extensive tests show that the Evolution product line can deliver a 30 percent improvement in bandwidth efficiency over DVB-S systems. The Evolution product line fully integrates with the advanced features of the iDirect Intelligent Platform™ to help operators amplify the gains of DVB-S2.

iVantage, our industry-leading network management system, represents a complete suite of software-based tools for configuring, monitoring and controlling the entire satellite network from one place. It transforms the way complex satellite networks are managed

with its intuitive visual interface and built-in intelligence that automatically anticipates potential network outages and provides real-time network performance analytics.

Our portfolio of Universal Satellite Hubs allows service providers to offer broadband service over satellite that matches the quality and performance of broadband terrestrial networks. Our universal satellite hub enables customers to operate a shared bandwidth platform spanning multiple satellites, transponders and topologies simultaneously.

We offer a full line of satellite remote routers, the new DVB-S2 Evolution line and award-winning iFINITI line, to suit the needs of any organisation. Our remotes are a “single box” solution that include a satellite modem, IP router, optional encryption, Transmission Control Protocol (TCP) optimisation over satellite, and QoS (Quality of Service)/prioritisation.

Our Network Accelerators maintain TCP performance when working with VPN security systems and support real-time applications such as VoIP and streaming video.

With our IDS/iDX Software Suite, customers experience the latest technology innovations and features, such as spread spectrum and application level QoS (Group QoS), providing maximum flexibility for bandwidth management and end-user applications across the iDirect Intelligent Platform™.

We ensure seamless transition from system development to system management, with end-to-end solutions that provide our customers with the best value and performance.

Integrated Network Management System (iNMS)

With ST Electronics' integrated Network Management System (iNMS), our customers can monitor and configure all the equipment in an enterprise network from one central location. Comprehensive, versatile and scalable, the system meets the needs of any organisation's advanced network and is deliberately designed to enable network users to identify and resolve problems and overcome performance bottlenecks before they impact the network systems.

The iNMS empowers users to rapidly configure, manage and troubleshoot multi-vendor networks. Created to be deployed in the Network Operation Centre (NOC) of large enterprises and service providers worldwide, the iNMS is easily expandable and adaptable to multiple nodes as well as networks.

Turnkey Satellite Network Solutions

We are a system solution provider with extensive product engineering expertise. With our in-depth understanding of life cycle management processes, we ensure seamless transition from system development to system management, with end-to-end solutions that provide our customers with the best value and performance. Our ability to respond to service calls in-country within an exceptionally short time translates to reduced spares requirements and lower Total Cost of Ownership (TCO) for our customers.

Our system engineers are able to integrate various best-of-breed products and deliver complex mission-critical satellite communication networks of various configurations (mesh, star or hybrid). Our key focus areas include the development of turnkey system-of-systems integration programmes, comprehensive Command, Control and Information Systems (CCIS), and networks with secured and resilient communications for voice, data and video transmissions.

Over the years, we have earned a reputation for providing high quality Mil-Satcom systems for land, mobile and shipboard applications, including heli-lifting and trailer-mounted operations. We have extensive experience in integrating complex communication systems onto military wheeled and tracked vehicles and vessels.

Whatever our customers' technology platforms, we have a solution for them. Our communication networks cover VSAT, Microwave, WiFi and WiMAX technologies, and are designed to allow high quality and timely information to be transmitted across several strata of command. The backbone communication networks are also interfaced to auxiliary networks such as the PSTN, DigiNet, Fibre Optics, GSM networks and customer-furnished proprietary equipment and networks. We can also integrate our systems with end-user terminals such as encryptors, voice switches/PBXs, radios and C2 (Command & Control) computers and routers.



Universal Satellite Hubs for multiple high performance IP broadband networks



Network Accelerators maximise satellite bandwidths



The Maritime VSAT (MVSAT) enables small vessels to communicate at sea

our products and solutions

Production Engineering and Customer Support

Achieving total customer satisfaction is what we strive towards. Our highly competent and qualified product engineering and customer support teams are ready to offer our customers complete product support and services for the ST Electronics range of products and systems.

We are fully equipped to perform tuning and precision measurement services covering the entire frequency spectrum up to 60GHz. We also possess a complete scope of testing facilities, including custom designed Automated Testing Equipment, High Accelerated Stress Screening (HASS) and Environmental/Temperature Chambers. Our dedicated production workforce is certified to IPC610 Class 2 and Class 3 standards.

We are a leader in enterprise broadband over satellite solutions with over 750 hubs and 110,000 remotes sold to more than 300 network operators. We provide one of the most scalable, flexible and bandwidth-efficient products in the industry, while providing our partners with the lowest total cost of ownership

for a complete broadband VSAT solution. Our technology allows customers to create and implement multiple service plans to support different types of operator, reseller and enterprise customers, each with their own requirements, at the lowest cost of operations, while still meeting their Service Level Agreements.

ST Electronics has the most comprehensive range of satellite communication products, currently deployed in various applications all over the world, capable of operating under extreme environmental conditions. Our customers can be assured that wherever they operate, technical and support service is always within easy reach.

In addition to the ST Electronics global distribution network of authorised agents, distributors and regional sales representatives, we have established in-country Customer Support Centres. Our value-added and personalised service to customers is unmatched by most, and is part of our ongoing pursuit of service excellence.

our company

Our solutions are strategically targeted at the e-Government, Satellite Communications, rail and highway intelligent transportation and Interactive Digital Media markets.

Headquartered in Singapore, ST Electronics has 40 years of experience in providing electronics, communications and Information Communications Technologies (ICT) solutions to governments and commercial enterprises worldwide.

Our strength lies in our ability to harness leading-edge technologies into products and solutions, which are both innovative and cost-effective. Our solutions are strategically targeted at the e-Government, Satellite Communications, rail and highway intelligent transportation and Interactive Digital Media markets.

A truly global company, ST Electronics has established an international presence in more than 30 cities in 20 countries. We have offices in Bangladesh, Botswana, China

(including Hong Kong), Europe, India, Kazakhstan, Malaysia, Mexico, the Gulf States, South Africa, Taiwan, Thailand and the US, serving a customer base that spreads over more than 70 countries.

ST Electronics is a wholly-owned subsidiary of Singapore Technologies Engineering Ltd – one of the largest public-listed companies on the Singapore Stock Exchange.



Production facilities



World-class engineers provide 24x7 customer support

Awards and Patents

Our values and work attitude have earned us extensive industry approval and recognition, as demonstrated by some of our accolades. ST Electronics strives to build and strengthen its strong innovative spirit. We continually invest in research and development and have been granted numerous patents for our innovations.

Awards

- 2005 and 2008 Teleport Technology of the Year Award from The World Teleport Association
- Attained AS9100 Certification in 2008 for the Repair and Maintenance Service of Airborne Communication Modules and Systems
- QuEST TL 9000 Certification, The Telecom Quality Measurement System, 2008
- Leader for TDMA Global Hub Sales in Comsys' 2007 VSAT Industry Report
- iDirect named by Frost & Sullivan, for dominant market presence and growth in the Middle East and Africa (MEA) region, 2007
- iDirect named among the Fastest Growing Companies by the Washington Business Journal, 2005, 2006 and 2007

- iDirect awarded the Product Innovation Award, Frost & Sullivan, 2004 and 2006
- iDirect named by Deloitte & Touche Fast 50 as #1 on the list of the fastest-growing US technology companies in Virginia, 2005
- National Quality Circle Convention Gold Award in 2001 for VSAT Special Task Force

Patents

- Method, Apparatus, and System for Feathering Data In A Communication Network for iDirect (2008)
- Method, Apparatus, and System for Calculating and Making a Synchronous Burst Time Plan in a Communication Network for iDirect (2007)
- Method Apparatus and System for Designing and Planning a Shared Satellite Communications Network for iDirect (2007)
- Hybrid Radio Frequency Transceiver in Singapore (2006) and UK (2005)

CONTACT US

Singapore Technologies
Electronics Limited (ST Electronics)
24 Ang Mo Kio Street 65
Singapore 569061
Tel: (65) 6481 8888
Fax: (65) 6482 1079
Email: mktg.elect@stengg.com
www.stee.stengg.com
(Regn. No.: 196900084E)

Large-Scale Systems Group
Tel: (65) 6481 8888
Fax: (65) 6483 2454
Email: lsg@stee.stengg.com

ST Electronics (Info-Comm Systems) Pte. Ltd.
100 Jurong East Street 21
ST Electronics Jurong East Building
Singapore 609602
Tel: (65) 6567 6769
Fax: (65) 6567 6300
Email: info_infocomm@stee.stengg.com
(Regn. No.: 198601460K)

ST Electronics (Info-Software Systems) Pte. Ltd.
24 Ang Mo Kio Street 65
5th Floor, Block D
Singapore 569061
Tel: (65) 6481 8888
Fax: (65) 6481 0693
Email: mktg_infsoft@stee.stengg.com
(Regn. No.: 198601030N)

ST Electronics (Satcom & Sensor Systems) Pte. Ltd.
29 New Industrial Road
ST Electronics Paya Lebar Building
Singapore 536213
Tel: (65) 6521 7888
Fax: (65) 6521 7333
Email: mktg_satcoms@stee.stengg.com
(Regn. No.: 199103901W)

iDirect Asia Pte. Ltd.
29 New Industrial Road
ST Electronics Paya Lebar Building
Singapore 536213
Tel: (65) 6521 7888
Fax: (65) 6521 7333
(Regn. No.: 200807753Z)

ST Electronics (Training & Simulation Systems) Pte. Ltd.
24 Ang Mo Kio Street 65
4th Floor, Block D
Singapore 569061
Tel: (65) 6413 1307
Fax: (65) 6482 6162
Email: marketing_tss@stee.stengg.com
(Regn. No.: 199607423R)

STELOP Pte. Ltd.
(formerly Chartered Electro-Optics Pte Ltd)
24 Ang Mo Kio Street 65
Block D, 6th Floor, Singapore 569061
Tel: (65) 6481 1801
Fax: (65) 6481 1337
Email: marketing@stelop.com
(Regn. No.: 199405796C)

