EPAK® VSAT – Maritime Satellite Tracking Antennas for High Speed Internet Access

EPAK
Automatic Satellite Tracking Antennas

Up to 54 Mbitps / 8 Mbitps INTERNET/DATA/VOICE
Professional VSAT for Offshore & Inland, Commercial & Leisure

EPAK® VSAT brings satellite broadband communication on board with the key advantages of:

- Heavy-duty and robust, yet light-weighted engineering in mechanics and electronics – Designed and manufactured in Germany
- Full skew automatic & tracking 3 axis antennas
- Unlimited High-Speed-Azimut turns (no cable unwrap)
- Preventive maintenance plans: up to 10 years of warranty
- Proven for reliability by long-term experience
- Transparent antenna (provider independent) for DVB RCS (S2) and comparable technologies
- Compatible with every approved L-Band modem

- All major modem technologies (such as iDirect, Comtech, Satnet, STM, Romantis) are integrated and type approved
- Real Broadband: Maximum data rates of up to 54 Mbps download and 8 Mbps upload
- Independence of any special adapters (modem communication via RJ45)
- Very easy installation – just 3 cables for Rx, Tx and Power from ACU to antenna
- No need of external ship sensor data - tracking data derived from satellite signal, no Gyro necessary
- User friendly in operation
- Outstanding online availability: High tracking speed and highest accuracy within every movement of the ship by using advanced EBF (Electronic Beam Forming) tracking technology

- High Efficiency and High Troughput
- Airtime + Antenna from one hand with EPAK® Airtime Services – no trouble after sales
- Truly reliable technical support network in all coverage zones
- Antenna Control Unit (ACU) supports large and small networks as well as specific rules and optional equipment
- Remote control by NOC and/or operator
- Safety switch off/on Tx automatically performed by ACU

All EPAK® VSAT antennas are fully compliant to the **ETSI 302 340** standard (Earth Stations on Vessel).

EPAK® SC90 Ku
- World wide broadband solution within standard Ku Band
- 5 Watt BUC integrated
- BUC electronically switchable in Xpol and CoPol operation

EPAK® SC60 Ku
Cost-efficient and high quality broadband solution – for either commercial or leisure ships. Suits perfectly for smaller private boats, yachts and superyachts, but for demanding commercial users with regional operation areas and medium-scale data volume demands as well. Lots of systems on duty in Gas and Oil industry, fishery, offshore windpark construction industry, barges, offshore construction platforms or unmanned research platforms, Governmental ships, Military ships.
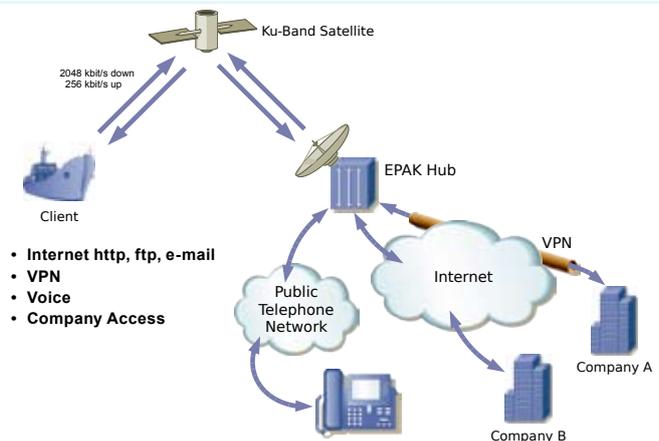
Ku-Band Satellite

2048 kbit/s down
256 kbit/s up

EPAK Hub

Client

- **Internet http, ftp, e-mail**
- **VPN**
- **Voice**
- **Company Access**

VPN

Internet

Public Telephone Network

Company A

Company B

SC90 Ku

EPAK® VSAT – Maritime Satellite Tracking Antennas for High Speed Internet Access

EPAK GmbH

SC60 Ku
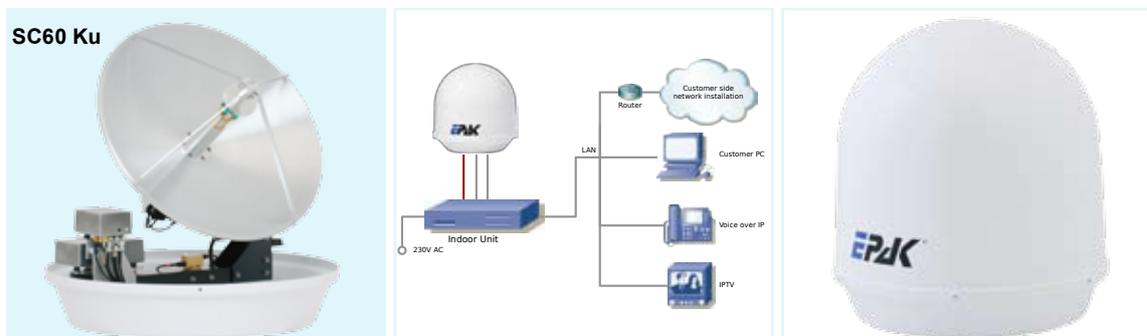
Antenna	SC60	SC90	
Reflector	60 cm	90 cm	
Minimum EIRP of Satellite	47 dBW	44 dBW	
LNB	PLL stabilized linear		
BUC	PLL stabilized		
BUC Power	1,5 W / 3 W	1,5 W / 3 W	5 W
RX/TX Polarization	X-Pol	X-Pol	X-Pol and Co-Pol
Radome Diameter	728 mm	1100 mm	
Radome Height	810 mm	1140 mm	
Weight	37 kg	65 kg	
Azimuth Range	unlimited		
Elevation Range	-10° – 90°		
Skew Range	Automated ± 120° from zero position		
Drive	3 axes servo, tooth belt gears		
Tracking Sensor	Electronic Beamforming (EBF-Gyro) for Tracking during present sat signal / Solid state for Tracking during blocked sat signal		
Maximum Tracking Speed	≥ 30 °/s		
Lock On Time /ODU)	typ. 30 sec.		
Power Supply	24 VDC via ACU		
Power Consumption	20 – 40 Watt (only ODU, exclusiv BUC)		
Satellite Acquisition	completely automated by SatFingerprint Technology / Modem Confirmation		

Antenna Control Unit (ACU)	
Dimension	482,6 mm × 91 mm × 374 mm
Power Supply	220 V AC, 50 Hz
Power Consumption	100 Watt

System	
Operation Temperature	-20°C to +70°C
Storage Temperature	-30°C to +85°C

info@epak.de

EPAK® TVRO – Maritime Satellite Tracking Antennas for HD TV Reception

Automatic Satellite Tracking Antennas

EPAK® TVRO – Unlimited Enjoyment

FULL HD READY
Unlimited Reception of all your favorite Channels:
- Free Choice of all available Satellites – No Onboard Service Needed
- Up to 4 satellites can be stored and changed by the user at any time
- Any receiver can be connected for analog or digital reception

Unlimited number of TV places
- Through connection of Multi-User Kits an unlimited number of TV places can be served

High End Satellite Tracking Technology
- All EPAK® antennas include the EBF-Gyro, the key to an extremely fast and accurate satellite tracking

- High positioning speed, high tracking accuracy at every movement
- Unlimited antenna turns – no cable unwrap
- Instant sensor-based satellite reacquisition after blockages or signal outages

**Premium-Line
TV90, TV61 and TV46**

- Selected materials and exclusive design for high end performance and outstanding endurance
- TV reception even under roughest sea conditions
- TV61 and TV90 include automatic skew adjustment and skew tracking for a highest tracking accuracy and no manual skew adjustments on long distance travels
- Tracking speeds up to 70°/s

**Basic-Line
TV59 and TV44**

- Excellent TV reception during cruising in open seas
- High tracking speed of up to 40°/s for uninterrupted TV signal
- Designed for all kind of ships - even for smaller boats
- Single, Twin and Quattro models available

NEW!

TV90 Global for worldwide operation
- **High end automatic satellite selection world wide**
- **Remote access control and local web interface**

**River-Line
TV58 and TV43**

- Designed for ships operating on rivers or lakes, in harbours or in coastal waters
- Instant relock after passing obstacles like bridges, buildings, trees etc.
- Very cost efficient system with a perfect price- performance ratio
- Single, Twin and Quattro models available

TV59

EPAK® TVRO – Maritime Satellite Tracking Antennas for HD TV Reception

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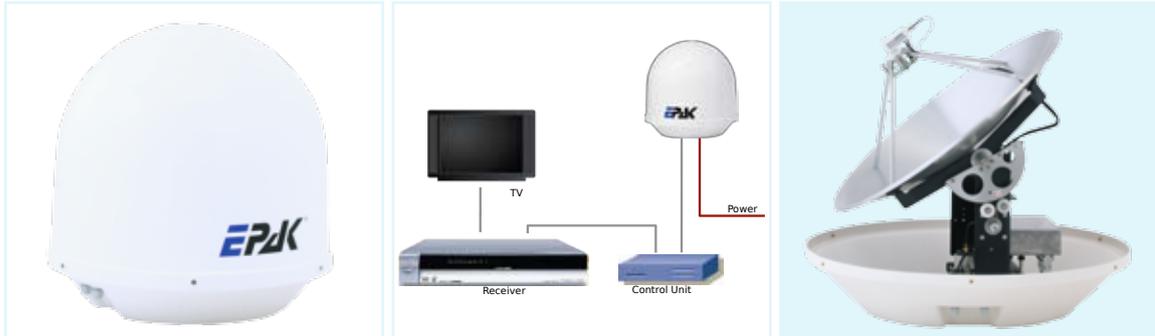
Antenna	River-Line		Basic-Line		Premium-Line		
	TV43	TV58	TV44	TV59	TV46	TV61	TV90
Reflector Size	45 cm	60 cm	45 cm	60 cm	45 cm	60 cm	90 cm
Minimum EIRP	49 dBW	48 dBW	49 dBW	48 dBW	49 dBW	47 dBW	44 dBW
LNB	Universal linear/circular						
Radome Diameter	540 mm	700 mm	540 mm	700 mm	540 mm	728 mm	1100 mm
Radome Height	550 mm	690 mm	550 mm	690 mm	550 mm	810 mm	1140 mm
Weight	12 kg	16 kg	12 kg	16 kg	20 kg	36 kg	62 kg
Azimuth Range	unlimited						
Elevation Range	5° to 85°	5° to 90°	5° to 85°	5°to 90°	5° to 85°	-10° to 90°	
Skew Range	manual					Auto. ± 120° from zero	
Drive	2 axes servo, tooth belt gears				2 axes direct drive with gears	3 axes servo, tooth belt gears	
Tracking Sensor	Electronic Beamforming (EBF-Gyro) for Tracking during present sat signal / Solid State Sensor for Tracking during blocked sat signal						
Maximum Tracking Speed	≥ 12 °/s		≥ 40 °/s		≥ 70 °/s	≥ 30 °/s	
Lock On Time	10 – 20 sec.				typ. 30 sec.		
Power Supply	12 – 36 V DC						
Power Consumption	20 – 40 Watt						
Twin availability	×	×	×	×	×		
Quattro availability		×		×		only	only

Control Unit	
Power Supply	12 – 20 VDC, 100 mA, powered by receiver
Satellite Acquisition	completely automated by SatFingerprint Technology
Satellite Positions	up to 4 freely programmable positions
Satellite Selection	by control unit or by receiver (via DiSEqC™)

System	
Operation Temperature	-20 to +70 °C
Storage Temperature	-30 to +85 °C

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Professional Environment and Peripherals for EPAK® TVRO and EPAK® VSAT

Diversity Kit – No more blind spots!

Increase the availability of your Ku-band satellite link very close to the theoretical limit!

Superstructure and other obstacles might seriously affect availability of your VSAT or TVRO satellite link. EPAK® Diversity Kit for TVRO or VSAT is combining the free line of sight ranges of 2 antennas in one bundle:
Once one antenna is blocked in sight, the other antenna seamlessly takes over the satellite connection. That will prevent nearly any loss of satellite signals through blockages. Beyond that, the EPAK® DivKit offers the big advantage of much more flexibility in regard of installation places.

Diversity Kit TVRO

Diversity Switch Box

Diversity Control Unit

230V AC

Multiswitch / Head station

Receivers

Diversity Kit VSAT

UMTS/ GPRS

L-BAND

Diversity Switch Box

Diversity Control Unit

230V AC

- Modem
- Traffic Shaping
- PEP, Switch
- Routing & Filtering

Onboard network

Onboard GSM

optional

EPAK® Added Benefit Systems (ABS)

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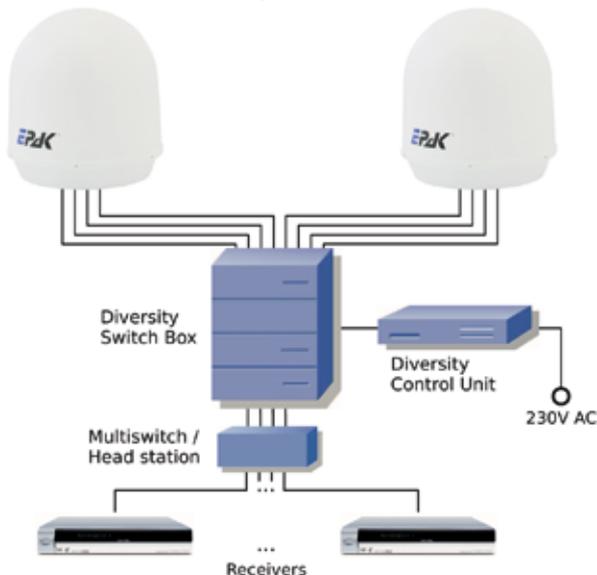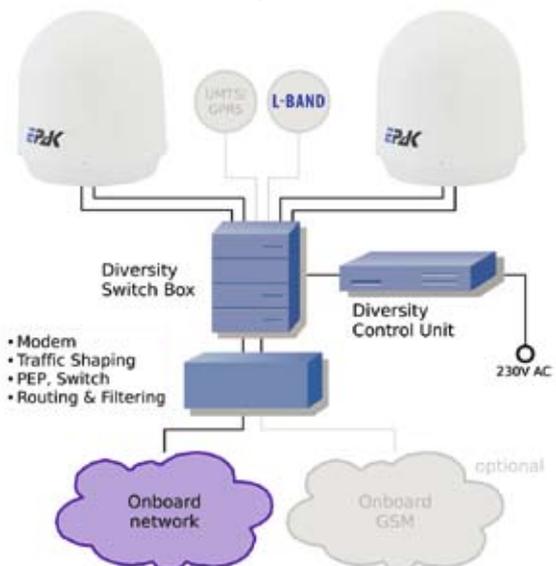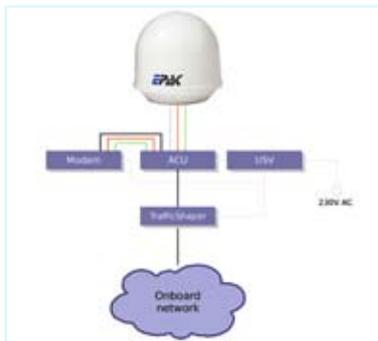
EPAK® TS – Traffic Shaper
for safe traffic and customized network control

Satellite communication capacity is precious. So why wasting it by malicious software attacks, useless and volume intensive audio/video streaming, file sharing etc. without even knowing it? Save, administer and control any network resources/participants onboard with that simple and powerful tool – save satellite capacity and/or use it for applications, which YOU consider useful!

EPAK® TS provides:

- Access management to the Onboard Network
- Priority access based on protocols and/or IP adresses
- Time rules
- Rules per PC
- Override functions for Captain / Owner

- Traffic shaping and fair usage between PC's
- Powerful Firewall
- Reliable Filtering
- Protocol generation, Traffic control

EPAK® VOIP Solution

- Connect your ship to your home telephone network
- Professional solution to extend phone lines from the office to the ship and vice versa
- Onboard IP PBX system – fully integrated and independently working IP telephony network
- Termination of voice calls into Public Switched Telephony Network (PSTN)
- Support of incoming and outgoing calls
- Crew calling solutions
- Onboard GSM extensions available

EPAK® VOIP Solution Overview

SC 60 Ku
SC 90 Ku

Up to 10 MBits/s

Coverage areas all over the world based on latest DVB RCS (S2) Technology

SC 90 Ku Europe

SC 90 Ku Middle East

SC 90 Ku Americas

SC 60 Ku Europe

SC 90 Ku Europe and Middle East

SC 90 Ku Africa

Worldwide Areas
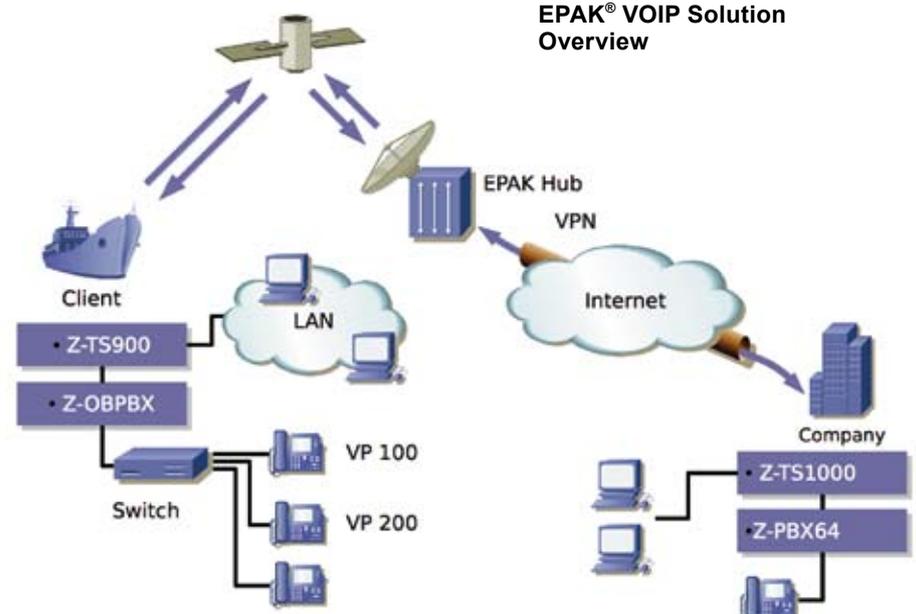
EPAK® Airtime –
Maritime Satellite Broadband Services

EPAK GmbH
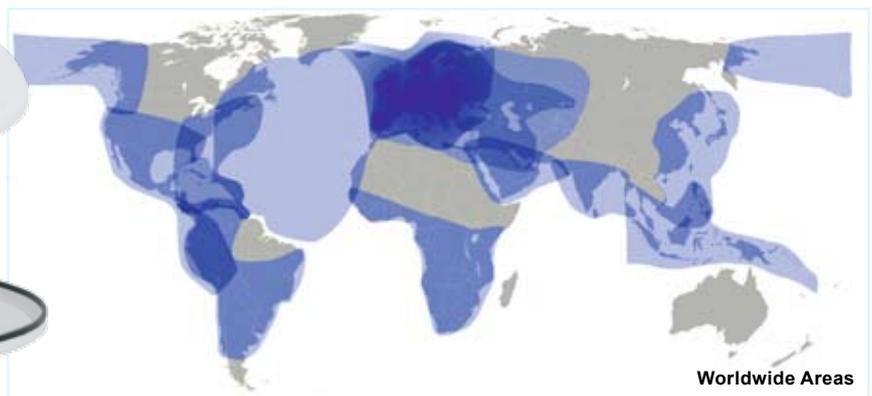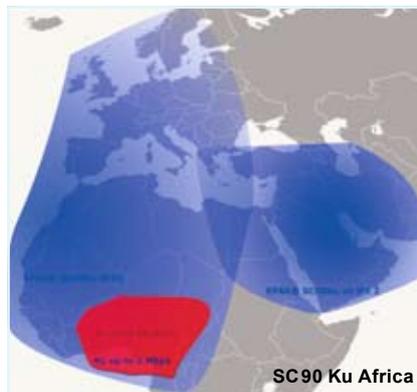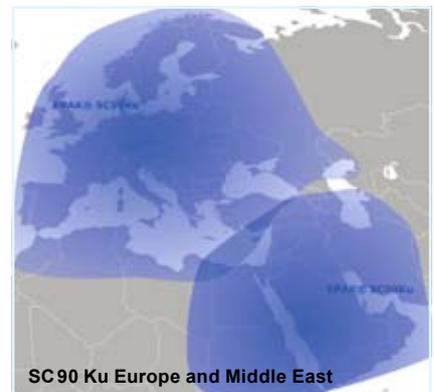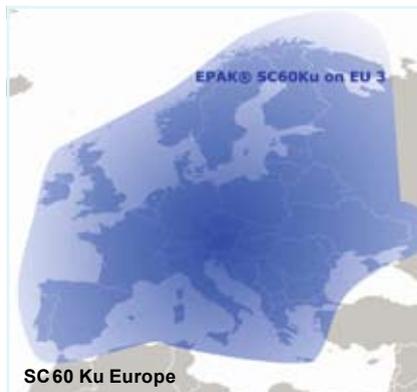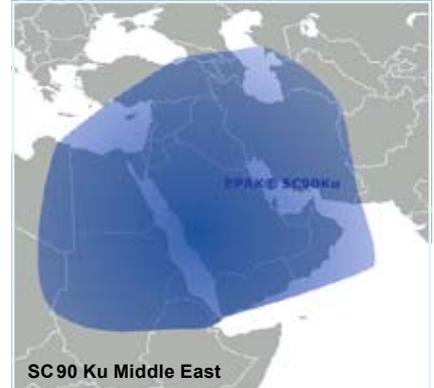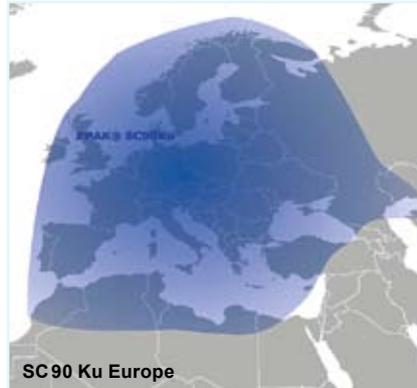
EPAK® Airtime is:

1. Shared Bandwidth Services for occasional and minor usage:
- Affordable Flatrates with various bandwidths
- Cost-efficient: Volume based services
- High-end Network management with low overbooking ratios

2. Superb Dedicated Bandwidth Services for:
- Professional applications
- Private usage for demanding customers
- Up- and download bandwidth steplessly variable

3. Dedicated Links per Group:
Commercial airtime packages for fleets using a dedicated group link shared as per request by several fleet members:

- Traffic and bandwidth management per modem (ship)
- Prioritisation of ships and/or traffic types or applications
- Blocking or reduction of unwanted traffic

- Co-hosting of additional servers, like email, management or file servers available
- Traffic inspection, detailed statistics, bandwidth & volume consumption, monitoring available

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Consultancy

EPAK® is ready to support customers in all matters of network planning, network connection and planning/implementation of various user profiles. Consultancy services for network engineering, bandwidth management onboard and on satellites are dedicated to ensure high quality access for any data communication.
EPAK® provides satellite capacity management for shared bandwidth networks and SCPC links with special solutions for Group and Fleet Airtime management.

EPAK® Consultancy for Professional Network Planning

EPAK GmbH

Network Optimization

- Design of onboard networks and communication structures, including data network planning and administration.
- Development and Installation of Turnkey Solutions.
- Implementation of redundant structures and Fault Management
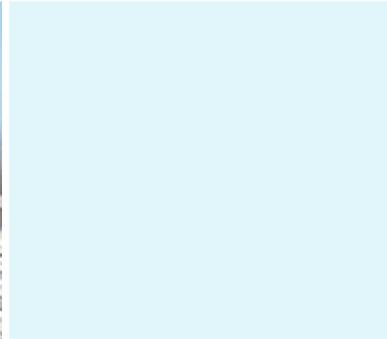
EPAK's network products offer optimized connection to the Onboard IP-network:

- Load balancer
- Prioritization of several PC's, protocols, users or specific traffic types
- Content Filtering
- Suppression and/or blocking of unwanted and malicious traffic (layer 7) and file sharing
- Protocol Enhancement and Caching
- Special Server for save and cost efficient email via satellite
- Video transmission

- Encryption
- Protocol acceleration
- Airtime design
- Separation of Networks, e.g. office/operations PC's separated from crew's PC's
- Crew/guest accounting router (e.g. Internet cafe)
- Onboard monitoring (link, data transfer, speed, availability)
- Automatic link handover to other sources (UMTS, Inmarsat ...)

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