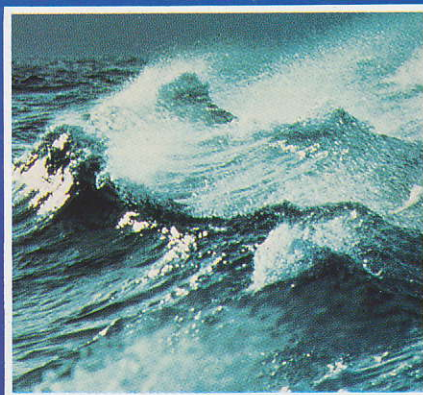
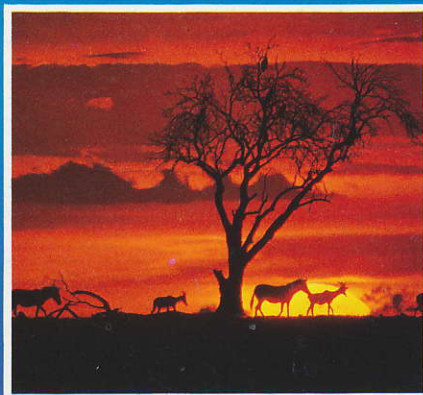
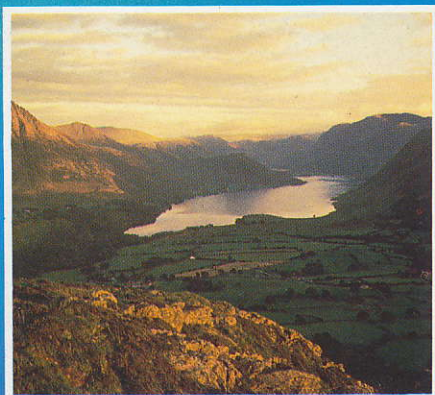
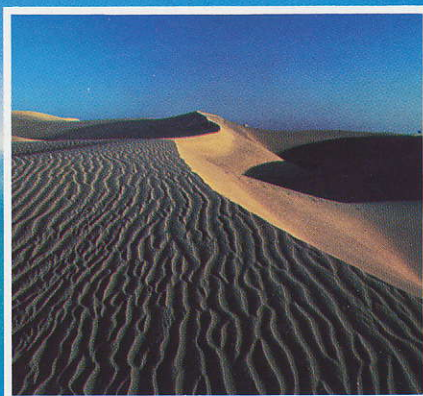


Marconi
Communication Systems



Marconi
Tropo
Mobile Tropospheric Scatter System.

Marconi Tropo

The latest in mobile tropospheric scatter communication systems

Tropo can be used to provide a communication link over inaccessible, hostile, or difficult terrain or in an emergency when other systems may have failed.

The part of the world where the system is deployed has a bearing on the length of the link.



Maritime

This falls into three distinct areas:

- i) Overland exposed to moist maritime air in the 20°-50° latitudes.
- ii) As i) but with sea horizons.
- iii) Coastal areas in the range 10°-30° latitude.

Maximum distance 450 km.



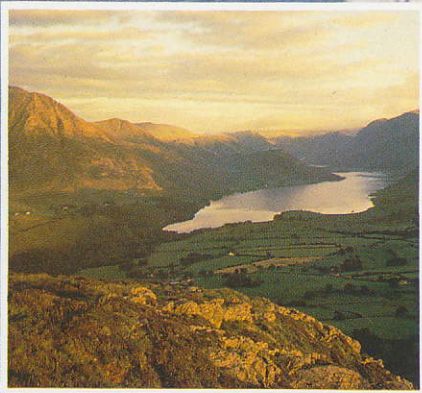
Sub-tropical

Areas of large land mass subject to monsoon conditions, usually the 20°-40° latitudes.

Maximum distance 425 km.

Tropo is a highly transportable system of multi-channel two-way communication by voice, telegraph or data over distances up to, and in some instances in excess of, 400 km without variable intermediate relay stations.

Some of its special features are:
Minimum manpower.
Maximum security.
Low logistic support.
High Reliability and availability.
Relocatability.
Fast into action.



Continental

Large land masses between the 30°-60° latitudes.

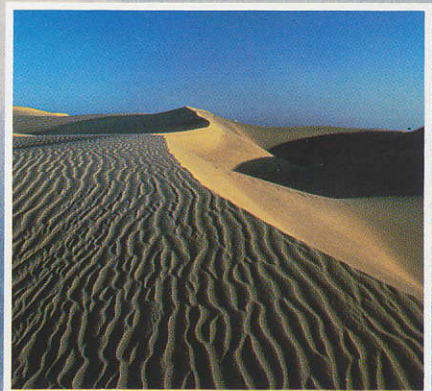
Maximum distance 425 km.



Equatorial

Maritime areas with latitudes less than 20°.

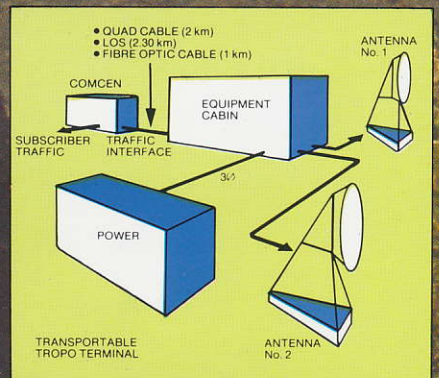
Maximum distance 400 km.



Deserts

Highly arid and inhospitable terrain of very low humidity, e.g. Central Sahara.

Maximum distance 250 km.



Set-up in under an hour

A trained two-man team can deliver and set-up a complete terminal for operation in under an hour.

The combination of high-power amplifiers and high-gain antennas, coupled with sophisticated digital and analogue modems, makes the system highly adaptable and particularly suitable for integration or interface with:

- C³I systems.
- Satellite ground terminals.
- Fixed tropospheric scatter systems.
- Field tactical networks.
- Emergency systems.
- Fixed or mobile line-of-sight microwave links.
- Radar data remoting processors.
- Air defence networks.
- High security systems.
- Off-shore installations.
- Reliable alternative to short range h.f.
- Alternative routing.

Marconi Tropo configurations may be classified under these general headings:

Highly transportable (tactical) systems

For frequent and rapid deployment and suitable for low capacity military trunk and junction routes - A short range single antenna per terminal system with digital coding techniques is one typical option.

Relocatable - quasi-static

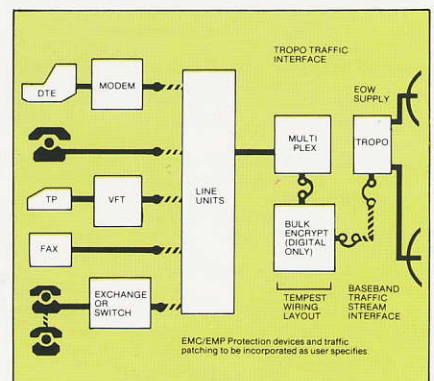
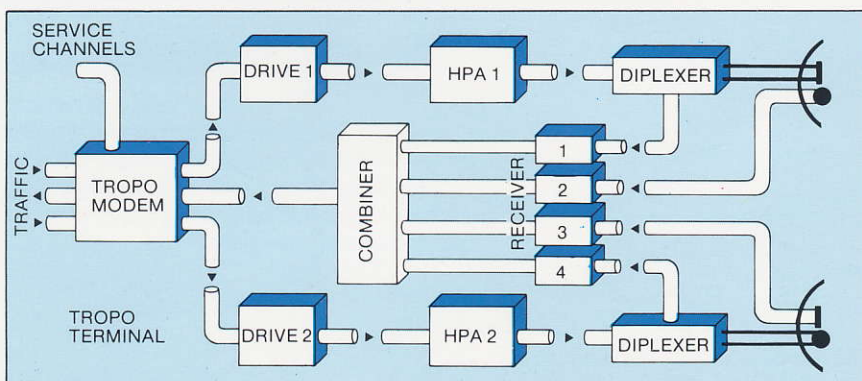
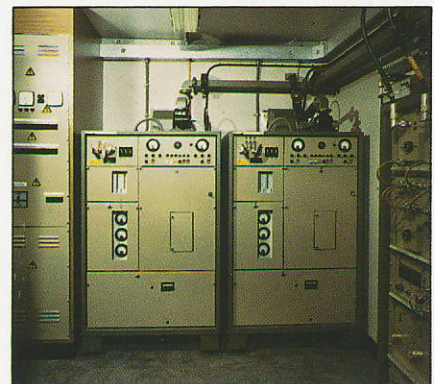
For redeployment under dire emergency only. These may use fixed antennas for very long range with transportables available as emergency back-up.

The Company undertakes to design the complete system including the supply of the terminals and any associated equipment required and thereafter provide full logistic support.



General purpose transportable systems

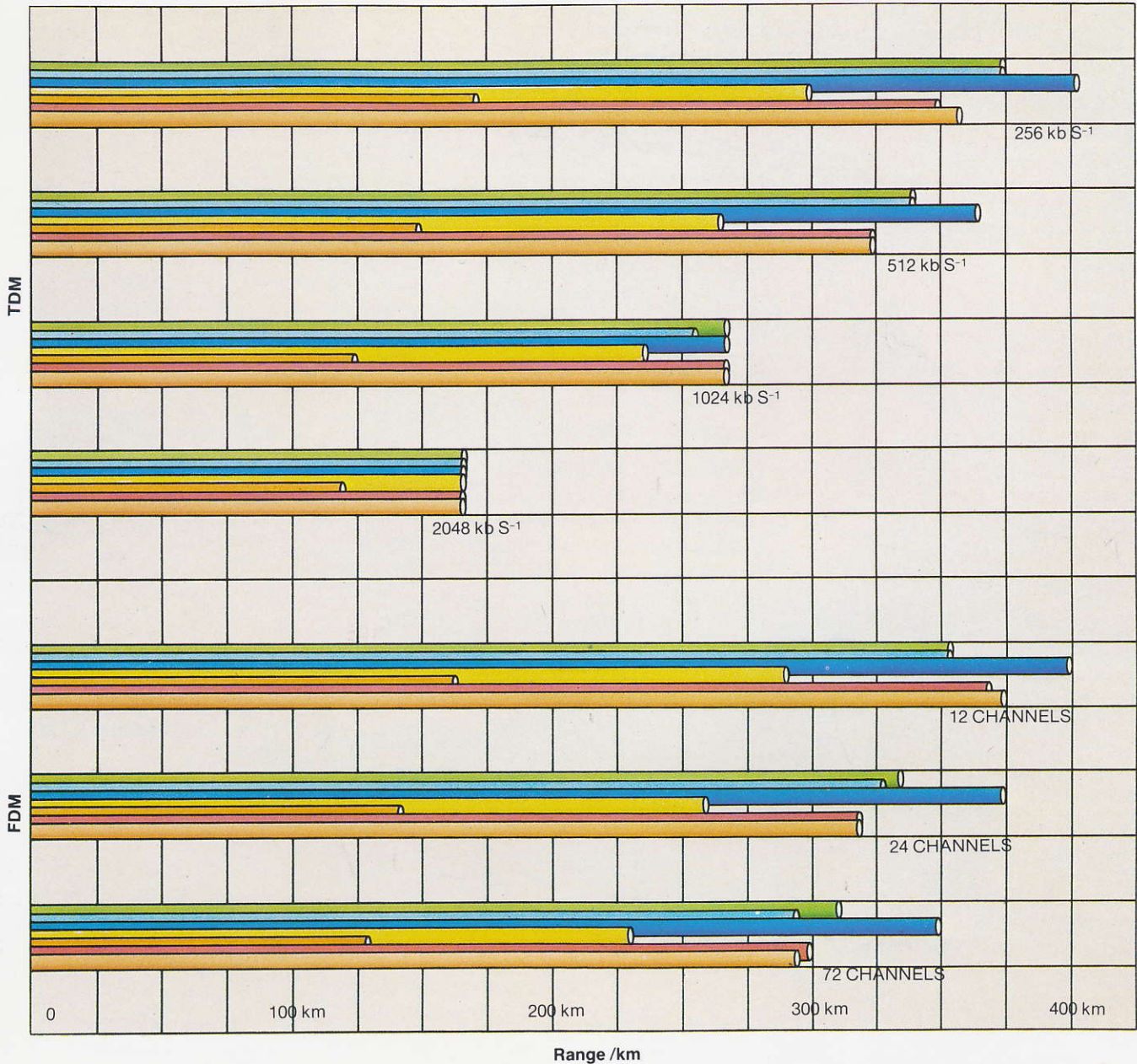
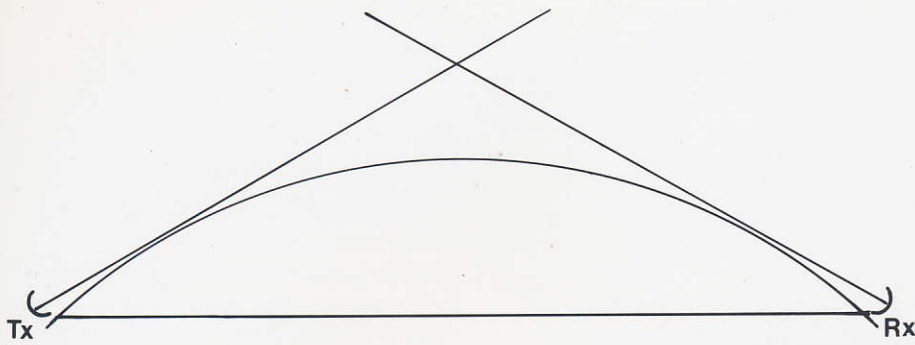
Occasional redeployment for major trunk bearers giving very high performance and reliability.



Smooth Earth Case

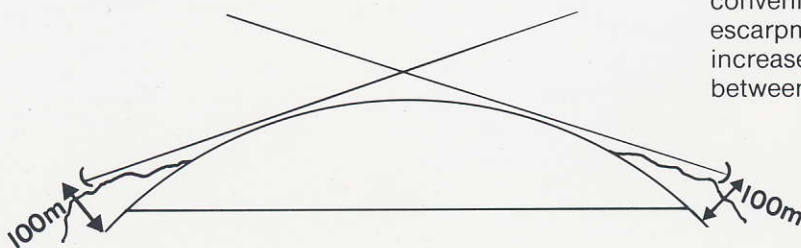
The position of the antennas relative to each other, the nature of the terrain, and the climate, each has a bearing on the length of the signal path.

These diagrams show, to some extent, the coverage under typical tactical conditions and are given as a rough guide as to the most probable cover.



Smooth Earth-Elevated Sites Case

Locating the antennas on a convenient high point, say a hill, an escarpment or cliff will significantly increase the operating distance between terminals.



The ranges are based on:

Digital (TDM).

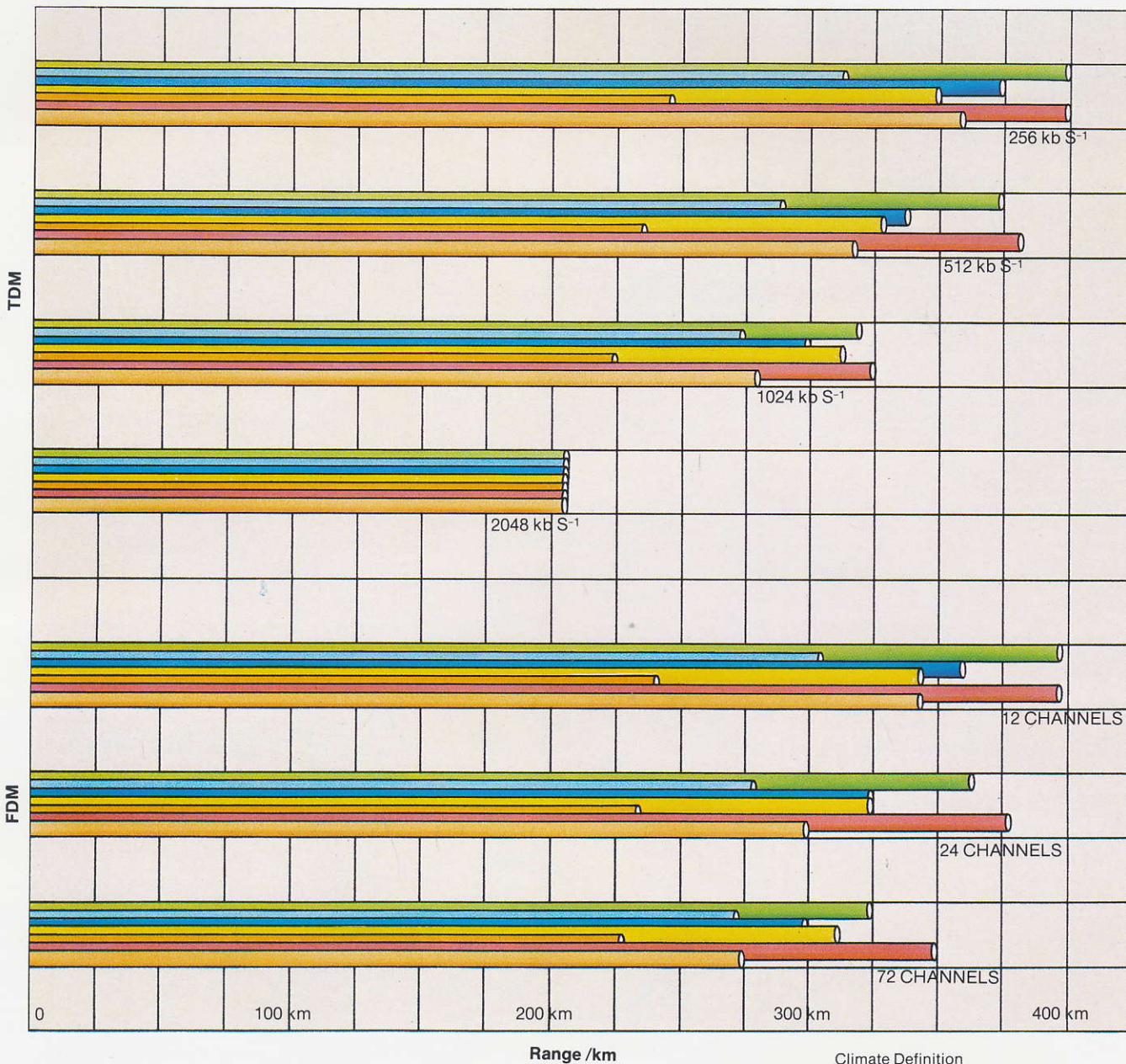
An average bit error rate better than 1 in 10^4 for 99.9% of all hours of a typical year.

Analogue (FDM).

A channel-to-noise ratio exceeding 36dB for 99.9% of all hours of a typical year.

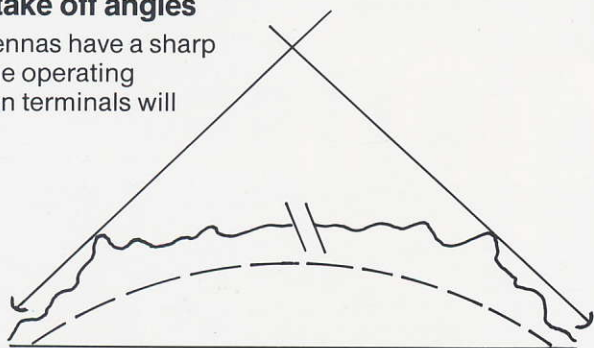
Company engineers are available to discuss the best coverage at any particular location.

High Site to Low Site Case



+0.5 degrees take off angles

Where both antennas have a sharp take-off angle the operating distance between terminals will decrease.



Climate Definition

- Continental Temperate - large land masses between 30° and 60° latitude.
- Maritime Temperate Overland - areas exposed to moist maritime air in range 20° to 50° latitude.
- Maritime Temperate Oversea - areas as for Overland but with sea horizons.
- Maritime Subtropical - coastal areas in range 10° to 30° latitude.
- Desert (Sahara) - areas characterised by very low humidity.
- Equatorial - maritime areas with latitude less than 20°.
- Continental Subtropical - areas of large land mass, subject to monsoon conditions, usually in range 20° to 40° latitude.

Marconi Tropo

Mobile Tropospheric Scatter System.

Marconi Tropo can be supplied in either digital or analogue versions.

Analogue (FM/FDM)

Long range.
6-120 channels.
User-friendly system technology.
Easily interfaces with existing systems.

Performance

Similar to satellite or line-of-sight systems for most of the time.

Digital (TDM)

Bulk encryption possible.
Direct digital interface Eurocom or C.C.I.T.T.
256, 512, 704, 1024, and 2048kbit/s options.
Short range single antenna version available for 256/512kbit/s traffic.

No civil engineering costs.
E.C.M. resistant.
2400MHz-2700MHz or 4400MHz-5000MHz frequency bands.
Two minute frequency change.
High-gain 4.5 metre antenna trailer mounted for highly transportable applications.
Line-of-sight mode: up to 60 km - with high power amplifier switched-off.
Tropo mode: 60 km-400 km dependent upon locations and traffic.
Extensive Built In Test Equipment simplifies maintenance.
Equipment cabins are arranged to suit customers' requirements for:
Size.
Transportability - rail, air, road, sea.
R.F. screening.
E.M.P. protection.
Traffic facilities.
Associated equipment content - power control and regulation, multiplex, supervisory, traffic interface, down the hill links, domestic arrangements.
Separate COMCEN cabins to accommodate multiplexers, crypto, exchange/switch and operators' apparatus can also be made available.

This document gives only a general description of the product(s) and shall not form part of any contract. From time to time changes may be made in the products or in the conditions of supply.

Marconi

Communication Systems



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