



## TRC 4000

34 Mbps TACTICAL LOS RADIO

- > **Band 4 and band 5 - 34 Mbps (4 X 8 Mbps)**
- > **High easiness of installation, mounted on lightweight mast**
- > **Remote antenna from the Base Band Equipment by fiber-optic cable**
- > **Optimised network management based on SNMP**
- > **Easy and cost efficient relay**
- > **Built-in trunk multiplexer**
- > **Fully compatible with legacy systems, ATM switches and IP routing**

# TRC 4000

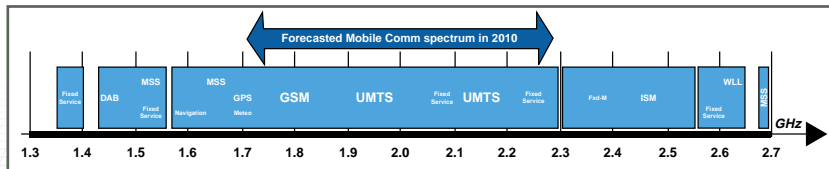
## A HIGH DATA RATE FULLY-TACTICAL RADIO RELAY, ADAPTED TO CURRENT AND FUTURE MISSION

Armed Forces are increasingly deployed abroad on short notice, notably for humanitarian or peace-keeping missions. To respond to the service demand of these new missions while at the same time staying compatible with classic conflicts, communication equipment must today be polyvalent.

The TRC 4000, with its small size and light weight, easily meets these demands. The complete installation (raising the lightweight mast, connecting equipment, installing the generator, etc.) can be completed by two men in less than one-half hour.

## BAND 4 AND BAND 5: THE ONLY MILITARY FREQUENCIES AVAILABLE FOR THE FUTURE

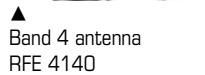
The TRC 4000 uses high frequencies in the 5 GHz and 15 GHz ranges. It is therefore possible to increase useful output, while reducing the risk of jamming. This increase in frequency also allows problems to be overcome relating to spectrum availability, encountered mainly in the lower military bands which are increasingly used around the world for civilian portable telephony needs (GSM and soon UMTS, WLL, etc.).



▲ Civilian spectrum occupancy in band 3+ showing that practically no room is left for military applications



▲ Band 5 antenna RFE 4150



▲ Band 4 antenna RFE 4140

## A COMPLETE FAMILY OF SUB-EQUIPMENT TO FACE ANY OPERATIONAL SITUATION

Two types of Radio Frequency Equipment (RFE) are available: the RFE 4140 working in band 4 and the RFE 4150 working in band 5. For each trunk, the frequency band is defined by the chosen RFE placed on top of mast and connected at the other side of the fiber-optic cable.

The TRC 4000 works with several types of Base Band Equipment (BBE), able to offer from one to three independent trunks with, or without, built-in Mux/Demux.

## RELAY: A SIMPLE SOLUTION

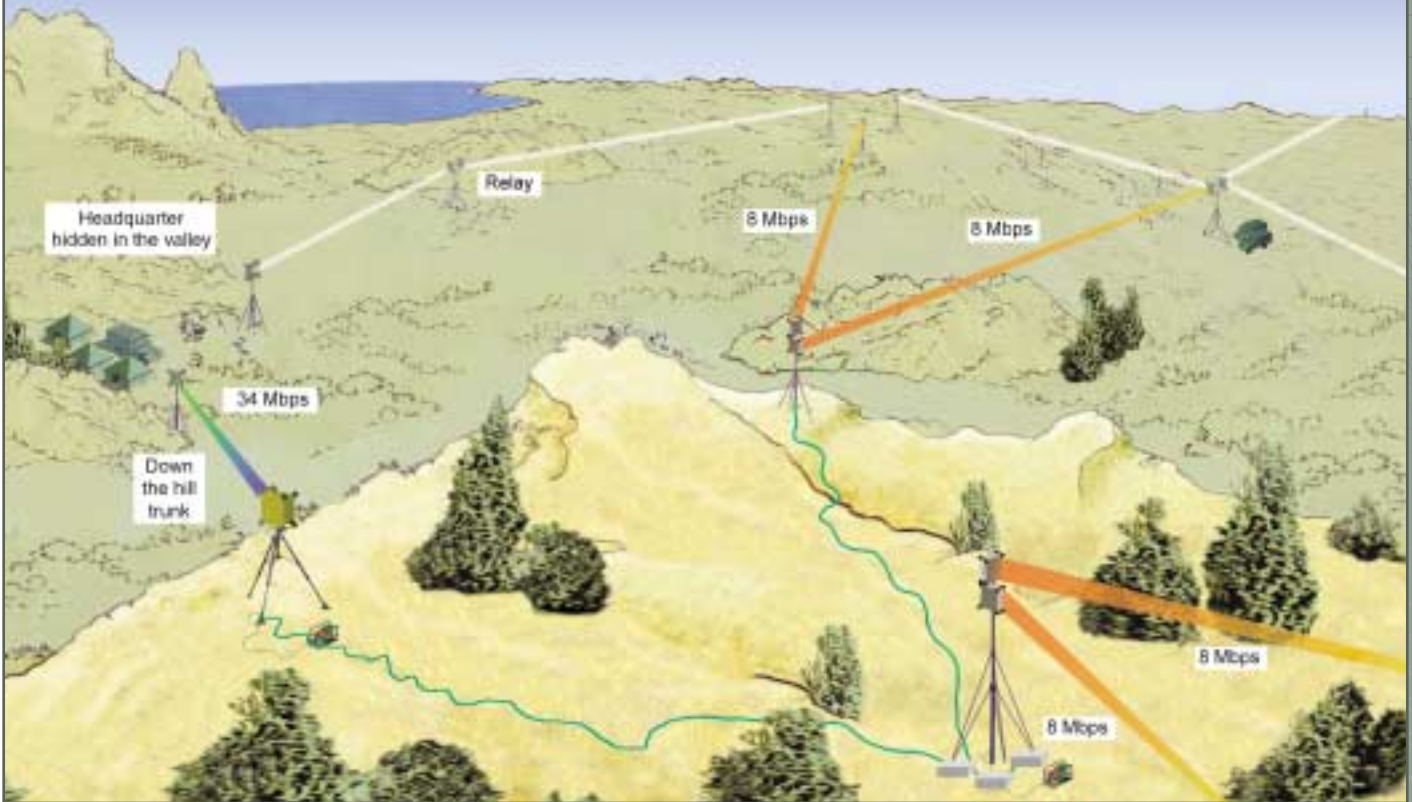
A LOS relay is easily realized by connecting two microwave and antenna modules fitted on the same mast and using a short fiber-optic cable without any base band equipment.

## EASY NETWORKING

The TRC 4000 has all the features necessary for networking:

- > Network management/Supervision based on the use of SNMP protocol
- > EOW with selective call
- > EOW extension

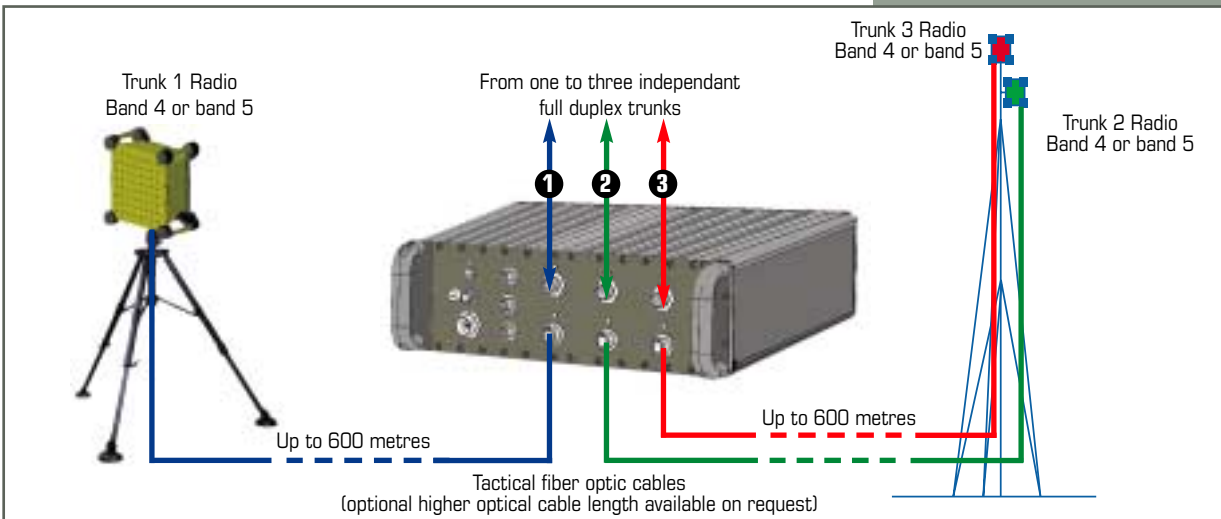
## PANORAMA OF FREQUENTLY ENCOUNTERED OPERATIONAL SITUATIONS



### ALSO DESIGNED TO EASE «DOWN THE HILL» CONNECTION

«Down the hill» node could be simply built with outdoor fully tactical Base Band Equipment and Radio Frequency Equipment.

### A NEW OPTIMISED ARCHITECTURE



### TACTICAL OPTICAL GATEWAY

Two Base Band Equipment equipment could be connected back to back by a fiber-optic cable: high speed tactical optical gateways are easy to deploy on any battlefield.

# TRC 4000



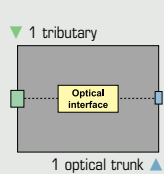
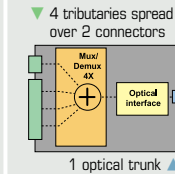
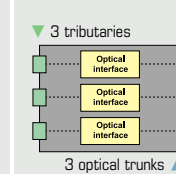
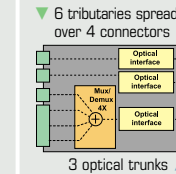

## GENERAL CHARACTERISTICS

<b>Frequency band</b>	
- Band 4	4.4 to 5 GHz
- Band 5	14.62 to 15.229 GHz
<b>Electrical interface</b>	
- EUROCOM	64 - 128 - 256 - 512 - 1,024 - 2,048 kbps
- V11	64 - 128 - 256 - 512 - 2,048 - 8,192 kbps
- G 703	2,048 - 8,448 - 34,368* kbps
<b>Remote command</b>	EOW (omnibus full duplex transmission, selective call) Network management (SNMP) Remote from main unit via fiber-optic cable
<b>Fiber-optic cable</b>	Nato cables & plugs (other tactical cables & plugs available on request)
<b>ECCM</b>	High frequency selectivity (Diplexer) Spatial selectivity Frequency escape feature Fast and wide range ATPC (Automatic Transmit Power Control) Error Corrector Codes Connection between BBE and antenna protected against listening by optical technology Side Lobe Cancellation (SLC) (optional)
<b>Power supply</b>	19 to 33 Volts DC 48 Volts ± 20% (optional)

<b>Maintenance</b>	BITE
<b>Reliability</b>	
- MTBF	10 000 hours
<b>Self-aligning antenna system (optional)</b>	
<b>Protection</b>	On the user level: using password Emergency clear function
<b>Set-up &amp; commissioning</b>	Installation by two persons, at each end of the relay, in less than 30 minutes, onto a light mast up to 20 meters (Mast stability : ± 5°)
<b>System gain</b>	
- Band 4	168 dB typically at 8 Mbps
- Band 5	182 dB typically at 8 Mbps
<b>Polarization</b>	Horizontal or vertical polarization through a 90° rotation of the radio antenna block
<b>Multiplexer</b>	Mux/Demux - up to 4 x 2,048 Kbps in band 4 - or up to 4 x 8,448 Kbps (34 Mbps) in band 5 Trunk rate 34 Mbps only applicable between two BBE or via the RFE 4150
<b>Environment</b>	
- MIL-STD-810E	- 40°C + 55°C - 40°C + 70°C (storage)

\* Option in band 5

## MECHANICAL CHARACTERISTICS

Base Band Equipment	BBE 4101	BBE 4104	BBE 4103	BBE 4106	Microwave and antenna module
<b>Characteristics</b>	<ul style="list-style-type: none"> <li>&gt; Fully Tactical 1 channel base band equipment</li> <li>&gt; 1/2 19" rack</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Fully Tactical 1 channel base band equipment</li> <li>&gt; 1/2 19" rack</li> <li>&gt; Built-in Mux/Demux</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Tactical 3 channel base band equipment</li> <li>&gt; 19" rack</li> <li>&gt; 12 Kg</li> <li>&gt; 133 x 410 x 430 mm</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Tactical 3 channel base band equipment</li> <li>&gt; 19" rack</li> <li>&gt; 12,5 kg</li> <li>&gt; Third channel with 4 tributaries Mux/Demux</li> <li>&gt; 133 x 410 x 430 mm</li> </ul>	 <p><b>RFE 4140</b></p> <ul style="list-style-type: none"> <li>&gt; Microwave and antenna module</li> <li>&gt; Band 4</li> <li>&gt; Weight: 15 Kg</li> <li>&gt; Dimensions: 420 x 420 x 240 mm</li> </ul>  <p><b>RFE 4150</b></p> <ul style="list-style-type: none"> <li>&gt; Microwave and antenna module</li> <li>&gt; Band 5</li> <li>&gt; Weight: 28 Kg</li> <li>&gt; Dimensions: 540 x 540 x 500 mm</li> </ul>
<b>Simplified synopsis diagram</b>	<p>▼ 1 tributary</p>  <p>1 optical trunk ▲</p>	<p>▼ 4 tributaries spread over 2 connectors</p>  <p>1 optical trunk ▲</p>	<p>▼ 3 tributaries</p>  <p>3 optical trunks ▲</p>	<p>▼ 6 tributaries spread over 4 connectors</p>  <p>3 optical trunks ▲</p>	<p><b>Handset</b></p>  <p><b>COT 4001</b></p> <ul style="list-style-type: none"> <li>&gt; LCD screen</li> <li>&gt; Keyboard</li> </ul>

# THALES

Land & Joint Systems

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