



GIBRALTAR STOCKHOLDINGS LTD

*Agents for*  
Toyota Motor Europe NV/SA

TGS guide to  
**COMMUNICATIONS**  
EQUIPMENT

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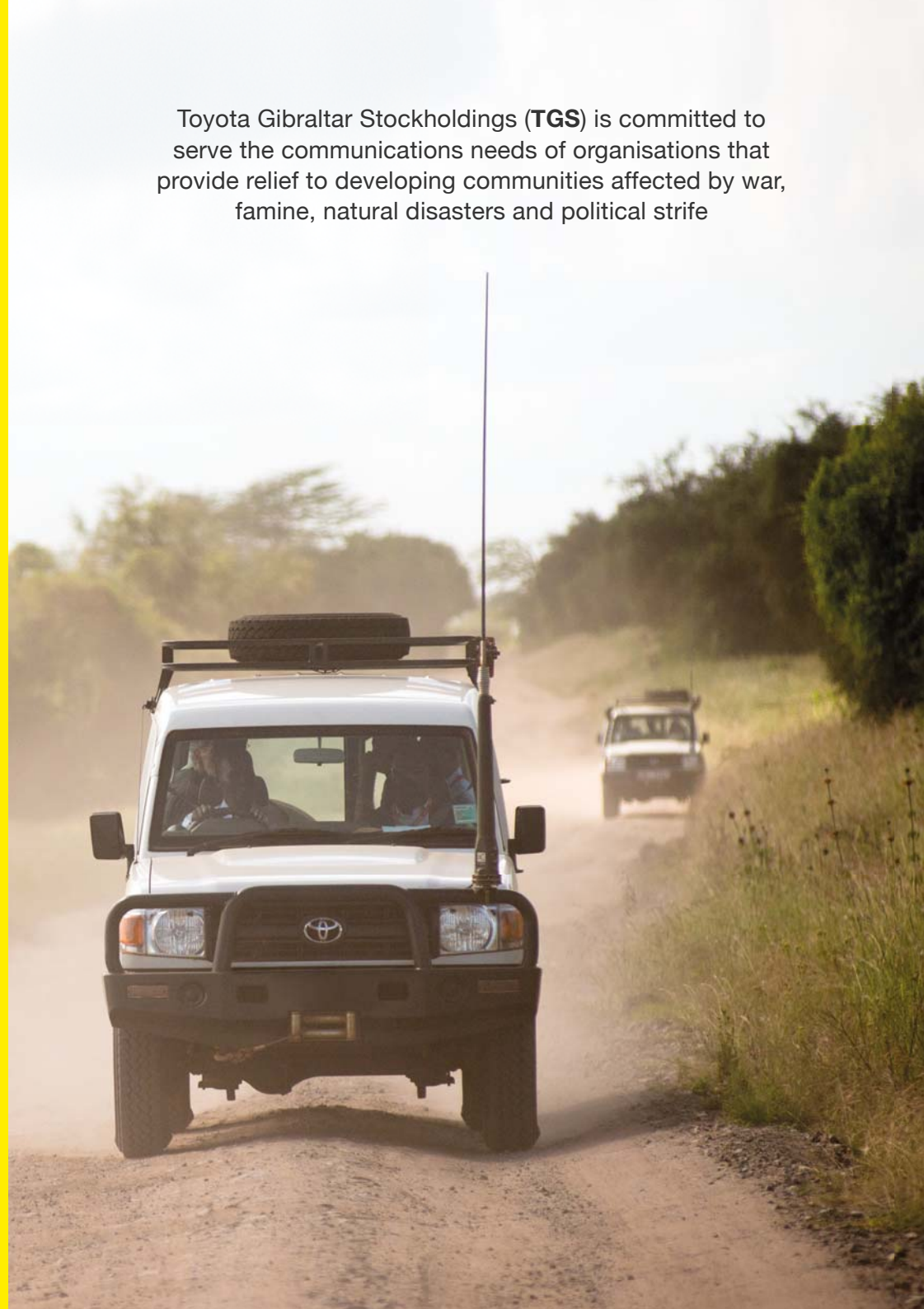
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# OVERVIEW

Toyota Gibraltar Stockholdings (**TGS**) is committed to serve the communications needs of organisations that provide relief to developing communities affected by war, famine, natural disasters and political strife

- Communications is a key element to help humanitarian workers confront the challenges they face on a daily basis •
- Radio transmission is an inexpensive and reliable way for aid agencies to communicate over a wide range of distances when mobile phones or the internet are unavailable •
- HF and VHF radios provide fast, simple and reliable voice and data communications in places that have no other means of communication •



## WARRANTY AND AFTER SALES

- Peace of mind knowing that all communications equipment supplied by TGS is renowned for its quality, strength, reliability and safety •
- Full one year's warranty against manufacturing defects •
- TGS is the supplier of choice in the humanitarian market to provide HF and VHF radio solutions to the developing world, and is an official distributor and approved Codan radio installer •



**HF**  
HIGH FREQUENCY



**VHF**  
VERY HIGH FREQUENCY



**SATELLITE**  
PHONES

M A R K E T L E A D I N G B R A N D S



B E N E F I T S

- Medium to long range communications capability (up to 3,000km) •
- Minimal infrastructure requirements •
  - Full mobility •
- Low ownership cost •
- Security of communications •

- Short range communications up to 50km •
  - Portable •
- Interoperability with existing HF and UHF networks •
- Low ownership cost - usage cost is zero •
  - Very easy to use •

- Worldwide communication capability •
- Simple data transfer and internet access •

## TGS STRENGTHS

- Over 20 years experience supplying and fitting communications equipment (we have co-authored a fitting manual with UNHCR) •
- Full after sales service backed up by excellent relationships with all manufacturers •
- Flexibility to accommodate special requirements and determine made-to-measure solutions on a case by case basis •
- Official Codan distributor and installer •
- Large stock of equipment •
- Pre-programming of frequencies prior to vehicle shipment leading to faster deployment of vehicles once they arrive at end destination •
- Network set-up •
- Advice on best practise •
- Advice and on-site training for all types of equipment •



# WHY HF RADIO?

In today's world of instant voice, email, messaging, fax and gps navigation, what does HF radio have to offer? Although HF radio will never replace fixed and mobile telephony as the first communications option for the general public, it provides the following features for organisations involved in emergency, remote and military communications making it a vital and irreplaceable wireless communications tool.

- High Frequency (HF) radios are used for first-line and backup communications over long distances, mainly in remote regions of the developed world and in developing countries •
- Aid agencies, government and private organisations are continuously searching for the most flexible, reliable and cost effective solutions for their remote, emergency and security communications needs •
- HF radio can be used for the communication of voice, fax and data. Fax and data communications require a specific modem. A vehicle tracking system can also be added to the equipment uses, this is based on a GPS (Global Positioning System) device •

Advances in technology have allowed HF ssb radio's to access public switched telephone networks (PSTN). This development has changed the concept of remote communications to the extent that a HF radio can be considered the "telephone of the bush". A mobile or a remote base station, hundreds of kilometres from any civilisation can make telephone calls just as any city subscriber.

**MEDIUM TO LONG RANGE  
COMMUNICATIONS CAPABILITY**

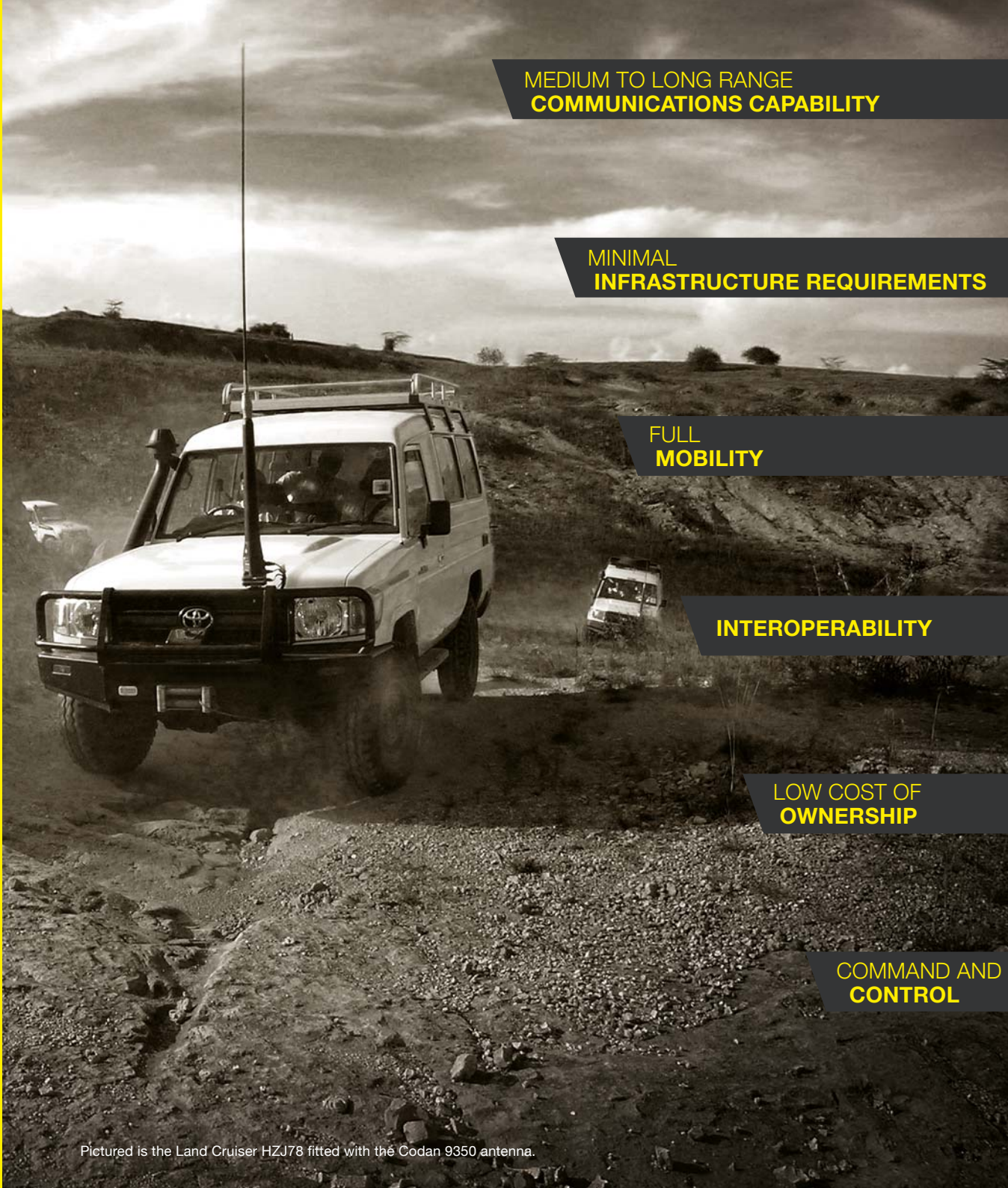
**MINIMAL  
INFRASTRUCTURE REQUIREMENTS**

**FULL  
MOBILITY**

**INTEROPERABILITY**

**LOW COST OF  
OWNERSHIP**

**COMMAND AND  
CONTROL**



Pictured is the Land Cruiser HZJ78 fitted with the Codan 9350 antenna.



Whilst VHF and UHF radios are commonly used for short-range line-of-sight (LOS) communications, only HF radio is capable of communicating over distances of 3,000km or more (medium to long-range communication).

Unlike conventional, Voice over IP (VoIP), cellular and satellite telephony, which all rely upon land-based infrastructure, an HF radio network can be used to communicate with other bases or to provide command and control for mobile (vehicle mounted) and portable (man pack) users in the field.

HF radios are simple and quick to deploy and provide communications capability for users no matter where they are. Fixed base stations can be used to communicate with other bases or to provide command and control for mobile (vehicle mounted) and portable (man pack) users in the field.

HF radios can be used to communicate with existing VHF and UHF radio systems, cellular telephones and land-based telephones through developments in cross-patching technology that make this as easy as dialling a telephone number.

Compared with satellite telephony, the most common alternative technology for communications of last resort, HF radio is the economical choice. Once the initial investment in equipment is made, there are no call costs or on-going monthly line or equipment rentals. Also, HF equipment is built tough to withstand the extreme conditions, which proves to be very cost effective.

The nature of emergency planning requires that simultaneous communications be made to and amongst a number of operators in a command and control style network. This facilitates situational awareness amongst the users and external organisations that can also be included in the network. HF radio provides this capability in all base station, mobile (vehicle mounted) and portable (man pack) configurations of the radio network.



Pictured is the Land Cruiser HZJ76 fitted with the Codan Envoy 3040 whip antenna and the add-on accessory NVIS kit, which improves radio coverage in the 20-500km range.

# HF RADIO PRODUCTS



**CODAN**  
RADIO COMMUNICATIONS

**envoy**  
SMART RADIO SERIES

- Software defined radio
- Smart interface
- Internet Protocol (IP) capable
- Multi-language support
- Embedded software modem

**NGT SRx**  
TRANSCEIVER SERIES

- Innovative handset
- Easy installation
- Easitalk™
- Emergency selcall
- Smart monitoring
- High dynamic receive range
- Computer control
- Voice encryption
- Fax, data, email and internet

**NGT VR**  
TRANSCEIVER SERIES

- Innovative handset
- Easy installation
- Easitalk™
- Emergency selcall
- Smart monitoring
- Free tune receiver



The Envoy smart radio is the most intuitive, reliable and advanced radios Codan has ever built. Clear and dependable High Frequency (HF) voice and data communications without the need for existing infrastructure.

A true Software-Defined Radio (SDR), the Envoy delivers new capabilities to the radio through software upgrades, so you will always have access to tomorrow's features today.

With Ethernet and USB connectivity, a large high-resolution colour display and multi-language user interface combined with Codan performance, reliability and support, the Envoy smart radio is breaking new ground for HF communications.



## FEATURES AND BENEFITS

### Software defined radio

Envoy's software-defined architecture enables you to download and upgrade new capabilities through software to ensure your investment is future-proof.

### Smart interface

With an icon-based full-colour user interface, USB SmartLoader and intuitive programming, Envoy is easy to operate and minimises the need for training.

### Internet Protocol (IP) capable

Envoy is the only IP capable and wireless network interoperable HF radio of its kind, so you can remotely program an Envoy from your desktop from anywhere in the world.

### Multi-language support

With the ability to support an unlimited number of additional languages, Envoy provides you with a customisable communications solution no matter where you operate.

### Embedded software modem

Through the fully embedded software modem, Envoy provides advanced internal features such as high-speed data, email and chat messaging for a cost-effective solution.

The Envoy is quick and easy to install in a vehicle, with a space-saving design that enables you to conveniently mount the handset and RF unit separately. Envoy's large colour screen and intuitive interface gives you the optimal viewing and user experience when on the move. This is combined with Codan's auto-tuning antenna solution for the best coverage and fast tuning.

## BASE SYSTEM



The Envoy HF Base System has a purpose-built smart desktop console that gives you maximum operational flexibility and full remote control capability of all HF radios on your network. With capability for plug-in accessories also available.

While incorporating all the usual features of Codan's leading edge High Frequency (HF) radio technology, this transceiver also features a user-friendly handset, advanced calling features and Easitalk™ as standard. Extensive Automated Link Establishment (ALE) capabilities, voice encryption, GPS, fax, data and email transmission are optional.

## FEATURES AND BENEFITS

### Innovative handset

- Advanced interface and efficient operation •
- Easier network management •
- Programmable channels •
- Address book with up to 100 addresses •

### Easy installation

The unit is small and convenient to mount in any position.

### Easitalk™

The NGT SRx uses Digital Signal Processing techniques to process received audio signals to minimise the effect of interference and reduce noise.

### Emergency selcall

The NGT SRx has a unique optional emergency calling facility. A distress signal can be sent automatically to selected stations.

### Smart monitoring

A variety of channels can be monitored while the radio is muted and calls can be received on any of the channels being scanned.

### High dynamic receive range

The high dynamic range of the NGT SRx receiver provides better reception in difficult conditions.

### Computer control

The NGT SRx can be controlled by a computer through an RS232 port. This assists with paging, GPS tracking, logging and other automated applications.

### Voice encryption

The optional Voice Encryptor provides communication security (COMSEC) and enables users to communicate sensitive information in confidence without complicated set-up procedures. It also provides visual confirmation that the conversation is secure.

### Fax, data, email and internet

The NGT SRx is designed for both voice and data applications. With Codan's optional UUPlus™ email software, a highly efficient email network can be set-up using the 3012 HF Data Modem.



Codan's NGT VR provides comprehensive solutions to suit your communication needs. The NGT VR Transceiver is suitable for base station and vehicle applications. The transceiver incorporates all the usual features of Codan's leading-edge High Frequency (HF) radio technology and also features an innovative handset and Easitalk™ as standard. Codan Automated Link Establishment (ALE) capabilities, voice encryption, phone calling features, and remote diagnostics/configuration are optional.

## FEATURES AND BENEFITS

### Innovative handset

- Advanced interface and efficient operation •
- Easier network management •
- Programmable channels •
- Address book with up to 100 addresses •

### Easy installation

The unit is small and convenient to mount in any position.

### Easitalk™

The NGT VR uses digital signal processing techniques to process received audio signals to minimise the effect of interference and reduce noise. Easitalk is simple to operate and extensive testing has shown that its performance is not affected by the language of the user.

### Emergency selcall

As Codan transceivers are often used in places where safety of life is at risk, the NGT VR has a unique emergency calling facility. A distress signal can be sent automatically to selected stations.

### Smart monitoring

A variety of channels can be monitored while the radio is muted and calls can be received on any of the channels being scanned.

### Free tune receiver

Free tune receiver mode enables you to tune into any frequency and store it as a channel with your own label. Also, users can listen to AM stations, short-wave broadcasts and more.



# WHY VHF RADIO?

Very High Frequency (VHF) radios can be used for the communication of voice and data. A vehicle tracking system can be added to the equipment uses, this is based on a GPS (Global Positioning System) device. With the inclusion of additional technology a VHF radio has the possibility of connecting through a Public Switched Telephone Network (PSTN) and thus be used as a telephone with an additional feature of a paging system. With the appropriate programming, the VHF network can be divided into separate work groups. This eliminates the need for individuals to have to listen to all the messages on one channel and that do not directly concern them.

Photo: WFP/Pierre Petry

**SHORT RANGE  
COMMUNICATIONS CAPABILITY**

**MINIMAL  
INFRASTRUCTURE REQUIREMENTS**

**FULL  
MOBILITY**

**INTEROPERABILITY**

**LOW COST OF  
OWNERSHIP**





VHF radios use direct wave propagation to cover short range communications (3km to 5km), more specifically around a bush camp or inner city operations, in difficult areas of a city or a mountainous region and from handheld to handheld radio communications. The use of a repeater will improve the distance of up to 50km depending on terrain. This equipment is basically line of sight, buildings and other obstructions decrease the effectiveness of this system. A repeater is a base station which automatically retransmits the signal received on another frequency. Its location should be chosen carefully.

VHF radio transmission is an inexpensive and reliable communications medium, to cover short range communications, usually where there is non-existent or poor local PTT infrastructure. The range and efficiency of the system relies heavily on the use and suitable siting of a repeater. As the system relies on direct wave propagation, the equipment requires line of site and does not work at its best when surrounded by tall buildings especially of metal or granite construction.

VHF radios are simple and quick to deploy and provide communications capability in difficult areas of a city or a mountainous region and from handheld to handheld radio communications. Repeaters can be used to increase distances up to 50km or to provide signal capability for mobile (vehicle mounted) and portable (man pack) users in the field.

VHF radios can be used to communicate with existing VHF and UHF or in conjunction with HF radio systems through developments in cross-patching technology that make this as easy as dialling a telephone number.

After paying the yearly license fees, unlike satellite and telephones, there are no additional communications costs. Each frequency used requires a license from the local government licensing body of the host country.



**MOTOROLA**

## GM360 Professional Series

- Signalling
- Easy-to-use and set-up
- Adaptable and versatile
- User protection
- Quality
- Efficiency
- Accessory options



The Motorola GM360 is a simple and professional mobile radio, allowing users to keep in contact whilst concentrating on the job in hand. With various features, the GM360 can provide a reliable communications system which, at the same time, protects your workforce.

The GM360, one of the market-leading radios in Motorola's Professional Series, offers communications for the mobile workforce. This radio offers broad functionality, an easy-to-use menu with navigation keys for productivity and security features to protect users working alone or remotely.

### FEATURES AND BENEFITS

#### Signalling

- Private Line™.
- 5-tone selective signalling.

#### Easy-to-use and set-up

- Intuitive menu-driven user interface and large controls enable easy access to many features.
- 14 character alpha-numeric display.
- Programmable buttons.
- PC programmable.

#### Adaptable and versatile

- Option board capability allows additional features and customer-specific functions.
- Easily programmed in the field to support additional features.
- Data capability allows interface to third party terminals to enhance communications.

#### User protection

- Emergency signalling.
- Lone worker.
- External alarm.



#### Quality

- MIL Spec 810 compliant.
- Meets IP54 environmental standards.
- Passed Motorola Accelerated Life Test.
- X-Pand™ voice compression technology.

#### Efficiency

- Channel scanning.
- Call forwarding.
- Status calls.
- Car radio mute.
- Memory channel.
- Voice operated transmitter (VOX).

#### Included as standard

- Battery power cable.
- Enhanced compact microphone.
- 3-point mounting tray.

#### Accessory options

- Microphones and desktop solutions.
- In-vehicle accessories.
- Mounting kits.

**VHF RADIO  
PRODUCTS**

# WHY SATELLITE PHONE?

These phones can be used for voice, fax and data transmissions at varying speeds. They do not require additional hardware for data transmissions. They are not susceptible to atmospheric conditions or propagation problems.



GLOBAL RANGE  
**COMMUNICATIONS CAPABILITY**

MINIMAL INFRASTRUCTURE  
REQUIREMENTS **AND FULL MOBILITY**

**INTEROPERABILITY**

COST OF  
**OWNERSHIP**

COMMAND AND  
**CONTROL**



Global – satellite phones only require a clear view of the satellite.

Satellite phones can be carried around and used when and where required. They can be set-up for immediate deployment in less than 30 minutes. Little space is required to use them.

Satellite phones can communicate with other satellite phones, base stations, cellular telephones and land-based telephones.

Compared with HF and VHF radio, satellite phones are more expensive to use due to the cost of its use of “talk time”. There are recurring costs associated with operating any satellite phone, usually includes, a yearly subscription plus there is the per-minute talk-time when using it.

A base station satellite phone is usually located in a secure room. It can communicate with other base stations, mobile satellite phones or terrestrial telephones. A satellite base station phone set-up can also be used as a switchboard to re-direct calls.

THURAYA 

## XT Professional Series

- Rugged design
- Dependable battery life
- Glare resistant display
- Internet-on-the-go
- Other features and benefits



SAT PHONE  
PRODUCTS

Thuraya XT is the only satellite phone in the world to meet the industry's highest criteria for splash resistance, dust resistance and shock proofing. Combining the reliability of its unparalleled phone functionality, with the dependability of Thuraya's superior network, the XT ensures you stay close.

Whenever you are within Thuraya's extensive coverage area, however remote the location, the XT brings you close to where you need to be. It is ideal for anybody who moves around in areas where local networks are unreliable or non-existent. Its extremely durable design makes the XT ideally suited for use in tough environments, where other satellite phones cannot operate.

### FEATURES AND BENEFITS

#### Rugged design

Built to exacting standards and using the latest durable polycarbonates for the outside case, it is, quite simply, the most durable satellite phone on the market. Thuraya XT's IP54/IK03 rating is a globally recognised standard from the International Electro Technical Commission, meaning it is splash resistant, dust resistant and shock-proofed.

#### Dependable battery life

The XT boasts the longest battery life of any satellite handset, providing up to 6 hours talk time and up to 80 hours standby time.



#### Glare resistant display

For easy readability in direct sunlight, no matter how bright the conditions are.

#### Internet-on-the-go

The handset's GmPRS capability means you can easily send/receive emails and browse the web with your laptop or PC from anywhere.

#### Other features and benefits

- GPS functionality for way-point navigation.
- Messaging via SMS, email and fax.
- Battery saving technology and brightness sensor for the display to reduce battery consumption.
- Organiser including calendar, world time and alarm functions.
- Perfectly balanced size-to-weight ratio.
- User-friendly menu structure with fast access to functions.





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COMMUNICATION IS **KEY**

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