LONG-RANGE TACTICAL LINE-OF-SIGHT

SYSTEMS COMPUTERS

E

GRC-408

HIGH CAPACITY MULTI - CHANNEL RADIO RELAY

TADIRAN COMMUNICATIONS

sure and secure

GRC-408

New Line-of-Sight, ECCM-capable, jamming resistant multi-channel radio relay for highly reliable, cost-effective, multi-media, high-speed communications.

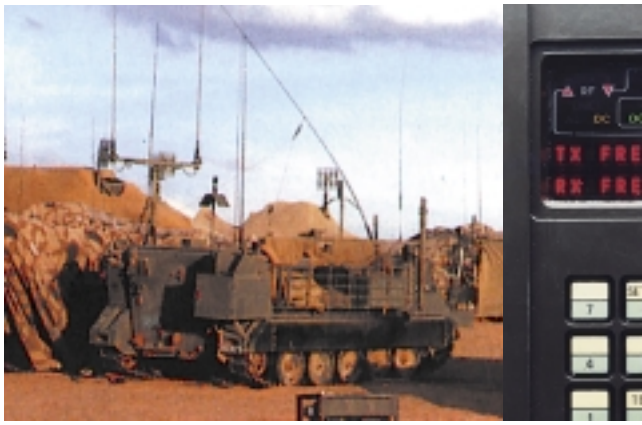
The GRC-408 that has proved its worth under fire, is Tadiran Communications' optimal response to customer needs, offering clear, highly reliable and constantly available communications at the right price.

- Standard and extended Band III
- ECCM-capable for simultaneous, interference-free communications.
- Built-in reliable error correction for high-quality communications.
- Cost-effective, multi-media capable broad-band beyond 8 MBps communications, with options for 16 and 34 MBps.
- User-friendly human interface for operations under harsh combat conditions.

Operation of tactical radio relay networks is made more complex by interference from electromagnetic and jamming devices, creating an ever more hostile environment and placing greater demands on electronic countermeasures.

Tadiran Communications' new GRC-408 Line-of-Sight, jamming-resistant, broad-band, multi-media capable radio relay system is designed to meet present and foreseeable military requirements. Tadiran Communications, a forerunner in the design and building of sophisticated telecommunications systems for both consumer and military installations worldwide, has developed this newest multichannel mobile digital tactical radio system. This development is based upon experience gained through four generations of radio relay equipment in use with the U.S. Navy, the IDF and other armed forces.

STATE-OF-THE-ART ECCM FEATURES AND BENEFITS



Link availability
Low sensitivity threshold combined with robust modulation schemes provides higher link availability.

Interference rejection
Very low spurious level.
Close transmit/receive frequency duplex.
Highly linear receiver front-end with excellent dynamic range.

Selectivity
Very sharp, state-of-the-art, high-speed tunable filters provide excellent external interference and adjacent channel selectivity.

High spectral purity
Direct modulation with exceptional purity enables operation in crowded radio relay networks facilitating frequency management.

Built-in FEC and Interleaving
Forward Error Correction Codes (FEC): Various encoding and decoding in conjunction with interleaving techniques, eliminate the effect of high-power and long-time pulse jammers, as well as other types of jamming.

Interleaver/Deinterleaver
Disperses the effect of burst errors and delivers white noise to the decoder, nullifying the radio channel's memory.

Built-in APC
Automatic Power Control continuously adjusts the local transmitter's output power to the minimum required level for error-free communications, producing a Low Probability of Interception (LPI). Reduces potential interference (collocation) and provides more efficient system-wide frequency management. In conjunction with FEC and Interleaver, results in a solid, effective and efficient LPI function, with less susceptibility to ECM or interference environment.

Adaptive Frequency Control (AFC)
AFC negates CW jammers following detection of hostile ECM by automatically changing frequencies whenever a threat is perceived, or link performance is degraded due to fading or any other phenomena.

Emergency
Emergency mode: enables addition of 15 dB to system gain during antenna alignment process.

Remote Control Facility
Enables comprehensive Simple Network Management Protocol (SNMP) via Transmission Control Protocol over Internet Protocol (TCP/IP). The Radio contains an SNMP agent and the associated Management Information Base (MIB) to support SYSCON network management requirements. The remote facility control controls and monitors all radio features. The radio remote control supports also File Transfer Protocol (FTP).

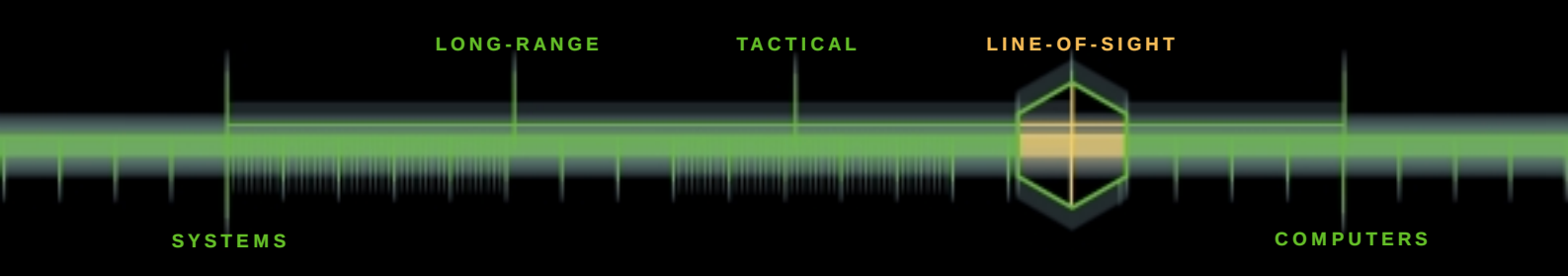
State-of-the-Art Design
Technologies and circuitry contain: ASIC, FPGA and SMD hybrid modules, highly selective SAW filters, efficient broadband amplifier, highly selective and fast RF filter, synthesizer/direct modulator with exceptional spectral purity, super linear front-end and pulse hardened IF.

User-Friendly Human Interface
The radio is operated through user-friendly front panel keypad with alphanumeric and bright LED displays.

Built-In Test Equipment (BITE)
Sophisticated BITE to check the radio either off-line or on-line. Special routines are available for testing and checking all radio functions and units at ten preset frequencies. No additional test equipment is required.

Compatibility
Electronically and physically compatible with older models, and can easily be upgraded to ECCM-capable GRC-408, incorporating latest innovations.

Extremely Cost-Effective System
The most cost-effective, intelligent ECCM and multi-media capable, broad-band digital radio relay available on the market.



TECHNICAL SPECIFICATIONS

Frequency Ranges

Band III - GRC-408A:	1350 to 1850 MHz
Band III + GRC-408E:	1350 to 2690 MHz

Rx/Tx Duplex Separation

GRC-408A:	40 MHz
GRC-408E:	50 MHz

Transmission rates

GRC-408A:	256/512/1024/2048 KBps
GRC-408E:	256/512/1024/2048/4096/8192 KBps
GRC-408E/34M (option):	16384/34368 KBps

Channel spacing

For rates up to 8192 KBps:	125 kHz
For rates 16384/34368 KBps:	500 kHz

Baseband interfaces

EUROCOM D/1:	up to 2048 KBps
TRITAC:	up to 8192 KBps
ISDN (PRI) (option):	2048 KBps
G.703 (option):	2048/8448/34368 KBps

Transmitter

Modulation type:	Binary FM according to EUROCOM D/1 16 QAM & QPSK (GRC-408E only) 64 QAM (GRC-408E/34M option)
Output power:	
• GRC-408A:	5W
• GRC-408E:	4W
• GRC-408E/34M:	1W
Power adjustment:	
• Manual:	Low/Medium/High
• Automatic:	20 dB range in 8 steps
Spurious Radiation:	>95 dBc
Harmonics:	>80 dBc

System threshold

Transmission Capacity (KBps):	Threshold (dBm) for BER 10^{-5}
For GRC-408A	
• 256/512/1024/2048:	-94/-94/-91/-85
For GRC-408E	
• 256/512/1024/2048:	-96/-96/-96/-94
• 4096/8192:	-91/-88
• 16384/34368:	-83/-75

Memory functions

Preset Frequencies:	5 Tx/Rx pairs (the number of spare frequencies can be optionally increased) through the keypad or remote control

Syscon and remote control

SNMP via TCP/IP enhanced remote control channel
Serial interface RS-232, RS-422/423 (optional)

Service channel

Analog order wire:	Supports H-250 and H-189 handsets
Digital order wire:	K-interface according to EUROCOM D/1 specifications or Balanced NRZ according to TRITAC specifications

Power supply

DC Voltage:	24V nominal, 125 to 150W
AC Voltage:	115/230V, 50/60 Hz

Environmental Conditions

Temperature:	
• Operating:	-32°C to + 55°C
• Storage:	-40°C to +70°C
Humidity:	94% (per MIL-STD-810E)
Mechanical stress:	MIL-STD-810E
Electromagnetic compatibility:	MIL-STD-461D

Physical parameters

Dimensions (HxWxD):	265 x 444 x 393 mm
Weight:	33 kg
Installation:	19” Rack Mount or Optional Stack Mount

GRC-408/02/02

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