

Defense Test Systems

RCTS Radio Communications Test Systems

AEROFLEX
A passion for performance.



- Easily expandable platform
- Semi-unattended testing
- Portable
- More complete testing in less time
- Operator skill level requirement reduced
- Reduced calibration cost
- Less set up and operation test time required
- Automated data logging and recording
- No "Gold" LRU equipment required
- Guided probing for troubleshooting
- Supports all levels of maintenance

Forward "Mobile" installations
Forward "Fixed" installations
Rear depot installations

Aeroflex continues to use advanced communications test techniques to successfully support the Military's Tactical Communications requirements in the following areas; conventional ground radio systems, SINCGARS, Have Quick, Special Tactics, Life Support, Airborne Communications and Foreign Military requirements.

In the current conditions experienced in a tactical battlefield environment, frequency-hopping communications, beacons and position location have become a necessity. With the need to transmit not only voice but also data and position information, a reliable communications link is of paramount importance. In hostile conditions, enemy jamming has become a primary tool to disrupt or disable Communications, Command, Control and Computer (C4). The new frequency hopping and multi-mission transceiver systems, with their ability to encode, interleave, error correct and act as a beacon/transponder capable of supplying ranging and personnel identification information provide effective countermeasures with low probability of intercept.

With this philosophy in place, Aeroflex has provided the military with the proper test equipment to verify the reliability and functionality of all aspects of these communications devices. The frequency agile AN/GRM-122 and its next generation derivatives have proven to be the only test solution capable of providing this level of operational verification and maintainability assurance. By its acceptance in the US Army, US Marine Corps, US Navy and US Air Force, these test systems have proven their ability to provide our customers with reliable field communications.

The Radio Communications Test System (RCTS-XXX) is made up of the TS-4317 Frequency Agile Communications Test Set and the J-4843A Appliqué Unit with the PL-XXXX Radio Personality Module (RPM-00X). The TS-4317 has been designed to work with an appliqué unit as a natural extension of its operation. The division of

functions between the two units is based on the TS-4317 providing all the basic measurement and stimulus functions associated with the testing and servicing of communications equipment. The RPM unit is responsible for any special UUT input and output signal routing or conditioning and handles all unique controls and measurements that a specific UUT may require.

By utilizing the general purpose, frequency agile, radio communications test set (TS-4317) as the host platform, two possible approaches may be utilized to support the maintenance of Line Repairable Units (LRUs). Approach one utilizes custom Radio Test Applications Programs stored in the Test Sets flash memory for verification testing and/or fault detection and repair of the military communications systems. These test programs are typically utilized for less complex transceivers (single channel, non-frequency hopping) or when minimal performance testing (RF only) is all that is required. Approach two utilizes the J-4843A generic appliqué housing with its associated Radio Personality Modules (RPMs) to provide a cost effective, configurable approach to complete pin-to-pin functional communications systems testing. This approach is typically utilized for more complex systems test requirements where multiple LRUs (radios, RF amplifier, vehicular adapter, fill device, battery box, etc.) are required to be tested in all modes of operation. This approach utilizes custom hardware (contained in the RPM) to provide the necessary stimulus and response routing for complete pin-to-pin functional testing. This approach is also utilized for complex modulation schemes (Frequency Hopping, etc.) and where complex baseband processing is required.

The Radio Communications Test System (RCTS-XXX) provides "State of the Art" capabilities for semi-automated testing of multiple LRUs from a single, portable platform. This results in more complete testing of the LRUs which can now be accomplished in less time than in the past. Typical field results demonstrate test time reductions on complex radios from 4 to 6 hours to less than 25 minutes and for simpler LRU's this time is reduced to less than 10 minutes. In addition, with the testing being performed in a semi-automated environment, there has been a significant reduction in problems associated with human error. With these enhanced capabilities technicians are able to fully test any remote interfaces (2-wire, 6-wire, RS-232, RS-422, MIL-STD-1553, etc.) and then utilize this same interface to remotely control the Unit Under Test (UUT). Electronic recording of test results is available, providing permanent records of LRU performance. Hardcopy printouts may be supplied with the faulty LRU being evacuated to a higher maintenance level.

Defense Product Configurations

Commercial Model	Military Model	Military NSN #
Systems		
RCTS-001	AN/GRM-122	6625-01-432-8369
RCTS-002	AN/ARM-204	6625-01-454-4611BY
RCTS-003	TS-4317-3/J-1603	6625-01-457-1265
RCTS-004	TBD	N/A
RCTS-007		N/A
Appliqué Units		
J-1601A	J-4843A/GRM	6625-01-432-8368
Radio Personality Modules		
RPM-001	PL-1536/GRM	6625-01-432-3819
RPM-002	PL-1538/ARM-204	6625-01-454-4273BY
RPM-003	TBD	TBD
RPM-004	TBD	TBD
RPM-007		N/A
Accessories		
PS-001	PP-8468/ARM-204	6625-01-454-4265BY

Radio Personality Modules

<i>RPM</i>	<i>Application</i>	<i>Radio Systems Supported</i>	
RPM-001	SINGGARS (Army/Marines/ITT)	PRC-119 VRC-87 VRC-88 VRC-89 VRC-90 VRC-91 VRC-92 ARC-201	Manpack Vehicular Short Range Vehicular Short Range Dismountable Vehicular Long/Short Range Vehicular Long Range Vehicular Long Range Dismountable Vehicular Dual Long Range Airborne SINGGARS
RPM-002/RPM-002HQ	RSC Tactical (Air Force/RSC)	ARC-164 ARC-186 ARC-222 PRC-113 VRC-83	UHF/Have Quick VHF/UHF SINGG Manpack Have Quick PRC-113 HQ Vehicular Adapter
RPM-003	Life Support (Special Forces)	PRC-112 PRC-90 PRC-90-2 URT-33	Transceiver w/DME Transceiver/Beacon Transceiver/Beacon Beacon
RPM-004	IRIS Canada (CDC/DND)	CNR(P) LAR	(BCC 68 Jaguar Type) (PRC-521 Type)
RPM-007	TRSS (Marines Tactical Remote Sensor System)	ICI Pre Amp RF Unit Recovery Unit Antenna Coupler	

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.

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