

## In this Issue

- Airborne Solutions .....2, 4
- ITC '08 Preview .....3
- Recent Launches.....5
- Ground Solutions.....6
- L-3 Gives Back .....6
- 40th Anniversary .....7

## Upcoming Tradeshows

### INT'L TELEMETERING CONF.

**When:** 27-30 October  
**Where:** San Diego, CA

### NATIONAL STEERING COUNCIL SPACE INFOSEC

**When:** 28-30 October  
**Where:** El Segundo, CA

### AEROTEST AMERICA

**When:** 18-20 November  
**Where:** Ft. Worth, TX

### MILCOM

**When:** 17-20 November  
**Where:** San Diego, CA

### ARMY SCIENCE CONF.

**When:** 1-4 December  
**Where:** Orlando, FL

### FOCUS - OCTOBER 2008

Published for customers of L-3 Telemetry & RF Products.

Send feedback to:

[Focus.TW@L-3Com.com](mailto:Focus.TW@L-3Com.com)

## L-3 TELEMETRY & RF PRODUCTS

### LEADER IN AIRBORNE & GROUND TELEMETRY

L-3 Telemetry & RF Products is a world-leading manufacturer of missile and aircraft flight test instrumentation, including airborne and ground telemetry products.

Our airborne telemetry and flight test products gather and process critical information aboard spacecraft, aircraft, missiles, guided weapons, targets and UAVs. Constructed to function under the severe conditions of space and military applications, our equipment also records the data and transmits it to receiving stations; then processes and displays it for technicians in the field.

Additionally, we are a premiere supplier of real-time telemetry and avionics ground processing products and solutions for aircraft, missile, launch vehicle and satellite, integration, test and operational support. We manufacture a wide variety of telemetry ground equipment, including receivers, complete computer controlled ground stations and a wide variety of support products servicing the Range Telemetry, Space Data, Signals Intelligence and Satellite Telemetry, Tracking and Control (TT&C) communities.



#### AIRBORNE TELEMETRY SOLUTIONS

**Markets** — Weapon Flight Testing, Aircraft Flight Testing, Launch Vehicle Operations, UAV Communications, Test & Training, Flight Range Safety

**Products Offered** — Data Acquisition Systems, Receivers, Data Links, Transmitters, Power Amplifiers, Video

- Modular products that are field-reconfigurable
- Embedded and stand-alone encryption
- Data links up to 40 Mbps throughput
- Compact, ruggedized radio hardware
- Flexible GUIs for hardware configuration



#### GROUND TELEMETRY SOLUTIONS

**Markets** — Flight Test, Space & Launch Support, Test Systems, Data Acquisition, Turnkey Systems, Mobile Apps.

**Products Offered** — Avalon, Bit Syncs, System & Vista 550, Boards, Receivers, VTS

- Built on industry standards
- Largest installed base in world
- Easy to integrate
- Automated turnkey systems
- High-speed real-time processing
- Full service Customer Support

*Excellence You Can Measure*

## Airborne Telemetry Solutions



### GIVING THE WARFIGHTER VISION WITH THE REMOTE VIDEO RECEIVE TERMINAL (RVRT)

The **Remote Video Receive Terminal (RVRT)** from L-3 Southern California Microwave (L-3 SCM) provides the dismounted warfighter access to the analog video downlinks from UAVs, UGVs, targeting pods and remote sensors operating in his/her area in the L-, S-, or C-Band frequencies. Designed to be user friendly, the RVRT is lightweight (4 lbs), portable and rugged. This makes the unit especially valuable to troops who want to see the scene from overhead and take immediate action. The RVRT offers a cost-effective solution to put intelligence where it is needed.



RVRT

An intuitive user interface allows the Tri-Band Receiver to quickly present video on the daylight readable display. Control functions allow the user to scan frequencies or select from six user programmable presets. In the Scan Mode, the RVRT will automatically detect and lock on to valid video feeds. The video can also be fed to a remote recorder, if desired.

Operating on internal batteries for up to five hours, the RVRT can be easily carried on maneuvers. Plugged into an external +12 V supply, such as a BA5590 battery or a HUMVEE, the RVRT will provide continuous monitoring of sensors in the area.

**THE LIGHTWEIGHT, PORTABLE RVRT GIVES THE WARFIGHTER VISION!**

### NOW AVAILABLE – UPGRADED STATE-OF-THE-ART MINIATURE TELEMETRY ENCODER (PCM330E)

The PCM330E from L-3 Telemetry-West (L-3 TW) is a fourth generation, sub-miniature programmable data acquisition system especially suited for today's small weapons and UAV tactical and flight test applications. Delivering advanced capabilities to acquire, convert and process today's high data rate signals, the PCM330E provides a flexible, high-performance platform supported by state-of-the-art signal conditioning for the most demanding applications.

Driven by customer demands for increased functionality, performance and channel density, the PCM330E is the encoder that customers are turning to when they need small size, high data rates, high-performance tolerances and an unmatched history of successful in-flight performance.

With its flight heritage based on the highly successful PCM300 & 600 families of data acquisition products (thousands have been provided for smart weapons, UAV and launch vehicle programs), the PCM330E brings unparalleled acquisition capabilities while continuing to set new standards for size, weight and power constrained applications.

Users may choose from a large selection of acquisition and functional modules to develop a data acquisition solution that meets tough modern day requirements in a cohesive and flexible fashion. Special design constraints were considered to deliver unmatched capabilities for high-speed serial data interfaces, video and fast sample rate analog and discrete data acquisition channels.

#### FEATURES

- Operation up to 40 Mbps
- User-programmable through PC interface
- Programmable signal conditioning
- Modular design for user reconfiguration
- Designed to interface with a large variety of functional modules
- Embedded encryption available



PCM330E

## INTERNATIONAL TELEMETERING CONFERENCE (ITC/USA '08)

### PRODUCT LAUNCH

**AIRDAS™** - IS OUR NEXT-GENERATION AIRBORNE DATA ACQUISITION SYSTEM, PROVIDING THE LATEST SIGNAL CONDITIONING AND ENCODING FUNCTIONS IN A COMPLETE, NETWORK-CAPABLE ARCHITECTURE.

**AirDAS™**  
SEE PAGE 4 FOR DETAILS

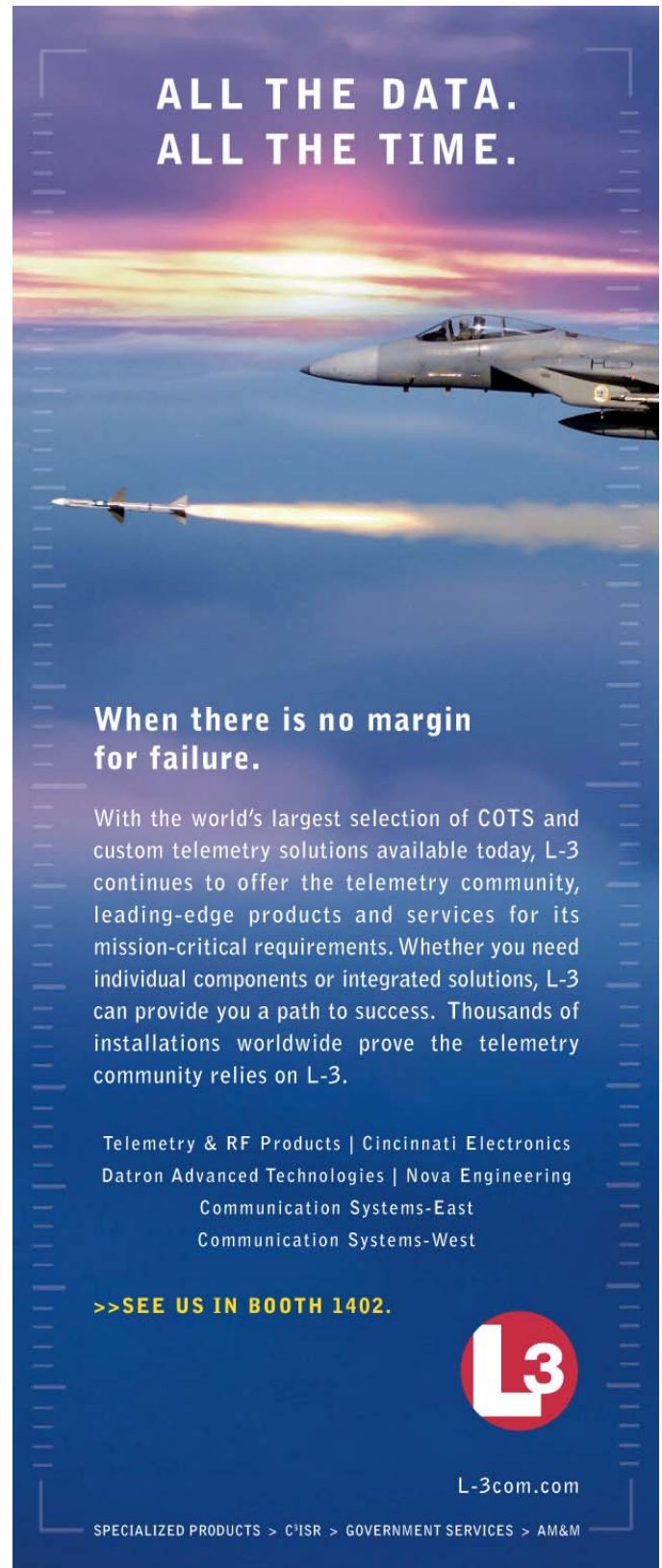
### PAPER PRESENTED

#### DESIGN CONSIDERATIONS FOR A VARIABLE SAMPLE RATE SIGNAL CONDITIONING MODULE

By: Jeff Lee, L-3 Telemetry-West

Modern telemetry systems require flexible sampling rates for analog signal conditioning within telemetry encoders in order to optimize mission formats for varying data acquisition needs and data rate constraints. Implementing a variable sample rate signal conditioning module for a telemetry encoder requires consideration of several possible architectural topologies that place different system requirements on data acquisition modules within the encoder in order to maintain adequate signal fidelity of sensor information.

This paper focuses on the requirements, design considerations and tradeoffs associated with differing architectural topologies for implementing a variable sample rate signal conditioning module and the resulting implications on the decoder system's data acquisition units.




## ALL THE DATA. ALL THE TIME.

**When there is no margin for failure.**

With the world's largest selection of COTS and custom telemetry solutions available today, L-3 continues to offer the telemetry community, leading-edge products and services for its mission-critical requirements. Whether you need individual components or integrated solutions, L-3 can provide you a path to success. Thousands of installations worldwide prove the telemetry community relies on L-3.

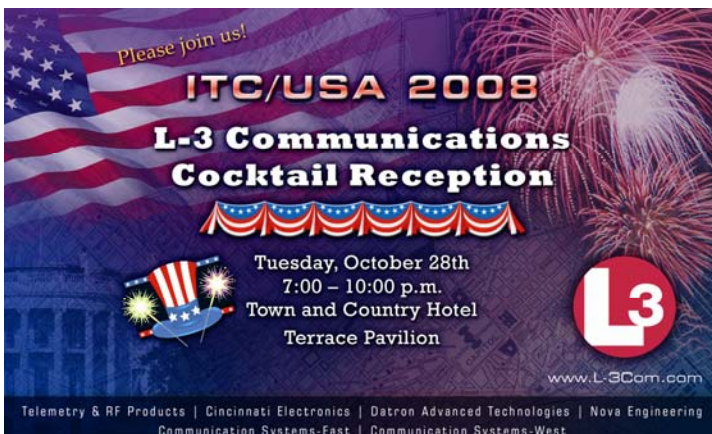
Telemetry & RF Products | Cincinnati Electronics  
Datron Advanced Technologies | Nova Engineering  
Communication Systems-East  
Communication Systems-West

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L-3com.com

SPECIALIZED PRODUCTS > C/ISR > GOVERNMENT SERVICES > AM&M




Please join us!

### ITC/USA 2008

#### L-3 Communications Cocktail Reception

Tuesday, October 28th  
7:00 - 10:00 p.m.  
Town and Country Hotel  
Terrace Pavilion



www.L-3Com.com

Telemetry & RF Products | Cincinnati Electronics | Datron Advanced Technologies | Nova Engineering  
Communication Systems-East | Communication Systems-West



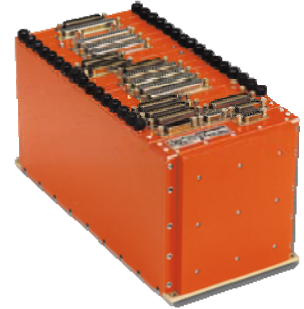
## Airborne Telemetry Solutions

### AIRBORNE DATA ACQUISITION SYSTEM (AirDAS™)

AirDAS™ is L-3 Telemetry-East's (L-3 TE) next-generation airborne data acquisition system, providing the latest signal conditioning and encoding functions in a complete, network-capable architecture.

AirDAS incorporates over 40 years of DAS experience from a leading airborne telemetry system provider.

AirDAS is further backed by L-3 TE's dedicated Customer Support organization, offering on-site training and support, a 24-hour technical support hotline, performance-based logistics and guaranteed repair turnaround times. Hardware, software and services are all designed with the single-minded goal of helping the customer successfully complete the flight test program.



AirDAS™

- AirDAS utilizes the latest high-speed digital technology to:
  - ▲ Address both current PCM-based and evolving networked system requirements in a single, future-proof platform
  - ▲ Provide unmatched architectural flexibility as part of the comprehensive L-3 Telemetry Suite™ of products and services
- Accommodate large and small system configurations with stand-alone, master and slave capability in the same box
- Interface with both NetDAS™ and Intellibus™ equipment to optimize overall system size, weight and performance
- Allow easy setup and reconfiguration using VistaTEC and standard PC-based hardware
- Adapt to both current and future flight test programs through complete field reprogrammability
- Transfer settings and data seamlessly between airborne and ground elements using the Vista software platform
- Incorporate high-capacity flash data storage, eliminating or supplementing stand-alone recorder capability

### FEATURES

- Dual backplane architecture:
  - ▲ High-speed internal 133 Mbps bus for traditional PCM data acquisition
  - ▲ High-speed internal packet bus for block mode data acquisition
- Standard PCM operation to 30 Mbps
- Automated system calibration, operational checkout and programming via VistaTEC
- Resolution to 16 bpw
- Accuracy  $\pm 0.5\%$  standard over complete environments
- Stand-alone or master/slave operation
- iNET/vNET compatibility
- Embedded IRIG Chapter 10 recording
- Rugged design for flight environments

# AirDAS™

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## RECENT LAUNCHES WITH OUR PRODUCTS ON BOARD

### DELTA ROCKET LAUNCHES GEOEYE 1

**06 Sept 2008** — A Delta 2 rocket launches from Vandenberg Air Force Base in California carrying the GeoEye-1 commercial Earth-imaging satellite.

The GeoEye-1 satellite successfully launched from Vandenberg AFB aboard a Boeing Delta 2 rocket. GeoEye-1 will collect black and white imagery with a 0.41 meter resolution and color imagery with a 1.65 meter resolution. The satellite is currently undergoing a calibration and checkout phase before imagery becomes available. The primary customer for GeoEye-1 is the U.S. National Geospatial Intelligence Agency (NGA), which co-funded the build of the satellite. General Dynamics Advanced Information Systems (GD-AIS) built GeoEye-1, with the payload sensor provided by ITT.

The combined cost of the satellite and launch was approximately \$500M, and GeoEye, Inc. has indicated that a follow-on satellite (GeoEye-2) is expected to go under contract by the end of 2008.

L-3 Telemetry-West provided two MSR-765 (S-band BPSK receivers) and one MDU-134 (Caribou decryptor), which enabled communications to be established between the newly launched GeoEye-1 spacecraft and its ground controllers at 2004 GMT (T+73 minutes).

For more information, see [www.spaceflightnow.com/delta](http://www.spaceflightnow.com/delta).



Boeing photos by  
Carleton Bailie

### MISSILE SUCCESSFULLY LAUNCHES FROM VANDENBERG



A Minuteman III intercontinental ballistic missile successfully launches from North Vandenberg AFB.

U.S. Air Force photo/Joe Davila

**13 AUGUST 2008** — A Minuteman III intercontinental ballistic missile configured with a National Nuclear Security Administration (NNSA) test assembly was launched from North Vandenberg Air Force Base today at 1:01 a.m.

The launch was an operational test to determine the weapon system's reliability and accuracy. The missile's three unarmed re-entry vehicles traveled approximately 4,220 nautical miles to pre-determined targets near the Kwajalein Atoll in the Marshall Islands.

"The unique part of this mission was the incorporation of a maintenance task force from an operational missile wing," said Capt. Steve Bonin, launch director for the mission.

Operational tasks were conducted by maintenance and operations task force personnel from the 341st Missile Wing, Malmstrom AFB, Mont.

Members of the 576th Flight Test Squadron installed tracking, telemetry and command destruct systems on the missile to collect data and meet safety requirements.

"I'm very proud of the team of professionals involved in making this test a success," said Lt. Col. Lesa Toler, 576th FLTS commander. "Their technical expertise, dedication and adherence to 'perfection as the standard' have ensured our nation's ICBM fleet is capable and extremely accurate."

The data collected will be used by the entire ICBM community, including the United States Strategic Command planners and the NNSA/Department of Energy laboratories.

L-3 Telemetry-West provided the command receiver decoder for flight safety termination and the S-band transmitter for telemetry transmission.

For more information, see [www.vandenberg.af.mil/news](http://www.vandenberg.af.mil/news).

**How do we measure up? [www.L-3Com.com/TW/VOC](http://www.L-3Com.com/TW/VOC)**



## Ground Telemetry Solutions

### NOW AVAILABLE – 40 MBPS PCM BIT SYNCHRONIZER (MBS-740)

**Overview** The MBS-740 PCM Bit Synchronizer is our eighth-generation external PCM bit synchronizer. It is part of a family of high-performance PCM telemetry products we have designed to provide high-speed bit and format synchronization with flexible data processing, distribution, display and remote configuration capabilities.

**Performance** The MBS-740 provides a tunable bit rate capability with BER performance within 1.0 dB of theoretical over its full operating range of 100 bps to 40 Mbps for IRIG standard NRZ codes or to 30 Mbps for bi-phase codes. Accurate bit synchronization can be attained on data contaminated with noise and perturbations generally within 100 bits NRZ average acquisition (200 bits bi-phase). Outputs of clean serial NRZ-L data and synchronous clocks are provided at the rear panel BNC connectors of each bit synchronizer.

**Applications** Our MBS-740 performs input signal conditioning, bit synchronization, data reconstruction, code conversion, clock generation and output conditioning to provide clean, synchronous serial data and clock signals. A self-contained PC-based rack-mount chassis houses from one to four bit synchronizer modules. Each bit synchronizer may be set up from the front panel using the touch-screen LCD display or remotely using Ethernet and a standard browser accessible via rear panel connectors on the chassis.

**Technology** The MBS-740 is based on L-3's industry-leading PMC Bit Synchronizer, which has been successfully fielded in hundreds of installations in both PC and VME configurations worldwide. Mounted onto standard PCI carrier boards in a PC-based 3U rack-mount chassis, these independent mezzanine modules form the basis of a precision test instrument ideal for lab test, bench test, systems integration and operational telemetry acquisition requirements. SOA-enabled design provides remote software interface, as well remote configuration capabilities.



MBS-740

## L-3 GIVES BACK



### L-3 TELEMETRY-WEST & SOUTHERN CALIFORNIA MICROWAVE GIVE TO HELEN WOODWARD ANIMEALS PROGRAM

L-3 TW/SCM raised over 180 cans, 13 bags of pet food and \$120 in donations.

The popular AniMeals program offers free pet food for the dogs and cats of elderly or disabled people throughout San Diego County. AniMeals helps keep people and their companion pets together by removing logistical and financial obstacles to ensure that clients will always be able to provide nutritious meals for their beloved pets.

The Helen Woodward Animal Center is a unique non-profit organization in San Diego County that for over 30 years has been committed to the philosophy of people helping animals and animals helping people.

For more information, see [www.animalcenter.org/animeals](http://www.animalcenter.org/animeals).

## Helen Woodward Animal Center

## 40-Year Career Celebrated at L-3 Telemetry-West

Wiley Dunn, who marks his 40th anniversary with the company in November, prides himself on loyalty and longevity. He has displayed these long-standing convictions every day since 1968, providing honest analysis as a manager, mentor, fellow colleague and friend to the many people he has touched over the last 40 years.



1968 — Dunn at EMR Telemetry

Dunn started in 1968 with EMR Telemetry in Sarasota, Fla., as an engineer in the airborne telemetry engineering design group. After many name changes, it became Fairchild Weston in the 1980's.

Dunn recollects fond memories of the good old days of international travel when he noted that in 1983 he went to Brazil to install a flight test system. To his surprise, he was able to arrange a flight in a jet trainer with one of the flight test pilots. He said, "I'm happy to report lunch stayed down and the system worked."

In the 1990's he transferred and moved his family to San Diego and continued with the company as it became Loral, Lockheed Martin and then finally L-3 Communications in 1998.

Even though international travel was a perk to the job, he says the most satisfaction came from the program wins and the people he worked with to achieve those successes.

Dunn, who is well respected in the telemetry community has served on the International Telemetry Conference (ITC) staff for over the past 10 years, and is this year's exhibit chair for the conference taking place 27-30 October, in San Diego, CA.

Acknowledging his four decades in the industry and company, Dunn said, "If someone offered me the chance to do it all over again, I'd do it in a heartbeat."

Dunn celebrates with his wife of 41 years, Carroll, two sons and three grandchildren.



1983 — Dunn takes a flight in a jet trainer in Brazil

### WE ASKED MR. DUNN TO REFLECT ON A VARIETY OF TOPICS...

**Question:** You must have many memorable moments from your 40 years in this business. Does anything particular stand out as a significant event worthy of note?

**Answer:** I remember an international trip to India in the 1980's. On our way, we had engine failure and were forced to land in Saudi Arabia. They took our passports and kept us under armed guard as we waited the night for another plane to come in. We finally made it to India the next day. And one key program win stands out - the Lockheed Martin Range Standardization & Automation program at Vandenberg AFB. It took three years to finally win and receive the initial contract.

**Question:** What technology changes have most improved the quality of the Telemetry world in the last 40 years?

**Answer:** There have been many technologies, but I would say the advancement of large-scale integrated circuit technology has been one of the largest factors. This development has enabled dramatic increases in the amount of functionality that can be provided in a given amount of space and budget. Development and proliferation of personal computers have benefited from technology gains and are obviously major factors in the telemetry world today.

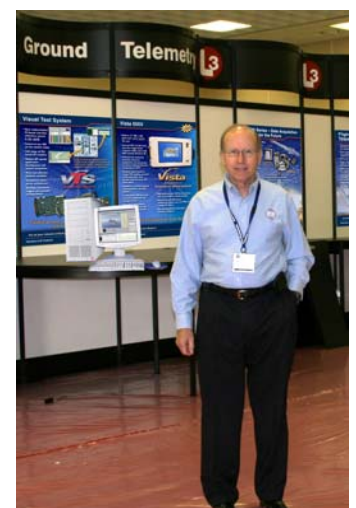
**Question:** Where do you see Telemetry 40 years from now?

**Answer:** Evolving more towards a software business where hardware functions are provided by commodity products. Wireless network connectivity will be the norm and key in the future. Information will be available even more in realtime. It will come down to managing the software and presenting the data in a meaningful way.

**Question:** Given that EMR has been part of Fairchild/Loral/Lockheed Martin/L-3, what's your secret? How did you stay with one company for this many years?

**Answer:** Patience and flexibility! I think being able to be involved with different departments contributed greatly to my longevity. Moving from airborne engineer to ground systems engineer - to research development, program management then finally business development - didn't give me much time or desire to go anywhere else.

*"If someone gave me the chance to do it all over again, I'd do it in a heartbeat."*



Wiley Dunn  
Business Development Mgr.  
Ground Systems  
L-3 Telemetry-West



**communications**

Telemetry & RF Products

Today, Telemetry & RF Products serves commercial, military and civilian customers worldwide with a product offering that includes TT&C satellite transponders, high data rate satellite transmitters, high-power amplifiers, high-reliability receivers/transmitters, encryption/decryption units, video compression/decompression units, tactical intelligence radios, tactical HF/SSB and microwave radios, telemetry ground system components and solutions, and specialized telemetry and surveillance products, telecommunications products and specialized networks.

**L-3 Telemetry & RF Products is made up of the following L-3 divisions:**

**SOUTHERN CALIFORNIA MICROWAVE**

**TELEMETRY-EAST/GLOBAL NETWORK SOLUTIONS**

**TELEMETRY-WEST**



### **L-3 Southern California Microwave**

2732 Via Orange Way, Suite E | Spring Valley, CA 91978  
Phone: 619-670-3414 | Website: [www.L-3Com.com/TW](http://www.L-3Com.com/TW)

L-3 Southern California Microwave is a leading manufacturer of microwave transmitters, receivers, power amplifiers, repeaters and antennas for military test ranges, UAVs, RPVs, UGVs, robots and law enforcement agencies. Additionally, L-3 SCM provides standard FM PCM telemetry systems.



### **L-3 Telemetry-East/Global Network Solutions**

1519 Grundy's Lane | Bristol, PA 19007  
Phone: 267-545-7000 | Website: [www.L-3Com.com/TE](http://www.L-3Com.com/TE)  
[www.L-3Com.com/GNS](http://www.L-3Com.com/GNS)

L-3 TE/GNS is a preeminent supplier of airborne telemetry products and systems for the aircraft and missile flight test, airborne telemetry and ground receiver markets. Additionally, L-3 TE/GNS is a worldwide supplier and integrator of quality telecommunications products and end-to-end communications solutions.



### **L-3 Telemetry-West**

9020 Balboa Ave | San Diego, CA 92123  
Phone: 858-694-7500 | Website: [www.L-3Com.com/TW](http://www.L-3Com.com/TW)

L-3 Telemetry-West is a premier provider of tailored flight hardware and systems solutions for missile, UAV and spacecraft telemetry, tracking and control (TT&C); software & HPAs for satellite command & control; COTS telemetry ground system solutions; tactical intelligence receivers; and terrestrial HF and microwave radios.