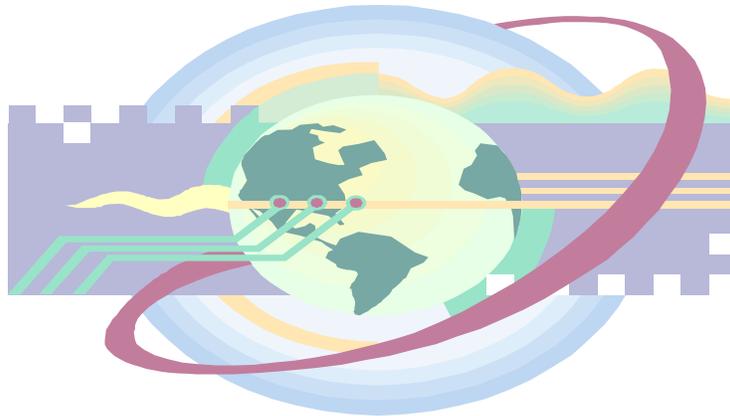


Naval Surface Warfare Center (NSWC) Chooses Acroamatics for Puerto Rico Missile Range

A Modern Fleet Telemetry Station with Maximum Power & Versatility



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Background of the NSWC Corona Division

In the years preceding and during WWII, the US Navy created a division to develop advanced missile systems called Division 5. Beginning with the very successful BAT missile, this division was responsible for creating systems that thoroughly changed the face of Naval warfare by incorporating intelligent missiles into a ships arsenal of weapons. After the success of this program and the end of WWII, the division continued to work on new systems to combat the new naval tactics employed in the post-WWII world. The division moved into a new facility near Norco, California in the early 1950's and was renamed the NSWC Corona Division. A complete history of this division can be found at www.corona.navy.mil.

Today, Corona is a state of the art Naval Warfare test, evaluation and development center responsible for more than 180 critical programs and over 180 million dollars in annual expenditures. A staff of 950 scientists and engineers along with 700 contractors help the US Navy determine and maintain combat readiness of fleets throughout the world.

Corona operates telemetry and missile tracking systems in Crete, Puerto Rico and Hawaii among other tasks.

Corona and Acroamatics

The founders of Acroamatics have been working with the Corona facility since the late sixties. Corona and Acroamatics continued to work together over the next thirty years to provide telemetry solutions for several generations of missile systems in support of Corona's mission goals.

Over the years, Acroamatics has developed systems for Corona that evolved continuously as the needs of missile telemetry systems changed. Beginning with microcomputers, wire wrap systems and then on to VME and PC based systems, Acroamatics has continually added functionality, increased speed and capacity and provided new technology for increasingly complex telemetry requirements. Virtually every generation of Acroamatics Telemetry Data Processing systems are still in use today at a Corona facility somewhere in the world. Our systems have been deployed in NSWC centers in Crete, Puerto Rico, Hawaii and at missile ranges internationally for US allies and strategic partners. Corona is recognized by navies across the world as the expert in naval weapons telemetry and has provided solutions using Acroamatics products for Italy, Japan, Australia, Israel, and NATO naval missile centers.

Atlantic Fleet Weapons Training Facility (AFWTF)

The Atlantic Fleet Weapons Training Facility (AFWTF) is the worlds largest military complex with sites in the Caribbean Sea and on the mainland. Located at Roosevelt Roads Naval Station in Puerto Rico, it serves as the Navy's premier training range for insuring combat readiness for the Atlantic Fleet. AFWTF's ranges provide the capacity to conduct simultaneous missile firings, electronic warfare, gunnery, air-to-ground ordnance firing and underwater operations. There are four separate ranges in this vast complex;

Outer Range, Inner Range, Underwater Tracking Range and the Electronic Warfare Range.

Once a test is undertaken, the NWAC Corona field office in Puerto Rico provides all the telemetry collection, retrieval and analysis used by the Navy for review and analysis.

NWAD Provides AFWTF with Ground Station by Acroamatics

In 199X Naval Warfare Assessment Division (NWAD) of Corona was given the assignment to develop a computer-controlled telemetry ground station design capable of meeting current and future fleet training range requirements for deployment at AFWTF.

The AFWTF mission is to collect, record, and process all telemetry missile data during exercises involving ships and aircraft. NWAD uses the acquired data to analyze weapons system performance during missile firing exercises on the range.

NWAD chose Acroamatics to provide them with these systems in 199X.

Task Description

Acroamatics was awarded the contract to procure, integrate, build, cable, and write software to control the four de-commutation subsystems in the AFWTF ground station. Each of the four subsystems contains two analog tape recorders, a digital tape recorder, two bit synchronizers, a TM receiver, and a digital discriminator, which we procured, installed, and integrated with our telemetry processing equipment.

Elements of the Acroamatics Solution

In order to complete the delivery of the systems on time and within budget, Acroamatics worked closely with the customer throughout the entire project. The tasks were separated into various functions to minimize delays and insure success. Teams were created to perform the following functions:

- Project Management
- Third Party Product Procurement
- Software Design
- Hardware Design
- Decommutation
- Integration
- Test
- Implementation

Project Management

A project manager was assigned to handle all aspects of the program both internally and externally. Acroamatics teams in the Procurement, Software, Engineering, Test and

Manufacturing departments worked closely with the Project Manager to complete the program on time and according to requirements.

Third Party Product Procurement

The Procurement department devised a just-in-time delivery schedule that delivered all third party products at the time needed. Out-sourced products included customized rack systems, two analog tape recorders, a digital tape recorder, two bit synchronizers, a TM receiver, and a digital discriminator.

Software Design

In addition to using the Acroamatics COTS Telemetry Data Processing software Acroamatics wrote the PATS (Programmable Automated Telemetry System) software to completely automate setup, configuration, and operation of the system, which is locally or remotely controllable. In the Model XXXX System, special software was written in order to integrate the consoles. The software engineering department wrote systems level software to control all console functions.

Hardware Design

Acroamatics was tasked with designing four Model 2417 Signal Routing Matrix and eight Model 3200 Input Source Selectors to provide maximum flexibility. The source selectors controlled by software, switch any one of eight analog recorder inputs and eight real-time inputs to any one of the four signal routing matrix chassis. A second parallel output from the selected input is also available for passive monitoring at a second decommutation subsystem. The SRM then routes the selected input data stream to the proper decommutation subsystem equipment for processing.

Decommutation

As part of the solution, Acroamatics used the following Acroamatics standard equipment in each of the four de-commutation subsystems. A Model 2110 Telemetry Data Processor, Model 2410 Programmable Analog Synchronizer, Model 2140 Programmable Format Synchronizer, Model 2420 Digital to Analog Converter, Model 5110 System Control Unit, and Model 2404 Timing Subsystem.

Integration

The task of integrating the various components into the four separate packages involved extensive engineering by our hardware integration team. Elevations showing the locations of each component in the racks were created in consultation with the customer. Wiring diagrams, cabling issues, video display installations and all the various elements of designing a user friendly, efficient configuration were all provided by Acroamatics.

Test

All systems were factory assembled, tested and delivered for staging at the customer premises.

Implementation

Acroamatics engineers accompanied the systems on location in Puerto Rico to aid in the installation and initial customer testing of the systems.

Support

This system is in continual use, and Acroamatics maintains an excellent support relationship with the customer. The system software and hardware is continually upgraded to meet the ever-growing demands and increased complexity of the missions AFWTF supports. Acroamatics personnel are on hand during crucial operations to provide the ultimate in support.

Acroamatics

Acroamatics has been working closely with missile test ranges for over 30 years. Our line of telemetry products includes bit synchronizers, decommutators and various telemetry systems that enable our customers to act in real time during field tests. Our capabilities as an integrator of complex systems has been proven over and over again at facilities such as AFWTF Roosevelt Roads in Puerto Rico, Jervis Bay, PMTC at Pt. Mugu, PMRF at Barking Sands, Vandenberg AFB and many other ranges.