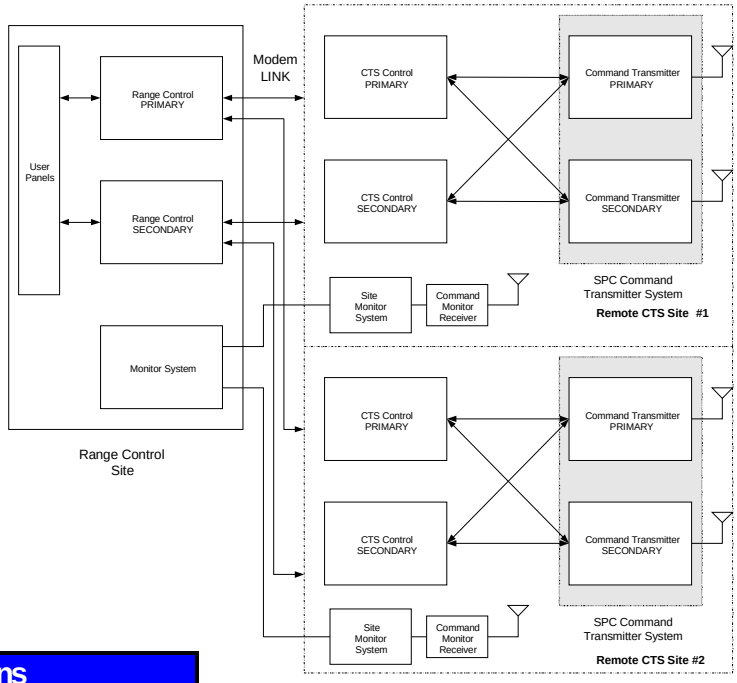
FTS
Flight Termination System

The Flight Termination System (FTS) provides a fully redundant system capable of controlling the termination of airborne test vehicles. The design stresses safety and reliability, having backup control computers, systems, and communication links between all major FTS components. Customers use FTS for terminating tests of both recoverable and non-recoverable systems. Primary operators can be located up to several hundreds of miles away from the site of test termination. Developed by System Planning Corporation (SPC), the FTS is programmable and flexible in its ability to meet the changing requirements of today's modern test ranges. FTS is designed to military standards for high MTBF and continuous 24-hour-per-day operation.



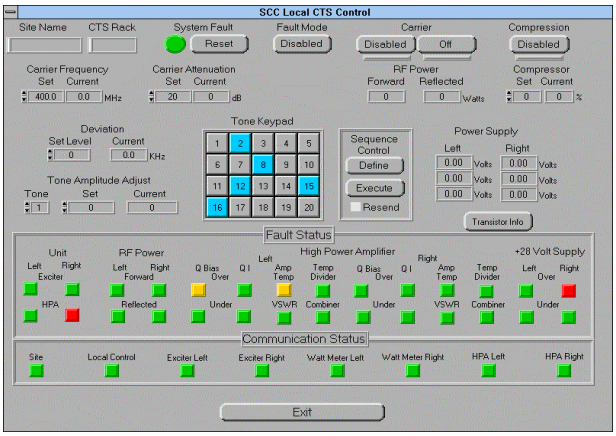
Flight Termination Control Specifications	
Mission Programmability	· Select from available site equipment that participates in a particular mission.
	· Select mission control location.
Command Programmability	· Support for multiple receiver formats either continuous or pattern commands.
	· Synchronization of programming to all participating controllers via inter-unit communications.
	· Support for future upgrades and increased capability through software programming.
Command Response Time	· Button Push to ON-AIR < 40 milliseconds
Redundancy	· Dual Controller System with seamless manual or automatic switchover on Fault detection.
	· Auto recovery of restored communication paths
	· Dual Paths for operator controls of commands and carrier
Fault Indicators	· Visual & Audible Alarms
	· Controller communication link fault detection
	· Detection of command transmitter internal faults
	· Communication between subsystems uses packetized messages with error detection (16 Bit CRC)
System Monitoring	· Display and Recording of OFF-AIR or closed loop carrier and tone decode activity.
	· Monitor of carrier power (dBm) and modulation deviation (kHz) at a 15 millisecond rate.
	· Recording of all operator inputs (command and carrier)
	· Record of communications stored with each participating controller. highlighted.
User Interface	· User friendly GUI

Consisting of the Command Transmitter System (CTS) and control consoles, FTS can operate at a single local site, or at up to ten remote sites for extended range. With full redundancy in the design, each remote site can be individually controlled, or all the remote sites can be operated from a centralized location. Each site has Primary and Secondary CTS units for safety and redundancy. At the end of the test, the CTS unit sends a signal to test vehicle for destruct. The FTS is capable of 20 different tones, allowing simultaneous missions from one CTS.

Command Transmitter System Equipment Specifications	
Frequency Range:	400-550 MHz in 100-kHz steps
RF Output Power:	Exciter: 20-watts min.
	HPA: 1000-watts min.
RF Power Control:	0.1-dB steps, 60-dB total range
Permissible Ant. VSWR:	>2:1 continuously, 50-ohms nom.
Harmonics:	≤ -50 dBc @ 1,000-watts RF power output
Spurious:	≤ -80 dBc @ 1,000-watts RF power output
Modulation & Deviation:	Frequency modulation, ±300 kHz max.
Modulation Range:	Internal: 7.50-73.95 kHz (IRIG tone frequencies)
	External Inputs: 10-100,000 Hz
Controls & Indicators:	
Local Control:	Automatic or Manual
	Either transmitter as Primary or Secondary
	Local/Remote
	Alarm Reset & Audio Alarm Disable
	System Fault
	Over-temperature Fault
Exciter:	Local/Remote
	Carrier Enable, Carrier On
	RF Output Power Attenuator
	RF Carrier Frequency
	Selected Audio Tone (up to 6 of 20)
	Deviation
	Deviation Monitor
	Compressor ON/OFF & Limit Set
	Over-temperature Fault
HPA:	Over-temperature
HPA Power Supply:	Line Power (indicators)
	System Power (circuit breaker/switch)
	HPA 28-volt power (circuit breakers/switches & indicators)
	Over-temperature
Prime Power:	180-228 VAC, 3 Phase WYE, 47-63 Hz
	6.2 kW nominal per Rack
Cooling:	Forced air; all exhaust through rear panels

FTS generally ships with front panel button operation for broadcast frequency and tones. Add-on options are available from SPC for remote control features. Adding remote control to FTS provides for initiation of command tones from more-convenient operators' stations. There are two types of remote control systems readily available to accompany FTS.

The control systems for the FTS feature an easy-to-use graphical user interface (GUI) developed for use with Windows ® NT. The software automatically coordinates communication and control among range control subsystems, site control subsystems, and CTS units. The FTS software is flexible and easily customized to suit specific requirements.



Current Customers include:

NASA Dryden Flight Research Center
Spanish Ministry of Defense
The White Sands Missile Range in New Mexico
Eglin Air Force Base in Florida

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