CONCEPT OF OPERATION

OVERVIEW

Movement Tracking System (MTS) is a global satellite communications system that provides text messaging and vehicle tracking capabilities for the U.S. Army. It allows a commander to determine where his vehicles are, what their status is, and to communicate with them in near real-time.

Because the system is satellite-based, telephone lines are not required for in-theater operations, and unlike line-of-sight radios, repeater stations are never necessary. As long as the MTS satellite transceiver has an unhindered view of the satellite, it will be able to communicate with other on-line MTS systems.

The three key features of the Movement Tracking System developed by Comtech Mobile Datacom (CMDC) are its ability to use a variety of in-orbit commercial satellites, its near real-time communications speed, and its security features.

(1) Compatibility with Multiple Commercial Satellites
The MTS system does not require proprietary satellites to function; it can use different types of commercial satellites. As a result, it provides flexibility in choosing a satellite in any region of the world. MTS-equipped vehicles can operate in all regions of the world.

(2) Real-time Messaging Speeds
A message is typically transmitted from one MTS-equipped vehicle to another in under 10 seconds.

(3) Information Security
The waveform used by Comtech Mobile Datacom's MTS is spread spectrum and exhibits a low probability of detection by unauthorized listening devices. In addition, the data is triple encrypted end-to-end to further prevent eavesdropping.

MESSAGE ROUTING ARCHITECTURE

In normal operations, when an MTS user sends a message, the data packet is transmitted to the satellite, which relays it back down to the Comtech Mobile Datacom ground station switch. The switch sends the data packet back over the satellite to its intended destination. When the message is received , the destination returns an acknowledgement over the satellite to the switch, which forwards it to the message sender, verifying message delivery.

USER SYSTEMS

The Movement Tracking System is made up of two configurations – the Control Station, and the V2 Mobile Unit.

(1) The **Control Station** provides command functionality for the MTS, and is typically operated from a mobile headquarters, such as a command tent or a parked van. The Control Station operates independent of phone lines or Internet connections. A Control Station operator is responsible for coordinating vehicle movements using text messaging and theater map displays of MTS-equipped vehicles. The Control Station configuration consists of a laptop computer with CE-ROM drive for NIMA map loading, a satellite transceiver with 100-foot cable, a Precision Lightweight GPS Receiver (PLGR) and a portable printer.

(2) The **V2** Mobile Unit is designated for permanent installation in a vehicle using an installation kit designed for that vehicle, and consists of a satellite transceiver and ruggedized computer with appropriate cabling and a Precision Lightweight GPS Receiver (PLGR). It provides text messageing and NIMA theater maps displaying MTS-equipped vehicles including own unit.