

# Battlefield Communications Simulation System



BCSS is an exploitable and attackable opposing force command and control simulation system.

The Battlefield Communications Simulation System (BCSS) provides automated communications simulations to support DoD training exercises. This system supports real world events and the DoD transformation process, which satisfies the increasing need for joint force operations training in network warfare.

This system uses the Celerity CS6524RT-F Broadband Signal Recorder and Generator to provide a wide variety of base band analog and complex digital communications signals.

Opposition forces (OPFOR) requirements are met by multiple local and remote-controlled communications simulator systems provided by the BCSS. To achieve this, BCSS provides software generated audio streams through the Communications Simulator (ComSim) Software, developed by Cormac Technologies.

The system has been configured for mobile and shipboard operations, as well as installed at a fixed-site facility. For mobile operations, the mission equipment is installed in full-size GMC Yukon SUVs with roof-mounted antennas. For fixed-site installations, the equipment is installed in a single, standard 19-inch equipment rack and is accompanied by field-deployable antennas. The systems has also been installed in a mobile command center vehicle and aboard a training vessel for sea operations.

Potential applications include the following:

- Training
- Simulation
- Testing
- Signal disruption and jamming
- Foreign language transmission

## FOR MORE INFORMATION

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BCSS vehicle



BCSS installed aboard TSV-1 *Prevail*

# Battlefield Communications Simulation System

## BASIC SYSTEM CAPABILITIES

- Fixed, mobile, transportable, shipboard operations
- 19-inch rack mount for multiple system configurations
- Simple and complex modulations
- Pre-programmed scenarios or real-time emissions
- User-controlled or scenario-driven RF generator
- Operates on 120 VAC, 60 Hz
- Frequency range 2 MHz to 2.4 GHz

## SUBSYSTEM CAPABILITIES

### SIGNAL GENERATOR SUBSYSTEM

- Signal generator subsystem generates low-level simple or complex modulated radio signals within a selected bandwidth
- Provides simple CW, AM, FM, USB and LSB modulations
- Provides complex CDMA 2000, EDGE, FSK, GSM, IS 136, IS 95, PM Tone Comb, PSK, Square QAM, Tone Comb and WCDMA modulations

### SCENARIO DEVELOPMENT

- ComSim software designed to develop battlefield scenarios
- Text-to-speech engine allows scenario developers to type in voice content, select the voice gender, and control voice pitch and speed
- Live human voice can be input via computer microphone
- Waveform audio format (WAV) files can be imported for transmission
- Text messages with real intelligence can be transmitted via Morse Code, DTMF and a variety of FSK and PSK modulation types
- Other complex modulation types use either pseudo-random or pre-defined bit stream patterns

### POWER AMPLIFIER SUBSYSTEM

- Four-band linear power amplifier
- CH1: 2 - 30 MHz, 200 W nom.
- CH2: 30 - 500 MHz, 75 W nom.
- CH3: 500 - 1000 MHz, 75 W nom.
- CH4: 1000 - 2400 MHz, 40 W nom.
- Variable output (up to 15 dB attenuation) to simulate lower-power threats



BCSS field-deployable vehicle



BCSS installed as a Mobile Remote Operations Center (MROC)

### ANTENNA SUBSYSTEMS

- Fixed-site Antennas
  - I20-60 HF antenna system (2 - 30 MHz)
  - HP-3512/VRC VHF/UHF whip antenna (30 - 500 MHz)
  - DMA-324 discone antenna (500 MHz - 2.4 GHz)
  - 20-032 mobile receive-only scanner antenna
- Mobile Antennas
  - I20-49 HF vehicular antenna (2 - 30 MHz)
  - GD1813HP vehicular VHF/UHF antenna (30 - 500 MHz)
  - HP5250S/VRC vehicular antenna (500 MHz - 2.4 GHz)
  - 20-032 mobile receive-only scanner antenna

### VEHICLE SYSTEM

- GMC Yukon XL, four-wheel drive, four-door, 2500 SLT equipped with 5 KW generator and 2 KW inverter
- Equipment mounted in two 20 U racks
- Roof-mounted antennas