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DOCCT/S TS-4528A

DAMA/IW Orderwire Channel Controller Trainer/Simulator

Manage IW/DAMA/DASA Services

A turnkey trainer/simulator for UHF satellite communications (SATCOM), Viasat DOCCT/S has the flexibility to address an entire range of UHF DAMA and IW satellite communications equipment training, integration, and mission rehearsal requirements.



TRAIN, INTEGRATE, REHEARSE PRIOR TO GOING OVER-THE-AIR

Viasat DOCCT/S replicates Demand Assigned Multiple Access (DAMA) and Integrated Waveform (IW) network control station and legacy network terminal operations. Internal satellite simulation includes frequency translation, digital transponder band-limiting and hard-limiting, variable digital propagation delay, and thermal noise. Viasat DOCCT/S empowers developing, integrating, and training on UHF satellite communications equipment, without the expense and time constraints associated with accessing live satellite channels.

COMPACT, RUGGED, PORTABLE— RACK-MOUNTED COMPONENTS IN A SHOCK-PROOF CASE

The Viasat DOCCT/S terminal architecture is based on Viasat's RT-1828 UHF SATCOM network terminal, with additional hardware and software to emulate network control and communication over a UHF satellite transponder. A set of five VME modules consisting of an I/O module, DSP module, transmitter module, receiver module, and satellite simulator module in a Viasat DOCCT/S terminal replicates one UHF SATCOM channel.

5 KHZ & 25 KHZ CHANNELS— PER MIL-STD-188-181B/C, -182A, -183B, -183, -183A, -185A

Viasat designed and developed the fielded and JITC-assessed IW Phase 2 Channel Control system, providing increased bandwidth efficiency and communications quality. Viasat DOCCT/S reproduces IW Phase 2 Channel Control system software in the rack-mount PC so terminal login and communications service requests are handled with the MIL-STD required protocol. Viasat DOCCT/S also includes free training (in CONUS) covering DAMA/IW theory, operation, maintenance, and troubleshooting procedures for up to one year after delivery.

ACHIEVE PROJECT OBJECTIVES— CONFIGURE OPERATION PARAMETERS

Viasat DOCCT/S is easy to configure. Put in a single-channel terminal to simulate one UHF SATCOM channel, or a multi-channel terminal to simulate up to four channels. Add an optional orderwire encryption board (OEB) for DOCCT/S to transmit encrypted orderwires. DOCCT/S Multiport UHF Interface Drawer (MUID) allows up to four user network terminals to connect directly at UHF. Configure DOCCT/S for local RF operation to enable up to 2,000 additional user network terminals to participate in LOS UHF SATCOM via antenna at ranges up to 12 miles. Up to four user baseband I/O devices per simulated channel may also be connected to Viasat DOCCT/S so that it may also operate as a network terminal for UHF waveforms.

Viasat DOCCT/S TS-4528 DAMA/IW Orderwire Channel Controller Trainer/Simulator

SPECIFICATIONS

OPERATING MODES

IW	5/25 kHz, MIL-STD-188-181C, -182B, -183B, -185A
DAMA/DASA	5 kHz, MIL-STD-188-182A; 25 kHz, MIL-STD-188-183- and 183A supported
Dedicated Access	MIL-STD-188-181B and other waveforms

PERFORMANCE

Satellite Simulation

- Frequency translation
- Digital band-limiting and hard-limiting
- Variable digital propagation delay
- Variable digital thermal noise

Channel Simulation

- 1 to 4 UHF SATCOM channels; 1 channel per set of 5 removable 6Ux160 VME I/O, DSP, Receiver, Transmitter, and SatSim modules
- Multi-channel system based on Viasat RT-1828 9U 20-slot network terminal
- Encrypted orderwire via optional NSA-endorsed Orderwire Encryption Board (OEB)

User Terminal

Transmit Frequency	292 to 318 MHz
Receive Frequency	243 to 270 MHz

Interoperability All JITC assessed UHF SATCOM terminals

User Interface (Direct Connection)

- 1 to 4 user terminals in addition to local RF (direct connection) connected user terminals
- Provisions for half or full-duplex user terminals via MUID N-type connectors
- RF input power protection up to 250 W
- Provisions for remote user terminal location via user variable downlink attenuation

User Interface (Local RF Connection)

- 1 to 2,000 user terminals in addition to directly connected user terminals
- Configuration options for up to 1 mile or up to 12 mile range

User Baseband I/O

- 4 serial baseband I/O ports per channel with MIL-STD-188-114 and RS-232/RS-422 interface
- Interoperable with KY-57, KY-58, KY-99, KY-100, KIV-7, KYV-5, KG-84, AN/USC-42, VDC-550, VDC-850

User I/O Rates (bps)

IW	75, 300, 600, 1200, 2400, 4800, 6000, 7200, 8K, 9.6K, 16K, 19.2K, 28.8K, 32K, 38.4K, 48K, 56K
5 kHz DAMA	75, 300, 600, 1200, 2400
25 kHz DAMA	75, 300, 600, 1200, 2400, 4800, 16K
Non-DAMA	1200, 2400, 4800, 6000, 7200, 8000, 9600, 19.2K, 16K, 28.8K, 32K, 38.4K, 48K, 56K

PERFORMANCE (CONTINUED)

Modulation	SOQPSK, BPSK, DEQPSK, (S)BPSK, FSK, CPM
Cryptographic Keyfill	KYK-13, KYX-15, KOI-18, AN/CYZ-10, SKL
External Reference	1, 5, or 10 MHz

Operator Interface

- UHF DAMA/IW NCS network management and planning tool
- Terminal operation documentation via printable event log and alarm display
- Windows® 10 operating system

Storage Devices

- 160 GB or greater hard disk drive
- CD-ROM drive

Portability, Transportability

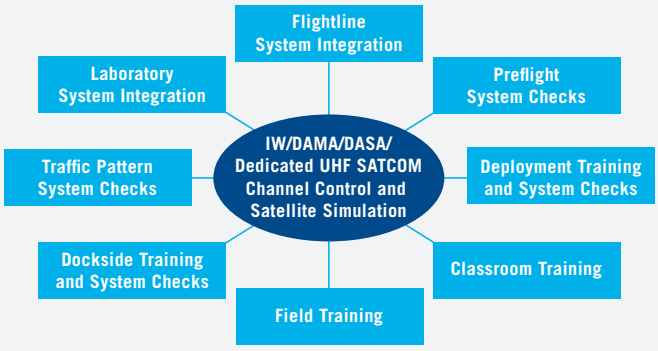
- Shock-proof, fungus-resistant, water-tight, air-tight, portable case equipped with internal storage pouch and stainless external hardware including anti-shear locks, 90° stop metal handles, lifting/tiedown rings, coupling catches, locking cables/hasps, and removable swivel-style castors
- Turnkey set-up with pre-installed 19 in. rack-mount components, rack-mounted PC and factory-preset database parameters
- User-configurable database parameters for custom default start-up configuration

MECHANICAL

Dimensions (W x H x D)	29 x 34 x 30 in.
Weight	230 lb. (two-channel system)
Power	110 to 240 V to all installed equipment

GENERAL

Technical Documentation	Commercial Operation and Maintenance Manual (English)
Hardware Warranty	One year on Viasat, Inc. manufactured items, with 30-day turn-around time at Viasat, Inc. depot maintenance facility
Installation and Training	Provided at delivery, in English



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