

DETN User's Guide



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INTRODUCTION

The Defense Education & Training Network (DETN) is an interactive television (ITV) network that consists of one-way video uplinks reaching receive-only downlinks but with two-way audio interaction. DETN uses compressed digital video, which greatly reduces the cost of transmission, yet provides high quality, full motion video. Participating departments and agencies include: Army, Navy, Air Force, Air Force Reserve, Air National Guard, Defense Logistics Agency, and Defense Equal Opportunity Institute.

DETN now reaches over 730 classrooms across the US (including Alaska and Hawaii) and 21 locations in Europe and Southwest Asia, with education & training programs originating at 18 broadcast centers linked terrestrially to uplink hubs at Wright-Patterson AFB, Ohio and McGhee-Tyson ANGB, Tennessee. The connections to Europe and Southwest Asia are being made through the Global Broadcast Service with gateway uplinks at Norfolk, Virginia, and Fairchild AFB, Washington.

DETN is managed by the Air Technology Network Program Management Office (ATN PMO) at Wright-Patterson AFB. The PMO coordinates the broadcast schedule for all users and oversees the technical operation and development of the network. The PMO is under the executive agency of Operating Location A of the Air Force Air University. Air University is headquartered at Maxwell AFB-Gunter Annex, Alabama.

DETN is part of the larger federal government system, the [Government Education and Training Network \(GETN\)](#), which was pioneered by the Air Force Institute of Technology at Wright-Patterson AFB. GETN is a network of networks operated by a consortium of 17 federal agencies. With over 10,000 scheduled hours of broadcasting each year from 10 uplinks reaching out to over 2,300 receive sites, GETN offers high-quality, low-cost ITV with virtually limitless distribution in America and Eurasia.

PURPOSE

We created this guide to provide a single document that describes the interactive television processes and procedures for users of the Defense and Education Technology Network (DETN)

ACKNOWLEDGEMENTS

We've compiled inputs from a wide variety of resources to develop this guide. Information includes, roles, responsibilities, policies, and procedures that are critical to understanding and implementing interactive television (ITV).

UPDATES

We will continue to update this document as necessary and maintain the latest revision at the DETN homepage.

<http://detn.govdl.org/>

COMMENTS

We welcome your insights. Please send comments to

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CHAPTER 1. DETN KEY REQUIREMENTS

OVERVIEW

This chapter will cover the roles and responsibilities of key players involved in planning, implementing, and receiving distance learning offered through DETN. This manual has been written to accommodate all receive sites of the DETN. Although some processes are typical processes implemented by the Air Force, it is an excellent resource for non Air Force organizations as well. Please refer to AFI 36-2201V4 (Managing Advanced Distributed Learning) for further information.

TITLES AND KEY TERMINOLOGY

Due to the variation among organizational structures, job functions and titles associated with distance learning, we have chosen to use the following conventions for distance learning focal points and organizations to create a better understanding of interactive television at broadcast centers and downlink sites.

Air Technology Network Program Management Office (ATN PMO)	The Air Force focal point for implementation and operation, policy, and scheduling for the DETN. Oversees the day-to-day operation of the DETN network and is responsible for coordinating all scheduling activities with the satellite service provider.
Site Coordinator (SC)	A person assigned to perform tasks necessary to implement ITV at their base. A primary and alternate SC should be appointed.
ATN Network Operations Center (NOC)	The uplink center operated by the ATN PMO to manage DETN broadcast telecommunications including bridge support for all DETN sites
Content Provider	An organization that is responsible for maintaining, managing and presenting the instructional content of a program that is delivered via ATN (e.g., Air Force Institute of Technology, 2AF, AF Space Command, etc.)
Course Manager	A general title to refer to a course director, course instructor or course manager
Distance Learning (DL) Function (aka Distance Learning Center or Distance Learning Office)	A function located at each base that is responsible for implementing ITV for that base. This function may be a part of the base ESO or a separate office.
Downlink	A site equipped to receive programming from a broadcast center
Education Services Office (ESO)	An office that supports an AF base's educational services program providing instructional opportunities from basic skills through graduate level degrees
Maintainer	A person responsible for installing and maintaining audiovisual equipment involving equipment used to tape broadcasts, edit tapes, and support instructional delivery.
Remote Origination Center	A location from which programming originates and is terrestrially transmitted to an uplink.
Unit Education & Training Manager (UETM)	A general title for an individual (including base- and unit-level training and education managers) that manages distance learning education and training requirements for an organization
Uplink	The location where equipment permits the transmission of video, audio, and data signal to a satellite.

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DOWNLINK PERSONNEL AND RESPONSIBILITIES

ESTABLISHING A DOWNLINK

To receive a DETN broadcast, you need a C-band satellite receiver and to be registered in the DETN database. Information on obtaining a C band satellite downlink is in Chapter 2 of this manual. The DETN requires points of contact for each downlink site. Each site should have a primary and alternate point of contact. Should you request a broadcast and have not established a point of contact for your site, you will need to do so through the ATN office manager. Once a point of contact has been established and appropriate information provided, your site ID will be added to the DETN database, enabling you to register for broadcasts through the DETN catalog. DETN Points of Contact will act as Site Coordinators for their sites.

TRAINING OF SITE COORDINATORS

The following lists the responsibility of the Education Services Office (ESO) and the Distance Learning (DL) function to provide knowledge and skills associated with performing the tasks associated with the DETN distance learning process.

The ESO will:

1. Identify personnel for Site Coordinator and alternate Site Coordinator functions
2. Provide point of contact information for primary and alternate site coordinators to DETN personnel
3. Schedule training requirements for primary and alternate site coordinators with the DETN

DL Function:

1. Develop and provide training to Unit Education and Training Managers as needed
2. Establish a program to inform Unit Education & Training Managers of changes and new distance learning procedures and policies and opportunities available through the base DL function

SITE COORDINATOR RESPONSIBILITIES

The DETN requires the support of a Site Coordinator to successfully operate a downlink site. A primary and back-up Site Coordinator should be appointed and approved in writing by each MAJCOM or Direct Reporting Unit (DRU). The DETN can provide training for Site Coordinators and their backups. The responsibilities of Site Coordinators are to:

- Complete and submit on-line registration for DETN course delivery
- Ensure room is ready to receive DETN broadcast
- Maintain site schedule
- Reserve DETN classroom when required
- Receive, verify version of course materials, and distribute participant materials
- Acquire additional student materials when necessary
- Set up room to accommodate the number of students expected
- Provide orientation about system operation to instructional facilitator (if required) or students
- Ensure proper receive channel is displayed
- Record broadcast sessions for students who miss class or require remediation

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- Submit class roster to studio or course administrator (when required) on day one, hour one of the broadcast (for TT courses)
- Distribute, collect, and mail assessment instruments including end-of-course critiques, exams, etc.
- Distribute diplomas upon receipt

TECHNICAL RESPONSIBILITIES

A DETN downlink requires a minimal amount of technical knowledge. Operating a DETN downlink requires little more knowledge than what is required to operate many standard household electronic appliances. Technical responsibilities include:

- Be available if any system problems occur
- Ensure all television monitors and audio components work properly
- Provide orientation to classroom equipment operation for students and instructional facilitator (if one is present)
- Maintain site technical data (IRD Serial #, UA# and phone #).
- Post set up and operational procedures for broadcast reception and classroom equipment
- Post names and phone numbers of uplink technical support personnel

DETN SITE CERTIFICATION

In order to successfully conduct live, interactive classes, each site needs to be certified by the ATN PMO.

Site certification consists of the following:

- Information provided to the DETN is up to date and verified
 - Site POC e-mail and phone number(s)
 - IRD and Audio Bridge numbers
- The following equipment is installed:
 - Integrated Receiver Decoder (IRD), Scientific-Atlanta
 - Audio Conferencing Unit, A.T. Products 2001
 - At least one microphone
- IRD is operational (signal (CNN) is received on the input)
- Site coordinator had been trained by DETN
- Audio equipment works without feedback

CHAPTER 2. PLANNING AND INSTALLING INTERACTIVE TELEVISION (ITV)

OVERVIEW

This chapter helps field personnel establish downlink sites. Careful planning is necessary to ensure the appropriate equipment is purchased, delivered, and correctly installed to transmit and receive DETN programming. Information includes details on the following:

- Strategic planning & support
- Contract vehicles
- Ordering satellite service & equipment
- Installing satellite equipment
- Classroom equipment

STRATEGIC PLANNING FIRST STEP

Establishing satellite capability at a site may be either a simple or difficult process depending on the amount of preparation and coordination provided by local personnel. Close coordination with the ATN PMO is essential to meet standards and compliance requirements set forth by the ATN PMO and Air Force (AFI 36-2201 & AFI 33-117). The first step is to contact the ATN Chief Engineer (see page 24).

PROCUREMENT CONTRACT

The General Services Administration (GSA) is the central management agency that sets Federal policy in such areas as Federal procurement, real property management, and information resources management. Their resource experts secure space, furniture, equipment, computers, and telecommunications systems from federal and commercial sources at best value.

Technicolor Enterprise Media (formerly Convergent Media) is the source used by GSA to provide satellite services to the Air Technology Network.

The Federal Telecommunications Service (FTS) contract is the specific procurement vehicle allowing purchase of the following:

- Earth station satellite dish (1.8 to 4.6 meters)
- Integrated Receiver Decoder (IRD)
- Audio Conferencing Equipment (ACU) including microphones
- Classroom equipment (TV monitors, DVDs, faxes, etc)
- Maintenance services in support of ATN

For more information, see: <http://gsa.gov/satcom>

Note 1: For installation and maintenance of USAFE and CENTAF downlinks, an open contract is provided through the Charleston office of the Space and Naval Warfare Center (SPAWAR).

Note 2: For installation and maintenance of West PACAF downlinks, an open contract is provided through GSA

MAINTENANCE RESPONSIBILITY

Downlinks (including USAFE, CENTAF, & PACAF) are not covered under the current maintenance contract with Technicolor Network Systems. Each command and base is responsible for funding maintenance of equipment at their location.

PURCHASING EQUIPMENT UNDER \$3000

If your site requires additional or replacement equipment for an existing satellite system, the GSA provides an online ordering process for Government Purchase Card holders at: <http://www.gsa.gov/satcom>

ORDERING AND IMPLEMENTING SATELLITE CAPABILITY

For the Air Force, any site that is planning to install or modify an existing ATN satellite system must contact the ATN PMO for approval (AFI 36-2201, 3.2). Other Commands are encourage to do the same. The ATN PMO coordinates with the Site Project Officer (SPO) from the requesting site to plan the installation of a distance learning classroom. The ATN PMO works with the satellite services provider to “integrate” the satellite system in its entirety. In turn, the SPO coordinates with the appropriate base agencies and oversees satellite installation. It is recommended that the SPO form and chair an “ATN Installation Committee” to ensure proper coordination among all necessary supporting organizations. The following describes the process to order and implement satellite capability at a downlink.

Stage	Description
Site Project Officer:	
1	Contacts the ATN/DETN Chief Engineer to initiate plans to implement or modify satellite capability
2	Forms an “ATN/DETN Installation Committee” as recommended in the ATN/DETN Site Installation Questionnaire. (Appendix D)
3	Based on committee input, completes the ATN Site Engineering Survey to determine: <ul style="list-style-type: none"> A) Antenna & decode location B) Equipment location & requirements C) Classroom facilities D) Civil works and maintenance support required E) Send completed questionnaire to DETN for review before proceeding
4	Orders a Service Provider Site Engineering Survey online using the Government Purchase Card by calling Hughes Network Services @301-601-2668
5	Coordinates with the satellite service provider to review the completed ATN Site Engineering Survey
Satellite Service Provider...	
6	Conducts the ordered Service Provider Site Engineering Survey
7	Develops an installation plan in coordination with the ATN Chief Engineer
8	Develops a cost proposal in coordination with the ATN Chief Engineer & SPO Note: cost proposals must be authorized by SPO’s funding source
9	Submit cost proposal to DETN for review and coordination
SPO	
10	Submits a “Request for Service(RFS)” to the local telecommunications officer
Telecommunications Control Officer	
11	Processes request
12	Forwards through appropriate channels to Defense Information Technology Contracting Office

	Defense Information Technology Contracting Office
13	Turns RFS into a Telecommunication Service Request (TSR)
14	Awards service contract to appropriate vendor and issues a status of notification
	Satellite Service Provider
15	Coordinates date with the SPO to deliver equipment
16	Delivers and installs equipment at site as specified by the installation plan
	SPO
17	Notifies ATN PMO after all equipment has been installed and is operational
18	Signs acceptance of work and services provided and submits through appropriate channels for payment

CLASSROOM EQUIPMENT REQUIREMENTS

Once the satellite dish has been installed at a site, audiovisual and other ITV equipment will need to be set up in a classroom, making the site a functioning distance learning facility allowing students to receive broadcasts. At a minimum, the following equipment is necessary for a single classroom with a 20-student capacity.

Quantity	Item	Description
1	DVD recorder	
1	TV	36" screen minimum standard
1	Integrated Receiver Decoder (IRD)	The PowerVu is the selected type of IRD which translates the digital signal from your dish into an analog signal that your TV and VCR can understand. Its output may be routed through your base cable channel or closed circuit television
1	Audio Conferencing Unit (ACU)	The AT 2001 system is the selected type of ACU which allows two-way communication during broadcasts
10	Microphones	As part of the AT 2001 system, push-to-talk microphones are used to allow interaction between the students and the instructor

DOCUMENTING SITE EQUIPMENT DATA

It is important for site coordinators to ensure that an accurate record of site equipment data is maintained and provided to the ATN PMO. This information should be readily available when calling upon outside technicians to assist in trouble-shooting technical problems and when completing the DETN Registration Form to request broadcasts. Records should accurately document the following:

- UA Number (aka IRD): Eight numeric digits (i.e., 2046171-3)
- Site Code: Depending on the service or agency, site codes will consist of 2 alphabetic characters followed by 3 numeric digits and an alphabetic classroom designator. Examples are shown below:

Air Force, AF.999.A	Defense Logistics Agency, DA.999.A
Air Force Reserve, AF.999.A	Dept of Energy, DE.999.A

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Air National Guard, AG.999.A	Dept of Justice, DJ.999.A
Army, AY.999.A	Fed Aviation Administration, FA.999.A
Army National Guard, AN.999.A	Fish & Wildlife Service, FW.999.A
Coast Guard, CG.999.A	Nat'l Park Service, NS.999.A
Defense Equal Opportunity Mgt Institute, DM.999.A	Navy, NY.999.A
Defense Info Systems Agency, DS.999.A	US Courts, US.999.A
Note: For entire list of GETN site codes, see http://getn.govdl.org	

CLASSROOM AUDIOBRIDGE PHONE NUMBER (COMMERCIAL):

This is the phone number connected to the Audio Conferencing Unit (ACU). Each site code is associated with a unique UA# and ACU#. The ACU is connected to a telephone line with a commercial phone number that provides for two-way audio communication between the broadcast center and downlink.

CHAPTER 3. DETN DOWNLINK SITE ADMINISTRATION

OVERVIEW

This chapter helps to implement and administrate satellite programming at a downlink receive site. Both Site Coordinators and backup site coordinators are important to ensure effective operations. Site Coordinators ensure uninterrupted audio and video communications, and ensure appropriate registration and administration processes and instructional strategies are implemented. This chapter includes information on:

- DETN Scheduling process
- Site registration process
- Managing controlled examination materials
- Inspecting classroom equipment
- Coordinating local resources
- Providing classroom administrative instructions
- Assisting in the instructional strategy
- Providing remedial instruction
- Contacts for site registration

DETN SCHEDULING PROCESS

The DETN course catalog ([DETN scheduling catalog](#)) displays courses by source or field, and you can also access a calendar view ([Broadcast schedule](#)) to view the dates and times of all DETN broadcasts. Although content providers may maintain local schedules to manage their own requirements, DETN provides the final listing of all broadcasts originating from the DETN. The DETN schedule includes courses and other programming from various federal agencies that use DETN-compatible technology, thus, allowing programs to be shared among DETN users and other civilian and federal agencies.

DETN provides audio conferencing, which allows remote sites to interact via audio with the program originating center. Due to a limited number of phone lines, audio conferencing is limited to 25 sites for each broadcast. When broadcasts involve more than 25 sites, we recommend alternatives (i.e., email or fax) be used to handle questions from remote sites. On an exceptional basis, we may accommodate more than 25 sites when resources permit and there is a compelling mission requirement.

SITE REGISTRATION PROCESS

Based on the DETN Schedule, each downlink site must register through the [course catalog](#) or on the [DETN daily schedule](#). Normally, the registration deadline is five calendar days prior to the program. In addition, you may need to register with the various content providers. Check the DETN catalog listing for links to the program originator. To fulfill any requirements for continuing education (CE) credits, you must coordinate with the content originator.

Please remember, a site is not automatically authorized with the content provider when an on-line registration is submitted. After sites register online for a program listed on the DETN, each site should check any associated links, and register with the content provider if required.

COORDINATING DOWNLINK RESOURCES

Content providers may review and consolidate a final list of authorized sites. Content providers and the ATN PMO establish deadlines for site registration to ensure reception of satellite and allow sufficient time for reproduction and delivery of instructional materials to downlink sites. The following describes the procedure used to coordinate local resources for a DETN scheduled program.

Stage	Description
DL Function	
1	Verifies that their local schedules’ program dates and times match the DETN schedule’s program dates and times (http://detn.govdl.org)
2	For each program not scheduled accurately, notify the specific point of contact (check list on DETN) listed for the broadcast center from where that program will originate
3	Ensure distance learning classroom is reserved for dates and times specified on the DETN
4	Notifies site coordinators of broadcast program location, dates and times
5	Establishes suspense date for Unit Education & Training Manager to provide names of students scheduled to attend the program
6	Sends suspense date along with current broadcast schedule information to the Unit Education & Training Manager
Unit Education & Training Manager	
7	Identifies students for scheduled training ensuring students meet course prerequisites
8	Forwards names and requested broadcast dates to base DL function
9	Notifies students and supervisors of the scheduled broadcast dates, times, and location
10	Ensures students are informed on any materials they must provide (e.g. T.O.s)
DL Function	
11	Maintains student roster to confirm student registration
12	Ensures course materials are received. Note: if materials are not received, contacts respective distribution center or course manager
13	Notifies Site Coordinator(s) of broadcast changes

CONTACTS TO ASSIST IN SITE REGISTRATION

To assist in completing and submitting on-line registrations, contact: ATN PMO scheduler (DSN 656-9292)

To confirm authorization to view a program, contact the specific content provider (e.g., school, course manager).

To verify correct site codes and phone numbers for audio conferencing units are on file with the ATN PMO, check your downlink site status on the DETN website spreadsheet. ([Site Operational Status](#))

To verify correct contact information is on file with the ATN PMO, check the [DETN POC](#) list. (click on site info)

SECTION 508 COMPLIANCE

Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794d), states “...that when Federal agencies develop, procure, maintain, or use electronic and information technology, Federal employees with disabilities have access to and use of information and data that is comparable to the access and use by Federal employees who are

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not individuals with disabilities, unless an undue burden would be imposed on the agency.” For more information, see <http://www.section508.gov/>

The intent of Section 508 is to ensure federal employees with disabilities have comparable access to and use of information as those without disabilities.

COMPUTER ELECTRONIC ACCOMMODATIONS PROGRAM (CAP)

If necessary, the Computer/Electronic Accommodations Program (CAP) assists the ATN PMO in finding alternatives for ITV. CAP was established by DOD to assist its customers by:

- Purchasing assistive technology and services
- Conducting needs assessments to identify appropriate assistive technology
- Assisting in technology integration
- Providing training on how to use assistive technology
- Advising agencies about creating accessible electronic environments
- Assisting in accommodating work-related injuries and supporting telework participants
- Conducting presentations about CAP services and other accessibility issues

For more information on CAP, see <http://www.tricare.osd.mil/cap/>

CHAPTER 4. DETN CLASSROOM OPERATING PROCEDURES

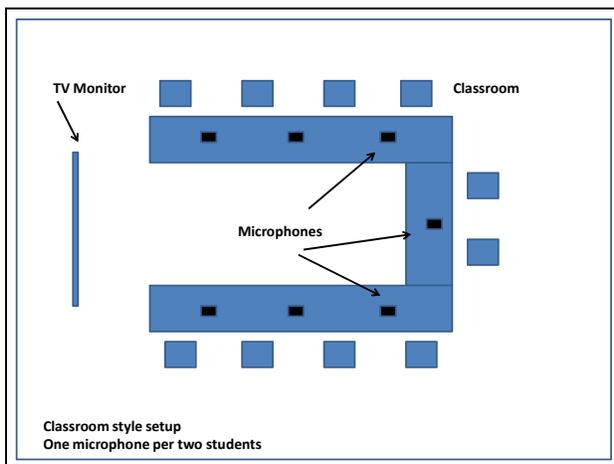
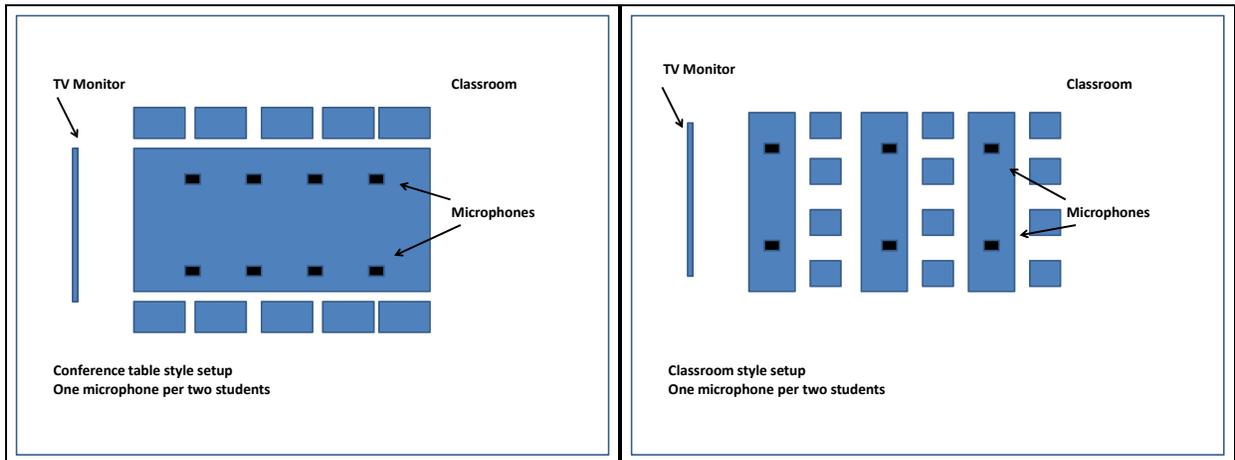
OVERVIEW

This chapter provides important standard operating procedures (SOPs) developed for the most effective and efficient use of the DETN resources. The SOPs include the following:

- Establishing Pre Broadcast Connections
- Providing Classroom Administration Instructions
- Terminating Broadcast Connections

CLASSROOM SET-UP

The set-up of the satellite classroom can play an important role in the interactivity required in distance education classes. Whether your classroom is a traditional set-up or a conference room, accommodations must be made to provide each student easy access to a microphone. The standard set-up is for one (1) microphone per two (2) students.



EXAMPLES OF TYPICAL CLASSROOM SET-UPS

ESTABLISHING PRE-BROADCAST CONNECTIONS

It is essential that Site Coordinators routinely test and maintain the audiovisual equipment to ensure on-time, uninterrupted programming. It is also critical for the Site Coordinator to inspect the equipment prior to any broadcast, and, if necessary, notify the ATN PMO of any problem. The following describes the procedure for inspecting the classroom equipment prior to any broadcast.

	60-45 minutes before the broadcast...
1	Power on all equipment including IRD, DVD, ACU & TV
2	Set the ACU for automatic audio connection (see page 22)
3	Set TV to the appropriate input (CNN will be on the channel). Note: if home channel is not received, conduct troubleshooting of common problems.
	30-15 Minutes before broadcast, standby for...
4	Convergent Media will automatically broadcast the scheduled program on the home channel (CNN) Note: If not receiving CNN by 15 minutes prior to start time, call Technicolor (formerly Convergent) helpdesk.
5	ATN NOC to automatically connect each site to the audio bridge (Manual Answer/Call button on ACU will light) Note: if not connected by 15 minutes prior to start time, call audio bridge manually (see page 22)
	If a "mic check" is requested
6	Press down a microphone button while speaking into the microphone

Note: SC must provide site name & code, broadcast title and UA# (i.e. IRD) to technician when resolving technical problems.

PROVIDING CLASSROOM ADMINISTRATIVE FUNCTIONS

A few minutes before any broadcast, the Site Coordinator is responsible for providing guidance on:

- Administrative procedures
- Proper use of microphones
- Classroom rules
- Instructional plan as provided by the course instructor
- Emergency procedures and location of break areas
- Completing a site roster on the first day of broadcast and faxing it to the appropriate broadcast center to track enrollment and completion rates

TERMINATING BROADCAST CONNECTIONS

Step	Action
1	Push Manual Answer/Call button once to disconnect
2	Reset your box for automatic connections as specified in "Setting the ACU Front Panel Buttons for Automatic Connection" (see page 22)

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COURSE MANAGEMENT

When managing an ITV course on the DETN, the SC facilitates in ensuring an uninterrupted, professional broadcast. The following may be used as a guide and may be involved in managing an ITV course from the downlink.

Stage	Description
	SC
1	Turns on and tests equipment prior to every broadcast
2	Provides Class POC with contact information (i.e., phone & pager numbers)
3	Completes a preliminary roster on the first day of class & faxes it to the broadcast center prior to broadcast start time.
4	Distributes student course materials as required
5	Monitors ITV broadcast to ensure: <ul style="list-style-type: none"> - Clear reception of video and audio signals - Student interaction via the microphone - No adjustments or misuse of equipment
6	Tracks daily attendance of students
7	Videotapes or records each broadcast retaining the most recent videotape of each course in a distance learning library
	SC (or Test Control Officer)
8	Administers the final exam or exercise while securing: <ul style="list-style-type: none"> - Final examination and answer key - Completed examinations or exercises
9	If required, scores the final examination If required, provides remedial instruction to any student that fails to achieve a satisfactory score
10	If applicable, provides student final examination results immediately upon completion of the final examination
11	Administers the course critique
12	Mails graded or ungraded final examinations of exercises, unused examinations or exercises, completed end-of-course critique to appropriate distribution center or course manager
13	Completes final roster showing student's official completion dates and examination scores/grades (2AF broadcasts require AETC Form 325 to be used)
14	Faxes copy of final roster to the course manager immediately following the last day of broadcast
15	Mails final roster along with students completed examinations to the appropriate distribution center or course manager on the last day of broadcast
	Distribution Center or Course Manager
16	Verifies student completions
17	Distributes graduation certificates to the ASC
	SC
18	Distributes graduation certificates to the Unit Education & Training Manager
	Unit Education & Training Manager
19	Distributes graduation certificates to students

CHAPTER 5. OPERATING & MAINTAINING THE ITV SYSTEM

OVERVIEW

This chapter helps to establish guidelines for the operation and maintenance of interactive television equipment. Information includes:

- Servicing satellite transmission equipment
- Setting up classroom satellite system components
- Connecting to the broadcast center via the audio bridge
- Common equipment problems
- Important numbers for technical and registration issues

SERVICING SATELLITE TRANSMISSION EQUIPMENT

Technicolor (formerly Convergent Media Systems) is subcontracted by Hughes Network Systems to provide operational control of selected satellite transmission equipment at broadcast centers (including both uplinks and remote origination sites) and downlinks. The Technicolor Network Operations Center is located in Atlanta, Georgia. Technicolor is responsible for:

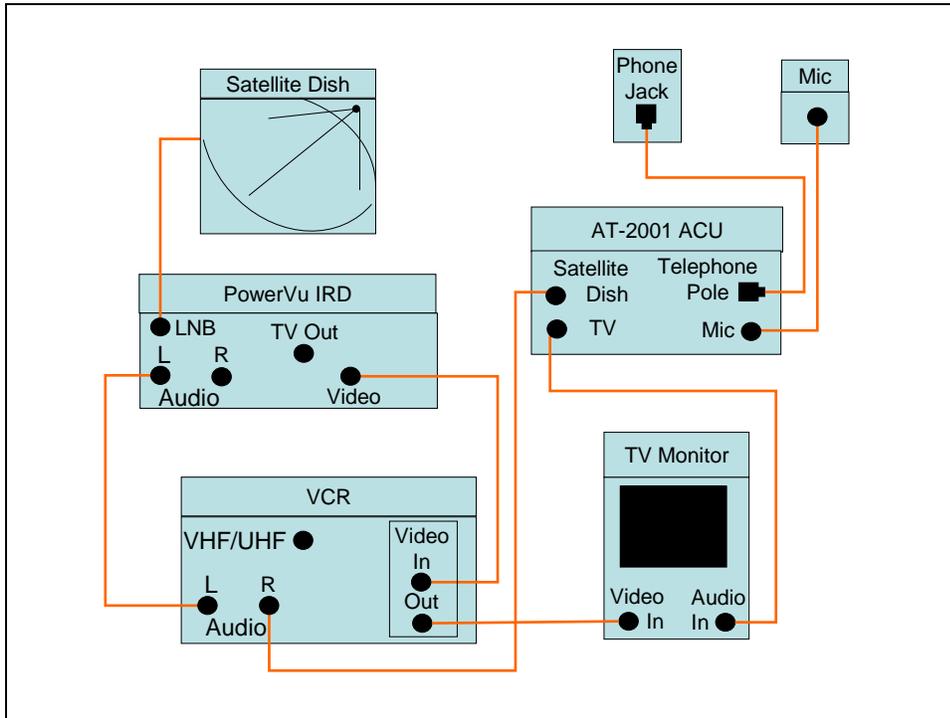
Broadcast Centers	Downlinks
High Power Amplifiers (HPAs)	Integrated Receiver Decoder (IRD)
Up-converters	Audio Conferencing Unit (ACU)
Switches	ACU Microphones
Modulators	Satellite Dish
Computers (PCC-2000)	
Satellite Dish	
Multiplexers	

If you are experiencing problems with the above equipment, call Technicolor at 866-838-0127 and press "2" for "Transmissions".

SETTING UP THE CLASSROOM SATELLITE SYSTEM

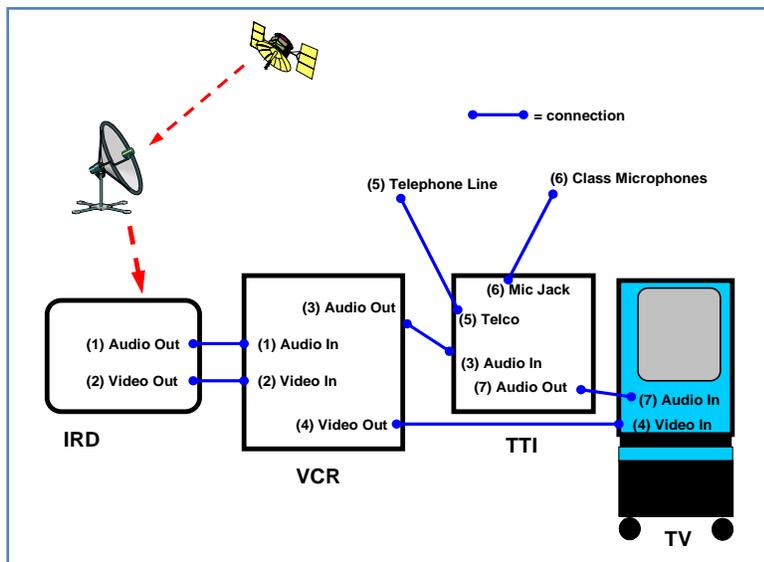
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Setup the satellite equipment according to the following diagram if you have an "AT-2001 model" audio conferencing unit.



Note: The TV must be set on Video 1 (if input is on Video 1).

Setup the satellite equipment according to the following diagram if you have a "TTI model" audio conferencing unit.



INTEGRATED RECEIVER DECODER (IRD) DESCRIPTION

The Integrated Receiver Decoder (IRD) is the heart of the satellite broadcast system. The IRD receives the digital television signal and converts it into analog audio and video signals for display on your television monitor. The following shows a picture of the *Scientific-Atlanta PowerVu 9235*, the type of IRD commonly used at Air Force downlink sites within the United States.



Technical Specifications

The technical specifications for downlinks equipped with the PowerVu 9235 are as follows:

Satellite	T4 89°
Transponder	4
Polarity	Horizontal
PowerVu Channel	1
Downlink Frequency	11778.00
Acceptable signal strength	50+
Acceptable signal quality	8-10

CONFIRMING THE POWERVU'S PARAMETERS

To confirm the PowerVu 9235 parameters:

(While viewing on monitor)

- Press the MENU button to view the *Main Menu*
- Arrow UP to *Receiver Setup*
- Press the SELECT button to view the *Receiver Setup Menu*
- Execute IRD/RCVR Parameters to the following:

Network ID	652
Frequency	11.77800
LO freq #1	10.750
LO freq #2	10.750
Crossover	11.70
Polarization	H (fixed)

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F.E.C	AUTO
Symbol Rate	3.0000

- Go to Exit when finished
- Arrow UP to User Setup
- Make sure LNB ON/OFF is *On*

IRD used in West PACAF

The following diagram depicts the VBrick2000 model used at PACAF.



IRD used in USAFE

The following picture depicts the Intellicast 2000 model used at USAFE.



AUDIO CONFERENCING UNIT (ACU)

The Audio Conferencing Unit (ACU) is a system which connects via phone lines and allows for audio communication from a downlink receive site's distance learning classroom to the broadcast center. It is important to note that outgoing audio and video signals originating from a broadcast center are transmitted via the satellite and not the ACU. Likewise, the incoming audio received by the broadcast center from a downlink receive site is also retransmitted to other downlink receive sites via the satellite. This combination of satellite and terrestrial technologies provides the two-way interaction to enhance the learning process.

The easy-to-use ACU, the AT-2001 model built by AT Products shown below, was selected to achieve standardization across the DOD for use on the DETN.



SETTING THE ACU FOR AUTOMATIC CONNECTION

The ACU has four buttons located to the right of the front panel, each manually set to an “in” or “out” position. To receive a broadcast, the buttons must be positioned as follows:

Button	Position
INTERNAL SPEAKER	Out
AUTO ANSWER	In
SATELLITE AUDIO	In
MANUAL ANSWER/CALL (or “ON OFF” button)	Out

CALLING THE AUDIOBRIDGE MANUALLY

If you have not received audio feedback capability 15 minutes before the scheduled broadcast but are receiving satellite transmission, follow the steps below:

Step	Action										
1	Set TV volume Control to mid-point.										
2	Ensure the ACU front panel buttons are in the following position <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Button</th> <th>Position</th> </tr> </thead> <tbody> <tr> <td>INTERNAL SPEAKER</td> <td>In</td> </tr> <tr> <td>AUTO ANSWER</td> <td>In</td> </tr> <tr> <td>SATELLITE AUDIO</td> <td>Out</td> </tr> <tr> <td>MANUAL ANSWER/CALL (or “ON OFF” button)</td> <td>In</td> </tr> </tbody> </table>	Button	Position	INTERNAL SPEAKER	In	AUTO ANSWER	In	SATELLITE AUDIO	Out	MANUAL ANSWER/CALL (or “ON OFF” button)	In
Button	Position										
INTERNAL SPEAKER	In										
AUTO ANSWER	In										
SATELLITE AUDIO	Out										
MANUAL ANSWER/CALL (or “ON OFF” button)	In										
3	Dial appropriate base code, then dial 1-888-328-6502.										

4	When the bridge operator answers, use any microphone to speak with the bridge operator.
5	After the operator adds you to the conference, press the Satellite Audio button (in position).
6	Press the Internal Speaker button to disconnect from the bridge operator (out position).

PREVENTIVE MAINTENANCE

It is very important to:

LEAVE THE POWER ON. Keep the PowerVu IRD powered on at all times to ensure electronic program illumination authorization and programming updates by the satellite service provider (i.e., Technicolor)

PERFORM DAILY EQUIPMENT CHECKS. The system should be set to view the home channel at all times, receiving CNN during times when programs are not scheduled.

TROUBLESHOOTING COMMON PROBLEMS

If you have a problem, please conduct the following checks before calling the ATN NOC or the Satellite service provider.

If...	Then...
Not receiving any program(blank screen)	<ol style="list-style-type: none"> 1. Ensure system components are powered on 2. If front panel "On/Standby" light is flashing, press "On/Standby" button to power unit on. 3. Ensure system components are correctly and securely connected (see page 19) 4. Call Technicolor Helpdesk (866-838-0127 and press "2" for "Transmissions".)
Receiving home channel, but not scheduled Programming	<ol style="list-style-type: none"> 1. Call Technicolor Helpdesk to force tune program 2. If not authorized, call ATN PMO for authorization procedures
"NO SIGNAL" message	<ol style="list-style-type: none"> 1. Ensure system components are correctly and securely connected (see page 19) 2. Check weather conditions (e.g., heavy rain, sleet, snow, & wind) 3. Call Technicolor Helpdesk

“PROGRAM IS NOT AUTHORIZED” message	<ol style="list-style-type: none"> 1. Press “On/Standby” button, wait five seconds and press again. 2. Call Technicolor Helpdesk to force tune program
Blue or snow screen (TV or VCR problem)	<ol style="list-style-type: none"> 1. Ensure VCR & TV are powered on 2. Ensure TV is set to appropriate video input 3. Call local audio/video technician
Screen image tiling or blocking (satellite interference or unit overheating)	<ol style="list-style-type: none"> 1. Check weather conditions (e.g., heavy rain, sleet, snow, & wind) 2. Call Technicolor Helpdesk
No Audio (video only) from presenter or other sites	<ol style="list-style-type: none"> 1. Ensure TV volume is at the proper level 2. Ensure PowerVu IRD volume is at the proper level 3. Ensure system components are correctly and securely connected (see page 19) 4. Ensure all microphones are deactivated (button not depressed) 5. Call Technicolor Helpdesk
Inability to respond to the presenter or other sites	<ol style="list-style-type: none"> 1. Ensure all system components are correctly and securely connected (see page 19) 2. Call ATN Audio bridge
Low Audio	<ol style="list-style-type: none"> 1. Ensure TV volume is at the proper level 2. Ensure PowerVu IRD volume is at the proper level 3. Call Technicolor Helpdesk
Last part of downlink response is repeated after releasing mic	<ol style="list-style-type: none"> 1. Ensure ATP ACU “HOPS” switch on back of unit is set on 1 2. Call Technicolor Helpdesk

CONTACTS FOR PROGRAMMING PROBLEMS

The following are points of contact for various technical or other programming problems that you may encounter.

For...	Contact...
ATN Chief Engineer	DSN 674-5482 CML 937-904-5482
Satellite Issues	Technicolor Network Systems Helpdesk CML 888-236-0855
Audio bridge Issues	ATN, Bridge Operator CML 937-656-9292, DSN 986-9292 Note: For customers not using the ATN audio bridge, please contact the broadcast center for assistance.
Programming Authorization Issues	ATN, Program Management Office (PMO) CML 937-904-5479, DSN 674-5479
Scheduling Issues	ATN, Scheduler CML 937-904-5481, DSN 674-5481

CHAPTER 6. IMPORTANT SITES

Important Internet Sites

Organization & URL	Description
Defense Education & Training Network http://detn.govdl.org/	View the latest changes to the DETN schedule by looking at this site
Air Force https://etca.randolph.af.mil/	US Air Force formal schools' Education and Training Course Announcements (ETCA)
AETC https://www.aetc.af.mil/	Links to many of AETC's schoolhouses and offerings
Air University http://www.au.af.mil	Has links to SOS, ACSC, AWC and SNCOA as well as continuing education schools
2 AF Distance Learning Office https://hq2af.keesler.af.mil/DstLearn/dl.htm	Details of various technical training distance learning programs
Air Technology Network Program Management Office http://atn.afit.edu	Provides points of contact at the ATN program management office, broadcast centers and downlink operations, and registration and schedule information

APPENDIX A. ABBREVIATIONS

Abbreviations

Abbreviation	Spelling
ACU	Audio Conferencing Unit
AETC	Air Education and Training Command
AFIT	Air Force Institute of Technology
AFTMS	Air Force Training Management Systems
AMC	Air Mobility Command
ASC	Administrative Site Coordinator
ATN	Air Technology Network
ATN PMO	Air Technology Network Program Management Office
ATTV	Air Technology Television
AU	Air University
AUTV	Air University Television
CEPME	College for Enlisted Professional Military Education
DETN	Defense Education Training Network
DRTV	Dobbins Reserve Television
GETN	Government Education and Training Network
IRD	Integrated Receiver Decoder
ITV	Interactive Television
IVT	Interactive Video Teletraining
KETV	Keesler Television
LITV	Lackland Interactive Television
PACAF	Pacific Air Forces
PCE	Professional Continuing Education
RFS	Request for Services
RRTV	Robins Reserve Television
SCTV	Space Command Television (Peterson AFB)
SEN	Satellite Education Network (Army)
SPO	Site Program Officer
TCO	Telecommunications Control Officer
TCO	Test Control Officer
TSO	Technical Site Coordinator

APPENDIX B. GLOSSARY

Below are commonly used terms for Air Force distance learning programs and their definitions:

Administrative Site Coordinators (ASC). Primary and alternate persons assigned by their MAJCOM as Distance Learning (DL) focal points to perform administratively related tasks necessary to implement DL at their base.

Advanced Distributed Learning (ADL). An evolution of distributed learning (distance learning) that emphasizes collaboration on standards-based versions of reusable objects, networks, and learning management systems, yet may include some legacy [traditional] methods and media.

Air Force Catalog of Formal Schools (AFCAT). The AFCAT is a listing of nearly all formal courses offered within the AF. The AFCAT is a formal publication (AFCAT 36-2223) that is updated semiannually. It is available from the Air Force Homepage at www.af.mil

Air Force Institute of Technology (AFIT). Grants masters and doctoral degrees at its resident graduate school and supervises students enrolled in its Civilian Institutions Program. AFIT's Graduate School of Engineering is among the nation's top engineering schools and provides advanced education and research focused on aerospace technology. AFIT also has two professional continuing education schools, the School of Systems and Logistics and the Civil Engineer & Services School, both of which are major users of ATN. AFIT is located at Wright-Patterson Air Force Base.

Air Technology Network (ATN). The Air Force education and training interactive TV network. Created in 1992 to broadcast the newly-required acquisition courses, ATN has expanded to four broadcast centers at Wright-Patterson, Maxwell, Sheppard, and Keesler Air Force bases with more than 80 downlink receive sites typically located at the base education offices. The system uses 1-way video, 2-way audio over a compressed digital video signal, along with a terrestrial audio conferencing system that permits interaction with all participants. Combined with ANG's Warrior Network and other DOD networks that use the same satellite, the Air Force can reach almost 300 sites across DOD and 900 sites across the Federal Government through the GETN.

Air Technology Network Program Management Office. The Air Force office for implementation, operation, and scheduling of ATN.

Analog. Information, such as video and audio, which is recorded and stored in a continuously variable form similar to its source; information that is not digital.

Asynchronous. Instructor-student interaction which is delayed or not real-time. Fax and computer-based E-mail are good examples.

Audio Bridge. Specialized equipment that permits several telephone lines to be joined together in a conference call.

Audio Conferencing Unit (ACU). ACU uses ordinary phone lines for transmitting voice for multipoint, synchronous interaction. It allows for a free and open exchange instructor-to-student and student-to-student.

Bandwidth. Capacity of a communication channel. For digital transmission, generally measured in kilohertz (khz) or megabits per second (Mbps). The higher the compression, the greater the loss of resolution and fluidity of

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motion. But, the higher the compression, the lower the bandwidth requirements, and consequently, the lower the cost of transmission.

C-Band. A type of satellite transmission with less path loss than other satellite standards such as Ku-Band. C-Band, however, requires a relatively large antenna. C-Band frequencies are shared with terrestrial microwave transmissions, which cause interference with weaker satellite signals.

Broadcast Centers. Centers from which programming either originates or programming is received from other remote origination centers for broadcast to downlink receive sites. Equipment is installed to permit the transmission of video, audio, and data signals to a satellite. Digital broadcast centers may have multiple channels for transmission purposes.

CESN. The CNET Electronic Schoolhouse Network (CESN) is the Navy's network for video teletraining. It offers secure, real-time, multi-point, fully interactive video training, and is also used extensively for video teleconferencing as the training schedule allows.

CODEC. Coder-decoder equipment used to convert and compress analog video signals into a digital format for two-way video transmission, then convert them back to analog signal upon reaching their destination. Codecs may also be configured as send-only and receive-only, and be used to transfer a terrestrial signal to a broadcast satellite, or vice versa.

Computer Based Instruction (CBI). Computer-controlled courseware that relies on student input to determine the pace, sequence, and content of training delivery. Other synonymous terms which have been used include Computer Assisted Instruction or Computer Based Training.

Course Director/Manager. The person responsible for the development of an instructional sequence. This person often serves as the primary presenter.

Decoder. A hardware device that transforms digital video signal into analog form. One decoder is used for each reception channel. ATN, as well as the rest of GETN, uses the PowerVu decoder; several can be used simultaneously at a single downlink.

Digital. The representation of information as discrete numbers; in contrast with analog information, represented as a continuously variable signal.

Digital Video. A signal coding technology used to compress the bandwidth required for the transmission of video images by eliminating redundant information within or between video frames; also called data compression, bandwidth compression, or bit rate reduction. The higher the compression, the lower the bit transmission rate. Terrestrial VTC network (desktop to large-screen monitors) use a variety of transmission rates beginning at 56 kbps (low resolution, less than full motion) to 1.5Mbps (intermittently full-motion video). Satellite broadcast systems allow for the use of full-motion, broadcast-quality video. It is common to see rates of transmission of 1.5 to 8 Mbps. ATN uses 1.5 to 2.5 Mbps. This compression rate gives full-motion with a resolution quality that is very nearly that of normal analog broadcasting. At 1.5 Mbps, you may notice some image skipping when there is a lot of motion. While most ATN broadcasting is done at 1.5 Mbps, ATN can broadcast at 2.5 Mbps when it is necessary to eliminate most skipping. The costs of transmission, however, are more for higher transmission speeds.

Distance Learning (DL). "Structured learning that takes place without the physical presence of the instructor." With this definition, the English speaking community encompasses all forms of distance learning including (see AFH 36-2235, Volume 5 for additional information):

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- traditional media (i.e., print, slide, audiotape, television, models, etc.),
- computer mediated communications (i.e., audiographics, computer mediated conferencing, collaborative computing, etc.)
- interactive multimedia instruction (i.e., computer based instruction, electronic performance support systems, computer simulation, etc.)
- interactive video teletraining (i.e., interactive television and video teletraining, etc.)
- internet based instruction (i.e., text, multimedia, virtual/collaborative conferencing, etc.)

Distance Learning Function. Offices located at each base that are responsible for implementing distance learning for that base.

Distributed Learning. Methods that use technologies for distributing, delivering and managing training and education.

Downlink Receive Site. Sites that are equipped to receive programming from broadcast centers. Equipment is installed to receive a satellite or ground based signal(s) for display on video, audio, or data receiving equipment. Normally, a downlink includes a room equipped for display of satellite signal(s) through a TV monitor and permits occupancy by 15 to 50 people.

Encoder. A hardware device that transforms analog video signal into digital form. One encoder is used for each channel broadcast. ATN, as well as the rest of GETN, uses the PowerVu encoder; as many as six can be used simultaneously on a single uplink.

Facilitator. See instructional facilitator.

Federal Telecommunications Service (FTS). An AT&T contract with the Government Services Administration (GSA). This contract provides for video transmission on a point-to-multipoint broadcast basis from dedicated broadcast centers to downlink receive sites. FTS uses Ku-band transponder channels within the GHz bandwidth.

Government Education & Training Network (GETN). A network of networks operated by a consortium of 17 federal agencies. GETN has 12 digital-Ku-band satellite uplink broadcast centers with 13 video channels available reaching over 800 fixed-dish downlink sites located throughout the CONUS, Alaska, Hawaii, and Puerto Rico. Department of Defense agencies include US Air Force, with 4 uplinks (6channel capacity) and 85 downlinks; US Army, with 1 uplink (2channel capacity) and 70 downlinks; Air National Guard, with 3 uplinks (6channel capacity) and 194 downlinks; Air Force Reserves, with 42 downlinks (installation in progress); Defense Equal Opportunity Management Institute, with 1 uplink (1channel capacity); Defense Logistics Agency, with 2 shared uplinks (USAF & USA) and 22 downlinks; Army National Guard, with 1 shared uplink (ANG) and 94 planned downlinks with 52 installed; and US Navy, with 3 downlinks.

Instructional Facilitator. A content-knowledgeable person at a downlink receive site who assists the content provider (normally an instructor at a broadcast center or remote origination site) to facilitate learning for the students at that downlink receive site that are participating in instruction via the satellite system.

Integrated Receiver/Decoder (IRD). A hardware device that reconstructs a video signal from a compressed digital format. An IRD is located at each downlink receive site. One IRD decodes one selectable channel. ATN, as well as the rest of GETN, uses the PowerVu IRD.

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Interactive Multimedia Instruction (IMI) is a term applied to a group of predominantly interactive, electronically-delivered training and training support products. Text, audio, video, and graphics are commonly used in IMI products and other digital electronic products. IMI can be presented as a stand-alone, self-paced program, an instructor-led presentation, or a program to support on-the-job training or personal performance enhancement.

Ku-Band. A type of satellite transmission of a higher frequency than C-Band transmission, allowing the use of smaller antennas.

Local Area Network (LAN). A system that connects computers, printers and other office equipment together within a defined area (e.g., base, building).

Originating Facility. The site from which transmissions originate.

Program Origination Centers. ATN centers responsible for programming including broadcast centers and remote origination centers.

Remote Origination Center. ATN centers from which programming originates and is transmitted to ATN Broadcast Centers through terrestrial feeds

Satellite Education Network (SEN). The transmission system operated by the Army from Ft Lee, VA. This network serves more than 60 downlinks located at Army posts throughout the US. The SEN is compatible with ATN and is part of the GETN satellite community.

T-Net. A two-way video, two-way audio, low-bit rate video system currently used by the Army through a contract with Army's Training & Doctrine Command (TRADOC). ATN can connect to and transmit over T-Net using special arrangements through the Army's Satellite Education Network at Ft Lee. Due to the difference in system configuration and transmission rates, receive locations may experience some difficulties in receiving clear video and audio signals.

Technical Site Coordinators (TSC). Primary and alternate persons assigned by their MAJCOM as distance learning (DL) focal points to perform technical related tasks necessary to implement DL at their base.

Test Control Officer (TCO). Person at a downlink who has responsibility for the acceptance, secure storage, distribution, control and return of assessment items

Type 6 Training. Refers to exportable training. The numeral 6 identifies a course as an exportable course in the AF Training Management System. If a course number in the AF Catalog of Formal Schools is listed with a "6" as its second digit, that course is thereby identified as available via distance learning.

Warrior Network. The Air National Guard's interactive TV network. Created in 1993, the ANG designed the system to be received by every flying unit, geographically separated unit, state headquarters and combat readiness training center. The ANG currently broadcasts from McGhee Tyson ANG base in Knoxville, Tennessee, Andrews AFB in Maryland, and at Tyndall AFB in Florida. Warrior Network is part of the Government Education and Training Network.

APPENDIX D. NEW INSTALLATION QUESTIONNAIRE

Please refer to the DETN Website, Guidance and Help ([DETN/Guidance & Help](#)) to access the "New Installation Questionnaire."