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**AFSC 3D1X7**

**CABLE AND ANTENNA SYSTEMS**



**CAREER FIELD EDUCATION  
AND TRAINING PLAN**

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CABLE AND ANTENNA SYSTEMS  
AFSC 3D1X7  
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**CAREER FIELD EDUCATION AND TRAINING PLAN  
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**PART I**

*Preface*

**1.** The changing Command, Control, Communications, Computer, and Intelligence (C4I) and Air and Space Expeditionary Forces (AEF) environments require vision, preparation, and attention to ensure people have the right skills and tools to deliver the C4I capabilities and the support required by the war fighter in meeting the Air Force mission of today and the vision of the future. Declining resources, expanding diversity of mission, and ever-changing technologies in the Air Force are impacting the availability of our most valuable resource--people. These factors will continue to exist in the future, making it essential for the work force to be effectively and efficiently trained to perform duties within each skill level of an Air Force Specialty (AFS). To meet the challenges of tomorrow, the Air Force must place a greater emphasis on career field training. This Cable and Antenna Systems Career Field Education and Training Plan (CFETP) is a comprehensive core training document that identifies life-cycle training/education requirements, support resources, and minimum core task requirements for the 3D1X7 specialty. The plan is a "training road map" for the career field. It provides personnel a clear career path to success and makes career field training identifiable, measurable, and budget defensible.

**2.** This CFETP along with the 3DXXX Common Core CFETP is a comprehensive education and training document that identifies life cycle education and training requirements, training support resources, and minimum core task requirements for this specialty. The CFETP documents the career field training program and consists of two parts. Management uses both parts in conjunction with the Training Business Area (TBA) to plan, manage, and control training within the career field. NOTE: Civilians occupying associated positions will use Part II to support duty position qualification training.

**2.1.** Part I provides information necessary for overall management of the specialty. Section A explains how everyone will use the plan; Section B identifies career field progression information, duties and responsibilities, training strategies, and career field path; Section C associates each level with specialty qualifications (knowledge, education, experience, training, and other); and Section D indicates resource constraints. Some examples are funds, manpower, equipment, facilities; Section E identifies transition training guide requirements for SSgt through MSgt.

**2.2.** Part II includes the following: Section A: identifies the Specialty Training Standard (STS) and includes duties, tasks, Training References (TRs) to support training, AETC conducted training, wartime course and core tasks and correspondence course requirements. Section B: contains the Course Objectives List (COL) and training standards supervisors will use to determine if airmen satisfied training requirements. Section C: identifies available support materials. An example is a Qualification Training Package, which may be developed to support proficiency training; Section D identifies a training course index supervisors can use to determine resources available to support training. Included here are both mandatory and optional courses; Section E identifies MAJCOM unique training requirements supervisors can use to determine additional training required for the associated qualification needs. At unit level, supervisors and trainers will use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

**3.** Use of the guidance provided in this CFETP provides the foundation for effective and efficient training for individuals in this career field at the appropriate points in their careers. This

plan enables the Air Force to train today's work force for tomorrow's jobs.

## *Abbreviations/Terms Explained*

This section provides a common understanding of the terms that apply to the Cable and Antenna Systems Career Field and Education Training Plan.

**Advanced Training (AT).** A formal course of training that leads to a technical or supervisory level of an AFS. Training is for selected airmen at the advanced level of an AFS.

**Air and Space Expeditionary Force (AEF).** The AEF is the Air Force's methodology for organizing, training, equipping, and sustaining rapidly responsive air and space forces to meet defense strategy requirements. Through the AEF, consisting of enabler and tempo banded capabilities the Air Force supports defense strategy requirements using a combination of both permanently assigned and rotational (allocated) forces.

**Air and Space Expeditionary Task Force (AETF).** The AETF is the Air Force's primary warfighting organization and the means by which we present forces to a Joint Forces Commander (JFC). When established, AETFs will form up under the designated Air Force component headquarters.

**Air Education Training Command (AETC).** Responsible for the recruiting, training and education of Air Force personnel. AETC also provides pre-commissioning, professional military and continuing education.

**Air Force Career Field Manager (AFCFM).** Representative appointed by the respective HQ USAF Deputy Chief of Staff or Under Secretariat to ensure that assigned Air Force specialties are trained and utilized to support Air Force mission requirements.

**Air Force Enlisted Classification Directory (AFECD).** The official directory for all military enlisted classification descriptions, codes, and identifiers. Establishes the occupational structure of the Air Force enlisted force. The occupational structure is flexible to permit enlisted personnel to specialize and develop their skills and abilities while allowing the Air Force to meet changing mission requirements. Individual enlisted personnel have a joint responsibility with commanders and supervisors at all levels to fully develop their abilities consistent with Air Force needs and within the established patterns of specialization.

**Air Force Job Qualification Standard (AFJQS).** A comprehensive task list that describes a particular job type or duty position. Supervisors use the AFJQS to document task qualification. The tasks on AFJQSs are common to all persons serving in the described duty position.

**Air Force Qualification Training Package (AFQTP).** An instructional course designed for use at the unit to qualify or aid qualification in a duty position, program, or on a piece of equipment. It may be printed, computer-based, or other audiovisual media.

**Air Force Specialty (AFS).** A group of positions, with the same title and code that requires common qualifications.

**Air Force Tactics, Techniques and Procedures (AFTTP).** The actions and methods that implement joint doctrine that describe how forces will be employed in joint operations. They are promulgated by the Chairman of the Joint Chief of Staff in coordination with the Combatants Commands, Services and the JCS.

**Air University Associate-to-Baccalaureate Cooperative (AU ABC).** Allows Airmen to turn a Community College of the Air Force Associates Degree into a Bachelor's Degree from an accredited university. The ABC program has established a partnership with various civilian higher-education institutions to offer four-year degree opportunities via distance learning. The

participating schools will accept all of the credits earned by Airmen who have attained a CCAF degree and apply them to a Bachelor's Degree related to their Air Force specialty.

**Air University/ AFCDA (Air Force Career Development Academy).** The result of a reorganization of the Air Force Institute for Advanced Distributed Learning (AFIADL); provides access to the Extension Course Institute.

**Career Field Education and Training Plan (CFETP).** A CFETP is a comprehensive core training document that identifies: life-cycle education and training requirements; training support resources and minimum core task requirements for a specialty. The CFETP aims to give personnel a clear path and instill a sense of industry in career field training. CFETPs are officially posted at <http://www.e-publishing.af.mil/>.

**Certification.** A formal indication of an individual's ability to perform a task to required standards.

**Certifying Official.** A person assigned by the commander to determine an individual's ability to perform a task to required standards.

**Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Task Qualification Training (TQT).** CBRNE TQT ensures personnel maintain proficiency in performing mission-critical tasks in a CBRNE environment. See AFI 10-2501, Air Force Emergency Management (EM) Program Planning and Operations, and AFMAN 10-2602, Nuclear, Biological, Chemical and Conventional (NBCC) Defense Operations and Standards for additional information/requirements.

**Chief Enlisted Manager (CEM) Code.** CEM codes identify all chief master sergeant positions in the Enlisted Classification Structure. They also identify chief master sergeants who, through extensive experience and training, have demonstrated managerial ability to plan, direct, coordinate, implement, and control a wide range of work activity. Some managerial duties and responsibilities that are common to all chief enlisted managers are: managing and directing personnel resource activities; interpreting and enforcing policy and applicable directives; establishing control procedures to meet work goals and standards; recommending or initiating actions to improve functional operation efficiency; planning and programming work commitments, and schedules; developing plans regarding facilities, supplies, and equipment procurement and maintenance.

**Collaboration.** Collaboration is the interaction among two or more individuals encompassing a variety of behaviors including: communication, information sharing, coordination, cooperation, problem-solving, and negotiation.

**Collaborative Tools.** Collaborative tools consist of various web-based technologies including advanced white boarding, groupware, and facilitation. Collaborative capabilities assist significantly with managing information throughout its life cycle and enable Air Force members to perform most office-oriented and operational communication tasks from their desktops.

**Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR).** Integrated systems of doctrine, procedures, organizational structures, personnel, equipment, facilities, and communications designed to support a commander's exercise of command and control through all phases of the operational continuum. C4 systems include base visual information support systems.

**Communications-Computer Systems (C-CS).** The facilities, equipment, communications, procedures, and personnel essential to a commander for planning, directing, and controlling operations of assigned forces pursuant to the missions assigned.

**Computer Based Training (CBT).** A forum for training in which the student learns via a computer terminal. It is an especially effective training tool that allows the students to practice applications while they learn.

**Content Management.** A set of processes and technologies supporting the evolutionary life cycle of digital information. This digital information is often referred to as content or, to be precise, digital content. Digital content may take the form of text, such as documents, multimedia like audio or video files, or any other file type that follows a content life cycle that requires management.

**Continuation Training.** Additional advanced training that exceeds the minimum upgrade training requirements and emphasizes present or future duty assignments.

**Core Competency.** An integrated bundle of expert knowledge and organizational skills inherent to a particular career field(s) which makes a disproportionate contribution to the success of providing the right skills needed for military operations, anywhere anytime. It cannot be duplicated by any other organization, and is critical for the future.

**Core Task.** A task AFCFMs identify as a minimum qualification requirement for everyone within an AFSC, regardless of duty position. A core task may be specified for a particular skill level or in general across the AFSC. Guidance for using core tasks can be found in the applicable CFETP narrative.

**Course Objective List (COL).** A publication derived from the initial/advanced skills Course Training Standard (CTS), identifying the tasks and knowledge requirements and respective standards provided to achieve a 3-skill level in this career field. Supervisors use the COL to assist in conducting graduate evaluations in accordance with AFI 36-2201.

**Course Training Standard (CTS).** A standard developed for all courses not governed by an STS, including specialized training packages and computer-based training courses.

**Critical Tasks.** Critical Tasks are tasks that require specific training and certification above and beyond other tasks. Tasks may be defined as critical either through AFI, Technical Orders, higher headquarters, or at any level in the unit.

**Cross-Utilization Training.** Training on non-duty AFSC specific tasks.

**Cyberspace.** A global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.

**Cyberspace Operations.** The employment of cyber capabilities where the primary purpose is to achieve objectives in or through cyberspace. Such operations include computer network operations and activities to operate and defend the DoD Information Network (DoDIN).

**Data Management.** The process of planning, coordinating, sharing, and controlling organizations' data resources (AFPD 33-3, Information Management).

**Direct Reporting Unit (DRU).** Air Force subdivisions directly subordinate to the CSAF. A DRU performs a mission that does not fit into any of the MAJCOMs. A DRU has many of the same administrative and organizational responsibilities as a MAJCOM (Example of a DRU: USAF Academy).

**Document Management.** The process of managing documents through their life cycle; from inception through creation, review, storage, dissemination, and archival or deletion. Document management can also be a database system to organize stored documents, or a search mechanism to quickly find specific documents (AFPD 33-3).

**DoD Directive 8570.01 “Information Assurance Training, Certification, and Workforce Management.”** Provides guidance and procedures for the training, certification, and management of the DoD workforce conducting Information Assurance (IA) functions in assigned duty positions.

**DoD Information Network (DoDIN).** The globally interconnected, end-to-end set of information capabilities, associated processes, and personnel for collecting, processing, storing, disseminating and managing information on demand to warfighters, policy makers, and support personnel. The DoDIN includes all owned and leased communications and computing systems and services, software (including applications), data, security services, and other associated services necessary to achieve Information Superiority. The DoDIN supports all Department of Defense, National Security, and related Intelligence community missions and functions (strategic, operational, tactical, and business), in war and in peace. The DoDIN provides capabilities from all operating locations (bases, posts, camps, stations, facilities, mobile platforms, and deployed sites). The DoDIN provides interfaces to coalition, allied, and non-DOD users and systems.

**DoD Occupational Code.** The DoD Occupational Code index groups similar occupations from one or more Service populations into a logical and consistent structure suitable for a variety of analytical purposes. Some of these include serving as a guide to the Office of the Secretary of Defense in manpower management and policy planning, to the Military Departments for various personnel administration functions, and as a basis for statistical reports. The enlisted section catalogs military and civilian occupations into 10 two-digit occupational areas, 69 three-digit occupational groups, and 170 four-digit occupational subgroups. The allocation of military and civilian occupational specialties to the various DoD occupational groupings has been based on analysis of the duties of each specialty, as described in the various occupational indexes published by each Military Service and the Office of Personnel Management. While positions with duties and responsibilities that have been judged similar are grouped together, these positions are not necessarily identical; they may vary considerably as a result of differences in mission, equipment, and concept of personnel utilization and development.

**Duty Position Tasks.** The tasks assigned to an individual for the position currently held. These include, at a minimum, all core tasks that correspond to the duty position, and tasks assigned by the supervisor (AFI 36-2201).

**Education and Training Course Announcement (ETCA).** Located at <https://etca.randolph.af.mil>, the ETCA contains specific MAJCOM procedures, fund cite instructions, reporting instructions, and listings for those formal courses the MAJCOMs or FOAs conduct or manage. The ETCA contains courses the Air Force and reserve forces conduct or administer and serves as a reference for the Air Force, DoD, other military services, government agencies, and security assistance programs.

**Enlisted Specialty Training (EST).** A mix of formal training (technical school) and informal training (on-the-job) to qualify and upgrade airmen in each skill level of a specialty.

**Enterprise.** The entire range of communications/networking within garrison and tactical realms to include voice, video, data, imagery, and sensor.

**Enterprise Information Management (EIM).** Encompasses a set of strategies for organizational management of all aspects of enterprise data as information assets. The proper models, data architecture, application architecture, and integration vision enables using the “enterprise information asset” for strategic analysis, customer-centricity, performance and productivity analytics, and personalization, eventually providing a means for transitioning from

an operational, line-of-business oriented application environment, to an intelligent, learning, and agile organization.

**Enterprise Information System (EIS).** A portfolio of services that bring about Enterprise Information Management (EIM) capabilities.

**Expeditionary Aerospace Force (EAF).** The EAF concept is how the Air Force will organize, train, equip, and sustain itself by creating a mindset and cultural state that embraces the unique characteristics of aerospace power – range, speed, flexibility, precision – to meet the national security challenges of the 21st Century.

**Exportable Training.** Additional training via computer assisted, paper text, interactive video, or other necessary means to supplement training.

**Field Operating Agency (FOA).** FOAs are subdivisions of the Air Force directly subordinate to a headquarters US Air Force functional manager. A FOA performs field activities beyond the scope of any of the MAJCOMs. The activities are specialized or associated with an Air Force-wide mission (Example of a FOA is the Air Force Weather Agency).

**Field Training.** Technical, operator, and other training that either a field training detachment or field training team conducts at operational locations on specific systems and associated direct-support equipment for maintenance and aircrew personnel.

**Functional Area Manager (FAM).** The individual accountable for the management and oversight of all personnel and equipment within a specific functional area to support operational planning and execution. Responsibilities include, but are not limited to, developing and reviewing policy; developing, managing, and maintaining Unit Type Codes (UTC); developing criteria for and monitoring readiness reporting; force posturing; and analysis. At each level of responsibility (Headquarters Air Force, MAJCOM, Air Component, FOA, DRU, and Unit), the FAM should be the most highly knowledgeable and experienced person within the functional area and have the widest range of visibility over the functional area readiness and capability issues.

**Functional Manager.** An individual assigned collateral responsibility for training, classification, utilization, and career development of enlisted personnel. AFSC Functional Managers exist at MAJCOM, NAF and base level.

**Global Combat Support System – Air Force (GCSS-AF).** An enterprise infrastructure program established to develop, integrate, and deploy combat support information capabilities. The mission of GCSS-AF is to provide timely, accurate, and trusted Agile Combat Support (ACS) information to Joint and Air Force commanders, their staffs, and ACS personnel at all ranks and echelons with the appropriate level of security needed to execute the Air Force mission throughout the spectrum of military operations. GCSS-AF is the means by which ACS functional systems will be modernized and integrated to improve business processes supported on a single robust network-centric infrastructure. In addition to integrating combat support applications, GCSS-AF also provides core enterprise services such as a common user presentation through the AF Portal, Enterprise Information Management (Workflow, Records Management, Document Management, Knowledge Management, and Collaboration), and an enterprise data warehouse.

**Global Command and Control System (GCCS).** An automated information system designed to support deliberate and crisis planning with the use of an integrated set of analytic tools and flexible data transfer capabilities. GCCS will become the single C4I system to support the warfighter from foxhole to command post.

**Go/No-Go.** The “Go” is the stage at which a trainee has gained enough skill, knowledge, and experience to perform the tasks without supervision; meets the task standard. “No-Go” is the stage at which the trainee has not gained enough skill, knowledge, and experience to perform task without supervision; does not meet task standard.

**Individual Training Plan (ITP).** Use Training Business Area (TBA) to document training. TBA reflects past and current qualifications, and is used to determine training requirements. It is intended to be a complete history of past training and current qualifications. Supervisors will ensure all documentation is accurate and comprehensive.

**Information Life Cycle.** Typically characterized as creation or collection, processing, dissemination, use, storage, protection, and disposition.

**Information Management (IM).** The planning, budgeting, manipulating, and controlling of information throughout its life cycle. Joint Publication 3-0 further defines IM as the function of managing an organization’s information resources by the handling of knowledge acquired by one or many different individuals and organizations in a way that optimizes access by all who have a share in that knowledge or a right to that knowledge.

**Information Resources Management (IRM).** The process of managing information resources to accomplish agency missions and to improve agency performance (e.g., the reduction of information collection burdens on the public).

**Information Systems (IS).** Set of information resources organized for the collection, storage, processing, maintenance, use, sharing, dissemination, disposition, display, or transmission of information.

**Initial Skills Training.** A formal school course that results in an AFSC 3-skill level award for enlisted or mandatory upgrade training to qualified officers.

**Information Technology Fundamentals (ITF).** The scope of training in the ITF course includes network theory, network components, software, cryptology, network fault isolation techniques, cyber security, communication and information professionals, operational risk management, legal and ethics, C4I security, enterprise systems, CBRN personal and family countermeasures and cyber operations.

**Information Technology Fundamentals Electronic Principles (ITF EP).** Training which includes electronic principles subjects of test equipment, basic circuits and components, electromagnetic devices, solid state devices, transistor amplifier circuits, power supplies, wave generation, digital numbering systems, digital logic, and basic communications theory.

**Information Technology/National Security Systems (IT/NSS).** Any equipment, or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the Executive Agency. This includes equipment used by a DoD Component directly, or used by a contractor under a contract with the DoD Component, which requires the use of such equipment, or requires the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product. The term "IT" also includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources. Notwithstanding the above, the term "IT" does not include any equipment that is acquired by a Federal contractor incidental to a Federal contract. The term "IT" includes National Security Systems (NSS).

**Instructional System Development (ISD).** A deliberate and orderly (but flexible) process for planning, developing, implementing, and managing instructional systems. It ensures personnel

are taught in a cost efficient way to become educated on the knowledge, skills, and abilities essential for successful job performance.

**Joint Tactical Radio System (JTRS).** JTRS will link the power of the DoD Information Network (DoDIN) to the war fighter in applying fire effects and achieving overall battlefield superiority. By developing and implementing an open architecture of cutting-edge radio waveform technology, multiple radio types (e.g. handheld, ground-mobile, airborne, maritime, etc.) are now allowed to communicate with one another. The ultimate goal is to produce a family of interoperable, modular, software-defined radios that operate as nodes in a network to ensure secure wireless communication and networking services for mobile and fixed forces. These goals extend to U.S. allies, joint and coalition partners, and disaster response personnel.

**Knowledge.** Information from multiple domains that has been synthesized, through inference or deduction, into meaning or understanding that was not previously known. This includes: explicit knowledge, which can be easily articulated, codified, and stored; and tacit knowledge, which is based on personal experience, expertise, and judgment. Tacit knowledge is more challenging to capture and share than explicit knowledge.

**Knowledge Management (KM).** Handling, directing, governing, or controlling of natural knowledge processes within an organization in order to achieve the goals and objectives of the organization.

**Knowledge Operations (KO).** Application and adaptation of Knowledge Management (KM) into daily AF operations to enable information/decision superiority. KO leverages the interaction of people, processes, and EIS technologies to capture, store, organize, share, and control tacit and explicit knowledge, ensuring all mission execution processes have access to relevant cross-functional information in a collaborative, timely, and contextual manner.

**Knowledge Training.** Training used to provide a base of knowledge for task performance. It may also be used in lieu of task performance when the training capability does not exist. Learning gained through knowledge rather than hands-on experience.

**Major Command (MAJCOM).** A MAJCOM represents a major Air Force subdivision having a specific portion of the Air Force mission. Each MAJCOM is directly subordinate to HQ USAF. MAJCOMs are interrelated and complementary, providing offensive, defensive, and support elements.

**MAJCOM Functional Managers (MFM).** Advises the MAJCOM/A6 and staff on 3D1XX utilization and training issues. Serves as the MAJCOM voting representative during career field Utilization and Training Workshops. Assists in gathering inputs and data to complete enlisted grade allocation for Career Progression Group (CPG) reviews. Provides guidance to subordinate units on 3D1XX personnel issues. Assists with the dissemination of information regarding Air Force and career field policies, plans, programs, and procedures to subordinate units.

**Master Task Listing (MTL).** A comprehensive list (100%) of all tasks performed within a work center and consisting of the current CFETP or AFJQS and locally developed AF Forms 797. Also, should include tasks required for deployment and/or UTC requirements.

**Master Training Plan (MTP).** Employs a strategy for ensuring the completion of all work center job requirements by using an MTL, providing milestones for task/CDC completion and prioritizes deployment/UTC tasks, home station training tasks, upgrade tasks, and qualification tasks.

**Occupational Analysis Report (OAR).** A detailed report showing the results of an occupational survey of tasks performed within a particular AFSC. Surveys are conducted by the Air Force Occupational Measurement Squadron (<http://oa.aetc.af.mil/>).

**On-the-Job Training (OJT).** Hands-on, over-the-shoulder training conducted to certify personnel in both upgrade (skill level award) and job qualification (duty position) training.

**Personally Identifiable Information (PII).** Information about an individual that identifies, links, relates, or is unique to, or describes him or her, e.g., SSN; age; military rank; civilian grade; marital status; race; salary; home/office phone numbers; other demographic, biometric, personnel, medical, and financial information, etc.

**Proficiency Training.** Additional training, either in-residence, or exportable advanced training courses, or on-the-job training, provided to personnel to increase their skills and knowledge beyond the minimum required for upgrade.

**Qualification Training.** Hands-on, task performance based training designed to qualify airmen in a specific duty position. This training program occurs both during and after the upgrade training process and is designed to provide skills training required to do the job.

**Records Management.** The planning, controlling, directing, organizing, training, promoting, and other managerial activities involved in records creation, maintenance and use, and disposition in order to achieve adequate and proper documentation of the policies and transactions of the Federal Government and effective and economical management of agency operations. (AFPD 33-3)

**Resource Constraints.** Resource deficiencies (such as money, facilities, time, manpower and equipment) that preclude desired training from being delivered.

**Specialized Training Package and COMSEC Qualification Training Package.** A composite of lesson plans, test material, instructions, policy, doctrine, and procedures necessary to conduct training. These packages are prepared by AETC, validated by CYSS COMSEC policy branch, and administered by qualified communications security (COMSEC) maintenance personnel.

**Specialty Training Requirements Team (STRT).** A meeting chaired by the AFCFM with MAJCOM FMs, AETC Training Managers, Subject Matter Experts (SME), and HQ AETC Occupational Analysis Division (OAD) in attendance. Typically held three months prior to a Utilization and Training Workshop (U&TW) to finalize any CFETP changes or enlisted classification directory descriptions.

**Specialty Training Standard (STS).** An Air Force publication that describes an Air Force specialty in terms of tasks and knowledge that an airman in that specialty may be expected to perform or to know on the job. Also identifies the training provided to achieve a 3-, 5-, or 7-skill level within an enlisted AFS. It further serves as a contract between AETC and the functional user to show which of the overall training requirements for an Air Force Specialty Code (AFSC) are taught in formal schools and correspondence courses.

**Standard.** An exact value, a physical entity, or an abstract concept established and defined by authority, custom, or common consent to serve as a reference, model, or rule in measuring quantities or qualities, establishing practices or procedures, or evaluating results. It is a fixed quantity or quality.

**System Training Plan (STP).** A living document that explains what training is needed for a system and how to obtain the training.

**Task Module (TM).** A group of tasks performed together within an AFS that require common knowledge, skills, and abilities. TMs are identified by an identification code and a statement.

**Total Force.** All collective components (active, reserve, guard, and civilian elements) of the United States Air Force.

**Training Advisory Group (TAG).** Chaired by the AFCFM and attended by the MAJCOM, selected DRU's, and FOA functional managers. The TAG sets training goals and priorities, reviews training programs, and evaluates emerging training technologies. The group meets, as required, to prioritize training product development.

**Training Business Area (TBA).** A web-based training application that provides Air Force war fighters with global, real-time visibility into qualifications, certifications, and training status of communications professionals. TBA supports base, wing, and work center training management activities by automating business processes and capabilities to eliminate paper-based practices. The system centralizes management of training task data, provides user access to CFETPs/JQs, and increases security through a single AF Portal log on.

**Training Capability.** The ability of a unit or base to provide training. Authorities consider the availability of equipment, qualified trainers, and study reference materials, and so on in determining a unit's training capability.

**Training Planning Team (TPT).** Comprised of the same personnel as a U&TW, TPTs are more intimately involved in training development and the range of issues examined is greater than in the U&TW forum.

**Training Requirements Analysis (TRA).** A detailed analysis of tasks for a particular AFSC to be included in the training decision process.

**Training Setting.** The type of forum in which training is provided (formal resident school, on-the-job, field training, mobile training team, self-study, etc.).

**Unit Type Code (UTC).** A five-character alphanumeric code identifying a specific force package of personnel and/or equipment. The UTC is the means for linking logistics and manpower details within a unit type and is used to communicate force data. The UTC represents a wartime capability designed to fill a valid contingency requirement.

**Upgrade Training.** Training that leads to the award of a higher skill level.

**Utilization and Training Pattern.** A depiction of the training provided to, and the jobs performed by, personnel throughout their tenure within a career field or AFS. There are two types of patterns: 1) Current pattern, which is based on the training provided to incumbents and the jobs to which they have been and are assigned; and 2) Alternate pattern, which considers proposed changes in manpower, personnel, and training policies.

**Utilization and Training Workshop (U&TW).** A forum of the AFCFM, MAJCOM Functional Managers, subject matter experts (SME), and AETC training personnel that determines career ladder training requirements. This is an executive decision meeting following the Specialty Training Requirements Team meeting.

**Wartime Tasks.** Those tasks which must be taught when courses are accelerated during a wartime environment. In response to a wartime scenario, these tasks will be taught in the 3-level course in a streamlined training environment. These tasks are only for those career fields that still need them applied to their schoolhouse tasks.

**Workflow.** A series of steps necessary for the initiation, tracking, and delivery of services or outputs with the capability to cut across existing or future organizational boundaries.

Furthermore, web-based workflow products allow electronic coordination, staffing, and task management of documents and files. They are relational to an electronic version of the Staff Summary Sheet (SSS) and other AF/DoD forms used for routing/collection of information. Automation provides the capability to suspense and track correspondence through the workflow process and provides action officers and document originators status on their packages. Provides users the capabilities to comply with structured electronic workflow processes and the flexibility to create/develop ad hoc workflow courses of actions. Future use of standardized EIM tools will enhance usability and eliminate legacy methods.

## ***Section A - General Information***

**1. Purpose of the CFETP.** This CFETP, when used in conjunction with the 3DXXX Cyberspace Support CFETP provides the information necessary for AFCFMs, MAJCOM Functional Managers (MFM), commanders, training managers, supervisors, and trainers to plan, develop, manage, and conduct an effective and efficient career field training program. The plan outlines the initial skills, upgrade, qualification, advanced, and proficiency training that individual's in AFSC 3D1X7 should receive in order to develop and progress throughout their careers. Initial skills training is the AFS specific training an individual receives upon entry into the AF or upon retraining into this specialty for award of the 3-skill level. This training is provided by the 364th Training Squadron (TRS) at Sheppard AFB, TX. Upgrade training identifies the mandatory courses, task qualification requirements, Career Development Course (CDC) completion, and correspondence courses required for award of the 5-, 7-, or 9-skill level. Qualification training is actual hands-on task performance training designed to qualify an airman in a specific duty position. This training program occurs both during and after the upgrade training process. It is designed to provide the performance skills and knowledge required to do the job. Advanced training is formal specialty training used for selected airmen. Proficiency training is additional training, either in-residence or exportable advanced training courses, or on-the-job training provided to personnel to increase their skills and knowledge beyond the minimum required for upgrade. The CFETP has several purposes, some of which are:

**1.1.** Serves as a management tool to plan, manage, conduct, and evaluate a career field-training program. Also, ensures that established training is provided at the appropriate point in an individual's career.

**1.2.** Identifies task and knowledge training requirements for each skill level in the specialty and recommends education and training throughout each phase of an individual's career.

**1.3.** Lists training courses available in the specialty, identifies sources of training, and the training medium.

**1.4.** Identifies major resource constraints that impact implementation of the desired career field training program.

**2. Use of the CFETP.** The CFETP is maintained by the 3D1XX Air Force Career Field Manager (AFCFM), SAF/CIO A6CF. MAJCOM FMs and AETC review the plan annually to ensure currency and accuracy and forward recommended changes to the AFCFM. Using the list of courses in Part II, they determine whether duplicate training exists and take steps to eliminate/prevent duplicate efforts. Career field training managers at all levels use the plan to ensure a comprehensive and cohesive training program is available for each individual in the career ladder.

**2.1.** AETC training personnel develop/revise formal resident and exportable training based upon requirements established by the users and documented in the STS. They also develop procurement and acquisition strategies for obtaining resources needed to provide the identified training.

**2.2.** MAJCOM FMs ensure their training programs complement the CFETP for mandatory initial skill and upgrade requirements. They also identify the needed AFJQSS/AFQTPs to document unique upgrade and continuation training requirements. Requirements are satisfied through OJT, resident training, contract training, or exportable courseware/courses. MAJCOM-developed training to support this AFSC must be included in this plan.

**2.3.** 81 TRSS Qualification Training Flight (Q-Flight) personnel develop training packages (AFJQS/AFQTPs) based on requests submitted by the MAJCOMs and according to the priorities assigned by the AFCFM.

**2.4.** Unit level training managers and supervisors manage and control progression through the career field by ensuring individuals complete the mandatory training requirements for upgrade specified in this plan and supplemented by their MAJCOM. The list of courses in Part II is used as a reference for planning continuation or career enhancement training.

**2.5.** Submit recommended CFETP corrections to the 81 TRSS Q-Flight Customer Service Desk at 81 TRSS/TSQS, 601 D Street, Keesler AFB MS 39534-2235 or call DSN 597-3343. To contact electronically send email to: [qflight.customer.service@us.af.mil](mailto:qflight.customer.service@us.af.mil).

**2.6.** Submit recommended CFETP additions/deletions through your MAJCOM Functional Manager.

**3. Coordination and Approval of the CFETP.** The AFCFM is the approval authority. MAJCOM representatives and AETC training personnel coordinate on the career field training requirements. The AETC training manager initiates an annual review of this document by AETC and MAJCOM functional managers to ensure the CFETP's currency and accuracy by using the list of courses in Part II to eliminate duplicate training.

## ***Section B - Career Field Progression and Information***

**4. Specialty Description.** This information supplements that presented in the AFECD.

### **4.1. Cable and Antenna Systems Apprentice/Journeyman/Craftsman (3D137/3D157/3D177).**

**4.1.1. Specialty Summary.** Provides command and control (C2) capabilities through installation, maintenance, fault isolation, and reconstitution of fixed cable and wireless distribution systems, local area networks (LAN), and wide area networks (WAN) in support of tactical and strategic operations. Monitors and analyzes performance of underground, buried, and aerial cable and antenna networks. Related DoD Occupational Subgroup: 162100.

#### **4.1.2. Duties and Responsibilities:**

**4.1.2.1.** Installs, maintains, reconstitutes, removes, and modifies copper core, coaxial, waveguide, and fiber optic cable and antenna systems. Climbs antenna support structures and wooden poles to various heights for maintenance and installation actions on cable and antenna systems. Installs and maintains dedicated local area network (LAN) and wide area network (WAN) media distribution systems, including distribution system interior wiring. Uses drawings, task lists, instructions, and technical data to work on copper core, coaxial, waveguide, fiber optic cable, and antenna systems. Installs distribution equipment. Terminates copper core and fiber optic cables on main distribution frames and interface equipment. Operates and performs maintenance on tools, test equipment, auxiliary equipment, and vehicles such as backhoes, trenchers, cable trailers, cable reel trucks, and antenna construction vehicles.

**4.1.2.2.** Locates, repairs, and replaces faulty closures in copper core, waveguide, coaxial, and fiber optic cable systems. Performs pneumatic troubleshooting to locate faulty splice closures and demivalve assemblies. Excavates and backfills splice pits. Seals cables, repairs demivalves, and adjusts pressure transmitters and contactors. Installs and maintains aerial cable support structures such as pole line and suspension strands. Installs underground cable, uses duct rods, cleans cable duct systems, prepares the pulling apparatus, and pulls in and temporarily bonds cable. Installs, maintains, and marks path of buried cable systems.

**4.1.2.3.** Monitors, analyze, and troubleshoot copper core, waveguide, coaxial, and fiber optic cable systems. Determines cause of signal deterioration in cable carrying audio, video, digital, and data transmission. Interprets compressor meter readings and adjusts controls. Installs, maintains, and repairs or replaces damaged pneumatic and electrical components in cable air dryers. Uses test equipment to identify copper conductors and optic fibers in cables. Locates and traces buried cable. Locates and traces leaks in pressurized cable system. Performs operational checks and preventive maintenance inspections.

**4.1.2.4.** Maintains communications and computer systems installation records (CSIRs), maintenance and inspection cable records, and technical orders.

**4.1.2.5.** Supervises, plans, organizes, and directs cable and antenna installation and maintenance activities. Develops and improves work methods and procedures related to installation and maintenance of all cable and antenna systems.

**4.1.2.6.** Manages, supervises, and performs planning and implementation activities. Manages implementation and project installation and ensures architecture, configuration, and integration conformity. Develops, plans, and integrates base communications systems. Serves as advisor at meetings for facility design, military construction programs, and minor construction planning. Evaluates base comprehensive plan and civil engineering projects. Monitors status of base civil engineer work requests. Performs mission review with customers. Controls, manages, and

monitors project milestones and funding from inception to completion. Determines adequacy and correctness of project packages and amendments. Monitors project status and completion actions. Manages and maintains system installation records, files, and indexes. Evaluates contracts, wartime, support, contingency, and exercise plans to determine impact on manpower, equipment and systems.

## **4.2. Cyber Systems Superintendent (3D190)**

**4.2.1. Specialty Summary.** Manages system analysis and design, programming, systems operation, and maintenance, resource management and security management. Directs activities for installing, maintaining, repairing, overhauling, deploying, and modifying cyberspace systems and equipment platforms to include: voice, data and video client devices, and network infrastructure systems, radio, satellite, intrusion detection, space systems, telemetry, microwave, and cryptographic. In addition, manages and directs network and electronic warfare operations in garrison and at deployed locations by performing duties to develop, sustain, and enhance network and electromagnetic capabilities to defend national interests from attack and to create effects in the cyberspace domain to achieve national objectives. Related DoD Occupational Subgroup: 110100.

### **4.2.2. Duties and Responsibilities:**

**4.2.2.1.** Plans and organizes maintenance activities. Plans and supervises system installation and evaluates facilities layout and performance standards. Designs and develops organizational structures and determines equipment, training, and supplies required for systems implementation and support. Executes operational plans to ensure positive control of assigned forces. Evaluates operational readiness of communications equipment, network devices, sensors, intrusion detection, and related support equipment.

**4.2.2.2.** Directs activities responsible for system analysis and design, programming, operations and maintenance, security, systems management, technical support and resource management. Implements and interprets policies, directives and procedures.

**4.2.2.3.** Directs maintenance activities. Directs personnel employed in siting, deploying, inspecting, adjusting, removing, replacing, and repairing communications systems and related equipment. Prepares and analyzes reports encompassing siting, deploying, maintaining, installing, repairing and removing communications systems and related equipment. Coordinates activities and resolves common problems. Directs overhaul and repair of communications systems and related equipment. Ensures work standards are maintained. Determines extent and economy of repair, including disposition of malfunctioning equipment.

**4.2.2.4.** Inspects and evaluates maintenance activities for compliance with directives. Evaluates, rates and prepares reports on activity effectiveness. Recommends and implements corrective action for improved methods and procedures. Evaluates effectiveness of equipment usage, systems performance, customer service, supplies, and system scheduling, processing, and maintenance.

**4.2.2.5.** Supervises maintenance functions. Resolves problems with installing, maintaining, repairing, and overhauling systems and equipment. Checks systems and equipment for proper siting, installation, and serviceability. Establishes local maintenance procedures and policies. Performs research and development of new systems and equipment.

**4.2.2.6.** Establishes training requirements. Establishes training programs to meet local knowledge and certification requirements.

**4.2.2.7.** Plans, programs, and develops budget inputs to ensure resource availability for operational requirements.

**4.2.2.8.** Manages plans, implementation, and development functions. Helps functional users define requirements. Supervises functional user requirements translation into automated systems capabilities. Organizes teams that use methodologies to meet mission requirements. Supervises test and evaluation efforts to determine performance. Organizes and participates in mission implementation and conversion. Ensures continued interface between functional users and programming and operations personnel. Ensures compliance with standards for systems documentation.

**4.3. Chief Enlisted Manager.** This specialty “caps” at the Chief Master Sergeant level with those specialties that came up through the Cyber Support Systems Specialist (3D1XX) career ladders. Personnel attaining the rank of CMSgt are assigned broad ranging duties in directing and managing diverse communication functions.

**4.4. MAJCOM Functional Manager (MFM) for Cyber Systems.** (AFI 36-2201, *Air Force Training Program*; AFI 36-2101, *Classifying Military Personnel (Officers and Enlisted)*; *Air Force Enlisted Classification Directory*). Appointed by the MAJCOM Director of Communications (A6) or equivalent. Advises the MAJCOM/A6 and staff on 3D1XX utilization and training issues. Serves as the MAJCOM voting representative during career field Utilization and Training Workshops. Assists in gathering inputs and data to complete enlisted grade allocation for Career Progression Group (CPG) reviews. Provides guidance to subordinate units on 3D1XX personnel issues. Assists with the dissemination of information regarding Air Force and career field policies, plans, programs, and procedures to subordinate units. Assists in identifying qualified subject matter experts to help with the development of Specialty Knowledge Tests (SKT) and the Career Development Course (CDC). Acts as the primary MAJCOM reviewer on CDC training and classification waiver request packages. Coordinates on all MAJCOM 3D1XX staffing and manpower issues.

**4.5. Air Force Career Field Manager (AFCFM) for the Cyber Systems Career Field.** (AFPD 36-26, *Total Force Development*; AFI 36-2201, *Air Force Training Program*; AFI 36-2101, *Classifying Military Personnel (Officers and Enlisted)*; *Air Force Enlisted Classification Directory*). Appointed by the Air Force Chief, Information Dominance and Chief Information Officer (SAF/CIO A6). Advisor to the SAF/CIO A6 on all matters affecting the Cyber Operations career fields. Communicates directly with MFMs and AETC Training Managers to disseminate Air Force and career field policies and program requirements. Ensures development, implementation, and maintenance of the CFETP. Serves as the chairperson for the STRT/U&TW and uses it as a forum to determine and manage career field education and training requirements. Possesses final authority to waive CFETP requirements, including CDCs. Assists AETC training managers and course supervisors with planning, developing, implementing, and maintaining all AFSC-specific training courses. Assists in the development of AFSC-related manpower standards.

**5. Skill/Career Progression.** Adequate training and timely progression from the apprentice to superintendent skill levels play an important role in the Air Force's ability to accomplish its mission. It is essential that everyone involved in training do their part to plan, manage and conduct an effective training program. The guidance provided in this part of the CFETP and the [3D1X7 Education and Training Path](#) table will ensure individuals receive viable training at appropriate points in their careers. The training listed in this plan is specific to the AFSC 3D1X7 and must be used in conjunction with the common core training identified in the 3DXXX CFETP.

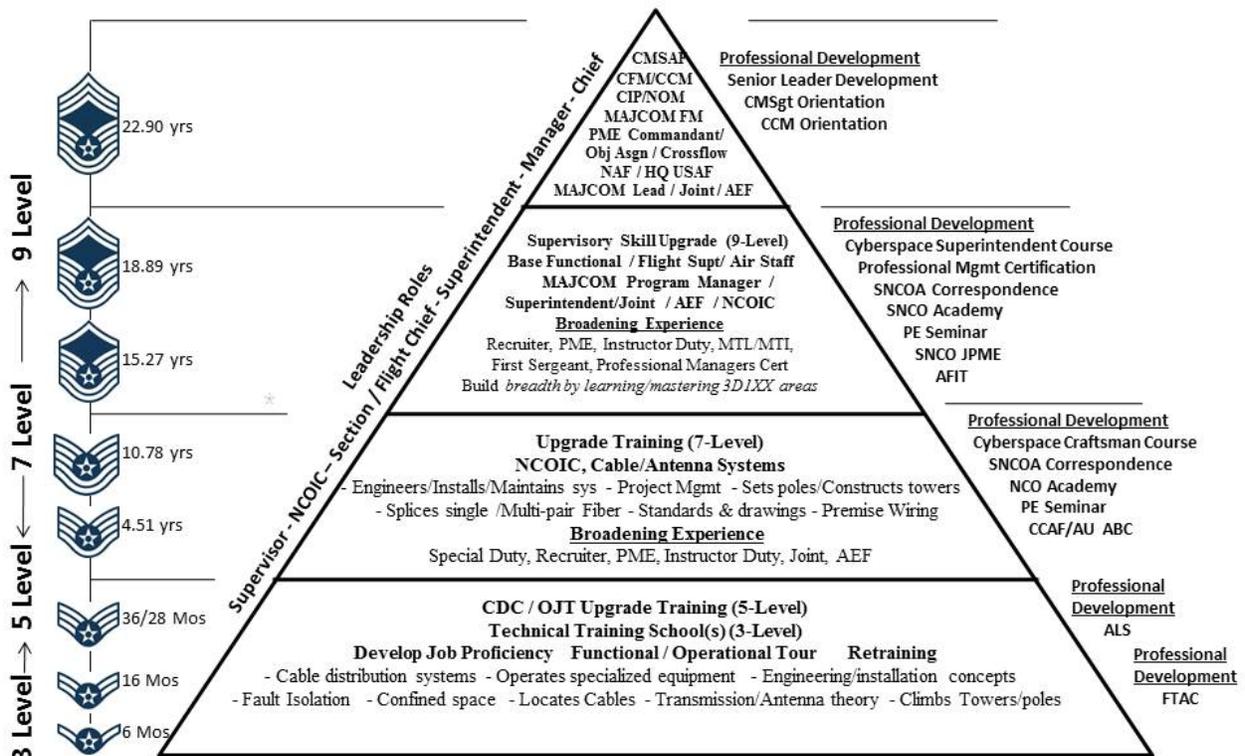
**5.1. Apprentice (3) Level.** The Cable and Antenna Systems Apprentice Course, serves as the initial skills course and must be completed for the award of AFSC 3D137.

**5.2. Journeyman (5) Level.** Upgrade training consists of: (1) completing Cable and Antenna Systems CDC 3D157; (2) completing all core tasks identified for 5-level; (3) completing all 5-level requirements outlined in the 3DXXX Cyberspace Support CFETP; (5) meeting time-in-training requirements IAW AFI 36-2201; and (6) obtaining supervisor recommendation and commander approval for the award of AFSC 3D157.

**5.3. Craftsman (7) Level.** Upgrade training consists of: (1) completing all core tasks identified for 7-level; (2) completing all 7-level requirements outlined in the 3DXXX Cyberspace Support CFETP; (3) meeting time-in-training requirements as identified in AFI 36-2201; and (4) obtaining supervisor recommendation and commander approval for the award of AFSC 3D177.

**5.4. Superintendent (9) Level.** 3D190 skill level requirements are listed in the 3DXXX Cyberspace Support (Common Core) CFETP.

### 3D1X7 Career Path Chart



Note: Average Time in Service (TIS) based on 2013 AF Promotion results. Refer to AFPC Web site for current information.

**6. Training Decisions.** This CFETP was developed to encapsulate an entire spectrum of training requirements for the Cable/Antenna Systems career field, using a building block approach (simple to complex). Included in this spectrum is the strategy of when, where, and how to meet the training requirements. The strategy must be apparent and affordable to reduce duplication of training and eliminate a disjointed approach to training.

**6.1. Proficiency Training.** This training is job qualification for an assigned duty position. Additional qualification training becomes necessary when personnel transfer to another duty position, the unit mission changes, a new personnel program comes on board, or any time changes in techniques or procedures occur.

**6.1.1.** The 81 TRSS/TSQ (Q-Flight) develops AFJQs/AFQTPs to support tasks relating to communications-electronics and communications-computer systems, functions and duties.

Completion of AFJQSs/AFQTPs is mandatory by duty position for personnel in upgrade or qualification training.

**6.1.2.** CDC development is restricted to six volumes, two hundred pages each. The first volumes will be common to all 3D1XX AFSCs, followed by the respective AFSC-specific volumes. The following table outlines 5-level CDC contents 3D1X7.

<b>3DX5X</b>	
VOLUME 1	Support to the Cyberspace Mission
VOLUME 2	Information Technology Concepts & Maintenance Practices
<b>3D157</b>	
VOLUME 1	Introduction and Antennas
VOLUME 2	Cable
VOLUME 3	Testing, Fiber, and Network

**6.4.** Commercial Certifications. Below are some available commercial certifications for 3D1X7 technicians. An “X” in the DANTES column indicates that testing may be completed at the base education office. Tuition Assistance (TA) pays for only one certification during an entire career. See the local base education office for more information. The Department of Veterans Affairs (VA) has licensing and certification benefits that can be used, including the Montgomery GI Bill. Visit <http://www.gibill.va.gov/pamphlets/lcweb.htm> for more information.

<b>Certifications</b>	<b>Criteria</b>	<b>Website</b>	<b>DANTES</b>
<b>Electronics Technician Association (ETA)</b> • Associate CET • Data Cabling Competencies <ul style="list-style-type: none"> <li>○ Data Cabling Installer Certification**</li> </ul> • Fiber Optics Competencies <ul style="list-style-type: none"> <li>○ Fiber Optics Installer**</li> <li>○ Fiber Optics Technician**</li> <li>○ Fiber Optics Design</li> <li>○ Fiber Optics Tech – Outside Plant</li> </ul>	<ul style="list-style-type: none"> <li>• Experience</li> <li>• Written Exam</li> </ul>	<a href="http://www.eta-i.org/">http://www.eta-i.org/</a>	X
<b>National Association of Radio and Telecommunications Engineers (NARTE)</b> • Junior Telecommunications Tech • Senior Telecommunications Tech • Master Telecommunications Tech	<ul style="list-style-type: none"> <li>• Education</li> <li>• Experience</li> <li>• References</li> <li>• Written Exam</li> </ul>	<a href="http://www.narte.org/h/telecom.asp">http://www.narte.org/h/telecom.asp</a> .	X
<b>Building Industry Consulting Service International, Inc. (BICSI)</b> • Commercial Installer, Level 1 • Commercial Installer, Level 2 • Technician Level	<ul style="list-style-type: none"> <li>• Written Exam</li> <li>• Hands-On</li> <li>• OJT tasks</li> </ul>	<a href="http://www.bicsi.org/">http://www.bicsi.org/</a>	

\*\*Offered by 364th TRS during initial and supplemental training.

**7. Community College of the Air Force (CCAF) Academic Programs.** Enrollment in CCAF occurs upon completion of basic military training. CCAF provides the opportunity for all enlisted members to obtain an Associate in Applied Science degree. In order to be awarded the CCAF degree, all academic requirements must be completed before the student separates from

the Air Force, retires, or is commissioned as an officer. In addition to its associate's degree program, CCAF offers the following:

**7.1. CCAF Instructor Certification.** The College offers the CCAF Instructor Certification to instructors teaching full time in a CCAF affiliated school. To qualify, instructors must complete a 3 semester hour Instructor Methodology course, a 12 semester hour Teaching Internship, have one year teaching experience from date of Teaching Internship completion, hold an associate or higher degree, complete at least 1,000 hours of documented practical experience teaching a CCAF course(s), and be recommended by their commander/commandant.

**7.2.** The Electronic Systems Technology (4VHP) program applies to this career field.

**7.2.1. Degree Requirements:** Individuals must hold the 5-skill level at the time of program completion.

	Semester hours
Technical Education.....	24
Leadership, Management, and Military Studies .....	6
Physical Education.....	4
General Education.....	15
Program Electives .....	15
Total	.....64

**7.2.2.** Technical Education (24 semester hours): A minimum of 12 semester hours of Technical Core subjects and courses must be applied and the remaining semester hours will be applied from Technical Core/Technical Elective subjects and courses.

**7.2.3.** Leadership, Management, and Military Studies (6 semester hours): Professional military education and/or civilian management courses. See CCAF General Catalog for application of civilian management courses.

**7.2.4.** Physical Education (4 semester hours): Satisfied upon completion of basic military training.

**7.2.5.** General Education (15 semester hours): Courses must meet the criteria for application of courses to the General Education requirement and be in agreement with the definitions of applicable General Education subjects/courses as outlined in the CCAF General Catalog.

**7.2.6.** General Education Mobile (GEM): GEM is a partnership between CCAF and civilian academic institutions to offer general education courses to meet CCAF A.A.S. degree requirements. Courses are offered via distance learning which reduces CCAF educational impact of deployments, PCS and family commitments.

**7.2.7.** Program Elective (15 semester hours): Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education courses, including natural science courses meeting General Education requirement application criteria. Nine semester hours of CCAF degree applicable technical credit otherwise not applicable to this program may be applied.

**7.3.** The Professional Manager Certification (PMC): The College offers a professional credential that formally recognizes an individual's advanced level of education and experience in leadership and management, as well as professional accomplishments. The program provides a structured professional development track that supplements Enlisted Professional Military Education (EPME) and Career Field Education and Training Plan (CFETP).

**7.3.1.** The PMC is primarily designed for Air Force SNCO's. However, any enlisted Airmen who meet all program requirements may be nominated and awarded the PMC. Once an individual retires, separates or is commissioned, they are no longer eligible for the PMC.

**7.3.2.** PMC Requirements:

**7.3.2.1.** Award of 7 skill-level (Craftsman) or higher

**7.3.2.2.** Complete ALS or equivalent EPME (In-residence or correspondence)

**7.3.2.3.** Complete NCOA or equivalent EPME (In-residence or correspondence)

**7.3.2.4.** Complete SNCOA or equivalent EPME (In-residence or correspondence)

**7.3.2.5.** Complete 30 semester hours of leadership/management coursework.

**7.3.2.5.1.** At least 6 semester hours of leadership/management coursework must be completed from an accredited college or university by testing credit (CLEP/DSST/Excelsior)

**7.3.2.5.2.** Civilian courses must emphasize the fundamentals of leadership and/or management of human resources. Examples: Principles of Management, Personnel Management, Human Resource Management, Principles of Supervision, and Organizational behavior.

**7.3.2.6.** A copy of the civilian college or university transcript reflecting completed leadership/management courses is required.

**7.3.2.7.** Credit by earned completion of EPME is applied toward the 30 semester hour requirement.

**7.3.3.** Awarded CCAF degree

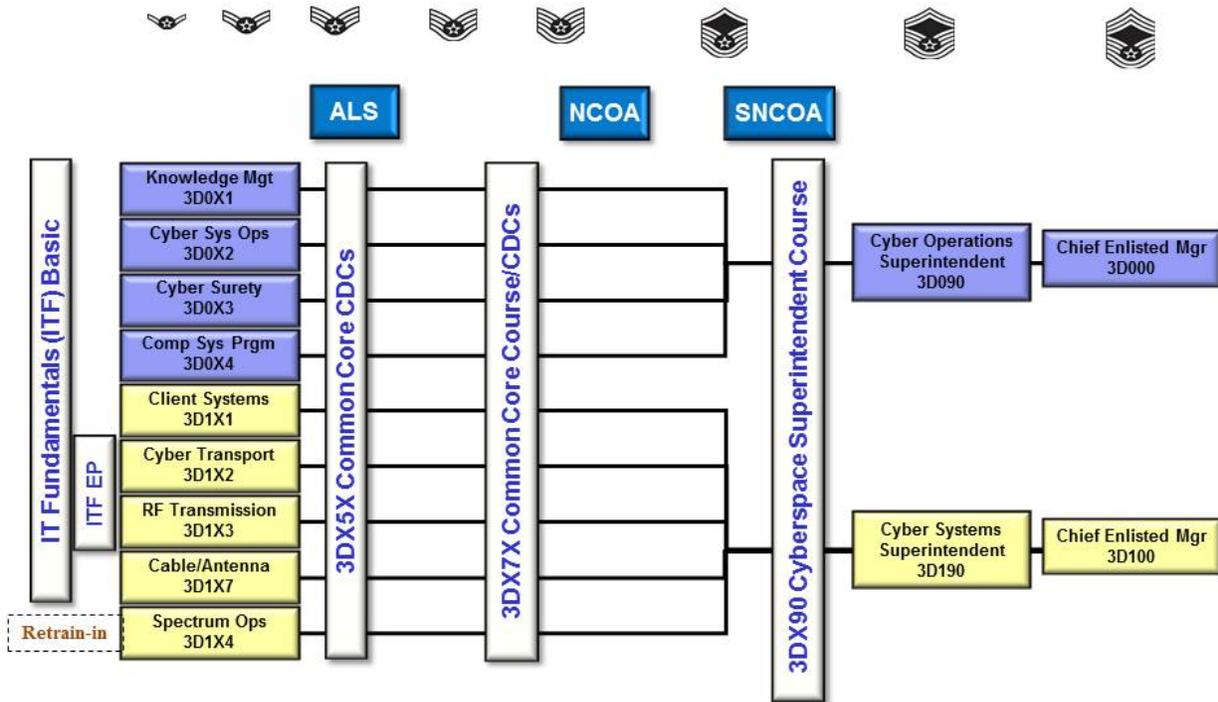
**7.3.4.** Recommended for certification by the unit commander or commandant.

**7.4.** Trade Skill Certification. When a CCAF student separates or retires, a trade skill certification is awarded for the primary occupational specialty. The College uses a competency based assessment process for trade skill certification at one of four proficiency levels: Apprentice, Journeyman, Craftsman (Supervisor), or Master Craftsman (Manager). All are transcribed on the CCAF transcript.

**7.5.** See the current CCAF General Catalog for details regarding the Associates of Applied Science in Electronic Systems Technology. The catalog is available at your education office, or from <http://www.au.af.mil/au/ccaf/>.

**7.6.** Additional off-duty education is highly encouraged. Individuals desiring to become an AETC instructor should be actively pursuing an associate degree. A degreed faculty is necessary to maintain CCAF's accreditation through the Southern Association of Colleges and Schools.

**8. Career Field Path.** The following summarizes career progression and personnel allocations across the career ladder. 3D0XX and 3D1XX personnel maintain their individual AFSC identifiers through the rank of MSgt. Upon promotion to SMSgt, 3D0X1/3D0X2/3D0X3/3D0X4 merge to become a 3D090; AFSCs 3D1X1/3D1X2/3D1X3/3D1X4/3D1X7 merge to become a 3D190. Specific demographic information is available on the Web at <http://www.afpc.randolph.af.mil/demographics/>.



**3D1X7, CABLE AND ANTENNA SYSTEMS  
EDUCATION AND TRAINING PATH**

<b>EDUCATION AND TRAINING REQUIREMENTS</b>	<b>AVERAGE SEW ON TIME AND COMMENTS</b>
<b>BASIC MILITARY TRAINING SCHOOL (BMTS)</b>	
<b>APPRENTICE TECHNICAL SCHOOL (3-SKILL LEVEL)</b> .....Mandatory.	Amn ..... 6 months
<b>UPGRADE TO JOURNEYMAN (5-SKILL LEVEL)</b> Minimum 12 months OJT training (9 months for retrainees). Complete 5-Level CDCs .....Mandatory. Specific AFJQs/AFQTPs for equipment at assigned location by duty position..... Mandatory. CS Management and Generic AFJQs/AFQTPs for various unit level duties.....Mandatory. Complete 3DXXX CFETP requirements for 5-Skill Level .....Mandatory. AETC Supplemental training courses as determined by MAJCOM .....Optional. Community College of the Air Force Associates Degree .....Optional.	A1C ..... 16 months  SrA..... 3 years Earliest..... 28 Months HYT ..... 8 years
<b>AIRMAN LEADERSHIP SCHOOL (ALS)</b> Attendance is limited to SSgt selectees or those attaining 48 months Total Active Federal Military Service (TAFMS) and who have not been selected for promotion to SSgt. Completion is mandatory before assuming the rank of SSgt. ANG/AFRC may complete by correspondence course.....Mandatory	<b>TRAINER:</b> Must meet trainer eligibility requirements as per <a href="#">AFI 36-2201</a>

**3D1X7, CABLE AND ANTENNA SYSTEMS  
EDUCATION AND TRAINING PATH**

<b>EDUCATION AND TRAINING REQUIREMENTS</b>	<b>AVERAGE SEW ON TIME AND COMMENTS</b>
<p><b>UPGRADE TO CRAFTSMAN (7-SKILL LEVEL)</b>            Minimum rank of SSgt. 12 months OJT training (6 months for retrainees). Completion of 7-level CDCs, if available.            Must be 7-level to sew on TSgt.....Mandatory.            Completion of the E6ACW3DX7X 01AA Cyberspace Career Advancement Course.....Mandatory.            CS Management and Generic AFJQSs/AFQTPs for various unit level duties.....Mandatory.            Complete 3DXXX CFETP requirements for 7-Skill Level .....Mandatory.            AETC Supplemental training courses as determined by MAJCOM .....Optional.            SNCOA Correspondence Course (TSgt) .....Optional.            (2 yrs TIG/NCOA completion)            Community College of the Air Force Associates Degree.....Desired.</p>	<p>SSgt ..... 4.51 years            Earliest..... 3 years            HYT ..... 15 years              TSgt ..... 10.78 years            Earliest..... 5 years            HYT ..... 20 years              CERTIFIER: Must meet certifier eligibility requirements as per <a href="#">AFI 36-2201</a></p>
<p><b>NONCOMMISSIONED OFFICER ACADEMY (NCOA).</b>            Completion is mandatory before assuming the rank of MSgt .....Mandatory.              Active duty attendance is limited to TSgt or MSgt Selectee.              ANG/AFRC TSgt or MSgt may attend in-residence or may complete by correspondence course.              Community College of the Air Force Associates Degree..Highly Desired.</p>	<p>MSgt ..... 15.27 years            Earliest..... 8 years            HYT ..... 24 years</p>

**3D1X7, CABLE AND ANTENNA SYSTEMS  
EDUCATION AND TRAINING PATH**

<b>EDUCATION AND TRAINING REQUIREMENTS</b>	<b>AVERAGE SEW ON TIME AND COMMENTS</b>
<p><b>USAF SENIOR NONCOMMISSIONED OFFICER ACADEMY (SNCOA)</b> Attendance is limited to SMSgt or SMSgt Selectee. Completion is mandatory before assuming the rank of SMSgt .....Mandatory. SNCOA Correspondence Course.....Optional. ANG/AFRC may complete by correspondence course. ANG/AFRC MSgts may attend in-residence.....Mandatory.</p>	<p>SMSgt..... 18.89 years Earliest..... 11 years HYT..... 26 years</p>
<p><b>E6ACW3DX9X 00AA CYBERSPACE SUPERINTENDENT COURSE</b> Attendance is limited to CMSgt, SMSgt and SMSgt selectees. Completion is mandatory within one year of selection to SMSgt .....Mandatory.</p>	
<p><b>UPGRADE TO SUPERINTENDENT (9-SKILL LEVEL)</b> Awarded upon sew on of SMSgt. ....Mandatory. Complete 3DXXX CFETP requirements for 9-Skill Level .....Mandatory. CS Management and Generic AFJQSs/AFQTPs for various unit level duties.....Mandatory.</p>	
<p><b>Chief Enlisted Manager (CEM)</b></p>	<p>CMSgt ..... 22.90 years Earliest..... 14 years HYT..... 30 years</p>

**NOTE 1:** Published sew-on times are Air Force averages. Refer to the Air Force Personnel Center’s homepage to determine career field specific information: [https://gum-crm.csd.disa.mil/app/answers/detail/a\\_id/13016](https://gum-crm.csd.disa.mil/app/answers/detail/a_id/13016).

**NOTE 2:** See Part II, Sections C and D for a list of AFJQSs/AFQTPs and AETC supplemental training.

**NOTE 3:** All core/duty position tasks must be completed prior to upgrade.

**Section C - Skill Level Training Requirements**

**9. Purpose.** The various skill levels in the career field are defined in terms of tasks and knowledge requirements for each skill level in the Cable and Antenna Systems career field of the Cyber Support Systems career ladder. They are stated in broad, general terms and establish the standards of performance. Core tasks, knowledge items, and skill requirements for this specialty are identified in the STS, COL, CDCs, AFJQSs/AFQTPs, etc. Completion of the mandatory 3-level skill awarding course, CDCs, and applicable AFJQSs/AFQTPs define the Air Force core tasks for this specialty. NOTE: The 3DXXX Cyberspace Support CFETP lists additional skill-level requirements which are required by all 3DXXX AFSCs.

**10. Specialty Qualification Requirements.**

**10.1. Apprentice (3-Level) Training.**

KNOWLEDGE	Knowledge of: Wire Transmission Principles; Electrical and Light Wave Communications on Aerial, Buried, and Underground Cable Systems; Inter/Intra Building Distribution Systems; Cable Pressure and Alarm Systems; Antenna Fundamentals, including Antenna Theory and Principles of Rotators, Amplifiers, and Control Cables; Cable/Antenna Installation Procedures, including Copper/Fiber Optic/Coaxial Cables, Waveguide Splicing, and Repair and Maintenance Techniques of Radomes; Locating Cable Faults, Cable Testing Procedures, Methods of Sealing Cables, and Climbing (Personal Protective Equipment (PPE), Methods, and Techniques)
EDUCATION	Completion of high school is mandatory. Additional courses in Mathematics, Physics, or Information Technologies (IT) are Desirable.
TRAINING	Completion of the Communications Cable and Antenna Systems Apprentice course, J3ABR3D137 0A2B (PDS Code O3K) (See Part II, Section B for Course Objective List)
EXPERIENCE	None required
OTHER	For award and retention of AFSC 3D132, must maintain an Air Force Network License according to AFMAN 33-282, Computer Security (COMPUSEC). Normal color vision as defined in AFI 48-123, Medical Examination and Standards. The ability to obtain a government license according to AFI 24-301, Vehicle Operations. Normal depth perception and normal gait and balance are mandatory for entry, award, and retention of this AFSC as defined in AFI 48-123. Physical ability to perform climbing duties and freedom from fear of heights and claustrophobia is mandatory for entry, award, and retention of this AFSC. Eligibility for a Secret security clearance according to AFI 31-501, <i>Personnel Security Program Management</i> , is mandatory for award and retention of this skill level.
IMPLEMENTATION	Attendance at the Communications Cable and Antenna Systems Apprentice course is mandatory for award of the 3-skill level unless waived by the AFCFM.

**\* Refer to AFECD for most current requirements**

## 10.2. Journeyman (5-Level) Training.

KNOWLEDGE	<p>All 3D137 Knowledge Qualifications apply to the 3D157 Requirements            Completion of the 3D157 Career Development Course</p> <p>Knowledge of: Installation and Maintenance Management Functions Related to Oxygen Deficiency, Oxygen Enrichment, Toxic And Explosive Gases, Working Aloft, Rescue Procedures for Aerial and Underground Environments and Capabilities, Limitations, Operations and Functional Use of Basic Cable and Antenna Systems, Specialized Equipment and Associated Hardware</p>
TRAINING	<p>Completion of all 5-level requirements outlined in the 3DXXX Cyberspace Support CFETP.</p> <p>No mandatory AETC training courses are required for upgrade.</p>
EXPERIENCE	<p>Qualification in and possession of AFSC 3D137</p> <p>Experience Performing Installing, Maintaining, Testing, Calibrating, or Repairing Cable and Antenna Systems, Associated Communications and Transmission Lines.</p> <p>Completion of all STS core tasks</p> <p>Completion of applicable AFJQs/AFQTPs</p> <p>Completion of all local tasks assigned</p>
OTHER	<p>For award and retention of AFSC 3D132, must maintain an Air Force Network License according to AFMAN 33-282, Computer Security (COMPUSEC). Normal depth perception and normal gait and balance are mandatory for entry, award, and retention of this AFSC as defined in AFI 48-123. Physical ability to perform climbing duties and freedom from fear of heights and claustrophobia is mandatory for entry, award, and retention of this AFSC.</p> <p>Eligibility for a Secret security clearance according to AFI 31-501, <i>Personnel Security Program Management</i>, is mandatory for award and retention of this skill level</p>
IMPLEMENTATION	<p>Entry into formal journeyman upgrade training is accomplished once individuals are assigned to their first duty station.</p> <p>Qualification training is initiated anytime individuals are assigned duties for which they are not qualified.</p> <p>Use CDCs, CBTs, and AFJQs/AFQTPs concurrently to obtain the necessary qualification for refresher and cross-utilization training.</p>

**\* Refer to AFECD for most current requirements**

### 10.3. Craftsman (7-Level) Training.

KNOWLEDGE	All 3D157 Knowledge Qualifications apply to the 3D177 Requirements. Project Management
TRAINING	Completion of the E6ACW3DX7X 01AA Cyberspace Career Advancement Course is mandatory. Completion of all 7-level requirements outlined in the 3DXXX Cyberspace Support CFETP
EXPERIENCE	Qualification in and possession of AFSC 3D157 Experience Performing or Supervising Functions such as Engineering, Installing, Repairing, Overhauling, or Modifying Cable and Antenna Systems, Associated Communications and Transmission Lines. Performs Project Management, Quality Assurance, and Controls Configuration/Documentation of Cable/Antenna Systems Completion of all STS core tasks Completion of applicable AFJQs/AFQTPs Completion of all local tasks assigned
OTHER	For award and retention of AFSC 3D132, must maintain an Air Force Network License according to AFMAN 33-282, Computer Security (COMPUSEC). Normal depth perception and normal gait and balance are mandatory for entry, award, and retention of this AFSC as defined in AFI 48-123. Physical ability to perform climbing duties and freedom from fear of heights and claustrophobia is mandatory for entry, award, and retention of this AFSC. Eligibility for a Secret security clearance according to AFI 31-501, <i>Personnel Security Program Management</i> , is mandatory for award and retention of this skill level
IMPLEMENTATION	Entry into OJT is initiated when individuals obtain the necessary rank and skill level. Qualification training is initiated anytime an individual is assigned duties for which they are not qualified. Use CDCs and AFJQs/AFQTPs concurrently to obtain the necessary qualification for refresher and cross-utilization training.

**\* Refer to AFECD for most current requirements.**

#### 10.4. Superintendent (9-Level) Training

KNOWLEDGE	Techniques and Procedures of Systems Analysis and Design Interpretation of Wiring and Logic Diagrams Project Management Software Methodology System Operation and Maintenance System and Equipment Capability, Capacity, and Logic Performance Measurement, Security, and Resource Management
TRAINING	Completion of E6ACW3DX9X 00AA Cyberspace Superintendant Course. Mandatory.
EXPERIENCE	Qualification in and possession of AFSC 3D17X Managing or Directing Functions such as Installing, Maintaining, Repairing, or Modifying the Various Systems and Related Equipment of the Feeder Specialties.
OTHER	For award and retention of AFSC 3D132, must maintain an Air Force Network License according to AFMAN 33-282, Computer Security (COMPUSEC). Completion of and eligibility for Single Scope Background Investigation (SSBI) according to AFI 31-501, <i>Personnel Security Program Management</i> is mandatory for award and retention of this skill level.
IMPLEMENTATION	Entry into OJT is initiated when individuals are selected for the rank of SMSgt. Qualification training is initiated anytime individuals are assigned duties for which they are not qualified.

#### 10.5. Training Sources.

**10.5.1.** AFSC specific training – 364 TRS, Sheppard AFB, TX at <https://etca.randolph.af.mil/>.

**10.5.2.** CDCs 3D157 are available for upgrade purposes through the unit training manager. For individual qualification and cross-utilization training, CDCs are ordered through the unit training office.

**10.5.3.** AFJQSs/AFQTPs are Air Force publications and are mandatory for use by personnel in upgrade or qualification training. They are developed by the 81 TRSS/TSQ (Q-Flight), Keesler AFB, MS and may be downloaded from [https://cs3.eis.af.mil/sites/20946/AFKN\\_Docs/Forms/AllItems.aspx](https://cs3.eis.af.mil/sites/20946/AFKN_Docs/Forms/AllItems.aspx). Procedures for requesting development of AFJQSs/AFQTPs are contained in AFI 33-154, *Air Force On-the-Job Training Products for Cyberspace Support Enlisted Specialty Training*. AFJQSs/AFQTPs are listed in Part II of this CFETP.

## ***Section D - Resource Constraints***

**11. Purpose.** This section identifies known resource constraints that preclude optimal/desired training from being developed or conducted, including information such as part numbers, national stock numbers, number of units required, cost, manpower, etc. Included are narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training. Finally, this section includes actions required, OPR and target completion date. Resource constraints will be, at a minimum, reviewed and updated annually.

### **12. Apprentice (3-Level) Training.**

12.1. Constraints: None.

12.1.1. Impact. N/A

12.1.2. Resources Required. N/A

12.1.3. Action Required. N/A

12.1.4. OPR/Target Completion Date. N/A

### **13. Journeyman (5-Level) Training.**

13.1. Constraints: None.

13.1.1. Impact. N/A

13.1.2. Resources Required. N/A

13.1.3. Action Required. N/A

13.1.4. OPR/Target Completion Date. N/A

### **14. Craftsman (7-Level) Training.**

14.1. Constraints: None.

14.1.1. Impact. N/A

14.1.2. Resources Required. N/A

14.1.3. Action Required. N/A

14.1.4. OPR/Target Completion Date. N/A

### **15. Superintendent (9-Level) Training.**

15.1. Constraints: None

15.1.1. Impact N/A

15.1.2. Resources Required N/A

15.1.3. Action Required N/A

15.1.4. OPR/Target Completion Date N/A

## ***Section E - Transition Training Guide***

There are currently no transition training requirements. This area is reserved.

## PART II

### *Section A - Specialty Training Standard*

**1. Implementation.** This STS will be used for technical training provided by AETC for the 3-level class beginning 25 August 2014.

**2. Purpose.** As prescribed in AFI 36-2201, this STS:

**2.1.** Lists in column 1 (Task, Knowledge, and Technical Reference) the most common tasks, knowledge, and technical references (TR) necessary for airman to perform duties in the 3-, 5-, and 7-skill level. Column 2 (Core Tasks) identifies by skill level, specialty-wide training requirements. NOTE: Core tasks are minimum task training requirements for upgrade.

**2.2.** Provides certification for OJT. Column 3 is used to record completion of tasks and knowledge training requirements. Use automated training management systems to document technician qualifications, if available. For initial certification or transcribing documentation complete the columns in accordance with AFI 36-2201.

**2.3.** Shows formal training and correspondence course requirements. Column 4 shows the proficiency to be demonstrated on the job by the graduate as a result of training on the task/knowledge and the career knowledge provided by the correspondence course. See the Air University Catalog maintained at [https://cs3.eis.af.mil/sites/AE-ED-02-37/AFKN\\_Docs/Forms/AllItems.aspx?RootFolder=%2Fsites%2FAE%2DED%2D02%2D37%2FAFKN%5FDocs%2Fe%2DCDC%5FCDC%20Catalog](https://cs3.eis.af.mil/sites/AE-ED-02-37/AFKN_Docs/Forms/AllItems.aspx?RootFolder=%2Fsites%2FAE%2DED%2D02%2D37%2FAFKN%5FDocs%2Fe%2DCDC%5FCDC%20Catalog) for current CDC listings.

**2.4.** Qualitative Requirements. Attachment 1 contains the tasks, knowledge, and proficiency levels referenced in paragraph 2. Columns are marked with a proficiency code to indicate subjects taught. An X in the proficiency code column indicates a lack of student man years and instructor resources. Trainees without prerequisites specified in Education and Training Course Announcement (ETCA) cannot be expected to meet proficiency levels indicated.

**2.5.** Becomes a job qualification standard (JQS) for on-the-job training when placed in *Automated training record* and used according to AFI 36-2201.

**2.6.** Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Specialty Knowledge Tests (SKT) are developed at the AETC Airmen Advancement Division by senior NCOs with extensive practical experience in their career fields. The tests sample knowledge of STS subject matter areas judged by test development team members as most appropriate for promotion to higher grades. Questions are based upon study references listed in the Enlisted Promotion References and Requirements Catalog (EPRRC). Individual responsibilities are listed in chapter 1 of AFI 36-2605, *Air Force Military Personnel Testing System*. WAPS is not applicable to the Air National Guard or Air Reserve Forces.

**3. Recommendations.** Comments and recommendations are invited concerning the quality of AETC training. A Training Feedback Hotline has been installed for the supervisors' convenience. For a quick response to concerns, call our Training Feedback Hotline at DSN 736-2574 or write us at 364th TRS/TRR 511 9th Ave, Ste 2, Sheppard AFB, TX 76311-2338. Reference this STS and identify the specific area of concern (paragraph, training standard element, etc.).

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

MICHAEL J. BASLA, Lieutenant General, USAF  
Chief, Information Dominance and  
Chief Information Officer

Attachments:

1. Qualitative Requirements
2. Specialty Training Standard (STS) 3D1X7

## PREFACE

**NOTE 1:** Users are responsible for annotating technical references to identify current references pending STS revision. Locate current Air Force publications at:

DOD Issuances and OSD Administrative Instructions at

<http://www.dtic.mil/whs/directives/>

Air Force Publications at <http://www.e-publishing.af.mil/>.

AFSSIs at <https://private.afnic.af.mil/ia/PolicyDocuments.cfm>

DISA Circulars and Instructions at

<https://www.disa.mil/about/policy-publication-information>

Technical Orders (TO) at <https://www.my.af.mil/etims/ETIMS/index.jsp>

Online Reference Ware and CBTs: <https://www.my.af.mil/faf/FAF/fafHome.jsp> (Under AF e-Learning)

**NOTE 2:** Knowledge and/or performance tasks are defined in the AFJQS. AFJQS items set the standard for qualification and certification and are mandatory for use in conjunction with this STS when applicable to the duty position.

**NOTE 3:** All objectives are trained during wartime.

**NOTE 4:** Commanders, supervisors and trainers will use TBA to track and manage training for all 3DXXX personnel.

**NOTE 5:** When an AFJQS is loaded into TBA, AFJQS task numbering will vary from the STS. The numbering scheme is defined by your work center specific master training plan.

**NOTE 6:** Third person certification is not required for all Cyber Support Specialist personnel. However, members (to include civilians and contractors) assigned to crew positions are still required position in accordance with Stan/Eval procedures.

**NOTE 7:** All tasks in this training standard that are taught in the initial skills course directed to utilize a construction vehicle, cable reel truck, or cable reel trailer are to be accomplished with an instructor operating the vehicle.

**NOTE 8:** Senior NCO's in the 3DXXX AFSCs are not required to have an Individual Training Plan (ITP) with the following exceptions: personnel in upgrade training status, or performing equipment maintenance as part of primary duties. Unit Commanders can require MSgt's with UTC tasks to have an ITP.

<p><i>THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY</i></p> <p>Personal Data – Privacy Act of 1974</p>		
<p>PRINTED NAME OF TRAINEE (<i>Last, First, Middle Initial</i>)</p>	<p>INITIALS (<i>Written</i>)</p>	<p>LAST 4 OF SSN</p>
<p>PRINTED NAME OF TRAINER AND CERTIFYING OFFICIAL AND WRITTEN INITIALS</p>		
N/I	N/I	

PROFICIENCY CODE KEY		
	SCALE VALUE	DEFINITION: <b>The individual</b>
Task Performance Levels	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs help only on hardest parts. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
*Task Knowledge Levels	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
**Subject Knowledge Levels	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)
<b>Explanations</b>		
<p>* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Example: b and 1b)</p> <p>** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks. This mark is used alone instead of a scale value to show that no proficiency training is provided in the course or CDC.</p> <p>(-) This mark is used alone in Proficiency Codes Course columns to show that training is required but not given due to limitations in resources.</p> <p>NOTE: All tasks and knowledge items shown with a proficiency code are trained during wartime.</p> <p>(-) When this code is used in the Core &amp; Wartime Tasks Column it indicates that the qualification is a local determination.</p> <p>(5) When this code is used in the Core &amp; Wartime Tasks Column it indicates the CFM has mandated this task as a core 5-level requirement. The training to satisfy this requirement is either provided through OJT, CBTs, CDCs, or a combination.</p> <p>(7) When this code is used in the Core &amp; Wartime Tasks Column it indicates the CFM has mandated this task as a core 7-level requirement. The training to satisfy this requirement is either provided through OJT, CBTs, CDCs, or a combination.</p>		

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
<b>1. CABLE AND ANTENNA SYSTEMS CAREER FIELD</b> TR: AFECD, AFH 33-337; AFIs 10-401, 33-115 Vols 1, 2 & 3; 36-2101; 3D1X7 CFETP; TO 00-33A-1001-WA-1										
1.1. Structure	-						-	-	-	-
1.2. Progression within Air Force Specialty Code 3D1X7	-						-	-	-	-
1.3. Read CFETP 3D1X7	5						-	-	-	-
1.4. Air Force Specialty Code 3D1X7										
1.4.1. Explain Duties of AFSC	5						-	A	-	-
1.4.2. Explain Responsibilities of AFSC	5						-	B	-	-
1.4.3. Explain AFSC Core Competencies	-						-	A	-	-
1.4.4. Explain Qualifications	-						-	-	-	-
<b>2. SAFETY/RISK MANAGEMENT (RM)</b> TR: AFIs 90-802, 91-202, 91-203, 91-302										
2.1. Air Force Consolidated Occupational Safety Instructions for AFSC	5						A	A	-	-
2.2. Hazards of the AFSC	5						A	A	-	-
2.3. Practice Safety Precautions:										
2.3.1. Maintenance Actions	5						2b	-	-	-
2.3.2. Energized Equipment	5						2b	-	-	-
2.3.3. High Voltage Equipment	-						-	-	-	-
<b>3. UTILIZE PUBLICATIONS AND DIRECTIVES</b> TR: AFIs 33-Series; AF Records Distribution System; <a href="http://www.e-publishing.af.mil/">http://www.e-publishing.af.mil/</a>										
3.1. Use Publications When Performing Work	5						2b	-	-	-
<b>4. TEST EQUIPMENT/SPECIALIZED TOOLS</b> TR: TO 33K-1-100, Applicable Test Equipment Technical Orders and Technical Publications										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
4.1. Identify Principles, Capabilities, Limitations of the Following Test Equipment:										
4.1.1. Oscilloscope	-						-	-	-	-
4.1.2. Multimeter	5						A	B	-	-
4.1.3. Optical Time Domain Reflectometer (OTDR)	5						A	B	-	-
4.1.4. Time Domain Reflectometer (TDR)	5						A	B	-	-
4.1.5. Bit Error Rate Test (BERT) Set	-						-	-	-	-
4.1.6. Frequency Counter	-						-	-	-	-
4.1.7. Network Analyzer	-						-	-	-	-
4.1.8. Protocol Analyzer	-						-	-	-	-
4.1.9. Spectrum Analyzer	-						-	-	-	-
4.1.10. Power Meter	-						-	-	-	-
4.1.11. RF Signal Generator	-						-	-	-	-
4.1.12. Insulation Test Set	-						A	B	-	-
4.1.13. Megaohmmeter	-						-	-	-	-
4.1.14. Built-In Test Equipment	-						-	-	-	-
4.1.15. Wattmeter	-						-	-	-	-
4.1.16. Dummy Load	-						-	-	-	-
4.1.17. Earth Ground Tester	-						-	-	-	-
4.1.18. Cable and Fault Locator	-						A	B	-	-
4.1.19. Audible Test Set	-						-	-	-	-
4.1.20. Premise wire Tester	-						A	B	-	-
4.1.21. Subscriber Loop Analyzer	-						-	-	-	-
4.2. Use the Following Test Equipment:										
4.2.1. Oscilloscope	-						-	-	-	-
4.2.2. Multimeter	5						2b	-	-	-
4.2.3. OTDR	5						2b	-	-	-
4.2.4. TDR	5						2b	-	-	-
4.2.5. BERT Set	-						-	-	-	-
4.2.6. Frequency Counter	-						-	-	-	-
4.2.7. Network Analyzer	-						-	-	-	-
4.2.8. Protocol Analyzer	-						-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
4.2.9. Spectrum Analyzer	-						-	-	-	-
4.2.10. Power Meter	-						-	-	-	-
4.2.11. RF Signal Generator	-						-	-	-	-
4.2.12. Insulation Test Set	-						2b	-	-	-
4.2.13. Megaohmmeter	-						-	-	-	-
4.2.14. Built-in Test Equipment	-						-	-	-	-
4.2.15. Wattmeter	-						-	-	-	-
4.2.16. Dummy Load	-						-	-	-	-
4.2.17. Earth Ground Tester (Ground Resistance)	-						2b	-	-	-
4.2.18. Cable and Fault Locator	-						2b	-	-	-
4.2.19. Audible Test Set	-						2b	-	-	-
4.2.20. Premise Wire Tester	-						2b	-	-	-
4.2.21. Subscriber Loop Analyzer	-						2b	-	-	-
4.3. Identify and use the Following Specialized Tools										
4.3.1. Amphenol Tool	-						-	-	-	-
4.3.2. Tone Generator	5						-	B	-	-
4.3.3. Inductive Amplifier	5						-	B	-	-
4.3.4. Local Area Network (LAN) Tester	-						-	B	-	-
4.3.5. Light Source	-						-	B	-	-
4.3.6. Transit	-						-	-	-	-
4.3.7. Fusion Splicer	-						2b	-	-	-
4.3.8. Fiber Optic Source and Meter	-						2b	-	-	-
4.3.9. Pressure Testing Gauge	-						-	-	-	-
4.3.10. Multigas Monitor	5						2b	-	-	-
4.3.11. Modular Splicing System	-						2b	-	-	-
4.3.12. Tension Meter	-						2b	-	-	-
4.3.13. Receiver and Exploring Coil	-						2b	-	-	-
4.3.14. Headset	-						2b	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
<b>5. STANDARD PRACTICES</b> TR: TOs 00-25-234, 31-10-7, 31-10-11, 31-10-13, 31-10-24, 31W-1-102, 31-141-1 (V1), 31W2-4-330 series and 31W3 10-20; AFI 32-1065, MIL-STD 2000A, American Public Works Association Policy and American National St										
5.1. State Facts Related to the Following Practices:										
5.1.1. Installation	5						A	A	-	-
5.1.2. Configuration	5						A	A	-	-
5.1.3. Interconnection	5						A	A	-	-
5.1.4. Inspection	-						A	A	-	-
5.2. Identify Underground Utilities	-						-	B	-	-
5.3. Mark Underground Utilities	-						-	B	-	-
5.4. EMSEC Suppression Techniques	-						-	B	-	-
5.5. Cable Labeling And Installation Documentation	5						A	A	-	-
5.6. Wire Color-Coding Standards	5						B	B	-	-
5.7. Fiber Optics Installation Concepts	-						A	A	-	-
5.8. Explain Land Line Concepts										
5.8.1. Copper Cables	-						-	B	-	-
5.8.2. Coaxial Cables	-						-	A	-	-
5.8.3. Fiber Optic Cable	-						-	B	-	-
5.8.4. Interfacing Considerations (e.g. TRI-TAC, Pinouts, Signal Format)	-						-	-	-	-
5.9. Concepts of:										
5.9.1. Grounding	5						A	B	-	-
5.9.2. Bonding	5						A	B	-	-
5.9.3. Shielding	5						A	B	-	-
5.9.4. Lightning Protection	5						A	B	-	-
5.10. Electrostatic Discharge										
5.10.1. Fundamentals	-						A	A	-	-
5.10.2. Concepts	-						-	A	-	-
5.10.3. Handling, Packaging and Storing	-						-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
5.11. Equipment Grounding and Lightning Protection										
5.11.1. Install	-						-	-	-	-
5.11.2. Remove	-						-	-	-	-
5.11.3. Perform Inspection and Maintenance	-						-	-	-	-
5.12. Equipment Familiarization										
5.12.1. Locate Elements										
5.12.1.1. Alphanumerics	-						-	-	-	-
5.12.1.2. Visual Inspection	-						-	-	-	-
5.13. Basic Troubleshooting Techniques	-						A	A	-	-
5.14. Concepts of PMI Process	-						-	-	-	-
<b>6. COMMUNICATIONS PRINCIPLES</b> TR: TO 31-1-141 Series										
6.1. Amplitude Modulation (AM)	-						-	A	-	-
6.2. Frequency Modulation (FM)	-						-	A	-	-
6.3. Phase Modulation (PM)	-						-	A	-	-
6.4. Pulse Code Modulation (PCM)	-						-	A	-	-
6.5. Bandwidth	-						-	A	-	-
6.6. Light Wave Communications	-						-	A	-	-
6.7. Asynchronous and Synchronous Communication Modes	-						-	A	-	-
6.8. Error Detection and Correction	-						-	A	-	-
<b>7. ELECTRICAL POWER SYSTEMS</b> TR: Commercial Manuals										
7.1. Switched Electrical Power Systems	-						-	A	-	-
7.2. Uninterruptible Power Supplies (UPS)	-						-	A	-	-
7.3. Batteries	-						-	A	-	-
7.4. Rectifiers	-						-	-	-	-
7.5. Inverters	-						-	-	-	-
7.6. Generators	-						-	A	-	-
<b>8. CABLE AND ANTENNA SYSTEMS FUNDAMENTALS</b> TR: TOs 21M-LGM-30F-2-20-1, 31W3-10 Series, 31-10 Series										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
8.1. Cable Plant Classification	5						B	A	-	-
8.2. Cable Composition	5						B	A	-	-
8.3. Conductor Identification	5						B	A	-	-
8.4. Procedures to Label and Tag Cable Systems	5						b	A	-	-
8.5. Procedures to Label and Tag Antenna Systems	5						b	A	-	-
8.6. Types and Construction of Antenna Systems	-						B	A	-	-
8.7. Antenna Fundamentals:										
8.7.1. Wave Propagation	5						B	A	-	-
8.7.2. Wave Length	5						B	A	-	-
8.7.3. Wave Velocity	5						B	A	-	-
8.7.4. Antenna Impedance	5						B	A	-	-
8.7.5. Transmission Lines										
8.7.5.1. Characteristics	-						B	A	-	-
8.7.5.2. VSWR Fundamentals	-						A	A	-	-
8.8. Physical Characteristics of Antennas	-						-	A	-	-
8.9. Frequency Characteristics of Antennas	-						-	A	-	-
<b>9. CABLE SPLICING</b> TR: TOs 21M-LGM-30F-2-20-1, 31W3-10 Series, 31-10 Series									-	-
9.1. Splice Cables Using Modular Splicing System	-						2b	B	-	-
9.2. Splice Plastic-Sheath Plastic-Insulated Cable									-	-
9.2.1. Straight Splice	-						2b	B	-	-
9.2.2. Bridge Splice	-						2b	B	-	-
9.2.3. Butt Splice	-						2b	B	-	-
9.2.4. Foldback Method	-						2b	B	-	-
9.3. Splice Cable										
9.3.1. Filled Cable	-						-	B	-	-
9.3.2. Coaxial Cable	-						-	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
9.4. Splice Fiber Optic Cable by:										
9.4.1. Setting Up Splice Point	-						2b	B	-	-
9.4.2. Mechanical Splice Method	-						-	B	-	-
9.4.3. Fusion Splice Method	-						2b	B	-	-
9.5. Install Fiber Optic Splice Closures	-						2b	B	-	-
9.6. Clear Cap Conductors	-						2b	B	-	-
9.7. Install a Connector on a Stranded Flexible Coaxial Cable	-						-	-	-	-
9.8. Install a Connector on a Solid Center Conductor, Semi-Flexible Coaxial Cable	-						-	-	-	-
9.9. Make a Cable Section Replacement	-						2b	B	-	-
9.10. Make a Cable Transfer	-						-	B	-	-
9.11. Repair Major/Minor Sheath Damage on a Non-Pressurized Plastic-Sheath Cable	-						2b	B	-	-
9.12. Make Cable Count Changes	-						1b	B	-	-
9.13. Splice-In Load Coils	-						-	-	-	-
9.14. Splice-In Capacitors	-						-	-	-	-
9.15. Splice-In Span Line Repeaters	-						-	-	-	-
9.16. Install Temporary Bonds	-						2b	B	-	-
<b>10. CABLE SEALING</b> TR: TOs 31W3-10-12, 31W3-10-13, 31W3-10-21, 21M-LGM-30F-2-20-1										
10.1. Seal Cable Ends										
10.1.1. End Cap	-						2b	B	-	-
10.1.2. Cured Rubber (CR) Tape	-						2b	A	-	-
10.1.3. Stainless Steel Closure	-						2b	B	-	-
10.2. Seal Splice Opening										
10.2.1. Temporary Seal	-						2b	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
10.2.2. Stainless Steel Closure Method	-						2b	B	-	-
<b>11. CABLE TERMINATION</b> TR: TOs 31-10-2, 31-10-7, 31-10-27, 31W3-10-14, 21M-LGM-30F-2-20-1										
11.1. Install Main Distribution Frame (MDF)	-						-	B	-	-
11.2. Install Central Office Stubbed Protectors	-						-	B	-	-
11.3. Install Central Office Unstubbed Protectors	-						-	B	-	-
11.4. Install Tip Cables	-						-	B	-	-
11.5. Terminate Conductors on an MDF	-						-	B	-	-
11.6. Stencil an MDF with the Proper Information	-						-	B	-	-
11.7. Install Protected Terminals and Housings in:										
11.7.1. Buried Distribution Systems	-						b	B	-	-
11.7.2. Aerial Distribution Systems	-						-	A	-	-
11.7.3. Building Distribution Systems	-						b	B	-	-
11.8. Terminate Cable on Protected Terminals in:										
11.8.1. Buried Distribution Systems	-						2b	B	-	-
11.8.2. Aerial Distribution Systems	-						-	A	-	-
11.8.3. Building Distribution Systems	-						2b	B	-	-
11.9. Terminate Fiber Optic Cable Using:										
11.9.1. Splicer Support Shelf/Patch Panel	-						2b	B	-	-
11.9.2. Splice Tray Configuration	-						2b	B	-	-
11.10. Install Connectors on Fiber Optic Cable										
11.10.1. Epoxy Connectors	-						2b	B	-	-
11.10.2. Crimped Connectors	-						2b	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
11.11. Tag Terminals with the Proper Information	-						-	B	-	-
11.12. Stencil Terminals with the Proper Information	-						b	B	-	-
11.13. Perform Terminating Techniques Using the:										
11.13.1. Mechanical Method	-						-	B	-	-
11.13.2. Wire Wrap Method	-						-	-	-	-
11.13.3. Terminate Conductors Using the Punch-Down Method	-						2b	A	-	-
<b>12. PRINCIPLES OF WORKING ALOFT</b> TR: TOs 31-10-3, 31-10-19; 31W3-10-12; 31W3-10-13; 31W3-10-21; 31W3-10-22; 32-1-101										
12.1. Inspect Climbing Equipment	-						2b	-	-	-
12.2. Adjust Climbing Equipment	-						2b	-	-	-
12.3. Prepare Work Area by Inspecting Poles and Surrounding Area	-						2b	-	-	-
12.4. Climb/Work Aloft on an Unstepped Pole (See Note 1)	-						2b	-	-	-
12.5. Climb/Work Aloft on a Stepped Pole (See Note 1)	-						2b	-	-	-
12.6. Climb/Work Aloft on a Tower (See Note 1)	-						2b	-	-	-
12.7. Perform Rescue Procedures										
12.7.1. Pole top	-						2b	-	-	-
12.7.2. Tower	-						2b	-	-	-
12.8. Perform Standard Hand Signals	-						2b	B	-	-
<b>13. AERIAL CABLE SYSTEMS</b> TR: TOs 31-1-141 Series, 31-10-3, 31-10-14, 31-10-24, 31W3-10-12, 31W3-10-13, 31W3-10-19, 31W3-10-21, 31R1-2U-111, 31R2-2FRC-131, 31R2-2GRC-1232, 35A34-3 through 7, 36A11-20-14-1; EIDR-700-7										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
13.1. Principles of an Aerial Cable System	-						B	-	-	-
13.2. Stake Out a Pole Line	-						-	-	-	-
13.3. Dig Holes for Poles Using:										
13.3.1. Hand Tools	-						-	-	-	-
13.3.2. Power Equipment	-						-	-	-	-
13.4. Prepare Poles for Installation										
13.4.1. Inspecting	-						-	-	-	-
13.4.2. Loading	-						-	-	-	-
13.4.3. Transporting	-						-	-	-	-
13.4.4. Unloading	-						-	-	-	-
13.4.5. Installing Depth Markers	-						-	-	-	-
13.4.6. Installing Steps	-						-	-	-	-
13.4.7. Installing Lightning Protection										
13.4.7.1. Install Continuous Lightning Protection	-						b	-	-	-
13.4.7.2. Install Non-Continuous Lightning Protection	-						2b	-	-	-
13.5. Install Poles Using the Construction Vehicle (Crane, Low-Pro, Mid-Pro) Method (See Note 8)	-						1b	-	-	-
13.6. Install Anchors										
13.6.1. Patent	-						-	-	-	-
13.6.2. Non-Patent	-						-	-	-	-
13.7. Install Antenna Support Guys:										
13.7.1. Temporary	-						2b	B	-	-
13.7.2. Permanent	-						2b	B	-	-
13.8. Remove Poles Using the:										
13.8.1. Construction Vehicle (Crane, Low-Pro, Mid-Pro) Method	-						-	-	-	-
13.8.2. Jack and Pullover Method	-						-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
13.8.3. Pole Derrick and Pole Jack Method	-						-	-	-	-
13.9. Prepare Work Area by Inspecting Poles and Surrounding Area	-						-	-	-	-
13.10. Climb and Work Aloft on Ladders	-						-	-	-	-
13.11. Secure Tools and Equipment at Working Height	-						2b	B	-	-
13.12. Install Suspension Strand	-						2b	B	-	-
13.13. Test Suspension Strand for Correct Tension Using a Tension Meter	-						-	-	-	-
13.14. Test Suspension Strand Using the Two Person Method	-						-	-	-	-
13.15. Remove Suspension Strand	-						2b	-	-	-
13.16. Install the Following Cables:										
13.16.1. Copper Core	-						-	-	-	-
13.16.2. Fiber Optic	-						-	-	-	-
13.16.3. Coaxial										
13.16.3.1. Flexible	-						-	-	-	-
13.16.3.2. Semi-flexible	-						-	-	-	-
13.16.3.3. Rigid	-						-	-	-	-
13.17. Remove the Following Cables:										
13.17.1. Copper Core	-						-	-	-	-
13.17.2. Fiber Optic	-						-	-	-	-
13.17.3. Coaxial										
13.17.3.1. Flexible	-						-	-	-	-
13.17.3.2. Semi-flexible	-						-	-	-	-
13.17.3.3. Rigid	-						-	-	-	-
13.17.4. Remove Two Spans of Aerial Cable and Associated Hardware	-						2b	-	-	-
13.18. Install Cable Supports	-						2b	-	-	-
13.19. Use Transit	-						-	-	-	-
13.20. Perform Standard Construction Hand Signals	-						-	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
13.21. Prepare Antenna Support Towers for Installation										
13.21.1. Loading	-						-	-	-	-
13.21.2. Transporting	-						-	-	-	-
13.21.3. Unloading	-						-	-	-	-
13.22. Inventory Material for a Self-Supporting Tower	-						2b	-	-	-
13.23. Install Self-Supporting Antenna Sections Using a:										
13.23.1. Floating Gin Pole	-						-	-	-	-
13.23.2. Construction Vehicle (Crane, Low-Pro, Mid-Pro)	-						2b	B	-	-
13.24. Remove Self-Supporting Antenna Sections Using a:										
13.24.1. Floating Gin Pole	-						-	-	-	-
13.24.2. Construction Vehicle (Crane, Low-Pro, Mid-Pro)	-						2b	B	-	-
13.25. Install Guyed Antenna Supports Using a:										
13.25.1. Fixed Gin Pole	-						-	-	-	-
13.25.2. Floating Gin Pole	-						-	-	-	-
13.25.3. Construction Vehicle (Crane, Low-Pro, Mid-Pro)	-						-	B	-	-
13.26. Remove Guyed Antenna Supports Using a:										
13.26.1. Fixed Gin Pole	-						-	-	-	-
13.26.2. Floating Gin Pole	-						-	-	-	-
13.26.3. Construction Vehicle (Crane, Low-Pro, Mid-Pro)	-						-	B	-	-
13.27. Plumb Antenna Supports Using the:										
13.27.1. Transit Method	-						-	-	-	-
13.27.2. Plumb Bob Method	-						2b	-	-	-
13.28. Install Obstruction Lighting Systems	-						-	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
13.29. Maintain Obstruction Lighting Systems	-						-	B	-	-
13.30. Determine Specifications for Obstruction Markings	-						-	A	-	-
13.31. Install Radomes	-						-	-	-	-
13.32. Maintain Radomes	-						-	-	-	-
13.33. Remove Radomes	-						-	-	-	-
13.34. Assemble Rotatable Antennas	-						-	-	-	-
13.35. Raise Rotatable Antennas	-						-	-	-	-
13.36. Lower Rotatable Antennas	-						-	-	-	-
13.37. Disassemble Rotatable Antennas	-						-	-	-	-
13.38. Safety Climb Device Installation	-						b	B	-	-
13.39. Rig Rotatable Antennas for Lowering	-						-	-	-	-
13.40. Rig Rotatable Antennas for Raising	-						-	-	-	-
<b>14. UNDERGROUND CABLE SYSTEMS</b> TR: TOs 31-10-3, 31W3-10-12, 31W3-10-13, 21M-LGM-30F-2-20-1										
14.1. Enter a Confined Space	5						b	-	-	-
14.2. Prepare Subterranean Work Area										
14.2.1. Place Warning Devices, Manhole Guards and Personnel	5						2b	B	-	-
14.2.2. Test Subterranean Atmosphere	5						2b	B	-	-
14.2.3. Identify Manhole Classification	5						-	A	-	-
14.2.4. Prevent Entrance of Water	5						b	B	-	-
14.2.5. Ventilate Subterranean Structures	5						2b	B	-	-
14.2.6. Monitor the Air Quality at Required Intervals While Working in a Confined Space	5						2b	A	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
14.2.7. Set Up Ground Tents	-						-	-	-	-
14.2.8. Perform Manhole Rescue Procedures	5						2b	B	-	-
14.2.9. Master Entry Plan (MEP) TR: AFI 91-203, chap 23										
14.2.9.1. MEP Principles	5						B	B	-	-
14.2.9.2. Describe MEP Elements	7						-	-	-	-
14.2.9.3. Develop MEP	7						-	-	-	-
14.3. Install a Continuous Duct Rod in Conduit Between Runs	-						2b	-	-	-
14.4. Clean Cable Ducts	-						2b	B	-	-
14.5. Install Pulling-In Rope	-						2b	B	-	-
14.6. Prepare Cable Ends For Pulling Using a:										
14.6.1. Core Hitch	-						2b	B	-	-
14.6.2. Cable Grip	-						2b	B	-	-
14.7. Prepare Cable-Pulling Apparatus at Manhole Opening	-						-	B	-	-
14.8. Test the Length of Cable on a Reel	-						b	-	-	-
14.9. Match a Specified Pulling Length of Cable to an Engineered Project Drawing	-						1b	-	-	-
14.10. Install Cable Racks	-						b	B	-	-
14.11. Install Copper Core Cable	-						-	B	-	-
14.12. Remove Copper Core Cable	-						-	A	-	-
14.13. Install an Underground Fiber Optic Inner Duct/ Mesh Fabric	-						b	-	-	-
14.14. Install an Underground Fiber Optic Cable	-						b	B	-	-
14.15. Remove Fiber Optic Cable	-						-	A	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
14.16. Install a Pulling Frame, Sheave and Sheave Shackle over a Manhole Opening	-						2b	-	-	-
14.17. Install a Cable Through Two Manhole Runs With One 90-Degree Turn using a Cable Reel Truck (See Note 8)	-						2b	-	-	-
14.18. Remove Cable From Two Manhole Runs With One 90-Degree Turn using a Cable Reel Truck (See Note 8)	-						2b	-	-	-
14.19. Form Cable in Subterranean Structures by:										
14.19.1. Hand	-						2b	B	-	-
14.19.2. Using Cable Jacks	-						b	B	-	-
14.19.3. Using Bending Springs	-						-	B	-	-
14.20. Rack Cable in Subterranean Structures Using the:										
14.20.1. Permanent Method	-						2b	B	-	-
14.20.2. Temporary Method	-						-	B	-	-
14.21. Install Bonding Ribbon in Subterranean Structures	-						b	B	-	-
14.22. Bond Cable in Subterranean Structures	-						-	B	-	-
14.23. Bond a Stainless Steel Closure in a Manhole	-						2b	-	-	-
14.24. Tag Cable in Subterranean Structures	-						b	B	-	-
<b>15. BURIED CABLE SYSTEMS</b> TR: TOs 31W3-10-12, 31W3-10-13, 31W3-10 Series, 32 Series, 21M-LGM-30F-2-20-1										
15.1. Mark Buried Cable Path Prior to Digging	-						2b	B	-	-
15.2. AF Form 103 Clearance Permit Through Base Civil Engineering (BCE) Prior to Digging	-						b	A	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
15.3. Locate Existing Buried Cables Using Test Equipment										
15.3.1. Locate and Mark an Existing Cable Using a Cable and Fault Locator	-						2b	B	-	-
15.3.2. Determine the Depth of a Cable Using a Cable and Fault Locator	-						2b	B	-	-
15.4. Excavate Cable	-						-	B	-	-
15.5. Set Up Cable for Splicing	-						-	B	-	-
15.6. Set Up a Ground Tent	-						-	-	-	-
15.7. Protect Cable Plant	-						-	B	-	-
15.8. Prepare Splice Pit and Trench for:										
15.8.1. Copper Core Cable	-						b	B	-	-
15.8.2. Fiber Optic Cable	-						-	B	-	-
15.9. Prepare a Splice Pit for Splicing a Cable using the Single-Offset Method	-						b	-	-	-
15.10. Prepare a Splice Pit for Splicing a Cable using the Double-Offset Method	-						b	-	-	-
15.11. Backfill Splice Pits and Trenches using the:										
15.11.1. Manual Method	-						-	-	-	-
15.11.2. Mechanical Method	-						-	-	-	-
15.11.3. Backfill a Cable Trench for a Base Distribution System	-						b	-	-	-
15.11.4. Backfill a Splice Pit for a Base Distribution System	-						b	-	-	-
15.12. Install Cables Using the:										
15.12.1. Manual Method	-						-	-	-	-
15.12.2. Mechanical Method	-						-	-	-	-
15.13. Install Buried Cables to Include:										
15.13.1. Copper Core										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
15.13.1.1. Install a Copper Core Cable using the Open Trench Method	-						b	-	-	-
15.13.1.2. Install a Copper Core Cable using the Cable Plow Method	-						b	-	-	-
15.13.2. Coaxial:										
15.13.2.1. Flexible	-						-	A	-	-
15.13.3. Control Cable	-						-	-	-	-
15.13.4. Fiber Optic										
15.13.4.1. Install a Buried Fiber Optic Inner-Duct	-						b	-	-	-
15.13.4.2. Install a Buried Fiber Optic Cable using the Plow Method	-						b	-	-	-
15.13.4.3. Install a Buried Fiber Optic Cable using the Trench Method	-						b	-	-	-
15.14. Install Cable Markers	-						-	-	-	-
15.15. Cable Route Markers										
15.15.1. Types of Cable Route Markers	-						B	A	-	-
15.15.2. Marking Standards of a Cable Route Marker	-						B	A	-	-
15.15.3. Placement Requirements of a Cable Route Marker	-						B	A	-	-
15.16. Cable Reel										
15.16.1. Place a Cable using Cable Reel Jacks	-						b	-	-	-
15.16.2. Place a Cable using Cable Reel Stands	-						b	-	-	-
15.16.3. Use a Hydraulic Cable Trailer to Place a Cable Reel	-						2b	-	-	-
<b>16. FIBER OPTICS TR: TO 31-10-34</b>										
16.1. Theory of Fiber Optic Lightwave Communication	5						B	B	-	-
16.2. Characteristics of Fiber Optic Cable Types										
16.2.1. Single Mode Fibers	-						B	A		

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
16.2.2. Multimode Fibers	-						B	A		
16.2.3. Tight-Tube	-						B	A	-	-
16.2.4. Loose-Tube	-						B	A	-	-
16.2.5. Hybrid Fiber Optic Cable	-						B	A	-	-
16.3. Test Cables Using:										
16.3.1. OTDR										
16.3.1.1. Measure the Length of a Fiber Optic Cable	-						2b	-	-	-
16.3.1.2. Measure the Db Loss of a Fiber Optic Cable	-						2b	-	-	-
16.3.2. Optical Power Meter										
16.3.2.1. Measure the Db Loss of an Optical Fiber	-						2b	-	-	-
16.4. Install Fiber Optic Cable										
16.4.1. Aerial Fiber Optic	-						b	-	-	-
16.4.2. Interior Building Fiber Optic Cable	-						b	-	-	-
16.4.3. Fiber Optic Splice Enclosure	-						2b	-	-	-
16.5. Splice Fiber Optic Cable										
16.5.1. Mechanical Splices	-						2b	-	-	-
16.5.2. Optical Fusion Splicer	-						2b	-	-	-
16.5.3. Arrange Fiber Optic Splices in a Splice Tray	-						2b	-	-	-
16.6. Install Fiber Optic Connections										
16.6.1. Terminate at Patch Panel	-						b	-	-	-
16.6.2. Hot Melt-Type Connector	-						2b	-	-	-
16.6.3. No Polish-Type Pre-Polished Connector	-						2b	-	-	-
16.6.4. Small Form Connectors	-						-	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
<b>17. CABLE TESTING</b> TR: TOs 31-1-141-1, 11-6625-201-12, 33A1-12-1300-1, 33A1-12-310-1										
17.1. Wire Transmission Principles	5						-	B	-	-
17.2. Measure Insulation Resistance	-						2b	B	-	-
17.3. Use a Multimeter to Measure:										
17.3.1. Loop Resistance	-						2b	B	-	-
17.3.2. Stray Voltage	-						2b	B	-	-
17.4. Detect Cable Faults Using a:										
17.4.1. Splicer's Headset and Battery	-						2b	B	-	-
17.4.2. Multimeter	-						2b	B	-	-
17.4.3. Cable Fault Detector	-						2b	-	-	-
17.5. Detect Splicer's Errors Using a:										
17.5.1. Splicer's Headset and Battery	-						2b	B	-	-
17.5.2. Multimeter	-						2b	B	-	-
17.5.3. Tone Set	-						-	B	-	-
17.6. Identify Conductors in Non-Working Cable Using a:										
17.6.1. Splicer's Headset and Battery	5						-	B	-	-
17.6.2. Multimeter	5						-	B	-	-
17.6.3. Tone Set	5						-	B	-	-
17.7. Locate Earth Return Faults in Non-Working Cable using the Cable and Fault Locator Test Set	-						2b	-	-	-
17.8. Locate Non-Resistive Cable Faults on Non-Working Cable using a Subscriber Loop Analyzer Test Set	-						2b	-	-	-
17.9. Locate Resistive-Type Faults on a Non-Working Cable using a Subscriber Loop Analyzer Test Set	-						2b	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
17.10. Locate Split Pairs Faults using a Subscriber Loop Analyzer Test Set	-						2b	-	-	-
17.11. Identify Conductors in Working Cable using a:										
17.11.1. Tone Set and Amplifier	-						2b	B	-	-
17.11.2. Multimeter	-						2b	B	-	-
17.12. Locate Cable Faults Using a:										
17.12.1. Tone Set, Exploring Coil and Amplifier	-						2b	B	-	-
17.12.2. Fault Locator	-						2b	B	-	-
17.12.3. Open Fault Locator	-						2b	B	-	-
17.12.4. TDR	-						2b	B	-	-
17.13. Locate Cable Faults in a Working Cable Section using a Subscriber Loop Analyzer Test Set	-						-	-	-	-
17.14. Types of Splice Errors	5						B	B	-	-
17.15. Measure Resistance of Station Grounds	-						b	B	-	-
17.16. Record Station Ground Test Data on Applicable Forms	-						-	B	-	-
<b>18. CABLE PRESSURE SYSTEM</b> TR: TOs 21M-LGM30F-2-20-1, 21M-LGM30F-2-5-7, 31W3-10-20; AFCA CEMI 350-22										
18.1. Theory of Continuous Flow and Static Pressure Systems	-						-	-	-	-
18.2. Pressurize an Antenna Transmission Line	-						-	-	-	-
18.3. Pressurize Antenna Transmission Lines in Aerial, Underground and Buried Cable Systems by:										
18.3.1. Installing a Cable Air Dryer (CAD)	-						-	-	-	-
18.3.2. Installing a Temporary Pressure Source	-						-	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
18.4. Install Pressure Plugs using the:										
18.4.1. Injection Method	-						-	-	-	-
18.4.2. Pour Method	-						-	-	-	-
18.5. Install Plastic Pressure Fittings	-						-	-	-	-
18.6. Install a Meter Panel	-						-	-	-	-
18.7. Maintain Cable Pressure Systems by:										
18.7.1. Performing CAD Preventive Maintenance Inspections (PMI)	-						-	-	-	-
18.7.2. Removing and Replacing CADs	-						-	-	-	-
18.7.3. Interpreting Meter Panel Readings	-						-	-	-	-
18.7.4. Recording Airflow Consumption	-						-	-	-	-
18.7.5. Maintaining Stored Cables	-						-	-	-	-
18.8. Locate Leaks using:										
18.8.1. Gradients	-						-	-	-	-
18.8.2. Flash Test Method	-						-	-	-	-
18.9. Eliminate Moisture in Cable using the:										
18.9.1. Purging Method	-						-	-	-	-
18.9.2. Heated Dry Air Method	-						-	-	-	-
18.10. Address And Adjust Pressure Transmitters	-						-	-	-	-
18.11. Perform Pressure Transmitter Checkout from Missile Alert Facility (MAF)	-						-	-	-	-
18.12. Perform PMRT Access and System Initialization	-						-	-	-	-
18.13. Perform Examination/Manual Scan of PT Circuits	-						-	-	-	-
18.14. Perform PMRT Program Loading and Recording	-						-	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
<b>19. LOCAL AREA NETWORK/WIDE AREA NETWORK (LAN/WAN) DISTRIBUTION SYSTEMS</b> TR: Commercial Manuals, EIA/TIA 569, 570; TIA/EIA 568A, 606, 607, TSB 67, TSB 72										
19.1 Theory of the Following LAN/WAN Distribution Systems:										
19.1.1. Topology of LAN/WAN Distribution Systems	-						-	A	-	-
19.1.2. Use of Multiplexers in LAN/WAN Distribution Systems	-						-	A	-	-
19.1.3. Use of Modems in LAN/WAN Distribution Systems	-						-	A	-	-
19.1.4. Use of Routers, Hubs and Servers in LAN/WAN Distribution Systems	-						-	A	-	-
19.2. Types of LAN/WAN Transmission Methods:										
19.2.1. Single Mode Fiber Optics	-						-	A	-	-
19.2.2. Multimode Fiber Optics	-						-	A	-	-
19.2.3. Unshielded Twisted Pair/Shielded Twisted Pair (UTP\STP) (Intra-Building Wiring)	-						-	A	-	-
19.3. Install LAN/WAN Distribution Systems to include:										
19.3.1. Single Mode Fiber Optics	-						-	B	-	-
19.3.2. Multimode Fiber Optics	-						-	B	-	-
19.3.3. UTP\STP (Intra-Building Wiring)	-						-	B	-	-
19.3.4. Patch Panels and Associated Hardware	-						-	B	-	-
19.4. Maintain LAN/WAN Distribution Systems to include:										
19.4.1. Single Mode Fiber Optics	-						-	B	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
19.4.2. Multimode Fiber Optics	-						-	B	-	-
19.4.3. Patch Panels and Associated Hardware	-						-	B	-	-
19.4.4. UTP\STP (Intra-Building Wiring)	-						-	B	-	-
19.5. Terminate LAN/WAN Cables by:										
19.5.1. Installing Twisted Pair Connectors	-						-	B	-	-
19.5.2. Installing Work Area Outlets	-						2b	B	-	-
19.5.3. Fabricating Patch Cords	-						2b	B	-	-
<b>20. TELEPHONY DEVICES INSTALLATION AND MAINTENANCE</b> TR: TOs 31-10-7, 31-10-13, 31W3-10-8, TIA/EIA 568A & 569										
20.1. Terminate Cable using:										
20.1.1. Wire Wrap Method	-						-	-	-	-
20.1.2. Punch-Down Method	-						2b	-	-	-
20.1.3. Amphenol Method	-						-	-	-	-
20.1.4. Crimp Method	-						2b	-	-	-
20.1.5. Hot-Melt Method	-						2b	-	-	-
20.2. Install Cross-Connects on Distribution Frames	-						2b	B	-	-
20.3. Terminate Strapping Connections	-						-	-	-	-
20.4. Install Work Area Outlet	-						2b	B	-	-
20.5. Install Cross-Connects for Premise	-						2b	B	-	-
20.6. Perform System Operational Test to Validate Installation	-						2b	-	-	-
20.7. Perform System Corrective Maintenance	-						2b	-	-	-
<b>21. PROTECTED DISTRIBUTIONS SYSTEM (PDS)</b> TR: NSTISSI_7003 <a href="http://www.cnss.gov/Assets/pdf/nstissi_7003.pdf">http://www.cnss.gov/Assets/pdf/nstissi_7003.pdf</a>										
21.1. Concepts	-						A	A	-	-
21.2. Types	-						A	A	-	-
21.3. Marking/Labeling	-						A	B	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
21.4. Physical Security	-						A	B	-	-
21.5. Layout	-						A	A	-	-
21.6. Installation Methods (Fishing/Pull String)	-						-	A	-	-
<b>22. INTRA-BUILDING DISTRIBUTION SYSTEMS</b> TR: EIA/TIA 568 Series, TIA/EIA 606, Telecommunications System Bulletin (TSB) – 67, 606 Standard; TO 00-33D-3003-WA-1										
22.1. Principles of Intra-Building Wiring Distribution System	5						A	B	-	-
22.2. Installation Principles and Associated Hardware	5						A	B	-	-
22.3. Install, Route, Form, Terminate and Label Cables/Associated Wiring	-						2b	-	-	-
22.4. Test Distribution System	-						2b	-	-	-
22.5. Install Racks, Patch Panels and Wire Management Systems	-						-	-	-	-
22.6. Principles of-Certify and Document Distribution System	7						-	B	-	-
<b>23. OPERATE AND MAINTAIN SPECIAL PURPOSE VEHICLES</b> TR: AFI 24-301; AFI 91-Series; TOs 00-20B-5, 36A11-18 series, 36A12-19-7-2										
23.1. Driver Safety Practices	-						A	A	-	-
23.2. Inspect for Proper Configuration of Tools, Parts and Materials	-						-	-	-	-
23.3. Purpose and Use of Special Purpose/ Construction Vehicles	-						A	A	-	-
23.4. Perform Operator Maintenance on Special Purpose Vehicles and Accessories to include:										
23.4.1. Line Trucks	-						-	-	-	-
23.4.2. Low Profile	-						-	-	-	-
23.4.3. Cable Reel Truck	-						-	-	-	-
23.4.4. Trenchers	-						-	-	-	-
23.4.5. Cable Trailers:										

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
23.4.5.1. Hydraulic	-						-	-	-	-
23.4.5.2. Non-Hydraulic	-						-	-	-	-
23.4.6. Forklift	-						-	-	-	-
23.4.7. Backhoes	-						-	-	-	-
23.4.8. Pole Trailers	-						-	-	-	-
23.4.9. Tractor and Trailer	-						-	-	-	-
23.4.10. Cable Plow	-						-	-	-	-
23.4.11. Combination Pole and Cable Trailer	-						-	-	-	-
23.4.12. Fiber Optic Splicing Trailer	-						-	-	-	-
23.4.13. General Power Component (GPC) Utility Trailer	-						-	-	-	-
23.5. Operate Special Purpose Vehicles and Accessories to include:										
23.5.1. Line Trucks	-						-	-	-	-
23.5.2. Low Profile	-						-	-	-	-
23.5.3. Cable Reel Truck	-						-	-	-	-
23.5.4. Trenchers	-						-	-	-	-
23.5.5. Cable Trailers:										
23.5.5.1. Hydraulic	-						-	-	-	-
23.5.5.2. Non-Hydraulic	-						-	-	-	-
23.5.6. Forklift	-						-	-	-	-
23.5.7. Backhoes	-						-	-	-	-
23.5.8. Pole Trailers	-						-	-	-	-
23.5.9. Tractor and Trailer	-						-	-	-	-
23.5.10. Cable Plow	-						-	-	-	-
23.5.11. Combination Pole and Cable Trailer	-						-	-	-	-
23.5.12. Fiber Optic Splicing Trailer	-						-	-	-	-
23.5.13. General Power Component (GPC) Utility Trailer	-						b	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
<b>24. CABLE AND ANTENNA SYSTEMS COMMON MAINTENANCE PRACTICES.</b> TR: AFI 91-203; TOs 21M-LGM30F-2-20; 31-10-3, 31W3-10-19, 31W3-10-12, 31W3-10-21, 36A11-18 series										
24.1. Utilize Auxiliary Equipment to include:										
24.1.1. General-Purpose Carrier	-						-	-	-	-
24.1.2. Water Pumps:										
24.1.2.1. Electrical	-						-	-	-	-
24.1.2.2. Mechanical	-						-	-	-	-
24.1.3. Generators	-						-	-	-	-
24.1.4. Blowers	-						-	-	-	-
24.1.5. Heaters	-						-	-	-	-
24.2. Use Power Actuated Tools to include:										
24.2.1. Pneumatic	-						b	-	-	-
24.2.2. Powder	-						b	-	-	-
24.2.3. Electric	-						b	-	-	-
24.3. Types of Fiber Ropes	5						B	A	-	-
24.4. Care of Fiber Ropes	5						b	B	-	-
24.5. Explain how Fiber Ropes are used in this AFSC	-						B	B	-	-
24.6. Splice Fiber Ropes										
24.6.1. Crown	-						-	-	-	-
24.6.2. Eye	-						-	-	-	-
24.6.3. Long	-						-	-	-	-
24.6.4. Short	-						-	-	-	-
24.7. Tie Knots in Fiber Ropes										
24.7.1. Overhand	-						2b	A	-	-
24.7.2. Square	-						2b	A	-	-
24.7.3. Bowline-on-a-Bight	-						2b	A	-	-
24.7.4. Sheetbend	-						2b	-	-	-
24.7.5. Bowline	5						2b	A	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
24.7.6. Double Bowline	5						2b	A	-	-
24.7.7. Intermediate Bowline	-						2b	A	-	-
24.8. Tie Hitches in Fiber Ropes										
24.8.1. Clove	5						2b	A	-	-
24.8.2. Timber	-						2b	A	-	-
24.8.3. Snubbing	-						2b	A	-	-
24.9. Rolled Eye Wire Rope Splice	-						-	-	-	-
24.10. Wire Rope										
24.10.1. Most Common Types	-						-	-	-	-
24.10.2. Most Common Uses	-						-	-	-	-
24.10.3. Caring For	-						-	-	-	-
24.11. Use Rigging Techniques to Install Antenna and Cable Systems	-						2b	B	-	-
24.12. Load and Unload Cable Reels	-						2b	B	-	-
24.13. Position Cable Trucks/Reels for:										
24.13.1. Aerial Construction	-						b	B	-	-
24.13.2. Buried Construction	-						b	B	-	-
24.13.3. Underground Construction	-						2b	B	-	-
24.13.4. Cable Reel Jacks	-						-	B	-	-
24.13.5. Cable Reel Stand	-						-	B	-	-
24.13.6. Cable Trailer	-						-	B	-	-
24.14. Identify the Purpose and Use of Common Hand Tools	5						-	A	-	-
24.15. Maintain Common Hand Tools for Safe Use	5						b	-	-	-
24.16. Identify the Purpose and Use of Construction Tools	-						-	B	-	-
24.17. Maintain Construction Tools	-						b	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
24.18. Identify Purpose of Construction Equipment	-						-	B	-	-
24.19. Maintain Construction Equipment	-						-	B	-	-
<b>25. ANTENNA SYSTEMS</b> TR: TOs 31-1-141 Series, 31-10-14, 31-10-24, 31R2-2GRC-1232, 31-10-3										
25.1. Antenna Fundamentals	5						B	B	-	-
25.2. Transmission Line Fundamentals	5						B	B	-	-
25.3. Antenna Types and Characteristics	5						B	B	-	-
25.4. Non-Self-Supporting Antenna Systems										
25.4.1. Maintain Guys	-						b	-	-	-
25.4.2. Maintain Anchors	-						b	-	-	-
25.5. Maintain Hazard Markings										
25.5.1. Hazard Lights	-						b	-	-	-
25.5.2. Warning Signs, Symbols and Markings	-						b	-	-	-
25.6. Use a Transit to:										
25.6.1. Site Anchor Locations	-						-	-	-	-
25.6.2. Establish Datum Lines	-						-	-	-	-
25.7. Install the Following Antenna Components:										
25.7.1. Radiators	-						-	B	-	-
25.7.2. Reflectors	-						-	B	-	-
25.7.3. Rotator Controls	-						-	B	-	-
25.7.4. Azimuth Controls	-						-	B	-	-
25.7.5. Mechanical Controls	-						-	B	-	-
25.7.6. Antenna Support Hardware	-						-	B	-	-
25.8. Align Reflectors	-						-	-	-	-
25.9. Maintain Antenna Components:										
25.9.1. Radiators	-						-	-	-	-
25.9.2. Reflectors	-						-	-	-	-
25.9.3. Rotator Controls	-						-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
25.9.4. Azimuth Controls	-						-	-	-	-
25.9.5. Mechanical Controls	-						-	-	-	-
25.9.6. Antenna Support Hardware	-						-	-	-	-
25.10. Antenna Support Poles										
25.10.1. Load and Unload (See Note 8 )	-						1b	-	-	-
25.10.2. Transport Antenna Support Poles	-						b	-	-	-
25.11. Install Antenna Support Pole (See Note 8)										
25.11.1. Construction Vehicle	-						1b	-	-	-
25.11.2. Crane	-						-	-	-	-
25.12. Remove Antenna Support Pole (See Note 8)										
25.12.1. Construction Vehicle	-						1b	-	-	-
25.12.2. Crane	-						-	-	-	-
25.13. Remove the Following Antenna Components:										
25.13.1. Radiators	-						-	-	-	-
25.13.2. Reflectors	-						-	-	-	-
25.13.3. Rotator Controls	-						-	-	-	-
25.13.4. Azimuth Controls	-						-	-	-	-
25.13.5. Mechanical Controls	-						-	-	-	-
25.13.6. Antenna Support Hardware	-						-	-	-	-
25.14. Install Antenna Ground Reflector Systems	-						b	-	-	-
25.15. Maintain Open Wire Transmission Lines	-						-	-	-	-
25.16. Parabolic Microwave Dish (See Note 8)										
25.16.1. Install and Remove	-						1b	-	-	-
25.16.2. Align	-						1b	-	-	-
25.16.3. Perform a Scheduled PMI	-						1b	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
<b>26. CLIMBING CERTIFICATIONS/ RESCUE PROCEDURES</b> TR: AFI 21-120, 91-203, OSHA 1910.146, 1926, T.O. 31-10-3, 31-10-19, 31W3-10-12, 31W3-10-13; 31W3-10-19, 31W3-10-21										
26.1. Tower Climbing	-						3c	-	-	-
26.2. Unstepped Pole	-						3c	-	-	-
26.3. Pole Top Rescue	-						3c	-	-	-
26.4. Tower Rescue	-						3c	-	-	-
26.5. Manhole Rescue	-						3c	-	-	-
26.6. Confined Space Certification	-						3c	-	-	-
<b>27. ANTENNA SYSTEMS INSTALLATION AND MAINTENANCE.</b> TR: AFI 33 Series; AFI 91-203; TOs 31-1-141 Series, 31-10 Series, 33A1-15-39-1, 00-33D-3004-WA-1 and Applicable Technical Data										
27.1. Maintain RF Coaxial Cables:										
27.1.1. Flexible	-						-	B	-	-
27.1.2. Rigid	-						-	-	-	-
27.2. Install Connectors on:										
27.2.1. Flexible Coaxial Cable	-						-	B	-	-
27.2.2. Flexible Waveguide	-						-	B	-	-
27.3. Install Waveguides:										
27.3.1. Flexible	-						-	-	-	-
27.3.2. Rigid	-						-	-	-	-
27.4. Maintain Waveguides:										
27.4.1. Flexible	-						-	B	-	-
27.4.2. Rigid	-						-	B	-	-
27.5. Remove Waveguides:										
27.5.1. Flexible	-						-	-	-	-
27.5.2. Rigid	-						-	-	-	-
27.6. Perform Scheduled PMIS on:										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
27.6.1. Coaxial cables	-						-	B	-	-
27.6.2. Antennas	-						-	B	-	-
27.6.3. Support Structures	-						b	B	-	-
27.6.4. Antenna Hardware	-						-	B	-	-
27.6.5. Grounding Systems	-						-	-	-	-
27.7. Use Project Support Documentation and CSIRs to:										
27.7.1. Install Antenna Systems	-						-	-	-	-
27.7.2. Maintain Antenna Systems	-						-	A	-	-
<b>28. COMMUNICATIONS DISTRIBUTION MAPS, RECORDS and DIAGRAMS</b> TR: TOs 31W3-10-12, 31W3-10-22, 00-33D-3004-WA-1, 00-33D-3003-WA-1; AFI 21-404										
28.1. Update a Communications Mission Data Set	5						2b	B	-	-
<b>29. ELECTRONIC PRINCIPLES</b> TR: TO 31-1-141-2WA-1 Ch. 7, 9, and 10										
29.1. Identify Relationships of Basic Facts Associated with:										
29.1.1. Direct Current (DC)	-						B	-	-	-
29.1.2. Alternating Current (AC)	-						B	-	-	-
29.1.3. Inductors and Capacitors	-						B	-	-	-
<b>30. AIR FORCE JOB QUALIFICATION STANDARDS APPLICABLE TO 3D1XX AFSCs</b> TR: AFI 33-150, 33-154, MPTO 00-33A-1001, CFETP 3D1X7										
30.1. AFJQS3D1XX-201C Corrosion Prevention and Control	5						-	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	9 SKILL LEVEL
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	Course	CDC	OJT	OJT
<b>31. AIR FORCE JOB QUALIFICATION STANDARDS APPLICABLE TO 3DXXX AFSCs</b> TR: AFI 33-150, 33-154, MPTO 00-33A-1001, CFETP 3D1X7										
31.1. AFJQS3DXXX-200TBA Training Business Area (TBA) Handbook	5						-	-	-	-
31.2. AFQTP3DXXX-201M Cyberspace Infrastructure Planning System (CIPS)	7						-	-	-	-
31.3. AFQTP3DXXX-213R Support Agreements and Administrative Contract Management	7						-	-	-	-

**Section B - Course Objective List**

**4. Measurement.** Each objective is indicated as follows: W indicates task or subject knowledge which is measured using a written test, PC indicates required task performance which is measured with a performance progress check and PC/W indicates separate measurement of both knowledge and performance elements using a written test and a progress check.

**5. Standard.** The standard is 70% on written examinations. Standards for performance measurement are indicated in the objective and delineated on the individual progress checklist. Instructor assistance is provided as needed during the progress check and students may be required to repeat all or part of the behavior until satisfactory performance is attained.

**6. Proficiency Level.** Most task performance is taught to the “2b” proficiency level which means the student can do most parts of the task, but does need assistance on the hardest parts of the task (partially proficient). The student can also determine step by step procedures for doing the task.

**7. Course Objectives.** These objectives are listed in the sequence taught by Block of Instruction. Because the communications career field is ever changing, we are providing a website with a "living" course objective list (COL). As changes are made to the courses they will also be made to the website. Use the following link to the 364 TRS to locate the COL. <https://www.my.af.mil/gcss-af/USAF/ep/globalTab.do?channelPageId=s6925EC1349E80FB5E044080020E329A9>.

**Section C - Support Materials**

**8.** The following list of support materials is not all-inclusive; however, it covers the most frequently referenced areas. The most current products can be found at the 81 TRSS/TSQ webpage and are available for download from the web site at [https://cs3.eis.af.mil/sites/20946/AFKN\\_Docs/Forms/AllItems.aspx](https://cs3.eis.af.mil/sites/20946/AFKN_Docs/Forms/AllItems.aspx). Procedures for requesting product development are found in AFI 33-154.

Generic AFJQSs/AFQTPs applicable to **AFSC 3D1X7:**

<u>Publication No.</u>	<u>Pseudo File</u>	<u>Publication Title</u>
AFJQS3D1X7-202FB	N/A	DD-140 Antenna Tower Vehicle
AFJQS3D1X7-208J	N/A	Parabolic Antenna Installation
AFJQS3D1X7-210C	N/A	AS-3482/GRC Heavy Weight Antenna
AFJQS3D1X7-210D	N/A	UHF/VHF Antenna (AT-197, AS-1097, AS-1181) Installation/Maintenance
AFJQS3D1X7-210F	N/A	437C Monopole Antenna System
AFJQS3D1X7-210N	N/A	Telephone Cable Systems Testing

Generic AFJQSs/AFQTPs applicable to **AFSC 3D1XX:**

<u>Publication No.</u>	<u>Pseudo File</u>	<u>Publication Title</u>
AFJQS3D1XX-200F	N/A	Engineering Installation (EI) Team Chief
AFJQS3D1XX-201P	N/A	Work Center Test Equipment Management
AFJQS3D1XX-201X	N/A	Engineering Installation (EI) Quality Assurance
AFQTP3D1XX-200S	N/A	Basic/Advance Soldiering

Generic AFJQSs/AFQTPs applicable to **AFSC 3DXXX**:

<u>Publication No.</u>	<u>Pseudo File</u>	<u>Publication Title</u>
AFJQS3DXXX-201F	N/A	Communications Focal Point
AFJQS3DXXX-201G	N/A	Quality Assurance
AFJQS3DXXX-213I	N/A	Military Construction Program
AFJQS3DXXX-230T	N/A	Remedy
AFQTP3DXXX-200D	N/A	Integrated Maintenance Data System (IMDS) Handbook
AFQTP3DXXX-202A	N/A	Electrostatic Discharge Handbook

**Section D - Training Course Index**

**9. Purpose.** This section of the CFETP identifies training courses available for continuation/ supplemental training. For information on all formal courses, refer to the Air Force Education and Training Course Announcements (ETCA) database at <https://etca.randolph.af.mil/>

**10. Air Force In-Residence Courses.**

<u>Course Number</u>	<u>Course Title</u>	<u>Location</u>
J3AZR3D157 0C0B	Tower Climbing and Certifier Course	Sheppard
J7AST3D157 0C0B	Tower Climbing and Certifier Course	MTT
J8AZR3D157 0F5A	Fiber Optic Cable Installation, Splicing and Maintenance	Sheppard
J7AST3D157 0F5A	Fiber Optic Cable Installation, Splicing and Maintenance	MTT

**11. Air University Courses.**

For a current listing of Air University courses go to <http://www.au.af.mil/au/index.asp>.

**12. Exportable Courses.**

For a current list of the available CBT courses refer to <https://www.my.af.mil/faf/FAF/fafHome.jsp> (Under AF e-Learning) or Defense Acquisition University at <http://www.dau.mil/default.aspx>.

**Section E - MAJCOM Unique Requirements**

13. The following courses are provided by the Air National Guard in support of the Engineering and Installation mission. They are open to all active, reserve, and guard military and civilians.

<b>Course</b>	<b>Course Description</b>	<b>Location</b>
Standard Installation Practices and Techniques, Cable /Antenna (9 days)	This course familiarizes students with outside plant installation, knots, hitches and splices; survey and antenna layout; grounding and bonding; antenna systems protection, pole stepping, anchors, and supports; erection of steel towers; pressurization of waveguide systems; RF connectors and cables; antenna systems maintenance, repair, and testing; and using a transit. This course will also encompass Antenna installations skills: grounding and bonding; anchoring devices; outside plant installation; TMX 412 Gas Detector; splicing activities; fanning and forming; terminating and soldering; outside plant cable testing; outside plant cable pressurization; and installation of cable racks.	The Lightning Force Academy (LFA) course schedule available on the home page is for your use in scheduling students for FY-09. Field unit LFA POCs should request slots and reserve seats, in writing (email), to LFA Registrar. <a href="mailto:LFA.REGISTRAR@PAHARR.AN.G.AF.MIL">LFA.REGISTRAR@PAHARR.AN.G.AF.MIL</a>
Standard Installation Practices and Techniques, Electronics (9 days)	This course familiarizes students with marking site layouts; anchoring devices; cable racks, and supports; erection and assembly of CE equipment; grounding and bonding; power distribution; cabling; fanning and forming; terminating and soldering; cross-connections; RF connectors and cables; and equipment designations.	COMM: 717-861-1010 DSN: 423-1010 Fax: x-1060
Network Infrastructure (9 days)	This course familiarizes students with LAN standards; LAN media; topology; protocols; installation guidelines; distribution systems; inter-networking; testing and troubleshooting of category UTP cables; and certification of LANs. BICSI and EIA/TIA standards are stressed. Outside plant/backbone fiber and splice-casing fiber optic media; fiber optic safety; fiber optic fundamentals; optical fiber; fiber optic cables; installations; project package; PSS; interconnection devices; fiber optic applications and testing and measurement techniques.	15010 Range Road Ft Indiantown Gap Annville PA, 17003  Home Page <a href="http://www.milvet.state.pa.us/air-national/lightningforce/index.htm">http://www.milvet.state.pa.us/air-national/lightningforce/index.htm</a>
Data Collection & GeoBase (5 days)	These two courses are segmented and instructed independently. They serve to offer an unified end product – a reliable, functional and maintainable facilities and infrastructure mapping/ drawing system. Students will use GPS collection methods, database populating tools and spatial data standards. Additionally, students will have first-level instruction on the computer interface drawing and storage methodologies.	
Team Chief (9 days)	This course provides formal classroom training on the numerous administrative, managerial, and supervisory responsibilities of the worldwide deployable Team Chief.	
Project Engineering (9 days)	This course provides formal classroom training to acquaint CS project engineers and newly assigned engineers with the various intricacies and communications disciplines for their real world workload.	
Quality Assurance (5 days)	This course covers the administration, tasks, and responsibilities of EI Quality Assurance personnel. All blocks of instruction are based upon real world scenarios, ACCI 33-104, and the QA QTP.	
Project Management (5 days)	This course targets the EI Workload Control position and other EI personnel involved in project management. Planning, financing, and overall project oversight (engineering, installation, QA, and customer coordination) are the focus of this course. Additionally, Microsoft Project software is introduced and utilized.	