



**All-Hazards Type III Communications Unit Leader
(COML) Course**

STUDENT WORKBOOK

Student Prerequisites

Students shall have a public safety communications background with exposure to field operations validated by the authority having jurisdiction. Fundamental public safety communications technology, supervisory, and personnel management skills including, but not limited to:

- Knowledge of local communications and communications systems
 - Frequencies and spectrum
 - Technologies
- Knowledge of local topography
- System site locations
- Knowledge of local, regional, state communications plans and Tactical Interoperable Communications Plans (TICP), if available
- Communications and resource contacts

Students must also satisfactorily complete IS 700a – IS 800b and ICS 100 – ICS 300.

Unit 0: Introduction

Course Administration

Ground Rules

- Breaks
- Starting and ending times
- Lunch
- Smoking policy

Facilities

- Restrooms
- Break area
- Messages, telephone use, pagers, computer use, etc.

Staff and Student Introductions

Instructor Introductions

Introduction of the instructor cadre, including course coordinator, and any guests

Student Introductions

Introduction of the students

Course Purpose

The All-Hazards Communications Unit Leader Course is a 24-hour course designed to meet the training needs of an all-hazards Type III incident Communications Unit Leader (COML) developed by the Department of Homeland Security's Office for Interoperability and Compatibility. This COML will be qualified under the training to execute Tactical Interoperable Communications Plans (TICP).

Course Objectives

The following objectives provide the framework for what will be taught throughout the course. The sequence of units is arbitrary. As a COML, you will need to continually evaluate, supervise, coordinate, document, etc. Together these duties comprise the role of the COML:

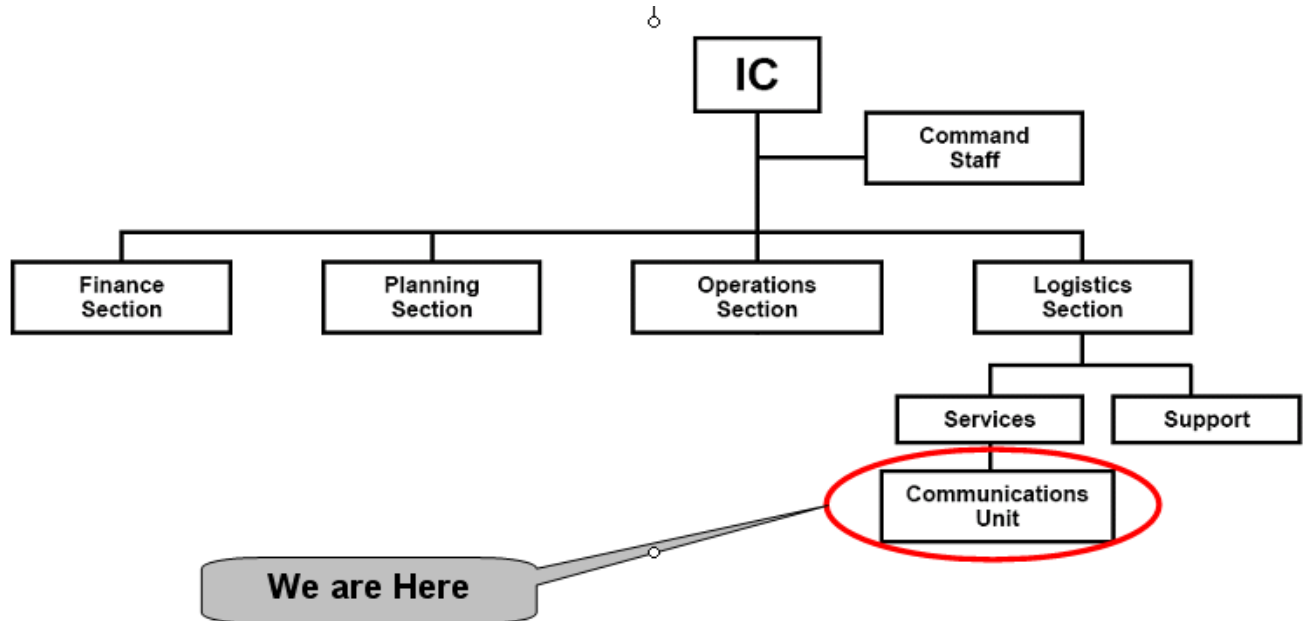
1. Identify the functions of the Communications Unit and the duties and responsibilities of the COML.

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2. Arrive at an all-hazards incident properly equipped, gather information to assess the assignment, and begin initial planning activities of a COML.
3. Plan, staff, manage, and demobilize the Communications Unit in a safe and effective manner to meet the needs of the incident.
4. Coordinate with the incident sections, appropriate communications personnel (e.g., communications coordinators), and other agencies to assist in accomplishing the overall incident objectives.
5. Design, order, and ensure the installation and maintenance of all communications systems.
6. Maintain accountability of assigned communications equipment.

Unit 1: The Communications Unit

The Incident Command System (ICS) Organizational Structure



Incident Communications Center Manager (INCM)

- Manages the operational aspects of the Communications Unit
- Supervises the Radio Operators
- Establishes and maintains the Incident Communications Center
- Works for and assists the COML as required

Incident Communications Technician (COMT)

- Responsible for deploying the national radio cache
- In the urban setting, may be responsible for the installation and maintenance of the Incident Communications System
- Works for the COML

Radio Operator (RADO)

- Staffs the radio at the Incident Communications Center
- Responsible for documenting incoming radio and telephone messages
- Trained Public Safety Dispatchers are referred to as Incident Dispatchers in the Fire Service and Tactical Dispatchers in Law Enforcement
- Works for the INCM

Technical Specialist (THSP)

- Communications specialist not formally incorporated into the ICS
- Specialized training and expertise on a particular piece of equipment or tool (e.g., Telephone Specialist, Computer Specialist, Gateway Specialist, Cache Radio Specialist, Mobile Communications Center Specialist, Geographic Information System (GIS) Specialist)
- Works for the COMT

Common Terminology and Plain Language

Common terminology is an ICS-wide fundamental that covers organization structures, operational resources, and facilities. It is necessary for operations, planning, and standard operating procedures.

Plain language is used to provide common terms and definitions that can be understood by individuals from all responder disciplines. The intent of plain language is to ensure the clear and accurate communication of information during an incident.

The Role of the COML

- The COML manages the technical and operational aspects of the communications function.
- The COML develops the Incident Radio Communications Plan, ICS Form 205.
- The COML actively participates in the operational and planning meetings.
- The COML assists proactively with preplanned events.
- The COML understands the realities of deployment to emergencies and events.

The COML Task List

GENERAL

1. Obtain and assemble information and materials needed for a response kit prior to receiving an assignment, including critical items needed for the assignment and items needed for functioning during the first 48 hours. The following items are suggested as basic information and materials kept in a go bag:
 - Appropriate ICS forms and logs
 - Current Tactical Interoperable Communications Plan (TICP), if available
 - Field Operations Guide (NIFOG) and COML Mobilization Guide (specific to locality)
 - Inventories or other lists of local and regional communications response equipment
 - Preplanned local system coverage maps
 - Contact, capability, and availability information for local and regional Communications
 - Technicians and Specialists
 - Pads of paper, pencils, pens, and tape
 - Personal items (including medicines and cash), food and beverage to be self-sustained for 48 hours or more
 - Portable radio(s) as appropriate for the region
 - Radio programming equipment (cloning cable or computer), adapters, and suitable tools
 - Hand-held GPS
 - First-aid kit
 - 24-hour clock
 - Multi-purpose knife

2. Establish and maintain positive interpersonal and interagency working relationships.
 - Through briefings, discuss EEO, civil rights, sexual discrimination, and other sensitive issues, with assigned personnel.
 - Create a work environment that provides diversity and equal opportunity for all personnel assigned to the incident.
 - Provide equal assignment opportunities based on individual skill level.
 - Monitor and evaluate progress based on expected work standards.
 - Address individual agency values and policies throughout the tenure of the incident.
 - Arbitrate differences in agency values and policies that affect the operation in a manner that fosters continuous positive working relationships.
 - Integrate cultural resource considerations into all management activities.
 - Coordinate with other Communications Unit Leaders prior to incidents to share information and assure communications interoperability.

3. Provide for the safety and welfare of assigned personnel during the entire period of supervision.

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- Recognize potentially hazardous situations.
- Inform subordinates of hazards.
- Provide safety and identifying equipment, such as vests identifying the communications function, flashlights, and glow sticks.
- Ensure that special precautions are taken when extraordinary hazards exist.
- Ensure adequate rest, hydration, and nutrition is provided to all unit personnel.
- Recognize any special medical needs of all unit personnel.

MOBILIZATION

4. Obtain complete information from the public safety communications center(s) serving the area and incident upon initial activation, including:
 - Incident name and, as appropriate, an order, request, or other unique number identifying the incident for tracking purposes
 - Reporting location
 - Reporting time
 - Transportation arrangements/travel routes
 - Contact procedures during travel (telephone/radio).
5. Gather information to assess the incident assignment. This is an ongoing task throughout all phases of the incident. Include assigned resources in a draft Incident Radio Communications Plan (ICS Form 205). Examples of important information include:
 - Frequencies and/or talkgroups already assigned
 - Other mutual aid channels or equipment already in use
 - Gateway or other interoperability devices already in use
 - Other current incidents or events that may create conflicts in communications plans or tax resources.

INCIDENT ACTIVITIES

6. Arrive at incident and check in. Arrive properly equipped at the assigned incident location within acceptable time limits.
7. Obtain briefing from supervisor. Examples of briefing items are:
 - Work space
 - Work schedule
 - Policies and operating procedures
 - Current resource commitments and expectations
 - Current situation
 - Expected duration of assignment
 - Special needs.

This list is not all inclusive; COML is responsible for asking adequate questions.

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8. Receive Incident Action Plan (IAP), if developed, or Incident Briefing Form (ICS Form 201). Determine support needs to meet the IAP.
9. Determine requirements for communications to be established and place the initial order. Using information obtained from IAP, section briefings and agency briefings, immediately order (using proper procedures) supplies, materials and equipment necessary to support projected incident size.
10. Evaluate needs and order supplies, materials and personnel to keep unit operating.
 - Order materials and supplies using procedures established by the section chief.
 - Maintain quantities of supplies and materials at a level to prevent shortage of any basic needed items.
 - Ensure adequate personnel to support the communications unit, technicians, radio operators, etc.
 - Coordinate with the participating agencies for any or additional interoperability resources that may be needed.
 - Assess current tactical communications equipment needs such as power sources for extended operations.
11. Organize and supervise unit.
 - Brief and keep subordinates informed and updated.
 - Establish unit time frames and schedules.
 - Assign and monitor work assignments.
 - Review and approve time.
 - Develop team work.
 - Provide counseling and discipline as needed.
 - Follow established procedures for reporting inappropriate actions involving contractors, military or other personnel.
 - Brief relief personnel.
12. Participate in incident planning meetings as the technical expert for communications needs.
 - Determine the feasibility of providing the required communications support.
 - Provide operational and technical information on communications equipment available for the incident.
 - Provide operational and technical information on communications equipment and systems capabilities and restrictions.
 - Coordinate with other Communications Unit Leaders under any Area Command established to share information and assure communications interoperability.
13. Design communications systems to meet incident operational needs.
 - Determine additional resource needs and order necessary equipment and personnel.
 - Prepare Incident Radio Communications Plan, ICS Form 205.

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- Request any additional communications vendor services; e.g., telephone, satcom, microwave and identify costs associated with equipment.
- Coordinate, through the chain of command, the locations for equipment to be installed; e.g., repeaters, satellite telephones, telephone lines, etc.
- Provide communications support for external and internal data operations.
- Order frequencies following the proper procedures.
- Create diagrams of current communications system(s).
- Determine optimal locations for any future expansion of communications equipment using topographical maps to evaluate elevation and separation needs.

14. Install communications equipment.

- Obtain equipment from supply unit.
- Install and test all components of the communications equipment to ensure the incident's systems are operational, for example:
 - o Command repeater
 - o Logistics repeater
 - o Links (radio and wire-based)
 - o Remotes
 - o Gateways
 - o Aircraft and other special needs
- Develop installation priorities, while adhering to safety standards regarding communications needs of tactical personnel; i.e., operations before logistics.
- Clone or program radios.

15. Assign communications equipment.

- Identify kinds and numbers of communications equipment to be distributed to specific units according to the communications plan.
- Provide resources and unit leaders with appropriate equipment based on the communications plan.
- Provide basic training as needed on equipment being fielded.
- Maintain equipment inventory to provide accountability.

16. Establish Incident Communications Center (ICC).

- Coordinate location of ICC with Facilities Unit Leader.
- Locate ICC close to the incident command post and away from high traffic areas and noise.
- Locate ICC away from radio frequency and electronic noise.
- Verify Estimated Time of Arrival (ETA) of communications personnel and establish assignments based on incident requirements. Set schedules around operations requirements.
- Obtain necessary supplies for ICC to function properly.

17. Manage operations of the ICC.

- Document radio/telephone activities on appropriate forms.
- Set up filing system for ICC documentation.

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- Direct radio/telephone traffic to proper destinations.
 - Establish notification procedures for emergency messages.
 - Identify system problems, both technical and operational, and determine appropriate solutions.
 - Follow established routing procedures for messages.
18. Coordinate frequencies, activities, and resources with communications resource coordinators outside of the incident.
- Contact communications coordinators and notify them of incident frequency, talkgroup, mutual aid channel, dispatch center, or other shared resource assignments, as appropriate.
 - Identify communications equipment and personnel that are excess to incident needs and demobilize if appropriate.
 - Identify resources as to type/qualifications, quantity, and location.
 - Provide a copy of the ICS Form 205 to other agencies or to the COML at any nearby incidents as necessary to avoid interference or other conflicts.
19. Notify appropriate local, county, regional, State and/or Federal agencies on adjacent incident(s) of system design and frequency allocations.
20. Initiate and maintain accurate records of all communications equipment.
- Initiate and maintain accountability system for issuing hand-held radio resources.
 - Document geographic locations of equipment and transfer this information to local maps (latitude/longitude, legal).
 - Keep records for local and national resources to ensure return to proper locations.
21. Perform operational tests of communications systems throughout the duration of the incident.
- Identify and take necessary action to accomplish minor field repair or place orders to facilitate the replacement of equipment.
 - Monitor all gateways in use.
 - Plan for battery replacement.
 - Act decisively to minimize interruptions in system operation.
22. Interact and coordinate with appropriate unit leaders and operations personnel.
- Coordinate with operations regarding system coverage and needs.
 - Coordinate with first responders and public safety support organizations regarding needed support (e.g., medical unit for medical evacuation plan).
 - Coordinate with special units (air operations, EOD, SWAT, etc) for special frequency needs.
 - Participate in planning meetings and briefings.
 - Know what other resources may be coming to the incident, such as those from Urban Search and Rescue (USAR), National Interagency Fire Center (NIFC), FEMA, Coast Guard, etc.

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23. Identify for release any excess unit resources. Coordinate with unit managers and provide a list of excess personnel and facilities. List will include:

- Who or what is excess
- Time and date of excess.

The list will be reviewed daily for accuracy. Follow the established demobilization process, including notification to communications resource coordinators.

24. Maintain ICS Unit Log. Unit Log will be kept current, legible, and will document all major activities, which may include:

- Equipment locations
- Medical evacuations
- Personnel changes

25. Evaluate performance of subordinates as required by agency policy and/or permitted by agreement.

- Discuss performance evaluations with individual(s).
- Maintain accuracy and fairness.
- List training if needed or desired.

DEMOBILIZATION

26. Demobilization and check out.

- Submit all required information to the Documentation Unit Leader.
- Receive demobilization instructions from work supervisor.
- Brief subordinate staff on demobilization procedures and responsibilities.
- Ensure that incident and agency demobilization procedures are followed.
- Complete required ICS form(s) and turn in to the appropriate person.
- Ensure that personnel in the unit are demobilized correctly.
- Document lost equipment on agency specific forms.

Assembling the COML Kit

- Current Tactical Interoperable Communications Plans and Statewide Communications Interoperable Plans, if available
- Field operations guides (NIFOG) and COML Mobilization Guide (specific to locality), as appropriate
- ICS Forms 201, 205, 213, 214, 217A, and 309
- Inventories or other lists of local and regional communications response equipment
- Preplanned local system coverage maps
- Contact, capability, and availability for local and regional communications technicians and specialists.

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- Portable radio(s) as appropriate for the region
- Radio programming equipment (e.g., laptop computer, cloning cables) adapters and suitable tools
- Handheld GPS
- First-aid kit
- 24-hour clock
- Multi-purpose knife
- Office supplies and gang chargers
- Personal equipment and supplies to be self-sustaining for 48 hours or longer, including cash, medications, etc.

Unit 1 Quiz

Unit 2: Interoperable Communications

Interoperability:

Interoperability is defined as the ability of Public Safety responders to share information via voice and data communications systems on demand, in real time, when needed, and as authorized.

SAFECOM Interoperability Continuum

Governance Lane

The Governance lane encourages individual agencies working independently to achieve working together regionally by establishing the authority through elected officials or executive councils. Establishes a regional urban area working group with operational and technical subcommittees. Develops a regional strategic plan for interoperable communications and identifies a funding source. The Governance section also establishes agency rights and responsibilities.

Standard Operating Procedures (SOPs) Lane

The SOPs lane promotes a set of SOPs at the local agency level to a regional set of communications SOPs that adopt ICS and integrate communications into NIMS SOPs. Establishes rules of use, and procedures for activation, response, and deactivation of communications resources. Provides a process for problem resolution.

Technology Lane

The technology lane includes the following:

Radio Caches (Swap Radios): A cache of radios set aside as a regional communications resource that are fully charged, have extra batteries and battery chargers, and are labeled with the owning agency information, frequencies, band, and system.

Gateways: Gateway systems interconnect channels of disparate systems allowing first responders using their existing radios to be interconnected with users outside their agency. *Fixed Gateways*, such as console patches, are currently used by many dispatch centers. *Mobile Gateways*, portable interconnect switches, require technical support when deployed.

Shared Channels: Common frequencies or talkgroups that have been established and are programmed into radios to provide interoperable communications among agencies.

Shared System: The use of a single radio system infrastructure to provide service to several Public Safety agencies within a region.

Standards-based Systems (e.g., P25): Project 25 (P25) is synonymous with Public Safety digital radio standards, originating as a naming convention for proposals by the Association of Public-Safety Communications Officials – International (APCO). The Standards-based Systems has been a joint effort since 1989 between APCO and the National Association of State Technology Directors (NASTD) to ensure a future with an open, standards-based alternative for Public Safety digital radio systems. Four common elements of a standards-based system are:

- **Common Air Interface (CAI):** Point of connection between radio transmitters and receivers; defines the technical form and function of the digital signal that goes over the airwaves.
- **Inter-RF Subsystem Interface (ISS):** Defines how different P25 radio networks can connect with one another.
- **Console Subsystem Interface (CSSI):** Defines how radio frequency components of a P25 system and dispatcher consoles connect with one another.
- **Fixed Station Interface (FSI):** Defines how components of a P25 radio system that are fixed in place connect with other components of the system.

Training and Exercise Lane

Provides for single agency training and exercise to regional training and exercise of the Tactical Interoperable Communications Plan (TICP). Regional exercises are an excellent opportunity to establish a COML.

Follows the Homeland Security Exercise and Evaluation Program (HSEEP) for discussion-based exercises, tabletop exercises (TTX), or the operational-based exercises of functional exercises (FE), or full-scale exercises (FSE)

Usage Lane

Encourages the use of the TICP for planned events, local emergencies, regional incidents, and used on a daily basis.

Unit 3: Frequency Regulation and Usage

Overview of Radio Frequency (RF) Systems

- COMLs support communications across many different types of radio systems
- Typical types of radio systems in use today include:
 - Conventional
 - Trunked
- Conventional radio systems – Modes
 - Simplex
 - Direct
 - Remote base
 - Repeaters
 - Methods of linking remote bases and repeaters to other fixed facilities:
 - Telephone lines
 - Microwave
 - Other radio links
 - Simulcast and multicast
 - Multicast is intelligent simulcasting where the system determines which sites to bring up in making a simultaneous transmission from multiple sites
- Trunked radio systems
 - Channels, frequencies, and talkgroups
 - Queuing
 - Push-to-talk in conventional systems versus request-to-talk in trunked systems
- Remote receivers and voting
 - Remote or satellite receivers are used in addition to regular repeater receivers to pick up relatively weak portable and mobile signals
 - Audio from these receivers is routed to a central voting comparator or *voter* where the best received audio is selected
 - The strongest signal is not always selected; that with the highest signal-to-noise ratio is typically best
 - Selected audio may come from multiple receivers during a single transmission
 - Some systems are configured to lock on to a single receiver, once chosen, for a transmission

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- Selected audio is routed to the ultimate receiving locations, such as consoles or repeaters for retransmission
- Public safety radio systems exist across multiple frequency bands:
 - VHF low band: 30–50 MHz
 - VHF high band: 148–174 MHz
 - Most common band
 - It has widely mixed use
 - 138-144 MHz – Exclusive federal
 - 144-148 MHz – Amateur radio
 - 148-150 MHz – Shared mobile & satellite
 - 150-162 MHz – Non-federal public & private
 - 162-174 MHz – Primarily federal
 - UHF: 450–512 MHz
 - Local, state, and federal use
 - 406-420 MHz – Primarily federal
 - 420-450 MHz – Amateur radio & radiolocation
 - 450-470 MHz – Non-federal public & private
 - 470-512 MHz – Non-federal public & private
 - Also known as “T-Band” because television channels 14-20 occupy this spectrum in some areas of the US
 - Repeater splits
 - Federal agencies use a 9 MHz separation between receive and transmit frequencies in this band
 - The standard split for 420 to 470 MHz is 5 MHz
 - The standard split for 470 to 512 MHz is 3 MHz, corresponding to half of a TV channel (6 MHz)
 - USAR teams
 - UHF: 800 MHz
 - Local and state use
 - Private sector use, including cellular, in other portions of the band
- Interoperability channels
 - Naming conventions
 - For naming conventions and frequencies, see <http://www.npstc.org/documents/IO-0060A-20070219%20CNTG%20Report%20of%20Committee.pdf>
 - Calling and Tactical Channels
 - Implemented differently in different jurisdictions
 - Common availability
 - Local and regional issues
 - Different channels by band

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- VHF-low band
- VHF-high band
- UHF 450 MHz band
- Local use agreements for shared channels
 - Establish prior to need
 - Extent of coverage
 - Limited to authorized coverage area
 - May state other usage limitations
- Frequency licensing and coordination
 - Licenses and authorizations
 - Federal Communications Commission (FCC) – State, local, and private public safety entities
 - National Telecommunications and Information Administration (NTIA) – Federal agencies
 - Applications for new licenses must provide a showing of need
 - Prime radio spectrum is limited
 - Due to new systems, service boundaries, or additional load
 - Radio system designers or engineers
 - Typically demonstrate need
 - Provide analysis of available frequencies
 - Coordination
 - FCC designates outside organizations as frequency coordinators
 - Applicant agencies can use any of four coordinators of public safety spectrum. For a list and current contact information, see:
 - <http://www.fcc.gov/pshs/public-safety-spectrum/coord.html>
 - Coordinators make recommendations to the FCC based on available frequencies and potentials for interference
 - Some coordinators, such as APCO, rely on the guidance of *local advisors* within each state in making assignments. These local advisors are typically staff members of state or local agencies.
 - NTIA serves a similar role in coordinating frequencies for federal agencies
 - Licensing
 - While public safety agencies do not pay license fees, frequency coordinators are allowed to charge for their services

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- Coordinator recommendations are generally followed
- License term – 10 years
- Shared use – Licensee may share use of the frequency **with others** within the limitations of the license
- Special Temporary Authorizations
 - Allowed under 47 CFR, §1.931 – Application for emergency authorization
 - Emergencies involving danger to life and property
 - Informal application may be used
 - Grants are typically for six months
 - Emergency submission
 - By telephone (888) 225-5322 and select option 2
 - By fax to (717) 338-2696
 - File a formal application within 10 days of such a request
 - Include, at a minimum:
 - Name and address of applicant agency
 - Location of proposed installation or area of operations
 - Nature of the emergency
 - Reference: **<http://www.fcc.gov/pshs/emergency/sta.html>**
- Incidental and purposeful interference identification and resolution
 - Incidental interference caused by adjacent and co-channel users
 - May arise when other users make system changes, such as power increases or reconfigured antennas
 - Identify source by:
 - Listening for call sign or location
 - Direction-finding equipment
 - Seeking FCC technical assistance
 - Use the FCC licensing database to identify users by frequency and location
 - Contact potential source and attempt to resolve
 - Purposeful interference
 - Source may be more difficult to locate
 - Direction-finding equipment may be useful
 - Mobile interfering transmitters are harder to locate
 - Resources
 - Amateur radio operators with direction-finding equipment
 - Private radio shops
 - FCC Spectrum Enforcement Division
 - **<http://www.fcc.gov/eb/sed/>**
 - FCC online licensing system

- <http://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp>
- Radio Frequency (RF) exposure standards
 - RF exposure is a known hazard to humans
 - Exposure levels from FCC-type accepted mobile and portable radio is normally within acceptable limits
 - Exposure level drops by 75% or more each time the distance from the transmitter is doubled
 - Higher frequency emissions are cause of more damage, typically to soft tissues, especially the eyes
 - Directional antennas (e.g., dishes, Yagi antennas) produce more focused energy
 - Consult with radio engineering professionals for Maximum Permissible Exposure (MPE) evaluations for fixed high-power stations
 - FCC Office of Engineering and Technology ((OET) Bulletin No. 65 – *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields* (August 1997)
 - Reference: <http://www.fcc.gov/oet/info/documents/bulletins/#65>
- Federal frequency usage
 - U.S. Department of Commerce – NTIA
 - Manages federal frequency assignments and spectrum as the FCC does for state and local government
 - Provides authorization to non-federal agencies for use of frequencies for interagency communications.
 - Requires a federal agency to sponsor requests
 - National Interagency Fire Center (NIFC) – Boise, Idaho
 - Manages blocks of federal frequencies assigned for firefighting
 - Provides a Communications Coordinator, at times depending on complexity and number of incidents occurring, to assign frequencies to the incidents and prevent interference

Units 2–3 Quiz

Unit 4: Incident Communications Systems

Determine Incident Needs

- Obtain Incident information from the Incident Action Plan (IAP), Incident Briefing Form (ICS Form 201), or command and general staff interviews
- Current frequencies or talk groups in use
- Current and anticipated resources
- Current and anticipated issues
- Anticipated duration

Determine Solutions to Provide

- Command Net
- Operations Tactical Nets
- Staging
- Air-to-Air, Air-to-Ground Nets
- Logistics Net

Determine Solutions for Telephone and/or Data Networks

- Via terrestrial wired and wireless services
- Via satellite services

Design a Radio System to Implement the Solutions

- Shared System
- Shared Channels
- Radio Caches
- Gateways
- Mobile Communications Centers
- Portable Towers
- Repeaters
- Create an ICS Form 205 to document the plan

Order, Install, and Use Temporary System Equipment

- Determine required coverage areas
- Obtain or assign frequencies or talkgroups
- Locate and accurately document equipment sites
- Provide for equipment security
- Avoid interference issues
- Apply local and regional SOPs
- Adhere to mutual aid agreements

Provide for Radio Cache Programming and Accountability

- Make sure the personnel doing the programming/cloning have adequate training and the proper software and hardware required. This includes only programming the correct groups or zones in the radio.

Consider the Application of Commercial Services

- Radio systems
- Telephones
 - Cell phone caches, Cellular on Wheels (COWS)
 - Telephone hard-line connections
- Satellite
 - Data
 - Voice over Internet Protocol (VoIP)
- Contract technicians

Implementation of Information Technology Services

- Data devices
- Internet connectivity
- Local area network and wide area network (LAN/WAN)
- VoIP

Continually Test and Evaluate the System

- With complex systems, constant monitoring is required to ensure the system has not been degraded and to make improvements.

Unit 5: Incident Radio Communications Plans

The ICS 217A Communications Resource Availability

Purpose

The Communications Resource Availability Worksheet (ICS Form 217A) is a template that users may fill out prior to an incident. An agency's interoperable channels and/or talkgroups can be entered on the form, thereby enabling a Communications Unit Leader to have the technical information readily available to complete an Incident Radio Communications Plan (ICS Form 205).

Preparation

The Communications Resource Availability Worksheet is prepared by a Communications Coordinator or COML in an administrative setting prior to an incident. During an incident, a COML may use the tools of popular word processing or spreadsheet software, to "copy" a line from a completed ICS Form 217A and "paste" the line directly to an ICS Form 205. This minimizes the technical information regarding a channel or talkgroup from being copied incorrectly when completed by hand. In addition, the ICS Form 217A provides a standardized template for the presentation of channels or talkgroups that might be considered for use by appropriate personnel during an incident.

Distribution

The Communications Resource Availability Worksheet is duplicated and given to all appropriate personnel who are authorized to use the agency's resources during an incident. This may include Communications Unit Leaders, communications technicians, etc.

**INSTRUCTIONS FOR COMPLETING
COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET
(ICS FORM 217A)**

| Item Title | Instructions |
|---|--|
| Frequency Band | The frequency band (low band, VHF, UHF, 700 MHz or 800 MHz) is provided. |
| Description | A description of the communications information entered on the worksheet (e.g., NIRSC – National Incident Radio Support Cache, a state’s statewide interoperability executive committee (SIEC) channels or talkgroups, a county or city’s local channels or talkgroups, etc.). |
| Channel Configuration | Conventional channels will have the configuration of the channel provided, such as “Repeater Pair,” “Simplex-Mobile Only,” Simplex-Base/Mobile,” etc. |
| Channel Name/Trunked Radio System Talkgroup | The nomenclature or commonly used name for the channel or talkgroup is provided. |
| Eligible Users | The discipline or user group to whom this channel/talkgroup may be assigned (e.g., “law,” “fire,” “any public safety,” “federal agencies,” etc.). |
| RX Freq N or W | <p>The receive frequency as the mobile or portable subscriber would be programmed using xxx.xxxx out to four decimal places, followed by an “N,” designating narrowband, or a “W,” designating wideband emissions, is provided.</p> <p>The name of the specific trunked radio system from which the talkgroup is associated may be entered across all fields on the ICS 217A normally used for conventional channel programming information.</p> |
| RX Tone/NAC | The receive Continuous Tone Coded Squelch System (CTCSS) subaudible tone or Network Access Code (NAC) for the receive frequency as the mobile or portable subscriber would be programmed is provided. |
| TX Freq N or W | The transmit frequency as the mobile or portable subscriber would be programmed using xxx.xxxx out to four decimal places followed by an “N,” |

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| | |
|-------------|---|
| | designating narrowband, or a “W,” designating wideband emissions, is provided. |
| TX Tone/NAC | The transmit Continuous Tone Coded Squelch System (CTCSS) subaudible tone or Network Access Code (NAC) for the transmit frequency as the mobile or portable subscriber would be programmed is provided. |
| Mode | The mode of operation, whether “A” for analog operation, “D” for digital operation, or “M” for Mixed mode operation, is provided. |
| Remarks | Information concerning limitations on use, such as FCC or NTIA rule notations, are provided. |

The ICS 205 Incident Radio Communications Plan

Purpose

The Incident Radio Communications Plan provides information on all radio frequency or trunked radio system talkgroup assignments for each operational period. The plan is a summary of information obtained from the list of available radio frequencies or talkgroups on the Communications Resource Availability Worksheet (ICS Form 217A) and the assignments of those resources by the Communications Unit Leader for use by the incident. Information from the Incident Radio Communications Plan on frequency or talkgroup assignments is normally placed on the Assignment List (ICS Form 204).

Preparation

The Incident Radio Communications Plan is prepared by the COML and given to the Planning Section Chief for inclusion in the Incident Action Plan.

Distribution

The Incident Radio Communications Plan is duplicated and given to all recipients of the Objectives form (ICS form 202), including the Incident Communications Center. Information from the Plan is placed on Assignment Lists.

**INSTRUCTIONS FOR COMPLETING
INCIDENT RADIO COMMUNICATIONS PLAN
(ICS FORM 205)**

| Item Title | Instructions |
|--|--|
| Incident Name | Print the name assigned the incident. |
| Date/Time Prepared | Enter date (month, day, year) and time (24-hour clock) prepared. |
| Operational Period Date/Time | Enter the date and time interval for which the Incident Radio Communications Plan applies. Record the start time and end time and date(s). |
| Ch # | Use at the Communications Unit Leader's discretion. Ch # (abbreviated for Channel Number) may equate to the channel number for incident radios that are programmed or cloned for a specific Communications Plan, or it may be used as just a reference line number on the ICS Form 205 document. |
| Function | Enter the Net function each channel or talkgroup will be used for (Command, Tactical, Ground-to-Air, Air-to-Air, Support, Dispatch). |
| Channel Name/Trunked Radio System Talkgroup | Enter the nomenclature or commonly used name for the channel or talkgroup. |
| Assignment | Enter the name of the ICS branch/division/group/section to whom this channel/talkgroup will assigned. |
| RX Freq N or W | Enter the receive frequency as the mobile or portable subscriber would be programmed using xxx.xxxx out to four decimal places, followed by a "N," designating narrowband, or a "W," designating wideband emissions. The name of the specific trunked radio system from which the talkgroup is associated may be entered across all fields on the ICS 205 normally used for conventional channel programming information. |

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| | |
|-------------------|--|
| RX Tone/NAC | Enter the receive Continuous Tone Coded Squelch System (CTCSS) subaudible tone or Network Access Code (NAC) for the receive frequency as the mobile or portable subscriber would be programmed. |
| TX Freq N or W | Enter the transmit frequency as the mobile or portable subscriber would be programmed using xxx.xxxx out to four decimal places, followed by an "N," designating narrowband, or a "W," designating wideband emissions. |
| TX Tone/NAC | Enter the transmit Continuous Tone Coded Squelch System (CTCSS) subaudible tone or Network Access Code (NAC) for the transmit frequency as the mobile or portable subscriber would be programmed. |
| Mode | Enter "A" for analog operation, "D" for digital operation, or "M" for Mixed mode operation. |
| Remarks | Enter miscellaneous information concerning repeater locations, information concerning patched channels or talkgroups using links or gateways, etc. |
| Prepared by | Enter the name of the Communications Unit Leader or designee and a contact telephone number during the incident, such as a cell phone number. |
| Incident Location | Enter the county and state in which the incident is occurring. In addition, enter the latitude and longitude of the highest, most powerful communications repeater system, the incident, or the Incident Command Post at the Communications Unit Leader's discretion. This information will assist Communications Coordinators and frequency coordinators in the identification and minimization of co-channel interference. |

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| INCIDENT RADIO COMMUNICATIONS PLAN | | | Incident Name | | Date/Time Prepared | | | Operational Period Date/Time | |
|---|----------|---|---------------|----------------|--------------------|----------------|--------------|------------------------------|---------|
| Ch # | Function | Channel Name/Trunked Radio System Talkgroup | Assignment | RX Freq N or W | RX Tone/ NAC | TX Freq N or W | TX Tone/ NAC | Mode | Remarks |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 5. Prepared by (Communications Unit) | | | | | Incident Location | | | | |
| | | | | | County | | State | | |
| | | | | | Latitude | | N | | |
| | | | | | Longitude | | W | | |
| <p>The convention calls for frequency lists to show four digits after the decimal place, followed by either an "N" or a "W," depending on whether the frequency is narrowband or wideband. Mode refers to either "A","D," or "M," indicating analog, digital, or mixed. (Project 25).</p> | | | | | | | | | |

Security

- Consider the documents for official use only
- Recognize that some frequencies will not be published due to security issues.

Sample Security Statement

“This document and other records, including data specifically associated with this document, relate to unique and specific vulnerability assessments and/or deployment plans in the event of Criminal Terrorism and are protected by the 2002 Public Disclosure Act amendments, Section 42.17.310(1)(ww), and as such they must be treated as confidential records.”

Exercise Scenarios of Increasing Complexity

Unit 6: Incident Communications Centers

Consideration for Placement

- Urban considerations (e.g., collocated with Incident Commander in the Mobile Command Post, multiple Mobile Command Posts, Mobile Communications Centers arrive on scene).
- Locate away from high traffic areas and noise (e.g., noisy generators, restrooms).
- Locate away from radio frequency and electronic noise.
- Locate close to Incident Command Post.

Staffing

- Ensure you have adequate personnel to staff the ICC.
- Allow for response time of personnel.
- Have sufficient communications and technical specialists to make the ICC operational.
- The ICC Manager will supervise the radio operators and runners.

Incident Dispatch and Message Flow

- Ensure radio traffic is continuously monitored and calls to the ICC are promptly answered.
- Document radio and telephonic traffic on the appropriate forms (ICS 309).
- Use ICS Form 213, General Message Form, to communicate messages to the appropriate party and relay information back to the field.

Integration with Permanent Dispatch Centers

- Maintain connectivity with the local dispatch center through an interoperability frequency or talkgroup.
- Is a phone line available?
- Is an Internet connection a viable option?
- Is wireless fax capability available as an option?

Incident within the Incident

- Situations may occur where providing care to responders in contrast to the victims of the incident becomes the priority.
- Be familiar with the Medical Plan in the Incident Action Plan.
- Possible situations could include:
 - An auto accident with injuries involving first responders.
 - A firefighter suffering heat exhaustion.
 - A SWAT officer is a victim of a gunshot wound.
 - Dignitaries' (un)scheduled site visit.

Supplies

- Conduct an inventory of current supplies at the ICC.
- Confirm you have sufficient rechargeable batteries and battery chargers to transition between shifts.
- Determine supply needs based on the current resources, projected growth of the incident, how many personnel and agencies you will be serving, and the anticipated staffing of the ICC.

Unit 7: Personnel Management

Assess the Personnel Requirements

- Scheduling is determined by assessing the complexity of the incident, anticipated duration of the incident, and the number of shifts to be staffed.
 - How many people do you need?
 - Do you have enough staff for the duration?
 - Adequate sleep-work rotations?

Order the Personnel by Assignment and ICS Position

- When ordering personnel, use the ICS nomenclature.
 - Incident Communications Center Manager (INCM)
 - Communications Technician (COMT)
 - Radio Operator (RADO)
 - Technical Specialists (THSP), followed by their specialty

Unit Briefing

- Use the Incident Action Plan (IAP).
 - The IAP is the official document for an Operational Period.
 - Review the ICS Form 205, Incident Communications Plan.
 - Review the ICS Form 204, Division Assignment Lists.
- Use the ICS Form 201.
 - Review assigned frequencies/talkgroups.
 - Review current and ordered resources.
 - Review the map of the incident.

Teamwork

- Hold unit meetings.
- Promote teamwork to accomplish tasks.
- Share information.
- Post a map of the incident
- Maintain a positive attitude.

Personnel Welfare

- Provide a safe and comfortable working environment
- Equal opportunity

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- Civil rights
- Sexual harassment
- Federal Fair Labor Standards Act
- Critical incident stress management
- Work/rest guidelines
- Union shop regulations (local issue)

Safety and Risk Management

- You are responsible for the safety of the personnel assigned to the Communications Unit.
- Risk management is the process of evaluating and mitigating hazards in the work environment. The process involves:
 - Situational awareness
 - Hazard assessment
 - Hazard control
 - Decision point
 - Evaluate

Personnel Documentation Management

Evaluations

- Personnel should be evaluated at the conclusion of the incident, emphasizing strengths and weaknesses.
- If there are any problems during an incident, they should be immediately dealt with.

Timekeeping

- All personnel time must be documented, especially if the incident becomes a federal or state reimbursable incident.
- The timekeeping records go to the Finance Section.

Unit Logs (ICS Form 214)

- It is designed to be completed during every work period.
- It documents significant events with appropriate supporting information.
- It becomes part of the official record and the Unit Logs go to the Plans Section Chief.

Unit 8: Coordination

The Planning Cycle within the ICS Organization

- Planning meeting
- Operations meeting
- Assertive participation by the COML
 - The COML is not considered a member of the Command or General Staff; however, the COML does participate in the plans and operations meetings.
 - The Communications Unit may not be able to support the plan due to equipment, radio coverage, or other constraints and the COML needs to be vocal and make the Command and General Staff aware of this.

Declared Emergency Coordination

- Joint Field Office (JFO)
- Emergency Services Functions, particularly ESF-2
- Emergency Operations Centers (EOCs)
- Mobile Emergency Response Systems (MERS)

Communications Coordinators

- The COML will work with the Communications Coordinators (COMC) to make notifications of frequencies or talkgroups in use and requested. Coordinate the request and deployment of communications equipment and personnel.
- The COMC in the urban environment is typically the dispatch supervisor in the local dispatch center.

Other Jurisdictional Communications Assets

- National Guard Civil Support Teams (CST)
 - Most CSTs currently have a robust communications suite that arrives with the team.
- Regional, state, and national Incident Management Teams
 - These teams normally deploy with a COML.
- Federal Emergency Management Agency (FEMA) Urban Search and Rescue (USAR) Teams
 - The USAR Teams deploy with a COMMS SPECIALIST and communications equipment.
- State Urban Search and Rescue (SUSAR) Teams

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- FCC FedTech
 - This is a branch of the FCC to assist agencies in overcoming inference issues, be they malicious or unintentional. FedTechs can be contacted through the local FCC field office.
- Other communications response groups

Auxiliary Communications Groups

- Amateur Radio Emergency Service (ARES)
- Radio Amateur Civil Emergency Service (RACES)
- Military Amateur Radio Service (MARS)
- Incident or tactical dispatch teams

Units 7–8 Quiz

Unit 9: Demobilization

Demobilization Plan

- Date and time of demobilization.
- The demobilization process is started when authorized by the Incident Commander.
- Transitioning to other teams is normally not done in the urban environment but the incident may grow to the extent a new management team is brought in and it becomes the COML's responsibility to relay the situation as accurately as possible.
- Equipment:
 - The demobilization of Gateways requires announcements the Gateway is being terminated and confirmation from all participants on the Gateway they understand it is being terminated and to return to normal operating frequencies or talkgroups.
 - Announcements are made on shared channels the incident is being terminated and to return to normal operating frequencies or talkgroups.
 - All equipment is accounted for and returned to the appropriate agency (e.g., Cache Radios).
 - Issues with lost or damaged equipment need to be resolved following established policy.
 - Equipment is rehabbed and readied for reassignment
- Facilities such as the Mobile Communications Center will not be removed prior to approval of the Incident Commander.

Documentation

- Final documentation:
 - All Communications Unit documentation is the responsibility of the COML.
 - Invoices, Rental Agreements, Time Records, and Contracts go to the Finance Section Chief.
- Evaluating communications staff performance.
 - Performance evaluations are to improve the system for the next incident and improve individual future performance.

Unit 10: Resources

- National Interagency Fire Center (NIFC)
Communications Duty Officer contact information
877-775-3415, 208-387-5644, 208-387-5892 (FAX)
- National Incident Radio Support Cache (NIRSC)
- Statewide Communications Interoperability Plans (SCIP)
- Tactical Interoperable Communications Plans (TICP)
- Communications Assets Survey and Mapping Tool (CASM)
- Disaster Management Interoperability Services (DMIS)
<http://www.cmi-services.org>
- State, regional, and local equipment caches
- Emergency Management Assistance Compact (EMAC)
<http://www.emacweb.org/>
- Radio Propagation Software
<http://www.cplus.org/rmw/english1.html>

Final Exam: Scenario-driven