



**CAFIRE**

# **CALIFORNIA FIRE & MEDICAL MUTUAL AID RADIO SYSTEMS**



**Operations Response Division  
Telecommunications Branch  
3650 Schriever Avenue  
Mather, CA 95655**

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## OVERVIEW

The California Fire and Medical Mutual Aid Radio Systems (CAFIRE) is provided and managed by the California Governor's Office of Emergency Services (Cal OES). CAFIRE enhances the ability of fire & emergency medical service agencies to communicate on common frequencies during emergencies and other special operations.

This plan governs the 4 CAFIRE channels (former FIREMARS 800) and the Non-Federal Fire & Medical Mutual Aid Channels (VFIRE, VMED 7FIRE, 7MED) listed in the National Interoperability Field Operations Guide (NIFOG) using the National Public Safety Telecommunications Council (NPSTC) channel naming convention which are all considered part of the Fire & EMS pool of frequencies in California. As such, CAFIRE provides a communications option for Fire officials regardless of the band their equipment operates in or the jurisdiction with which they are communicating. The UHF Medical & EMS channels are listed in other documentation and is not included within this plan.

In the late 1980's the FCC mandated that States adopt a regional or county approach for 800 MHz planning. Consequently those channels were governed by their respective regional 800 MHz Communications Plans. The Statewide Interoperability Executive Committee (SIEC) process replaced and updated those 800 MHz Plans and they are now folded into this CAFIRE Plan. All CAFIRE channels (including those listed in the NIFOG) are bound by California's statewide standards and procedures as detailed in this plan.

Note that this document compliments the FIRESCOPE Radio Communications Guidelines (MACS 441-1) which should be consulted for additional information. Cal OES enforces strict adherence to this plan and violations can result in loss of authorization to use CAFIRE channels.

## SYSTEM MANAGEMENT

The ultimate authority for operations on CAFIRE and other related channels rests with the FCC. Under their rules for the Public Safety Radio Services, use of these frequencies is subject to coordination and regulation.

The State of California holds all licenses for use of these channels in California. As such, the State is responsible for assuring proper utilization and operation and may revoke authority for use. Cal OES manages the system on behalf of the State of California. However, the California Statewide Interoperability Executive Committee (CalSIEC) provides oversight on CAFIRE and advises Cal OES on the development and supervision of the system.

Within Cal OES, the responsibility for managing CAFIRE is primarily the responsibility of the Fire and Rescue Branch (F&R) of the Operations Response Division. The Telecommunications Branch (TCOMM) assists the F&R Branch with coordination of the channels. The Cal OES F&R Branch establishes and enforces procedures for participation in, and use of, the system. Cal OES Fire Coordinators ensure that the system's frequencies are used properly and in a coordinated manner. The Cal OES TCOMM is responsible for technical standards and procedures. The Telecommunications Branch Coordinators assist and advise on technical matters.

USFS, CALFIRE and Local Fire Chiefs are responsible for ensuring that applications, licensing and operations on CAFIRE comply with the regulations and policies set forth in this document within their agency. Fire Mutual Aid Regional Coordinators are responsible for the compliance of system operations within each Mutual Aid Region. The Communications Working Group (CSG) with FIRESCOPE is the primary coordinating body for the fire services in California for the Directors of FIRESCOPE.

## ELIGIBILITY

Fire entities, as defined by the Firefighting Resources of California Organized for Potential Emergencies (FIREScope) and the State Fire Marshal, authorized and designated by such, are eligible to participate in the CAFIRE plan.

Agencies that have signed the California Master Mutual Aid Agreement support other fire agencies during emergencies, and are capable of rendering mutual aid are also eligible to participate in CAFIRE.

## AUTHORIZATION PROCEDURES FOR STATE DESIGNATED AND NON-FEDERAL NATIONAL INTEROPERABILITY CHANNELS

The State of California is the designated authorized licensee of all state designated mutual-aid and non-Federal National Interoperability Channels. In order to operate on these frequencies, the licensee (*State of California*) must designate you as a unit of their system, in accordance with FCC rule 90.421. Agencies that desire to program these channels into mobiles & portables must request authorization from the Cal OES Telecommunications Branch to use the statewide mobile/portable licenses. Agencies that desire to program channels into “Fixed Sites” must request authorization from the Cal OES Public Safety Communications Branch (PSC). <sup>1</sup>In cases where use is necessary for the imminent protection of human life and property, authority to transmit is automatic and will be temporary until the emergency has ended.

The following procedures are divided into two general uses: Mobiles Only and Fixed Sites. “Mobiles Only” refers to agencies requesting to program only handheld and/or vehicular mounted radios. Procedures listed under “Fixed Sites” are for agencies seeking to operate/modify radio fixed stations.

## STATE FREQUENCY COORDINATION AND LICENSING

The Cal OES PSC Branch is responsible for ensuring all state communication systems and licenses comply with federal regulations. This includes ensuring license requests to program Interoperability channels comply with the technical and operational policies of the Planning Areas of CalSIEC and of FIREScope.

A license request to operate a fixed radio site using mutual-aid and/or interoperability frequencies must be accompanied with an endorsement from the affected Planning Area of CalSIEC. Once obtained, the state license will be modified to include you as an authorized licensee.

### Licensing Fees

Charges are levied on all applicant organizations when seeking a new frequency or making a license change, system modification, or any other technical change which requires an official FCC license modification or transaction to take place. The Cal OES PSC frequency coordination, engineering and/or application process contract charges may apply, per frequency, per location.

***For more details on the fee structure and process, please visit the Cal OES PSC website or contact the Frequency Coordination and Licensing Unit at (916) 657-6153.***

**<http://www.caloes.ca.gov/Cal-OES-Divisions/Public-Safety-Communications>**

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<sup>1</sup> *Safety of Life* provision under FCC rules 90.417(a)

## MOBILES AND PORTABLES

1	<b>Draft a “Letter of Intent” (LOI) on your agency letterhead</b> <i>The letter should contain general information on the requested channels, proposed site(s) and area of operations. If the system is to serve more than a single political entity, provide additional details such as a list of all individuals responsible for the project.</i>
2	<b>Complete the State of California Radio Frequency Usage Form (TDe-400)</b> <i>This form is required by PSCO and requires the requesting agency to provide technical details</i>
3	<b>Sign Memorandum of Understanding (MOU)</b> <i>State designate mutual-aid plans require requesting agencies to sign associated MOU. Non-federal National Interoperability Channels only require a TDe-400.</i>
4	<b>Send the LOI and completed form(s) via postal mail or email to:</b>  California Governor's Office of Emergency Services Attn: Telecommunications Branch 3650 Schriever Avenue Mather, CA 95655 Email: <a href="mailto:tdo@caloes.ca.gov">tdo@caloes.ca.gov</a>
5	<b>Program Radios</b> You may program channels into radios but may not transmit until final FCC authorization is received.  <b>Contact the PSC FCC Unit at (916) 657-6153 for a status on FCC authorization.</b>

## FIXED SITES

State designated Interoperability frequencies are a limited resource that is shared across the state. Therefore, fixed sites that transmit on these frequencies have the potential to cause harmful interference if not properly coordinated.

Agencies seeking to program and transmit from fixed sites will need to be coordinated and receive support of neighboring jurisdictions. To accomplish this, the applicant will need an endorsement from their respective Planning Area of CalSIEC before the Cal OES PSC Branch files the license request with the FCC. Requests that diverge from National or Statewide policy on the proper use of Interoperable frequencies will not be endorsed.

**PSC licensing fees do apply to these requests.** Contact the Cal OES PSC frequency coordination and FCC licensing unit (916) 657-6153 to determine the associated costs.

1	<b>Draft a Letter of Intent (LOI) on your agency letterhead</b> The letter should contain general information on the requested channels, proposed site(s) and area of operations. If the system is to serve more than a single political entity, provide
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additional details such as a list of all individuals responsible for the project.

**2** **Fill out a FCC 601 license request form and attachments D and H**  
 The full text of the 601 and additional required schedules may be downloaded from the CalSIEC website at <http://www.caloes.ca.gov/Cal-OES-Divisions/Public-Safety-Communications> or directly from the FCC at <http://www.fcc.gov/formpage.html> . We strongly suggest you review the entire form 601 and schedules D and H before filling out the forms in the application package.

**3** **Send the LOI and completed form(s) via postal mail or email to:**  
 California Governor’s Office of Emergency Services  
 Attn: Telecommunications Branch  
 3650 Schriever Avenue Mather, CA 95655  
 Email: [tdo@caloes.ca.gov](mailto:tdo@caloes.ca.gov)

**4** **Develop a proposal package**  
 The proposal package should include coverage plots, applicable frequencies and channels, and other supporting documents. Supporting documents include Standard Operating Procedures, letters of recommendations or endorsements from neighboring jurisdictions, and/or concurrence from regional frequency coordination groups.  
  
 The CalOES Telecommunications Branch is available to assist with the coordination process.

**5** **Submit proposal package for CalSIEC Planning Area review**  
**Proposal packages must be reviewed by a CalSIEC Planning Area prior to endorsement. Check with your Planning Area governance body for when the next meeting is scheduled. It is recommended that you contact the Planning Area chair and arrange to have your proposal package reviewed by their committee. System proposals must be in compliance with State and Federal guidelines for Mutual-Aid and Interoperability Channels.**

**(table below lists the counties in each Planning Area)**

<i>Northern Planning Area</i>	<i>Capital/Bay Planning Area</i>	<i>Central Planning Area</i>	<i>Southern Planning Area</i>
Butte	Amador	Fresno	Kern*
Colusa	Alameda	Kern*	Imperial
Del Norte	Alpine	Kings	Inyo
Glenn	Calaveras	Madera	Los Angeles
Humboldt	Contra Costa	Mariposa	Mono
Lake	El Dorado	Merced	Orange

	Lassen Mendocino Modoc Nevada Plumas Shasta Sierra Siskiyou Sutter Tehama Trinity Yuba	Marin Monterey Napa Placer Sacramento San Benito San Francisco San Joaquin San Mateo Santa Clara Santa Cruz Solano Sonoma Stanislaus Tuolumne Yolo	Tulare	Riverside San Bernardino San Diego San Luis Obispo Santa Barbara Ventura
<p><b>*Because it encompasses both sides of the mountain range that separates the Central Valley and Southern California, Kern participates in both Central and Southern Planning Areas.</b></p>				

Contact the CalOES Telecommunications Branch for assistance with contacting the CalSIEC Planning Areas. More information can also be found on the Cal OES PSC Branch website at <http://www.caloes.ca.gov/Cal-OES-Divisions/Public-Safety-Communications>

6	<p><b>Forward the CalSIEC Planning Area endorsement to the Cal OES, Telecommunications Branch.</b></p>
7	<p><b>CalSIEC Formal Review</b></p> <p>Following the CalSIEC Planning Area endorsement, the Cal OES TComm Branch will review and provide final endorsement.</p> <p>The CalSIEC Planning Area &amp; TComm Branch endorsement will be forwarded to the Cal OES PSC Branch FCC Unit for administrative processing.</p>
8	<p><b>Program Radios/Equipment</b></p> <p>Requestors may program channels into radios but may not transmit until final FCC authorization is received.</p> <p>Contact the Cal OES PSC Branch FCC Unit at (916) 657-6153 for a status on FCC authorization.</p>

## OPERATIONAL STANDARDS

### PERMISSIBLE COMMUNICATIONS

CAFIRE frequencies are for official fire use only.

All communications on the CAFIRE frequencies are in accordance with Part 90, Subpart B of FCC Regulations (Public Safety Radio Pool). CAFIRE participants transmit communications essential to official law enforcement activities of the licensee. Unofficial communications on CAFIRE are prohibited and may result in revocation of licensee authorizations. CAFIRE frequencies are considered an “open party line”, only one user in a given area can use the channel at any one time.

### CHANNEL IDENTIFIERS

Only the Standard California and NPSTC Channel Identifiers are used for all “FIRE” and “MED” channels, i.e. CAFIRE is referred to as “CAFIRE” only.<sup>2</sup> It is strictly prohibited to assign a local identifier to any CAFIRE, MED or NPSTC channel.

### MONITORING

At a minimum, personnel must monitor the CAFIRE channel prior to transmitting to minimize the possibility of interference with communications in-progress. Base stations are encouraged to monitor their local CAFIRE repeated frequency at all times if any. In lieu of any repeated channel, monitoring of CAFIRE1, CAFIRE2 or any of the inter-discipline INTEROP call channels such as VCALL10 or UCALL40 is recommended.

An Interoperability channel can be the only means for personnel traveling outside their normal jurisdiction to obtain assistance or to report traffic collisions, fires, or other hazards. This includes the ability to monitor CSQ (squellch) or PL Tone 156.7 simultaneously with Agency PL tone.

Likewise, fire personnel “strike teams” on travel status should consider using CESRS or VCALL on car-to-car or any local area U/7/8CALL repeater covering the area to notify local PSAP’s when emergencies come to their attention. To hail a base station, a phrase such as: “Any car or station on UCALL40 , this is [unit ID] with emergency traffic” should be used. NOTE: The V/U/7&8CALL’s are from the General Public Safety Pool and not exclusive to Fire PSAP’s.

### IDENTIFICATION

Base stations identify themselves by using their agency name along with any other usual identifier. EX: **“Strike Team 4256-ALPHA.”** Base stations must use the FCC call sign shown on their CAFIRE license at least once every 30 minutes or at the end of a contact. For example: **“California KVZ29”**. Mobile & portable units should prefix their agency-assigned unit ID with plain language agency name. Ex: **“LA COUNTY FIRE BC-3311”**. Good interoperability identification habits are an essential part of clear plain language communications. Ex: **“SAC METRO BATTALION 14, this is FRESNO ECC”**.

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<sup>2</sup> CALAW channels are now all narrow-banded so they will be referred to by their NPSTC/ANSI channel identifiers.

## CHANNEL USE PRIORITIES

CAFIRE use is governed by a system of priorities that must be respected at all times. Priority is given to disaster and emergency operations, urgent operations, special events, and drills tests and exercises. CALAW 1, 4, 5, 6, 7, 20, 21, and 22 may be used for secondary communications on a temporary basis when not being used for a higher priority.

When a higher priority use is required, all lower priority traffic yields the frequency immediately.<sup>3</sup>

- **Priority 1:** Disaster and extreme emergency operations for mutual aid and interagency communications
- **Priority 2:** Emergency or urgent operations involving imminent safety of life or protection of property
- **Priority 3:** Special event control activities, such as a planned event involving the participation of two or more agencies
- **Priority 4:** Drills, tests and exercises
- **Priority 5:** Single agency secondary communications

### Notification of Priority Traffic (Priority 1, 2, 3, 4)

- Plain language must be used when clearing a CAFIRE channel for use in high priority situations.
- Agencies inform other area user agencies when they are involved in high priority usage of CAFIRE channels by phone, email, or via ECC/CC Fire Intercom.
- Notify the Cal OES Fire Duty Officer (FDO) of high priority usage via phone (916-845-8911), email ([warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)), or Fire Intercom.
- If two or more agencies in close proximity request a similar priority level clearance for simultaneous operations, contact the Cal OES FDO (916-845-8911 or [warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)) for guidance.

### Secondary Communications (Priority 5)

In the absence of Priority 1, 2, 3, and 4 situations, CAFIRE channels may be temporarily used for day-to-day communications as a local agency secondary channel. However, there are specific limitations relative to such use:

- Before using the channel for secondary communications, agencies first monitor the channel to ensure that no higher-priority communications are being conducted on that desired CAFIRE channel.
- Use conforms to the operational standards outlined in this plan. This includes the ability to monitor CSQ (squellch) or PL Tone 156.7 simultaneously with Agency PL tone.
- The channel is immediately vacated if it needs to be used for a Priority 1, 2, 3, or 4 situations.
- All CAFIRE channels shall not be used as a primary or permanent secondary communications nor shall channels be renamed without consent from Cal OES Fire and Rescue Branch (F&R).

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<sup>3</sup> Please note that this 2016 update of the original plan and subsequent revisions, has changed the original numbering of the Priorities from 1, 2, 3, 3A, 4 to Priorities 1 through 5.

## MESSAGE PRECEDENCE

Message Precedence is a classification system that establishes the priority of message content while a channel is in use – i.e., it helps determine which message has precedence over another on a channel. It is used for both verbal and written message traffic. The order of precedence of messages is:

1. **New Incident:** Messages pertaining to a new incident. Once the new incident is addressed, it no longer has precedence unless it has a higher priority.
2. **Emergency:** Messages involving the imminent safety of life or protection of property, including messages to request supplies, materials or instructions vital to relief of emergency operations.
3. **Priority:** Messages that are official and time-bound, but are not covered in the emergency category. Priority messages may include notice of deaths or injury in a disaster area.
4. **Welfare:** Messages involving the health and welfare of an individual in a disaster area.
5. **Routine:** Messages pertaining to routine operations.

## PLAIN LANGUAGE

*Plain Language, according to NIMS, is the use of common terms and definitions that can be understood by individuals from all responder disciplines.*

All communications on CAFIRE channels are in plain language as radio codes, acronyms, and abbreviations can cause confusion between agencies and disciplines and jeopardize officer safety. Again, it is highly recommended that agency's use their agency plain language name as a prefix to agency-assigned unit ID's. Ex: "**Cal OES 5200**".

## VOICE PRIVACY

The use of CAFIRE channels for transmission of encoded, encrypted, digital, or scrambled messages is prohibited. However, under special circumstances, a temporary one-time waiver may be granted to allow for encryption. All inquiries and requests for waivers should be addressed to the Cal OES FDO or TDO (916-845-8911 or [warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)).

## SUPERVISORY RESPONSIBILITY

Each agency manager and supervisor bears the responsibility for the compliance of operations on CAFIRE to the CAFIRE Plan. Violations are reported to Cal OES who will work with each agency's executives to correct reported problems. See Appendix A for the complaint procedure.

## TECHNICAL STANDARDS AND PROCEDURES

### POINT-TO-POINT COMMUNICATIONS

CAFIRE frequencies are primarily designed to be used as base to mobile/portable and mobile/portable to mobile/portable channels for Interoperability *TACTICAL* communications. Base station to base station communications can be used as secondary uses but is not recommended.

## POWER LIMITATIONS

On all channels, with all equipment, transmit power may not exceed 120 watts [ERP].

## ANTENNA LIMITATIONS

With the obvious exceptions of authorized repeater channels, high-Level base station installations are prohibited on CAFIRE. All base stations should be located at low antenna levels and not exceed the specified heights above the elevation of the primary dispatch center:

- UHF: 100 FT
- VHF: 500 FT
- 700/800 MHz: 100 FT

Under special circumstances, however, on-site waivers may be granted as long as regional dispatch for other jurisdictions is provided by the requesting agency. In cases where interference occurs, Cal OES will withdraw waivers. All inquiries and requests for waivers should be addressed to the Cal OES LDO or TDO. (916-845-8911 or [warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)).

## VOICE PRIVACY

Speech scrambling, digital voice privacy [DVP], digital and analog encryption [DES/AES], inversion, and other forms of scrambling are prohibited on all CAFIRE channels. Under special circumstances, a one-time waiver may be granted to allow for voice privacy. All inquiries and requests for waivers should be addressed to the Cal OES FDO or TDO (916-845-8911 or [warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)).

## DATA TRANSMISSION

Transmission of data is prohibited on CAFIRE channels.

## CODED SQUELCH

Continuous Tone-Coded Squelch System (CTCSS) is a system incorporated in radios to reduce or eliminate nuisance type interference from co-channel users. Coded squelch will not prevent destructive interference where the signal strength of the interfering signal exceeds that of the desired signal. The statewide CTCSS is 156.7 for analog systems and \$293 for digital systems.

Coded squelch is prohibited for priority 1 and 2 situations. A locally designated CTCSS is authorized for priority 3, 4, and 5 traffic if the agency has the ability to continuously monitor a receiver with the universal mutual aid tone (156.7) or has a receiver without the tone protection. These safeguards ensure that the channels can be used for communications with units from other agencies using carrier-squelch only or with the mutual aid tone.

## MOBILE RELAY CONTROL PROVISIONS

Mobile relays must be equipped with a positive means of disabling the relay function from the primary control position to prevent system disruption by unwanted signals.

## PAGING OR SIGNALING

Tone or digital signaling, paging and/or alerting is prohibited on all CAFIRE channels. However, simple alert tones [attention beeps] prior to broadcasts and automatic station identification are permitted.

## FCC CALL SIGN ANNOUNCEMENTS

All stations must identify in accordance with FCC Rules and Regulations, Part 90.425. Each station or system must be identified by transmission of its FCC call sign:

- During each transmission, or exchange of transmissions, or
- Once each 30 minutes during periods of continuous operation

The call sign is the FCC-assigned set of letters and numbers found on the license authorization. Mobiles and Portables must identify with their agency assigned unit or officer number. Violations may result in revocation of the offending agency's operating authority.

## TEMPORARY BASE STATION AND TEMPORARY MOBILE RELAY

Agencies may operate temporary base stations and/or mobile relays to handle Priority 1, 2, 3 or 4 traffic with Cal OES authorization. Temporary authorizations are issued for the duration of the incident or event. To request authorization, an email specifying the dates, equipment, frequencies, and situation is sent to the Cal OES FDO or TDO ([warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)). The FDO or TDO will notify the requestor, the Cal OES Regional Communications Coordinator, and the Regional Fire Coordinator upon approval of the request.

## INTEROPERABILITY OPERATION

In the event of a public safety Priority 1 or 2 emergency, and in keeping with appropriate FCC Rules, other systems may be *temporarily* cross-banded into a CAFIRE channel through automatic or manual equipment. A cross band or use of a gateway switch must be discontinued when the operation requiring its use is finished. The same rules apply to cross banding between various CAFIRE channels. Contact the Cal OES FDO or TDO for special coordination information (916-845-8911 or [warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)).

Please refer to Cal OES's Statewide Gateway Units Standard Operating Procedure for more information on gateway procedures.

## AIRBORNE OPERATION

The operation of CAFIRE-equipped radios in aircrafts is permitted when the restrictions below and FCC Part 90.423 rules are respected.

- The output power for helicopter and patrol aircraft radios must not exceed 10 watts.
- The power limit for the 700 & 800 MHz CAFIRE channels is 1 watt.
- Operators always monitor the channel prior to transmitting as the long range of airborne operations can impede operations already using the channel.

## FREQUENCY PROTECTION

Adjacent channel interference can occur between frequencies when used in close proximity. Mitigation strategies, such as limiting the use of one of the adjacent channels during mutual aid activities, can help minimize or eliminate interference problems.

Cal OES will establish guidelines for protecting the channels adjacent to CAFIRE as the State transitions to narrowband operations.

Contact the Cal OES TDO (916-845-8911 or [warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)) for additional information on limiting channel interference.

## EXCEPTIONS AND DEVIATIONS

The technical standards incorporated into the CAFIRE Plan preserve the integrity and reliability of the system while encouraging maximum use of the available channels. While applicants are expected to meet these requirements, it is understood that, under extraordinary circumstances, deviations from these regulations may be necessary. All such circumstances should be brought to the attention of the Cal OES FDO or TDO (916-845-8911 or [warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)) at the time authorization is requested. A detailed description of the situation should be included in writing, as well as a justification for the action requested. Cal OES, with the counsel of the CalSIEC, will serve as the final decision point in such cases. Firefighter safety and the integrity of the system are always the main considerations.

## ESSENTIAL INTEROPERABILITY GUIDELINES CHECKLIST

- ✓ **OBEY PRIORITIES:** When a higher priority use is required, all lower priority traffic yields the frequency immediately.
- ✓ **USE PLAIN LANGUAGE AT ALL TIMES.**
- ✓ **IDENTIFY WITH FULL AGENCY UNIT DESIGNATOR AND FCC CALL-SIGNS (BASE STATIONS AND MOBILES).**
- ✓ **MONITOR THE CHANNEL PRIOR TO TRANSMITTING.**
- ✓ **USE APPROPRIATE CODED SQUELCH:** Do not use local tones on interoperability channels without the capability of monitoring the mutual aid tone (156.7/\$293) or turning the tone protection off.
- ✓ **USE THE CHANNEL'S STANDARD ID:** Program the standard California channel ID into your radio's display.
- ✓ **DO NOT SCRAMBLE OR ENCRYPT MESSAGES.**
- ✓ **DO NOT PERMANENTLY OR SEMI-PERMANENTLY LINK MUTUAL AID CHANNELS TO EACH OTHER OR TO LOCAL AGENCY CHANNELS.**

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**Respect the policies and procedures set forth in each interoperability system's plan to ensure the interoperability channels are available for use in emergency situations.**

## APPENDIX A: COMPLAINT PROCEDURE

Report all operations on mutual aid channels that are detrimental to first responder safety or to the management of an incident, that fails to follow the procedures outlined in this mutual aid plan, which causes interference to other users, or that violates FCC Regulations 90.20 and 90.405.

To report flagrant violations that endanger first responder safety, immediately contact the TDO via the California State Warning Center (CSWC) (Telephone: 916-845-8911).

To report interference issues from outside sources and other misuses of CAFIRE:

1. Attempt to identify the offending station.
2. Contact the chief executive of that department.
3. If the problem persists, contact the Cal OES TDO via the CSWC (916-845-8911 or [warning.center@oes.ca.gov](mailto:warning.center@oes.ca.gov)) and relay:
  - The date and time of the problem
  - The circumstances regarding the interference or misuse
  - Information detailing how the misuse interfered with operations or safety
  - Information (identification, call signs, etc.) that would help locate the offending agency.
4. Keep audio logging tapes, tape cassettes, or digital files recording the misuse to send to Cal OES. [If requested, Cal OES will return the tape after its investigation.] On receipt of a complaint, Cal OES will conduct an investigation.

## APPENDIX B: ACRONYM LIST

- AES:** Advanced Encryption Standard
- ANSI:** American National Standards Institute
- CAFIRE:** California Fire Mutual Aid Radio Systems {CAFIRE1, CAFIRE1D, CAFIRE2, CAFIRE2D}
- Cal-IFOG:** California Interoperability Field Operations Guide
- Cal OES:** California Governor's Office of Emergency Services
- CalSIEC:** California Statewide Interoperability Executive Committee
- CSWC:** California State Warning Center
- CTCSS:** Continuous Tone-Coded Squelch System
- DCS:** Digital Coded Squelch
- DES:** Data Encryption Standard
- DVP:** Digital Voice Privacy
- FCC:** Federal Communications Commission
- FDO:** Fire Duty Officer
- FIRESCOPE:** Firefighting Resources of California Organized for Potential Emergencies
- F&R:** Cal OES Fire & Rescue Branch
- MAR:** Mutual-Aid Region
- NAC:** Network Access Code
- NIFOG:** National Interoperability Field Operations Guide
- NPSTC:** National Public Safety Telecommunications Council
- PSC:** Public Safety Communications Division of Cal OES
- TCOMM:** Telecommunications Branch
- TDO:** Telecommunications Duty Officer

## APPENDIX C: CAFIRE FREQUENCIES AND USAGE TABLE

### CAL-IFOG/NIFOG NPSTC CHANNELS EXCEPTIONS

The following channels are authorized for Fire operations in California as noted prior. This is a combination of California – only and National frequencies (Ref NIFOG & CAL-IFOG). Low Band frequencies are wideband FM with 20kHz authorized bandwidth. VHF/UHF Band frequencies are narrowband FM with 12.5kHz authorized bandwidth. The designations “W” for wideband and “N” for narrowband are noted after each TX/RX frequency. Default analog tones (CTCSS) is 156.7Hz for transmit & receive on point-to-point (simplex or direct) channels, repeaters will usually have different tones for input based on licensed agency. It is permissible to use CSG or carrier squelch in direct channels on the user’s mobile/portable equipment. The universal analog coded squelch tone (CTCSS) is 156.7Hz. Digital P25 systems are on the 700MHz Band primarily and use the Network Access Code (NAC) which is \$293 on transmit and \$F7E on receive. \$F7E is a universal code that receives all NAC codes. When no coded squelch is used, it is identified as “None”. In general and for priority 1, 2, 3 and 4 situations, the universal tones (156.7Hz for analog and \$293 for digital) should be used. For priority 5 operations, an agency assigned CTCSS may be used only if the agency monitors the universal analog (CTCSS) or digital (NAC) codes.

### CAL-IFOG/NIFOG NPSTC LE CHANNELS

#### VHF LOW BAND

CHANNEL ID	RX FREQ	RX CTCSS NAC	TX FREQ	TX CTCSS NAC	Notes
LFIRE2	39.4800 W	156.7	45.8800 W	156.7	Repeater, Fixed Base, Mobile, Portable <b>PENDING FCC ASSIGNMENT</b> Priority: 1, 2, 3, 4, 5
LFIRE2D	39.4800 W	156.7	39.4800 W	156.7	Fixed Base, Mobile, Portable <b>PENDING FCC ASSIGNMENT</b> Priority: 1, 2, 3, 4, 5
LFIRE4	45.8800 W	156.7	39.4800 W	156.7	Fixed Base, Mobile, Portable <b>PENDING FCC ASSIGNMENT</b> Priority: 1, 2, 3, 4, 5
LFIRE4D	45.8800 W	156.7	45.8800 W	156.7	Fixed Base, Mobile, Portable <b>PENDING FCC ASSIGNMENT</b> Priority: 1, 2, 3, 4, 5

#### VHF HIGH BAND

VFIRE21	154.2800 N	156.7	154.2800 N	156.7	Fixed Base, Mobile, Portable Priority: 1 & 2 ONLY
VFIRE22	154.2650 N	156.7	154.2650 N	156.7	Fixed Base, Mobile, Portable Priority: 1 & 2 ONLY
VFIRE23	154.2950 N	156.7	154/295 N	156.7	Fixed Base, Mobile, Portable Priority: 1 & 2 ONLY
VFIRE24	154.9350 N	156.7	154.9350 N	156.7	Fixed Base, Mobile, Portable Priority: 1 & 2 ONLY

**VHF HIGH BAND {Cont}**

CHANNEL ID	RX FREQ	RX CTCSS NAC	TX FREQ	TX CTCSS NAC	Notes
VFIRE25	154.2875 N	156.7	154.2875 N	156.7	Fixed Base, Mobile, Portable Priority: 1 & 2 ONLY
VFIRE26	154.3025 N	156.7	154.3025 N	156.7	Fixed Base, Mobile, Portable Priority: 1 & 2 ONLY
VMED28	154.3400 N	156.7	154.3400 N	156.7	Fixed Base, Mobile, Portable Priority: 1 & 2 ONLY
VMED29	154.3475 N	156.7	154.3475 N	156.7	Fixed Base, Mobile, Portable Priority: 1 & 2 ONLY

**UHF TYPE 2 BAND {SCMA/FDUMA\*}**

CHANNEL ID	RX FREQ	RX CTCSS NAC	TX FREQ	TX CTCSS NAC	Notes
SCMA C	484.2125 N	167.9	487.2125 N	146.2	Fixed Base, Mobile, Portable <b>Permitted Use in Los Angeles County ONLY</b> Priority: 1, 2, 3, 4, 5
SCMA E	484.2125 N	167.9	487.2125 N	167.9	Fixed Base, Mobile, Portable <b>Permitted Use in Los Angeles County ONLY</b> Priority: 1, 2, 3, 4, 5
SCMA N	484.2125 N	167.9	487.2125 N	156.7	Fixed Base, Mobile, Portable <b>Permitted Use in Los Angeles County ONLY</b> Priority: 1, 2, 3, 4, 5
SCMA W	484.2125 N	167.9	487.2125 N	173.8	Fixed Base, Mobile, Portable <b>Permitted Use in Los Angeles County ONLY</b> Priority: 1, 2, 3, 4, 5
SCMA D	484.2125 N	167.9	484.2125 N	167.9	Fixed Base, Mobile, Portable <b>Permitted Use in Los Angeles County ONLY</b> Priority: 1, 2, 3, 4, 5
FDUMA D	487.2375 N	156.7	487.2375 N	156.7	Fixed Base, Mobile, Portable <b>Permitted Use in Los Angeles County ONLY</b> Priority: 1, 2, 3, 4, 5

**700 MHz BAND**

7FIRE63	769.89375 N	\$F7E	799.89375 N	\$293	*Repeater, Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7FIRE63D	769.89375 N	\$F7E	769.89375 N	\$293	Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7FIRE64	769.99375 N	\$F7E	799.99375 N	\$293	*Repeater, Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5

**700 MHz BAND {Cont}**

CHANNEL ID	RX FREQ	RX CTCSS NAC	TX FREQ	TX CTCSS NAC	Notes
7FIRE64D	769.99375 N	\$F7E	769.99375 N	\$293	Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7FIRE83	773.50625 N	\$F7E	803.50625 N	\$293	*Repeater, Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7FIRE83D	773.50625 N	\$F7E	773.50625 N	\$293	Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7FIRE84	773.85625 N	\$F7E	803.85625 N	\$293	*Repeater, Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7FIRE84D	773.85625 N	\$F7E	773.85625 N	\$293	Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7MED65	769.39375 N	\$F7E	799.39375 N	\$293	*Repeater, Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7MED65D	769.39375 N	\$F7E	769.39375 N	\$293	Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7MED66	769.49375 N	\$F7E	799.49375 N	\$293	*Repeater, Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7MED66D	769.49375 N	\$F7E	769.49375 N	\$293	Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7MED86	773.00625 N	\$F7E	803.00625 N	\$293	*Repeater, Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7MED86D	773.00625 N	\$F7E	773.00625 N	\$293	Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7MED87	773.35625 N	\$F7E	803.35625 N	\$293	*Repeater, Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5
7MED87D	773.35625 N	\$F7E	773.35625 N	\$293	Fixed Base, Mobile, Portable Priority: 1, 2, 3, 4, 5

\*Small Cities Mutual Aid (SCMA) is only permitted for use in Los Angeles County. Fire Department UHF Mutual Aid (FDUMA) is only permitted for use in Los Angeles County.

**APPENDIX D: CAFIRE REPEATER LOCATIONS**

NOTE: CTCSS Tones listed are licensee tones. The control PSAP must be able to monitor the statewide CTCSS Tone of 156.7. Radio frequency channels and Tones listed reflect the repeater rx/tx not the user mobile, base or portable.

{Please provide Cal OES with current or updated information on the following locations.}

<b>LFIRE2 VHF Low (45.480/39.880 MHz) LICENSED REPEATER LOCATIONS</b>					
<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>
<b>LFIRE4 VHF Low (39.880/45.480 MHz) LICENSED REPEATER LOCATIONS</b>					
<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>
<b>UHF SCMA (487.2125/484.2125 MHz) LICENSED REPEATER LOCATIONS*</b>					
<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>
1	146.2	167.9		SCMA C	
1	167.9	167.9		SCMA E	
1	156.7	167.9		SCMA N	
1	173.8	167.9		SCMA W	

\*NOTE: Small Cities Mutual Aid repeaters are licensed by the County of Los Angeles and administered by the County of Los Angeles and the Southern Planning Area of CALSIEC. These frequencies are only authorized within Los Angeles County.

**7FIRE63 (799.89375/769.89375 MHz) LICENSED REPEATER LOCATIONS**

<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>

**7FIRE64 (799.89375/769.89375 MHz) LICENSED REPEATER LOCATIONS**

<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>

**7FIRE83 (799.89375/769.89375 MHz) LICENSED REPEATER LOCATIONS**

<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>

**7FIRE84 (799.89375/769.89375 MHz) LICENSED REPEATER LOCATIONS**

<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>

**7MED65 (799.89375/769.89375 MHz) LICENSED REPEATER LOCATIONS**

<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>

<b>7MED66 (799.89375/769.89375 MHz) LICENSED REPEATER LOCATIONS</b>					
<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>
<b>7MED86 (799.89375/769.89375 MHz) LICENSED REPEATER LOCATIONS</b>					
<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>
<b>7MED87 (799.89375/769.89375 MHz) LICENSED REPEATER LOCATIONS</b>					
<b>MAR</b>	<b>RX Tone(s)</b>	<b>TX Tone(s)</b>	<b>County</b>	<b>City/Site</b>	<b>Call Sign</b>

These procedures are in place in order to minimize the interference and misuse of California's statewide interoperability channels.

### **Channel Request Process – Emergency Operations:**

The following information is only for Emergency Operations, fire-ground incidents. All frequencies are coordinated by the CALFIRE Frequency Coordinator for major SRA Incidents. Once assigned for major long-term incidents these Interoperability FIRE/MED channels should be included in an ICS-205, and should be forwarded to the FIREScope CSG list server or other appropriate distribution. Local Incidents are usually assigned by the appropriate Fire/Medical Dispatch center for short-term tactical communications. These operations typically do not include an ICS-205 for distribution purposes nor are they coordinated through the CALFIRE Frequency Coordinator or Cal OES Fire & Rescue or Telecommunications Branches. A notable example is the Small Cities Mutual-Aid (SCMA) and FDUMA channels assigned for use in Los Angeles County only and coordinated by the Region 1 Fire Coordinating body. The SCMA & FDUMA channels are listed in this document to illustrate that it is part of the overall State Interoperability System, albeit only for LA County.

### **Channel Request Process – Pre-Planned Events:**

The following information is only for Pre-Planned Events and not immediate fire-ground operations. It is expected that during emergencies, public safety representatives will make immediate use of the interoperability channels for which they are licensed. However, even though an agency is licensed for use on a discipline-specific channel, repeated or non-repeated, does not give permission for a day-to-day routine "Tactical" or secondary "Dispatch" use\*. Fire-specific channels are still coordinated through a process particularly for pre-planned events. Determine what channel will best fit your pre-planned event's needs. {ex:7FIRE63, 7MED87} and request through the CALFIRE Frequency Coordinator.

The salient points of this process are that the CALFIRE Frequency Coordinator is the single point of entry for all FIRE/MED interoperability channel requests for pre-planned events. The Cal OES Fire & Rescue Fire Duty Officer (FDO) should also be notified. Once a request has been sent, it is assumed that you may use the requested channel unless you hear otherwise from the FDO or the Frequency Coordinator. All questions about requesting FIRE/MED Interoperability Channels should be addressed to the CALFIRE Frequency Coordinator, the Cal OES Fire & Rescue Duty Officer, and/or the Cal OES Telecommunications Duty Officer (TDO).

### **Channel Request Process – All:**

Once assigned by the Frequency Coordinator, an ICS-205 is requested to be sent to the appropriate distribution list. When in doubt send the 205 to the California State Warning Center (CSWC) by email to: "<mailto:warning.center@oes.ca.gov>" or FAX (916) 845-8910 with instructions to forward on to the Cal OES FDO and TDO.

When you are finished using the channel or your allocated time has expired, you must cease use of the channel and repeaters so that it will be available for others to use. To extend the use of a channel, a new channel request must be submitted.