NPSTC Intrastate Channel Naming Recommendations

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The National Public Safety Telecommunications Council is a federation of organizations whose mission is to improve public safety communications and interoperability through collaborative leadership.

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Purpose and Scope

The purpose of these recommendations is to provide a common system for naming the interoperability channels used regionally and statewide by local, regional, tribal, and state agencies throughout the State of <State>.

The scope of these recommendations includes first responders and other authorized users. It applies to all voice communications channels designated by <State> agencies for interoperability purposes.

It does not apply to interoperability channels designated nationally by the Federal Communications Commission (FCC) or to federal agency channels designated nationally by the National Telecommunications and Information Administration (NTIA). These two groups of nationwide interoperability channels can be found in the National Interoperability Field Operations Guide (NIFOG) and the ANSI/APCO/NPSTC ANS 1.104.2-2016 Standard.

Radio Programming

Based on the capability of their equipment, agencies should program their radios to use the interoperability channels within their region or for statewide use across <State> as appropriate for each channel.

In addition, all NIFOG and ANSI/APCO/NPSTC ANS 1.104.2-2016 channels should also be programmed into each subscriber's radio on a per radio band basis so that field units can directly access national interoperability channels anywhere in the United States with use of their standardized national names.

Rules of Use

To be developed by the individual state. These rules should address how the frequencies are licensed (directly by the agency or by the state, with local users under letters of agreement[1] and any specific operating protocols such as encryption. These rules should also take into consideration the needs of dispatch centers to implement this channel naming convention.

Naming System

Each designated regional/statewide interoperability channel shall have a unique name that is developed using the following standardized format. This format requires the use of a maximum of eight characters which is the minimum display size for current

[1] Refer to 47CFR90.421 and 47CFR90.179.

production radios. If your equipment is not capable of using eight characters, then a six character name can be used. The standardized naming format is as follows:

The standardized name is derived from the following four categories:

SN Type ## M

SN = State Name

The State Name designator is a unique two character alpha designator developed by the United States Postal Service. For <name of State> radios this prefix is <S**N>**.

Type = Channel Use Designator

The Channel Use Designator is a three or four place alpha tag that denotes the primary purpose of operations on the channel. To facilitate the use of these Channel Names in older radios with only 6 characters available in the display, the "**type**" Channel Use field is limited to the first 3 characters. Short Form names are not applicable to the 700 MHz band since the equipment used for this band does not have the character limitation.

Eight Characters Available Name	Six Characters Available Name	Definitions Channel Use Type
CALL	CAL	Dedicated statewide for the express purpose of interoperability calling only.
CORD	CRD	Reserved for on-scene coordination by any public safety eligible component.
DATA	DAT	Reserved statewide for the express purpose of data transmission only.
FIRE	FIR	Primarily used for interagency incident communications by fire licensees.
GTAC	GTC	Primarily used for interagency incident communications between public safety eligible entities and eligible non-governmental organizations.
LAW	LAW	Primarily used for interagency incident communications by Police licensees.

MED	MED	Primarily used for interagency incident communications by Emergency Medical Service licensees.
MOB	MOB	Primarily used for on-scene interagency incident communications by any public safety eligible, using vehicular repeaters (FCC Station Class MO3).
SAR	SAR	Primarily used for interagency incident communications for Search and Rescue Operations.
TAC	TAC	Primarily used for interagency communications by any public safety eligible.
TRVL	TRV	Primarily used for interagency communications by any public safety eligible to coordinate travel when responding to/from an incident outside of an agency's own jurisdiction.

Notes:

- Starting in VHF High Band, Channel Identifiers are grouped by Channel use type. Channel Identifiers ending in "0" should be reserved for Interoperability Calling use.
- Channels Identifiers specified for Emergency Medical Services ("MED") in this document should be numbered to avoid conflict with the FCC's UHF medical channel naming methodology specified in 47CFR90.20(d)(65) and 47CFR90.20(d)(66)(i).
- If a new frequency becomes available, it will be given the next unique channel identifier.

= Unique Channel Identifier

The Unique Channel Identifier is a one- or two-place numeric tag that uniquely identifies the specific channel. States may designate the numbering sequence; however it is recommended that the numbering sequence in combination with the channel type be sufficiently different than that of the ANSI/APCO/NPSTC ANS 1.104.2-2016 Standard for the appropriate band, so as to avoid potential confusion on the part of the user.

M = Modifier

The Modifier character is a single alphanumeric tag to identify a modification to the default operation type on the channel/channel pair:

D *Direct or "Talk around" use [Simplex operations on the output channel of a pair normally designated for half-duplex or mobile relay operations.]*

Use of this modifier on channels which are normally simplex are at the discretion of the state. [2]

Standardized Tone Squelch or Network Access Codes

The use of a common Continuous Tone Coded Squelch System (CTCSS) tone of 156.7 Hz for transmit and receive on national Interoperability Channels was originally specified in the NPSPAC proceedings (FCC Docket 87-112) and was adopted by the FCC's 700 MHz NCC Interoperability Committee's Working Group for all analog voice operations on all interoperability channels in all bands except for the VHF tactical repeater pairs VTAC33 to VTAC38 that use 136.5 Hz on input only to avoid interference with simplex users on those same channels. This recommendation has been carried forward into this naming convention.
However, where there are multiple repeaters on the same frequency pair in the same area, it may be desirable to use transmitter steering by supporting multiple input tones to each repeater. All repeaters activate upon receipt of the national tone 156.7 Hz, but each also has an individual tone used just by that repeater to avoid a field unit (mobile/portable) keying multiple repeaters in the same area.

For P-25 digital voice operations, the "carrier squelch equivalent" Network Access Code (NAC) of $293 hex (decimal equivalent 659) shall be used. However, where there are multiple repeaters on the same frequency pair in the same area, it may be desirable to use transmitter steering by supporting multiple input NACs to each repeater. All repeaters activate upon receipt of the national NAC $293, but each also has an individual NAC used just by that repeater to avoid a field unit (mobile/portable) keying multiple repeaters in the same area.

ANALOG OPERATION

CTCSS Tone 156.7 Hz should be used for all analog operations on interoperability channels:

[2] This format differs from the earlier APCO/NPSTC ANS Standard format for the VHF Band.

1. All (fixed and subscriber) analog transmitters should encode 156.7 Hz.
2. Subscriber receivers should be set for carrier squelch operations unless conditions in the area require the use of tone protection to mitigate adjacent channel interference, or interference from intermodulation products. In those cases, receivers should decode 156.7 Hz.
3. Subject to the approval of applicable state communications plans, Statewide Communications Interoperability Plans (SCIP), and/or FCC-approved Regional Plans, mobile relay (repeater) stations that are part of a local, regional, or statewide interoperability network may be equipped with a second receive CTCSS tone to provide local ("in cabinet") mobile relay operation, provided:

    a. The relay transmitter continues to transmit the common CTCSS tone of 156.7 Hz to ensure that all users within range of the station are aware the station is in use;

    b. The relay will accept the common CTCSS tone of 156.7 Hz and present the audio accompanying the 156.7 Hz-encoded transmission for automatic in-cabinet repeat or to a live operator at the appropriate controlling dispatch facility; and

    c. The operational configuration of the mobile relay station is published in applicable interoperability resource tracking documents (such as the appropriate TICP, SCIP, FCC-approved Regional Plans, or other administrative authority).

DIGITAL OPERATIONS

Network Access Code (NAC) $293 hex should be used for all digital operations on these regional and statewide interoperability channels where digital modulation is permitted or required, as follows:

1. All (fixed and subscriber) digital transmitters should encode $293 hex (Decimal 659).
2. Subscriber receivers should be set for $F7E (Decimal 3966).
3. Subject to the approval of applicable state communications plans, SCIP, and/or FCC-approved Regional Plans, mobile relay (repeater) stations that are part of a local, regional, or statewide interoperability network may be equipped with a second receive NAC to provide local ("in cabinet") mobile relay operation, provided:

    a. The relay transmitter should continue to transmit the Common NAC of $293 so that all users within range of the station are aware the station is in use;

b. The relay should accept the Common NAC of $293 and present the audio accompanying the $293-encoded transmission for automatic in-cabinet repeat or to a live operator at the appropriate controlling dispatch facility; and

c. The operational configuration of the mobile relay station should be published in applicable interoperability resource tracking documents (such as the appropriate TICP, SCIP, FCC-approved Regional Plan, or other administrative authority).

Regional Restrictions on Channel Availability

Where channels are restricted to use within a particular region of <State>, they should be appropriately color-coded in the Channel Table to show such restriction. A sample table is shown below.

Region	**Color Coding**
Northeast <State> Region	Magenta
Northwest <State> Region	Orange
Urban Area <#1>	Green
Urban Area <#2>	Blue
Statewide	No color shading

Acronyms

ANSI -American National Standards Institute

APCO - Association of Public-Safety Communications Officials

CFR - Code of Federal Regulations

CTCSS - Continuous Tone-Coded Squelch System

FCC -Federal Communications Commission

NAC - Network Access Code

NIFOG - National Interoperability Field Operations Guide

NPSPAC - National Public Safety Planning Advisory Committee (800 MHz)

NPSTC - National Public Safety Telecommunications Council

NTIA - National Telecommunications and Information Administration

SCIP – Statewide Communications Interoperability Plan

TICP - Tactical Interoperable Communications Plan