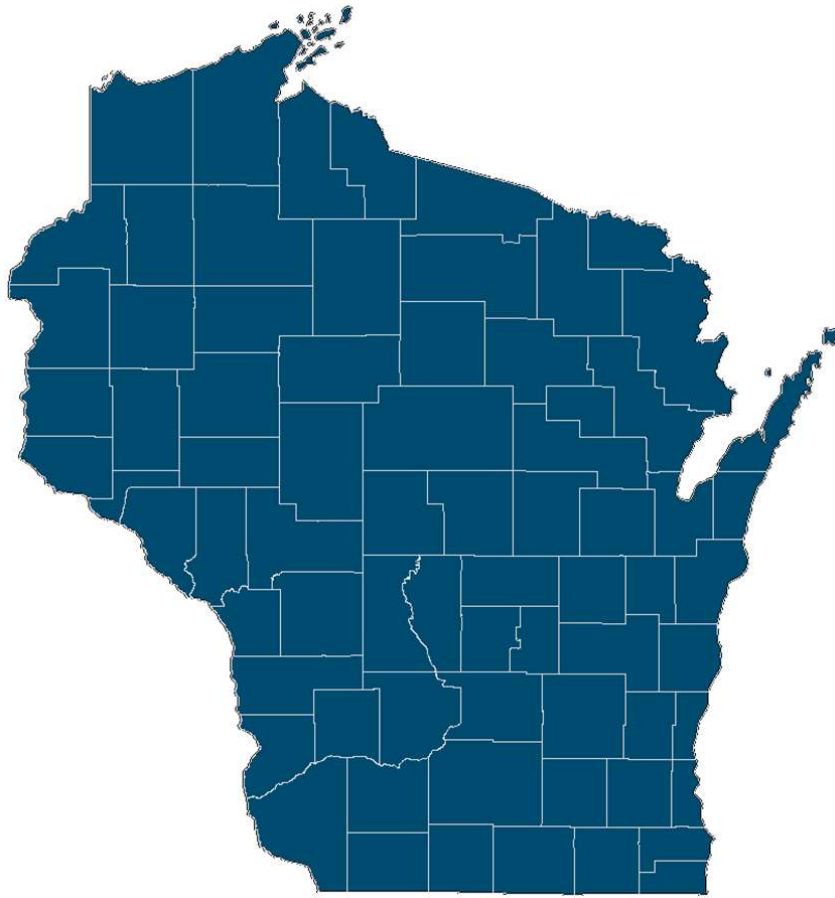


# STATE OF WISCONSIN

## Interoperable Communications



## Field Operations Guide

Version 2.3 November 2021



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*“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.”*

**CISA-ECD**

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## **Wisconsin Interoperable and Emergency Communications Vision:**

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To be the model for fiscally sustainable interoperable public safety communication systems

## **Wisconsin Interoperable and Emergency Communications Mission:**

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To provide strategic guidance for the highest level of reliable interoperable communications for public safety by maintaining an effective organizational structure to promote proper planning, training, and sharing of resources.



The *Wisconsin Interoperability Field Operations Guide (WI-FOG)* is a collection of technical reference material to aid Communications Unit personnel in establishing solutions to support communications during emergency incidents and planned events.

The WI-FOG is consistent with the goals identified in the *Wisconsin Emergency Communications Strategy (WECS)* and the vision statement of the U.S. Department of Homeland Security (DHS), wherein emergency responders can communicate as needed, on demand, and as authorized at all levels of government.

Information gathered in this FOG is unclassified.

Please send all comments, corrections, updates, and questions to the Wisconsin Office of Emergency Communications using the following email link: [interop@wisconsin.gov](mailto:interop@wisconsin.gov).



## Letter of Introduction

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It is with great enthusiasm that we present to you the updated Wisconsin Interoperability Field Operations Guide (WI-FOG).

This guide is a collection of radio communications technical reference material for emergency responders, which includes information from the Wisconsin Interoperability Council, the American National Standards Institute (ANSI) Channel Naming Standard, and the National Interoperability Field Operations Guide (NIFOG). This iteration was developed with inputs from various state, local, and federal agencies and is intended to evolve through regular updates and expand as needed.

Included within these pages are usage guidelines, statewide and national interoperability channels, and Incident Command System references. Mutual aid frequencies are open to all emergency responders, who are encouraged to program their radios as appropriate and authorized. As always, Federal Communications Commission (FCC) rules and regulations with regards to licensing and operations should be followed. More information on this process can be found at <http://wireless.fcc.gov> and in the NIFOG at <https://www.cisa.gov/safecom/field-operations-guides>.

The State of Wisconsin is the designated authorized licensee of all state designated mutual aid and non-Federal National Interoperability Channels. To operate on these frequencies, the licensee (State of Wisconsin) must designate you as a unit of their system, in accordance with FCC rule 90.421. Agencies that desire to program these channels must request authorization from the State Frequency Coordinator.

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.

Contact the State Frequency Coordinator for assistance using the following email link:

[DOTDSPStatewideFrequencyCoordinator@dot.wi.gov](mailto:DOTDSPStatewideFrequencyCoordinator@dot.wi.gov).

We hope this guide becomes an indispensable tool in your day-to-day activities and encourages more efficient and effective use of our limited mutual aid spectrum. Thank you to all that contributed to the development of the WI-FOG.



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## Chap. 1 About the WI-FOG

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### Ch. 1.1 PURPOSE

The purpose of the Wisconsin Interoperability Field Operations Guide (WI-FOG) is to be the emergency responders' everyday guide for interoperable radio communications.

The WI-FOG works towards the Wisconsin Emergency Communication Strategy (WECS) vision of achieving interoperability in the State of Wisconsin by providing emergency responders with information to achieve interoperability across the State.

The WI-FOG:

- Increases efficiency in establishing interoperable communications during incidents.
- Creates a consistent knowledge base of interoperable communications frequencies and networks.
- Provides helpful tools for pre-planning and interoperable communications training and exercises.

All frequency information in the WI-FOG is presented in the format as it applies to programming mobile and portable radios.

### Ch. 1.2 OVERSIGHT AND REVISION PROCESS

The WI-FOG is a living document that will be updated as required.

The Wisconsin Interoperability Council oversees the WI-FOG while the Wisconsin Statewide Interoperability Coordinator (SWIC) within the Wisconsin Office of Emergency Communications, Department of Military Affairs facilitates the update process.

Please send all comments, corrections, updates, and questions to the Wisconsin Office of Emergency Communications using the following email link: [interop@wisconsin.gov](mailto:interop@wisconsin.gov).





## Chap. 2 Interoperability Situations and Tactics to Avoid

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- *Incidents using channels in more than one band.*
- *Radio congestion making it impossible for users to communicate critical information.*
- *Users lacking knowledge of a radio system(s) or assigned radio functionality.*
- *Not having clear instructions and/or assignments.*
- *Having none or inadequate communication with responders or supervisors.*
- *Having an inadequate number of tactical channels available or assigned.*
- *Having multiple conversations on the same talkgroup or channel.*
- *The radio systems used for interoperability do not completely support the incident and lack good radio coverage.*
- *Having high levels of background noise in the working environment.*
- *Multiple agencies are performing radio programming at the incident.*
- *Multiple organizations in the same system that do not use the same vocabulary.*
- *Gateway devices are being used in a strategic (wide area) rather than tactical (local) environment.*
- *Using multiple gateways at the same incident without coordination.*
- *A single Communications Unit Leader (COML) for the incident is not identified.*
- *Operations are occurring in the deep interior of a building, parking garage, or underground.*



## Chap. 3 Communications Unit Best Practices

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### Ch. 3.1 PRE-DEPLOYMENT (PLAN AND PREPARE)

During the pre-deployment or planning phase of the incident, the following tasks should be completed by the COML or designated person:

- Identify and provide access to any applicable interoperable communications plans and reference information such as the ICS-201 (Incident Briefing, Incident Action Plan), ICS-205 (Incident Radio Communications Plan), and Field Operations Guides (FOG).
- Maintain or have access to an up-to-date directory for:
  - Communications Unit staff (i.e., COML, Communications Unit Technician (COMT), etc.) to provide communications support as needed during an incident or event.
  - Any relevant points of contact (POC) and procedures for interoperable communications and resources.
  - Available communications assets, such as mobile communications vehicles, gateways, and radio caches.
  - Radio systems and talkpaths that can be used to provide interoperable communications during a critical incident.
- Establish an accountability process to track deployable resources such as radio caches and accessories.
- Maintain copies of planning documents and accountability forms so they are readily accessible during a deployment.
- Ensure that all deployable resources include supporting documentation and frequently used accessories. Examples include user guides, instructions, speaker microphones, radio holsters, and spare batteries.



- Whenever possible, ensure that agency radios are programmed to include applicable interoperability talkpaths.
- Strive to foster close working relationships with area agencies and communications staff.
- Support the inclusion of a communications component during exercises and incident planning.
- Participate in regularly conducted interoperable communications tabletop and/or functional exercises.
  - These exercises should include administrative, field, supervisory, and dispatch personnel.
  - Exercise evaluations, after-action reports, and improvement plans and practices should be developed and implemented after each exercise.

## Ch. 3.2 During Deployment (Execute)

During the deployment or active phase of the incident, the following tasks should be completed by the COML or designated person:

- Obtain an incident briefing from the Logistics Section Chief or Incident Commander as appropriate. Briefing should include:
  - Location and extent of the incident.
  - Numbers and types of responders involved in the incident.
  - Current communications resources employed to support the incident including channels and talkgroups.
  - Current and anticipated communications requirements and challenges.
- Provide technical information, as required, on the following issues:
  - Adequacy of communications system currently in use.
  - Geographic limitation on communications equipment.



- Equipment capabilities.
- Amount and types of equipment available.
- Anticipated problems in the use of communications equipment.
- Assess communications systems in use; advise on communications capabilities and limitations, including:
  - Conventional and trunked radio systems, channels and talkgroups.
  - Data communications requirements and capabilities.
  - Needs assessment for broadband wireless and/or satellite-based data communications resources.
  - Anticipated problems in the use of communications equipment.
- Prepare and implement an Incident Communications Plan (ICS- 205):
  - Obtain a current organizational chart.
  - Determine the most hazardous tactical activity; ensure adequate communications.
  - Administer communications assignments to all other Operations elements, including volunteer, contract, or mutual aid.
  - Identify and address the communications needs for Command, Operations, and Logistics units.
  - Establish and post specific procedures for use of the Incident Command Post communications equipment.
- Organize and staff the Communications Unit as appropriate to the size and needs of the incident, including:
  - Stand up an Incident Communications Center (if needed) and assign an Incident Communications Center Manager (INCM) to Incident Tactical Dispatchers (INTD) and Radio Operators (RADO) as needed.



- Identify and staff a Staging Area for assignment and distribution of deployable communications resources, such as radio caches and gateways.
  - Ensure that responders can operate their assigned communications equipment and that assigned talkpaths are readily available.
- Document malfunctioning communications equipment and facilitate repairs.
- Maintain copies of planning documents, resource directories and accountability forms so they are accessible during a deployment.
- Manage the activation and deactivation of console patches and interoperability repeaters where applicable.
- Manage personnel rotation and relief as needed during lengthy deployments.



## Ch. 3.3 Post-Deployment (Recover)

Upon completion of the incident, the following tasks should be completed by the COML or designated person:

- Ensure that all deployed equipment, such as gateways, channel patches and interoperable repeaters are disabled or returned to a standby condition.
- If notification of the incident was made to the Wisconsin Emergency Hotline (WEH), notify them that the incident has ended.
  - Any channels or talkgroup assignments made through the Hotline should be relinquished at this time.
- Supervise the return and inspection of any assigned resources.
  - Use the existing accountability process to check in the equipment as needed.
  - Document damaged or missing equipment or accessories and identify the assignee.
- Keep a record of extraordinary occurrences such as:
  - Missing equipment or accessories.
  - Damaged equipment or accessories.
  - Malfunctions or technical issues during the incident.
  - Injuries to Communications Unit staff.
- Conduct a hotwash as soon as practicable with any COMU staff present during the incident.
- Prepare a written after-action review with recommendations and attend incident after-action meetings, as necessary.



## Chap. 4 Guidelines for Interoperable Radio Communications

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### Ch. 4.1 USE OF INTEROPERABILITY CHANNELS

All radio transmissions on interoperability channels are for official use only. The radio frequencies may legally be used under the following circumstances:

- The user agency retains an FCC license or a National Telecommunications and Information Administration (NTIA) authorization for these frequencies, or the user is covered by another authority's license.
- A "Letter of Authorization" is granted by the State Frequency Coordinator allowing an agency to use any interoperability frequencies licensed to the State of Wisconsin. For information, please e-mail [DOTDSPStatewideFrequencyCoordinator@dot.wi.gov](mailto:DOTDSPStatewideFrequencyCoordinator@dot.wi.gov).
- The FCC or NTIA issues a "Special Temporary Authorization" (STA) for the use of channels in a particular area/event.
- The use of the frequency is necessary for the IMMEDIATE protection of life or property. When necessary, radio users may use prudent measures beyond the specifics of their license.

Note: The WI-FOG in and of itself does not grant authority to operate on a given radio frequency. Such authority comes in the situations indicated above.

### Ch. 4.2 LICENSING OF INTEROPERABILITY CHANNELS

All radio transmitters, both base and mobile, require a current FCC license or a letter of authorization from the licensee before being placed in operation. Before licensing base station on State (non-Federal/National) channels, please contact the State Frequency Coordinator at [DOTDSPStatewideFrequencyCoordinator@dot.wi.gov](mailto:DOTDSPStatewideFrequencyCoordinator@dot.wi.gov) to discuss options.



## **Ch. 4.3 CHANNEL/TALKGROUP NAMES**

To avoid confusion during interoperable communications, standardized channel/talkgroup names should be stated in widely used terms (e.g., “MARC2” or “VLAW31”). Channel/talkgroup numbers corresponding to specific physical locations should not be used unless the resource cannot display alphanumeric characters (e.g., “Channel 1” or “Channel A14”).

## **Ch. 4.4 IDENTIFICATION PROCESS**

During interoperable communications, units must use their home agency name, unit type, and agency-assigned unit identifier during transmissions (e.g., “Superior Engine 1”). These should not be shortened and should include the entire set of letters and/or numbers.

Base stations shall identify themselves by using their agency name along with any other usual identifier.

## **Ch. 4.5 CHANNEL MONITOR**

Personnel should monitor mutual aid channels prior to transmitting to minimize the possibility of interference with communications in progress.

## **Ch. 4.6 ENCRYPTION**

The use of any mutual aid channel for transmission of any encoded, encrypted, or scrambled message is prohibited. However, encryption is allowed on VTAC36DG and VTAC37DG for law enforcement tactical communications using the common encryption code.

## **Ch. 4.7 OUT-OF-AREA/ITINERANT MOBILES**

Base stations are encouraged to monitor mutual aid channels based on their capabilities. Typically, these channels are the only means for personnel traveling outside their normal jurisdiction to obtain assistance or to report traffic collisions, fires, or other hazards.





## Ch. 4.8 PRIORITY LEVELS

Statewide interoperability systems are governed by priority levels that must be always respected. Priority is given to disaster and emergency operations, urgent operations, special events, drills, tests, and exercises. When a higher priority use is required, all lower priority traffic yields the frequency in areas where interference could occur. Check the interoperability system plans for each interoperability channel's priority levels.

Priority levels for these systems are as follows:

- **Priority 1:** Disaster and extreme emergency operations for mutual aid and interagency communications.
- **Priority 2:** Emergency or urgent operations involving immediate protection 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.

## Ch. 4.9 PLAIN LANGUAGE

All interoperable communications during multi-agency, multi-discipline incidents will be in plain language. Radio codes, acronyms, and abbreviations should not be used as they may cause confusion between agencies. All verbal requests for assistance or backup must state the reason for the request.

- Plain words such as “help,” “assistance,” and “back-up” may have different operational meanings to different agencies.
- The words “emergency traffic” should be used in the context of a life-threatening situation.
- The word “help” should not be used alone unless in the context of a life-threatening situation.
- Requests for assistance or back-up should clarify the reason for the request.
- All verbal requests for assistance or backup should specify the reason(s) for the request and be acknowledged by the receiving station.



## Chap. 5 Requests for Communications Resources

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### Ch. 5.1 COMMUNICATIONS RESOURCE REQUESTS

An agency needing communications resources or support should contact their local dispatch center and emergency management director. If the request cannot be filled locally, the dispatch center should contact the Wisconsin Emergency Hotline (WEH) at **800-943-0003, Option 2** to make the request.

Resources for planned events should be coordinated with the appropriate agency at least thirty days in advance for any communications asset or resource. If there is an emergency need

Wisconsin Emergency Management (WEM) cache resources are available and should be requested through the Wisconsin Emergency Management Equipment Request board whenever possible. This board is located on Wisconsin Emergency Management's WebEOC site under Advanced File Library>Emergency Response Resource Guide.

WebEOC can be accessed at <https://wi.webeocasp.com/wi>.

#### *Ch. 5.1(a) Resource Listings*

Many communications resources, interoperability channels, and talkgroups, including Amateur Radio (ARES/RACES), are listed in the Communications Assets Survey and Mapping (CASM) tool managed by the Emergency Communications Division (ECD) of the Cybersecurity and Infrastructure Security Agency (CISA.) The CASM tool may be accessed at <https://casm.dhs.gov>.

Access to this tool is restricted; use the hyperlink provided on the CASM site to request access if needed.

#### *Ch. 5.1(b) Required Request Information*

The following request guidelines outline the information required to deploy or activate interoperable communications assets and resources for emergent or planned events:

- Requesting agency.
- Incident timeframe (e.g., in-progress or future planned event)".
- Incident/event type (e.g., wildland fire, sporting event, etc.)



- Communications capability needed.
- Expected duration of event.
- Location required/access information.
- Incident POC and contact information.
- User/requestor and/or servicing dispatch contact phone number.
- Copy of the ICS-205 Communications Plan, if available.
- Initial calling channel to use upon approach and arrival.
- Additional support services or resources requested (e.g., COMU personnel, generator, etc.)

## Ch. 5.2 RESOURCE SPECIFIC INFORMATION

### *Ch. 5.2(a) Site on Wheels (SOW) Requests*

Requests for large deployable assets may not always be warranted. Be prepared to present a request for communications capabilities in lieu of specific equipment. Requests for SOW/Areawide coverage resources should include:

- Requesting agency.
- On-scene agencies requiring interoperability.
- Incident timeframe (e.g., in-progress or future planned event)".
- Incident/event type (e.g., wildland fire, sporting event, etc).
- Communications capability needed.
- Expected duration of event.
- Location required/access information.
- Incident POC and contact information.
- User/requestor and/or servicing dispatch contact phone number.
- Copy of the ICS-205 Communications Plan, if available.
- Initial calling channel to use upon approach and arrival.
- Anticipated site location, directions, and access instructions for the equipment.
- Availability of shoreline power, if known.



## ***Ch. 5.2(b) Broadband Deployable Requests***

Broadband deployable resources typically require a 100-foot x 100-foot open and level area that has a clear view of the southern sky.

### ***Ch. 5.2(b-1) Incidents and Emergent Events***

The following information is required to complete a broadband deployable request:

- Primary and Secondary Points of Contact (POC), one of which should be on scene.
- Type of emergency.
- Purpose/Use of deployable.
- Location of connectivity issues (address, county, latitude & longitude.)
- Name of local 911 Emergency Communication Center.
- Additional services required (e.g., data, voice, streaming.)
- Need for on-site technical support for duration of deployment.

### ***Ch. 5.2(b-2) Non-Emergency Events (Planned Events or Exercises)***

- If the request is to use a broadband deployable for a planned event, contact the appropriate broadband provider number listed below, at least 60 days prior to the date of the planned event.
  - FirstNet/AT&T – **800-574-7000**
  - T-Mobile – **888-639-0020**
  - US Cellular – **877-785-5819** (Note: US Cellular resources are only available for incidents, not planned events.)
  - Verizon – **800-981-9558**
- ***NOTE: Connectivity to deployables furnished by individual providers are limited to users of that provider, i.e., only FirstNet users can connect to FirstNet equipment, only T-Mobile users can connect to T-Mobile equipment, only US Cellular users can connect to US Cellular equipment, and only Verizon users can connect to Verizon equipment.***



- The WEH **must** be notified in the event a broadband deployable has been requested. This will ensure duplicate requests or a conflict in multiple assignments does not occur. If a conflict does occur, WEH staff will work with the carrier to deconflict based upon priority of need.

### ***Ch. 5.2(c) MABAS/EPS Requests***

The following information is required to complete a request for law enforcement mutual aid from Emergency Police System (EPS) or fire service mutual aid from the Mutual Aid Box Alarm System (MABAS):

- Requesting agency.
- Type and location of the emergency.
- Location of the command post and identification of the incident commander.
- Location of staging area and staging officer contact, if available.
- Channel/talkgroup for communications with the staging area or incident commander if no staging officer is available.
- Level of response requested, including type of response requested (i.e., Tenders, Water Rescue, Mobile Field Force, Patrol Car Plan.)
- User/requestor and/or servicing dispatch contact phone number.
- Copy of the ICS-205 Communications Plan, if available.

### ***Ch. 5.2(d) Requests for Amateur Radio Support through ARES/RACES***

Requests for Amateur Radio support through the Amateur Radio Emergency Services (ARES) or Radio Amateur Civil Emergency Services (RACES) should be coordinated through your local emergency management director or local ARES/RACES emergency coordinator.

Notifications of activations, and requests for statewide response can be coordinated through the Wisconsin Emergency Hotline (WEH) at **800-943-0003, Option 2.**

The following information is required to complete a request for Amateur Radio Support through ARES/RACES:

- Requesting agency.
- Incident/event type (e.g., wildland fire, sporting event, etc.)
- Communications capability needed.



- Expected duration of event.
- Location required/access information.
- Incident POC and contact information.
- User/requestor and/or servicing dispatch contact phone number.
- Copy of the ICS-205 Communications Plan, if available.
- Anticipated site location, directions, and access instructions for the equipment.
- Availability of shoreline power, if known.





# Chap. 6 Statewide Interoperable Radio Communication Plans

## Ch. 6.1 MUTUAL AID BOX ALARM SYSTEM (MABAS)

MABAS is a mutual aid measure that may be used for deploying fire rescue and emergency medical services personnel in a multi-jurisdictional and/or multi-agency response. MABAS divisions geographically span the states of Wisconsin, Illinois, Indiana, Missouri, and Michigan.

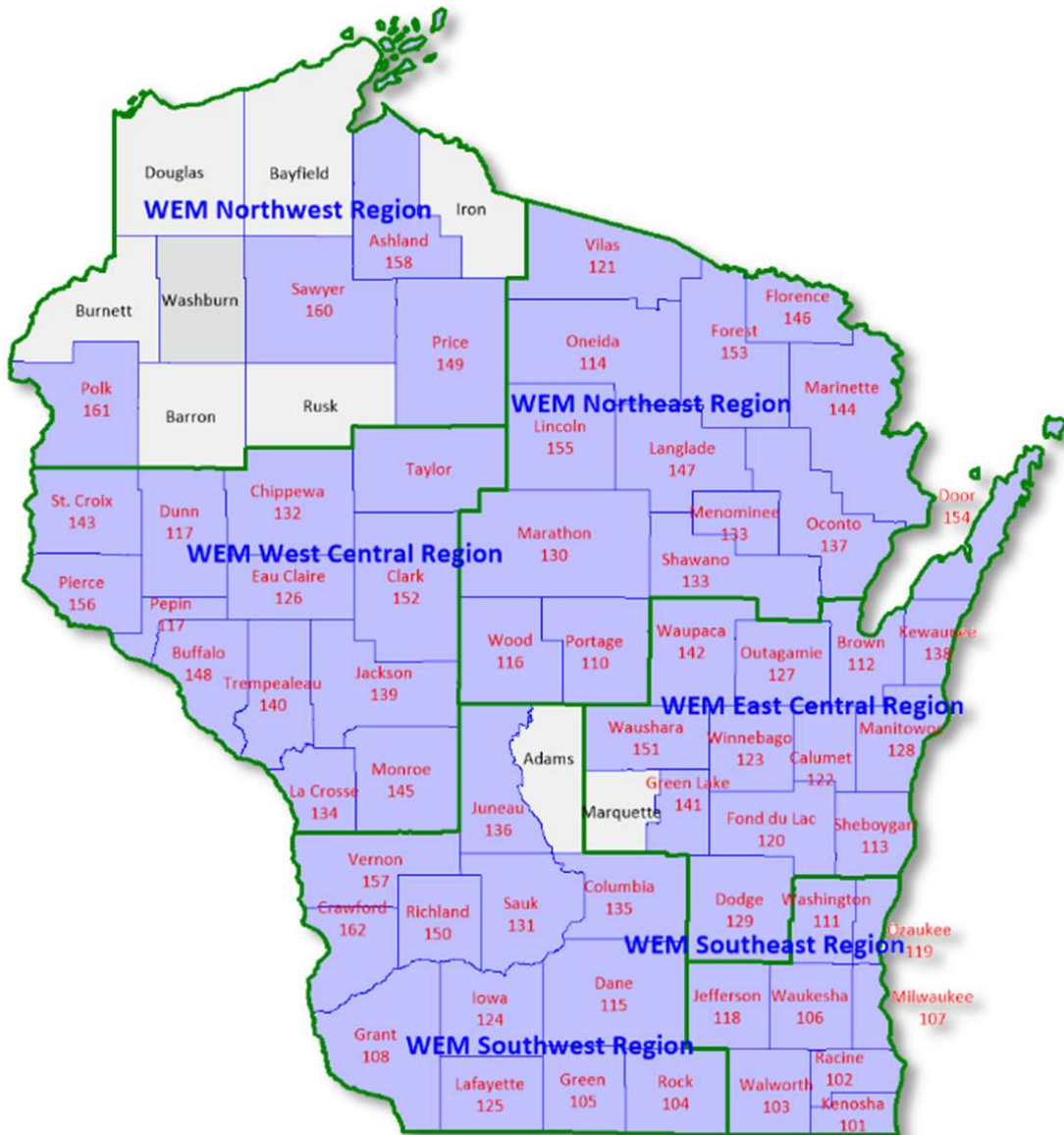


Figure 1: WI MABAS Map



Detailed information on MABAS and current operation plans can be found at [www.mabaswisconsin.org](http://www.mabaswisconsin.org). The 24-hour Badger RED statewide contact number is **800-943-0003, Option 3**. They can provide a current list of names for the entire state for regional coordinators.

## Ch. 6.2 EMERGENCY POLICE SERVICES PLAN (EPS)

The Wisconsin Emergency Police Services (EPS) Plan was created to provide law enforcement support and coordination during emergencies and other critical incidents.

There are seven regions in the state, each with a volunteer police services director.



Figure 2: Emergency Police Services Plan Districts





## Ch. 6.3 NOAA WEATHER RADIO (NWR)

NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts, and other hazard information 24 hours a day, 7 days a week.

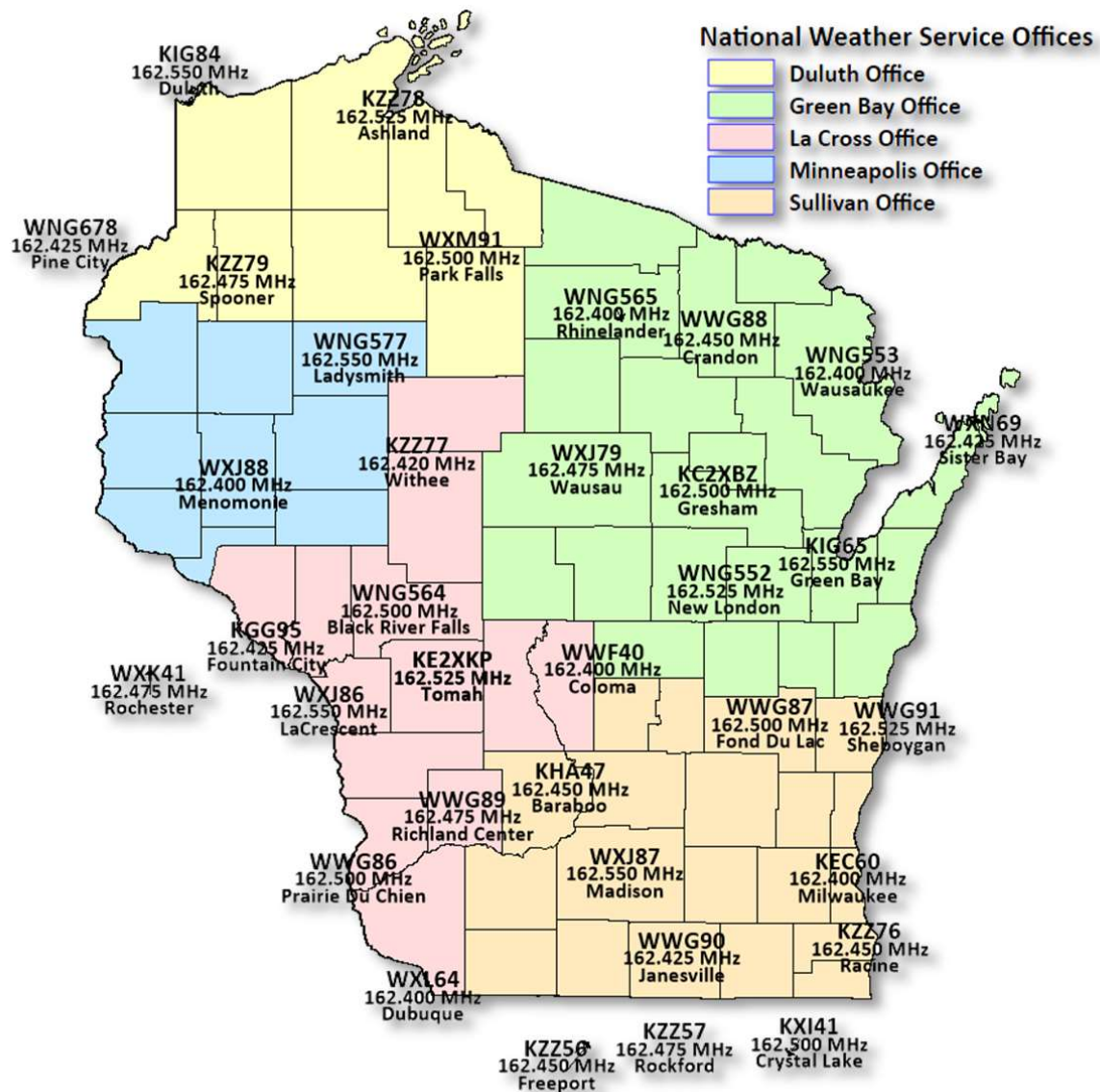


Figure 3: NOAA Weather Radio Site Map



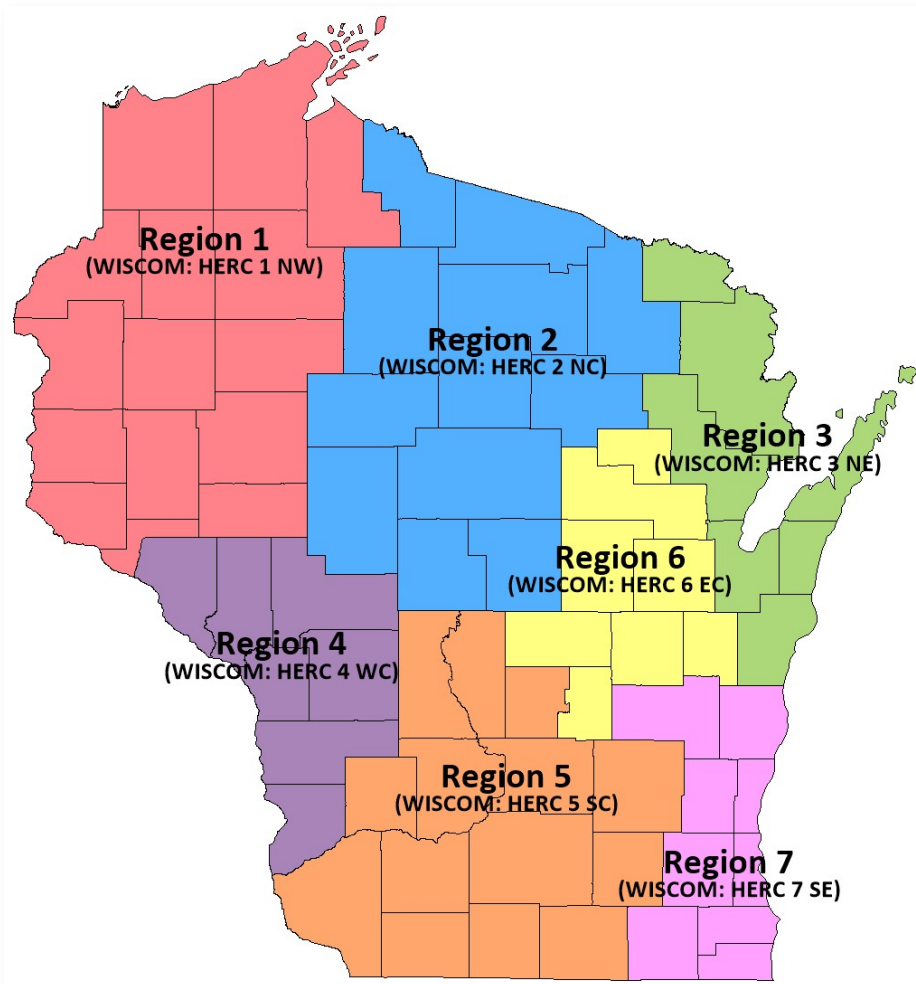
## Ch. 6.4 WISCONSIN EMS COMMUNICATIONS PLAN

The Wisconsin Emergency Medical Services (EMS) Communications Plan is both a communications guide for EMS providers and an overview of requirements for local EMS systems to assure that a statewide communication plan is in place that can address daily needs as well as large-scale multi-casualty situations. The current plan can be downloaded from:

<https://www.dhs.wisconsin.gov/publications/index.htm>

## Ch. 6.5 WISCONSIN HEALTHCARE EMERGENCY READINESS COALITIONS (HERC)

Radio plans, procedures and guidelines will be added in future editions. A map of the Wisconsin HERC regions is shown below:



*Figure 4: Healthcare Emergency Response Coalition Regions*



## ***Ch. 6.5(a) Wisconsin Healthcare Emergency Readiness Coalition Links***

More information on the Wisconsin Healthcare Emergency Readiness Coalition can be found at:

<https://www.dhs.wisconsin.gov/preparedness/healthcare/index.htm>

Information about individual HERC regions can be found on each region's website.

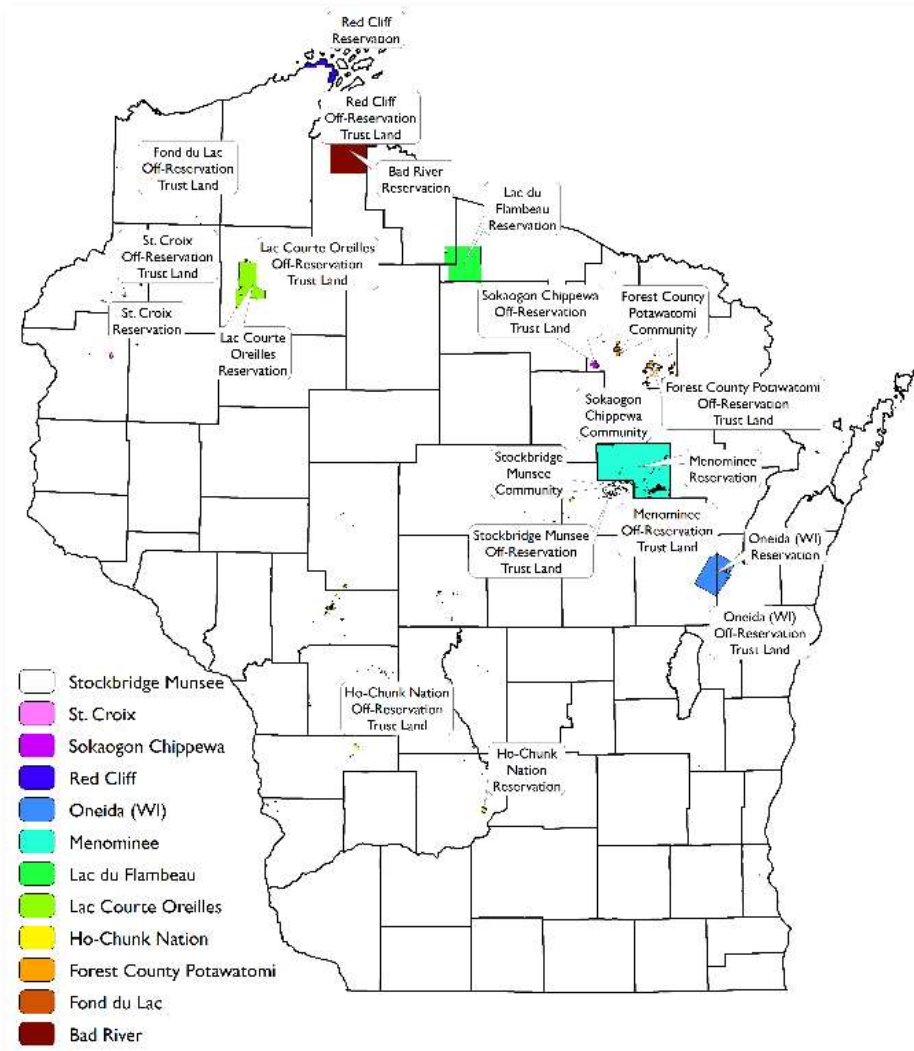
- Northwest (Region 1)  
<http://wiherc.org>
- North Central (Region 2)  
<https://ncw-herc.org>
- Northeast (Region 3)  
<https://newherc.com>
- Western (Region 4)  
<https://www.wheppwesternhcc.org/>
- South Central (Region 5)  
<http://scwiherc.org>
- Fox Valley (Region 6)  
<https://fvherc.org>
- Southeast (Region 7)  
<https://hercregion7.org>



## Ch. 6.6 WISCONSIN TRIBAL LANDS

The federally recognized American Indian tribes in Wisconsin are:

- Bad River Band of Lake Superior Chippewa
- Forest County Potawatomi
- Ho-Chunk Nation
- Lac Courte Oreilles Band of Lake Superior Chippewa
- Lac du Flambeau Band of Lake Superior Chippewa
- Menominee Indian Tribe of Wisconsin
- Oneida Nation
- Red Cliff Band of Lake Superior Chippewa
- Mole Lake (Sokaogon Chippewa Community) Band of Lake Superior Chippewa
- Saint Croix Chippewa Indians of Wisconsin
- Stockbridge-Munsee Community Band of Mohican Indians



**Figure 5: Wisconsin American Indian Tribal Lands**



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## Chap. 7 Wisconsin Interoperable System for Communications (WISCOM)

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### Ch. 7.1 OVERVIEW

The Wisconsin Interoperable System for Communications (WISCOM) is a statewide digital trunked public safety radio system that is available for use by all disciplines. WISCOM enables users to communicate with multiple public safety agencies to engage in routine interoperable communications and coordinate their mutual aid and multi-discipline incident response efforts on a shared communications system utilizing both regional and statewide interoperability talkgroups.

WISCOM is built on a VHF backbone; however, there are several areas that also offer 800 MHz coverage in addition to VHF.

### Ch. 7.2 PLAIN LANGUAGE

All interoperable communications during multi-agency, multi-discipline incidents should be in plain language. Radio codes, acronyms, and abbreviations should not be used as they may cause confusion between agencies. All verbal requests for assistance or backup must state the reason for the request.

### Ch. 7.3 UNIT IDENTIFICATION

Field units will announce their home agency and unit number, during interoperable communication situations, (e.g., “Superior Engine 1”). Specialized unit “type” may also be included if appropriate to the incident or event.

### Ch. 7.4 RADIO TESTS

Any station/unit conducting a radio test on a WISCOM talkgroup shall use the following language to avoid any confusion by those monitoring the talkgroup:

“Radio test on [name of talkgroup]. [Agency/Unit Number or radio service] clear”.

SPECIAL NOTE: The use of xCALLxx talkgroups for routine radio testing is discouraged.



## Ch. 7.5 ENCRYPTION

For the purposes of its use with WISCOM, encryption is a process used to electronically encode and decode a voice message with an encryption algorithm using a specific encryption key.

- Except where operational security requirements determine otherwise, channels and talkgroups used for interoperable communications should not be encrypted.
- Encrypted talkgroups used on the WISCOM system must use the AES-256 encryption algorithm.

## Ch. 7.6 RADIO OVER IP (RoIP) INTERFACE

Public Safety Broadband is an emerging technology that leverages specially regulated frequencies to provide IP-based data communications designated for use by public safety practitioners and can provide additional capabilities for both voice and data transmissions, especially during critical incidents or disasters.

Public Safety broadband devices or other equipment using cellular data or other wireless data systems providing Radio over IP (RoIP) services should not be considered as mission-critical replacements for P25 voice communications.

Prior coordination with Wisconsin Office of Emergency Communications (OEC) is encouraged before any agency interfaces RoIP to the WISCOM network. OEC can be contacted at [interop@wisconsin.gov](mailto:interop@wisconsin.gov) or by phone at 608.888.5501.





## Chap. 8 Radio Channel and Talkgroup Naming Conventions

### Ch. 8.1 WISCONSIN INTEROPERABILITY CODE AND ID PLAN

Code and ID ranges have been assigned to each county and state agency to avoid duplication and interference and assist in the assignment and coordination of this plan.

*Table 1: Interoperability County Codes*

COUNTY	NO. CODE	ALPHA CODE	COUNTY	NO. CODE	ALPHA CODE
Adams	1	AD	Pepin	47	PE
Ashland	2	AL	Pierce	48	PC
Barron	3	BN	Polk	49	PO
Bayfield	4	BA	Portage	50	PT
Brown	5	BR	Price	51	PR
Buffalo	6	BU	Racine	52	RA
Burnett	7	BT	Richland	53	RI
Calumet	8	CA	Rock	54	RO
Chippewa	9	CH	Rusk	55	RU
Clark	10	CL	St. Croix	56	SC
Columbia	11	CO	Sauk	57	SA
Crawford	12	CR	Sawyer	58	SW
Dane	13	DA	Shawano	59	SH
Dodge	14	DO	Sheboygan	60	SB
Door	15	DR	Taylor	61	TA
Douglas	16	DG	Trempealeau	62	TR
Dunn	17	DU	Vernon	63	VE
Eau Claire	18	EC	Vilas	64	VI
Florence	19	FL	Walworth	65	WW
Fond du Lac	20	FD	Washburn	66	WB
Forest	21	FO	Washington	67	WA
Grant	22	GT	Waukesha	68	WK
Green	23	GR	Waupaca	69	WP
Green Lake	24	GL	Waushara	70	WS
Iowa	25	IO	Winnebago	71	WI
Iron	26	IR	Wood	72	WO
Jackson	27	JA	<b>Statewide</b>		
Jefferson	28	JE	DOT	81	T
Juneau	29	JU	DNR	82	C
Kenosha	30	KE	DOJ	83	J



COUNTY	NO. CODE	ALPHA CODE	COUNTY	NO. CODE	ALPHA CODE
Kewaunee	31	KW	DMA	84	NG
La Crosse	32	LC	DOA	85	A
Lafayette	33	LF	DHS	86	H
Langlade	34	LG	DOC	87	K
Lincoln	35	LI	UW	88	U
Manitowoc	36	MT	State other	89	
Marathon	37	MN			
Marinette	38	MR			
Marquette	39	MA			
Menominee	40	ME			
Milwaukee	41	MC			
Monroe	42	MO			
Oconto	43	OC			
Oneida	44	ON			
Outagamie	45	OU			
Ozaukee	46	OZ			

COLUMN DEFINITIONS	
Number Code	Counties are sequentially numbered in alphabetical order; the basis for the numbering plans
Alpha Code	Assigned one- or two-character codes for county and state agency use derived from the Wisconsin Department of Justice communications system known as Transaction Information for Management of Enforcement (TIME)





## Ch. 8.2 WISCONSIN INTEROPERABLE CHANNEL NAMING STANDARDS (COUNTY AND LOCAL CHANNELS)

County Code		Agency Identifier		Purpose	
1 <sup>st</sup> – 2 <sup>nd</sup> digits		3 <sup>rd</sup> – 6 <sup>th</sup> digits		7 <sup>th</sup> – 10 <sup>th</sup> digits	
Two letter county codes derived from the TIME System		Two letter agency code followed by the two-letter discipline type listed below <b>(County-level channels will exclude these 4 digits)</b>		The channel use designators signify the primary purpose of operations.	
Agency Identifiers					
SO	Sheriff's Office	PD	Police Dept.	FD	Fire Dept.
PH	Public Health	PW	Public Works	HY	Highway/DOT
EM	Emergency Mgt	DA	Dist. Attorney		
Any other discipline types should use commonly used abbreviations.					
Channel Use Designators					
CALL	Used for interoperability calling (hailing) or during a vehicle pursuit or other dynamic emergency incident in which is likely to cross jurisdictional boundaries. <b>NOTE: Every county level radio system will designate a channel/talkgroup as a dedicated Calling (hailing) channel used to establish an initial point of contact for interagency/inter-discipline communications.</b>				
DISP	Modifier used to identify the agency's primary communications/dispatch channel(s).				
FIRE	Used for incident communications by fire services.				
IFERN	Used for incident communications by fire services operating under the Mutual Aid Box Alarm System (MABAS).				
GTAC	Used for communications between public safety entities and eligible non-government organizations.				
LAW	Used for incident communications by law enforcement agencies.				
MED	Used for incident communications by emergency medical services.				
TAC	Used for communications by any public safety agency. Generally incident-based and not used for wide-area communications.				
COMND	Used for interdisciplinary incident command level communications.				
TRVL	Used for communications by any public safety eligible entity to coordinate travel when responding to/from an incident outside of an agency's own jurisdiction.				
COM	Used as common channel for general non-incident specific communications.				
PAG	Used for paging system communications.				
<ul style="list-style-type: none"> <li>All agencies will identify their agency's primary communications or dispatch channel either using the modifier "DISP" or "DIS" or by adding the number "1" after the agency identifier.</li> </ul>					



- Large agencies with multiple dispatching channels should add a number after the modifier as appropriate.
- The remaining characters will be used to indicate a channel number or other appropriate modifier.
- A “D” for Direct (or talk around) on a simplex (non-repeated) channel.
- A “DG” for a P25 digital version of a conventional channel, that is also analog, if applicable.
- Other channel modifiers may include the repeater name/location or other unique identifiers based on specific local needs. Agencies may incorporate APCO/NPSTC definitions as part of their channel naming conventions.

### Ch. 8.3 WISCONSIN INTEROPERABLE CHANNEL NAMING STANDARDS (STATE AND FEDERAL CHANNELS)

State or Federal Agency Code	Use Type	Channel Number
State – 3 (alpha) Federal – 3 (alpha)	2-4 (alpha – See prior table)	1-2 numeric
<b>State/Federal Codes</b>		
<b>Code</b>	<b>Agency</b>	
DHS	Dept. of Health Services	
DMA	Dept. of Military Affairs	
DNR	Dept. of Natural Resources	
DOT	Dept. of Transportation	
K##	Dept. of Corrections	
USM	U.S. Marshals	
WEM	Wisconsin Emergency Management	
WSP	Wisconsin State Patrol	
<b>NOTES:</b>	<ul style="list-style-type: none"> <li>• Suffix DG for digital</li> <li>• ENC for Encrypted</li> </ul>	



## Ch. 8.4 STATEWIDE INTEROPERABILITY TALKGROUPS

WISCOM currently has one “calling” talkgroup and seven “tactical” talkgroups that are available for use in any region of the state. They are:

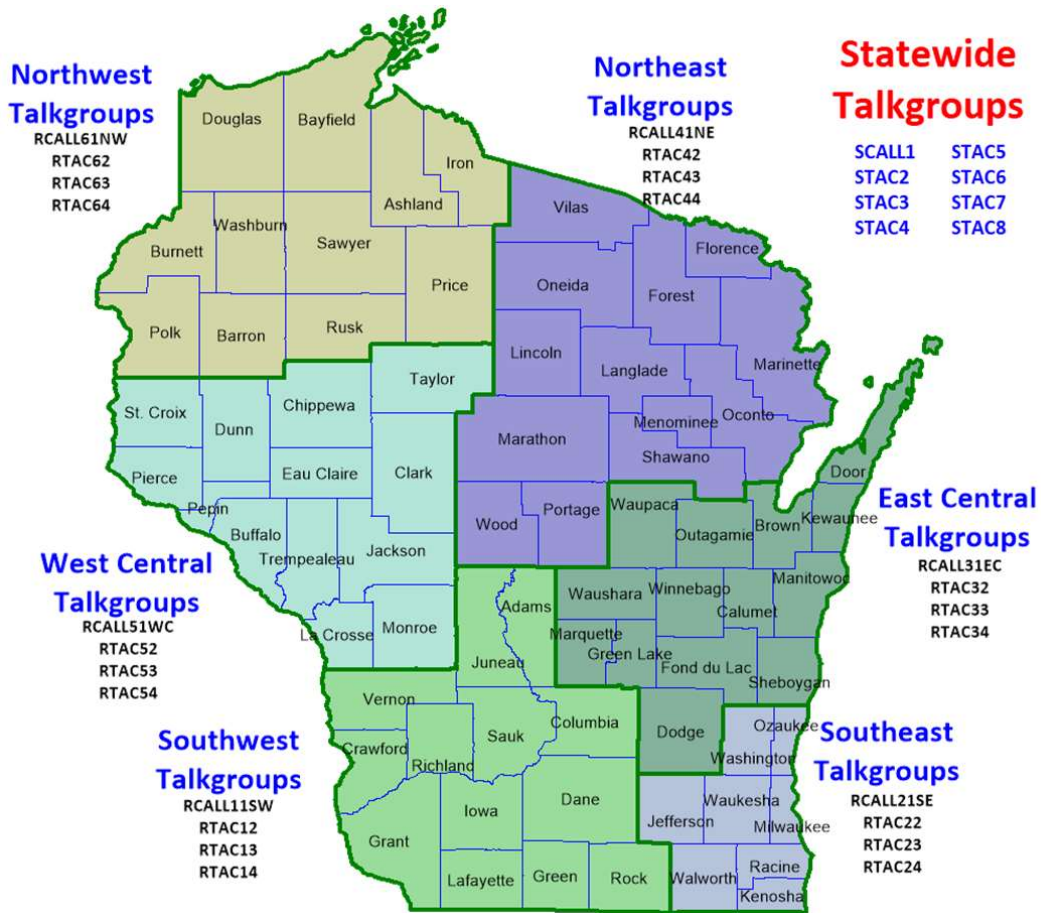


Figure 6: WISCOM Statewide and Regional Talkgroups



## ***Ch. 8.4(a) Use of the SCALL/STAC Talkgroups***

- The STACx talkgroups are available for routine statewide interoperable communications, mutual aid incidents or planned events.
- The STACx talkgroups can be utilized for communications between field units that are physically located in different regions of the state; when the local RTACxx are not available or the when the nature or the scale of the incident or event dictates their use.
- Incidents will be assigned in the order beginning with STAC2, then STAC3, and so forth.
- Planned Events will be assigned in the order beginning with STAC8, then STAC7 and so forth. A planned event will not be assigned to STAC2, STAC3 or STAC4.
- The incident command agency will notify all WISCOM capable agencies within the region of planned use of the talkgroup prior to the event via a TIME System message or other appropriate method. WISCOM representatives shall also be notified of the planned event usage via email at [WISCOMtech@dot.wi.gov](mailto:WISCOMtech@dot.wi.gov) to monitor system resources and avoid any talkgroup assignment conflicts.
- Upon completion of the incident or event, the lead communications center shall instruct all involved units to switch to their primary talkpath and resume normal operations.



## Ch. 8.5 REGIONAL INTEROPERABILITY TALKGROUPS

There are six separate interoperability regions on WISCOM that match the Wisconsin Emergency Management (WEM) regions. Each region has been assigned one “calling” talkgroup and three “tactical” talkgroups. The following table shows the talkgroup assignments with the radio display regional identifier suffix. Note that the regional suffix is NOT used during voice transmissions.

REGION	CALLING	TACTICAL	TACTICAL	TACTICAL
Southwest	RCALL11SW	RTAC12SW	RTAC13SW	RTAC14SW
Southeast	RCALL21SE	RTAC22SE	RTAC23SE	RTAC24SE
East Central	RCALL31EC	RTAC32EC	RTAC33EC	RTAC34EC
Northeast	RCALL41NE	RTAC42NE	RTAC43NE	RTAC44NE
West Central	RCALL51WC	RTAC52WC	RTAC53WC	RTAC54WC
Northwest	RCALL61NW	RTAC62NW	RTAC63NW	RTAC64NW

*Table 2: WISCOM Regional Interoperability Talkgroups*

### Ch. 8.5(a) Use of the RCALLx1 Talkgroups

- RCALLx1 is the designated public safety regional calling and high priority radio traffic talkgroup on WISCOM. It is the initial contact point for all communications in each region.
- RCALLx1 communications are broadcast region-wide, and can be accessed statewide by any mobile, portable, or base radio monitoring/scanning this talkgroup.
- RCALLx1 should be used as the default communication center-to-communication center talkgroup to transmit assistance requests such as vehicle pursuits, injury accidents, officer(s) requesting aid or assistance, bank alarms, robbery in process or other typical emergency radio traffic.
- Based upon the type of console system used by the dispatch center, high priority incidents being transmitted on RCALLx1 may also be patched/simulcast over the center’s primary channels or talkgroups.



- As a regional “calling” talkgroup, all communications centers need to closely monitor RCALLx1 for transmissions from all public safety field personnel who are requesting assistance from a specific county communications center.
- Since RCALLx1 is a calling and high priority radio traffic talkgroup, once it is determined that extended interoperable communications is required, all involved agencies will be directed to move to a specific RTACxx talkgroup. The dispatch center for the agency with incident command shall be responsible for migration to the RTACxx talkgroup and will use the following format for the announcement:  
  
“Attention all units responding to [incident/location], switch to RTACxx for all traffic related to this incident, authority [Agency with incident command], via [lead communications center name if different from the authority].”  
  
Contact WISCOM at [WISCOMtech@dot.wi.gov](mailto:WISCOMtech@dot.wi.gov) to monitor system resources and avoid any talkgroup assignment conflicts.
- If the nature or scale of the incident or event requires additional talkgroups, then the statewide tactical talkgroups should be utilized.
- Upon completion of the incident or event, the lead communications center shall instruct all involved units to switch to their primary talkgroup (or channel) and resume normal operations. The lead communications center will also announce on RCALLx1 that RTACxx is “available for use.”





## Ch. 8.6 REGIONAL AND STATEWIDE TALKGROUPS AND IDS

Trunked System Talkgroups				
Name	Talkgroup ID		Region	Primary Use
	Dec.	Hex		
RCALL11SW	11	0Bh	Southwest (SW)	Calling
RCALL21SE	21	15h	Southeast (SE)	Calling
RCALL31EC	31	1Fh	East Central (EC)	Calling
RCALL41NE	41	29h	Northeast (NE)	Calling
RCALL51WC	51	33h	West Central (WC)	Calling
RCALL61NW	61	3Dh	Northwest (NW)	Calling
RTAC12SW	12	0Ch	Southwest (SW)	Tactical
RTAC22SE	22	16h	Southeast (SE)	Tactical
RTAC32EC	32	20h	East Central (EC)	Tactical
RTAC42NE	42	2Ah	Northeast (NE)	Tactical
RTAC52WC	52	34h	West Central (WC)	Tactical
RTAC62NW	62	3Eh	Northwest (NW)	Tactical
RTAC13SW	13	0Dh	Southwest (SW)	Tactical
RTAC23SE	23	17h	Southeast (SE)	Tactical
RTAC33EC	33	21h	East Central (EC)	Tactical
RTAC43NE	43	2Bh	Northeast (NE)	Tactical
RTAC53WC	53	35h	West Central (WC)	Tactical
RTAC63NW	63	3Fh	Northwest (NW)	Tactical
RTAC14SW	14	0Eh	Southwest (SW)	Tactical
RTAC24SE	24	18h	Southeast (SE)	Tactical
RTAC34EC	34	22h	East Central (EC)	Tactical
RTAC44NE	44	2Ch	Northeast (NE)	Tactical
RTAC54WC	54	36h	West Central (WC)	Tactical
RTAC64NW	64	40h	Northwest (NW)	Tactical



Trunked System Talkgroups				
Name	Talkgroup ID		Region	Primary Use
	Dec.	Hex		
SCALL1	1	01h	Statewide	Calling
STAC2	2	02h	Statewide	Tactical/Interoperability
STAC3	3	03h	Statewide	Tactical/Interoperability
STAC4	4	04h	Statewide	Tactical/Interoperability
STAC5	5	05h	Statewide	Tactical/Interoperability
STAC6	6	06h	Statewide	Tactical/Interoperability
STAC7	7	07h	Statewide	Tactical/Interoperability
STAC8	8	08h	Statewide	Tactical/Interoperability
COLLAPSE	72	48h	Statewide	Collapse Rescue Coord.
EPS1	76	4Ch	Statewide	Emergency Police Services
HAZMAT	71	47h	Statewide	Hazmat Coordination
MABAS1	73	49h	Statewide	MABAS Interdivisional
MABAS2	74	4Ah	Statewide	MABAS Regional Coord.
HERC 1 NW	4971	136b	Region 1	Regional Hospital Coord.
HERC 2 NC	4972	136c	Region 2	Regional Hospital Coord.
HERC 3 NE	4973	136d	Region 3	Regional Hospital Coord.
HERC 4 WC	4974	136e	Region 4	Regional Hospital Coord.
HERC 5 SC	4975	136f	Region 5	Regional Hospital Coord.
HERC 6 EC	4976	1370	Region 6	Regional Hospital Coord.
HERC 7 SE	4977	1371	Region 7	Regional Hospital Coord.

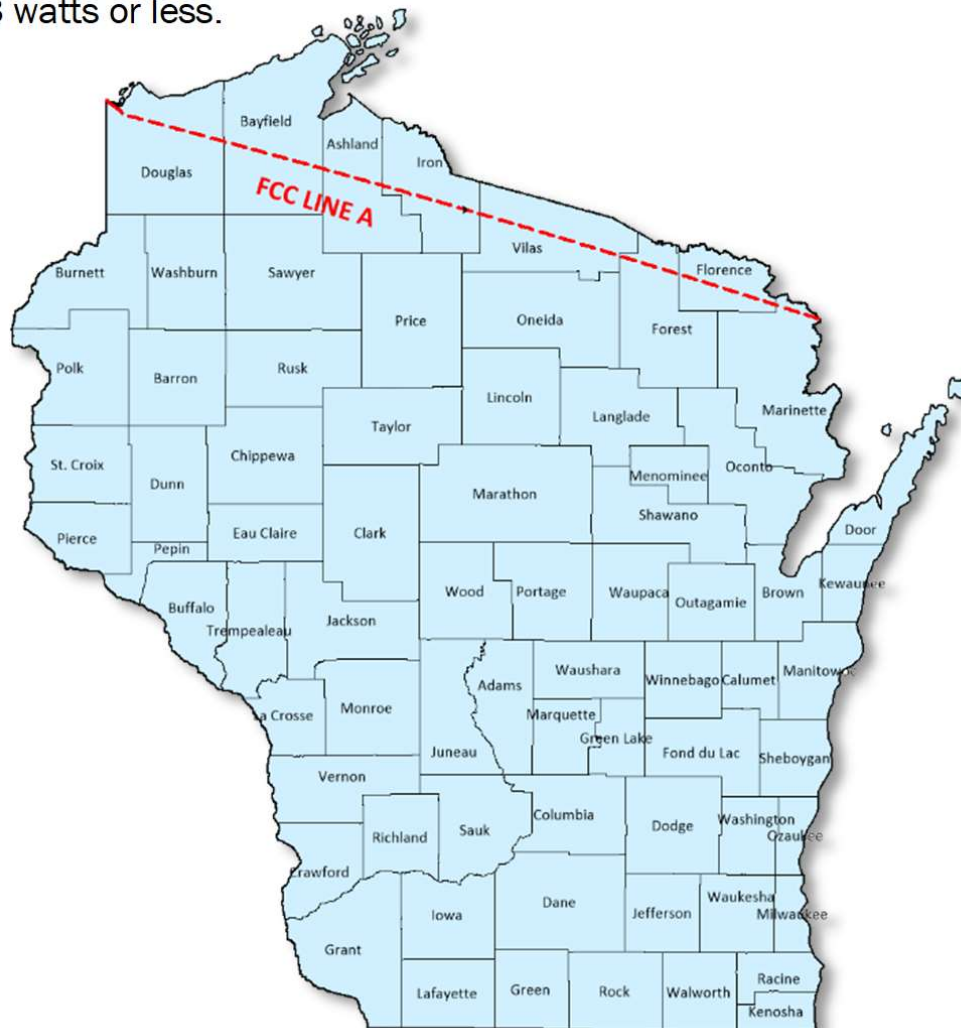




## Chap. 9 United States/Canada Line A

### Ch. 9.1 FCC LINE A

- FCC “Line A” regulations, which are meant to protect U.S. and Canadian land mobile operations near the U.S./Canadian border from interference, restricts the use of some statewide licenses held by Wisconsin.
- Line A” is an imaginary line within the U.S. that runs across the northern counties of the state of Wisconsin. It approximately follows the 48<sup>th</sup> Parallel.
- Operation of VHF and 800 MHz National Interoperability channels without additional frequency coordination is limited to mobile or portable radio equipment with an effective radiated power (ERP) of 3 watts or less.



**Figure 6: FCC Line A**



## Chap. 10 Interoperability Channels

### Ch. 10.1 CHANNEL SELECTION

When identifying and selecting channels and talkgroups to use for an incident or event, it is important to note that there are several factors that should be considered prior to finalizing the communications plan.

- Localized incidents may be able to make better use of locally defined channels or talkgroups reserved for specific localities. Use of local interoperability or mutual aid channels reduces the likelihood of multiple users operating on the same channel or talkgroup.
- Avoid local assignment of Statewide Interoperability Channels and Talkgroups for routine interoperable communications as they are in daily use.
- Channels identified in this chapter with specific discipline usage may be used for other disciplines whenever necessary.
- Use of statewide or national interoperability and mutual aid channels should be coordinated through the WEH hotline at **800-943-0003, Opt. 2** whenever practicable.

### Ch. 10.2 VHF LOW BAND

#### Ch. 10.2(a) Nationwide VHF Low Band

Non-Federal VHF Low Band National Interoperability Channels				
Description	Channel Name	Mob. RX	Mob. TX	RX/TX CTCSS Tone
Law Enforcement	LLAW1	39.460	45.860	156.7
Law Enforcement	LLAW1D	39.460	39.460	156.7
Fire*	LFIRE2	39.4800	45.8800	156.7
Fire*	LFIRE2D	39.4800	39.4800	156.7
Law Enforcement	LLAW3	45.860	39.460	156.7
Law Enforcement	LLAW3D	45.860	45.860	156.7
Fire*	LFIRE4	45.8800	39.4800	156.7
Fire*	LFIRE4D	45.8800	45.8800	156.7

• All channels are Wideband, Analog, Conventional.  
 • Base station channel use requires an FCC license.  
 • Use emission 16K0F3E (5kHz deviation wideband Analog FM).  
 \* Proposed for use, pending FCC assignment.



## Ch. 10.3 VHF BAND

### Ch. 10.3(a) Statewide VHF

Statewide VHF Interoperability Channels						
Channel Name	Mob. RX		Mob. TX		A D	Notes
	Freq	Tone	Freq	Tone		
EMS A	155.4000	CSQ	155.4000	D156	A	EMS (Advanced Life Support) <sup>1</sup>
EMS B <sup>4</sup> (VMED28)	155.3400 <i>155.3400</i>	CSQ <i>156.7</i>	155.3400 <i>155.3400</i>	D156 <i>156.7</i>	A	EMS <sup>1</sup> Do not use for incident interoperability communications. This is an active EMS channel
EMS C	155.2800	D156	155.2800	D156	A	EMS/Public Health <sup>1</sup>
FG BLACK <sup>4</sup> (VFIRE24)	154.2725 <i>154.2725</i>	94.8 <i>156.7</i>	154.2725 <i>154.2725</i>	94.8 <i>156.7</i>	A	Do not use at scene with IFERN or FG WHITE. Frequently used for aeromedical landing zone coordination
FG BLUE <sup>4</sup> (VFIRE23)	154.2950 <i>154.2950</i>	85.4 <i>156.7</i>	154.2950 <i>154.2950</i>	85.4 <i>156.7</i>	A	Do not use at scene with FG GRAY or IFERN2
FG GOLD	153.8375	91.5	153.8375	91.5	A	Do not use at scene with FG RED or MARC1
FG GRAY <sup>4</sup> (VFIRE25)	154.2875 <i>154.2875</i>	136.5 <i>156.7</i>	154.2875 <i>154.2875</i>	136.5 <i>156.7</i>	A	Do not use at scene with FG WHITE or FG BLUE
FG RED	153.8300	69.3	153.8300	69.3	A	Do not use at scene with FG GOLD
FG WHITE <sup>4</sup> (VFIRE21)	154.2800 <i>154.2800</i>	74.4 <i>156.7</i>	154.2800 <i>154.2800</i>	74.4 <i>156.7</i>	A	Do not use at scene with FG BLACK or FG GRAY
IFERN <sup>4</sup> (VFIRE22)	154.2650 <i>154.2650</i>	210.7 <i>156.7</i>	154.2650 <i>154.2650</i>	210.7 <i>156.7</i>	A	Do not use at scene with FG BLACK
IFERN2 <sup>4</sup> (VFIRE26)	154.3025 <i>154.3025</i>	67.0 <i>156.7</i>	154.3025 <i>154.3025</i>	67.0 <i>156.7</i>	A	Do not use at scene with FG BLUE



Statewide VHF Interoperability Channels						
Channel Name	Mob. RX		Mob. TX		A D	Notes
	Freq	Tone	Freq	Tone		
MARC1	151.2800	136.5	153.8450	136.5	A	Do not use at scene with FG GOLD
MARC2	151.2800	136.5	151.2800	136.5	A	Frequently used for aeromedical landing zone coordination
MARC3 <sup>2</sup>	154.0100	71.9	154.0100	71.9	A	
MARC4 <sup>5</sup>	154.1300	82.5	154.1300	82.5	A	
VSAR16	155.1600	127.3 or CSQ	155.1600	127.3	A	Search and Rescue
POINT	155.3700	146.2 or CSQ	155.3700	146.2	A	Station to Station
VLAW31	155.4750	156.7 or CSQ	155.4750	156.7	A	Law Enforcement Mutual Aid
VTAC11DG	151.1375	\$293	151.1375	\$293	D	Conventional P25 <sup>3</sup>
VTAC12DG	154.4525	\$293	154.4525	\$293	D	Conventional P25 <sup>3</sup>
VTAC13DG	158.7375	\$293	158.7375	\$293	D	Conventional P25 <sup>3</sup>
VTAC14DG	159.4725	\$293	159.4725	\$293	D	Conventional P25 <sup>3</sup>
VTAC36DG	151.1375	\$293	159.4725	\$293	D	Conventional P25 <sup>3</sup>
VTAC37DG	154.4525	\$293	158.7375	\$293	D	Conventional P25 <sup>3</sup>
WEM CAR	156.0000	136.5	156.0000	136.5	A	Emergency Mgmt.
<ul style="list-style-type: none"> <li>• Unless otherwise indicated, all channels are Narrowband.</li> <li>1- The tone code of D156 is for statewide use. Each hospital is assigned a unique tone for local communications. See Wisconsin EMS Communications Plan for details</li> <li>2- Use is restricted in Marinette County.</li> <li>3- Digital, P25 Conventional. Encryption is permitted with state coordination.</li> <li>4- These channels share identical frequencies, but different tone codes with NIFOG-defined mutual aid channels (<i>listed in red</i>).</li> <li>5- Use is restricted in La Crosse County.</li> </ul>						



## Ch. 10.3(b) Nationwide VHF

Non-Federal VHF National Interoperability Channels					
Description	Channel Name	Mob. Rx Freq.	Mob. Rx Tone	Mob. Tx Freq.	Mob. Tx Tone
Calling	VCALL10	155.7525	156.7	155.7525	156.7
Tactical	VTAC11	151.1375	156.7	151.1375	156.7
Tactical	VTAC12	154.4525	156.7	154.4525	156.7
Tactical	VTAC13	158.7375	156.7	158.7375	156.7
Tactical	VTAC14	159.4725	156.7	159.4725	156.7
Tactical Repeater <i>(VTAC 11/14)</i>	VTAC36	151.1375	156.7	159.4725	136.5
Tactical Repeater <i>(VTAC 12/13)</i>	VTAC37	154.4525	156.7	158.7375	136.5

- All channels are Narrowband, Analog, Conventional and limited to 3 watts ERP North of Line A or East of Line C.
- Base station channel use requires an FCC license.
- VTAC Repeater channels not licensed in the State of Wisconsin have been omitted.
- VTAC11-12 and VTAC36-37 may not be used in Puerto Rico or the USVI.
- Do not use VTAC36 at the scene with VTAC11 or VTAC14.
- Do not use VTAC37 at the scene with VTAC12 or VTAC13.



### Ch. 10.3(c) Nationwide VHF Mutual Aid

VHF Public Safety Mutual Aid and Common Channels			
Frequency (MHz)	Usage	Name	Note
155.1600 base/mob.	Search and Rescue (SAR) Common (CTCSS 127.3 TX and RX)	VSAR16, SAR NFM, or SAR160	Not restricted to SAR by FCC; availability varies
154.2800 base/mob. <i>(FG WHITE CTCSS 74.4)</i>	Fire Mutual Aid	VFIRE21 <i>(FG WHITE)</i>	Not available in Puerto Rico and the U.S. Virgin Islands
154.2650 base/mob. <i>(IFERN CTCSS 210.7)</i>		VFIRE22 <i>(IFERN)</i>	
154.2950 base/mob. <i>(FG BLUE 85.4)</i>		VFIRE23 <i>(FG BLUE)</i>	
154.2725 base/mob. <i>(FG BLACK CTCSS 94.8)</i>		VFIRE24 <i>(FG BLACK)</i>	
154.2875 base/mob. <i>(FG GRAY CTCSS 136.5)</i>		VFIRE25 <i>(FG GRAY)</i>	
154.3025 base/mob. <i>(IFERN2 CTCSS 67.0)</i>		VFIRE26 <i>(IFERN2)</i>	
155.3400 base/mob. <i>(EMS B CTCSS D156)</i>	EMS Mutual Aid	VMED28 <i>(EMS B)</i>	May be designated EMS Mutual Aid
155.3475 base/mob.		VMED29	
155.4825 base/mob.	Law Enforcement Mutual Aid	VLAW32	
<ul style="list-style-type: none"> <li>• All channels are Narrowband, Analog, Conventional channels.</li> <li>• All channel use requires an FCC license.</li> <li>• EXCEPT for VSAR16, the recommended CTCSS tones are 156.7 receive and transmit for all channels; local use may specify other tones.</li> <li>• <i>Red</i> text denotes statewide channel names and CTCSS codes for the equivalent frequencies.</li> </ul>			



## Ch. 10.3(d) Federal VHF Incident Response

VHF Incident Response (IR) Federal Interoperability Channels				
Suggested Assignment	Name	Note	Mob. RX	Mob. TX
Incident Calling	NC 1	Calling	169.5375	164.7125
Incident Command	IR 1		170.0125	165.2500
Medical Evacuation. Control	IR 2		170.4125	165.9625
Logistics Control	IR 3		170.6875	166.5750
Interagency Convoy	IR 4		173.0375	167.3250
Incident Calling (Direct)	IR 5	Direct for NC 1	169.5375	169.5375
Incident Command (Direct)	IR 6	Direct for IR 1	170.0125	170.0125
Medical Evac. Control (Direct)	IR 7	Direct for IR 2	170.4125	170.4125
Logistics Control (Direct)	IR 8	Direct for IR 3	170.6875	170.6875
Interagency Convoy (Direct)	IR 9	Direct for IR 4	173.0375	173.0375

- All channels on this page are Narrowband.
- Only for use with Federal stations.
- Default operations should be carrier squelch on receive, CTCSS 167.9 transmit.
- If the user can enable/disable without reprogramming the radio, the indicated CTCSS tone should also be programmed for receive, and the user instructed how and when to enable/disable.





## Ch. 10.3(e) Federal VHF Law Enforcement

VHF Law Enforcement (LE) Federal Interoperability Channels					
Suggested Assignment	Name	Mob. RX	Mob. RX CTCSS/ NAC	Mob. TX	Mob. TX CTCSS/ NAC
Calling (Analog)	LE A	167.0875	CSQ	167.0875	167.9
Tactical Repeater (Analog)	LE 1	167.0875	CSQ	162.0875	167.9
Tactical Repeater	LE 2	167.2500	\$68F	162.2625	\$68F
Tactical Repeater	LE 3	167.7500	\$68F	162.8375	\$68F
Tactical Repeater	LE 4	168.1125	\$68F	163.2875	\$68F
Tactical Repeater	LE 5	168.4625	\$68F	163.4250	\$68F
Tactical (Direct for LE 2)	LE 6	167.2500	\$68F	167.2500	\$68F
Tactical (Direct for LE 3)	LE 7	167.7500	\$68F	167.7500	\$68F
Tactical (Direct for LE 4)	LE 8	168.1125	\$68F	168.1125	\$68F
Tactical (Direct for LE 5)	LE 9	168.4625	\$68F	168.4625	\$68F

- All channels on this page are Narrowband.
- Only for use with Federal stations.
- CTSS on RX only if user selectable; otherwise use CSQ.





### Ch. 10.3(f) *Federal VHF 25 Cities P-25*

The 25 Cities Project Federal Interoperability Channels were developed through the Department of Justice “25 Cities” project to support local, state, federal, and tribal voice communications interoperability. Each metropolitan area has agreed upon policies and procedures regarding use of these channels. Most 25 Cities VHF channels are accessible by non-VHF users via permanent or ad hoc patching capabilities.

Agencies interested in using these frequencies should contact the local FBI Radio Manager prior to programming any equipment.

WISCONSIN AREA 25 CITIES INTEROPERABILITY CHANNELS			
Channel Name	Mob. RX	Mob. TX	Channel Description
CGCOM-N *	170.8125	163.6500	Chicago North
CGTAC-N *	168.8875	163.7000	Chicago North
MW LE 4 **	168.1125	163.2875	Milwaukee
MW LE3 GB **	167.7500	162.8375	Green Bay
MW LE2 MA **	167.7500	162.8375	Madison
FED-MP *	170.6250	165.9250	Minneapolis/St. Paul
FED-SP *	171.6125	165.9250	Minneapolis/St. Paul
<ul style="list-style-type: none"> <li>• Unit ID or Radio Set Identifiers (RID) are available from the FBI.</li> <li>• The P25 default RID of 1 shall not be used.</li> </ul> <p>* NAC for Mob. RX and TX is \$653. ** NAC for Mob. RX and TX is \$68F.</p>			



## Ch. 10.3(g) VHF Marine

VHF MARINE INTEROPERABILITY CHANNELS			
Channel	Frequency	Tone	Usage
16 <sup>1</sup>	156.8000 W	CSQ	International distress, safety and calling
17	156.8500 W	CSQ	State & local government maritime control
21A	157.0500 W	CSQ	U.S. Coast Guard assigned
22A	157.1000 W	CSQ	U.S. Coast Guard information broadcasts
23A	157.1500 W	CSQ	U.S. Coast Guard assigned
81A	157.0750 W	CSQ	Environmental protection operations or as assigned
83A	157.1750 W	CSQ	U.S. Coast Guard assigned
<ul style="list-style-type: none"> <li>• Direction from USCG, FCC, or FAA overrides information in this table. This table does not convey authority to operate.</li> <li>• VHF marine channels use wideband FM. Emission 16K0F3E.</li> </ul> <p><sup>1</sup>- Use VHF Marine channel 16 to make contact (30 seconds max), then move to the appropriate working channel as directed by the local USCG Sector Commander. Non-maritime use of any VHF marine channel requires FCC Special Temporary Authority or appropriate license.</p>			



## Ch. 10.4 UHF BAND

### Ch. 10.4(a) Nationwide UHF

Non-Federal UHF National Interoperability Repeater Channels			
Description	Channel Name	Mob. RX	Mob. TX
Calling	UCALL40	453.2125	458.2125
Calling	UCALL40D	453.2125	453.2125
Tactical	UTAC41	453.4625	458.4625
Tactical	UTAC41D	453.4625	453.4625
Tactical	UTAC42	453.7125	458.7125
Tactical	UTAC42D	453.7125	453.7125
Tactical	UTAC43	453.8625	458.8625
Tactical	UTAC43D	453.8625	453.8625

- All channels are Narrowband, Analog, Conventional, CTCSS 156.7 TX and RX.
- Base station channel use requires an FCC license.

### Ch. 10.4(b) Federal UHF Incident Response

UHF Incident Response (IR) Federal Interoperability Channels				
Suggested Assignment	Name	Note	Mob. RX	Mob. TX
Incident Calling	NC 2	Calling	410.2375	419.2375
Ad Hoc Assignment	IR 10		410.4375	419.4375
Ad Hoc Assignment	IR 11		410.6375	419.6375
SAR Inc. Command	IR 12		410.8375	419.8375
Ad Hoc Assignment	IR 13		413.1875	413.1875
Interagency Convoy	IR 14		413.2125	413.2125
Incident Calling (Direct)	IR 15	Direct for NC 2	410.2375	410.2375
Ad Hoc Assignment (Direct)	IR 16	Direct for IR 10	410.4375	410.4375
Ad Hoc Assignment (Direct)	IR 17	Direct for IR 11	410.6375	410.6375
SAR Inc. Command (Direct)	IR 18	Direct for IR 12	410.8375	410.8375

- All channels on this page are Narrowband.
- Default operations should be carrier squelch on receive, CTCSS 167.9 transmit.
- If the user can enable/disable without reprogramming the radio, the indicated CTCSS tone should also be programmed for receive, and the user instructed how and when to enable/disable.



## Ch. 10.5 700 MHz BAND

### Ch. 10.5(a) Statewide 700 MHz

Wisconsin 700 MHz WISTAC Interoperability Channels			
Primary Use	Channel Name	Mob. RX	Mob. TX
General Public Safety	7WISTAC1	770.90625	800.90625
General Public Safety	7WISTAC2	770.91875	800.91875
General Public Safety	7WISTAC3	770.93125	800.93125
General Public Safety	7WISTAC4	770.94375	800.94375
General Public Safety	7WISTAC5	770.95625	800.95625
General Public Safety	7WISTAC6	770.96875	800.96875
General Public Safety	7WISTAC1D	770.90625	770.90625
General Public Safety	7WISTAC2D	770.91875	770.91875
General Public Safety	7WISTAC3D	770.93125	770.93125
General Public Safety	7WISTAC4D	770.94375	770.94375
General Public Safety	7WISTAC5D	770.95625	770.95625
General Public Safety	7WISTAC6D	770.96875	770.96875
TX NAC: \$293 (659 <sub>10</sub> ). RX NAC \$F7E (3966 <sub>10</sub> ). Talk Group ID: \$00001 (1 <sub>10</sub> )		Algorithm ID: \$80 (128 <sub>10</sub> ) AES 256 Key ID and TEK to be assigned as needed by State Frequency Coordinator	
“\$” indicates hexadecimal value, “10” subscript indicates decimal value.			
<ul style="list-style-type: none"> <li>All channels are Narrowband, Digital P-25 Phase I Conventional</li> </ul>			



## Ch. 10.5(b) Nationwide 700 MHz P-25

700 MHz Nationwide Interoperability Channels			
Primary Use	Channel Name	Mob. RX	Mob. TX
Calling Channel	7CALL50	769.24375	799.24375
Calling Channel	7CALL50D	769.24375	769.24375
General Public Safety	7TAC51	769.14375	799.14375
General Public Safety	7TAC51D	769.14375	769.14375
General Public Safety	7TAC52	769.64375	799.64375
General Public Safety	7TAC52D	769.64375	769.64375
General Public Safety	7TAC53	770.14375	800.14375
General Public Safety	7TAC53D	770.14375	770.14375
General Public Safety	7TAC54	770.64375	800.64375
General Public Safety	7TAC54D	770.64375	770.64375
General Public Safety	7TAC55	769.74375	799.74375
General Public Safety	7TAC55D	769.74375	769.74375
General Public Safety	7TAC56	770.24375	800.24375
General Public Safety	7TAC56D	770.24375	770.24375
Other Public Service	7GTAC57	770.99375	800.99375
Other Public Service	7GTAC57D	770.99375	770.99375
Mobile Repeater	7MOB59	770.89375	800.89375
Mobile Repeater	7MOB59D	770.89375	770.89375
Law Enforcement	7LAW61	770.39375	800.39375
Law Enforcement	7LAW61D	770.39375	770.39375
Law Enforcement	7LAW62	770.49375	800.49375
Law Enforcement	7LAW62D	770.49375	770.49375
Fire	7FIRE63	769.89375	799.89375
Fire	7FIRE63D	769.89375	769.89375
Fire	7FIRE64	769.99375	799.99375
Fire	7FIRE64D	769.99375	769.99375
EMS	7MED65	769.39375	799.39375
EMS	7MED65D	769.39375	769.39375
EMS	7MED66	769.49375	799.49375
EMS	7MED66D	769.49375	769.49375
Mobile Data	7DATA69	770.74375	800.74375
Mobile Data	7DATA69D	770.74375	770.74375
Calling Channel	7CALL70	773.25625	803.25625
Calling Channel	7CALL70D	773.25625	773.25625
General Public Safety	7TAC71	773.10625	803.10625
General Public Safety	7TAC71D	773.10625	773.10625
General Public Safety	7TAC72	773.60625	803.60625
General Public Safety	7TAC72D	773.60625	773.60625
General Public Safety	7TAC73	774.10625	804.10625
General Public Safety	7TAC73D	774.10625	774.10625



700 MHz Nationwide Interoperability Channels			
Primary Use	Channel Name	Mob. RX	Mob. TX
General Public Safety	7TAC74	774.60625	804.60625
General Public Safety	7TAC74D	774.60625	774.60625
General Public Safety	7TAC75	773.75625	803.75625
General Public Safety	7TAC75D	773.75625	773.75625
General Public Safety	7TAC76	774.25625	804.25625
General Public Safety	7TAC76D	774.25625	774.25625
Other Public Service	7GTAC77	774.85625	804.85625
Other Public Service	7GTAC77D	774.85625	774.85625
Mobile Repeater	7MOB79	774.50625	804.50625
Mobile Repeater	7MOB79D	774.50625	774.50625
Law Enforcement	7LAW81	774.00625	804.00625
Law Enforcement	7LAW81D	774.00625	774.00625
Law Enforcement	7LAW82	774.35625	804.35625
Law Enforcement	7LAW82D	774.35625	774.35625
Fire	7FIRE83	773.50625	803.50625
Fire	7FIRE83D	773.50625	773.50625
Fire	7FIRE84	773.85625	803.85625
Fire	7FIRE84D	773.85625	773.85625
EMS	7MED86	773.00625	803.00625
EMS	7MED86D	773.00625	773.00625
EMS	7MED87	773.35625	803.35625
EMS	7MED87D	773.35625	773.35625
Mobile Data	7DATA89	774.75625	804.75625
Mobile Data	7DATA89D	774.75625	774.75625
Mode: Only P25 FDMA Phase 1 Common Air Interface permitted per FCC R&O 14-172 ¶ 87 (10/24/2014).			
TX NAC: \$293 (659 <sub>10</sub> ). RX NAC \$F7E (3966 <sub>10</sub> ). Talk Group ID: \$00001 (1 <sub>10</sub> ) Manufacturer's ID: \$00 (0 <sub>10</sub> ) Message ID: \$00000000000000000000 (0 <sub>10</sub> )		Encryption: No encryption on calling channels. Algorithm ID: \$80 (128 <sub>10</sub> ) Key ID: \$0000 (0 <sub>10</sub> )	
"\$" indicates hexadecimal value, "10" subscript indicates decimal value.			
<ul style="list-style-type: none"> <li>• Base station channel use requires an FCC license.</li> <li>• Mobile/portable use under blanket authorization by the FCC.</li> <li>• All channels are Narrowband, Digital P-25 Phase I Conventional.</li> </ul>			



## Ch. 10.5(c) Nationwide 700 MHz Air-Ground

700 MHz Nationwide Air-Ground Interoperability Channels			
Primary Use	Channel Name	Mob. RX	Mob. TX
Air-Ground	7AG58	769.13125	799.13125
Air-Ground	7AG58D	769.13125	769.13125
Air-Ground	7AG60	769.63125	799.63125
Air-Ground	7AG60D	769.63125	769.63125
Air-Ground	7AG67	770.13125	800.13125
Air-Ground	7AG67D	770.13125	770.13125
Air-Ground	7AG68	770.63125	800.63125
Air-Ground	7AG68D	770.63125	770.63125
Air-Ground	7AG78	773.11875	803.11875
Air-Ground	7AG78D	773.11875	773.11875
Air-Ground	7AG80	773.61875	803.61875
Air-Ground	7AG80D	773.61875	773.61875
Air-Ground	7AG87	774.11875	804.11875
Air-Ground	7AG87D	774.11875	774.11875
Air-Ground	7AG88	774.61875	804.61875
Air-Ground (LZ)*	7AG88D	774.61875	774.61875

- 7AG88D is recommended for Landing Zone use.
- TX NAC: \$293 (659<sub>10</sub>). RX NAC \$F7E (3966<sub>10</sub>).
- These channels are reserved for air-ground communications to be used by low-altitude aircraft and ground-based stations: See FCC rule 90.531(7). (i)
- Airborne use of these channels is limited to aircraft flying at or below 457 meters (1500 feet) above ground level.
- Aircraft are limited to 2 watts effective radiated power (ERP) when transmitting while airborne on these channels.
- Aircraft may transmit on either the mobile or base transmit side of the channel pair.
- States are responsible for the administration of these channels. These are NOT nationwide interoperability channels.





## Ch. 10.5(d) Nationwide 700 MHz Itinerant

700 MHz Low Power Itinerant Interoperability Channels					
<p><b>LICENSING REQUIRED:</b> These frequencies are NOT covered by the “Blanket Authorization” for nationwide interoperability channels. Use of these channels must be licensed or authorized by Special Temporary Authority (STA)</p>					
Assignment	Channel Name	Mob. RX	Mob. RX CTCSS/ NAC	Mob. TX	Mob. TX CTCSS/ NAC
Low Power – PS	7-US-01	769.05625	156.7/ \$F7E	799.05625	156.7/ \$293
Low Power – PS	7-US-01D	769.05625	156.7/ \$F7E	769.05625	156.7/ \$293
Low Power – PS	7-US-02	769.06875	156.7/ \$F7E	799.06875	156.7/ \$293
Low Power – PS	7-US-02D	769.06875	156.7/ \$F7E	769.06875	156.7/ \$293
Low Power – PS	7-US-03	774.99375	156.7/ \$F7E	804.99375	156.7/ \$293
Low Power – PS	7-US-03D	774.99375	156.7/ \$F7E	774.99375	156.7/ \$293

- These channels may be licensed for national itinerant mobile use. These channels may be used in either Analog or Digital mode and are limited to 2 watts (ERP).
- Licensees are responsible for the administration of these channels.
- Utilize normal squelch in programming using the default talkgroup-\$0001 (1<sub>10</sub>).

## Ch. 10.6 800 MHz BAND

### Ch. 10.6(a) Statewide 800 MHz

Statewide 800 MHz Interoperability Channels						
Channel Name	Mob. RX		Mob. TX		A D	Notes
	Frequency	Tone	Frequency	Tone		
8TACRED	851.4500	156.7	851.4500	156.7	A	Any Public Safety
8TACWHITE	851.9500	156.7	851.9500	156.7	A	Any Public Safety
8TACBLUE	852.4500	156.7	852.4500	156.7	A	Any Public Safety
8TACGOLD	852.9500	156.7	852.9500	156.7	A	Any Public Safety
8TACBLACK	853.4500	156.7	853.4500	156.7	A	Any Public Safety
8TACGRAY	853.9500	156.7	853.9500	156.7	A	Any Public Safety

- Unless otherwise indicated, all channels are Wideband.



## Ch. 10.6(b) Nationwide 800 MHz

Non-Federal 800 MHz Interoperability Mutual Aid Repeater Channels			
Channel Name	Mob. RX	Mob. TX	Description
8CALL90	851.0125 (866.0125)	806.0125 (821.0125)	Calling
8CALL90D	851.0125 (866.0125)	851.0125 (866.0125)	Calling - Direct
8TAC91	851.5125 (866.5125)	806.5125 (821.5125)	Tactical
8TAC91D	851.5125 (866.5125)	851.5125 (866.5125)	Tactical - Direct
8TAC92	852.0125 (867.0125)	807.0125 (822.0125)	Tactical
8TAC92D	852.0125 (867.0125)	852.0125 (867.0125)	Tactical - Direct
8TAC93	852.5125 (867.5125)	807.5125 (822.5125)	Tactical
8TAC93D	852.5125 (867.5125)	852.5125 (867.5125)	Tactical - Direct
8TAC94	853.0125 (868.0125)	808.0125 (823.0125)	Tactical
8TAC94D	853.0125 (868.0125)	853.0125 (868.0125)	Tactical - Direct

- CTCSS 156.7(5A) RX and TX.
- Default operations should be carrier squelch on RX, CTCSS 167.9 TX.
- The frequency in parenthesis, which is 15 MHz higher, is the frequency used before rebanding - channel names were ICALL, ITAC1 - ITAC4.
- Wideband FM 20K0F3E before and after rebanding.
- If the user can enable/disable without reprogramming the radio, the indicated CTCSS tone should also be programmed for receive, and the user instructed how and when to enable/disable.



## Ch. 10.7 FEDERAL INTEROPERABILITY SEARCH AND RESCUE

Federal/Non-Federal Search and Rescue Command						
Channel Name	Mob. RX		Mob. TX		A D	Notes
	Freq	Tone	Freq	Tone		
IR 12	410.8375	CSQ	419.8375	167.9	A	
VTAC14	159.4725	156.7	159.4725	156.7	A	
UTAC43	453.8625	156.7	458.8625	156.7	A	
8TAC94	853.0125	156.7	808.0125	156.7	A	
Marine Ch 17	156.8500	CSQ	156.8500	CSQ	A	Requires FCC STA

Federal/Non-Federal SAR Command Interoperability Plan			
Channel Name	Mob. RX	Mob. TX	CTCSS
IR 12	410.8375	419.8375	167.9 TX, CSQ RX
VTAC14	159.4725	159.4725	156.7 TX and RX
UTAC43	453.8625	458.8625	156.7 TX and RX
8TAC94	853.0125	808.0125	156.7 TX and RX
Marine Channel 17	156.8500 (this use requires FCC STA)	156.8500 (this use requires FCC STA)	None

- CTCSS 156.7(5A) RX and TX.
- If a repeater is not available, substitute the corresponding talk-around channel (IR 18 for IR 12, UTAC43D for UTAC43, 8TAC94D for 8TAC94.) See Conditions for Use of Federal Interoperability Channels on page 19 - page 21 of the NIFOG.
- VHF marine channel 17 is wideband FM, emission 16K0F3E.



Federal/Non-Federal Search and Rescue Operations		
SAR Functions	Frequency/Channel(s)	
Ground Operations	155.1600 narrowband FM	
Maritime Operations	VHF Marine ch.21A or 23A as specified by U.S. Coast Guard Sector Commander	
Air Operations – Civilian	123.1000 MHz AM	
Air Operations – USCG/Military	345.0 MHz AM for initial contact only, then move to 282.8 MHz AM or another working channel	
Air Rescue Assets to Air Rescue Assets (deconfliction)	As chartered on standard air chart or MULTICOM 122.850 (south or west sector) & 122.900 MHz (north or east sector), or as specified by the Federal Aviation Administration (FAA). 122.850 may not be used for testing or exercise.	
Ground to Air SAR Working Channel	Marine Chan. 83A	Marine Channels 21A, 23A, 81A and 83A alternates are as specified by the local USCG Sector Commander
Ground to Maritime SAR Working Channel	Marine Chan. 21A	
Maritime/Air/Ground SAR Working Channel	Marine Chan. 83A	
EMS/Medical Support	155.3400 (narrowband FM)	
Hailing & Distress only – Maritime/Air/Ground	Marine channel 16	



## Chap. 11 Amateur Radio ARES/RACES Resources

The amateur radio community plays a significant role in interoperable communications in response to public safety or emergency response. As the State of Wisconsin prepares to build appropriate protocols and policies, amateur radio operators are encouraged to use amateur radio best practices in providing or offering support.

FCC Regulations restrict the use of radio channels in the Amateur Radio spectrum to individuals that hold a valid Amateur Radio operator's license of the appropriate class.

### Ch. 11.1 STATEWIDE ARES/RACES FREQUENCIES

*Table 3: Statewide ARES/RACES Frequencies*

Statewide ARES/RACES Frequencies				
Channel Name	Freq. (MHz)	Offset	Tone	Comments
Badger Emergency Net	3.985	Simplex		Primary, LSB
Badger Emergency Net	7.268	Simplex		Secondary, LSB
WI ARES/RACES	3.967	Simplex		LSB
60 Meters Channel 1	5.3305	Simplex		Military/Civilian Interop
60 Meters Channel 2	5.3465	Simplex		Military/Civilian Interop
60 Meters Channel 3	5.3570	Simplex		Military/Civilian Interop
60 Meters Channel 4	5.3715	Simplex		Military/Civilian Interop
60 Meters Channel 5	5.4035	Simplex		Military/Civilian Interop
National Simplex VHF	146.520	Simplex		
WinLink	145.610	Simplex		Digital RMS gateway
WECOMM-Brussels	146.8050	-600 KHz	Split	TX 85.4, RX 146.2
WECOMM-Cambridge	147.3600	+600 KHz	123.0	
WECOMM-Coloma	147.1050	+600 KHz	123.0	
WECOMM-Dodgeville	145.2300	-600 KHz	123.0	
WECOMM-Gilmanton	145.4300	-600 KHz	131.8	
WECOMM-Irma	146.8950	-600 KHz	114.8	
WECOMM-Meteor	147.0750	+600 KHz	110.9	
WECOMM-Plymouth	146.8500	-600 KHz	100.0	
WECOMM-Sayner	145.1300	-600 KHz	114.8	
WECOMM-Suring	145.2900	-600 KHz	114.8	
WECOMM-Waukesha	145.4700	-600 KHz	127.3	
Shared, Non-Protected	146.4600	+1 MHz	156.7	CSQ RX, Temporary fixed use
Shared, Non-Protected	146.4750	+1 MHz	156.7	CSQ RX, Temporary fixed use

**FOR USE BY PUBLIC SAFETY AGENCIES**



Statewide ARES/RACES Frequencies				
Channel Name	Freq. (MHz)	Offset	Tone	Comments
Shared, Non-Protected	146.4900	+1 MHz	156.7	CSQ RX, Temporary fixed use
Shared, Non-Protected	440.5000	+5 MHz	156.7	CSQ RX, Temporary fixed use
Shared, Non-Protected	441.500	+5 MHz	156.7	CSQ RX, Temporary fixed use
Shared, Non-Protected	442.125	+5 MHz	156.7	CSQ RX, Temporary fixed use
National Simplex UHF	446.000	Simplex		

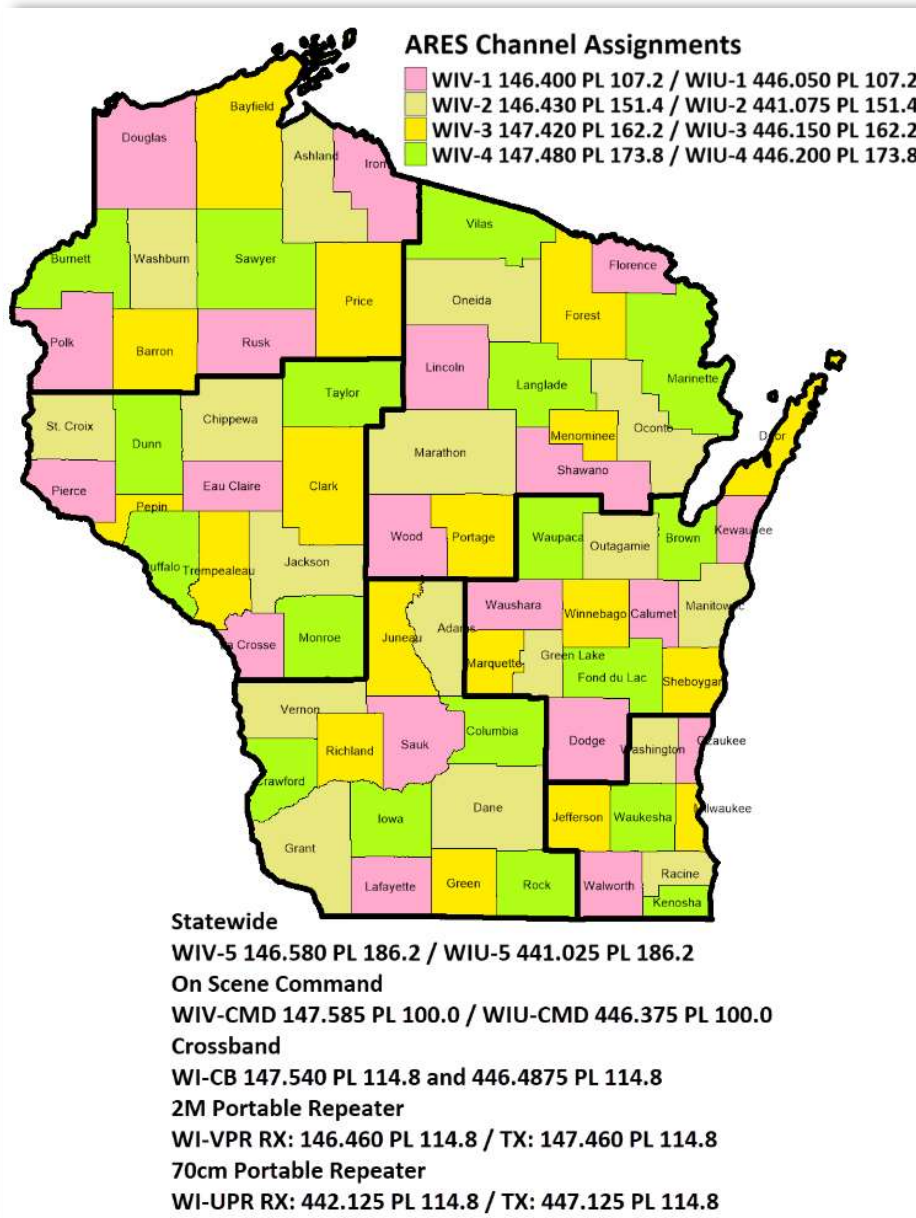


Figure 7: ARES/RACES County Simplex Channel Assignments





## Ch. 11.2 AMATEUR RADIO EMERGENCY DATA NETWORK (AREDN)

AREDN was created to provide amateur radio operators with the means to implement wireless data communications technology in support of local and regional emergency communications needs.

Current AREDN technology includes the establishment of mesh networks operating on non-shared radio channels in the 2.4 GHz, 3.4 GHz, and 5.8 GHz radio spectrum. AREDN channels and frequencies are listed below:

AREDN Mesh Network Frequencies							
Channel	Freq (GHz)	Channel	Freq (GHz)	Channel	Freq (GHz)	Channel	Freq (GHz)
<b>2.4 GHz (Non-Shared)</b>							
-2	2.397	-1	2.402				
<b>3.4 GHz (Non-Shared)</b>							
76	3.380	77	3.385	78	3.390	79	3.395
80	3.400	81	3.405	82	3.410	83	3.415
84	3.420	85	3.425	86	3.430	87	3.435
88	3.440	89	3.445	90	3.450	91	3.455
92	3.460	93	3.465	94	3.470	95	3.475
96	3.480	97	3.485	98	3.490	99	3.495
<b>5.8 GHz (Non-Shared)</b>							
170	5.850	171	5.855	172	5.860	173	5.865
174	5.870	175	5.875	176	5.880	177	5.885
178	5.890	179	5.895	180	5.900	181	5.905
182	5.910	183	5.915	184	5.920		
<b>5.8 GHz (Shared)</b>							
131	5.655	132	5.660	133	5.665	134	5.670
135	5.675	136	5.680	137	5.685	138	5.690
139	5.695	140	5.700	141	5.705	141	5.710
142	5.715	143	5.720	144	5.725	145	5.730
146	5.735	147	5.740	148	5.745	149	5.750
150	5.755	151	5.760	152	5.765	153	5.770
154	5.775	155	5.775	156	5.780	157	5.785
158	5.790	159	5.795	160	5.800	161	5.805
162	5.810	163	5.815	164	5.820	165	5.825
166	5.830	167	5.835	168	5.840	169	5.845





## Ch. 11.3 AMATEUR RADIO DIGITAL MOBILE RADIO (DMR)

As used by amateur radio operators in the U.S., DMR describes a 2-slot Time Division Multiple Access (TDMA) digital communications protocol which can support either voice or data communications.

ARES/RACES DMR System Talkgroups and access information are listed in the table below:

DMR Simplex Channels			
Frequency	Group Call	Time Slot	Detail/Usage
441.0000	99	1	Simplex Use
446.5000	99	1	Simplex Use
446.0750	99	1	Simplex Use
443.4500	99	1	Simplex Use

DMR Talkgroup Definitions			
Talkgroup	Group Call	Time Slot	Detail/Usage
Wisconsin Statewide	3155	1	Statewide use
Wisconsin Statewide	31551	1	DMR/Fusion link, not connected to #3155
FEMA Region 5	31673	1	AUXCOMM
Midwest	3169	1	IL, IN, IA, MI, MO, MN, ND, NE, OH, SD, and WI
Parrot	9990	1	Echoes back user transmission



## Chap. 12 Dispatch Center Information

### Ch. 12.1 DISPATCH CENTERS

DISPATCH CENTERS		
CENTER NAME	LOCATION	24/7 PHONE
<b>STATE AGENCY CENTERS</b>		
State Patrol/Traffic Mgmt. Center	433 West St. Paul Ave. Milwaukee, WI	414-227-2166
Wisconsin DNR LE Dispatch	101 South Webster St. Madison, WI	608-267-0844
Wisconsin State Capitol PD	2 East Main St. Madison, WI	608-266-8797
UW-Madison PD	1429 Monroe St. Madison, WI	608-264-2677
UW-Milwaukee PD	3410 North Maryland Ave. Milwaukee, WI	414-229-4627
<b>AMERICAN INDIAN TRIBAL AGENCY CONTACTS</b>		
Bad River Band	TBD	
Forest County Potawatomi	TBD	
Ho-Chunk Nation Tribal Police	W9598 WI-54 Black River Falls, WI	715-2842658
La Courte Oreilles Tribal Police	9792 County Rd. K Hayward, WI	715-634-8350 (M-F 0800-1630)
Lac du Flambeau Tribal Police Dept	623 Peace Pipe Rd. Lac Du Flambeau, WI	715-588-7717 (office)
Menominee Tribal Police	W3293 Wolf River Rd. Keshena, WI	715-799-3321
Oneida Nation Police Dept.	2783 Freedom Rd. Oneida, WI	920-869-2239
Red Cliff Police Dept.	88385 Pike Rd. Bayfield, WI	715-779-3733 (M-F 0800-1600)
Sokaogon Chippewa Community Police Dept.	3051 Sand Lake Rd. Crandon, WI	715-478-6454
St. Croix Tribal Police Dept.	4384 State Rd. 70 Webster, WI	715- 349-8638
Stockbridge Munsee	TBD	
<b>EAST CENTRAL REGION</b>		
Brown Co. Dispatch Center	3028 Curry Lane Green Bay, WI	920-391-7450
Calumet Co. SO Comm. Center	206 Court St. Chilton, WI	920-849-2335
Dodge Co. SO	124 West St. Juneau, WI	920-386-3726
Door Co. SO	1201 S. Duluth Ave. Sturgeon Bay, WI	920-746-2400



DISPATCH CENTERS		
CENTER NAME	LOCATION	24/7 PHONE
Fond du Lac Co. Comm. Center	63 Western Ave. Fond du Lac, WI	920-929-3390
Green Lake Co. SO	571 County Rd. A Green Lake, WI	920-294-4000
Kewaunee Co. SO	620 Juneau St. Kewaunee, WI	920-388-3100
Manitowoc Co. Joint Dispatch	1024 South 9 <sup>th</sup> St. Manitowoc, WI	920-683-4200
Marquette Co. SO	67 W. Park St. Montello, WI	608-297-2115
Outagamie Co. Comm. Center	320 South Walnut St. Appleton, WI	920-832-5605
Ripon PD	100 East Jackson St. Ripon, WI	920-748-2888
Sheboygan Co. 911 Center	525 North 6 <sup>th</sup> St. Sheboygan, WI	920-459-3111
Waupaca Co. Comm. Center	1402 E. Royalton St. Waupaca, WI	715-258-4466
Waushara Co. SO	430 East Division St. Wautoma, WI	920-787-3321
Winnebago Co. SO Comm. Center	4311 Jackson St. Oshkosh, WI	920-236-7300 920-727-2888
NORTHEAST REGION		
Florence Co. SO	501 Lake Ave. Florence, WI	715-528-3346
Forest Co. SO	100 S. Park Ave. Crandon, WI	715-478-3331
Langlade Co. SO	840 Clermont St. Antigo, WI	715-627-6411
Lincoln Co. SO	1104 E 1 <sup>st</sup> St. Merrill, WI	715-536-6272
Marathon Co. Dispatch	500 Forest St. Wausau, WI	715-261-1200
Marinette Co. Dispatch	2161 University Drive Marinette, WI	715-732-7627
Menominee Co. 911	W3269 Courthouse Lane Keshena, WI	715-799-3881
Minocqua Police Dept.	418 E. Chicago Ave. Minocqua, WI	715-356-3234
Oconto Co. Sheriff's Dept.	220 Arbutus Ave. Oconto, WI	920-834-6900
Oneida Co. SO	2000 E Winnebago St. Rhineland, WI	715-361-5100
Portage Co. SO	1500 Strongs Ave. Stevens Point, WI	715-346-1400



<b>DISPATCH CENTERS</b>		
<b>CENTER NAME</b>	<b>LOCATION</b>	<b>24/7 PHONE</b>
Shawano Co. SO	405 N. Main St. Shawano, WI	715-526-3111
Vilas Co. SO	330 Court St. Eagle River, WI	715-479-4441
Wood Co. Dispatch Center	400 Market St. Wisconsin Rapids, WI	715 421-8700
<b>NORTHWEST REGION</b>		
Ashland Co. SO	220 6 <sup>th</sup> St. East Ashland, WI	715-682-7023
Barron Co. SO	1420 State Hwy. 25 N Barron, WI	715-537-3106
Bayfield Co. SO	615 Second Ave. East Washburn, WI	715-373-6120
Burnett Co. Dispatch	7410 County Rd. K Siren, WI	715-349-2127
Douglas Co. Dispatch	1316 N. 14 <sup>th</sup> St. Superior, WI	715-395-1371
Iron Co. Dispatch	300 Taconite St. Hurley, WI	715-561-3434
Polk Co. SO	1005 Main St. Balsam Lake, WI	715-485-8300
Price Co. SO	164 Cherry St. Phillips, WI	715-339-3011
Rusk Co. SO	311 Miner Ave. E Ladysmith, WI	715-532-2200
Sawyer Co. Dispatch	15888 E. 5 <sup>th</sup> St. Hayward, WI	715 634-5213
Washburn Co. Dispatch Center	421 US Hwy. 63 Shell Lake, WI	715-468-4720



DISPATCH CENTERS		
CENTER NAME	LOCATION	24/7 PHONE
<b>SOUTHEAST REGION</b>		
Bayside Comm.	9075 N. Regent Rd. Bayside, WI	414-206-3916 PD 414-351-8904 FD
Burlington Police Dept.	224 E. Jefferson St. Burlington, WI	262 342 1100
Cedarburg Police Dept.	W75 N444 Wauwatosa Rd. Cedarburg, WI	262-375-7620
Cudahy Police Dept.	5050 S Lake Drive Cudahy, WI	414-769-2260
Delavan Police Dept.	123 South 2 <sup>nd</sup> St. Delavan, WI	262-728-6311
Elm Grove Police Dept.	13600 Juneau Blvd. Elm Grove, WI	262-786-4141
Fort Atkinson Police Dept.	101 S. Water St. W Fort Atkinson, WI	920-563-7777
Franklin Police Dept.	9455 W. Loomis Rd. Franklin, WI	414- 425-2522
Germantown Police Dept.	N112 W16877 Mequon Rd. Germantown, WI	262-253-7780
Greendale Police Dept.	5911 W. Grange Ave. Greendale, WI	414-423-2121
Greenfield Police Dept.	5300 W. Layton Ave. Greenfield, WI	414-761-5300
Hartford Police Dept.	109 N. Main St. Hartford, WI	262-673-2600
Jefferson Co. Sheriff	411 S. Center Ave. Jefferson, WI	920-674-7310
Kenosha City/Co. Joint Services	1000 55 <sup>th</sup> St. #1 Kenosha, WI	262-656-1234
Lake Geneva Police Dept.	626 Geneva St. Lake Geneva, WI	262-248-3673
Marquette University Police	749 North 16 <sup>th</sup> St. Milwaukee, WI	414-288-6800
Mequon Police Dept.	11300 N. Buntrock Ave. Mequon, WI	262-242-3500
Milwaukee Co. Comm. Center	821 W. State St. Milwaukee, WI	414-278-4701
Milwaukee Fire Dept.	2333 North 49th St. Milwaukee, WI	414-347-2323
Milwaukee Police Dept.	2333 North 49th St. Milwaukee, WI	414-933-4444
Mukwonago Police Dept.	627 S. Rochester St. Mukwonago, WI	262-363-6435
Muskego Police Dept.	W182 S8200 Racine Ave. Muskego, WI	262-679-4130



DISPATCH CENTERS		
CENTER NAME	LOCATION	24/7 PHONE
Oak Creek PD	301 West Ryan Rd. Oak Creek, WI	414-762-8200
Oconomowoc Police Dept.	630 E. Wisconsin Ave. Oconomowoc, WI	262-567-4401
Ozaukee Co. Sheriff's Dept.	1201 S. Spring St. Port Washington, WI	262-284-7172
Pleasant Prairie Police Dept.	8600 Green Bay Rd. Pleasant Prairie, WI	262-694-7353
Racine Co. Comm. Center	14116 Washington Ave. Sturtevant, WI	262-886-2300
South Milwaukee Police Dept.	2424 15 <sup>th</sup> Ave. South Milwaukee, WI	414-768-8060
Walworth Co. Sheriff Dispatch	1770 County Rd. NN Elkhorn, WI	262-741-4400
Washington Co. Dispatch Center	500 Rolfs Ave. West Bend, WI	262-335-4378
Watertown Police Dept.	106 Jones St. Watertown, WI	920-261-6660
Waukesha Co. Comm. Center	1621 Woodburn Rd. Waukesha, WI	262-446-5070
Waukesha Police Dept.	1901 Delafield St. Waukesha, WI	262-524-3831
Wauwatosa PD	1700 North 116 <sup>th</sup> St. Wauwatosa, WI	414-471-8430
West Allis PD	11301 West Lincoln Ave. West Allis, WI	414-302-8000
West Bend Police Dept.	350 Vine St. West Bend, WI	262-335-5000
West Milwaukee PD	4755 West Beloit Rd. West Milwaukee, WI	414-645-2151
Wgema Campus Police	3135 West Highland Blvd. Milwaukee, WI	414-290-9425
Whitewater Police Dept.	312 W. Whitewater St. Whitewater, WI	262-473-0555



DISPATCH CENTERS		
CENTER NAME	LOCATION	24/7 PHONE
<b>SOUTHWEST REGION</b>		
Adams Co. SO	301 Adams St. Friendship, WI	608-339-3304
Brodhead Police Dept.	1004 W. Exchange St. Brodhead, WI	608-897-2112
Columbia Co. SO	711 E Cook St. Portage, WI	608-742-4166
Capital Police Dept.	17 W. Main St. Madison, WI	608-266-7700 608-266-8797
Crawford Co. SO	224 N. Beaumont Rd. Prairie du Chien, WI	608-326-8414
Dane Co. 911	210 Martin Luther King Jr. Blvd. Madison, WI	608-255-2345
Grant Co. SO	1000 North Adam St. Lancaster, WI	608-723-2157
Green Co. SO	2827 6 <sup>th</sup> St. Monroe, WI	608-328-9400
Iowa Co. SO	1205 North Bequette St. Dodgeville, WI	608-935-3314
Juneau Co. SO	200 Oak St. Mauston, WI	608-847-5649
Lafayette Co. SO	138 W. Catherine St. Darlington, WI	608-776-4870
Middleton PD	7341 Donna Drive Middleton, WI	715-339-3011
Monroe Police Dept.	1811 12 <sup>th</sup> St. Monroe, WI	608-329-2410
Platteville Police Dept.	165 N. Fourth St. Platteville, WI	608-348-2313
Reedsburg PD	200 South Park St. Reedsburg, WI	608-524-2376
Richland Co. SO	181 W. Seminary St. Richland Center, WI	608-647-8906
Rock Co. Comm.	3636 N. County Road F Janesville, WI	608-757-2244
Sauk Co. SO	1300 Lange Court Baraboo, WI	608-356-4895
Sun Prairie Police Dept.	300 E. Main St. Sun Prairie, WI	608-837-7336
Vernon Co. SO	1320 Bad Axe Court Viroqua, WI	608-637-2123
Wisconsin Dells Police Dept.	712 Oak St. Wisconsin Dells, WI	608-253-1611





DISPATCH CENTERS		
CENTER NAME	LOCATION	24/7 PHONE
<b>WEST CENTRAL REGION</b>		
Buffalo Co. Dispatch	407 S 2 <sup>nd</sup> St. Alma, WI	608-685-4433
Chippewa Co. SO	32 E Spruce St. Chippewa Falls, WI	715-726-7701
Clark Co. SO	517 Court St. Neillsville, WI	715-743-3157
Dunn Co. Emergency Comm.	615 Stokke Parkway Menomonie, WI	715-232-1348
Eau Claire Co. Emergency Comm.	721 Oxford Ave. Eau Claire, WI	715-839-4972
Jackson Co. Comm. Center	307 Main St. Black River Falls, WI	715-284-5357
La Crosse Co. Public Safety Comm.	333 Vine St. La Crosse, WI	608-785-9634
Monroe Co. 911 Comm. Center	112 South Court St. Sparta, WI	608-269-8712
Pepin Co. Comm. Center	740 7 <sup>th</sup> Avenue W Durand, WI	715-672-5944
Pierce Co. Dispatch	555 W. Overlook Drive Ellsworth, WI	715-273-5051
St. Croix Co. Emergency Comm.	1101 Carmichael Rd. Hudson, WI	715-386-4711
Taylor Co. SO	224 S. 2 <sup>nd</sup> St. Medford, WI	715-748-2200
Trempealeau Co. SO	36245 Main St. Whitehall, WI	715-538-4351



## Chap. 13 Technical Reference

### Ch. 13.1 TONE CODED SQUELCH (CTCSS)

CTCSS (CONTINUOUS TONE CODED SQUELCH SYSTEM) TONES AND CODES					
FREQ. (Hz)	MOT. PL	ICOM #	FREQ. (Hz)	MOT. PL	ICOM #
67.0	XZ	01	136.5	4Z	21/04
69.3**	WZ	--	141.3	4A	22/13
71.9	XA	02	146.2	4B	23/05
74.4	WA	03	151.4	5Z	24/14
77.0	XB	04	156.7	5A	25/06
79.7	WB	05	162.2	5B	26
82.5	YZ	06	167.9	6Z	27/07
85.4	YA	07	173.8	6A	28
88.5	YB	08	179.9	6B	29
91.5	ZZ	09	186.2	7Z	30
94.8	ZA	10	192.8	7A	31
97.4	ZB	11	203.5	M1	32
100.0	1Z	12/09	206.5	8Z	--
103.5	1A	13/08	210.7	M2	33
107.2	1B	14/10	218.1	M3	34
110.9	2Z	15/01	225.7	M4	35
114.8	2A	16/11	229.1	9Z	--
118.8	2B	17	233.6	M5	36
123.0	3Z	18/02	241.8	M6	37
127.3	3A	19/12	250.3	M7	38
131.8	3B	20/03	254.1	0Z	--

\*\* 69.4 in some radios



## Ch. 13.2 DIGITAL CODED SQUELCH (DCS)

DCS (DIGITAL CODED SQUELCH) CODES							
NORM.	INVERT.	NORM.	INVERT.	NORM.	INVERT.	NORM.	INVERT.
023	047	155	731	325	526	516	432
025	244	156	265	331	465	523	246
026	464	162	503	332	455	526	325
031	627	165	251	343	532	532	343
036	172	172	036	346	612	546	132
043	445	174	074	351	243	565	703
047	023	205	263	364	131	606	631
051	032	212	356	365	125	612	346
053	452	223	134	371	734	624	632
054	413	225	122	411	226	627	031
065	271	226	411	412	143	631	606
071	306	243	351	413	054	632	624
072	245	244	025	423	315	654	743
073	506	245	072	431	723	662	466
074	174	246	523	432	516	664	311
114	712	251	165	445	043	703	565
115	152	252	462	446	255	712	114
116	754	255	446	452	053	723	431
122	225	261	732	454	266	731	155
125	365	263	205	455	332	732	261
131	364	265	156	462	252	734	371
132	546	266	454	464	026	743	654
134	223	271	065	465	331	754	116
143	412	274	145	466	662		
145	274	306	071	503	162		
152	115	311	664	506	073		
032	051	315	423				



## Ch. 13.3 P25 DIGITAL CODES

<b>NAC – NETWORK ACCESS CODES</b>	
\$293	Default NAC
\$F7E	Receiver will unsquelch with any incoming NAC
\$F7F	A repeater with this NAC will allow incoming signals to be repeated with the NAC intact
<b>TGID – TALKGROUP ID (DEC)</b>	
00001-65534	Talkgroup values. Values are assigned by system administrator. Confirm with system administrator for conventional vs WISCOM unit IDs
<b>UNIT ID (DEC)</b>	
000000	No one – never associated with a radio unit
000001-9999999	For general use. Confirm with system administrator for conventional vs WISCOM unit IDs





## Change Record

Date Changed	Pages Changed	Description of Change
11/24/2021	26	Updated SC HERC website URL
	43, 45	Moved VLAW31 from Nationwide VHF Mutual Aid to Statewide VHF
11/29/2021	68	Updated Vernon County's phone number
11/30/2021	69	Updated St. Croix County's phone number
12/16/2021	Chapter 12	Updated phone numbers