
# NATIONAL RESPONSE PLAN 2024

*Guidelines for individuals and emergency communications organizations utilizing Radio Relay International networks in time of emergency.*

# INTRODUCTION AND TABLE OF CONTENTS

The *RRI National Response Plan is* designed to offer maximum flexibility for organizational and individual emergency communications efforts. These guidelines are purposely limited to those actions required to ensure that effective infrastructure support is available in time of emergency.

Included along with operational requirements are basic guidelines for the RRI "National SOS Radio Network" and "Neighborhood HamWatch" programs. These programs are designed to enhance community service by promoting interoperability with volunteer organizations active in disaster response. while providing a rich source of situational awareness data for local, state, and Federal emergency management agencies.

As with any organization active in disaster response, it is essential that personnel, equipment, and infrastructure be exercised regularly. For these reasons, RRI networks operate 365 days per year, 24-hours per day to facilitate the transfer of *routine* and *fast telegram (certified)* message traffic. While routine message traffic may seem unimportant, it is the process that provides value by ensuring operational readiness and on-going training for operators.

This plan assumes that the user is familiar with radiogram and radiogram-ICS213 formatting, net protocols, and general system architecture. RRI offers emergency communications training classes for those who are new to the RRI program. For more information, visit: www.radiorelay.org

IMPORTANT NOTICE: This plan is subject to periodic changes. Please check the RRI Web Page for the latest versions or contact the RRI Emergency Manager at:

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# INTRODUCTION AND TABLE OF CONTENTS

# RRI NATIONAL EMERGENCY COMMUNICATIONS RESPONSE GUIDELINES

## I OVERVIEW

### GENERAL POLICY

The Radio Relay International messaging system normally operates in *routine* configuration. When configured for routine operation, it is anticipated that all message traffic is of a routine or certified precedence. Therefore, messages are assumed to be not particularly time sensitive beyond the usual customer-service imperative. While routine traffic should be handled promptly from point of injection to point of delivery, message propagation times through the system are not a serious concern.

In time of emergency, the national messaging layer is reconfigured to facilitate the rapid routing and delivery of message traffic. Special circuits are be established to expedite the flow of message traffic. Specific networks can be activated on a continuous basis to facilitate unique emergency communications requirements. Digital Traffic Stations (DTS) and region Winlink-RRI gateway stations can be placed on emergency status during which sysops (attendants) are assigned to monitor message throughput to ensure that message propagation and transfer times are minimized.

Multiple inject options via *Priority Entry Points* may also be made available for expedited origination and routing of emergency and priority precedence message traffic using radiotelegraph, radiotelephone, or various digital methods. In other words, emergency configuration assumes that welfare, priority, or emergency precedence traffic will be originated and message propagation times through the system become critical.

### ACCESIBILITY

RRI takes an infrastructure approach to emergency response. Networks are open to any individual radio operator or EmComm organization active in emergency response. *Message precedence* will determine the priority of network access and relay/transfer/download functions. While special accommodations may be made for high-priority agencies, generally, RRI networks operate on an open infrastructure concept.

### INTEROPERABILITY

RRI networks are designed to facilitate full interoperability. The radiogram and radiogram-ICS213 formats incorporates non-case-sensitive content, minimal punctuation, universal

message formatting guidelines, and *complete* network management and accountability data, which defines network topology, ensures that communications traffic can pass seamlessly and intact between digital and manual mode networks to achieve "last mile" connectivity. This ensures that messages not only meet, but *exceed,* the ICS213 minimum requirement defined in the NIMS standards. It also recognizes that communications traffic may move through multiple networks or radio services to reach a point of contact in a forward deployed area during disaster response.

## TRAINING

Participation in routine RRI operations develops a cadre of operators fully proficient with message formatting rules, net procedures, and network topology. Regular participation in nets inculcates good operating practices, builds established connectivity, and promotes resiliency.

Individuals and organizations, which may have reason to utilize the RRI national messaging layer should exercise it regularly by originating, relaying, receiving, and delivering routine radiogram or radiogram-ICS213 traffic. Emergency communications operations cannot be learned amidst a disaster operation. Rather, one must practice basic message handling skills regularly. *Furthermore, these skills are inherently transferrable to all communications networks, whether they are tasked to transfer tactical communications or record message traffic*. RRI strongly recommends that users, or potential users, of the network carefully study the RRI Training Manual TR-001 and Field Manual FM-001 and participate in routine nets as part of the preparedness process.

Radio Relay International offers a "Certified Radio Operator" training program for those seeking credentials as a qualified emergency communicator.

# II Activation

1. Whenever welfare, priority or emergency traffic is to be originated, the originating station, or the emergency communications program manager approving the originations, *shall* notify the Radio Relay International Emergency Manager or an assigned alternate as soon as reasonably practical. These points of contact are identified in *Appendix B*.

2. Activation may be initiated by telephone, text message, Winlink e-mail or a radiogram message in the absence of functioning commercial telecommunications common carrier infrastructure. Regardless of the method used for initial activation, this should be followed by a formal request transmitted via radiogram (see example in *Appendix A*).

3. The notifying individual or official shall request a confirmation message or other acknowledgement indicating that the activation request was received. The handling instruction "HXC" or "HXE" within the radiogram preamble (network management data) can facilitate this confirmation function.

4. Recommended information for activation request notification:

    a. A basic description of the disaster situation and affected area.
    b. A basic description of connectivity required including any specific functions required. For example:
        i. Welfare traffic to random destinations.
        ii. Welfare traffic within a state, region or limited geographic area.
        iii. Connectivity to specific agencies or communities (e.g. State EOC; FEMA regional headquarters; National Response Coordination Center, specific cities, etc.)
    c. Note that targeted location information is more important than agency name.

d. Name, title and call-sign (if applicable) of individual, agency official, or emergency communications official requesting emergency communications services.
e. Local, state or region network frequency through which requesting individual or agency can be reached.

5. Note: An example of a brief activation request message can be found in *Appendix A*

6. Self-Activation is encouraged when RRI registered radio operators have knowledge that a major disaster or national emergency is occurring. Under such circumstances, the monitoring (QSX) of IATN watch frequencies and more frequent connect and download frequencies by DTS and Winlink liaison operators is encouraged. Some examples of incidents that may justify self-activation include:

    a. Major earthquake.
    b. Major hurricane landfall.
    c. Widespread, cascading power outage.
    d. Widespread, severe ice storms
    e. Major cyber or terrorist attack.
    f. Act of war.
    g. Other major disaster.

## III Alert and Notification

1. Upon determining that activation of the emergency plan is appropriate, the RRI Emergency Manager, or the RRI official acting in that capacity, shall alert all RRI networks and registered radio operators. This initial alert bulletin will be distributed by one or more of the following methods:

    a. Via an e-mail bulletin to all RRI Registered Radio Operators.
    b. Via a text message alert to all RRI Registered Radio Operators.
    c. Targeted telephone calls to specific net managers.
    d. Announcements on specific net frequencies as appropriate (See Net Directory *Appendix E* for bulletin frequencies).
    e. QNC radiograms formatted and distributed as defined in *Appendix A, Example 6*.
    f. QNC radiograms transmitted to DTN and to Winlink-RRI Liaison Stations.

2. A general bulletin to the broader Amateur Radio Service community may also be distributed via common methods such as e-mail reflectors, various news services and similar facilities. This may include ARRL SECs, emergency communications team leaders, and RRI registered radio operators.

3. Should specific areas, regions or individual networks need to be activated to expedite the flow of emergency communications traffic, the Emergency Manager shall notify the appropriate net manager(s), digital traffic stations and Winlink Region Liaison stations as soon as practicable. **The general categories of QNC messages are**:
    a. QNC-International: Distribute on all RRI affiliated networks Worldwide.
    b. QNC-North America: Distribute to all RRI affiliated networks in North America.
    c. QNC-[Region(s)]: Distribute only to RRI affiliated nets within the RRI region(s) identified.
    d. QNC-[State(s)]: Distribute only to RRI affiliated nets within the state(s) identified.

4. A QNC radiogram message will be originated identifying activated networks, watch frequencies and other pertinent information. RRI registered radio operators are encouraged to distribute these QNC messages via e-mail, radio, SMS, and other methods to ensure the widest possible dissemination.

## IV Welfare Message Traffic

1. Welfare traffic shall be processed AFTER emergency or priority precedence messages but before certified and routine traffic, or at times when idle circuit capacity is available.

2. Unless stated otherwise in an initial or follow-up alert bulletins, it will be assumed that welfare message traffic destinations (addressee location) will be randomly dispersed throughout the United States. Therefore, the origination of quantities of welfare traffic shall invoke the minimum activation of all RRI affiliated networks on a minimum standby basis.

3. Digital Traffic Stations, Winlink liaisons (operating at the region net level) and IATN circuits will activate for the duration of the emergency when staffing is available. These liaison stations may, at their discretion, request full activation of local or state traffic nets to facilitate the routing and delivery of incoming welfare traffic to its destination when traffic volumes warrant.

4. A watch frequency arrangement may be used to dynamically respond to incoming welfare traffic. That is; an active net may not be necessary. Instead, region reps and IATN staff will monitor the watch frequencies for incoming traffic. Additionally, DTS stations at the state level and region Winlink liaisons will increase the frequency at which they check the region DTN hub for incoming traffic, preferably at least once per hour for welfare traffic. Primary, secondary, and tertiary watch frequencies and associated procedures are defined in *Appendix E.*

5. The Emergency Manager, in conjunction with the RRI Area Chairmen, shall have the authority to make the final determination regarding the routing and disposition of welfare traffic. At all times, the efficient use of human resources should be considered. That is, the minimal number of networks and operators required to conduct the task will be utilized.

6. Welfare traffic should not use handling instructions or otherwise require a response to preserve circuit capacity.

7. At a minimum, and whenever practical, all welfare traffic originated should be booked using a standard RRC numbered radiogram message text or a similar standard text.

8. DTN is preferred for the origination of welfare traffic, with manual mode nets serving in a secondary role. However, in the absence of digital capabilities, welfare traffic may be injected into any operational traffic net provided higher priority traffic is not being exchanged.

9. *Recommended minimum download schedule for Digital Traffic Stations and Winlink Liaison Stations is once per hour when incoming welfare message traffic is anticipated.*

## V Priority Message Traffic

1. Priority traffic will typically consist of operational messages transmitted on behalf of served agencies. Other examples include, but are not necessarily limited to:

    a. SITREP reports from RRI registered radio operators or local EmComm organizations.
    b. Weather data reports transmitted during major storms or hurricanes. *WXOBS formats are defined in Appendix A, Example 7*.
    c. Announcements from FEMA or other emergency management agencies to subordinate agencies.
    d. Announcements from FEMA or other emergency management agencies to be distributed to press, wire services or broadcast media outlets.

2. Priority message traffic shall be handled before welfare, certified, and routine traffic but after emergency precedence traffic.

3. Priority traffic requires reasonably brief message propagation times. The station of origin should carefully consider network topology and operational constraints when selecting a network for the injection of priority traffic. Considerable discretion is granted to the message originator; however, some basic guidelines may prove helpful.

    a. When activated, the *Priority Entry Point* watch frequencies may prove most efficient for priority traffic leaving the immediate operational area. Examples include SITREPs and other data destined for agency facilities in adjacent states or regions.
    b. The 30 and 20-meter Priority Entry Point frequencies may prove more effective during major hurricanes due to lower static levels on the higher frequencies utilized (e.g. 30 and 20-meters).

c. Winlink liaison stations and DTS stations may experience slight delays as they perform their traffic exchange functions with manual mode traffic networks to achieve "last mile" connectivity.

d. In a few cases, it may be helpful to take priority traffic directly to the destination region or state network when RF propagation conditions permit, and maximum expediency is needed. When exercising this option, one should consider the nature of traffic already being exchanged on the destination net and potential conflicts between priority traffic being exchanged on behalf of the destination state's served agencies and the external traffic destined for the network. *Circuit capacity is always a critical concern.*

4. The RRI Emergency Manager or his designee shall have the authority to direct stations to utilize specific networks to preserve efficient operation of the overall national system.

5. State and local net managers should consult with local and state emergency communications program leadership officials to assess their priorities and needs. Whenever practical, the requirements of local and state EmComm organizations should be considered when allocating local network assets. However, it is important to balance local requirements with the need to preserve the functioning of the national system as a unit.

6. State and local digital networks may want to operate a coordination net or "order wire" net in parallel to regular net operations to facilitate overall network management and expedite the flow of heavy traffic volumes. For example, a voice or CW order wire can facilitate coordinating access to a shared digital network, thereby facilitating message prioritization and to prevent co-channel interference or other conflict amongst authorized users. This allows multiple EmComm groups to not only prioritize access to digital networks, but to improve throughput by eliminating collisions between competing stations.

7. *The minimum download schedule for Digital Traffic Stations and Winlink Liaison Stations is twice per hour when priority message traffic is anticipated. It is recommended that these duties be shared on a time sequenced schedule to ensure prompt traffic exchange. For example, Liaison station A downloads at the top and bottom of the hour and station B downloads at 15 and 45 minutes past the hour.*

## VI Emergency Message Traffic

1. Emergency traffic is any traffic that affects the immediate life or safety of an individual or population. It shall be originated using the most expedient communications circuit available.

2. Emergency traffic shall be transferred to the first available commercial telecommunications common carrier service or government network.

3. Stations holding emergency traffic may "break" any existing traffic exchange of lower precedence (priority, welfare, certified or routine) to immediately clear the message(s).

4. Delivering stations shall ensure that the message is acknowledged by the addressee.

**Important Notice**: As stated above, the traffic system may be reconfigured to accommodate emergency response operations. When conducting an emergency management exercise in which the traffic system will be utilized and, when message propagation times are critical to the exercise design or evaluation metrics, **it is essential that the RRI Emergency Manager be notified in advance and briefed on the exercise scope and requirements**. This will ensure that the traffic system is activated on an emergency schedule for the duration of the exercise, thereby ensuring realistic, measurable results. Attendance at RRI Training Class TR-009, "Designing an Emergency Communications Exercise" is strongly recommended for all local EmComm personnel.

## VII Network Management Coordinator

1. The RRI Emergency Manager or his designee shall appoint a "Network Management Coordinator" to collect operational readiness data from RRI registered radio operators and support EmComm organizations during an activation. This data will be used to populate an "Operational Communications Plan," which is an enhanced NIMS ICS-205 form designed to support a national-level response.

2. Data collected by the Resource Manager includes, but is not necessarily limited to:
    a. Call signs and locations of active traffic stations categorize/searchable by region and state.
    b. Net frequencies on which each station is operational.
    c. EmComm organization(s) (if applicable) with which each station has connectivity.
    d. Local agencies with which each station has established connectivity.
    e. Anticipated duration of operation for each station.
    f. Supplies needed and time constraints (gasoline for generator, water, food, etc.) for key stations.

3. The Resource Manager will update this database at least once every 24 hours during the duration of an activation.

4. The ICS-205 operational readiness spreadsheet shall be provided to the RRI Emergency Manager or his designee and the RRI Area Chairmen, who will share this data as required.

5. Operators participating in the disaster response operations are asked to transmit updated information as outlined in paragraph 2 to the Network Management Coordinator once every 24 hours. If no change in status has occurred since a prior report, the status report update may simply state "no change."

6. Example Resource Management Radiograms with format definitions are contained in *Appendix A.*

## VIII Winlink-RRI Liaison (Gateway) Functions:

1. Radio Relay International maintains liaison with the Winlink system to ensure the prompt and efficient transfer of radiogram and radiogram-ICS213 formatted messages to the RRI System. This system of traffic exchange functions during both routine and emergency configuration.

2. Traffic exchange occurs at the RRI regional level. Winlink-RRI liaison stations connect to Winlink using a special tactical call sign specific to their RRI Region. The operator then downloads the message traffic specific to that region and transfers it to the most expedient network needed to achieve routing and delivery.

3. If necessary and deemed appropriate, the liaison station may deliver emergency and priority traffic directly. However, in the case of welfare, certified or routine traffic, discretion is advised to avoid needlessly undermining the system by starving lower echelon networks. For example, quantities of welfare traffic might be forwarded to a state network whereas a priority agency message might be delivered directly via WebEOC or other means. In other cases, an emergency or priority message may be routed directly to a local EmComm, government, or public safety network to ensure minimal message propagation times and achieve last-mile connectivity.

4. The Winlink-RRI traffic exchange system is primarily a one-way system. That is, most radiogram traffic will move from Winlink to RRI. Operators are allowed considerable leverage to determine the best routing for replies. If necessary, consult with the Network Management Coordinator or RRI Emergency Manager to determine the options for service messages associated with radiograms of priority precedence. In some situations, a response routed to an RMS capable station may prove expedient.

5. *Recommended minimum download schedule for Winlink Liaison Stations is once per hour when incoming welfare message traffic is anticipated. When priority traffic is anticipated, download frequency should be increased. If possible, the duty should be time sequenced with another DTS or Winlink Liaison operator. For example, Station A downloads at the top and bottom of the hour and Station B downloads at 15 and 45 minutes past the hour.*

## IX Digital Traffic Stations (DTN):

1. The Radio Relay International Digital Traffic Network (DTN) is a hybrid mesh network serving North America and selected locations overseas in Europe, Asia, and Oceania. Traffic uploaded to the network is automatically forwarded to its destination region without delay.

2. Traffic exchange between state/local manual mode networks (voice, CW, digital) occurs via the *Digital Traffic Station* (DTS) function. The DTS connects to the DTN, downloads the message traffic specific to his service area, and transfers it to the most expedient state or local network to achieve routing and delivery.

3. If necessary and deemed appropriate, the DTS may deliver priority or emergency traffic directly. However, in the case of routine and welfare traffic, discretion is advised to avoid needlessly undermining the system by starving lower echelon networks of message traffic. For example, quantities of welfare traffic might be forwarded to a state or local network for distribution, whereas a priority agency message might be delivered directly via WebEOC, commercial telecommunications common carrier networks or the like.

4. DTN is the preferred digital resource for the origination of "batch files," consisting of numerous welfare messages destined for dispersed locations.

5. Certified (Fast Telegram) Messages: Fast Telegram, or "Certified" precedence messages are routed via a virtual pathway within DTN to qualified "target" stations in each state. These target stations are operated by RRI "Certified Radio Operators" who have attended the necessary training and demonstrated sufficient responsibility to serve in this capacity. The CRO is responsible for timely and accurate delivery of all certified precedence messages according to RRI standards and protocols. More information on this process is available in standard RRI documentation.

6. *Recommended minimum download schedule Digital Traffic Stations is once per hour when incoming welfare message traffic is anticipated. When Priority traffic is anticipated, download frequency should be increased. If possible, the duty should be time sequenced with another DTS. For example, Station A downloads at the top and bottom of the hour and Station B downloads at 15 and 45 minutes past the hour.*

## X State and Local Networks

1. State and local traffic networks serve as the primary interface with the public, local emergency communications organizations, and RRI community support programs such as "Neighborhood Hamwatch" and the "National SOS Radio Network."

2. Activation of local or state nets may be made at the discretion of the net manager upon request from a civil authority, local EmComm organization, or an ARRL Section official. Upon activation, the standard National Response Plan activation request message should be originated to the RRI Emergency Manager or an alternate. An example is available in *Appendix A*.

3. State and local nets are encouraged to function in a non-political manner with emphasis on providing infrastructure services. The requirements of all recognized local EmComm programs should be considered and balanced. Open access and the balanced allocation of resources based on message precedence is essential.

4. *It may be necessary to assign specific networks to specific emergency management functions.* This process is discussed in RRI Training Class TR-006, entitled "Emergency Communications Planning." In all cases, emergency and priority precedence messages and served agency traffic will take precedence over welfare message traffic. However, if sufficient personnel are available, net managers may coordinate with other state/section traffic officials to establish routings and staffing structures, which can accommodate the welfare function in addition to agency traffic. In emergencies that extend beyond the local or state/section boundaries, the RRI Emergency Manager should be notified.

5. The DTS and manual mode region liaison functions will be critical to maintaining connectivity to both the broader RRI traffic system and the Winlink system. Ensure these functions are adequately staffed throughout the disaster operation. These functions should be staffed at least three-deep for routine operations to ensure operational readiness.

## XI Priority Entry Point Circuits

1. Priority Entry Point watch frequencies are staffed by Inter-Area Traffic Network operators and are the preferred manual mode injection point for long-haul priority precedence traffic *destined for a specific agency outside of the originator's RRI region*. The primary duties of these circuit include:

    a. Expediting the flow of priority message traffic to its destination area, region, or state net in such a manner that message propagation times are minimized.
    b. Serving as a primary entry point for priority precedence long-haul message traffic specific to a function (e.g. SITREP, WXOBS, etc.) or agency (e.g. FEMA American Red Cross, other relief agency headquarters, etc.) as defined in operational bulletins.
    c. Serving as a gateway point for field-expedient portable or mobile high frequency stations.

2. Priority Entry Points may operate on a watch (QSX) schedule to be determined based on operational requirements. Operators will be assigned to monitor the standard IATN frequencies throughout the disaster operation. These stations may make periodic announcements on the watch frequencies such as "RRI RRI QSX de [call sign]" to announce their presence and availability for priority message traffic.

3. CW traffic originations should be concentrated at 15 and 45 minutes past the hour unless necessary to expedite the flow of message traffic. This process minimizes staff burden and facilitates QSY/QNY to alternate nets and frequencies to forward traffic.

4. **Primary IATN CW watch frequencies are as follows:**
    **a. Day: 14115 and 10115 kHz**
    **b. Night: 7115 and 3563 kHz**
    c. **<u>Note:</u> 10115 kHz may be used day or night depending upon RF propagation conditions.**

5. Due to bandwidth requirements and density of activity, voice and digital watch frequencies will be indicated in operational bulletins issued and updated during the disaster operation.

6. Stations wishing to inject traffic at the IATN level should call "RRI," list traffic quantity, destination region or state and await a reply. For example: "RRI RRI de [call sign] QTC 3 P Ohio." Be patient as operators may be otherwise engaged on an alternate net or frequency.

7. When IATN circuits are idle, they may be used to expedite the origination and transfer of welfare message traffic between RRI Areas.

8. RRI operators should be prepared to switch to SSB on an alternate frequency if requested to do so by the originating station.

## XII Low Power and Portable/Mobile Stations

1. Low power, portable and mobile high frequency stations are more susceptible to propagation anomalies than fixed stations. Therefore, a greater range of frequency options may prove beneficial.

2. If the circuit to a desired state or region net proves inadequate, Priority Entry Point watch frequencies or an adjacent RRI region net may be considered as alternative circuits for traffic exchange.

3. Upon establishing a reliable traffic circuit, notify the Network Management Coordinator *immediately* via an OPRED radiogram. This will ensure that other networks are aware of alternate routings when transmitting service messages or replies to the originating or the organizations/agencies it serves. For example, if a station in Region 5 must use a Region 4 network to establish communications, it may be necessary to route traffic destined for that station from the Central to Eastern Areas to expedite message flow and retain efficiency.

4. Whenever practical, a station operating from within a disaster area should respect the Area/Region system structure and first attempt connectivity with networks within their assigned state, region, or area.

5. Considerable latitude is allowed to facilitate dynamic problem solving. However, all decisions should be made with the overall network structure in mind.

## XIII Neighborhood HamWatch and National SOS Radio Networks

*A. Neighborhood Hamwatch*:

Local radio clubs and EmComm organizations participating in the Neighborhood HamWatch program should assign a team to interface with supported community organizations such as CERTs, faith-based organizations and other VOADs utilizing GMRS and FRS radio assets. For the purposes of this plan, it is assumed that prior training and coordination with these groups has taken place.

Considerable flexibility is allowed for these operations. However, the following guidelines may be helpful.

1. Radio operators should be assigned to monitor the selected GMRS/FRS UHF channel to be used for traffic exchange between the GMRS/FRS layer and the Amateur Radio Service network layer. In some cases, a radio watch on the selected GMRS/FRS channel can be maintained while performing other duties.

2. A combination of mobile shadowing and home-station gateways may be necessary to support widely dispersed VOADs.

3. In some cases, FRS radios may prove adequate for small teams operating in a confined area (such as a door-to-door neighborhood search and rescue function), with a GMRS mobile or similar higher power unit utilized to link to the Amateur Radio Service gateway.

4. Some radio clubs or EmComm groups maintain a stock of GMRS radios for distribution to selected VOADs. When issuing radios, it will be necessary to keep an accurate sign-out sheet to facilitate the tracking and collection of radios, spare battery packs and other accessories at the conclusion of the disaster operation.

5. A connection between the Amateur Radio Service gateway and the RRI national messaging layer should be maintained to facilitate the origination of health and welfare message traffic collected during an operation.

6. VOADs active at the community level can serve as a resource for accurate situational awareness data. This data may be transferred to a local EMA via a local EmComm network. This data should also be transmitted via the RRI system (see sample SITREP in *Appendix A*) to the appropriate target station defined in operational bulletins.

7. Utilize Amateur Radio Service assets wisely. The use of GMRS/FRS assets at the neighborhood/community service level acts as a force multiplier, allowing one radio amateur to act as a gateway between radio services by providing connectivity for upwards of dozens of relief workers.

*B. National SOS Radio Network:*

1. If serious cellular data network disruptions are occurring, a local radio club or EmComm group can implement the *National SOS Radio Network* plan.

2. Per prior arrangement, a request to air the National SOS Radio Network *Public Service Announcements* ("PSAs") should be made to local broadcast stations. "All news" and "full service" AM and FM stations should be the primary target. EAS primary and secondary stations are often a good choice. The audio files (downloaded in advance) are available at the RRI web page (www.radiorelay.org).

3. Assign radio amateurs dispersed throughout the area to monitor FRS Channel One for emergency calls. Frequency: 462.5625 MHz (FM narrow bandwidth)

4. Those stations monitoring FRS channel one should have either direct or indirect connectivity with local EmComm networks (ARES®, AUXCOMM, RACES, REACT, etc.) through which requests for emergency services may be conveyed to the local public safety answering point (PSAP).

5. Those stations monitoring FRS channel one should also have either direct or indirect access to the RRI national messaging layer to facilitate the origination of health and welfare traffic on behalf of affected communities.

6. Citizens requesting assistance can provide useful "ground-truth" situational awareness data for local emergency management agencies. Radio operators should avoid hearsay from such sources and place a high emphasis on first-person reports or those verified by local volunteer organizations active in disaster response (VOADs).

## XIV REACT – RRI Liaison Stations

Radio Relay International maintains a working relationship with REACT International. Whereas individual REACT units are responsible for establishing local emergency communications networks, RRI is responsible for providing long-haul connectivity via a traffic exchange function.

REACT uses the standard radiogram format for its record message traffic functions. Therefore, interoperability is easily achieved provided some basic guidelines are followed:

1. REACT Liaisons should establish contact with their associated REACT Unit Manager upon activation. The liaison method selected will depend on local requirements and may consist of numerous options ranging from a point-to-point VHF or UHF circuit to any number of alternative radio services.

2. REACT radiogram message traffic may contain a "station of origin" that is not an Amateur Radio Service call sign. This is typically a REACT "TFC-*nnn*," designator such as: "Traffic 201."

3. *Instructions for refiling REACT originated message traffic into the RRI national messaging layer is contained in Appendix G*.

4. In some cases, it may be beneficial to include an "op note" in association with a refiled REACT message, which indicates the preferred RRI point of contact for service and reply messages. For example, "OP NOTE REPLY VIA W6RRI, Buchanan, MI"

5. More than one RRI operator may be required to fully support a REACT unit activation due to the requirement to work in shifts.

## XV Weather Data Reporting

Many disasters require accurate weather data to facilitate emergency response. The proper siting, installation, calibration, and maintenance of weather sensors is a prerequisite to weather data reporting. While automatic weather reporting networks are now common, the possibility remains that widespread power or internet outages may occur in time of emergency. Therefore, radio amateurs should be prepared to report weather data during major winter events, hurricanes, or the like.

See *Appendix I* for more information on weather station installation and calibration.

1. Weather data may be collected at the local, state, region, or national level. For example, local, state, or Federal organizations may request weather observations on a local, statewide, or regional basis. Likewise, the RRI Emergency Manager may request weather observation over a wide, multi-state area during a hurricane or other major event. These areas will be defined in operational bulletins.

2. The weather observation process is not intended to compete with existing programs such as the *Hurricane Watch Net* or local NWS Skywarn programs. Rather, it is designed to expand the amount of data available by including traffic system volunteers in the data collection process while simultaneously developing and maintaining a manual collection process, which is more survivable than automated systems.

3. The radiogram format is ideal for weather data collection. For example:

   A. The station of origin is responsible for reporting the data.

   B. The place of origin is the location where the observation was made.

   C. The date-time group is the time the weather observation was made.

D. The NWS CWA in which the observation was made is specified in the address.

E. The signature is the name of the observer, third party, and/or agency that made the observation.

F. A standard format in which each observation is reported in identical sequence via the radiogram format allows for automatic or convenient manual stripping of data for insertion into spreadsheets or tabular format.

4. The data sequence shall consist of direction (degrees) / wind speed / maximum gust / barometric pressure in millibars corrected to sea level/ cloud layer description / temperature in degrees Fahrenheit / precipitation type / storm total precipitation in inches.

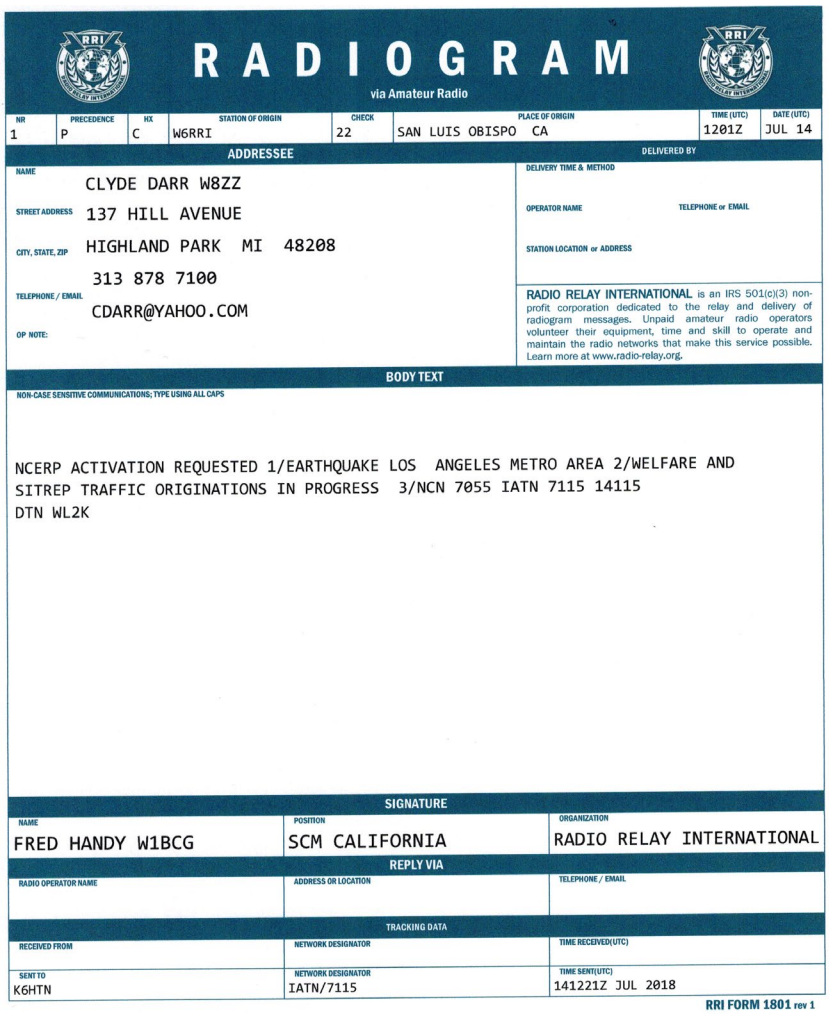
5. Winter weather observations shall specify precipitation in inches snowfall or ice accumulation and, if possible, (melted) liquid equivalent.

*6.* Examples of basic "WXOBS" messages are provided in *Appendix A Example 7.*

7. RRI will conduct periodic emergency drills in which traffic operators are encouraged to originate basic weather observations.

# APPENDIX A

## Example 1 – Emergency Plan Activation Request



**RADIOGRAM**
via Amateur Radio

| NR | PRECEDENCE | HX | STATION OF ORIGIN | CHECK | PLACE OF ORIGIN | TIME (UTC) | DATE (UTC) |
|---|---|---|---|---|---|---|---|
| 1 | P | C | W6RRI | 22 | SAN LUIS OBISPO CA | 1201Z | JUL 14 |

**ADDRESSEE**

NAME: CLYDE DARR W8ZZ
STREET ADDRESS: 137 HILL AVENUE
CITY, STATE, ZIP: HIGHLAND PARK MI 48208
TELEPHONE / EMAIL: 313 878 7100
CDARR@YAHOO.COM
OP NOTE:

**DELIVERED BY**

DELIVERY TIME & METHOD
OPERATOR NAME
TELEPHONE or EMAIL
STATION LOCATION or ADDRESS

RADIO RELAY INTERNATIONAL is an IRS 501(c)(3) non-profit corporation dedicated to the relay and delivery of radiogram messages. Unpaid amateur radio operators volunteer their equipment, time and skill to operate and maintain the radio networks that make this service possible. Learn more at www.radio-relay.org.

**BODY TEXT**

NON-CASE SENSITIVE COMMUNICATIONS; TYPE USING ALL CAPS

NCERP ACTIVATION REQUESTED 1/EARTHQUAKE LOS ANGELES METRO AREA 2/WELFARE AND SITREP TRAFFIC ORIGINATIONS IN PROGRESS 3/NCN 7055 IATN 7115 14115
DTN WL2K

**SIGNATURE**

| NAME | POSITION | ORGANIZATION |
|---|---|---|
| FRED HANDY W1BCG | SCM CALIFORNIA | RADIO RELAY INTERNATIONAL |

**REPLY VIA**

| RADIO OPERATOR NAME | ADDRESS OR LOCATION | TELEPHONE / EMAIL |
|---|---|---|
| | | |

**TRACKING DATA**

| RECEIVED FROM | NETWORK DESIGNATOR | TIME RECEIVED(UTC) |
|---|---|---|
| | | |
| **SENT TO** | **NETWORK DESIGNATOR** | **TIME SENT(UTC)** |
| K6HTN | IATN/7115 | 141221Z JUL 2018 |

RRI FORM 1801 rev 1

1. Disaster/incident type and general area affected.
2. Primary type of traffic being originated.
3. Network(s) through which reporting party may be contacted.

Notes:

- Be concise. Rely on category numbers 1 through 3.
- Activation may be requested by organization, agency or individual.
- When possible, use an operator with working telephone service contact the NECC or an Area Chair and then follow with formal radiogram.

Emergency plan activation requests are to be originated when the national messaging layer is to be used for the origination of welfare, priority or emergency message traffic. Examples of individuals who may authorize the activation request (sign the message) include individual RRI radio operators, emergency coordinators, emergency managers or other civil authorities.

## Example 2 – Operational Readiness Report (OPRED)

**Radiogram ICS-213 Message**

| Number | Precedence | HX | Station of Origin | Check | Place of Origin | Time of Origin | Date of Origin |
|---|---|---|---|---|---|---|---|
| 2 | P | | W6RRI | 30 | SAN LUIS OBISPO CA | 2113Z | JUN 12 |

To (Name): HONUS WAGNER W3ABC
Position (Title & Agency): RRI SYSTEM MANAGER

13331 ALLENDALE DR

City, State, Zip: EMMAUS PA 33121

Telephone and optional e-mail: 610-555-3232 HONUS.WAGNER@GMAIL.COM

From (Name): CARL MAYS W6RRI
Position (Title & Agency):

Subject:
Agency Local Time (conversion from UTC):

OPRED 1/IATN 7115 14115 KHZ DTN WL2K 2/NCN 7050 KHZ
LAX 145R170 MHZ 3/LIAISON TO LACO REACT AND ARES 4/LA
COUNTY EMA 5/OPERATIONAL THROUGH 130659Z
6/NO ASSISTANCE OR SUPPLIES REQUIRED

*Please be brief – Use only the period for punctuation – Assume message may be delivered in all capitals*

Message Routing (Received from call sign / DTG):
Message Routing (Transmitted to call sign / DTG): K6YR 122125Z JUN 2018

info@radio-relay.org – www.radio-relay.org – Follow us on Twitter@RadioRelayIntl

RRI Form 1703 ICS
2017-5-1

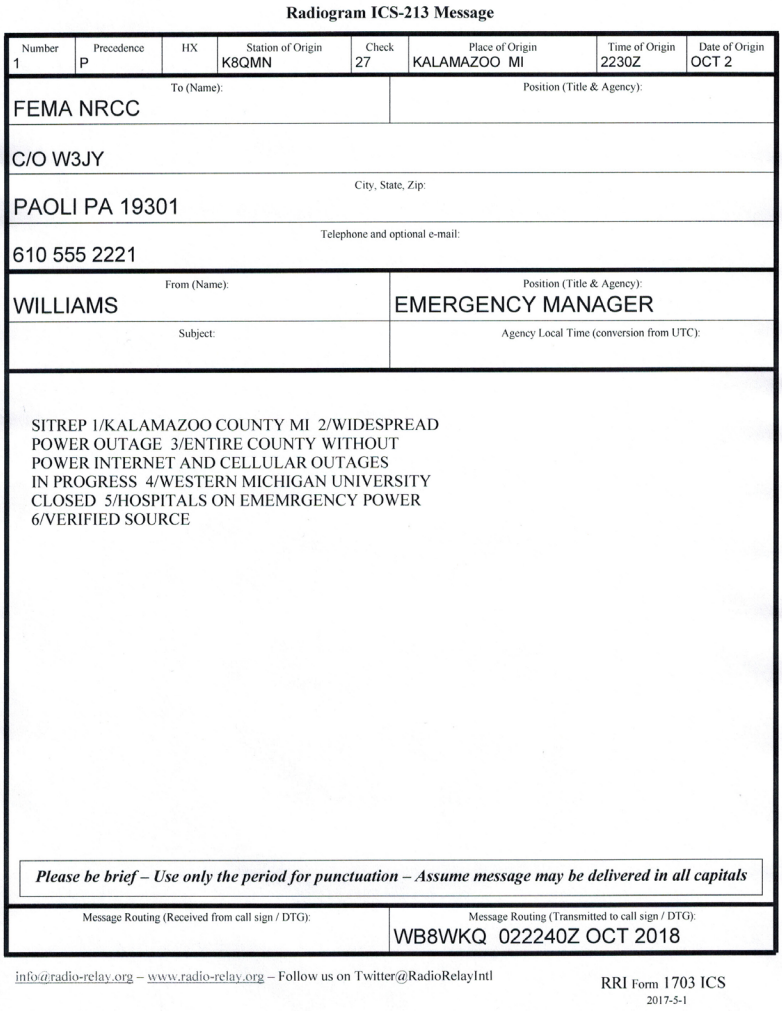
1. Region, Area, IATN or wide coverage nets with which liaison is available.
2. Local/section nets with which liaison is established.
3. Local/state EmComm units with which liaison is available.
4. Local/state agencies with which connectivity is present.
5. Anticipated time at which operation terminates.
6. Any special assistance, support or supplies required.

Notes:

- Be concise. State primary connectivity and liaison
- Indicate limitations (anticipated remaining hours based on fuel, battery).
- Indicate if additional operators or other support is required.
- Acting NECC will be specified in an operational bulletin upon activation of plan.
- Report every 24-hours.

Operational Readiness Reports are to be originated by all stations active on the system in time of emergency. This includes individual traffic operators, EOC and served agency stations and NCERTs. The OPRED message should be updated once every 24-hours. Check operational bulletins to identify the target station for the Resource Manager.

# Example 3 –Situation Report (SITREP)



**Radiogram ICS-213 Message**

| Number | Precedence | HX | Station of Origin | Check | Place of Origin | Time of Origin | Date of Origin |
|---|---|---|---|---|---|---|---|
| 1 | P | | K8QMN | 27 | KALAMAZOO MI | 2230Z | OCT 2 |

To (Name): FEMA NRCC
Position (Title & Agency):
C/O W3JY
City, State, Zip: PAOLI PA 19301
Telephone and optional e-mail: 610 555 2221
From (Name): WILLIAMS
Position (Title & Agency): EMERGENCY MANAGER
Subject:
Agency Local Time (conversion from UTC):

SITREP 1/KALAMAZOO COUNTY MI 2/WIDESPREAD
POWER OUTAGE 3/ENTIRE COUNTY WITHOUT
POWER INTERNET AND CELLULAR OUTAGES
IN PROGRESS 4/WESTERN MICHIGAN UNIVERSITY
CLOSED 5/HOSPITALS ON EMEMRGENCY POWER
6/VERIFIED SOURCE

*Please be brief – Use only the period for punctuation – Assume message may be delivered in all capitals*

Message Routing (Received from call sign / DTG):
Message Routing (Transmitted to call sign / DTG): WB8WKQ 022240Z OCT 2018

info@radio-relay.org – www.radio-relay.org – Follow us on Twitter@RadioRelayIntl

RRI Form 1703 ICS
2017-5-1

1. County and State in which incident/situation observed.
2. Brief description of incident or disaster effect.
3. Extent of disaster effects (boundaries, communities, facilities affected).
4. Major facilities affected (highways closed, airports closed, hospitals evacuated, etc.)
5. Actions taken to respond/mitigate disaster impact.
6. Indicate verified or unverified source.

Notes:

- Be concise. Brief, accurate descriptions of significant events.
- FEMA NRCC is generic. SITREPS may also be delivered to local and/or state EMAs when practical.
- Verified source: Direct observation or known personnel.
- Unverified source: Social media, third party report, limited confirmation.

SITREPs transmitted via RRI networks may be shared with local, state and federal emergency management officials. The origination of SITREPs requires a high degree of responsibility to ensure accuracy and verification.

# Example 3A – Instructions for Processing Radiogram ICS213 Forms

**Instructions for using RRI Form 1703-ICS**
**ICS213 Compatible Radiogram Message From**

RRI Form 1703-ICS is designed to facilitate the transmission of ICS213 messages in standard radiogram format. The radiogram format is a standard message form used by commercial, government, military and amateur radio services worldwide. It not only includes all essential ICS213 accountability data, but also appends additional network management data designed to ensure that messages remain intact as they pass between various communications networks. *The addition of network management data ensures that reply messages, requests for clarification and similar administrative replies can be routed via the correct network(s) to the operator or stationwith access to the appropriate public safety official or other point-of-contact.*

Interoperability requires that one leverage all available communications assets to ensure maximum survivability and flexibility. By following these simple guidelines, one can promote interoperability in an elegant and simple manner.

**Transmission Methods:**

When practical, it is best to transmit the ICS213 in standard radiogram format. In order:

1. Message preamble at the top of the page from message number through date of origin.
2. Addressee's name, title (position), agency and agency address (point of contact).
3. Subject (optional)
4. [Break]
5. Message Text.
6. [Break]
7. Originator's name, title (position) and agency(e.g. "signature").

**Receiving Methods:**

The RRI Certified Radio Operator will quickly recognize that the order of transmission on the form closely matches the sequence of message components within the radiogram format; the exception being the fact that the signature (**From** section) appears before the message text on the ICS213 compatible form. It is therefore a simple matter to jump from the address section to the message text component and then return to the **From** section to transcribe the signature, title, and agency. This method should allow an ICS213 compatible radiogram to be easily transcribed on a radiotelephone or radiotelegraph circuit without additional delay or confusion.

**Message Text:**

Digital operators originating complex forms or other data should know that a message may need to be transferred to a voice network or public safety talk-group to achieve the "last mile" of connectivity. When possible, radio operators should work with served agencies to facilitate the use of alternate, simplified message standards, which are compatible with common-denominator,voice communications methods.

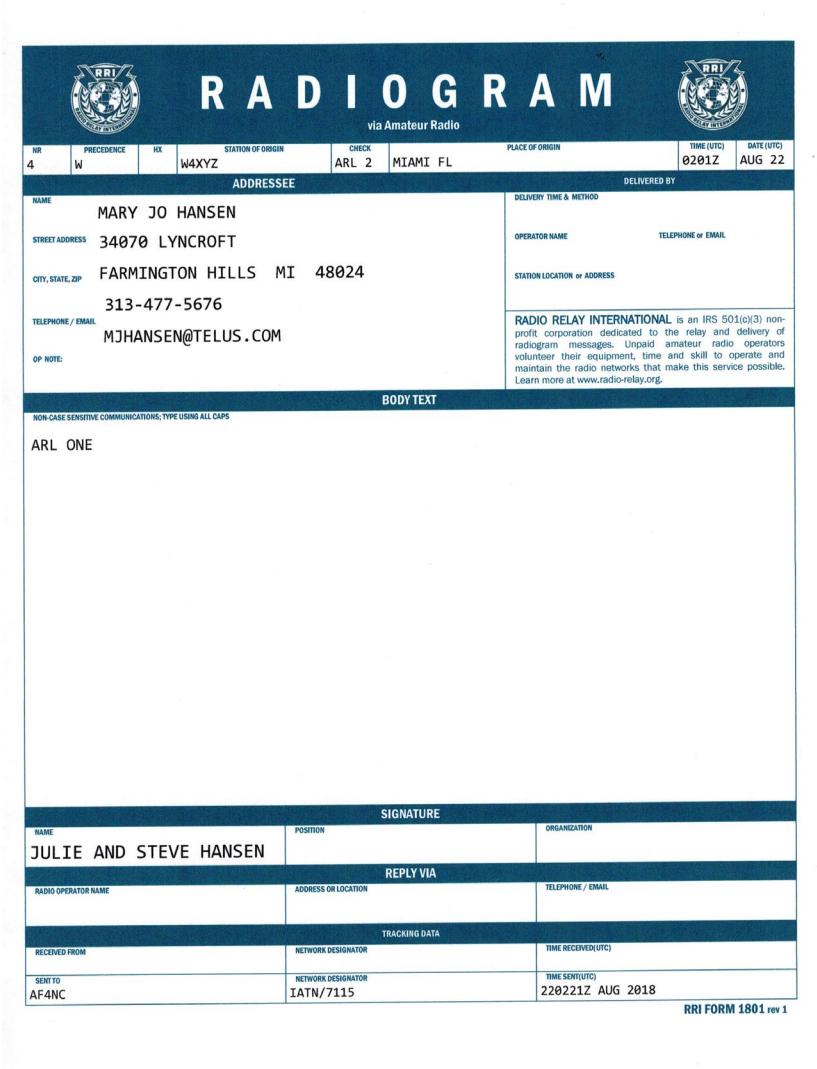
The preferred default for originating or transcribing all ICS213 radiogram messages is "all-caps." *The presentation of a message in all-capitals makes it clear to the recipient that the message was possibly transferred via a network that conveyed the data in a case-insensitive manner.* As a rule, scientific terms, specialized abbreviations, or other case-sensitive terminology should be spelled-out, particularly when case reflects a multiplier value. For example; "1008 millibars" is preferable to "1008 mb." This method also improves accuracy.

For further information on disaster communications, message formats, network management and emergency communications planning, please contact Radio Relay International:

info@radio-relay.org- www.radio-relay.org - Follow us on Twitter @RadioRelayIntl.

*Back - Print double-sided*

# Example 4 – Simple Welfare Radiogram



RADIOGRAM

via Amateur Radio

| NR | PRECEDENCE | HX | STATION OF ORIGIN | CHECK | PLACE OF ORIGIN | TIME (UTC) | DATE (UTC) |
|---|---|---|---|---|---|---|---|
| 4 | W | | W4XYZ | ARL 2 | MIAMI FL | 0201Z | AUG 22 |

**ADDRESSEE**

NAME: MARY JO HANSEN
STREET ADDRESS: 34070 LYNCROFT
CITY, STATE, ZIP: FARMINGTON HILLS MI 48024
TELEPHONE / EMAIL: 313-477-5676 MJHANSEN@TELUS.COM
OP NOTE:

**DELIVERED BY**

DELIVERY TIME & METHOD
OPERATOR NAME
TELEPHONE or EMAIL
STATION LOCATION or ADDRESS

RADIO RELAY INTERNATIONAL is an IRS 501(c)(3) non-profit corporation dedicated to the relay and delivery of radiogram messages. Unpaid amateur radio operators volunteer their equipment, time and skill to operate and maintain the radio networks that make this service possible. Learn more at www.radio-relay.org.

**BODY TEXT**

NON-CASE SENSITIVE COMMUNICATIONS; TYPE USING ALL CAPS

ARL ONE

**SIGNATURE**

| NAME | POSITION | ORGANIZATION |
|---|---|---|
| JULIE AND STEVE HANSEN | | |

**REPLY VIA**

| RADIO OPERATOR NAME | ADDRESS OR LOCATION | TELEPHONE / EMAIL |
|---|---|---|
| | | |

**TRACKING DATA**

| RECEIVED FROM | NETWORK DESIGNATOR | TIME RECEIVED(UTC) |
|---|---|---|
| | | |
| **SENT TO** | **NETWORK DESIGNATOR** | **TIME SENT(UTC)** |
| AF4NC | IATN/7115 | 220221Z AUG 2018 |

RRI FORM 1801 rev 1

Notes:

- Use standard ARL Numbered radiogram texts when practical.
- Minimum address includes name, city, state, zip code and phone number or email.
- Use a common text when practical to facilitate booking traffic (see example 5).

**Useful Welfare ARL Radiogram Texts**

**ARL ONE:** Everyone safe here. Please don't worry.

**ARL TWO:** Coming home as soon as possible.

**ARL THREE:** Am in [*Insert Name*] hospital. Receiving excellent care and recovering fine.

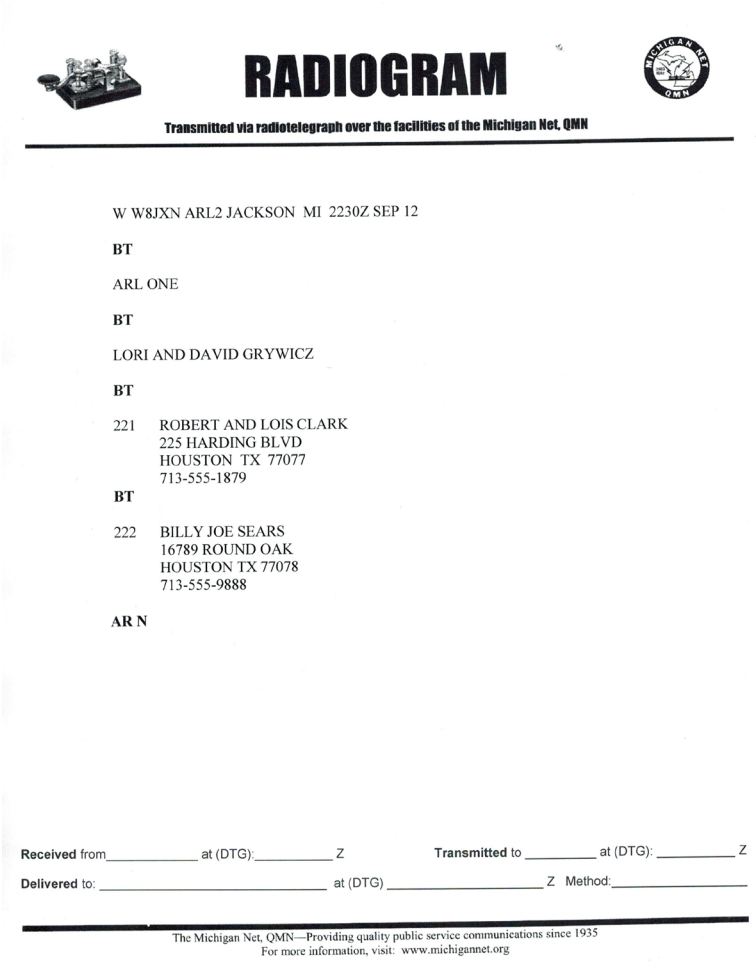
**ARL FOUR:** Only slight property damage here. Do not be concerned about disaster reports.

**ARL FIVE:** Am moving to new location. Send no further mail or communications. Will inform you of new address when relocated.

**ARL SIX:** Will contact you as soon as possible.

**ARL SIXTY FOUR:** Arrived safety at [*Insert Location*]

# Example 5 – Book of Two Welfare Radiograms (Prosigns Shown for Clarity)



**RADIOGRAM**

**Transmitted via radiotelegraph over the facilities of the Michigan Net, QMN**

W W8JXN ARL2 JACKSON MI 2230Z SEP 12

**BT**

ARL ONE

**BT**

LORI AND DAVID GRYWICZ

**BT**

221 ROBERT AND LOIS CLARK
225 HARDING BLVD
HOUSTON TX 77077
713-555-1879

**BT**

222 BILLY JOE SEARS
16789 ROUND OAK
HOUSTON TX 77078
713-555-9888

**AR N**

**Received** from_____ at (DTG):_____ Z **Transmitted** to _____ at (DTG): _____ Z

**Delivered** to: _____ at (DTG) _____ Z Method:_____

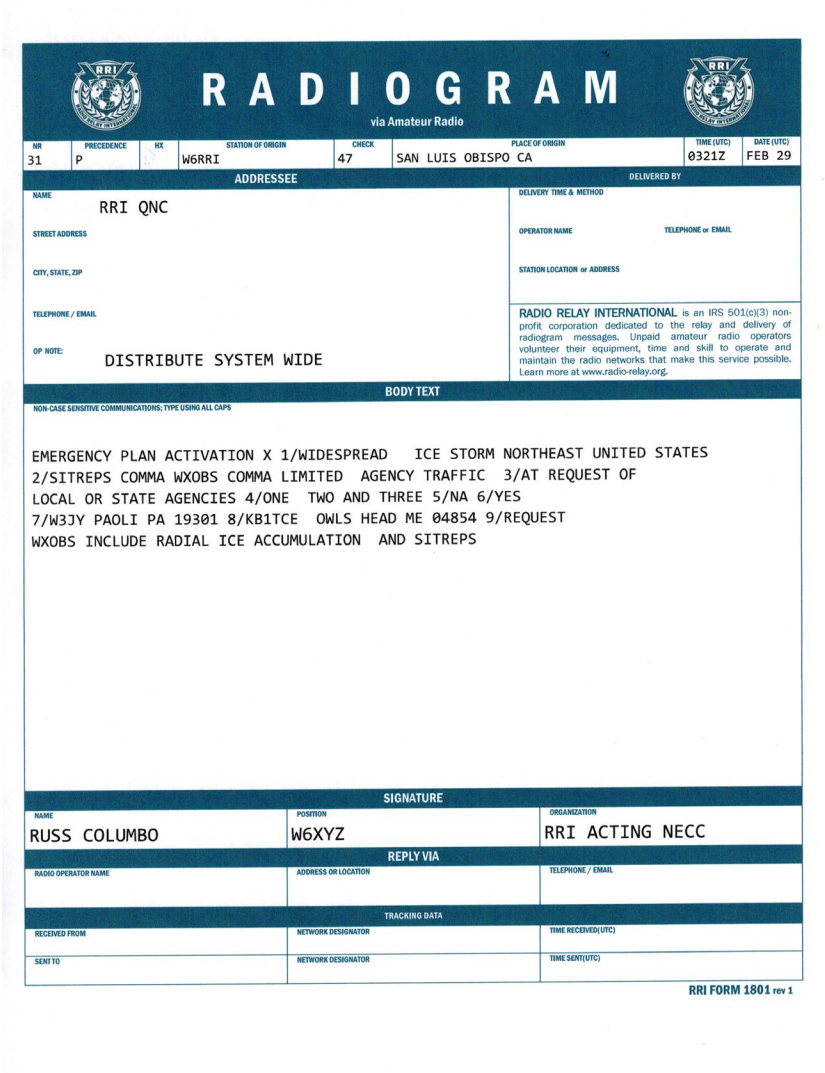
The Michigan Net, QMN—Providing quality public service communications since 1935
For more information, visit: www.michigannet.org

Notes:

- When practical, use an ARL Radiogram text.
- Example: "ARL ONE" translates to "Everyone safe here please don't worry."
- Message serial number associated with address.
- Multiple addresses and signatures may be appended to a common text.
- Example shows traffic with prosigns to illustrate transmission procedures.
- See RRI Training Manual TR-001 or Field Manual FM-001 for additional information regarding book traffic.

This example shows a book of two messages with prosigns inserted. However, books of dozens or even hundreds of messages may be originated with a common text.

## Example 6 – Sample Alert and Notification Message



**RADIOGRAM**
via Amateur Radio

| NR | PRECEDENCE | HX | STATION OF ORIGIN | CHECK | PLACE OF ORIGIN | TIME (UTC) | DATE (UTC) |
|---|---|---|---|---|---|---|---|
| 31 | P | | W6RRI | 47 | SAN LUIS OBISPO CA | 0321Z | FEB 29 |

**ADDRESSEE**

NAME: RRI QNC
STREET ADDRESS:
CITY, STATE, ZIP:
TELEPHONE / EMAIL:
OP NOTE: DISTRIBUTE SYSTEM WIDE

**DELIVERED BY**

DELIVERY TIME & METHOD:
OPERATOR NAME: TELEPHONE or EMAIL:
STATION LOCATION or ADDRESS:

RADIO RELAY INTERNATIONAL is an IRS 501(c)(3) non-profit corporation dedicated to the relay and delivery of radiogram messages. Unpaid amateur radio operators volunteer their equipment, time and skill to operate and maintain the radio networks that make this service possible. Learn more at www.radio-relay.org.

**BODY TEXT**

NON-CASE SENSITIVE COMMUNICATIONS; TYPE USING ALL CAPS

EMERGENCY PLAN ACTIVATION X 1/WIDESPREAD ICE STORM NORTHEAST UNITED STATES
2/SITREPS COMMA WXOBS COMMA LIMITED AGENCY TRAFFIC 3/AT REQUEST OF
LOCAL OR STATE AGENCIES 4/ONE TWO AND THREE 5/NA 6/YES
7/W3JY PAOLI PA 19301 8/KB1TCE OWLS HEAD ME 04854 9/REQUEST
WXOBS INCLUDE RADIAL ICE ACCUMULATION AND SITREPS

**SIGNATURE**

| NAME | POSITION | ORGANIZATION |
|---|---|---|
| RUSS COLUMBO | W6XYZ | RRI ACTING NECC |

**REPLY VIA**

| RADIO OPERATOR NAME | ADDRESS OR LOCATION | TELEPHONE / EMAIL |
|---|---|---|
| | | |

**TRACKING DATA**

| RECEIVED FROM | NETWORK DESIGNATOR | TIME RECEIVED(UTC) |
|---|---|---|
| SENT TO | NETWORK DESIGNATOR | TIME SENT(UTC) |

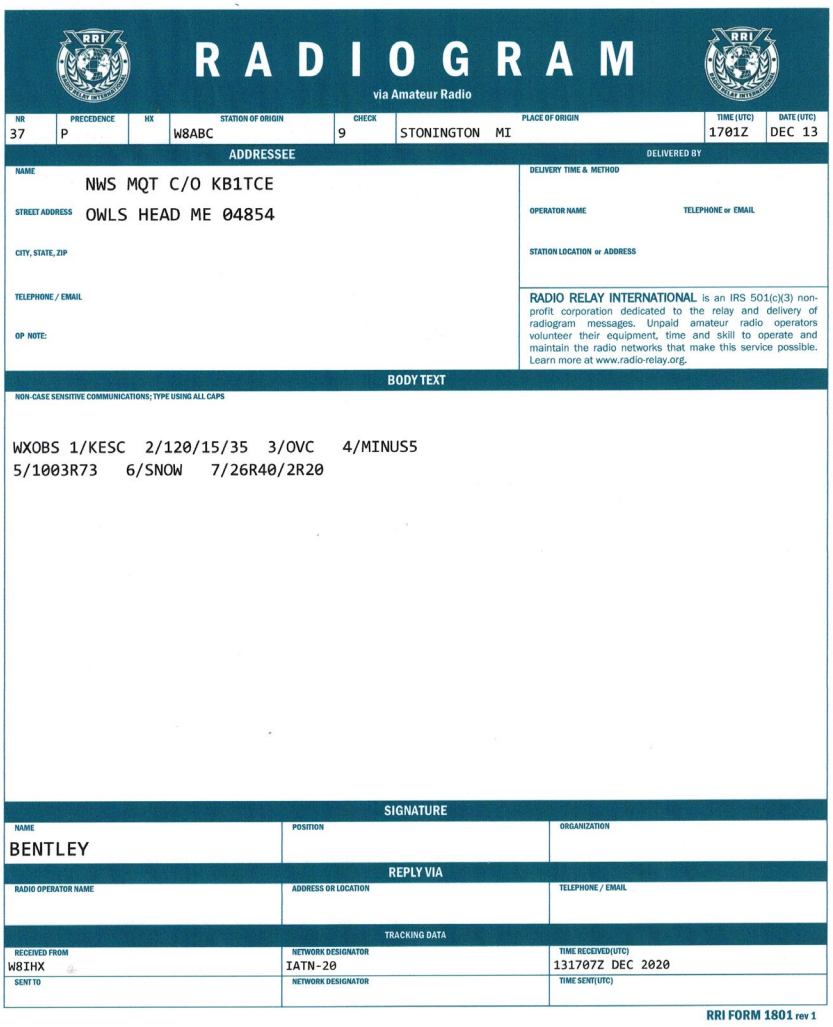
RRI FORM 1801 rev 1

1. Disaster/incident type and general area affected.
2. Primary type of traffic being originated.
3. RRI Section Nets to be Activated (or NA)
4. RRI Region Nets to be Activated (or NA)
5. RRI Area Nets to be Activated (or NA)
6. IATN Watch to be Activated (Yes or No)
7. Target station, city, state and zip for SITREPS
8. Target station, city, state and zip for WXOBS
9. Additional notes/requests

Notes:

- Be concise. Rely on category numbers 1 through 6.
- "NA" = No Activation
- Request to activate a net should trigger a confirmation message from the appropriate net manager.

## Example 7 – WXOBS Message



**RADIOGRAM**
via Amateur Radio

| NR | PRECEDENCE | HX | STATION OF ORIGIN | CHECK | PLACE OF ORIGIN | TIME (UTC) | DATE (UTC) |
|---|---|---|---|---|---|---|---|
| 37 | P | | W8ABC | 9 | STONINGTON MI | 1701Z | DEC 13 |

**ADDRESSEE**

NAME: NWS MQT C/O KB1TCE
STREET ADDRESS: OWLS HEAD ME 04854
CITY, STATE, ZIP:
TELEPHONE / EMAIL:
OP NOTE:

**DELIVERED BY**

DELIVERY TIME & METHOD:
OPERATOR NAME: TELEPHONE or EMAIL:
STATION LOCATION or ADDRESS:

RADIO RELAY INTERNATIONAL is an IRS 501(c)(3) non-profit corporation dedicated to the relay and delivery of radiogram messages. Unpaid amateur radio operators volunteer their equipment, time and skill to operate and maintain the radio networks that make this service possible. Learn more at www.radio-relay.org.

**BODY TEXT**

NON-CASE SENSITIVE COMMUNICATIONS; TYPE USING ALL CAPS

WXOBS 1/KESC 2/120/15/35 3/OVC 4/MINUS5
5/1003R73 6/SNOW 7/26R40/2R20

**SIGNATURE**

| NAME | POSITION | ORGANIZATION |
|---|---|---|
| BENTLEY | | |

**REPLY VIA**

| RADIO OPERATOR NAME | ADDRESS OR LOCATION | TELEPHONE / EMAIL |
|---|---|---|
| | | |

**TRACKING DATA**

| RECEIVED FROM | NETWORK DESIGNATOR | TIME RECEIVED(UTC) |
|---|---|---|
| W8IHX | IATN-20 | 1317072 DEC 2020 |
| SENT TO | NETWORK DESIGNATOR | TIME SENT(UTC) |
| | | |

RRI FORM 1801 rev 1

1. LOC: Nearest METAR site (usually an airport) For example: “KDTW”
2. WIND: direction in degrees (0-360)/ wind speed mph/ maximum observed gust in last hour
3. CLDLYR: Cloud layer (BKN, SKC, FEW, OVC, SCT, TCU, CB)
4. TEMP: Current temperature in degrees Fahrenheit-indicate F. Below zero temps preface with “MINUS”
5. BAR: Barometric pressure in millibars corrected to mean sea level. See conversion table.
6. PRECIP: type (rain, snow, mixed, ice).
7. Storm total precipitation/liquid equivalent if snow or ice otherwise “NA”

Notes:

- Be concise. Rely on category numbers 1 through 7.
- If some data is missing, insert “MM.” For example: 6/MM
- Observation schedule to be defined in operational bulletins for major tropical events or winter storms.
- Address: Target station(s) for weather reports will be identified in operational bulletins.
- Weather observations may be independently shared with local Skywarn networks or local NWS offices.

## Detailed Explanation of Example-7 WXOBS Message

- Time of Origin represents the time observation was made.
- Target Station address for reports will be defined in Alert and Notification Bulletins.
- The four letter METAR Code is often associated with the nearest airport (including small civil airports).
- Wind Sequence: Direction in degrees true north/measured wind speed/maximum gust measured during last hour. All speeds are in mph.
- Cloud Layer:
    - BKN: Broken
    - SKC:  Sky clear
    - FEW: A few clouds (less than or equal to ¼ overage)
    - OVC: Overcast
    - SCT: Scattered
    - TCU: Towering Cumulus
    - CB: Cumulonimbus
- Temperature field is temperature at time of observation in Fahrenheit. “MINUS” inserted before below-zero temperatures.
- Barometric Pressure in millibars to nearest hundredth. For example: 1003.05 should be transmitted as “1003R05” The “R” may be translated to a decimal point when messages are formatted for delivery or when populating a database or spreadsheet.
- Type of precipitation (rain, mixed, ice, snow)
- Measuring precipitation:
    - Rain should be measured to the nearest hundredth of an inch.
    - Snow measurements should show storm total/liquid equivalent (if available otherwise “MM”).
        - Snow should be measured to the nearest tenth of an inch. Use three to five samples and average result.
        - The liquid equivalent of snow (melted and measured in rain gauge) should be measured to the nearest hundredth of an inch.
- “R” in value represents a decimal point.
- If a reading or estimate is unavailable, substitute “MM”

**Inches of Mercury to Millibars Conversion Chart**

| In Hg | Mb | In Hg | Mb | In Hg | Mb | In Hg | Mb |
|---|---|---|---|---|---|---|---|
| 29.00 | 982.06 | 29.50 | 998.99 | 30.00 | 1015.92 | 30.50 | 1032.85 |
| 29.01 | 982.39 | 29.51 | 999.33 | 30.01 | 1016.26 | 30.51 | 1033.19 |
| 29.02 | 982.73 | 29.52 | 999.67 | 30.02 | 1016.60 | 30.52 | 1033.53 |
| 29.03 | 983.07 | 29.53 | 1000.00 | 30.03 | 1016.94 | 30.53 | 1033.87 |
| 29.04 | 983.41 | 29.54 | 1000.34 | 30.04 | 1017.27 | 30.54 | 1034.21 |
| 29.05 | 983.75 | 29.55 | 1000.68 | 30.05 | 1017.61 | 30.55 | 1034.55 |
| 29.06 | 984.09 | 29.56 | 1001.02 | 30.06 | 1017.95 | 30.56 | 1034.88 |
| 29.07 | 984.43 | 29.57 | 1001.36 | 30.07 | 1018.29 | 30.57 | 1035.22 |
| 29.08 | 984.77 | 29.58 | 1001.70 | 30.08 | 1018.63 | 30.58 | 1035.56 |
| 29.09 | 985.10 | 29.59 | 1002.04 | 30.09 | 1018.97 | 30.59 | 1035.90 |
| 29.10 | 985.44 | 29.60 | 1002.37 | 30.10 | 1019.31 | 30.60 | 1036.24 |
| 29.11 | 985.78 | 29.61 | 1002.71 | 30.11 | 1019.65 | 30.61 | 1036.58 |
| 29.12 | 986.12 | 29.62 | 1003.05 | 30.12 | 1019.98 | 30.62 | 1036.92 |
| 29.13 | 986.46 | 29.63 | 1003.39 | 30.13 | 1020.32 | 30.63 | 1037.25 |
| 29.14 | 986.80 | 29.64 | 1003.73 | 30.14 | 1020.66 | 30.64 | 1037.59 |
| 29.15 | 987.14 | 29.65 | 1004.07 | 30.15 | 1021.00 | 30.65 | 1037.93 |
| 29.16 | 987.47 | 29.66 | 1004.41 | 30.16 | 1021.34 | 30.66 | 1038.27 |
| 29.17 | 987.81 | 29.67 | 1004.74 | 30.17 | 1021.68 | 30.67 | 1038.61 |
| 29.18 | 988.15 | 29.68 | 1005.08 | 30.18 | 1022.02 | 30.68 | 1038.95 |
| 29.19 | 988.49 | 29.69 | 1005.42 | 30.19 | 1022.35 | 30.69 | 1039.29 |
| 29.20 | 988.83 | 29.70 | 1005.76 | 30.20 | 1022.69 | 30.70 | 1039.62 |
| 29.21 | 989.17 | 29.71 | 1006.10 | 30.21 | 1023.03 | 30.71 | 1039.96 |
| 29.22 | 989.51 | 29.72 | 1006.44 | 30.22 | 1023.37 | 30.72 | 1040.30 |
| 29.23 | 989.84 | 29.73 | 1006.78 | 30.23 | 1023.71 | 30.73 | 1040.64 |
| 29.24 | 990.18 | 29.74 | 1007.12 | 30.24 | 1024.05 | 30.74 | 1040.98 |
| 29.25 | 990.52 | 29.75 | 1007.45 | 30.25 | 1024.39 | 30.75 | 1041.32 |
| 29.26 | 990.86 | 29.76 | 1007.79 | 30.26 | 1024.72 | 30.76 | 1041.66 |
| 29.27 | 991.20 | 29.77 | 1008.13 | 30.27 | 1025.06 | 30.77 | 1042.00 |
| 29.28 | 991.54 | 29.78 | 1008.47 | 30.28 | 1025.40 | 30.78 | 1042.33 |
| 29.29 | 991.88 | 29.79 | 1008.81 | 30.29 | 1025.74 | 30.79 | 1042.67 |
| 29.30 | 992.22 | 29.80 | 1009.15 | 30.30 | 1026.08 | 30.80 | 1043.01 |
| 29.31 | 992.55 | 29.81 | 1009.49 | 30.31 | 1026.42 | 30.81 | 1043.35 |
| 29.32 | 992.89 | 29.82 | 1009.82 | 30.32 | 1026.76 | 30.82 | 1043.69 |
| 29.33 | 993.23 | 29.83 | 1010.16 | 30.33 | 1027.10 | 30.83 | 1044.03 |
| 29.34 | 993.57 | 29.84 | 1010.50 | 30.34 | 1027.43 | 30.84 | 1044.37 |
| 29.35 | 993.91 | 29.85 | 1010.84 | 30.35 | 1027.77 | 30.85 | 1044.70 |
| 29.36 | 994.25 | 29.86 | 1011.18 | 30.36 | 1028.11 | 30.86 | 1045.04 |
| 29.37 | 994.59 | 29.87 | 1011.52 | 30.37 | 1028.45 | 30.87 | 1045.38 |
| 29.38 | 994.92 | 29.88 | 1011.86 | 30.38 | 1028.79 | 30.88 | 1045.72 |
| 29.39 | 995.26 | 29.89 | 1012.19 | 30.39 | 1029.13 | 30.89 | 1046.06 |
| 29.40 | 995.60 | 29.90 | 1012.53 | 30.40 | 1029.47 | 30.90 | 1046.40 |
| 29.41 | 995.94 | 29.91 | 1012.87 | 30.41 | 1029.80 | 30.91 | 1046.74 |

SEQUENCE CONTINUES NEXT PAGE

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 29.42 | 996.28 | 29.92 | 1013.21 | 30.42 | 1030.14 | 30.92 | 1047.07 |
| 29.43 | 996.62 | 29.93 | 1013.55 | 30.43 | 1030.48 | 30.93 | 1047.41 |
| 29.44 | 996.96 | 29.94 | 1013.89 | 30.44 | 1030.82 | 30.94 | 1047.75 |
| 29.45 | 997.29 | 29.95 | 1014.23 | 30.45 | 1031.16 | 30.95 | 1048.09 |
| 29.46 | 997.63 | 29.96 | 1014.57 | 30.46 | 1031.50 | 30.96 | 1048.43 |
| 29.47 | 997.97 | 29.97 | 1014.90 | 30.47 | 1031.84 | 30.97 | 1048.77 |
| 29.48 | 998.31 | 29.98 | 1015.24 | 30.48 | 1032.17 | 30.98 | 1049.11 |
| 29.49 | 998.65 | 29.99 | 1015.58 | 30.49 | 1032.51 | 30.99 | 1049.45 |

## MPH to Knots to Meters Per Second Conversion Chart

| MPH | Kts | m/sec | MPH | Kts | m/sec |
|---|---|---|---|---|---|
| 1 | 0.9 | 0.4 | 51 | 44.3 | 22.8 |
| 2 | 1.7 | 0.9 | 52 | 45.2 | 23.2 |
| 3 | 2.6 | 1.3 | 53 | 46.1 | 23.7 |
| 4 | 3.5 | 1.8 | 54 | 46.9 | 24.1 |
| 5 | 4.3 | 2.2 | 55 | 47.8 | 24.6 |
| 6 | 5.2 | 2.7 | 56 | 48.7 | 25.0 |
| 7 | 6.1 | 3.1 | 57 | 49.5 | 25.5 |
| 8 | 7.0 | 3.6 | 58 | 50.4 | 25.9 |
| 9 | 7.8 | 4.0 | 59 | 51.3 | 26.4 |
| 10 | 8.7 | 4.5 | 60 | 52.1 | 26.8 |
| 11 | 9.6 | 4.9 | 61 | 53.0 | 27.3 |
| 12 | 10.4 | 5.4 | 62 | 53.9 | 27.7 |
| 13 | 11.3 | 5.8 | 63 | 54.7 | 28.2 |
| 14 | 12.2 | 6.3 | 64 | 55.6 | 28.6 |
| 15 | 13.0 | 6.7 | 65 | 56.5 | 29.1 |
| 16 | 13.9 | 7.2 | 66 | 57.4 | 29.5 |
| 17 | 14.8 | 7.6 | 67 | 58.2 | 30.0 |
| 18 | 15.6 | 8.0 | 68 | 59.1 | 30.4 |
| 19 | 16.5 | 8.5 | 69 | 60.0 | 30.8 |
| 20 | 17.4 | 8.9 | 70 | 60.8 | 31.3 |
| 21 | 18.2 | 9.4 | 71 | 61.7 | 31.7 |
| 22 | 19.1 | 9.8 | 72 | 62.6 | 32.2 |
| 23 | 20.0 | 10.3 | 73 | 63.4 | 32.6 |
| 24 | 20.9 | 10.7 | 74 | 64.3 | 33.1 |
| 25 | 21.7 | 11.2 | 75 | 65.2 | 33.5 |
| 26 | 22.6 | 11.6 | 76 | 66.0 | 34.0 |
| 27 | 23.5 | 12.1 | 77 | 66.9 | 34.4 |
| 28 | 24.3 | 12.5 | 78 | 67.8 | 34.9 |
| 29 | 25.2 | 13.0 | 79 | 68.6 | 35.3 |

SEQUENCE CONTINUES NEXT PAGE

| | | | | | |
|---|---|---|---|---|---|
| 30 | 26.1 | 13.4 | 80 | 69.5 | 35.8 |
| 31 | 26.9 | 13.9 | 81 | 70.4 | 36.2 |
| 32 | 27.8 | 14.3 | 82 | 71.3 | 36.7 |
| 33 | 28.7 | 14.8 | 83 | 72.1 | 37.1 |
| 34 | 29.5 | 15.2 | 84 | 73.0 | 37.6 |
| 35 | 30.4 | 15.6 | 85 | 73.9 | 38.0 |
| 36 | 31.3 | 16.1 | 86 | 74.7 | 38.4 |
| 37 | 32.2 | 16.5 | 87 | 75.6 | 38.9 |
| 38 | 33.0 | 17.0 | 88 | 76.5 | 39.3 |
| 39 | 33.9 | 17.4 | 89 | 77.3 | 39.8 |
| 40 | 34.8 | 17.9 | 90 | 78.2 | 40.2 |
| 41 | 35.6 | 18.3 | 91 | 79.1 | 40.7 |
| 42 | 36.5 | 18.8 | 92 | 79.9 | 41.1 |
| 43 | 37.4 | 19.2 | 93 | 80.8 | 41.6 |
| 44 | 38.2 | 19.7 | 94 | 81.7 | 42.0 |
| 45 | 39.1 | 20.1 | 95 | 82.6 | 42.5 |
| 46 | 40.0 | 20.6 | 96 | 83.4 | 42.9 |
| 47 | 40.8 | 21.0 | 97 | 84.3 | 43.4 |
| 48 | 41.7 | 21.5 | 98 | 85.2 | 43.8 |
| 49 | 42.6 | 21.9 | 99 | 86.0 | 44.3 |
| 50 | 43.4 | 22.4 | 100 | 86.9 | 44.7 |

# APPENDIX B

## Contact Information for Emergency Manager

RRI Emergency Manager
James Wades (WB8SIW)
C/O Emergency Preparedness Services, LLC
PO Box 43
Niles, MI. 49120
(269) 650-0215
james.wades@eps-sca.com

# APPENDIX C

## Sample Portion of DTN Mode-Frequency Matrix

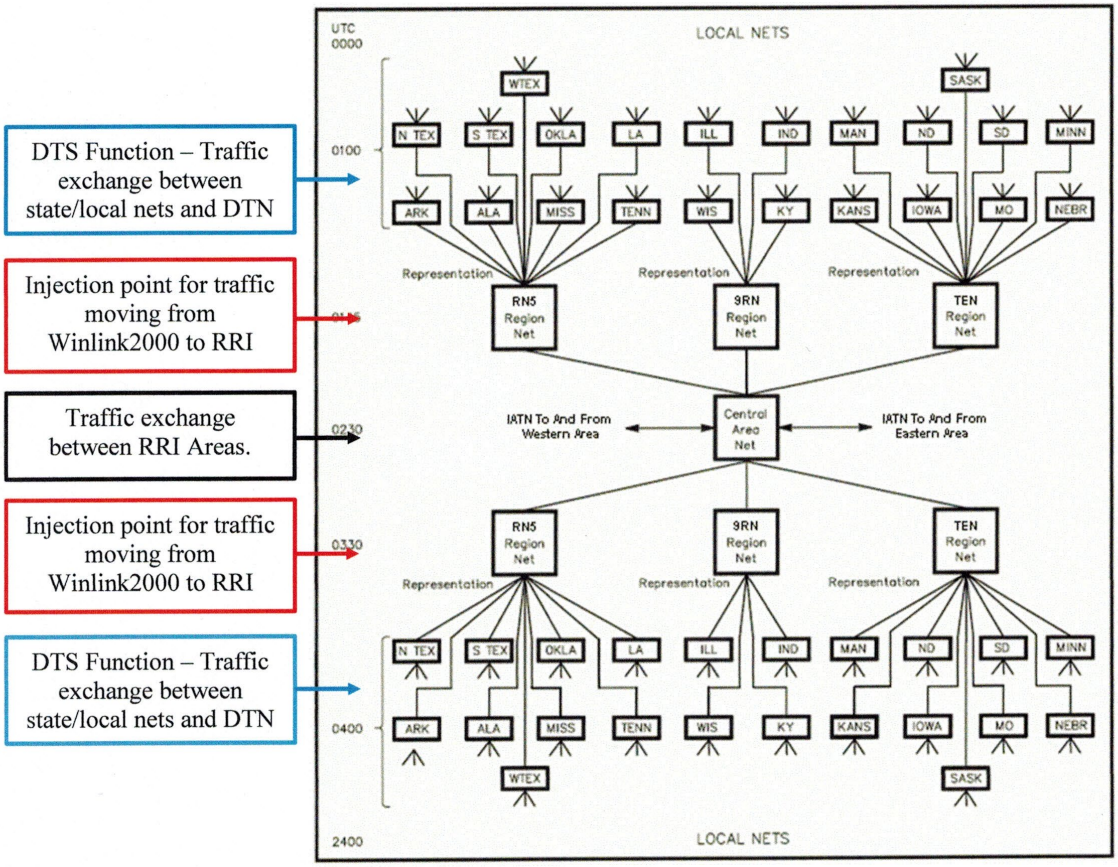
**Digital Traffic Net Frequency/Mode Matrix**
**Target Stations to be identified in operational bulletins**

| DTN SCAN/ALE FREQUENCIES | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| RRIW DTN MBO | | | | | | | |
| Designator | QRG | | | | | Location | Notes |
| W5KAV | 3587 | 3591 | 3597 | | | Rochester, WA | 9. Western Area Hub |
| | 7100.4 | 7102.4 | 7104.4 | | | | |
| | 10144 | 10145.9 | | | | | |
| | 14095.9 | 14097.9 | 14104.9 | 14113.9 | | | |
| | 18103 | 18108.4 | | | | | |
| | | | | | | | |
| WS6P | 3591.9 | 3593.9 | | | | West Point, CA | 10. RN6 Digital Hub |
| | 7102.4 | 7104.4 | | | | | |
| | 14112.4 | 14113.9 | | | | | |
| | | | | | | | |
| K6HTN | 7065.9 | 7102.4 | | | | Pasadena, CA | DTS |
| | | | | | | | |
| K7EAJ | 3587 | | | | | Hillsboro, OR | DTS |
| | | | | | | | |
| AC7AI | 3587 | | | | | Montesano, WA | DTS |
| | | | | | | | |
| VE7GN | 3571.5 | 3587 | 3591.9 | 3593.9 | 3593 | Babriolo, BC. Canada | RN7 Hub |
| | 3597 | 3615 | | | | | Primary Entry Point |
| | 7065.4 | 7068.9 | 7091 | 7104.4 | 7100.4 | | |
| | 7102.4 | | | | | | |
| | 14064 | 14113.9 | | | | | |
| KA7HRC | 3587 | | | | | Mount Hood, OR | 11. Hood River Co. ARES |
| | | | | | | | |
| W7ARC | 3587 | | | | | Lynnwood, WA | |
| | | | | | | | |
| AG6QO | 3586.5 | 3591.9 | | | | Winters, CA | DTS |
| | 7103 | | | | | | 12. Note VHF access |
| | 14107.9 | | | | | | 13. AG6QO-1 RRI & BBS traffic |
| | 144.37 | | | | | | AG6QO-2 for BPQ chat |
| | | | | | | | AG6QO-10 WinLink gateway |
| | | | | | | | 14. Liaison Yolo Co. ARES |
| | | | | | | | |
| N7JJ | 3587 | | | | | Shoreline, WA | DTS |
| | | | | | | | |
| WB6OTS | 3587 | 3590.5 | 3597 | | | Sierra Vista, AZ | 15. Alt. Western Area Hub |
| | 7094.9 | 7100.4 | 7102.4 | 7104.4 | | | |
| | 10144 | | | | | | |
| | 14098.9 | 14105 | 14108.4 | 14110.4 | | | |



13

# APPENDIX D
## Typical RRI Area Showing Injection/Exchange Points




**Emergency Activation Guidance:**

- IATN: Manual mode (CW/voice) alternate injection for PRIORITY AND EMERGENCY traffic. Welfare traffic to be handled only when circuits are idle.
- Winlink2000: Traffic transferred to RRI region nets via special DTS function for WELFARE, PRIORITY OR EMERGENCY traffic.
- DTN: Standard DTS function for traffic exchange at state/local level for WELFARE, PRIORITY and EMERGENCY traffic.

Unique guidance may be issued depending on circumstance. Diagram represents RRI Central Area only.

# APPENDIX E
# RRI NATCOMSTRAT Overview

Purpose:
Public service by training ordinary citizens in basic two-way radio techniques.

Goals:
Increase the purposeful use of two-way public radio service, introduce the benefits of formal traffic handling, and recruit the next generation of radio amateurs.

Measuring Success:
The success of this strategy can be determined quantitatively by direct measurement of activity. Measures and metrics should be incorporated into the program at all levels.

Funding:
Funding requirements will be minimal. Affiliated radio clubs and community organizations will be responsible for direct delivery costs. NSRN enjoyed successful sponsorship with radio manufacturers and we anticipate future sponsorships.

Scope:
NATCOMSTRAT is a complex program with matrixed lines of responsibility and reporting, key components, target markets and supervisory oversight.

Authority:
The National Communications Strategy is an initiative of the RRI Board of Directors. Implementation and assessment responsibility is delegated to departments and committees as required, consistent with by-laws and Board instructions.

# RRI NATIONAL EMERGENCY COMMUNICATIONS RESPONSE GUIDELINES

## Level 1: National SOS Radio Network Component Overview

| | |
|---|---|
| Target Market: | Neighborhoods<br>• Families<br>• Day-hikers, campers<br>• Outdoorsmen<br>• Travelers |
| Supervisory Oversight: | Point-of-contact (Amateur Radio) |
| Success Factors: | Generate high degree of public awareness.<br>Effective monitoring<br>Excellent social networking skills |
| HQ Involvement: | Area staffs<br>Business Department<br>Public Relations Department |
| Radio Service Emphasis: | FRS |

## Level 1A: National SOS Radio Network Component Overview

| | |
|---|---|
| Target Market: | Civic Groups<br>• CERT<br>• REACT<br>• Scouts<br>• ROTC<br>• Faith-based relief groups<br>• Neighborhood watch groups<br>• Schools, colleges |
| Supervisory Oversight: | Point-of-contact (Amateur Radio) or State Communications Manger |
| Success Factors: | Community organizing skills of POC.<br>Active, skilled leadership of sponsoring local organization |

| | |
|---|---|
| | Systematic public relations and networking |
| HQ Involvement: | Area staffs<br>Business Department<br>Public Relations Department |
| Radio Service Emphasis: | FRS/GMRS |

## Level 2: Neighborhood HamWatch Component Overview

| | |
|---|---|
| Target Market: | RRI Affiliated Radio Clubs<br>Civic Organizations. |
| Supervisory Oversight: | Point-of-contact (Amateur Radio) or State Communications Manger |
| Success Factors: | Organizational competency<br>Corporate oversight and vetting to standards.<br>Selection of extroverted “people” |
| HQ Involvement: | Area staffs<br>Business Department<br>Public Relations Department |
| Radio Service Emphasis: | GMRS |

## Level 3: National/International RRI Infrastructure Operations

| | |
|---|---|
| Target Market: | Emergency Management Agencies<br>National NGOs<br>Local AUXCOM, ARES®, and RACES programs |
| Supervisory Oversight: | RRI Emergency Manager/Communications Chief |
| Success Factors: | Equipment, trained personnel, and field assets |

| | |
|---|---|
| | High degree of professional commitment<br>Personal competency in many disciplines<br>Self-motivation/self-discipline<br>Team spirit and proven performance<br>Commitment to training and exercising. |
| HQ Involvement: | Combined area staffs<br>Business Department<br>Communications Department<br>Public Relations Department<br>Board of Directors |
| Radio Service Emphasis: | Amateur Radio Service |

## Summary of NATCOMSTRAT components and radio services

The level 1 National SOS Radio Network component is fundamentally FRS based and the most spontaneous in nature. It is designed to allow average citizens and small groups to reach out to a nearby radio amateur with emergency traffic, requests for information about local services, disaster conditions, and so on.

The level 1A National SOS Radio Network component is similar. Emphasis remains on FRS, but some GRMS assets may be integrated by organized groups (scouts, CERTS, etc.) to provide a more robust connectivity to specific Amateur Radio Service organizations (club, EmComm group, etc.). In this respect, level 1A overlaps somewhat with the level 2 Neighborhood HamWatch program.

The level 2 Neighborhood HamWatch component is more focused on GMRS assets. It is designed to support larger and more dispersed operations, such as CERTS, humane associations, VOADs, and others. While FRS assets may be used within limited areas, GMRS mobile and hand-held radios will serve to provide primary connectivity to local radio amateurs serving as gateways to local and national infrastructure.

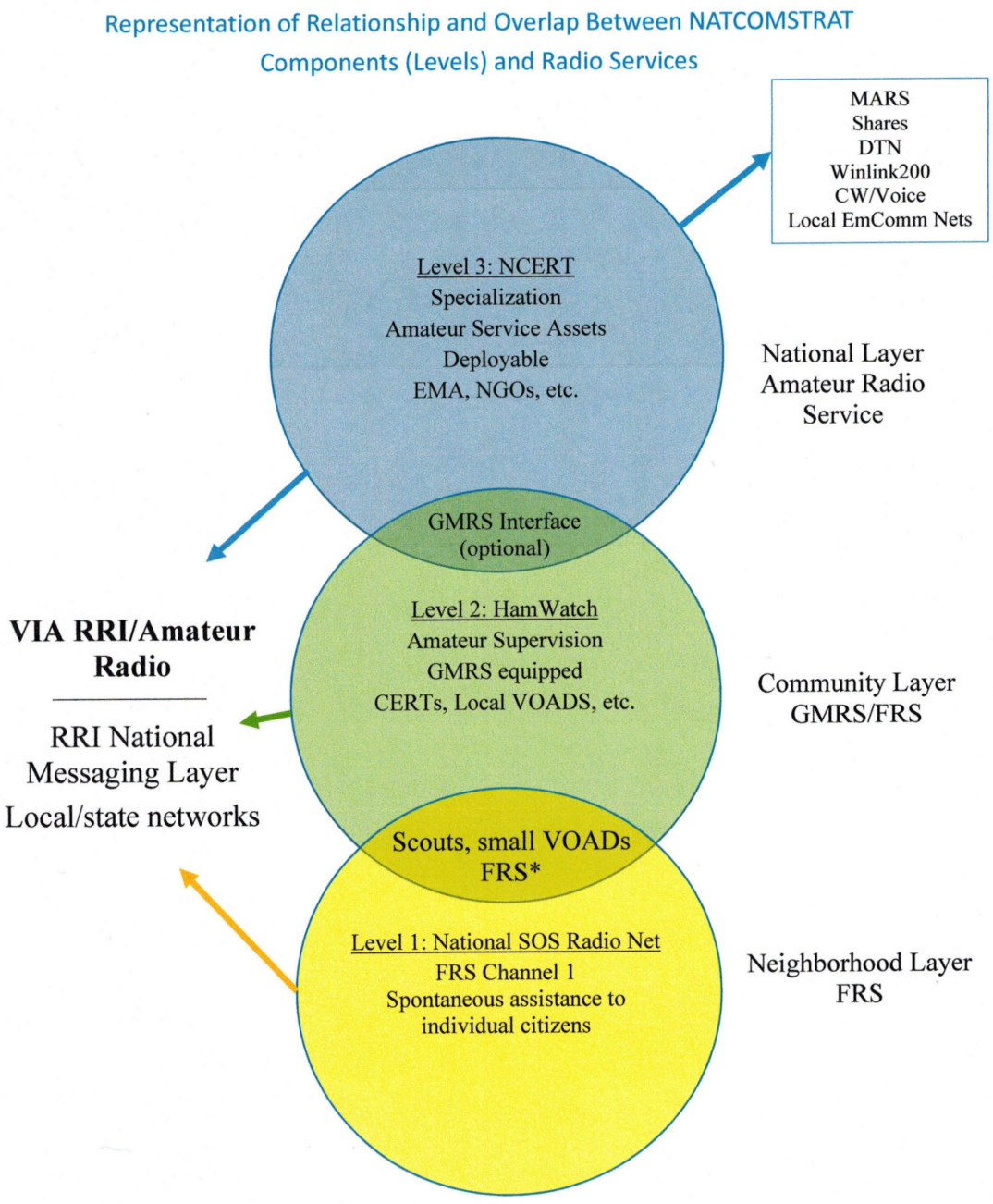
# RRI NATIONAL EMERGENCY COMMUNICATIONS RESPONSE GUIDELINES

The level 3 National/Infrastructure Emergency Response utilizes existing network infrastructure to support local, state and Federal programs, with significant interface and traffic exchange between local Amateur Radio Service EmComm organizations and RRI networks anticipated. RRI Registered Radio Operators and Certified Radio Operators capable of deploying and utilizing a range of specialized skills and technologies will be key to supporting disaster operations, including, but not limited to:

- Digital Traffic Net connectivity
- Winlink connectivity
- HF Radiotelegraph and Radiotelephone connectivity
- VHF and UHF voice connectivity
- VHF and UHF digital connectivity
- Interface with SHARES, MARS, and similar related networks as authorized and required.

RRI infrastructure networks do not replace local EmComm organizations, but rather complement them by providing infrastructure capabilities that may not be available, or which may be insufficient, at the local/field level.

# RRI NATIONAL EMERGENCY COMMUNICATIONS RESPONSE GUIDELINES


Representation of Relationship and Overlap Between NATCOMSTRAT Components (Levels) and Radio Services
MARS
Shares
DTN
Winlink200
CW/Voice
Local EmComm Nets
Level 3: NCERT
Specialization
Amateur Service Assets
Deployable
EMA, NGOs, etc.
National Layer
Amateur Radio
Service
GMRS Interface
(optional)
Level 2: HamWatch
Amateur Supervision
GMRS equipped
CERTs, Local VOADS, etc.
Community Layer
GMRS/FRS
VIA RRI/Amateur Radio
RRI National
Messaging Layer
Local/state networks
Scouts, small VOADs
FRS*
Level 1: National SOS Radio Net
FRS Channel 1
Spontaneous assistance to
individual citizens
Neighborhood Layer
FRS
* Scouting groups and small VOADs may use GMRS or Amateur Radio gateways embedded within group

# APPENDIX F
# Instructions for Refiling REACT Message Traffic

REACT INTERNATIONAL, INC.
*Public Service Through Communications*

RRI RADIO RELAY INTERNATIONAL

## Instructions for Refiling REACT Radiograms To Radio Relay International Networks

***Common Format:***

REACT International networks utilize the same radiogram format as the Radio Relay International system. However, there are two small differences:

1. Because REACT utilizes several different radio services for its networks, the station of origin may utilize an assigned Traffic Station ID, such as "Traffic 241." This nomenclature identifies the individual station and its general geographic location.

2. Some REACT radiograms may utilize local time in the "time of origin" field, such as "1330 EDT."

With these exceptions, the REACT methods are identical to those used by RRI.

***Refiling Messages:***

When transferring messages from the REACT network to the RRI System, one may encounter one of two cases:

1. The REACT station of origin is that of a licensed radio amateur who utilizes his Amateur Radio Service call sign as the station of origin.

2. The REACT station of origin utilizes the "TRAFFIC *nnn*" Identifier.

*Instructions for refiling a radiogram with an Amateur Radio Service callsign in the "Station of Origin" field:*

A. Retain the original message serial number and REACT member call sign.
B. Add "via REACT" to the "Place of Origin" field. For example, "Glen Allen VA via REACT."
C. Add an op-note identifying the RRI liaison station. For example, "Route Replies to W6RRI San Luis Obispo CA."

*Instructions for refiling traffic in which the station of origin field utilizes a REACT "Traffic nnn" call sign:*

A. Assign your own message serial number.
B. Change the call sign to that of the liaison station transferring the message from the REACT network to the RRI network.
C. Add "via REACT" to the "Place of Origin" field. For example, "Glen Allen VA via REACT."

In either case, ensure one's records are correlated. That is, take a copy of the original REACT message and staple it, or otherwise append it to the refile copy. This will ensure that the two messages are retained together for subsequent reference or the convenient management of return service messages or replies.

**(Continued Next Page)**

**Example One:**

Original Message as received from REACT:

149 R TRAFFIC 241 14 GLEN ALLEN VA 1500EDT MAY 30
STEVE JONES TRAFFIC 242
1605 S MAIN ST.
HARTFORD CT 06212
519 555 2323

MESSAGE RUN SECOND WEDNESDAY JUNE
X TRAFFIC DRILL 2018 DASH 2 STARTS
SAME DATE

GREEN REACT TRAINING

Message as Refiled into RRI Network:

32 R W6RRI 14 GLEN ALLEN VA VIA REACT 1900Z MAY 30
STEVE JONES TRAFFIC 242
1605 S MAIN ST
HARTFORD CT 06212
519 555 2323

MESSAGE RUN SECOND WEDNESDAY JUNE
X TRAFFIC DRILL 2018 DASH
2 STARTS SAME DATE

GREEN REACT TRAINING

1. Note the new message serial number associated with the file of W6RRI.
2. Note the addition of "VIA REACT" in the "Place of Origin."
3. Note the conversion of 1500EDT to 1900Z.

**Example Two:**

Original Message as received from REACT:

149 W8WCG 14 GLEN ALLEN VA 1500EDT MAY 30
STEVE JONES TRAFFIC 242
1605 W MAIN ST
HARTFORD CT 06212
519 555 3232

JOINT REACT RRI EMCOMM EXERCISE
SCHEDULED FOR AUGUST 18 FROM
1400 TO 1700 EDT

MEYERS REACT EXERCISE TEAM

Message as Refiled into RRI Network:

149 R W8WCG 14 GLEN ALLEN VA VIA REACT 1900Z MAY 30
STEVE JONES TRAFFIC 242
1605 W MAIN ST
HARTFORD CT 06212
519 555 3232

JOINT REACT RRI EMCOMM EXERCISE
SCHEDULED FOR AUGUST 12 FROM
1400 TO 1700 EDT

MEYERS REACT EXERCISE TEAM
OP NOTE REPLY VIA W6RRI FARMINGTON CT

1. Note that the original message serial number and call sign are retained.
2. Note addition of "VIA REACT" in "Place of Origin" field.
3. Note addition of Op Note to ensure prompt routing of reply traffic and service messages back to the liaison station.

Please review the latest REACT Traffic System FOG, posted under the “Publications” heading of the RRI Web Page for further details.

END

# APPENDIX G: Message Form RRI 1720-R1

## TRAFFIC OPERATIONS AID

1. MESSAGE EXAMPLE
2. 1 (a) R (b) HXG (c) W1NJM (d) 8 (e) NEWINGTON CT (f) 1830 (g) JUL (h) 1
3. DONALD SMITH
   164 EAST SIXTH AVE
   NORTH RIVER CITY MD 21201
   410 555 1234
   OP NOTE DELIVER WEEKDAY
   BT
4. HAPPY BIRTHDAY X SEE YOU
   SOON X LOVE
   BT
5. DIANA
   OP NOTE SERVICE TO STATION OF ORIGIN

1. CHARACTERS: Use **only** capital letters, figures, slant bars (/).
2. PREAMBLE: (Tracking information stays with message to delivery)
   a. Number (begin with 1 each month or year - no leading zeros) SVC may be entered ahead of the number for Service messages.
   b. Precedence (R, W, P, EMERGENCY). TEST + space may be used before Prec. in exercise traffic, as in: TEST P.
   c. Handling Instructions (optional - see table for formatting)
   d. Station of Origin (first amateur handler's call sign)
   e. Check (number of words/groups in text only. ARL + space precede figures if ARRL Numbered Radiograms in the text, as in: "ARL 8". Corrections are appended with "/".
   f. Place of Origin (signer's location, not necessarily location of station of origin)
   g. Time Filed (optional with originating station - if not UTC, add time zone letters and adjust Date as necessary.)
   h. Date (MON, 3 letters, DT, no leading zeros - must agree with Time Filed) Time Filed, Date and Time are assumed UTC by default.
3. ADDRESS: (complete with zip code, telephone #, email address, etc., may include an OP NOTE).
4. TEXT (typical limit, 25 groups, but may be expanded for emergencies) X as punctuation counts as a word - <BT> does not. A group is a series of characters with no spaces between them. (Text may be in email format*, as in ICS form content, in the Hybrid Radiogram.)
5. SIGNATURE (person for whom message originated - may include a full address and OP NOTE).

**RADIOGRAM HANDLING INSTRUCTIONS** ("HX-CODES")

**HXA__** (Followed by number.) Collect landline delivery authorized by addressee within ____ miles, (if no number in blank, authorization is unlimited). This means that the originating station has obtained authorization from the addressee, through the party originating the message, to call collect when delivering the message.

**HXB__** (Followed by number.) Cancel message if not delivered within ____ hours of filing time; service message back to originating station. NOTE: filing time must be included in preamble.

**HXC** Report date and time of delivery of the message back to the originating station by service message.

**HXD** Report to originating station the identity of station from which received, plus date and time. Report identity of station to which relayed, plus date and time, or if delivered, report date and time and method of delivery (this information is sent by service message to the originating station).

**HXE** Delivering station get reply from addressee, originate message back. This reply is sent to the person from whom the original message was received, at the "place of origin", using a full address obtained from the addressee. If an address is not available, a reply can often be successfully routed back to the station of origin since a record is kept of originator's info.

**HXF__** (Followed by a number.) Hold delivery until ____ (date). This blank contains the number of the day on which the message should be delivered (even if it is in the following month).

**HXG** Delivery by mail or landline toll call not required. If toll call or other expense involved, cancel message and send service message back to originating station.

Compliance with these instructions is mandatory. **MORE THAN ONE HX__ CODE MAY BE USED.** If more than one code is used, they may be combined provided no numbers are to be inserted; otherwise the HX should be repeated, thus: **HXCE, HXAC**, or **HXA50 HXC**

Ed. note: The numbers following eligible HX_ codes are expected. In this example the HXA in the first case has the range number intentionally omitted, thus the "C" may be appended. In the second case, where the optional 50 mile range is included, the figures force the separation of the full "HXC."

**MESSAGE SENT ON VOICE**

"**NUMBER** ONE ROUTINE HOTEL X-RAY GOLF WHISKEY ONE NOVEMBER JULIETT MIKE EIGHT
NEWINGTON CONNECTICUT ONE EIGHT TREE ZERO JULY ONE
DONALD SMITH **I spell** SIERRA MIKE INDIA TANGO HOTEL
figures ONE SIX FOUR EAST SIXTH **I spell** S I X T H initials ALFA VICTOR ECHO
NORTH RIVER CITY MARYLAND figures TWO ONE TWO ZERO ONE
figures FOUR ONE ZERO FIFE FIFE FIFE ONE TWO TREE FOUR
OP NOTE DELIVER WEEKDAY
BREAK" // (mandatory listening pause)
"HAPPY BIRTHDAY initial X-RAY SEE YOU SOON initial X-RAY LOVE
BREAK
DIANA **I spell** DELTA INDIA ALFA NOVERMBER ALFA
OP NOTE SERVICE TO STATION OF ORIGIN
**END** NO MORE"

(NOTE: It is critically important to voice the message at a speed suitable for the receiving operator to copy accurately. Use no extraneous words. Do not voice the names of message parts.)

**SENDING MESSAGES BOOKED**

Unique text groups are each marked by "BLANK" to affirm Check, and the actual groups are sent later with the unique parts after a "BREAK" or <BT> on CW. Copy begins with "BOOK OF [quantity] and ends with "END BOOK", or <AR> END BOOK <AR> on CW. Common parts are sent first. Book parts are separated by "BREAK" or <BT> on CW, each unique message part beginning with "NUMBER" or NR on CW. Booked messages may be sent to multiple stations, polled ready to copy, and checking with each for copy when their unique parts are finished; or bulletins sent to multiple stations, polled ready to copy and then polled for acknowledgment at the end.

**ITU PHONETIC ALPHABET**

| | | | |
|---|---|---|---|
| A | ALFA | S | SIERRA |
| B | BRAVO | T | TANGO |
| C | CHARLIE | U | UNIFORM |
| D | DELTA | V | VICTOR |
| E | ECHO | W | WHISKEY |
| F | FOXTROT | X | X-RAY |
| G | GOLF | Y | YANKEE |
| H | HOTEL | Z | ZULU |
| I | INDIA | 1 | ONE |
| J | JULIETT | 2 | TWO |
| K | KILO | 3 | THREE (TREE) |
| L | LIMA | 4 | FOUR |
| M | MIKE | 5 | FIVE (FIFE) |
| N | NOVEMBER | 6 | SIX |
| O | OSCAR | 7 | SEVEN |
| P | PAPA (PA-'PA) | 8 | EIGHT |
| Q | QUEBEC (KAY-'BEK) | 9 | NINE (NINER) |
| R | ROMEO | 0 | ZERO |

**RADIOGRAM PRECEDENCES**

These precedences are not meant to prohibit handling lower level traffic until all higher levels are passed. Handle higher precedence traffic before lower as outlets are available.

**EMERGENCY** (Spelled out on form.)*: Any message having life and death urgency to any person or group of persons, which is transmitted by Amateur Radio in the absence of regular commercial facilities. This includes official messages of welfare agencies during emergencies requesting supplies, materials or instructions vital to relief of stricken populace in emergency areas. During normal times, it will be very rare. On CW/RTTY, this designation will always be spelled out. If in doubt, do not use it.

**PRIORITY (P):** Use abbreviation P on CW/RTTY. This classification is for a) important messages having a specific time limit, b) official messages not covered in the emergency category, c) press dispatches and emergency related traffic not of the utmost urgency, d) notice of death or injury in a disaster area, personal or official.

**WELFARE (W):** This classification, abbreviated as W on CW/RTTY, refers to either an inquiry as to the health and welfare of an individual in the disaster area or an advisory from the disaster area that indicates all is well. Welfare traffic is handled only after all emergency and priority traffic is cleared. The Red Cross equivalent to an incoming Welfare message is DWI (Disaster Welfare Inquiry).

**ROUTINE (R):** Most traffic in normal times will bear this designation. In disaster situations, traffic labeled Routine (R on CW/RTTY) should be handled last, or not at all when circuits are busy with higher precedence traffic.

* **EMERGENCY**: Emergency is always spelled out in the preamble. Means other than Amateur Radio should be included in the delivery options. EMERGENCY messages have immediate urgency. They should take priority over any other activity and should be passed by the best means available with the cooperation of all stations.

**FORMATTING**

| | |
|---|---|
| DASH | substitute for hyphen in text and zip codes |
| DOT | substitute for period in email addresses and URLs |
| R | substitute for decimal point in figure groups |
| X | substitute for period in text - except after last group |

All other punctuation is entered as a spelled-out word.

**EMAIL ADDRESS, URL,**

JOHN DOT SMITH ATSIGN DOMAIN DOT NET
HTTP COLON SLASH SLASH WWW DOT WORK DOT COM

**INTRODUCERS - VOICING, USE ONLY ONE PER GROUP**

**Initial(s)**: "initial BRAVO", "initials JULIETT ROMEO"
**Figure(s)**: "figure FOUR", "figures ONE NINER"
**Mixed Group**: "mixed group BRAVO SLASH SIX"
**Mixed Group Figure(s)**: "mixed group figures TWO TWO ZULU"
**Amateur Call**: "amateur call WHISKEY ONE NOVEMBER JULIETT MIKE"
**Telephone Figures**: to introduce telephone figures if no zip code
NOTE: Introduced groups are voiced one character at a time, letters phonetically. Introducers are not voiced for Preamble groups.

**MESSAGE SENT ON CW**

**NR** 1 R HXG W1NJM 8 NEWINGTON CT 1830 JUL 1
DONALD SMITH <AA>
164 EAST SIXTH AVE <AA>
NORTH RIVER CITY MD 21201 <AA>
410 555 1234 <AA>
OP NOTE DELIVER WEEKDAY
BT // (mandatory listening pause)
HAPPY BIRTHDAY X SEE YOU
SOON X LOVE
BT
DIANA <AA>
OP NOTE SERVICE TO STATION OF ORIGIN
**<AR>** N

* See the ICS Guidance Document for methods used for voicing and sending email formatted text.

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RRI 1720r3 5/17 // ed: W3YVQ FOR USE ON AMATEUR RADIO SERVICE TRAFFIC NETS www.radio-relay.org

# TRAFFIC OPERATIONS AID

## QN SIGNALS FOR CW NET USE

| | |
|---|---|
| QNA* | Answer in prearranged order. |
| QNB* | Act as a relay Between ____ and ____. |
| QNC | All net stations Copy. I have a message to all net stations. |
| QND* | Net is Directed (controlled by a net control station). |
| QNE* | Entire net stand by. |
| QNF | Net is Free (not controlled). |
| QNG | Take over as net control station. |
| QNH | Your net frequency is High. |
| QNI | Net stations report In.* I am reporting into the net. (Follow with a list of traffic or QRU.) |
| QNJ | Can you copy me? Can you copy ____? |
| QNK* | Transmit messages for ____ to ____. |
| QNL | Your net frequency is Low. |
| QNM* | You are QRMing the net. Stand by. |
| QNN | Net control station is ____. What station has net control? |
| QNO | Station is leaving the net. |
| QNP | Unable to copy you. Unable to copy ____. |
| QNQ* | Move frequency to ____ and wait for ____ to finish handling traffic. Then send him traffic for ____. |
| QNR* | Answer ____ and Receive traffic. |
| QNS | Following stations are in the net.* (Follow with list.) Request list of stations in the net. |
| QNT | I request permission to leave the net for ____ minutes. |
| QNU* | The net has traffic for you. Stand by. |
| QNV* | Establish contact with ____ on this frequency. If successful, move to ____ and send him traffic for ____. |
| QNW | How do I route messages for ____? |
| QNX | You are excused from the net.* Request to be excused from the net. |
| QNY* | Shift to another frequency (or to ____ kHz) to clear traffic with ____ |
| QNZ | Zero beat your signal with mine. |

*** For use only by the Net Control Station.**

### Notes on the Use of QN Signals

The QN signals listed above are special Q signals for use in amateur CW nets only. They are not for use in casual amateur conversation. Other meanings that may be used in other services do not apply. Do not use QN signals on phone nets. Say it with words. QN signals need not be followed by a question mark, even though the meaning may be interrogatory.

## INTERNATIONAL Q SIGNALS

A "Q" signal followed by a ? asks a question. A "Q" signal without the ? answers the question in the affirmative unless otherwise indicated.

| | |
|---|---|
| QRA | What is the name of your station? |
| QRG | What is my exact frequency? |
| QRH | Does my frequency vary? |
| QRI | How is my tone? (1-3) |
| QRK | What is my signal intelligibility? (1-5) |
| QRL | Are you busy? |
| QRM | Is my transmission being interfered with? |
| QRN | Are you troubled by static? |
| QRO | Shall I increase transmitter power? |
| QRP | Shall I decrease transmitter power? |
| QRQ | Shall I send faster? |
| QRS | Shall I send slower? |
| QRT | Shall I stop sending? |
| QRU | Have you anything for me? (Answer in negative.) |
| QRV | Are you ready? |
| QRW | Shall I tell ____ you're calling him? |
| QRX | When will you call again? |
| QRZ | Who is calling me? |
| QSA | What is my signal strength? (1-5) |
| QSB | Are my signals fading? |
| QSD | Is my keying defective? |
| QSG | Shall I send ____ messages at a time? |
| QSK | Can you work break-in? |
| QSL | Can you acknowledge receipt? |
| QSM | Shall I repeat the last message sent? |
| QSO | Can you communicate with ____ direct? |
| QSP | Will you relay to ____? |
| QSV | Shall I send a series of V's? |
| QSW | Will you transmit on ____? |
| QSX | Will you listen for ____ on ____? |
| QSY | Shall I change frequency? |
| QSZ | Shall I send each word/group more than once? (Answer, send twice or ____.) |
| QTA | Shall I cancel number ____? |
| QTB | Do you agree with my word count? (Answer negative.) |
| QTC | How many messages have you to send? |
| QTH | What is your location? |
| QTR | What is your time? |
| QTV | Shall I stand guard for you? |
| QTX | Will you keep your station open for further communication with me? |
| QUA | Have you news of ____? |

## OPERATIONAL, PROWORDS, PROSIGNS

| VOICE | CW |
|---|---|
| YES, AFFIRMATIVE | C |
| NO, NEGATIVE | N |
| ROGER | R |

(ROGER/R means all received and understood. It does not mean yes/affirmative.)

| | |
|---|---|
| OVER | K |
| CLEAR | CL |
| CLEAR | <SK> |
| SEVENTY THREE | 73 |

(Best regards - note meaning is plural.)

| | |
|---|---|
| ARL (in Check) | ARL (in CK) |
| ARL (in Text) | ARL (in TXT) |

(ARL + space precede Check figures if ARRL Numbered Radiograms in text - voiced as letters "A R L", ARL on CW. ARL + space precede the Numbered Radiograms in the text as 1 group.)

| | |
|---|---|
| NUMBER | NR |

(begins message record copy until END)

| | |
|---|---|
| BOOK OF [#] | BOOK OF [#] |

(begins record copy of [# as spelled word] booked messages until END BOOK)

| | |
|---|---|
| ( use a slight pause) | <AA> |

(<AA> marks end of address lines like a CR/LF)

| | |
|---|---|
| OP NOTE | OP NOTE |

(Introduces operator delivery or service note - generally not delivered to addressee.)

| | |
|---|---|
| BREAK | <BT> or = |

(Marks start and end of text and separates parts of booked messages. A listening pause follows a break at the start of the text and before NR when sending books. No listening pause before SIG.)

| | |
|---|---|
| END + [MORE, ONE MORE, NO MORE] | <AR> + [B, B1 (or 1), N] |

(ends record copy of single messages + number of messages to follow)

| | |
|---|---|
| END BOOK + [MORE, ONE MORE, NO MORE] | <AR> END BOOK <AR> + [B, B1 (or 1), N] |

(ends record copy of messages sent booked + number of messages to follow)

| | |
|---|---|
| I SAY AGAIN | ? |
| (FOR CLARITY) | (FOR CLARITY) |

(Send "I SAY AGAIN, or "?" on CW, repeat previous group(s) for emphasis/clarity.

| | |
|---|---|
| I SAY AGAIN | ? |
| (FOR ERROR) | (FOR ERROR) |

(Send "I SAY AGAIN, or "?" on CW, repeat last group sent correctly, and then continue.)

| | |
|---|---|
| I SPELL | (none) |

(Voice only ONE group then "I spell", and then spell the group with phonetics or letter spelling, then continue. Last and other proper names should be spelled phonetically.)

**DTN BATCH FILE FORMAT** - text files for importing Radiograms into a DTN Hub via Radio-email or direct.

```
ST 21201@NTSMD < WA1QAA
P BALTIMORE 410 555

78 P WA1QAA 15 ELLICOTT CITY MD 1800 SEP 20
BACI EOC
BALTIMORE MD 21201
410 555 1212
BT
TWELVE SUPPORT TEAMS IN ROUTE
TO YOUR EOC X DO
YOU HAVE EMERGENCY POWER QUERY
BT
MIKE WA1QAA MDC SEC

/EX
(blank line if last message, or ST line of next message - no blank line allowed)
```

ST + space + [zip]@NTS[2 letter state] is key to routing. Use some kind of zip code even if a generic one close to the delivery point - Canadian zips must entered as 6 characters with no middle space. The call after "<" is the station of origin. The next line is the TOWN line showing the Precedence Flag, town, area code and exchange of the message's phone number. Batch Files must contain only messages of the same precedence status, a combination of the Precedence itself plus the presence or absence of the HXD handling instruction and Service status (SVC messages). Thus the possible flags are **S, D, SD, W, SW, WD, SWD, P, SP, PD, SPD.** No flag R is used for Routine messages. Thus the P flag matches the Radiogram Precedence here. The blank line before the PBL and after the signature is for readability. The Radiogram is entered as shown, framing the text with BTs on lines of their own. The /EX ends the message and must be followed by one more blank line if the last message, or immediately by the ST of an additional message, if any. Many Radiograms may be packed into one Batch File. Booking is not permitted. Filenames must be 8 x 3 (FAT) plain text files.

**RADIO-EMAIL TYPES**

| | |
|---|---|
| TYPE 1: | Radio-email carrying active Radiograms. Subject line begun RRI for plain text, DTN for Batch Files + service class, [destination], quantity and the request for confirmation of receipt: "pse QSL this email". |
| TYPE 2: | Regular Radio-email with multiple network and/or internet addressees, binary attachments, email body text. |
| TYPE 3: | Radio-email sent to a single network client for delivery to a Radiogram type address entered with a PBL as the first lines of the body text, with an email-formatted body text message (a modern form of Radiogram). |
| TYPE 4: | Radio-email sent to a single client directly, peer-to-peer, for refiling (or forwarding) onto the network or internet by a station with access. |

**FILL REQUESTS - VOICE**

"[IN (part)] **WORD AFTER** (group(s))"
"[IN (part)] **WORD BEFORE** (group(s))"
"[IN (part)] **ALL AFTER** (group(s))"
"[IN (part)] **ALL BEFORE** (group(s))"
"[IN (part)] **BETWEEN** (group) **AND** (group)"
"part name"
"confirm (group(s)"

**FILL REQUESTS - CW**

"[IN (part)] **WA** (group(s))"
"[IN (part)] **WB** (group(s))"
"[IN (part)] **AA** (group(s))"
"[IN (part)] **AB** (group(s))"
"[IN (part)] **BN** (group) **ES** (group)"
"part name"
"CFM (group(s))"

(Respond only with group(s) requested or CONFIRM on voice, CFM on CW, as warranted. The "[IN (part)]" is used optionally to avoid ambiguity in defining the fill location.)

**GENERAL NOTES**: The objective in handling formal written Radiogram traffic is to pass an exact copy of the original message to the addressee in an efficient and timely fashion. Radio-email, added to the tool- kit, allows real-time messaging everywhere, error corrected, with no intermediate relaying manpower needed.

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# APPENDIX H
# Guidelines for siting, installing and calibrating weather stations and instruments.

**Rain Gauge Siting and Accuracy Considerations:**

Precipitation data is an important factor in hydrological models. The accuracy of hydrological models increases as more data is obtained throughout a given watershed. Therefore, proper instrument selection and siting is critical to obtaining accurate statistical models. Here are some guidelines for rain gauge selection and placement.

1. The diameter of the throat (collector) of the rain gauge has a significant impact on its accuracy. A larger throat increases the sample size and is therefore more accurate. A four-inch throat is usually sufficient whereas a standard 8-inch diameter government rain gauge is considered most accurate. Rain gauges with small throats tend to be less accurate under windy conditions.

2. A "tipping bucket" rain gauge should be calibrated against a manual gauge periodically (perhaps once per year) to ensure accuracy. Furthermore, grime and dirt tend to collect on the internal mechanism over time, therefore the gauge should be opened and cleaned/serviced at least twice per year. These gauges also tend to under-report rainfall slightly under extreme conditions, such as during severe thunderstorms with torrential rain or during heavy periods of rainfall associated with significant tropical storms or hurricanes.

3. A rain gauge should offer resolution to 1/100 inch. In the case of a manual gauge, this is typically done by establishing a ratio between the diameter of the throat of the gauge and the diameter of an internal funnel of narrower diameter, thereby expanding resolution. The clear butyrate 4-inch gauges with a removable internal cylinder (during the winter) offer an excellent balance between cost and accuracy.

4. Snowfall and ice accumulation can be melted to obtain a "liquid equivalent." This is useful information for the hydrologist. One can add a known quantity of warm water or a water-soluble antifreeze to melt a snow sample and then subtract that known amount from the final sum to attain the liquid equivalent.

5. Remote rain gauges with a heated throat tend to under-report liquid equivalent because some of the snowfall will sublimate and not reach the tipping-bucket mechanism to be registered. It is best to verify the reading against a manual gauge.

6. The siting of a rain gauge is important. An open area with a clear view of the sky is required. Nearby tall trees may be problematic. However, low standing shrubs or other barriers, which alter the wind field through friction can improve accuracy. An "alter shield" can also be installed around a gauge to improve accuracy.

**Temperature Sensors:**

1. A temperature sensor must be protected from incoming solar radiation ("insolation"). This is typically done using a wooden thermometer shelter (aka "Stevenson Screen" or "Cotton Region Shelter") or a "multiplate radiation shield."

2. The sensor should be installed four to six feet above the ground, over short grass, and some distance away from paved surfaces and buildings, which tend to retain heat. Large cities, in general, tend to create a "heat island effect," in which nocturnal temperatures remain higher as stored heat in paved surfaces and buildings is released at night into the lower levels of the atmosphere.

3. If it is necessary to install a temperature sensor near a building, such as at a condominium or a residence in a dense tract of homes, try to do so under the eaves on a north facing wall to minimize insolation and ambient heat.

4. Remote reading temperature sensors may experience radio frequency interference (RFI) from nearby radio transmitters. Ferromagnetic beads on sensor cables and 0.01 mF bypass capacitors to ground at the evaluation unit may prove helpful.

5. Some temperature sensors are combined with humidity sensors. The accuracy of both functions can be checked against a psychrometer periodically to ensure accuracy. Sling psychrometers are inexpensive and easy to obtain.

**Wind speed/direction indicators:**

1. In the ideal environment, wind sensors would be installed at a height of 10-meters (approximately 32-feet) at an open location, at which the distance from the nearest object (tree, building, etc.) is at least ten times its height. While all sensors are in the frictional boundary layer, nearby tall objects can have a significant impact on accuracy. Most amateur weather stations will never meet the standard criteria, therefore, install the sensors in as open a location as possible and as far from nearby trees or obstructions as practical.

2. If wind sensors are installed atop a roof or tower, be sure to ground the support structure and, if possible, provide an appropriate surge protector on wind sensor cables.

**Measuring Snowfall:**

1. Using a yardstick or similar ruler, take a minimum of three, preferably five samples at different locations throughout a yard and average the reading. Avoid areas near roofs or other objects that may create drifts that artificially increase one's readings.

2. Measurements taken in areas that are protected from wind and drifting by fences, lines of shrubs or the like are preferable.

3. A "snowboard" consisting of a white composite cutting board or a similar object can be laid atop existing snow to provide an accurate measure of new snowfall. Be sure to place a flag or driveway reflector next to it so you can locate it beneath the snow!

4. Avoid measuring on concrete or blacktop surfaces.

**Barometers:**

1. Most modern weather stations use quartz sensors to measure barometric pressure and offer digital displays for easy reading. However, older aneroid barometers of good quality can provide excellent service. The older military ML-102E through G aneroid barometers are readily available as surplus and offer excellent accuracy and reasonable temperature compensation. Barographs and microbarographs are also less expensive today, yet the older units manufactured by Belfort Instruments, Weather Measures, Nova Lynx and the like offer a nice visual chart recording of barometric trends. Inexpensive barometers manufactured for the consumer are ubiquitous but vary greatly in quality. Look for instruments in this class that move smoothly with changes in barometric pressure, and which seem to track closely with nearby weather stations.

2. All barometers must be calibrated to mean sea level. If you live within a few miles of an airport or official weather station, you can simply obtain the latest reading and calibrate your barometer to that reliable standard. If you do not live near an airport or weather station, obtain readings from several of the closest weather stations, and interpolate the difference. For example, if an airport six miles to your west indicates 29.92 inches HG and an airport four miles to your east indicates 29.94 in HG, it is probably reasonable to calibrate your barometer to 29.93 inches HG.

3. It is best to calibrate your barometer on a calm day with stable weather conditions. This indicates a shallow pressure gradient and minimal pressure change with time.

4. Barometers may be calibrated in inches of mercury, millibars or another standard. Reports submitted by radiogram should reference millibars. See the conversion table included with sample WXOBS radiogram on page 36.

Additional information about weather instruments is available from various on-line sources. The US National Weather Service and similar meteorological agencies publish useful manuals designed for cooperative observers. If in doubt, contact a local meteorologist or your local NWS office for advice.

# APPENDIX I
# Net Directory

The RRI Net Directory is updated periodically under the "Publications" heading. Please check the RRI Web Page for the latest version at:

www.radiorelay.org

| AREA/RGN | STATE | TIME | TZ | DAYS | FREQ | NET | COVERAGE | NOTES | MGR | MGR EMAIL |
|---|---|---|---|---|---|---|---|---|---|---|
| **EU** | | | **Z** | | | **EU CW TRAFFIC NET** | **EUROPE** | **TIME & FREQ BY ARRANGEMENT** | **DL4FN** | **DL4FN @ YAHOO.COM** |
| OC | | 06:00 | Z | W | 14.049 | AUSTRALIA CW NET | AUSTRALIA | | VK6RR | RADIOROY_99 @ YAHOO.COM |
| OC | | 21:00 | NZ | M-F | 3.535 | NEW ZEALAND NET | NEW ZEALAND | RADIO1NZ . COM / NZNET | ZL1NZ | NEIL @ ZL1.NZ |
| EAN/1RN | CT | 10:00 | ET | SU | 3.965 | CT PHONE NET – SNOWDESK | | ALT. 7.233 | WX1T | WX1T @ ARRL.NET |
| EAN/1RN | CT | 18:00 | ET | M-S | 3.973 | CT PHONE NET | | ALT. 7.233 | WX1T | WX1T @ ARRL.NET |
| EAN/1RN | CT | 19:00 | ET | DAILY | 3.533 | CT NET | | | WA1GGN | WA1GGN @ COMCAST.NET |
| EAN/1RN | CT | 20:30 | ET | DAILY | 145.410/141.3 | WESTERN CT TRAFFIC NET | | | KB1NMO | KB1NMO @ ARRL.NET |
| EAN/1RN | CT | 20:30 | ET | DAILY | 147.120/141.3 | WESTERN CT TRAFFIC NET | | | KB1NMO | KB1NMO @ ARRL.NET |
| EAN/1RN | CT | 20:30 | ET | DAILY | 147.180/141.3 | WESTERN CT TRAFFIC NET | | | KB1NMO | KB1NMO @ ARRL.NET |
| EAN/1RN | CT | 21:00 | ET | DAILY | 146.730/156.7 | EASTERN CT TRAFFIC NET | | | W1MCT | W1MCT @ ARRL.NET |
| EAN/1RN | CT | 21:30 | ET | R-T | 146.685/77.0 | NUTMEG VHF TRAFFIC NET | | | KB1ZBH | KB1ZBH @ GMAIL.COM |
| EAN/1RN | CT | 21:30 | ET | W | 147.090/110.9 | NUTMEG VHF TRAFFIC NET | | | KB1ZBH | KB1ZBH @ GMAIL.COM |
| EAN/1RN | MA | 17:00 | ET | DAILY | 3.978 | MASSACHUSETTS/RHODE ISLAND PHONE NET | | | N1LAH | N1LAH @ ARRL.NET |
| EAN/1RN | MA | 19:00 | ET | DAILY | 3.565 | MASSACHUSETTS/RHODE ISLAND CW NET | | | KW1U | KW1U @ ARRL.NET |
| EAN/1RN | MA | 19:30 | ET | T/W/R/S | 147.375/110.9 | CAPE & ISLANDS TRAFFIC NET | | | W1TCD | TIMDOYLE741 @ GMAIL.COM |
| EAN/1RN | MA | 20:00 | ET | DAILY | 145.230/88.5 | EASTERN MASSACHUSETTS 2 METER NET | | ALT. 146.865/103.5 | KC1HHO | KC1HHO @ GMAIL.COM |
| EAN/1RN | MA | 21:00 | ET | M, T, R, F | 146.970/114.8 | CENTRAL MASSACHUSETTS 2 METER NET | | ALT. 146.925/100.0 | KK1X | KK1X @ ARRL.NET |
| EAN/1RN | MA | 22:00 | ET | DAILY | VAR.VHF/UHF | HEAVY HITTERS TRAFFIC NET | | MINUTEMAN LINKED REPEATER SYSTEM | KC1KVY | RSPARKES @ VERIZON.NET |
| EAN/1RN | ME | 09:00 | ET | SU | 3.940 | MAINE PUBLIC SERVICE NET | | | KY1C | KY1C @ ARRL.NET |
| EAN/1RN | ME | 17:00 | ET | M-S | 3.940 | SEA GULL NET | | | K1GUP | K1GUP @ ROADRUNNER.COM |
| EAN/1RN | ME | 18:00 | ET | M-F | 3.585 | MAINE SLOW SPEED NET | | | W1JX | |
| EAN/1RN | ME | 19:00 | ET | DAILY | 3.596 | PINE TREE NET | | | W1KX | W1KX @ ARRL.NET |
| EAN/1RN | ME | 19:00 | ET | SU | 3.940 | MAINE EMERGENCY COMMUNICATIONS NET | | | | |
| EAN/1RN | ME | 19:30 | ET | SU | 147.060/91.5 | PRE-CHIMES TRAFFIC NET | | ALT. 145.490/91.5 | KB1TCE | SHANSEN @ BELLJAR.NET |
| EAN/1RN | NH | 07:30 | ET | S | 3.582 | NEW HAMPSHIRE DIGITAL NET | | BPSK125, 1500 HZ WATERFALL | | |
| EAN/1RN | NH | 08:30 | ET | S | 3.976 | NEW HAMPSHIRE ARES NET | | | | |
| EAN/1RN | NH | 19:15 | ET | W | 3.539 | NEW HAMPSHIRE SLOW NET | | | | |
| EAN/1RN | NH | 21:00 | ET | DAILY | 146.940/114.8 | GRANITE STATE TRAFFIC NET | | | | |
| EAN/1RN | VT | 08:00 | ET | SU | 3.976 | VERMONT PHONE EMERGENCY NET | | | | |
| EAN/1RN | VT | 09:00 | ET | SU | 3.934 | VERMONT PHONE NET | | | | |
| EAN/1RN | VT | 17:00 | ET | M-S | 3.933 | VERMONT GREEN MOUNTAIN NET | | | | |
| EAN/1RN | VT | 18:30 | ET | DAILY | 3.975 | VERMONT NET | | | | |
| EAN/1RN | VT | 19:30 | ET | DAILY | 3.857 | VERMONT PHONE TRAFFIC NET | | | | |
| EAN/1RN | VT/NH | 19:00 | ET | DAILY | 3.539 | VERMONT/NEW HAMPSHIRE TRAFFIC NET | | | | |
| EAN/1RN | | 08:45 | ET | SU | 3.945 | NEW ENGLAND PHONE NET | | | | |
| EAN/1RN | | 14:45 | ET | DAILY | 7.243 | FIRST REGION NET | | ALT. 3.950 | K1EIC | BDOANE @ ACM.ORG |
| EAN/1RN | | 16:30 | ET | DAILY | 3.950 | FIRST REGION NET | | | K1EIC | BDOANE @ ACM.ORG |
| EAN/1RN | | 19:45 | ET | DAILY | 3.598 | FIRST REGION NET | | | W1RVY | ECWILCOM @ MSN.COM |
| EAN/1RN | | 21:30 | ET | DAILY | 3.598 | FIRST REGION NET | | | W1RVY | ECWILCOM @ MSN.COM |
| EAN/2RN | NJ | 09:00 | ET | SU | 3.950 | NJ PHONE | | | KA2HZP | |
| EAN/2RN | NJ | 18:00 | ET | DAILY | 3.950 | NJ PHONE | | | KA2HZP | |
| EAN/2RN | NJ | 19:00 | ET | DAILY | 3.544 | NJN | NNJ SECTION | | WB2VUF | WB2VUF @ ARRL.NET |
| EAN/2RN | NJ | 19:30 | ET | DAILY | 146.895/151.4 | NORTH JERSEY VHF NET | NNJ SECTION | NNJ, ALT. 145.370/151.4 | KY2D | KY2D @ ARRL.NET |
| EAN/2RN | NJ | 19:30 | ET | DAILY | 146.910/127.3 | JERSEY SHORE TRAFFIC NET | SNJ SECTION | | KC2VXI | SICKRICKY1 @ AOL.COM |
| EAN/2RN | NJ | 20:00 | ET | DAILY | 146.760/156.7 | CENTRAL JERSEY TRAFFIC NET | | | KB2VRO | JIM_DRY @ VERIZON.NET |
| EAN/2RN | NJ | 20:00 | ET | DAILY | 147.150/127.3 | SOUTH JERSEY TRAFFIC NET | SNJ SECTION | LINKED TO 145.470/127.3 – ALT. 147.345/127.3 | | |
| EAN/2RN | NJ | 22:00 | ET | DAILY | VAR. VHF/UHF | UNION COUNTY TRAFFIC NET | | W2NJR LINKED SYSTEM | | |
| EAN/2RN | NJ | 22:30 | ET | DAILY | 146.700/141.3 | NEW JERSEY VHF LATE | NNJ SECTION | | | |
| EAN/2RN | NY | 07:30 | ET | DAILY | 7.112 | HIT & BOUNCE SLOW | | | W2EAG | NCCWMAN @ AOL.COM |
| EAN/2RN | NY | 08:30 | ET | DAILY | 7.112 | HIT & BOUNCE | | | W2EAG | NCCWMAN @ AOL.COM |
| EAN/2RN | NY | 09:00 | ET | M-S | 3.935 | CARRIER NET | | | AK2E | AK2E @ ARRL.NET |
| EAN/2RN | NY | 09:30 | ET | SU | 3.577 | NYS COUNTY | | | | |
| EAN/2RN | NY | 10:00 | ET | DAILY | 3.576 | NYS | | ALT. 7.042, 1.807 | KT2D | KT2D @ ARRL.NET |
| EAN/2RN | NY | 17:00 | ET | DAILY | 3.925 | NY PUBLIC OPERATIONS NET | | ALT. 3.913 | WB3CUF | WB3CUF @ ARRL.NET |
| EAN/2RN | NY | 18:00 | ET | DAILY | 3.566 | EMPIRE SLOW SPEED NET | | ALT. 7.112, 1.815 | WI2G | AFWI2G @ GMAIL.COM |
| EAN/2RN | NY | 18:00 | ET | DAILY | 3.925 | NYS PHONE TRAFFIC & EMERGENCY NET | | | WA3AFS | WA3AFS @ NYCAP.RR.COM |
| EAN/2RN | NY | 18:30 | ET | M-F | 147.150/127.3 | CAPITOL DISTRICT TRAFFIC NET | ALBANY, NY | ALT. 447.075 & 146.640/100.0 | K2HAT | K2HAT @ YMAIL.COM |
| EAN/2RN | NY | 18:30 | ET | S/SU | 145.170/127.3 | CAPITOL DISTRICT TRAFFIC NET | ALBANY, NY | | | |
| EAN/2RN | NY | 19:00 | ET | DAILY | 3.576 | NYS | | ALT. 7.042, 1.807 | KT2D | KT2D @ ARRL.NET |
| EAN/2RN | NY | 19:00 | ET | T | 147.210/ | COLUMBIA-GREENE EMERGENCY SERVICES NET | ENY SECTION | | N2USM | DKS-3 @ BERK.COM |
| EAN/2RN | NY | 19:30 | ET | DAILY | 146.805/136.5 | NASSAU CO VHF (NLI SECTION) | NASSAU CO, NY | ALT. 147.135/136.5, 443.525/114.8 | | |
| EAN/2RN | NY | 19:30 | ET | DAILY | 146.970/100.0 | HUDSON VALLEY NET | ENY SECTION | ALT. 147.045/100.0 & 146.895/100.0 | N2JBA | N2JBA @ ARRL.NET |
| EAN/2RN | NY | 19:30 | ET | T | 146.640/ | ALBANY EMERGENCY SERVICES NET | ALBANY, NY | | N2RAD | |
| EAN/2RN | NY | 20:00 | ET | DAILY | 145.170 | ONEIDA COUNTY TRAFFIC & EMERGENCY NET | | | AK2Z | OCTEN @ WNYHAM.COM |
| EAN/2RN | NY | 20:00 | ET | DAILY | 440.600/141.3 | BIG APPLE TRAFFIC NET | NYC | | | |

| AREA/RGN | STATE | TIME | TZ | DAYS | FREQ | NET | COVERAGE | NOTES | MGR | MGR EMAIL |
|---|---|---|---|---|---|---|---|---|---|---|
| EAN/2RN | NY | 20:30 | ET | M | 441.100/136.5 | NYC-ARECS EMCOMM/TRAFFIC NET | NYC | ALT 145.230, 447.625, 449.025 (N2ROW SYSTEM) | N2NOV | N2NOV @ NYC-ARECS.ORG |
| EAN/2RN | NY | 21:30 | ET | DAILY | 147.060/114.8 | SOUTHERN DISTRICT NET | ENY SECTION | ALT. 145.130/136.5, 147.015/114.8 | W2MC | W2MC @ ARRL.NET |
| EAN/2RN | NY | 22:00 | ET | DAILY | 3.576 | NYS | | ALT. 7.042, 1.807 | KT2D | KT2D @ ARRL.NET |
| EAN/2RN | | 18:30 | ET | DAILY | 3.926 | SECOND REGION PHONE NET | | ALT. 1.937 OR 7.237 | KB2QO | WFAGAN @ OPTONLINE.NET |
| EAN/2RN | | 19:45 | ET | DAILY | 3.565 | SECOND REGION CW NET | | ALT. 7.108 & 1.815 | WI2G | AFWI2G @ GMAIL.COM |
| EAN/3RN | DE | 18:00 | ET | S/SU | 3.905 | DELAWARE PHONE NET | | | | |
| EAN/3RN | DE | 18:30 | ET | M-F | 3.905 | DELAWARE PHONE NET | | | | |
| EAN/3RN | MD | 18:00 | ET | DAILY | 3.820 | MARYLAND EMERGENCY PHONE NET | | ALT. 3.821, 1.920, 7.243 | W3YVQ | W3YVQ @ ARRL.NET |
| EAN/3RN | MD | 18:30 | ET | DAILY | 146.670/ | BALTIMORE TRAFFIC NET | BALTIMORE, MD | ALT. 145.330 | AB3WG | AB3WG @ ARRL.NET |
| EAN/3RN | MD | 19:00 | ET | DAILY | 3.557 | MARYLAND-DC-DELAWARE NET | | | | |
| EAN/3RN | MD | 19:30 | ET | DAILY | 3.563 | MARYLAND SLOW | | | | |
| EAN/3RN | MD | 22:00 | ET | DAILY | 3.557 | MARYLAND-DC-DELAWARE NET | | | | |
| EAN/3RN | PA | 09:00 | ET | SU | 3.9875 | EPA RACES NET | EPA SECTION | ALT. 7.227 | | |
| EAN/3RN | PA | 17:00 | ET | DAILY | 3.918 | EASTERN PA EMERGENCY PHONE & TRAFFIC NET | EPA SECTION | | WA2BBS | GONNEUR @ GMAIL.COM |
| EAN/3RN | PA | 18:00 | ET | DAILY | 3.983 | MOE MCKENDREE TRAFFIC NET | WPA SECTION | | K3QNT | K3QNT @ AOL.COM |
| EAN/3RN | PA | 19:00 | ET | DAILY | 3.585 | PENNSYLVANIA TRAFFIC NET | | | N2GE | ROGERLBURKHART @ GMAIL.COM |
| EAN/3RN | PA | 20:00 | ET | M | 146.610/82.5 | LUZERNE CO. ARES TRAFFIC & TRAINING NET | | | N3SRO | IFLY824 @ GMAIL.COM |
| EAN/3RN | PA | 20:00 | ET | W | 146.715/136.5 | LACKAWANA CO. ARES TRAFFIC & TRAINING NET | | 1ST & 2ND WED. ONLY | NW3X | NW2X.TDAVIS @ GMAIL.COM |
| EAN/3RN | PA | 20:00 | ET | W | 146.940/127.3 | LACKAWANA CO. ARES TRAFFIC & TRAINING NET | | 4TH WED. ONLY | NW3X | NW2X.TDAVIS @ GMAIL.COM |
| EAN/3RN | PA | 20:00 | ET | W | 442.550/100.0 | LACKAWANA CO. ARES TRAFFIC & TRAINING NET | | 5TH WED. ONLY ON N3FCK LINKED SYSTEM | NW3X | NW2X.TDAVIS @ GMAIL.COM |
| EAN/3RN | PA | 20:00 | ET | SU/W | 145.310/131.8 | RF HILL SOUTHEASTERN PA PRACTICE & TRAFFIC NET | | | KB3DEN | KB3DEN @ AOL.COM |
| EAN/3RN | | 16:00 | ET | DAILY | 3.917 | THIRD REGION NET | | ALT. 3.913 | | |
| EAN/3RN | | 19:45 | ET | DAILY | 3.557 | THIRD REGION NET | | | | |
| EAN/3RN | | 21:30 | ET | DAILY | 3.557 | THIRD REGION NET | | | | |
| EAN/4RN | FL | 07:00 | ET | DAILY | 3.940 | FLORIDA PHONE TRAFFIC NET | | | WC4FSU | WC4FSU @ CFL.RR.COM |
| EAN/4RN | FL | 09:00 | ET | DAILY | 3.940 | NORTHERN FLORIDA ARES NET | | | WA4WES | DAVEDAVIS1 @ EMBARQMAIL.COM |
| EAN/4RN | FL | 18:00 | ET | DAILY | 3.942 | TROPICAL FLORIDA SIDEBAND TRAFFIC NET | | | W2PH | ED @ W2PH.COM |
| EAN/4RN | FL | 19:00 | ET | DAILY | 3.547 | ALL-FLORIDA CW TRAFFIC NET | | ALT. 7.111 | KZ8Q | KZ8QHAM @ GMAIL.COM |
| EAN/4RN | FL | 19:15 | ET | 1ST M | 147.555/ | SEMINOLE VHF TRAFFIC NET | | | KG4QCD | ABGAUSZ @ ME.COM |
| EAN/4RN | FL | 19:15 | ET | DAILY | 147.285/107.2 | SEMINOLE VHF TRAFFIC NET | | EXCEPT FIRST MONDAY | KG4QCD | ABGAUSZ @ ME.COM |
| EAN/4RN | FL | 19:30 | ET | DAILY | 3.950 | NORTHERN FLORIDA PHONE NET | | ALT. 7.242 & 7.247 | N4QB | N4QB @ ARRL.NET |
| EAN/4RN | GA | 07:00 | ET | M-S | 3.995 | GEORGIA CRACKER NET | | | AF4XZ | AF4XZ @ CHARTER.NET |
| EAN/4RN | GA | 13:00 | ET | M-S | 7.2875 | GEORGIA TRAFFIC NET | | | WA0CGZ | WA0CGZ @ ARRL.NET |
| EAN/4RN | GA | 23:00 | Z | DAILY | 3.975 | GEORGIA SSB NET | | | KE4VPD | KE4VPD @ GMAIL.COM |
| EAN/4RN | GA | 19:00 | ET | DAILY | 3.549 | GEORGIA STATE NET | | | K4GK | K4GK @ ARRL.NET |
| EAN/4RN | GA | 19:15 | ET | DAILY | 3.9825 | GEORGIA TRAFFIC & EMERGENCY NET | | | KI4NGD | KI4NGD @ ARRL.NET |
| EAN/4RN | GA | 21:00 | ET | DAILY | 3.549 | GEORGIA TRAINING NET | | | | |
| EAN/4RN | GA | 22:00 | ET | DAILY | 3.549 | GEORGIA STATE NET | | | | |
| EAN/4RN | NC | 07:45 | ET | DAILY | 3.927 | NORTH CAROLINA MORNING NET | | | W3OJO | W3OJOE @ GMAIL.COM |
| EAN/4RN | NC | 18:30 | ET | DAILY | 3.923 | NORTH CAROLINA EVENING NET | | | WK4WC | LANE.KENDALL @ GMAIL.COM |
| EAN/4RN | NC | 19:00 | ET | DAILY | 145.150/100.0 | CENTRAL WESTERN TRAFFIC NET | | | N4CNX | 232TRULL @ GMAIL.COM |
| EAN/4RN | NC | 19:30 | ET | DAILY | 3.938 | NORTH CAROLINA SSB NET | | | | |
| EAN/4RN | NC | 20:30 | ET | DAILY | 146.685/88.5 | EASTERN NC TRAFFIC NET | | | W4DNA | W4DNA @ ARRL.NET |
| EAN/4RN | NC | 21:00 | ET | DAILY | 146.880/ | PIEDMONT COASTAL TRAFFIC NET | | | W4TTO | W4TTO @ ARRL.NET |
| EAN/4RN | NC/SC | 19:00 | ET | DAILY | 3.571 | CAROLINAS NET – EARLY | | | KC4PGN | OOGLEMASTER @ CHARTER.NET |
| EAN/4RN | NC/SC | 20:00 | ET | DAILY | 3.571 | CAROLINAS SLOW NET | | | KI4KZS | BERTSCOOTS @ YAHOO.COM |
| EAN/4RN | NC/SC | 22:00 | ET | DAILY | 3.571 | CAROLINAS NET – LATE | | | KC4PGN | OOGLEMASTER @ CHARTER.NET |
| EAN/4RN | SC | 19:00 | ET | DAILY | 3.915 | SOUTH CAROLINA TRAFFIC NET | | | | |
| EAN/4RN | VA | 18:00 | ET | DAILY | 3.947 | VIRGINIA SIDEBAND NET (VSBN) | | | KD4EAQ | KD4EAQ.M @ GMAIL.COM |
| EAN/4RN | VA | 19:00 | ET | DAILY | 3.569 | VIRGINIA CW NET (VN) | | | KV4AN | KV4AN @ ARRL.NET |
| EAN/4RN | VA | 22:00 | ET | DAILY | 3.947 | VIRGINIA LATE NET (VLN) | | | | |
| EAN/4RN | | 13:45 | ET | DAILY | 7.243 | FOURTH REGION NET | | ALT. 7.222 | KD4EAQ | CRS4NOW @ GMAIL.COM |
| EAN/4RN | | 15:30 | ET | DAILY | 7.222 | FOURTH REGION NET | | | N4CNX | 232TRULL @ GMAIL.COM |
| EAN/4RN | | 19:45 | ET | DAILY | 3.567 | FOURTH REGION NET | | MOVE TO 7.117 IN SPRING | WB4FLT | JHPBASS @ GMAIL.COM |
| EAN/4RN | | 21:30 | ET | DAILY | 3.567 | FOURTH REGION NET | | MOVE TO 7.117 IN SPRING | WB4FLT | JHPBASS @ GMAIL.COM |
| EAN/8RN | MI | 10:00 | ET | DAILY | 3.952 | MICHIGAN ACS | | | WB8TQZ | WB8TQZ @ ARRL.NET |
| EAN/8RN | MI | 12:00 | ET | SU | 3.921 | UPPER PENINSULA NET | | | WA8DHB | WEYANDTPATTI @ GMAIL.COM |
| EAN/8RN | MI | 17:00 | ET | DAILY | 3.920 | UPPER PENINSULA NET | | | WA8DHB | WEYANDTPATTI @ GMAIL.COM |
| EAN/8RN | MI | 17:00 | ET | SU | 3.932 | MICHIGAN ARPSC | | ALT. 7.232 | WB8RCR | WB8RCR @ ARRL.NET |
| EAN/8RN | MI | 18:30 | ET | DAILY | 3.563 | MICHIGAN NET | | ALT. 7.063 & 1.812 | K8BKM | THAMMOND @ CHARTERMI.NET |
| EAN/8RN | MI | 18:30 | ET | DAILY | 146.640/107.2 | NORTHERN LOWER EASTERN UPPER PENINSULA NET | | | | |
| EAN/8RN | MI | 19:00 | ET | DAILY | 3.952 | MICHIGAN TRAFFIC NET | | ALT. 1.895 | WB8TQZ | WB8TQZ @ ARRL.NET |
| EAN/8RN | MI | 20:00 | ET | DAILY | 3.932 | GREAT LAKES EMERG & TRAFFIC NET | | | KD8ZCM | KD8ZCM @ GMAIL.COM |
| EAN/8RN | MI | 20:00 | ET | T/R/S | 3.583 | MICHIGAN DIGITAL TRAFFIC NET | | 1KHZ WATERFALL SPOT | N8LBF | N8LBF @ ARRL.NET |
| EAN/8RN | MI | 21:00 | ET | M/W/F | 147.160/ | MICHIGAN VHF TRAFFIC NET | | IRA LINKED SYSTEM | K8RDN | K8RDV73 @ GMAIL.COM |

RADIO-RELAY INTERNATIONAL AFFILIATED & NON-AFFILIATED TRAFFIC NETS REVISED JUN. 3, 2024

| AREA/RGN | STATE | TIME | TZ | DAYS | FREQ | NET | COVERAGE | NOTES | MGR | MGR EMAIL |
|---|---|---|---|---|---|---|---|---|---|---|
| EAN/8RN | MI | 21:30 | ET | M-S | 147.300/ | THUMB MID-MICHIGAN TRAFFIC NET | | | | |
| EAN/8RN | MI | 22:00 | ET | DAILY | 3.563 | MICHIGAN NET | | ALT. 7.063 & 1.812 | K8BKM | THAMMOND @ CHARTERMI.NET |
| EAN/8RN | MI | 22:15 | ET | DAILY | 146.760/ | SOUTHEASTERN MICHIGAN TRAFFIC NET | | | KD8QPF | KD8QPF @ GMAIL.COM |
| EAN/8RN | OH | 10:30 | ET | DAILY | 3.9725 | OHIO SINGLE SIDEBAND NET | | ALT. 1.840, 3.968 | KC8WH | KC8WH.MH @ GMAIL.COM |
| EAN/8RN | OH | 16:15 | ET | DAILY | 3.9725 | OHIO SINGLE SIDEBAND NET | | ALT. 1.840, 3.968 | KC8WH | KC8WH.MH @ GMAIL.COM |
| EAN/8RN | OH | 18:00 | ET | DAILY | 3.53535 | OHIO SLOW NET | | | N2LC | N2LC @ ARRL.NET |
| EAN/8RN | OH | 18:30 | ET | DAILY | 146.940/103.5 | NORTHWEST OHIO TRAFFIC NET | | ALT. 147.345/103.5 | N8TNV | N8TNV @ ARRL.NET |
| EAN/8RN | OH | 18:45 | ET | DAILY | 3.580 | BUCKEYE NET | | | N2LC | N2LC @ ARRL.NET |
| EAN/8RN | OH | 18:45 | ET | DAILY | 3.9725 | OHIO SINGLE SIDEBAND NET | | ALT. 1.840, 3.968 | KC8WH | KC8WH.MH @ GMAIL.COM |
| EAN/8RN | OH | 19:15 | ET | DAILY | 146.970/123.0 | CENTRAL OHIO TRAFFIC NET | | ALT. 146.760/123.0, 147.240/179.9, 147.510 | KV8Z | KV8Z @ YAHOO.COM |
| EAN/8RN | OH | 20:00 | ET | DAILY | 146.670/123.0 | TRI-STATE AMATEUR TRAFFIC NET | | | WG8Z | WG8Z @ ARRL.NET |
| EAN/8RN | OH | 21:00 | ET | SU/T/F | 147.015/110.9 | TRI-COUNTY TRAFFIC AND TRAINING NET | | | WB8YYS | WB8YYS @ ARRL.NET |
| EAN/8RN | OH | 21:30 | ET | M/R/S | 145.230/110.9 | BURNING RIVER TRAFFIC NET | | | KD8GXL | KD8GXL @ GMAIL.COM |
| EAN/8RN | OH | 22:00 | ET | DAILY | 3.590 | BUCKEYE NET | | | WB9LBI | WFRAEDRICH @ AOL.COM |
| EAN/8RN | WV | 16:30 | ET | DAILY | 3.811 | WEST VIRGINA NET | | | | |
| EAN/8RN | | 12:30 | ET | DAILY | 3.865 | EIGHTH REGION NET | | ALT. 7.235 | ND8W | ND8W @ ATT.NET |
| EAN/8RN | | 13:45 | ET | DAILY | 7.235 | EIGHTH REGION NET | | | ND8W | ND8W @ ATT.NET |
| EAN/8RN | | 15:30 | ET | DAILY | 7.235 | EIGHTH REGION NET | | | ND8W | ND8W @ ATT.NET |
| EAN/8RN | | 16:30 | ET | DAILY | 3.865 | EIGHTH REGION NET | | ALT. 7.235 | ND8W | ND8W @ ATT.NET |
| EAN/8RN | | 19:45 | ET | DAILY | 3.533 | EIGHTH REGION NET | CYCLE 4 | | WB9LBI | WFRAEDRICH @ AOL.COM |
| EAN/8RN | | 21:30 | ET | DAILY | 3.533 | EIGHTH REGION NET | CYCLE 4 | | WB9LBI | WFRAEDRICH @ AOL.COM |
| EAN | | 19:30 | Z | DAILY | 7.243 | EASTERN AREA NET | | | KW1U | KW1U @ ARRL.NET |
| EAN | | 20:30 | ET | DAILY | 3.552 | EASTERN AREA NET | | ALT. 7.052, 7.108, 1.808 | KW1U | KW1U @ ARRL.NET |
| CAN/5RN | AL | 08:00 | CT | SU | 3.965 | ALABAMA TRAFFIC NET MIKE | | | KI4ZZD | C.OSWALT @ GMAIL.COM |
| CAN/5RN | AL | 10:00 | CT | DAILY | 3.965 | ALABAMA DAY NET | | | | |
| CAN/5RN | AL | 15:30 | CT | SU | 3.570 | ALABAMA DIGITAL EMERGENCY NET | | ALT. 7.100 | | |
| CAN/5RN | AL | 16:00 | CT | SU | 3.965 | ALABAMA EMERGENCY NET | | ALT. 7.243 | | |
| CAN/5RN | AL | 18:30 | CT | DAILY | 3.965 | ALABAMA TRAFFIC NET MIKE | | | KI4ZZD | C.OSWALT @ GMAIL.COM |
| CAN/5RN | AR | 06:00 | CT | M-S | 3.9875 | ARKANSAS PHONE NET | | | W5DUG | W5DUGHAMSHACK @ GMAIL.COM |
| CAN/5RN | AR | 16:30 | CT | M-F | 3.927 | MOCKINGBIRD NET | | | | |
| CAN/5RN | AR | 18:00 | CT | DAILY | 3.9875 | ARKANSAS RAZORBACK NET | | MEETS AT 18:30 IN SUMMER | | |
| CAN/5RN | LA | 18:00 | CT | SU/M/W/F | 3.910 | LOUISIANA SSB TRAFFIC NET | | | | |
| CAN/5RN | LA | 21:30 | CT | DAILY | 3.935 | SOUTHWEST TRAFFIC NET | | | | |
| CAN/5RN | MS | 06:00 | CT | M-F | 3.8625 | MAGNOLIA SECTION NET | | | KA5DON | DON.RAND @ GMAIL.COM |
| CAN/5RN | MS | 07:00 | CT | S/SU/HOL | 3.8625 | MAGNOLIA SECTION NET | | | KA5DON | DON.RAND @ GMAIL.COM |
| CAN/5RN | MS | 18:00 | Z | SU | 7.260 | MISSISSIPPI BAPTIST NET | | | KA5DON | DON.RAND @ GMAIL.COM |
| CAN/5RN | MS | 18:00 | CT | DAILY | 3.862 | MISS. SECTION PHONE NET | | ALT. 7.238 | KA5DON | DON.RAND @ GMAIL.COM |
| CAN/5RN | MS | 01:00 | Z | W | 3.825 | K5TAL AMERICAN LEGION NET | | | KA5DON | DON.RAND @ GMAIL.COM |
| CAN/5RN | OK | 17:20 | CT | DAILY | 7.1206 | OKLAHOMA TRAINING NET | | | | |
| CAN/5RN | OK | 17:30 | CT | M-S | 3.845 | OKLAHOMA SOONER TRAFFIC NET | | | | |
| CAN/5RN | TN | 05:40 | CT | M-F | 3.980 | TENNESSEE PHONE NET | | | WD4LAR | WD4LAR @ GMAIL.COM |
| CAN/5RN | TN | 06:45 | CT | M-F | 3.980 | TENNESSEE PHONE NET | | | WD4LAR | WD4LAR @ GMAIL.COM |
| CAN/5RN | TN | 07:00 | CT | S/SU | 3.980 | TENNESSEE PHONE NET | | | WD4LAR | WD4LAR @ GMAIL.COM |
| CAN/5RN | TN | 17:30 | CT | M-S | 3.980 | TENNESSEE PHONE NET | | | WD4LAR | WD4LAR @ GMAIL.COM |
| CAN/5RN | TX | 08:30 | CT | M-S | 7.285 | TEXAS TRAFFIC NET | | | W5RWP | W5RWP @ OUTLOOK.COM |
| CAN/5RN | TX | 10:00 | CT | M-S | 7.290 | 7290 TRAFFIC NET | | | | |
| CAN/5RN | TX | 13:00 | CT | M-F | 7.290 | 7290 TRAFFIC NET | | | | |
| CAN/5RN | TX | 18:30 | CT | DAILY | 3.873 | TEXAS TRAFFIC NET | | | WE5TXS | WE5TXS @ SUDDENLINK.NET |
| CAN/5RN | TX | 18:30 | CT | DAILY | 146.880/110.9 | DALLAS/FT. WORTH TRAFFIC NET | | | KC5FAZ | KC5FAZ @ ARRL.NET |
| CAN/5RN | TX | 19:00 | CT | DAILY | 3.541 | TEXAS STATE CW NET | | ALT. 3.593 | W5DY | W5DY39 @ GMAIL.COM |
| CAN/5RN | TX | 19:00 | CT | SU | 147.360/ | TRAVIS CO. ARES | | | K5GM | K5GM @ AMSAT.ORG |
| CAN/5RN | TX | 19:45 | CT | T/R/F | 3.570 | TEXAS SLOW NET | | | KD5RQB | |
| CAN/5RN | TX | 20:00 | CT | DAILY | 3.552 | TEXAS SLOW NET | | | | |
| CAN/5RN | TX | 22:00 | CT | DAILY | 3.541 | TEXAS STATE CW NET | | ALT. 3.593 | W5DY | W5DY39 @ GMAIL.COM |
| CAN/5RN | TX | 22:30 | CT | DAILY | 146.720/110.9 | DALLAS/FT. WORTH TRAFFIC NET | | | KC5FAZ | KC5FAZ @ ARRL.NET |
| CAN/5RN | | 10:25 | CT | M/W/F | 7.280 | FIFTH REGION NET | | | WA4VGZ | WA4VGZ @ GMAIL.COM |
| CAN/5RN | | 19:30 | CT | DAILY | 3.567 | FIFTH REGION NET | | ALT. 3.595 & 7.108 | | |
| CAN/5RN | | 21:30 | CT | DAILY | 3.567 | FIFTH REGION NET | | ALT. 3.595 & 7.108 | | |
| CAN/9RN | IL | 07:00 | CT | M-F | 3.912 | NORTH CENTRAL PHONE NET | | | WB9EDL | JBBUILDER @ FRONTIER.COM |
| CAN/9RN | IL | 08:00 | CT | SU | 3.940 | ILLINOIS PHONE NET | | | AI9F | AI9F @ ARRL.NET |
| CAN/9RN | IL | 16:45 | CT | M-F | 3.857 | ILLINOIS PHONE NET | | | AI9F | AI9F @ ARRL.NET |
| CAN/9RN | IL | 18:00 | CT | DAILY | 3.905 | ILLINOIS SIDEBAND NET | | | WB9QPM | WB9QPM @ ARRL.NET |
| CAN/9RN | IL | 18:30 | CT | SU | 146.790/127.3 | MADISON COUNTY TRAFFIC NET | MADISON CO, IL | | AA9FQ | BEVANS305 @ OUTLOOK.COM |
| CAN/9RN | IL | 19:15 | CT | DAILY | 3.538 | ILLINOIS NET | | ALT. 7.048 & 1.838 | WC9P | |
| CAN/9RN | IN | 08:00 | ET | DAILY | 3.535 | INDIANA CW TRAFFIC NET | | | K0TQ | K0TQ @ ARRL.NET |

| AREA/RGN | STATE | TIME | TZ | DAYS | FREQ | NET | COVERAGE | NOTES | MGR | MGR EMAIL |
|---|---|---|---|---|---|---|---|---|---|---|
| CAN/9RN | IN | 08:30 | ET | DAILY | 3.910 | INDIANA TRAFFIC NET | | | WA5LOU | WA5LOU @ ARRL.NET |
| CAN/9RN | IN | 09:00 | ET | DAILY | 3.585 | INDIANA RADIO TELETYPE NET | | 45 BAUD RTTY | W9BGJ | W9BGJ @ ARRL.NET |
| CAN/9RN | IN | 18:00 | ET | DAILY | 3.940 | INDIANA TRAFFIC NET | | | WA5LOU | WA5LOU @ ARRL.NET |
| CAN/9RN | IN | 19:00 | ET | DAILY | 3.535 | INDIANA SLOW CW NET | | | WA9VBG | WA9VBG @ AOL.COM |
| CAN/9RN | IN | 20:00 | ET | DAILY | 3.535 | INDIANA CW TRAFFIC NET | | | K0TQ | K0TQ @ ARRL.NET |
| CAN/9RN | IN | 20:30 | ET | DAILY | 3.583 | INDIANA ARES DIGITAL NET | | OLIVIA 8/500, 1500 HZ WATERFALL | WB9FHP | WB9FHP @ GMAIL.COM |
| CAN/9RN | KY | 09:00 | ET | S | 3.537 | KENTUCKY CW TRAFFIC NET (KYN) | | | WB4ZDU | WB4ZDU @ AOL.COM |
| CAN/9RN | KY | 19:00 | ET | M | 146.865/192.8 | MADISON COUNTY ARES | | | | |
| CAN/9RN | KY | 19:30 | ET | M | 3.9725 | KENTUCKY EMERGENCY NET | | | KC4BQK | KC4BQK @ ARRL.NET |
| CAN/9RN | KY | 19:30 | ET | T | 146.880/100.0 | JEFFERSON COUNTY ARES | | | K4TXJ | K4TXJ @ ARRL.NET |
| CAN/9RN | KY | 20:00 | ET | M | 147.390/151.4 | TRIMBLE CO./OLDHAM CO. | | | | |
| CAN/9RN | KY | 20:00 | ET | R | 145.330/ | WOODFORD COUNTY ARES | | | | |
| CAN/9RN | KY | 20:00 | ET | R | 147.375/123.0 | KENTUCKY DISTRICT 7 ARES | WALTON, KY | | AG4BC | AG4BC @ OUTLOOK.COM |
| CAN/9RN | KY | 20:30 | ET | M | 146.610/ | PO BOY NET | CORBIN, KY | | | |
| CAN/9RN | KY | 20:30 | ET | R | 146.835/107.2 | ANDERSON COUNTY ARES | | | KI4TLY | EGHOLLAND @ ADELPHIA.NET |
| CAN/9RN | KY | 20:30 | ET | SU | 147.105/103.5 | HARLAN COUNTY ARES & SKYWARN | | | | |
| CAN/9RN | KY | 20:30 | ET | T | 146.880/77.0 | SOMERSET ARES | | | | |
| CAN/9RN | KY | 20:30 | ET | W | 146.715/100.0 | WILDERNESS TRAIL EMERGENCY NET | | | | |
| CAN/9RN | KY | 20:45 | ET | R | 145.430/203.5 | PARC (CLARK COUNTY) | | | | |
| CAN/9RN | KY | 20:45 | ET | SU | 146.670/103.5 | PERRY COUNTY ARES & SKYWARN | | | KA4AOU | |
| CAN/9RN | KY | 21:00 | ET | DAILY | 3.537 | KENTUCKY CW TRAFFIC NET (KYN) | | | WB4ZDU | WB4ZDU @ AOL.COM |
| CAN/9RN | KY | 21:00 | ET | M | 145.350/186.2 | LETCHER COUNTY ARES & SKYWARN | | | N4QBE | |
| CAN/9RN | KY | 21:00 | ET | R | 444.050/100.0 | KENTUCKY WIDE AREA NET (I-75 CORRIDOR) | | | | |
| CAN/9RN | KY | 21:00 | ET | R | E. KY PIKE | PIKE COUNTY ARES | | | WB4WAU | A_EPLING @ YAHOO.COM |
| CAN/9RN | KY | 21:00 | ET | T | 146.925/79.7 | REGION 11 SKYWARN | | | | |
| CAN/9RN | KY | 21:00 | ET | T | E. KY FLOYD | EAST KENTUCKY ARES | | | WB4CLW | |
| CAN/9RN | KY | 21:00 | ET | W | 147.000/173.8 | STUBBLEFIELD REPEATER CLUB NET | | | | |
| CAN/9RN | KY | 21:00 | ET | W | 147.120/141.3 | FAYETTE COUNTY ARES | | | | |
| CAN/9RN | KY | 21:30 | ET | M | 3.585 | KENTUCKY DIGITAL EMERGENCY NET | | PSK31 | KC4BQK | KC4BQK @ ARRL.NET |
| CAN/9RN | KY | 23:00 | ET | DAILY | 3.816 | KY | | | | |
| CAN/9RN | KY | | ET | | 147.105/107.2 | FRANKFORT EMERGENCY NET | | ALT. 147.240/100.0 | | |
| CAN/9RN | WI | 06:00 | CT | DAILY | 3.984 | BADGER WEATHER NET | | | W9IXG | W9IXG @ ARRL.NET |
| CAN/9RN | WI | 08:00 | CT | SU | 3.967 | WISCONSIN ARES/RACES NET | | | WB9WKO | WB9WKO @ ARRL.NET |
| CAN/9RN | WI | 12:00 | CT | DAILY | 3.985 | BADGER EMERGENCY NET | | ALT. 7.268 | NX9K | N9VC @ YAHOO.COM |
| CAN/9RN | WI | 17:00 | CT | DAILY | 3.985 | WISCONSIN SIDEBAND NET | | ALT. 3.982.5 | KN9P | MORTLIEB47 @ FRONTIER.COM |
| CAN/9RN | WI | 18:00 | CT | DAILY | 3.555 | WISCONSIN NOVICE NET | | | KB9ROB | DEAN @ HERRIGES.COM |
| CAN/9RN | WI | 18:30 | CT | T/R/F/SU | 3.555 | WISCONSIN SLOW SPEED NET | | | KB9ROB | DEAN @ HERRIGES.COM |
| CAN/9RN | WI | 19:00 | CT | DAILY | 3.555 | WISCONSIN INTRASTATE NET | | | WB9ICH | WB9ICH @ CHARTER.NET |
| CAN/9RN | WI | 22:00 | CT | DAILY | 3.555 | WISCONSIN INTRASTATE NET | | | W9RTP | STANEKGB @ HUGHES.NET |
| CAN/9RN | | 11:00 | CT | M/W/F | 7.280 | NINTH REGION NET | | | N9TU | JERRY @ N9TU.COM |
| CAN/9RN | | 19:45 | CT | DAILY | 3.555 | NINTH REGION NET | | | N9CK | N9CK @ FRONTIER.COM |
| CAN/9RN | | 21:30 | CT | DAILY | 3.555 | NINTH REGION NET | | | N9CK | N9CK @ FRONTIER.COM |
| CAN/TEN | IA | 12:30 | CT | M-S | 3.970 | IOWA 75 METER NET | | | KB0L | KB0L @ NETINS.NET |
| CAN/TEN | IA | 18:00 | CT | M-S | 3.970 | IOWA 75 METER NET | | | K0DPL | K0DPL00 @ GMAIL.COM |
| CAN/TEN | IA | 18:00 | CT | SU | 3.970 | IOWA TRAFFIC AND EMERGENCY NET | | | WA0UIG | WA0UIG @ GMAIL.COM |
| CAN/TEN | IA | 18:30 | CT | DAILY | 3.560 | IOWA TALL CORN NET – TLCN (CW) | | | WB0B | |
| CAN/TEN | IA | 19:00 | CT | T | 3.5585 | IOWA ARES DIGITAL NET | | OLIVIA 8/500, 1500 HZ WATERFALL | AE5EI | AE5EI @ OUTLOOK.COM |
| CAN/TEN | IA | 21:00 | CT | M/W/F | 3.560 | IOWA TALL CORN NET – TLCN (CW) | | | AE5EI | AE5EI @ OUTLOOK.COM |
| CAN/TEN | KS | 06:45 | CT | M/W/F | 3.920 | KANSAS PHONE NET | | | K0RCJ | K0RCJ @ MAIL.COM |
| CAN/TEN | KS | 08:00 | CT | S/SU | 3.920 | KANSAS PHONE NET | | | K0RCJ | K0RCJ @ MAIL.COM |
| CAN/TEN | KS | 18:30 | CT | DAILY | 3.920 | KANSAS SIDEBAND NET | | | K0RCJ | K0RCJ @ MAIL.COM |
| CAN/TEN | KS | 19:00 | CT | DAILY | 3.547 | KANSAS CW NET | | | NB0Z | |
| CAN/TEN | KS | 22:00 | CT | DAILY | 3.547 | KANSAS CW NET | | | NB0Z | |
| CAN/TEN | MB | 08:30 | CT | DAILY | 3.743 | MANITOBA WEATHER NET | | | | |
| CAN/TEN | MB | 19:00 | CT | DAILY | 3.747 | MANITOBA WEATHER NET | | | | |
| CAN/TEN | MN | 09:00 | CT | M-S | 3.925 | PICO NET | | | | |
| CAN/TEN | MN | 12:00 | CT | DAILY | 3.860 | MINNESOTA NOON PHONE NET | | | N0YR | N0YR @ ARRL.NET |
| CAN/TEN | MN | 16:00 | CT | M-F | 3.925 | PICO NET (WINTERS ONLY) | | | | |
| CAN/TEN | MN | 17:30 | CT | DAILY | 3.860 | MINNESOTA SECTION PHONE NET | | | WO0A | |
| CAN/TEN | MN | 18:45 | CT | DAILY | 3.568 | MINNESOTA SECTION CW NET | | | K0WPK | K0WPK @ ARRL.NET |
| CAN/TEN | MO | 17:45 | CT | DAILY | 3.963 | MISSOURI TRAFFIC NET | | | KF4MXF | BCC102 @ YAHOO.COM |
| CAN/TEN | MO | 18:30 | CT | DAILY | 3.585 | MISSOURI SECTION NET | | | K9ZTV | K9ZTV @ SOCKET.NET |
| CAN/TEN | MO | 21:45 | CT | DAILY | 3.585 | MISSOURI SECTION NET | | | K9ZTV | K9ZTV @ SOCKET.NET |
| CAN/TEN | ND | 08:30 | CT | M-S | 3.935 | NORTH DAKOTA ROAD & WEATHER NET | | | ND0CW | ND0CW @ SRT.COM |
| CAN/TEN | ND | 18:30 | CT | DAILY | 3.937 | DAKOTA AMATEUR TRAFFIC ASSOCIATION | | 17:00 IN WINTER | ND0CW | ND0CW @ SRT.COM |

RADIO-RELAY INTERNATIONAL AFFILIATED & NON-AFFILIATED TRAFFIC NETS REVISED JUN. 3, 2024

| AREA/RGN | STATE | TIME | TZ | DAYS | FREQ | NET | COVERAGE | NOTES | MGR | MGR EMAIL |
|---|---|---|---|---|---|---|---|---|---|---|
| CAN/TEN | NE | 07:00 | CT | M-S | 3.950 | WEST NEBRASKA NET | | | K0RRL | K0RRL @ YAHOO.COM |
| CAN/TEN | NE | 07:30 | CT | DAILY | 3.982 | NEBRASKA MORNING PHONE NET | | | KA0DOC | KA0DOC @ GMAIL.COM |
| CAN/TEN | NE | 12:30 | CT | DAILY | 3.982 | NEBRASKA CORNHUSKER NET | | | K0CWW | JB54733 @ ALLTEL.NET |
| CAN/TEN | NE | 13:00 | CT | DAILY | 7.282 | NEBRASKA 40 METER SIDEBAND NET | | | N6RSH | N6RSH @ ARRL.NET |
| CAN/TEN | NE | 18:30 | CT | DAILY | 3.982 | NEBRASKA STORM NET | | | AG0L | RVRDALE @ YAHOO.COM |
| CAN/TEN | NE | 19:00 | CT | M-F | 3.540 | NEBRASKA CW TRAFFIC NET | | | AA0W | CLARK78 @ NNTC.NET |
| CAN/TEN | SD | 12:15 | CT | M-S | 3.870 | SOUTH DAKOTA NQJ NOON NET | | | W0CLS | W0CLS @ MITCHELLTELECOM.NET |
| CAN/TEN | SD | 18:00 | CT | DAILY | 3.860 | SOUTH DAKOTA NEO EVENING NET | | | WA0ZWZ | MOOREG954 @ GMAIL.COM |
| CAN/TEN | SK | 09:00 | CT | DAILY | 3.753 | SASKATCHEWAN WEATHER NET | | | | |
| CAN/TEN | SK | 19:00 | CT | DAILY | 3.735 | SASKATCHEWAN WEATHER NET | | | | |
| CAN/TEN | | 10:00 | CT | M/W/F | 7.280 | TENTH REGION NET | | | KC0YNS | KC0YNS @ YAHOO.COM |
| CAN/TEN | | 19:45 | CT | DAILY | 3.562 | TENTH REGION NET | | | | |
| CAN/TEN | | 21:30 | CT | DAILY | 3.562 | TENTH REGION NET | | | | |
| CAN | | 12:30 | CT | M-S | 7.2535 | CENTRAL STATES TRAFFIC NET | | | | |
| CAN | | 14:30 | CT | M/W/F | 14.345 | CENTRAL AREA NET | | ALT. 14.340, 14.325 & 7.243 | N9TU | JERRY @ N9TU.COM |
| CAN | | 20:30 | CT | DAILY | 3.552 | CENTRAL AREA NET | | ALT. 7.052, 3.595 & 7.108 | | |
| WAN/6RN | CA | 02:00 | Z | DAILY | 3.975 | GOLDEN BEAR TRAFFIC NET | | WINTER AT 03:00 Z | | |
| WAN/6RN | CA | 18:30 | PT | R | 3.893 | CONTRA COSTA CO. EMCOMM PREPAREDNESS NET | | ALT. 3.888 | NI6A | RAINBOWBODY @ LIVE.COM |
| WAN/6RN | CA | 19:00 | PT | DAILY | 3.533 | NORTHERN CALIFORNIA NET | | | WB6UZX | |
| WAN/6RN | CA | 19:00 | PT | M-F | 3.542 | SOUTHERN CALIFORNIA NET | | | KI6BHB | DHB @ DB-BIS.NET |
| WAN/6RN | CA | 20:00 | PT | T/R/S | 146.730/107.2 | SAN DIEGO COUNTY TRAFFIC NET | SAN DIEGO, CA | | KD6YJB | KD6YJB @ ARRL.NET |
| WAN/6RN | CA | 20:30 | PT | T/R | VAR. UHF | LOS ANGELES NET | LA SECTION | EMAIL NET MGR FOR FREQS | K6HTN | KATEHUTTON @ GMAIL.COM |
| WAN/6RN | CA | 21:00 | PT | DAILY | 3.533 | NORTHERN CALIFORNIA NET | | | WB6UZX | |
| WAN/6RN | CA | 21:00 | PT | M/W/F | 146.385/146.2 | SOUTHERN CALIFORNIA NET | | | KI6BHB | DHB @ DB-BIS.NET |
| WAN/6RN | | 15:30 | PT | T/R | 7.275 | SIXTH REGION NET | | | | |
| WAN/6RN | | 19:45 | PT | DAILY | 3.5775 | SIXTH REGION NET | | | K6HTN | KATEHUTTON @ GMAIL.COM |
| WAN/6RN | | 21:30 | PT | DAILY | 3.5775 | SIXTH REGION NET | | | K6HTN | KATEHUTTON @ GMAIL.COM |
| WAN/7RN | AK | 03:00 | Z | DAILY | 3.920 | SNIPERS NET | | | | |
| WAN/7RN | AK | 04:00 | Z | R | 146.880/103.5 | THE INTERIOR NET | FAIRBANKS, AK | ALT. 146.940/103.5 | | |
| WAN/7RN | AK | 05:00 | Z | DAILY | 7.093 | ALASKA BUSH NET | | | | |
| WAN/7RN | AK | 17:30 | Z | M-F | 14.292 | ALASKA-PACIFIC EMERGENCY PREPAREDNESS NET | | 16:30 IN SUMMER | KL7IQQ | ALASKANUDSON @ GMAIL.COM |
| WAN/7RN | AK | 18:00 | Z | DAILY | 14.115 | ALASKA-PACNW CW TRAFFIC WATCH | | | AL7N | AL7N @ WINLINK.ORG |
| WAN/7RN | BC | 02:00 | Z | DAILY | 3.652 | BRITISH COLUMBIA EMERGENCY NET | | | VE7XLH | VE7CYY @ TELUS.NET |
| WAN/7RN | BC | 02:30 | Z | DAILY | 3.716 | BRITISH COLUMBIA YUKON SECTION TRAFFIC NET | | | VE7WJ | VE7CYY @ TELUS.NET |
| WAN/7RN | BC | 19:30 | PT | T | 147.360/110.9 | SURREY EMERGENCY PROGRAM AMATEUR RADIO | SURREY, BC | | | |
| WAN/7RN | ID/MT | 02:00 | Z | DAILY | 3.937 | IDAHO FARM NET | | | N7KFL | |
| WAN/7RN | ID/MT | 02:45 | Z | DAILY | 3.572 | IDAHO-MONTANA NET (SLOW) | | | WB6N | 8008RET @ GMAIL.COM |
| WAN/7RN | ID/MT | 03:00 | Z | DAILY | 3.572 | IDAHO MONTANA NET | | | AI7H | AI7H @ ARRL.NET |
| WAN/7RN | MT | 00:30 | Z | DAILY | 3.910 | MONTANA TRAFFIC NET | | | N7CMJ | FLYFISH @ MOTANASKY.US |
| WAN/7RN | OR | 17:30 | PT | DAILY | 3.920 | BEAVER STATE NET | OR SECTION | RRI, ARRL ARES NET | KK7TN | KK7TN @ WINLINK.ORG |
| WAN/7RN | OR | 18:00 | PT | DAILY | 3.980 | OREGON EMERGENCY NET | | INDEPENDENT NET | AG7K | MROENCONTACT @ GMAIL.COM |
| WAN/7RN | OR | 18:05 | PT | DAILY | 145.270/ | NORTHWEST OREGON TRAFFIC AND TRAINING NET | PDX AREA | RRI, ARRL LOCAL NET | W7EES | DAVE.W7EES @ GMAIL.COM |
| WAN/7RN | OR | 18:30 | PT | DAILY | 3.566 | OREGON SECTION NET | OR SECTION | RRI, ARRL SECTION NET | WS7L | CLAWSONCW @ GMAIL.COM |
| WAN/7RN | WA | 07:30 | PT | DAILY | 3.563 | WASHINGTON STATE NET | | ALT. 7.038 & 1.818 | N7YRT | GUY016 @ CENTURYTEL.NET |
| WAN/7RN | WA | 17:30 | PT | DAILY | 146.820/103.4 | PUGET SOUND TRAFFIC SYSTEM NET | | | | |
| WAN/7RN | WA | 18:00 | PT | DAILY | 3.975 | WASHINGTON STATE ARTS | | | | |
| WAN/7RN | WA | 18:45 | PT | DAILY | 3.563 | WASHINGTON STATE NET | | ALT. 7.038 & 1.818 | N7YRT | GUY016 @ CENTURYTEL.NET |
| WAN/7RN | WA | 19:00 | PT | DAILY | 3.960 | COLUMBIA BASIN NET | | | | |
| WAN/7RN | WA | 21:45 | PT | DAILY | 3.563 | WASHINGTON STATE NET | | ALT. 7.038 & 1.818 | | |
| WAN/7RN | WA/OR | 18:30 | PT | DAILY | 3.945 | NW SINGLE SIDEBAND NET | | | | |
| WAN/7RN | | 09:45 | PT | DAILY | 7.225 | SEVENTH REGION NET | | ALT. 3.925 | W7LQV | DIANEW7LQV @ JUNO.COM |
| WAN/7RN | | 15:15 | PT | DAILY | 7.225 | SEVENTH REGION NET | | ALT. 3.925 | W7LQV | DIANEW7LQV @ JUNO.COM |
| WAN/7RN | | 18:30 | PT | DAILY | 3.569 | SEVENTH REGION NET | | ALT. 7.042/1.860 | W7IZ | W7IZ.SCOTT @ GMAIL.COM |
| WAN/7RN | | 21:20 | PT | DAILY | 3.565 | SEVENTH REGION NET | | ALT. 7.048 | | |
| WAN/7RN | | 22:00 | PT | DAILY | 3.569 | SEVENTH REGION NET | | ALT. 7.042/1.860 | W7IZ | W7IZ.SCOTT @ GMAIL.COM |
| WAN/TWN | AZ | 19:00 | MT | DAILY | 3.986 | ARIZONA TRAFFIC & EMERGENCY NET | | WINTER AT 17:30 MST | KF7GC | KF7GC @ YAHOO.COM |
| WAN/TWN | AZ/NM | 01:30 | Z | DAILY | 147.160/141.3 | SAGUARO NTS NET | | | W7FSC | W7FSC @ TUTANOTA.COM |
| WAN/TWN | AZ/NM | 18:30 | MT | DAILY | VAR. VHF/UHF | SAGUARO NTS NET | | SEE WWW . EAARS . COM | W7FSC | W7FSC @ TUTANOTA.COM |
| WAN/TWN | CO | 08:00 | MT | SU | 3.810 | COLORADO ARES HF NET | | | | |
| WAN/TWN | CO | 19:00 | MT | DAILY | VAR. VHF/UHF | COLORADO TRAFFIC NET | | ALT. 147.540/156.7, 441.225/156.7, 3.989, 7.230 | WA3QLW | WA3QLW @ GMAIL.COM |
| WAN/TWN | CO | 19:30 | MT | DAILY | 3.989 | COLORADO COLUMBINE NET | | | | |
| WAN/TWN | NM | 06:30 | MT | DAILY | 3.939 | NEW MEXICO BREAKFAST CLUB NET | | | | |
| WAN/TWN | NM | 01:00 | Z | DAILY | 3.939 | NEW MEXICO ROADRUNNER NET | | | KF5MEF | DKWOOD163 @ YAHOO.COM |
| WAN/TWN | UT | 12:30 | MT | DAILY | 7.272 | BEEHIVE UTAH NET | | | | |
| WAN/TWN | UT | 19:30 | MT | DAILY | 3.570 | UTAH CODE NET (SLOW) | | | | |

# RRI NATIONAL EMERGENCY COMMUNICATIONS RESPONSE GUIDELINES

RADIO RELAY INTERNATIONAL — AFFILIATED & NON-AFFILIATED TRAFFIC NETS — REVISED JUN. 3, 2024

| AREA/RGN | STATE | TIME | TZ | DAYS | FREQ | NET | COVERAGE | NOTES | MGR | MGR EMAIL |
|---|---|---|---|---|---|---|---|---|---|---|
| WAN/TWN | WY | 00:45 | Z | DAILY | 3.9235 | WYOMING COWBOY NET | | | | |
| WAN/TWN | | 07:00 | MT | DAILY | 3.9235 | TWELFTH REGION NET | | | WB7S | WB7S @ ARRL.NET |
| WAN/TWN | | 12:00 | MT | DAILY | 7.240 | HIGH NOON NET | | | N5FLD | N5FLD @ AOL.COM |
| WAN/TWN | | 16:00 | MT | M-S | 7.233 | TWELFTH REGION NET | | | | |
| WAN/TWN | | 16:00 | MT | SU | 7.228 | TWELFTH REGION NET | | | | |
| WAN/TWN | | 20:30 | MT | DAILY | 7.0625 | TWELFTH REGION NET | | | | |
| WAN/TWN | | 20:30 | MT | DAILY | 3.570 | TWELFTH REGION NET | | ALT. 7.063 | NA7G | NA7G @ ARRL.NET |
| WAN/TWN | | 22:00 | MT | DAILY | 3.570 | TWELFTH REGION NET | | ALT. 7.063 | NA7G | NA7G @ ARRL.NET |
| WAN | | 10:30 | PT | DAILY | 14.345 | WESTERN AREA NET | | | | |
| WAN | | 11:30 | PT | DAILY | 3.970 | NOONTIME NET | | ALT. 7.265 | W7TVA | |
| WAN | | 10:00 | PT | DAILY | 7.2835 | NOONTIME NET | | ALT. 7.265 | KV7L | KV7L @ LIVE.COM |
| WAN | | 14:30 | PT | MW/F | 14.345 | WESTERN AREA NET | | | KOMEL | NTS.KOMEL.CO @ GMAIL.COM |
| WAN | | 19:00 | PT | DAILY | 3.540 | WEST COAST NET (SLOW) | | | | |
| WAN | | 20:30 | PT | DAILY | 3.552 | WESTERN AREA NET | | ALT. 7.052 | K6YR | K6YR @ AOL.COM |
| | | 01:00 | Z | DAILY | 3.985 | 75M INTERSTATE | | COVERS EAN & CAN | | |
| | | 03:00 | Z | DAILY | 3.8575 | MISSION TRAIL NET | | | | |
| | | 07:00 | ET | DAILY | 14.300 | INTERCONTINENTAL TRAFFIC NET | | | K4ZQ | |
| | | 07:00 | ET | DAILY | 7.057 | WATERWAY CW NET | | | W9UCR | RWLADE @ GMAIL.COM |
| | | 07:30 | ET | DAILY | 7.052 | AMATEUR RADIO TELEGRAPH SOCIETY | | | | |
| | | 07:45 | ET | DAILY | 7.268 | WATERWAY NET | | | | |
| | | 12:00 | ET | DAILY | 14.300 | MARITIME MOBILE NET | | | K4EDX | |
| | | 21:00 | ET | T/R | 3.682 | FISTS SLOW | | | | |
| IATN | | NIGHTS | | DAILY | 3.563 | NAA | | | | |
| IATN | | NIGHTS | | DAILY | 3.845 | NAB | | | | |
| IATN | | NIGHTS | | DAILY | 7.115 | NBA | | | | |
| IATN | | NIGHTS | | DAILY | 7.232 | NBB | | | | |
| IATN | | ALL DAY | | DAILY | 10.115 | NCA | | | | |
| IATN | | DAYS | | DAILY | 14.115 | NDA | | | | |
| IATN | | DAYS | | DAILY | 14.345 | NDB | | | | |
| IATN | | DAYS | | DAILY | 18.115 | NEA | | | | |
| IATN | | DAYS | | DAILY | 21.115 | NFA | | | | |
| IATN | | DAYS | | DAILY | 21.345 | NFB | | | | |
| IATN | | DAYS | | DAILY | 28.115 | NGA | | | | |
| 1RN - | CT, MA, ME, NH, RI, VT | | | | | | | | | |
| 2RN - | NJ, NY | | | | | | | | | |
| 3RN - | DE, MD, PA | | | | | | | | | |
| 4RN - | FL, GA, NC, PR, SC, VA, VI | | | | | | | | | |
| 5RN - | AL, AR, LA, MS, OK, TN, TX | | | | | | | | | |
| 6RN - | CA, HI, NV | | | | | | | | | |
| 7RN - | AB, AK, BC, ID, MT, OR, WA | | | | | | | | | |
| 8RN - | MI, OH, WV | | | | | | | | | |
| 9RN - | IL, IN, KY, WI | | | | | | | | | |
| TEN - | IA, KS, MB, MN, MO, ND, NE, SD, SK | | | | | | | | | |
| ECN - | LB, NB, NF, NS, ON, PE, PQ | | | | | | | | | |
| TWN - | AZ, CO, NM, UT, WY | | | | | | | | | |

ALL ADDITIONS, DELETIONS OR CHANGES SHOULD BE SENT TO N2NOV @ NYC-ARECS.ORG

# APPENDIX J
## Memorandum of Agreement
## Radio Relay International and AUXCOMM USA

**MEMORANDUM OF REFERENCE FOR COOPERATION BETWEEN AUXCOMM USA AND RADIO RELAY INTERNATIONAL**

THIS AGREEMENT is between AUXCOMM USA and Radio Relay International ("RRI"), together herein the "Parties."

## BACKGROUND

*Whereas* AUXCOMM USA is a public service organization of private radio operators which provides radio communications to local communities during emergencies;

*Whereas* AUXCOMM USA specializes in local emergency communications using multiple radio services including, but not necessarily limited to Amateur Radio, GMRS, FRS, government, and other two-way radio methods;

*Whereas* AUXCOMM USA coordinates efforts with other emergency organizations including local emergency services agencies, FEMA, NOAA, RACES, ARES, NVOAD, the Salvation Army and the American Red Cross, amongst others;

*Whereas* AUXCOMM USA accomplishes these goals through teams located throughout the United States;

*Whereas* RRI is a non-profit, tax exempt corporation specializes in infrastructure functions, including the development and maintenance of an International messaging system built on proven principles of network management and standardized message formatting;

*Whereas* RRI is comprised of FCC-licensed amateur radio operators who are efficient and effective in providing emergency communications particularly in the form of message handling and formal radio traffic operations including training of such operators;

*Whereas* RRI owns, manages and operates the proprietary "National SOS Radio Network" and "Neighborhood Hamwatch (Radio Watch)" affiliated programs;

*Whereas* it is contemplated that cooperation between the two entities would benefit the public, serve to provide more effective training for AUXCOMM USA and RRI participants, and better serve the public at large in times of emergencies;

Now, Therefore, the Parties formalize terms of reference and cooperation

between them to advance their similar goals and enhance the services provided to the public by both organizations as follows:

1. AUXCOMM USA agrees to:

   A. Provide local points of contact between RRI personnel and local AUXCOMM USA unit personnel to facilitate planning and cooperation in the event of local, regional or national emergencies requiring volunteer emergency communications assistance to render to the public or to such governmental agencies requesting such auxiliary resources for emergency communications.

   B. Familiarize volunteers with the structure and purpose of the radio gram message format, the radiogram-ICS 213 message format, and specialized message formats including their components.

   C. Collaborate with RRI to ensure that local units regularly interface with RRI personnel and networks to ensure operational readiness in time of emergency.

   D. Include periodic RRI information as deemed appropriate by the editor in their documentation, newsletters or bulletins.

   E. Provide a candidate acceptable to both AUXCOMM USA and RRI to represent AUXCOMM USA on the RRI Emergency Communications Committee.

   F. Collaborate with RRI to establish and promulgate standards for training, vetting, and functional capabilities required to efficiently and reliably interact with RRI networks.

2. RRI Agrees to:

   A. Provide local points of contact in the form of RRI registered radio operators who will be available to assist local AUXCOMM USA units with technical and operating advice, liaison and message transfer to and from RRI national messaging layers.

   B. Provide technical and training support to local AUXCOMM USA units in the form of documents, field manuals, power point presentations and other guidance needed to facilitate access to the RRI national messaging layer and enhance the AUXCOMM USA mission.

   C. Include periodic AUXCOMM USA information as deemed appropriate by the editor of the RRI journal, the "QNI Newsletter."

   D. Where appropriate, include local AUXCOMM USA units in the development

of RRI's "National SOS Radio Network" and "Neighborhood Hamwatch" affiliated programs.

E. When practical and based on operational priorities, assist local AUXCOMM USA units in time of emergency by deploying RRI personnel and resources.

3. Both AUXCOMM USA and RRI agree to:

A. Collaborate in the development and execution of schedule emergency exercises which require communications beyond the self-contained, local unit levels.

B. Collaborate in the development of periodic training conferences to be held jointly or separately.

C. In the case that such conferences are held separately, the organization holding such conference will invite the other to have a presence at such training event.

D. Share personnel and resources during major disasters when practical to do so in furtherance of assisting the public in times of disasters requiring auxiliary emergency communications resources.

E. Maintain a local volunteer presence on regularly scheduled radio nets of the cooperating organization to ensure familiarity and improved preparedness of each organization.

F. Agree to retain an emphasis on infrastructure independent survivable methods of communications.

4. The relationship memorialized in this document is revokable at will and terminable for convenience by either Party without cause. The Parties will endeavor to provide a courtesy notice of termination to the other Party giving as much advanced notice as reasonably possible to avoid inconvenience to either Party or to the public.

5. This document is not considered a contract for services but rather is for the convenience of the Parties in planning and preparing to serve the public in a manner or fashion which blends the strengths brought by both Parties in a time of communications emergency and public need.

6. This memorandum is for guidance in cooperation between the Parties.

7. The Parties will reasonably cooperate from time to time in joint publicity by generating joint press releases when and where appropriate. Either Party may continue to generate publicity for their organization and may reference the relationship and cooperation signified by this document.

8. This document is to present guidance in the cooperation sought by the Parties and does not create a legal partnership or joint venture. The cooperation defined in this memorandum is not binding on the other Party.

**Radio Relay International**

By: James Wades

Its: Board Chairman, RRI

Dated: November 28, 2023

**Signature:** Billy Fanska

**Email:** wx0net1@gmail.com

**AUXCOMM USA**

By: Billy Fanska

Its: Director, AUXCOM USA

Dated: November 28, 2023