

Technician License Course Chapter 6

Lesson Plan Module 14 –
Communicating with Other Hams – Part 2
Nets, Emergency Communications,
Special Modes and Techniques



Nets

- Net is short for “Network”
 - Evolved over the years to share and exchange information in an organized and efficient way
- Social nets
- Traffic nets
- Emergency and public service nets



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Traffic Nets

- *Traffic* refers to formal messages that are relayed via Amateur Radio
 - Radiogram structured to ensure accuracy
- National Traffic System (NTS)
 - Procedures
 - Accountability



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Emergency and Public Service Nets

- Public service nets – training for emergency nets
 - Training for ham operators as well as emergency groups and managers supported by Amateur Radio
- Emergency nets



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Net Structure

- Net Control Station (NCS)
 - Traffic cop who controls the flow of information
- Check-in and check-out procedures
 - Priority/Emergency access to Net Control
- Communications discipline vital
 - Learn and follow procedures
 - Speak only when directed, and only to whom directed
 - Follow through with your commitments



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The Radiogram

The American Radio Relay League RADIOGRAM Via Amateur Radio							
Number	Precedence	EX	STATION OF ORIGIN	CLASS	PLACE OF ORIGIN	Time Filed	Date
207	P	E	W1FN	10	LEBANON NH	1200 EST	JAN 4
To: MARK DOE RED CROSS DISASTER OFFICE 123 MAIN ST RUTLAND VT 05701							
Telephone Number: 802-555-1212							
NEED MORE COTS AND SANITATION KITS AT ALL FIVE SHELTERS							
JOAN SMITH SHELTER MANAGER							
SEC'D	From	Date	Time	SENT	To	Date	Time
<small>A licensed Amateur Radio Operator, whose address is shown above, handled this message free of charge. As such, messages are handled solely for the pleasure of operating. A "ham" operator can accept no compensation. A return message may be filed with the "ham" delivering this message to you. Further information on Amateur Radio may be obtained from ARRL Headquarters, 225, Main Street, Newington, CT 06111.</small>							



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Supporting Emergency Operations

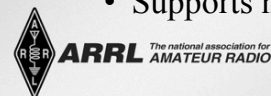
- One of the most important reasons for the existence of Amateur Radio.
- Get involved and use what you have learned.
- Know where you fit in the overall emergency management team.



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Emergency Communications Organizations

- Radio Amateur Civil Emergency Service (RACES).
 - Supports civil emergencies
 - National in scope
- Amateur Radio Emergency Service[®] (ARES[®]).
 - Local and regional in scope
 - Supports non-governmental agencies



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Emergency Communication Tips

- Don't become part of the problem.
- You are a communicator, not a decision or policy maker.
- Don't give out unauthorized information.
- Know your abilities and limitations — keep yourself safe.
- Follow radio discipline and net procedures.
- Protect personal information — Amateur Radio communications is public.



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Emergency Declarations

- FCC may declare a Temporary State of Communications Emergency.
 - Includes details of conditions and rules to be followed.
 - Specifics communicated through web sites and ARRL bulletins, the NTS, and on-the-air.
 - Avoid operating on restricted frequencies unless engaged in relief efforts.



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Making and Answering Distress Calls

- Rule number one – speak in plain language!
- Mayday (voice); SOS (Morse code)
- Identify
- Give location
- State the situation
- Describe assistance required
- Provide other important information



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Tactical Communications

- Tactical Identifiers
 - Facilitate communications
 - Location- or function-specific
 - Transcends operator changes
- FCC ID rules still apply
 - Give your FCC call sign every 10 minutes and when changing operators



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Emergency Equipment

- “Go-kits”
 - Portable Amateur Radio equipment
 - Emergency power sources
 - Personal survival supplies and equipment



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Emergency Communications Training

- If you are going to participate, get training.
- Actively participate in training and drill activities.
 - Nets
 - Public service activities
 - Attend community meetings and get involved in your community.
- Take emergency communication courses.
 - ARRL courses
 - FEMA courses on NIMS and other topics
 - May be required for your participation



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Awards, DXing, Contests

- On-the-air activities provide incentive to get on the radio.
- Learn about propagation as you search for specific stations on various bands.
- Improve operating skills.
- Fun!



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Awards

- WAC
 - Contacting all six inhabited continents
- WAS
 - Contacting 50 states
- VUCC
 - Contacting 100 grid squares on VHF/UHF



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DXing

- Contacting stations far away – a tradition since the first days of radio.
- On HF, usually means contacting stations in other countries.
- On VHF/UHF, means contacting stations outside your normal coverage area.



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Contests

- ARRL Rookie Roundup
- North American QSO Parties (ncjweb.com)
- State QSO Parties
- VHF/UHF Contests
- CQ World Wide DX Contest (a big one!)
- Contest Calendars



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Field Day

- Emergency communications training with a competitive spirit.
- Set up portable station and antenna (in the field, mobile, anywhere!) and make as many contacts as possible.
- Get started with your local club or group – great way to get involved.



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Special Events

- Special Event stations are set up to commemorate some significant local event.
- Usually stations are demonstration stations set up for public display.
- Commemorative certificates are awarded for contacting the stations.



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Radio Direction Finding

- Useful for locating interference or noise sources.
- Works best with a directional antenna.
- “Fox hunting” competitions offer a fun opportunity to learn and practice.
- Good training for search and rescue.



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Amateur Satellites

- OSCAR
 - Orbiting Satellites Carrying Amateur Radio
- Modes
 - FM
 - Analog (SSB and CW)
 - Digital
- International Space Station



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Satellite Terms

- Uplink – Earth stations transmit to satellite
- Downlink – Satellite transmits to stations on Earth
- Beacon – Signal from satellite with information about satellite operating conditions
- Doppler Shift – Shift in frequency due to relative motion between satellite and Earth station
- LEO – Low Earth Orbit



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Satellite Terms

- Spin fading – caused by rotation of satellite
- Pacsat – packet radio satellite
- Tracking software – gives beam heading and times when satellite is in view
- Mode – bands satellite is using for uplink and downlink (eg Mode U/V = 70 cm uplink, 2 meters downlink)



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Other Special Modes

- Slow Scan TV (SSTV)
 - Sending snap-shot pictures
 - One frame every few seconds
- Amateur TV (ATV)
 - Similar to commercial TV imagery
 - Uses analog TV format (NTSC)



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Other Special Modes

- Radio Control (RC)
 - Telecommand
 - 50 MHz band



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