

HAMPDEN COUNTY RADIO ASSOCIATION

Newly Licensed

Amateur Radio Operator Manual





HAMPDEN COUNTY RADIO ASSOCIATION



Website: [Http://www.hcra.org](http://www.hcra.org)



Facebook: [facebook.com/groups/HampdenCountyRA/](https://www.facebook.com/groups/HampdenCountyRA/)

Letter from our President:

The Hampden County Radio Association (HCRA) and I would like to welcome you to the wonderful hobby of Amateur Radio. Obtaining your license is a big deal. You've spent a lot of time learning the material and practicing for your exam and you've finally done it. Congratulations! Obtaining your license however is just the start to a long, wonderful and sometimes exciting adventure in Amateur Radio. There is still much to learn and there is even much more to do. There is so much that at times it can become overwhelming.

Amateur radio is a gigantic melting pot of people who are into ham radio for various reasons. However, it's up to you to find what your interests are. My suggestion would be to get involved and stay active in amateur radio. That way, you can see what interests you. One of the many ways you can be active is to join an amateur radio club. Through a club, you will learn about the many aspects of amateur radio and what it has to offer on a local, regional, national and international level.

Joining a local club is beneficial in additional ways. You will be supporting local amateur radio and local events sponsored by the club. You will also have an excellent resource of information and a helping hand or two when you need it. You are not alone in this hobby. There are many people who are willing to help out, you just have to ask. Visit: <http://www.hcra.org/ham-radio-help-for-members/> to ask your question online with the HCRA.

The Hampden County Radio Association offers that and more to area Amateur Radio Operators. We're here to help you along in your journey. Personally, I am thankful, because without the HCRA, I would have missed out on many exciting things. HCRA invites you to experience what we're about by offering you a trial membership. You can join in on the meetings, interact with other members and even participate in events. If you like what is going on then you are more than welcome to officially join. Attached is an application to join the HCRA.

A lot of new ham radio operators ask "What now?" The membership of the Hampden County Radio Association has created this guide as a way to help you answer some of the most common questions we hear from new ham radio operators. Hopefully, this guide serves you well.

When you do have questions, contact the board of the HCRA and we will assist you in any way we can. We'll help you get on HF, help you put up antennas, assemble a station and much more. Go to the HCRA website or Facebook page as your next resource and contact members of the board to be put in contact with the correct person.

Once again, Congratulations and welcome to Amateur Radio!

Larry Krainson, W1AST - President of HCRA

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HAMPDEN COUNTY RADIO ASSOCIATION
P.O. Box 562
Agawam, MA 01001



Application for New or Renewal Membership

DATE: ___ / ___ / ___

NAME: _____ CALLSIGN: _____

ADDRESS: _____ LICENSE CLASS: _____

CITY: _____ STATE: _____ ZIP: _____

PHONE: Home (____) _____ - _____ Cell (____) _____ - _____

Work (____) _____ - _____ - ____ext ARRL Member: Yes No

E-mail: _____ @ _____ I don't want to be a member of the HCRA mailing list

Type of application: New Renewal (see below)

If renewal use data already on file?: Yes No

Class of application: Regular Family

Donations are tax deductible!
Thanks!

Please list additional family members (family members at same household are free!)

Name	Call	ARRL Member	e-mail
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	

My interests: (please check all that apply, even if renewing)

<input type="checkbox"/> Alternative Power	<input type="checkbox"/> Digital Modes	<input type="checkbox"/> QRP
<input type="checkbox"/> Antennas	<input type="checkbox"/> DX'ing	<input type="checkbox"/> Satellite
<input type="checkbox"/> Board of Directors	<input type="checkbox"/> Emergency Communication	<input type="checkbox"/> Teaching Ham Classes
<input type="checkbox"/> Club Events	<input type="checkbox"/> Field Day	<input type="checkbox"/> Training (Elmering)
<input type="checkbox"/> Contesting	<input type="checkbox"/> Fox Hunting	<input type="checkbox"/> VHF/UHF
<input type="checkbox"/> CW	<input type="checkbox"/> Kit Building	<input type="checkbox"/> ?

Thoughts for improving 'our' club:

Received by: _____ Date: ___ / ___ / ___

Entered in database by _____ Date: ___ / ___ / ___

Payment received by _____ Date: ___ / ___ / ___

Annual Dues:	\$15.00
Donation:	\$ ____ .00
Total:	\$ ____ .00

Operating Procedures and Etiquette

Manuals and study guides may help you obtain your license but they don't really give you an idea of how you should act when you are on the air. They don't tell you what to do and what not to do. Use the following as helpful suggestions in making your first of many contacts.

The best suggestion would be to listen before you transmit. Listen to other conversations to get an idea of what you need to say and abide by the ethics below:

- Be a good listener. It will help you better organize your thoughts before transmitting.
- Exercise politeness regardless of the circumstances. Whenever you begin to feel that you can't, then stop transmitting.
- Speak clearly and slowly, especially when giving your call sign to someone you have not worked before.
- Make it clear at the end of every transmission which station is expected to transmit next whenever there are more than two stations in the conversation.
- Pause between transmissions. "Quick keying" gives the appearance that other hams are unwelcome in your QSO.
- Develop good operating practices. You will be doing your part in helping to insure the continuance of our long and proud tradition of self-regulation. Moreover, you might just convince someone else to become a ham.

Suggested Equipment

We're often asked by new licensees, "What radio should I get?" That is a tough question due to the varying interests and budget of the operator. We do suggest that new operators get some kind of Handheld Transceiver (HT) as that will allow them to get on the air locally. This could range from \$30 USD for a cheap handheld to hundreds of dollars for the top of the line HT with all the options. Some of the known brands of amateur radio equipment are Baofeng, TYT, Wouxun, Icom, Kenwood, Yaesu, Alinco and there are many more.

Another option would be to purchase equipment that could transmit and receive on the HF bands. This will allow for international communications and HF is usually much more active compared to VHF and UHF depending on your location. However, the equipment is a bit more expensive, but if you keep active in amateur radio, there will be deals that come by often. If you decide to purchase a used radio, be careful and make sure the equipment is in proper working order. Do some online research to see if there are any known issues and what is the average selling price. If possible, bring an experienced operator along with you to confirm that the equipment is in proper working order. Being an HCRA member will give you access to many operators in the area who could help you out.

Please be aware of any possible safety issues that may appear when installing and operating equipment.

Local Frequencies

Now that you have an idea of what to say when you get on the air, once you obtain your call sign, you will be able to get on the air and hopefully establish contact with other amateur radio operators both near and far. Listed below are some area frequencies where you might be able to strike up a conversation.

A more detailed list can be found at www.nerepeaters.com and www.repeaterbook.com (plus app for your phone too).

Frequency	Type	PL	Offset	Sponsor	Notes
144.390	Simplex		None		National APRS Frequency
146.520	Simplex		None		National 2M Calling Frequency
146.940	Rptr	127.3	-.600	MTARA	Located on Mt Tom
146.715	Rptr	100.0	-.600	W1BR	Local CT river valley repeater in Holyoke
146.67	Rptr	127.3	-.600	MTARA	Located in Granville, MA
448.875	Rptr	136.5	-5 Mhz	FCARC	Located in Greenfield, MA
145.13	Rptr	n/a	-.600	AB1RS	Deerfield & surrounding area
146.91	Rptr	162.2	-.600	NOBARC	great coverage from Mt Greylock

Repeaters are radios that are usually placed at higher elevations to help improve the range of your radio. Usually the repeater will listen for any signals on one frequency (input) and will re-transmit the signal onto a different frequency (output) that most people will be listening to. On VHF, the difference between the input and out frequency is usually 600 KHz. On UHF, the difference is usually 5MHz. There are some situations where the offset might change due to frequency availability at the time the repeater was put on-line. Most repeaters need what is known as a "PL" tone to activate the repeater. It's a sub-audio tone that the repeater is listening for in order to activate. This prevents any repeater activation by interference or by non-licensed individuals.

If the other operator is very loud and clear on the input frequency. It's possible to hold the conversation using a simplex frequency instead of the repeater. This would free up use of the repeater to those who do need to use it. There are also simplex repeaters that will record and repeat your message on the same frequency. There are also "nodes" that you can use to talk with people all around the world. These nodes are radios that are hooked up to a computer and use the internet protocol to link to another computer or radio. Such voice over internet protocols are EchoLink and IRLP. There are also many digital formats being used here in the valley which include D-STAR, DMR, P25 and C4FM. Some of these digital modes require a radio that could support the format.

Nets Around Hampden County / Pioneer Valley

An amateur radio “net” is basically a gathering of operators on the air. Most nets are specific to a subject and often meet at a predetermined time on a predetermined frequency.

Depending on the net, it’s the perfect place to introduce yourself to other ham radio operators in the area involved with Amateur Radio. It would be helpful to listen to a net or two to get an idea of how it operates before jumping in.

There are basically two formats of nets: Formal and Informal. Formal nets or directed nets are often moderated by a Net Control Station (NCS). The job of the NCS is to start the net, look for certain stations to check into the net and generally orchestrates and moderates the net. Don’t be surprised if there are different Net Control stations for the same net. These nets are normally moderated and you should not transmit until called upon by the NCS to do so. Normally formal nets would be used for emergency related nets and for Traffic nets used to pass traffic or information.

The other type of net is an Informal net. These nets are not as formal and might lack the protocols you would see or hear being used on other types of nets. The presence of a NCS depends on the net.

Local Nets Around Western Mass

Date	Time (Local)	Net	Type	Freq	Sponsor	Notes:
Mon	19:30	HCRA net	Informal	28.375	HCRA	NCS AA1WH - Techs Welcome
Wed	19:30	Information Net	Semi-Formal	146.940	MTARA	Local ham information
Wed	19:45	Swap Net	Semi-Formal	146.940	MTARA	On Air Swap Meet
Thur	19:30	HCRA Welcome Net	Informal	146.715	HCRA	NCS W1AST—friendly & welcome net for ALL NEW HAMS and HCRA members
Sun	09:30	HF Emergency Net	Formal	3.937	???	Western Mass Emergency Net HF. Various NCS
Sun	09:45	VHF Emergency	Formal	146.940	???	Western Mass Emergency Net VHF. Various NCS

Local Activities

Along with on the air nets, there are also local amateur radio related activities going on in the area.

The HCRA meets the first Friday of each month from September thru June: www.hcra.org

The MTARA meets the third Friday of each month from September thru June: www.mtara.org

NOBARC - The Northern Berkshire Amateur Radio Club: www.nobarc.org

Franklin County Amateur Radio Club: www.fcarc.org

Summits On The Air (SOTA): www.sota.org/uk plus a local following, ask at a HCRA meeting or on the HCRA Facebook page

Skywarn classes and weather activations: www.skywarn.org, Rob Macedo, KD1CY, rmacedo@rcn.com

Guidelines for operating at a public service event: http://www.ctsara.org/operating_public_service.pdf

Western Massachusetts ARRL: <https://wma.arrrl.org/>

Interesting & Useful Ham Radio Links:

ARRL - The American Radio Relay League, publisher of QST: www.arrrl.org

Space Weather: www.spaceweather.com

Space Weather Tutorial: www.spaceacademy.net.au/env/spwx/spwxtute.htm

DMR (Digital Mobile Radio), <http://www.hcra.org/dmr/>

Echolink: www.echolink.org

www.HCRA.org website as a great resource

HCRA FaceBook page: <https://www.facebook.com/groups/HampdenCountyRA>

QRZ.com: look up call letters and more

Eham.com: equipment reviews and much more

Large resource for ham radio: www.k0bg.com

Ham Radio Stores:

Ham Radio Outlet: www.hamradio.com

Gigaparts: www.gigaparts.com

DX Engineering: www.dxengineering.com

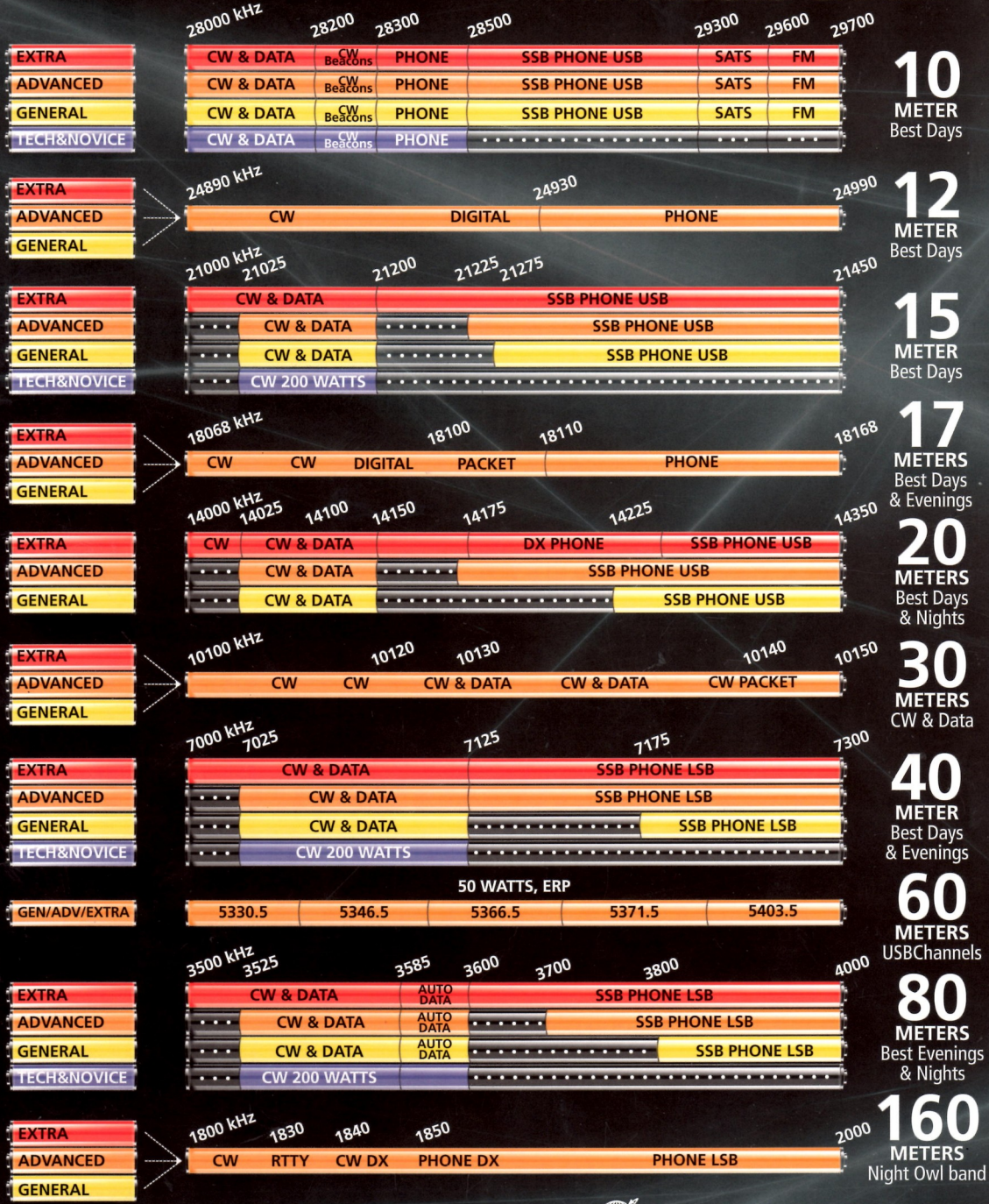
and many others...

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1000 kHz = 1MHz (e 7225 kHz = 7.225 MHz)
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NATO Phonetic Alphabet

When communicating by voice (phone), operators will often use phonetics as a way to identify or sound out words. Using phonetics will ensure that the receiving party will receive the message as sent. It's beneficial when there is trouble with reception caused by noise and near-by stations. Worldwide this Phonetic Alphabet is being used.

A	ALPHA	J	JULIET	R	ROMEO
B	BRAVO	K	KILO	S	SIERRA
C	CHARLIE	L	LIMA	T	TANGO
D	DELTA	M	MIKE	U	UNIFORM
E	ECHO	N	NOVEMBER	V	VICTOR
F	FOXTROT	O	OSCAR	W	WHISKEY
G	GOLF	P	PAPA	X	XRAY
H	HOTEL	Q	QUEBEC	Y	YANKEE
I	INDIA			Z	ZULU

An example "Hello, this is Whiskey One November Yankee" would be more understandable than "Hello, this is W 1 N Y" in some situations. You might hear different phonetics as operators will make up their own but it's suggested to use the ITU/NATO phonetic set during formal nets and emergency related communications to keep uniformity.

Signal Strength

Most often during simplex communications operators will exchange a report with each other so operators will have an understanding in how their signals are received. Operators use what is known as the RST Code. RST stands for Readability, Strength and Tone. Operators will use a numbering system to inform the other operator how strong and clear their signal may or may not be. The T in RST is used on in CW (Morse code) communication where phone communications use just RS

Read		Strength		Tone	
1	Unreadable	1	Faint Signal	1	Sixty Cycle AC
2	Barely readable	2	Very Weak	2	Very Rough AC
3	Readable but difficult	3	Weak	3	Rough Tone
4	Readable with little difficulty	4	Fair	4	Rough Note
5	Perfectly Readable	5	Fairly Good	5	Filtered Rectified
		6	Good	6	Filtered Tone
		7	Moderately Strong	7	Near Pure Tone
		8	Strong	8	Near Perfect Tone
		9	Very Strong	9	Perfect Tone

If you hear someone say "you're 5-9" while on SSB, that means you have a perfectly readable signal that is strong.

Q-Codes

Q-codes are abbreviated meanings mainly used in Morse code (CW) communication. CW operators often use abbreviations and cut words to shorten the amount of characters one has to send. It's also beneficial during difficult to understand communications. Some of Q-Codes have carried over to both digital and voice communications. Here is a list of all the common Q-Codes.

Q-Code	Definition
QRM	I am experiencing man made noise
QRN	I am experiencing atmospheric noise
QRO	I am running high power (more than 100 watts)
QRP	I am running low power (less than 10 watts)
QRT	I am going to end transmissions
QRZ	Who is calling me?
QSL	Can you acknowledge receipt with a card?
QSO	I am in conversation with
QSY	Can you/I am changing to another frequency
QTH	My locations is/what is your location?

Q-Codes are used as part of a statement instead of a question. For Example, "I am running QRP (low power) and my QTH (location) is in Hampden County Massachusetts" or "Thanks for the QSO (contact), you can QSL (acknowledge contact) either by card or online. Thank you but I have to go QRT (stop, going off the air) due to the QRN (noise) on the band today."

UTC Time Conversion

UTC	EDT/AST	CDT/EST	MDT/CST	PDT/MST	PST
0000	2000	1900	1800	1700	1600
0100	2100	2000	1900	1800	1700
0200	2200	2100	2000	1900	1800
0300	2300	2200	2100	2000	1900
0400	0000*	2300	2200	2100	2000
0500	0100	0000	2300	2200	2100
0600	0200	0100	0000	2300	2200
0700	0300	0200	0100	0000	2300
0800	0400	0300	0200	0100	0000
0900	0500	0400	0300	0200	0100
1000	0600	0500	0400	0300	0200
1100	0700	0600	0500	0400	0300
1200	0800	0700	0600	0500	0400
1300	0900	0800	0700	0600	0500
1400	1000	0900	0800	0700	0600
1500	1100	1000	0900	0800	0700
1600	1200	1100	1000	0900	0800
1700	1300	1200	1100	1000	0900
1800	1400	1300	1200	1100	1000
1900	1500	1400	1300	1200	1100
2000	1600	1500	1400	1300	1200
2100	1700	1600	1500	1400	1300
2200	1800	1700	1600	1500	1400
2300	1900	1800	1700	1600	1500
2400	2000	1900	1800	1700	1600

When it comes to making contacts on the air, most often operators will log their contacts into a logbook. Since it's possible to make contacts around the world in different time zones, amateur radio operators will use Coordinated Universal Time (UTC) while logging. This allows easy confirmation (QSL) of contacts. Most often operators will also use the 24hr format. For example 6pm in Massachusetts would be 18:00 local which would be 23:00 EST or 22:00 EDT in UTC. Use the chart below as reference

*= 0000 and 2400 are interchangeable. 2400 is associated with the date of the day ending 0000 with the day just starting

EDT – Eastern Daylight Time

CDT – Central Daylight Time

MDT – Mountain Daylight Time

PDT – Pacific Daylight Time

PST – Pacific Standard Time

AST – Atlantic Standard Time

EST – Eastern Standard Time

CST – Central Standard Time

MST – Mountain Standard Time

Amateur Radio Logbook

Attached to this booklet is a couple pages used for logging. The FCC no longer requires operators to log their contacts but it's still common practice that many operators still do in most cases. Logs are used by operators to confirm that a contact did indeed take place. On HF (3-30Mhz) communications, it's common for operators to exchange postcards with contact details that could be used for certain awards like DXCC and WAS. If there is a computer near, there are many software packages that allow you to use your computer to log to contacts and some will even track your progress.

STATION CALLSIGN: _____

HF Log Sheet

PAGE ___ OF ___

DATE	UTC		FREQ	MODE	POWER	CALLSIGN	QTH	RST		COMMENTS	
	ON	OFF						SENT	RCVD		
											1
											2
											3
											4
											5
											6
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											25

Lingo Used In Amateur Radio

Often you will see and hear terms and phrases that will often leave you scratching your head as to what they mean. Here is a list of the just some of the terms you will hear throughout your adventures in amateur radio.

<u>Term</u>	<u>Meaning</u>	<u>Term</u>	<u>Meaning</u>
73	Best regards		
88	Hugs and Kisses	IGate	Part of the APRS system that connects to the internet
APRS	Automatic Packet Reporting System	Lid	Poor Operator
ARES	Amateur Radio Emergency Services	MUF	Maximum Usable Frequency (used on HF)
ARRL	American Radio Relay League		
ATNO	All Time New One (Contact)	PL	Private Line, uses sub audio tone to activate a repeater (similar to CTCSS)
Barefoot	Communication without an additional amplifier	P25	Project 25 / APCO-25 Digital Mode
CQ	Calling any station (CQ This is KC1XYZ)	Sat	Satellite Communications
CQ DX	Calling any station outside my country	SSB	Single Side Band (1/2 AM carrier)
CW	Continuous Wave (i.e. Morse Code)	SSTV	Slow Scan Television
DE	"This Is". Mostly used in CW/Digital	VHF	Very High Frequency (30-300Mhz)
DFQ	Dead Full Quieting - Excellent signal (used most often on FM VHF)	UHF	Ultra High Frequency (300-3000Mhz)
D-STAR	Digital modulation mode		
DMR	Digital Mobile Radio (Digital Modulation mode)		
DX	Distant Station (Usually another country or distant island)		
Elmer	Teacher, Mentor		
EME	Earth Moon Earth communications		
EmComm	Emergency Communications		
Hamfest	Amateur Radio Festival / Flea Market		
HF	High Frequency (3-30Mhz)		
HT	Handheld Transceiver		

