

Note: We will be recording all Bootcamp Sessions. Anyone not wishing to be recorded should mute their video or disconnect.

UTC
23:31

Net Status and Control
Net: Nashua ARC 2m Net-411MO-EchoLink
Operator: AC1DC-JAMEY Frequency: 146.730 MHz Mode: FM Band: 2m NCS: AB1BY Logger: AC1DC
Close Net Stop Logging AIM Window View Monitors Log Contact

Net Activity

Check-ins

#	Call Sign	M/P	Preferred Name	State	Member Id	Remarks	City	Name
1	AB1BY		Abby	NH			Nashua	Abigail J Finchum
2	AC1DC		Jamey	NH			Nashua	James W Finchum
3								
4								
5								
6								
7								
8								
9								
10								

N1MO-N1IMN Repeater System Access Info:

Brookline, NH	53.410	Minus offset PL 88.5
	146.130	Remote Receiver for 146.73 Minus offset PL 151.4
Derry, NH:	146.130	Remote Receiver for 146.73 Minus offset PL 127.3
Goffstown, NH	224.500	Minus offset PL 88.5
Hollis, NH:	146.730	Minus offset PL 88.5
	443.500	Plus offset PL 88.5
Nashua, NH	448.825	Minus offset PL 88.5
Peterborough, NH	449.375	Minus offset PL 88.5
Pittsfield, NH	146.790	Minus offset PL 88.5
	442.150	Plus offset PL 88.5
Rindge, NH	147.195	Plus offset PL 88.5

EchoLink Node: N1MO-R

Nashua
Area Radio
Society

N1FD

www.n1fd.org

Abby - AB1BY

MAKING CONTACTS WITH REPEATERS

Ham Bootcamp
Fall 2023

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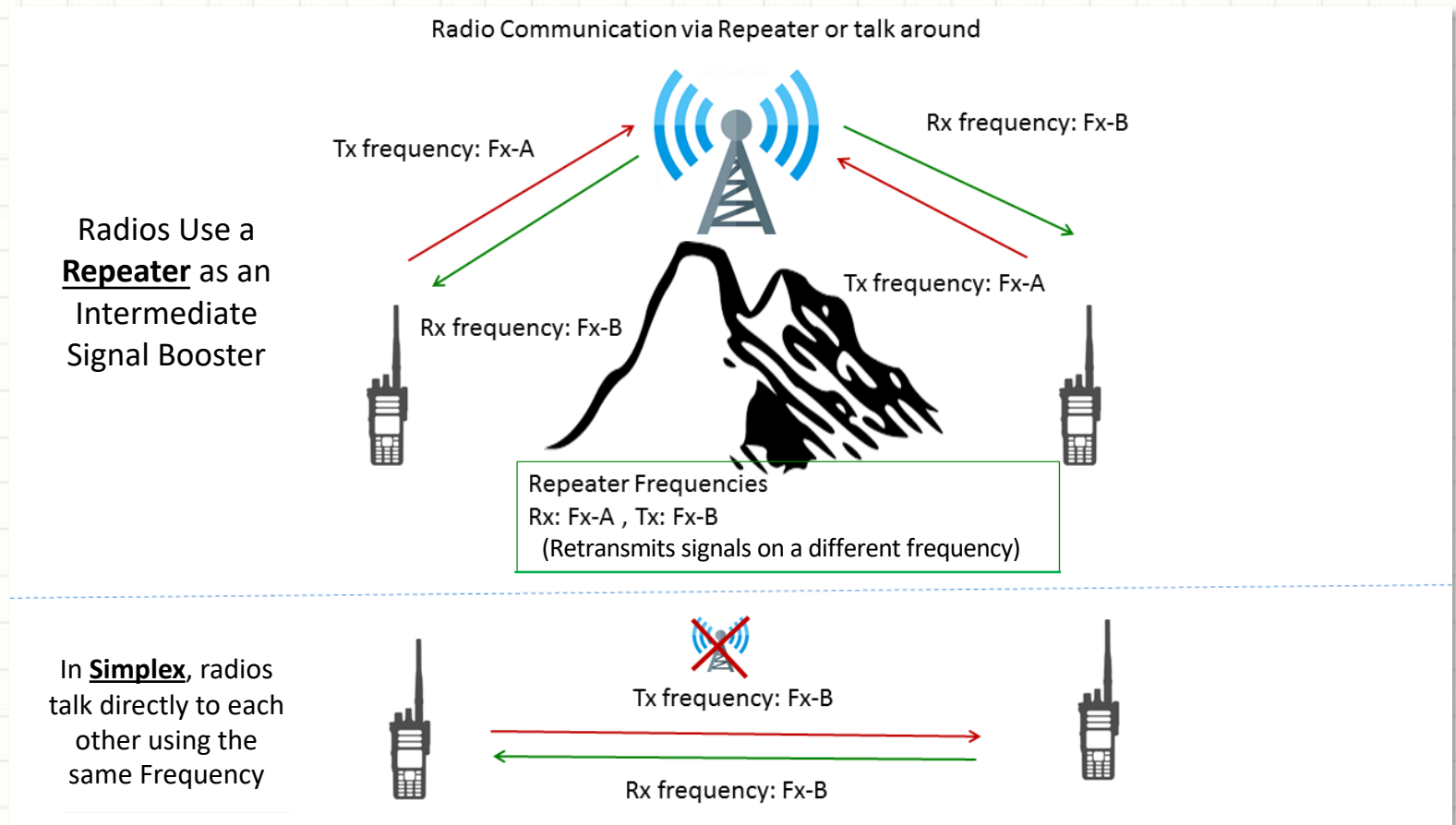
What is a Repeater?

- A Transmitter, Receiver, and a good Antenna
- Receives transmissions from Ham portable, mobile, and base stations
- Amplifies and retransmits them on a different frequency
 - Using higher power and a good antenna
- Repeaters enable your radio to cover a much larger area than you could alone
- Repeaters may handle Analog FM Voice, Digital Voice or a mix of both
 - Most contacts are still made using Analog FM mode
 - Digital Radios are \$ and probably not necessary when you are starting out



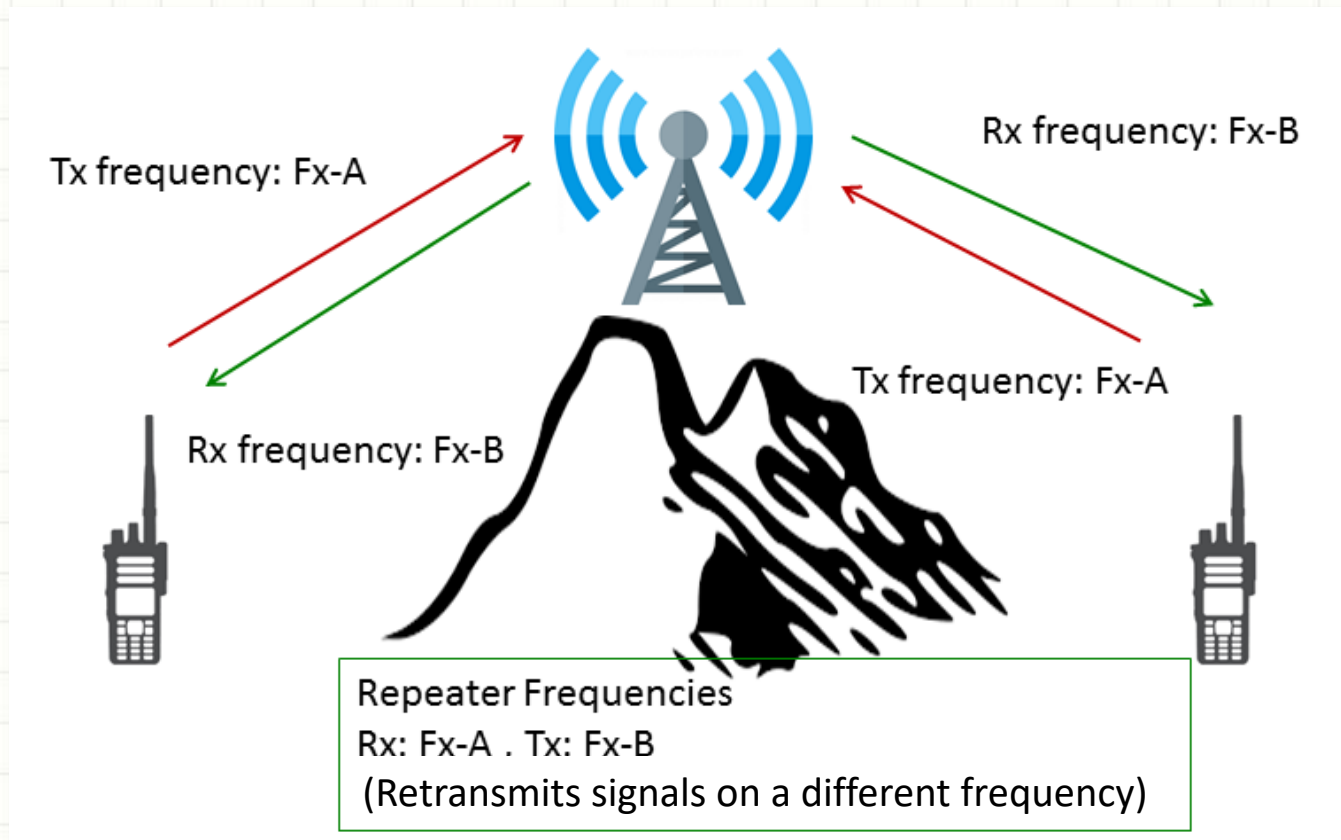
How a Repeater Works with Your Radio

Communicating via Repeaters vs. Simplex (or direct)



- Radios must be programmed to transmit on the Repeater's Input Frequency and to receive on the Repeater's Output Frequency
 - Radio changes frequency when we use PTT to go from Rx to Tx
 - Radio will likely also need to send an Access or PL Tone to use a repeater

Programming Your Radio to Work with a Repeater



Program Frequencies that YOUR RADIO will use to Access Repeaters

Memory Name	Rx Freq (Fx-B)	Offset	Tx Freq (Fx-A)	PL Access Tone	Notes
Hollis-2m	<u>146.730</u> MHz	<u>Minus</u> (600 KHz)	146.130 MHz	<u>88.5</u> Hz	Local 2m FM Repeater
Hollis-70cm	<u>443.500</u> MHz	<u>Plus</u> (5 MHz)	448.500 MHz	<u>88.5</u> Hz	Local 70cm FM Repeater
Pepperl-220	<u>224.640</u> MHz	<u>Minus</u> (1.6 MHz)	223.040 MHz	<u>None</u>	Local 220 Repeater

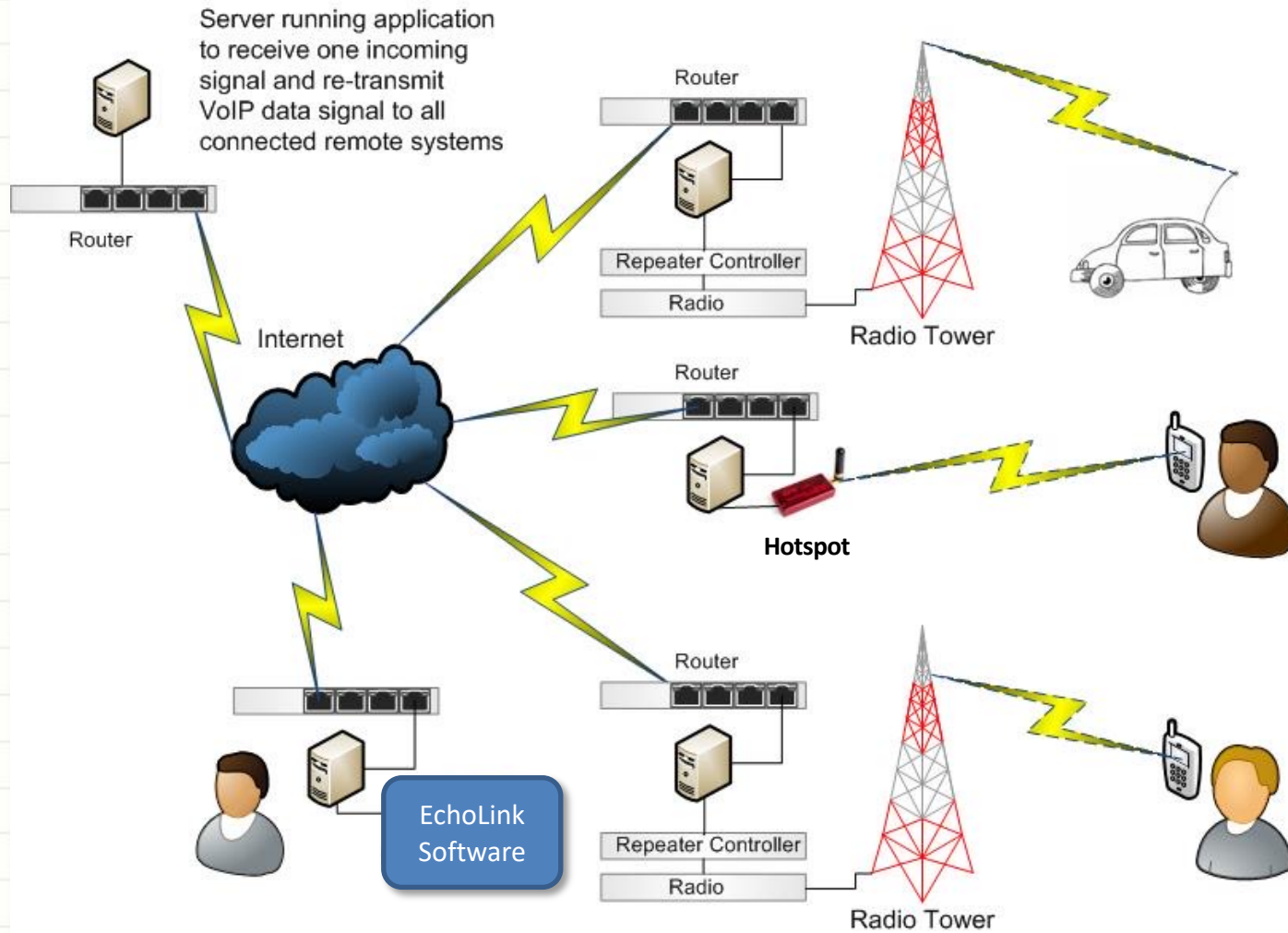
PL Tones and Squelch

- Most repeaters require your radio to send a sub-audible tone to turn them on
 - Called a PL Tone
 - Enables frequency reuse between nearby repeaters
- What is Squelch?
 - Squelch turns off the receiver in your radio when no signal is present
 - This quiets the noise on an idle FM channel
- Most repeaters will pass the PL tone they hear through to their output
- Most modern radios can use this tone to control the squelch function
 - Use this feature when you can to make using your radio more enjoyable



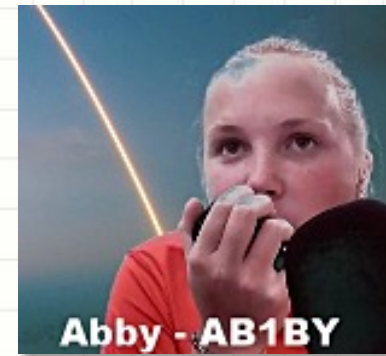
PL TONE FREQUENCY (Hz)					
67.0	69.3	71.9	74.4	77.0	79.7
82.5	85.4	88.5	91.5	94.8	97.4
100.0	103.5	107.2	110.9	114.8	118.8
123.0	127.3	131.8	136.5	141.3	146.2
151.4	156.7	159.8	162.2	165.5	167.9
171.3	173.8	177.3	179.9	183.5	186.2
189.9	192.8	196.6	199.5	203.5	206.5
210.7	218.1	225.7	229.1	233.6	241.8
250.3	254.1	—	—	—	—

Repeater Linking



- When Repeaters are linked, anything received by one repeater is retransmitted by all repeaters in the network
- This can increase repeater coverage area considerably
- Many networked repeater systems also have an EchoLink port, enabling access via the Internet from PCs and Smart Phones

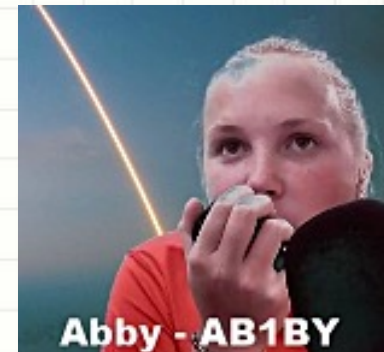
Basics of a Repeater or Simplex Contact



- **Announce that you are listening**
 - “AB1OC Listening” (Phonetics are not required)
- **Responding to a call from someone else**
 1. W1AKI: AB1OC, this is W1AKI. My name is Aron.
 2. **AB1OC: W1AKI, this is AB1OC, my name is Fred. Hello Aron.**
 3. W1AKI : Hello Fred, AB1OC; < Aron begins conversation with some info or an open-ended question for Fred...>
 4. **<enjoy a nice conversation and don't forget to ID every 10 mins>**
 5. **AB1OC: I need to go now Aron. 73 Thanks for a nice QSO. This is AB1OC. I'll be clear on your final.**
 6. W1AKI : OK Fred, thank you and have a great day! 73, AB1OC this is W1AKI, I am clear.
- **Calling someone else – same as above with roles reversed**
- **Joining a discussion in progress**
 1. W1AKI : AB1OC this is W1AKI, Isn't the weather nice today Fred?
 2. **AB1QB: AB1QB** (Drop you callsign in quickly between speakers)
 3. AB1OC: AB1QB Acknowledged. It sure is Aron. AB1QB why don't you take it next?
This is AB1OC.
 4. **AB1QB : Hello Fred AB1OC, Hello Aron W1AKI, This is Anita, AB1QB. How are you both doing today? I can't believe this weather ...**
 5. <take turns speaking in rotation>
 6. **AB1QB: Thanks for a nice chat folks. I need to go now. I'll listen for one more round. This is AB1QB, I'm clear and listening for one more round.**
 7.
- **If you hear the repeater ID'ing, stop transmitting and allow it to complete...**



Checking Into A Net



1. **Wait for the Net Control Station (NCS) to begin the net**
2. **Speak only when the NCS asks for check-ins or calls you unless...**
3. **If you have an emergency, say your callsign plus “emergency” or “mayday” at any time**
 - The NCS will stop the net and call you immediately
4. **When the NCS asks for check-ins, key up and say “Here is”, then release your PTT for 1 second to see if someone else is trying to check-in at the same time. If the repeater/channel is clear, key up again and say:**
 - Your Callsign
 - Your First Name
 - Your Location (ex. Nashua, New Hampshire)
 - Indicate if you have traffic (ex. Info of general interest for the net)
5. **The NCS will read back the check-ins heard at some point in the process. If your information is not correct, wait for the NCS to ask for more check-ins and check-in again, and inform the NCS about your correct information.**
6. **The net may involve various types of exchanges depending upon the nature of the net. The NCS will call you at the appropriate time when its your turn. Don’t forget to ID at the beginning and end of your transmission.**
 - When you are done, pass control back to NCS – “This is N1FD passing back to Net”
 - If you hear the repeater ID’ing, stop transmitting and allow it to complete...
 - We’ll demonstrate using the Nashua Area Radio Society Chat Net format
 - *Join us every Sunday evening @ 7:30p ET on N1IMO network or via EchoLink*



Weekly Nashua Area Radio Society Nets

Brookline, NH	53.410	Minus offset PL 88.5
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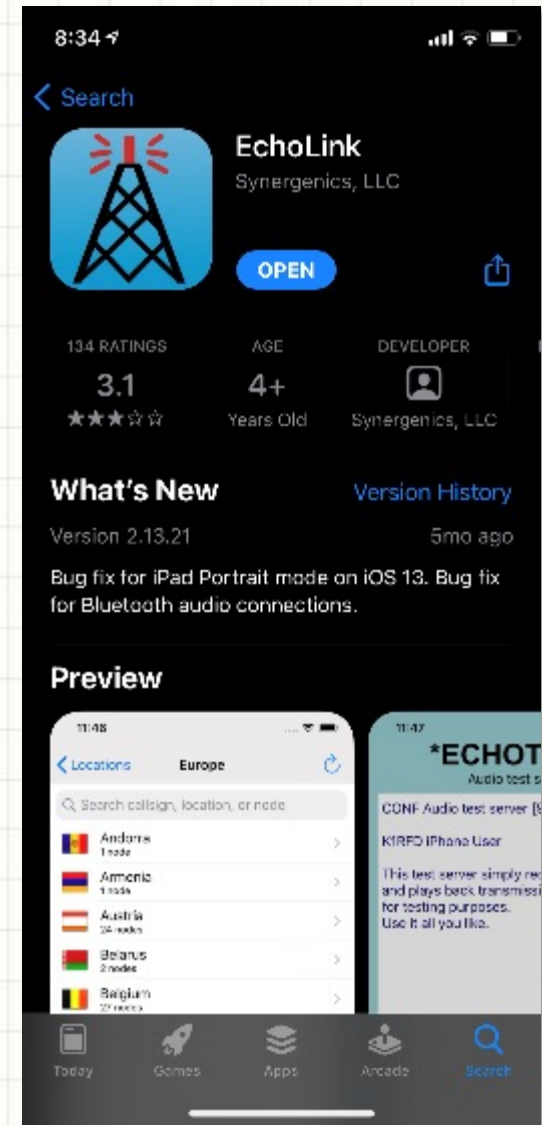
[N1IMO Repeater System](#)

Access via RF or using
EchoLink N1IMO-R

- Every Sunday:
 - [Chat Net](#): 7:30 P.M. Eastern time on the N1IMO repeater network
 - Check-in, share news and info, each station answer a question from NCS
 - Helps us to learn about each other and our projects
 - Check-in via EchoLink using N1IMO-R
 - [HF Net](#): 8:30 P.M. Eastern time on 10 m SSB *simplex*, on or near 28.480 MHz
 - Informal round-robin format
 - Folks are always willing to answer questions and provide help with projects
- Everybody is welcome!
 - Great chance to practice what you're learning at Bootcamp

How do I Get Started with Echolink?

- Go to <http://echolink.org> to download and install the software
 - **Echolink** app for Windows / **EchoHam** app on Mac
 - Running the software registers your callsign.
- Validate your callsign – upload a copy of your FCC License –
<http://www.echolink.org/validation>
- Computer needs a network connection and a microphone/speaker
- Smartphone Apps are also available



Questions?

To Learn More:

Check out the Nashua Area Radio Society's Tech Night Program at:

n1fd.org/tech-night

Become an Internet Subscriber (or members of NARS):

n1fd.org/join-us

Much more information, pictures and video are available on our Blog at:

stationproject.blog

