Amateur Radio Resource Class

"Getting On The Air"

Jim Santee, KF7NE

Dave Neys, W7PDQ

Sunset Empire Amateur Radio Club

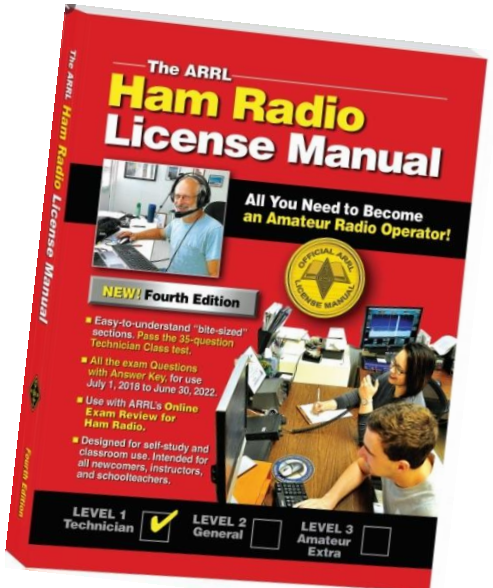
www.w7bu.club

Factors Contributing to this class series

- Radio Resource Classes are not a ham licensing program
- They are a "how to do it" series of presentations

We urge everyone to obtain the Technician Class "**ARRL Ham Radio License Manual**"

It has a wealth of resources and timely tips. www.arrl.org



"Getting On The Air"

- ✓ This class is geared toward those that:
  1. Already have their amateur radio license.
  2. New to using their radio or have never used their radio.

- ✓ Includes experienced operators to help mentor one on one.

- ✓ The focus is "*getting on the air*".

- ✓ Use your own radio or a loaner radio in the class.

- ✓ An operators manual for your radio is helpful…

Topics covered will include:

- Basic functions of a two-way radio and it's controls.
- Help programming repeater channels or frequencies in radio.
- What do you say, when do you say it, and tips for talking.
- How to overcome uncertainty and anxiety of talking on a radio.
- What is a "Net" and how do you participate in them.
- How can you find more help when needed.
- Practice talking and listening on the radio…

Introductions

- Radio Call

- First Name

- From

“W7PDQ name is DAVE from SVENSEN area”

International Phonetic Alphabet

A--Alfa
B--Bravo
C--Charlie
D--Delta
E--Echo
F--Foxtrot
G--Golf
H--Hotel
I--India
J--Juliett
K--Kilo
L--Lima
M--Mike
N--November
O--Oscar
P--Papa
Q--Quebec
R--Romeo
S--Sierra
T--Tango
U--Uniform
V--Victor
W--Whiskey
X--X-ray
Y--Yankee
Z--Zulu

www.w7bu.club (Radio Resource Class)

Introductions

- Radio Call

- First Name

- From

"W7PDQ name is DAVE from SVENSEN area"

*"**W**hiskey... Seven... **P**apa... **D**elta... **Q**uebec ..." Dave in Svensen*

Practice

1) Look up the letters of your callsign in the Phonetic Alphabet.

2) Write down your call “Phonetically” on the paper.

3) Practice saying your call using the “Phonetic” method. SLOWLY!

4) Write your name and home location after your Phonetic call.

5) Practice saying your Phonetic radio call, followed by name and location.

Quick Radio Refresher to get started…….

- Radio Basics
- FCC Chart of Amateur Frequency modes and license level permissions
- Bands and Frequencies
- Repeaters

Get started with radios basics….

- First and foremost “radios do not bite”.
- If you do nothing the radio will do nothing.
- Your radio will do only what you want it to do.
- We are here to help you “train your radio” and not fear it will bite back.
- Contrary to rumors there are no vampire radios ready to suck the life out of you.
- We all know at times the frustration of dealing with small buttons, confusing menu's and hard to find controls.
- So we have to figure out a way around all of this.

Get to Know Your Radio

- Antenna (Detachable)
- Selector Knobs (Volume, Channels, Squelch, etc)
- Display (Shows channel, frequency, banks, other items)
- Push to Talk “PTT” (Usually biggest button)
- Option buttons on side (Monitor, channels, functions, etc)
- Speaker
- Microphone “Mic”
- Keypad and other faceplate buttons
- Side Jacks (Power, headphones, remote mic, programming)
- Battery (back side)

Practice radio basics…….

1. Charge battery
2. Check antenna
3. **Turn ON/OFF**
4. **Set Volume**
5. Channel banks (Upper/Lower) A/B
6. Channel bands (2 meter (vhf), 70cm(uhf), weather, marine, etc)
7. “Channel” mode versus “VFO” mode (Variable Frequency Oscillator)
8. **Select a channel** (Memory Channel Mode)
9. Enter a frequency (VFO Mode)
10. Set Transmit Power level
11. **Push to Talk (PTT)** [Displayed frequency changes for repeaters]
12. Other display items… +/-, Tone, Power, Battery level, Locked, …..

NOTE: Different radios display differently

Practice

Hand & Speech Coordination

(Radio OFF)

1) Press the Push to Talk Button (PTT). (This is called *keying the radio*)

2) Say your Phonetic radio call, followed by name and location.

3) Release the Push to Talk Button

Radio Bands & Frequencies

Radio Bands & Frequencies

Ham radios are like all other radios in your car or house…….

- They tune in radio waves to receive information
- They can be manually tuned or programmed to certain favorite channels
- Some radios are used to listen only for news, talk, or music.
- And some radios send or transmit that information so others can listen.

Amateur (Ham) Radios can do both with an important distinction….

- ❖ They require a trained and licensed operator.
- ❖ They are allow as "not for profit" with "other content limitations" only.

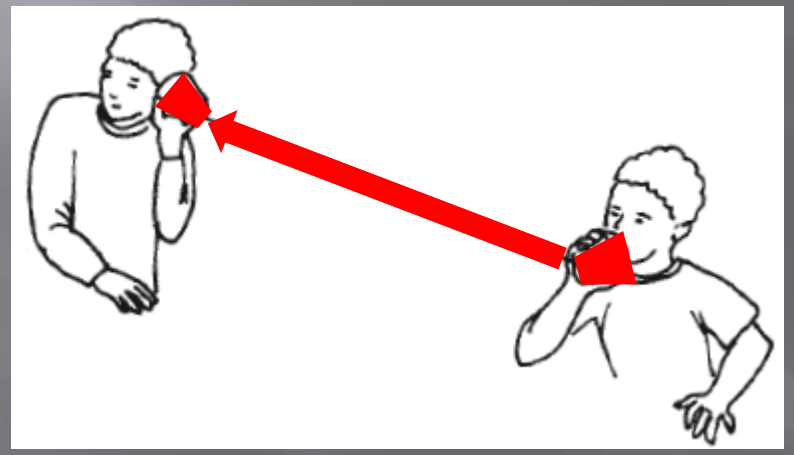
Signals sent over radio waves are separated by different frequencies.

- ➢ Amateur radio, like other types of radio, is allocated a portion of those frequencies.

Over the hill with ham radio - Basic

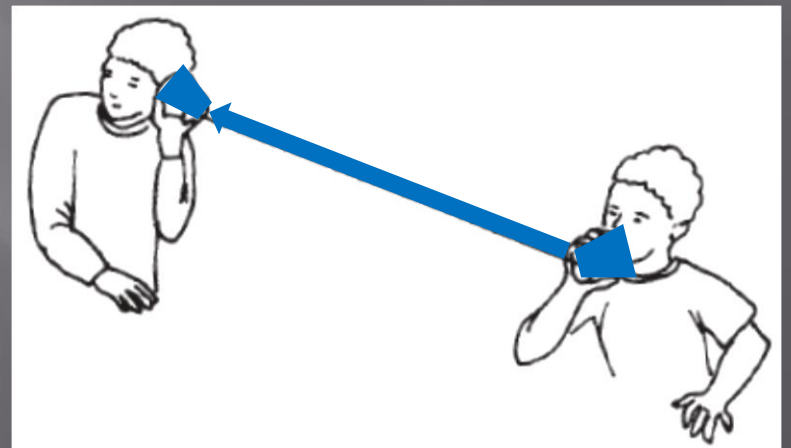
1. What are “Frequencies”

146.520 mhz



- Each Frequency is unique.
- If you send on a frequency it will be heard by others using the same frequency.

147.400 mhz

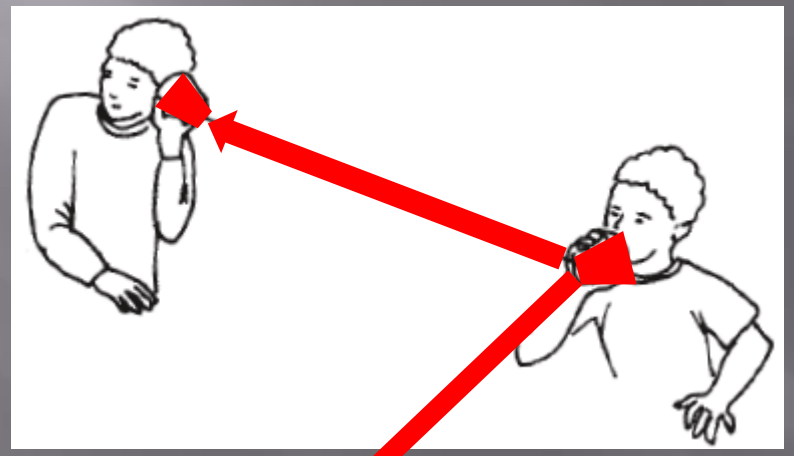


- Different frequencies can be used to talk simultaneously without bothering others.
- Conversations are not private!

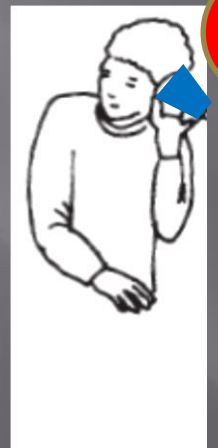
Over the hill with ham radio - Basic

1. What are “Frequencies”

146.520 mhz



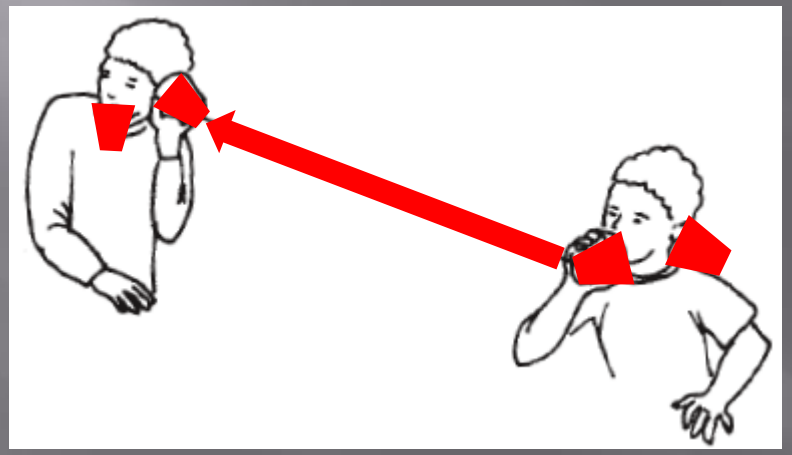
147.400 mhz



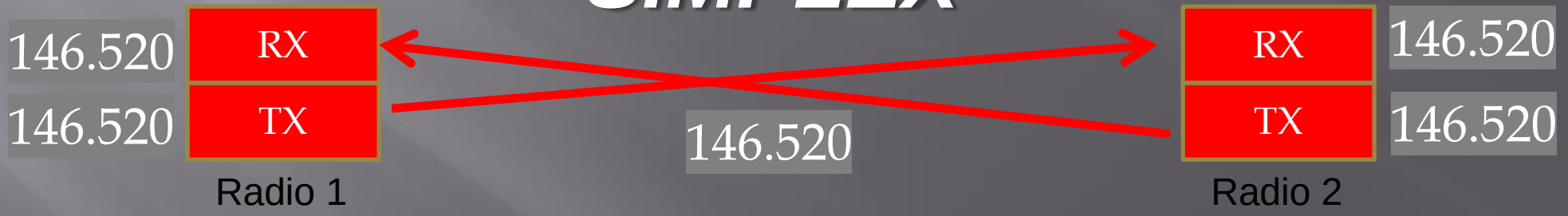
- If on the wrong (different) frequency you won’t hear others.

Over the hill with ham radio - Basic

Frequency "MODES"



SIMPLEX

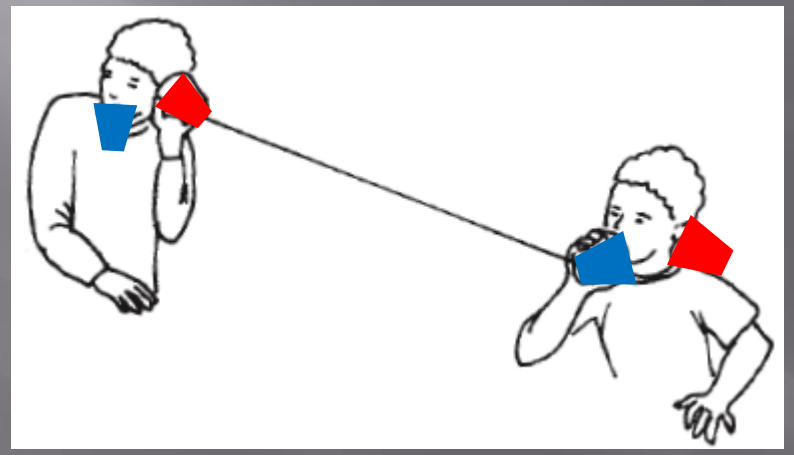


"Same" Receive and Transmit frequencies

Used for Nearby Comms

Over the hill with ham radio - Basic

Frequency "MODES"

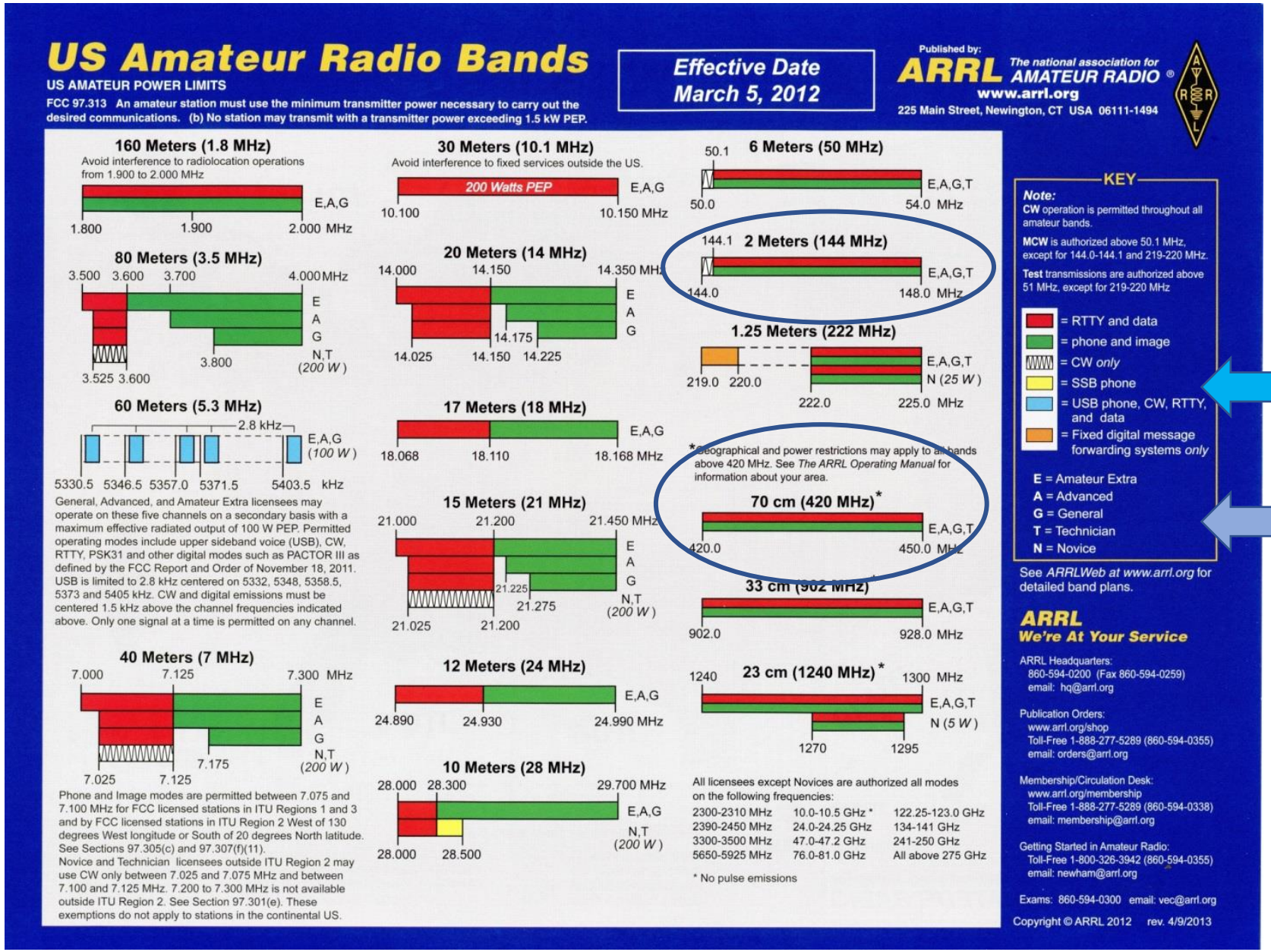


DUPLEX

Used for Repeaters (learn about later)

Main focus on the 2 meter/144-148 mhz band and 70 cm or 420-450 band.
The most commonly used Technician License frequencies used in our area.

What an FCC Amateur Radio License Allows
(Legal Stuff)



Mode allowed

Who can do it.

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2 Meters - (144-148 MHz) - Vhf

144.00-144.05 EME (CW)
144.05-144.10 General CW and weak signals
144.10-144.20 EME and weak-signal SSB
144.200 National calling frequency
144.200-144.275 General SSB operation
144.275-144.300 Propagation beacons
144.30-144.50 New OSCAR subband
144.50-144.60 Linear translator inputs
144.60-144.90 FM repeater inputs
144.90-145.10 Weak signal and FM simplex
(145.01,03,05,07,09 are widely used for packet)
145.10-145.20 Linear translator outputs
* 145.20-145.50 FM repeater outputs
145.50-145.80 Miscellaneous and experimental modes
145.80-146.00 OSCAR subband
146.01-146.37 Repeater inputs
*** 146.40-146.58 Simplex**
*** 146.52 National Simplex Calling Frequency**
* 146.61-146.97 Repeater outputs
* 147.00-147.39 Repeater outputs
*** 147.42-147.57 Simplex**
147.60-147.99 Repeater inputs

70 Centimeters (420-450 MHz) - Uhf

420.00-426.00 ATV repeater or simplex with 421.25 MHz video carrier control links and experimental
426.00-432.00 ATV simplex with 427.250-MHz video carrier frequency
432.00-432.07 EME (Earth-Moon-Earth)
432.07-432.10 Weak-signal CW
432.10 70-cm calling frequency
432.10-432.30 Mixed-mode and weak-signal work
432.30-432.40 Propagation beacons
432.40-433.00 Mixed-mode and weak-signal work
433.00-435.00 Auxiliary/repeater links
435.00-438.00 Satellite only (internationally)
438.00-444.00 ATV repeater input with 439.250-MHz video carrier frequency and repeater links
442.00-445.00 Repeater inputs and outputs (local option)
*** 445.00-447.00** Shared by auxiliary and control links, repeaters and **simplex** (local option)
*** 446.00 National simplex frequency**
* 447.00-450.00 Repeater inputs and outputs (local option)

BAND PLAN - A band plan refers to a voluntary division of a band to avoid interference between incompatible modes.

www.arrl.org

Local Band Plan and Channel Assignments

(March2020)

www.clatsopauxcomm.org

Help is available to program your radio.

Or you can manually program it from keypad.

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Emergency Communication Frequencies for Clatsop County

Clatsop County AuxComm frequency programming matrix: Download CSV File Download ODS FIle

Below are the frequencies recommended for users to program into their radios.

Location	Name	Frequency	Duplex	Offset	Tone	TX-ctcss	RX-ctcss	Comment
0	CALL-V	146.52		0	Tone	100	0	Calling Frq
1	AMTAC1	146.52		0	Tone	100	0	Calling Frq
2	AMTAC2	146.58		0	Tone	118.8	0	OregonARES
3	AMTAC3	147.58		0	Tone	118.8	0	Clatsop Simplex
4	AMTAC4	146.4		0	Tone	118.8	0	Seaside Simplex
5	AMTAC5	146.48		0	Tone	118.8	0	CB/Arch Cp Smplx
6	ARCHCP	146.74	-	0.6	Tone	118.8	0	Arch Cape-Linked
7	CAMP18	145.41	-	0.6	Tone	118.8	0	Camp 18-Linked
8	GERHRT	146.8	-	0.6	Tone	118.8	0	Gearhart-Linked
9	MEGLER	145.45	-	0.6	Tone	118.8	0	Megler-Hub
10	NICOLI	146.76	-	0.6	Tone	118.8	0	Nicolai-Linked
11	UWICK1	442.5	+	5	Tone	118.8	0	Wickiup-Linked
12	YNGRVR	444.85	+	5	Tone	118.8	0	Youngs River-Linked
13	STAR R	145.49	-	0.6	Tone	118.8	0	Seaside-Repeater
14	WICKV2	146.66	-	0.6	Tone	118.8	0	Wickiup-W7BU
15	UWICK2	444.775	+	5	Tone	118.8	0	Wickiup-W7BU
16	HD2CST	146.72	-	0.6	Tone	114.8	0	Hood-to-Coast
17	U MEG	440.925	+	5	TSQL	118.8	118.8	C4FM/FM-Linked
18	BCH718	147.18	+	0.6	Tone	82.5	0	Beach Net-Hub
19	KOPEAK	441.675	+	5	Tone	118.8	0	Beach Net-Linked
20	NASELL	440.675	+	5	Tone	118.8	0	Beach Net-Linked

Questions?

- Phonetic Alphabet
- Radio Controls and Display
- Practiced using the PTT and Phonetic Callsign
- Bands & Frequencies
- Simplex versus Duplex
- FCC Permitted Frequencies and Modes
- Voluntary Band Plan
- Local Frequencies and Channel assignments

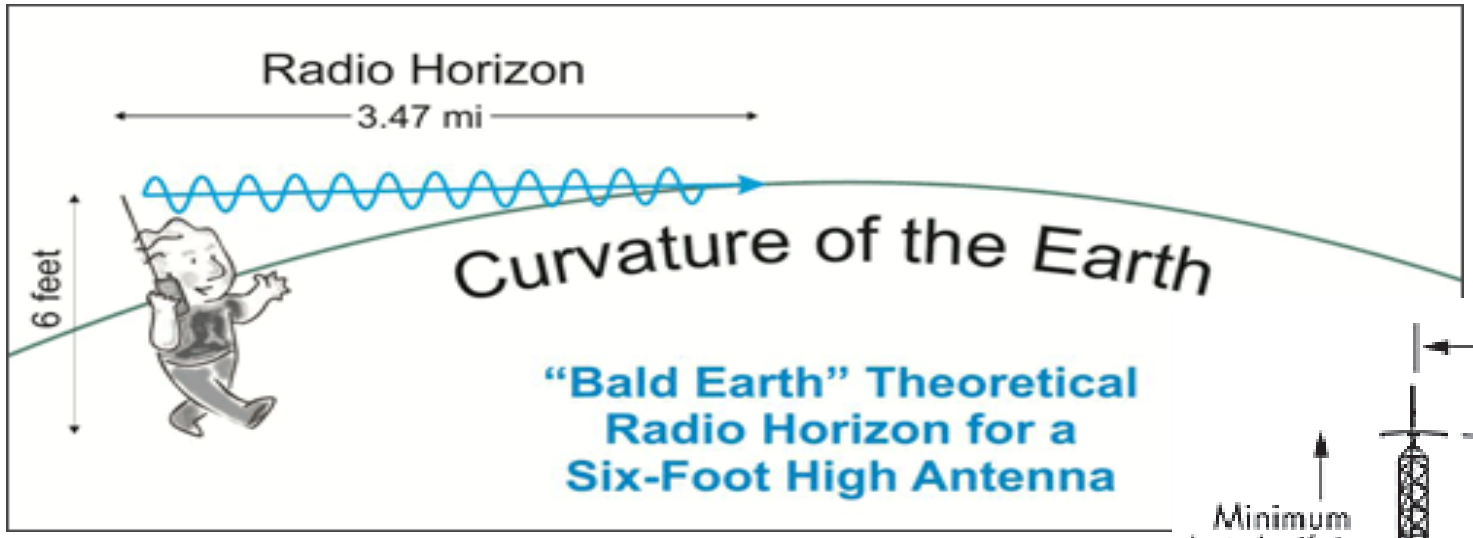
Radio Operating and Repeaters

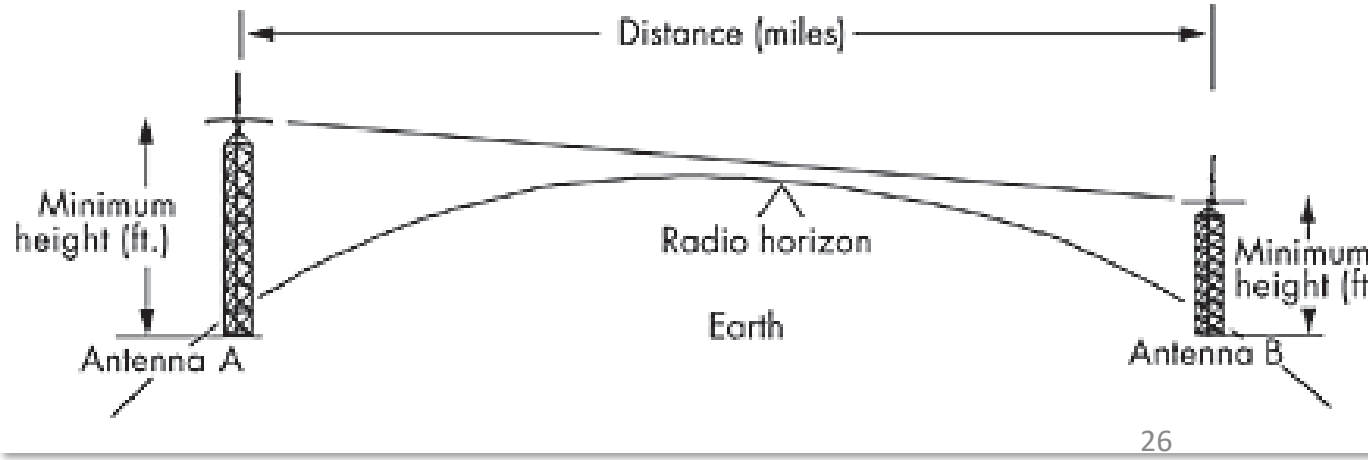
Good Operating Habits

- Speak clearly and identify yourself.
- Use the international phonetic alphabet. Don’t make up your own terminology. You will just confuse people.
- Take your time.
- Never say anything on the radio that you would not want discussed on a witness stand.
- Respect others even if you don’t like them. You can always turn off your radio and take break.
- Listen before transmitting. If you want to join a net listen to how they do business before diving in.
- Do not tune or transmit your radio on top of a conversation.

Radio Horizon & Repeaters

- VHF/UHF signals are line of sight. This means one needs to be in sight (even though could be some distance away) to make contact. This limits the distance of your radio being able to communication with another station.
- You can compensate for this by placing your antenna on a tower, climbing a tree, or even taking a hike up on side of a mountain. **How about using a REPEATER?**





Introduction to

REPEATERS

Your Radio and Repeaters

145.450 + 0.600 = 146.050…

+

Display & Speaker

145.450 RX

\- Offset

PTT 144.850 TX

145.450 - 0.600 =

145.450

Transmitter TX

Receiver RX

144.850

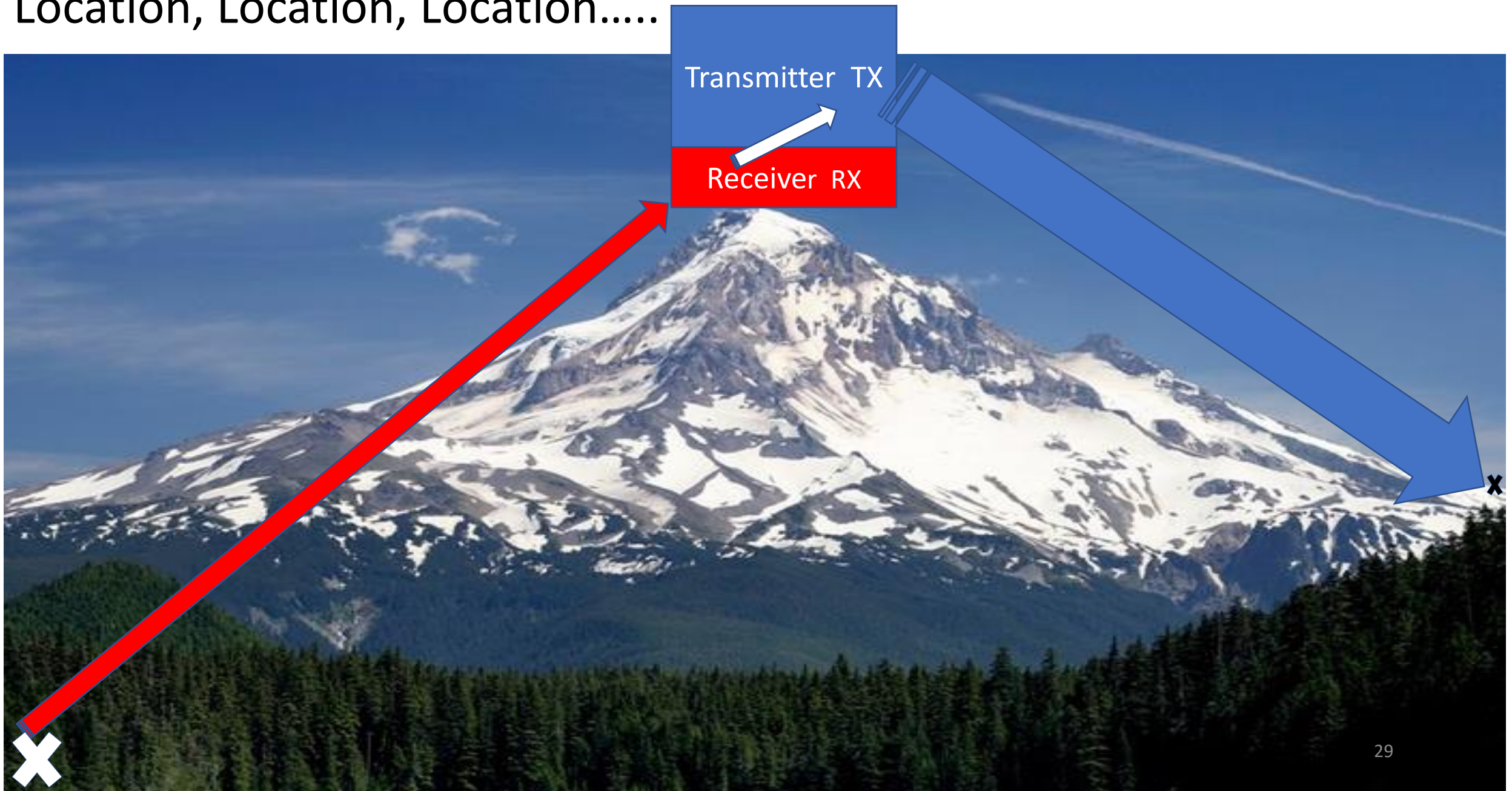
Offset (Plus or Minus)

0.600 for Vhf (144-148)

5.000 for Uhf (440-446)

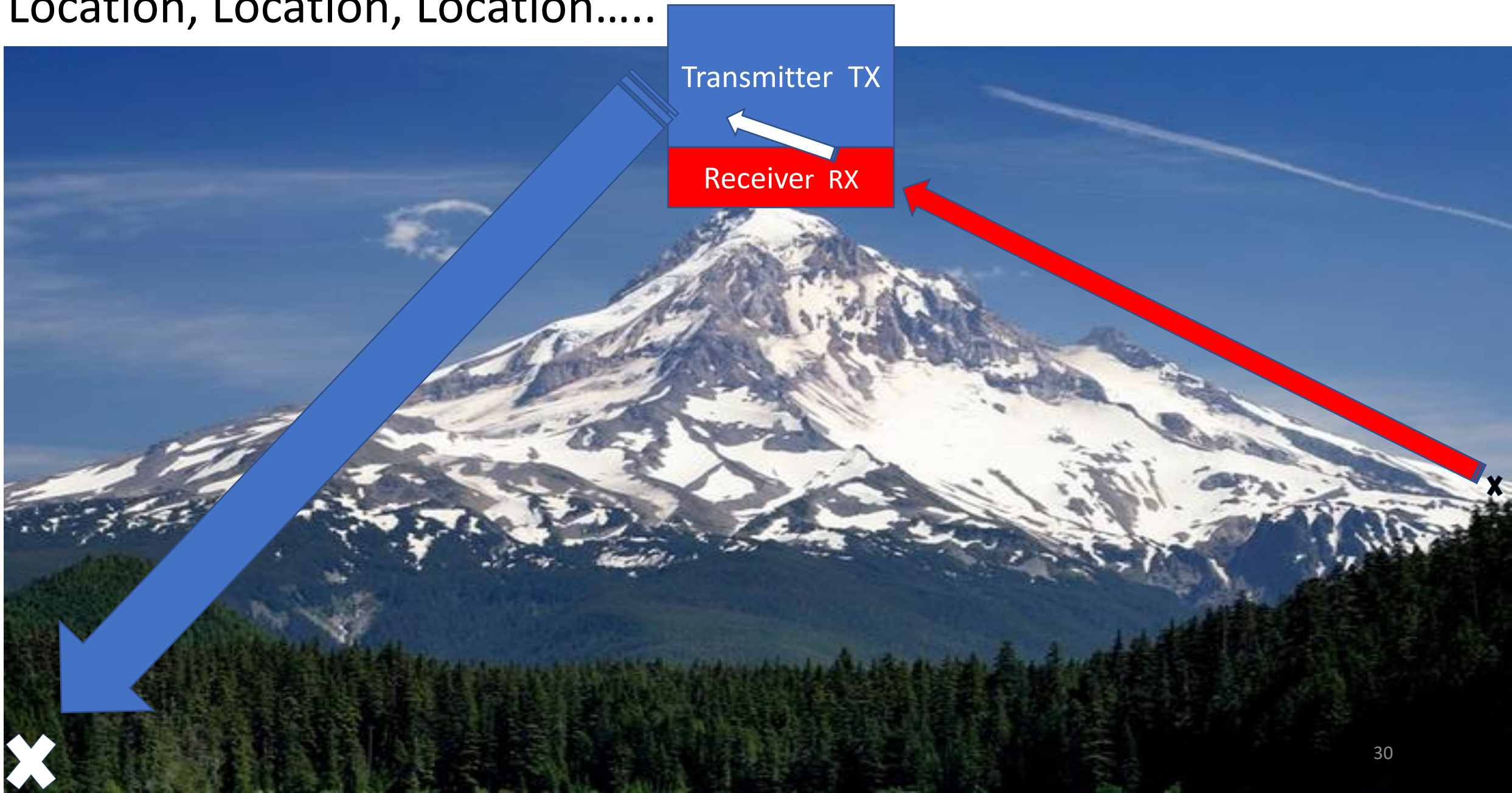
REPEATERS

Location, Location, Location…..



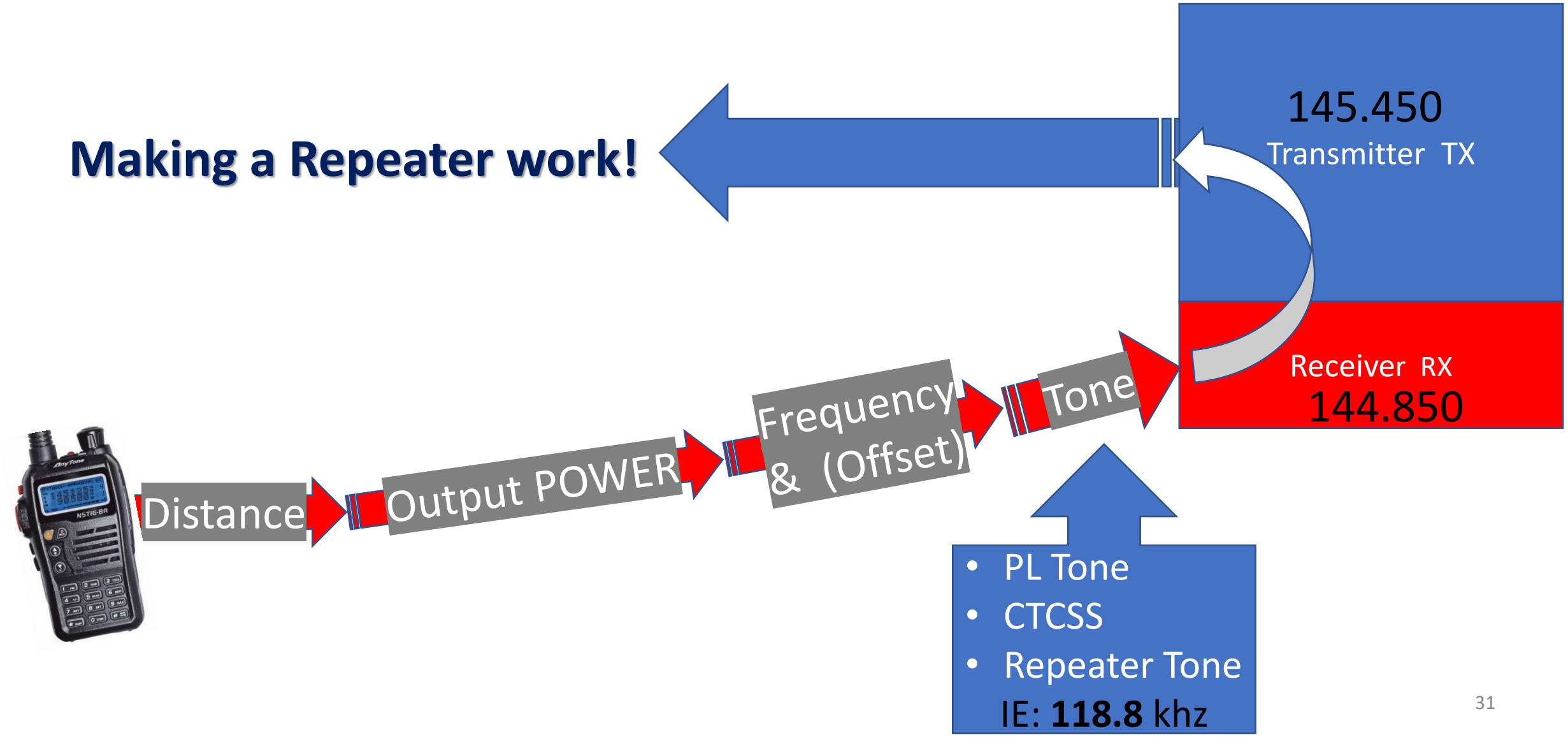
REPEATERS

Location, Location, Location…..



Your Radio and Repeaters

Making a Repeater work!



Questions?

- Radio Horizon & Line of Sight
- How Repeaters Work
- How your radio switches frequencies when transmitting
- What an Offset is and how to calculate it
- What 4 things are needed to make a repeater work.
  - Distance, TX Power, Frequencies, Tone

Let’s Talk On The Radio

- Turn it on.
- Set Volume
- Set “SIMPLEX” Frequency
- Get Written Phonetic Callsign Ready
  - WAIT! When am I suppose to use my Callsign?

At the END of a Transmission or Conversation,

and at least every 10 minutes during

- Lets practice just sending your callsign. (Key-Speak-Release)...

Let’s Talk On The Radio

- What is Audio Feedback? (Demonstration)
- What is Frequency Interference? (Demonstration)
- What is Harmful Interference?
- How loud do I speak in the microphone? (Demonstration)
- What if someone else talks at the same time? (Demostration)
- How much Power do I need?
- What do I talk about?...

What do I talk about? (write it down prior)

- Name
- Location
- Radio being used. Handheld, Mobile, What Brand, Antenna.
- How long have you been using a radio. First time, still learning.
- How is my signal? Can you hear me ok?
- The weather. (Anything non offensive)
- Conversations can be short or long.
- Final transmission should include your callsign….

TESTING YOUR SIGNAL

- Radio Test
  - Callsign, Testing (IE: *"W7PDQ Testing"*)
- Radio Check, Signal Report
  - Callsign, Request Report *"This is W7PDQ requesting a signal report?"*
- Monitoring (Just to let people know you are listening)
  - Announce with your call and can say listening *"W7PDQ listening"*

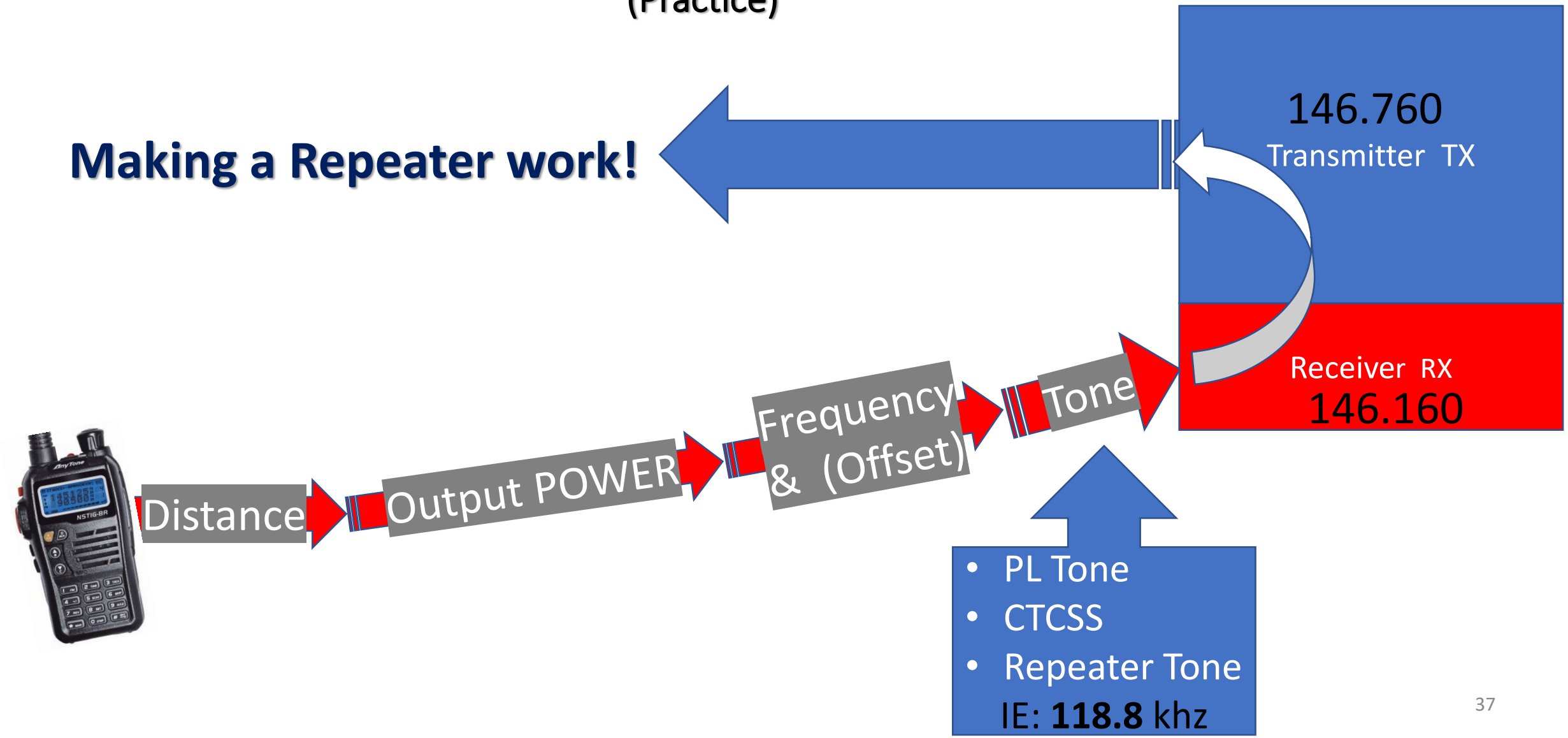
- Final transmission should include your callsign!

- KERCHUNKING! (Legally should include a callsign)…

Let's Talk On The Repeater

(Practice)

Making a Repeater work!



Questions?

- Turned on and Setup the Radio
- Practiced Transmitting your Callsign Phonetically
- Learned about different types of interference
- How Loud to speak
- How much power to use
- What to talk about
- Learned how to properly do signal tests
- When to identify

PRACTICE NETS

- A “Net” is a meeting or gathering on the radio.
- Many Nets are scheduled daily or weekly at predetermined times.
- Some unscheduled Nets are started for emergency or other purposes.
- “Practice Nets” are the most common and allow various formats.
- Net Purpose and Schedules can be found online.
- Common Nets are held using local repeaters, simplex, or via HF Radio.
- Anyone can hold a Net.

PRACTICE NETS

- A Net begins with a General Announcement and Welcome Message.
- Emergency Traffic is always welcome at any time.
- Check-in “Instructions” vary so paying attention to them is important.
  - IE: Callsign, Name, Location, Roster Members First, Callsign “Suffix”, Open Call
- Net Control will respond with your callsign confirming you were heard.
- A “Double” is when more than one talk at same time. Be patient.
- Usually a call for “Late,Missed, or Visitor Stations” toward end of net.

PRACTICE NETS

- If you need to get the net control's attention
  - Call "Net Control" followed by your "callsign"
  - Wait for them to acknowledge you before continuing.
  - When done with an announcement say "Back to Net Control" and your callsign.
- During a Net it is common for the Repeater system to auto-Identify itself.
  - Just wait for the repeater to finish its Voice or CW Morse Code ID.
- Most Nets are "Directed Nets" which means they have a Net Control operator designated to control who talks. They are the boss!

Local Area Nets

Oregon ARES District 1 Net: Every evening at 7:30 pm on 147.32 MHz 147.320 Mhz, 442.325 Mhz, and the 444.400 Mhz linked repeater system owned and operated by Amateur Radio Relay Group, Inc. PL 100.0. Echolink connection: K7RPT-L. District 1 consists of Clackamas, Clatsop, Columbia, Multnomah, Tillamook, and Washington counties.

North Clatsop County ARES Net: Mondays at 7:00 pm on 145.450 MHz, PL 118.8 (Columbia Pacific Amateur Radio Network & Beach Net Repeater Systems)
Download Net Roster HERE

South Clatsop County ARES Net: Wednesdays at 7:00 pm on 145.490 MHz, PL 118.8 (Seaside) Coverage map

Pacific County Net: Thursdays at 7:30 pm on 145.45 MHz PL 118.8 (Beach Net Repeater Systems)

Women Ham Operators Net: Sundays at 8:00 pm on 145.45 MHz, PL 118.8 (Columbia Pacific Amateur Radio Network & Beach Net Repeater Systems)

LDS Net: Sundays at 7:00 pm on 145.450 MHz, PL 118.8 (Columbia Pacific Amateur Radio Network)

National Traffic & Training Net: Daily at 6:05 PM on 145.27 MHz, PL 107.2 (Timber) Coverage Map

60 Meter "Five Dot Three Net": Mondays at 1300-1400 PDST on 5330.5 KHz USB (Channel #1) or 5346.5 kHz USB (Channel #2)

Purpose: To gain experience operating on 60 meters; test station antennas and propagation conditions. As the sunspot cycle declines, 60 meters is likely to become a very useful band.

Net Recordings

Filename	Size
ARES-Monday-NET-2019-07-15.mp3	29.21 MB

www.w7bu.club
(Radio Resource Class)

Let’s practice with a

PRACTICE NET

QST, QST, QST.
This is **<Name>**, **<Callsign>**, serving as Net control for todays “Radio Resources Class Training Net”. This net meets today only and is open to all amateur radio operators participating in the Radio Resource class.

Before beginning the net are there any stations with emergency or priority traffic, please call now. **<Pause for 5 seconds>**

The purpose of this radio net is to provide an opportunity for new amateur radio operators to practice the skills learned during this class.

This is a directed net, which means all calls are to be made to the net control station unless you are instructed otherwise. All class participants are encouraged to check in at the appropriate time and continue to monitor the net until completion unless otherwise excused by net control.

BREAK…..

When checking into the net please announce your **callsign** slowly and **phonetically** followed by your **name** and the **card** you are holding. After a few check-ins the net control will pause and review the check-in list. If your check-in is not acknowledged, then please try again when asked.

We will now begin taking check-ins. Any stations wishing to check-in to the net today, please call now. **<Receive check-ins> CALLSIGN, NAME, CARD HELD**

Thank you for the check-ins. I copied:**<"CALLSIGN, NAME, CARD HELD" >**

Are there any corrections or additions to this list? Please call now.

Are there any questions or announcements, please give your callsign and wait to be acknowledged. Please call now. **<Pause for 10 seconds>**

Before we close the net for today, are there any additional late, missed, or visitor check-ins, please call now. **<Pause for 10 seconds>**

I wish to thank all the Net participants and congratulate you for completion of this phase of the training.

This is **<Name>**, **<Callsign>**, closing the Sunset Empire Amateur Radio Club “Radio Resources Class” Net at **<time>.** Good Day.

Questions?

- Learned what a “Net” is and how they function
- Where to find the Nets in the local area
- Learned to follow structure of the check-in process
- Emergency traffic always has priority at any time
- How to contact net control to make an announcement or ask questions
- What a Net “Script” looks like
- Slowly give your callsign phonetically because net control is writing it
- Finally……Participated in a practice Net with other classmates

Review Promised Topics covered:

- Basic functions of a two-way radio and it's controls.
- Help programming repeater channels or frequencies in radio.
- What do you say, when do you say it, and tips for talking.
- How to overcome uncertainty and anxiety of talking on a radio.
- What is a "Net" and how do you participate in them.
- How can you find more help when needed. www.w7bu.club
- Practice talking and listening on the radio…

Amateur Radio Resource Class

"Getting On The Air"

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