

# SLOECC ARES®/RACES Training Plan

Training Module: Section 5.4.2.  
Demonstrate familiarity with communications  
equipment, procedures and basic  
functions/capabilities

# Training Plan: Skills-based Task

- 5.4.2. Demonstrate familiarity with communications equipment, procedures and basic functions/capabilities
  - Be able to input a frequency, tone, and offset into your personal HT and/or mobile radio
  - Be able to operate the base station radios at your local ECC
  - Know what frequencies and/or nets are present on what radios, and the purpose of each

# How to Program a V/UHF Radio

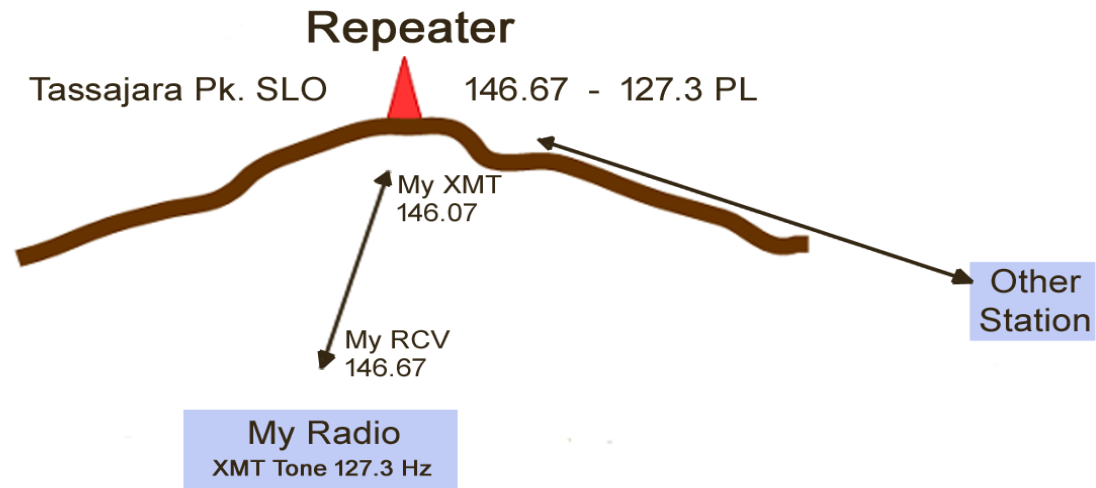
SLOECC General Meeting

28 June 2017

Mike Lindsay

AD7RZ



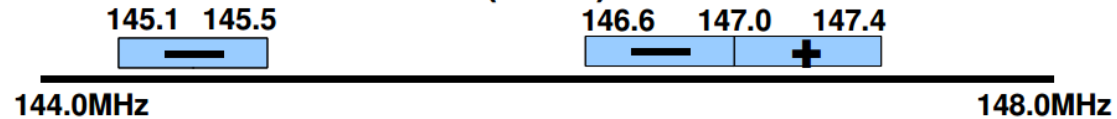


- Nearly all Repeaters are Duplex Repeaters. Simultaneous 2-way on 2 Freq.
- If only One Frequency is Listed for the Repeater, it is the Repeater Output/XMT Freq.
- That means you Receive / listen to it on that frequency.
- Your Radio Must Transmit on the Input Freq.
- The input Freq. Is Offset from the Output Freq.

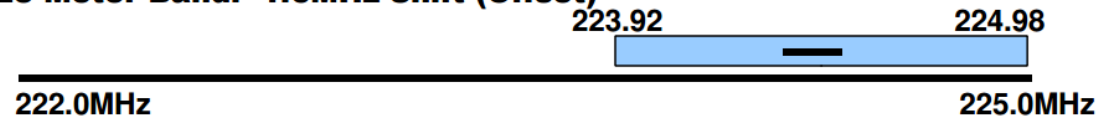
# Repeater Offsets

The amount of repeater shift and direction of repeater shift is a voluntary standard in the United States

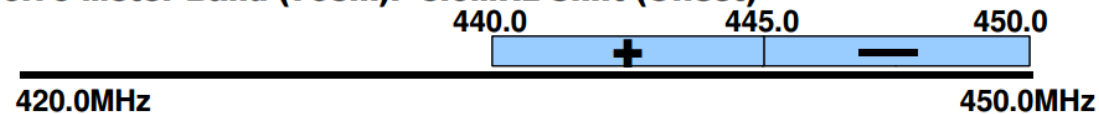
- **2 Meter Band: 0.6MHz Shift (Offset)**



- **1.25 Meter Band: 1.6MHz Shift (Offset)**



- **0.70 Meter Band (70cm): 5.0MHz Shift (Offset)**



- **10 meter Band: 0.1 MHz Shift (Offset)**

# Repeater Frequency Listing Examples

● = On-Air    
 ● = Off-Air    
 ● = Testing    
 ● = Unknown

Click on the frequency for additional details.  
Click on a header to sort.

Frequency	Tone	Location	County	Call	Use	(*)
<a href="#">51.8200-</a>	100.0	Paso Robles	San Luis Obispo	W6HD	OPEN	<input type="radio"/>
<a href="#">52.5800-</a>	82.5	Nipomo	San Luis Obispo	WA6VPL	OPEN	<input type="radio"/>
<a href="#">145.2900-</a>		San Luis Obispo	San Luis Obispo	KC6WRD	CLOSED	<input type="radio"/>
<a href="#">146.6200-</a>	127.3	San Luis Obispo, Rocky Butte	San Luis Obispo	W6SLO	OPEN	<input checked="" type="radio"/>
<a href="#">146.6700-</a>	127.3	San Luis Obispo, Tassajara Peak	San Luis Obispo	W6SLO	OPEN	<input checked="" type="radio"/>
<a href="#">146.7000-</a>	127.3	Arroyo Grande	San Luis Obispo	WB6FMC	OPEN	<input checked="" type="radio"/>
<a href="#">146.7600-</a>	81.5	San Luis Obispo, Cal Poly	San Luis Obispo	W6BH7	OPEN	<input checked="" type="radio"/>

## Area-Wide (All four repeaters linked at all times)

Frequency	+/-	CTCSS	Comments
443.975	+	127.3	Lopez Hill (SLOECC)/span>
444.050	+	127.3	Tassajara Peak (SLOECC)
444.100	+	127.3	Rocky Butte (SLOECC)
444.150	+	127.3	Black Mountain (SLOECC)

## Amateur Radio

Freq	PL/M	Ty	Input	InpPL	City	Call	Notes
51.82	118.8	R			SLO	WR6VHF	
145.290		R			SLO	KC6WRD	(closed)
146.620	127.3	R			SLO	KD6EKH	
146.670	127.3	R			SLO	KG6AKQ	
146.760	127.3	R			SLO	W6BH7	

# Programming with a Computer is Easiest

- Use **CHIRP** free software. Works with nearly all radios.
- Only way to name a channel.
- Need programming cable for your radio model. Don't use a Chinese Cable.
- Stores data in CHIRP and/or .CSV formats, so can edit in Excel, if desired.
- Note: Exact Syntax is required.

Yaesu VX-5: yaesu chirp vx-5r 21jul2016 lindsay.img

Memories		Memory Range: 1 - 220	Refresh	Special Channels	Show Empty	Properties						
Banks	Loc	Frequency	Name	Tone Mode	Tone	DTCS Code	Duplex	Offset	Mode	Power	Tune Step	Skip
	1	443.125000	K6BEN	Tone	123.0		+	5.000000	FM	Hi	12.5	S
	2	441.275000	Loma	Tone	123.0		+	5.000000	FM	Hi	25.0	
	3	441.775000	W6NSA	Tone	156.7		+	5.000000	FM	Hi	25.0	
	4	442.950000	KA6YZS	Tone	100.0		+	5.000000	FM	Hi	25.0	
	5	442.950000	KA6YZS	Tone	100.0		+	5.000000	FM	Hi	25.0	
	6	441.775000	W6NSA	Tone	156.7		+	5.000000	FM	Hi	25.0	
	7	441.775000	W1NSA	Tone	156.7		+	5.000000	FM	Hi	25.0	
	8	146.670000	Tass.V_	Tone	127.3		-	0.600000	FM	Hi	15.0	
	9	145.140000	Livorno	Tone	121.0		-	0.600000	FM	Hi	15.0	

# How to Program Baofeng UV-5R for Repeater

<u>Step</u>	<u>Description</u>	<u>Procedure</u>
0	Determine which Chan. to use and the repeater parameters.	(Chan. 000-127) = CCC
1	Erase data in that Chan. If necessary.	Menu 28 Menu CCC Menu Exit
2	Go to VFO (Freq.) Mode.	VFO/MR to VFO, A/B pointer to top line
3	Set to Desired Band.	Band (skip for UV-5RV2+).
4	Set Offset Direction.	Menu 25 Menu ↑/↓ Menu Exit
5	Set Offset Amount KHz.	Menu 26 Menu XXXXXX Menu Exit
6	Set CTCSS (PL) frequency tenths Hz.	Menu 13 Menu XXXX(or ↑/↓) Menu Exit
7	Set Receive Freq. KHz.	XXXXXX Menu 27 Menu CCC Menu Exit
8	Do again for XMT ( <u>same</u> Freq.)	Menu 27 Menu CCC Menu Exit
9	Test what you did in Chan. mode.	V/M to M, Select Chan., Transmit & Rcv.



# How to Program Baofeng UV-5R for Simplex

<u>Step</u>	<u>Description</u>	<u>Procedure</u>
0	Determine which Chan. to use and the repeater parameters.	(Chan. 000-127) = CCC
1	Erase data in that Chan. If necessary.	Menu 28 Menu CCC Menu Exit
2	Go to VFO (Freq.) Mode.	VFO/MR to VFO, A/B pointer to top line
3	Set to Desired Band.	Band (skip for UV-5RV2+)
4	Set Offset Amount KHz.	Menu 25 Menu ↑/↓ Menu Exit
5	Set CTCSS (PL) to off.	Menu 13 Menu ↑/↓ Menu Exit
6	Set Receive Freq. KHz.	XXXXXX Menu 27 Menu CCC Menu Exit
7	Do again for XMT ( <u>same</u> Freq.)	Menu 27 Menu CCC Menu Exit
8	Test what you did in Chan. mode.	V/M to M, Select Chan., Transmit & Rcv.

# How to Program Yaesu VX-5R for Repeater

<u>Step</u>	<u>Description</u>	<u>Procedure</u>
0	Determine which Chan. to use and the repeater parameter.	(Pick a number 001-220)
1	Go to VFO (Freq.) Mode.	VFO
2	Set Offset Direction.	FW BAND Knob to 07 BAND Knob BAND PTT
3	Set XMT CTCSS (PL) mode.	FW BAND Knob to 29 BAND Knob to TONE BAND PTT
4	Set CTCSS (PL) frequency.	FW BAND Knob to 30 BAND Knob to PL BAND PTT
5	Enter receive Frequency KHz.	XXXXXX
6	Store	FW-hold Knob to Chan. FW
7	Test what you did in Chan. mode.	MR, Knob, Transmit & Rcv.

# How to Program Kenwood TH-F6A for Repeater

<u>Step</u>	<u>Description</u>	<u>Procedure</u>
0	Determine which Chan. to use and the repeater parameters.	(Pick a number 000-399) = CCC
1	Go to VFO (Freq.) Mode.	VFO
2	Select appropriate Band.	BAND (till correct Band displays)
3	Set Offset Direction +/-.	F 8 (till correct direction displays) center-push
4	Set XMT CTCSS (PL) mode.	TONE (repeat until displays CT)
5	Set CTCSS (PL) frequency.	F TONE ↑/↓ (or knob) center-push
6	Set Receive Freq. KHz.	ENT XXXXXX (or ↑/↓ or knob)
7	Store.	F CCC (or ↑/↓ or knob) MR
8	Test what you did in Chan. mode.	MR, ↑/↓ (or knob), Transmit & Rcv.

## **Cautions & Recommendations**

1. Chan. Mode = Memory mode (MR). VFO Mode = Freq. Mode.
2. During Programming, if you hit the wrong key, push exit. (or PTT)
3. Keep keyboard locked manually or use Auto-Lock feature.
4. Push MON to check your receive volume.
5. Push PTT to check offset and direction.
6. If you can't select the desired frequency, "Step Size" is likely culprit.
7. Keep manuals and repeater data in your car or on phone.
8. Set squelch high on a Baofeng (7-9). CHIRP has a fix for this.
9. Put your name and phone number on your radio.
10. Put rubber washer or rubber band under volume control to lock it.
11. Keep on High power.
12. Place bright dot near microphone so you know where to talk.
13. For Events or Call-outs, tape a paper to back with frequencies and memory channels.

# Recommended UV-5R Menu Settings

Menu	Function/Description	
0	SQL (Squelch level)	7
1	STEP(Frequency step)	5
2	TXP(Transmit power)	High
3	SAVE( Battery save,1:1/1:2/1:3/1:4)	1:4
4	VOX(Voice operated transmission)	off
5	W/N( Wideband/narrowband)	W
6	ABR(Display illumination)	5
7	TDR(Dual watch/dual reception)	off
8	BEEP(Keypad beep)	off
9	TOT(Transmission timer)	60
10	R-DCS(Reception digital coded squelch)	off
11	R-CTS(Reception Continuous Tone Coded Squelch)	off
12	T-DCS(Transmission digital coded squelch)	127.3
13	T-CTS(Transmission Continuous Tone Coded Squelch)	off
14	VOICE(Voice prompt)	ENG
15	ANI(Automatic number identification of the radio,only can be set by PC software.	off
16	DTMFST(The DTMF tone of transmitting code.)	DT+ANI
17	S-CODE(Signal code, only could be set by PC software.)	1
18	SC-REV(Scan resume method)	TO
19	PTT-ID(press or release the PTT button to transmit the signal code)	off
20	PTT-LT(delay the signal code sending)	5
21	MDF-A(under channel mode, A channel displays. Note: name display only can be set by PC software.	Name

22	MDF-B(under channel mode, B channel displays. Note: name display only can be set by PC software.	FREQ
23	BCL(busy channel lockout)	Off
24	AUTOLK(keypad locked automatically)	On
25	SFT-D(direction of frequency shift)	Off
26	OFFSET(frequency shift)	00.600
27	MEMCH(stored in memory channels)	N/A
28	DELCH(delete the memory channels)	N/A
29	WT-LED(illumination display color of standby)	Blue
30	RX-LED(illumination display color of reception)	Purple
31	TX-LED(illumination display color of transmitting)	Orange
32	AL-MOD(alarm mode)	Tone
33	BAND(band selection)	VHF
34	TX-AB(transmitting selection while in dual watch/reception)	Off
35	STE(Tail Tone Elimination)	On
36	RP_STE(Tail tone elimination in communication through repeater)	5
37	RPT_RL(Delay the tail tone of repeater)	Off
38	PONMGS(Boot display)	Full
39	ROGER(tone end of transmission)	off
40	RESET (Restore to default setting)	N/A

\* Can only be set by computer interface.

# VHF Voice

Frequency	Callsign	Offset	Tone	Location	Sponsor
146.620	W6SLO	-	127.3	Rocky Butte	SLOECC
146.670	W6SLO	-	127.3	Tassajera Pk	SLOECC
146.700	WB6FMC	-	127.3	View Hill	Van Lyons
146.760	W6BHZ	-	127.3	Cal Poly	CPARC
146.800	W6SLO	-	127.3	Cuesta Peak	SLOECC
146.835	W6SLO	-	127.3	Black Mtn.	SLOECC
146.860	W6SLO	-	127.3	Clark Cyn.	SLOECC
146.880	W6YDZ	-	127.3	11 mi W Templtn	W6YDZ
146.940	W6YDZ	-	127.3	Lopez Hill	SLOECC
146.980	W6YDZ	-	127.3	San Miguel	PRARC
147.270	KC6TOX	+	127.3	Cambria	SLOECC
147.360	W6FM	+	127.3	Mt. Lowe	SLOECC
147.990	WB6MIA	-	127.3	Nipomo	SLOECC

# *UHF Voice*

Frequency	Callsign	Offset	Tone	Location	Sponsor
442.300	W6BHZ	+	127.3	Cal Poly	CPARC
442.700	W6SLO	+	127.3	Cuesta Peak	SLOECC
444.525	W6FM	+	127.3	Tassajera Pk.	Not Listed
444.975	W6SLO	+	127.3	Clark Cyn	SLOECC
<b>Wide Area System- All 4 repeaters linked at all times</b>					
443.975	W6YDZ	+	127.3	Lopez Hill	SLOECC
444.050	W6SLO	+	127.3	Tassajera Pk.	SLOECC
444.100	W6SLO	+	127.3	Rocky Butte	SLOECC
444.150	W6SLO	+	127.3	Black Mtn.	SLOECC

# San Luis Obispo County Frequency List

- [www.SLOECC.org](http://www.SLOECC.org) (Frequencies Tab at top of Page)
- This information can be downloaded as a [pdf](#) document, or in CHIRP format as a [csv](#) file or as an [Excel](#) file. Additionally, a listing of all operational repeaters between San Ardo - Williams Hill and Lompoc can be downloaded as a [pdf](#) document.