

## TASMA Two Meter FM Band Itinerant Summary

<b>Simplex Frequencies</b> (no linking/repeaters)	<b>Linking &amp; Remote Base Frequencies</b> (read guidelines – page 2)	<b>Packet Frequencies</b>
<ul style="list-style-type: none"> <li>•144.310-144.375</li> <li>•144.405-144.490</li> <li>•145.510</li> <li>•145.525</li> <li>•145.540</li> <li>•145.555</li> <li>•145.570</li> <li>•145.585</li> <li>•145.600</li> <li>•145.615</li> <li>•145.630</li> <li>•145.645</li> <li>•145.660</li> <li>•146.430 (ATV voice)</li> <li>•146.445</li> <li>•146.520 (calling freq)</li> <li>•146.535</li> <li>•146.550</li> <li>•146.565 (T-hunts)</li> <li>•146.580</li> <li>•146.595</li> <li>•147.510</li> </ul>	<ul style="list-style-type: none"> <li>•145.675</li> <li>•145.690</li> <li>•145.710</li> <li>•145.725</li> <li>•145.740</li> <li>•145.755</li> <li>•145.770</li> <li>•145.785</li> <li>•146.460</li> <li>•147.480</li> </ul>	<ul style="list-style-type: none"> <li>•144.390 (APRS)</li> <li>•144.970</li> <li>•145.030</li> <li>•145.050</li> <li>•145.070</li> <li>•145.090</li> </ul>
		<p style="text-align: center;"><b>Cross-band Repeater Frequencies</b></p> <ul style="list-style-type: none"> <li>•144.910</li> <li>•147.525</li> </ul> <p style="text-align: center;">(special events and temp use only)</p>
	<p style="text-align: center;"><b>Portable Repeater Pair</b> (Special Event &amp; Temporary Use Only)</p> <ul style="list-style-type: none"> <li>•147.585 input</li> <li>•144.930 output</li> </ul> <p style="text-align: center;">(read guidelines – page 2 – operations limited to 72 hours per month)</p>	

Frequencies on this page are not coordinated and must be shared with other Amateurs on a non-interference basis. Please run minimum power ([97.313a](#)) and keep FM bandwidth narrow to reduce adjacent channel interference.

## TASMA Repeater and Auxiliary Station Guidelines

**1. Station must be able to be remotely turned off.**

97.109 and 97.3(a)(6).

**2. Station should use a time out timer of 3 minutes or less.**

97.213(b) states that you must be able to control your station in the event of control failure that the transmitter will be limited to 3 minutes or less. By making your timer 3 minutes you can always comply with this rule.

**3. Station should not “beacon” ID.**

97.119 states rules about station identification. If the station is not in communication with another station it may be determined that the repeater is broadcasting its ID against rule 97.113(b). It also reduces the chance that your station causes interference with another station on the shared auxiliary station frequencies to comply with 97.101(d).

**4. Station CW ID should be under 20 WPM and a copyable tone (around 850 hertz tone).**

97.119(b)(1) does state that the CW ID must be 20 WPM or less. Setting at or lower ensures compliance. The FCC has no part 97 rules about the tone of the CW ID although the ID must be clear enough to make known the station call sign that is transmitting (97.119(a)).

**5. Suggested that Station identification not end with /R.**

Where once customary and actually required to ID as a repeater, this is no longer the case. The /R self-assigned indicator may possibly conflict with 97.119(c), although this does not seem to be enforced.

**6. Auxiliary and repeater stations are limited to certain frequencies.**

97.201(b) and 97.205(b) place restrictions on operation of auxiliary and repeater stations upon certain frequencies. Not all simplex frequencies are available for auxiliary and repeater input and outputs. Stations need to be mindful also to not cause harmful interference with coordinated repeaters per 97.205(c)

**7. Auxiliary stations should not be connected to conference/reflector nodes 24/7.**

As the auxiliary station frequencies are uncoordinated and shared amongst the Amateur community, it is good practice to allow others the use of the frequencies. Also, unattended automatic operation may cause harmful interference to others on the shared frequencies per 97.101(d). We recommend that a control operator be present to ensure compliance and then disconnect from conference/reflector node when the control operator is no longer present.

**8. Auxiliary stations should remain low in height and power.**

As the auxiliary station frequencies are uncoordinated and shared amongst the Amateur community, it is good practice to allow others the use of the frequencies. Your auxiliary station should be mindful of its RF footprint to comply with 97.313(a) and 97.101(d).

**9. Auxiliary stations should not be uncoordinated repeaters.**

Your auxiliary station is designed for a group of cooperating Amateurs (97.3(a)(7)) and as such should not be open to non-designated control operators. Your station at that time would probably be classified as an uncoordinated repeater and would be subject to transmit/receive frequency restrictions in 97.205(b).

## TASMA COVERAGE AREA

TASMA coordinates 2 meter amateur band activities for Southern California. The borders of this area are: the Pacific Ocean on the west; Mexico on the south; the combined Arizona-Nevada border on the east, extending up to the Mono-Alpine County line; then south along the Mono-Tuolumne County line, south along the Mono-Madera County Line, south along the Mono-Fresno County Line, south along the Fresno-Inyo County line, south along the Inyo-Tulare County line to the Kern County line, south along Highway 14 just a little west of the Kern-San Bernardino County line to the Los Angeles-Kern County line, then west along that line past the 5 freeway and along the Kern-Ventura County line to an area near the 33/166 intersection, then west along the Santa Barbara-San Luis Obispo County line to the Pacific Ocean. The Northern Amateur Relay Council of California (NARCC), Southern Nevada Repeater Council (SNRC), Amateur Radio Council of Arizona's Frequency Coordination Committee (ARCA) jointly coordinates areas adjacent to their respective service areas so as to avoid conflicts along our overlapping coverage areas.

The TASMA Technical Committee shall only coordinate repeaters to frequencies within this band plan designated for normal, in-band fixed repeater use. **NOTE:** "DV" notations in the table below, indicate frequencies recommended for Digital Voice.

## BAND PLAN

- 144.000 - 144.100 CW only (Part 97.61a)
- 144.100 - 144.275 AM, SSB & other weak signal/narrow bandwidth modes
- 144.275 - 144.300 CW Propagation Beacons
- 144.310 - 144.375 FM simplex (unchannelized)
- 144.390 - Digital (packet) -- (APRS)
- 144.405 - 144.490 FM simplex (unchannelized)
- 144.505 - Repeater output (paired with 145.105 input)
- 144.520 - 144.880 Repeater inputs: 20 kHz spacing
- 144.895 - Repeater output (paired with 145.495 input)
- 144.910 - Cross-band repeater input/output (not coordinated, CTCSS use mandatory)
- 144.930 - Portable repeater output, shared (paired with 147.585 input)
- 144.950 - Repeater output (paired with 147.405 input)
- 144.970 - Digital (packet)
- 144.985 - 145.015 Digital voice repeater inputs (i.e. D-Star): 10 kHz spacing
- 145.030 - 145.090 Digital (packet): 20 kHz spacing
- 145.105 - Repeater input (paired with 144.505 output)
- 145.120 - 145.480 Repeater outputs: 20 kHz spacing
- 145.495 - Repeater input (paired with 144.895 output)
- 145.510 - 145.660 FM simplex: 15 kHz spacing
  - DV - 145.510, 145.525, 145.660**
- 145.675 - 145.785 Fixed simplex base station (internet links, autopatches, etc.: 15 KHz spacing
  - DV - 145.675, 145.570, 145.785**
- 145.800 - 146.000 OSCAR satellite use
- 146.010 - 146.385 Repeater input/output (15 kHz inverted tertiary sub-band plan; see text)
- 146.400 - Repeater input (paired with 147.435 output)
- 146.415 - Repeater input (paired with 147.450 output)
- 146.430 - ATV FM Simplex
- 146.460 - Fixed simplex auxiliary station (internet links, remote base, etc.)
- 146.475 - Repeater input (paired with 147.420 output)
- 146.490 - Repeater input (paired with 147.495 output)
- 146.505 - Repeater input (paired with 147.465 output)
- 146.520 - National FM simplex
- 146.535 - 146.595 FM simplex: 15 kHz spacing
- 146.610 - 147.390 Repeater input/output (15 kHz inverted tertiary sub-band plan; see text)
- 147.405 - Repeater input (paired with 144.950 output)
- 147.420 - Repeater output (paired with 146.475 input)
- 147.435 - Repeater output (paired with 146.400 input)
- 147.450 - Repeater output (paired with 146.415 input)
- 147.465 - Repeater output (paired with 146.505 input)
- 147.480 - FM simplex
- 147.495 - Repeater output (paired with 146.490 input)
- 147.510 - FM Simplex
- 147.525 - Cross-band repeater input/output (not coordinated, CTCSS use mandatory)
  - DV - 147.525**
- 147.540 - 147.570 Digital voice repeater outputs (i.e. D-Star): 10 kHz spacing
- 147.585 - Portable repeater input, shared (paired with 144.930 output)
- 147.600 - 147.990 Repeater input/output (15 kHz inverted tertiary sub-band plan; see text)

## REPEATER SUB-BAND BANDPLAN 144.5 - 145.5 MHZ

Repeaters in the spectrum between 144.500 to 145.500 MHZ utilize a "low in-high out" configuration, on nineteen even numbered frequency pairs. Frequency pairs begin with 144.52/145.12 MHZ and end with 144.88/145.48 MHZ. Spacing is 20 kHz between repeater systems, and 600 kHz between repeater input and output. In addition, there are two additional 15 kHz band-edge pairs at 145.105 input/144.505 output and 145.495 input/144.895 output.

Input	Output	Input	Output
145.105	144.505	144.720	145.320
144.520	145.120	144.740	145.340
144.540	145.140	144.760	145.360
144.560	145.160	144.780	145.380
144.580	145.180	144.800	145.400
144.600	145.200	144.820	145.420
144.620	145.220	144.840	145.440
144.640	145.240	144.860	145.460
144.660	145.260	144.880	145.480
144.680	145.280	145.495	144.895
144.700	145.300		

## REPEATER SUB-BAND BANDPLAN 146-148 MHZ

15 kHz spacing between repeaters utilizes an inverted 15 kHz sub-band plan, yielding 53 repeater pairs as follows:

Input	Output	Input	Output	Input	Output
146.010	146.610	146.280	146.880	147.750	147.150
146.625	146.025	146.895	146.295	147.165	147.765
146.040	146.640	146.310	146.910	147.780	147.180
146.655	146.055	146.925	146.325	147.195	147.795
146.070	146.670	146.340	146.940	147.810	147.210
146.685	146.085	146.955	146.355	147.225	147.825
146.100	146.700	146.370	146.970	147.840	147.240
146.715	146.115	146.985	146.385	147.255	147.855
146.130	146.730	147.600	147.000	147.870	147.270
146.745	146.145	147.015	147.615	147.285	147.885
146.160	146.760	147.630	147.030	147.900	147.300
146.775	146.175	147.045	147.645	147.315	147.915
146.190	146.790	147.660	147.060	147.930	147.330
146.805	146.205	147.075	147.675	147.345	147.945
146.220	146.820	147.690	147.090	147.960	147.360
146.835	146.235	147.105	147.705	147.375	147.975
146.250	146.850	147.720	147.120	147.990	147.390
146.865	146.265	147.135	147.735		

Existing systems coordinated to a pair that is reversed of the pair indicated in the above table will be "grandfathered" into the bandplan.

All repeater pairs are shared using geographic separation and coordinated technical parameters such as transmitter power and antenna pattern to achieve necessary isolation between repeaters.

The 144.74/145.34, 144.86/145.46, 146.22/82, 146.31/91, 146.37/97 & 147.93/33 repeater pairs are coordinated on a shared basis with Mexican repeater operations.

## ESTABLISHED AREA "ODD SPLIT" (non-600 kHz) REPEATER PAIRS:

Input	Output
147.585	144.930 (portable repeaters)
147.405	144.950
146.475	147.420
146.400	147.435
146.415	147.450
146.505	147.465
146.490	147.495

## PORTABLE REPEATER PAIR

A wide-split repeater pair, 147.585 input/144.930 output, is available on a shared non-protected basis to facilitate the operation of small portable 2 meter repeaters. Repeaters utilizing this pair must use CTCSS or DCS access. Operation must be limited to no more than 72 hours total per month. Stations should follow guidelines for proper operation detailed on page 2.

## SUMMARY OF FM SIMPLEX FREQUENCIES

See page one.

## FIXED AUXILIARY STATION FREQUENCIES

The following 10 simplex frequencies are available for fixed auxiliary station operations such as internet linking & simplex auto-patch. Cross-band repeaters are not permitted in these frequencies per FCC Part 97. Use of selective access such as CTCSS or DCS is mandatory. All frequencies should be used on an intermittent basis with no continuous internet linking. Stations should follow guidelines for proper operation detailed on page 2.

145.675	145.690	145.710	145.725	145.740	145.755	145.770	145.785	146.460	147.780
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## CROSS-BAND REPEATER FREQUENCY

144.910 and 147.525 MHz are available on a shared non-protected basis as an input/output for cross-band repeaters (i.e. dual-band mobile radios). Use of selective access such as CTCSS or DCS is mandatory. Stations should follow guidelines for proper operation detailed on page 2. Operation must be limited to no more than 72 hours per month.

## DIGITAL VOICE REPEATER FREQUENCIES

The following 4 pairs are available for very narrow band (compatible with 10 kHz channel spacing) full duplex digital voice repeaters such as D-Star systems. Coordination is required.

Input	Output
144.985	147.540
144.995	147.550
145.005	147.560
145.015	147.570