

GOTAhams - Local Band-plans, Repeaters and Simplex Frequencies

Dave Wilkie, K6EV – Revision 3 – December 21, 2022

The data included here is not exhaustive and represents an introduction only. Nor is it intended as a club channel plan. It introduces Analog FM repeaters that seem family-friendly and cover the area of highest concentration of GOTAhams members. (Roughly Glendora to Ontario, Mount Baldy south to Chino and Corona). Using these, it introduces the local band-plans. You will add other repeaters to suit your needs. Great resources to identify open repeaters in other areas are: a) free-to-use REPEATERBOOK (www.repeaterbook.com on the web and also found at the app stores for Android and iPhone), and, b) RFINDER, a subscription based ARRL-endorsed tool (www.rfinder.net on the web and also at Android/iPhone app stores). Our examples don't include repeaters with emphasizing particular digital formats. And we focus on the 144, 220 and 440 MHz bands as these are the most active. The same principles apply to other UHF bands such as 902MHz and 1.2GHz.

Repeater information and ownership changes. You should consult the repeater owner or trustee with any questions and abide by their requests. The examples focus on fully open repeaters, those not requiring any memberships or dues. Repeaters are expensive to maintain and we are sure that many repeater owner/operators will appreciate any donations, particularly if you use a repeater substantially. Note that some repeaters carry requests by the owner that QSO's be limited to short contacts. Some may be considered 'calling repeaters' and the owners suggest that longer conversations transition to another simplex or repeater frequency once contact is established. Also, with repeater 'Systems' such as the WINSYSTEM, your conversation may be carried over many dozens of repeaters in many states and even foreign countries. In those cases, it is almost always advisable to limit your conversations to 15 minutes or so (or less if so advised) to allow other use of the system. Not all repeaters are 'up' at all times and those not on hilltops tend to be limited in range.

Many repeaters are private or part of private systems which require membership and dues. They may not be listed in REPEATERBOOK or RFINDER. Some of these repeaters and systems are extensive in size. Some, such as the PAPA system (www.papasys.com), CLARA (145220.com), or K6PIN(www.K6PIN.net) and others are visitor friendly (or offer free trial periods) and publish PL tones and related information on their websites. These private repeaters are not included here, but are interesting and may extend your coverage and operations.

One point of confusion for many hams has to do with 'band plans' or frequency assignments in the VHF and UHF bands -- particularly for simplex frequencies. Addressing this for GOTAhams is a key goal here. While the ARRL publishes recommended band plans for each of the bands, the fine print notes that local area Frequency Coordination councils have the final say. In some areas (and Southern California is one) the band plan for the area will be substantially different than ARRL's. ARRL advises you to abide by the local band plan. Southern California has three coordinators handling specific bands of interest. These are:

- TASMA: www.tasma.org 144-148MHz
- SCRRBA: www.scrba.org 29 MHz, 51MHz, 420-450MHz, 902MHz, 1240MHz
- 220SMA: www.220sma.org 219-225 MHz

Refer to the band plans at these websites for the latest information. Their guidance overrides any recommendations herein. These coordinators allocate repeater and other frequencies in the southern California region. When you travel to other areas or states you will need to identify the coordinator for that area and use appropriate simplex frequencies (and local repeaters) for that area. There is some confusion at the national level "coordinating the coordinators". The ARRL and FCC have not yet stepped in, but this informal list of coordinators may be helpful to you: <https://w2xq.com/bm-repeaters.html> Thanks to W2XQ!

EXAMPLES OF OPEN REPEATERS LOCAL TO GOTAhams CORE AREA

2 Meter Band Repeaters

#	Callsign	RX Freq.	TX offset KHz	PL	Approx. Location	Comment
1	N6AH	145.200	-600	100.0	Arcadia	Arcadia City Empl. RC. Hamwatch,/Arcad. PD.
2	N6USO	145.440	-600	136.5	Sunset Ridge	Sometimes linked to (2) K6TEM 70cm repeaters
3	WB6RSK	146.025	+600	136.5	Pomona	Pomona Valley Am. Rad. Council
4	AA6DP	147.090	+600	79.7	Catalina Isl.	Catalina Repeater Assoc. At Cataline airport.
5	KE6TZG	146.385	+600	146.2	Keller Peak	Keller Peak Rptr. Assoc. Wide Coverage
6	KD6DDM	146.610	-600	103.5	Corona	Sierra Peak
7	W6FNO	146.820	-600	None	San Dimas	Hwy. Emerg. Calling Rptr., 30 sec timeout
8	NO6B	147.030	+600	100.0	Diamond Bar	So. Cal. FM Society
9	KA6WIN	147.210	+600	100.0	Sunset Ridge	WINSYSTEM - multistate repeater system***
10	N6SLD	145.220	-600	103.5	Santiago Peak	Clairemont Repeater Assoc 145220.com ***
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*** PRIVATE OR CLOSED OR MEMBER SUPPORTED REPEATER. GUEST FRIENDLY: TRY AS GUEST BUT JOIN IF HEAVY USER

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.

Repeaters in the spectrum from 146 to 148 MHz follow an inverted 15KHz sub-band plan, yielding 53 repeater pairs.

In addition, there are several pairs assigned as odd-splits, portable pairs, testing pairs, etc. Refer to the TASMA website for full details.

1.25 Meter Band Repeaters

#	Callsign	RX Freq.	TX offset MHz	PL	Approx. Location	Comment
1	W6NRY	223.980	-1.6	103.5	Johnstone Pk.	Edgewood Am. Rad. Soc. Wide Area
2	K6JSI	224.160	-1.6	71.9	Sunset Ridge	WINSYSTEM - multistate repeater system***
3	WA6CGR	224.280	-1.6	107.2	Arcadia	So. Cal. Exp. Am. Radio. Assn. / WA6CGR
4	AA6DP	224.420	-1.6	110.9	Catalina Island	Catalina ARA - Wide Area 1602 feet ASL
5	WR6JPL	224.700	-1.6	114.8	Diamond Bar	JPL Amateur Radio Club
6	K8BUW	224.820	-1.6	156.7	Santiago Peak	condor-connection.org, Linked Sys. Short QSO's.
7	WA1IRS	224.900	-1.6	103.5	Sunset Ridge	Amateur Intl. Radio System

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70 Centimeter Band Repeaters

#	Callsign	RX Freq.	TX offset MHz	PL	Approx. Location	Comment
1	WG6OTA	449.160	-5	77.0	Sunset Ridge	In use for GOTAHAMS nets since Spring 2021
2	NO6B	445.080	-5	103.5	Diamond Bar	Wide Area
3	K6TEM	445.480	-5	131.8	Arcadia	LA Cnty. Sheriff. Link: N6USO/2m & K6TEM/70cm
4	K6TEM	449.880	-5	146.2	Sunset Ridge	LA Cnty. Sheriff. Link: N6USO/2m & K6TEM/70cm
5	K6OPJ	445.560	-5	136.5	Chino	
6	K6CPP	445.580	-5	156.7	Pomona	Cal Poly Pomona
7	KD6DDM	445.760	-5	103.5	Corona	Sierra Peak
8	KD6AFA	445.920	-5	186.2	Sunset Ridge	
9	K6ONT	447.200	-5	114.8	Rancho Cuc.	Ontario city Emergency Comms.//Tri Cities ACS
10	K6OES	448.340	-5	114.8	Johnstone Pk.	Calif. Emerg. Svcs. Rad. Assn. Wide Area
11	K6JSI	448.060	-5	100.0	Santiago Peak	WINSYSTEM - multistate repeater system***
12	K6JSI	447.580	-5	100.0	Arcadia	WINSYSTEM - multistate repeater system***
13	WDZFZA	446.760	-5	DCS 073	Santiago Peak	PAPA SYSTEM repeater system ***

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Other Suggestions and Reminders:

Always listen first, avoid stepping on another conversation. Make sure you are transmitting on the frequency you intend and are within your operating privileges. If your signal turns out to be weak and highly noisy, failing to hold the repeater then consider keeping repeater conversations short as others monitoring may not enjoy the layer of noise.

Use the term 'Break' only to interrupt for an emergency. Otherwise, use 'Comment' or 'Question'. ALWAYS give way to emergency or priority traffic and always be courteous and helpful. If you hear a 'Break', give way immediately. For a Comment or Question, acknowledge the caller, perhaps finish your immediate thought and then give them a chance to join.

Remember the young hams out there as you choose topics and words.

When keying, wait a second or so before speaking to avoid having the first syllables of your statement being truncated. Wait even longer for repeater 'systems' as it can take a bit longer for all of the repeaters in the system to key up.

Wait until after the courtesy tone to transmit to avoid timing-out the repeater. Timeout timers are often 2 minutes or less (sometimes 30 seconds on 'calling repeaters'). Remember to ID every 10 minutes and at the conclusion of each communication per Part 97.

Do not respond to or comment upon intentional QRM in ANY way. Ignore it as the zero value it really represents. If you are unable to continue your communications, just go elsewhere or shut down after a closing ID. It won't help to comment on the problem, it just gives the illegal operator satisfaction. Take that away from them - let them be bored. Do not engage in communications with unlicensed stations or stations that do not identify themselves.

SOME SUGGESTED SIMPLEX FREQUENCIES

Note: It is suggested that you avoid long QSO's on the national calling frequencies. Make contact but move to another frequency for conversations longer than a few minutes. As always, LISTEN before transmitting as part of assuring that the frequency is not already in use. When choosing frequencies in non-channelized areas, remember to respect the band edges, mindful of the bandwidth of the emission mode you are using. Your entire signal needs to fit within the band – not just your center frequency.

2 Meter Simplex: NOTE that, as of late 2022, TASMA is soliciting input on possible changes to allocate certain 2M simplex frequencies to digital modes. Refer to their website at www.tasma.org for the latest information.

Frequency MHz	Comments
144.310-144.375	Un-channelized Simplex, Multiple use. Avoid band edges.
144.405-144.475	Un-channelized Simplex, FM. Avoid band edges.
144.490	Uplink FM to Int'l Space Station. Avoid for other use.
145.510	FM Simplex channel
145.525	FM Simplex channel
145.540	FM Simplex channel
145.555	FM Simplex channel
145.570	FM Simplex channel
145.585	FM Simplex channel
145.600	FM Simplex channel
145.615	FM Simplex channel. Some D-Star
145.630	FM Simplex channel
145.645	FM Simplex channel
145.660	FM Simplex channel
146.520	National US FM Calling Frequency. Short QSO.
146.535	FM Simplex channel
146.550	FM Simplex channel
146.565	FM Simplex channel. T-hunt. Avoid if T-hunt in progress
146.580	FM Simplex channel
146.595	FM Simplex channel
147.480	FM Simplex channel
147.510	FM Simplex channel
144.390	APRS Data (digital packet)
144.970	Packet Radio (digital)
145.030	Packet Radio (digital)
145.050	Packet Radio (digital)
145.070	Packet Radio (digital)
145.090	Packet Radio (digital)

Typical So. Calif. simplex spacing: Voice: 15KHz Data 20KHz

1.25 Meter Band Simplex

Frequency MHz	Comments
223.400	FM Voice Simplex
223.420	FM Voice Simplex
223.440	FM Voice Simplex
223.460	FM Voice Simplex
223.480	FM Voice Simplex
223.500	FM Voice Simplex. National US FM Calling Frequency. Short QSO.
223.520	FM Voice Simplex

Southern California channel spacing: 20KHz

70 Centimeter Band Simplex

Frequency MHz	Comments
441.500	Simplex Digital/packet
441.520	Simplex Digital/packet
446.000	FM Simplex. No Digital. National Calling Frequency. Short QSO.
446.500	FM Simplex. No Digital
446.520	FM Simplex. No Digital

Southern California channel spacing: 20KHz

SOME SUGGESTED HOTSPOT FREQUENCIES

The band plans are not specific as to the use of modern hotspot devices (such as the Zumspot, etc.). Use of these has expanded since band plans were last updated. Also, it is true that these devices have very low power transmitters and tiny antennas (perhaps 10mW or so). But remember that the handheld radio you may use to reach the hotspot, even on its low power range, probably transmits many times this power – perhaps a full watt – and uses a higher gain antenna. To avoid interference to other operations, pay attention to activity in your area. Be sure to use the lowest power setting available on your radio. And seriously consider using a very low gain ‘stubby ducky’ antenna an two long or so to minimize radiation from your radio. You only need to make it to the hotspot. This may minimize interference to other hams attempting to use the same frequencies.

These frequencies were found by locating reports from various hams about communications they had with SCRRBA and others, and only for southern California. If in doubt, reach out to SCRRBA yourself. As most hotspots focus on 70cm frequencies, these are the only ones considered here. We did not attempt to identify or suggest hotspot frequencies for 144 or 220 MHz as these seem less used.

The frequencies in bold text are stronger recommendations.

Frequency	Comment
431.0125	low power, a bit close to 431MHz sub band segment edge
431.0250	low power, better guard band from sub 431MHz activity
431.0375	low power, better guard band from sub 431MHz activity
431.0375 - 431.5875	12.5 KHz increments, but only if 3 channels above already in use
438.9500	low power. Close to sub band edge
438.9750	low power, nice pad from sub-band edge
439.0000	low power, nice pad from sub-band edge
439.0250	low power, nice pad from sub-band edge
439.0500	low power, close to sub band edge

TASMA BAND PLAN EXCERPT – 2 METERS

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 (un-channelized)
144.390 - Digital (packet) -- (APRS)
144.405 - 144.490 FM simplex (un-channelized)
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
145.675 - 145.785 Fixed simplex auxiliary stations (internet links, remote base, etc.: 15 kHz spacing)
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)
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)

See www.tasma.org for complete details.

220SMA BAND PLAN EXCERPT – 220 MHz

CHANNEL SPACING IS 20 kHz UNLESS INDICATED OTHERWISE.

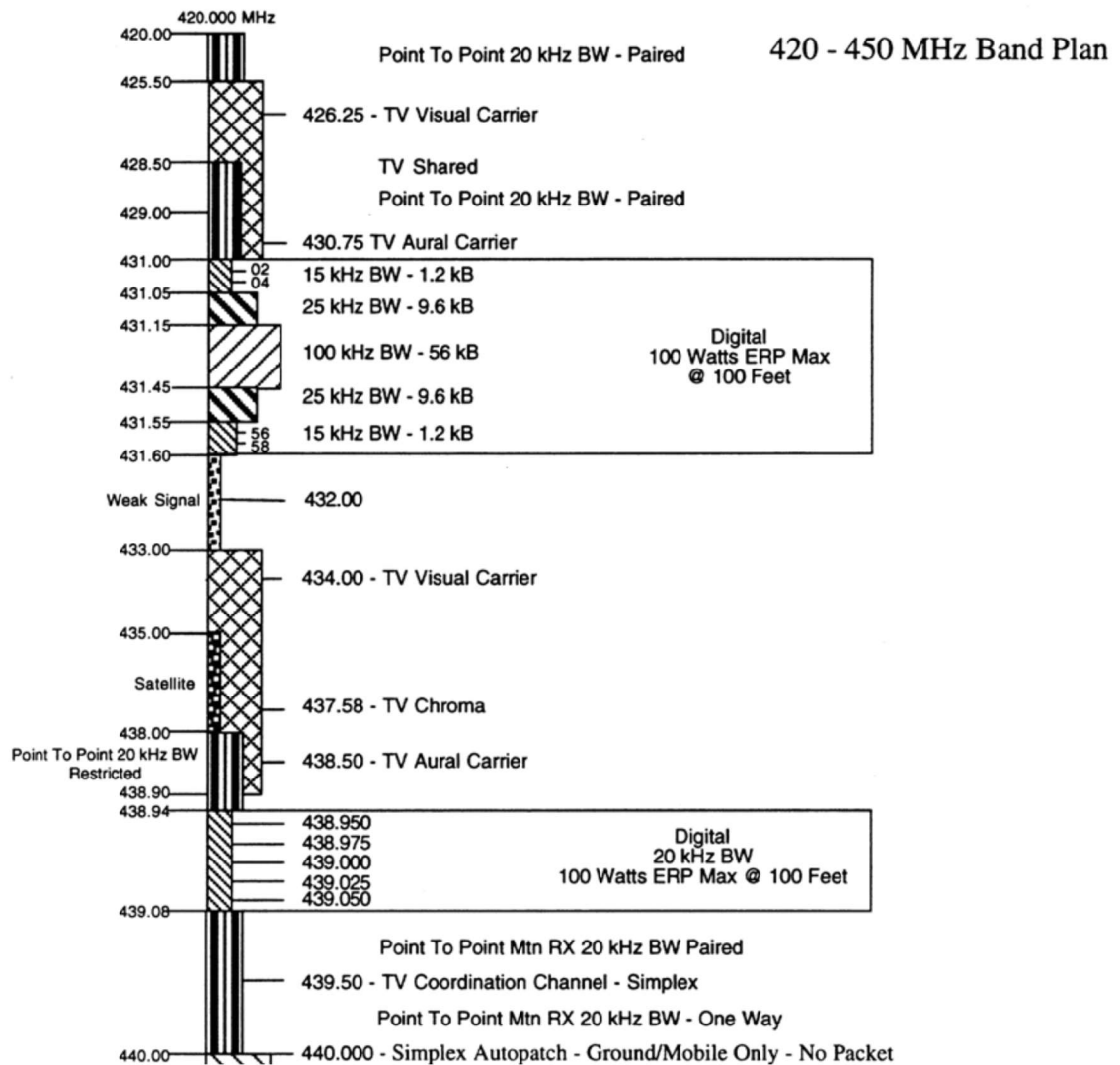
FREQ.	USAGE
219.000 - 220.000	POINT TO POINT DIGITAL LINKS (100 kHz CHANNELS)
222.000 - 222.110	WEAK SIGNAL, CW, & SSB (NO CHANNEL PLAN)
222.000 - 222.025	EME
222.050 - 222.060	PROPAGATION BEACONS
222.100	NATIONAL SSB CALLING FREQUENCY
222.120 - 222.140	FM VOICE SIMPLEX (NO AUTOMATED BASE STATIONS)
222.160 - 223.380	REPEATER INPUTS
223.400 - 223.520	FM VOICE SIMPLEX
223.500	NATIONAL FM CALLING FREQUENCY
223.540 - 223.600	DIGITAL CHANNELS
223.540	INTER - AREA LINKING / SIMPLEX DX CLUSTER LINKING
223.560	SIMPLEX LAN / GENERAL USE / BBS USER PORT
223.580	INTER - AREA LINKING / SIMPLEX METRONET
223.600	GENERAL USE / KEYBOARD TO KEYBOARD
223.620	LOW-LEVEL, LOW-POWER (<5W) AUTOMATED SIMPLEX STATIONS (IRLP, ELINK, AUTOPATCH)
223.635	LOW-LEVEL, LOW-POWER (<5W) AUTOMATED SIMPLEX STATIONS (IRLP, ELINK, AUTOPATCH)
223.650	LOW-LEVEL, LOW-POWER (<5W) AUTOMATED SIMPLEX STATIONS (IRLP, ELINK, AUTOPATCH)
223.665	LOW-LEVEL, LOW-POWER (<5W) AUTOMATED SIMPLEX STATIONS (IRLP, ELINK, AUTOPATCH)
223.680	COORDINATED AUX LINKS / CONTROL CHANNELS
223.695	COORDINATED AUX LINKS / CONTROL CHANNELS
223.710	COORDINATED AUX LINKS / CONTROL CHANNELS
223.725	COORDINATED AUX LINKS / CONTROL CHANNELS
223.740	COORDINATED AUX LINKS / CONTROL CHANNELS
223.760 - 224.980	REPEATER OUTPUTS

See www.220SMA.org for complete details.

SCRRBA BAND PLAN EXCERPT - 420-440 MHz



Southern California Repeater and
Remote Base Association
P.O. Box 5967
Pasadena, California 91117



See www.scrrba.org for complete details.

SCRRBA BAND PLAN EXCERPT - 440-450 MHz

440.000

SCRRBA 440-450 MHz Band Plan

5 MHz Input/Output Split - 20 kHz Channel Spacing
16 kHz Maximum BW - FM Only (16K0F3E)
Repeater Output:
445.020 to 449.980 MHz

Public Open Repeater Frequencies

445.200
445.520
445.560
445.580
445.600
445.620
445.640
445.660
445.680
445.900
445.920
446.400
447.000
447.020
447.200
447.320
447.580
449.200
449.300
449.500
449.700

440.000 - Simplex- Low-level Mobile, Autopatch, IRLP,
EchoLink. NO DIGITAL

441.000 - Remote Control Only - No Voice or Digital

441.500 - Simplex Digital (Packet) 16kHz BW - No Voice

441.520 - Simplex Digital (Packet) 16kHz BW - No Voice

441.860 - Test Pair Input - Repeater Input Only - No Digital

441.880 - Test Pair Input - Repeater Input Only - No Digital

444.4625-Test Pair Input -Repeater Input, Digital Only

445.000 - Simplex- Low-level Mobile, Autopatch, IRLP,
EchoLink. NO DIGITAL

446.000 - Simplex Voice - Ground/Mobile Only - No Digital

446.500 - Simplex Voice - Ground/Mobile Only - No Digital

446.520 - Simplex Voice - Ground/Mobile Only - No Digital

446.860 - Test Pair Output-Repeater Output Only-No Digital

446.880 - Test Pair Output-Repeater Output Only-No Digital

449.460 - Simplex Remote Intercommunications Channel

449.4625-Test Pair Output -Repeater Output, Digital Only

NOTE: The specific frequencies above are shared and
do not require prior coordination.

450.000

January 2016

See www.scrba.org for complete details.