

## President's Message

*Gary Mitchell, WB6YRU*

There hasn't been a lot of progress lately on the general band plan. All that's left are the bands above 70 cm. The band that really needed the attention was 70 cm, and now that it's done, there isn't a lot of impetus to get the higher bands done any time soon.

Still, if anyone has any thoughts or feelings on the higher bands, now is a good time to mention it.

We intend to have the next general meeting at Pacificon this year. Every effort will be made to avoid the room allocation snafu that we had last year.

There isn't anything solid yet. Watch the next Downlink issue for details. In the mean time, just be aware of it.

We'll try to have it on Saturday afternoon. The last time we did that, the meeting was better attended.

**EOF**

## News from the ARRL

From *The ARRL Letter*, May 17, 2002

### LANDMARK BILL COULD PROVIDE AMATEURS RELIEF FROM RESTRICTIVE

### COVENANTS

A bill introduced in Congress in May could provide relief to amateurs prevented by private deed covenants, conditions and restrictions (CC&Rs) from installing outdoor antennas. Rep Steve Israel (D-NY) introduced the "Amateur Radio Emergency Communications Consistency Act" on May 14. The bill has been designated H.R. 4720. Rep Greg Walden, WB7OCE (R-OR)--the only Amateur Radio operator in Congress--and Rep Pete Sessions (R-TX) have signed on as original cosponsors.

With respect to ham antennas, the measure would subject private land-use regulations to the PRB-1 limited federal preemption that now applies only to governmental zoning and land-use regulations. It contains but one sentence: "For purposes of the Federal Communications Commission's regulation relating to station antenna structures in the Amateur Radio Service (47 CFR 97.15), any private land use rules applicable to such structures shall be treated as a state or local regulation and shall be subject to the same requirements and limitations as a state or local regulation."

H.R. 4720 is expected to be assigned to the Telecommunications and Internet Subcommittee of the House Energy and Commerce Committee.

Israel, whose father, Howard, is K2JCC,

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noted in a statement read into the Congressional Record that the FCC does not now apply PRB-1 consistently. "My bill addresses this issue and provides amateur radio licensees with the ability to negotiate reasonable accommodation provisions with homeowners' associations, just as they do now with public land-use regulators."

After the ARRL ran into a brick wall trying to convince the FCC to include CC&Rs under PRB-1, the League's Board of Directors agreed to pursue a congressional remedy. ARRL President Jim Haynie, W5JBP, and other League officials met with Israel, Walden, Sessions and others on Capitol Hill earlier this year to discuss the prospect of such a bill and how it should be

worded. With the proposal now in the legislative hopper, Haynie urged ARRL members to write their members of Congress and voice support for the measure.

Haynie said the important thing to point out is that the bill, if passed by both houses of Congress and signed by the

president, would give amateurs living under CC&Rs an opportunity for reasonable accommodation they don't have now.

Visit the US House of Representatives "Write Your Representative Service" Web page <<http://www.house.gov/>

writerep/> for information on how to contact your representative. A sample letter is available on the ARRL Web site <<http://www.arrl.org/news/stories/2002/05/14/102/sample-letter.html>>.

ARRL requests those writing or e-mailing members of Congress to copy ARRL on their correspondence--via e-mail to [ccr-bill@arrl.org](mailto:ccr-bill@arrl.org) or via US Mail to CC&R Bill, ARRL, 225 Main St, Newington, CT 06111. Include the bill number--H.R. 4720--your name and address on all correspondence.

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The digital band plan as well as other information about the NCPA, are available on the Web at: <http://www.n0ary.org/ncpa>

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### **FCC RELEASES DETAILS OF 5 MHz, 136 kHz AND 2400-2402 MHz PROPOSALS**

The FCC has released the Notice of Proposed Rulemaking in ET Docket 02-98, which proposes to create new amateur allocations at 5 MHz and 136 kHz and to elevate the status of Amateur Radio at 2400 to 2402 MHz from secondary to primary. In response to separate petitions filed by the ARRL, the FCC voted unanimously May 2 to adopt the NPRM in ET Docket 02-98.

The Commission announced in a Public Notice released May 9 that it would propose a new, secondary, domestic (US-only) HF allocation at 5.25 to 5.4 MHz and a new LF allocation 135.7 to 137.8 kHz. If eventually approved, the 5 MHz band would be the first new HF allocation since the early 1980s, when amateurs got 30, 17 and 12 meters. The LF allocation would be the first ever for US hams. The FCC said it received 87 comments on the 5 MHz proposal and 32 comments on the LF proposal.

"We agree with ARRL that propagation and interference conditions in the 3500 kHz and 7000 kHz bands could hinder effective amateur HF communications," the FCC said in its NPRM. "In particular, as ARRL indicates, the nature of the ionosphere prevents communications during certain portions of the day because of increased atmospheric noise levels at certain times on certain frequencies."

The FCC said ARRL's WA2XSX

experimental operation "appears to support its contention" that the band could supplement 80 and 40 meters at certain times.

The FCC has proposed letting amateurs operate at full legal limit on a new 5 MHz allocation, but it left open for further discussion whether to restrict the band to Amateur Extra Class licensees or make it available to General and higher class licensees. The FCC also invited further comment on whether the band should be broken down into mode-specific subbands. The ARRL had proposed opening the entire band to RTTY, data (including CW), phone and image emission types.

Assuming the 5-MHz band eventually is authorized, it could be a few years before it actually becomes available. The band 5.250 to 5.450 MHz now is allocated to Fixed and Mobile services on a co-primary basis in all three ITU regions.

On 136 kHz, the FCC has proposed mirroring technical limits suggested by Canada during World Radiocommunication Conference 2003 preparations to 1 W effective isotropic radiated power (EIRP) and with a transmission bandwidth of only 100 Hz. The ARRL has asked for than 2 W EIRP and a maximum transmitter power of 200 W PEP.

The FCC proposed no restrictions on antenna size or design, saying it did not want to inhibit experimentation by hams. It proposed to limit access to the band to General and higher-class licensees, as ARRL had proposed.

The FCC said it was reluctant to also propose allocating an amateur band at 160 to 190 kHz--as ARRL had requested--because of concerns about possible interference to unlicensed power line carrier (PLC) systems in that band. The FCC noted it had turned down a 1978 ARRL petition for the same reason.

The FCC said ARRL's request to upgrade the 2400-2402 MHz band "has merit." It did not propose any changes in

service rules or operational requirements.

The NPRM is available on the FCC Web site <[http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-02-136A1.doc](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-02-136A1.doc)>. The FCC is expected to soon make this proceeding available for comments filed via its Electronic Comment Filing System (ECFS). Visit the ECFS site <<http://www.fcc.gov/e-file/ecfs.html>>, click on "Search for Filed Comments" and enter "02-98" in the "Proceeding" field.

### **ARRL ASKS FCC TO PULL 2390-2400 MHz OUT OF PLAY AS "REPLACEMENT SPECTRUM"**

The ARRL has asked the FCC to pull the 2390-2400 MHz amateur band out of consideration as possible "replacement spectrum" for relocated 800-MHz Public Safety band users. But the ARRL did leave the FCC some wiggle room. A Notice of Proposed Rulemaking (WT Docket 02-55)--released in mid-March--invited comments on either sharing the band with displaced Public Safety services or moving amateurs elsewhere.

"The band is unavailable for relocation of Nextel or other CMRS services, and should not be under consideration in this proceeding," the ARRL told the FCC in comments filed May 6. The FCC had referred to 2390-2400 MHz as an "Unlicensed PCS Band," but, as the League reminded the Commission, "That band is allocated on a primary basis to the Amateur Service domestically."

In 1995, the FCC accepted a proposal negotiated by ARRL and Apple Computer that involved a compatible sharing proposal for 2390-2400 MHz. Under the plan, the band was allocated on a primary basis to the Amateur Service and made available for use by asynchronous unlicensed Personal Communications Service (UPCS) devices regulated under Part 15. In the current proceeding, the FCC also sought comments on whether existing UPCS operations could continue in the band or be forced to cease.

The FCC has said that increasing incidents of harmful interference to public safety systems in the 800-MHz band prompted the latest rulemaking proceeding, "Improving Public Safety Communications in the 800 MHz Band." The Commission said its discussion of 2390-2400 MHz and other segments in terms of replacement spectrum was intended to be "illustrative rather than exclusive" and that other bands "may also merit consideration."

Last summer, the FCC invited comments on proposals to reallocate some spectrum in the 2390 to 2400 MHz amateur segment--as well as in the non-amateur 1.9 and 2.1 GHz bands--for possible use by unspecified mobile and fixed services. The Commission has proposed 2390 to 2400 MHz and other bands to support the introduction of advanced wireless services, including so-called third-generation (3G) mobile systems.

The ARRL said it's not prepared to speculate on relocation spectrum for amateurs if the primary amateur allocation is modified in either proceeding and amateurs are displaced. The League suggested that "some reaccommodation" might be made if the FCC allocates 2300-2305 MHz to the Amateur Service on a primary basis.

"While that would be, at best, an incomplete solution for the Amateur Service, it might contribute to the availability of some portion of the 2390-2400 MHz band for displaced 800 MHz licensees," the ARRL said. The ARRL already has petitioned the FCC for primary status at 2300 to 2305 MHz. The petition faces competition from AeroAstro, which wants co-primary status with the Amateur Service for its commercial satellite-based location service.

The ARRL said it's "a simple matter" to conclude that there is no compatibility between displaced 800 MHz incumbents and amateurs in the band anymore than there would be to share it with advanced wireless services, as earlier suggested.

"Sharing between the Amateur Service

and commercial services, especially mobile commercial services, is extremely difficult generally," the ARRL concluded.

The FCC recently proposed upgrading the adjacent Amateur Radio 2400-2402 MHz allocation from secondary to primary, mainly to protect satellite operations. The AO-40 satellite has been successfully using the band for downlink telemetry and transponder operation, and AMSAT plans a similar downlink for its next satellite project. The Amateur Service already is primary at 2402-2417 MHz. There's a secondary amateur allocation at 2417-2450 MHz.

The complete NPRM and a copy of ARRL's comments are available via the FCC Electronic Comment Filing System Web site <<http://www.fcc.gov/e-file/ecfs.html>>. Click on "Search for Filed

Comments" and enter "02-55" in the "Proceeding" field.

### Migrating RV TV amplifiers bringing interference with them

As many recreational vehicle owners make their seasonal trek northward, unintentional radio interference may be hitchhiking. As reported in February 2001 <<http://www.arrl.org/news/stories/2001/02/14/3/>>, certain amplified TV antennas have been found to produce interference in the 400-500 MHz range that could cause problems for Public Safety and Amateur Radio systems. Winegard has been replacing its offending Sensor antenna units at no cost. See the Winegard Web site <[http://www.winegard.com/products/mobile/sensor\\_customers.html](http://www.winegard.com/products/mobile/sensor_customers.html)> for details. The FCC's Dave Galosky in the Office of

Engineering and Technology says Winegard estimates there still may be thousands of defective units in the field. Boat and RV owners using these antennas may experience interference to onboard systems, such as GPS. According to the FCC, similar antennas from three other manufacturers also produce interference. The RadioShack RS 1624--made by TDP Electronics--transmits a spurious emission at 468 MHz and at its second harmonic, 936 MHz. The Shakespeare Seawatch 2050 antenna and an unspecified antenna model made by RCA/Thompson also have been reported to generate similar interference, the FCC says.

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From *The ARRL Letter*, June 21, 2002

### NEW AMATEUR BAND PROPOSALS

Public comments on FCC proposals to create two new amateur bands and to upgrade an Amateur Service allocation at 2.4 GHz to primary are closed now. In response to an ARRL petition, the FCC released a Notice of Proposed Rule Making (ET Docket 02-98) that proposed to create a new 5-MHz HF allocation and a new low-frequency band in the vicinity of 136 kHz in addition to elevating amateurs from secondary to primary at 2400 to 2402 MHz.

The FCC adopted the NPRM May 2 on a unanimous vote. The NPRM was published June 14 in *The Federal Register*. A copy of the petition is available on the ARRL Web site <<http://www.arrl.org/announce/regulatory/et02-98/>>. To view filed comments, click on "Search for Filed Comments." Enter "02-98" in the "Proceeding" field. More than 130 parties--most of them individual amateurs--already have filed comments.

If the proposals eventually are approved, amateurs would gain a new, secondary, domestic (US-only) HF allocation at 5.25 to 5.40 MHz and a new LF "sliver band" at 135.7 to 137.8 kHz.

## Packet Sysops of Northern California Packet Bulletin Board Systems March 2002

Call -----	Location -----	User Ports -----
WH6IO	Benica	144.99, 145.71&+, 145.75&, 433.43&+
WA6ZTY	Berkeley	144.97
KE6I	Berkeley	145.01&, 433.43&
N2THD-1	Citrus Heights	145.07, 441.50
N6CKV	Gilroy	144.99
N6LDL	Los Gatos	144.97, 145.71&, 441.50
WA6NWE-1	North Highlands	144.93, 145.09, 145.75, 441.50
KD6DG	Redding	145.09
W6CUS-1	Richmond	145.63
N0ARY-1*	San Jose	* 144.93, 433.37&
K6YV	Sonora	144.97
WA6EWV-1	South Lake Tahoe	144.97
W6YX-9*	Stanford Univ	* 145.75+
W6SF	Stockton	144.99
K6MFV*	Walnut Creek	* 144.31, 145.71&+

Keys:

- & = 9600 Baud Port
- + = TCPIP Port
- \* = Currently Inactive

The FCC has recommended permitting amateurs to operate at full legal limit on a new 5-MHz allocation, but it left open for further discussion whether to restrict band access to certain license classes. The FCC also has invited further comment on whether the band should be broken down into mode-specific sub-bands.

On 136 kHz, the FCC has proposed limiting output to 1 W effective isotropic radiated power (EIRP)--or 100 W PEP maximum transmitter output--and with a transmission bandwidth of only 100 Hz. The ARRL had asked for 2 W EIRP and a maximum transmitter power of 200 W PEP. The FCC has asked whether its proposed power limits are appropriate. The FCC proposed to limit access to the band to General and higher-class licensees.

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## Large-Scale Packet Radio Networking or Let's Get Serious!

Opinion by Charles Brabham N5PVL

A large-scale packet network is, more than anything, a social entity. Sure, there's lots of hardware, but the most important component is the people. The key to success here is to match up that social group's structure and attitudes with it's goals, starting off with an unblinking analysis of just exactly what those goals are.

This matching of attitudes with goals needs to be adjusted in all cases I've seen here in the US, as virtually all of our digital ham organizations are patterned after the familiar repeater clubs that hams

have had going for quite some time. Unfortunately though, when the "repeater club" organizational model is applied to the design, building and maintenance of a large-scale Packet Radio network, several serious problems inevitably develop. As time goes by, these problems tend to get worse instead of better.

For example; Ask any packet networker who's been at it for a while, and he will tell you tales of burnout that bring slow, lingering death to mind. A few key people end up doing most of the work and footing the bill, and everybody else is just along for the ride, complaining as they go.

That's a great system if you are only planning on putting up a few repeaters and need individual supervision of each installation, but I believe it is universally

## DX Spotting Nodes

June 2000

<u>Location</u>	<u>Call</u>	<u>Alias</u>	<u>Frequency</u>	<u>Coverage</u>
California City	K6ZZ		144.490	Antelope Valley area
	EARN8		144.490	Oak Peak
Castro Valley Chico	W6RGG	DXCV	145.770	East, West, South SF Bay area
	K6EL	DXC	145.670	Chico
	K6EL	DXW	145.670	Oroville, Red Bluff
	K6EL	DX	144.950	South Fork Mtn - Redding area
Hanford	K6UR	DXFRES	144.950	Bear Mtn, Fresno area
	K6UR	DX7	145.770	Mt. Adelaide, Bakersfield area
	K6UR	DX16	145.770	Oakhurst
Livermore	NF6S	DXL	145.770	Tri-Valley area
Los Gatos	N6ST	DXLG	146.580	Santa Cruz Mtns, Monterey Bay
	N6ST	DXF	146.580	Santa Cruz/Los Gatos
Mountain View	K6LLK	DXMV	144.950	Mountain View, San Jose area
Oakdale	K6OQ		146.580	Modesto area
Penngrove	K6ANP	DXANP	145.670	Sonoma County
Reno, Nevada	N7TR	RENODX	144.950, 146.58, 441.500	(2400 baud), 51.7
	N7TR	PCDX1	146.580	Low Level in Reno
	N7TR	PCDX	144.950	Virginia City, NV
	N7TR	DX2400	441.500	(2400 baud)
Rio Linda	K6NP	DXRL	144.950	Sacramento, Woodland, Davis

Bob Vallio - W6RGG wsixrgg@crl.com

recognized now that it just doesn't work well for large-scale digital networks. Once the initial growth spurt peters out, things start going to the dogs in a hurry. Those few key people lose interest or move on to other things, and the entire structure is placed in danger of falling apart.

This degeneration is pretty well inevitable, because those "key people" are the same ones I mentioned earlier, who do most of the work and foot most of the bill, while everybody else carps and complains about them. After a while they simply burn out, and finding new "victims" to take that hellish road in their place is not as easy as it used to be.

Clearly, a different way of doing things needs to be looked into.

It's my feeling that there is a need to work on a model for setting up and staffing an organization dedicated to building, developing and maintaining a large-scale digital ham radio network. What specialized jobs besides "network manager" might be needed in order for the network to function as efficiently, effectively and smoothly as possible?

One function that is regularly overlooked is a Funding Czar. Most ham organizations get along just fine by collecting reasonable dues or maybe having an occasional event such as a Ham-Fest in order to put a little something in the kitty. A club that intends to run and maintain a large-scale ham digital net needs to take funding a little more seriously than that, though.

Setting up a small cluster of local repeaters and running a digital RF network with a 600 mile footprint are two entirely different things. We need to recognize that fact and act accordingly.

A funding Czar's main job would be to oversee the operation of a non-profit organization. As with all non-profit organizations, it's main purpose would be to generate funding and materials in order to perform a public service. (emergency communications, education,

and scientific research, in this case) For this reason, a professional should be hired and told that he will be generating his own salary. Work out a legal and satisfactory cut, familiarize him with your needs and goals, and then turn him loose.

There are numerous ways for non-profits to generate funds, including accepting donations of radio equipment and even towers/tower space from local corporations and government agencies that are upgrading to new equipment. You get a stack of UHF Micors and rolls of used but good heliax, while they get a tax write-off for the market value of the equipment without having to market it. There's no need to mention, I suppose, that when they have to market that old stuff they hardly ever get a decent fraction of the market value?

Once you have obtained this donated equipment, sell it all to your in-house networkers at a bargain price, or to other hams at the regular street price. That is, if you need money more than radios.

Why not pay a few folks to clean up, recrystal and calibrate that stack of rigs, each matched up with a modem or TNC for true "plug 'n play" medium to high speed networking that can be done without requiring a service monitor and technician at each node site? Doing this eases the "expert burnout" problem quite handily, and puts you in a good position to have ready spares on hand for rapid repair of a node that develops trouble. Just jerk out the whole setup and replace it with a new, perfectly calibrated one and put the malfunctioning modem/radio pair in the junk pile for parts or for possible realignment/repair. An appliance operator job. No burnout.

Since you can now afford to; Build parallel, redundant links so that the loss of one node will not interrupt service, instead only slowing things down a bit until it can be replaced or repaired. Bulletproof your network; Go solar. Arrange things so that when the phones and cellular are down and out, or pre-empted by FEMA, your independent

digital Ham Radio network is still (as always) ready to do it's job.

And so on...

Besides the simple fact that a large-scale Packet network is going to require much better funding and distribution of labor than we have previously attempted in order to work well, we should also keep in mind the fact that a digital network cannot simply be passed on from hand to hand like a repeater site. Long-term node site usage by the organization should be sought, not short time use arranged by individuals. Donated tower space may or may not be tax deductible, but in any case it will always be a "bragging point", generating good will. A legitimate non-profit organization can negotiate long-term, wide-scale tower access deals with government or commercial entities that control access to many towers, not just one or two.

How about a "equipment coordinator", who ships the replacement radio/modem pairs off to wherever they need to be, and assists the node-ops with technical questions over the phone or e-mail? The beauty of standardized equipment is that troubleshooting becomes routine enough that most common problems and their cures are well documented and fairly easy for non-experts to deal with.

There are, of course, disadvantages inherent in having an organization supply the equipment to be used for a digital network, but these are outweighed or at least balanced by a number of advantages which networkers here in the US have never enjoyed in the past and so are not aware of. Effective spectrum management, standardization of equipment and software, and reliable management of resources are currently virtually unknown in most US APR digital networking organizations.

Let's get serious! Think Large-Scale!

Charles, N5PVL

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# Digital Channel Allocations in Northern California

N C P A

March 2002

## 50 MHz

50.60-50.80 (20 kHz channels, non-specific at this time)  
51.12 SCA backbone  
51.14 BBS  
51.16 Keyboard to Keyboard  
51.18 Experimental  
51.62 TCP/IP, 9600 baud  
51.64-51.68 (20 kHz channels, non-specific at this time)

NOTE: On this band adjacent channel interference is harder to overcome for repeaters. NARCC requests that any new six meter permanent packet installations (such as nodes) please check with their six meter coordinator. You don't need a formal coordination, but they would like to be aware of your station and have an opportunity to check for possible conflicts first.

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## 144 MHz

144.31 BBS  
144.33 Balloon & experimental  
144.35 Keyboard to Keyboard  
144.37 BBS LAN forwarding  
144.39 APRS (U.S. and Canada)  
144.41 duplex, lower half (145.61 upper half, 1.2 MHz split)  
144.43 TCP/IP (OK to run duplex with 145.65)  
144.91 Keyboard to Keyboard  
144.93 BBS  
144.95 DX Spotting  
144.97 BBS  
144.99 BBS  
145.01 User access  
145.03 Keyboard to Keyboard  
145.05 Keyboard to Keyboard  
145.07 BBS  
145.09 BBS  
145.61 duplex, upper half (144.41 lower half)  
145.63 BBS  
145.65 TCP/IP 9600 bps (OK to run duplex with 144.43)  
145.67 DX Spotting  
145.69 BBS  
145.71 9600 bps  
145.73 BBS  
145.75 TCP/IP  
145.77 DX Spotting  
146.58 DX Spotting

NOTE:

Allocations from 144.31 through 144.43 are relatively close to the weak-signal sub-band—please watch your FM deviation.

## 220 MHz

219.05-219.95 100 kHz channels, Backbone  
223.54 LAN  
223.56 LAN  
223.58 LAN, Gilroy (GARLIC)  
223.60 LAN, Sacramento Valley (SACVAL)  
223.62 LAN, South Bay (SBAY)  
223.64 TCP/IP  
223.66 Keyboard to Keyboard  
223.68 DX Spotting Backbone  
223.70 LAN, Monterey Bay & North Coast (MRYBAY)  
223.72 LAN, North Bay (NBAY)  
223.74 Backbone, DX Spotting

NOTES:

- 219 channels are by coordination only. There are currently political problems with using 219-220, making them unavailable in most of northern CA.
- On 223.58, TCP/IP interlink (Sacramento) is secondary, not to interfere with node uplink.

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## 440 MHz

431.45 / 434.85 Duplex (100 kHz)  
431.55 / 434.95 Duplex (100 kHz)  
431.65 / 438.40 Duplex (100 kHz)  
431.85 / 438.60 Duplex (100 kHz)  
431.95 / 438.70 Duplex (100 kHz)  
433.05 TCP/IP backbone (100 kHz)  
433.15 BBS backbone (100 kHz)  
433.25 DX Spotting backbone (100 kHz)  
433.33 Experimental (60 kHz)  
433.37 BBS, 9600 baud  
433.39 DX Spotting  
433.41 BBS LAN  
433.43 9600 baud TCP/IP  
433.45 BBS LAN  
433.47 Keyboard Interlink  
433.49 TCP/IP  
433.51 Keyboard  
433.53 Keyboard  
433.55 BBS LAN  
441.50 Any digital

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## 900 MHz

903.500 1 MHz wide, TCP/IP  
904.500 1 MHz wide, TCP/IP

915.500 1 MHz wide, experimental  
 916.100 200 kHz wide, experimental  
 916.300 200 kHz wide, experimental  
 916.500 200 kHz wide, experimental  
 916.650 100 kHz wide, experimental  
 916.750 100 kHz wide, experimental  
 916.810 20 kHz wide, experimental  
 916.830 20 kHz wide, experimental  
 916.850 20 kHz wide, experimental  
 916.870 20 kHz wide, experimental  
 916.890 20 kHz wide, experimental  
 916.910 20 kHz wide, experimental  
 916.930 20 kHz wide, experimental  
 916.950 20 kHz wide, experimental  
 916.970 20 kHz wide, experimental  
 916.990 20 kHz wide, LAN links (Contra Costa County only)

**NOTE:**

900 MHz activity is on a non-interference basis to vehicle locator service. This sub-band is not considered suitable for omnidirectional systems. Use for point-to-point links only.

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**1296 MHz**

1248.500 1 MHz wide, experimental\*  
 1249.000-1249.450 Unchannelized, experimental  
 1249.500 100 kHz wide, experimental  
 1249.600 100 kHz wide, experimental  
 1249.700 100 kHz wide, experimental\*  
 1249.800 100 kHz wide, experimental\*  
 1249.870 20 kHz wide, experimental  
 1249.890 20 kHz wide, DX Packet Spotting  
 1249.910 20 kHz wide, experimental\*  
 1249.930 20 kHz wide, experimental\*  
 1249.950 20 kHz wide, experimental\*  
 1249.970 20 kHz wide, experimental\*  
 1249.990 20 kHz wide, experimental\*  
 1250.500 1 MHz wide, experimental  
 1251.500 1 MHz wide, experimental  
 1297.000-1298.000 Unchannelized, experimental  
 1298.500 1 MHz wide, experimental\*  
 1299.000-1299.450 Unchannelized, experimental  
 1299.500 100 kHz wide, experimental  
 1299.600 100 kHz wide, experimental  
 1299.700 100 kHz wide, experimental\*  
 1299.800 100 kHz wide, experimental\*  
 1299.870 20 kHz wide, BBS LAN  
 1299.890 20 kHz wide, DX Packet Spotting  
 1299.910 20 kHz wide, BBS LAN  
 1299.930 20 kHz wide, experimental\*  
 1299.950 20 kHz wide, experimental\*  
 1299.970 20 kHz wide, experimental\*  
 1299.990 20 kHz wide, experimental\*

\* Full duplex channel pairs at 50 MHz separation, example:  
 1249.910 ↔ 1299.910

**Definitions**

9600 BPS Stations using 9600 baud with direct FSK (G3RUH, TAPR, etc.) modems.

Backbone No uncoordinated stations. These channels are for specific purposes as defined by the NCPA and/or affiliated groups. These are frequencies where the various BBS, nodes, and networks forward traffic and are very high volume channels. Please use the normal user entry points of the network you want to access rather than these channels.

BBS These frequencies are for user access to a full-service BBS. Keyboard-to-keyboard is tolerated. Please don't put high level nodes or digipeaters on these channels since they are local. A low-level direct link or node that links into a backbone on another frequency is the proper implementation.

Duplex Simultaneous transmit and receive by a single station, including digital repeaters. Duplex channels are intended for high-volume applications. 9600 baud or higher is encouraged, but not required at this time.

DX Spotting Northern California DX packet spotting network. No other activity should be on these channels.

Experimental Anything goes except full service BBS or any 24 Hr/Day services (nodes, gateways, etc). This is where you can test new gear, programs, etc. These channels may be reassigned in the near future, so no permanent activities please.

Forwarding same as *backbone*

Keyboard to Keyboard Primarily chat channels. These are also the primary emergency channels. No high-volume activity such as full service BBS, DX Spotting, TCP/IP, etc.

Interlink same as *backbone*

LAN Local Area Network. BBS's are grouped into LAN's for more efficient forwarding. A LAN frequency is the forwarding channel within a LAN and to the backbone. Please do not attempt to access the BBS network on these channels.

Personal mailbox/maildrop A BBS-like system, often running entirely within a TNC, with a small number of users that handles information of a personal, local or special-purpose nature. A mailbox is allowed on keyboard-to-keyboard channels ONLY if it does not forward with other BBSs. Mailboxes may forward with full-service BBSs on LAN channels at the discretion of the BBS SYSOP.

TCP/IP Stations using TCP/IP protocol on top of AX.25. Some AX.25 tolerated to communicate to TCP/IP stations if a compatible p-persistence access method used.

User Access User access to a network. This is for the next generation of packet which is expected to operate like the internet. Users would access such a network on these

frequencies. The load on these channels may be rather high, like BBS channels. The activity may be any combination of BBS, keyboard, TCP/IP, or other modes.

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**Procedure for changes**

Send requests for changes to either the frequency coordinator or the NCPA board. The frequency coordinator will then present the request to the board along with suggested assignments. The NCPA board, elected by you, the packet user, makes all assignments.

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**Misc. Info.**

Packet tends to splatter if the deviation is set too high. Please keep your deviation to less than 5 kHz.

Except for the 219-220 MHz segment, the NCPA currently does not coordinate individual stations, nodes, etc. leaving that to the special interest groups. BBS station coordination is done by the PSNC in Northern CA. DX spotting is coordinated by DXPSN. Some digital has been coordinated on auxiliary channels by NARCC.

The NCPA board conducts most of its meeting activity electronically by internet e-mail remailer, [ncpa@kkn.net](mailto:ncpa@kkn.net). As with face-to-face board meetings, interested persons are welcome. For more information about the remailer send email to [ncpa-request@kkn.net](mailto:ncpa-request@kkn.net) with just the command HELP in the message body, nothing in the subject, and an email message will be sent to you. Subscribe by using the command SUBSCRIBE in the message body. Subscribing to the remailer is like attending a continuous NCPA board meeting. One must subscribe before posting messages.

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# Overall Band Plan in Northern California

## ten meters through 70 cm April 2002

**Notes:**

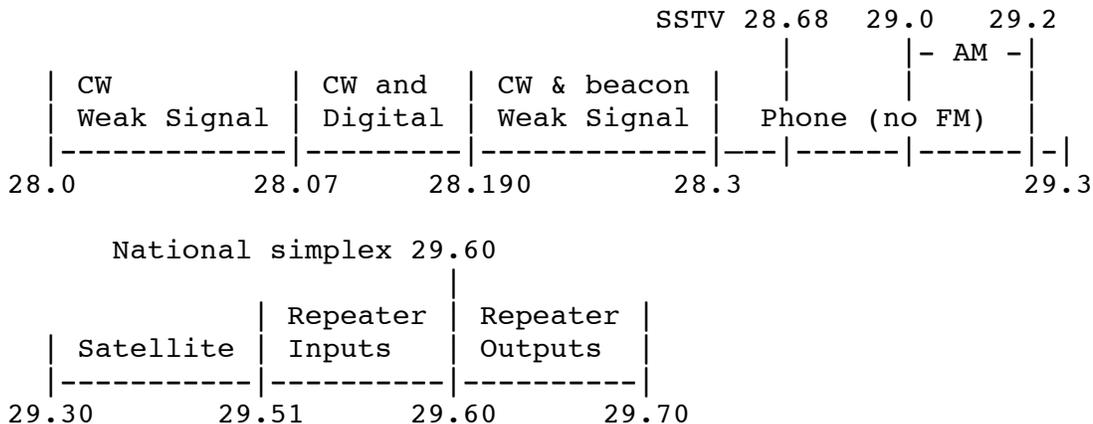
This band plan is a joint effort by NARCC ([www.narcc.org](http://www.narcc.org)) and the NCPA ([www.n0ary.org/ncpa](http://www.n0ary.org/ncpa)). As of this printing, the bands ten meters through 70 cm are settled; the bands above 70 cm are tentative and under negotiations.

Other sources:

- Weak Signal: WSWSS (Wester States Weak Signal Society) [www.wswss.org](http://www.wswss.org).
- Satellites: AMSAT [www.amsat.org](http://www.amsat.org).
- ARRL: [www.arrl.org](http://www.arrl.org).

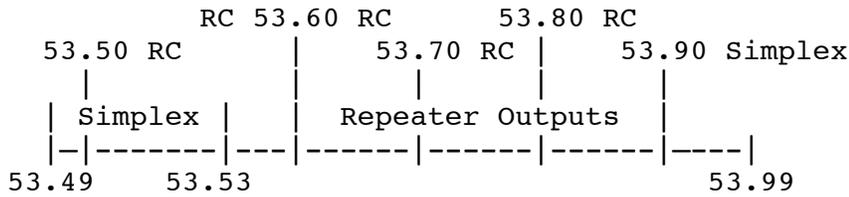
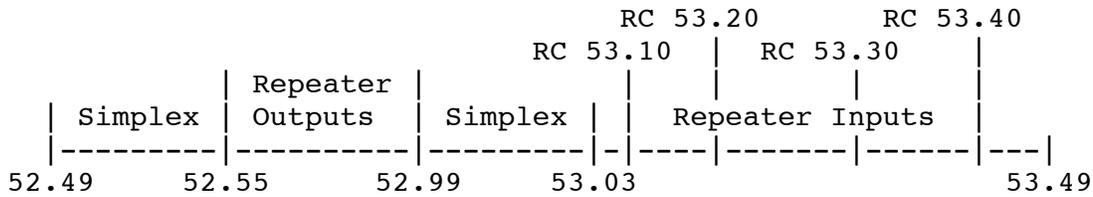
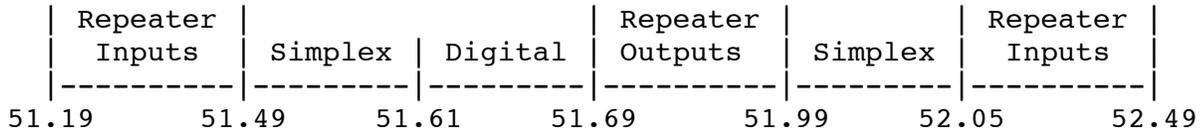
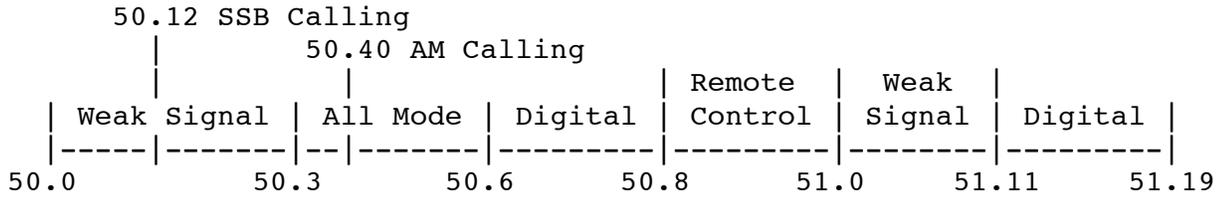
Individual channels are 20 kHz wide, ATV is 6 MHz, unless otherwise noted.  
 Simplex - FM voice            SSTV - Slow-Scan TV    SS - Spread Spectrum  
 RC - Remote Control        ATV - Amateur fast-scan TV  
 SSB - Single Side Band      NBFM - Narrow Band FM    FMTV - FM ATV

**TEN METERS =====**

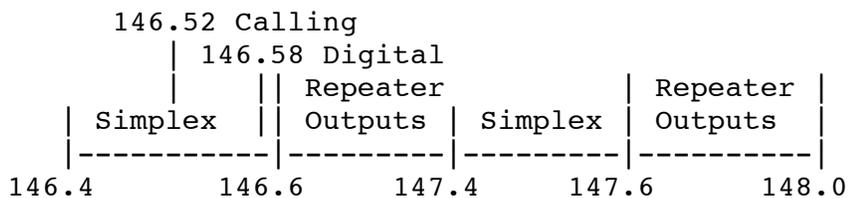
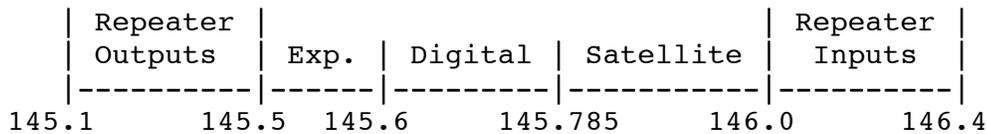
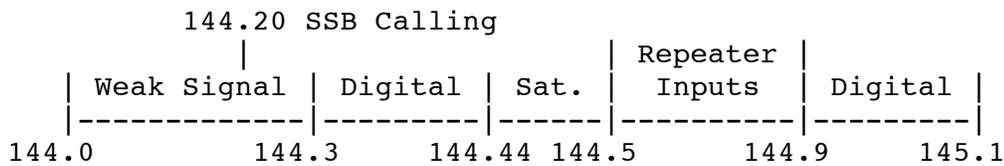


Note: Automatic beacons are limited to 28.20 - 28.30

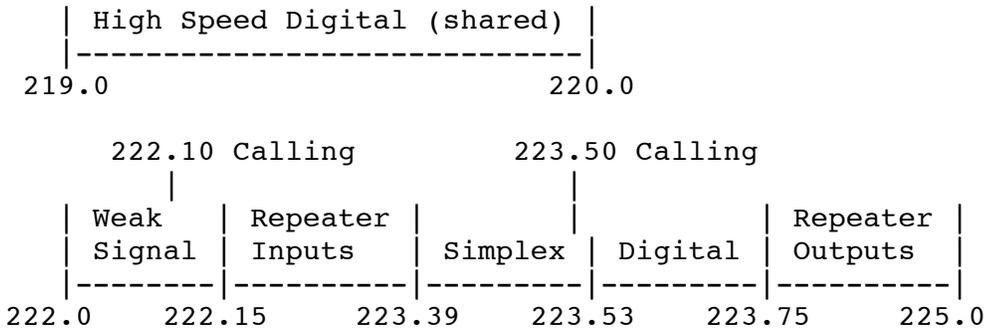
**SIX METERS** =====



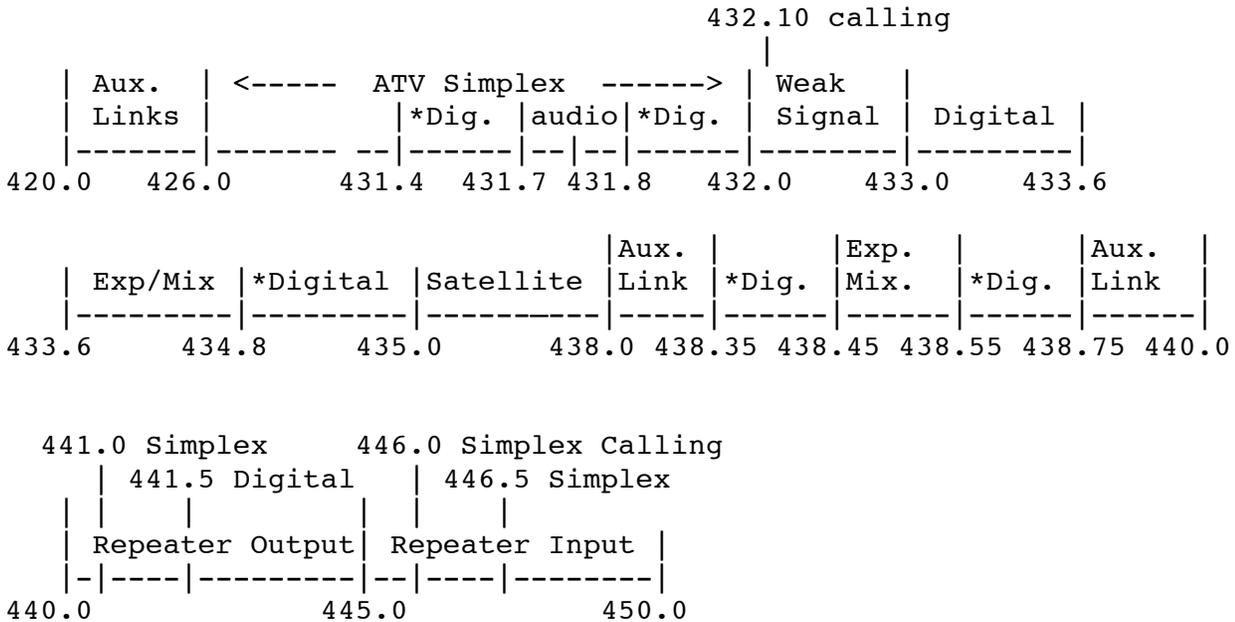
**TWO METERS** =====



**1.25 METERS** =====



**70 cm** =====



\*Digital 100 kHz duplex channels.  
 Lower duplex: 431.45, 431.55, 431.65, 431.85, and 431.95 MHz.  
 Upper duplex: 434.85, 434.95, 438.40, 438.60, and 438.70 MHz.  
 ATV: video carrier at 427.25, aural carrier at 431.75 MHz.  
 The top part of the ATV channel is shared with digital.

## Northern California Packet Association

The NCPA fosters digital communications modes of amateur radio through education, band planning, and acts as an umbrella organization for various packet special interest groups. Your annual dues helps pay for this newsletter and other educational materials activities. If you might be interested in getting more involved, please let us know.

Call: \_\_\_\_\_ Home BBS: \_\_\_\_\_ e-mail: \_\_\_\_\_

Name: \_\_\_\_\_ Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip + 4: \_\_\_\_\_ Phone: \_\_\_\_\_

- New Membership     Renewal     Change of Address     I'm an ARRL Member  
 One year: \$10     Two Years: \$20     Three years: \$30  
(make checks payable to NCPA)

Please indicate your area(s) of interest:

- BBS SysOp     BBS User     APRS     NET/ROM     TCP/IP     High-speed packet  
 DX Packet Spotting Network     Keyboard to Keyboard     FCC/legal issues     Other:

**NCPA** *Downlink*

**Northern California Packet Association**

**PO BOX K**

**Sunnyvale CA 94087**

**First Class**