

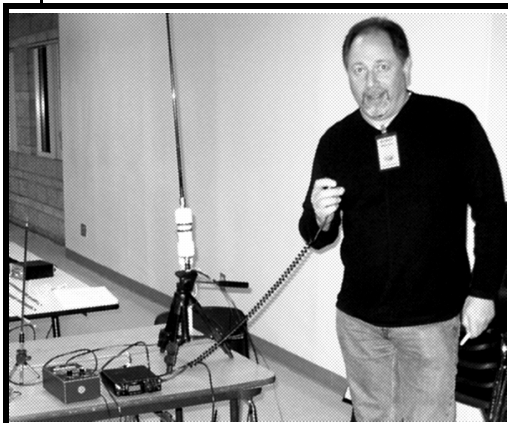
The PROPAGATOR

February, 2002

The Monthly Newsletter of South Orange Amateur Radio Association

PSK-31 Information

After an enlightening presentation on small antenna construction Malcolm Levy, KO6SY, will return this month to talk about PSK-31. PSK-31 is a digital mode of operation which takes advantage of a personal computer's



January 28 KO6SY demonstrating the relative effectiveness of a variety of small antennas. For details on construction of a small HF antenna for apartment or field use see Malcolm's article on page 2.

sound card to encode and decode signals. Low power, narrow band operation is quite effective with this mode.

Malcolm's talk will involve live demonstrations of hardware and software for use on PSK-31. If you have PSK software on a laptop then please bring it to the meeting as it will aid in the demonstrations.

If you have been thinking about trying some of the new digital modes you don't want to miss this presentation. You will be amazed at the results you can get with limited equipment and free software.

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Education Opportunities Abound

License Classes

Certainly one of the attractions of amateur radio is the opportunity for educating oneself in new areas. Hams have operating and construction skills as well as an understanding of technical areas that are not possessed by the general public. Early in the process of obtaining the first radio license is study, either on your own or in a class. SOARA holds introductory classes on a fairly regular basis.

Such a class is in progress now. About ten prospective hams are enrolled in the Tuesday evening class. Meetings are held at the Norman P. Murray Civic Center in Mission Viejo between 7:00 and 8:30 PM. The text used in the class is *Now You're Talking!*, published by the ARRL. An examination session will be held after the last class session.

Morse Code Opportunities

Morse code requirements for the advanced licenses have been reduced to only the basic five words per minute. Still, many hams find this mode of communication appealing.

Several SOARA members have arranged schedules for on-the-air contacts in order to improve their skills.

Gordon West has announced a class to be held on the 2-meter band. This three week, six session class is sponsored by **Gordon West Radio School**. It is intended for students who have wanted to take an actual code class, but lacked transportation or the class fee. The only fee associated with this program will be the VEC standard test fee of \$10.

ARRL Certification & Continuing Education



The first technical Continuing Education course has been announced by the ARRL. A course on Antenna Modeling (EC-004) is offered for the first time this month. Previous courses in this relatively new program were on emergency communications. Three courses — levels I, II and III — have been available for several months.

Courses are presented via the internet for a modest cost. The emergency communications courses cost \$40 for ARRL members and \$70 for non-members. Cost for the antenna modeling course is \$80 and \$110 for members and nonmembers respectively.

Continuing Education Units (CEUs) are available for all ARRL Certification and continuing Education Courses. Details on the courses and procedures for registration are available on the ARRL web site <http://www.arrl.org> or follow the links from SOARA's web site.

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Gordon West Free Code Class On the Air

144.330 MHz simplex MCW

6:00 p.m. - 7:00 p.m.

Session	Date	Material
1	Monday, Feb. 25	ETMANISO SK.
2	Tuesday, Feb. 26	RUDC5ØAR?
3	Monday, Mar. 4	KPBGWFBT,
4	Tuesday, Mar. 5	QLYJXVZDN12346789
5	Monday, Mar. 11	Random code with narration
6	Tuesday, Mar. 12	A typical 5 WPM code test.



The Way I See It:

How to make a working antenna.

The *KOSY* Low Cost Apartment, Mobile and Portable Antenna.

By Malcolm Levy, KO6SY

I have been searching for the ideal antenna to take on business trips and use on the rental car when arriving in different cities, and it seemed that such a system would also be ideal for the apartment dweller.

I made a number of attempts to find something suitable for all scenarios. Eventually the design criteria were as follows;

- 1) Low Cost
- 2) Easy to build
- 3) Easy to tune
- 4) Able to stay on a vehicle with a single magnet (large) at 70MPH
- 5) Able to fit into small carry-on suitcase

I continue to perfect this design, but for now this article tells you all you need to build your own *KOSY* antenna.

Performance

The present design covers 2m, 10m, 17m, 20m and 40m. For 15m instead of 17m add an extra turn. The design is very easy to modify and play around with. Mounted on a balcony this antenna performs as well as other commercial base loaded antennas.

The coil design works for a 4 ft 4 in whip. This was chosen because it was available surplus at the local swap meet. Other lengths may be available from car stores, but make sure the whip has a spring mount and is telescopic. The one I bought was identified as a replacement whip for a car, which is useful as it has methods of attaching to an old antenna; this can be used to mount a stud that screws into the coil. Longer antennas will be more efficient but will alter the coil data. When I operate from a hotel room or portable, I use the radio shack longest telescopic antenna, but this is not suitable for mobile. It is too fragile.

Materials

The coil form is made from a piece of PVC pipe and two end caps for the pipe. This is

available at any hardware store. A bolt and nut selected to fit the Mag-mount and a second one to fit to the whip are required. A 3/8 - 24 thread is common for antenna mounts. Five small brass wood screws are used for contact points for an alligator clip. Several feet of wire (~ #20) are needed.

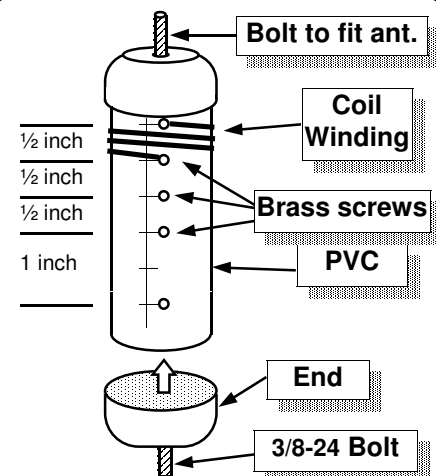
Construction

- 1) Drill holes in the end caps to accept the bolts.
- 2) Install 3/8 -24 bolts and nut, leave loose for now.
- 3) Locate the end caps over the pipe and make sure there is 2.5 inches of pipe available for coil winding. If there is more then cut the pipe to size, if there is slightly less don't worry. When gluing the end caps they need not be pushed all the way on. Place a pencil mark on the pipe where the caps end. These will be used for the end tie point screws. Check that they are 2.5 inches apart.
- 4) Drill small holes in the pipe to take small brass screws for anchor points.
- 5) It might be wise to draw a straight line on the pipe so that the screw holes line up. Use the marks previously made from the end caps as the starting points.
- 6) There are 5 holes to be made in total.
- 7) The first and last holes are the marks from the end caps.
- 8) From the first hole measure 3 more holes, each 0.5 inch apart.
- 9) This should mean the last hole is now 1 inch away.
- 10) Screw all the brass screws a few turns into the PVC, enough so that the alligator clip has room to hold.

Coil winding

- 11) Wind four turns between the first two screws for ten meters. Start by stripping the end of the wire and wrapping 3 turns of the bare wire around the first screw. This can be soldered later.
- 12) Wind four turns onto the coil. Cut the wire leaving enough wire to wrap around the next screw.
- 13) Continue this process, always winding in the same direction for each coil
- 14) 17m = 4 more turns
- 15) 20 m = 8 more turns
- 16) 40 m = 17 more turns
- 17) The coil is now complete.
- 18) For reference, the top of the coils has 4 turns on it (10 m), and the bottom of the coil has 17 turns on it (40m).
- 19) Cut three lengths of wire about 6 inches long.

- 20) Strip one end so that they can be wrapped around the end bolts.
- 21) Twist two of the pieces together and make into a loop that will fit over the bolt, tin with solder, and fasten them around the end piece bolt which will become the bottom. The third wire is stripped and attached to the top bolt.
- 22) Tighten the nuts down on them, make sure they are really tight as once glued it will be impossible to access the inside bolt to hold for tightening.
- 23) Place the end pieces on the pipe measure and strip enough wire to wrap around the end screws, wrap them on but do not solder at this point.
- 24) Attach the alligator clip to the one wire left flying.
- 25) You may wish to wait until you have tested the coil before soldering the tie points and gluing the ends, but don't forget to do so. Use irrigation PVC adhesive.



- 26) When 100% sure that all the coils are going to work for you it might be a good idea to glue the wire in place. I used a cyanoacrylate adhesive from the Gluesmith, which I found at the local swap meet.

The coil and band select alligator clip are now complete.

Depending on the telescopic antenna you have chosen. the method of attaching to the top end of the coil will be up to you. You will have to use an adaptor for the steel replacement antenna, or fabricate something to use the RS antenna. One suggestion is to use a reduction adapter from 3/8 to 1/4 inch, drill out the 1/4 inch end to accept the antenna or instead of installing

Continued on page 3 ⇒

Year 2002	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
General Meeting 7:00 PM	28	25	18	15	20 Auction	17	15	19	23	21	18 Auction	No meeting
VEC Testing 5:30 PM	28	—	18	—	20	22	15	—	23	—	18	—
Propagator Deadline												
Board Meeting	2/4	3/4	25	22	27	24	22	26	30	28	25	
Spring Auction					20							
ARRL Field Day						22 - 23						
SOARA picnic								3				
Fall Auction											18	
SOARA Holiday Party												1

ARRL Asks FCC to Drop RFID Rules Proposed for 425-435 MHz

The ARRL says the FCC "cannot legally proceed with the rules proposed for unlicensed RFID tags at 433 MHz," and it's asked the Commission to not adopt them. The League filed comments February 12 as part of its continued opposition to what it called "this ill-conceived proposal" of SAVI Technology to deploy unlicensed transient RF identification devices between 425 and 435 MHz at much higher field strengths and duty cycles than Part 15 rules now permit for such devices.

The ARRL pointed out that deploying the proposed RFID tags elsewhere would make much better sense than 70 cm. "SAVI should seriously consider the frequencies around 868 or 915 MHz, which apparently stand at least some reasonable chance of global standardization," the ARRL advised.

The FCC included the Part 15 RFID proposals within a larger proceeding, ET-01-278, that's aimed primarily at reviewing and updating portions of its Part 2, 15 and 18 rules. A copy of the ARRL's comments in the proceeding is available on the ARRL Web site
<<http://www.arrl.org/announce/regulatory/savi/arrl-savicmts-0.html>>
Reply comments are due by March 12, 2002.

ANTENNA

Continued from page 2

a 3/8 bolt on the coil install a 1/4 bolt at the end which takes the antenna.

Tuning

Alignment is different depending on where the antenna is used and how it is mounted. The alligator clip is used to short out the parts of the coil not needed. Fastened to the top screw the antenna works on 2 meters. Locate on screw #2 for 10m, screw #3 for 17m, screw #4 for 20m and on #5 for 40m. If using a magnetic mount on a car, make sure you have a good ground at the radio. Use Radio Shack's large 11 meter antenna mag-mount.

Ideally the use of a MFJ SWR Analyzer is the best for initial set up. You can quickly see where resonance is, and then tune the telescopic for minimum SWR at the desired frequency. If you find you can't quite bring the antenna to resonance on the band you want then add or subtract a coil. First see how it performs on each band, adding a turn or two on 40m is no problem, but if you do this on any other band it will affect all the others lower in frequency. So if your antenna works on 40m but doesn't tune 17 m and you need to add a turn, check the lower bands to see if you can still resonate on 20m and 40m. If not, take a turn off the band with the greatest problem. It may be that all bands work apart from 17m, and you need another turn to resonate it. If this is

the case then clipping a small piece of wire onto the telescopic might be better than rewinding all the coils.

For portable or apartment use, a counterpoise is used against the antenna. A good starting point for the bands is as follows.

10 m = 44in

15m = 9.5ft

17m = 12ft

20m = 14.5ft

40m = 33ft

The counterpoise can also be used to fine-tune the resonant frequency. If the antenna resonates too high then lengthen the counterpoise. If you look at a MFJ analyzer you may see a double dip in the SWR. One is the dip from the antenna and the other the dip from the counterpoise. If this happens you should play with the telescopic to bring it closer rather than adjusting the counterpoise.

You should be ready to go. Enjoy your \$10 antenna.

73
KO6SY

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Meeting: February 25, 2002 at 7:00 PM

☛ **SOARA** meets at the Mission Viejo Community Center, 26932 Veterans Way, Mission Viejo, the third Monday of every month at 7:00 PM. Changes to the meeting time or place are announced in this newsletter and on the two-meter repeater.

☛ **License Exams:** Amateur License Exams are given prior to SOARA meetings every other month. Exams are from 5:30 to 7:30 PM. You must make an appointment at least a week in advance. Call Lou Parker, KA6BJO, at 951-0336. (No calls after 9:00 PM please.)

☛ **Contacting SOARA:** Questions about SOARA? Send e-mail to: info@soara.org, or leave a message at 949-249-1373.

☛ **Web Site:** SOARA maintains a web site with current club information. The URL is: <http://www.soara.org>.

☛ **Repeaters:** The SOARA 2-meter and 70 cm repeaters are open to all licensed hams.

SOARA 2m — 147.645 - (110.9)

SOARA 2m — 145.240 - (110.9)

SOARA 440 — 445.660 - (110.9)

The SOARA 220 and HROC 440 repeaters are shared by members of both clubs. Each machine is subject to the operating rules of its respective club. Call KG6GI for details.

SOARA 220 — 224.100 - (110.9)

SOARA 220 — 224.640 - (123.0)

HROC 440 — 447.180 - (131.8)

☛ **Nets:** SOARA 2 m repeater open net is held Tuesday 8:00 PM 40 meter HF net (7.268 MHz +/- for QRM), Sunday 7:30 AM.

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