



RF



ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. LX NO. 09

P.O. BOX 3454, TUSTIN, CA 92781

September 2019

The Prez Sez..... by Dan KI6X



As normal, or at least as clubs should run, your Board is busy with planning and making sure everything runs smoothly with the goal the membership doesn't notice. Please note: The Red Cross is doing a major refurbishment to their facility. They will not necessarily be able to accommodate our meetings the rest of the year. Elsewhere in this newsletter you will note the September meeting (Friday 9/20) is going to be held in a private room at Rodrigo's restaurant in Tustin.

The October Board meeting is at Mountain View Park, and members are invited afterwards to participate in some California QSO party field day style operating (one station).

The October Auction will be held with a location TBD. It is moving to Saturday morning (10/19) and a location possibility is the Red Cross parking. Ideas for a location are welcome.

The November membership meeting with Bioenno Batteries as the program is also being determined as to location. Keep a look out the rest of the year for the changes.

It is also that time of year to start working on a slate of candidates for the Board for 2020. Tim, N6TMT, has volunteered to be the committee chair but we would like a couple more on the team. Contact Tim if you would like to assist.

We end the year with no Board meeting in December and our club dinner will be held at Mimi's Café, Tustin (Dec 6). More club dinner information to follow, always an enjoyable time.

We did lose one of our members this month. Lee Evans passed away Sept 1st. His brother Bob Evans WB6IXN and past Club Historian of many years had notified us on Lee's passing. Both Evans brothers are actually older than the club.

Dan, KI6X, President

NEXT GENERAL MEETING
Friday, September 20, 2019
@ **Rodrigo's restaurant in Tustin**
Please see page 3 for details

PRESENTER
Arnie Shatz, N6HC

TOPIC
2018 DXpedition to Duice Island
See page 3 for more details

**OCTOBER BOARD MEETING
& CALIF QSO PARTY**

Tentatively at Mountain View Park in Fullerton. The Park is located on Northwest corner of E. Bastanchury Road and N State College Blvd. Meeting time 8:30am. After the Board meeting (about 10:00am) club members are invited to participate in the CA QSO party (one station will be setup for this event). Other details will be provided on W6ZE.ORG, shortly.

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editors@w6ze.org

Monthly Events:

General Meeting time & location:

Held third Friday of the month
at 7:00 PM held at:

American Red Cross

600 Parkcenter Drive

Santa Ana, CA

(Near Tustin Ave. & 4th St.)

Please see page 3 for September

Club Breakfast (Board Mtg):

Held the First Saturday*

of the month at 8am

Marie Callender's Restaurant

307 E. Katella Ave

Orange, CA 92867

*unless otherwise advised

Club Nets (Listen for W6ZE):

10M: 28.375 ± MHz SSB

Wed- 7:30 PM - 8:30 PM

Bob AF6C, Net Control

Alt: Corey, KE6YHX, Net Control

2M: 146.55 MHz Simplex FM

Wed- 8:30 PM - 9:30 PM

Corey, KE6YHX, Net Control

80M 3.883 MHz LSB

Wed- 9:00(+-) PM

Follows right after end of 2M Net

Corey, KE6YHX, Net Control

2019 DUES:

OCARC Membership period is:
1 January to 31 December

Individual New or Renewal: \$30
Family New or Renewal: \$45
Teen New or Renewal: \$15

New Member Dues are prorated quarterly and includes a badge:
Additional Badges¹ \$3

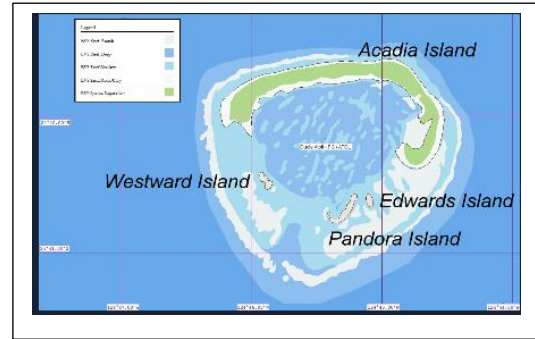
Use one of our interactive on-line forms to calculate current prices, join, renew, or order badges:
[Dues and Badges Forms](#)

¹ \$3 or less + mailing. See form.

The September 20th General Membership Meeting Presents

Duice Island 2018 DXpedition

Presented by: Arnie Shatz, N6HC



Join us at Rodrigo's at the Tustin location on Friday, September 20th as Arnie Shatz, N6HC regales us with his time as part of the 2018 DXpedition to Duice Island. Hear how they dealt with weather and propagation. As well as the comforts of traveling aboard the vessel Braveheart.

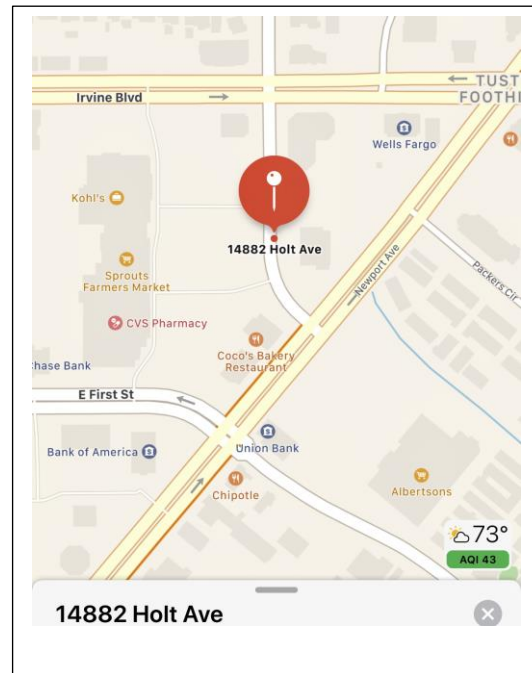
This month's meeting has been moved to Rodrigo's in Tustin because of renovation work at Red Cross. Rodrigo's address is **14882 Holt Ave., Tustin**, between Irvine Blvd and Newport Ave. See map to Rodrigo's >>>>>>

A meeting room is available for our use from 6:30pm to 9pm. Rodrigo's will make available an all inclusion meal to us for \$23 per person. Or you can choose to eat *a' la carte*, as any extra purchases helps to obtain the private room. If possible, please come at 6:30pm to order a meal this will reduce noise during Arnie's presentation.

Don't let your lack of funds or appetite keep you from attending the meeting. Food or drink purchases **are not** required but are appreciated.

A food menu on [page 22](#) is a list of meals & drinks available for the \$23 per person cost.

If convenient, I (Greg the club's Treasurer) would appreciate those who will be purchasing the \$23 meal, please pay me directly at the restaurant by cash or a check to OCARC. This would help me settle food payment to Rodrigo's. Also, I am asking for 12 volunteers to purchase the \$23 per person meal. The purchase of (12) \$23 meals covers the minimum amount to obtain the private meeting room.





This is a monthly Newsletter feature highlighting an officer position, their duties and where you can assist.

Duties: The OCARC By-laws list the following as duties of the Vice-President (VP):

It shall be the duty of the Vice President to:

- Act in the absence of the president at all club functions and perform all duties of the president herein described.
- Arrange for the speaker or entertainment for each of the regular club meetings.
- Perform other duties required by the president or the Board.

The VP is a large part of the club with the lead on planning all the meeting speakers.

Current Officer: Tim Millard, N6TMT, n6tmt@w6ze.org

Areas that club members may assist the Officer: Volunteers are needed to help plan meeting (ideas, arrangements, etc.). Volunteer when you hear there is an opportunity to assist with the VP role.

Note: OCARC By-laws are being revised. The club VP will present the revised by-laws to the membership early next year.

By Dan Violette, KI6X ki6x@w6ze.org

2019 President of the OCARC



October 19th 9:00AM

LOCATION:

To Be Determined

Mark your calendars

for further announcements

2019 OCARC Auction Rules

The room will *open at 8:00 AM* to allow registration, set-up and viewing. All buyers and sellers are welcome.

The following rules for the 2019 OCARC auction will be in effect:

1. Only Ham radio or electronic equipment / items will be allowed,
2. You must register prior to or at the auction site the day of the auction when doors open. Registration is Free*.
3. Sellers should number each item in their lot. A tag should indicate the minimum bid they expect.
4. Only 3 items from a Sellers lot will be auctioned during each turn and then the auctioneer will move on to the next lot.
Once the other lots have been offered the auctioneer will start the second round of auctioning with the next 3 items in Lot #1.
5. Auction bidding will take place as follows:
 - (a) \$0.00-to-\$5.00 bidding will take place in \$0.50 increments.
 - (b) Over-\$5.00-to-\$50.00 bidding will take place in \$1.00 increments.
 - (c) Over-\$50.00-to-\$100.00 bidding will take place in \$5.00 increments.
 - (d) Over-\$100.00 bidding will be in \$10.00 increments.
6. Rules 4 and 5 may be changed at the auctioneer's discretion to expedite the auction.
7. Payments for purchased items are due at the end of the auction and shall be by cash or check with the appropriate ID. No two-party checks or credit cards are allowed. Disbursements to the Sellers will be by OCARC check, only.
8. *Sellers will be charged **10% of the selling price** for items sold by OCARC. A special table will be set up for items donated to the OCARC. Proceeds from the sale of donated items will go into OCARC operational funds.

Year 1995 Article in Mobile Radio Technology on Impedance Matching

Technically speaking

How attenuator pads improve impedance matching

By Harold Kinley, C.E.T.

Unless special precautions are taken, impedance discontinuities can cause severe reflections that can adversely affect a test procedure and circuit operation. Although an attenuator pad injects loss into the system, the loss usually can be overcome. Loss caused by the pad is a small tradeoff for the great improvement in impedance smoothing it provides. In fact, the word "pad" describes the job the attenuator performs—it provides padding at a point in a system or chain where abrupt changes in impedance would otherwise cause a severe reflection.

An analogy is the job performed by the shock absorber on your car. Without it, you would feel every little bump in the road, but with it even the big bumps are reduced to minor ones.

How it works

Figure 1 below shows a signal generator connected to a receiver. It is important for the signal generator to see a proper (50Ω) impedance at its output port. If the load (receiver) presents an impedance other than 50Ω to the generator, the validity of any test procedure might be impaired by reflections on the line. The interconnecting transmission line would become resonant, and the impedance presented to the signal generator would be a complex impedance with inductive or capacitive reactance, depending on the length of the transmission line. In Figure 1, the receiver represents a complex impedance of $30 + j40$ ohms.

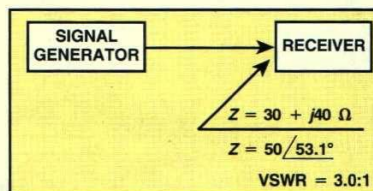


Figure 1. The receiver input presents a complex impedance of $(30 + j40)$ ohms to the signal generator. This causes an SWR of 3:1. The complex impedance is also shown in polar form as 50Ω at an angle of 53.1° .

Kinley, a certified electronics technician, is regional communications manager, South Carolina Forestry Commission, Spartanburg, SC. He is the author of *Standard Radio Communications Manual: With Instrumentation and Testing Techniques*, Prentice-Hall, 1985. He is a member of the Radio Club of America.

In Figure 2 below the impedance at the load end (point E) is complex. That is, it consists of a reactance and a resistance as

shown. The complex impedance is represented by the expression $30 + j40$ ohms. (continued on page 46)

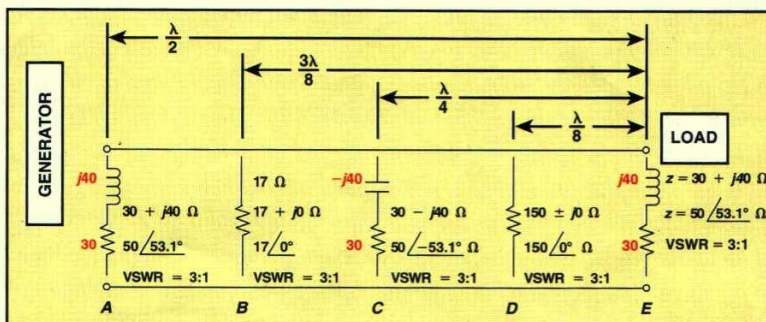


Figure 2. This expands upon the setup in Figure 1. Here, the signal generator is connected to the receiver input via a lossless transmission line that is one-half wavelength ($\lambda/2$) long. The VSWR is the same at all points along the transmission line. However, the impedance will vary along the line and will repeat every half-wavelength ($\lambda/2$). At two points ($\lambda/8$ and $3\lambda/8$) the impedance is purely resistive. However, the pure resistance is still such that the VSWR is still 3:1. This assumes a 50Ω transmission line and 50Ω system impedance.

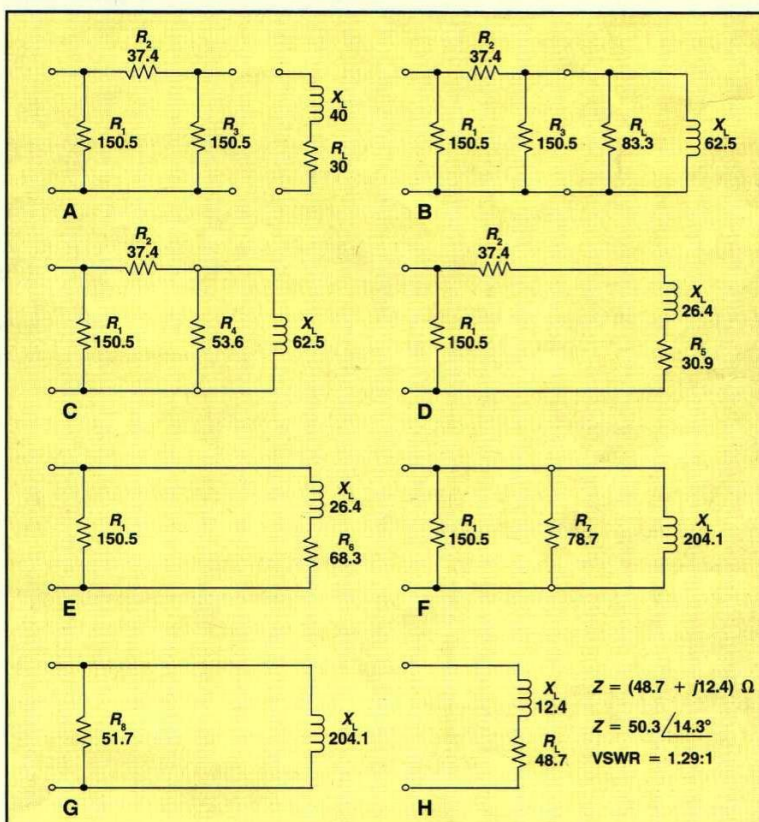


Figure 3. This illustrates through evolution how a 6dB pad transforms the output impedance to the impedance that is "seen" at the pad input. The output impedance, $(30 + j40)$ ohms, would cause a VSWR of 3:1. However, looking at the input to the pad, the generator or source would see an impedance of $48.7 + j12.4$ ohms for a VSWR of 1.29:1.

Technically speaking

(continued from page 8)

In polar form, the expression for this impedance would be 50Ω at an angle of 53.1° . The VSWR at this point is 3:1. One-eighth wavelength down the line toward the generator, the impedance is a pure resistance of 150Ω , or 150Ω at an angle of 0° . The impedance at other points along the line is as indicated at the various points. If this line is a lossless line, the VSWR will be the same (3:1) at any point along the line, although the impedance changes.

To reduce the mismatch at the generator output, a simple attenuator pad can be placed between the generator output and the load. In Figure 3 on page 8, a 6dB pi-pad is placed between the load impedance ($30 + j40$ ohms) and the generator. The pi-pad is represented by R_1 , R_2 and R_3 in Figure 3A. The complex load impedance is represented by R_L and X_L .

The equivalent impedance presented to the signal generator by the combination of the 6dB pi-pad and the complex load impedance is derived by the process of evolution shown in Figures 3A to 3H.

In Figure 3B, the complex series im-

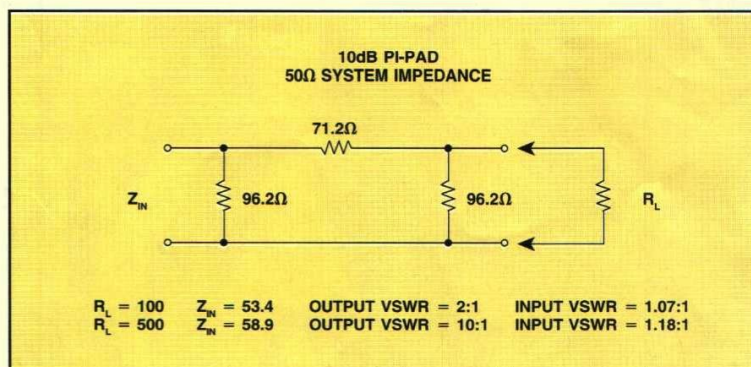


Figure 4. This shows how a 10dB pad would reduce the VSWR for a load of 100Ω or 500Ω . The 100Ω load would normally cause a VSWR of 2:1, but the 10dB pad reduces the VSWR to 1.07:1. The 500Ω load would cause a VSWR of 10:1, but the 10dB pad reduces it to 1.18:1 at the input.

pedance is converted to the equivalent parallel impedance. Then the parallel combination of R_L and R_3 is replaced by a single resistor, R_4 , shown in Figure 3C.

Next, the impedance consisting of R_4 and X_L in Figure 3C is converted to the equivalent series impedance, X_L and R_5 shown in Figure 3D. Then the series combination of R_5 and R_2 are replaced by a single resistor, R_6 , in Figure 3E.

The series combination of X_L and R_6 in Figure 3E are replaced by the equivalent parallel combination R_7 and X_L in Figure 3F. Then the combination of R_1 and R_7 in parallel in Figure 3F is replaced by a single resistor, R_8 , shown in Figure 3G. Finally, the parallel impedance consisting of R_8 and X_L is replaced by the equivalent series impedance X_L and R_L shown in Figure 3H.

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Technically speaking

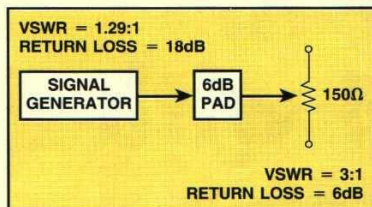


Figure 5. Here, a signal generator is connected to a 150Ω load through a 6dB pad. The VSWR at the load is 3:1 (return loss is 6dB) but is reduced through the pad to a VSWR of 1.29:1 (return loss = 18dB) at the generator output.

The final impedance represented by X_L and R_L in Figure 3H is $48.7 + j12.4$ ohms. In polar form, this is 50.3Ω at an angle of 14.3° . The VSWR at the input to the pi-pad would then be 1.29:1. So the 6dB pi-pad has reduced the load VSWR from 3:1 to a VSWR of 1.29:1 at the generator output.

The greater the attenuation of the pad, the greater will be the reduction of the VSWR at the generator output. For example, Figure 4 on page 46 shows a 10dB pi-pad. Notice how the VSWR at the input to the pad ranges from 1.07:1 to 1.18:1 for a VSWR range of 2:1 to 10:1 at the output. Thus, the

pad smoothes the impedance variations between the pad output and pad input.

Return loss

If the impedance mismatch were to be represented in terms of return loss, the return loss for a VSWR of 3:1 would be about 6dB.

$$\Gamma = \frac{Z_L - Z_0}{Z_L + Z_0} = \frac{(30 + j40) - 50}{(30 + j40) + 50} = \frac{-20 + j40}{80 + j40} = \frac{20(-1 + j2)}{20(4 + j2)} = \frac{-1 + j2}{4 + j2};$$

$$\frac{(-1 + j2)(4 - j2)}{(4 + j2)(4 - j2)} = \frac{-4 + j8 + j2 - j^2 4}{16 + j8 - j8 - j^2 4} = \frac{-4 + j10 + 4}{16 + 4} = \frac{j10}{20} = j0.5;$$

$$\Gamma = 0 + j0.5$$

$$\Gamma = \sqrt{0^2 + 0.5^2} = \sqrt{0.5^2} = 0.5$$

$$VSWR = \frac{1 + \Gamma}{1 - \Gamma} = \frac{1 + 0.5}{1 - 0.5} = \frac{1.5}{0.5} = 3$$

Figure 5 to the left shows a signal generator connected to a 150Ω resistive load through a 6dB pad. Assuming no losses in the connecting lines, the return loss at the output of the 6dB pad is 6dB. The return loss at the input to the 6dB pad (signal generator output) is 18dB. This pattern of loss can be generalized into the following

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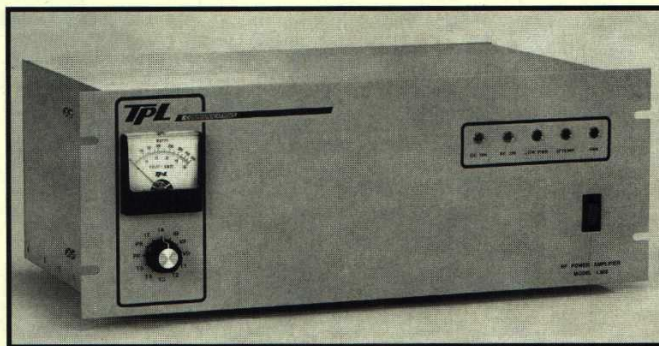
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statement: The return loss at the input to a pad is equal to the return loss at the output of the pad plus twice the attenuation of the pad. In this case, the return loss at the input to the pad is $6 + 2(6) = 18\text{dB}$.

Calculating VSWR

It is simple to calculate the VSWR when only a pure load resistance is involved. However, when the load impedance contains reactance, it is not quite so simple. To find the VSWR, we first need to know the reflection coefficient for a given complex impedance. (See box on page 48.) The reflection coefficient is represented by the Greek letter Γ . Z_L represents the load impedance in complex form, and Z_0 represents the system impedance (50Ω in our case). The equation is simplified by factoring and multiplying both the numerator and the denominator by the conjugate of the denominator. Then the equation is reduced to $\Gamma = j0.5$, or in complex form, $0 + j0.5$.

Next, Γ is found by finding the square root of the sum of the squares of the real and imaginary parts. Thus, $\Gamma = 0.5$. Substituting Γ into the formula for VSWR yields a VSWR of 3:1.

Summing up

As stated, the greater the pad attenuation, the better the match at the generator (pad input). Figure 6 to the right shows how various pads reduce the input VSWR with wide variations in output VSWR. Although pads can be built from ordinary resistors, the result may not be usable at higher frequencies. Pads used at higher frequencies are made of specially constructed resistors. The examples given here are for theoretically perfect pads. Practical pads will not deliver the ideal results. Even so, padding certainly helps to minimize the effects of impedance mismatches and measurement errors that might otherwise result.

An excellent aid in calculating VSWR from complex impedance and other transmission line calculations is the *Transmission Line Calculator*. It was invented by the late inventor of the Smith Chart, Phillip H. Smith. It is available from Analog Instruments, P.O. Box 808, New Providence, NJ 07974. Phone/fax (908) 464-4214.

A program for determining the resistance for various pads (e.g., L-pad T-pad, pi-pad and H-pad) is available from the author for \$10 plus \$2.50 for shipping and handling. A program for calculating SWR, including complex impedance, is available for \$10 plus \$2.50 for shipping and handling. Both are available on single

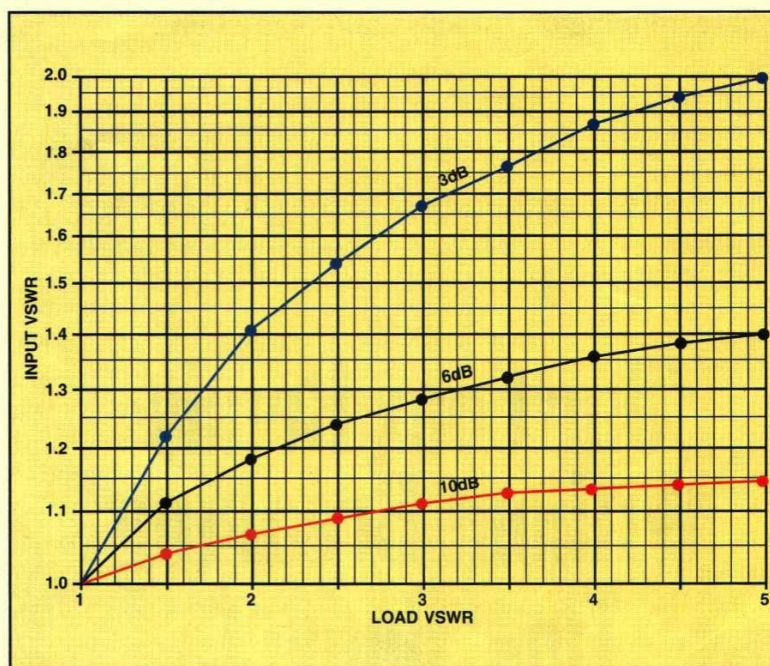


Figure 6. This graph shows how pads of 3dB, 6dB and 10dB reduce the VSWR. Note that the higher the loss of the pad, the greater the reduction in VSWR.

diskette for \$15 plus \$2.50 for shipping and handling. The programs run under MS-DOS on an IBM-compatible PC. Specify 3.5" or 5.25" floppy diskette.

A circular converter that converts among units for transmission loss, reflection coefficient, percentage reflected

power, return loss and VSWR is also available from the author for \$5 plus \$1.50 for shipping and handling.

You may write the author at 204 Tanglewylde Drive, Spartanburg, SC 29301-2949. Stay tuned!



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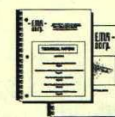


Contact the factory for our complete product information and our series of technical articles on antenna site applications. EMR manufactures RF filters from 66 MHz to 1.3 GHz.

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CAVITIES - ANTENNA DUPLEXERS

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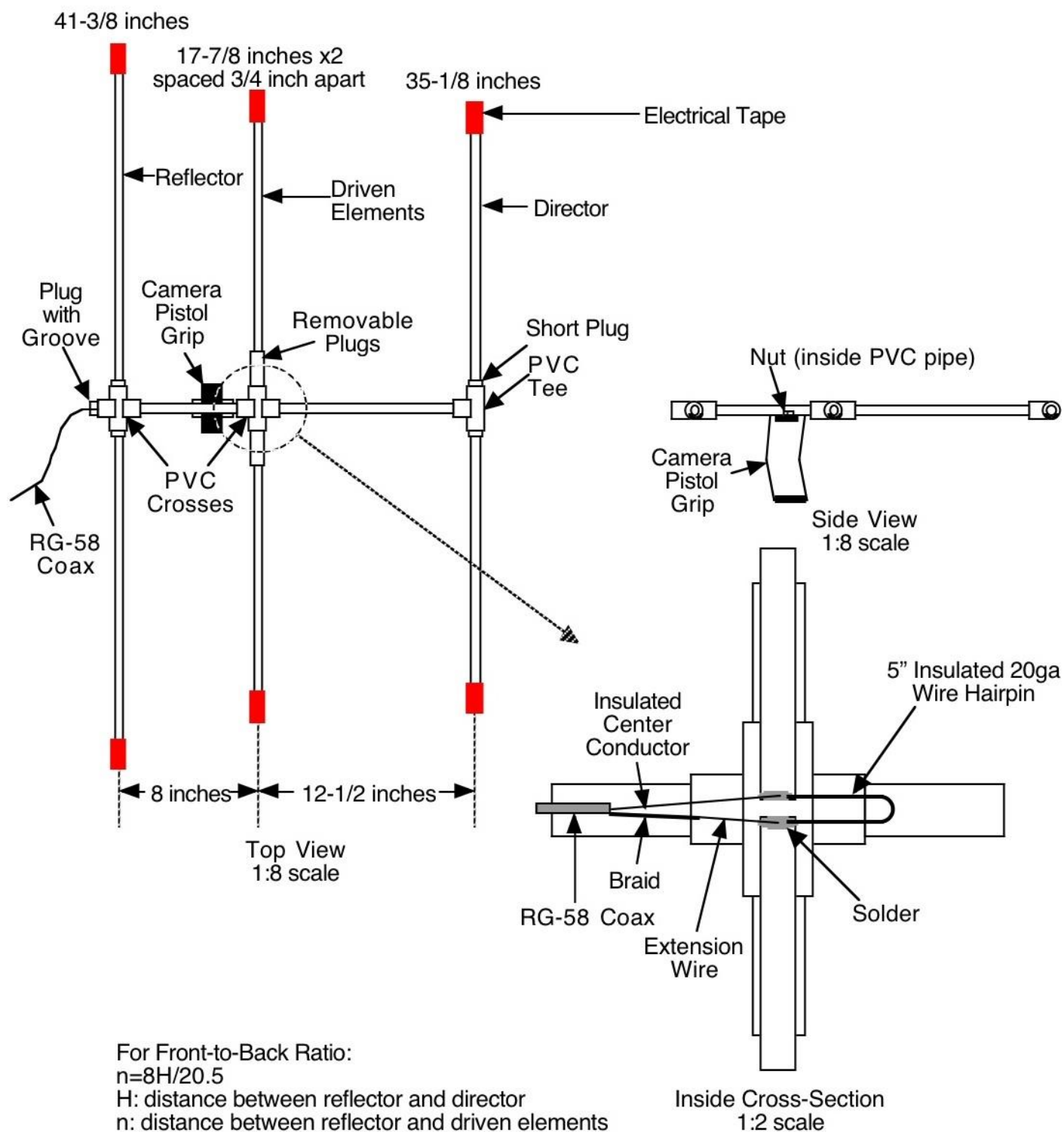
Model 64534/EH
Frequency Range: 134-174 MHz
Insertion Loss: 1.2 dB @ 3 MHz Spacing
Isolation: 80+ dB @ 5 MHz Spacing
Input Power: 100 Watts
Dimensions: 5.25" x 19" x 6.625"
List Price: \$ 535.00

Model 65534/EH
Frequency Range: 406-512 MHz
Insertion Loss: 1.1 dB @ 5 MHz Spacing
Isolation: 80+ dB @ 5 MHz Spacing
Input Power: 100 Watts
Dimensions: 5.25" x 19" x 6.625"
List Price: \$ 500.00

RECEIVER MULTICOUPLERS

All-Weather Tape Measure Antenna

by Corey Miller KE6YHX



For Front-to-Back Ratio:

$n = 8H/20.5$

H: distance between reflector and director

n: distance between reflector and driven elements

Measurements from: http://theleggios.net/wb2hol/projects/rdf/tape_bm.htm

All-Weather Tape Measure Antenna Build Instructions

This is a tape measure antenna that is water-resistant, and requires no tools to adjust the driven elements. It is also all press-fit PVC, with no glue, making it easy to disassemble for storage or adjustment. The first prototype has an SWR of 1.3 at 146.700MHz.

Supplies

- (1) PVC pipe 1/2" schedule-40: 2-1/2'
- (1) PVC "Tee" 1/2" schedule-40
- (2) PVC cross 1/2" schedule-40
- (1) Pittsburgh Tape Measure 1/2"x12'
- Magmount antenna with cord and BNC connector
- Camera Pistol Grip ([Amazon.com](https://www.amazon.com))
- Nut and Machine Screw that fit Pistol Grip screw
- (1) Insulated stranded wire 20 gauge 5" for hairpin
- (1) Insulated stranded wire 18 or 20 gauge 3" to extend feed line braid
- No-Clean Alcohol Flux Pen
- Solder .062 dia
- (7) Rubber Stoppers or corks 9/16" dia.
- Electrical Tape
- Sticky-Back Hook-and-Loop Tape

Tools

- 6" Cutoff Saw or hacksaw
- Nail Puller
- Propane Blowtorch
- Needle-Nose Pliers
- Distilled Water
- Safety Razor Blade
- Bench Sander
- Tin Snips
- Bar Clamp 24"
- Tinning Crucible
- Wire Cutters
- Wire Stripper
- Wire Brush
- Alligator-Clip Stand
- Soldering Gun 150W
- Scissors

Directions

Cut the PVC Pipe to the following lengths:

- (1) 6-3/4" back shaft
- (1) 11-7/16" front shaft
- (2) 2-13/16" driven element plugs
- (4) 13/16" parasitic element plugs
- (1) 13/16" back-plug

Hold onto the releasing end to make a clean cut. Be careful not to get fingers too close to the blade.

•Sand 1/8"Dx1/2"W off the surface of the removable plugs extending 1-1/2" from one end, so they do not hold the driven elements too tightly.

Pistol Grip:

- Drill a 9/32" hole into the 6-3/4"L PVC pipe 2-1/4" from the end. Turn the PVC pipe hole-side-up. Slide-in the pistol grip nut, centering it under the hole with a nail-puller. Put the matching machine screw through the hole, and while watching the nut to keep it level, thread the screw into the nut.

- Turn the 6-3/4" PVC pipe hole-side-down, and blowtorch the head of the screw until it glows red, needle-nose pliers close at-hand. Turn off the blowtorch and gently pull the nut into the PVC with the pliers, melting it around the nut. Pour distilled water onto the nut and screw to cool them. Remove the screw. Trim to level the outside of the PVC with a safety razor, if needed. While holding the nut down with the nail puller, screw the pistol grip into the nut, pointing towards the short end of the pipe.

- Assemble the back half of the PVC, cross-to-cross.

Parasitic Elements:

- Cut the reflector (back-element) with 7/16" to an inch-mark on the left end, 40" in-between, and 15/16" on the right.

- Cut the director (front-element) with 5/16" to an inch mark on the left end, 34" in-between, and 13/16" on the right. Mind right and left!

- Center the reflector, concave-side-up and matching the curve of the hole, measuring to 19-7/16" on the left side (to an inch mark at the PVC opening). See that it is lying flat in the PVC cross, then carefully insert the PVC plugs, the right one, then the left, while watching the element to see that it stays centered.

With a bar clamp, compress the two PVC plugs toward each other, until they are nearly flush with the holes in the PVC cross.

- Center the director, concave-side-up and matching the curve of the hole, measuring to 16-5/16" on the left side (to an inch mark at the PVC opening). See that it is lying flat in the PVC Tee, and 20-1/2" from the reflector (on-center), then carefully insert the PVC plugs, right-plug-first, while watching the element to see that it stays centered. With the 24" bar clamp, compress the two PVC plugs toward each other, until they are nearly flush with the holes in the PVC Tee.

- A little buckling between the PVC plugs will not alter the electromagnetic length of the director or reflector.

Driven Elements:

- Trim a length of tape measure to an inch-mark. Cut a driven element to 17-7/8" from the trimmed end. Repeat for the other driven element.

- Sand bare and tin 1/4" of the tip of the under-sides of the two (2) driven elements on the odd-measured ends (7/8" measured ends). Snip off the BNC terminated cable to a convenient length (8'). Run the cut end into the back of the antenna (short PVC end), through the crosses. Strip 2-1/2" of the end and comb the shielded braid straight with a wire brush. Solder-on the 18-20 gauge wire if the braid does not match the length of the center conductor after combing. Strip 1/4" of the end of the center conductor. Strip the 5", 20-gauge wire to 1/4" at both ends of the hairpin. Tin the tips of all the wires.

- Pull the cable wires through one side hole of the center PVC cross. Run the tinned end of the opposite driven element through the opposite hole of the center PVC cross and out the other side, concave-side-up to the antenna and matching the curve of the hole. Position the other element on the wire-side of the PVC cross. Mind which side is down! The hairpin is soldered forward on the elements, and the feed line on the back. One-by-one, attach the element and wire to an alligator-clip stand. Snip 3/8" of solder, fold

over, and pinch onto the wire tip. Alcohol-flux the contacts, and solder them on with a soldering gun, holding the under-side of the element end with the nail-puller. Be sure no more than 1/4" of the hairpin tips come in contact with the driven elements. Allow to cool.

- Pull and center the hairpin, feed wires, and measuring tape elements into the PVC cross. Pull the middle of the hairpin out the front of the PVC cross with needle-nose pliers.

- Adjust the driven elements to separate them a predetermined amount (~3/4"), and insert the two (2) removable plugs, hand-tight, affixing the elements with the sanded patch, and measuring for the front-to-back ratio (see formula) on the inside and outside ends of the elements. Inspect the contacts and element positions through the front of the PVC cross. Attach the front (longer) PVC shaft and PVC Tee to the center PVC cross, the hairpin going inside.

- The measuring tape is not indestructible. Do not try to adjust the elements after the PVC plugs are in.

Feed Line Plug:

- Sand a groove into the length of the back-plug and use it to affix the feed line into the back of the antenna.

Weatherproofing:

- The seven (7) PVC openings can be sealed with 9/16" rubber stoppers or corks.

Element-Tip Safety:

- Snip 2" each of electrical tape and fold over the sharp ends of the elements. Shorter lengths will not stay adhered.

Folding the Elements:

- Cut three (3) 2" lengths of the hook-side of self-adhesive hook-and-loop tape. Centering on the top-side, stick one around the top of the PVC, 4-1/2" from the back. Repeat with another 2" strip, 6-1/4" from the front. Centering on the under-side, stick the remaining strip around the bottom of the PVC, 7-1/4" from the front.

- Cut six (6) hook-and-loop squares, loop side. Stick the three (3) sets onto the hook-side hook-and-loop strips, two on the top at 4-1/2" from the back, two on the top at 6-1/4" from the front, and two on the bottom at 7-1/4" from the front.

- Uncover the adhesive on the hook-and-loop squares, and stick the elements to them at convenient lengths. Pull apart, press the hook-and-loop sets, and let the adhesive set onto the elements and PVC.

Tuning:

- Test the SWR in free-space, and adjust the driven elements accordingly.

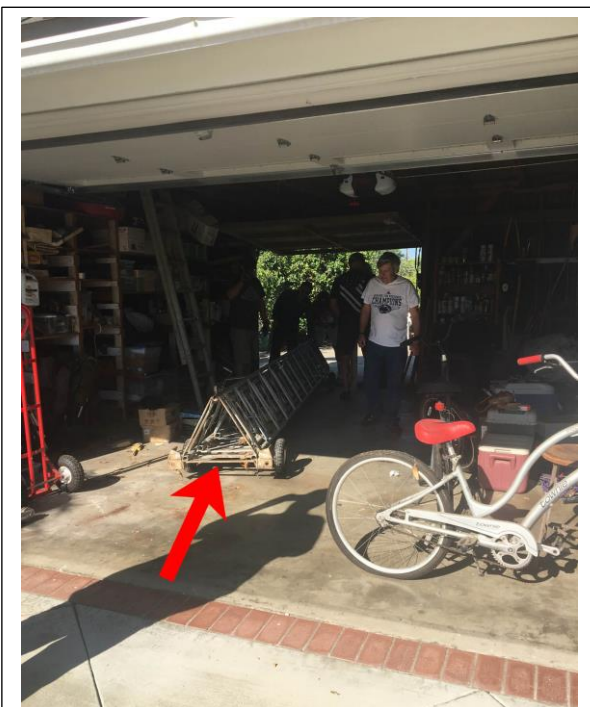
—73, Corey Miller KE6YHX

Moving a Heavy Crank-up Tower

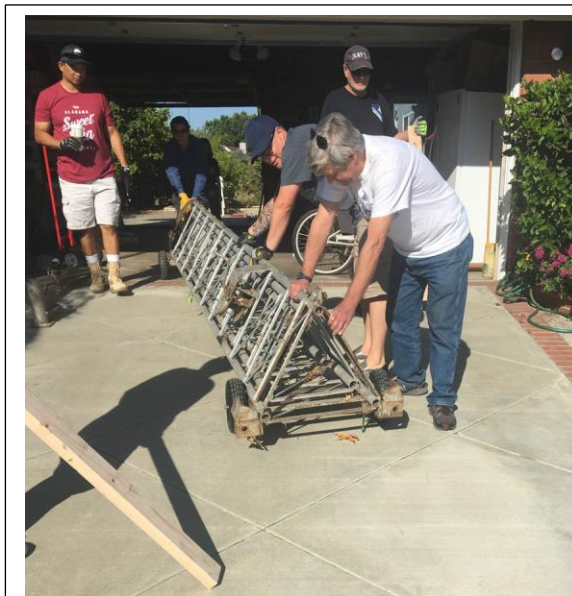
by
Ken W6HHC

Ken W6HHC is moving to a new home in northern Orange and had to remove the 42-foot very heavy crank-up tower that was sitting “idle” on the ground in his back yard. The tower had been hand-built in the 1970’s by Kei Yamachika W6NGO (SK) for Ken and consisted of three 15-foot sections. The nested 15-ft sections allowed Ken to easily work on the lower beam (5-ele 15M yagi) from the roof-top of his home...while he had to use a “mast step” to reach the three element 20M beam at the top of the mast.

When W6HHC announced he had a 42-ft strong tower available to anyone who could use it, a group of hams (Nicholas AF6CF, Ron W6WG, and Tom W6ETC) who are building a remote-HF station in the desert at Boron, California, showed interest. Ken explained that the tower was heavy (maybe 300 lbs) and would probably require four or six people to carry it over the vegetable garden and out of his back yard. On Saturday Aug 24...a nice group of OCARC club members and friends gathered as Tom W6ETC arrived at Ken’s old QTH with a rented trailer. The following pictures show that the tower was safely moved out of the back yard and onto the trailer for the journey to Boron.



The tower (see red arrow) is rolling on a dolly at one end and being carried through the garage at the other end.



With Bob AF6C in front and Ryan Mudry – No Call (grey t-shirt), son of Ron W6WG, in second position, the tower on the dolly rolls gently down the sloping driveway.



The tower is now on the street and will be put onto the rented trailer behind the truck of Tom W6ETC,



The tower is now lined up with the trailer, thanks to all the helpers who showed up on a Saturday morning.

OCARC General Meeting Minutes 2019-08-16

The OCARC General meeting was held at the Red Cross Complex in Santa Ana on Friday evening, August 16. Attendance was 28 members and visitors. All of the directors were present to provide a Board quorum.

Program:

The main program for the evening was presented by Tim N6TMT and Dave Rector - KG6GIA on:

“Building Tape-Measure Direction Finding Antennas...”

Tim N6TMT provided several “Homing in” antenna kits for sale for \$20 each to members.

Dave Rector - KG6GIA provided several slides on theory and practice of building tape-measure antennas for 144 MHz band and 440 MHz band. Dave also described a APP called “Antenna Tool” for Android phones and Apple iPhones by Talixa Software that will calculate the lengths of tape-measure elements for you.

Bob AF6C provided an MFJ Antenna Analyzer that allowed members with antenna to measure the final results of their projects.

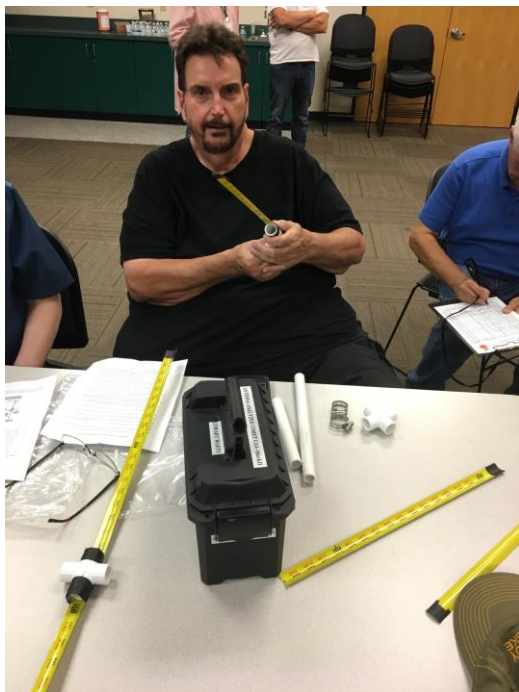
Seven members/visitors were building antennas at the meeting or brought in antennas that they had finished earlier.



Tim N6TMT shows members some of his construction results.



Visitor Erick KK6CKK is working on his three-element antenna



Tom W6ETC has prepared the elements from a tape-measure.



Speaker Dave Rector - KG6GIA (R) brought one of his many home-made antennas. Bob AF6C is measuring the frequency with an antenna analyzer

Ken W6HK, Chief Radio Officer of OC RACES, announced that OCRACES normally conducts Fox Hunts (aka Transmitter Hunts – aka T-Hunts) on the first Monday evening of each month. See the newsletter on **OCRACES.org** for details.

Good of Club:

Ron W6WG, a member of the “Boron Remote Radio Station” group announced that they would be moving a 42-ft crank-up tower (hand crafted by Kei Yamachika W6NGO) from the back yard of Ken W6HHC. The tower is very heavy, maybe 300 lbs, and helpers on needed to move the tower onto a trailer. [Note: a gang of club members showed up on Saturday morning Aug 24 and successfully moved the tower. See photos on Page 14]

Submitted by: Ken, W6HHC
OCARC Secretary



Dave KG6GIA loves to make antennas out of different materials. At a recent “Watson’s Radio Club” breakfast, Ken W6HHC displays one of Dave’s 440 MHz ant made from “knives, forks, and spoons”.

**OCARC
BOARD MEETING MINUTES
2019-09-07**

The OCARC Board meeting was held at the Marie Calendar's Restaurant at 307 E Katella Ave. in Orange on Saturday morning, Sept 07. Attendance was 9 members and one visitor. All of the directors, except Bob AF6C and Vijay KM6IZO, were present for a Board quorum.

Director Reports:

- **Membership** – Corey KE6YHX reported that the OCARC currently has a total of 98 paid-up and honorary members.

Old Business:**• Newspaper Editors**

Sep – Greg W6ATB

Oct – Tim N6TMT

Nov – Dan KI6X

Dec -???

• General Meeting Programs

Sept – “Ducie Island DXpedition” by Arnie N6HC (Location of this meeting will most likely be at Rodrigo's Restaurant at corner of Holt and Newport in Tustin)

Oct – “OCARC Radio Auction” (the board moved the date of auction to Saturday morning Oct 19 due to remodeling of the normal Red Cross meeting location. The Red Cross parking lot may be the location for the Oct 19 radio auction).

Nov – Program will be on Bioenno Battery Technology and also OCARC 2020 Officer Elections. (The meeting location may be moved to the Bioenno factory and offices in Santa Ana - due to remodeling of normal Red Cross meeting location.)

Dec 06 – The OCARC Club Dinner will be held on Friday evening, Dec 6, at Mimi's Café in Tustin. No OCARC General Meeting will be conducted in December.

• By-Laws Update Committee

Tim N6GP explained that a clean and updated revised set of by-laws would be sent out to the board for review. The plan is to hold a first reading for the club members' ship of the updated Bylaws at the January 2020 general meeting.

New Business:**• OCARC Radio Auction**

1. Dan KI6X has volunteered to help Treasurer Greg W6ATB by capturing the transactions in Excel. Ken W6HHC will send 2018 AUCTION files to Dan and Greg to act as models for the 2019 auction.
2. Auction Advertising – the board agreed to advertise the upcoming Radio Auction:
 - In this coming issue of RF Newsletter
 - In an e-mail “blast” to members.
 - In flyers at HRO store.

A recurring complaint about how the club conducts the Radio Auction – is that SELLERS have to stand in line a long time waiting for all of the BUYERS to be processed first after completion of the auction. The board approved a proposal to allow SELLERS to provide an SASE to the Treasurer at the Auction, indicating they would prefer having their monies mailed to them (instead of waiting around after the auction).

• Yamachika Trust Fund proposal

Ken W6HHC, one of the trustees of the Kei Yamachika Trust Fund that was set up by the widow of W6NGO, has offered that the Trust Fund is willing to help pay OCARC expenses for holding the upcoming meetings at off-site locations if meeting-room-fees are required:

- Sept meeting at Rodrigo's Restaurant up to \$150
- October Auction up to \$200
- November meeting up to \$150.

Because a Trust Fund CD is rolling over in mid-September and the costs of holding meeting away from Red Cross have not been firmed up, Ken agreed to only withdraw \$150 now in preparation of the Sept meeting-location costs. The Trust CD will roll over again in six months and the club will request addition donation based on real costs at that time.

• CA QSO Party operating

Ron W6WG reported that the club plans to hold the board meeting for October at Vista Park in Fullerton and immediately follow the meeting with working the CA QSO Party. The Board meeting will start at 8:30 AM. Bring your own food and coffee for the board meeting and during the contest effort, The OCARC will provide no food.

• 2020 Nomination Committee

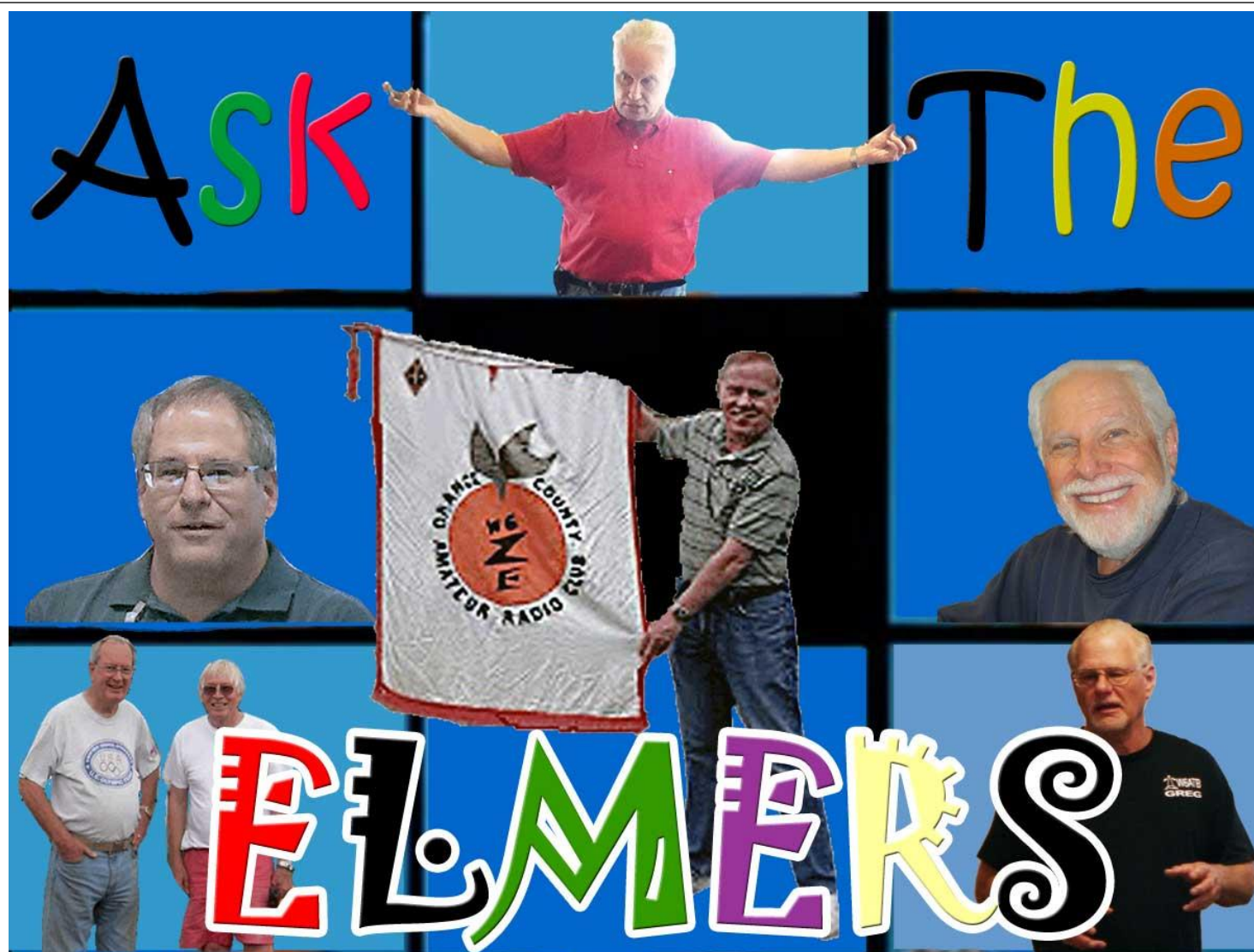
The OCARC election of 2020 officers will be held at the November General Meeting. Tim N6TMT volunteered to serve as the Nomination Committee chair.

Good of the Club:

- **Silent Key – Lee Evans** – Cory KE6YHX sadly announced that long-time OCARC member Lee Evans (no call), currently was a club Honorary Member, and the brother of long-time member Bob Evans WB6IXN, passed away on 2019-09-01. Although Lee Evans was not a ham...he enjoyed helping out the club at set-up and tear-down during Field Day, watching the Red Cross door for late arrivals during meetings after the alarm was set, and strumming his guitar during meeting break-time in the Red Cross lunchroom. He was quite a gentleman. Lee will be missed.
- **Orange County QSO Party** - Ron W6WG described his idea of having an Orange County QSO Party involving all six "Orange Counties" in six different states. It will require a lot of organizing and a lot of planning.... but, it sounds like fun thing to do...at some time in the future.
- **Donation of Coleman Walled Tent** – Ken W6HHC is in the process of selling his home on Craig Drive in Orange and has donated his 14x10 Coleman Walled-tent (long time tent for 20M PHN Field Day operations) to OCARC. Dan KI6X agreed to pick-up the tent after the board meeting...and Bob AF6C offered to store the tent for the club at his QTH (the club's "storage closet" is too small for another tent addition.)

The Board meeting was adjourned with a moment of silence in memory of Lee Evans.

Submitted by Ken, W6HHC, OCARC Secretary



BRING YOUR BEST AMATEUR
RADIO QUESTIONS
TO THE NEXT

OCARC

MEMBERSHIP
MEETING!

WATCH FOR
FUTURE

ANNOUNCEMENTS
REGARDING ITS LOCATION!



W6ETC



Upcoming Activities

September:

- ****North American Sprint, RTTY:** 0000 UTC to 0400 UTC Sunday September 22.
- **144 MHz Fall Sprint:** 1900 Local to 2300 Local Sunday September 23.
- **CQ Worldwide DX Contest, RTTY:** 0000 UTC Saturday 28 to 2400 UTC Sunday September 29.

October:

- ***10-10 Int. 10-10 Day Sprint:** 0001 UTC to 2359 UTC Wednesday Oct. 10.
- **Oceania DX Contest, Phone:** 0800 UTC Oct. 5 to 0800 UTC Sunday Oct 6.
- **Oceania DX Contest, CW:** 0800 UTC Oct. 12 to 0800 UTC Sunday Oct 13.
- **Scandinavian Activity Contest, Phone:** 1200 UTC Oct. 12 to 1200 UTC Sunday Oct 13.

State QSO Parties:

- **Iowa QSO Party:** 1400 UTC Saturday Sept. 21 through 0200 UTC Sunday Sept 22.
- **New Hampshire QSO Party:** 1600 UTC Saturday Sept. 15 to 0400 UTC Sunday Sept. 22 and 1600 UTC to 2200 Sunday Sept. 22.
- **New Jersey QSO Party:** 1600 UTC to 0359 UTC Saturday Sept. 22.
- **Texas QSO Party:** 1400 UTC Saturday Sept. 14 to 0200 UTC Saturday Sept. 15 and 1400 UTC to 2000 Sunday Sept. 15.

* Indicates club entries are accepted

** Indicates team entries are accepted

Note: When submitting logs for ARRL Contests indicate your club affiliation as "Orange County ARC"

- **Maine QSO Party:** 1200 UTC Saturday Sept. 28 through 1200 UTC Sunday Sept. 29.
- **California QSO Party:** 1600 UTC Saturday October 5 through 2200 UTC Sunday Oct. 6.
- **Nevada QSO Party:** 0300 UTC Saturday October 12 through 2100 UTC Sunday Oct. 13.
- **Arizona QSO Party:** 1600 UTC Saturday Oct. 12 to 0600 UTC Sunday October 13 and 1400 UTC to 2400 UTC Sunday Oct. 13.
- **Pennsylvania QSO Party:** 1600 UTC Oct. 12 to 0500 UTC Sunday Oct. 13 and 1300 UTC to 2200 Sunday Oct. 13.
- **South Dakota QSO Party:** 1800 UTC Saturday Oct. 12 through 1800 UTC Sunday Oct 13.

Repeating Activities:

- **Phone Fray** Every Tuesday night at 0230Z to 0300Z
- **SKCC** Weekend Sprintathon (Straight Key CW) on the first weekend of the month after the 6TH of the month. 1200 Sat. to 2359Z Sunday.
- **SKCC** Sprint (Straight Key CW) 0000Z to 0200Z on the 4th Tuesday night (USA) of the month.
- **CWops** Every Wednesday 1300 UTC to 1400 UTC 1900 UTC to 2000 UTC and Thursday 0300 UTC to 0400 UTC

Send an email to Ron W6WG, w6wg@w6ze.org to have your favorite activity or your recent RadioActivity listed in next month's column.

This month's meeting has been moved to Rodrigo's. The address is **14882 Holt Ave., Tustin**, between Irvine Blvd and Newport Ave (A map is shown on page 3). Below is a Menu List of meals & drinks available for the \$23 per person cost.

Rodrigo's

WELCOMES YOU

Dinner Selection:

TWO ITEM COMBINATION

Cheese enchilada, and shredded beef or chicken taco, served with rice and beans.

BURRITO SUPREME

An extra large tortilla filled with your choice of chile colorado, chile verde or chunky chicken, refried beans, then topped with our red chile sauce and melted cheese.

RIGO'S SPECIAL

Two flautas stuffed with shredded beef, deep fried to a golden brown, smothered with relleno sauce and topped with melted cheese. Served with refried beans and rice.

FISH TACOS

Two tacos filled with tender fillets of fish.
Grilled to perfection. Served with rice and beans.

TOSTADA GRANDE

A tostada layered with beans then mounded with your choice of Chunky Chicken, Chile Verde or Chile Colorado. Topped with fresh greens, shredded jack and cheddar cheese, guacamole and sour cream.

ULTIMATE TAQUITOS

Fresh corn tortillas loaded with tender chicken and fried until crisp. Topped with melted cheese, our homemade guacamole and red chile sauce. Served with rice and beans.

DRINKS

Each guest may order a choice of soda, iced tea or coffee, (refillable).

MiniTiouner-Express

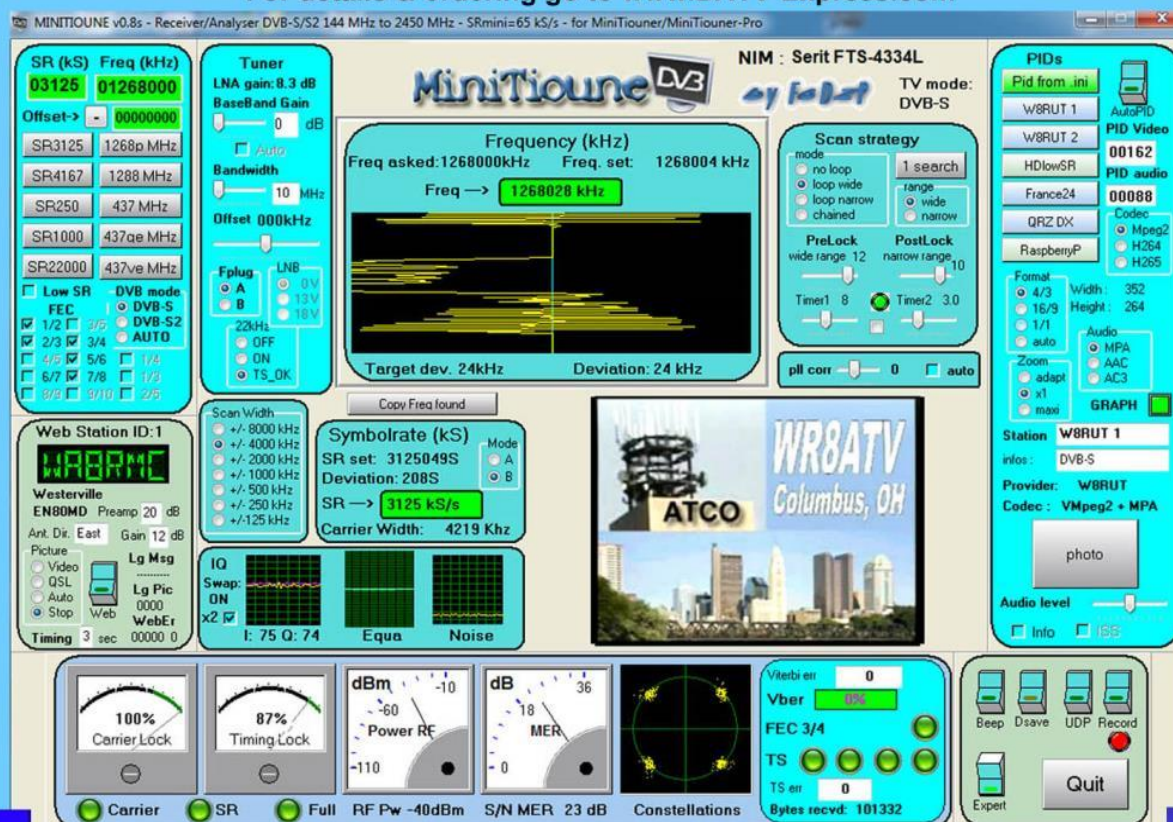
Digital Amateur Television DVB-S/S2 Receiver / Analyzer



Available at DATV-Express.com

- Operates with Windows PC using free MiniTioune software from Jean-Pierre F6DZP
- Smaller than a stack of 2 decks of cards (picture above is full size)
- Two independent simultaneous RF inputs with internal preamps
- High sensitivity -100dBm @1288MHz – at 1/2 FEC
- Fully assembled/tested in aluminum enclosure
- Covers 144-2420MHz (ideal for Space Station DATV reception)
- Symbol rates from 75 KSym/s to >20 MSymbols/sec
- Uses external 8-24VDC supply or +5V from USB-3 port (with small modification)
- Real time signal modulation constellation & dBm signal strength display
- Price: US \$75 + shipping – order with PayPal

For details & ordering go to www.DATV-Express.com



(MiniTioune display above is the ATCO 1268MHz DVB-S repeater signal at WA8RMC QTH 15 miles away).