PIKES PEAK RADIO AMATEUR ASSOC

Ø BEAT

Measure Capacitance to Determine Wire Length

Ron, ABØWO

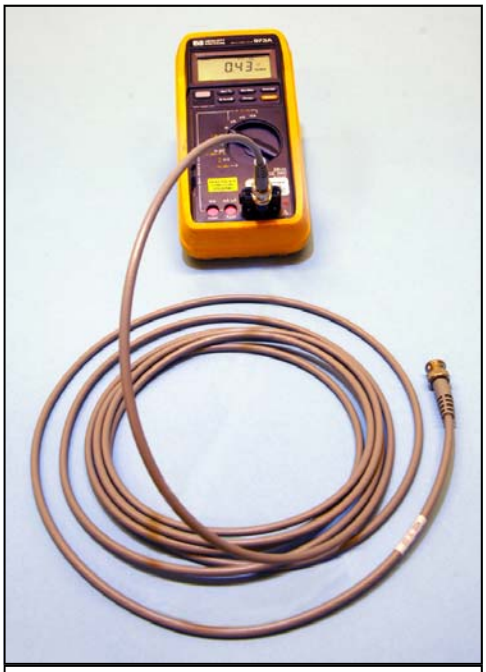
Several weeks ago I was installing some low voltage yard lights. After placing the wires where I wanted them, I applied power and one of the strings did not work. I went through the normal troubleshooting of measuring the voltages and resistance. It became quite easy to tell that somewhere between the transformer and the first light in the string, I had an open; but where?

I remembered using a multimeter with capacitance capability just days earlier to solve a problem on our manufacturing line. I had used it to detect the capacitance difference between a 16-gauge power cord and an 18-gauge power cord. It only took seconds to recall that capacitance of the wire is directly proportional to the length, among other things.

I had a roll of the yard light wire from the store that had not been opened. It said 50 ft on the label. I put my multimeter in the capacitance mode, zeroed out the leads, and clipped them on to one end the wire. The multimeter read 1.05 nanofarad. I calculated the capacitance to be 21 picofarad per foot.

I then measured the open wire I had disconnected from the transformer. It measured 158 picofarads. That calculated to be 7.5 feet. With the use of a tape measure I found a cut in the wire at seven foot and six inches!

This sparked my curiosity. I took a trip to the hardware store and measured a new role of Romex. A 250 foot roll of 14-2 yielded 5.26 nanofarads, 21 picofarads per foot. The hardware store worker marveled when I told him what I was doing, and was amazed when I measured a partial roll and calculated he had 91 feet left in the roll!



Measuring the length of an unknown cable.

I wondered, how good was this? I made some other measurements and calculated the resolution. The resolution and range of the multimeter determine the resolution. See the results in Figure 1.

The last three coaxial cables are from a cable chart. The resolution becomes worse on longer wires because the multimeter changes ranges to accommodate the higher capacitance (note the readings on 1000 foot reels). Of course this is still not bad, 54 inches out of 4500 feet.

I know the next time I have an open wire in a wall or area that is hard to examine, I will grab my multimeter. And before I make an installation, will use my multimeter to insure

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Issue 53

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Please Note:

December 0-Beat deadline November 21, 2003

No content is accepted after the deadline.

Meetings Our monthly meetings are held on the 2nd Wednesday of each month at 7 pm, temporarily at the El Paso County Office of Emergency Management, 305 S Union Blvd. Our Annual meeting is in October. Check the web site for any changes.

Regular License Exam Sessions Our ARRL VE test sessions are on the 2nd Saturday of even numbered month. Contact Erik KGØXE for details.

Examinees need to bring (1) $12, preferably a check or money order payable to ARRL/VEC; (2) picture ID; (3) the signed original and a copy of your current amateur radio license and CSCEs you have (we keep the copies); and (4) a pen, pencil, and calculator if needed. Memory calculators will be checked.

Decembers regular VE session will be held at 09:00 at the El Paso Country Office of Emergency Management at 305 S. Union Blvd. This is the next building south of Devry University. Please use the East entrance to the building.

PPRAA Web Page See it at http://www.qsl.net/ppraa/. Thanks to Lee Inman KØQED for maintaining these pages.

Get on the PPRAA E-mail Reflector Stay on top of new or short-fused developments. Subscribe at **http://mailman.qth.net/mailman/listinfo/ppraanet**. Thanks to John Wishart KCØJFH for maintaining this list.

PPRAA Simplex Net All amateurs are invited to join us on Thursday evenings at 1900 on 146.58 MHz simplex for our club net. Get the latest club and regional happenings!

The ***Ø -Beat*** is published monthly in the interest of the members of the Pikes Peak Radio Amateur Association, Inc, P.O. Box 16521, Colorado Springs, CO 80935-6521. Permission is granted to reprint articles provided credit is given to both the author and the ***Ø -Beat***. For membership and subscriptions see the back inside cover of this publication. Monthly advertising rates: Full page $48; Half page $24; Quarter page $12; Business card $6. Rates are billed quarterly. Send advertisements and payments to Pikes Peak Radio Amateur Association, Inc, P.O. Box 16521, Colorado Springs, CO 80935-6521.

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Upcoming Club Programs

SPECIAL SERVICE CLUB

Articles for the Ø-Beat Deadline for articles or ads for the October issue is September 26. Submit articles by e-mail, US Mail, telephone or in person to the editor. Editor reserves right to edit for readability, grammar, spelling, punctuation and length.

Nonprofit Organization The PPRAA is a federal 501(c)(3) nonprofit organization and welcomes all contributions. Your contributions/ donations may be tax-deductible.

Ø -Beat Available Electronically in PDF form via e-mail and on the web. Contact the editor for details.

Club and Local News

Presidents Message

Well, here it is almost the end of October and time for my first column as the new president of PPRAA!

First, I must congratulate Ben and the members of last year's executive. You've all done an excellent job, and I know that those carrying on into this year will provide "newbies" like me with solid advice and assistance.

Second, I should introduce myself to club members whom I haven't had the pleasure of meeting. I am a Lieutenant Commander in the Canadian Navy working in the Operations Branch of NORAD Headquarters at Peterson AFB. My wife Shelley VE1NOS and I arrived here just over a year ago from Halifax, Nova Scotia. I was licensed in early 1977, and enjoy most every aspect of Amateur Radio. When I have my antennas up (!), I am active on all bands from 160 meters to 1296 MHz (except for 902 MHz) in most modes, including SSB, CW, FM, RTTY, Packet, PSK31, Satellite, and a few others I've forgotten! I like DX'ing and contesting on some of the more "exotic' bands" like 160 meters and VHF/UHF. Back in Canada I was part of a group that travelled to various Canadian islands for the IOTA (Islands On The Air) contest every summer for a DX'pedition vacation. There aren't too many islands in Colorado, so a few of us try to activate rare grids during VHF/UHF contests instead. I have been president or on the executive of several clubs across Canada, and so I hope to offer some new ideas to the PPRAA.

What can people expect over the next year? Well, I love Amateur Radio for a variety of reasons – the "magic of radio", the technical challenge, the social aspect etc. – but most of all I find it fun! I strongly believe that meetings should be enjoyable. I intend to keep humor and levity in the meetings. These are club gatherings after all, not the National Security Council!

I want to bring in guest speakers to talk about a variety of topics. There are a lot of different aspects of Amateur Radio that many of us are not familiar with. I cringe when I hear new Hams talking about 2 meter FM as if it is the ultimate experience in Amateur Radio! How many of you know about moonbounce, meteor scatter, contesting, APRS, or foxhunting? There is an incredible wealth of talent in the area, with expertise in all sorts of fields. I want to tap into that knowledge.

In my previous club I witnessed our Ham class turn out bunches of new Amateurs, only to have most of them disappear, never to be heard on the air. The current situation at the PPRAA appears to be much better, but there is more that we can do. I want to create an Elmer Program to encourage and support not just new Amateurs, but any Ham who might have questions or require assistance. I'm in the process of moving to a new home right now (where I can put up antennas!), and so I haven't had an opportunity to put the whole concept on paper. As soon as I get settled away however, I am going to make it a priority project.

Those who attended the meeting of the Mountain Amateur Radio Club in Woodland Park last week know that MARC now meets in the town's new library. What's more, the club has office space allocated. While not big enough for meetings, the office will hold all the club's records and will have a station. This is an excellent step forward for MARC. I would like to take a similar stride. My long-term goal is to find a permanent office/club station for PPRAA. I'm afraid that I don't have all the contacts and local knowledge that one needs to make this happen. This is where you, the members, come in. I need suggestions as to where we could try to get office space. Places like the Office of Emergency Management, local libraries, municipal centres etc. all come to mind as potential locations. Keep a sharp lookout, and bring your suggestions to me.

This just in! The ARRL website has published the

(Continued on page 4)

Board Meeting Minutes, October 13, 2003

Location: QTH of John, KØAII

Present: President Al, VØ1NO; Treasurer John, KØAII; Moe, WBØRTF; Rob, N7LV; Bill, KDØJU (proxy for ADØA); Shelley, VE1NOS; Board Member Tom, NØNTX; Vice President Dennis, NØABC; Aaron, KD6FLM;, and Board Member Kate, WB9BAH.

The meeting was called to order at 7:06 pm. In the absence of Joanie, KCØGMI, Kate, WB9BAH recorded the minutes. Past treasurer Bob, KBØB was absent, so no treasurer's report was given. Discussion regarding an annual budget, calendar of recurring events, and audit for the prior year was held. All items were requested by President Al.

Vice President Dennis has the door prize supplies, and upcoming and potential programs for meetings was discussed.

The Secretary will be directed to prepare a letter of thanks for speakers for each meeting, according to Al. Ideas for programs were batted around and questions on membership answered.

Al brought up obtaining the web domain of www.ppraa.org. This will be investigated and reported back to the Board.

Al brought up the question of attendance of officers and Board members. The policy of giving notice for absence and use of proxies was discussed. It was agreed that Al would research the Club Manual to see what is written for this situation.

Aaron requested for Mike, WV7T, and Rhoda, KB2BZY that they have permission to pitch a non-working coffee pot that is in their possession. Permission was given.

Tom discussed JOTA and stated that on the Edge of Space Science website, there is a map for how to get to the camp. (JOTA being October 18th)

The following topics were also discussed: Ham classes, Elmer program, antenna programs, and club equipment. Moving the Club net was also discussed. It was agreed that Thursday night was not the optimum night, and that the net would move to Wednesday nights at 7 pm beginning in November, and that it would be announced repeatedly over the next few weeks. The club net will not be held on the second Wednesday of the month, as it is hoped that members will be attending the club meeting that night. The format of the net was also discussed, with a possibility of having a once-a-month 80 meter net also.

Al stated that his short term objectives as president are to have fun meetings and to emphasize different modes. His long term objects are to obtain a site for a club station and meeting/testing place.

The Christmas party will be held this year again at the Springs City Church. Sid will be contacted to be the point of contact, and hopefully we can have it on Friday December 12th. Shelley, VE1NOS will organize the party. Kate made a motion to allow up to $300 in expenses for the party. The motion was seconded by Dennis, and carried.

Discussion was held regarding changing the night of the Board meeting, to make the meeting more pro-active instead of reactive with regard to the General Membership meeting. The idea was tabled for next month.

The meeting was adjourned at 8:30 p.m.

Respectfully submitted by Kate Muniz, Secretary Pro-Tem

(Continued from page 3)

2003 Field Day scores. Our score was 5778 points, which placed us 44th overall in the 2A category, and the number one 2A station in Colorado! Well done to all those who participated, and for those who didn't get out to Field Day – where were you? Mark the last full weekend of June 2004 in your calendar right now!

That's all for now. I hope to see "all y'all" at the next meeting (sorry – an American expression I've picked up down here!).

73

NWS Skywarn Appreciation Day, Dec. 5-6

All amateur radio operators in southern and southeastern Colorado are invited and encouraged to participate in the fifth annual NWS Skywarn Appreciation Day special event being hosted by the NWS Pueblo Skywarn Group at the NWS Pueblo Forecast Office starting at 1700 (5 pm) MST on Friday, December 5th, and running continuous through 1700 on Saturday, December 6th. The Pueblo Forecast Office is located at 3 Eaton Way, Pueblo, CO -- just a few blocks SW of the Pueblo Municipal Airport terminal building.

NWS Skywarn Appreciation Day has been growing rapidly in popularity and participation since its inception just five years ago. This is a truly unique event, part special event and part contest, where operators from all around the country/world try to work as many of the NWS Forecast Offices as possible and exchange weather observations during a 24-hour period. It's really fun being a station everyone is trying to work, and finding yourself on the receiving end of a big pileup. Last year, over 100 NWS Forecast Offices participated.

Mike Allen (NØMIK) logs and serves as control operator as NWS Senior Meteorologist Steve Hodanish gets some HF experience during Skywarn Recognition Day in Pueblo last year. Photo: Wes Wilson, KØHBZ

Wes Wilson, KØHBZ is the SRD Station Coordinator for the event, feel free to contact him at (719) 687-8758 or k0hbz@arrl.net if you have any questions.

The Pueblo Forecast Office will be operating under its club call, WXØPUB, and will have two HF SSB stations, a HF Digital station (CW, RTTY, Amtor, Pactor, HF Packet, PSK-31) and a VHF/UHF/Packet/APRS station. All of the stations, antennas, computers and equipment are provided, so all operators need to do is show up, roll up your sleeves and help keep the stations on the air. Nighttime is especially fun, and the event runs ALL night, so if you're a night owl . . . we especially need your help (we'll provide the coffee)!

Volunteers are always needed and welcome for setup and teardown. Setup will begin at 1300 on Friday and teardown will start at 1700 on Saturday evening.

If you don't have HF privileges under your current license class, just ask – if control operators are available you can explore the fun and excitement of HF operation. This also is an excellent opportunity to learn about HF Digital, packet, APRS and other modes with the help of experienced operators.

Additional information is available in the November 2003 QST Magazine, p. 90, or you can visit the NOAA website at http://hamradio.noaa.gov/.

NWS Pueblo Skywarn Group is the name of our Skywarn spotter network, made up of Skywarn-trained weather spotters, both hams and non-hams. NWS Pueblo appreciates the contributions of all our Skywarn spotters, and especially those made by amateur radio; we hope you will come join us for this special event.

"73" Bill Fortune, KBØRPD

Meteorologist In Charge

NWS Pueblo Forecast Office

JOTA

Aaron, KD6FLM

Jamboree On The Air (JOTA) was a great success this year. We had two JOTA sites, one at Peaceful Valley Camp ground south of Elbert, and the other at the Air Force Academy. Thanks to Shel Radin KFØUR, Mike KØTER, and Tom NØNTX, Aaron KD6FLM for helping at Peaceful Valley. Wes KØHBZ, Carol KCØDTQ, Mike NØMIK, and Lee KØQED at the Air Force Academy.

Between the two sites we had over 250 scouts, and adults. We operated a variety of modes from: UHF/VHF, HF voice/digital/CW, and satellite. Many contacts were made to other JOTA stations as well as Amateur Radio operators. One scout talked to his Grandfather in California.

The Edge of Space Sciences (EOSS) folks launched a balloon on Saturday morning. The group at the Academy made a few contacts on the repeater attached to the balloon.

Aaron set up Wes's portable repeater so the scouts at the USAFA Scout Camp and Peaceful Valley Scout Camp could easily communicate. A special thanks goes out to PPFMA and CMRG for volunteering the use of wide area repeaters. The CMRG gave us access to their IRLP system which because of the excellent HF conditions we did not use. As in past years every one that participated did a great job showing the scouts what a great hobby amateur radio is. The scout responded by having a great time and presenting the PPRAA with a framed certificate. Thanks to Dan KBØPPM and Wes KØHBZ for setting up a great event.

20 Years ago in PPRAA.....

November 1983:

Darla WBØDUV, ARRL ACC, came down from Denver to congratulate the club on its Special Service Club status effective September 28, 1983, and its status as the first Colorado club carrying that status. The club will spend $15 for a hot stamp badge to be made with the club logo, and personal badges can be made for 70 cents plus 10 cents per letter. Mark WB9NFE of the National Guard is looking for ham help in their RTTY section. A motion was passed to have the club look into meeting at the Nazarene College. Elections were held, and Joe N9ENM is our new president. The board recommended a calling tree to notify club members of time-sensitive issues. The board is considering a "life" membership for club members, with a portion going towards a scholarship fund. The Chapel Hills Mall demonstration will be held on November 11 and 12. A liability insurance policy is required, and the club will purchase a $1,000,000 policy. The November program will be on the Red Cross.

submitted by Ron Deutsch, NK0P, PPRAA Historian

From the ARRL History page:

The telegraph call CQ was born on the English Telegraph nearly a century ago as a signal meaning "All stations. A notification to all postal telegraph offices to receive the message." Its meaning was close to the present meanings of QNC and QST. Like many other telegraph terms which originated on the landlines, CQ was brought over into radio and used as a general call to all ships by the Marconi Company. Other companies used KA until the London Convention of 1912, which adopted CQ as the international general call or "attention" signal. CQ still means, literally, "attention" but in amateur radio its meaning is perhaps more accurately described by Thomas Raddell who compared it to yelling "Hey, Mac!" down a drain pipe.

But why the letters CQ? From the French, sécurité, (safety or, as intended here, pay attention)

Membership Committee Report

Les, KCØNC

Please welcome these New Members

BRIAN	GAUCK	KC9EMW

Total Number of Members

175

Sunny DM77!

The ARRL Fall VHF/UHF Contest was held on the weekend of 13/14 September. This was, unfortunately, the same weekend as the PPRAA picnic. Dick K2LCT, Brian KC9EMW, Tom KØGIE and I had made plans to operate from DM77, south of Pueblo, just after the CQ World Wide VHF Contest in June. Having publicized our plans among the many VHF/UHF DX'ers who needed DM77, we couldn't very well back out after learning about the picnic - this was after all, a contest!

After the June expedition to DM77, the four of us sat down and put together a long list of lessons learned. Foremost among the lessons was the need to arrive at the site the day before the contest in order to have enough time to put up the antennas. Unfortunately, Tom had to work Saturday, but Dick, Brian and I headed out of town at about 1830 on Friday. This was later than we had planned (lesson learned: Dick needs help loading the towers and antennas on the trailer!). Brian had to go to a store to buy food for the weekend, so we temporarily parted, intending to rendezvous at a truck stop south of the city. Due to a slight communications foul up (lesson learned: Brian needs to use the "frequency lock" switch on his HT!), we all traveled back and forth until finally arriving at the site well after the sun had set. Putting up a tent in the dark is never fun, especially in Dick's case - he last used it over 20 years ago! Fortunately, the moths hadn't eaten it, and we were even able to put up the screen tent and have a beer before retiring for the evening.

At 0030 the wind suddenly blew up. The gusts were so strong I spent the next hour holding my tent frame off my face . The next morning I fully expected to find the screen tent in tatters and our cooking supplies scattered, but fortunately everything was intact.

After a quick breakfast we started setting up. We put a lot of effort into making everything easier to assemble after our expedition in June - same size nuts and bolts, pre-assemble as much as possible etc. Although there were only 4 of us (a friend of Brian's dropped by to help out for a few hours) we had the antennas up shortly after noon. The only pause was to dispose of a large tarantula - Dick carefully scooped it onto a shovel and carried it about half a mile away (no sense in ticking it off - it could have friends!).

Antennas were as follows:

6m - 6 element Cushcraft beam at 21 feet with a 6m Ringo Ranger mounted above it;

2m - 17 elements on 27 foot boom at 25 feet with a mast-mounted Mirage preamp and a 6 pole array for vertical polarization;

222 MHz - 11 element Cushcraft beam at 23 feet;

432 MHz - 40 element circularly polarized beam at 27 feet with mast-mounted Mirage preamp;

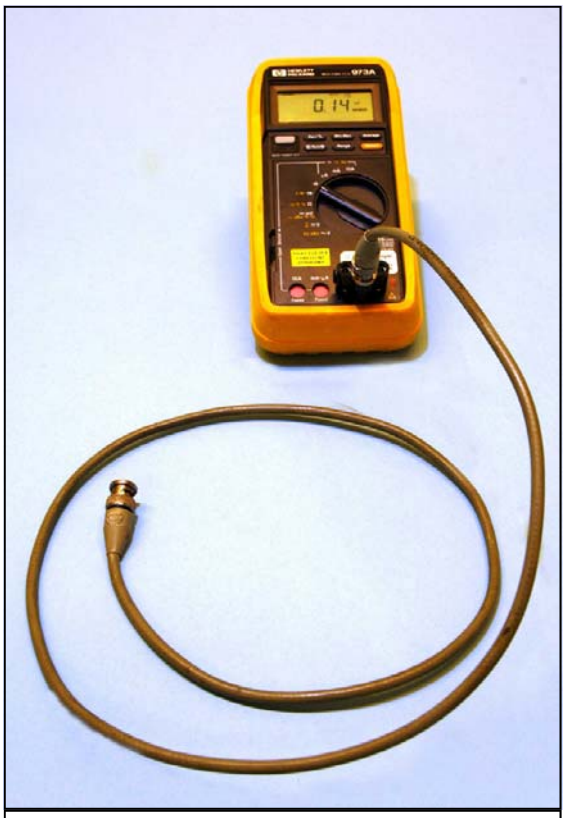
1296 MHz - 40 element yagi on 12 foot boom at 30 feet.

We used a Kenwood TS-711 with a brick on 2 meters, and 2 Yaesu FT-737R transceivers on the other bands, with bricks for 6m and 432 MHz.

The weather grew colder in the late afternoon, and by suppertime it was raining. When an electrical storm started at about 1830 we disconnected the coax and took shelter in the vehicles. The strikes were close - on several there was less than a second's difference between flash and bang. Needless to say, we weren't about to operate in that!

The rain turned into snow, and when an inch had accumulated (the electrical storm was still going on) we decided to go into town to get a coffee and warm up. As we drove in the snow intensified. Pretty soon we had a mini-blizzard! We couldn't find a place for a coffee (in Canada we would have passed at least 3 Tim Hortons donut shops!), but it became apparent that it would be a pretty miserable night to spend in a tent. I had brought my arctic sleeping bag along (and I'm an optimist!) but Dick and Brian had summer sleeping bags. Accordingly, we decided that it would be best to spend the night in a motel. We found a suitable place, dropped Dick off, and Brian and I headed back to the site to get our overnight bags. We had to knock 4 inches of wet snow off all the tents to keep them from buckling, and by the way, the electrical storm was still going on!

(Continued from page 1)

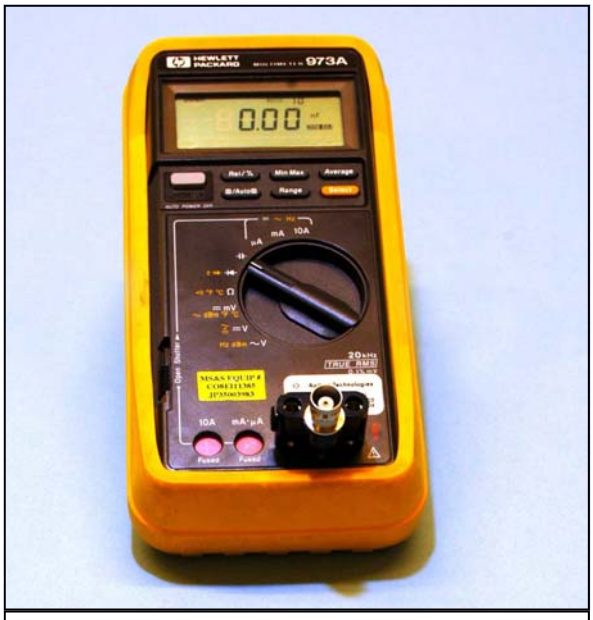


Measuring the capacitance of a known length cable.

there is enough wire on the spool before I start.

Here is the recipe for measuring multiple conductor wire length.

Zero the multimeter in the capacitance mode. This is done by placing the meter in the capacitance mode and installing the interfacing devices. This could be test leads with alligator clips, coaxial adapters, or whatever you will use to connect to the wire or cable you wish to measure. If you use test leads, insure the leads are separated. Perform the zero adjust on the meter. If the meter does not have an adjustment, then note the capacitance you are reading. You will subtract that number from your readings.



Zero the meter with coaxial adapter attached.

Measure a known length of wire. This is quite easy. If you have purchased a known length, like a 50 foot spool, the assumption is good there will be 50 foot on the spool. The manufacture will not put any more on the spool, and he will more than likely not cheat the customer. If you don't have a known length then take you meter to a store and measure the wire capacitance at the store.

Calculate the capacitance per foot. Lets look at the example above: Say the 50 foot spool of wire measured 1.7 nanofarads. Simply divide.

$$\frac{\text{Capacitance measured}}{\text{Length.}} = \text{Capacitance per unit length}$$

$$\frac{1.7\times10^{-9}\ \text{F}}{50\ \text{ft}} = 34\times10^{-12}\ \text{F per ft.}$$

Measure the capacitance of the wire in question, after disconnecting it,. and divide the capacitance per foot into the reading you got when measuring the wire in question. Say I measured 150 pF.

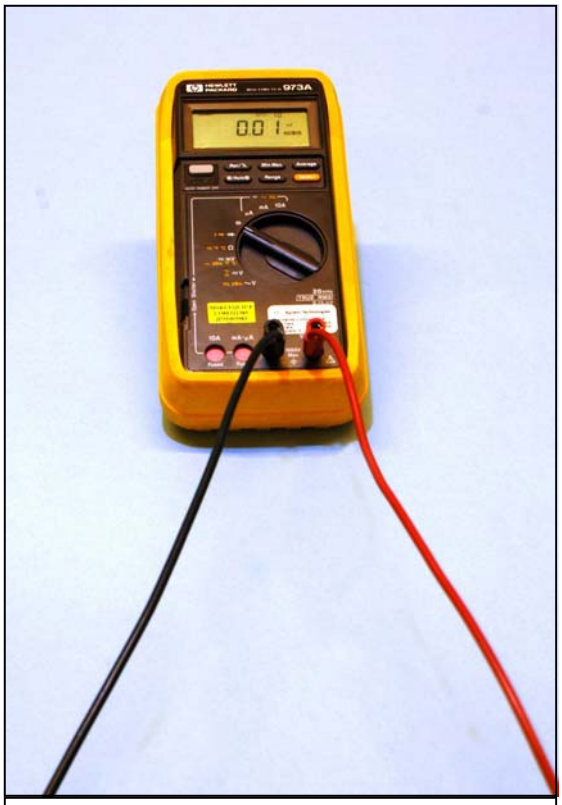
Type	Total Cap	Total length	Cap/ft	Resolution	Range-feet
Two pair twisted 18 Ga.,	4.10E-08	1100	3.73E-11	32.20	2682.93
16-3 sj	1.00E-10	5	2.00E-11	6.00	500.00
Cat 3 phone wire, PVC	2.16E-08	1000	2.16E-11	55.56	4629.63
Cat 3 phone, plenum	2.21E-08	1000	2.21E-11	54.30	4524.89
14-2 nmb	5.26E-09	250	2.10E-11	5.70	475.29
18 Ga. Speaker (pot)	9.10E-10	30	3.03E-11	3.96	329.67
24 Ga. Speaker (pot)	1.69E-09	75	2.25E-11	5.33	443.79
16 Ga. sp. (pot)	9.80E-10	30	3.27E-11	3.67	306.12
RG-6	4.70E-10	25	1.88E-11	6.38	531.91
Twin lead, 20 Ga.	6.80E-10	100	6.80E-12	17.65	1470.59
RG 8			2.95E-11	4.07	338.98
RG-25			5.00E-11	2.40	200.00
RG 59			2.10E-11	5.71	476.19

Figure 1

(Continued on page 9)

(Continued from page 8)

Then I would divide 150 pF by 34 pF per foot. That would tell me the wire length to the open is 4.41 feet.



Separate leads when zeroing meter if you use "flying leads".

Here is a method to determine where the open is when you do not know the capacitance per foot, but you can measure at each end. This is good for a buried cable or a wire inside a wall.

Measure the capacitance at each end of the wire, after disconnecting both ends.

Add the two together.

Make an approximation of the total wire length.

Divide one of the wire end capacitance measurements by the total of the capacitance.

Multiply the total wire length by the number in part 4. That will be the approximate length to the break from wire end in used in part 4.

Example:

I have a coaxial cable from my satellite dish that is open. I disconnect both ends of the cable and measure the cable capacitance at the dish and find it to be 700 pF. I then measure the cable capacitance at the receiver end, and find it to be 300 pF. This gives me a sum of 900 pF for the total cable length. The cable is stapled to the outside of my house. I measure the total cable run and find it is 75 feet. I divide the 300 pF by the 900 pF and got 0.33. I multiply the 0.33 times 75 feet and find the open is at 25 feet from the 300 pF end.

Hint: if your multimeter does not zero in capacitance, simply note the reading before connecting any wires or cables, and then subtract that number from your capacitance measurements before performing any of the above math.

Author Biography:

Ron Duffy attended the University of Colorado, Colorado Springs and has worked at Agilent Technologies (Hewlett-Packard) for 36 years as a product safety engineer, product line technician and standards and metrology lab technician. Presently he is a product safety engineer and a member of IEEE. After work interests include Extra Class Amateur, Jazz Drummer, Military Vehicles and maintaining his Corvette.

(Continued from page 7)

We got back to the site just before 0800 the next day and missed the meteor scatter a few people reported. Tom and his son CJ joined us, and we continued operating. Unfortunately, but not unexpectedly, we didn't have any Sporadic E openings as we had had in June. Our best DX on 6 meters was into northern Texas. Two meters was our most productive band, and we worked several club members on both SSB and FM. We started teardown at about 1600, and got out of there at about 1830. KIØSK/Rover was in the area and dropped by to say hello just as a farmer was posting a no trespassing sign! Fortunately, Dick had asked permission to use the location from a friend of the farmer's, and after explaining what we were up to he seemed happy.

Our results were as follows:

band	QSOs	mult
50	21	5
144	51	12
222	4	2
432	14	6
1296	3	2

(Continued on page 10)

Public Service Communications

ARES

http://www.qsl.net/ppares/

VHF Net Tuesdays at 1900 on the 146.97 MHz PPFMA repeater

Sid White K4ARM, PPARES EC

No updates this month

(Continued from page 9)

for a total of 93 QSOs and 27 multipliers, and a score of 3159 points. We submited our entry as Limited Multioperator (4 bands), so the score was a little less than this.

This was the third time that we have lost valuable operating time due to lightning (the June CQ WW VHF contest, and who can forget the sudden storm that almost blew us off the hill at Field Day!). I guess that that's the risk you take in Colorado. I was also a little surprised at the relative lack of activity. I intend to publicize the contest weekends more!

We're already planning for the January contest. We may try roving with a trailer carrying two tilt-up towers and a generator. Should be fun!

73

Al VO1NO / WØ

PS: If you didn't understand expressions like "DM77", "multipliers", "bricks", and "Sporadic E", then maybe we can arrange for an expert to come to a club meeting and talk about VHF/UHF contesting!

RACES

http://www.qsl.net/epcraces/

VHF Net Tuesdays at 1930 on the 146.76 MHz CMRG repeater

Les Borst KCØNC, RACES Officer

The weather is changing, and winter is on the way. One of the major dangers facing the mobile radio operator this time of the year is the unexpected blizzard.

To better prepare our members for what ever comes along this winter we have scheduled Skee N0PRY to give us his excellent Cold Weather Equipment talk.

We are also working to complete the installation of a new VHF/UHV transceiver in the County MCP and Coax cable at the OEM.

Our October meeting was on Packet radio systems and equipment. The presentation was given by Rob N7LV. Very good program, thanks Rob.

Our next meeting at the County OEM is on the 20th of November at 7:00 P.M.

Zero–Beat

Articles Needed

Please email to

KC0NRZ@ARRL.NET

Pikes Peak Region Ham Radio Event Calendar

November/December 2003 -- Please see Page 2 for Points of Contact

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2	*3*	4	5	6	7	8
9	10	11	121900 PPRAA Mtg (Program)	13	14	15
16	17 1900 PPRAA Board Mtg (NØLNW)	18	19	20 7:00 Races	21	22
23	24	25	26	27	28	29
30	*1*	2	3	4	5	6
7	8	9	101900 PPRAA Mtg (Program)	11	12	13
14 PPFMA VE Testing	15 1900 PPRAA Board Mtg (NØLNW)	16	17	18 7:00 Races	19	20

Membership Application for the Pikes Peak Radio Amateur Association, Inc.

P.O. Box 16521, Colorado Springs, CO 80935-6521

Date: _____ ☐ New Member ☐ Renewal

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Call: _____ Class: N T + G A E Phone: _____

Mbr of ARRL? ☐ Yes ☐ No E-mail: _____

Additional Family Members to Join/Renew:

Name: _____ Call: _____ Class: _____ ARRL? _____

Name: _____ Call: _____ Class: _____ ARRL? _____

Name: _____ Call: _____ Class: _____ ARRL? _____

In which activities would you like to participate?

Field Day ☐
Demonstrations ☐
Nets or round tables ☐
Organize activities ☐
Teach ham classes ☐

Full Member	$15:	☐
Family Membership	$18:	☐
Over 65	$10:	☐
Over 65 Family	$12:	☐
Associate	$12:	☐
Ø -*Beat* Only	$12:	☐
Donation to Club:	$_____	

Total Enclosed: _____

MAKE ALL CHECKS PAYABLE TO "PPRAA"

Please indicate how you'd like your Ø-*Beat* delivered: (Defaults to standard hard copy in the event that NO check boxes are checked)

¨ Standard hardcopy via U.S. Mail
¨ As a PDF file attachment via e-mail, to help save a few bucks
¨ I'll save the club a few bucks and download it from the Web!

Circle your interests ð HF / V/UHF / FM / SSB / Digital / DX / Contests / Technical / Hardware / Other_____

New and renewing members must submit a completed application form along with your check to the Treasurer.
Please Type or Print Clearly!

ALL NEW MEMBERSHIPS AND RENEWALS WILL BE PRORATED TO EXPIRE IN DECEMBER!!

Classifieds

For sale

QSTs from 1961 to 1995. Please

Make offer.

Les KC0NC

To place a classified add please email to KC0NRZ@ARRL.NET. Add should be short and

For sale

Rohn 25 Tower Sections
10' Sections - $45.00
Top (Flat) Section $55.00
Hazer for Rohn 25 Tower
(Complete with Winch & Cable) $225
15' (approx.) antenna pole
Heavy steel (rust included)
Free – (You pick up.)
Jim Romines AB5SI jromines@adelphia.net

Pikes Peak Radio Amateur Association, Inc.
P.O. Box 16521
Colorado Springs, CO 80935-6521 USA

First Class Mail

To: