

Hampden County Radio Club

Prexy Rog. Corey JYH
Veep Art Zavarella MNG

Midas Bob Adolphson NLE
Scribe Ken Gurney SIT

Editor Bill Ham RRX

ANNOUNCEMENTS Come rain or come shine, we'll be looking for you July 7, at the Chalet in West Springfield in observance of the regular first Friday of the month meeting. Our Program Chairman, MNG, has arranged for Dick Smith, FTX, a staff member at ARRL Headquarters, to deliver unto us a sermon on VFO's. Put a big circle around number six on your August calender 'cuz that's the DATE for our Annual Picnic. Al Purseglove is arranging for space at Look Park in Northampton as the meeting place for the festivities. Just in case it rains on the 6th, try again on the 13th.

The September meeting date will be announced later due to the Labor Day Weekend.

LAST MEETING Our Bull Session last month was varied and interesting to the point that no yawns were noted in the assembled multitude. Russ Hobby, RHU, gave us a good briefing on traffic handling, prodedures, etc. Hank Baier, NY, presented his problems on 75 mobile, specifically speaking, loading his 75 meter, center loaded whip. Hank received some help from the audience and in general everyone benefited by Hank's troubles. Ed Theroux, RTV, brought his grid dip osc. which was put to use after various guesses were made as to the resonant frequency of a small tank coil and found it to be in the 6 meter band. Al Jackson, OBQ, brought his 420 m.c. xmitter and spoke on the VHF & UHF activities, etc.

Welcome to three new members approved by vote June 2; namely,

Robert Sabin -SWL- 38 Rencelau St., Springfield, Mass.

Bill Parker - SWL- Clinton Hotel, Springfield, Mass:

Everett (Glut-Maker) Taylor --BEF- 78 Warrenton St., Springfield, Mass.

NOTICES This month's executive committee meeting will be held at Mal Merchant's, (MQK) QTH - better draw a map on your notices, Ken.

YE ED'S CORNER: Contributions (Literary, that is) were light this month. Thanks Dave Lloyd, PHU, for his contribution, also Dick Stevens for an excellent technical topic.

If just a few more contributors would send in material, it would be possible to get out a better issue. It's a bit rough for a few fellows to obtain the material and get out the paper. If it wasn't for Bob Adolphson, NLE, this organ of the club would be more like a bag pipe.

In last month's issue we asked for comments pro and con - and received neither. "WOT HOPPEN"? We thought we might be able to start a Q and A section or a readers' column. However, with no fan mail, the material is lacking and poor Zero Beat retains its girlish figure.

By word of mouth, we did receive a bit of commendation from a W2 to whom Bill Parker has sent his Zero Beat. The W2 said he wished there was a club like ours in his vicinity.

Don't forget August 6th.

JOTTINGS The Bull Session comments were quite favorable and "This type of an evening should have at least an annual spot on our program" was heard from several sources.

Pre-meeting QSO of NY vs RRX on 75 nearly lost two reputations. Now Hank has a summer use for tire chains - to tie his Xtal down in its socket. Some DX!

How did RRX ever figure out how his Mark II operates, with the markings all in Russian? Bet he can tell a Vodka bottle now before it's opened.

UD is among the missing now he's on the 3 to 11 shift.

HCRC growth, as shown by new members being admitted each month is a healthy sign. We can stay healthy by continued participation in the various ham doings.

Coverage of our meeting expense was better last time. One way to break even painlessly is to make our good attendance better.

The Wilbraham Mt. Boys were well fed on Field Day, Sat. eve. XYLs of RFU, QWJ and RRW put on a swell meal.

Dick Smith, originally slated for a VFO talk last month, says he can sure make the July meeting now that the stork came and left after furnishing another op. We hear it's a boy too!

Speaking of storks, we're reminded BH has forsaken his Worthington Utopia for the bright lights of Agawam - in anticipation.

We notice 10 meter mobile is by mutual agreement moving up to 29.6 through 29.7 mcs. Seems a good idea, particularly from the E.C. point of view. Hope our club 10 meter mobiles will follow.

FIELD DAY King Philip's Stockade was inhabited by a tribe of MNG's Ham Indians Saturday afternoon and the antennas went up with reasonable alacrity (some were a bit teepee).

An all Holyoke contingent was present at GZL's set up in South Hadley. Battery trouble put a kink in operations, but good time was had by all.

At 4 a.m. Sunday the EOB unit on Page Blvd. was banging away steadily -- how did Vic time it so that the generator unit ran out of petrol at 5 p.m. Sunday?

QWJ's mountain Boys were heard hitting on all 6, 2 & 1 $\frac{1}{2}$ - even 5 contacts on 420 including one to Mt. Equinox and far away places.

RRX's Mobile rig lost 3 volts somewhere enroute. Found plenty of nuts, but only 9 volts. He did manage to work GZL on 75 and MNG on 40 c.w. plus a few more somewhat further removed stations

NY and his gang held out until Sunday noon when the heat drove them from the Academy Outing Cabin on Wilbraham Heights.

RRW and company were heard blasting a pathway out of Provin Mt. in Westfield, or is it in Feeding Hills.

A more elaborate write up will be in line for the next issue.

OMISSION Somehow or other, we forgot to mention that RFU received his "A" ticket, also we see by QST U.S. mail and the grapevine that BVR also is now Class "A" and working on a 40 watt modulator.

TECHNICAL TOPIC Vertical or Horizontal Stacking of Parasitic Arrays for 14 DB
By W1QWJ

By use of double quarter-wave "Q" sections between two parasitic arrays, spaced one half-wave length, an efficient impedance match may be made to any feed-line. For example, take a stack of two-4 element arrays fed with 300 ohm line.

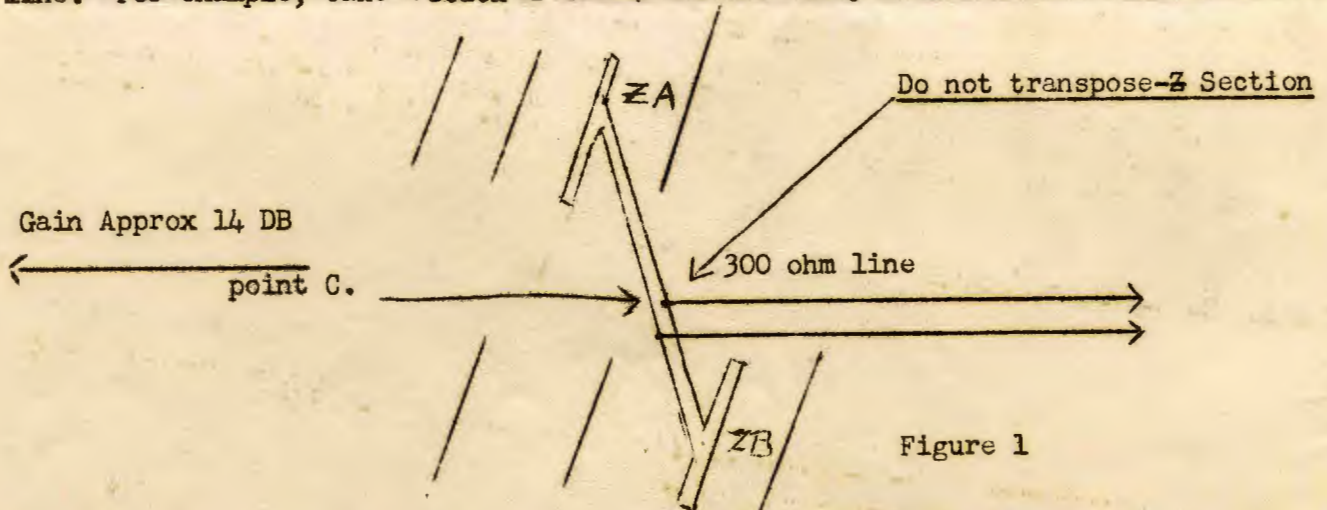


Figure 1

Assuming that each 4 element beam has a folded dipole feed to step up the impedance to 300 ohms, then impedance antenna A = ZA or 300 ohms and impedance antenna B = ZB or 300 ohms. Distance from antenna A to antenna B = $\frac{1}{2}$ wave-length. Distance from

point C to antenna A or B = $\frac{1}{4}$ wave-length. At point C the impedance presented by the upper $\frac{1}{4}$ wave section is effectively in parallel with the impedance presented by the lower $\frac{1}{4}$ wave section. When 300 ohm line is used, for point C to be 300 ohms by ohms law, each $\frac{1}{4}$ wave impedance should look like 600 ohms so that their parallel impedance equals 300 ohms i.e. $300 = \frac{1}{\frac{1}{600} + \frac{1}{600}}$

By making the values of the $\frac{1}{4}$ wave sections so they function as $\frac{1}{4}$ wave "Q" Bars, the desired impedance match is obtained.

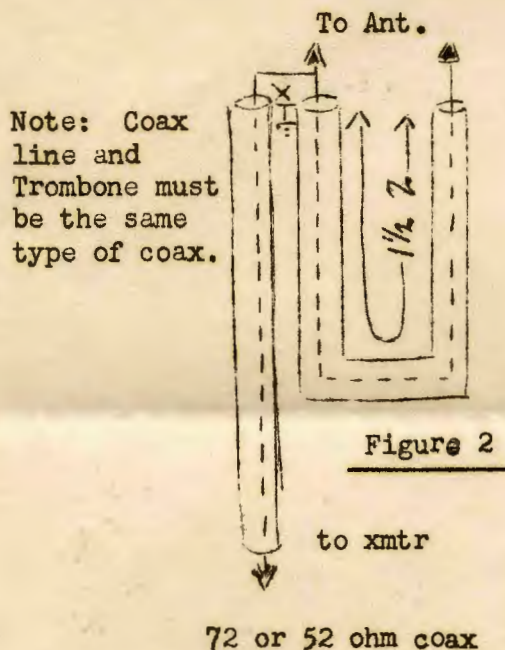
The surge impedance of a section of line to match between two known impedances equals the Square Root of the product of the two impedances i.e. $Z-Q$ Bars = $\sqrt{300 \times 600}$ or 425 ohms. Such a line may be made by using no. 12 wire spaced $1\frac{1}{2}$ " apart. See page 81, Fig. 3-24, Antenna Handbook for other wire sizes and spacings for "Q" Section of 425 ohms. The length of line from Antenna A to Antenna B = $\frac{1}{2}$ wave length. By Formula, a half wave line is equal to $\frac{492}{Fmc} \times V$ propagation. If we had designed a 6 meter beam, the length in feet for

50.5 mcs would be $\frac{492}{50.5} \times .975 = 9.4$ ft.

Many "hams" use 52 or 72 ohm coax to feed beams. If a stacked array is to be fed with a low impedance coax two conditions should be satisfied:

- (1) The coax should be made to look like a balanced line.
- (2) The low impedance of the coaxial line should be stepped up to a higher impedance.

Fortunately these two conditions may be met by use of a $\frac{1}{2}$ wave trombone section.



The use of $\frac{1}{2}$ wave Trombone section of coax cable will give (1) A 4 to 1 impedance step up. (2) A Balanced line condition thus the impedance presented by the $\frac{1}{2}$ wave Trombone section would be 288 ohms and 208 ohms respectively for 72 and 52 ohm cables. If 72 ohm coax were used a perfect match would be obtained if a trombone section were connected to point C of Figure 1. A slight mismatch would result if 52 ohm coax was connected to point C of Figure 1, 208 ohms against 300 ohms. However, by re-designing the impedance step up of the folded dipoles of antenna A and B to 208 ohms a perfect match could be obtained.

ZQ Bars = $\sqrt{208 \times 416}$ or 294 ohms, size and length would be $\frac{1}{4}$ " dia tubing spaced $1\frac{1}{2}$ " and the length $\frac{492}{50.5} \times .95 =$

9.25 ft. The slight difference in length

of the half wave section in this problem and that in the first is due to the different propagation factor of tubing over wire.

Referring to Fig. 2, to calculate the $\frac{1}{2}$ wave trombone section of coax, we use the formula previously used, but take a V.P. of .66 for coax cable.

Thus L feet = $\frac{492}{50.5} \times .66$ or 6.4 ft. The junction of outer braids of coaxline and trombone section may be grounded at "Point X", if a ground is available.

REFERENCES: Surge impedances vrs. wire sizes may be found in ARRL Antenna Handbook, page 81, Fig. 3-24 or The Radio Amateurs Handbook, page 323, Fig. 10 - 10.

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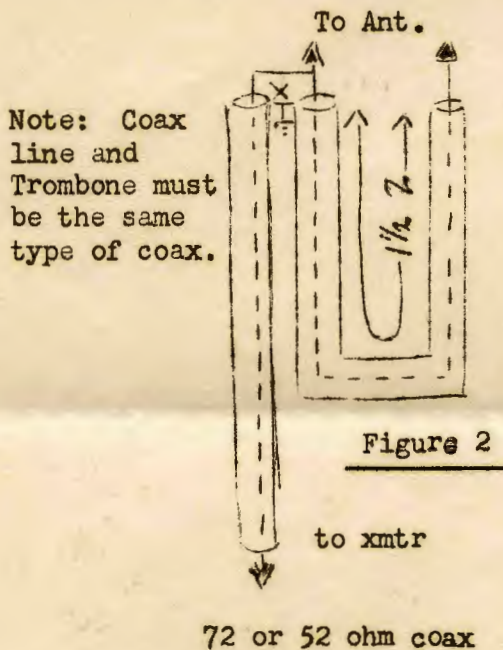
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Information on design of folded dipoes to obtain impedance step up may be found in Antenna Handbook, page 102, Fig. 3-51 or Radio Amateurs Handbook, page 365, Fig. 10 - 83.

Theory behind "Q" bar matching sections may be found in Antenna Handbook, or in Radio Amateurs Handbook, Chapter 10

Note: For our mathematically inclined high school students who may chance to read this, all math was done on 6" slide rule and roughed off to one decimal point.

QED es QRT
de W1QWJ 6-8-50

Ed Note: 1950 Handbook is referred to in this article.

DX Congratulations to W1APA and W1EOB who now have the necessary cards for
by W1KFV their post war DXCC. Gil would have had his long ago, but how can you
 work DX with a television set in the same house? Vic brings his total
up to 105 with cards from FM8AD, YU3FMA, UA0AA, UC2CB, HC8GRC and also MD4 & MD2.
W1RZG added another new one on 40 when he found out KG4 is separate from Cuba.
W1JYH worked W0BFE/KJ6 and with his card now has 218 worked and 196 confirmed.
(Yes, that is all post-war!) With the XYL away, Roger got up early and gave fone a
try. Result: KG6AD, KW6AP and W9ODN/KX6. This brings him up to 76 on fone. Old
KFV didn't add anything and now is sweating out the mailman to see if his total can
come up a little bit. So that's it for this month and IF any one does work any DX
on any band, drop me a card. 73 and stay out of the sun.

KFV.

Some of the members have wished they had some ready means of locating addresses of other members, or of knowing the full list of members to get a committee together easier, etc. At any rate, on the last pages will be found an up-to-date Club Roster. Why not save it for future reference?

ROSTER OF HAMPDEN COUNTY RADIO CLUB

Robert A Adolphson	WINLE	38 Larkspur Street, Springfield, Mass.
Nick Andrews	WLPDF	27 Algonquin Place, Springfield, Mass.
Donald Babyok	WLRJA	787 Dwight Street, Holyoke, Mass.
Henry N Baier	WLNY	18 Ripley Street, Wilbraham, Mass.
Thomas F. Barrett	WIKUE	759 White Street, Springfield, Mass.
Sam Bennett	WLOJK	7 Elmwood Avenue, Longmeadow, Mass.
Herbert Binns	WIKZU	22 Kensington St., Feeding Hills, Mass.
William G. Blankenship, Jr.	WLRDR	56 Cleveland Street, Springfield, Mass.
Clarence R. Bordeau	WLIJT	15 Mapledell Street, Springfield, Mass.
Ellsworth Bostwick	WLGJJ	36 Kensington St., Feeding Hills, Mass.
Alden E. Bosworth	WLLRA	10 Noble Ave., Westfield, Mass.
Myles W. Brennan	WLMOK	296 Irene Street, Willimansett, Mass.
Fred Brigham	WLETY	65 Machonis Road, No. Wilbraham, Mass.
Harvey R. Brunelle	WLGVS	24 Decker Place, Springfield, Mass.
Robert C. Carlson	SWL	635 Sumner Ave., Springfield, Mass.
J. J. Carty	SWL	328 Eastern Ave., Springfield, Mass.
Ernest R. Champagne	WLMNS	19 Meredith Street, Springfield, Mass.
Tom Chapman	WLKK	158 Falmouth Road, West Springfield Mass
Howard L. Converse	WLIOL	58 Mountain Rd., No. Wilbraham, Mass.
Eloise L. Cook	WLFOP	348 West St., Needham Heights, Mass.
Roger E. Corey	WLJYH	100 Oakland Street, Springfield, Mass.
Isaiah Creaser	WLIUD	76 Cortland Street, Springfield, Mass.
Ted Curylo	WLOUJ	82 Lakeview Avenue, Ludlow, Mass.
Howard Cutting	WLJWV	29 Pomeroy Street, Wilbraham, Mass.
Raymond Dauphinais	WLIJQ	219 Prospect Street, Northampton, Mass.
C. Dewey, Jr.	WLRZG	24 Florida Street, Springfield, Mass.
Murray Dressler	WLJTY	328 Chapin Terrace, Springfield, Mass.
George J. Faatz	WLMVF	22 Lakeside Street, Springfield, Mass.
Jim Finnerty	WILDE	114 Fenwick Street, Springfield, Mass.
Edward H. Foster	SWL	156 Hampshire St., Indian Orchard, Mass.
William Gaffney	WLIHW	43 Lamb St., So. Hadley Falls, Mass.
Pat Gleason	WIREO	189 Prospect Ave., Northampton, Mass.
Robert Gordon	WLKUL	37 Webber Street, Springfield, Mass.
Bert Gowell	SWL	47 Monson Road, Wilbraham, Mass.
Glen Guernsey	WLRRW	63 Hale St., West Springfield, Mass.
Ken Gurney	WLSIT	170 Parkerview St., Springfield, Mass.
Alfred Haberman	SWL	129 Morgan Street, Holyoke, Mass.
William Ham	WLRRX	197 Whitney Avenue, Holyoke, Mass.
Walter Hardman	WLIMF	108 Walnut Street, Holyoke, Mass.
Ken Hardy	WLDXW	39 Fallston Street, Springfield, Mass.
Russell Hobbie, Jr.	WLRHU	82 Mapledell Street, Springfield, Mass.
Les Horner	WIGZL	1246 Main Street, Holyoke, Mass.
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Henry A. Jette	WIEGN	59 High Street, Springfield, Mass.
Austin G. Johnson, Jr.	WLSFU	366 El Paso Street, Springfield, Mass.
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Michael Mekalian	WLJUS	24 Lorimer St., Indian Orchard, Mass.
Mal Merchant	WLMOK	251 Arthur Street, Springfield, Mass.
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Percy Noble	WLBVR	37 Broad Street, Westfield, Mass.

Ray Nystrom	WLIL	36 Baltimore Avenue, Springfield, Mass.
Harold J. Pansch	W9BIB/1	122 Chestnut Street, Springfield, Mass.
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Robert E. Pease	WLOLS	11 Balfour Drive, Springfield, Mass.
Rollin E. Pedersen	WLRVW	39 Lincoln Street, Chicopee Falls, Mass.
Joseph Piekarski	WLPIR	27 Frederick Street, Westfield, Mass.
Al. Purseglove	WLQFB	42 Jackson Street, Northampton, Mass.
Louis A. Richmond	WLAVK	1431 Plumtree Road, Springfield, Mass.
William Rosner	WLRFU	980 Berkshire Ave., Indian Orchard, Mass.
Walter Ross	WLQUQ	36 Harkness Avenue, Springfield, Mass.
Robert S. Sabin	SWL	38 Rencelau Street, Springfield, Mass.
George Schmaelzle, Jr.	WLNNT	394 So. Westfield St., Feeding Hills, Mass
Donald Shaw	WLQFZ	44 Mapleshade Ave., East Longmeadow, Mass
A. Theodore Smith	WLRYQ	63 Beaumont Street, Springfield, Mass.
Richard B. Stevens	WLQWJ	151 Canterbury Road, Springfield, Mass.,
Ernest R. Stoddard	WIGBC	Agawam, Mass.
Henry A. Tadgell, M.D.	WLAGM	Belchertown State School, Belchertown Mass.
Everett E. Taylor	WLBEP	78 Warrenton Street, Springfield, Mass.
Charles W. Thayer	WLLRE	R.F.D. Northwood St., Feeding Hills, Mass.
Walter R. Walczak	WLKDC	1037 Dwight Street, Holyoke, Mass.
John Weighell	WLQJN	30 Morgan Street, Holyoke, Mass.
William Werenski	WLCJK	Mayer Dr., Homestead Ave., Holyoke, Mass.
Gilbert F. Williams	WLAPA	Abbe Road, Hazardville, Conn.
Ted Witowski	WLRLV	854 Plumley Street, Ludlow, Mass.
Arthur Zavarella	WLMNG	1702 Main Street, Agawam, Mass.