



**ANDREW**<sup>®</sup>  
A CommScope Company



**DECIBEL  
PRODUCTS**

## Two DB224's to make up a DB228

From your data on my "assembly" of two DB224 antennas as a DB228 array, I will make the phasing harness up with a 1/4 and a 3/4 wave (after the velocity factor computation of my RG-11 coax. I have a few other related questions, if you would please allow:

1. Is the **FACTORY-MADE** harness made up as with the RG-11 type coax cables **MOLDED** onto the coax cables? -Or, are the cable "legs" simply made up, then attached to a coax-TEE? (I want to make my own harness, you see. It is my plan to solder the RG-11 coax directly to the required type N connectors.)

1) The factory harness is typical DB construction with lengths of coax that are Not RG11 and connected using their molded "Y" boots. I made a divider once for 432Mhz out of RG-11 with N conn's and used an N Tee connector with jacks on all three ends which worked just fine for me. I used a return loss bridge to determine the velocity factor of the cable and get the lengths cut correctly.

2. It is my desire to have the top-most DB224 act as a bi-directional antenna. As such (with no real info), I have arranged the top-most two elements so that they are directly in line with each other. The lower two elements are also directly in line with each other, but they are on the opposite side of the mast. (Elements 1 and 2 face North; Elements 3 and 4 face South.) Or, should elements numbered 1 and 3 be facing North (as an example) and elements number 2 and 4 be facing South? - I have NOT put the new DB224 up, yet.

2) Ours is very close spaced to the tower leg so we have all the elements in line facing out from the leg. So I can't help you with other combinations of element locations for a DB228. Check the files section of repeater builders and you will find the DB224 sheets that show the patterns for various element arrangements.

3. I have no concrete plans for the lower DB224; It could remain as a 360 degree coverage, or I could set it up with elements 1 and 4 at North and South, respectively; Elements 2 and 3 would then "span" one side of the mast, so as to offer more of a cardioid pattern. -In this case, the elements would face 0, 60, 120 and 180 degrees. (Your suggestion, please?)

3) I have one other DB224 Installation on top of a building for a while it was mounted all in line and then we changed it to the "omni arrangement" with each element 90 deg from the previous one. We couldn't tell any practical difference in performance between the two configurations.

4. It is my **ASSUMPTION** that the top-most DB224 be "right side up," and the lower DB224 be mounted upside-down. Is this correct? If this is the case, the lower DB224's elements will be "hot side down," which is opposite from how the top-mounted DB224 has the elements arranged. If I mount the lower DB224 upside-down, will this retain water, which will freeze and

damage the antenna? (Yes, the 1/4 and 3/4 wavelength phasing harness will insure a proper phase, so I will actually realize GAIN.)

4) I looked at some photographs that were taken of the Installation. Yes the lower elements are upside down but I don't remember what was done for drainage. I think they had holes on both top and bottom of the loops. I can't tell from the photos.

5. The SPACING of the elements is far from "even; In my case, as well as other reported element arrangements, I see from 60 to just over 70 inches of center-of-element to the next like point. I had fully expected to see an exact measurement! I have a Cushcraft 4-bay antenna, whose setup has all four elements at a fixed, and EQUAL number of inches, +/- 1/8 inch!! (I cannot locate the instruction manual for my HyGain 4-bay J-Poles, but I am assuming that the element-to-element spacing is the same (equal), and exact; These examples are so very much different from what the DB224 units seem to all be set up as. So: What is correct??? Is there some hidden magic from the phasing harness and the seemingly inexact element placement that actually allows a focus of the RF energy where it is needed? -Or, is this really an important factor??

5) Yes our element spacing varied as well. We readjusted to even the spacing out. This spacing variation was discussed about a year or two back on the reflector. You may want to search the archives for more info.

6. In looking at the pictures and diagrams of the DB228 documentation, I see that the images (as an example) show that the top-most DB224's four elements are .75 inches center-line-to-center-line. I see the exact same for the four elements on the lower DB224. But, the centerline spacing of the fourth element (lowest one) to the now-upper element of the lower DB224 is somewhat more than 1.2 inches. (?????) Is this actually correct? -Or are the pictures and the drawings simply made up by someone other than an engineer? Here again, I had assumed that the element spacing "should be" even, and exactly the same!

6) Our DB228 instruction sheets and DB224 sheets included no dimensions what we got with our DB228 is available in the files section of Repeater Builders web site. There was a lot of discussion on various dimensions for DB224 antennas a year or two back again you may want to check the archive.

**THE ABOVE INFORMATION IS FROM THE YAHOO GROUP FOR REPEATER BUILDERS**

<http://www.mail-archive.com/repeater-builder@yahoogroups.com/msg38345.html>

The Repeater Builders Technical Information Page  
www.repeater-builder.com

BridgeCom SYSTEMS

HOLZBERG

EFJohnson

By Kevin K. Custer W3KKC

<http://www.repeater-builder.com/rbtip/supplyindex.html>

**THE ABOVE BROUGHT TO YOU COURTESY OF**

**BridgeCom SYSTEMS**  **REPEATERS** 

**HOLZBERG COMMUNICATIONS, INC.**  **PORTABLE RADIOS** 

**COMET**  **MOBILE & BASE ANTENNAS SWR METERS** 

**ICOM**  **MOBILES AND BASE STATIONS** 

**Henry Radio, Inc.**  **C.A.T. Inc.**  **MIDIAN MIDIAN ELECTRONICS** 

**RF LINEAR POWER AMPS**  **REPEATER CONTROLLERS**  **CTCSS & DCS** 

**Kantronics**  **OTTO**  **CIMARRON TECHNOLOGIES** 

**HF PACKET**  **SPEAKER MICROPHONES DATA RADIOS**  **ANI** 

 **WADSWORTH SALES INCORPORATED**  
**PROFESSIONAL - AMATEUR - GMRS**

**Wadsworth Sales Incorporated**

 **Bryan Wadsworth**  
**CELL PHONE #**  
**815-790-4494**  
**AMATEUR RADIO CALL**  
**WB9MCW**  
**www.wadsworthsales.com**