



# PEAKS & NULLS



## WHICH IS WORSE VSWR OR LINE LOSS?

One of our former members used to bring his fancy SWR tester to Field Day and get very upset because we had a 1.2:1 VSWR. He insisted that it had to be 1:1. We would tell him that VSWR that low didn't make any difference and that we were losing more power in the feed line than from the mismatch. Was that true? Let's take a look.

The Reflection Coefficient or  $\Gamma$  is defined as the ratio of the source impedance to the load impedance or  $\Gamma = (Z_L - Z_S)/(Z_L + Z_S)$ . We know that our transmitter source impedance is 50 ohms and with a load (antenna) impedance of 60 ohms we get  $.09 = (60-50)/(60+50)$ . The VSWR can then be calculated by  $VSWR = (1+\Gamma)/(1-\Gamma)$ . If we substitute we get  $1.2 = (1+.09)/(1-.09)$ . We can then calculate the percentage of power delivered to the load by again using the Reflection Coefficient.  $P_d = (1 - \Gamma^2)$ .  $0.99 = (1 - .09^2)$ . So 99% of our transmitter output power will be delivered to the antenna if our VSWR is 1.2:1. That's not so bad we're only losing 1 watt, but what about the line loss? If I remember right we were us-

ing 100 feet of RG-213 feed line. The specs for RG-213 say that it has 0.662 dB loss at 10 MHz for 100 feet, We also have an additional loss of .09 dB due to the 1.2 VSWR for a total of 0.631. We also have 1.105 dB plus .014 dB for a total loss at 30 MHz of 1.12 dB and 1.451 dB plus .018 dB loss at 50 MHz. for a total of 1.469 dB. So how do we calculate how much power is reaching the antenna? First we convert the transmitter output power to dBW (dB referenced to 1 Watt).  $dBW = 10 * \text{LOG}(100/1) = 20 \text{ dBW}$ . We now subtract our total loss and reverse the formula to get the power reaching the antenna. In our case 86.473 watts at 10 MHz, 77.268 watts at 30 MHz and 71.308 watts at 50 MHz. What about the actual VSWR at the antenna that was masked because of the line loss. Well in our case it was only about 1.3:1. So it looks like we were right. We lost a lot more power due to the feed line than we did due to the VSWR.

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## 37 DAYS TO GO

It's hard to believe but we only have 37 days left until Field Day. Arrangements have been in the works for some time now. We'll have a lot more at the June meeting but it's not too early to start thinking about when

you can help out. We always need help getting the antennas up and also for the take down. It's also a good time for you technicians to get your feet wet on the low bands and see what you're missing.



## UPCOMING MEETINGS

May 20, 2013— Regular Business Meeting

June 17, 2013—Regular Business Meeting

Field Day Presentation

July—No Meeting

August 19, 2013—Annual Summer Get-together at Atlanta Bread in  
Morris Plains at 6 PM.

September 16, 2013—Regular Business Meeting

## SELECTED UPCOMING CONTESTS

10-10 Int. Open Season PSK Contest	0001Z, Jun 1 to 2359Z, Jun 2
SEANET Contest	1200Z, Jun 1 to 1200Z, Jun 2
ARRL June VHF QSO Party	1800Z, Jun 8 to 0300Z, Jun 10
His Maj. King of Spain Contest, SSB	1200Z, Jun 22 to 1200Z, Jun 23
ARRL Field Day	1800Z, Jun 22 to 2100Z, Jun 23



## PREDICTED SUNSPOT NUMBER AND RADIO FLUX FOR JUNE 2013

**\*\*\*SUNSPOT NUMBER\*\*\***

**\*\*\*10.7 RADIO FLUX\*\*\***

**PREDICTED HIGH LOW**

**PREDICTED HIGH LOW**

89.2 99.2 79.2

140.6 149.6 131.6

## APRIL MEETING MINUTES

Morris Radio Club - Meeting Minutes  
April 15, 2013

Attendees (6)  
NO2EL, K2EMJ, KC2ITU, KC2KNT, WS2Q, WA2VQF

A quorum was present.

Opening of Meeting

President Ed opened the meeting at 7:34 PM

Reports:

Secretary - Bill WA2VQF reported that the February Minutes were issued in the March Peaks and Nulls Newsletter and that there were no corrections reported. Also because the March meeting was canceled due to weather there were no March Meeting Minutes. Ray KC2KNT moved that

the minutes be accepted. PAUL KC2ITU seconded. The minutes were accepted

Noel NO2EL presented the treasurers reports for both March and April.

Treasurer - Noel NO2EL reported the April account balances. The actual numbers are available from Noel.

Ray KC2KNT moved that the Treasurers reports be accepted. It was seconded by Harvey WS2QL and unanimously accepted.

Old Business:

President Ed reviewed an application that he looked at for putting the meetings on the internet for members who could not make it to the meetings. He will have Mark W2GM take a look at it.

New Business:

We talked about the Hamfests coming up in the next month.

Noel gave a report on the Timonium Hamfest that was held last Saturday.

Ed will set up the August Get-Together at Atlanta Bread in Morris Plains.

Noel has a new trailer that he will be bringing to Field Day. He has currently has mounts to put the tower on the new trailer being fabricated.

Noel will put the request in to Hanover Township to use BeeMeadow Park for Field Day.

President Ed closed the meeting at 8:09 PM after a motion by Noel NO2EL and seconded by Harvey WS2Q.

Bill WA2VQF  
MRC Secretary

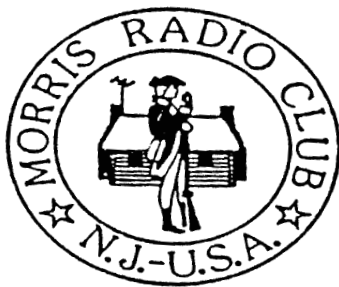


## MORRIS RADIO CLUB

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**THE MORRIS RADIO CLUB IS AN ORGANIZATION OF AMATEUR RADIO OPERATORS WHICH HAS BEEN IN EXISTENCE FOR OVER SIXTY FIVE YEARS. AS A HOBBY, AMATEUR RADIO SERVES AS A PUBLIC RESOURCE FOR COMMUNICATIONS AS WELL AS AN EDUCATIONAL EXPERIENCE.**

**ALTHOUGH MANY WHO BECOME INTERESTED IN AMATEUR RADIO ARE INVOLVED IN AN ELECTRONICS RELATED FIELD, THE HOBBY APPEALS TO A WIDE VARIETY OF INDIVIDUALS.**

**THE MEMBERSHIP OF THE MORRIS RADIO CLUB IS A DIVERSE GROUP MADE UP OF MEDICAL, BUSINESS, EDUCATION, AND LAW ENFORCEMENT PROFESSIONALS, AMONG OTHERS, WHOSE COMMON INTERESTS ARE COMMUNICATION, EDUCATION, AND PUBLIC SERVICE.**

## HAMFEST CALENDAR

### Ocean Monmouth ARC Tailgate Hamfest

05/18/2013

**Location:** Infoage Learning Center, Project Diana Site  
2300 Marconi Road  
Wall Township, NJ

**Website:** <http://www.n2mo.org>

### BARA Spring Hamfest

05/25/2013

**Location:** Westwood Regional High School  
701 Ridgewood Road  
Township of Washington, NJ 07676

**Website:** <http://bara.org>

### W2QW Hamfest

06/15/2013

**Location:** Piscataway High School Lots 11/12  
110 Behmer Road  
Piscataway, NJ 08854

**Website:** <http://w2qw.org>