

## 160 Meter Notes

Let's look at 160 meters in more detail. A 43 foot vertical antenna is a short antenna for 160, but it will get you on the air. In this instance, coaxial cable type is a very important item to consider. DX Engineering recommends a length of 150 feet of Belden 8267 RG-213/U to give most tuners the ability to match the antenna on the lower frequency bands where most tuning problems are encountered. One needs to examine the complex impedance ( $R \pm j$ ) to see the problem.

On 160 meters, the use of 150 feet of polyethylene dielectric cable (such as Belden 8267 which has a Velocity Factor of approximately 0.66) will transform the  $2 - j183$  impedance at the output of the UNUN to a more tunable  $38 + j180$  at the tuner.

On the other hand, if you were to use 150 feet of coaxial cable that has a Velocity Factor of 0.85 (like foam dielectric LMR-400), the impedance on 160 meters would be transformed to only  $3.5 + j45$  – still too low an R value for many tuners. In order to achieve the recommended results, the LMR-400 length would need to be approximately 190 feet.

In general - the higher the R value, the easier it will be for the tuner to match the antenna system to your transceiver.