Welcome to AntennaSelect™ Volume 58– November 2021

Welcome to Volume 58 of our Newsletter, AntennaSelect™. Every two months we will be giving you an "under the radome" look at antenna and RF Technology. If there are subjects you would like covered, please let us know what you would like to see by emailing us at: info@micronetixx.com

In this issue:

- **We've Got The Power – 100 kW!**
- **VHF High-Band Antennas; Are How Big??**
- **DIN Connectors – Be Sure To Tighten Correctly!**

-We've Got The Power – 100 Kilowatts!

MICRONETIXX COMMUNICATIONS

Out of all the antenna manufacturers, Micronetixx is the only company to build generators (or transmitters). Our units come in one frequency (915 MHz), and continuously-variable power level 10 – 100 kW. There is one thing they don't do – modulate.

These generators are the engine of a number of applications that need a very stable high-power RF source to make their process work. The biggest application is for engineered wood products. Using high power RF, wood products can be cured much quicker than older methods. Product consistency using RF is greatly increased.

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Three of our 100kW Special-Application Transmitters on the Shop Floor

After wood processing, there are a number of industrial processes needing high power RF in chemistry, separation of some materials and medical waist. If you are thinking of a super fast pizza oven,going from uncooked to burnt black only takes a few seconds. Sausage catching fire will not sell more pizzas.

VHF High-Band Antennas; Are How Big??

Sometimes our customers are taken aback when we give them the mechanical dimensions of high-band VHF antennas. Some long time UHF operators assume that a new channel 10 antenna is the same size as an 8-Bay UHF slot antenna. The laws of physics say otherwise! …Let's compare the two antennas. We will use for the UHF antenna, Channel 14. Here, one wavelength is 24.95 inches.

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For the VHF station we will use channel 10, which has a wavelength of 60.52 inches. This figure is also the bay-to-bay (or slot to slot) spacing. At channel 10, the spacing is 2.42 times longer than it is at Channel 14.

So let's do a little math on the two channels. We will work with a 4-Bay slot antenna design. At channel 14, the antenna length is about 12.7 feet long. That is for the four bays and extra pylon above and below where the slots are located. -Add an additional 45 inches or so.

We will repeat this at channel 10; a 4-Bay design. The length of this antenna is over 24 feet! That is about twice as long. Now the mechanicals; At channel 14 to make a good Omnioid pattern we would use a 3-inch diameter pylon. This produces a good Omnioid pattern and has enough bandwidth to deliver a low V.S.W.R. over a 6 MHz channel. If we wanted a true Omni-directional pattern, we would have increased the pylon size to 6 inches, and cut 3 slots per level along the pylon – spaced 120 degrees apart.

Now we go to the channel 10 antenna, and want to produce an Omnioid pattern. The same 3 inch diameter pylon we used at channel 14 will not work. Because of the lower frequency, the circumferential current profiles on this 3 inch pylon, the azimuth pattern would not produce a smooth Omnioud Pattern. Also, for this same reason, the antenna would have limited bandwidth.

To make the channel 10 antenna work we need to go to a 10 to 12 inch diameter pylon. That ups the weight of the antenna and increases the wind load by about 3 times. Hence the channel 10 antenna is much bigger, and will cost more due to its increased size. Now what happens if we want a true Omni-directional antenna? At channel 10 the pylon size increases to about 18 inches. Windload areas are usually 2-1/2 time more as well.

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So please don’t be surprised; VHF high-band antennas are bigger!

In the next issue of AntennaSelect™, we will show you a much lower windload, high band antenna. If you are looking for circular polarization, and a great omni-directional azimuth pattern, this is for you!

7/16 DIN Connectors – Be Sure To Tighten Correctly!

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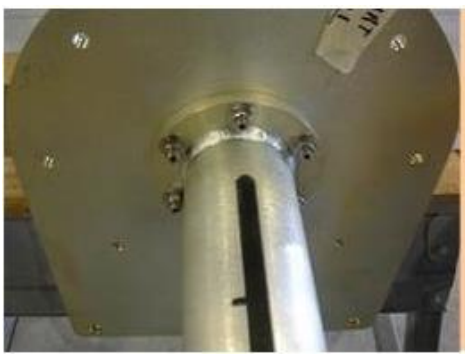
We got a comment last month about correct tightness torques while using high-quality 7/16 DIN connectors..

DIN connectors were developed about 60 year ago in Germany to provide higher power ratings than the more common Type N connectors. They also have lower insertion loss over the VHF and UHF bands. When installed correctly, they have a superior behavioral response and are well-sealed from the elements.

One problem is that at installation, many 7/16 DIN connectors are not tightened to the rated torque properly. Depending on the manufacturer, the connectors should be tightened to between 18 and 22.5 foot pounds. This ensures all internal surfaces meet and the O rings are properly compressed. And yes torque wrenches for DIN connectors are available. When installed properly DIN connectors are a favorite in the factory for all-weather performance.

Be on the lookout for the next volume of AntennaSelect coming out in January



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