

## Feedback and Comments

### A Reference for Absorption by Vegetation

Editor:

First, congratulations on your upcoming expansion of *High Frequency Electronics*. It's "top of the pile" and I look forward to the changes.

Next, in my newly arrived September issue, the "Ask the Experts" had a question on propagation. For the tree part, a good reference is ITU Recommendation ITU-R P.833.4 "Attenuation in Vegetation." It covers 30 MHz to 60 GHz (ambitious!) and at least it gives some planning numbers one can use. It covers both the terrestrial-terrestrial and terrestrial-satellite cases.

No doubt a search through the IEEE Xplore archives would be beneficial as well. There is a significant amount of current work being done on propagation effects at 2.5 and 5.8 GHz.

*Scott Townley  
MTS, Network Planning  
Verizon Wireless*

*Mr. Townley provided a copy of the ITU document, and it contains much useful information, including such things as accounting for the density of the vegetation, and an explanation that de-polarization of signals is likely to be as big a contributor to vegetation loss as absorption and reflection.*  
—Editor

### PC Board Etching Issues

Editor:

I found "Mike's" question in the September 2003 "Ask the Experts" page very interesting. I would be pleased if you would forward to him the fact that my recent text *RF/Microwave Hybrids: Basics, Materials and Processes* has a lot of information about photolithography, masks and etching effects. It is available from Kluwer Academic Press, Boston, ISBN 140207-233-3.

*Richard Brown  
Richard Brown Associates*

*Thank you, Richard. We did forward your message and hope that others will benefit from the information contained in your book.*  
—Editor

### Unanswered Questions on High-Speed Digital Circuits (Your Help Requested!)

Editor:

In applications like WLAN PCBs, there are both RF and high speed digital components on the same board. On FR-4, we prefer to use 15 mils trace width for the RF traces to reduce losses. The reference plane height is fixed to get a 50 ohm impedance.

The same board will also have digital circuits that require 50 ohm traces. For obvious reasons [*e.g. many conductors in a small area*] we cannot use the same 15 mil traces to route the memory bus.

How is this handled in real applications? Where should the designer compromise to put both RF and digital on the same board?

*Vira  
GDA Technologies Inc.*

### Lines of Technical Communication

In a conversation at the recent European Microwave Conference, an engineer was wondering how RF and digital engineers could more effectively communicate with each other, and also with the PCB design specialists in their company. We'd like to hear our readers' experiences in achieving a robust design with both RF and high speed digital circuitry.

### Source for a Notch Filter?

Editor:

I have a need for a notch filter that will pass a VHF frequency of 129.625 MHz to an aviation band transmitter running 10 watts, with a notch frequency of 132.025 MHz to trap out interference from the weather AWOS.

In the past, I have used large tunable cavities, but I was wondering if there are new products that would work for this application.

*Bill Stanwyck  
Stanwyck Avionics Inc.*

*Cavity filters are a familiar solution, but perhaps one of our readers can tell us about ceramic resonators.*

*Send questions, answers and comments to us by e-mail: [editor@highfrequencyelectronics.com](mailto:editor@highfrequencyelectronics.com)  
We will try to find someone who can answer your question, or ask our readers for their input.*