Reader Feedback

This issue's column includes comments edited from recent letters and e-mails received from readers of *High Frequency Electronics*.

Re: March 2010 Military Standards Summary

Additional references applicable to this topic were provided by William Cellini Jr.:

- IEEE Standards & Publications:
    - Electrostatic Discharge (ESD)
    - Architectural EM Shielding
- Other Telecommunication Standards:
    - Telecommunications Industry Association (TIA)
    - Building Industry Consulting Service International (BICSI)
    - Society of Cable Telecommunications Engineers (SCTE)
- High Reliability Standards:
    - Underwriters Laboratories (UL)
    - American National Standards Institute (ANSI)
    - American Institute of Aeronautics and Astronautics (AIAA)

Re: October 2009 Connector Tutorial

Editor,

Your article was very informative. I think it is the best summary of connector specifications I have ever seen.

I, however, would like to bring to your attention some inaccuracies/omissions in the article regarding IEEE Std 287-2007 as stated. The following connectors and their heritage covered by this standard are as follows:

14 mm—Created by General Radio Corporation. This connector is un-polarized (sexless), and is used for RLC standards and low frequency RF devices, with a maximum frequency of 8.5 GHz

7 mm—Co-developed by Amphenol and Hewlett-Packard. The correct notation is GPC-7. It has a maximum frequency of 18 GHz, and is also un-polarized. This is the most used of the precision connectors, particularly VNAs.

N—Developed during WWII. This connector is a heritage connector, also a 7 mm line size, and is used in applications to 18 GHz as a more rugged connector than the GPC-7.

3.5 mm—Developed by Hewlett-Packard, this connector was intended to be the precision support connector for the SMA. Specified to 26.5 GHz , but can be used to 30+ GHz.

2.92 mm—a.k.a. the K connector, was developed by Wiltron Corp. (now Anritsu) as a higher frequency equivalent to the SMA. Applications to 40+ GHz are common.

2.4 mm—Developed by Hewlett-Packard for applications to 50 GHz.

1.85 mm—Developed by Hewlett-Packard as a companion to the 2.4 mm connector. They are intermateable. Frequency range is to 65+ GHz.

1.0 mm—Developed by Hewlett-Packard for applications to 110+ GHz.

I hope this is useful to you *[and our readers—ed.]*.

Harmon Banning
Chairman IEEE Subcommittee P287, 1987-2007

Re: April 2010 Design Note on L-Networks

Editor,

I'm a regular reader of HFE and enjoy it very much. I have never commented on an article and it is not in my nature to do so, but I somehow feel compelled this time.

The opening sentence of the article on L-Networks in the April 2010 issue is misleading. Maximum delivered power is not always achieved when source and load impedances are equal nor is that the usual driving criteria for a radio, or any, matching network. A matching network is used to match the generator desired load impedance for maximum power. A simple example is a 15 kW gasoline generator. It may deliver 120 volts open-circuit and 119 volts when loaded with 1 ohm (14,161 watts). But, its source impedance (under that scenerio) is approximately 0.008 ohms. Loading it with 0.008 ohms would not achieve maximum power—rather zero power since the circuit breakers would certainly trip. It would be more accurate to say the desired generator load impedance is approximately 1 ohm for maximum power output.

George Woodard, PE

Editor's note—The maximum power transfer theorem is certainly true for linear systems, which is how it is taught in engineering courses. Special cases, such as the inability of the source to deliver power, or changing source impedance versus power are also real, and their analysis should be considered as nonlinear extensions to the theorem. The article by Dr. Grebennikov in this issue includes notes on dynamic output impedance in power amplifiers. He makes it clear that the required conjugate match assumes an "effective" or "average" output impedance that is not a steady-state value.