The A&A Engineering 5 A Smart Battery Charger

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I received quite a few comments from readers about my article in December 2003 *QST*, "Emergency Power at W1ZR."[1] A number of comments were related to my note that I had significant RFI from the charger to filter. Further investigation determined that the culprit in the "smart switching" charger was from the switching function rather than the "smart" function.[2] Reader David Ferris, K5NT, suggested that I look into the chargers from A&A Engineering. Their chargers are smart linear (non-switching) units and the 5 A model seemed just right for my station.

I called A&A and spoke to Stas Andrzejewski, W6UCM, who noted that their chargers are particularly well suited to this application, since by their nature they don't generate RFI. The design of the charger is based on a *QST* article[3] describing the "smart" chip around which this unit is based. Their 5 A model uses an additional current amplifier stage to drive the series regulating transistors. We bought a unit for lab evaluation and found that while it's not quite in the "no RFI" category (see Figure 1), in comparison to representative marine switching smart chargers (see Figures 2 and 3), it is remarkably quiet.

Unlike many items, I suggest that you read the instruction sheet before trying this out. I blissfully plugged it in and turned it on. When I put a voltmeter on the output terminals (two color coded banana plug or ring terminal connectors), I was surprised to read 0.0 V. After checking fuses (both ac and dc sides are fused) and scratching my head, I noted that the instruction sheet clearly indicates that if the "battery" voltage is less than 6 V, the smart charger figures it is dealing with a dead or defective battery and puts out no power. The corollary is that this unit can't be used as a power supply unless a battery is connected (some equipment is just *too* smart!).

[1]J. Hallas, W1ZR, "Emergency Power at W1ZR," *QST*, Dec 2003, pp 41-44.
[2]J. Hallas, W1ZR, "Re: Emergency Power at W1ZR," Technical Correspondence, *QST*, Feb 2004, p 82.
[3]W. Dion, N1BBH, "A New Chip For Charging Gelled-Electrolyte Batteries," *QST*, Jun 1987, pp 26-29.

I tried it at W1ZR in place of the filtered marine charger I had been using and found that I could hear the difference—although in fairness, I don't think the residual RFI from my filtering would cause much of a problem. The physical characteristics are different, which may make a difference in some installations. The marine chargers are designed for bulkhead (translate to "wall" for non-boaters) mounting and thus take no shelf space. The A&A unit sits on a shelf, but also provides a useful meter along with LEDs indicating charge state. The A&A unit is also heavier and delivers a maximum of 5 A (our unit actually limited at 4.8 A, within specified ±5% tolerance) charging current rather than the 10 A of the marine units. In the analysis of my station's requirements, I concluded that I would need 5 to 6 A to keep the station running during fairly intense HF and VHF operation. I think if I were starting over, I'd go for the 5 A charger for about the same money and avoid the RFI problems altogether.

A&A Engineering, 2521 W LaPalma, Unit K, Anaheim, CA 92801; tel 714-952-2114; fax 714-952-3280; **www.a-aengineering.com**. *Price: $139.95 plus shipping.*

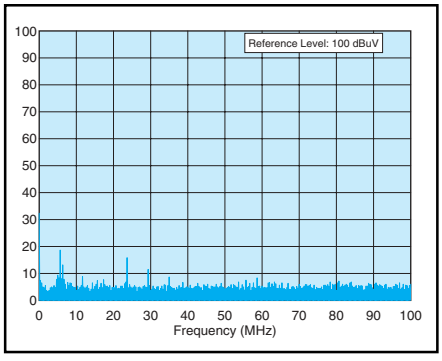

Figure 1—Spectral plot of the dc output of the A&A 5 A battery charger under load.

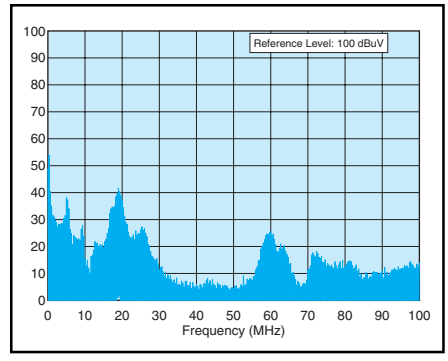

Figure 2—Spectral plot of the dc output of the Xantrex True Charge battery charger under load.

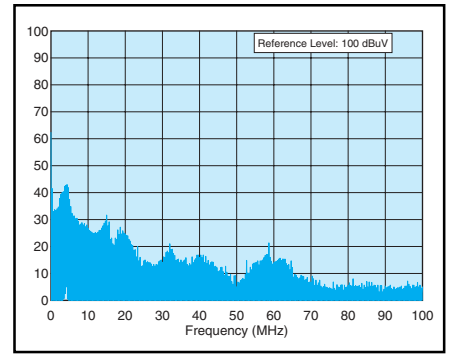

Figure 3—Spectral plot of the dc output of the Guest 2610 battery charger under load.

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