

Software for Contesters

Two topics this month, one that may seem like a throwback, the other very much on the cutting edge. First, the throwback.

If you're like me, and more than a few years out of high school, a lot of things have fled your brain. For example, the other day I wanted to calculate a table relating antenna height to angle of maximum radiation. I found a simple trig formula in Chapter 10 of Dave Leeson's great book, Physical Design of Yagi Antennas,

No problem, I thought, just use *Excel*. Imagine my surprise to discover that *Excel* wants you to specify angles in radians when doing any calculation involving trig functions. Radians? I thought that was a company that made towers. Convert degrees to radians? Without trig tables? You must be kidding.

This got me thinking about the venerable freeware *Hamcalc*. This true labor of love by George "Murph" Murphy, VE3ERP, available from www.cq-amateur-radio.com, was first offered in 1993 and is currently in Version 79, last updated in July 2005. It incorporates over 300 different programs, written in BASIC.

It is really hard to adequately capture the sheer breadth of *Hamcalc*. The other day, I found myself needing to calculate the value of the series current limiting resistor in an LED indicator circuit. Calling up the main alphabetical menu in *Hamcalc*, I found the L's, and in a few seconds I had found a dedicated LED series resistor calculator. Figure 1 is a screen shot of one of the sub-menus.

Hamcalc's calculators are impressively refined; for example, in the case of the LED circuit, the calculator gives you several standard values of resistor, and reports what the resulting power dissipation will be for each; working from the tables in any component catalog, it is easy to come up with a design that meets your criteria for a safety margin. Other calculators, like the RC active audio filter program, give you a choice of optimal or standard resistor and capacitor values. Murph appears to have spent a lot of time and effort consulting with experts in various areas, and he is generous in giving credit to those who helped validate each program.

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C:\WINDOWS\System32\cmd.exe
HAMCALC Program Menu C by George Murphy UE3ERP
TYPE one of the 2-digit numbers listed below - DO NOT press <ENTER>:

01: Fuses - Emergency
02: G5RU Multiband Antenna
03: Gamma Match
04: Great Circle Paths & Distances
05: Grid Square Locator (Maidenhead)
06: Guy Wires for Antenna Towers/Masts
07: Hairpin Beta-Match for Yagis
08: Half-Loop Low Profile Antenna
09: Ham Band Edge & Centre Frequencies
10: Harmonic Frequencies
11: Helical Antenna - UHF/UHF
12: Helical Resonators (UHF/UHF)
13: Helical Winding
14: Impedance Bridge (3-meter)
15: Impedance Matching Networks
16: Impedance Meter
17: Impedance - Antennas
18: Impedance - Parallel Resonant Cct.
19: Impedance - Reactance/Resist. Cct.
20: Inductance Calculator
21: Inductance - Single Loops
22: Inductors - Dryer Vent Hose
23: Inverted Vee Antenna
24: J Calculator (Complex Impedances)
25: J-Pole End-Fed Zepp Antenna
26: K-Factor & Antenna Length (NEC-2)
27: Ladder Network - 2 element
28: Ladder Network Analyzer
29: Lamp Life Expectancy
30: Latitude/Longitude Data Base
31: LED Series Resistor
32: Line-of-Sight Radio Wave
33: LM317 Voltage Regulator
34: Load Resistance Calculator
35: Local Repeaters
36: Logarithms to any base
37: LOG-YAG Log-Periodic Yagi Antenna
38: Loop Antenna Coil Inductance
39: Loop Antennas - Transmitting
40: Loop Skywire Dimensions
41: Last Menu
42: Next Menu
43: Main Menu
44: Index
45: EXIT
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Is there a downside? *Hamcalc* runs only under DOS or in a DOS window, with all the limitations that implies, plus some of its own. It MUST be installed in the root directory of your C: drive, and cannot provide printer output to anything but a standard parallel printer – no USB. The program is strictly keyboard-driven – no mouse. It would be terrific if a Visual Basic programmer would get together with Murph and do a port of *Hamcalc* to Windows, but for freeware that may be a long shot.

Now, back to the future. For a long time, people have wondered what it would be like, not only to gather on 3830 after a contest and swap claimed scores, but actually to know how things were going *during* the contest – a real-time scoreboard.

My research – hopefully more reliable than my memory – suggests that the organizers of WRTC 2002 in Finland were the first to implement a real-time Internet scoreboard. There were some bugs, but it was exciting to hear someone on the air and know that he was leading the pack or closing on the leader.

Next up, probably, was W1VE's plug-in for *Writelog*, which would send create a file giving whatever score information you wanted to a web site, where the information could be displayed. Again, there was a flurry of excitement in the *Writelog* community, and it was tried for a few contests, but critical mass was never achieved, probably because it was a logger-specific solution.

Enter N8VW – in the fall of 2004 he implemented a real-time web scoreboard that required manual posting of score data, and attracted only a few enthusiasts. The consensus at the time was that it wasn't realistic to expect serious contesters to take time out to post manually. There was some desultory conversation about possible standards for automated posting, to permit

incorporating such routines in contest logging programs, but again, the dust settled, and nothing much developed.

This fall, the idea's time may have finally come. Bruce Horn, WA7BNM, is working with N8VW, K1TTT, and a small group of knowledgeable testers and software authors on automated score reporting. It all began during CQWW SSB, when Bruce started aggregating real-time scores that people were posting on various web pages. Pat, N8VW reactivated his scoreboard experiment. Shortly thereafter, Bruce floated a first draft of a document defining a common reporting format might look like. He and K1TTT launched a first rough-and-ready test for the CW Sweepstakes, using an add-in to N1MM Logger. It worked well.

Discussion of evolving the data format further has been hot and heavy. A second draft is out, and more testing of the real-time scoreboard concept went on during SS SSB. As far as I can tell, all the serious players in this area are currently working on a common approach, which I think is very good news; the last thing we need is a contesting version of the VHS versus Beta deathmatch of the 80s.

So why should you care? Well, once a standard data format is worked out, all the program authors will be easily able to incorporate automatic score reporting capabilities in their software, and the data will be usable by any website that wants to display it. For users, it will be as simple as checking a box in the software, or maybe adding a line to an .ini file.

Initially, most of the thinking has been about scoreboard applications, where web sites could display standings in a contest, or in classes within a contest, or even in multiple contests on a given weekend. But just imagine all the other possibilities. More general-interest ham radio web sites, like QRZ.COM, could easily incorporate contesting "news feeds" in their offerings, drawing from the more-specialized scoreboard sites.

Figure 2 is a screen shot of N8VW's scoreboard web site (<http://scoreboard.ogp.us/>), as a preview of what can be done.. WA7BNM's site, <http://www.hornucopia.com/xml4contestresults.html>, offers a bird's eye view of the effort to develop a common format for score reporting.

[Graphic not found]

By the time this column comes out, things will be much further along than they are now, so check those web sites to find out what is going on currently. I hope you share my excitement about the prospect.