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# Correspondence

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Everyone interested in HF packet radio should read the two articles by Barry McLarnon starting in the December 1987 issue of *QEX*. These articles explain the characteristics of modems and HF propagation. Then look at the advertisement from HAL on page 105 of the May 1988 issue of *QST*.

Present day HF packet radio ignores past experience with RTTY and AMTOR. The choice of 300 baud with a 200 Hz shift was probably brought on by the availability of telephone modem integrated circuits. This choice results in a signal-to-noise penalty of about 10 dB compared to the old 45 baud 170 Hz shift

RTTY system. Now add the multipath problem! The use of the telephone chips also brings up the silly tuning problem.

I suggest that a practical standard for the HF bands be set, such as 100 baud with a 200 Hz shift. The 300 baud 600 Hz HAL system would be a good choice if people would reduce the baud rate to match conditions. These choices would allow the use of plain old ordinary existing RTTY modems. Once you take this step, the tuning problem is gone. You simply look at the oscilloscope like RTTY people have been doing for years.

Higher baud rates will require more bandwidth and more attention to modu-

lation techniques. Multiple tone modems are now available which run 2400 baud on the HF bands. They are expensive (\$8000) and are designed to use an SSB voice channel. As digital signal processing comes to ham radio, the price will fall to reasonable levels.

It is time to combine the best of RTTY with the best of packet. I have home-built equipment that will run on any standard. If anyone else would like to experiment with these ideas, please contact me. I can only operate on 80 meters right now, but plan to add 10 meters.—*Charlie Solie, WB5LHV, 1409 Jeanie Court, Las Cruces, NM 88005*

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# Feedback

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□ Please make these corrections to "MMICs Mimic Mixer," *QEX*, Mar 1989, pp 3-7. In Fig 2, the characteristic impedance of the horizontal arms of both branch couplers was shown as 354 Ω. This value should be 35.4 Ω. The parts list in the caption of Fig 4 eliminated the identification of these components: U1, U2—Bipolar Silicon MMIC, Mini-Circuits MAR-8 or Avantek MSA-0885; R1—150-Ω, ¼-W carbon-composition resistor; C4—Etched bypass capacitor, 30-Ω open stub, ¼-wavelength at input frequency; L1—0.1 μH (not 0.01 μH as shown). Also, J1, J2 and J3 should have been identified as RF INPUT, LO INPUT and IF OUTPUT, respectively. In Table 2, the first and fourth entries in the second column (Frequency (MHz)) should be 1553, not 1533.—*H. Paul Shuch, N6TX, 14908 Sandy Lane, San Jose, CA 95124*

□ "Path Selection—Part 1," Dec 1988 *QEX*, pp 11-13. A typesetting error appears in Equation 1. The equation should read as follows:

$$N_0 = \frac{77.6}{T} \times \left( \frac{4810 U e_s}{T} + P \right)$$

—*Dennis Haarsager, N7DH, 1171 Border Lane, Moscow, ID 83843*

□ Rich Measures, AG6K, has drawn our attention to some errors in his August 1988 *QEX* article, "High-Voltage Breakdown Tester." On page 6, second column, fourth full paragraph, the third sentence should read: "An HVBT is more important when the amplifier has more

than one vacuum capacitor." Also on page 6, third column, third full paragraph, the words *breakdown voltage*, not *leakage current*, should appear in the fifth sentence. On page 7, first paragraph, the second sentence should read: "... but the test for it is simple: Pass dc equal to the diode's forward-current rating through the diode in the forward direction." Lastly, page 7, second column, second paragraph under **R8**, the last sentence should read: "A single 200-kΩ spiral-film resistor..."

□ In "A High-Stability Audio Oscillator," *QEX*, February 1989, p 14, the four references to a DTMF encoder and tones should be changed to read CTCSS encoder and tones.—*Craig Carter, KA9OOP, 23860 W Rolf Rd, Plainfield, IL 60544*.

□ Please refer to "A Low-Noise Preamp For Weather Satellite VISSR Reception," *QEX*, February 1989, pp 3-9. In Fig 9, C9 should be shown in parallel with C1, and C10 in parallel with C2. Fig 13 contains two scope photos; the caption refers only to the bottom photo. The upper photo represents a spectrum-analyzer display of an actual VISSR signal as received through the LNA on a 16-foot dish with a coffee-can feed.

In Table 2, line four, the word "circuits" shouldn't be hyphenated. If entered into an ASCII file as shown, the presence of the hyphen will cause the analysis program to bomb.

Figs 7 and 8 are miscaptioned. They

are stability circles not merely of the input stage, but of the entire cascade (all three stages) after computer optimization. Similarly, the captions for Tables 2 and 4 are somewhat misleading. Table 2 is a circuit-parameter input file of the input stage only. Table 4 was expanded to include all three stages of the cascade.—*H. Paul Shuch, N6TX, 14908 Sandy Lane, San Jose, CA 95124*.

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# Bits

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## MEMORANDUM-OF-UNDERSTANDING

Boulder, CO, March 19, 1989—AMSAT-Italy and AMSAT-NA signed a Memorandum of Understanding allowing for the co-construction of a Microsat/PACSAT satellite. AMSAT-NA will be sharing its technology by assisting AMSAT-IT in this endeavor. Joint construction of this Microsat satellite will allow for AMSAT-IT to study, observe and learn about all aspects of building an OSCAR satellite from bending metal to integrating it upon a launch vehicle. This represents the first time that AMSAT-IT has attempted to build an OSCAR satellite. The new AMSAT-IT MICROSAT will be known as ITAMSAT-1 and is expected to be finished and launched within two years. The center for this effort will be in Milan, Italy, with Dr Zagni being designated as the program manager for ITAMSAT-1.