



# Orbit

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# Star Performers!

## ICOM's VHF/UHF Pairs for Satellite Communications

Oscar 10. Are you ready? Join the future of amateur satellite communications with ICOM VHF and UHF transceivers. Read why ICOM is...*Simply the Best* for satellite communications.

### IC-271A, 471A Twins

This new series of VHF/UHF base stations offers a combination of features and flexibility found in no other transceiver anywhere. For receiving MODE J downlink, the IC-471A features a less than 0.5 microvolt for 10dB quieting SSB receiver plus an optional mast-mounted GaAs FET preamplifier with a 15dB gain.

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ICOM's Stackable Portable Twins IC-290H & IC-490A

second to none. For MODE B use, the IC-471A features a 10W SSB transmitter with variable power control.

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IC-371A VHF Multimode 2 Meter / 25 Watts



IC-471A UHF Multimode 430 - 450 MHz / 10 Watts



**ICOM**

The World System



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**Our Cover:** A circularly polarized log periodic antenna covering 125  
MHz to 1 GHz as installed at an ITT antenna test range. The six-foot  
long antenna rides on a 65 foot radius arch. Photo taken from the  
ground looking skyward. Entire structure including guys is non-  
metallic to avoid patten distortions. Range is used to test satellite  
communication and general purpose UHF antennas. (Courtesy ITT  
and WA2LQQ)

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# Ellipsis...

An Editorial by Harold Winard, KB2M

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## Standards

Perhaps many of us are too close to the action to see it. There's a very important battle going on now within the computer industry. It will have consequences for all of us. Manufacturers, designers, software writers, and users are battling to decide whose computer standard will carry the hearts and pocketbooks of the American public.

Millions are at stake in the computer industry. Advocates on all sides of the issue see the battle as too critical to lose. As the drama unfolds, the hero (or villain, depending on your prejudices) has created a de facto standard in the world of business. IBM has had incredible success in establishing the IBM Personal Computer as the machine of choice for many American businesses. It's starting to become a hot seller overseas as well. Indeed, if an IBM computer is not available, businesses snap up clones, such as the Compaq, Columbia, Corona, or other MS-DOS-compatible machine.

For better or worse, IBM jumped from no share of the market in 1981 to a position of dominance in 1984. By year's end, a PC will be rolling off the assembly line in Boca Raton at the rate of one each seven seconds — all this just three years after the PC was first introduced.

Does this heavy-handed dominance of the computer industry augur well for the computer user? Overall, we think so. Although unanimity on the IBM standard might stifle more creative hardware and software approaches, it does create a solid, sure footing for computer technology. A community that is assured of the long-term integrity of its investment is more apt to invest. What does this have to do with amateur radio and satellites? Our avocation too is seeing exciting times. Silicon chips that fuel the computer revolution also change the way radio amateurs communicate. And it's a very significant change too.

Although cw replaced spark, phone merely supplemented cw. So too has digital communications arrived on our doorstep, not as a replacement for those earlier modes but as a valuable complement. People still enjoy communicating with their voices and that will, we are sure, continue for a long time. And people have also com-

municated with written language, and amateur facsimile and radio teleprinting have been with us for at least 40 years. But the new kid on the block, still in diapers but growing fast, is a form of digital communications called packet radio. It's a robust child, still wet behind the ears, but full of vigor and promise. It's also a confused child, still groping at its future and uncertain of the direction it will take.

Although reminiscent of radio teletypewriter communications, packet is nevertheless very different and offers a wide range of options for error-free communications, high-speed data transfer, store-and-forward techniques, and computer bulletin-board operation. Where teletype (and its newest cousin, AMTOR) are mainly used in a people-to-people mode, packet radio finds its real strength in establishing communications between computers. But in amateur radio, just as in the computer industry, standards will play a key role in deciding what the future holds.

In 1982, an AMSAT-sponsored conference resulted in a very important agreement on basic packet radio protocols. That meeting brought us the AX.25 specification for amateur digital packet communication and set the stage for the current boom in interest in the technique. This standardization came just in time, for the newly founded Tucson Amateur Packet Radio (TAPR) group was about to unveil new packet radio equipment into the amateur world — a torrent that has now placed over 1000 sets of hardware in the hands of radio amateurs around the world. But AX.25 defined just two layers of the protocol — the "physical" layer and the "link" layer. The former gives guidelines for the electrical properties of the equipment required for person-to-person packet communicating and the latter specifies the actual commands that link the communicators together in a common, though user-transparent, software bond. The goal of these standards is to establish (by radio) a virtual "wire" connection between individual users.

*(Cont. on page 11)*