

# RCA AMATEUR RADIO CLUB

AUGUST, 2012

MONTHLY NEWSLETTER

INDIANAPOLIS, IN

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THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE  
TUESDAY, AUGUST 14th, 6:30 PM AT G.T. SOUTH'S,  
5711 E. 71<sup>st</sup> STREET, INDIANAPOLIS, IN

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## RCA ARC NEWS

**SUMMARY OF THE JULY MEETING** – At the July meeting the possibility of getting the 146.88 repeater back on the air was discussed. K9RU has the parts reassembled into a 4 ft rack in his basement. AF9A has the Echolink components. Both systems are functional and need to be integrated and tested. The potential site, arranged by John, KF9UH, is on the west side near I465 and 10<sup>th</sup> St. A 200 ft. tower with an unused commercial antenna may be available. The Indy Hamfest on July 14 was discussed. Plans for transporting the junk to be sold were discussed. K9RU had pictures and gave a report on the Field Day activities of the group that went to New Mexico. WA4OTD and AF9A operated FD with the Hamilton County group from Central Park in Carmel.

**NEXT TEST SESSION:** Monday, Aug. 13, at 6:30 pm

**Location:** Public Safety Commission, Communications Training Center,  
8468 E 21st St, Indianapolis, IN 46219

**Contact:** Rhonda Curtis WS9H

**Email:** [WS9H@comcast.net](mailto:WS9H@comcast.net)

## HAMFESTS, OPERATING EVENTS & TESTING

- Aug 13 VE Test Session, Indianapolis Public Safety Commission, Communications Training Center, 6:30 pm
- Aug 19 Tippecanoe ARA's Annual Hamfest, Lafayette, IN <http://w9reg.org/hamfest/index.htm>
- Aug 25 Owen-Monroe Amateur Radio Hamfest, Spencer, IN <http://www.owencountyara.org/>
- Sept 22 Greenfield Hamfest, Hancock Co. 4-H Fairgrounds
- Oct 6 Hoosier Hills (Bedford) Hamfest, Lawrence Co. 4-H Fairgrounds
- Nov 17 Fort Wayne Hamfest & Computer Expo, Ft. Wayne, IN <http://www.fortwaynehamfest.com>
- Nov. 24 Evansville Hamfest, Evansville, IN <http://w9ear.org/hamfest.htm>

All dates, unless otherwise stated, are UTC.

<http://www.arrl.org/contest-update-issues> Contests updates

<http://www.hornucopia.com/contestcal/> WA7BNM Contest Calendar

<http://www.arrl.org/special-event-stations> ARRL Special Event Stations page

[http://www.arrl.org/exam\\_sessions/search](http://www.arrl.org/exam_sessions/search) ARRL training page for test sessions

<http://indyhams.org/events/> Indiana events and public service opportunities.

## SPECIAL EVENT STATIONS IN LONDON AND WALES ON THE AIR FOR 2012 OLYMPIC AND PARALYMPIC GAMES

Since Wednesday, July 25, two special event call signs have been activated to celebrate the London 2012 Olympic and Paralympic Games: **2O12L** from London, England and **2O12W** from Barry, Wales. Both stations are on the air for the duration of the Games -- July 25-August 12 -- and continuing

through September 9. Organizers hope to make at least 80,000 contacts during the seven weeks that 2012L and 2012W are on the air.

The London station – [2012L](#) -- will be active on 160-2 meters on all modes. The station is located at the Royal Greenwich District Scouts Activity Centre in Southeast London, in the borough of Greenwich, one of the six “host boroughs” for the Games. A list of planned frequencies is available [here](#). The station will be open to the public from 10 AM to 4 PM each day, and visitors may operate. Follow 2012L on [Twitter](#).

The Welsh station -- [2012W](#) -- will be active on 160 meters-23 cm on all modes, including SSTV and satellite, will be based on the [seafront esplanade](#) at Whitmore Beach, Barry Island, Vale of Glamorgan. The site is located just a few miles south west of Cardiff and the Millennium Stadium, home to the first football match that will open the Games in Wales. The station will be open to visitors. Follow 2012W on [Twitter](#).

“Amateur Radio operators everywhere will be able to share in the Olympic experience by making contact with the station and exchanging greetings messages with visitors and Games participants who visit the station,” said [Project Echo](#) Publicity Officer John Warburton, G4IRN. “The team aims to make contact with as many of the Games participating countries as possible. Special QSL cards will be available to stations contacted. The project aims to leave a lasting legacy by encouraging visitors to learn more about radio communications and the social, career and recreational benefits that it brings.”  
–ARRL Letter

## MARS ROVER *CURIOSITY* SUCCESSFULLY LANDS ON RED PLANET

The Jet Propulsion Laboratory ([JPL](#)) confirmed that the rover *Curiosity* -- after a 36 week space flight -- landed successfully on Mars at 10:32 PM PDT on August 5 (0532 UTC August 6). Built by JPL and launched by NASA on November 26, 2011, the 2000 pound machine features something that radio amateurs are sure to appreciate: Morse code.



If you look carefully at *Curiosity*'s wheels, you might notice that along with treads, there are square and rectangular holes. According to JPL Rover Mechanical Engineering Team Manager Richard Rainen, these holes actually have a purpose: odometer markers. “We will be looking at the visual odometer markers that we have on the wheels,” he explained in a [video](#). “There are asymmetric patterns, actually holes, inside the wheels of the rover that will leave an imprint on the surface of Mars. We’re going to be looking at these imprints and verifying that it has traversed the distance it

expects to traverse. If it looks like it’s not traversing, even though the wheels are going, that is an indication that the vehicle is getting stuck and it will stop and call back home.”

But in 2007 -- when the *Curiosity* team at JPL was putting together the rover -- its wheel cleats had a raised pattern with the letters “JPL,” leaving a little stamp of the rover’s birthplace everywhere it rolled. “At the time, I asked whether the real rover would have those wheels, and they said, no, they weren’t going to get to advertise JPL with each turn of each of the rover’s six wheels; the real rover would have some other pattern,” said [Emily Lakdawalla](#) of [The Planetary Society](#) in her [blog](#). Lakdawalla is the organization’s Science and Technology Coordinator. “*Curiosity* didn’t need holes in its wheels for attaching to any lander -- there isn’t one. So the engineers got to make the markers in any shape they wanted to.”

So what pattern did JPL choose to put on *Curiosity*'s wheels? One that Lakdawalla called “very amusing. The holes are in a pattern of short squares and longer rectangles -- almost like dots and dashes. Morse code.” And what does it spell out in Morse code? JPL.

J . . . . P . . . . L . . . .

“Today, the wheels of *Curiosity* have begun to blaze the trail for human footprints on Mars,” said NASA Administrator Charles Bolden in a [press release](#). “*Curiosity*, the most sophisticated rover ever built, is now on the surface of the Red Planet, where it will seek to answer age-old questions about whether life ever existed on Mars -- or if the planet can sustain life in the future. –ARRL Letter

## PERSEIDS SHOULD BE FUN FOR METEOR SCATTER ENTHUSIASTS AND VIEWERS ALIKE

On the night of Saturday, August 11 and well into the next day, Earth will make its annual passage through the bulk of the debris shed by a comet known as [Swift-Tuttle](#). Much of the debris is composed of dust-sized grains, but when these fragments come plunging into our atmosphere they can create a dazzling meteor display. Not only are the meteors fascinating to watch, they also leave short-lived streams of ionized gas in their wake. As hams have known for years, these meteor trails are excellent reflectors of radio waves. The Swift-Tuttle meteor showers are known as the [Perseids](#) because they appear to come from a point in the sky that lies within the constellation Perseus.

If you own a 6 or 2 meter SSB/CW transceiver, you can get in on the action, bouncing your signals off Perseid meteor trails and making quick [meteor scatter](#) contacts over hundreds of miles, and possibly even as much as 1200 miles. Meteor scatter operation is particularly easy on 6 meters where 100 W and an omnidirectional antenna will do the job. On 2 meters, a directional antenna (such as a multielement Yagi) usually yields better results.

Some meteor scatter operators prefer to use SSB, making rapid exchanges of signal reports and grid squares. In recent years, digital meteor scatter has been increasing in popularity. With the free sound-card-based [WSJT](#) software suite by Joe Taylor, K1JT, it is possible to make digital meteor scatter contacts almost any time of the day or night, not just during annual showers. Most [WSJT](#) scatter operators use a mode known as FSK441 and center their activities on calling frequencies 50.260 and 144.140 MHz. They also announce their availability by using Web sites, such as NOUK's [Ping Jockey Central](#). –ARRL Letter

## FCC DENIES PETITION SEEKING TO DESIGNATE NATIONWIDE EMERGENCY CALLING FREQUENCY

Saying that it believes that the Amateur Service “allows flexibility to provide emergency communications in a way that takes into account channel availability and other local conditions,” the FCC [denied a Petition for Rulemaking to create a nationwide emergency calling frequency](#). The [Petition](#) -- filed by Bryan Boyle, WBOYLE, of Morrisville, Pennsylvania, and Jim Dixon, WB6NIL, of Alhambra, California -- called upon the FCC to designate 146.550 MHz as a “non-exclusive nationwide Amateur Radio Service emergency communications channel using FM wideband modulation.”

Doyle and Dixon noted in their [Petition](#) that other services, such as the Citizens Band Radio Service, the Aviation Service and the Maritime Service have specific channels set aside for emergency communications. They claimed that use of these channels “to good effect by those in distress [and that this] is a testament to the need for individual services to have a readily accessible and publicized” emergency communications channel. In denying the [Petition](#), the FCC said in part that Boyle and Dixon “had not shown an existing problem that would be addressed by a rule change designating a nationwide Amateur Service emergency calling frequency.”

The FCC told Boyle and Dixon that the rules of the Amateur Radio Service allow “an amateur station to transmit one-way messages necessary to providing emergency communications,” maintaining that

these messages may “be transmitted on any frequency authorized [by] the control operator of the amateur stations transmitting the messages. Additionally, the rules require that, at all times and on all frequencies, each control operator must give priority to stations providing emergency communications. Administration of these rules is accomplished primarily through voluntary frequency planning by, and cooperation among, Amateur Radio operators.”

Pointing out that the its Wireless Telecommunications Bureau had previously considered establishing a nationwide common calling or distress channel “in a service where transmission of such communications is permitted but not required...and the channels are shared by all users,” the FCC said that it had concluded that “it was not necessary to designate a Family Service Radio (FRS) channel for establishing emergency communications because emergency communications have a priority on all FRS channels and the record did not demonstrate that FRS users were having any difficulty establishing communications.”

The FCC did note, however, that unlike channels in the Citizens Band Radio Service and the Maritime Service, channels in the FRS are not routinely monitored by emergency first-responders: “Like the FRS, the Amateur Service differs from the services in which our rules designate a nationwide emergency calling channel in that it is not routinely monitored by safety entities such as the police or the Coast Guard. Additionally, those services do not require an individual to have an operator license or otherwise demonstrate the ability to operate the station by performing such functions as selecting transmitting channels to avoid interference. Therefore, we believe the administration of these services primarily through operational rules that specify the use of a channel and transmitter technical standards is reasonable.”

The FCC observed that under the current rules of the Amateur Radio Service, operators can use “multiple channels on the same or different amateur band if needed for an event, or use multiple channels in the same band when multiple, but different events occur.” It also mentioned that the Boyle and Dixon’s proposal “that the channel be a ‘non-exclusive nationwide’ channel is, substantively, no different from current channel priorities because all Amateur Service channels are shared and may be used for providing emergency communications. If such a ‘non-exclusive nationwide’ channel is needed, nothing in our rules prevents the amateur community from voluntarily agreeing to designate a channel for this purpose. We conclude, therefore, that you have not shown an existing problem that would be addressed by a rule change designating a nationwide Amateur Service emergency calling frequency.” –ARRL Letter

## **IVICA DACIC, YU1YU, ELECTED PRIME MINISTER OF SERBIA**

Former Serbian Internal Affairs Minister [Ivica Dacic, YU1YU](#), was elected as that country's newest Prime Minister on July 27. He succeeds Mirko Cvetkovic, who served as Serbia's Prime Minister from 2008-2012. Dacic is the leader of the Socialist Party of Serbia; from 2008 until his election as Prime Minister, he served as First Deputy Prime Minister, as well as Minister of Internal Affairs. In March 2012, Serbia became a candidate for membership in the European Union ([EU](#)).

Dacic is a member of the Amateur Radio Union of Serbia ([SRS](#)), Serbia's IARU Member-Society and is said to be a member of his local club, [YU1AAV](#). The club was founded in 1978 as one of nine sections of the Novi Beograd (New Belgrade) Amateur Radio Club, [YU1FJK](#). According to its website, YU1AAV's primary goal has been to teach kids Morse code and Amateur Radio Direction Finding skills: "The 1990s brought us war, sanctions and social crises, but it also brought the good opportunity to move kids from the streets to learn ham radio. These were the years when the most kids from the neighborhood finished the course to get their basic ham license."

Boban Kojic, YT9A, told ARRL Chief Executive Officer David Sumner, K1ZZ, that he was "happy that Ivica had become a ham and had passed his telegrapher's class. It is exciting that today's Prime Minister passed his second class exam in high school and has supported his club throughout the years.

I first met Ivica at the 2005 Region 1 ARDF Championships in Tara, when I was SRS President. He helped to gather funds for the event, and together, we went from ministry to ministry in search of financial support. Ivica himself called the president of Bajina Bašta [a town located in the western mountains of Serbia where the opening ceremony would be held] and sought his assistance to fund the opening ceremony. Now this wasn't a small amount of money; it was money for the buses from Tara to Bajina Bašta and back, the renting of a stadium, cleaning and decorating, organization of about 15-20 minutes of cultural and arts programs and cocktails for representatives of the national associations, as well as gift bags for each and every one of them."

In another e-mail to Sumner, Ivan Mastilovic, YU1LA, said that while he has not heard Dacic on the bands, "it is probably because his job takes all his free time. I have met him a few times with the SRS and he is a very nice young man with a real interest in Amateur Radio. No doubt that when his political career ends, he will be on the air more with a true love for ham radio. Now, as our Prime Minister, I'm sure he can help our ham radio community."

Prior to his election as Prime Minister, Dacic served as the spokesman for the Socialist Party of Serbia (SPS) from 1992-2000; he has served as president of the SPS since December 2006. He holds a degree in political science from the University of Belgrade. According to the SPS, Dacic, 46, is fluent in both Russian and English, is married and the father of two children. -- *Thanks to ARRL MVP Associate Sanijela Zanic for providing translating services*

## VIC POOR, W5SMM, RECEIVES ARRL PRESIDENT'S AWARD

On July 9, Victor (Vic) Poor, W5SMM, of Melbourne, Florida, was awarded the ARRL President's Award at the Platinum Coast Amateur Radio Society's (PCARS) monthly meeting that was attended by nearly 100 hams and non-hams, many from out of town. There have been only a handful of recipients of this prestigious award.

Vic Poor developed an active interest in ham radio while still in high school and became W6JSO in 1951. He has also held the calls AH6AXV and K3NIO. He quickly developed an affinity for RTTY and later other digital modes of interest in Amateur Radio.

Poor has been instrumental in the development of many hardware and software innovations that are at the heart of modern day computing and communications technology, used both in Amateur Radio and in industry.

His early RTTY work focused on improving the designs of modulators, demodulators, and filters to improve the error rates achievable with RTTY in those days. This work continued into the development for schemes for simple message networking for amateur traffic before the availability of affordable PCs.

During the '70s and '80s, new digital technologies, including packet, AMTOR and lower-cost computers became available. These advances motivated Poor to further improve digital transmission networking techniques. This included APLINK, a robust automatic global store-and-forward system that led the ARRL to include the system for use in their National Traffic System (NTS).

With the advent of widely available Internet service and continued improvements in signal processing using PCs and dedicated signal processing chips, including PACTOR and WINMOR, in 1999 Poor organized a volunteer amateur development team to replace APLINK with a much more advanced amateur message forwarding system that integrates with the Internet and other mail systems, handles multiple destination addresses, and accepts data files of any format. The system is named Winlink 2000 (WL2K) and is maintained and managed by the Winlink Development Team (WDT). Poor remains the principal architect of the system. This system has blossomed today to a major amateur-

supported emergency communications network used by ARES and many government agencies including MARS, federal, state, county and city agencies, and NGOs.

In his professional career Poor has been instrumental in the development of many products that we take for granted today. He credits his interest in ham radio as the driving force behind his success in the commercial arena. –ARRL Letter

## ARRL BOARD OF DIRECTORS NAMES AWARD RECIPIENTS AT 2012 SECOND MEETING

The ARRL Board of Directors named four ARRL award recipients at their [2012 Second Meeting](#), held July 20-21 in Windsor, Connecticut: the 2011 Doug DeMaw, W1FB, Technical Excellence Award; the 2012 ARRL Technical Innovation Award; the 2012 Philip J. McGan Memorial Silver Antenna Award, and the 2012 Herb S. Brier Instructor of the Year Award. In addition, the Board named Former ARRL West Gulf Division Director Thomas W. Comstock, N5TC, as Director Emeritus of the ARRL.

### **The Doug DeMaw, W1FB, Technical Excellence Award**

James Ahlstrom, N2ADR, of Stirling, New Jersey, was named the recipient of the *2011 Doug DeMaw, W1FB, Technical Excellence Award*. Ahlstrom was recognized for his “technical excellence in his research, design, construction and documentation of a homebrew all-digital HF transceiver” that was published in the January/February 2011 issue of [QEX](#).

### **The ARRL Technical Innovation Award**

David Rowe, VK5DGR, of Adelaide, South Australia, was named the recipient of the *2012 ARRL Technical Innovation Award*. The Board noted that Rowe “has been a major leader and the primary technical author of an open-source CODEC2 protocol, designed to address the impediment to the development of amateur digital voice posed by closed-source protocols.”

### **The Philip J. McGan Silver Antenna Award**

John T. Luebbbers, K1AYZ, of Tavares, Florida, was named the recipient of the *2012 Philip J. McGan Silver Antenna Award*. Luebbbers was recognized by the Board for his “outstanding volunteer public relations success on behalf of Amateur Radio at the local and regional levels.”

### **The Herb S. Brier Instructor of the Year Award**

Joe Lowenthal, WA4OVO, of Memphis, Tennessee, was named the recipient of the *2012 Herb S. Brier Instructor of the Year Award*. The Board noted that Lowenthal “has a demonstrated record as an outstanding instructor for Amateur Radio classes, with hundreds of students benefitting from his expertise in the classroom and generous mentoring.” –ARRL Letter

## HEATHKIT DECLARES BANKRUPTCY, CLOSES FOR GOOD (AGAIN)

The July 19 edition of *The Herald-Palladium* -- a newspaper serving the communities of Benton Harbor and St Joseph, Michigan -- is [reporting](#) that Heathkit Education Company has declared bankruptcy and has officially closed its doors after defaulting on its lease. According to the paper, Heathkit employed more than 1800 people in its heyday after World War II; when it finally closed, its workforce totaled fewer than six people. This is the second time [since 1992](#) that Heathkit Educational Services has shuttered its doors. In August 2011, Heathkit announced it was [returning to the kit building business](#), and in September, that it would once again be [manufacturing Amateur Radio kits](#).



Heathkit owner Don Desrochers told the newspaper that he has filed for bankruptcy and a bank now owns what's left of Heathkit; the bank is disposing of some items via online auctions. "The situation was purely one of the economy," he explained in the article. "Heathkit was primarily dependent upon federal and state funding for schools. Spending in education continued to drop down, and it was economically unfeasible to continue operating. When we got back into the kit business, we were losing the education business faster than we were growing the kit business. It was not sustainable."

According to the newspaper, Heathkit abandoned its lease around March, and in May, Phil Maki said he received notice that Desrochers had declared bankruptcy and that Heathkit would be closed. Maki is treasurer of Southshore Companies, the company that owns the building that Heathkit had leased a portion of. "It's a sad thing for the community," Maki said. "A lot of us grew up using Heathkit products, and it's sad they ended the way they did."

In May 2012, the ARRL [reported](#) there were rumors of the company's demise, but nothing was certain. Tom Ferriter, of Technical Education Products in Hampden, Massachusetts, told the ARRL at that time that "Heathkit is telling us [outside sales representatives] that they have temporarily closed, but that they are hopeful that they will be able to reorganize. While they're not telling us too much, they did say that they were having poor sales for a myriad of reasons and are hopeful that they will be able to refinance the company and negotiate with the bank to refinance some of the debt."

Desrochers -- who served as Heathkit's President and Chief Executive Officer from 1995-2000 before purchasing the company in 2005 -- told *The Herald-Palladium* that closing Heathkit was hard for him: "It was a tough decision, but you can't operate and lose money. Hopefully the employees will find other employment. They were great, loyal employees for a long time." -- *Thanks to [The Herald-Palladium](#) for the information and to Lee Lull, WR8R, for bringing this to our attention* --ARRL Letter

## SHORTS

**FCC DENIES ARIZONA HAM'S PETITION TO EXTEND PRB-1 TO PRIVATE CONTRACTS, SUCH AS CC&RS** -- In January 2012, Leonard Umina, W7CCE, of Gilbert, Arizona, filed a *Petition for Rulemaking*, asking the FCC to "expand its policy of limited preemption of state and local regulations governing amateur station facilities to preempt private land use regulations such as covenants, conditions, and restrictions (CC&Rs) and rental agreements that limit amateur licensees' ability to deploy antennas." On July 16, the FCC notified Umina that it had denied his *Petition*. Read more [here](#). --ARRL Letter

**VANITY CALL SIGN FEE TO GO UP 80 CENTS** -- On July 20, the FCC announced that the cost of an Amateur Radio vanity call sign will increase 80 cents, from \$14.20 to \$15. The fee will increase 30 days after notice of the increase is published in the *Federal Register*; no date has yet been set for publication. Earlier this year, the FCC released a *Notice of Proposed Rulemaking and Order*, seeking to raise the fee for Amateur Radio vanity call signs. The vanity call sign fee has fluctuated over the 14 years of the current program -- from a low of \$11.70 in 2007 to a high of \$70 (as first proposed in the FCC's 1994 *Report and Order*). In FY 2012, the FCC expects to grant 14,300 vanity call signs, bringing in \$214,500 from the vanity call sign program, and looks to recover a total of \$339,844,000 in fees from all the Services that it regulates. Read more [here](#). --ARRL Letter

**FCC UPHOLDS \$7000 FORFEITURE ORDER TO CALIFORNIA CB OPERATOR** -- After a Merced, California man refused to let FCC investigators inspect his Citizens Band (CB) radio station, the FCC issued -- and upheld -- a *Notice of Apparent Liability for Forfeiture (NAL)* for \$7000 for not allowing the inspection. In issuing the *NAL* in March 2011, the FCC found that Ira Jones "apparently willfully and repeatedly" violated Section 303(n) of the *Communications Act of 1934, as amended*, and Section 95.426(a) of the Commission's rules (CB Rule 26) by failing to permit the inspection. Jones responded to the *NAL*, but the FCC upheld the forfeiture amount, saying that Jones' arguments were "irrelevant" and "unpersuasive." Read more [here](#). --ARRL Letter

**FCC FINES ALASKA MAN FOR INTERFERING WITH AIR TRAFFIC USING CB RADIO--**

On July 17, the FCC announced that it had issued a *Notice of Apparent Liability for Forfeiture and Order* in the amount of \$12,500 to Glenn S. Yamada, of Kenai, Alaska. Yamada is accused of "apparently willfully and repeatedly violating Section 301 of *the Communications Act of 1934, as amended*, and Sections 95.409(a) and 95.411(a)(1) and (b) of the FCC Rules by operating his CB radio without requisite Commission authorization." In January 2012, the FCC received a complaint regarding interference to an authorized user in the aeronautical band -- a safety of life service -- on 21.964 MHz. According to the FCC, the complaint "Concerned a male subject talking and interfering with the control and monitoring of air traffic over the North Atlantic." The FCC's High Frequency Direction Finding Center (HFDFC) monitored the frequency over the next few days, and on January 31, "observed a subject matching the details of the compliant transmitting on the frequency 21.965 MHz." The HFDFC noted that the subject was using the call "1600 Alaska," that the actual operating frequency was 27.025 (CB channel 6) and that the transmissions were coming from Kenai. Read more [here](#). --ARRL Letter

**NOTED QST AUTHOR STEVE POWLISHEN, K1FO (SK)** -- Steve Powlishen, K1FO, of Madison, Connecticut, passed away July 28 due to complications from cancer. He was 60. An ARRL Life Member, Powlishen was best known for his antenna designs for weak signal work. His company, Lunar-Link Systems -- founded by Powlishen in 1994 -- manufactured and sold high-performance amplifiers that allowed more amateurs to experience Earth-Moon-Earth (EME), often called "Moonbounce," on 432 MHz. Powlishen -- who had 613 unique contacts on 70 cm EME -- penned more than 10 articles for *QST*, *QEX* and *Ham Radio Magazine* on weak signal operation. Read more [here](#). --ARRL Letter

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