



The Feedline

The Last Analog Cycle

By *Ward Silver N0AX*
From the *ARRL Contest Update Newsletter*, October 1, 2008

As I was soaking up Phil VK6APH's excellent seminar on Software-Defined Radio at last weekend's TAPR Digital Communications Conference, I was marveling at the inroads digital technology has made in the thoroughly analog kingdom of RF. Many receivers connect the antenna directly to the input of an A/D converter and nevermore is the analog signal seen until it resurfaces as audio somewhere far downstream for our biological eyes or ears to comprehend. Ah well, no one has digitized propagation yet, although if they had, it would certainly be a '0' at the moment.

Where were we at the beginning of Cycle 23? In the mid-1990's, the VK0IR expedition was astounding DXers around the world that signals from the sub-Antarctic Indian Ocean could be heard at the bottom of the solar cycle. The hottest rigs of the day were pure analog with DSP functions just beginning to appear as audio processing gadgetry. Digitizing the RF spectrum was pretty much a pipe dream outside of military and academic labs. A heavily modified Drake R4C was the top dog in strong-signal amateur receiving.

Enter cellular telephony. Once the province of the hefty "bag phone", what proved to be insatiable consumer de-

mand created economies of scale that drove innovation and miniaturization to a degree unimaginable only a few years before. Within ten years, a handheld 2 GHz phone could fit in a pocket, take pictures, surf the Web (another nascent technology as the cycle turned), and act as a broadband data terminal. Opening up the phone, one would see only a square IC with a whole lot of hair-thin leads and an epoxy block or two of RF circuitry.

Thus RF enters the digital age. Limited only by digitization rate, number of bits, and the cleverness of programmers and FPGA vendors, the radio's largest components will soon be the displays that produce digits and characters large enough for our eyes to discern. Unless humans begin to develop built-in data interfaces, anyway.

Certainly, antennas will evade the digital juggernaut for the foreseeable future, but even amplifiers are being carried home on analog shields. High-power FETs with faster and faster switching speeds are appearing. Soon, instead of arguing about the merits of a vacuum tube in class-AB1 or AB2 operation, the discussion will turn instead to the merits of different magnetic configurations for Class E, F, G, H, Q, X, or Z switchmode amplifiers. Essentially, our amplifiers will become very fast switching power supplies!

See "Last Analog Cycle", page 11

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Dates to Remember:

- Nov 8,9 – [Kentucky QSO Party](#)
- Nov 10 – NKARC Membership Meeting
- Dec 8 – NKARC/KD7ARET Christmas Dinner
- Jan 14 – NKARC Membership Meeting

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Repeaters (K4CO): 147.255+ and 444.350+ Edgewood (PL 123.0), 147.375+ Walton, 146.895+ Highland Heights. The 147.255 repeater is a linked Echolink node, accessible via N4IJS-R.

NKARC Net: Tuesdays, 7:30 PM on the 147.255 repeater

VE Testing: Testing sessions are held by appointment only on the 2nd Monday of each month, prior to the NKARC membership meeting. Testing begins at 6:00 pm. To make an appointment, contact Lyle Hamilton at ab8sh@arrl.net or tel. 513-315-4032

NKARC Web Site: <http://www.k4co.org>

NKARC Membership Meetings: 2nd Monday of each month at 7:30 pm at the Hilltop Church of Christ, 5300 Taylor Mill Rd (Ky. 16), Taylor Mill, KY. Visitors are always welcome!

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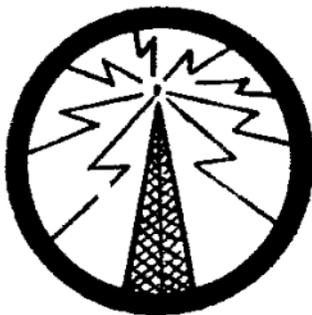
must be received no later than the last Monday of the month prior to publication. Submissions, address or call changes and circulation problems may be sent to the Feedline editor:

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Top of the Tower

Hello Everyone,

The year is winding down. Don and I did the final paperwork on the new location for the meetings last week (Hilltop Church of Christ at 5300 Taylor Mill Rd., Taylor Mill KY.). It will be nice to settle in; we will be updating publications with the new location in the upcoming weeks. November's meeting will be our last business meeting for 2008. At the meeting we hope to have the 2009 slate of officers voted on. During October's meeting; we talked about mailing out applications for the 2009 year. We hope to have some sort of information stuffer together before the mailing, if not we will send a sheet with the basic info about the club out with the application. I hope to reach old club members as well as people who are not familiar with our club. Of course you can still join in person or



download an application off the web-site (www.k4co.org)

If you would like to help offset the cost of the mailing, please bring an extra stamp to November's meeting.

Mark your calendars now for December 8, 2008 for our annual Christmas dinner. This is the second Monday of December - our usual meeting evening. It will be a joint dinner with our sister club, KD7ARET. The location will be the Golden Corral, 488 Orphanage Rd. Ft. Wright KY, just north of 275 on RT 17. The scheduled time is 6:30 pm.

73,
Dann Fox
KI4AVO

October Net Report

If you are interested in helping the club out and expanding your Amateur Radio skill set, please take a turn at running one of our weekly nets! This is a great way to hone your radio, net control, and message handling skills in a friendly environment. If you are interested, please contact Robert Kluck, N4IJS, at (859) 426-5588 or n4ijs@k4co.org

DATE	NCS	CHECKINS	TIME (MINS)	TRAFFIC
10/7/08	AJ4DK (Don)	4	20	0
10/14/08	KB4VKS (Mike)	8	24	0
10/21/08	N4IJS (Robert)	9	24	0
10/28/08	KG4SBG (Dennis)	8	26	0
TOTALS		29	94	0

October Meeting Minutes

MINUTES OF THE OCTOBER 13, 2008 MEETING OF THE NORTHERN KENTUCKY AMATEUR RADIO CLUB

The meeting was called to order by Dann Fox at 7:30 p.m. at the Hilltop Church of Christ. Dann led the group in the pledge to the flag. Self introductions followed.

The minutes of the September meeting were approved as they appeared in the Feedline.

Dann reported that the nominating committee has been making calls soliciting candidates for a new slate of officers. The nominees will be announced and a vote taken at the November meeting.

Harold and Rob Blocher looked into the 147.255 repeater problem and they believe that the receiver is being de-sensed by noise from nearby cell towers. They installed a filter and would like feedback on whether or not this has helped.

Tony White reported that we re-

ceived an offer some time ago to make use of an existing tower near the (now closed) Erlanger Cinema.

Dann reported that the 147.375 repeater sometimes gets knocked off the air during severe weather. Perhaps we should consider installing A/C power filtering and lightning protection.

Dann said that he would like to do a mass mailing to former club members and new hams, to encourage them to join the club. He suggested a brochure and/or a special edition of the Feedline. Preferably it would be something that we could also hand out during club activities such as Field Day.

Robert Kluck and Tony White are still looking for volunteers to assist with the VE testing at Dixie Heights at the end of the month. Approximately 30 students will be taking the Technician exam. Lyle Hamilton reported that, since the VE session was not published in advance on the ARRL web site, no exams were given tonight.

Robert Kluck presented a video on digital voice modes on VHF and UHF.

The meeting was adjourned at 8:20 p.m.

Respectfully submitted,

Mark Volstad (Bob Burns being absent)

ATTENDEES

Dann Fox KJ4AVO
Robert Kluck N4IJS
Robert Kluck (II)
Don King AJ4DK
Fred Eastabrooks KE4ESN
Jeff Cropper KJ4GOP
Robert Westbrook KJ4FZS
Mark Volstad AI4BJ
Lynn Ernst WD8JAW
Judy May W1ORO
Greg May W2ORO
Tony White AI4IP
Dave Core K8WDA
Lyle Hamilton AB8SH

John Foltz K4RIW, SK

It is with deep sadness that we report the passing of longtime NKARC member [John Foltz](#). John died Wednesday, Nov. 5 at his home, at the age of 81. He is survived by his wife Rose, six children, seven grandchildren and a brother and sister. Visitation will be 9-11:15 a.m. Monday, with funeral mass following at 11:30 at St. Agnes Church in Ft. Wright.

November NKARC Meeting

The November NKARC membership meeting will be held at our new permanent location, the Hilltop Church of Christ in Taylor Mill. Club officers will be elected at this meeting.

Mark's Mutterings

Time for a New Antenna

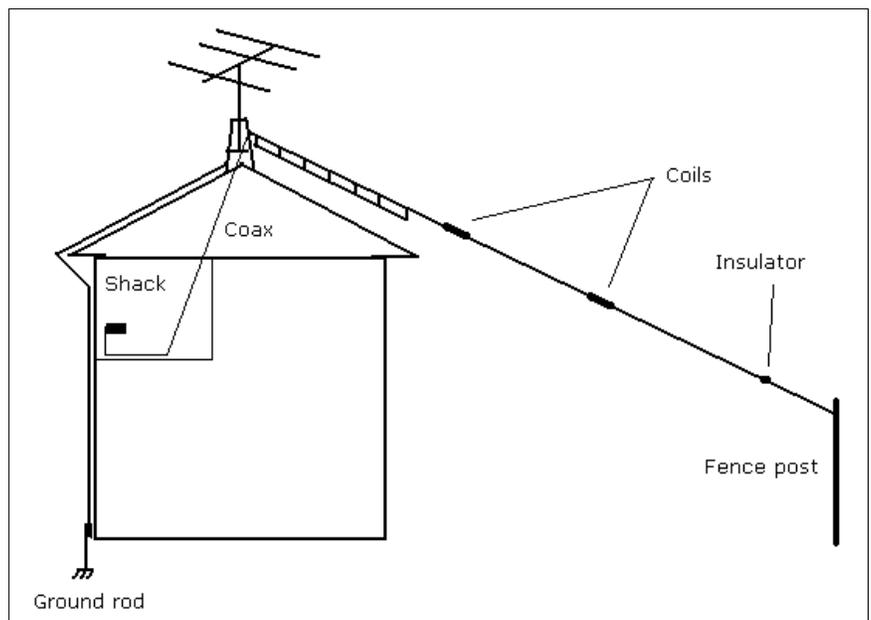
I'm pretty well set antenna-wise for 20 through 10 meters. I'm using a Cushcraft MA5B mini-beam mounted on a roof tower at around 30 ft. This is as good as it's going to get for me until I move to my retirement home on 10 acres in the country and put up a real tower. (Well, I can always dream...) I've never been very satisfied with my antenna for the lower bands, though, which for the past several years has consisted of an inverted-v 102-ft doublet fed with 450 Ohm window line.

In theory, this should be a good antenna for use on 80 through 30 meters. The use of window line ensures that feedline losses will be kept to a minimum, even in the presence of high SWR. Unfortunately, there was no way to route the feedline from the antenna to my rig (which is located in my second-floor shack) without running it near conductive objects which could upset the balance. Also, because the feedline was so short (my rig is only about 40 ft from the antenna feed point), I was seeing a very high reactance at the rig end, which my antenna tuner sometimes had difficulty matching. I could have resolved this by extending the feed line, but you cannot simply roll up excess window line like you can coax!

Anyway, I was browsing QST one day recently when I spotted an ad by Alpha Delta for a half sloper antenna that seemed to fit my requirements exactly. It uses coax feed, it's compact (just over 55 feet long) and it covers 160 meters through 30 meters. Ever since I acquired my Elecraft K3 I've wanted to play on top band, but my doublet was just too short.

I began researching slopers, and found lots of good articles in the [QST archives](#) which are now available online to ARRL members.

The name *half sloper* is a bit misleading. A *full sloper* is actually a 1/2 wavelength antenna. A *half sloper* is half the size of a *full sloper*, and is therefore 1/4 wavelength in size. A sloper is usually a single-band antenna, but Alpha Delta use a couple of tricks to get multi band coverage. First, they added a second, parallel element specifically cut for 30 meters. The main element uses a couple of loading coils (not traps) to break up the antenna and provide coverage on 160, 80 and 40 meters. I'm not exactly sure how this works — if anybody has some ideas, please let me know!



A half sloper is usually fed at the top end of the antenna, which should be attached to a tower. The beam on top of the tower acts as a capacitive load, necessary since the antenna is electrically short on 160 and 80 meters. The coax shield connects to the tower, which must be well grounded. Since my tower is attached to my roof, I counted on my tower safety ground to provide the ground path.

I ordered the antenna from R&L and it arrived the next day. We've been having great weather for doing antenna work, and it didn't take me long to erect the antenna. The manufacturer recommends making an 8-inch coil out of 7 turns of the coax as near to the antenna as possible. This chokes off any RF that might otherwise find its way into the shack via the coax shield.

I anxiously connected the coax to my K3 and disabled the K3's ATU so that I could get some accurate SWR readings. Below is a table of the lowest SWR I found on each band, and the frequency at which I found it.

Band	SWR	Frequency
160M	1.2	1.800
80M	1.4	3.600
40M	3.0	7.000
30M	1.0	entire band

Since my primary interest is DXing on CW, which takes place at the bottom of each band, this looked pretty good, with the exception of 40M. The ATU had no difficulty in producing a perfect match at the rig on each band, but of course this doesn't eliminate the SWR on the coax. Since coax is much more susceptible to losses via high SWR than window line is, I'm going to try improving the above figures by lengthening the top end of the main element.

A sloper is supposed to be a good DX antenna, since its radiation pattern favors lower takeoff angles. Mine is surely being affected by my aluminum siding and eaves troughs. Anyway, I had a good chance to test it on 160 that very evening in the Stew Perry Warmup. (This is the only contest that I know of that has its own warm-up contest!) For those who are not aware (as I wasn't), the Stew Perry Topband Distance Challenge is a contest in which grid squares are exchanged, and points are awarded based on the distance between the two stations. My first QSO on topband was with K3NA in Massachusetts. In the next hour, I made contacts with stations in IL, TN, VA, MI, NH, FL, OH, TX, WV, WI and MN. Not exactly hot DX, but not bad considering they all copied my 100 watt signal without needing any repeats. I'm now hooked on Stew Perry, and can't wait for the [main event](#) December 27/28th!

The next night, I confirmed good performance on 30M by working EL2DX (Liberia) and later in the week, VK9DWX (Willis Island). Now *that's* DX!

All in all, I'm quite pleased with this antenna, and look forward to putting it to good use during the coming long winter nights.

73, Mark AI4BJ

Weaver's Words

Jim Weaver, K8JE
Great Lakes Division Director, ARRL
E-mail: k8je@arrl.org; Tel.: 513-459-0142

Balloting in progress for Vice Director

Voting for Vice Director for the Great Lakes Division is in progress. Most Division members appear to have received their ballots; however, some may still be waiting for the US Postal Service to deliver theirs. Remember, the ballots were mailed by Bulk Mail. Times required for delivery of it are erratic.

If you do not receive a ballot by October 31, I encourage you to telephone Dave Sumner at 1-860-594-0303 or e-mail him at k1zz@arrl.org to request a replacement ballot be sent to you by First Class mail. Ballots must be received by noon on November 21.

Please review the candidates' backgrounds and vote. Be certain to place your ballot inside the "ballot" envelope and seal this in turn in the mailing envelope provided with your ballot. Ballots are to be mailed to the League's accounting firm, not to Headquarters.

What is the duty of the Vice Director? Article 5 of the ARRL governing documents specifies that the Vice Director has the power of "succession" (to become Director) in the event the Director becomes unable to serve. Otherwise, the Vice Director assists the Director (of the President) as requested and agreed.

QST Cover Plaque winner from Ohio

Great Lakes Division amateur Jim Weit, KI8BV of Sandusky, OH has been named winner of the Cover Plaque Award for September QST. His winning

article was titled "An All Band HF Dipole Antenna."

Sincere congratulations to Jim for his fine article and the award. QST Cover Plaque Awards consist of a plaque of the front plate of the issue in which the winning article appeared. Winners are determined by vote of the membership.

Red Cross is demanding Intellectual Property agreements

Red Cross appears to be expanding its legal agreement demands. This time, a few chapters in Ohio are demanding radio amateur volunteers to sign away their rights to intellectual property developed while a Red Cross volunteer. The local chapters say this is another requirement of American Red Cross at the national level.



Signing away ones intellectual rights — rights to inventions or written "product" any of us develop — is a potentially serious action. Many of us sign intellectual property agreements with employers. They pay us and deserve to receive the rewards of inventions we develop at work and in some instances when we are not at work. But signing away our ownership rights for innovations we develop just because we operate a radio to help our community in an emergency? This seems to be going just a bit overboard.

If you are asked to sign an intellectual rights agreement, I encourage you to evaluate the agreement thoroughly before you sign it. Having it reviewed by an attorney either on your personal behalf or the behalf of your ARES unit or club would be a good idea. Depending on the wording of the agreement the agreement just might require you to surrender the rights to a "better mousetrap" over to Red Cross if you happen to develop one.

ARRL does not recommend you refuse to sign an intellectual property agreement with the RC. What we suggest is that you review carefully a request by anyone to sign your rights over to them. Personally, I would graciously decline to sign any of my rights away if doing this is not in my families' or my own best interest.

A brief poll regarding Red Cross

The Background:

It has been about a year since the American Red Cross allowed the Memorandum of Understanding (MOU) between ARRL and itself to expire without making any effort to renew it. Soon after the Red Cross allowed the MOU to expire, RC began to require its volunteers to sign an agreement to allow it to perform full background checks on them. As the background check is described on Mybackground-check.com, it would include manner of living, credit and criminal checks.

Investigators could visit your employer, co-workers, friends and neighbors to ask probing questions about you if you agree to the manner of living check. Authorizing a credit check give full right to digging out any information concerning your financial history.

Puzzling to me is that RC insists background checking be done by a private corporation rather than by a law enforcement agency that has limitations placed on it by law. RC initially stated it would have only criminal background checks done; however, they still demanded volunteers sign an agreement that authorized them to do all forms of background checking.

Today's Situation:

The situation has changed relatively little in the past year. Even though American RC stated it would

remove demands that ham volunteers automatically agree to credit and manner of living checks, legal review of the modified agreement fails to show a meaningful difference from the initial demand. After months of attempting to work with RC, we still seem to be essentially where we started.

Just one thing has changed. ARRL, through our EmComm officer, and RC are engaged in preliminary discussions toward developing a new Statement of Understanding (SOU) between the two organizations. Traditionally, these statements obligate ARRL and ARES to be available to support Red Cross. Any benefit to Amateur Radio would be derived from supporting Red Cross.

The Question:

At its July meeting, the ARRL Board of Directors expressed its firm position that we will not agree to a new Statement of Understanding before RC actually removes its demands for credit checking and manner of living checking from background checking agreements. Soon after the Board took this position, President Joel Harrison, W5ZN gave a similar assurance to all ARRL members in an item that was posted on the ARRL web site.

I want to learn what you think about this issue.

What do you believe the Board should do regarding a new SOU between ARRL and RC? Should the Board hold to its initial position and not approve a new SOU — not sign a mutual agreement of cooperation with RC — until RC has dropped demands for credit and manner of living background? Or, should we sign a new SOU regardless even if the RC still demands that hams agree to having credit and manner of living checking done? Incidentally, there is no question of the legitimacy of RC requiring criminal background checks. We'd prefer these by done through police agencies rather than private industry, though.

How to Participate in the Poll:

To participate in the poll, go to the Great Lakes Division web site at <http://greatlakes.arrl.org>. Click on Surveys/Feedback and answer the question posted there. If you would like to add comments to your answer, go to the Feedback area and type in your thoughts.

The poll will be open for 10 days after this issue of Weaver's Words is distributed. Please let me know your opinion.

GLD member in October QST

Tom Shaver, KC8NJK was pictured receiving the Lansing, MI, Hometown Hero Award on behalf of the Ingham (MI) County ARPSC. Tom is ECC of Ingham County, MI. The award was given in appreciation of ARPSC's work following a series of tornadoes and torrential rains in the area.

This weekend is JOTA

This weekend is JOTA -- Jamboree on the Air -- for Scouts. This year, JOTA celebrates its 51st anniversary. The on-air jamboree follows a 48 hour schedule beginning 0000 local time on Saturday, October 18, continuing through 2400 local time on Sunday, October 19. Nearly 500,000 Scouts worldwide are expected to operate on SSB, CW and digital — particularly, PSK-31 — this year.

Full information on JOTA 2008 can be found at <http://www.arrl.org/news/stories/2008/10/13/10385/?nc=1>.

Pennsylvania is 29th state to pass antenna support bill

On Wednesday, October 8, Pennsylvania Gover-

nor Edward G. Rendell (D) signed into law a bill that guarantees radio amateurs the right to erect antenna support structures. Ohio members are requested to be ready to support Ohio House Bill No.563 which will place FCC Rule PRB-1 into Ohio law. This bill will require all government agencies in the state to allow amateurs to erect antenna support structure regardless of any current local, township or county ordinances.

What is an antenna support structure? If you haven't guessed, this is a "tower" however, do not call them towers to non-hams. Non-amateurs automatically think of cell towers when someone refers to a tower.

Ohio hams, please contact Ohio SM Joe Phillips, K8QOE (k8qoe@arrl.org) to learn how you can support passage of Ohio HB 563. Working together, the job can be done. The law is non-partisan, costs nothing and merely puts into Ohio statutes the FCC rule that is already accepted as Ohio. The difference is that by putting PRB-1 into actual print in Ohio law, its existence cannot be "accidentally" overlooked by local officials who prefer to ignore it, now



Humanitarian Award nominations invited

Nominations are open for the 2008 ARRL International Humanitarian Award. The award is conferred upon an amateur or amateurs who demonstrate devotion to human welfare, peace and international understanding through Amateur Radio. The League established the annual prize to recognize Amateur Radio operators who have used ham radio to provide extraordinary service to others in times of crisis or disaster. The award is described in greater detail at

<http://www.arrl.org/FandES/field/awards/humanitarian.html>.

First call for SW Ohio Digital Symposium

This is the first call for the 23rd Annual Southwest Ohio Digital & Technical Symposium. The symposium will again be held in Thesken Hall of the Miami University Middletown Campus, Middletown, OH. The date is January 10, 2009.

Papers to be presented at the symposium are solicited. Topics are wide ranging, from “how-to” articles concerning digital modes, to construction projects for transceivers. A sampling of what was presented last year is on the web at <http://www.swohdigi.org>. Please send your ideas and suggestions to K4ZLE, k4zle@embarqmail.com

The SW Ohio Digital & Technical Symposium is the 2nd longest running amateur radio technical symposium in the United States. The event is free, except for a nominal cost for an optional catered lunch.

Online Call Sign history database

The U.S. Amateur Radio Call Sign History Restoration Project is the product of Michael Carroll, N4MC of Woodbridge, Virginia. His Operation CQ is to encourage development of a true database of the history of Amateur Radio call signs. Michael requests your help in this project.

Operation CQ is all about assembling information so that any one of us could go to it, search on a legitimate call sign and find who held it when. Now that FCC is re-issuing call signs after previous holders of them have given them up, wouldn't it be interesting to do this? Who was the first person to hold WA8COA or K8PGL or whatever, during what years and with what license classes? Ideally, wouldn't it be nice to find out who used license 2HT way back when?

For Michael's database to be able to do this, a lot of additional information — history — needs to be entered into his database. This is where you come in. Go to the www.vanityhq.com web site to enter your call sign history. In addition to entering information for call signs and their holders, one can look up call sign history that has already been provided. If you have information on friends or relatives who are SKs, you can enter this as well.

Check with Michael at n4mc@arrl.net if you have any questions or comments for him.

Tentative Schedule:

15 Oct: Delaware ARA Meeting, Delaware, OH - Jim

17 Oct: Mason ARC, Mason, OH - Jim

19 Oct: Preble ARA, present Certificate of Affiliation, Eaton, OH - SM Phillips, Jim

28 Oct: Quarterly GLD Teleconference

2 Nov: Grant Hamfest, Georgetown, OH - Jim

21 Nov: (Noon) Deadline for return of ballots; ballots counted

22 Nov: (By end of day) Candidates notified of election results

22 Nov: Administration & Finance Committee, Newington, CT - Jim

2009

1 Jan: (Noon) New terms of Director and Vice Director begin

10 Jan: SW Ohio Digital & Technical Symposium, Miamisburg, OH - Jim

73,

Jim

QSL Card of the Month

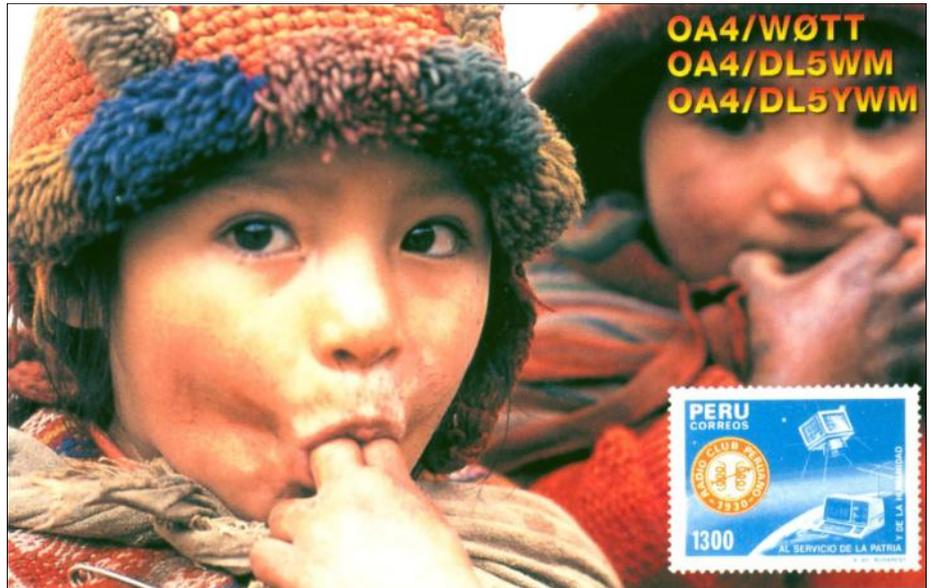
Submitted by:

Mark Volstad, AI4BJ

Comments:

No particular story behind this card — I just love the photograph!

If you have a special QSL card you would like to share, submit it to the Feedline editor, along with any comments you would like included.



"Last Analog Cycle", cont'd from cover

So will Cycle 24 be the last cycle for analog radio technology? Given the rate of change we've witnessed over the course of Cycle 23, I'm betting that analog radio will be largely found on the same shelf where the 6L6 and modulation transformer now reside. To be sure, there will always be a home for analog technology in amateur radio, but it will no longer be the subject of cutting-edge product reviews and late-night post-meeting discussions before contest season.

With the certain knowledge of the coming changes, it is at our own peril we ignore them. It's time to start paying attention to those tutorial articles, demonstrations, and new product reviews. Radio-the-technology won't displace the enjoyment we receive from radio-the-art. As Cycle 24

emerges, opening bands long closed, we'll find new call signs on the air from unexpected places. Just as surely, we'll also find and enjoy new technology creeping onto our operating desks, replacing equipment long used, bit by bit.

73, Ward N0AX

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