
SIGNALS

Rockwell
Collins Amateur Radio Club

Monthly Newsletter of the

Volume 29 Issue 11

Web Site <http://www.w5rok.us>

August 2008

RCARC
Membership Meeting

Thursday 28 August 2008
1700 Social 1730 Meeting
Rockwell Collins Building 462
Dallas Conference Room

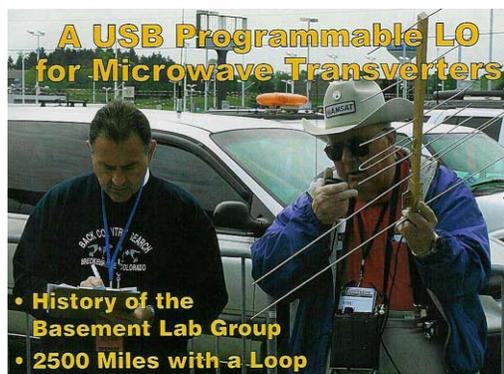
Subject: AMSAT OSCAR Phases III and IV
by Keith Pugh, W5IU, AMSAT Area Coordinator

- Set-up and tear-down of the electronics needed for the meeting is becoming increasingly problematic. E.g., For the July meeting we did not have electricity when we arrived.
- The cafeteria seating often needs to be completely rearranged based on what is planned for the area the next day such as the *Bring Your Child To Work Reception* last month.
- The room comes complete with audio conferencing and video projection systems permanently installed.
- The seating has already been optimized for good hearing and viewing, and is much more comfortable than cafeteria seating.

In addition, there are usually adequate table areas to set-up our coffee pots and refreshments, we can display 50/50 drawing prizes, exhibit t-shirts, etc. Finally, the room is simply much more business-like and provides a good learning environment.

Local Club News

Meeting Notice All club members are strongly encouraged to attend this months meeting! The radio club is pleased to announce that Keith Pugh, W5IU, an AMSAT Area Coordinator, will present, in person, the details of current and upcoming missions including semi-geostationary and geostationary birds at this



- History of the Basement Lab Group
- 2500 Miles with a Loop

month's program. AMSAT (officially The Radio Amateur Satellite Corporation) was first formed in the District of Columbia in 1969. Its goal was to foster Amateur Radio's participation in space

research and communication, and for over 39 years AMSAT groups have played a key role in significantly advancing the state of the art in space science, space education, and space technology. *Keith is on the cover of the soon to be released CQ VHF Summer Edition.* Try to arrive at 1700 for the social time. There will be coffee and snacks. The main meeting will start at 1730.

Meeting Place Change After considerable deliberation it has been decided to try a new location for our regular monthly radio club meetings. **Accordingly we have booked the Dallas Conference Room for every 4th Thursday from 4 - 8 PM.** Here is our rationale for doing this:

Club Meeting Talk-In Each month, on the night of the membership meeting we have a Talk-In on the club repeater. The Talk-In is from 1700 to 1730 hours, prior to the meeting.

Final Report: Rockwell Collins Amateur Radio Special Event (SE) - 50th Anniversary of the Collins S-Line - 12 July - 20 July 2008

We joined 5 other Collins Amateur Radio stations by participating in a 9 day long special event. The bottom line - 882 Contacts :-)

We had 16 primary operators consisting of employees and retirees. KD5EVW, K1GD, AE5IH, K5JHR, K5MWC, AC5NF, K3NT, K8OCL, KE5SAR, KE5SAS, KE5SZJ, WA0TGH, K5TIP, KE5VEO, K5XRF, WA8ZBT. Note: Two of these operators were recently licensed as part of the classes lead by K8OCL

The six stations that were involved were - Cedar Rapids IA N0CXX, W0CXX, Tustin CA N6CXX, Melbourne FL W4CRC, Toulouse Fr F6KNZ, and our own W5ROK

The coveted reward is that in addition to really fine QSL cards, amateurs that worked 4 or more Collins Stations are eligible for a Special Certificate by mailing their Collins QSLs to: W0CXX, Collins Amateur Radio Club, 400 Collins Rd. NE, Cedar Rapids IA 52498. The QSLs will be returned with the certificate.

This report wouldn't be complete without saying thank you to the operators and of course, we could have used many more. The ones that participated had an enjoyable time. It's nice to be on the high side of a pileup! *(Continued on page 4)*

RCARC OFFICERS

| | | | |
|--|-------------------------|--|--------------------------|
| PRESIDENT Bob Kirby 319.360.0500 k3nt@arrl.net | K3NT | VICE-PRESIDENT Dennis Cobb 972.705.1464 ddcobb@rockwellcollins.com | WA8ZBT |
| SECRETARY Jim Gaston 972.705.3369 jrgaston@rockwellcollins.com | KD5GYD | TREASURER Jim Skinner 214.535.5264 wb0uni@arrl.net | WB0UNI |
| ACTIVITIES CHAIRMAN John Champa 972.705.1531 k8ocl@arrl.net | K8OCL 460-100 | WEBSITE MANAGER Wayne Hughes 972.705.1406 wa0tgh@arrl.net | WA0TGH 461-258 |
| STATION TRUSTEE Steve Phillips 972.517.3332 k6jt@arrl.net | K6JT | NEWSLETTER EDITOR Jim Skinner 214.535.5264 wb0uni@arrl.net | WB0UNI |
| CLUB STATION 972.705.1349 | | W5ROK 461-290 | |

VE SESSIONS

Dallas tests are held 4th Sat of each month at 10:00. 13350 Floyd Rd. (Old Credit Union) Contact Bob West, WA8YCD (972) 917-6362

Irving tests are held 3rd Sat. of each month at 09:00. 5th and Main St. Contact Bill Revis, KF5BL 252-8015

McKinney VE test sessions are held at the Heard Museum the first Sunday of the month. The address is 1 Nature Place, McKinney TX. The time of the testing is 14:30, ending no later than 16:45. **Note: no tests given on holiday weekends.**

Garland testing is held on the fourth Thursday of each month, excluding November, and begins at 1930 sharp. Location is Freeman Heights Baptist Church, 1120 N Garland Ave, Garland (between W Walnut and Buckingham Rd). Enter via the north driveway. A HUGE parking lot is located behind the church. Both the parking lot and the Fellowship Hall are located on the east side of the church building, with big signs by the entrance door. Contact Bill Reynolds, K8DNE, 972-475-3854.

Plano testing is on the third Saturday of each month, 1300 hrs at Williams High School, 1717 17th St. East Plano. Check Repeater 147.180+ for announcements.

Greenville testing is on the Saturday after 3rd Thursday, 1000 hrs at site TBA, contact N5KA, 903.364.5306. Sponsor is Sabine Valley ARA. Repeater 146.780(-) with 118.8 tone.

SIGNALS is the monthly newsletter of the Rockwell Collins Amateur Radio Club, published by and for its members. The entire contents of this newsletter are copyright © 2008 by the Rockwell Collins Amateur Radio Club. Permission is hereby granted to any not for profit Amateur Radio Publication to reprint any portion of this newsletter provided both the author and Rockwell Collins Amateur Radio Club are credited.

President's Message

The RCARC July presentation on [Bullet-Proof Lightning Protection](#) was well attended both on-site and via teleconference. Ron Block, NR2B, President of WR Block & Associates, a lightning protection consulting firm with worldwide recognition, and the brother of the owner of the PolyPhaser Corporation addressed our club. If you were not able to attend, you will find the presentations in the 'members only' presentation's section of our website: <http://w5rok.us/>. In last months Collins Special Event - 50th Anniversary of the Collins S-line, W5ROK provided over 800 contacts. Thanks to all those who made this operation a success. Help is still needed to fill out QSL cards from this event. Our next big operating event Special Event - 75th Anniversary of Collins Radio will take place September 19th through September 26th. Operators and helpers are needed. Please contact Wayne Hughes, WA0TGH, wa0tgh@arrl.net to sign up for this Collins 75th special event.

Thanks to our club librarian, member Stephanie Keese, AC5NF, the books, magazines, and CD's have been rearranged in the Radio room. Stephanie also took inventory and is keeping a list of what we have in the radio room currently. Additionally, she also created a sheet that people will need to make a note on when they're borrowing a book and returning it. Stephanie requests that if you know of anyone who's currently borrowing a book, magazine, or a CD, please ask them to write it on the sheet or to contact her so she can make a note of it. Great Job. Thanks Stephanie.

Have you considered submitting your name in for RCARC FY09 elections? Annual elections will take place at the September meeting.

Thanks to member Robert Diepenbrock, KC4UAI, who answered our request for suggestions of FY09 W5ROK projects and equipment. It is not too late to add your's to the list. Suggestions should benefit the maximum of club members and include items costs and estimated manpower hours to build or install.

Congratulations to member Sidney Ross Terry, K5SRT, (xKE5SZJ) on his new vanity call. If you are considering a vanity call, Ross can share a few 'lessons learned' to help you with the process.

A lot of logistics work needs to go on before we start a monthly meeting. Setting up the cafeteria, arranging for and testing the projector, conference phone and computer, setting up the refreshments, and working around the other groups, continued to be a challenge. Our activities chairman, John Champa, K8OCL, saw a way to make things better. John has arranged for us to use the Dallas conference room on the second floor in building 462 not far from the present location. This room comes complete with audio conferencing and video projection systems permanently installed. The seating has already been optimized for good hearing and viewing, and is much more comfortable than cafeteria seating. In addition, there are adequate table areas for Jim Skinner, WB0UNI, (and helpers?) to set-up our coffee pots and refreshments, we can display 50/50 drawing prizes, exhibit t-shirts, etc. Further, the room is simply much more business-like and a good learning environment.

It works well when a member sees a way to make things better for our club and takes action to make it happen. This also shows that RCARC is involved in our Rockwell Collins LEAN initiatives. Great Job. Thanks John.

July RCARC Activities:

- New Member – Kerac Moore, AE5IH,
- Collins 50th S-Line Special Event John Champa, K8OCL; Robert Diepenbrock, KC4UAI, Dwight Ramsey, KE5SAS; Ross Terry, K5SRT; Wayne Hughes, WA0TGH; Kenneth Keese, KD5EVW; Jim Pellegrino, KE5SAR; Dennis Cobb, WA8ZBT; Jon Jacobson, K5XRF; Bob Ashby, K5JHR; Gene Duprey, K1GD; Kerac Moore, AE5IH; Bill Swan, K5MWC; - John McFadden, K5TIP; Stephanie Keese AC5NF; Justin Roberts KE5VEO; Bob Kirby - K3NT
- Recording and editing the RCARC July presentation in MP3 format – Ken Piletic, W9ZMR
- W5ROK Telecommunications/LAN/WLAN/HSMM – Ross Terry K5SRT, KE5SZJ; Robert Diepenbrock, KC4UAI; John Champa, K8OCL, Bob Kirby, K3NT
- Meeting Refreshments Setup Volunteer – Jim Skinner, WB0UNI (more helpers please)
- Submitted Newsletters Article- Jim Skinner, WB0UNI; Wayne Hughes, WA0TGH; Dennis Cobb, WA8ZBT
- ARRL August UHF Contest - Dennis Cobb, WA8ZBT
- RCARC Marketing – Joe Wolf, N5UIC; Mike Hollingsworth, W5QH
- New Member Station Tour - Dennis Cobb, WA8ZBT; Bob Kirby, K3NT
- RCARC Spare Rotor Repair – Robert Diepenbrock, KC4UAI
- RCARC Digital project - Robert Diepenbrock, KC4UAI; John Champa, K8OCL, Bob Kirby, K3NT
- Yet Another Great SIGNALS Newsletter – Jim Skinner, WB0UNI
- Treasurers Report – Jim Skinner, WB0UNI
- Club Librarian - Stephanie Keese, AC5NF, with John, K8OCL assisting
- Website Updates - Wayne Hughes, WA0TGH
- July Program - John Champa, K8OCL; Ron Block, NR2B
- RCARC Membership Applications & Database - Joe Wolf, N5UIC
- Secretary Report – Jim Gaston, KD5GYD
- Station Trustee – Steve Phillips, K6JT
- Member Profile Responder – No response this month
- CRARC (W0CXX) - Collector Edition QSL cards for our Collins 50th Special events operation

August Meeting: August 28, 2008, AMSAT OSCAR Phases III and IV Presentation, Keith Pugh, W5IUAI. Rockwell Collins employees and guests are cordially invited to attend. RCARC membership is not required for this presentation and there is no admission fee. Per Rockwell Collins security policy, an active company employee or contractor must escort all guests.

Please note that our **meeting location has changed to the Dallas conference room**. This room is located on the second floor of building 462. Go past the cafeteria entrance and look for a door on your right with steps upstairs. We will start gathering at 5PM. Mr. Champa advised there will be some snacks. Jim Skinner will again be making his world famous coffee. Additional potluck refreshments are encouraged and welcomed. Please plan to arrive early to meet and greet RCARC members and guests. Our business meeting will start promptly at 5:30 PM with the USA pledge of allegiance. We will fire up the Tele-conference line around 5:15 PM for our remote members. Don't forget the 50-50 raffle. Tickets are \$2 each, 3 for \$5 and 7 for \$10. The proceeds are used to help support club activities such as refreshments at

our meetings. Last month, some additional small-donated prizes were again added thanks to John, K8OCL and Ron Block, NR2B. Thanks to both!

Hope to see or hear you at the meeting,

Best Regards (73),

Bob Kirby, K3NT

K3nt@arrl.net

<http://w5rok.us>

Secretary's Report

Bob Kirby, K3NT, opened the meeting at 1740 (July 24th 2008), in the RCI Cafeteria. Present at the meeting were:

| | | | |
|------------------|--------|-----------------|--------|
| Bob Ashby | K5JHR | Ron Block (Tel) | NR2B |
| John Champa | K8OCL | Dennis Cobb | WA8ZBT |
| Bob Coulbourne | W4FTD | Gene Dempster | K5HOW |
| Gene Duprey Jr | K1GD | James Gaston | KD5GYD |
| Wayne Hughes | WA0TGH | Bob Irish | K5ZOL |
| Bob Kirby | K3NT | John McFadden | K5TIP |
| James Pellegrino | KE5SAR | Steve Phillips | K6JT |
| Mike Schmit | WA9WCC | James Skinner | WB0UNI |
| James Sturges | KC5QGK | | |

The following business was conducted:

1. Officer Reports**a. President's Report:**

- A special thank you to Bob Ashby, K5JHR, for getting the S-Line running so well for the 50th anniversary events. The S-Line received a lot of use and worked extremely well during the event. This was in large part due to Bob's efforts in repairing and testing the S-Line.
- Club Elections are coming up in September. The club needs a volunteer to Chair the Nomination Committee. Bill Fell, KK5PB, normally heads the officer nomination committee but he will not be able to do it this year to due previous commitments. Anyone interested in heading up this effort should contact one of the clubs officers.

b. *Vice-President's Report:* there was no Vice-President's report.

c. *Secretary's Report:* Last month report is still needed.

d. *Treasurers Report:* Jim Skinner, WB0UNI, summarized the treasurer's report.

e. *Station Trustee's Report:* There was no Station Trustee's report.

f. *Activities Chairman Report:* John Champa, K8OCL, briefly reviewed some of the possible program topics for upcoming meetings: AMSTAT, ALE (automatic link establishment), SDR (software defined radio), and a discussion with a retired Collins executive to review the history of Collins Radio.

2. Old Business

- a. *Collins Radio Anniversaries:* Wayne Hughes, WA0TGH, reported that during the S-Line's 50th anniversary events W5ROK operated with 16 operators and made 882 contacts. Most of the activity was on the 20 meter band but there were a significant number of contacts on other bands. The club has received a great deal of mail / email expressing excitement over their contacts with W5ROK. Germany and Hawaii were the greatest DX contacts.

3. New Business

- a. *50 / 50 Drawing:* The 50/50 drawing raised \$22 for the club. This goes to support refreshments at the meetings

and other club activities. The winners were:
Wayne Hughes, WA0TGH \$22
John McFadden, K5TIP, *ARRL's VHF Digital Handbook*
Bob Ashby, K5JHR, and Robert Kirby, K3NT, a copy of
Lightning Protection and Grounding Solutions for Communication Sites

John Champa, K8OCL, introduced the evenings program "Bullet-Proof Lightning Protection" presented by Ron Block, NR2B. Ron's presentation provided an overview of how the physical dimensions and orientations of antenna towers and shack layouts impact the threat levels experienced during a direct lightning strike. Ron introduced a Lightning Event Simulator program that uses these physical parameters to predict the threat levels. Grounding and various other protection mechanisms needed to protect operators and equipment were discussed. The entire presentation can be found on the W5ROK website in the member's only section. Ron's Lightning Event Simulator software can be purchased for about \$25 by calling 800-421-7170.

Activities Corner *By John Champa, K8OCL, RCARC Activities Chairman*

SATCOM Via Amateur Radio Dallas Conference Room, Thursday, 28 August

The Radio Amateur Satellite Corporation (as AMSAT is officially known) was first formed in the District of Columbia in 1969 as an educational organization. Its goal was to foster Amateur Radio's participation in space research and communication. AMSAT was founded to continue the efforts, begun in 1961, by Project OSCAR, a west coast USA-based group that built and launched the very first Amateur Radio satellite, OSCAR, on December 12, 1961, barely four years after the launch of Russia's first Sputnik.

Today, the "home-brew" flavor of these early Amateur Radio satellites lives on, as most of the hardware and software now flying on even the most advanced AMSAT satellites is still largely the product of volunteer effort and donated resources. Though we are fond of traditions our designs and technology continue to push the outside of the envelope.

For over 39 years AMSAT groups in North America and elsewhere have played a key role in significantly advancing the state of the art in space science, space education, and space technology. Undoubtedly, the work now being done by AMSAT volunteers throughout the world will continue to have far-reaching, positive effects on the very future of both Amateur Radio, as well as other governmental, scientific and commercial activities in the final frontier. Rarely have a group of "amateur" volunteers managed to do so much...for so many...with so little.

Rockwell Collins and its radio club are pleased to announce that Keith Pugh, W5IU, an AMSAT Area Coordinator, will present the details of current and upcoming missions including semi-geostationary and geostationary birds.

WHEN: Thursday, August 28, 2008 starting at 5:00 PM (social), 5:30 PM (administration) and 6:00 PM (SATCOM presentation).

WHERE: Dallas Conference Room, 2nd Floor, Building 462. All employees are invited to attend. Membership in the radio club is not required. There is no charge for admission and free refreshments will be provided throughout the meeting.

Vy 73, John K8OCL

ARRL Membership Benefits There are "fringe" benefits for RCARC when our members join or renew through the following process.

Renewing By Check—After filling out the form, return it to RCARC with your check. Note the definition of New or Renewing Member at the top of the form. If you have previously been a member of ARRL but have let that membership lapse for 2 or more years then you are considered a new member and the club would get a \$15 commission. If you are renewing a current membership or one lapsed for less than 2 years, you are considered a renewing membership and would get a \$2 commission. Do not deduct the \$15 or \$2 commission—make the check out to RCARC for the full renewal amount.

Renewing By Credit Card—If you wish to CHARGE the renewal to a credit card note the special instructions (Box on right side of form) which indicate that you would then pay the \$15 or \$2 directly to RCARC. Your credit card would be charged for the full amount minus the appropriate commission. In this instance the check should be made out to the RCARC for the appropriate commission amount.

In both cases, return the application to RCARC regardless of payment method in order for RCARC to get credit. **The application is now available on the RCARC website!** Mail to the following address:

RC Amateur Radio Club
Attn: Treasurer
MS 461-290
PO Box 833807
Richardson TX 75083-3807

Final Report: Rockwell Collins Amateur Radio Special Event (SE) *(Cont from page 1)* It isn't over: If you missed your opportunity to participate in the SE, it's not too late. There are plenty of QSL cards to be filled out and returned. If that doesn't do it for you, there is another SE for the 75th Anniversary of the incorporation of Collins Radio from 20 September through 2359z 26 September 2008 (see <http://w5rok.us> for details). We're going to do it again!!

Welcome New Members The following Amateurs have recently joined RCARC:

Kerac A. Moore AE5IH

ARRL August UHF Contest Results W5ROK operated in the UHF August Contest on 3 August 2008 for one hour. The station operated low power, single operator. We had 6 contacts on 432 MHz and 4 contacts on 1.2 GHz including one in East Texas in EM31. The total claimed score was 144. The details are below. Thanks Dennis, WA8ZBT.

| Freq/Mode | UTC | Grid | Call Sign | Grid |
|------------|------|------|-----------|------|
| 432 MHz PH | 0339 | EM12 | WB5ZDP | EM13 |
| 1.2 GHz | 0341 | EM12 | WB5ZDP | EM13 |
| 432 MHz PH | 0344 | EM12 | WA5LFD | EM12 |
| 432 MHz PH | 0357 | EM12 | KA5BOU | EM13 |
| 1.2 GHz | 0358 | EM12 | KA5BOU | EM13 |
| 432 MHz PH | 0402 | EM12 | K5QE | EM31 |
| 432 MHz PH | 0403 | EM12 | K5HTE | EM12 |
| 1.2 GHz | 0410 | EM12 | K5QE | EM31 |
| 432 MHz PH | 0417 | EM12 | AA5TB | EM12 |
| 1.2 GHz | 0428 | EM12 | K5HTE | EM12 |

Upcoming Events and Public Service Opportunities

13-15 September 2008: ARRL September VHF QSO Party The object of this event is to work as many amateur stations in as many different 2 degrees X 1 degree grid squares as possible using authorized frequencies above 50 MHz. Foreign stations work W/VE amateurs only. **Date and Contest Period:** The second full weekend of September. Begins **1800 UTC Saturday and ends 0300 UTC Monday (September 13 - 15, 2008)**. Both Single and Multi operator stations may operate the entire 24-hour period. More info at <http://www.arrl.org/contests/rules/2008/sepvhf.html>

20-21 September 2008: ARRL 10 GHz and Up Contest. The object of this event is for North American amateurs to work as many amateur stations in as many different locations as possible in North America on bands from 10-GHz through Light. **Date and Contest Period:** Third full weekend of September. The dates are **September 20-21, 2008**. Operations may take place for 24 hours total on each contest weekend. Each weekend begins at 6:00 AM local Saturday through 12:00 midnight local Sunday. Listening times counts as operating time. Times off must be clearly indicated in the log. More info at <http://www.arrl.org/contests/rules/2008/10-GHz.html>

20-21 September 2008: ARRL International EME Competition. The object of this event is two-way communications via the earth-moon-earth path on any authorized amateur frequency 2304 MHz and Up. **Date and Contest Period:** Full weekend 48-hour period **September 20-21 (0000 UTC on Saturday through 2359 UTC Sunday)**. More info at <http://www.arrl.org/contests/calendar.html>

Hedy Lamarr and Frequency Hopping Hedy Lamarr was born in Vienna in 1914 as Hedwig Eva Maria Kiesler. She went to Max Reinhardt's famous acting school in Berlin during her late teens, and in 1933 she showed the world her acting skills and most of herself in the film *Extase (Ecstasy)*, which quickly became notorious for its extensive nude scenes. The movie played in America after severe cutting, and in 1937 its leading lady went to Hollywood. Louis B. Mayer, of MGM, hired her and gave her the name Lamarr. Some people thought Hedy to be the most beautiful woman in Hollywood, but as an actress she was overshadowed by heroines like Ingrid Bergman and Katharine Hepburn. In 1966, she published her autobiography, *Ecstasy and Me*.

Hedy Lamarr married Fritz Mandl, the first of six husbands, in 1933. During their marriage, which broke up in 1937, Madame Mandl was an institution in Viennese society, entertaining—and dazzling—foreign leaders, including Hitler and Mussolini. Her husband specialized in shells and grenades, but from the mid-thirties on he also manufactured military aircraft. He was interested in control systems and conducted research in the field. His wife clearly learned things from him, because she and her co-inventor, George Antheil, later went on to invent the torpedo guidance system that was two decades before its time.

Hedy Lamarr's co-inventor, George Antheil, was born in Trenton, New Jersey, in 1900. His parents were from East Prussia. After studying music at what is now the Curtis Institute, in Philadelphia, he went to Europe to pursue a career as a concert pianist,

heading first to Berlin and then settling in Paris in 1923. He became one of the top avante-garde composers of the time, writing and playing machinelike, "mechanistic," rhythmically propulsive pieces with names like *Airplane Sonata*, *Sonata Sauvage*, *Jazz Sonata*, and *Death of Machines*. His *Ballet Mécanique* was scored for sixteen player pianos, xylophones and percussion and was first performed in Paris in June 1926, in a version that had only one player piano but also had electric bells, airplane propellers and a siren. It caused an uproar.

Antheil knew practically everybody in Paris's literary, artistic and musical circles, but in 1933 he returned permanently to the United States. He became a film composer in Hollywood and a writer for *Esquire* magazine, producing a syndicated advice-to-the-lovelorn column and articles about romance and endocrinology. He even published a book titled *Every Man His Own Detective: A Study of Glandular Endocrinology*. In 1939 he sent an article to *Esquire* about the future of Europe that proved impressively accurate: It predicted that the war would start with Germany invading Poland, that Germany would later attack Russia, and then the United States would be drawn into the conflict.

He met Hedy Lamarr in the summer of 1940, when they were neighbors in Hollywood and she approached him with a question about glands: She wanted to know how she could enlarge her breasts. In time the conversation came around to weapons, and Lamarr told Antheil that she was contemplating quitting MGM and moving to Washington, D.C., to offer her services to the newly established National Inventors Council.

They began talking about radio control for torpedoes. The idea itself was not new, but her concept of "**frequency hopping**" was. Lamarr brought up the idea of radio control. Antheil's contribution was to suggest the device by which synchronization could be achieved. He proposed that rapid changes in radio frequencies could be coordinated the way he had coordinated the sixteen synchronized player pianos in his *Ballet Mécanique*. The analogy was complete in his mind: By the time the two applied for a patent on a "Secret Communication System," on June 10, 1941, the invention used slotted paper rolls similar to player-piano rolls to synchronize the frequency changes in transmitter and receiver, and it even called for exactly eighty-eight frequencies, the number of keys on a piano.

Lamarr and Antheil worked on the idea for several months and then, in December 1940, sent a description of it to the National Inventors Council, which had been launched with much fanfare earlier in the year as a gatherer of novel ideas and inventions from the general public. Its chairman was Charles F. Kettering, the research director of General Motors. Over its lifetime, which lasted until 1974, the council collected more than 625,000 suggestions, few of which ever reached the patent stage. But according to Antheil, Kettering himself suggested that he and Lamarr develop their idea to the point of being patentable. With the help of an electrical engineering professor from the California Institute of Technology they ironed out its bugs, and the patent was granted on August 11, 1942. It specified that a high-altitude observation plane could steer the torpedo from above.

Putting the idea into practice was not so simple. Despite the enthusiasm that Antheil said Kettering expressed, others were skeptical. One examiner at the Inventors Council doubted the clockwork mechanism that moved the perforated tape could be accurate enough. Antheil lobbied for support for further research from among others, William C. Bullitt, Special Assistant to the Secretary of the Navy. He argued that the Germans were superior to the Americans in naval technology (*Continued on page 6*)

Rockwell Collins Amateur Radio Special Event

75th Anniversary of Collins Radio

What: The various facilities of Rockwell Collins' amateur radio clubs announce a special event: The 75th Anniversary of the incorporation of Collins Radio. The special event will take place in September 2008.

When: Commencing 0001z 20 September 2008 and running through 2359z 26 September 2008

Who: Look for the following stations on the bands:

W0CXX: Cedar Rapids, IA – South Campus, HQ Station

N0CXX: Cedar Rapids, IA – North Campus

W5ROK: Richardson, TX

W4CRC: Melbourne, FL

W6CXX: Tustin, CA

F6KNZ: Toulouse, France

Where: (+/- QRM)

CW (kHz): 3550, 7050, 10115, 14055, 18085, 21050, 24900, 28050

SSB (kHz): 3885, 7285, 14285, 18155, 21385, 24955, 28455

How: Operators will announce when they are QRV via Packet Cluster.

QSL: Via www.qrz.com for each different facility station. Please include a large #10 envelope SASE with enough postage or funds for first class return of QSL. No eQSL's

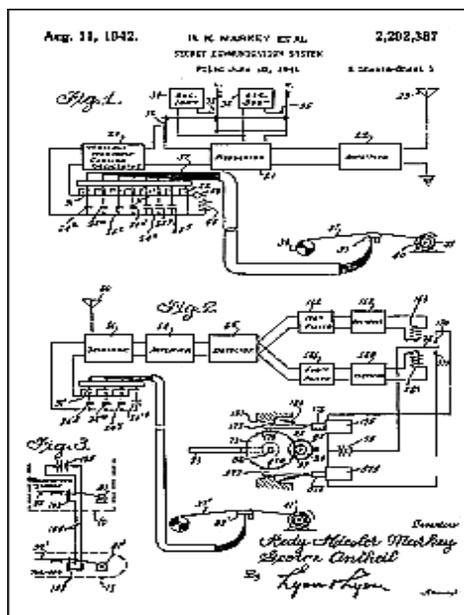
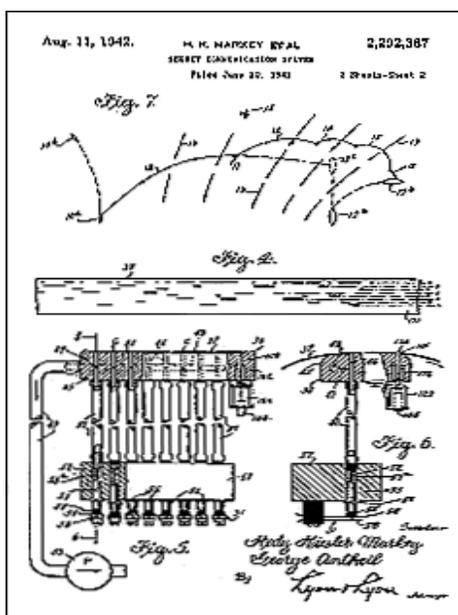
Special Certificate: Collect four (4) or more QSL's from 4 different facilities and mail them to: W0CXX. Collins Amateur Radio Club • 400 Collins Rd. NE • Cedar Rapids, IA • 52498

A special certificate and your QSL's will be returned to you.

Info: <http://w0cxx.us/> <http://w5rok.us/>

Questions? Contact: w0cxx@rockwellcollins.com

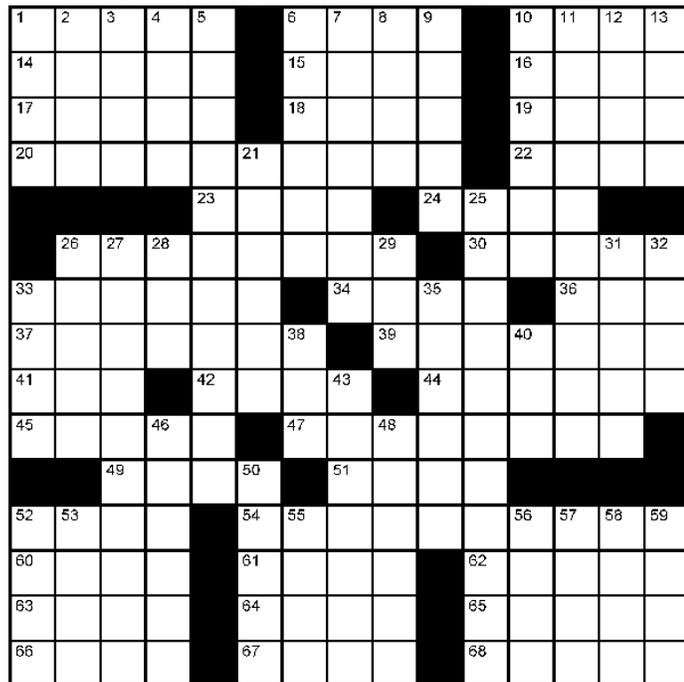
Hedy Lamarr and Frequency Hopping (Continued from page 5) and that something had to be done about it. He seemed driven in part by an urge to prove his patriotism after all his years in Europe. Hedy Lamarr meanwhile demonstrated her loyalty by raising seven million dollars in a single evening selling war bonds.



Despite Antheil's lobbying, the Navy turned its back on the invention, concluding that the mechanism would have been too bulky to fit into a torpedo. Antheil disagreed; he insisted that it could be made small enough to squeeze into a watch. And he thought he knew why the Navy was so negative: "In our patent Hedy and I attempted to better elucidate our mechanism by explaining that certain parts of it worked like the fundamental mechanism of a player piano. Here, undoubtedly, we made our mistake. The reverend and brass-headed gentlemen in Washington who examined our invention read no further than the words 'player piano. 'My god,' I can see them saying, 'we shall put a player piano in a torpedo.'" (Continued on page 7)

Two pages of drawings from Lamarr and Antheil's patent. Note the player-piano-like slotted paper on the second sheet. Markey is the name of Hedy Lamarr's second of six husbands.

The Amateur Radio Crossword Puzzler



Across

- 1. Swiped
- 6. GM OM
- 10. Tuvalu IOTA
- 14. KH6 IOTA
- 15. If's partner (to a programmer)
- 16. Get one's ducks in ____
- 17. ____nito
- 18. Stage part
- 19. Poor QTH, say
- 20. Foot covered?
- 22. Means justifiers
- 23. Amplifier knob
- 24. Softrocks, e.g.
- 26. Murphy, e.g.?
- 30. OA denizens, once
- 33. Mother ____
- 34. W4 Beach
- 36. Xmtr pwr plus all following dBs
- 37. 3B6 IOTA
- 39. 6Y IOTA
- 41. Where you might get a 5-down - or maybe five, 5-down's down
- 42. November honorees
- 44. Multiple Elvises?
- 45. F capital bisector
- 47. Carefully did 23-across, with the big knob probably.
- 49. CW
- 51. Hero
- 52. They're turned on by a positive base
- 54. Two cartons of ice cream?
- 60. Kind of IC

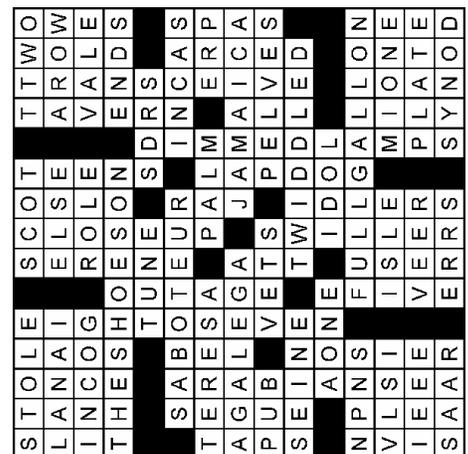
- 6. Pacific
- 7. Zoomed in
- 8. LA city
- 9. The 18 and 21 MHz bands?
- 10. See 41-across
- 11. What a K2 can do
- 12. Harry Chapin's callsign?
- 13. Is in the red
- 21. Power problem
- 25. Result of key down amplifier, possibly
- 26. Smooth transition
- 27. Borders both VU and A4
- 28. RTTY char
- 29. G rule in VU
- 31. (The amp.) made an untoward noise
- 32. Hot Springs and others
- 33. Manipulates a key
- 35. Small pet
- 38. Opposite of amp.
- 40. Worked ____ Continents
- 43. Drinker
- 46. More meddlesome
- 48. Types of gears
- 50. North Cook IOTA prefix
- 52. Cloud burner sig.
- 53. "Guilty," e.g.
- 55. ____-friendly
- 56. Easter flower
- 57. Possibly needed to purchase an IC-7800
- 58. Not taken in by
- 59. The last one for DXCC #1, say

- 61. Word often found in IOTA names
- 62. Possible Northern UK prefix
- 63. IRE descendent, in 1963
- 64. Zig or zag
- 65. Where the HV goes
- 66. Western DL river
- 67. Blunders
- 68. Church assembly

Down

- 1. Narrow opening
- 2. Trig function
- 3. How many times a grid can be grossly overdriven
- 4. XW land
- 5. Brewski, to a ham?

This month's Puzzler Solution



Hedy Lamarr and Frequency Hopping

(Continued from page 6) In other words, it was a culture clash: the thick-headed brass hats were incapable of considering the idea that musical technology could play any part in a complicated piece of weaponry. But Antheil's explanation is too simple; the invention had other problems. Describing them requires looking at other developments in torpedo control at the time, especially in Germany.

In the United States Hedy Lamarr and George Antheil, shunned by the Navy, no longer pursued their invention. But in 1957, the concept was taken up by engineers at the Sylvania Electronic Systems Division, in Buffalo, New York. Their arrangement, using, of course, electronics rather than piano rolls, ultimately became a basic tool for secure military communications. It was installed on ships sent to blockade Cuba in 1962, about three years after the Lamarr-Antheil patent had expired. Subsequent patents in frequency changing, which are generally unrelated to torpedo control, have referred to the Lamarr-Antheil patent as the basis of the field, and the concept lies behind the principal anti-jamming device used today, for example, in the U.S. government's MILSTAR defense communication satellite system.

American Heritage of Invention & Technology, Spring 1997, Volume 12/Number 4

Rockwell-Collins

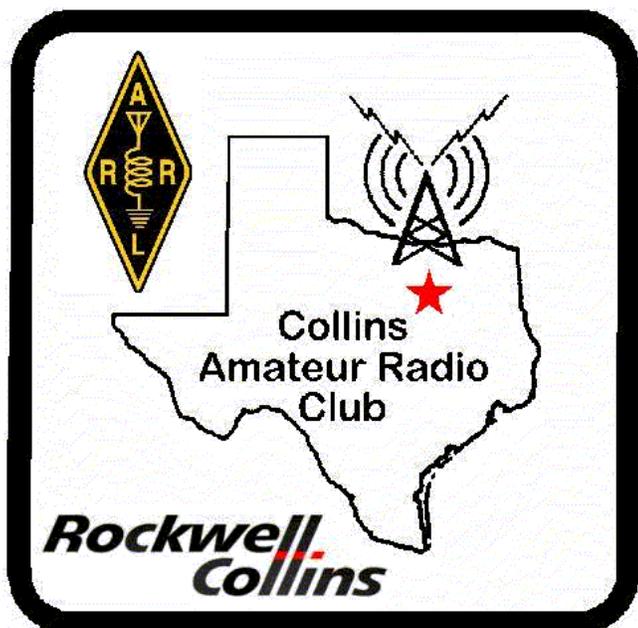
Amateur Radio Club

Mail Station 461-290

P.O. Box 833807

Richardson, TX 75083-3807

TO:



CLUB STATIONS

(972) 705-1349

W5ROK REPEATER

441.875 MHz +5 MHz Input

131.8 Hz PL - RX and TX

W5ROK-1 PACKET BBS ROK Node

145.01 MHz

MEETING

Thursday 28 August 2008

1700 Fellowship

1730 Meeting

Rockwell Collins Building 462

Dallas Conference Room

NEXT SIGNALS DEADLINE:

15 September 2008