THE PLATTSMOUTH AMATEUR RADIO CLUB
Communicator
October 2016

AT&T's New "AirGig" Not Your Father's BPL

(ARRL 09/21/2016) Recalling the earlier efforts of the FCC and telecommunications and utility interests to roll out "Broadband over Powerline" (BPL), the Amateur Radio community has been buzzing with questions about AT&T's just-announced "AirGig" BPL plan to make broadband available via apparently similar technology. ARRL's earlier anti-BPL campaign, and market forces, eventually led to the demise of the prior BPL initiative. ARRL Laboratory Manager Ed Hare, W1RFI, who spearheaded the earlier effort to quantify BPL's threat to Amateur Radio's HF spectrum and remains the resident expert on the subject, said this newest BPL incarnation should not pose an interference issue for radio amateurs.

"This technology uses millimeter-wave RF signals (30 GHz to 300 GHz) coupled onto the surface of power lines to transmit the signal along the line with relatively low losses," Hare explained. "After looking at this technology, it looks nothing like the type of HF and VHF BPL that caused us so many problems years ago. The sky is not falling."

Hare added that it is not likely that the AT&T technology will even use Amateur Radio bands, so there is little reason for concern even among those amateurs who use spectrum above 24 GHz.

According to AT&T's September 20 announcement, the company is "deep in the experimentation phase" of the developing technology, which it says would be "easier to deploy than fiber, can run over license-free spectrum, and can deliver ultra-fast wireless connectivity to any home or handheld wireless device." AT&T said its initial — and continuing — testing at AT&T outdoor facilities "has been positive," and initial field trials are set to begin in 2017.

Hare said the technique of putting RF signals onto the surface of conductors is not new. An article by Glenn Elmore, N6GN, and John Watrous, K6PZB, appeared in the May/June issue of QEX, describing the technique. In January 1953, the Proceedings of the IRE featured an article by C. E. Sharp and G. Goubau, "A UHF Surface-Wave Transmission Line," and the Radio Amateurs VHF Manual 11th edition introduced the technique to amateurs in 1968.

Hare said the League will keep an eye and ear out for interference problems, but he believes that the frequencies involved and the fact that these signals should not propagate far from the lines will pose little risk the Amateur Radio Service.

"So far, industry has not found a way to reliably put broadband signals on wires intended to carry power frequencies," he said. "The technical difficulties of trying to use wiring not designed to carry RF signals [and] connected to all sorts of noisy loads, other conductors and even splices that are major discontinuities at these frequencies will probably prove to be quite the technical challenge. ARRL is interested in seeing all technology succeed, but its vested interest is in the interference potential of new technologies. Fortunately, in this case, there is little likelihood of interference."

http://www.arrl.org/news/at-t-s-new-airgig-not-your-father-s-bpl

http://jwatrous.org/swtl.pdf

http://about.att.com/newsroom/att_to_test_delivering_multi_gigabit_wireless_internet_speeds_using_power_lines.html

Meeting Calendar

8am, September 24, 2016
8am, October 29, 2016
8am, November 26, 2016
at Mom's Café

2016 PAID MEMBERSHIP

AGØL .....Steve Loyd [E]
AIØN.....Chuck Engberg* [E]
K3CRF.....Dave Smith [E]
K5LBS .....Jerry Gault [E]
KBØFSI ..... Pat McCollum [T]
KBØOGO .....Roger Behrns* [E]
KBØSJB.....Tom Katalenich [G]
KCØHYD ..... John Titsworth [G]
KCØHYE.....Shirley Titsworth [T]
KDØNMD.....Dudley Allen [G]
KDØBXB.....Kim Allen [T]
KEØXQ.....Bill McCollum [E]
KGØKR .....Beth Engberg* [E]
KIØPY .....Kevin Faris [E]
N5SEZ..... Ray McNally[E]
WØDBW.....Derek Winterstien [G]
WØZY.....Dave McLaughlin[E]
WØZYD..... Debbie McLaughlin[G]

**Charter Members #New Ham*

Note: Thanks to all who have paid their dues and many who have given additional donations. All donations are greatly appreciated. Please let me know of any corrections.

Meetings are 8am the last Saturday of most months at Mom's Café in Plattsmouth.

Tuesday night get-togethers at Plattsmouth Burger King at 7 PM

PLATTSMOUTH AMATEUR RADIO CLUB

KBØSMX

P.A.R.C. Officers

President
KBØOGO.....Roger Behrns
rb55930@windstream.net

Vice President
KCØHYD .....John Titsworth

Secretary
N5SEZ.....Ray McNally

Treasurer
KIØPY ..... Kevin Faris

Newsletter Editor
KBØOGO.....Roger Behrns
rb55930@windstream.net
513 Vine St.
Louisville, NE 68037
(402) 234-6775

Repeaters:

443.45+ is located in downtown Omaha

443.225+ is located in Murray.
147.48 Simplex is also in Murray.

PLATTSMOUTH ARC MEMBERSHIP REGISTRATION FORM

Name		Call Sign	Class
Address	City	State	Zip
E-Mail		Phone #	
Spouse Name		Call Sign	Class

Membership Type ☐ Primary($15) ☐ Spouse ($5) ☐ Student ($5) ☐ New Ham	● Additional donations are gratefully accepted. ● New Hams are free during the year they receive their first license. ● Please give this form and dues to the club treasurer or any club officer.	Donation for: ☐ Repeater fund ☐ Insurance ☐ Other _____ ☐ General	Amount: ☐ I prefer my donation to be anonymous.
Any additional e-mail or cell phone #s?			

MINUTES of the MEETING

The August 27, 2016 meeting was called to order at 8:14 am at Mom's Café by President Roger Behrns.

Those in attendance were Roger (KB0OGO), Kevin (KI0PY), Derek (W0DBW), Steve (AG0L), Bill (KE0XQ), Dudley (KD0NMD), Ray (N5SEZ), Fred (KB0LF), Gary (KB0KYT), Keith(KA0IJY), Dave (W0ZY), and Deb (W0ZYD).

The Minutes of the July meeting were approved on a motion by Derek and second by Bill.

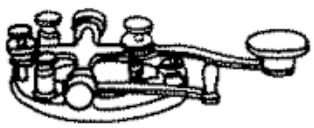
The treasurer reported $260 in the repeater fund and $702.85 in the general fund for an ending balance of $912.85. $50 was sent to the Village of Murray as a donation for the use of the park for Field Day. Steve moved to accept the treasurer's report and Fred Seconded. Passed.

Keith is loaning a repeater controller for the Murray site to replace the controller that has some programming "issues".

Fred reported on a book presentation that will be at the Omaha Public Library on the use of radio in WWII.

Dudley reported on planning for JOTA on October 14-16.

The meeting adjourned at 8:22 with a motion by Steve and second by Kevin.



A Record Breaker on 630 Meters!

(ARRL 09/16/2016) Although US radio amateurs do not yet have access to 630 meters, Canadian licensees do, and one of them was on the North American end of the first two-way contact between Canada and Australia. Steve McDonald, VE7SL, in British Columbia, Canada, and Roger Crofts, VK4YB, in Queensland, Australia, completed a contact between 1225 and 1319 UTC on September 15 using JT9 digital mode. The distance covered was on the order of 7000 miles.

"This morning a historic QSO for the Amateur Service was completed!" commented John Langridge, KB5NJD, who also holds an FCC Part 5 Experimental license WG2XIQ. "This is also the longest two-way QSO on 630 meters ever completed." The contact took place on 475.300 kHz.

McDonald said band conditions were just good enough to get the job done. "Well, it wasn't pretty as in 'pretty-quick,' but it's done," he told Langridge in recounting the contact. "Signals were way down compared to last week, but I was running barefoot only then. Today the full 5 W EIRP helped a lot." McDonald told ARRL the band "was not particularly good this far north and was much better just a few hundred miles to my south." He said the band had been improving each day over the past week, "little by little."

Crofts agreed that he and McDonald had a tough time of it. "It was a real struggle, but finally got there," he told Langridge in an e-mail. "I thought we were going to miss out because all the big signals had taken a dive. Obviously the path to VE7 was still hanging in there."

McDonald said his antenna is "basically about the size of a 160 meter inverted L, but over extremely poor ground," while Crofts, with what McDonald described as "a monster antenna" was doing the heavy lifting for the contact. McDonald was using a transverter that VK4YB had sent him for beta testing, driving an LF MOSFET amplifier converted for 630 meter use.

Meanwhile. Joe Lowe, NU6O, in California, reports that Crofts also heard his WI2XBQ Experimental Service beacon on September 14. "I was running 0.5 W ERP, 50 W TPO, into a 43 foot vertical in the backyard," he told ARRL. "Very low power and simple equipment are capable of DX on 630 meters!" Lowe said he was using WSPR mode.

An April 2015 FCC Report and Order, Order, and Notice of Proposed Rulemaking (R&O/NPRM) proposed a new secondary 630 meter MF allocation at 472 to 479 kHz to Amateur Radio, implementing decisions made at WRC-12. It also allocated 135.7 to 137.8 kHz to the Amateur Service on a secondary basis. A Report and Order is pending.

http://www.arrl.org/news/a-record-breaker-on-630-meters

Lunar-Orbiting Ham Radio Satellite Could Result from NASA Cube Quest Challenge

(ARRL 09/13/2016) A NASA Cube Quest Challenge (CQC) team partnered with AMSAT-NA is among the five CQC teams to receive $20,000 each from the space agency as part of a competition that could lead to a lunar-orbiting Amateur Radio satellite. The Ragnarok Industries Nano-Satellite Company team, comprised of former NASA Goddard Space Flight Center PhD engineering interns, is designing the 6-unit (6U) Heimdallr CubeSat to test advanced propulsion and communication technologies for lunar and deep-space missions. AMSAT would develop the 5 GHz uplink/10 GHz downlink — the so-called "five and dime" paradigm — Phase 5 Amateur Radio transponder for the spacecraft, and AMSAT's Ground Terminal initiative is supporting the effort. The five teams announced on September 9 scored highest in the first of four "ground tournaments" making up the initial phase of the $5 million CQC. The three teams with the highest total cumulative scores will be offered rides as secondary payloads on the first Space Launch System (SLS) mission, Exploration Mission 1 (EM-1) in 2018.

"Cube Quest is an opportunity for non-government CubeSat developers and builders to compete in lunar orbit and deep space for accomplishments in communications, navigation and longevity," said CQC Competition Manager Jim Cockrell of NASA's Ames Research Center.

The August tournament winnowed the competition from 13 teams that presented initial spacecraft designs, and it did not involve any hardware. Cockrell likened it to a "mission concept review."

The project's Howie DeFelice, AB2S, said that at the end of the SLS mission, AMSAT would take control of the satellite and operate it in lunar orbit.

"This will be AMSAT's first P5 satellite," DeFelice said. "It will also be the most advanced satellite since AO-40, even though it will be smaller than AO-10 and AO-13. At 6U it will be about the size of two reams of paper stacked together."

Other semifinalists included the KitSat design team at Massachusetts Institute of Technology; Cislunar Explorers, made up mostly of Cornell University students; Team Miles, and Novel Engineering, which is developing a CubeSat named "Space Pig."

The ultimate goal of the competition is to send CubeSats into lunar orbit or deep space. NASA is offering a total of $3 million in prizes in the "Lunar Derby" portion of the competition — both for being able to enter lunar orbit and to meet communication and longevity goals.

The next ground tournament will take place early next year, and even teams that were not among the five selected or did not take part in the August tournament are still eligible to compete. Teams not participating in the ground tournaments or not finishing in the top three still may pursue the lunar and deep space prizes by arranging their own launch opportunities.

The Heimdallr satellite — named for a Norse deity — plans to test advanced propulsion and communication technology. According to information filed for International Amateur

(Continued on Page 4)

FCC Proposes Substantial Fine for Unlicensed Amateur Operation, False Police Call

(ARRL 0/1/2016) A New York City man faces a fine of $23,000 for operating on Amateur Radio frequencies without a license and for transmitting a false officer-in-distress call on a New York City Police Department (NYPD) radio channel. The FCC issued a Notice of Apparent Liability for Forfeiture (NAL) on August 31 to Daniel Delise of Astoria. It details a history of complaints and alleged illegal radio operation on Delise's part that dates back to 2012.

"The Commission previously warned Mr Delise that unlicensed operation of this station was illegal and that continued operation could result in further enforcement action," the FCC said in the NAL. "Mr Delise's deliberate disregard of the [Communications] Act and the Commission's warning warrants a significant penalty."

ARRL Hudson Division Director Mike Lisenco, N2YBB, credited the intervention earlier this year of New York Rep Peter King with getting the case "off the back burner and up to the front of the line." Lisenco and ARRL General Counsel Chris Imlay, W3KD, met with the Republican congressman in January to discuss ongoing interference issues in the Greater New York City/Long Island area. King subsequently wrote FCC Chairman Tom Wheeler to urge "timely and visible enforcement."

Lisenco also praised the direct involvement of FCC Enforcement Bureau Region 1 Director David C. Dombrowski "and his willingness to work with us and to use information we provided as potential leads," as well as "a system of grass-roots reporting that depicted the current pattern of intentional interference with legitimate amateur communications on local repeaters," coordinated by Richie Cetron, K2KNB, an Official Observer and Assistant Hudson Division Director. Lisenco said FCC Special Counsel Laura Smith "has been a great help in keeping us informed and in the loop."

The FCC reported receiving "numerous complaints" that Delise was transmitting on different frequencies, issuing two official warnings in 2012. The Commission said complaints about Delise continued through 2013 and 2014, but, the FCC said, an investigating agent "was not able to confirm a rule violation." Still more complaints alleged that Delise was transmitting without authority on 461.225 MHz, a frequency licensed to NYC City Wide Disaster Services, the FCC recounted. In 2014, the FCC received 10 more complaints identifying Delise by name, plus another nine in 2015 and one more in 2016.

Last April, field agents monitoring in Delise's Astoria neighborhood detected a strong voice transmission on 147.96 MHz. They were able to track the signal to the building where Delise resided, and, ultimately, went to his apartment and confronted him.

The FCC said Delise admitted making the transmissions on 147.96 MHz and acknowledged that he did not have an Amateur Radio license. As a result, the FCC's New York Field office issued a Notice of Unlicensed Operation.

A couple of weeks later, the NYPD informed an FCC field agent that it had taken Delise into custody for "sending out false radio transmissions" over the NYPD radio system and for possessing radios capable of operating on NYPD frequencies, in violation of state law. According to the NYPD, a call had gone out reporting an officer in need, and the responding officer spotted Delise speaking into a radio. The police report said Delise admitted to making the transmission and that he told officers that he had more radios and would continue to transmit on police frequencies. Obtaining a warrant, the NYPD confiscated all radio transmitting equipment from Delise's apartment, including 14 radios capable of operating on NYPD frequencies.

The FCC concluded that Delise apparently transmitted without a license on Amateur Radio frequencies, even after being warned not to do so, and that he apparently transmitted false or fraudulent distress signals on NYPD frequencies. Both violations were "willful," the FCC said.

Delise could have faced a penalty of more than $140,000, under the provisions of the Communications Act. The NAL gave Delise 30 days to pay the fine or to file a written statement seeking a reduction or cancellation of the proposed forfeiture.

The FCC fine may not be at the top of Delise's list of worries, however. According to Lisenco, Delise now is serving prison time resulting from the false police call and his guilty pleas to other charges.

http://www.arrl.org/news/fcc-proposes-substantial-fine-for-unlicensed-amateur-operation-false-police-call

Lunar Cubsat *(Continued from Page 3)*

Radio Union (IARU) Satellite Frequency Coordination, Heimdallr would be a 3-axis stabilized 6U CubeSat weighing approximately 8 kg. It would have a cold-gas thruster and a star tracker for navigation. Deployable, gimbaled solar panels would produce up to 100 W of dc power. Electric propulsion will be used to achieve lunar orbit. The onboard communication gear would use a combination of omnidirectional and directional patch antennas on one side of the spacecraft.

The first part of Heimdallr mission is to provide telemetry, tracking, and command to obtain lunar orbit, the second is the data downlink experiment, and the final component is to provide a two-way regenerative repeater and analog repeater in lunar orbit for the lifetime of satellite. The omnidirectional, directional, and analog transponders would downlink in the 10 GHz amateur band, while the uplinks would be in the vicinity of 5.6 GHz.

"Heimdallr will feature non-volatile and non-energetic electric propulsion to reach lunar orbit," Ragnarok Industries explains on its website. "By not having a pressurized vessel nor carrying dangerous chemicals, Heimdallr will be one of the safest 6U CubeSats" aboard NASA's EM-1 Mission in 2018.

http://www.arrl.org/news/lunar-orbiting-ham-radio-satellite-could-result-from-nasa-cube-quest-challenge

http://www.nasa.gov/directorates/spacetech/centennial_challenges/cubequest/index.html

http://www.amsat.org/

http://www.ragnarokindustries.com/