

New digital mode FT4 for contesting

Arduino and RF from 3 kHz to beyond 200 MHz

FT4 is an experimental digital mode designed specifically for radio contesting. Like FT8, it uses fixed-length transmissions, structured messages with formats optimized for minimal QSOs, and strong forward error correction. T/R sequences are 6 seconds long, so FT4 is 2.5 × faster than FT8 and about the same speed as RTTY for radio contesting.

FT4 can work with signals 10 dB weaker than needed for RTTY, while using much less bandwidth. FT4 message formats are the same as those in FT8 and encoded with the same low-density parity check code. Transmissions last for 4.48 s, compared to 12.64 s for FT8. Modulation uses 4-tone frequency-shift keying at approximately 23.4 baud, with tones separated by the baud rate. The occupied bandwidth (that containing 99% of transmitted power) is 90 Hz

Further information on FT4 is at http://physics.princeton.edu/pulsar/k1jt/FT4_Protocol.pdf

—submitted by VE3RRP Karl

The LARC 25 years ago this month

<http://ve3efc.ca/larc/larc19940501.pdf>

The LARC 50 years ago this month

<http://ve3efc.ca/larc/larc19690503.pdf>

<http://ve3efc.ca/larc/larc19690501.pdf>

submitted by Doug VE3EFC

many thanks Doug ed

We are very excited to announce the RFzero - a multi-purpose Arduino RF and GPS controlled platform. At the same time 28 I/O pins are available and eight of those are via an ULN2803A power driver. The typical use of the RFzero is as a beacon (IBP, SPB, CW, FT8, JT9, PI4 and WSPR), Qatari Oscar 100 dual LO or as low cost 10 MHz GPSDO. A dozen example programs are integrated into the Arduino IDE.

The RFzero has been developed for radio amateurs, RF enthusiasts and everyone else who wants to extend the Arduino skills in combination with RF. The RFzero board is largely compatible with the Arduino Zero and Arduino M0 boards, however, it has been carefully designed for flexible use in RF applications and with attention to the frequency spectrum and stability performance.

The setup is very flexible, you can roll your own programs from scratch or you can use the RFzero library and example programs together with the Arduino Integrated Development Environment (IDE)

For more information please visit <http://rfzero.net>

—submitted by VE3RRP Karl

We do not have a speaker reserved for May. Members are invited to bring show and tell items and/or talk about their station activities.....Karl VE3RRP

LARC will have a swap meet at Randy Gottfred VA3OJ's place in early June. All members are welcome to bring stuff to sell or trade. Each participant is responsible for displaying (a folding table is ideal) and looking after their stuff. Please take home your leftovers!

Thanks,
Karl VE3RRP

LARC SENATE

Robert Hansen VE3RVA
Dave Kimpton VE3AVS
Laurie Bridgett VE3BCD
Terry Stewardson VA3LU
Ed Baumann VE3SNW

LARC EXECUTIVE

President: Randy Gottfred VA3OJ
Vice-President: Bob Hansen VE3RVA
Secretary: Karl Hamilton VE3RRP
Treasurer: Bill Unger VE3XT
Board Member: Mike Skillen VE3EDX
Board Member: Mark Vaillant VA3MVR
Board Member: Brad Harris VE3MXJ
Board Member: Lori Bedford VE3VAI

LARC Emergency Coordinator

Brad Harris VE3MXJ

ARES District Emergency Coordinator

vacant

CANWARN

VA3JMS John 767-3631
VE3RRP Karl

Public Service Events

VA3TBA Chris Chadwick

Accredited Examiners

VE3FAL Fred Lesnick 577-0789
flesnick@tbaytel.net
VE3VAI Lori Bedford (807) 630-

ABOUT US

The Lakehead Amateur Radio Club (LARC) is an incorporated not for profit group of amateur radio operators in the Thunder Bay area that meet for self education, community service and fellowship. Our meetings are the second Thursday of the month at room 212 McIntyre Building, Confederation College, 7:00 PM. Our postal address is 1100C Memorial Ave. Suite 184, Thunder Bay, Ontario P7B 4A3. This newsletter is published monthly except for July and August by Ed Baumann VE3SNW and questions and submissions may be emailed to hiqnewsletter@gmail.com

Amethyst District ARES

Providing emergency communications for Northwestern Ontario

Emergency Coordinators

Atikokan: Warren Paulson, VE3FYN (ARES DEC, Amethyst District)
Sioux Narrows: Woody Linton, VE3JJA
Fort Frances: Rod Davis, VE3RYD (ARES EC, Fort Frances & area)
Kenora: Chris Bigelow, VA3ECO (ARES EC, Kenora & area)
Dryden: Bob Ernewein,, VE3YDN
Thunder Bay: Brad Harris, VE3MXJ (ARES EC, Thunder Bay & area)

Nets and Exercises

We conduct an open weekly HF net on 80 and 40 metres. The purpose of this net is to monitor regional propagation conditions, share information, and practice net procedures.

Time: Wednesdays at 21:30 UTC (4:30 pm EST, 3:30 pm CST)

Frequency: Primary 3.675 MHz LSB, Secondary 7.135 MHz LSB

<http://www.ve3rib.ca/nwoares>

LARC OPEN ACCESS REPEATERS

VE3YQT(Mount Baldy)147.060 (-600) Phone Patch

VE3TBR (St. Joseph's) 146.820 pl 107.2

442.075 (+5 MHz)pl 100
144.390 APRS

VE3UPP Upsala 145.470 (-600)

First Amateur in Space, Skylab and Space Shuttle Astronaut, Owen Garriott, W5LFL, SK



courtesy of AMSAT:

April 17, 2019 –
 Frank Bauer, KA3HDO
 ARISS International Chair
 AMSAT VP for Human Spaceflight Programs

It is with great sadness that the ARISS team recognizes the passing of our great friend and colleague Astronaut Owen Garriott, W5LFL (SK). Owen Garriott died at his home in Huntsville, Alabama on April 15, 2019.

A passionate Amateur Radio operator and ionospheric physics researcher, Owen inspired the Amateur Radio community to reach for the stars. His multi-decade vision to bring Amateur Radio with him as part of his journey in space was realized in 1983 on the STS-9 Space Shuttle Columbia mission, where hams the world over for the first time heard a fellow ham call CQ from space.

As the first to operate Amateur Radio in space, Owen blazed a trail that has enabled countless people from around the world to experience what it is like to journey into space and explore our universe. As a result, he inspired the international Amateur Radio community to extend his modest ham station on STS-9 into an international human spaceflight ham radio program that has spanned the Space Shuttle, MirSpace Station, and International Space Station.

A member of the US Astronaut Hall of Fame, Owen Garriott was a pioneer and innovator in all his endeavours including Amateur Radio. Selected as a NASA scientist-astronaut in 1965, Garriott was the science-pilot for Skylab 3, the second crewed Skylab mission. Skylab was the first US space station, housing three different crew expeditions from May 1973 to February 1974. Owen spent approximately 60 days on Skylab doing solar physics research, human physiological research and conducting three spacewalks to repair Skylab and extend its research capabilities.

Owen's next flight into space, as part of an international crew on the STS-9 Space Shuttle Columbia mission, cemented Amateur Radio's future as part of the human spaceflight experience. STS-9 was launched from the Kennedy Space Center, Florida on November 28, 1983.

Onboard Columbia was an internationally developed space laboratory, Spacelab-1, which pioneered international spaceflight research with over 70 separate experiments – a precursor to the research currently being accomplished on the International Space Station (ISS). Onboard also was a Motorola 2-metre handheld radio with a window-mounted antenna to facilitate Amateur Radio contacts between W5LFL and hams on the ground.

On December 1, the third day of his mission, Owen donned his headset and made history by communicating with Lance Collister, WA1JXN, in Frenchtown, Montana. In W5LFL's own words, here is an excerpt of his first contact:

"W5LFL in Columbia is calling CQ and standing by. Go ahead. Hello WA1JXN, WA1 Juliet X- ray November, this is W5LFL. I picked up your signals fairly weakly. I think our attitude is not really the best as yet, but you're our first contact from orbit. WA1 Juliet X- ray November, how do you read? Over."

Owen's ham contacts on STS-9 were trailblazing for many reasons. They represented the first Amateur Radio contact from a human in space to someone on Earth. They allowed the general public to directly listen and communicate with an on-orbit crew where, prior to this, only NASA mission control personnel or heads of State (US Presidents, etc.) could talk to astronauts from space. And the mission also demonstrated that a group of volunteers could successfully build an Amateur Radio station for a human spaceflight vehicle and get it formally approved by a space agency.

Owen spent decades attempting to carry out Amateur Radio on one of his missions, employing gentle assertiveness and steadfast patience to realize his dream. In 1965, when NASA was considering Owen for a planned lunar flight on Apollo 18, 19 or 20, Project MOONRAY was proposed by the Project OSCAR team. Project MOONRAY would support Amateur Radio operations from the surface of the moon. This initiative was scuttled when Apollo lunar expeditions ended at Apollo 17.

Prior to his flight on Skylab, AMSAT submitted a proposal to NASA called SKYLARC (Skylab Amateur Radio Communications). Unfortunately, this proposal was turned down. But, as they say, the third time was a charm on STS-9 and Amateur Radio is now a human spaceflight reality. Also, it should be noted that an AMSAT/ARISS International team is pursuing Owen's plans to fly Amateur Radio to the moon via several lunar proposal initiatives, including the Lunar Gateway.

Owen inspired legions of Amateur Radio operators, worldwide, to support human spaceflight Amateur Radio endeavours and for countless individuals to become Amateur Radio operators. This includes his son, Richard, W5KWQ, who together with Owen became the first multi-generational American Amateur Radio operators to communicate from space.

On behalf of the ARISS International Team, we would like to extend our sincere condolences to the Garriott family, including Owen's son Richard, W5KWQ and Owen's wife Eve. As Owen has inspired the Amateur Radio community to reach for the stars may we wish Owen Garriott Godspeed and a wonderful journey amongst the stars.

Ad Astra!

May

2019

Minutes for the Lakehead Amateur Radio Club

Date: April 11, 2019

President, Randy Gottfred VA3OJ Presiding.

Dinner Meeting and socializing at the Victoria Inn

Treasurer's Report: by Bill Unger VE3XT

Karl Hamilton VE3RRP moves to accept the report as printed in Hi-Q. Seconded by Glen Wallace VE3ICY Passed Unanimously. Club Insurance premiums won't rise to cover our new repeaters.

Minutes of Previous Meeting:

Karl Hamilton VE3RRP moves to accept the previous meeting's minutes as printed in Hi-Q. Seconded by Glen Wallace VE3ICY. Passed.

Old Business:

Public Service Chris Chadwick VA3TBA public events coordinator

Past Events:

none

Upcoming Events

10 Mile Road Race, Monday May 20th Norm Bell VE3XRC coordinator has all checkpoints covered with volunteers

CANWARN John Sacek VA3JMS

Canwarn training not happening this year.

ARES Brad Harris VE3MXJ, Thunder Bay EC

No News

Repeater News

Randy Gottfred VA3OJ,

Terry Stewardson VA3LU

VE3BGA is now active on Loch Lomond at 147.390, PL Tone 107. Randy VA3OJ is looking for signal reports. Coming soon at Loch Lomond: repeater at 442.825 Tone 100.

Club Trailer:

Bob Hansen VE3RVA

Going to make a sandwich board to promote our sponsors.

LARC Revitalization: 20/20 (Randy Gottfred, VA3OJ)

Executive is working on securing a dedicated meeting space, a membership list, a spring swap meet, brochure

handout, following up on suggestions for speakers, getting involved in the Alexander Henry, and digital net.

Field Day 2019 - June 22-23

Randy's place this year. Pot Luck, bring your own gear, chairs etc. Setup Friday evening.

Hams From the Past

Phil Moorey VE3ATC doing research

New Business

Alexander Henry

They are excited to have us involved. Charlie Brown is president of their association. They are planning on opening on the long weekend in May.

New Venue for Meetings

New venue for meetings required for September. The executive is working on possibilities.

50/50 Draw: Denise Wallace VA3NST

Adjournment moved by: **Ed Baumann VE3SNW**

**Next Executive Meeting: May 2, 2019,
7 PM, RM 213**

**Next LARC Meeting: May 9, 2019, 7
PM, RM 212 and don't forget field
day next month!**



Lakehead Amateur Radio Club

April 2019 Treasurers Report

Opening Balance April 1, 2019 \$2,649.75

Income

April 18 January 50/50	\$6.00
April 18 April 50/50	\$7.00
April 18 Donation (Gift)	\$50.00
Total Income	<u>\$63.00</u>

Expenses

April 11, UPS Store: annual mailbox fee	\$224.34
Total Expenses	<u>\$224.34</u>

Closing Balance April 30, 2019 \$2,488.41

<u>Trailer Account</u>	
	Previous Balance
	\$927.94
<u>Income</u>	
Interest	\$0.04
Total	\$927.98
<u>Expenses</u>	
Total Expenses:	\$0.00
Balance in Trailer Account	<u>\$927.98</u>

Term Account

Opening Balance April 01, 2019	\$2,065.27
Interest	\$0.42

Closing Balance April 30, 2019 \$2,065.69

Karl Hamilton VE3RRP
Treasurer (pro tem)

PREZ SEZ

Howdy Folks

Here is a little update on the Loch Lomond repeater.

It has been running without any problems since it was put in and thanks goes out to Terry va3ju for his time and effort to get it ready and tuned. I have been on the road at work lately and this has giving me plenty of time to test around the area. VE3BGA seems to be working out to about an hour in all directions and was heard out to very near to Upsala to the west and it was triggered in Terrace Bay to the east. It has good coverage to the south but diabase ridges that run out from the big lake act like a giant wall. This is a similar problem that was experienced when trying to create a link to Grand Marais a few years back. When you get away from the ridge, it does come back at a reduced level but better than no coverage at all.

So if you are out driving around in any of the places that I have not mentioned, give it a test and I would appreciate hearing from you.

There are plans being made to have some sort of tailgate swap meet at the beginning of June. I will be putting a list of things that I will be putting out there. I have asked Ed ve3snw to forward the list that I have to the folks on the email list and would ask anyone else that has stuff to get rid of do the same as asap. I have some personal stuff but also many items that have been given to me with the intention of moving it on. I am pretty sure that I am not the only one that needs to get some unused toys out the door to make room for some upgrades.

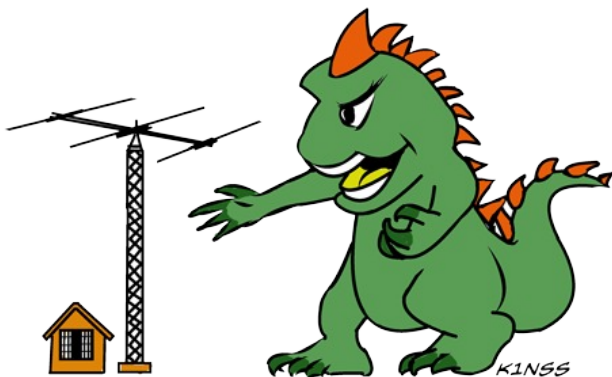
It appears that summer is trying to get here. Many signs are being seen in the area, like geese and dandelions and occasionally some green grass. So here is to the warm weather and summer fun. Take care out there and enjoy your six months of not seeing the ice breaker in the harbor.

73 Randy VA3OJ

Links of Interest from Al and Jan

<https://dailygalaxy.com/2019/05/weird-signal-from-the-sun-reveals-startling-mysteries/>

<https://whnt.com/2019/04/23/upcoming-solar-cycle-predicted-to-be-weak/>



guaranteed to make understanding digital modes easy!

May 2019

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9 LARC Meeting Con College	10	11 CQ-M International DX Contest SKCC Weekend Sprintathon	12 CQ-M International DX Contest SKCC Weekend Sprintathon
13	14	15	16	17	18 His Maj. King of Spain Contest, CW	19
20 Victoria Day Run for the Bacon QRP Contest	21	22 SKCC Sprint	23	24	25 CQ WW WPX Contest, CW	26
27	28	29	30	31		

this is a reminder that on Wednesday May 8 ,2019 at 2100 UTC (5:00pm EDT LOCAL) on 3.675 MHz 80m is

the NORTHWESTERN ONTARIO A.R.E.S. NET .

This net is once a week on Wednesdays.

It does not matter whether your an ARES member or not, we encourage one and all to check in.

The primary frequency is on 80M 3.675 MHz, after we take check in's on 80 we will QSY to 40m - 7.135 MHz to take check in's for those stations that could not hear us on 80m

Check out our website at <http://www.ve3rib.ca/nwoares.html>

Thanks, hope to hear you on the air.

73's de Brad VE3MXJ CEC

E.C. for the City of Thunder Bay ARES GROUP