April 2002

FEEDBACK

The **OFFICIAL** Newsletter

of the

Georgian Bay Amateur Radio Club Inc.

P.O. Box 113, Owen Sound, Ontario N4K 5P1

GBARC Meetings

are held on the 4th Tuesday of every month except July and August in our CLUBHOUSE, Unit 6 Rockford Plaza, Rockford On. 5km S of Owen Sound.7:30 p.m.

Breakfast Anyone?

Any Saturday 9:00 a.m., a mile south of rockford at the 6 & 10..west side of road...

Nets

80 metre net on Sunday at 9:30 a.m. on 3.783 Mhz. Two metre net on Thursday at 9 p.m. on VE3OSR 146.94-Mhz.

Submissions

are always welcome.
Send them to
Tom ve3tsa@rac.ca

This Month

Minutes of the last meeting

Ultra Wide Band Technology

AM/FM/SW active antenna

GBARC Mail Box

President
Bernie VE3BQM

Vice-President
BobVE3XOX

Secretary
SusanVE3TLK

Treasurer
Bob VE3LKD

Newsletter Team Editor
TomVE3TSA

Newsletter Team Mailing
Tom VE3CVL

Georgian Bay Amateur Radio Club
Minutes of Meeting

Georgian Bay Amateur Radio Club
Minutes of March 26, 2002 Meeting

The Meeting was called to order and everyone was welcomed by President Bernie VE3BQM at 7:30 p.m.
The Treasurer's Report was given by Bob VE3LKD.

Old Business

Thank you to Aubrey TUQ, Dr. Bob DRB and helpers for being the chefs at our last breakfast.
Field Day was discussed and we will consider having it at the clubhouse this year.

New Business

Ron O'Donoughue visited the meeting on behalf of the "Billy Bishop Heritage Day" to be held on Sunday June 2, 2002. He gave an outline of the events that would be happening that day and requested our help in providing communication. The members agreed to help where possible e.g. patrol displays, watch for medical or other emergencies etc. He was thanked by Bernie VE3BQM.

Tom TSA gave a report of the progress of the basic radio course. 5 students are enrolled and the exam is set for next week. Thank you to the instructors.

Barry Galloway was named as the chairman of the nominations committee. He will be contacting each member to see if he/she will let their name stand for election to the executive. Elections will take place at the May meeting.

A discussion took place on the pros and cons of keeping the clubhouse. Rent is to be increased $50. a month or $600. a year. Moved by Bob XOX and seconded by Fred ICS that the executive will negotiate with the landlord for anything up to $50. a month increase. Motion carried.

There will not be a breakfast at the Clubhouse on Easter weekend.

Moved by Gene IJD that the meeting be adjourned at 9:52 p.m.

ULTRA WIDE BAND TECHNOLOGY

Hi Tom, I wondered if this might be of interest to the Club. Its from my son who works in Ottawa for a firm making computer equipment for industrial use. Dave. VE3DXO

Ultra Wide Band Wireless Radio Technology

Ultra Wide Band (UWB) is a new wireless radio technology that has the potential to be a truly groundbreaking technology. Conventional Radio Frequency (RF) wireless technologies are based on narrowly assigned bands of the RF spectrum. You are exposed to these bands all the time, whether you know it or not. AM and FM radio stations announce their frequency so you can "tune" in them. Your old cordless phone operated at 49 MHz, while your new one was advertised as operating at 900 MHz or 2.4 GHz. Cellular telephones, televisions, wireless network cards, garage door openers and car door locks are all based on a similar operating principle that restricts the device to operate in a relatively narrow band of the spectrum assigned for that particular class of device. Industry Canada is the Canadian regulatory body that manages the RF spectrum and decides the range of frequencies and the power levels reserved for each type of application, and licenses each company building a product for that application. The equivalent regulatory body in the U.S. is the Federal Communications Commission (FCC).

Last month the FCC approved the commercialization of UWB, an unconventional RF technology that spreads itself out over a wide band (thus the name Ultra Wide Band) of frequencies already assigned to conventional wireless RF applications. UWB will not interfere with these other applications (your cell phone, wireless network adapter, etc.) because the power density of a UWB signal at any given narrow band is very low. UWB uses short impulses of RF energy that are less than a nanosecond (billionth of a second) long, but each pulse has energy spread between 3 GHz or 4 GHz (billion cycles per second) of the frequency spectrum.

Intel expects to demonstrate a 500-Mb link in the near future. Compare this to the current breed of commercial wireless technologies, which include Bluetooth at 1 Mb, 802.11b at 11 Mb and 802.11a at 54 Mb. At 100 Mb plus, UWB technology may someday eliminate the ubiquitous HD15 video cable that connects every computer with a monitor or projector that isn't usually more than 20' away.

Here's some more info on the subject...editor

Ultra Wide Band

Ultra-Wideband (UWB) is not a very new technology. In fact, it was first developed in the 1960s for the US military. Within the US, much of the early work in the UWB field (prior to 1994), particularly in the area of impulse communications, had been classified for about three decades. It was made public in the mid 90s and is now thought to be the potential next wave in wireless communications.

UWB device transmits very low power radio signals with very short pulses, often in the picosecond (1/1000th of a nanosecond) range using very wide signal bandwidths. UWB uses the same spectrum that is currently being used by conventional radiocommunication devices, including emergency services. It will be important to ensure that there are no adverse effects from UWB on these critical services.

In UWB systems, a transmitter emits sequences of impulses that are detected by a corresponding receiver whose front-end amplifiers are synchronised and time-gated to the transmitted pulse sequences. Data information that is to be sent is modulated onto certain parameters of the transmitted impulse. Such parameters may include the pulse position, amplitude or orientation. In the case of pulse position modulation, a "1" may cause the transmitted pulse to be slightly advanced in time, whereas a "0" may cause a slight retardation in pulse position.

The receiver's front-end amplifiers are enabled for only very short time durations. Therefore the receiver is able to reject most unwanted signals. If enhancements to the received signal-to-noise ratio is required, the transmitter can use pulse repetition to send each information bit several times. The receiver then integrates the received signal over several time durations to build up the received signal power.

In UWB systems each transmit and receive pair is active only for a very short period of time. It is possible to envisage many transmit-receive pairs, each with its own unique pulse sequences in time operating within the same area without causing mutual interference. To eliminate discrete spectral lines arising from the transmission of fixed pulse sequences, pseudorandom codes are used to cause a dithering effect and make the final emitted spectrum more noise-like.

Since 1994, as much of the work has been carried out without classification restrictions, the development of UWB technology has greatly accelerated. A number of recent UWB developments in the fields of communications, radar and localisation were demonstrated. A few examples of UWB developments are as follows:

(1) Full duplex UWB handheld transceiver
(2) UWB groundwave communication systems
(3) UWB Tag & Tag reader (Vehicular Electronic Tagging and Alert System) and
(4) UWB wireless Intercom Communication System

UWB has shown promise for many commercial applications, including wireless communications within buildings and the locating of objects on the other side of walls or other barriers. To use UWB for wireless communications, the receiver simply detects whether received impulses have been time advanced or time retarded to know if the data bit being transmitted is a "1" or "0", assuming pulse position modulation technique is used. To use UWB for range-finding applications, the receiver determines the time delay for the

signal to get from the transmitter to the receiver and works out the range by multiplying the measured time delay by the speed of light, which is a known constant. To use UWB for radar applications, the receiver extracts information from the reflected signal to derive certain useful characteristics about the target. In all these applications, if the amplitude of the transmitted impulses is kept sufficiently low, it may be possible to keep its frequency spectrum below the ambient radio frequency noise floor and thus operate the system in stealth mode. As it is necessary for a receiver to have prior knowledge of the timing and code sequences of the UWB transmitter to effect detection and decoding, it is very difficult for another person to eavesdrop or intercept UWB transmissions.

Links

The origins of Ultra-Wideband Technology
http://www.aetherwire.com/CDROM/Welcome.html

Ultrawideband (UWB) Signal Characterization Project
http://www.its.bldrdoc.gov/home/programs/uwb/

New public safety applications and broadband Internet access among uses envisioned by FCC consideration of UWB technology
http://www.fcc.gov/Bureaus/Engineering_Technology/News_Releases/2000/nret0006.html

Ultra Wideband Working Group
http://www.uwb.org/

What's up with Ultra Wideband Technology
http://wca.org/Year1999/laine/

Ultra-Wideband Technologies
http://fusion.gat.com/photonics/uwb/uwb.shtml

A Brief History of UWB Communications
http://www.multispectral.com/history.html

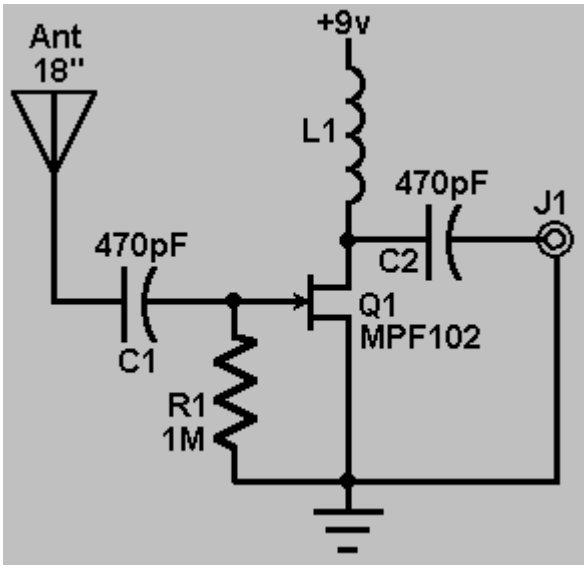
Ultra Lab Online Guide to Impulse Radio Resources
http://commsci.usc.edu/ulab/links.html

Ultra-Wideband Signals for Sensing and Communication: A Master Plan for Developing Measurement Methods, Characterizing the Signals and Estimating Their Effects on Existing Systems
http://www.ntia.doc.gov/osmhome/uwbtestplan/

Ten real-life applications utilizing ultra-wideband technologies
http://www2.csc.com/lef/programs/grants/finalpapers/

FCC ET Dockets 98-153
http://gullfoss2.fcc.gov/cgi-bin/websql/prod/ecfs/comsrch_v2.hts?

AM/FM/SW active antenna



This circuit shows an active antenna that can be used for AM, FM, and shortwave (SW). On the shortwave band this active antenna is comparable to a 20 to 30 foot wire antenna. This circuit is designed to be used on receivers that use untuned wire antennas, such as inexpensive units and car radios. L1 can be selected for the application. A 470uH coil works on lower frequencies (AM). For shortwave, try a 20uH coil. The unit can be powered by a 9 volt battery. If a power supply is used, bypass the power supply with a .04uF capacitor to prevent noise pickup. The antenna used on this circuit is a standard 18" telescoping type. Output is taken from jack J1 and run to the input on the receiver.

Source: "Popular Electronics" Magazine, Jul,89 issue. (C)Copyright Gernsback Publications,Inc., 1989 - Please read their disclaimers before implementing this circuit.

From The Mailbox

ZEROBEAT

THE **BRUCE AMATEUR RADIO CLUB NEWSLETTER**
IS NOW POSTED 73 DE JIM COVERLEY VE3OVV
http://www.brucearc.on.ca

When in Barrie stop in at the **Barrie Amateur Radio Club Meeting**

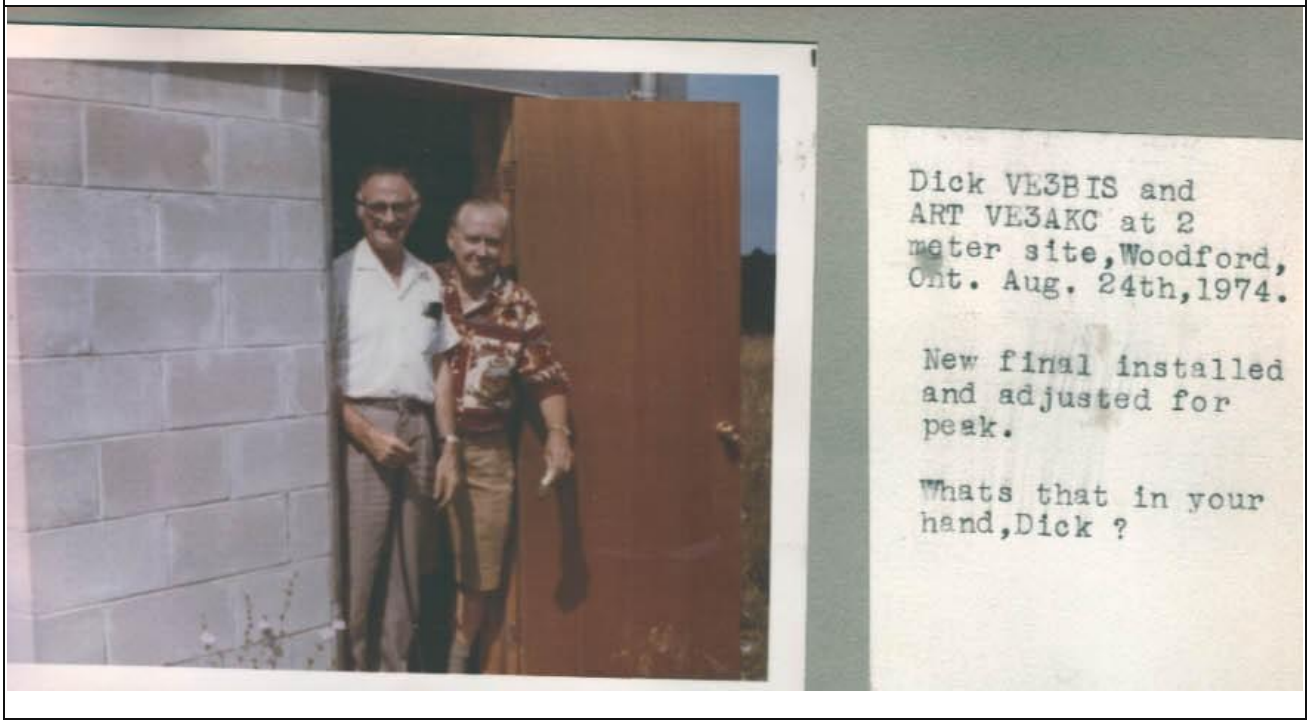
Georgian college, Rowntree Theatre
Date: TBA Time: 7:30 PM
73 de ken ve3kpp

Tom

The Wilf Blakey 2001 pic is a pic I got from Wilf there in the fall When he lived in Maxwell, down by Flesherton…Wilf was with the club years ago and now lives up in northern Ontario. There is a pic of him here from the 1977 split rail…

The rest are from the VE3OSR repeater install in 1974…

bob VE3XOX



Dick VE3BIS and
ART VE3AKC at 2
meter site, Woodford,
Ont. Aug. 24th, 1974.

New final installed
and adjusted for
peak.

Whats that in your
hand, Dick ?