



PEAKS & NULLS



MORRIS RADIO CLUB

Volume I, Issue III

MARCH 17, 2011

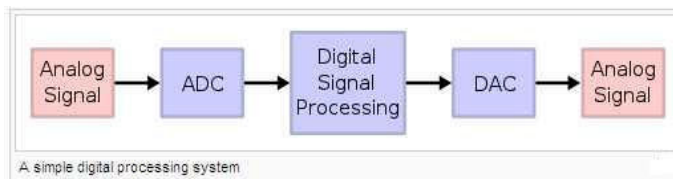
What is DSP?

You can't pick up an ad for a new rig these days without it touting its advanced DSP features. So what is DSP anyway? DSP is short for Digital Signal Processing. That is where a signal of some type (audio in our case) is converted from analog to digital form changed in some way and then converted back to its original form.

DSP requires the use of algorithms. Algorithms are the microprocessor instructions and mathematical formulas required to transform the signal to our specifications.

Digital signal processing algorithms typically require a large number of mathematical operations to be performed quickly and repetitively on a set of data. Signals are constantly converted from analog to digital, manipulated digitally, and then converted again to analog form as the diagram shows.

Most general-purpose microprocessors and operating systems can execute DSP algorithms, but are not suitable for use in most cases (especially portable rigs) because of the size and power requirements. That is why a specialized DSP is used. A specialized DSP is a micro-



A simple digital processing system

processor that has been modified to only do DSP.

In most modern rigs the DSP unit takes care of both generating the transmitted signal and filtering the received signal. To transmit a SSB signal the DSP unit must take the microphone input, translate its frequency upward by the carrier frequency's value while preserving the spectral content (the voice characteristics) generate the required sideband and suppress the carrier and opposite sideband as much as possible. In this case one Integrated Circuit replaces two expensive crystal filter units.

This same Integrated Circuit is used on the receive side to construct high-performance filters. An expensive crystal or mechanical filter with a single bandwidth is replaced by a set of superior digital filters, which offer as many bandwidths as the memory can support. We can now build digital filters that are very difficult to fabricate in the analog

world. Once the filter is designed, each unit is identical to the next with no alignment necessary. And most importantly, filter shapes and responses that are impractical in the analog world can be easily implemented in DSP with no production variations.

What does 32 bit DSP mean?

The first microprocessors were 4 bit machines meaning that they could handle numbers between 0 and 15. Then came 8 bit, 16 bit, 32 bit and 64 bit machines. The more bits the bigger the number they can handle. The 32 bit microprocessor can handle integer numbers from 0 to 4,294,967,295. Using two's complement arithmetic they can handle numbers from -2,147,483,648 to 2,147,483,647. This means that the input waveform can be divided up into much finer parts with much more resolution. This gives us a lot more control over how we reshape the signal or even the ability to replace missing parts of the input signal.

Inside this issue:

UPCOMING MEETINGS	2
2011 DUES	2
UPCOMING CONTESTS	2
SOLAR FULX PREDICTION	3
FEBRUARY MEETING MINUTES	3
HAMFEST CALENDAR	4

Why not try programming?

Want to play around with computer programming but don't want to lay out the \$100 and up for the compiler? Why not try Microsoft Visual Studio 2010 Express? It's free and contains Visual Basic 2010 Express, Visual C# 2010 Express, Visual C++ 2010 Express and Visual Web Developer 2010 Express. You can download all of them or just the one you want from

www.microsoft.com/express/downloads/. These are learner versions that do not have the full functionality of the professional versions, but have everything you need to start writing programs. If you're just starting Visual Basic is a good first step. Just be aware that this is the .NET version of Visual Basic so you need a book for VB.NET not

VB6 or the earlier versions of Visual Basic.

Want to try JAVA or another language then check out www.thefreecountry.com/compilers/index.shtml for free compilers and other tools in a bunch of other languages. Next month we'll check out free logging software.



UPCOMING MEETINGS

MARCH 21, 2011

AGENDA: REGULAR BUSINESS MEETING

APRIL 18, 2011

MAY 16, 2011

JUNE 20, 2011

JULY 18, 2011

2011 DUES

2011 DUES

Noel NO2EL is now accepting dues payments for 2011. \$15.00 for full membership, \$10.00 for associate.

SHOW US YOUR SHACK

If you have a JPEG of your shack, antenna farm or mobile send it to WA2VQF@ARRL.NET and we'll publish it in future issues in the order that they are received.

SELECTED UPCOMING CONTESTS

SARL 80m QSO PARTY	1700Z-2000Z, APR 7
EU SPRING SPRINT, CW	1600Z-1959Z, APR 9
HOLYLAND DX CONTEST	0000Z -2359Z, APR 16
EU SPRING SPRINT, SSB	1600Z—1959Z, APR 16
ARRL ROOKIE ROUNDUP, SSB	1800Z-2359Z, APR 17
10-10 INT. SPRING CONTEST, DIGITAL	0001Z, APR 23 TO 2359Z, APR 24
SP DX RTTY CONTEST	1200Z, APR 23 TO 1200Z, APR 24



PREDICTED SUNSPOT NUMBER AND RADIO FLUX FOR APRIL 2011

SUNSPOT NUMBER

PREDICTED	HIGH	LOW
50.6	59.6	41.6

10.7 RADIO FLUX

PREDICTED	HIGH	LOW
106.6	114.6	98.6

FEBRUARY MEETING MINUTES

Morris Radio Club – Meeting Minutes
February 28, 2011
Attendees (6) NO2EL, K2EMJ, KC2KNT, KC2MFL, KC2RDX, WA2VQF and one visitor W2GM

Opening of Meeting
President Ed Peters K2EMJ opened the meeting at 7:34 PM

Reports:

Secretary – Bill WA2VQF reported that the January Minutes were issued in the Peaks and Nulls Newsletter and that no corrections were received. He also reported that Henry K2DEU is interested in presenting a program about his involvement in the D Day Invasion. Ed K2EMJ will contact Henry about scheduling a program. Ray KC2KNT moved that the minutes be accepted. Irma KC2MFL seconded. The minutes were accepted

Treasurer – Noel NO2EL reported the current account balances. The numbers are available from Noel.

Ray KC2KNT moved that the Treasurers report be accepted. It was seconded by Irma KC2MFL and unanimously accepted.

Old Business:

Noel reported that he had sold Hank's IC-736 that was no longer working.

Last month Noel reported that he has obtained some equipment from a silent key. This month he reported that he has put up a web site showing the equipment which includes the following:

Kenwood TM-261A (if working), IC2100H, IC2100H (Better Condition), IC-281H, IC-70MkIIIG

The web site URL is <http://scheffen.net/HamRadio.htm>. Check with Noel directly for special MRC member discounts.

New Business:

Ed K2EMJ reported that at their March 14 meeting the New Providence Radio Club will have Harold Kramer (ARRL COO),

WJ1B, to talk about his key and sounder collection

Ed also reported a change to the Field Day rules. All classes can now have a free VHF Station. It will be discussed later to see if we want to take advantage of this change

Motion to Adjourn Ray KC2KNT
Second Irma KC2MFL
Ed closed the meeting at 8:00PM

After the meeting a video of the ARRL Headquarters in 1935 was shown.

Respectively Submitted,

Bill WA2VQF
MRC Secretary

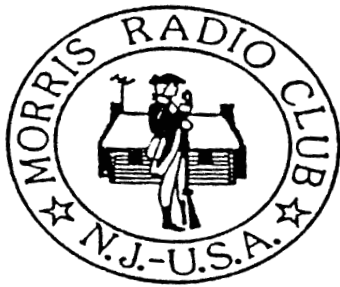


MORRIS RADIO CLUB

K2EMJ ED PETERS PREDISIDENT
 KC2RDX ROB BRABANDT VP
 WA2VQF BILL LOFTUS SECRETARY
 NO2EL NOEL SCHEFFEN TREASURER

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WWW.MORRISRADIOCLUB.ORG



THE MORRIS RADIO CLUB IS AN ORGANIZATION OF AMATEUR RADIO OPERATORS WHICH HAS BEEN IN EXISTENCE FOR OVER SIXTY FIVE YEARS. AS A HOBBY, AMATEUR RADIO SERVES AS A PUBLIC RESOURCE FOR COMMUNICATIONS AS WELL AS AN EDUCATIONAL EXPERIENCE.

ALTHOUGH MANY WHO BECOME INTERESTED IN AMATEUR RADIO ARE INVOLVED IN AN ELECTRONICS RELATED FIELD, THE HOBBY APPEALS TO A WIDE VARIETY OF INDIVIDUALS.

THE MEMBERSHIP OF THE MORRIS RADIO CLUB IS A DIVERSE GROUP MADE UP OF MEDICAL, BUSINESS, EDUCATION, AND LAW ENFORCEMENT PROFESSIONALS, AMONG OTHERS, WHOSE COMMON INTERESTS ARE COMMUNICATION, EDUCATION, AND PUBLIC SERVICE.

HAMFEST CALENDAR

Do you have a Ham Radio related article that you would like to share with the rest of the club. Send it in either plain text or Word 2003 format to WA2VQF@ARRL.NET

APRIL 2-3, 2011

TRENTON COMPUTER FESTIVAL & 2011 ARRL NJ STATE CONVENTION
 AT THE COLLEGE OF NEW JERSEY 200 PENNINGTON ROAD EWING, NJ 08628
www.tcf-nj.org

APRIL 3, 2011

SPLIT ROCK ARA NORTH JERSEY HAMFEST ROXBURY SENIOR CENTER HORSESHOE LAKE PARK
 72 EYLAND AVE SUCCASUNNA, NJ 07876
www.splitrockara.org

APRIL 10, 2011

JERSEY SHORE ARS
 RIVERWOOD PARK RECREATION BUILDING TOMS RIVER, NJ
www.jsars.org

APRIL 16, 2011

OMARC TAILGATE HAMFEST 1600 MARCONI ROAD BELMAR, NJ
www.omarc.org