THE NEWSLETTER OF
THE KINGS COUNTY RADIO CLUB

KCRC

April 2020 "NULLUM BENEFICIUM IMPUNITUM" Volume 7, Issue 4A

Minutes of the April 1st 2020 KCRC Meeting

Our April "Pre-Meeting Question and Answer Session" tabled for WebEx small talk.

The monthly meeting was called to order at 8 PM, by our President, Joseph AC2AE. Also present at tonight's meeting were Vice President Mitch N2RGA, , Treasurer Frank KD2QPU, General Secretary Roy AC2GS, Executive-At-Large Board Members Berlotte KD2MYF, and Jason KD2LRX, Howard N2GOT, Richard KA2KDQ, Glenn N4ESU, Robert W2ZF, William AC2ZV, Jacobo KK6RKA, Axel KD2OVM, Gene KY2MY, Howie KD2MSU, Jason WF2N, Lloyd K2JVX, Milen LZ1AMA, Maxime QC2ZW, Marty W2MPR, Simon K2FH, Bob KD2NVB, Joe K2OL, and our newest member Paul KD2TJV

The vote to accept the minutes of the March meeting was passed unanimously.

Treasurer Report—Frank KD2QPU reported that our Treasury currently has $1737.94 in our bank account as well as $126.00 in our PayPal account for a total of $1,748.32 in assets.

Repeater status was discussed by Joseph AC2AE and Mitch N2RGA - The voice announcements still need to be optimized for the controller's speech synthesis circuits—this has been delayed until social distancing rules are relaxed.

2 Meter Net Report—Joseph AC2AE reported consistent activity on the Net.

10 Meter Report—Roy AC2GS reported that general 10M propagation conditions continue to be poor during our present sunspot minimum period, but that local activity is steady and the Net often goes over 2 hours most Sundays.

KCRC TechNet—Roy AC2GS reported that participation in the Technical Net remains a problem. We still need people to join in with either questions, topics, or their own observations. As mentioned previously this isn't a podcast, or a radio show—it is a technical Net, and requires participation in order to thrive.

Fusion Net Report—Joseph AC2AE informed us that the Fusion Net is receiving a lot of national and international attention, and he has allowed for early check-ins before the regularly scheduled Net.!

Old Business: All scheduled VE Sessions are on hold, pending relaxation of social distancing guidelines. James KB2FMH is looking into options, with regard to remote exam taking.

Our Club presently has 92 members, our new members for May is Paul KD2TJV. 64 members have paid their 2020 dues (a 70% compliance rate).

Our new batch of Club patches have arrived and they will continue to be offered at $5 a piece and $1 shipping

and handling.

Field Day 2020 was discussed, although it is unclear if Floyd Bennet Field will be available this year and whether the rules for this year's Field Day will be greatly modified for this year. Keep uour eye on the club's web pages regarding the status of this year's Field Day

New Business:

The present COVID-19 crisis was discussed.

At 10:17 PM the meeting was concluded.

Stay Safe!

These minutes were respectfully recorded and submitted by Roy AC2GS on this day, April 1st, in the two thousandth and twentieth year of our Lord of Propagation…

What Is an AMBE chip?

Digital voice communications first *digitize* an analog audio signal into a series of ones and zeroes.

Different Digital Voice protocols use different modulation schemes to transmit and receive those ones and zeros, but for even a three-kilocycle wide original audio signal, the resulting transmitter's signal bandwidth would be way too wide for FCC approved transmissions.

Engineers had a similar problem with the audio '.wav' files on now old fashion CDs that were thought to take up too much space on their CDs.

Lossless compression became possible as the algorithms used, matured as well as the complicated silicon on which they operated.

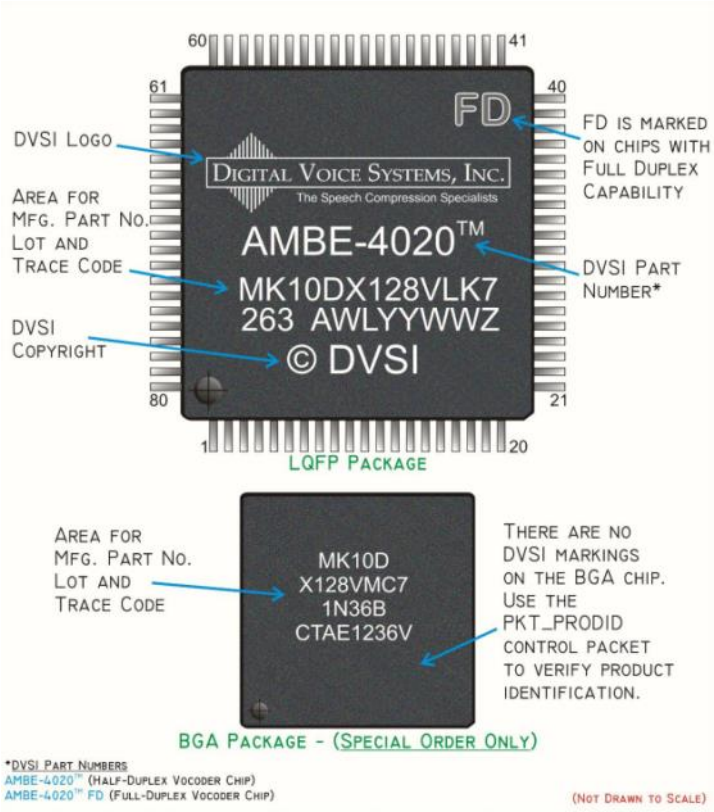
But even that amount of reduction was insufficient.

That's how the world got lossy compression algorithms, like mp3. There have been many more such lossy compression algorithms developed - optimized for different types of data - audio, video, and speech.

What is needed to make normal audio bandwidth transmissions viable as digital streams is a voice encoder/decoder, or Vocoder designed to recognize the building blocks of speech - phonemes and such and squeeze the bare minimum data down while still keeping the transmission intelligible.

Vocoder algorithms have been tinkered with for almost a century. In 1967 Osamu Fujimura, at MIT promoted the advantages of a ‘multi-band presentation’ for speech.

Digital Voice System, Inc., DVSI, patented the concept of a "Multi-Band Excitation" (MBE) device way back in 1967, followed by an "Improved Multi-Band Excitation" (IMBE) device, and finally, an "Advanced Multi-Band Excitation" (AMBE), with evolutionary upgrades as the AMBE+, and their AMBE2+, which they are still selling today!



DVSI's AMBE technology produces an output, with forward error correction, with a 2,250 Hz audio bandwidth.

DVSI holds a patent on a crucial part of every commercial digital voice technology. A freeware vocoder, Codec2, or FreeDV has been released by hams, and there has been some use of that technology, but not very much.

Although the vocoder is usually thought of as a 'Vocoder Chip,' the chip is just a repository for DVSI's vocoder algorithm, in a form that can be sold yet obscuring the underlying technology it holds. You can find AMBE2+ chips included on the PC board on Yaesu, Icom, and Motorola radios. People can purchase AMBE chips embedded in a USB dongle to allow software to encode/decode digitally compressed audio signals. Large manufacturers have been trusted to simply use DVSI's vocoder algorithms on their own silicon chips

The patent for D-Star's older AMBE technology expired in 2017.

The expiration date for digital voice technology that uses the newer AMBE2 and AMBE2+ chips seems to be unclear.

73,
Roy AC2GS

(This article is based on a presentation that was made on a KCRC FusionNet/TechNet. If you are interested in science and technology (and why would you still be reading this if you aren't), stop by the LIMARC TechNet every Sunday night at 8 PM, and bring questions, or answers, or email your questions to mailbag@AC2GS.com! Or check out my other Technical Net on KC2RC 146.730, at 9 PM on the second and fourth Wednesdays of every month, or the KCRC Fusion Net, every Thursday at 9 PM – if you don't have a Yaesu Fusion radio for the latter Net, you can always use a YSF or XLX link from a Hotspot, or listen to the audio stream via http://stream.KC2RC.com)