The Parasitic Emission

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Meeting Notice

Program for QCARC Meeting
January 20, 1984
by Art Kunst, W3WM

The January meeting of the Quad County Amateur Radio Club will be held on Friday, January 20, 1984 at the Unilec Building, near the DuBois Sheraton Inn, Route 255 and I-80, north of DuBois. on the agenda:

1984 ELECTIONS

OSCAR and the Ham is the title of the color film demonstration of the OSCAR satellite using actual two-way conversations through the satellite. We will see some elementary demonstrations of the principles of orbital mechanics, Doppler shift, telemetry, and Faraday rotation. This film is only 30 minutes in length and will serve as an excellent introduction to the second pert of the program relating to ham radio communication with astronaut Owen Gariott, W5LFL in the recent mission of the space shuttle Columbia.

We have invited local amateurs who have made preparations and/or attempted ham communications with W5LFL, to tell us of their experiences. Some of these are WB3DDA and XYL Cherrie, N3DEO, W3LMB, K3HWJ and K3PS. We expect to listen to actual tapes of W5LFL transmissions. Of course, we invite anyone who has a story to tell about Columbia to share it with the membership. Overall, this should be another interesting program on a very topical subject.

QCARC

The Newsletter of the Quad County Amateur Radio Club

Minutes

December 1983
by WA3IHK

The December meeting of the Quad County Amateur Radio Club was called to order by Art Kunst, W3WM in the absence of all officers. The meeting was held at the DuBois Campus of Penn State on Friday, December 16, 1983 at 7:30 p.m. After W3WM read the obituary of W4KFC, Vice President Tom Wonderling, WA3JBV took charge of the meeting. WA3IHK read the minutes of the previous meeting which were approved as read. There was no treasurer's report.

WA3IHK gave a report of the steering committee meeting which had been held on December 4. Discussion followed on the concept of a membership chairman (KA3FHV), the FM net being too formal (WB3DDA), who also suggested a ragchew net in addition, and comments on the membership list (W3WM).

WA3IHK announced that 1984 dues are now due! W3WM announced that the QCARC Banquet will be held on Saturday, April 14, 1984 at the Litt's Club in DuBois. The guest speaker will be Hugh Turnbull, W3ABC, ARRL Atlantic Division Director. W3WM also announced that a press release had been made to the DuBois Courier-Express featuring the attempt of WB3DDA and WB3DVR to contact W5LFL in orbit. Also the following members either heard or attempted contact with W5LFL: K3s BIE, HWJ, PS, W3LMB, WA3s BUX, UFN, WB3HUI and N3DEO. The next meeting will have a program on OSCAR and space commnications.

WA3IHK pointed out the need for a consistent meeting place.

WA3IHK moved to open nominations for the 1984 term of office. KA3AWL seconded, and the motion carried. The following were nominated:

President, WB3BQO (declined), K3LIX, KA3DWR.

Vice President, WB3HPE, K3WVR, KA3DWR, WA3JBV.

Secretary, WA3UFN.

(Minutes continued)

Treasurer, K3PS.

Executive Committee, WA3GNS, WA3HUI, WB3DDA, K3PS, WA3UFN, WB3HUE.

Nominations will remain open until elections at the January meeting.

WB3HTY moved to adjourn, seconded by K3WVR. After the meeting, W3WM presented a tape on computer circuit theory, and WA3IHK and WB3BQO gave talks and demonstrations of amateur uses of computers.

Hams attending: WB3DDA, WB3DVR, WA3BUX, WB3HTY (& W3BABY), WB3HPE, K3WVR, WB3GAD, WA3WPR, WA3IHK, WA3GNS, KA3AWL, KA3FHV, WA3JBV, WB3BQO, WA3GQU, and eight non-hams. W3WM

QCARC

Critique of Last Month's Computer Program

by W3WM

It is obvious that the club enjoyed its largest attendance (24) of any QCARC meeting in the last couple of years. This probably was due to the attraction of the program subject of Computers and their application to amateur radio. Although we had a top notch film on microprocessors, it was obvious that our atendees generally found the presentation too difficult or too lengthy. The experience of our members with computers covers the range from little to extensive. My conclusion from last month's program is that our members have a strong interest in computer applications in amateur radio, and that future programs on this subject should be planned using the lessons we learned. Any thoughts on this by the membership would be appreciated.

QCARC

1984 SPRING BANQUET

by W3WM

Mark your calendar for APRIL 14, 1984. This is the date for the Quad County Amateur Radio Club's annual dinner which usually brings together a large gathering of our members and their families. It is primarily a social occasion with emphasis on wineing, dining and story-telling. This event will be extra special this year because our distinguished guest speaker will be Hugh Turnbull, W3ABC, ARRL Atlantic Division Director.

We are very fortunate as a small club in a remote part of the state to have Hugh join us. He is a very convivial person and all of us will have an opportunity to eyeball with him. So mark your calendar and plan to be present. The dinner event will also be our monthly meeting, and marks the ninth birthday of the Quad County Amateur Radio Club!

QCARC

Did You Work W5LFL?

by W3WM

I have a copy of the first draft of the W5LFL log transcribing about four hours of tape. The entire log was recorded on tape. From this information, I have selected all of the U.S. Third district calls from all of the orbits, as follows:

K3DI, K3NV, K3PGP, K3TC, W3CWG.

There is an additional small group of incomplete calls which may contain one or two third district calls after further analysis.

It is interesting to study the list of world-wide contacts. From this it appears that the third district did not fare very well. You may study the complete list in the February QST.

The above information was taken in part from the ARRL Letter of January 5, 1984.

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DE WA3UFN

According to a recent flyer put out by Texas Instruments, warranty and non-warranty service will still be available for the TI 99/4A computer. Rumor seems to have it that there is little software for this machine. Well, this is not true. There is plenty of TI and independent company software out there, as well as a number of user's groups where help and info can be obtained. Peripherals from TI will become scarce, but there are also independent manufacturers that will be offering this equipment. TI has a hotline for help concerning the 99/4A and accessories; 1-800-TI-CARES.

QCARC

Mark your calendar for April 14, the annual QCARC Banquet. The banquet will be at the usual place, the Lithuanian Club, W. Weber Ave.,Du Bois. More info to follow in the newsletter and the FM net. See you there!

QCARC

NO CODE OUT THE DOOR
BY WA3UFN

According to a recent article from the Associated Press, Washington, the FCC voted unanimously to discard the "no code" amateur license. Robert S. Foosaner, chief of the Private Radio Bureau, said; "I strongly recommend we retain the code and bury the concept of 'no code'. I think the public comments made clear that the code should be required of all (amateur applicants)."

The proposal, last January, caused more than 5,000 public comments, 20 to 1 against the proposal of a having a "codeless" license. Included in the comments were groups representing the handicapped, who were proud of their accomplishment in obtaining an amateur license which includes learning morse code.

I, personally am happy the code is staying. The weak argument that, there are people who would like to get an Amateur license that are good in theory but poor in code therefore the code should be dropped makes no more sense than saying there are people that are poor in theory but good in code therefore the theory should be dropped. Thinking like this is what C.B., for the most part, is all about. I for one really never want to see Amateur Radio drop to the level of that other band. By this I am not saying that C.B. is totally useless, just not of the same caliber of Amateur Radio which I much prefer.

QCARC

This month's QST has an interesting topic in the Club Corner column (p 74). The fifth paragraph contains the following sentences:

> Historically, Amateur Radio operators have used all the methods of communicating available to them to enhance the art of communications. If this trend is to continue, we should consider all avenues open to us...

I think that this is as good a justification for the use of cheap micro computers by hams as any I've heard. If you look at the cost of a new transceiver, you can buy a computer for about 6% of that cost! My favorite in the low cost category is the Commodore VIC-20, which is available everywhere for $60-$70.

Here's more justification - Are you thinking about a keyboard Morse code generator? This month's QST has an article for you on page 13, that describes how to program a VIC-20 for just that purpose. A simple, 5-minutes-to-build-it interface is described that you can just plug into the back panel of the computer. Total cost? Less than 100 bucks for everything. In the same magazine, on page 148, Heathkit advertises its "UltraPro" CW keyboard. Looking in the Heath catalog, I see that the price is $249.95 plus shipping. Think about it. -WA3IHK

QCARC

IT'S FUN TO BUILD THINGS
by WA3GNS & WB3DUF

WA3GNS and WB3DUF like to build things. Kits like "Heathkit" are excellent for beginners--- and some are complicated enough to tax the abilities of the best (e.g. a 2-meter repeater station). But we prefer something with a larger choice of components or design.

Several days ago WA3GNS went to visit WB3DUF to view his latest projects. The one that got the most attention was a precision audio frequency supply. Here was a little box you can hold in one hand that puts out a variety of very precise frequencies for test purposes: 1,5,10,50,100,500 or 1000 Hz; 1,5,10,50,100,500 or 1000 KHz (1 MHz). A switch on the front chooses the frequency, square waves convertable to sine waves or pulses. Quite a range and versatility!

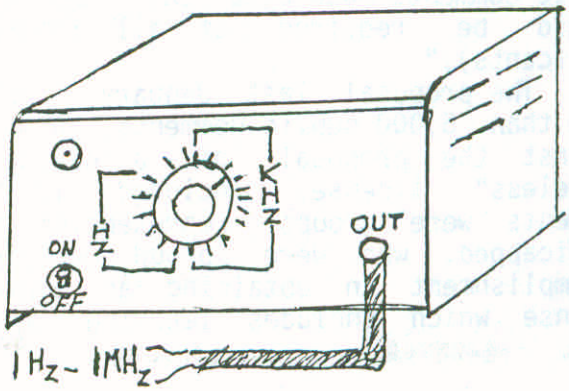
The building instructions came from a booklet "Audio Frequency Testers" published by 73 Magazine around 1976. Complicated? No, thanks to integrated circuits now available. Inside were a very simple 5-volt 300 milliampere power supply, a 1 MHz crystal, eight integrated circuits, and a few accessory parts. The "chassis" was a small sheet of perf-board (Perforated insulation board), and surprisingly, nearly all the work was done by the IC chip "centipedes". Even though each has 14 connections, you don't end up with a tangled mat of wires over the bottom because most are running in flat, parallel strips from one chip to another. By using plug-in sockets for the IC's, you can solder with ease without fear of overheating the sensitive IC devices and plug them in later.

The operation:
There are two (2) 7404 6-amplifier IC's that are used with the 1MHz crystal to make a 1-megahertz crystal oscillator and provide amplification, shaping, and isolation at various stages. There are six(6) 7490 IC's which will divide by 2,5 or 10, depending upon the connections, thus reducing the 1 MHz down to 100KHz, 10 KHz, 1 KHz, etc. in stages as set by the panel switch.

Careful work, a well chosen aluminum box, and adding printing on it with "Archer Dry Transfers" available from Radio Shack gave it a true "factory-made" appearance and a handy source.

The cost--around $50. The IC's are available from Radio Shack and others for less than $1 each, and they frequently come with some nice detailed instruction sheets showing how to connect them up.

For details on this unit, see,
The 73 Test Equipment Library
Audio Frequency testers
Volume II 1976



Computers in the Shack
by WA3IHK

This month, our intrepid (or is it insipid) hero, W3LID is trying to replace some resistors in his war surplus communications receiver. He has a bunch of every one of the preferred values (courtesy of his buddy in St. Marys), but he just can't find a 253 ohm or a 37k resistor.

From somewhere in the vast recesses of his nimble (thimble?) mind, he recalls that the reason his resistors have those "unusual" values is so that every possible desired resistance is within the tolerance of at least one standard value. For instance, 50 ohms is within 10% of 47 ohms and 51 ohms.

Since ole' Floyd's brain blows smoke when he has to crunch numbers, we wrote him this program for his **Commodore VIC-20.** It also works on the **Radio Shack Model III, Model 4 or CoCo.** In fact it will run on almost **any** home computer.

```
10 DATA 10,11,12,13,15,16,18,20
20 DATA 22,24,27,30,33,36,39,43
30 DATA 47,51,56,62,68,75,82,91
40 DIM R(24)
50 FOR N=1 TO 24
60 READ R
70 R(N)=R/10
80 NEXT N
90 PRINT
100 PRINT "RESISTOR CALCULATOR"
110 PRINT "======== ==========="
120 PRINT
130 PRINT "WHAT IS THE DESIRED"
140 PRINT "RESISTANCE IN OHMS"
150 INPUT R
160 PRINT
170 PRINT "WHAT IS THE DESIRED"
180 PRINT "TOLERANCE IN % ";
190 INPUT T
200 PRINT
210 P=INT(LOG(R)/2.3)
220 FOR I=P-1 TO P+1
230 P=10^I
240 FOR N=1 TO 24
250 RX=R(N)*P
260 IF ABS(R-RX)>R*T/100 THEN 310
270 PRINT RX; "OHMS IS WITHIN"
280 PRINT T; "% OF";
290 PRINT R; "OHMS."
300 PRINT "--------------------"
310 NEXT N
320 NEXT I
```


SWR Secrets Revealed
by WA3IHK

So many myths have grown up about standing wave ratio measurements that the whole topic has taken on the aura of witchcraft. Unfortunately, this abundant misinformation has led many amateurs down the rocky path of perfectionism needlessly.

Basically, SWR is the ratio between the source impedance and load impedance. For instance, if the source has an impedence of 50 ohms, and it is connected to a 100 ohm load, the SWR is 2:1. If the same 50 ohm source is connected to a 25 ohm load, the SWR is also 2:1. To find the SWR, divide the larger impedance by the smaller impedance. The resulting number should be greater than 1, and that is the SWR.

Some SWR meters show not only SWR, but are calibrated in "% reflected power" as well. True, at 3:1 SWR, 25% of the power is reflected back by the load, but this power is reflected by the source too, and eventually ends up being used by the load.

Basic electronic theory tells us the the maximum transfer of power occurs when the source and load have the same impedance. This is why we attempt to tune antennas for the lowest SWR. But many people don't realize that most rigs can be tuned to match load impedances from 30 to 80 ohms, or an SWR of 1.6:1 as compared to 50 ohms. Therefore, a **properly tuned** radio will transfer 100% of its power to its load.

An antenna tuner is simply an impedance matching device which presents a constant 50 ohm input for the transmitter, and converts this to whatever the antenna impedance happens to be. This allows maximum power to reach the antenna.

Now for feedline losses. At HF, the loss in a 50 foot piece of coax are probably less than 10 watts per hundred, no matter how bad the SWR. But at VHF, look out! Of course, the better the feedline, the less the losses will be. If the feedline matches the load impedance, there will not be any losses, regardless of the SWR.

So this should lay to rest many of the common myths surrounding SWR. Perhaps in closing its best to say that if your SWR is less than 2:1, go ahead and operate.

Silent Key

It is with deep regret that we report the death of Gil Hamilton, K3BFO of Coolspring. Gil was well known on the DuBois repeater, and in the Punxsy Club. He will be missed by all.

QCARC

Editorial - by WA3IHK

This month marks the sixth issue of the Parasitic Emission in a row that has been on time and full of local information. The reason is that it was prepared by a team of local hams. The hams who have made this and past issues possible are:

WA3IHK, WA3UFN, K3PS, WB3IQE, W3GNR, WA3GNS, WB3DUF and W3WM. That's EIGHT local hams who have helped to bring you the best ham radio newsletter around!

If you like what you've been getting, don't hesitate to let these guys know. A little praise goes a long way!

While I'm on the subject of the newsletter, Let me say that this month, the emphasis has been on the technical side of our hobby. Let me know what you think about the theme approach to the newsletter. Next month, I plan to have a construction project issue, so if you have anything of interest along those lines, please contact me!

QCARC

US Postal Service Issues New Commemorative

The U.S. Postal Service has issued a series of 20 cent stamps honoring pioneers in electronics. These stamps call to mind the accomplishments of Nicolai Tesla, Charles Steinmetz and Edwin Armstrong.

The stamps show a portrait of each man against a background sketch of his contribution to the art of electronics. These stamps are very appropriate for ham use, and if you would like to see a sample of one of them, please look at the stamp on this newsletter (below).

QCARC

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