ZERO BEAT

HAMPDEN COUNTY RADIO ASSOCIATION, INC

Jan 1983

1 QSL BUREAU SPRINGFIELD, MASS ARRL AFFILIATED, 34th YEAR

NEXT MEETING

Jan. 7, 1983 Feeding Hills Congregational Church 8:00 pm

The next meeting of the HCRA will be a VHF potpouri, conducted by Frank Potts, WA1RWU, and John Balboni, AC1T. With the upcoming VHF Sweepstakes, these gentlemen will have timely topics to present. Also included will be a talk by John concerning his recent trip to the Areciebo Observatory in Puerto Rico.

HOMEBREW

With the arrival of winter weather and cranking up operations in the ham shack, most of us have probably had a yearning to put together some doo-dad that we've been contemplating. For those of you who have done so-how about bring your lastest homebrew project to the January meeting for an informal "show and tell"? A small card describing your project and your call will be sufficient to display the projects and give others the opportunity to ask questions during the coffee break.

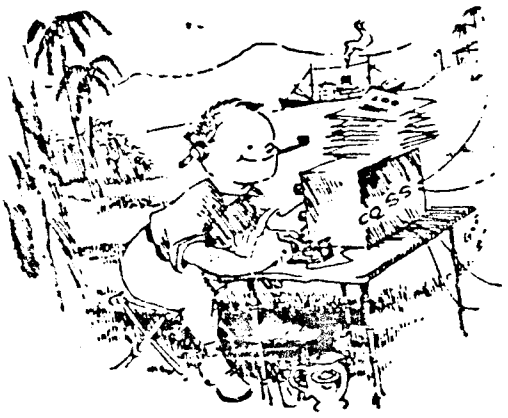
From the sunny south

W1KUL & W1UKR, Bob and Eunice Gordon, along with W1KUE, Tom Barrett, are listening on 21,400 +up to 21,410 mhz daily for calls from home (except Tuesday) at 10am EDT. They report that weather has been beautiful and hope to have beams up on both homes in the near future.

QSL to w1KUL/W1UKR
PO Box 2543
Homosassa Springs, Fla. 32647

10 meter Net

The HCRA is holding an informal ssb net on 28.650mhz weekly at 9:00 pm local time every Thursday evening. Please join in for our little chit chat and pass along your comments on rigs, antennas, computers, or anything else that comes up.



JOIN IN THE FUN!!!

VHF SWEEPSTAKES!!!

Here we go again! Once more hams all over the U.S. will be competing for awards on the VHF and higher bands. Last year the HCRA set another new club record of 282,094 points! And we took Number #1 in the country!!Can we top that? SURE, especially if everyone gets on the air. Even a small score makes a big difference to the total club score.

We should see higher scores in 1983 because more and more people have fully synthesized rigs. Members limited to just FM and low power can see how far they can get on direct. Mt. Tom ARA, PMARA and the Wellsley ARS are all getting into this more this year. If you have equipment to lend to club members, or want to get in on one of the multi-op efforts, let us know at the January meeting.

Those who are limited by the amount of time they can spend in the contest try to get on at the same times. For both Saturday, January and Sunday, January , use these local times as much as possible:

1 to 2 pm 6:30 to 7:30 pm 9:00 to 10:00 pm (local time)

For those of you who are still mystified by how this contest works, each contact is given an RS(T) report and the section you're in. (Most of us are in Western Mass). It's easy! It's fun! For example, here's how one of your contacts might go: "WA1RWU, you're 59, Western Mass, QSL?"

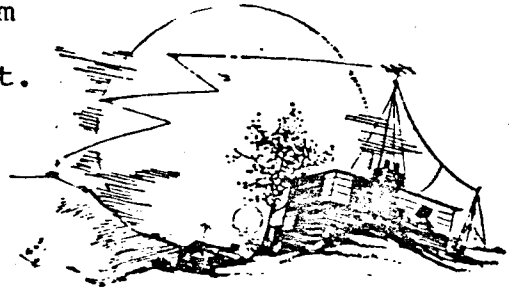
To avoid congestion, if your call begins with a "K" or an "N", try to use 146.55 as much as possible.

And if your call begins with a "W" or an "A", try to use 146.58 as much as possible.

The use of 146.52 is <u>not</u> allowed anymore, so that we don't tie up this frequency for non-contesters. So stay off of .52 for contest QSO's! Check the December issue of QST for this.

A log sheet and an entry form are supplied in this issue of ZERO BEAT. If you can't figure out the scoring, we'll be glad to do it for you. (You're not alone!) Just fill in the other data, sign it, and mail it to us. Glad to do the math!

The club station, W1NY, will be on the air. Operators are needed. Other multi-op efforts will be manned. Look for W1QWJ to be on in New Hampshire. Do we have any members willing to travel to Vermont or Rhode Island and beam back to Western Mass? Your score still counts as long as you're not farther than 175 miles from Feeding Hills. K1WVX, KA1ZE, and WB1FVS will be looking for HCRA members to work from Connecticut. WA1RWU will have his usual loud signal on all bands. Look for these stations to help up the multipliers and get a higher score.

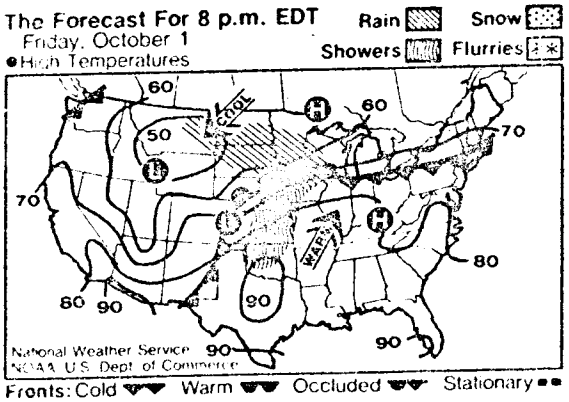


Cartoons are from old QST's, Thanks

VHF SWEEPSTAKES PROPAGATION

Bought that all-mode, all-band super wiz-bang radio and you only use it on repeaters!!! Get all those circuits humming and try out the VHF Sweepstakes! Late in the contest is an especially good time because they'll strain their ears to work you. Desperation has set in and they'll try 'til they pull you out of the muck! How far away can you expect to work stations?

This depends on various factors. SSB/CW or FM propagation occurs many differnt ways on VHF. Tropospheric bending occurs when a warm air mass overuns a cold air mass. An inversion occurs, and dog-xray opens up to a surprising distance. Check the morning newspaper and evening news shows for a high pressure area overtaking a low pressure area, or for occluded fronts. Aim your antennas along the trailing edge and hear stations in a wide coverage area.



Sporadic E skip occurs when intense patches of ionization occurs. Solar flares produce these and can be very strong. Listen to W1AW and WWV for the solar index or news of a solar flare. Or if you start hearing "G" calls 599++ on six meters, suspect an opening. F layer openings can also be spectacular and maybe we can expect one this year.

If a strange fluttering cw signal or Donald Duck sounds barely intelligible on voice, look out the window for an aurora. Point the beam North for the thrill of bouncing signals off the Aurora Borealis,or the Northern Lights! QSO's to Washington State from Massachusetts are possible. A 599A report means the strange fluttery sound of auroral propargation. Once heard it's not forgotten.

Transequitorial propagation occurs along the North/South line of the sun. Did you ever think you'd work South America on six meters? It's a possibility. Tropospheric scatter on two meter cw can go over 500 miles. Signals are fluttery and weak, but what some people won't do for another multiplier!

Meteor scatter during the Sweepstakes is mostly for experienced operators. The Cygnids meteor shower is on January 17th, with the best times and directions listed here:

0600-1100	Southwest
1100-1300	South
1300-1800	Southeast
UTC	

Quick signaling with high-speed cw, good antennas, and receivers help, and some skill. If the band's dead why not give it a try? EME or moonbounce also is possible, but usually too much for the average op'.

Beam antennas work best, but every contest the station with one watt and a whip antenna work over 100 QSO's. Always keep in mind, they want YOU, and you're doing them a big favor. The "them's" have the beams and high-priced equipment, so get on and see how far that signal can get!

Do not write above this line.

Call Used _____

VHF Sweepstakes

ARRL SECTION or COUNTRY _____

Band	Contacts		Points	Mults.
50 Mhz.		X 2 =		
144 Mhz.		X 2 =		
220 Mhz.		X 4 =		
432 Mhz.		X 4 =		
1296 Mhz.		X 8 =		
Mhz.		X 16 =		
Mhz.		X 16 =		
TOTALS		QSOs		

CLAIMED SCORE _____

SCORING: _____ ~~QSO POINTS~~

X _____ MULT. (sections + 10

= _____ CLAIMED SCORE

☐ Single Operator Station

☐ Multioperator Station (show calls of ALL operators, loggers) .....

Club participation? Yes ~~XXX~~
If yes, print the name of your ARRL Affiliated Club: HAMPDEN COUNTY RADIO ASSOCIATION

Equipment Description:

Transmitter ..... Receiver .....

Antennas .....

"I have observed all competition rules as well as all regulations established for amateur radio in my country. My report is correct and true to the best of my knowledge. I agree to be bound by the decisions of the ARRL Awards Committee."
I am a member in good standing of the Hampden County Radio Association.

Date ..... Signature ..... Call .....

Note your soapbox and other comments. Enclose your photos, as well as your SS logs and check sheets, and mail promptly to: ARRL Communications Department, 225 Main Street, Newington, Connecticut 06111.

MULTIPLIER CHECK-OFF LIST

1	2	3	4	5	6	7	8	9	0	VE
Conn	ENY	EPa	Ala	Ark	EBay	Ariz	Mich	Ill	Colo	Mar-Nfld
EMass	NLI	Del	Ga	La	LA	Ida	Ohio	Ind	Iowa	Que
Me	NNJ	MDC	Ky	Miss	Org	Mont	WVa	Wisc	Kans	Ont
NH	SNJ	WPa	NC	NMex	SBar	Nev			Minn	Man
RI	WNY		NFla	NTex	SCV	Oreg			Mo	Sask
Vt			SC	Okla	SDgo	Utah			Nebr	Alta
WMass			SFla	STex	SF	Wash			NDak	BC
			Tenn	C.Z.	SJV	Wyo			SDak	VE8
			Va		SV	KL7				
			W.I.		Pac.					

(CROSS OFF EACH NEW SECTION AS WORKED.)

Print or type:

NAME: _____ CALL: _____

ADDRESS: _____

MAIL TO:
Frank Potts, WA1RWU
657 Springfield St.
Feeding Hills, Mass 01030
OR
Mail promptly with comments and photos to:
ARRL – Communications Dept.
225 Main Street
Newington, Connecticut 06111

HAMPDEN COUNTY RADIO ASSOCIATION

VHF-UHF LOG

log sheet ___ of ___

50 QSOs per side
Number each new multiplier as worked

CALL USED ______________

ARRL SECTION or COUNTRY ______________

FREQ.	MODE	DATE/TIME UTC	STATION WORKED	COMPLETE EXCHANGE: SENT RST/SECTION	RECEIVED RST/SECTION		NEW MULTIPLIERS	PTS

HAMPDEN COUNTY RADIO ASSOCIATION

1. Check entry for duplicate QSOs before submitting it.
2. Dupe/check sheets must be included with every entry of 200 or more QSOs.
3. The complete exchange(see contest rules)must be indicated for every QSO claimed for contest credit.

CD-241 (R779)

An audio peak filter is included in the FT-ONE for use in the CW mode. We found it very effective in optimizing CW signals to the point of 12 to 17 db of accentuation. The notch filter, however, left a little to be desired. We found it to be a very, very tight control to use. In other words, you're either on the interfering signal or you weren't. It was not as smooth as the notch filter on the R-7 or the Omni C where you could flow very smoothly into the interfering signal and out of it again. Notching characteristics of the FT-ONE control exhibitted 37 to 40 db in three different measurement tests.

MISCELLANEOUS

Internally, the design of the FT-ONE reminded us greatly of the TR-7 layout with vertical plug-in circuit boards, all glass epoxy. It is very neatly laid out and the assembbly of the boards looked better than what we've seen from Yaesu in the past. We did not have an opportunity to look at the service manual because one was not included with our test unit and the manual is supposed to be a standard, included item. The word is that the FT-ONE can be completely aligned and troubleshooted just by removing the top cover. All in all, it looked good. The operator's manual consisted of 36 pages although no block diagrams or schematatics were included. Care was taken as typically Yaesu does give a good explanation of the controls and their functions. No troubleshooting parameters were included, but certainly the service manual, once we get our hands on one, will be self-explanatory. The other two areas that we should mention are that all FT-ONEs receive that extra QC [quality control] check at Paramount before they're shipped to dealers and, number two, that the warranty on the product is one year with all work to be done by one of the two Yaesu service centers in either Cincinnati or Paramount. However, if the problem is of a minor nature, it probably should be taken back to your local dealer as it would be a shame to send the unit completely across the country for a light bulb change or a loose circuit board, etc.

FINAL SUMMARY

Well, what can you say when you've just operated something that would be considered true "State of the Art", exhibiting the ultimate in performance. There's really not much to add, but we do have a few final comments. To our knowledge there are no accessories such as speakers, phone patches, etc...offered with the FT-ONE. As a matter of fact, if you thought about putting a transverter on it, Yaesu recommends the use of the FTV-107R and that would be a disasterous shame to mate that unit with its esthetic styling next to the FT-ONE. We don't know what Yaesu has in future plans for accessories for the FT-ONE but certainly we hope the common speaker, speaker phone patch, etc., will be offered. There will be a lot of FT-ONEs sold and it would be a shame to the amateurs per se not to include the full package of accessories.

The FT-ONE is a rig that, upon unpackaging the unit and reading through the instruction manual, is of such a nature that it will take a while for the amateur to get used to it simply because of the vast amount of control Yaesu places in the hands of the operator and simply because it is a complicated rig, to say the least.

Although commanding a very high price, retailing around the $3000 point, there will be those that can buy them for $2500 or less. It's still a high ticket item, but let's face it...in today's economy, you only get what you pay for and basically, you're getting the "Mercedes" of the amateur radio industry transceiver business when you purchase your FT-ONE. It's interesting to note, and we have to say this with a slight chuckle, that upon the announcement of the FT-ONE and the mass advertising program that Yaesu instituted in the various trade journals peaking up the interest in the unit, that the Kenwood group went right to work and began to develop a competitive product which we call in the industry a "knock off". Their product is to be known as the 930 and will be priced in the $1850.00 range to $1900.00 threshold, but I cannot perceive nor foresee that, for that dollar figure, that they'll be able to measure up to the quality of the FT-ONE, for the FT-ONE and the Signal One CX-11 are in a category of their own to be closely followed with the old Collins 75S3C system, along with the R-7 receiver from Drake. And those, gentlemen, are the ultimates.

With all the technology and all the goodies and all the innovations put into the FT-ONE from Yaesu, we're wondering if there is not a lower priced prototype being developed right now, incorporating many of the design features of the FT-ONE in a lower priced version* made to replace the 902 series or what have you. We'll only have to wait and see and keep our ears close to the ground with our good contacts in Japan where a good percentage of the technology relative to amateur radio is being perceived and developed. I certainly hope that all who read ARP have a dealer close by where they can go down and look at an FT-ONE and possibly twist the dials and controls and get a full-fledged demonstration of the radio because it's well worth it. If there's no other way, possibly during a visit to one of the larger hamfests you may be able to do so. Make it a point to try. I think you'll be surprised, pleased and at least walk away with the satisfaction that you've seen the "Class Act" in transceivers of our entire amateur radio industry. ARP

*[Pretty good forecasting. ARP wrote its review before the FT-102 was announced. According to tests to date, the FT-102 receiver appears equal to (if not better than) that of the FT-ONE in the ham bands so Yaesu seems to be pulling well ahead of the competition at the moment. As you know, I've had the FT-ONE for some time now and while I agree with most of the remarks in the ARP review, I prefer to withhold comment a little longer. N4ML]

RX Noise Bridge
160 thru 10 mtrs

This little known instrument has always interested amateurs when building transceiver antennas and finding resonant frequencies of tank circuits. Several articles have been published in QST and 73 magazine. Also MFJ and Palomar have advertised a commercial product complete with battery at approximately $55 give or take a few.

Finding this rather a high price to pay for a few parts in a mini-box, I decided to construct one based on the article in 1982 ARRL Handbook, chapter 16-33434.

With a little investigation I found that Circuit Board Specialist sold a kit of parts including circuit board of Fig. 71 & 72 for $16.60. The only extra parts you must purchase are a 0-150pf capacitor and a chassis box with 2 ¼" shaft knobs and 2 SO239 connectors. Total cost is approximately $25.

Parts list: Radio Shack cabinet #270-252 4"x2"x5" $3.79
" " connector "278-201 $ .99
Circuit Board Specialist noise bridge kit $16.60
PO Box 969
Pueblo, Colo 81002
303-542-5083

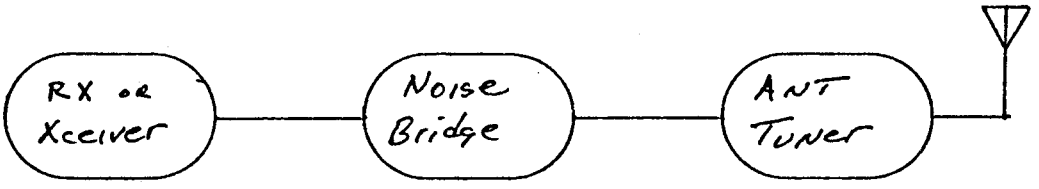
Capacitor 10-106pf pn 48b083c $2.00
Fair Radio Sales Co.
PO Box 1105
1016 East Eureka St.
Lima, Ohio 45802
419-223-2196

For those who do not like to look for parts but like to build kits, a complete kit is available from Radio Kit
Box 411
Greenville, NH 03048
603-878-1033

RX noise bridge Ham Radio Feb 77 article
complete kit including case & connector $33.45
shipping 2.50
$35.95

Construction and calibration should be directed to reference material of the '82 Handbook. One note, the top picture showing the completed noise bridge is incorrect, fig. 68. Checking with the ARRL, this has been corrected in the '83 Handbook. The minus C scale for the capacitance dial is reversed. The plus C scale is ok.

A few tips on operation and test of your new instrument using existing transceiver and antenna system. For best results prior to on the air transmission connect your equipment in the following manner.



Repeat this procedure for each and every band and frequency you operate on. This will give you 50 ohms and a resonant antenna system every time you tune up to transmit. When you have completed your transmatch calibration chart you are ready to set up your transmitter. Disconnect the noise bridge from the transmitter. Connect the transmitter output to a 50 ohm dummy load. Again repeat your frequency chart the you previously made. Tune up your transmitter per your instruction manual, for drive, load andfinal. Adjust for maximum power. Maintain very short tune up, to enable output stage to remain "cool". After you have completed this chart of where all your controls are to be set prior to transmitting, you should never have to tune up on a station again! If any equipment is changed including antenna repeat this calibration and make a new chart.

For Unknown Antennas

This procedure is for unknown antenna legths. Use a general coverage receiver for easier results.

1) After installing your antenna approximately where it will operate connect your newly made antenna to the noise bridge unknown connector and the receiver to the detector rec. connector. Set the noise bridge on.
2) Adjust receiver for center frequency that the antenna was cut for.
3) Adjust noise bridge dials for best null dip on receiver S meter.
4) Determine by reading dial settings if antenna is 50 ohms and "0" capacitance at that frequency. If resistance is 50 ± 25 and capacitance is on the +c side your antenna is too short. To verify this set dial at 50 ohms and "0" capacitance and record frequency where null dip occurs. You should read a higher requency on receive where resonance occurs. The percentage difference between your desired frequency and your actual frequency is the percentage you must increase the length of your antenna by. If the capacitance dial was set to the -c side, the antenna is too long. Verify as you did for the +c except frequency will be lower for actual null dip (resonance). The percentage dip now is to decrease the length of the antenna. Add or subtract to your antenna until 50 ohms ± 25 and "0" ± 50 pf is obtained at (resonance) null dip. No matter what the antenna is, horizontal, vertical, inverted V, beam or how high it is from the ground this little instrument will prove itself the most valuable tool in the radio shack.

KA1JDY
R. Archambault

Note: Bob very graciously brought his little noise bridge over along with this article and we put the bridge through it paces with my rig and antennas. It proved to be far handier than a swr bridge for initial antenna adjustments and finding correct settings for the antenna tuner. I'm planning to put one together soon and many thanks to Bob for showing me how useful this device is. Ed.

Wanted: Service information and schematic of Waterman 5-15A oscilloscope Al WA1SMH 1-247-5518

Sell: Drake MN2700 2kw transmatch featuring built in wattmeter, swr bridge, and antenna selector for 4 antennas. $225

Homebrew transmatch featuring rotary indutor, thru-bypass swithcing, antenna selector switch for 4 antennas. $50

Hallicrafters HA-1 "T.O." keyer featuring dual speed ranges, sidetone monitor, and mercury wetted relay output $25

Gent, WA1CQF 413-737-9426

Reprinted From
Zero Beat, November, 1979

How to achieve 25 WPM Painlessly (Almost)

The following ideas are what may appear to be relatively unorthodox methods to achieve code proficiency. They are not intended to be shortcuts and may not work for everyone. However, when all else fails, they may be of some reenforcement when used with some of the more accepted methods of achieving higher code speed.

Many hams (and prospective hams) regard code as a major stumbling block; whether to get a license, upgrade to a higher class license, or just to increase code speed. Morse code should be pursued as a challenge rather than a chore. Regardless of the method used, a positive attitude toward code proficiency must be maintained and it should be considered somewhat enjoyable.

The first method is based on my theory that there is no need to copy a transmission letter for letter during the course of a normal QSO (except for handling traffic). Just as a college student must learn to listne to a lecture and learn to take pertinent notes, the ham can do the same; copy the text in your head and make notations as necessary. ...which brings us to the new type of FCC code tests where questions are asked on a "typical" QSO.

Your first biggest fear is letting go of your pencil when it comes to copying. Like the first time on a bicycle, you know you'll learn how to do it but that first push off the curb and neither foot on the ground does nothing for the blood pressure. So, let's take a more relaxed approach to this method. Turn on your receiver and find someone who is sending just a little faster than you can receive. Impossible as it may seem, try to find someone with a good fist.

Put your pencil down, fold your hands on your shack desk, and put your head down and close your eyes. Don't go to sleep!! Listen as he sends. At first you'll only pick up a character here or there. Don't get discouraged - you won't be proficient in just one session. Gradually the characters will turn to words and somewhere down the line, you'll be able to copy the whole transmission. Now you're listening to a conversation - not scribbling feverishly to copy everything and trying to decipher it all as he sends HW? W1NY DE K1HAM K. When you can copy this way at the speed you wish to acheive, it shouldn't be much trouble at all to make notations on signal report, QTH, name, etc. The crux of this method is you only write down pertinent information leaving out words - such as ands, the's, here, etc.

For most of us, the goal is to pass the FCC test for the class license desired. When you take the test, just listen to the one minute practice tape instead of writing it down. It will allow you to get used to the pitch, speed, and not to be all tensed up when the test portion is sent. It may even psychologically help you to pass as you watch everybody writing like mad during the practice tape and being half "burned out" by the time the test portion is sent. The test is a simulated QSO and you only have to answer questions on what was sent - no longer the requirement for 1 minute solid copy out of 5 minutes sent. "ERGO" the previously described method. For example the test may be: I teach psychology at UMASS and live in Springfield, Mo. It may not make sense but copy what is sent. They may ask you what his profession is and your choices would be: psychology teacher, psychiatry teacher, philosophy teacher, philantrophy

teacher. The underlined words are the pertinent words and should have been what you wrote.

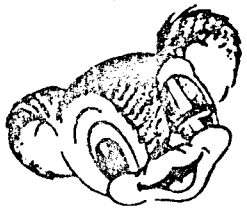
"How do I know what to write down?" you ask. By now you should be able to copy a word or two behind what is sent; which brings us to my theory of not writing down what is not necessary.

If the above method offends you or you don't wish to put down your pencil, the following may help you to increase code speed. Try chasing DX. Not only will your code speed increase, but you'll learn to pick one signal out of a myriad of others. Maybe you'll even snag that exotic country that you didn't even know existed. DX QSOs are pretty much formatted. For example: WA1CQF DE UD6HAM UR 579 579 QTH AZERBAIJEN AZERBAIJEN NAME VLAD VLAD HW? WA1CQF DE UD6HAM K. Even though you know the format of the transmission, you really can't anticipate the actual contents of the text, You'll have each word sent twice. After a short while of operating, don't be surprised if you're working stations sending 20 to 25 WPM.

The above are what I call "learning by osmosis" i.e., you become proficient at what you enjoy. So.....relax a little and enjoy CW ...have conversations instead of exercises in writing letters and numbers on paper. Don't forget to practice your sending (not on the air). You're judged by your fist.

Good luck and QRQ.

Gent Lam
WA1CQF



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