



# N.E.W.S. LETTER



The Publication of the North East Weak Signal Group

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President: W1GHZ Paul Wade  
V P: WA1MBA, Thomas Williams

CURRENT OFFICERS

Secretary: N1GJ George Jones  
Treasurer: N1DPM Fred Stefanik

## NEXT MEETING

**SATURDAY, JANUARY 4TH, 2003, AT THE RADISSON HOTEL IN ENFIELD**  
**THERE WILL BE AN INTERESTING SURPRISE GUEST SPEAKER**

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## FROM THE PRESIDENT

### January meeting

Our next meeting will be on Saturday, January 4th, 2003 at the Radisson Hotel in Enfield. We are lining up an interesting speaker, but not confirmed yet. There will also be a duct tape auction - a chance for you to pass along those items that seemed like such a great deal at the flea market.

### Election

We will elect officers for 2003 at the meeting. I've been President for two years, and am ready to retire. I've tried to get the NEWSletter out on time (not always successfully), write something for each issue, and have a program for each meeting. We also hosted a very successful Microwave Update, thanks to the efforts of many of you. A few folks have suggested on occasion that they would do things differently if they were President...

Now it is time for someone to step forward. Suggestions or volunteers? Please contact the nominating committee: WA1MBA, KB1VC, and W1GHZ.

### January VHF Sweepstakes

The January VHF contest is scheduled for Jan 18-20. Last year my neighbor "suggested" that I might want to watch the Patriots playoff game Sunday night rather than interfere with his TV, so I took his suggestion and missed the last few hours. We'll see if the Pats do as well this year.

Your entry is needed to help the club score. Even if it's not a huge total, the number of entries counts as well. Send your score in and put "North East Weak Signal Group" on the club line - no abbreviations, they are apparently very fussy.

Look for your fellow club members - each contact counts twice for the club!

73  
W1GHZ

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## SECRETARY'S REPORT OF THE NEWS

### BOARD MEETING

### OF 16 NOVEMBER 2002

President Paul Wade, W1GHZ, called the NEWS Board Meeting to order at 11:50 AM at the Radisson Hotel in Enfield, CT. The following Board members were in attendance: Paul, W1GHZ, and Tom, WA1MBA. Also attending were Bob, W1COT, Larry, K1LPS, Ron, WZ1V, Ken, W1RIL, Don, W1FKF, Matt, KB1VC and Tom, W1NWE.

The first subject of discussion was the election of officers for 2003. The five positions on the Board to be filled and the present office holders are:

President: Paul Wade, W1GHZ  
Vice President: Tom Williams, WA1MBA  
Secretary: George Jones, N1GJ  
Treasurer: Fred Stefanik, N1DPM  
Editor: Del Schier, K1UHF

In addition, two Board Members at Large will have to be elected to fill the slots currently held by Bob, W1COT and Art, W1TDS. Since Board Members at Large are elected for two years, the two members not up for election this year are Stan, KA1ZE, and Stan, WA1ECF. A discussion followed concerning how many members constituted a quorum. It was decided that at least 30 members would be required to hold a valid election. If less than 30 members were in attendance at the full meeting of the NEWS Group, the elections would be put off until the next regular meeting, presently scheduled for 4 January 2003.

Ron, WZ1V, thanked the group for their trust and support of his efforts as Registrar for the Conference, but announced that this was his last year in that position. Someone else would have to fill that slot for the 2003 Conference. He then donated 10 Proceedings CDs of the 2002 Conference to the Club with the comment that all of the printed Proceedings were gone as well as the original run of CDs. He ran the new run of 10 so we would have some if needed.

Matt, KB1VC, noted that we received generous donations from several JA's who attended the Conference. We should send them a note of thanks for their support. Matt will pass along the addresses to Stan, WA1ECF, who handled prize donations for the Conference, so he can send along notes on behalf of the Organizing Committee and the NEWS Group. The Conference Organizers will spend the next several weeks settling the books and once done, will suggest allocation of the "profits" if any.

The meeting was adjourned at 12:10 PM.

## SECRETARY'S REPORT OF THE NEWS MEETING OF 16 NOVEMBER 2002

The meeting was called to order by President Paul Wade, W1GHZ, at 1:23 PM. A summary of the 2002 Microwave Update/NEWS Conference was presented by Matt, KB1VC.

Paul, W1GHZ, noted that pursuant to the decision made at the NEWS Board Meeting, no election of officers would be held since a minimum of 30 members was not present. A general discussion followed as to how the election would be run at the next meeting. It was decided that having a nominating committee present a slate of officers would be the way to proceed. To this end It was moved by Ken, K1RIL, and seconded by Ron, WZ1V, that a nominating committee be formed, including Paul, W1GHZ, Tom, WA1MBA, and any others interested in serving on the committee. The committee will report back at the January 2003 meeting with a slate of officers. The motion was passed by all NEWS members attending.

Ron, WZ1V, reported that the K1TR 1296 beacon was off the air and looking for a new site. Since we (NEWS Group) have access to the Saybrook site, the beacon might be moved there. It was moved by Matt, KB1VC, and seconded by Tom, WA1MBA, that the NEWS Group (via Ron, WZ1V) contact K1TR to express our interest in hosting the beacon. The motion passed unanimously.

The date of the next meeting of the NEWS Group was discussed and it was decided that the date should be 4 January 2003, the first Saturday in the new year. Dispite the generally held opinion that this was the date of the first snow storm of the year, it was decided to hold the meeting on that date. The March meeting date was also discussed and it was decided that the meeting date would be Saturday, 15 March 2003. Paul will contact Stan, KA1ZE, with the dates.

Ron, WZ1V, announced that the club website now has the updated K1TEO "Welcome to VHF/UHF" slides. The slides are ideal for presentations to HF/repeater clubs and others whom we might intice into weak signal operating. Ron also has hardcopy foils for anyone who might need them.

Next on the meeting agenda was a "Duct Tape" auction run by our President, Paul, W1GHZ. Jud, K2CBA, picked up some waveguide and semi-ridgid coax items and everyone had a good time.

For the final item on the agenda, Paul, W1GHZ, presented slides of his November trip to the Microwave Roundtable held in the UK.

The meeting was adjourned at 2:15 PM.

## DECEMBER 2002 NORTH AMERICAN METEOR SCATTER CONTEST RUMORED SCORES

Call	Grid	Class	50	144	222	432	Total	Score
K0PW	EN34	H A 2		48/43			48/43	2064
K1JT	FN20	H U M	20/20	21/20			41/40	1640
K1SIX	FN43	H A 6	25/24				25/24	600
W5KI	FM29	L A M	15/15	3/3			18/18	324
WO9S	EN61	L A 2		16/16			16/16	256
K0AWU	EN37	H A M	5/5	11/11			16/16	256
K9KNW	EL95	H U 2		14/14			14/14	196
K7ICW	DM26	H U M	12/7	2/2			14/9	162
K1UHF	FN31	H U 2		9/9			9/9	81
VA3NEA	FN25	L A 6	9/8				9/8	72
N8OC	EN83	H U M	1/1	8/7			9/8	72
W1ZC	FN42	H A 2		8/8			8/8	64
W8WN	EM77	H A 2		8/8			8/8	64
WB2SIH	FN31	H A 2		8/8			8/8	64
KR7O	DM07	L A 2		9/7			9/7	63
WB2FKO	Rover	L A 2		7/6+2			7/6+2	56
N7CZ	DN47	L A M	5/5	1/1			6/6	48
N0UK	EN34	H A 2		6/6			6/6	36
N9LR	EN50	L A 2		4/4			4/4	16
K2OVS	FN30	L A M	1/1	3/3			4/4	16
KB1CJ*	FN42	L A M	0/0	0/0			0/0	0

\*: ... but really tried hard. Wait 'till next year!

H = High power

L = Low power (less than 200 W output)

A = Assisted

U = Unassisted (no internet skeds, random only)

6 = 50 Mhz only

2 = 144 MHz only

M = Multiband

X/Y ==> X QSOs in Y distinct grids.

If you participated in the contest and are not yet listed above, please send an email to k1jt@arrl.net with your Call, Grid, High or Low Power (Low = less than 200 W), Assisted or Unassisted, Single Band or Multiband, number of QSOs and grids on each band, and claimed score.

I operated just a bit Fri night between 20 over rain static, about an hour Sat morning, Sun morning about 3 hours. K1UHF

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# LOAD TESTER FOR BATTERIES AND POWER SUPPLIES

PAUL WADE W1GHZ

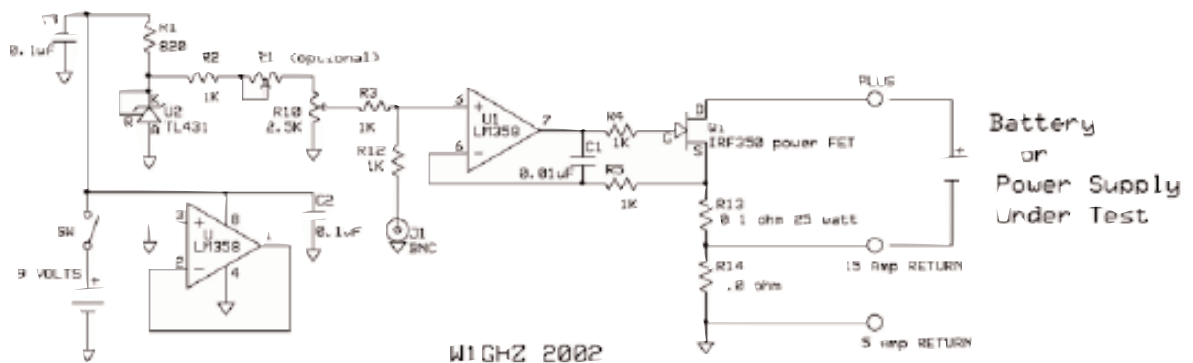
W1GHZ@ARRL.NET

For years, I've used an old automobile headlight to test batteries and power supplies. Actually, it's the high-beam filament – this is the bulb that was replaced when the low-beam filament burned out. It draws about 5 amps, and has an obvious indicator that everything is working. A battery that can keep it bright for several hours will stand up to a day of roving.

I've also used the light to test power supplies, with mixed results. It draws too much current for small ones and not enough for larger ones. For higher currents, I add some big resistors – now I've got hot resistors and lights all over, and sometimes the clip leads overheat, or slip off and cause more excitement.

Recently I was thumbing through an electronics magazine and came across an "Ideas for Design" circuit<sup>1</sup> for a dummy load for power supplies. Many of these ideas are questionable, but this circuit was pretty simple, so I could figure out how it works. It used some fancy parts, coincidentally made by the company that employs the designer, to keep the battery drain low. A few quick calculations suggested that the same circuit with cheap, readily available parts (i.e., the kind in my junk box) would work just as well, but a 9-volt battery would only last a week instead of a year. Since this kind of gadget is only used occasionally, battery life is not a problem.

The schematic is shown in Figure 1. The op amp, U1, compares the voltage drop across R13 to the voltage set by the pot, R10, and controls the drive to the power FET to keep a constant current through R13. The voltage reference, U2, provides a stable 2.5-volt reference voltage over temperature and battery life; it works like a zener diode, only better and cheaper. None of the component values are particularly critical, but power is a consideration. It is important that R13 be a hefty resistor, since the power it dissipates is  $I^2R$  — 10 watts at 10 amps, 22.5 watts at 15 amps, etc. R11 can be used to set the maximum current. Q1 dissipates the rest of the power ( $I$  times 12 volts), so it needs a good heatsink, while R13 uses the box for a heatsink. I used a 10-turn pot for R10, for finer adjustment. For testing at low currents, the negative lead (RETURN) may be connected to add R14 into the circuit.



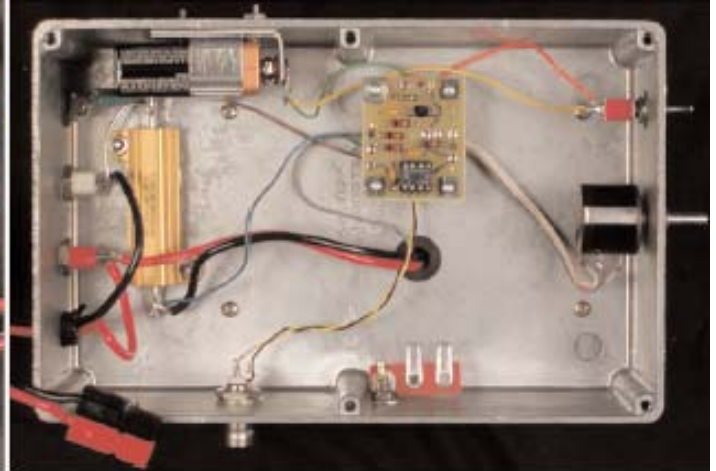
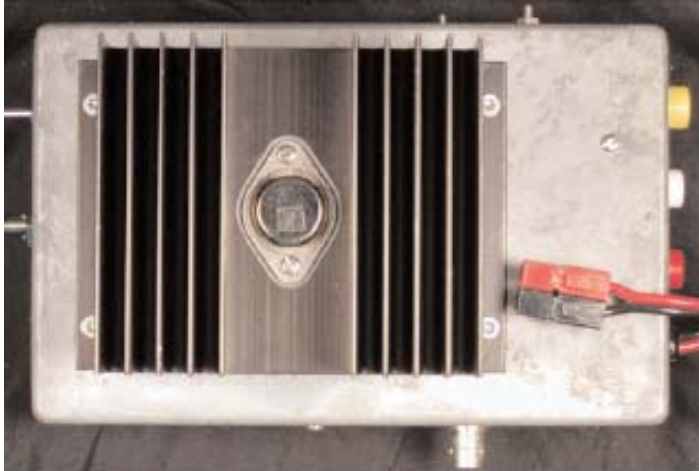
## LOAD TESTER FOR BATTERIES AND POWER SUPPLIES

A common 9-volt battery powers the unit, so it doesn't care about grounding – it works fine with positive and negative supplies. Battery life should be 50-100 hours of operation. If that is a problem, micropower op amps (U1) and voltage references (U2) are available to reduce battery drain.

The circuit is simple enough to breadboard or dead-bug, but those never get put together well enough to work reliably. I chose to put it on a PC board – it fit in a spare corner of another board that I was sending off to ExpressPCB ([www.expresspcb.com](http://www.expresspcb.com)). Since their MiniBoard service is a fixed size board, I make sure to fill all of the space with something. The board layout files are on my website, [www.w1ghz.org](http://www.w1ghz.org).

When I got the boards back, I dug out the rest of the parts, plus a big heatsink and a used aluminum box big enough to hold the heatsink – the PC board is a tiny in comparison. Figure 2 is a photo of the finished unit.





The unit provides a constant-current load, good for testing batteries. I adjust the pot for the desired test current, then flip the switch on and off to see how much the voltage droops under load. With a good battery, the droop might be less than 0.1 volt, while a dying battery might droop several volts. Then I can test the battery under load for hours, checking the voltage occasionally – when it starts dropping faster, the battery is nearly drained. I tested all my rover batteries this way and found a couple of weak ones, which probably would have died in the middle of a 10 GHz contest (“why does my frequency keep jumping?”).

The load is also good for testing power supplies; I usually buy them surplus or at flea markets. A regulated voltage should not change significantly with current, and the current can be adjusted slowly to check current limiting in a power supply. More important is the transient response – a power supply should respond fast enough for CW keying and SSB peaks without overshoot or ringing. I look at the output voltage with an oscilloscope while flipping the switch on and off; for a severe test, I connect a pulse generator to the BNC connector and give the power supply a workout.

Testing isn’t limited to 12 volts; the load will work from about 3 volts to as high as the power FET will stand. I recently used it to test some 48-volt supplies.

In summary, this is a handy, useful gadget that is simple to use and easy to build with common parts. What more can you want?

1. Guy, J., “Resistive Dummy Load Draws Constant Current From 1.2 To 50V, *Electronic Design*, 16 April 2001, P. 99.

## **A REVIEW OF THE 2002 MICROWAVE UPDATE ON THE ARRL WEB PAGE**

There is a review By: Stu Cohen, N1SC, at :  
<http://www.arrl.org/news/features/2002/10/30/1/>

## **NEW VERSION 3.0.0 OF WSJT AVAILABLE NOW**

WSJT Version 3.0.0 includes a new and expanded User’s Guide and Reference Manual. Important new sections cover the EME Echo mode and the various astronomical calculations in WSJT, and I have also included an essay on possible future developments of the program.

For the first time it is available in a package containing the program’s most essential source code. This package serves as documentation for the present state of development of the

FSK441 and JT44 protocols, and it makes an excellent starting point for anyone who might wish to contribute to further development or to port the program to another platform. The program sources are in Fortran and include all of the DSP algorithms in WSJT, as well as a suite of test programs for generating simulated data and testing the encode and decode algorithms. The full set of test programs can be run equally well under both Windows and Linux. If you know what a “tarfile” is, and would like to learn more—potentially a lot more—about how WSJT works.

Go to: <http://pulsar.princeton.edu/~joe/K1JT/>

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## DE WA1MBA,

Another year has gone by, and a heck of a lot has happened. It was over a year ago when KB1VC, W1GHZ and I agreed that the NEWS group should ask to sponsor one of the Microwave Updates. The committee agreed, and with Matt's leadership and a whole lot of help we pulled it off. I have heard from several quarters that this was one of the best Microwave Updates. Personally, I think they just keep on getting better. Success is a matter of continued interest in the microwave spectrum as much as it is a matter of the enabling efforts put in by the teams who made the conference work. I wish to add my personal thanks to everyone.

This year has seen the encroachment of more interference into our bands, and seemingly less interest by regulating bodies to keep it clean. Nonetheless, we keep on setting records, keep activity levels high, and get out the word. In fact, the FCC has moved to prevent loss of spectrum. The tough economic times have had their toll on many of us, including our beloved QST. The January issue was the first I recall having the abbreviated contest scores. Yep, I was pretty mad - but I think the displeasure should be directed at the economy and the decline in ham's purchasing (and hence advertisement dollars) rather than at the QST decision. After a few affirmations in front of a mirror, I went on line to see if my callsign was still "in print" for the June contest. Lo and behold, the QSO and grid leaders by band now extend to 3,456 MHz. Well, having the extra (cyber) space maybe isn't so bad. For me, the jury is out on this change.

The reality of the economic situation is that such cost cutting measures are just bound to happen. Having worked with the QST staff for the last year writing Microwavelengths has opened my eyes to the true dedication and concern that our ARRL folks have for us and our dying breed. On that same note, the President of the ARRL has articulated a vision for the future of ham radio. It has a very strong emphasis on getting ham radio back in the elementary and junior high schools. I have to ask "What can I do to get youngsters interested in the hobby again?" I hope that all of us can ask ourselves that same question.

Encroachment into our bands, lack of sales of equipment and advertising space, and an aging ham population are indicators of a gloomy future for the hobby. Perhaps hosting Microwave Update, and sponsorship of the annual Eastern VHF conference are ways that our club keeps interest up and publishes the fruits of our hobby. Let's keep looking for ways that our club can stir interest and brighten the future.

## 10 GHZ CONTEST RULES, ANOTHER VIEWPOINT FROM: DICK, K2RIW 08/29/02 VIA THE WEB & REFLECTORS

**INTRODUCTION** -- I've read the comments of W2EV, K1DS, W3HMS, K2TXB, N3APZ, AL7EB, KA1UAG, K2AXX, AA2UK, WA3IAC, KB1GRS, WA3PTV, W4DEX, K0CQ, N3JRQ, WA1VVH, KA1AE, WA2VIO/0, W0GHZ, KD4APP, and W6GHV (in that order) concerning the 10 GHz & Up Contest, and I feel quite sure that many of us have become much too LEGAL on the issues of this particular contest. With good intentions in mind, it is quite possible that we have lost sight of the original purpose of this particular (and rare) concept in contesting -- I'll explain.

**(1) THE USUAL VHF/UHF CONTESTS** -- The more usual VHF/ UHF contests have a rather massive number of participants. These contests are held in the U.S. in January, June, August and September (and some Sprint and EME weekends). They have very specific rules that have "evolved" over the years after many meetings, discussions, and gentleman's agreements. These rules exist for very good reasons. The major intent of these rules is to create a level playing field, that defines what is (and is not) legal, so that each of the MANY participants is treated fairly, and the declared "winner(s)" will receive rewards and certificates that are deserved and meaningful. The winner(s) should be an individual(s) who demonstrates superior operating skill, commensurate with good technical skills and organizing skills. In this manner, few of the rewards and certificates that are issued will be challenged later, and there should be very few situations of "hard feelings," and resentments. Thus, the contest participants should feel encouraged and technically challenged to make improvements in their equipment and operator skills, so as to achieve a better score in the next contest.

**(2) THE 10 GHZ & UP CONTEST** -- But, the 10 GHz and Up Contest is very unique in a number of characteristics. I believe the creator(s) of the rules for this particular contest had something very different in mind because of at least three characteristics: First, the contest creators had to recognize that the very rare (and most valuable) kind of bird that dwells on 10 GHz (and above) requires a very special kind of nurturing. There is approximately one Ham operator per 500 in the general population, and there is approximately one "Dyed in the Wool" Microwave Operator per 500 Hams. Thus, there are only about 1,000 "Hard Core" Microwave Operators in the U.S. You could say they are "One in a Million" (times 4). You could say that these "rare birds" are the most valuable kind, because history has shown, repeatedly, that our communication future always resides in the higher frequencies. That next higher band has always been considered nearly useless, until some pioneering spirit went there and demonstrated how useful it is. Second, a 10 GHz operator uses rare types of equipment that are only understood by one person per quarter million in the general population. Among college educated engineers, it is somewhat discouraging to find that only one per 100 engineers has a good working knowledge of Microwave Techniques and Microwave

Antennas. Third, very few Hams and engineers have a good working knowledge about the specifics of Microwave Propagation. You could say (with only mild exaggeration) that Microwave operators are doing a kind of pure search into Mother Nature's world of Physics and Propagation.

**(3) THE CONTEST INTENT** -- With these three points in mind, let's now consider what I believe is the intent of the "10 GHz and Up Cumulative Contest." It is to encourage those Rare Birds to investigate and study the techniques of Microwave: (1) Generation, (2) Reception, (3) Focusing, and (4) Propagation. The techniques of Generation, Reception, and Focusing are usually considered esoteric, but static, situations. But, it must be recognized that Propagation is much more esoteric, and far from static (it's quite dynamic), and it has a considerably more complicated temporal characteristic. The gathering of the data about the quantitative, and temporal nature of Microwave Propagation can only be collected in a meaningful way if enough data is gathered over a considerable period of time from a number of locations. This partially explains the most unique characteristic of the 10 GHz and Up Contest, the fact that you are ENCOURAGED to contact some of the SAME stations -- many times over -- as long as at least one of the stations moves at least 10 miles (16 km) between QSO's.

**(4) REPEATED SKEDS** -- And, many GOOD 10 GHz operators have been smart enough to schedule an attempted QSO over a difficult path every hour (or so), until the QSO is made. They didn't fall into the trap of assuming that a missed attempt means that path isn't possible with that particular set of equipment. They're simply patient enough to wait until Mother Nature opens that particular path for them. They then succeed in finding out NOT IF the path is possible, but HOW OFTEN it is possible with THAT equipment. ADAPTIVITY -- Now, here is one of the most important points. To be most objective, you have to be freely adaptive -- sometimes you have to "go with the flow." For instance, after receiving the encouragement of successfully communicating over a difficult Microwave path of say 450 km, a pair of operators may very well choose to attempt to extend the range, at that time. This may involve moving to new locations that were not anticipated, thus considerable, and new, coordination and liaison communication may be required. In such a situation the LEGAL considerations of the use of a Cell Phone, Packet, APRS, the Internet, etc, becomes much more out of the range of the concepts of this particular type of Contest.

**(5) BREAKTHROUGH PROPAGATION** -- Here is another example. If my favorite Microwave operator experiments and finds out that there is a 10 GHz path that extends from Mount Wachusett in MA to Fort Lauderdale FL, and that path is open for 5% of the time during the month of September, I'm going to be so happy to find out about this new "truth" about Mother Nature's propagation that I'm not going to be concerned with the Legalities of what method of liaison communication he used to coordinate those QSO's. THE RULES, AS I READ THEM -- QST July, 2002, page 96 contains the most recent publication of the rules for the "ARRL 10 GHz and UP Cumulative Contest." Here is how I read specific paragraphs of these rules: PP 5.1: "Scheduling contacts is both PERMISSIBLE and ENCOURAGED." PP 5.2: "Stations are encouraged to operate from more than a single location. ..." PP 7.1: "Schedules MAY be set up by use of the HF calling frequency of

3818 kHz on the evenings of Tuesday, Wednesday and Thursday before the contest weekends starting at 7 pm local. Also, 144.230, and 146.55 MHz CAN be monitored during the contest to arrange schedules with other stations. Paired stations should move off these frequencies once contact has been made. ..." As I see it, we are encouraged to do almost any kind of liaison communicating, for coordinating the 10 GHz QSO's, by any means or mode. PP 7.1 merely makes some suggestion as to A POSSIBLE way to do this. It didn't say that this MUST be the way it is accomplished. I believe that the intent of PP 7.1 is to avoid the situation where 10 GHz operators make a nuisance of themselves to the usual HF operators. A Microwave operator calling for 10 GHz QSO's on 3818 kHz for many hours during the 10 GHz contest could become very unpopular. PP 5.2 is telling us to operate from many locations. The fact that we are moving around, frequently, with probable changes in the original itinerary, implies that real time liaison communication will be re-quired to inform the rest of the operators where you are going, and when you will be operational. This kind of situation adaptability requires that you should be able to use any communication means (such as a cell phone) that is effective in informing the other operators.

**(6) PROPER LIAISON** -- There is one implication about the liaison communication. That is, use it to pass any required information to properly line up the antennas, and to get on the right frequency, at the right time, with the right person transmitting, in order to initiate the 10 GHz contact. But, during the 10 GHz QSO, it must contain the usual information that constitutes a contact -- call letters, one piece of information (grid or location), and confirmation of both.

**(7) QUESTIONED LIAISON** -- There is a possible gray zone here. Is it legal to say over the liaison circuit, "please send me the grid square again?" There are legalistic operators who will say no. I feel this is within the intent of the contest. From my point of view, the asking for the repeat of the grid square is really a second attempt at lining up a 10 GHz contact. It simply is happening with a very small time delay between the two attempts. I guess it would be more legal if you said over the liaison circuit, "please do the whole 10 GHz QSO again."

**(8) NOT GREAT TRAFFIC OPERATORS** -- However, I feel that the intent of the contest is to confirm that the 10 GHz path between sites and pieces of equipment was good enough to ENABLE the required information to be passed. The legality of asking for a repeat of calls or grids is merely correcting for a slightly more leisurely operator protocol, or operator error, that wasn't successful on the first attempt. We aren't trying to prove that 10 GHz operators have all the skills of a high speed traffic operator. We're trying to encourage 10 GHz operators to construct and learn how to use the equipment. Then the contest encourages them to prove that they know how to probe Mother Nature's SHF characteristics, in a real world communication situation, in this new frequency frontier. These are some of my opinions. I encourage alternate opinions.

73 Dick, K2RIW. Grid: FN30HT84DC27. web: <http://consult-li.com/listings/RKnadle.htm>



## MICROWAVE UPDATE PHOTOS

More Photos are at: <http://www.newsvhf.com/mud02.html>, Ron WZ1V, MUD 2002 registration team



## WANTED, FOR SALE OR SWAP

FT-920 for sale.....replaced it with an ICOM IC-756PROII.

Yaesu FT-920 160M to 2M 100W XCVR S/N7K080126  
Yaesu SP-8 Speaker w/filters  
Yaesu MD-100A8X Desk Microphone w/tone control

Transceiver includes: FM-1 FM Unit, YF-116A AM Filter (6 KHz), YF-116C CW Filter (500 Hz), Manuals, Schematics and original packing boxes.

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**SATURDAY, JANUARY 4TH, 2003, AT THE RADISSON HOTEL IN ENFIELD**  
**THERE WILL BE AN INTERESTING SURPRISE GUEST SPEAKER**

**YOUR ATTENDANCE IS NEEDED FOR THE CLUB'S ARRL COMPETITION!!**

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