



# N.E.W.S. LETTER



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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

OUR NEXT MEETING JANUARY 5TH  
AT THE RADDISON HOTEL IN ENFIELD CONNECTICUT  
MATT, KB1VC WILL DO A SHOW AND TELL ON HIS NEW DSP-10 TRANSCEIVER

## IN THIS ISSUE

FROM THE PRESIDENT DE W1GHZ	PAGE 2
SEC. REPORT NEWS BOARD MEETING OF 3 NOV 2001 DE N1GJ	PAGE 2
SEC. REPORT NEWS MEETING OF 3 NOV JULY 2001 DE N1GJ	PAGE 2
COMMERCIAL FEEDHORNS FOR 10 GHZ DISHES DE W1GHZ	PAGE 3,4
NEWSVHF EMAIL LISTSERV POSTING ADDRESS DE WZ1V	PAGE 4
JOINT CONFERENCE ANNOUNCEMENT DE W1GHZ	PAGE 5
THE DSP-10 TRANSCEIVER DE W1GHZ	PAGE 5
900 PETITION FOR NEWS DRAFT DE WB1CMG	PAGE 6
FOR SALE OR SWAP	PAGE 7

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THE NORTH EAST WEAK SIGNAL GROUP  
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## **FROM THE PRESIDENT**

### **January meeting**

Our next meeting will be at the Radisson hotel on January 5th of 2002. I've heard a few new calls on the bands - invite these guys to the meeting if you talk to them.

### **January Contest**

This is the contest with a club competition, so let's all get on and help with the club aggregate score. We will discuss our secret strategy at the meeting.

### **DSP-10 transceiver**

You may recall seeing a series of articles in QST on the DSP-10 transceiver. It sure looked like a good IF rig for transverters. Matt, KB1VC, recently finished building one and worked me last nite with 20 milliwatts output. He will have it at the meeting for show and demonstration - see the writeup in this issue.

### **Duct Tape Auction**

It's about time we had another duct tape auction, so tape two items together (one good, the other, uh, interesting) and bring them to the meeting. Someone will be unable to resist one of them!

### **VHF Contest and Microwave Update**

The official announcement is in this issue.

### **N.E.W.S. webpage**

The NEWS group now has its own domain, with a new URL for the club webpage: [www.newsvhf.com](http://www.newsvhf.com) Ron is doing a great job as webmaster, so check it out.

Paul W1GHZ

## **SECRETARY'S REPORT OF THE NEWS** **BOARD MEETING OF 3 NOV. 2001**

A quickie Board meeting was held starting at 12:55 PM. Elections will be held at the regular meeting. Be thinking about who the officers for 2002 will be.

The secretary gave a report on the question of ARRL insurance for the club. It was decided that there was not enough value for the club in the \$255 yearly premium. The insurance proposal was voted down. The club has received another gavel from the ARRL for our showing in the January 2001 VHF Contest. It will be presented at the next meeting of the club. VHF Communications Magazine was discussed and a sample copy passed around. NEWS members can subscribe by contacting the publisher in England.

The Board meeting was adjourned at 1:00 PM.

## **SECRETARY'S REPORT OF THE NEWS** **MEETING OF 3 NOVEMBER 2001**

The general meeting of the NEWS Group was called to order by President Paul Wade, W1GHZ, at 1:01 PM. Members were asked to sign the attendance register.

The first item of business was the election of officers for the year 2002. Two Board slots, Secretary and Treasurer, were on the ballot. George Jones, N1GJ, and Fred Stefanik, N1DPM, agreed to hold the offices of Secretary and Treasurer, respectively, for one more year and were elected without opposition.

Stan Laine, WA1ECF and Stan Hilinski, KA1ZE, were nominated from the floor to fill the two Board slots. There were no other nominations, so the two were elected without opposition.

Next, the meeting dates for 2002 were discussed. The members attending decided that the following meeting dates would be used in 2002: 5 January, 9 March, 11 May, 20 July, 26 October (Northeast VHF Conference to be concurrent with 2002 Microwave Update) and 16 November. The joint meeting with Microwave Update will be held at the Radisson Hotel in Enfield, CT. Stan, KA1ZE, and Bruce, N2LIV, will negotiate all of the details with the hotel. Matt, KB1VC, is helping run the general Microwave Update Conference. Because of Microwave Update, the weekend activities will start on Thursday and end on Sunday. There will be no "surplus tour" in 2002. A tour of ARRL headquarters will be held instead, on the first day of the meeting (Thursday). It should be emphasized that there will be two separate meetings running concurrently, with two sets of talks.

Ron, WZ1V, passed out door prizes and Conference proceedings that were not picked up at the 2001 Conference.

To save time and money Steve, K1FO, suggested that the NEWS Group send out copies of the NEWS Letter via e-mail rather than US mail. After discussion by the membership, it was decided to send the NEWS Letter by both means for now, as an experiment. Members can continue to supply their views on this subject to club officers.

Since the year was coming to a close, Paul, W1GHZ, suggested that members pay their 2002 dues at the break.

There is a new 10 GHz beacon on the air from FN 32-lm. It is located in Windsor, MA and radiates 600 mW ERP.

Stan, KA1ZE, gave a talk on a 24 GHz switch that he built in WR-42 waveguide.

Matt, KB1VC, and Paul, W1GHZ, gave a talk on measuring parabolas using common lasers and simple mechanical jigs. The technique works on both standard and offset fed parabolas.

The meeting was adjourned at 2:53 PM.

## **COMMERCIAL FEEDHORNS FOR 10 GHZ DISHES**

**PAUL WADE W1GHZ ©2001**

w1ghz@arrl.net

Which feedhorn is best for my 10 GHz dish?

There are several good feedhorn designs available which work well and are easily constructed. However, some hams choose not to make their own or lack confidence in their homebrewing skills, so they are left with rather limited choices.

Few feeds are manufactured for 10 GHz, but many are available for DSS satellite use at Ku-band (roughly 11 to 12 GHz). Surplus horns also appear occasionally. Some of these horns work well as 10 GHz feeds, while some others work poorly or not at all (if the waveguide is too small to propagate 10 GHz). For instance, W1RIL 1 has shown the RCA DSS horn to be a good performer for offset dishes, but some machine work is required to remove the horn from the LNB and modify it.

Until recently, no good commercial feeds were available for 10 GHz. A few years ago, the Chaparral “11 GHz Superfeed” was found to be a good performer; unfortunately, it was discontinued and is no longer available. However, three possibilities have recently become available.

The first is the “10368feed” from Down East Microwave ([www.downeastmicrowave.com](http://www.downeastmicrowave.com)). This is a version of the VE4MA feed 2, a proven performer on all bands from 1296 up. It uses simple copper waterpipe construction, with good workmanship — you could make your own, and after a dozen or so, you’d get a pretty one (and the ugly ones would work fine). The computer simulation curves for a VE4MA 10 GHz feed show excellent efficiency for an f/D around 0.4; since many conventional prime-focus dishes have an f/D between 0.35 and 0.45, this feed is perfect. The phase center is about 0.16...., or 5 mm, inside the horn.



Another possibility was suggested by Dale, W4OP, who found a feedhorn on the web, the ADL KU-855 from ADL Feeds, Inc ([www.adlfeeds.com](http://www.adlfeeds.com)), and sent me one. I measured the dimensions, ran them through the computer, and got the curves shown below. The efficiency at 10.368 GHz should be excellent for an f/D around 0.4, ideal for common dishes. The input is common WR-75 waveguide, so no modification is necessary. The phase center is about 0.19.... inside the horn. The ADL feeds are nicely made of powder-coated aluminum.



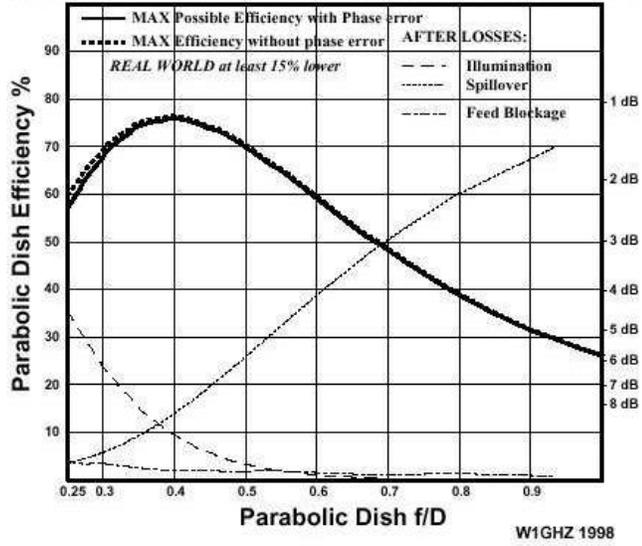
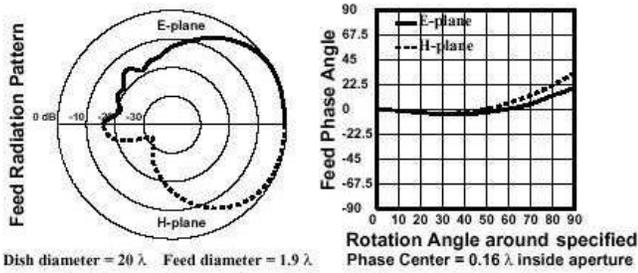
Dale wanted his horn back, so I ordered my own — ADL sells direct with no hassle. The web page also showed an offset feed, the KU-860, so I ordered one of these as well. The computer simulation curves show excellent efficiency for an f/D of around 0.6. Most offset dishes need a feed f/D around 0.7, so the performance of this feed will be down just a bit, but still very good. This horn also uses WR-75 waveguide input, and the phase center is at the center of the aperture. The only one of these that I’ve actually tested is the offset feed; sun noise measurements looked promising, but some equipment troubles prevented accurate results. Now the sun won’t be high enough again until spring, when I intend to test all three of these feeds. So there are at least three good 10 GHz feedhorns you can buy. Even so, I’d urge you to try making your own — it’s not too hard and can be fun. See [www.w1ghz.cx](http://www.w1ghz.cx) for some ideas.



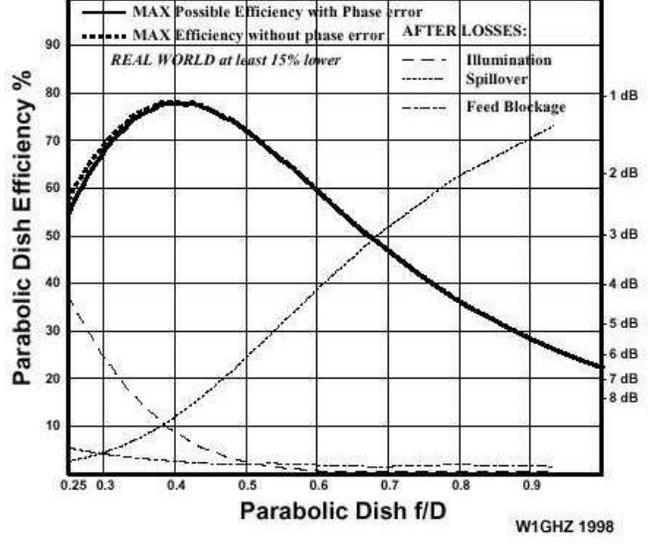
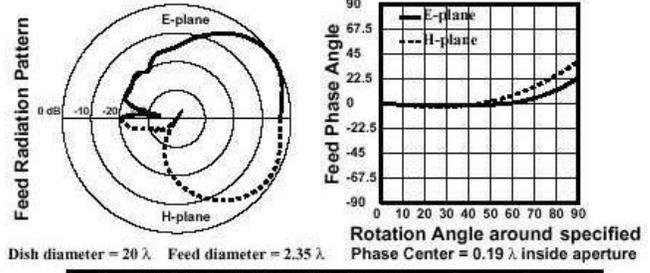
1. Ken Schofield, W1RIL, “Modifying the RCA DSS Dish for 10 GHz,” Proceedings of the 25th Eastern VHF/UHF Conference, ARRL, 1999, pp. 410-415. Also <http://www.qsl.net/k1uhf/NEWS/news9901.pdf>

2. Barry Malowanchuk, VE4MA, “VE4MA 10 GHz Copper Water Pipe Feedhorn,” Proceedings of Microwave Update ‘97, ARRL, 1997, p. 288.

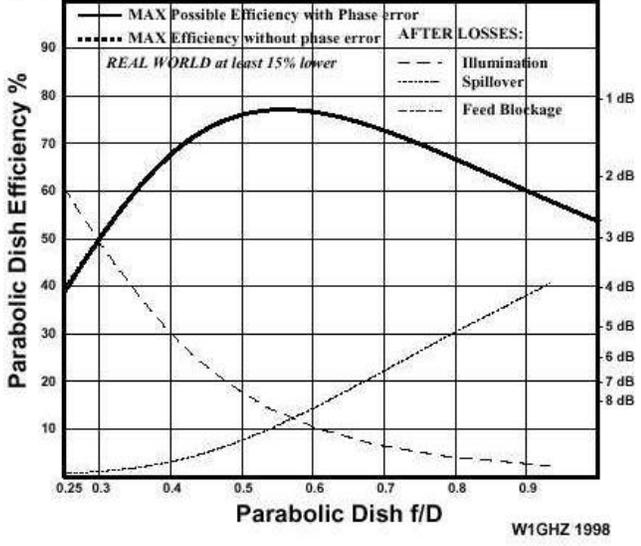
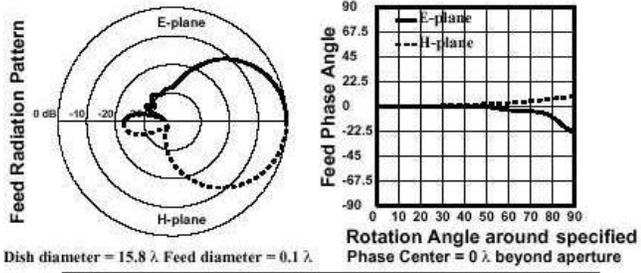
**VE4MA 10 GHz feedhorn - choke flush with horn**



**ADL KU-855 feedhorn at 10.368 GHz**



**ADL KU-860 offset feedhorn at 10.368 GHz**



**NEWSVHF EMAIL LISTSERV POSTING ADDRESS HAS CHANGED**

From newsvhf@qth.net to newsvhf@mailman.qth.net as a result of upgrading from MajorDomo to MailMan v2.0 software at the server. I volunteered our clubs' list to be one of the first ones moved. Everyone that was subscribed is still subscribed. Check out <http://mailman.qth.net/mailman/listinfo/newsvhf> for info on how to subscribe/unsubscribe/change personal settings. MailMan has much improved privacy/anti-spam features over MajorDomo and a nice GUI Web interface, and should serve our club well

73, Ron WZ1V

**DON'T FORGET**  
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**EVERY THURSDAY NIGHT AT 8:30 p.m. LOCAL**  
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## JOINT CONFERENCE ANNOUNCEMENT

**MICROWAVE UPDATE 2002**  
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**28TH EASTERN VHF/UHF CONFERENCE**  
**OF THE EASTERN VHF/UHF SOCIETY**

**October 24 - 27, 2002**  
**Radisson Hotel, Enfield, Connecticut**

	<b>Microwave Update</b>	<b>Eastern VHF/UHF Conference</b>
Thursday 24 Oct	Afternoon -Tour of ARRL Headquarters	
Thursday Evening	Hospitality Session	
Friday 25 Oct	Technical Sessions	
Friday Evening 7 PM -	Swap session for registered attendees only (of either conference) plus invited surplus dealers	Registration Hospitality Session hosted by N.E.W.S.
Saturday 25 Oct	Microwave Technical Sessions	VHF/UHF Technical Sessions, Band Sessions & NF Lab
Saturday Evening	BANQUET Awards & Prize Drawing (First 10 prizes to Banquet ticket holders)	
Sunday 26 Oct 8 AM (no early birds)	FLEA MARKET - in parking lot Open to all ANTENNA MEASURING	

SPOUSE'S PROGRAM: Friday and Saturday, including New England foliage tour, Old Sturbridge Village, Quadrangle Museums, and, of course, shopping.

Latest updates, registration forms and hotel info at [www.microwaveupdate.org](http://www.microwaveupdate.org)

### **THE DSP-10 TRANSCEIVER**

In the never ending quest for a good IF rig to use with microwave transverters, folks have tried lots of different options. The DSP-10 is one of the newer options open to us. Bob Larkin, W7PUA, published his plans for the DSP-10 as a three part series in the September, October, and November 1999 issues of QST.

Since that time, lots of folks have built DSP-10 systems, some with spectacular results. W7LHL and W7SZ have completed a 1296 MHz EME QSO with 5 Watts into TVRO dishes! Others have reported "hearing" echoes on 10GHz.

The radio is controlled via a PC connected to a serial port, and implements all the basic modulation schemes (USB/LSB/CW/FM/PUA43...) in software running inside the radio. The PC supplies the front panel controls and a whizzy "water-fall" display. With 20mW out at 144 MHz and separate connections for transmit and receive, this may be the ideal transverter driver. Now that TAPR ([www.tapr.org](http://www.tapr.org)) is selling kits on the net, just about any kit-builder with reasonable construction skills can build this digital radio.

At January's meeting, you can see the one that Matt Reilly (KB1VC) built. See a live demo and peer into the box

## **900 PETITION FOR NEWS DRAFT**

Recently the ARRL wrote in the editorial column for QST "It Seems to Us" that it is time for the 222 Mhz band to be more vigorously supported by the amateur radio equipment manufacturing community. The growth of broadband technology and its use in amateur equipment has made the inclusion of 222 MHz technically feasible at little added cost. The New England Weak Signal Group, hereinafter referred to as NEWS, has noticed this editorial support for 222 MHz and wholeheartedly approves but would like to carry this one step further to assist efforts to further occupy the 902-928 MHz band.

The 902-928 MHz allocation stands to benefit from technological improvements in much the same fashion as the 222 band. There is intensive commercial activity and component development on adjacent frequencies as well as within the band itself. MMICs and discrete parts for use in the region are abundant and cheap. Complete upconverters and downconverters on a chip are available using lower bands as IFs. In the future, gear including 1240-1300 MHz capability is expected to be commonplace and so including this band as well poses little added cost.

Amateur usage of the band has been limited up until now due to equipment scarcity as well as concerns about primary, secondary, and lower ranked users. A few hardy souls on FM and Weak-Signal modes have pioneered the band and discovered that it has unique properties unlike and poorly correlated with the next higher 23 cm band. The band has been targeted by the ISM and Part 15 users as a place to put cheap consumer equipment that can operate within the bandwidth constraints. These do not cause problems to most amateur users of the band except in the largest urban areas if good engineering practice is followed.

A disturbing trend has been observed in recent advertisements of equipment that covers the band in whole or in part. Many advertisements do not even mention the 902-928 MHz band as an amateur band at all but rather as a region to see wireless video or surveillance and intercept of other Part 15 devices. Some recent designs have had reception within the 902-928 Mhz region locked out in whole or in part even to licensed amateur users!

It is the consensus of NEWS in review of the above facts that a petition before the ARRL be placed to urge that the promotion within ARRL and QST of the 902-928 MHz band be given the same status as that of 222 MHz. NEWS resolves, by vote of its membership;

WHEREAS recent technological developments make it practical to include 902-928 MHz as low cost features on the next generations of modern broadband radios;

WHEREAS amateur usage of the band is limited by equipment scarcity as well as concerns about interference to other users sharing the band and that the amateur population currently occupying the band is low making it subject to increasing intrusions or spectrum takeovers;

WHEREAS recent amateur advertisements and equipment designs have failed to even accord the 902-928 MHz region status as an amateur band and have by design in some cases locked out access to licensed amateurs in whole or in part;

RESOLVED that NEWS requests through this petition that the ARRL promote the 902-928 MHz band in a similar manner to that by which the 222 MHz band was also just promoted by encouraging usage of the band by amateurs and by encouraging manufacturer's designs to incorporate it and by encouraging education of the advertisers within ARRL publications of the true nature of the band and its use.

Respectfully submitted for consideration,

David M. Upton, WB1CMG

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## **FOR SALE OR SWAP**

**Free to good home: IEEE Transactions** on Antennas and Propagation. just about all issues from early 1960s to 1999. A treasure of antenna articles., **QST magazine.** all issues 1975 to 1995. **73 Magazine.** 1976 to 1980. First come, first served. May be picked up in Shirley, MA, or can be delivered to NEWS meeting by prior arrangement. W1GHZ w1ghz@arrl.net

### **LOOKING FOR A NICE KENWOOD TR-751A**

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**WEB PAGE: <http://www.downeastmicrowave.com/>**

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# THE NEXT MEETING

OUR NEXT MEETING JANUARY 5TH  
AT THE RADDISON HOTEL IN ENFIELD CONNECTICUT  
MATT, KB1VC WILL DO A SHOW AND TELL ON HIS NEW DSP-10 TRANSCEIVER

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

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## **North East Weak Signal Group**

c/o N1DPM  
Fred Stefanik  
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**Check your membership expiration date  
on the mailing label!!**