

Next Meeting: July 13, 2024

Conference pictures, Polo Shirts and HatsWanted, to buypPicnic InfoPMicrowave MDS -ERP TestspQuanshengpSimple and Cheap PreampsW1GHZQST Magazine, Looking for new club Trustee, EME Conference, Microwave UpdatepSupportersp	page 4 page 5 Page 6 page 7 page 8-9 page 10-12 page 13 page 14 page 15
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Knights of Columbus, Picnic area and Pavilion

371 Washington Rd., (aka George Washington Road) Enfield, CT 06082<u>DON'T FORGET</u>

The North East Weak Signal Group 2 Meter Net Every Thursday at 8:30 PM local 144.250 MHz K1BXC Net Control

MEMBERSHIP in the N.E.W.S Group is \$10 per 2 years. Apply to George Collins, KC1V. E-mail: <u>news.kc1v@gmail.com</u>. You may download an application from our web page: <u>http://www.newsvhf.com</u>

The N.E.W.S. LETTER is the publication of the North East Weak Signal Group. Articles may be reprinted with proper credit given to the author and the N.E.W.S. LETTER. Send articles by e-mail to Don Twombly at <u>donw1fkf-news@yahoo.com</u>.

REMINDER: 222 MHz Activity Night Tuesdays 7 to 11 PM

ARRL June VHF Contest

(June 8-10, 2024) Contest Period: Begins 1800 UTC Saturday, ends 0259 UTC Mon http://www.arrl.org/june-vhf

NEWS Meeting 6 January 2024

at Storrs Library, Longmeadow, MA and by ZOOM Called to Order by Vice-President, KA1SUN, at 1314 **TREASURERS REPORT** Balance \$2668 5 renewals 43 Members 3 Life 13 Permanent 48 members not renewed yet **ELECTION OF OFFICERS** President W2AAU Vice President KAISUN Treasurer KC1V Secretary W1GHZ Directors - All current directors relected **UNANIMOUS**

New member WA1NLG. Made his 1st 6 meter EME contact recently

OLD BUSINESS

KC1V - Club hats \$20 shirts &35-40 add call \$14 K1MAP - Conference waiting to sign contract **2024 meeting schedule** 13 July

28 Sept

23 Nov

4 Jan 2025

SUGGESTION:

Membership list - add expiration date, Town, State, and Grid. Include in PDF on website. Approved by consensus **ANNOUNCEMENTS**

Berkshire repeater now has TAC316 fulltime/ KV1J/B 10 Ghz beacon in FN44 is on the air. 10368.400 FN44rc05gn Otisfield, Maine, 890 ft ASL

ADJOURN 1334

Followed by test session - test equipment by W2AAU & friends

Weekly Calendar

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Mon. Packrats Nets start at 7:30pm on 6 meters, 8 pm on 144.150, etc. Philadelphia area.
Tues. Mud Toads Net FM 17, Virginia 8 pm 144.250
Tues. Activity Night 7:30pm 222.100 K1WHS +
Weds Activity Night 432 K1FMS (N1DPM) +
Thurs. NEWS Net 8:30pm 144.250 Dan, K1BXC, Tolland, CT
Sat. Chesapeake Net 144.205 W3BFC FM28 9 pm

144.205 Mornings 8:30-9:30 AM -- 144.205 , 144.190, ME, Canada to NC and out to OH, WV

Treasurer's Report May 26. 2024

Beginning with this report, I will be reporting the checking account balances as shown on the most recent bank statements, rather than my calculated balance as of the day of the report. This will make it easier to reconcile the reported figures with the bank statements and will reduce the possibility of errors.

Balance, Last Report 3-23-2024: (Corrected Balance)	\$2860.65			
Income:				
Dues: Expenses	\$50.00			
PayPal Fees:	(\$0.90)			
Closing Balance, 3-31-2024:	\$2909.75			
There was no financial activity during	the month of April			
Closing Balance, 4-30-2024;	\$2909.75			
Current Paid Members:				
We had 5 new members and 34 renewal	s for this reporting period			
The membership totals are:				
81 Regular (Up 4 from last re	eport)			
3 Life				
12 Permanent				
Submitted May 26, 2024				
George Collins, KC1V				
Treasurer, North East Weak Signal Grou	p			

Officers:

President Dick Frey, WA2AAU, Delanson, NY Vice Pres. Eric Mazur, KA1SUN, Savoy, MA

Treasurer George Collins, KC1V, Somers, CT Secretary Paul Wade, W1GHZ, Cabot, VT

Board Of Directors:

Tom Williams	WA1MBA Orleans, MA
Bob Bownes	KI2L, Troy, NY
Mark Casey	K1MAP, Hampden, MA

Tom Cefalo W1EX N Reading MA

For Sale:

Fred

K1FMS

9 element G0KSC LFA yagi for 2 meters. 9 elements 14 foot boom built to the latest G0KSC specs. Comes with sleeve balun and N female connector installed and all tuned up. 1-1/2 years old....great shape ready to go. \$150 Can be picked up at my QTH or I can bring it to the picnic.

Contact K1FMS at n1dpmfred@gmail.com or call or text 413 519 3189

For Sale - Henry, KT1J 05/25/2024 I CAN DELIVER TO THE NEWS PICNIC IN JULY All items as is and plus shipping. Reasonable Offers Considered. Antenna/Dish pick up only 2 kW 6M Linear (2 x Harris 1kW amps, 2 x HP PSU's, tested 1800W) with spare module \$1900 300W 2M amp complete in case. 15W in for 300+ out. Needs 48v \$350 UT5JCW "Ukranian" 6M Transverter Tested. In case. Includes input attenuator \$95 UT5JCW "Ukranian" 70cm Transverter Tested. In case. Includes input attenuator \$95 PA3BIY 2M preamp (22 dB gain < 0.5NF) with adjustable filter (commercial 2-way rejection) \$250 GPS Timing antenna with pole mount \$25 Analog Devices ADALM Pluto Rev B SDR \$12 RCA small antenna rotor & controller \$125 Thrust bearing (max 2 ³/₄ inch mast) \$50 30 inch aluminum dish with radome - make offer Bird 4304 modified, new meter element \$50 DEMI LTRSB Sequencer Kit \$25 Harris Platinum 6M 1/4 module - \$100 Various Surge protector \$15 each SMA relays list: https://drive.google.com/file/d/1T5MQWF5s-OUDTinYD-MeVaY2HGdJ5v4ce/view?usp=sharing Pics: https://drive.google.com/drive/folders/1KtB6ae8XT_ahiZWXdDNmLgpNFLW3AXiw?usp=sharing Please reply to Henry or me via ORZ address. <u>(N1JEZ)</u> n1jez73@gmail.com

47th Eastern VHF-UHF-Microwave Conference

The 47th Eastern VHF-UHF-Microwave Conference was held at the Hilton Garden Inn, in Windsor CT, April 19-21, 2024.

We started off Friday with an informal Lunch at Jim's Restaurant, then an afternoon of talks and activity. Friday evening we had a Swap 'n Sell and Boast 'n Blab Social Evening in our hospitality room inside the hotel. Margie, K4MEP, and Terry Price, W8ZN, offered up their Directive Systems selections both Friday and Saturday.

Saturday we started off early at 8am with a full schedule of talks and demonstrations. Thanks to all the presenters and the ones that submitted papers. There were 2 Auctions on Saturday that put us over the top financially. Saturday Lunch at Jim's was an all-included for one price, Salad, Grinders and Drinks. Jim's always does a great job for a very reasonable cost.

As he done year after year Greg Bonaguide, WA1VUG of Rhode & Schwartz brought a range of test equipment for attendees to test their project performances. A BIG THANK-YOU to Greg for doing this for many years!

After the conclusion of our talks program at 4pm, we offered our Hotel provided private bar and then more socializing in the hospitality room before the Banquet Room doors opened at 7pm. There were positive reviews on the dining experience. We were fortunate to have ARRL CEO David Minster as our Guest Speaker.

Tom Kirby Award was presented to Don Twombly, W1FKF, for his outstanding contributions to the Weak Signal Community and for his many contributions to the Eastern VHF/UHF Conference over 50 years.

Tom Williams conducted the Sam Harris Memorial Quiz, won by Paul W1GHZ.

And we really need to say a BIG THANK-YOU to the folks on the DOOR PRIZE EX-TRAVAGANZA Committee: Lanette KA1NKD and Don Twombly, W1FKF, and to Mickie Clement, W1MKY. Mickie always gets enough prizes so everyone can come up to the Prize Table Twice!! And this year was no exception.

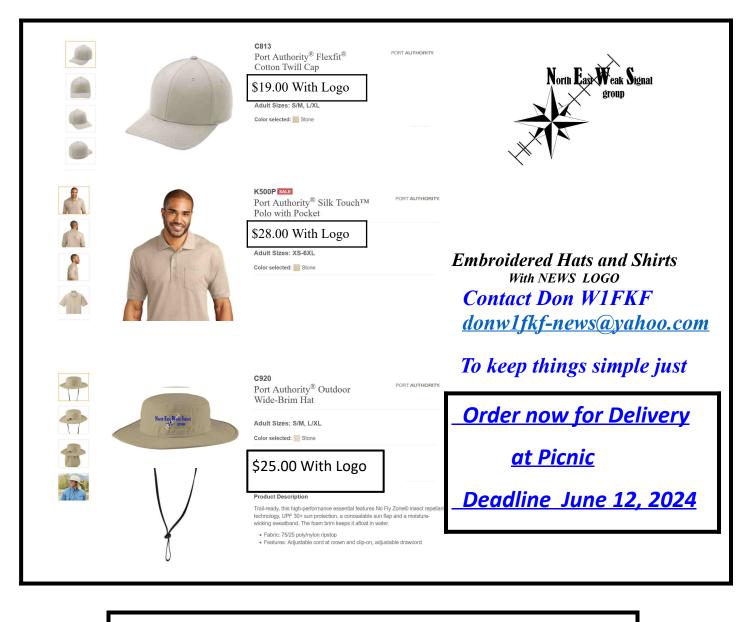
Sunday morning we arranged for a repeat of last years' Tailgate at the Vintage Radio & Communications Museum. Thanks to the Folks at the Museum who were Super Accommodating again this year.

Summing Up, we had decent weather for the weekend. Final count showed 84 Hams Registered with 73 at the Banquet. We made a little money, enough to fully fund the July Picnic! Everyone had a great time. We really like this hotel, and we expect to do it again next year.

All conference presentations and papers are available at: https://newsvhf.com/conf2024/2024papers.html Mark Casey, K1MAP, and Paul Wade, W1GHZ, Co-Chairs



Conference Pictures



Wanted to Buy:

The Providence Radio Association, W1OP, is looking to buy an Elecraft PR6 6m Pre-amp for the K3 transceiver (or the newer PR6-10). Contact Dave, K1DT at <u>president@w1op.com</u>

N.E.W.S Picnic Saturday, July 13, 2024, 10am-all day Swap 'n Sell from your tailgate or pick a table under pavilion MDS and ERP Testing Knights of Columbus Pavilion & Grounds 371 Washington Rd., (aka George Washington Road) Enfield, CT 06082 (22 mi N of Hartford, 8 miles S of Springfield) 42.016N., 72.559W, FN32ra (yes-this part of FN32 is in Connecticu Bring your Microwave gear Bring your Quansheng's! Your stories and experiences -- True or Not-- are all welcome. Show-Off Items without VHF+ interest, but with Entertainment Value may also be appreciated or ridiculed--take your chances, just keep it clean. All members, spouses, guests, and anyone interested in VHF+ operations, are Welcome to attend. Schedule (about) Noon-1pm -- Lunch 1pm -- Short NEWS meeting (No Elections!) MDS testing of your Microwave Equipment 10Gz & up We will have the following items like past years: Hamburgers (and Cheese) Hot Dogs Mustard- Ketchup-Mayo-Relish-Pickles Chips & Snacks Macaroni Salad or Potato Salad Soda-Diet Soda-Water-Beer-Iced Tea, etc If you would like to bring a side dish like a potato salad, or dessert, or whatever, Please Do!. Then, if possible, but not neccessary, please let me know what you are bringing **DIRECTIONS:** >From the South or North: I-91 exit 48 onto Rt 220 East (Elm St & Shaker Rd) Left At 9th traffic light, (GiGi's vegetable stand on your right) On to 371 Washington Rd., K of C is 1 mile on left. >or, from the North: I-91 exit 9, go south 1/2 mile on Enfield St Rt.5 At the traffic light at the North Thompsonville Fire Station, take a left on Brainard Rd. Drive 2 miles, take right on Washington Rd. K of C will be less than 1/2 mile on the right. Thank-You Mark K1MAP map92map@gmail.com

Picnic MDS and ERP Testing 2024

The July Picnic/ Annual Meeting will again feature relative (human and radio as a system) Minimum Discernable Signal and (relative) ERP testing on 10, 24, 47 and 78 GHz. Some call it the "Shoot Out".

Just as in previous years, to test for MDS, we set up a distant signal source with a keyer. After everyone has a chance to peak up on the signal, the signal level is reduced until you can no longer hear it, then you have found the MDS for



your system (compared to others). The difference is recorded in dB. It's all relative because the equipment and range are not calibrated. You decide how well your reception works, noting that some might be better because of larger dishes or better noise figures and stronger PAs. You can use your waterfall display or whatever tools for whatever purposes, but to be fair you must copy the CW signal by ear. Once you can no longer copy it (or basically cannot tell that it is there and keying <u>through your ears</u>) you have reached your minimum.

Finally, we also check relative ERP, each station transmitting one at a time and recording the relative power received at the distant point. We complete one band (MDS and ERP) and then move on to another.

This isn't a competition. It's a chance to check out the gear with friends around to help. Most folks have 10 GHz stations that work pretty well, while a few will find problems and fix before the 10 GHz & Up contest in August. Not only do we all know whether our equipment functions, and about how well, but also that there will be some other good stations to work. Unless something goes wrong, all signals will be within 1 kHz of the calling frequency.

I intend to have the MDS system operational by 10:30 or so, keying on 10368.100 CW. If you arrive early you can tune up. This year I will try to start the 10 GHz MDS test by 11 AM but will wait a bit if anyone is having trouble getting their rigs sorted. If you arrive late, then you might miss testing on 10 GHz.

If you are brining 24, 47 GHz or 78 GHz radios we will do those in that order after 10 GHz is done. We hope to get 10 GHz done and maybe start on 24 before the club meeting, but we will see how it goes. We can stay a little later than last year, so we can adapt a bit as we go. When 78 is done, I will go back to other bands if anyone has fixed a problem or needs a re-test.

We always need some help for setup and to run tests – thanks for the help!

Tom WA1MBA tomw@wa**1mba.org**



Quansheng UV-K5, & UV-K6 and their Rebadged Clones by K1MAP

Well, by now just about everyone has heard something about the Quansheng Handheld. They are a compact handheld with a lithium battery ranging from 1400 to 2200mah and come with a rubber duck type antenna that is tuned for 144-148 and 420-450 MHz. They are FCC certified for those 2 Amateur Bands ONLY. Most are complete with both a drop-in charger and a "USB-C" port enabling 2 ways to charge.



Stock, they tune at least 50-600 MHz in receive including FM Broadcast, NOAA Weather, Aircraft AM Band, Marine, GMRS, as well as many Fire, Police and Business frequencies.

With a few software strokes 222 MHz and some other bands on most units are enabled in RX&TX . On 144-148 and 420-450, the power out is around 4-5 watts on High. On 222 it's been measured by several hams to only about $\frac{1}{4}$ of a watt. I would not depend on the Power settings to be accurate at all. Some stock units I tested put out High Power on the Low Power setting.

These Quansheng and Quansheng type models would be almost like nearly every other handheld, except that with an easily completed Firmware upgrade, they will Transmit and Receive SSB and CW. The SSB is technically Double Sideband or DSB on the menu. But the units are easily understood on any USB or LSB transciever from an old Kenwood TR751a up to a new Icom-9700 and every rig in between. During a recent Coastal Tropo opening Ron, WZ1V in FN31 used his K5 and his home antenna (with no external amplifier!) to transmit to K1MAP in FM14, a distance of 480 miles. I heard Ron clearly in North Carolina. It just sounded like he was using a different rig—which he was! With the Firmware upgrade, the power output can much more accurately be set—Low-Medium-High. Many other settings are also made available.

The rig will accept CHIRP files and has 200 memories. Memories will hold many of the separate settings that are available. Most Firmware versions will let you save in CW, DSB, FM-Narrow, FM-wide, AM. NOTE: you should program the CHIRP file before doing the Firmware upgrade. W1FKF reports that in most cases, it is not necessary to reset after Firmware upgrades. Even then, you do not need to do a full reset and the CHIRP memories will be saved.

IJV and Egzumer are the most popular type of upgraded Firmware available at no cost. Most of us have found the IJV Firmware works the best. It is found by searching for IJV or UniverSirius. UniverSirius-IJV is an Italian company, but I found that the site was easily translated to English by Windows 10 software. IJV has several versions of Firmware upgrade. If all you desire is the basics of an improvement to the standard software and don't want to get into detailed changes, choose IJV Version 2.9R5. If you would like a more extensive menu, choose IJV Version 3.12, 3.13 or 3.14. Ron, WZ1V, reports that versions above 3.14, although available, have some inconsistencies, so those are Not recommended. It is usually not needed to reset after the Firmware Upgrade.

The HT can also be used as a beacon, and there are places in Menu to enter your callsign, and CHIRP will let you enter your Grid. Please take note that it can be modified to receive and transmit most anywhere between 20 and 1300 MHz, but those transmissions may be well out of FCC specs.

CAUTION: There have been reports that at some frequencies indicated, the actual signal may be even stronger on some other (unintentional) frequency that will be unknown to the user, unless they are attached to a signal generator using a very wide setting.

There are several models and several companies that are rebadging the Quansheng HT. Prices are Total of best Amazon(A) or Ebay(E) price+shipping+SalesTax in MA/CT/NY/etc. included.

K5 type units, which are basically the same, except some with color changes and/or slightly different plastic pattern on the front. Unless noted they come with at least a 1400 mah Battery, 200+ memories, the Drop-in Charger, 144/440 Antenna, Belt Clip, Brief Manual, Hand Strap. Most have a built-in Flashlight. There are a very few models that do not have the USB-C port. Quansheng UV-K5 E\$29 Quansheng UV-K5(99) choice of 4 accent colors-partial case A\$30 Quansheng UV-5R plus – has 2200 mah battery A\$32 Anysecu UV-K5 A\$29 JucJet UV-K5 A\$40ea -- 2 for \$54 Lseng UV-K5 promised 2200 mah battery but came with 1600 mah A\$35 Radtel RT590 A\$30 Radtel RT600 -- same as UV-5R Plus, has 2200 mah battery A\$30 Retevis RA79 E\$33 Ruyage UV3D A\$35 Wurui UV-K5 A\$47

These are all K6 type which is distinguished by the 4 bolt metal frame around the display and have a better speaker. Most everything else is the same as the K5.

Quansheng UV-K5(8)E\$28Quansheng UV-K5(8) UV-K6 --or—UVK6 UVK5(8) same unit E\$32Quansheng UV-K6A\$33Quansheng UV-K6 Orange or Green (nearly entire unit is color) \$41

Prices change daily and models come and go, but the price TOTAL has stayed around \$30 for the basic K5 and around \$35 for the basic K6 for several months. So far, most of the rebadged units are identical and will take the Firmware upgrades so, be the first on your block to get a set of JucJet's.

For next years' Kentucky Derby if I see Horses named "Quansheng" or "JucJet", or "Retevis" or "Ruyage" you can bet I'll be putting my money on one of them!

For much of this information, and for programming and showing me how to program these rigs, Thank-You to the regional "Quansheng Experts" who have fiddled with and tortured these handhelds—Don W1FKF, Ron WZ1V, Fred K1UU, and Mike N1JEZ

Bring your Quansheng or QS Clone to the Picnic!

73 Mark Casey, K1MAP map92map@gmail.com

Simple and Cheap Preamps

For the Simple and Cheap Transverters Paul Wade W1GHZ ©2024 <u>w1ghz@arrl.net</u>

Many hams have built my Simple and Cheap transverters (w1ghz.org) and desire a little more performance. An simple ¼ watt amplifier (N.E.W.S. LETTER, September 2022) gets the transmitter up into the pipsqueak range, and a preamp can improve receive performance.

There are some good preamps on the market, but most of them cost more than a whole transverter. With the right MMIC, it should be possible to make a good preamp as simple as the transverter. I recently described some unconditionally stable LNAs (https://newsvhf.com/conf2024/2024papers.html) with very good performance, but those MMICS come in a tiny leadless package that can't be soldered by hand. Mike, N1JEZ, was able to assemble them by reflow soldering in a toaster oven, but something solderable by a human would be preferable.

While I was ordering parts from Mouser for the LNAs, I found a MMIC intended for GPS receivers, specified with NF=0.4 dB. This part, the CAEL CA3509M4, comes in a tiny package with 4 leads for less than \$2. I ordered some to see if they would work at 1296 MHz – that transverter has a rather high noise figure and needs some help.

Simple Preamp

Since the parts were cheap, I had ordered them hoping to find a way to fit them on an existing PC board. When I opened the package and looked at the data sheet, I found that they would fit on my "Universal MMIC" board, the same one used for the ¼ watt amplifier. I built several with part values close to the data sheet circuit. They worked well at 1296 MHz, but not at lower frequencies, so I built another with larger capacitor and RF choke values, shown in Figure 1.



Figure 1 – Cheap and Simple Preamp

The larger component values improved low frequency performance, so I built three more to verify that it wasn't just a lucky one. Noise figure for seven preamps is shown in Figure 2. The three units with data sheet component values have very little gain below 400 MHz, while the other units with larger component values have NF well under 1 dB from 2 meters through 1296 MHz. Gain is about 20 dB at the lower frequencies, falling to about 17 dB at 1296 MHz.

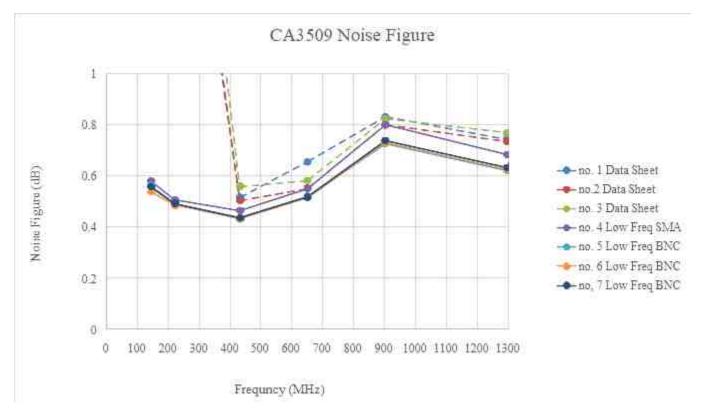


Figure 2 – Simple and Cheap Preamp Noise Figure

The preamps should also be useful at 2300 and 3400 MHz, with NF under 1.5 dB, but with less gain, around 12 dB at 2304 and 10 dB at 3400.

The schematic is also simple, shown in Figure 3. Per the data sheet, C1=22pf, C2=4pf (I used 5pf), C3=1000pf, and L1=6.2nh (I used 8.2nh); these have dashed lines in Figure 2. For the lower frequency version, C1, C2, and C3 are all 100pf and L1=33nh. Fiddling with component values might optimize for one band, but I'm sticking to simple.

MMIC Low-Noise Amplifier

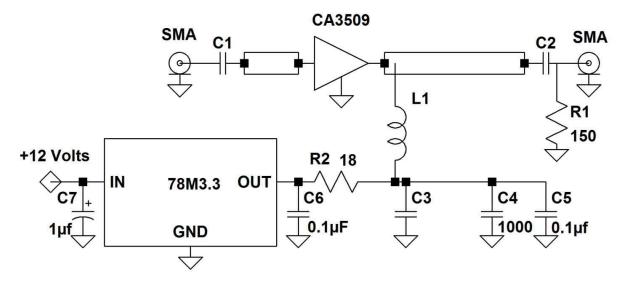


Figure 3 – Cheap and Simple Preamp schematic diagram

Note the resistor at the output – this is a hint that this part is not unconditionally stable, and the resistor improves stability, at the cost of a few dB of gain.

Construction

Construction is pretty straightforward, just solder the components to the PC board. The trickiest part is the small MMIC – magnification will help. I use a stereo microscope, but a good magnifier should be adequate.

The last three preamps were built with BNC connectors rather than SMA – I had some PC boards with BNC footprints rather than SMA and I grabbed them by mistake. I didn't notice until all the other parts were assembled. The performance doesn't seem to be affected. It took about 1.5 hours to build all three.

The Universal MMIC PC board is sized to fit in the smallest Pomona box (Model 3754), like Figure 4, but the box costs more than the preamp. A small Altoids box is an alternative, or the board could just mount in a transverter case.

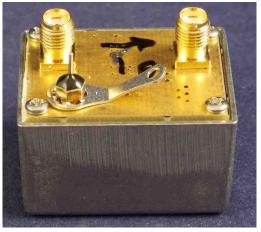
Figure 2 – Preamp board in Pomona box

Summary

These simple preamps will improve performance of the Simple and Cheap transverters and probably many other rigs. They use cheap parts and are easy to build.

They are broadband amplifiers, so will amplify all the unwanted stuff as well. In most good locations, there is a lot of crap -- a good filter can make a huge difference and is highly recommended.

> Paul Wade W1GHZ ©2024 w1ghz@arrl.net



QST Magazine

After September 1st 2023 and before July 1st 2024 existing ARRL Life Members need to let the ARRL know they wish to continue to get their mailed magazine, or the implid default action is that they will be converted to a "Life Digital Member" to save the ARRL printing and postage

Looking for new Club Trustee Must be control op for beacons (now on RR property). Is a younger person willing?

for more info

Contact Ron WZ1V <u>wz1v@arrl.net</u>

International EME 2024 Conference August 9th to 11th, 2024

Don't miss the International EME 2024 Conference, happening near Trenton, NJ (in Ewing). Hosted at The College of New Jersey campus, centrally located near Washington DC, Philadelphia and New York City, this conference is dedicated to exploring the fascinating world of Earth-Moon-Earth Communications (EME). Join us at the 20th EME Conference to learn from expert speakers in the field and discover the latest advancements in Moon-bounce.

We will be also offering a separate full one day (Friday) Intro to EME (EME101) course. Visit the <u>EME101 page</u> for more information.

Microwave Update 2024 British Columbia, Canada October 3-5 2024

Come join us in Beautiful BC for Microwave Update 2024. Rub shoulders and chat with the leading microwave enthusiasts in Amateur Radio. Attend our extensive presentations. Take advantage of our test labs. Peruse the Demo area. Bring your Spouse. https://microwaveupdate.org/

Conference Supporters



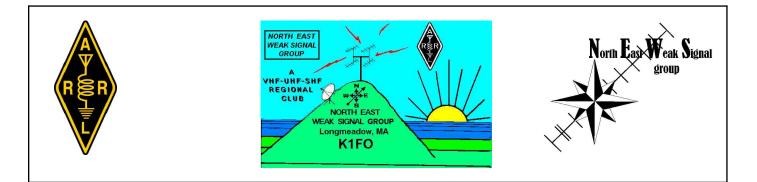




W1MKY W1GHZ W1FKF /KA1NKD N1JEZ KT1J North East Weak Signal Group

Door Prizes: Mickie W1MKY, Don W1FKF Lanette KA1NKD

If we missed any Supporters Contact Don W1FKF, Mark K1MAP



MEMBERSHIP APPLICATION

Date:						
Name:						
Call sign:	Grid:					
Street:						
City:		State:		Zip:		
Phone (home)		Optional (w	ork)		-	
Email						
ARRL member: Y N						
Electronic Newsletter Delivery:	Y N					
Operational Bands (circle)		5.6 GHz		432 MHz 24 GHz		

The North East Weak Signal [N.E.W.S.] Group was established in 1993 to form a camaraderie among fellow VHF-UHF-Microwave enthusiasts and support a convenient means to exchange technical information. We currently have six meetings per year, 4 are held on at the Storrs Library on Rt. 5 in Longmeadow, Mass., 1 at our annual Conference in April, and 1 at our Annual Picnic in July. We provide a "NEWSLETTER" that is distributed via email two weeks prior to each meeting. Any contributions to this publication are appreciated and can be sent to: Don Twombly, W1FKF by email to <u>donw1fkf-news@yahoo.com</u>

Dues are \$10 for 2 years. Please contact or mail application to: NEWS Treasurer, George Collins, KC1V, 105 Ninth District Rd., Somers, CT 06071 or E-mail: news.kc1v@gmail.com

Treasurer

North East Weak Signal Group

c/o George Collins KC1V 105 Ninth District Road Somers, CT 0607 <u>news.kc1v@gmail.com</u>

NEWSLetter

North East Weak Signal Group

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