The VHF Transmitter

Keystone VHF Club, Inc. W3HZU Founded 1955 – York, PA

VOL 58 No 3 **CIRCULATION 150** **March, 2013**

It's Been a Great Year so far and it's Only March!

Activity up at the club has again been great! The "Honey Do" list of things that need resolved is almost completed and incredibly, we are fixing things faster then they break!

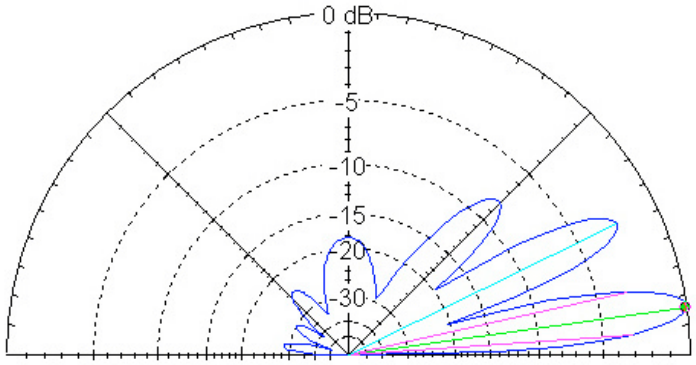
The Tech Committee chaired by Tim Beck, KB3OFE has made significant improvements to our data network. Probably most of you didn't realize that we do have a computer network at the club. It controls connectivity to our video servers for club security, supports EchoLink connections to both the 2 meter & 70 cm machines, enables us the have StarNet on the 6 meter machine, provides a connection to the appropriate servers for our APRS node, gives us our internet out in the main club room, and is about to quite a bit more in the next year.

Tim, KB3OFE recently purchased a "Rasberry Pi" … no, it isn't what you think. While Tim, like most of us enjoys gourmet dining, in this case Rasberry Pi is the name of a cool little microprocessor board that runs the Linux operating system. The cost of this was about $40 and with it, Tim hopes that we will see new capabilities such as getting our ATV repeater back on line, allow members to watch video from our critter cameras located at the club and on top of Conewago Mountain, and control virtually anything and everything at the club. Perhaps most importantly, it may stir up interest to experiment with this technology!

The Raspberry Pi is a single-board computer developed in the UK by the Raspberry Pi Foundation. The Raspberry Pi is a credit-card sized computer that plugs into your TV and a keyboard. It's a capable little PC which can be used for many of the things that your desktop PC does, like spreadsheets, word-processing and games. It also plays high-definition video. This revision 2.0 board features two mounting holes, a built-in reset circuit, and can be powered via the USB data ports. It does not come with a real-time clock but one could be added via the 12C interface.

While all of this high tech stuff is going on, we haven't forgotten the more traditional aspects of Amateur radio. The TH-7 HF beam is ready to go up, our new 2 meter SSB antenna has also been put together and is ready. **Finally, we have just purchased a new 6 meter beam that will go up on the tower with the TH-7.** We will have operating positions on all bands from 160 meters up through 1296 MHz … and we are going to encourage people to come up and operate! This will be a station that every member can be proud of!

In the adjacent column is shown our new InnovAntenna 5 element 50MHz LFA-HG Yagi (3.9m). This compact (13 foot boom length) 5 element 50Mhz Loop Fed Array (LFA) is advertised to provide exceptional performance across the important section of the 6m band (50.00 - 50.300MHz). It has a direct 50 Ohm feed-point with theoretically no matching losses. It has an advertised gain of 10.67 dBi at 50.150 MHz and a F/B ratio advertised at 27.1 dBi. This antenna is made with single piece (center join at insulator) 1/2 inch (12.7mm) elements with 3/8 inch (9.525mm) diameter loop end sections. It has been optimized to provide class-leading gain for its given boom length. However, this may be at the detriment of antenna SWR during wet and extreme weather.



As well as having a narrow beamwidth in the horizontal plane, it also has a narrow 8.5 degree beamwidth in the vertical plane resulting in the low pickup of unwanted atmospheric & background sky noise.

50.15 MHz

Elevation Plot		Cursor Elev	8.0 deg.
Azimuth Angle	0.0 deg.	Gain	16.15 dBi
Outer Ring	16.15 dBi		0.0 dBmax

Slice Max Gain	16.15 dBi @ Elev Angle = 8.0 deg.
Beamwidth	8.5 deg.; -3dB @ 4.1, 12.6 deg.
Sidelobe Gain	13.85 dBi @ Elev Angle = 26.0 deg.
Front/Sidelobe	2.3 dB

Finally, a comment about the weather announcements on our repeater. I have heard weather radios interfaced with other repeater systems and while they are useful, they can be invasive to the point of impairing communications in periods of severe weather when repeater access is needed the most . Tim has set up the interface on our machine to provide weather advisory and warning information intelligently giving only enough information so the listener knows some kind of weather event is taking place. It is then up to the listener to tune to the NOAA weather channel or his or her choice of commercial radio to find out what is going on. Similar capability has been incorporated into other area repeater systems and has been expensive to implement. Tim set up our machine with this capability using a $35.00 weather radio he purchased off of the internet!

NEXT MEETING
Thursday, March 7th, at the York County EOC
On Davies Road

YARS has been quite busy during the last month. Sandy Goodman, N3ECF, has taken over the position of EC/ACSO (Emergency Coordinator/Auxiliary Communications Service Officer). She is the liaison between YARS itself and state & local governmental activities. She is responsible for the coordination of communications functions between YARS and these activities. Sandy is also the secretary of the Keystone VHF Club and is the secretary for the Amateur Radio Work Group (ARWG) which is part or the South Central Pennsylvania Task Force (SCTF) under the Department of Homeland Security. It should also be noted that many of our YARS members are also part of the ARWG.

YARS and Amateur Radio in general enjoy a healthy relationship with local government in the York County area. The York County EOC on Davies Road and 11 other York County EOC's all have Amateur Radio capabilities funded by the county. Even our 2 meter repeater on 146.97, a $20,000 piece of equipment and our 11 KW emergency backup generator was given to us by York county. If I remember correctly, about 15 or 20 years ago, when quarter million dollar houses started surrounding our clubsite, we started taking flak from some of the home owners. They felt that we were an eyesore. Well York County and Springettsbery township stood behind us and we haven't had any trouble since. One of the reasons that Amateur Radio has survived (and even flourished) in today's environment is because of the perceived benefit that we provide to the public and many local government activities. It is in our best interests to continue to provide this service and to even improve on it!

On Wednesday, February 20, YARS ran a communications test between the York County EOC and all 11 other county EOC's. We tested on several 2 meter and 70 cm repeaters. For the first time I remember, we also had a comprehensive test on 2 meter simplex between these EOC's and the main York County EOC. Out of the 11 EOC's, we had good simplex communications with 8 of them. Fairview township was marginal and probably could be moved up to satisfactory with the replacement on an antenna. Conewago Township EOC had a perceived antenna problem which has been corrected by an ace troubleshooting team made up of YARS personnel. The operator at Dover Township EOC was using a J-Pole inside the building for the test. This was impossible to copy at County. AT this time an antenna funded by the county is not planned to be installed at Dover so amateurs there will have to supply their own. The Lewisberry EOC is located in an RF hole and the operator on duty made the attempt from his automobile. He was probably parked down near the EOC which would make it impossible to reach county via simplex. Rick Reese, KR3EE is taking an antenna to that site and either installing it himself or directing the installation.

Continued on Page 3

Scheduled Club P.S. Events for 2013

* **April 21, 2013 - MS Walk at Rudy Park (Chip, W3FJD)**
* **April 28, 2013 - Iron Masters Challenge Superhike at Pine Grove Furnace State Park (Jack, KC3JD)**
* **April 28, 2013 - March of Dimes Walk-a-thon at Rudy Park (Dick, WA3USG)**
* **May 26, 2013 - Bob Potts Marathon on NCR Trail (Jack, KC3JD)**
* **June 8 - Diabetes Tour de Cure Mountain Bike, Grantville (Marty, KB3BAA)**
* **July 4-7 - Gettysburg 150th Re-Enactment**
* **July 13, 2013 - MS Bike Tour in Gettysburg (Sandy, N3ECF)**
* **July 27-28 - Horse Trail Ride Camp Weiser (Marty, KB3BAA)**
* **Sept 7 - KTA Superhike (Ken Wiggens, N2DYK)**
* **Oct 20 - Hershey Half Marathon (Marty, KB3BAA)**
* **Oct 27 - Michaux Team Challenge (Dan, KB3MUN)**
* **Dec 24-25 Glen Rock Carolers (Stan, AB3EM)**

Local area nets:

Capitol Area Traffic Net starts **Monday at 8 PM** on the South Mountain Radio Amateurs (SMRA) repeater on 145.46 (67.0 tone), 1 MHz offset. All properly licensed radio amateurs are invited to check in, with or without traffic or experience

The Combined Club ARES/RACES Net meets **Monday at 8:30 PM** on the Keystone 147.97 Repeater (Tone: 123 Hz).

South Mountain Radio Amateurs (SMRA) Net on **Monday at 9 PM** on the 145.43 (Tone: 67 Hz) repeater located in Mt. Holly Springs. ***After the normal FM net, a group moves off to 144.210 MHz and operates SSB.***

The Keystone VHF Club Digital Net on **Tuesday at 8 PM** on the York 146.97 Repeater.

The Keystone VHF Club Digital Familiarization Net on **Wednesday at 8 PM** on the York 146.97 Repeater.

The Keystone 75 meter net on **Tuesday at 9 PM** on a frequency to 3820 to 3840 KHz (+ or – the QRM). In the Summer, the net is suspended.

The Quarter Century Wireless Association (QCWA) net meets on **Wednesday at 9 PM** on the York 146.97 repeater.

A local FM Simplex Net runs **Thursday at 8:30 PM** on a frequency of 146.55 MHz.

The Digital Roundup Net **Friday at 8 PM** on the 146.610 (Tone: 131.8 Hz) repeater in the Lancaster/Lebanon area.

WLO Marine Radio in Mobile AL has begun broadcasting a RTTY news service on 8473 kHz. It appears to run continuously. They alternate between 45 Baud Baudot and SITOR Mode-B FEC ("AMTOR" to we hams). Its kind of fun to copy, and a good way to test out your RTTY setup.

**** Listed below are some local 10 meter nets ****

Ham Shack Talk Net - Monday at 9 PM: 28.335 MHZ.

South Central PA SSB Net - Friday 8:30 PM: 28.495 MHZ.

Delaware Lehigh Valley ARC Net - Sunday 4:00 PM: 28.430 MHZ

Do Drop In net - Sunday 8:30 PM: 28.450 MHZ

Penn- Mar Club net - Tue. 8:30 PM: 28.495 MHZ.

YARS … Continued from Page 2

Once these installations have been completed, all 11 of the EOC's will have simplex connectivity with County. One may ask why is this so important … All of these EOC's participate in the Three Mile Island Nuclear Power drill. We have participated and have provided backup communications during this event for the last 20 years! In the past, we have always relied on repeaters to enable all of the EOC's to communicate with county, this is considered a communications infrastructure. It may be one that we control and maintain but it's still one of the weakest links in our backup communications plan. Having **tested** simplex capabilities between county & the other EOCs means that there is **NO infrastructure necessary** for us to perform our mission … a big feather in our cap! The cellular phone system can't say this, nor can the county radio system. "No Infrastructure necessary" is one of our biggest selling points!

We will hopefully be testing this new capability by holding one of our nets on simplex during the TMI drill in April. If everything goes as planned, we intend to run the data net on simplex between county and three of the other EOC's. This net may be used to pass both voice and higher speed data traffic.

Exchanging message traffic by data transmission has been something that YARS and other club members have been involved in for over 3 years now. Over the course of this time our capabilities have evolved from sending simple typed text messages and small text files to our current state of being able to scan in ICS forms and transmit them. Right now we are greatly limited by the number of people who have this capability but our numbers are slowly growing. A 2 meter rig, a laptop computer, and some kind of simple computer to radio interface is all that is necessary to become involved with this. As well as using this with EmComm and YARS, it may be used to make enjoyable over the air contacts with amateurs all over the world.

Emergency Communications (EmComm) is a very important aspect of our hobby. It is probably one of the principal reasons that we exist. YARS is one of the entryways into EmComm in the York County area. It can be fun, challenging, and sometimes just a little frustrating but it is certainly worth it. Our club has greatly benefited from our participation in the form of the equipment we were given by the county, and the visibility it has given us. We participate in many functions that the county requests us to. The TMI Drill, the Peachbottom Nuclear Power Drill, Weather drills, The Wide Vigilance Drill … these are a few. We also work with the club to assist in many public service events. The MS Bike Tour, the Ironmasters Challenge Hike, the March of Dimes Walk, and the MS Walk and more.

If you would like to become involved in this organization, please let us know … we would welcome your participation. Talk to Sandy, N3ECF, Jack, KC3JD, Dick, WA3USG or just ask anyone in the club to point you to a YARS member! YARS is not a club, it is an organization dedicated to EmComm & Public Service.

So how did the simplex test from the York County 911 center turn out? The results of the test are detailed below. The data in the "Path Loss" column comes from a commercial RF plotting program and takes into consideration topographical obstructions between York County and the EOC under scrutiny.

Location	Signal Rpt	Path Loss
Fairview	2	160 dB
Warrington	4	140 dB
New-Lew	N/A	140 dB
Goldsboro	4	140 dB
York Haven	5	130 dB
Conewago	N/A	130 dB
Dover Twp	N/A	120 dB
Manchester	5	120 dB
NEAR	5	120 dB
Hellam	5	100 dB
Springettsbury	5	90 dB

Signal Report Criteria

0 - Not copyable

1 - Extremely weak (not usable)

2 - Noisy but usable

3 - Little noise

4 - Strong

5 - Full quieting

As can be seen above, the results of the actual signal strength report coincides fairly closely with the predicted path loss. According to this, the three EOC's that we had inconclusive results from due to various issues should be able to reach the York County 911 center on simplex after these issues are resolved. At least we hope so!

The Three Mile Island (TMI) Nuclear Power Drill will be held on Tuesday, April 16th. We are still asking for volunteers to help out at this event. If you have never taken part in the TMI drill but would like to get your feet wet and participate, we will put you with one of our experienced communicators. Our communications for this drill will be run from the York County EOC on Davies Road. There are 11 other local area EOC's that are going to participate in this. We still need communicators in some of them. The participating EOC's are listed above . If you are interested please contact Sandy, N3ECF by phone at 697-2353 or e-mail

Slgoodman1@verizon.net

The VHF Transmitter

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Larry, N3LED

Thierry, KB3TPX

Jeff, KB3RCT

Trustees Report - No report this month

Well so far winter has been good to us! No major buildings and grounds issues so far and only a few weeks until Spring. We will be setting a Spring clean up date in the near future. If you have any issues you would like to see addressed at the clean up, please let one of your loyal trustees know and we will try to get it on the list!

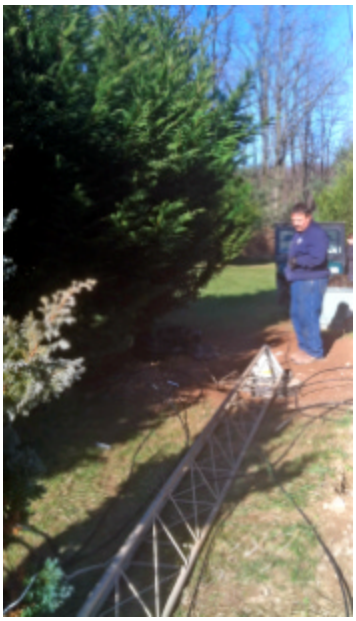
Thanks!
The Trustees

A Tale of Two Towers - Part II
"All you need is a Polaris ATV"

Not wanting to be out done by Dan, KB3JSV, Chris Shover, KB3TWW decided to put up a tower of his own. While Chris's tower at 30 feet wouldn't be quite as high as Dan's 40 footer, it would be erected with three antennas on it. It would also be put up by only three people, the OM Chris himself, his XYL Lorrie (KB3ZLO), and yours truly, WA3USG!

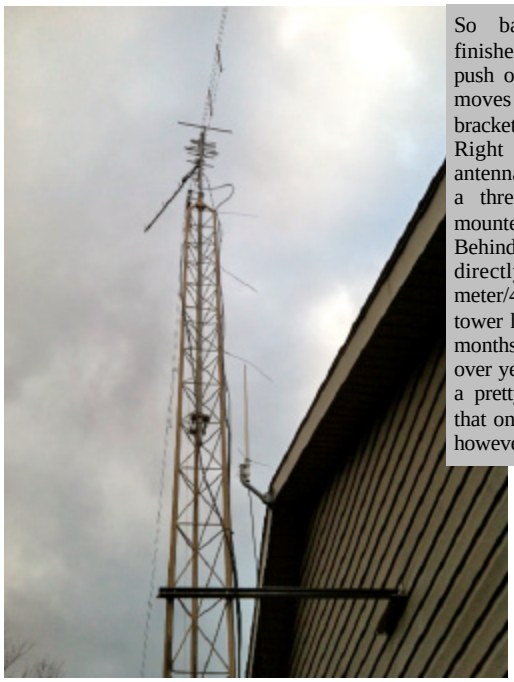
Chris and I spent the morning ensuring the antennas were securely fastened to the mast protruding from the top and trying to lift the tower up a bit to get an idea if we could just walk the whole thing up … we decided that we in fact could. The bottom was securely fastened to a tilt over base. So we looked at the tower and pondered "What did we miss" … then we stood back and pondered some more. What did we forget? We certainly didn't want a repeat of the "Tim's cut finger incident" that we ran into when we took down Dan's tower.

Okay … remember reading above when I said that we lifted up the tower a couple of times just to make sure that we could "walk it up?" Well after we decided that we could, we added the long mast at the top … suddenly we were not so sure any more. We tried lifting it again and discovered that we were groaning and huffing & puffing a lot. Maybe walking it up wasn't going to work.



At this point it became obvious what we needed to do … we needed to ponder some more. To the left is Chris wondering how in the hell are we going to get this tower up? There was only two of us and even though we tried several times, we knew that we just didn't have the horsepower necessary to tilt the tower up in place. It was that damned mast sticking out of the top that was causing most of the problems. The mast itself wasn't all that heavy, but with the antennas bracketed to it, it simply put it over the edge! We were talking with Dan, N3EEI on the radio but didn't think that even the three of us plus Lorrie could raise it. There had to be a better way. I am not sure who came up with the idea to use the winch on the ATV to do it but a decision was made to give it a try. Chris moved the Polaris to a spot where he thought he could get the necessary leverage to pull the tower up with the winch. We decided that Lorrie would be the one to operate the winch while both Chris & I would lift the tower about 4 feet to get it started. We got everything ready, took a good hold of the tower and lifted! Lorrie started the winch and took the slack out of the line. Slowly

but surely the tower started to rise. Moving about 5 feet at a time Chris would call out for Lorrie to start and stop the winch. It probably took about 90 seconds to pull the whole thing up to a vertical position. Chris put the final bolt in the tilt over base to lock the tower in place. I climbed up about 15 feet (that's my limit) and disconnected the winch line from the tower. We were done! Or were we? While the tower was only 30 feet in height, if you pushed on it, it swayed around a lot!! Chris really tightened up all the hardware on the base but the tower still swayed. I guess the part in the Rohn tower manual stating that a tower on a tilt over base could not be self supporting was right! We had hoped that a 30 foot tower might be an exception to this but apparently it was not! We needed a house bracket! Chris rooted around a bit and found some angle iron. Within 45 minutes, after a little hack sawing, drilling, and even a little hammering we had a first class number one bracket ready!



So basically here is the finished product. You can push on it now and it barely moves at all. The house bracket really did the job. Right now there's a TV antenna, a 440 MHz yagi, and a three band Inverted Vee mounted on this monster. Behind the tower and mounted directly to the house is a 2 meter/440 MHz omni. The tower has been up for about 2 months now and it hasn't fallen over yet so I guess that we did a pretty good job! I suppose that only time will tell! I does however need more antennas!

Keystone VHF Club General Meeting Minutes of February 7, 2013

By Joe Imgrund, KB3TCM – Acting Secretary

The general meeting of the Keystone VHF Club was called to order by President Dick WA3USG at 1902 hours. There were 28 members present but no guests.

Technical Happenings: Today (Feb 7th) was day two of the FEMA drill in Emmitsburg, MD. Although deemed a success, the two day event was a challenge due primarily to close quarters and an overabundance of RFI within the facility. Both 446 MHz and 2 Meters were used but neither band proved to be the remedy. However, it was a good learning experience.

Secretary Report: Sandy, N3ECF. The minutes of last month's meeting were distributed via e-mail and are in the club newsletter. There were no changes recommended. Steve WB3EFA move to accept the January minutes as published. Jack (KC3JD) seconded the motion. Motion carried.

Treasurer Report: Linda KB3EBV, reported for January: Income: $1,133.16; Expenses: $1,023.3; NET Total $109.78. Balances: Club CD $7607.41; Bill Hurst CD $2516.36; Checking Account $3581.69; Trustee Account $265.54; Total 13,971.00. Al (WB3FTD), moved to accept the report; 2nd by Steve (WB3EFA), motion carried.

Trustee's Report: Larry (N3LED). Everything is in good shape, nothing to report.

Technical Committee: Tim (KB3OFE) covered the following topics:

- The weather alert is up and running on the 2 Meter repeater. If it is in warning status, the time out feature on the repeater is shorter than normal.
- Tim displayed the $39 PC that he is hoping to use with the controller for the ATV repeater.
- The 2 Meter repeater is announcing the power supply status—generator, or battery—via altered courtesy tones. Tim B (W3TWB) recommended measuring out a cable run long enough to reach from the repeater to portable Honda generator for additional backup capability.
- There is a new router at the club with new passwords. Dick will send the information on an e-mail once he acquires them from Tim.
- Tim asked everyone to leave all equipment as you found it when you arrived (e.g. antennas grounded, etc.)
- It was recommended that we don't do anything, at this time, with the HF amplifier that was donated to club.
- Tim (W3TWB) began a discussion regarding an alternate use of the $1000.00 previously authorized to hire a crane for tower work. If club members will do the climbing and related antenna/tower work, Tim suggested the $1000.00 could instead be used to purchase a 6 meter beam, coax, and connectors. After a good discussion, Tim made the motion to spend the $1000.00 previously approved for tower work, to instead be used for a 6 meter beam, coax, and connectors. Brad (KO3T) moved to accept, Rich (KR3EE) seconded the motion. The motion carried by voice vote.

RACES/ARES: Sandy, N3ECF. First aid training for club interested members will be March 23 at the York County EOC. The TMI drill will be April 16th. Jack (KC3JD) indicated that the drill will be an intruder test. Public service events supported by the Keystone club are on the website.

VE/Public Education: Steve, WB3EFA. There was no testing session in January as no one signed up. There is one person enrolled for the March testing.

Contesting: No report.

Newsletter: Dick, WA3USG. The newsletter was sent out prior to the meeting.

Old Business:

- 2nd reading for Micah Neff KB3TGY
- Sandy (N3ECF) – The holiday party, for the first time, was actually a money making endeavor. Income was $500.00 with expenses on at $460.00.
- Tim (W3TWB) discussed the scenario with the repair bill for the generator. Although the estimate (which may only have been verbal) was for $200.00 plus one hour of labor, the actual bill was for over $900.00. Tim will work with the Trustees and the vendor to work out an amicable resolution.
- Ann (KB3ZLJ) discussed the details of the CPR class scheduled for March 23rd. The training will be from 8:00 AM until about noon or 1:00 PM. Rich (KR3EE) generously offered to subsidize the cost of the training which will reduce the cost per person to only $5.00. Thank you Rich. March

New Business: 1st reading – Nathan Herr, KB3SES

Good of the order: K3JIM offered member a chance to trip down memory lane via two books containing pictures and descriptions of ham gear over the last fifty years.

There was no 50/50 drawing.

Motion to adjourn at 2015 hours, moved to approve by Steve (WB3EFA) and seconded by Tim (KB3OFE)

Schedule of Keystone VHF Club Sponsored VE Testing for 2013

Laurel VE Group Testing sponsored by Keystone VHF Club are held the second Saturday of the odd months. All tests are at 10 AM, pre-registration is appreciated except the Hamfest. Contact, Ralph Brandt at ralph.brandt@comcast.net or phone 717-792-1017.

Locations are York EMA Office at 120 Davies Road, York, or Keystone VHF Club on Deininger Road, York, near the Rocky Ridge Park

Testing dates:

March 9 at York EMA office
*** maybe at York Hamfest in April
May 11 at York EMA Office
July no test cancelled due to MS Bike Tour
Sept 14 at York EMA Office
November 9 at York EMA Office.

Gang,

Please think about writing a monthly column for the newsletter! I need articles. What interests you? What could you contribute that you think everyone would enjoy? This is your chance to become a top notch Arthor! Weather it be a controversial "soapbox" article or a technical masterpiece, we will print it! This is your club and YOUR newsletter. There are a lot of new members that I'm sure have varying interests, please make yours known! Drop me an e-mail at wa3usg@verizon.net. 73, Dick, WA3USG

KEYSTONE VHF CLUB OF YORK, PA

W3HZU

Membership Application

Name: _____ Phone: _____ _____ - _____

Address: _____ Callsign: _____ Expires: _____

City: _____ State: _____ Zip: _____ Lic Class: _____

Occupation: _____ E-Mail: _____

Membership Desired

Full → Full Club Privileges
$20.00 annually & one time $5.00 Application fee

Family → Sponsoring members call: _____
Privileges same as Full membership
$5.00 annually & a one time $5.00 Application fee

Associate → Repeater Support
$20.00 annually & a one time $5.00 Application fee

Are you a member of:

ARRL	Y-N
ARES	Y-N
RACES	Y-N
QCWA	Y-N

Special Areas of Interest (circle all that apply)

AM Antenna building ATV Contesting CW Digital (Packet, RTTY, PSK-31, etc)
DX FM HF QRP Satellites SSB SSTV SWL Tower climbing LF DSP
UHF/Microwaves VHF Astronomy Photography Other: _____

Application & Dues Mailing Address:

Make checks payable to: ***Keystone VHF Club Inc***. Mail to: ***PO Box 20143***
York, Pa. 17402-0140

FOR CLUB USE ONLY
First Reading Date: _____ Second Reading Date: _____
Date voted IN-OUT: _____ Date Dues Collected: _____
Applicant Sponsored by: _____